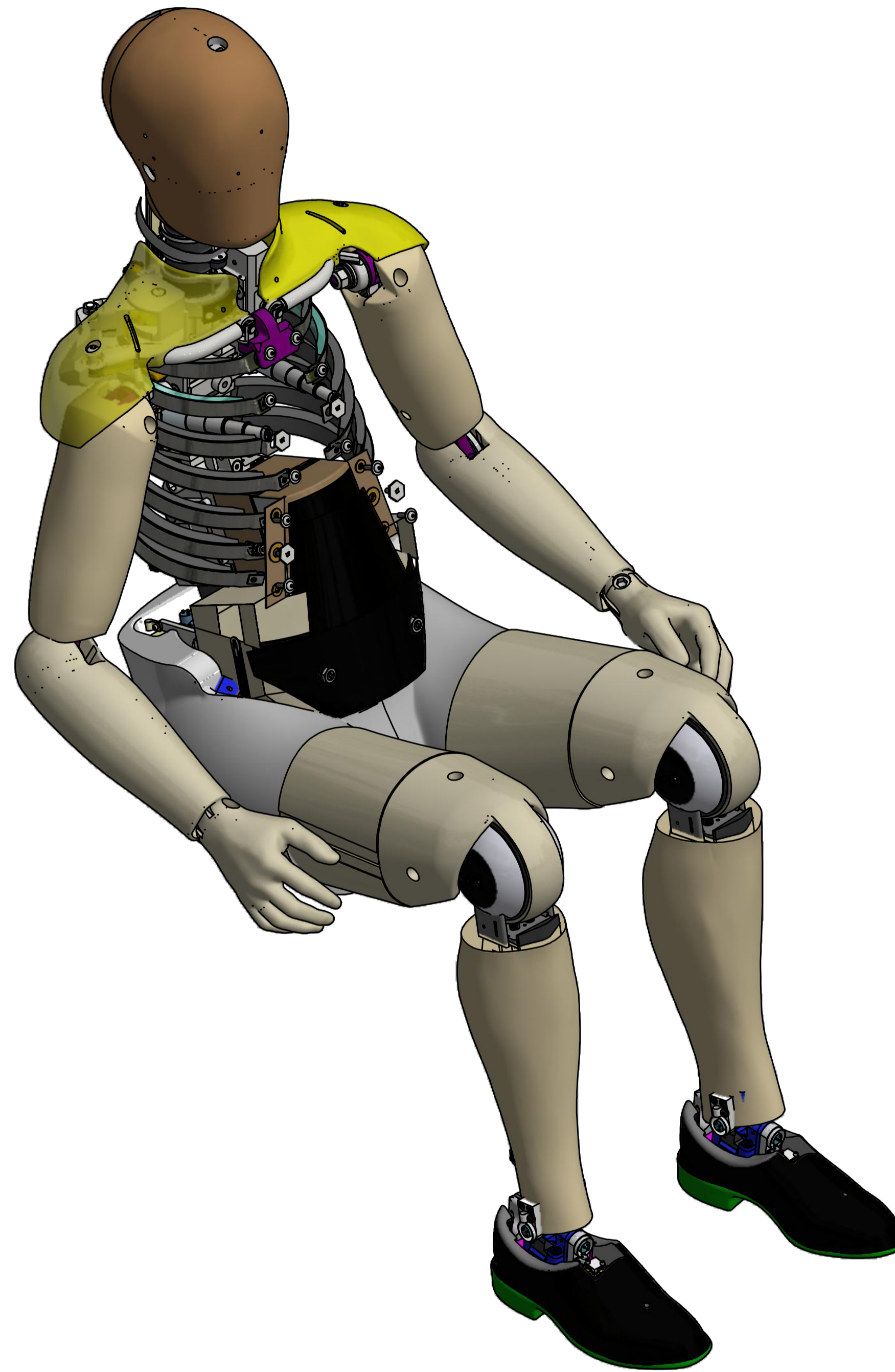


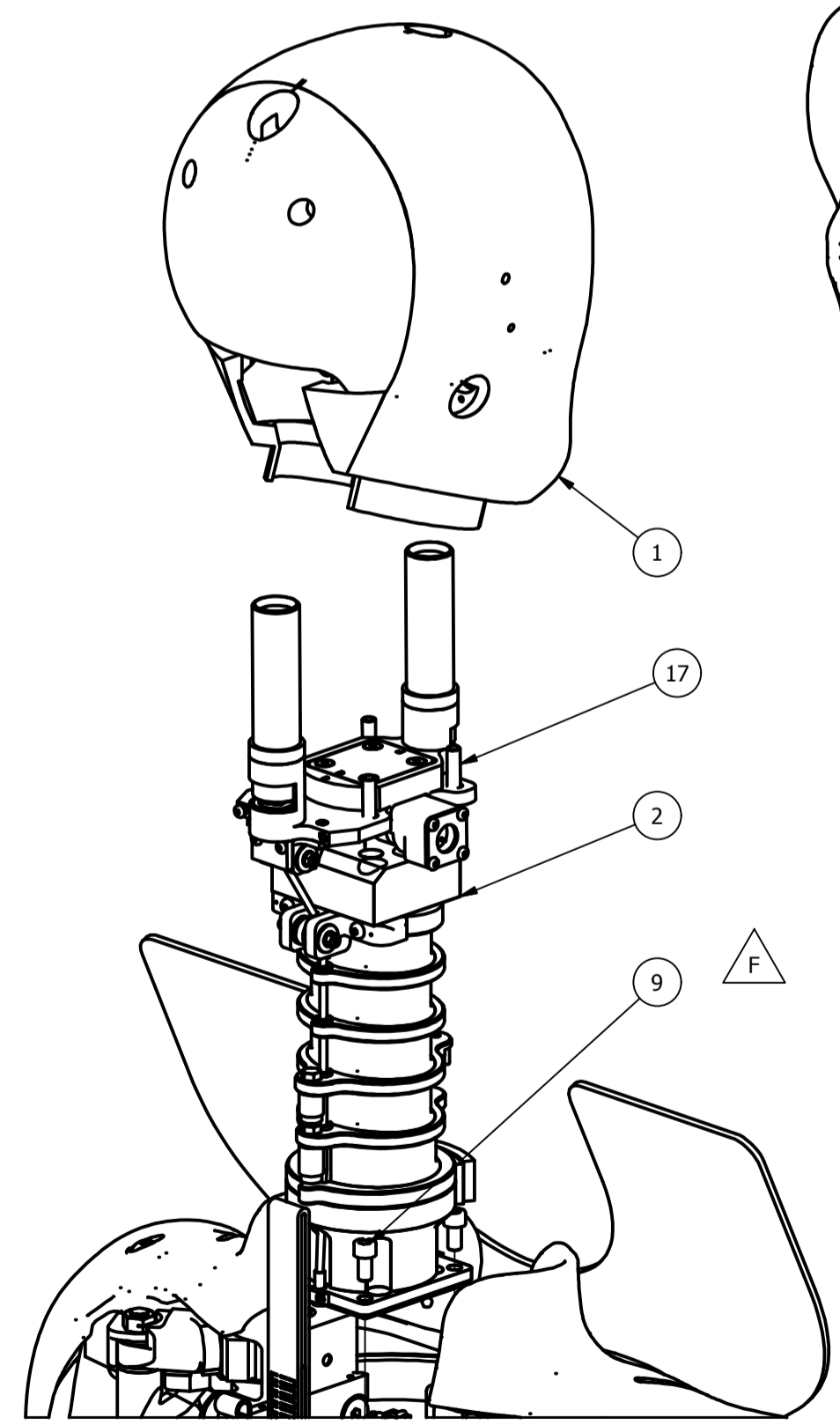
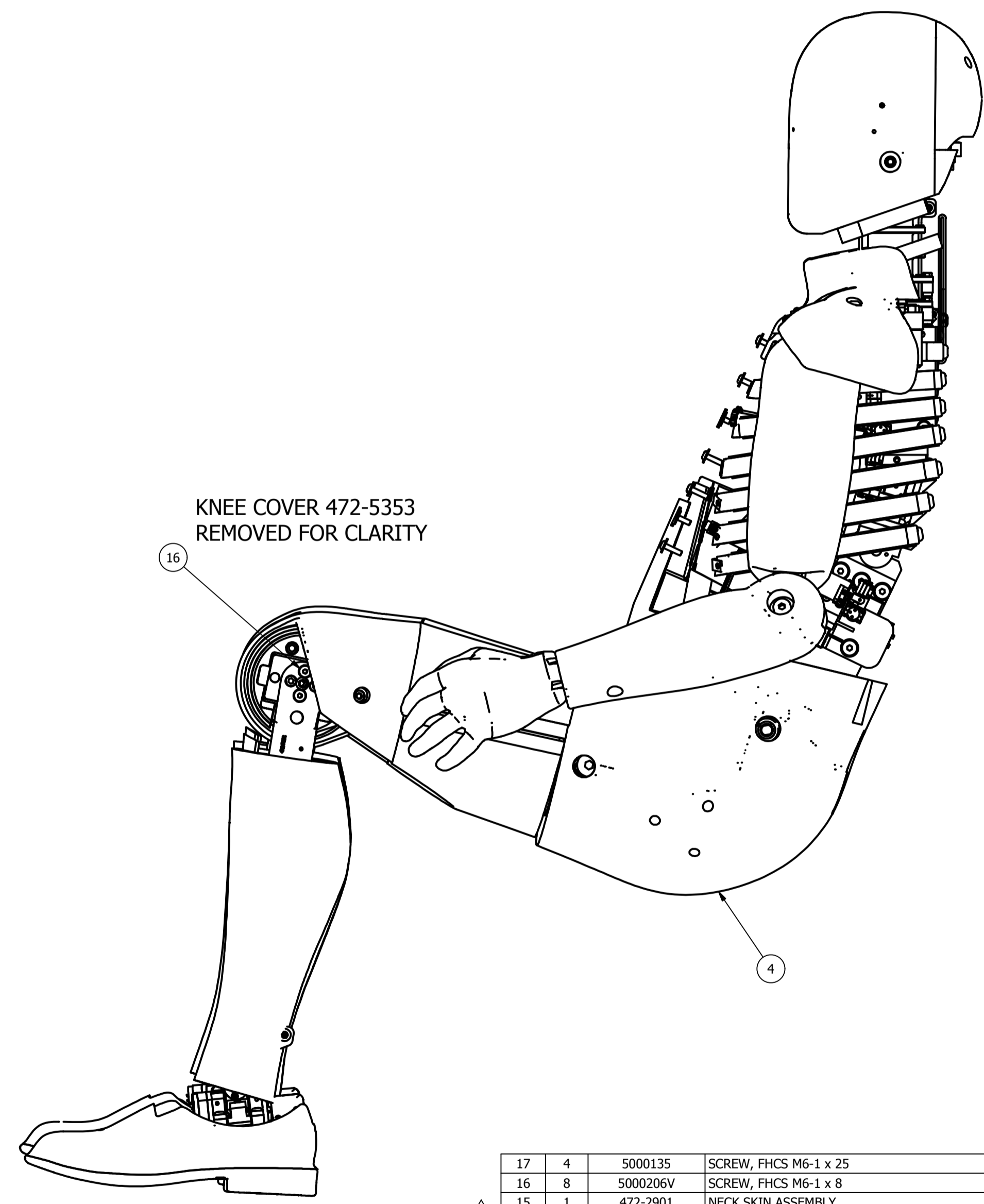
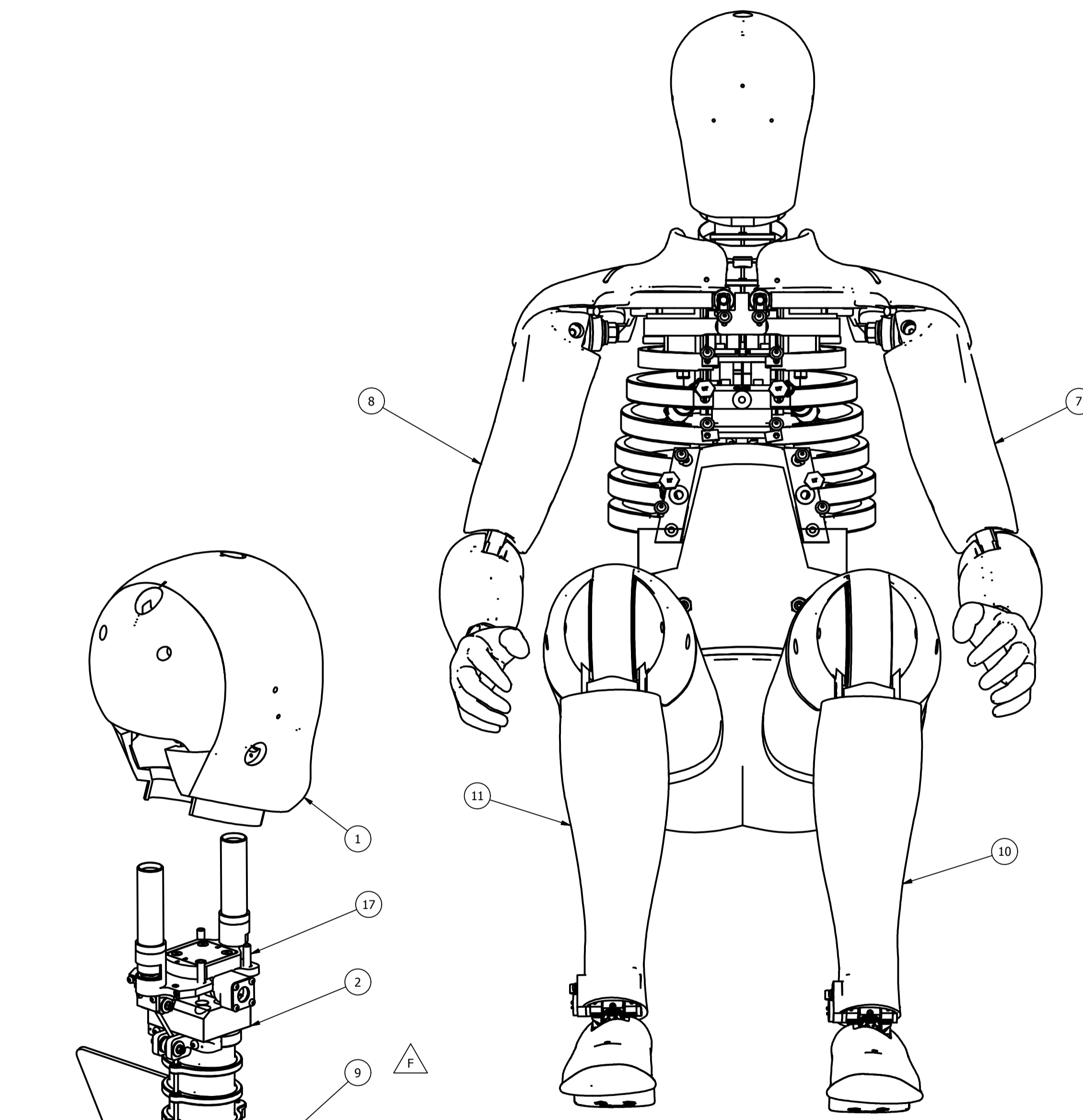
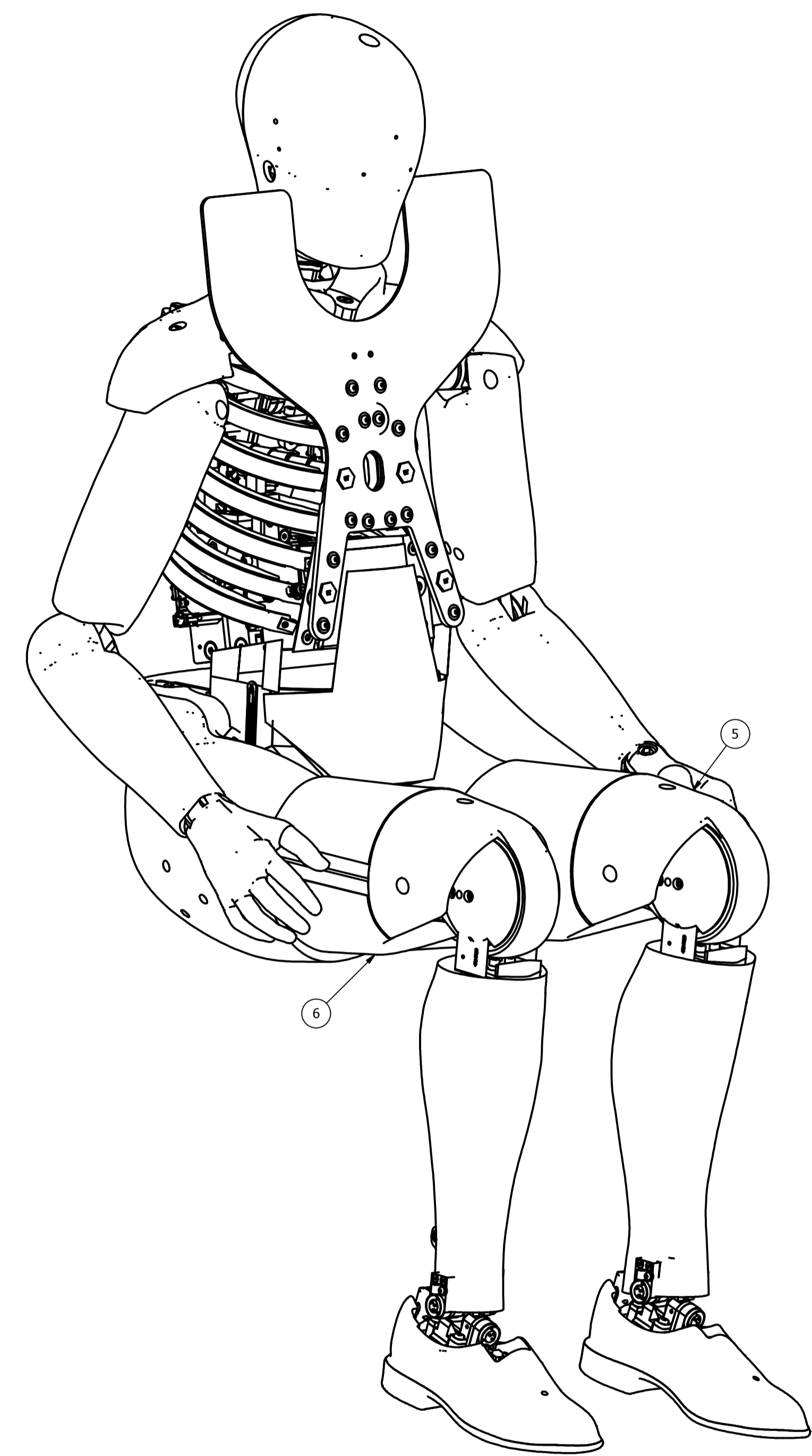
Parts List and Drawings
THOR-50M Advanced Frontal Crash Test Dummy
THOR-50M Male



August 2016

Prepared by:
OFFICE OF CRASHWORTHINESS STANDARDS
and
VEHICLE RESEARCH and TEST CENTER
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FDM000 R10 FOR THOR-M	4/2/2012	BK
	B	5000604 WAS 5000300	4/25/2012	BK
	C	ADD 472-2900, 472-2901, 6004278; 472-5100-1 WAS 472-5000-1,-2	12/18/2012	BK
	D	REVISED ITEM #1 PART NUMBER 472-3000 - THORAX MECHANICAL ASSEMBLY AND ITEM #6 PART NUMBER 472-1000 - HEAD ASSEMBLY, THOR-M	5/20/2014	DW
	E	ADDED ITEM NUMBER 14 & 15, ITEM #5 TO SHT. 2 OF 3 REMOVED (NOT SHOWN) FROM DESCRIPTION OF ITEMS 14 & 15, ADDED LOWER LEGS TO VIEWS; ADDED PART #5000206V - SCREW, FHCS M6-1 X 8 & PART #5000135 - SCREW, FHCS M6-1 X 25; ON SHEET 3 REMOVED PART #SA572-S115 - CLAVICLE LOAD CELL (LEFT), SA572-S116 - CLAVICLE LOAD CELL (RIGHT) & SA572-S124 - FACE LOAD CELL ADDED PART #SA5742-S32 - FIVE CHANNEL UPPER TIBIA LOAD CELL & PART #SA5742-S33 - FIVE CHANNEL LOWER TIBIA LOAD CELL; ON PAGE 2 ADDED ITEM #7 PART #472-8706 - INSTRUMENT GROUND STRAP, MAIN GROUND, AND ITEM #8 PART #5000357V - SCREW, BHCS M6-1 X 6; ADDED NOTE 6 ON SHEET 2; REMOVED ITEM #1 PART #472-1101 - BIAXIAL ACCEL ASSY., HEAD FROM SHT. 3; REORDERED PARTS LIST	9/15/2014	DW
	F	REVISED PARTS 472-7000-1 & 472-7000-2 REMOVED MOLDED FOOT AND ADDED MOLDED SHOE; SHEET 3 OF 3 - BALLOON #6 WAS #7; QTY. OF ITEM 14 - SA572-S129 AND ITEM 15 - SA572-S113 WAS 1; ADDED PART #SA572-S126 - Ø1.0 ACHILLES LOAD CELL AND PART #SA572-S114 - ROTARY POTENTIOMETER	8/7/2015	DW
	G		3/24/2016	DW



HEAD AND NECK ASSEMBLY
SCALE 1/3

ITEM	QTY	PART NUMBER	DESCRIPTION
17	4	5000135	SCREW, FHCS M6-1 x 25
16	8	5000206V	SCREW, FHCS M6-1 x 8
15	1	472-2901	NECK SKIN ASSEMBLY
14	1	472-2900	NECK FOAM ASSEMBLY
13	1	6004278	PANTS, THERMAL, LARGE (NOT SHOWN)
12	1	472-3900	THOR JACKET (NOT SHOWN)
11	1	472-7000-2	LOWER LEG ASSEMBLY, COMPLETE - RIGHT
10	1	472-7000-1	LOWER LEG ASSEMBLY, COMPLETE - LEFT
9	4	5000604	SCREW, SHCS M6-1 x 14
8	1	472-6000-2	RIGHT ARM ASSEMBLY
7	1	472-6000-1	LEFT ARM ASSEMBLY
6	1	472-5100-2	RIGHT UPPER LEG ASSY.
5	1	472-5100-1	LEFT UPPER LEG ASSY.
4	1	472-4000	PELVIS ASSEMBLY
3	1	472-3000	THORAX MECHANICAL ASSEMBLY
2	1	472-2000	MECHANICAL ASSEMBLY, NECK
1	1	472-1000	HEAD ASSEMBLY, THOR-M

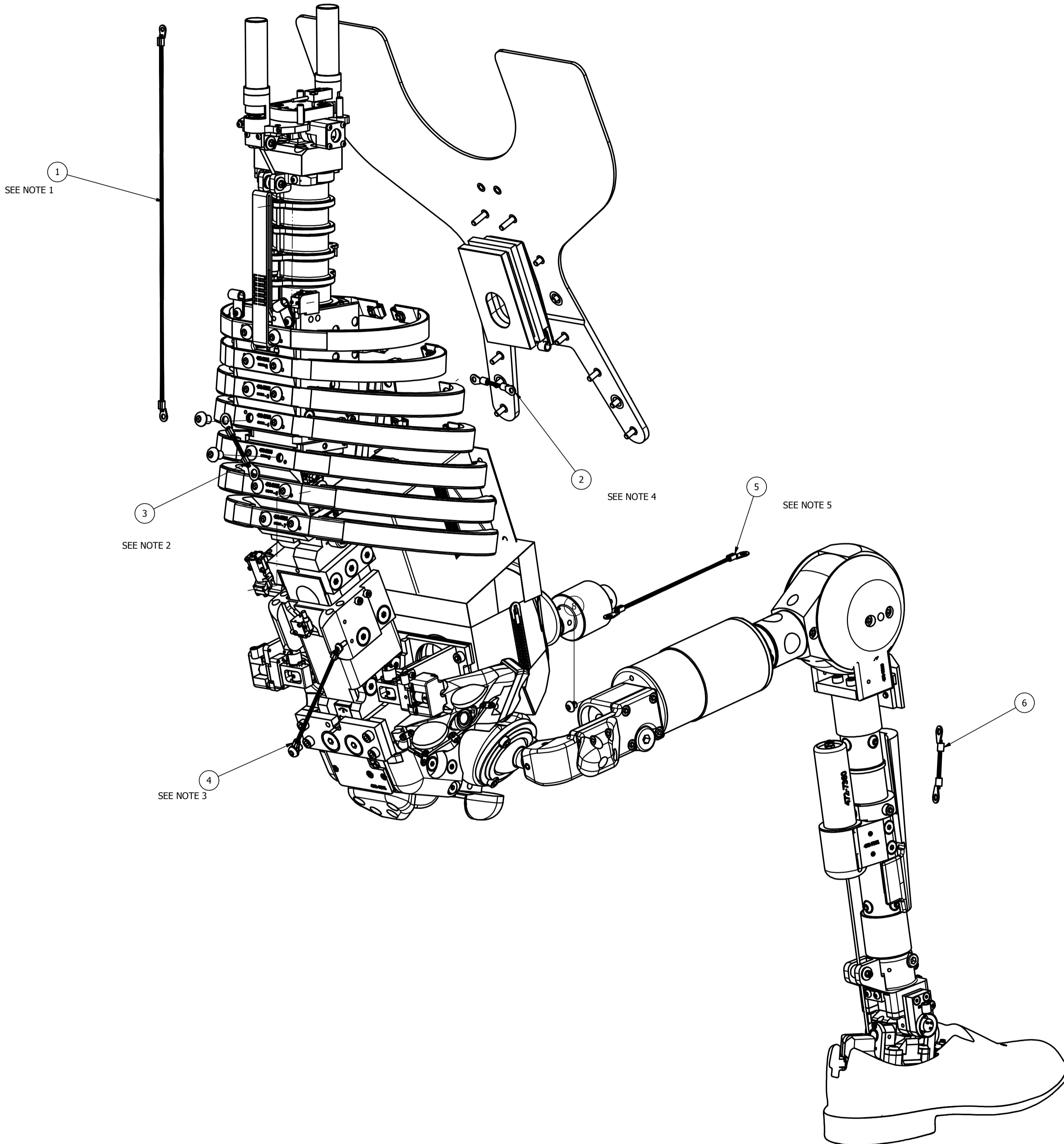
DO NOT SCALE DRAWING

TOLERANCES
 UNLESS OTHERWISE SPECIFIED:
 FRACTIONS DECIMALS ANGLES
 1/16 0.0625 1/2 0.5 90° 90°
 1/32 0.03125 3/16 0.1875 1/4 0.25 1/8 0.125 1/2 0.5 90° 90°
 1/64 0.015625 5/16 0.3125 3/8 0.375 3/4 0.75 1 1.0 90° 90°
 SHOW SPACES & BREAK SHARP EDGES

PROJECT NO. _____
 DESIGNED BY: B. KIMES 10/19/2011
 CHECKED BY: J. WANG 3/1/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 MECHANICAL ASSEMBLY, THOR-M

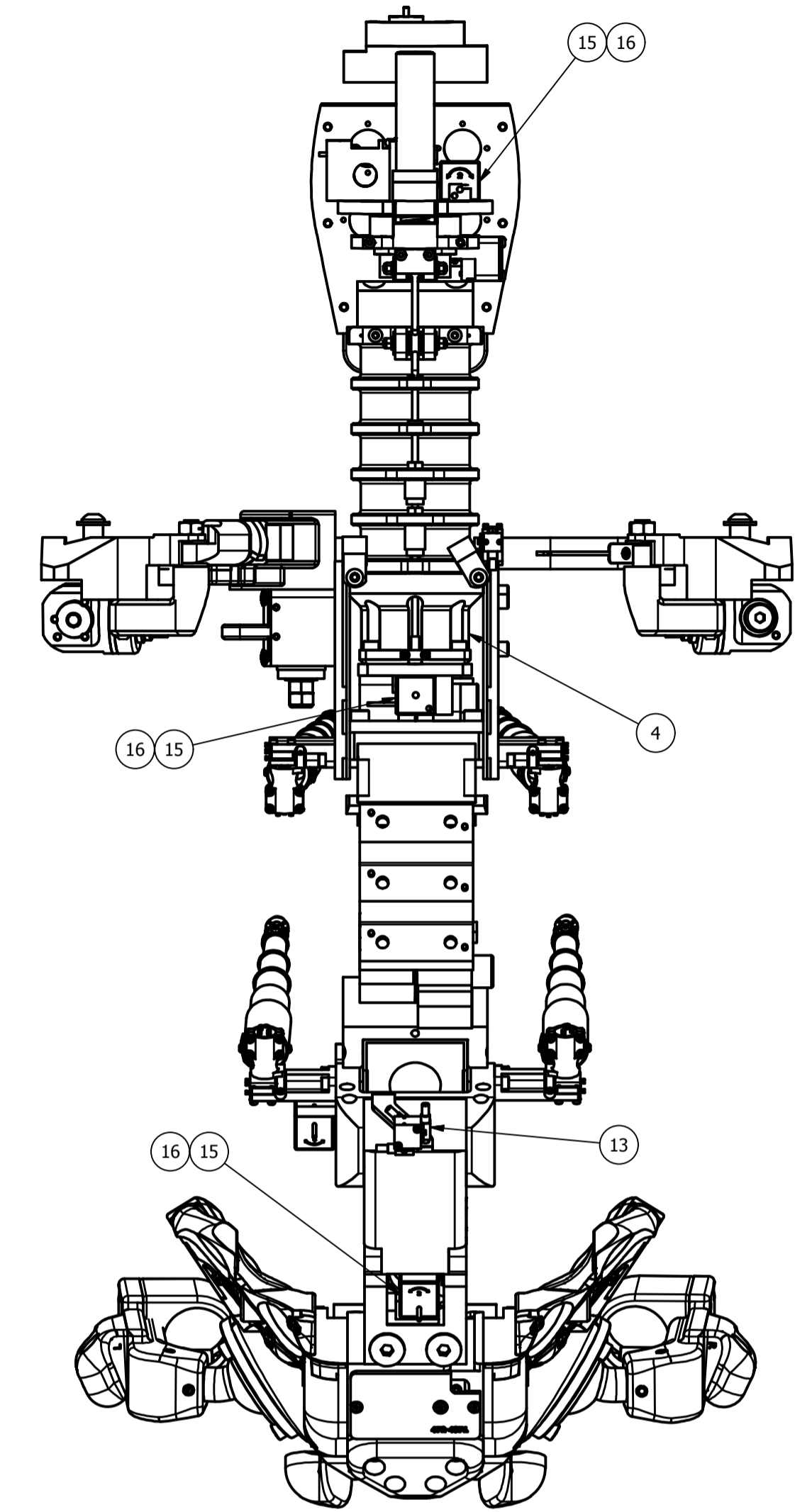
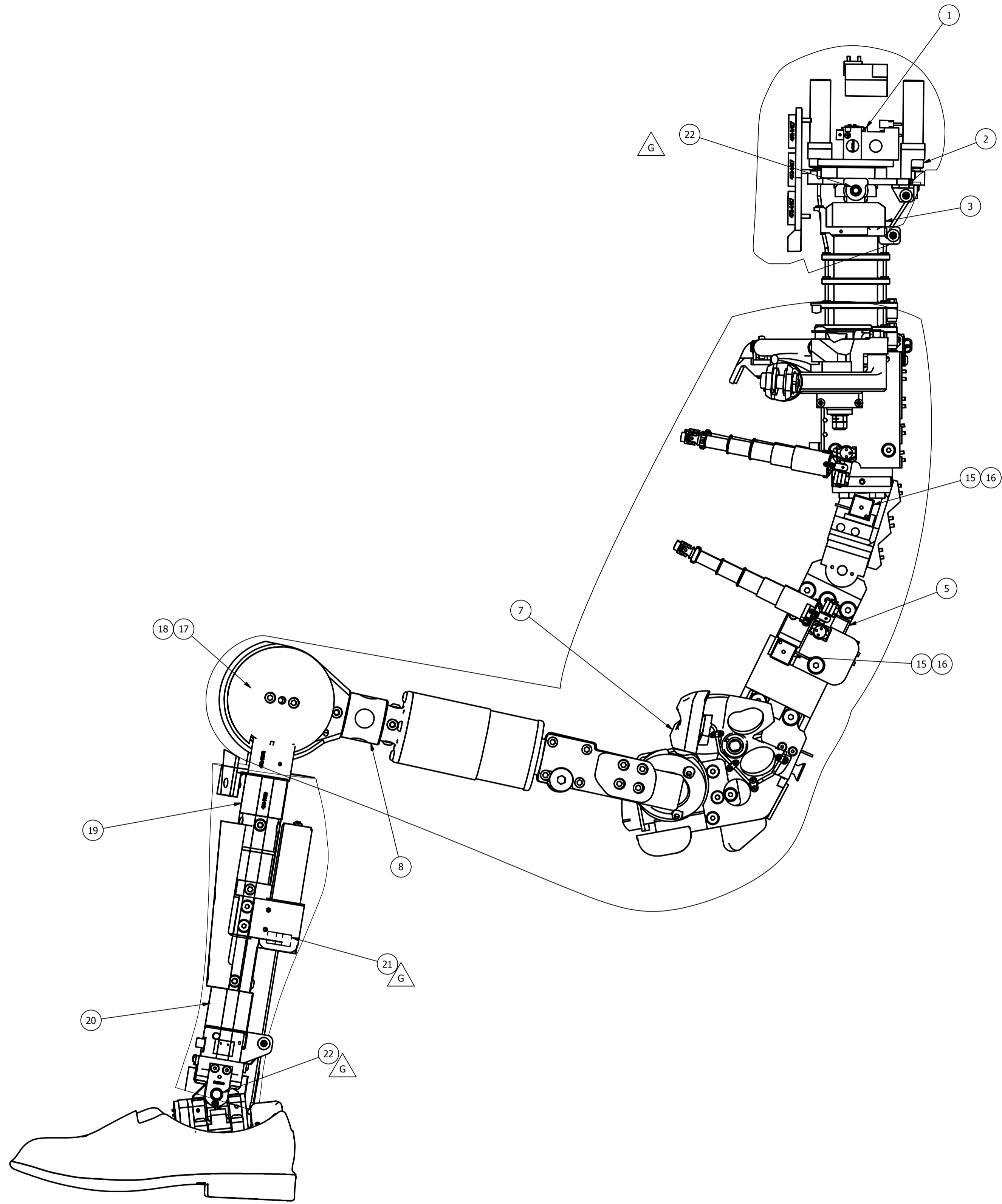
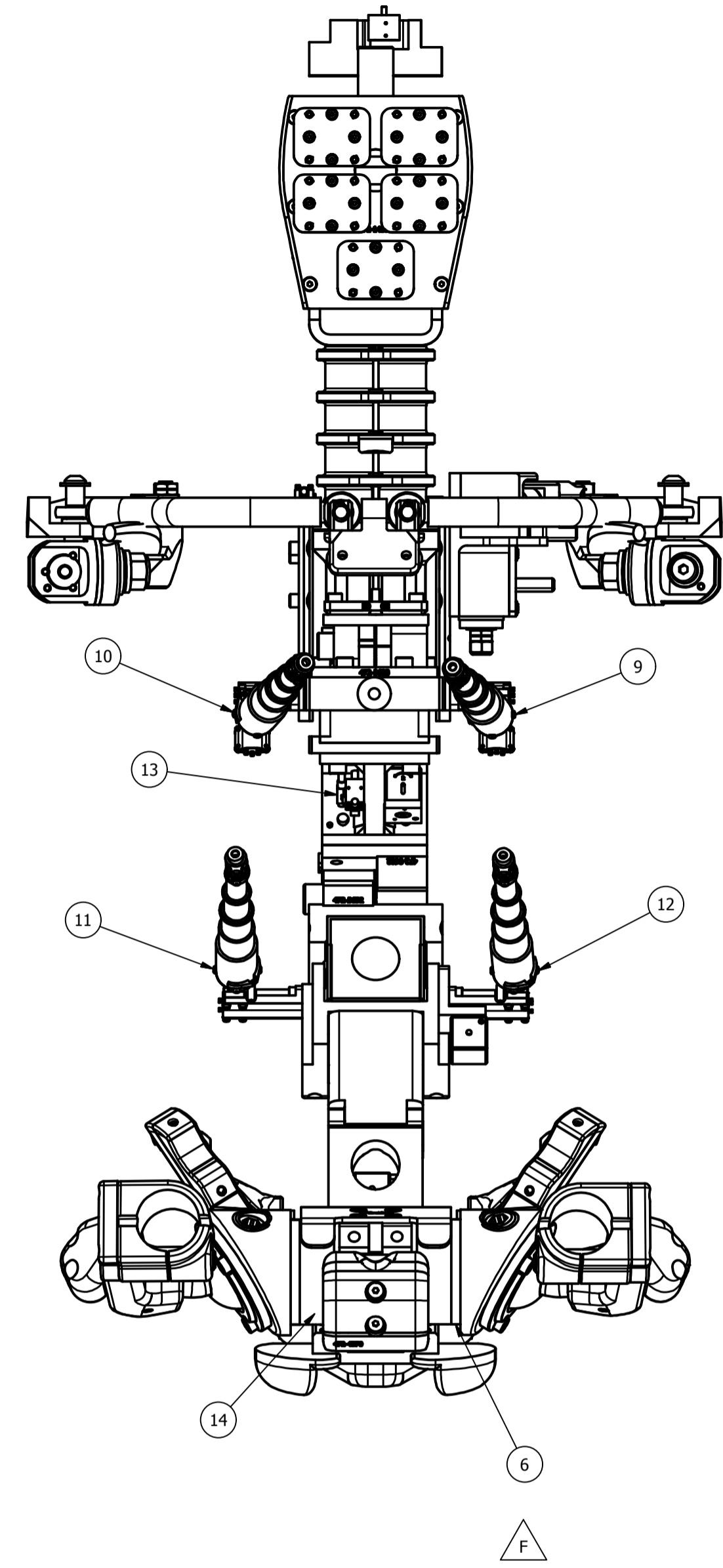
DATE: 3/1/2012
 DRAWING NO.: 472-0000
 SHEET: 1/4
 TOTAL QTY IN DUMMY: _____



- NOTES:
- 472-8700 ATTACHES TO THE SPINE AT THE UPPER THORACIC SPINE BACK PLATE AND TO THE NECK MOUNTING PLATFORM WITH THE HARDWARE PROVIDED.
 - 472-8702 ATTACHES TO RIB #4 AND RIB #5 USING THE EXISTING RIB MOUNTING HARDWARE.
 - 472-8703 ATTACHES TO THE THORACIC SPINE FLEX JOINT ADAPTOR PLATE AND THE LOWER ABDOMEN REAR ATTACHMENT PLATE USING THE M4 x 10 AND M6 x 10 SCREWS PROVIDED IN THE TOOL KIT.
 - 472-8701 ATTACHES TO THE MID-STERNUM ASSEMBLY AND RIB #4 USING THE EXISTING RIB MOUNTING HARDWARE AND CABLE CLAMP MOUNTING HARDWARE.
 - 472-8704 ATTACHES TO THE FEMUR LOAD CELL WHEN THE LOAD CELL IS INSTALLED.
 - 472-8706 ATTACHES TO THE DUMMY AT THE LOWER ABDOMEN REAR ATTACHMENT PLATE USING THE SAME M6 SCREW THAT ATTCHES 472-8703.

ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	5000357V	SCREW, BHCS M6-1 x 6
7	1	472-8706	INSTRUMENT GROUND STRAP, MAIN GROUND (NOT SHOWN) SEE NOTE 6
6	2	472-8705	INSTRUMENT GROUND STRAP, TIBIA
5	2	472-8704	INSTRUMENT GROUND STRAP, FEMUR
4	1	472-8703	INSTRUMENT GROUND STRAP, LUMBAR SPINE
3	1	472-8702	INSTRUMENT GROUND STRAP, THORACIC SPINE
2	1	472-8701	INSTRUMENT GROUND STRAP, MID STERNUM
1	1	472-8700	INSTRUMENT GROUND STRAP, HEAD/NECK

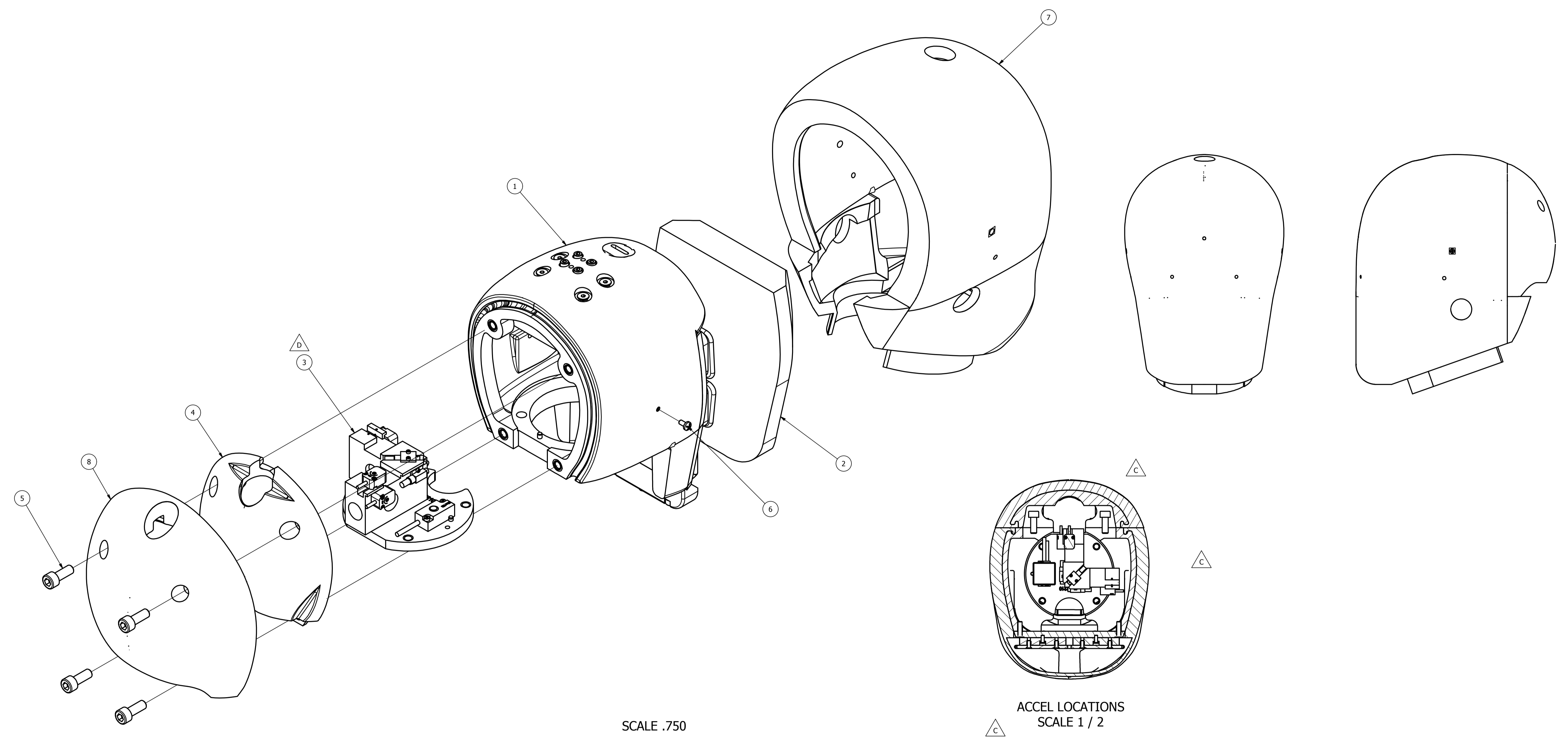
PARTS LIST																			
<table border="1"> <tr> <th colspan="4">TOLERANCES</th> </tr> <tr> <td>UNLESS OTHERWISE SPECIFIED</td> <td>AS NOTED</td> <td>BY DIMENSION</td> <td>BY POSITION</td> </tr> <tr> <td>± .125</td> <td>± .005</td> <td>± .005</td> <td>± .005</td> </tr> <tr> <td>± .005</td> <td>± .005</td> <td>± .005</td> <td>± .005</td> </tr> </table>				TOLERANCES				UNLESS OTHERWISE SPECIFIED	AS NOTED	BY DIMENSION	BY POSITION	± .125	± .005	± .005	± .005	± .005	± .005	± .005	± .005
TOLERANCES																			
UNLESS OTHERWISE SPECIFIED	AS NOTED	BY DIMENSION	BY POSITION																
± .125	± .005	± .005	± .005																
± .005	± .005	± .005	± .005																
<table border="1"> <tr> <td>DATE</td> <td>10/19/2011</td> </tr> <tr> <td>BY</td> <td>B. KIMES</td> </tr> </table>	DATE	10/19/2011	BY	B. KIMES															
DATE	10/19/2011																		
BY	B. KIMES																		
GROUND STRAP LOCATIONS																			
<table border="1"> <tr> <td>DATE</td> <td>4/2/2012</td> </tr> <tr> <td>BY</td> <td>J. WANG</td> </tr> </table>	DATE	4/2/2012	BY	J. WANG	<table border="1"> <tr> <td>REV</td> <td>A1</td> <td>OF</td> <td>3</td> </tr> <tr> <td>SHEET</td> <td colspan="3">1/4</td> </tr> </table>	REV	A1	OF	3	SHEET	1/4			<table border="1"> <tr> <td>PROJECT NO.</td> <td>472-0000</td> </tr> </table>	PROJECT NO.	472-0000			
DATE	4/2/2012																		
BY	J. WANG																		
REV	A1	OF	3																
SHEET	1/4																		
PROJECT NO.	472-0000																		



ITEM	QTY	PART NUMBER	DESCRIPTION
F 22	7	SAS72-S114	ROTARY POTENTIOMETER
F 21	2	SAS72-S126	Ø1.0 ACHILLES LOAD CELL
F 20	2	SAS72-S33	FIVE CHANNEL LOWER TIBIA LOAD CELL
F 19	2	SAS72-S32	FIVE CHANNEL UPPER TIBIA LOAD CELL
F 18	1	SAS72-S90-R	STRING POT, MINI (RIGHT)
F 17	1	SAS72-S90-L	STRING POT, MINI (LEFT)
F 16	1	SAS72-S44	TILT SENSOR, DUAL AXIS
F 15	5	SAS72-S113	TILT SENSOR, DUAL AXIS
F 14	5	SAS72-S129	ACETABULUM LOAD CELL, RIGHT
F 13	1	472-4203	TRI PACK ACCEL ASSY
F 12	1	472-3580	IRTRACC ASSY, LOWER LEFT
F 11	1	472-3570	IRTRACC ASSY, LOWER RIGHT
F 10	1	472-3560	IRTRACC ASSY, UPPER RIGHT
F 9	1	472-3550	IRTRACC ASSY, UPPER LEFT
F 8	2	SAS72-S120	FEMUR LOAD CELL
F 7	2	SAS72-S119	A.S.I.S. LOAD CELL
F 6	1	SAS72-S128	ACETABULUM LOAD CELL (LEFT)
F 5	1	SAS72-S127	THORACIC SPINE LOAD CELL
F 4	1	SAS72-S111	LOWER NECK LOAD CELL
F 3	1	SAS72-S110	UPPER NECK LOAD CELL
F 2	2	SAS72-S112	SKULL SPRING LOAD CELL
F 1	1	472-1200	ACCEL. MOUNTING PLATE, HEAD
PARTS LIST			

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 SENSOR/LOAD CELL LOCATIONS
 DATE: 10/19/2011
 BY: B. KIMES
 DATE: 4/2/2012
 BY: J. WANG
 SHEET: 13 OF 3
 PART: 1/4
 PROJECT: 472-0000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM000 R12 AND CONVERTED TO METRIC FOR THOR-M	8/31/2011	BK
	B	REMOVE 472-1400, ADD 472-1401	11/5/2012	BK
	C	ADD ACCEL LOCATION VIEWS & DIMENSIONS	1/31/2013	BK
	D	ADDED ARS'S TO ACCELEROMETER MOUNTING PLATE ASSEMBLY, HEAD - 4721200	5/19/2014	DW
	E	REMOVED PART #5000135 - M6 X 1 X 25 LG. FHCS	8/10/2015	DW



SCALE .750

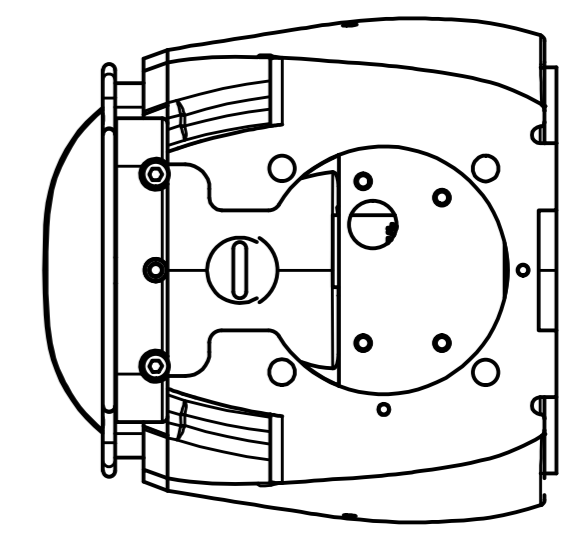
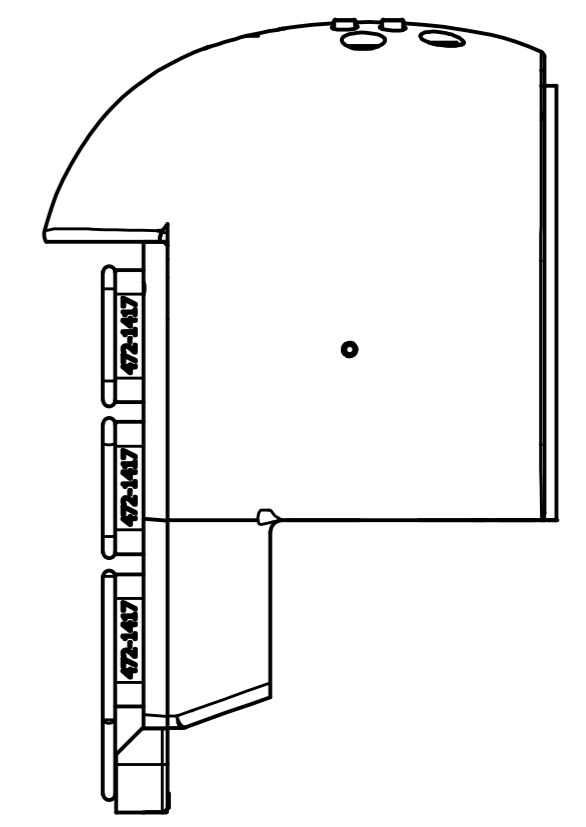
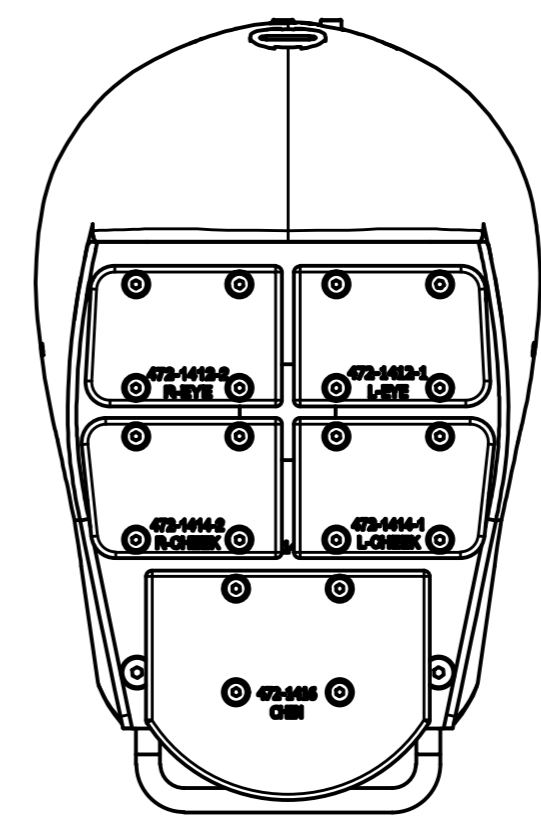
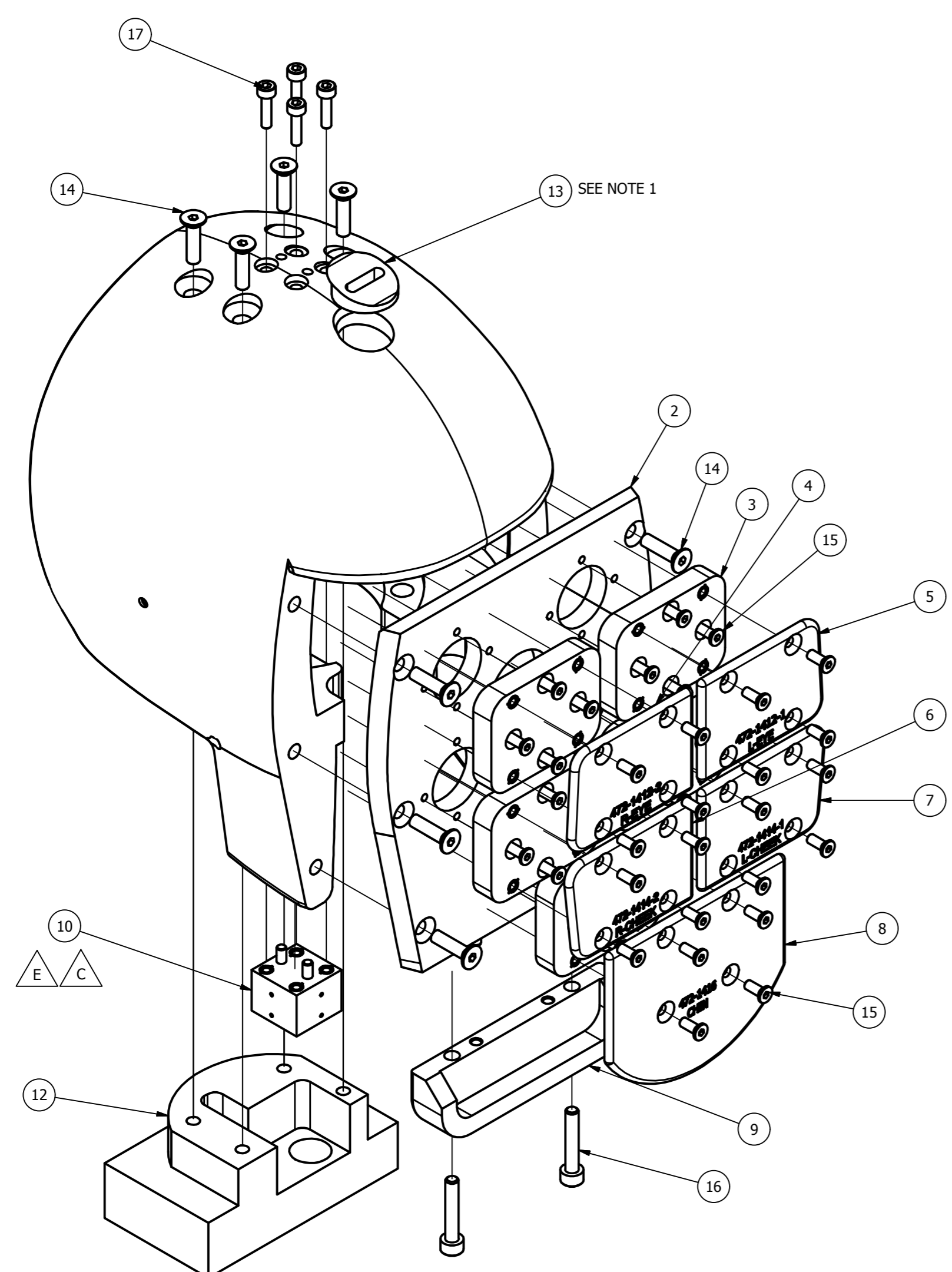
ACCEL LOCATIONS
SCALE 1 / 2

- NOTES:
1. THE HEAD IS ATTACHED TO THE HEAD MOUNTING PLATE ON THE NECK ASSEMBLY, AND IS SECURED WITH FOUR M6 X 1 X 25 FHCS WHICH ARE INSERTED THROUGH THE BOTTOM OF THE HEAD MOUNTING PLATE, THE BASE OF THE SKULL, AND THREAD INTO THE HEAD ACCELEROMETER MOUNTING PLATE.
 2. ITEM 7 (M3 X .5 X 6 NYLON SCREW) IS USED TO MARK THE LOCATION OF THE HEAD C.G.
 3. REFER TO CERTIFICATION MANUAL FOR PERFORMANCE SPECIFICATIONS FOR THIS ASSEMBLY.

ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	472-1310	CAP SKIN
7	1	472-1320	SKIN ASSEMBLY
6	2	5001116	SCREW, PHILLIPS NYLON M3 X .5 X 6
5	4	5000081	M6 X 1 X 16 LG. SHCS
4	1	472-1110	HEAD CAP
3	1	472-1200	ACCELEROMETER MOUNTING PLATE ASSEMBLY, HEAD
2	1	472-1401	CONFOR FOAM, FACE
1	1	472-1100	SKULL ASSEMBLY

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THOR-M HEAD ASSEMBLY, THOR-M
 B. KIMES 8/31/2011
 J. WANG 1/10/2012
 472-1000
 11 OF 1
 .500

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM100 R17 AND CONVERTED TO METRIC FOR THOR-M	8/31/2011	BK
	B	5000203 (M3) QTY 20 WAS 5000023 (M4)	5/25/2012	BK
	C	UPDATE VIEWS TO SHOW CHANGE TO 472-1101	6/14/2012	BK
	D	5000388 WAS 5000119; 5000116 WAS 5000203	12/20/2012	BK
	E	UPDATED VIEWS TO SHOW CHANGE TO 472-1101	5/20/2014	DW
	F	ADDED PART #472-1115 - HEAD C.G PART GROUP FOR BALLAST WEIGHT	8/4/2015	DW



SCALE .750

NOTES:
1. TIGHTEN HEAD PLUG THEN GRIND FLUSH WITH SKULL OUTER SURFACE.

ITEM	QTY	PART NUMBER	DESCRIPTION
17	4	5001103	M3 X 0.5 X 12 LG. SHCS
16	2	5001117	SCREW, SHCS M4 X 0.7 X 22
15	40	5000116	SCREW, FHCS M3-0.5 X 8
14	10	5000025	SCREW, FHCS M4-0.7 X 16
13	1	472-1116	PLUG, HEAD
12	1	472-1120	HEAD BALLAST
11	1	472-1115	HEAD C.G. PART GROUP FOR BALLAST WEIGHT DESIGN
10	1	472-1101	BIAXIAL ACCELEROMETER ASSEMBLY, HEAD
9	1	472-1411	CHIN GUARD
8	1	472-1416	CHIN LOAD CELL PLATE
7	1	472-1414-1	LEFT CHEEK LOAD CELL PLATE
6	1	472-1414-2	RIGHT CHEEK LOAD CELL PLATE
5	1	472-1412-1	LEFT EYE LOAD CELL PLATE
4	1	472-1412-2	RIGHT EYE LOAD CELL PLATE
3	5	472-1417	FACE LOAD CELL, MOCK
2	1	472-1410	FACE PLATE
1	1	472-1111	HEAD, MACHINED

THOR-M

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

TOLERANCES
(UNLESS OTHERWISE SPECIFIED)
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
XX ± 0.2 ± 0.2 1.6
XXX ± 0.1 ± 0.1 1.6
XXXX ± 0.01 ± 0.01 1.6

REMOVE BURRS & BREAK SHARP EDGES

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

SKULL ASSEMBLY

PROJECT NO:	THOR-M	DATE:	8/25/2011
DRAWN BY:	B. KIMES	CHECKED BY:	J. WANG
DATE:	1/10/2012	SCALE:	.500

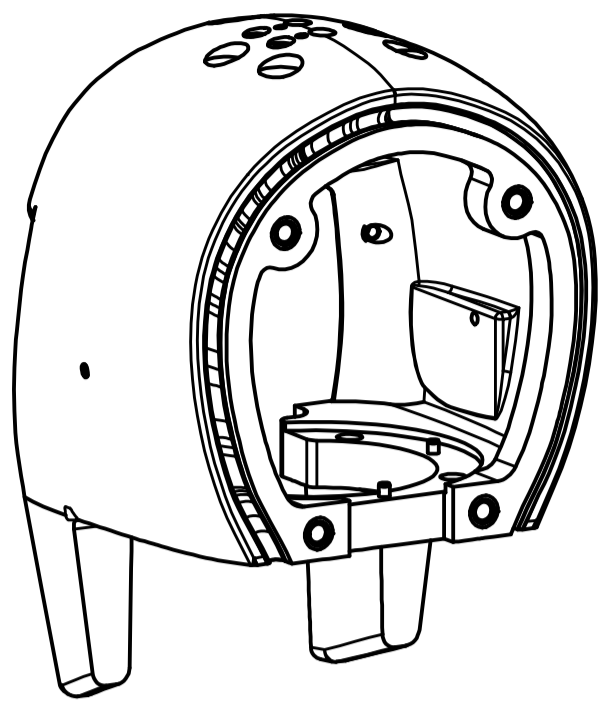
472-1000 1

NEXT ASSEMBLY QTY

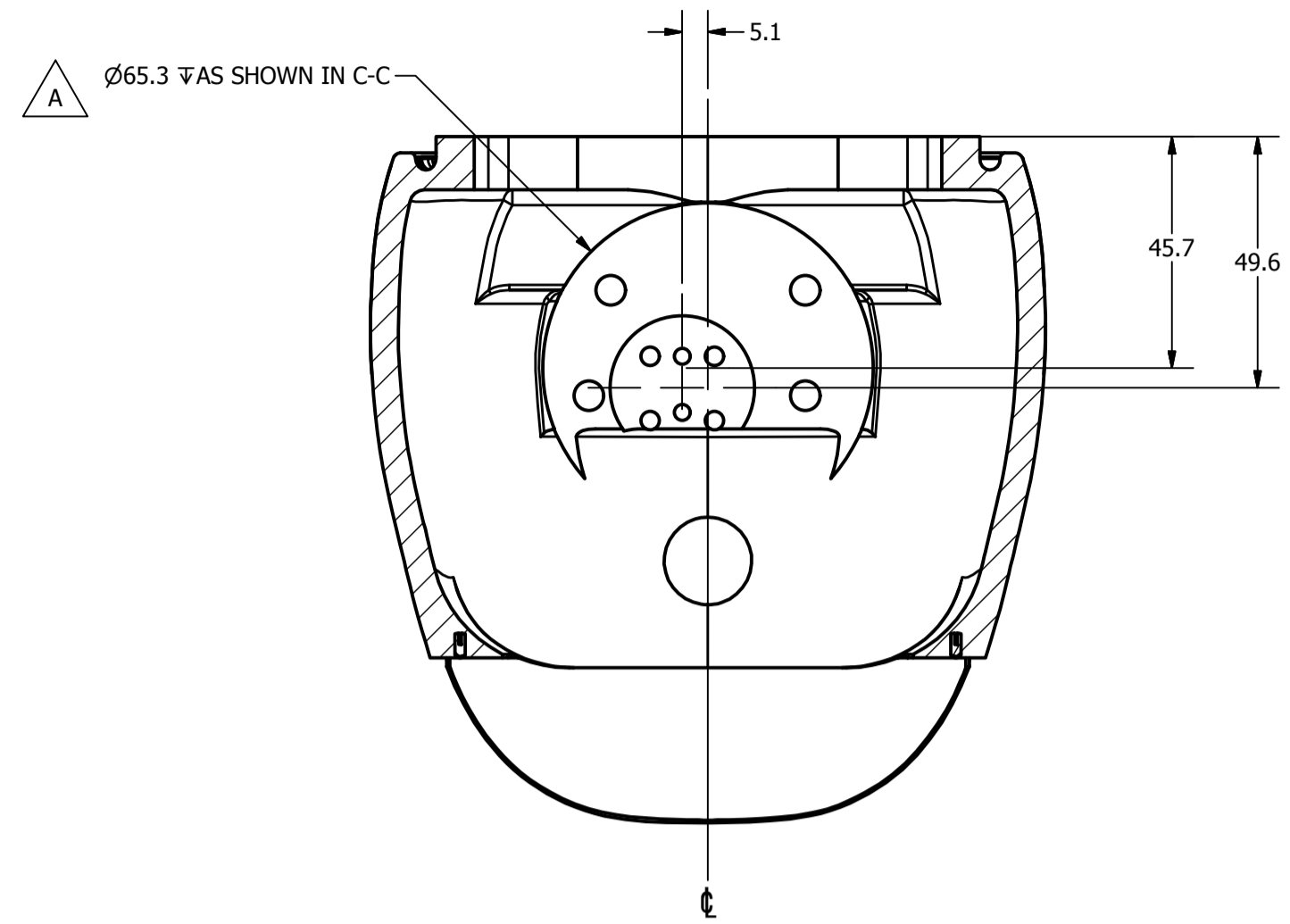
TOTAL QTY IN DUMMY 1

SIZE: A21 OF 1

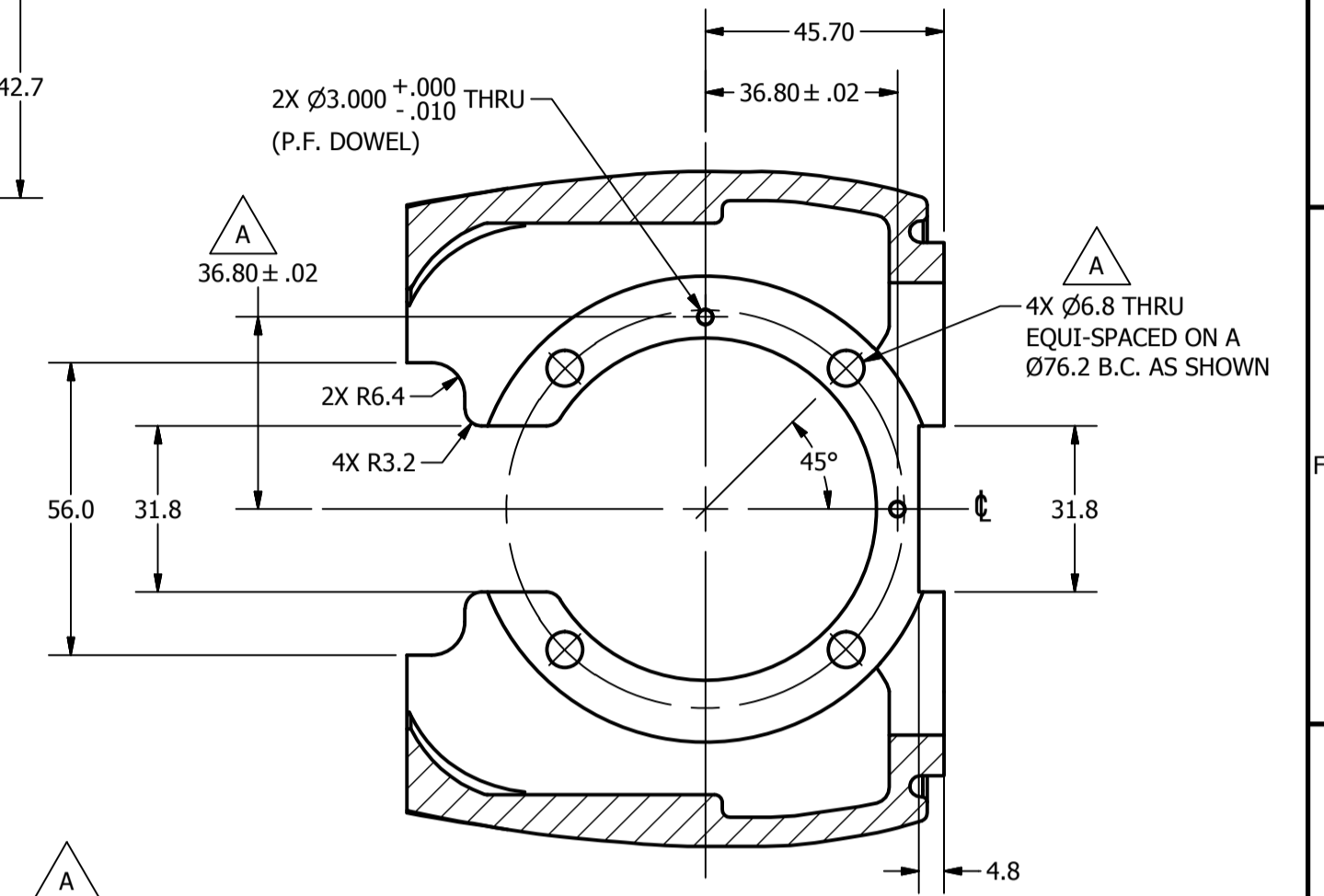
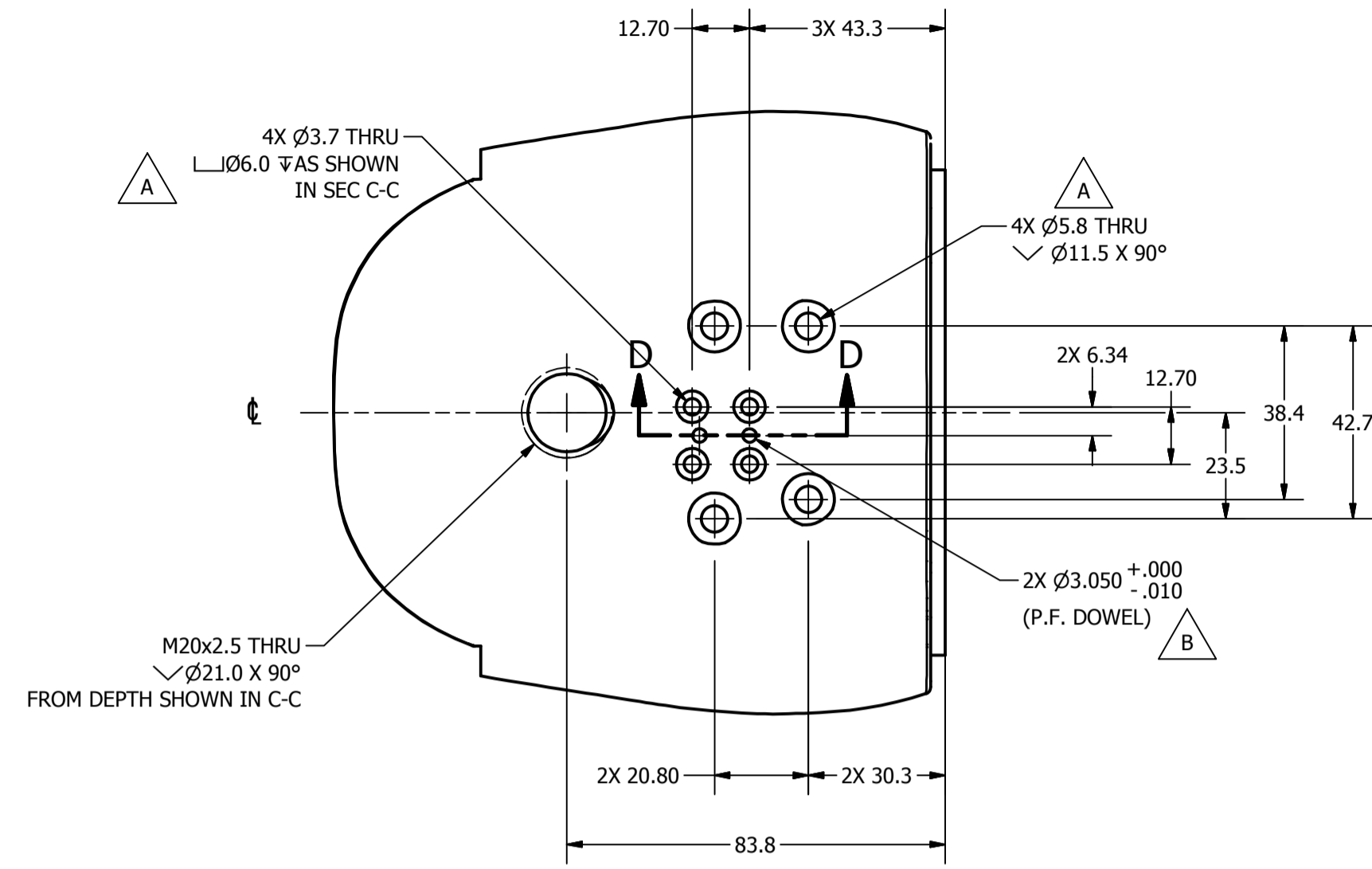
472-1100



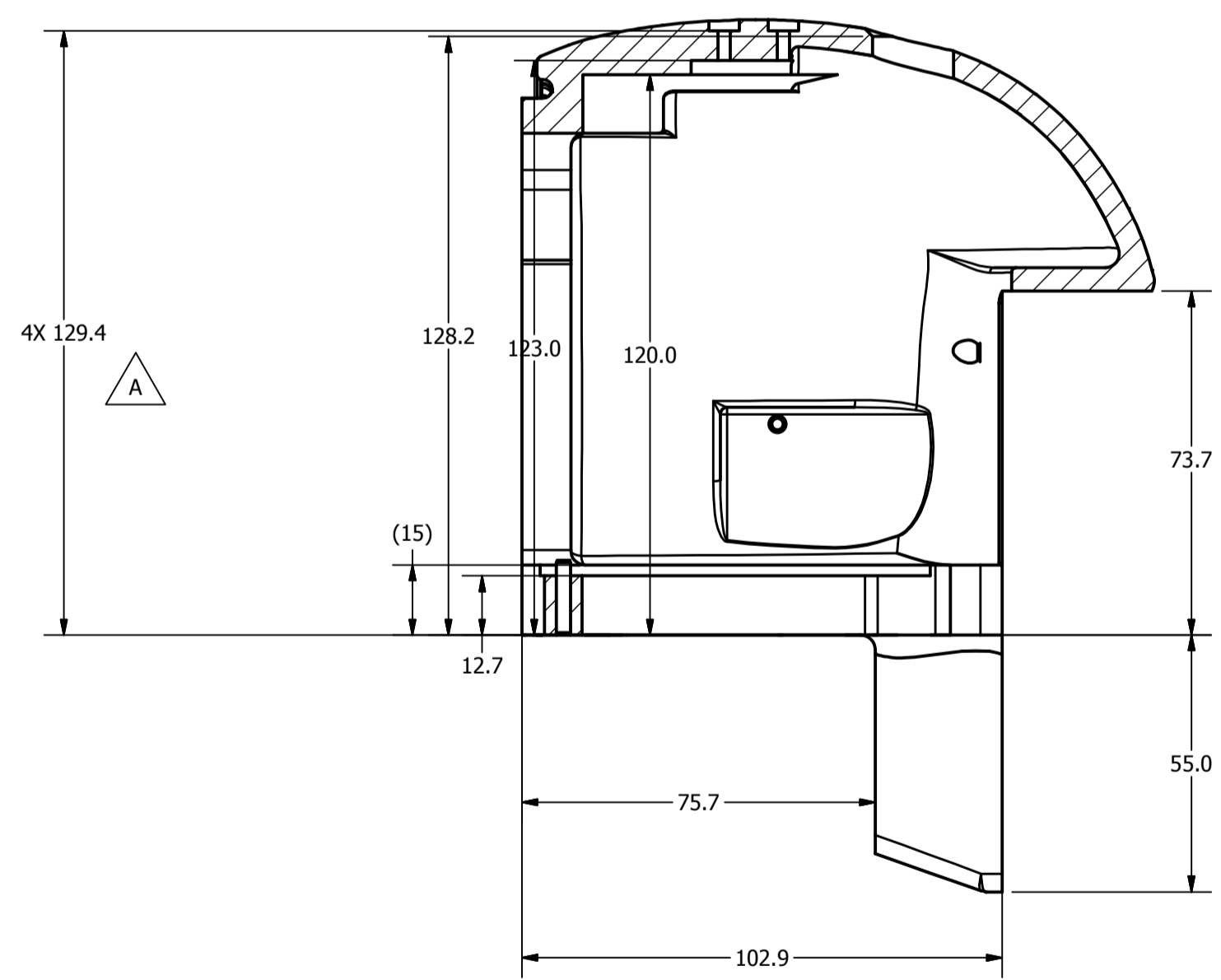
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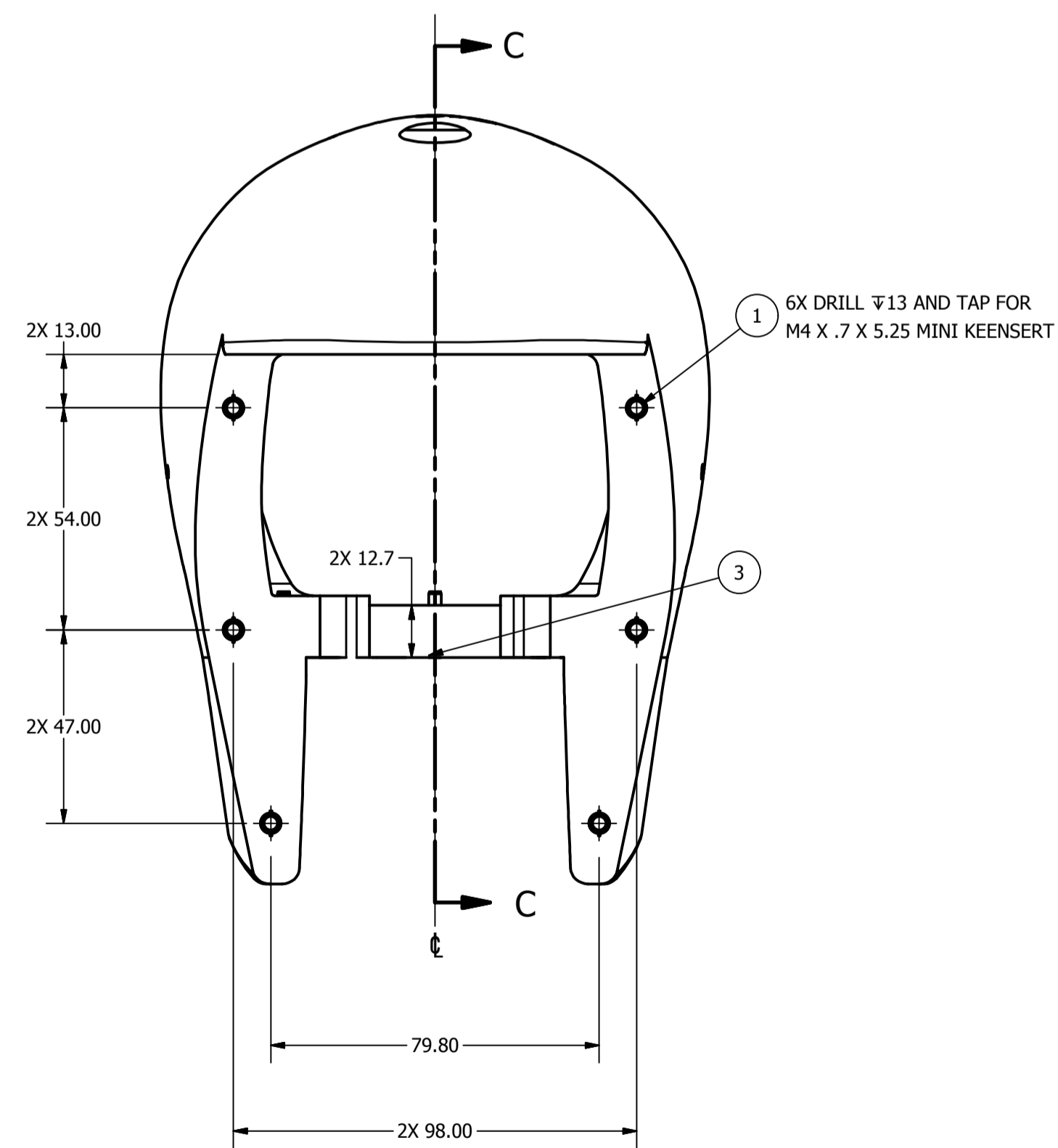
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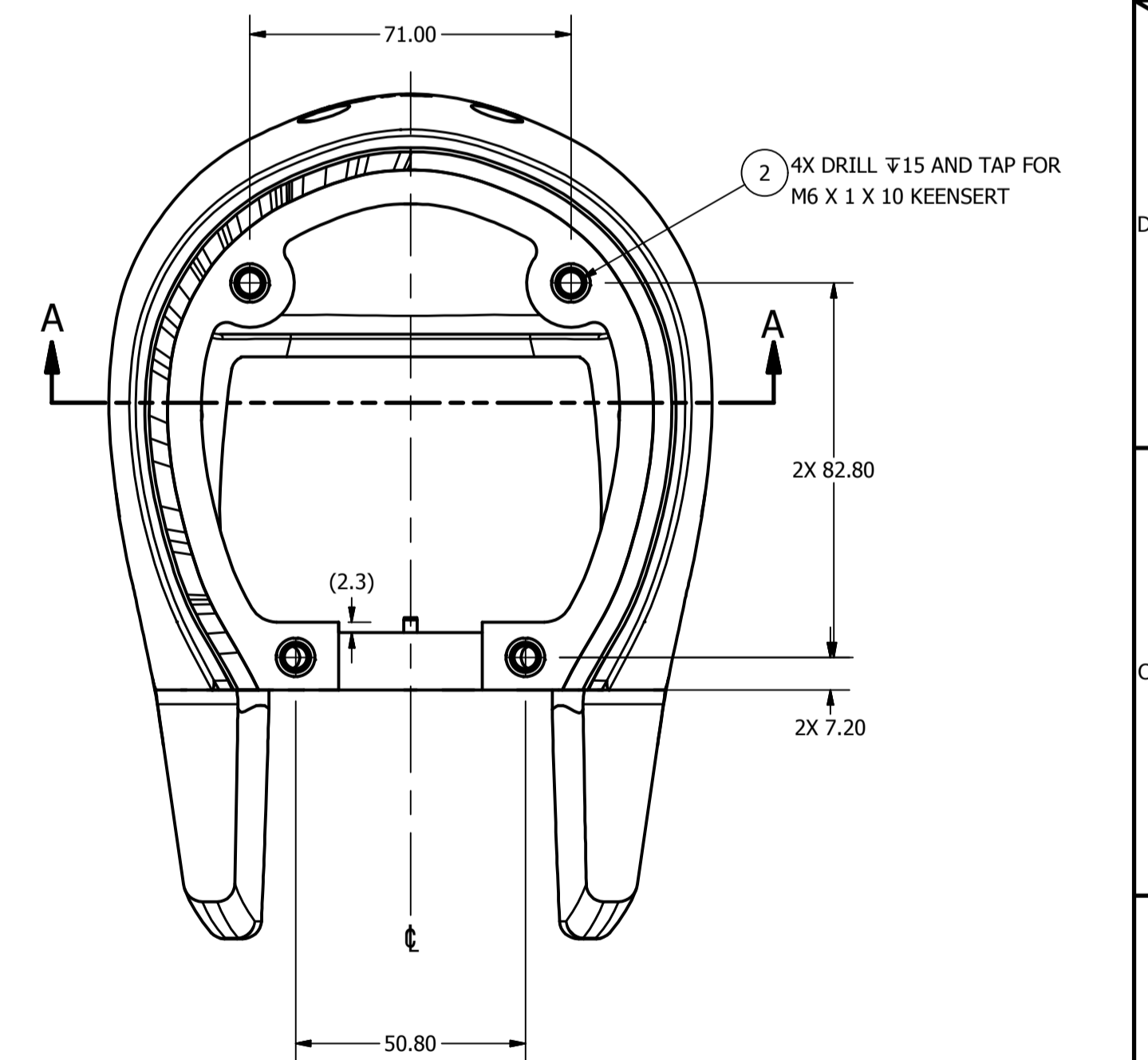
SECTION B-B
SCALE .750



SECTION C-C
SCALE .750



SECTION D-D
SCALE .750



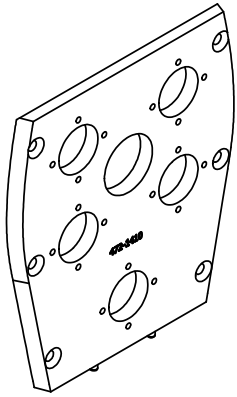
ITEM	QTY	PART NUMBER	DESCRIPTION
4	2	5000333	HELI-COIL, M3x0.5 X 6 LG SST
3	2	5000592	M3 X 16 LG. DOWEL PIN
2	4	5001108	M6 X 1 X 10 LG. LIGHTWEIGHT KEENSERT
1	6	5000724	M4 X 0.7 X 5.25 LG. MINI KEENSERT

PARTS LIST			
DO NOT SCALE DRAWING	TOLERANCES	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
HEAD, MACHINED			

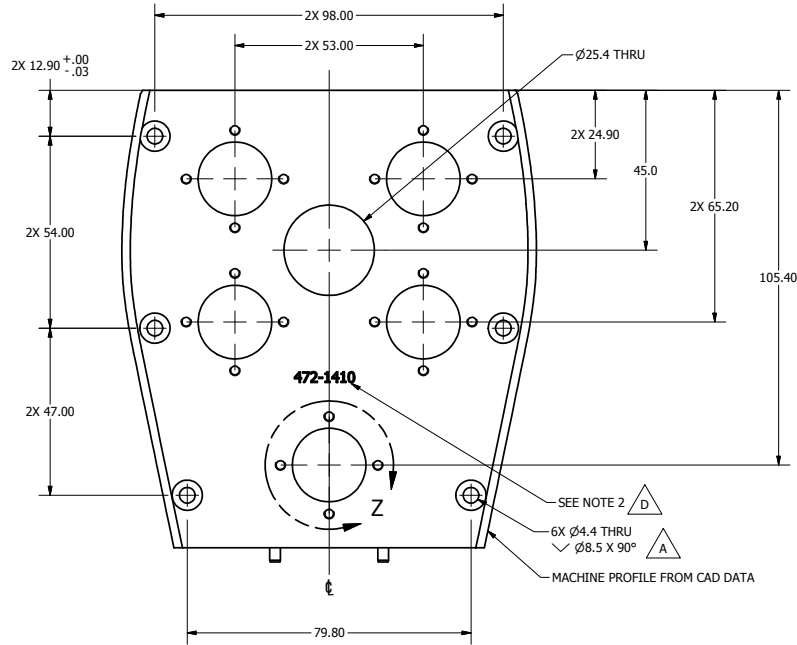
REV	DESCRIPTION	DATE	BY
4	2	5000333	HELI-COIL, M3x0.5 X 6 LG SST
3	2	5000592	M3 X 16 LG. DOWEL PIN
2	4	5001108	M6 X 1 X 10 LG. LIGHTWEIGHT KEENSERT
1	6	5000724	M4 X 0.7 X 5.25 LG. MINI KEENSERT

ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM111 Rev A AND CONVERTED TO METRIC FOR THOR-M; DIMENSION $\phi 65.3$ AS SHOWN IN C-C WAS $\phi 65.3 + 0.00/-0.12$ TO DEPTH SHOWN; 4X $\phi 3.5$ THRU C'BORE $\phi 6.0$ AS SHOWN IN SEC. C-C WAS (4X) $\phi 4.8$ TO DEPTH SHOWN $\phi 3.3$ THRU; 4X $\phi 5.5$ THRU C'SINK $\phi 10.5 \times 90^\circ$ WAS 4X $\phi 5.1$ THRU C'SINK $\phi 9.8 \times 82.0^\circ$; 2X $\phi 2.998 + .000/-0.10$ (P.F. DOWEL) WAS 2X $\phi 3.2$ THRU SLIP FIT DOWEL; $36.08 \pm .02$ WAS $36.08 \pm .03$; $\phi 89.40$ AS SHOWN WAS $\phi 89.04 + 0.05/-0.00$ TO DEPTH SHOWN; 4X $\phi 6.4$ THRU EQUI-SPACED ON A $\phi 76.2$ B.C. AS SHOWN WAS 4X $\phi 17/64$ THRU EQUALLY SPACED ON B.C. $\phi 76.2$; $\phi 89.40$ AS SHOWN WAS $\phi 89.4 + 0.05/-0.00$ TO DEPTH SHOWN; 128.2 WAS 128.0	8/26/2011	BK
	B	REMOVED 5000934, SLIP FIT HOLES WERE PRESS FIT IN TOP OF HEAD, ADDED M3 HELICOILS (5000333)	9/17/2012	TMV

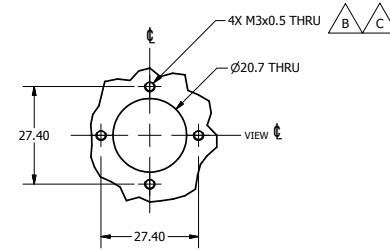
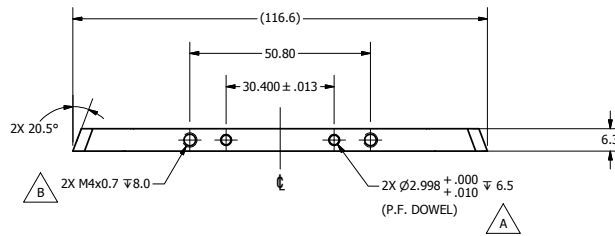
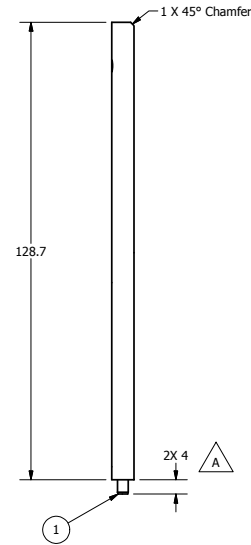
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.



SCALE .750



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM110 R04 AND CONVERTED TO METRIC FOR THOR-M; Ø4.4 THRU C'SINK Ø8.5 X 90° WAS Ø4.5 THRU C'SINK Ø8.4 X 82°; 2X 4 WAS 2X 3; Ø2998+.000/-010 I 6.5 WAS Ø3.174+.000/-011 I 6.4; ADD NOTE 3, (OPTIONAL) TO NOTE 2	8/25/2011	BK
	B	REMOVE KEENSERTS, TAP HOLES TO THREAD SIZE	2/15/2012	BK
	C	M3 THRU HOLES WERE M4 (20X)	5/25/2012	BK
	D	CORRECT TYPO ON PART, 472 WAS 470	8/15/2012	BK



DETAIL Z
5 PLACES
SCALE 1.000

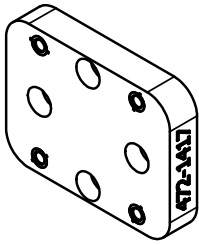
NOTES:

- DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
- STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
- INSTALL DOWEL PINS AFTER ANODIZE.

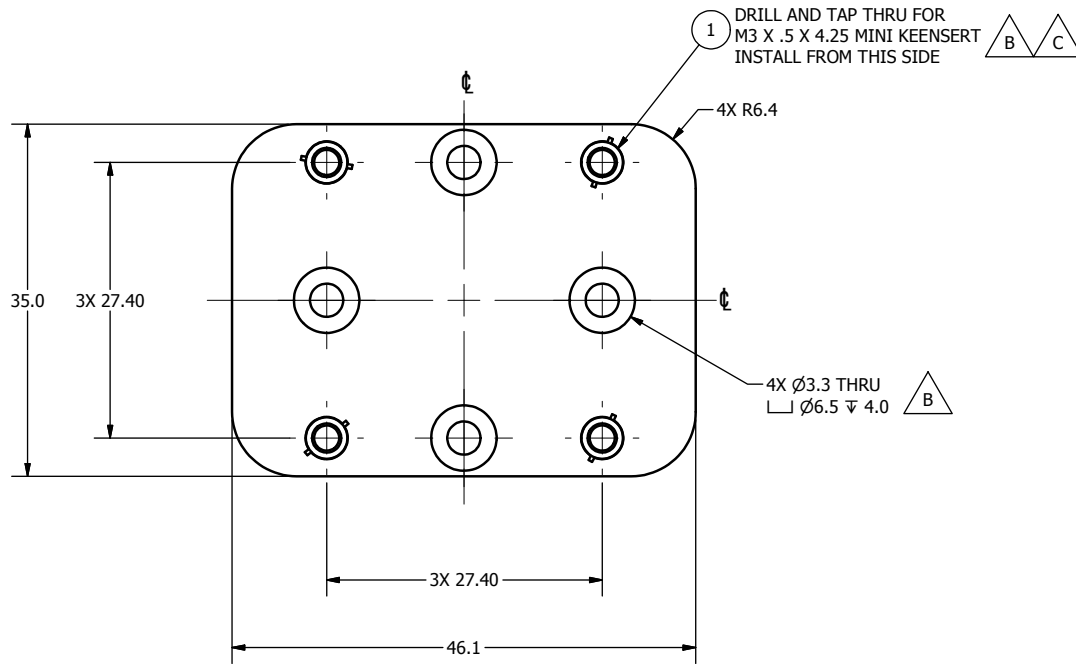
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	5000284	M3 X 10 LG. DOWEL PIN

PARTS LIST			
472-1100	1	7075-T6 ALUMINUM	FACE PLATE
TOTAL QTY IN DUMMY	1	CLEAR ANODIZE	

<p>DO NOT SCALE DRAWING</p> <p>THIRD ANGLE PROJECTION</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED</p> <p>DIMENSIONS ARE IN MILLIMETERS</p> <p>FRACTIONS: DECIMALS: ANGLES: DEGREES</p> <p>Ø: .125: .005: .010: .015</p> <p>FINISHES: UNLESS OTHERWISE SPECIFIED</p> <p>ALL SURFACES TO BE MACHINED</p> <p>ALL DIMENSIONS TO BE TAKEN FROM UNMACHINED SURFACES</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
<p>DATE: 8/25/2011</p> <p>DESIGNED BY: B. KIMES</p> <p>PREPARED BY: J. WANG</p>	<p>DATE: 11/10/2012</p> <p>SCALE: 1.000</p>	<p>472-1410</p>



SCALE 1.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM117 R03 AND CONVERTED TO METRIC FOR THOR-M;	8/24/11	BK
	B	5000724 WAS 5001107; Ø3.3 THRU C'BORE Ø6.5 WAS Ø3.8 THRU C'BORE Ø7.1	3/16/2012	BK
	C	M3 X.5 KEENSERT WAS M4 X .7	5/25/2012	BK

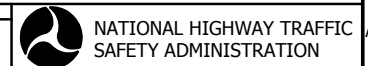
472-1417

SEE NOTE 2

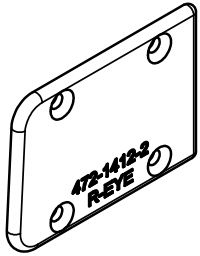
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)



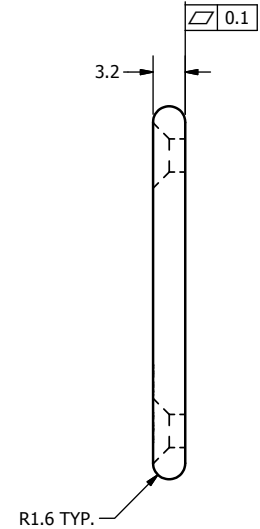
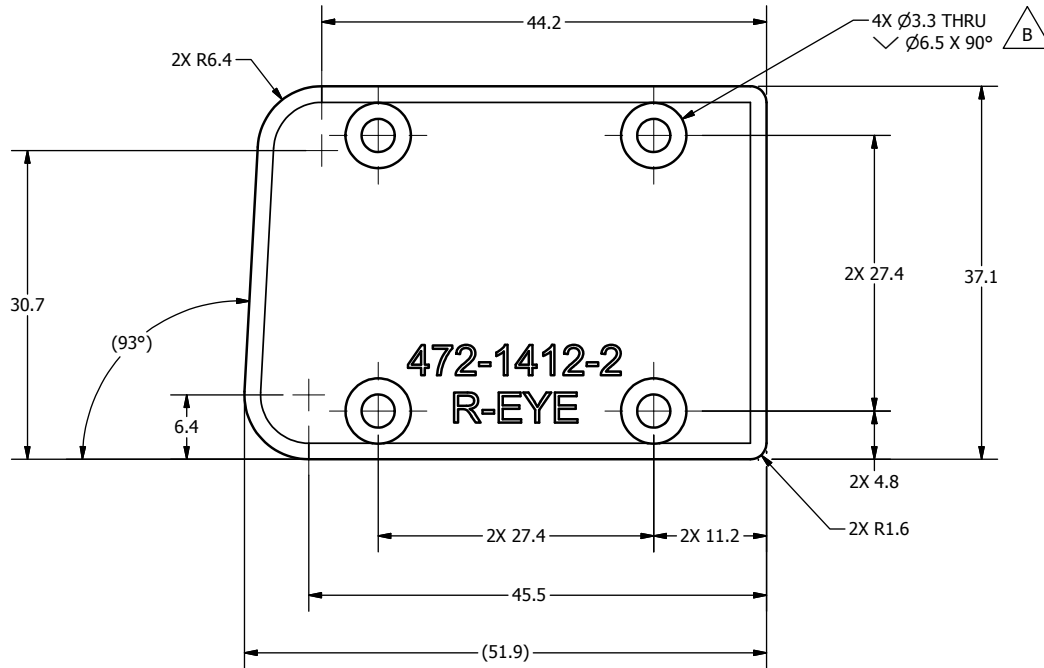
1	4	5001107	M3 X 0.5 X 4.25 LG. MINI KEENSERT
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01	
PROJECT NO.: 472-1100		MATERIAL: 7075-T6 ALUMINUM	
NEXT ASSEMBLY QTY		HEAT TREAT:	
TOTAL QTY IN DUMMY 1		FINISH: CLEAR ANODIZE	
		DRAWN BY: B. KIMES	
		DATE: 8/25/2011	
		CHECKED BY: J. WANG	
		DATE: 1/10/2012	
		SCALE: 2.000	
		SIZE: A3	
		SHEET: 1 OF 1	
		DRAWING NO.: 472-1417	
		REV: C	



FACE LOAD CELL, MOCK



SCALE 1.000

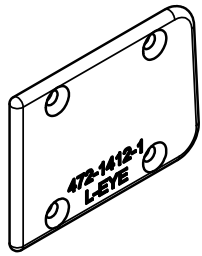


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM112 R06 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82'	5/25/2012	BK

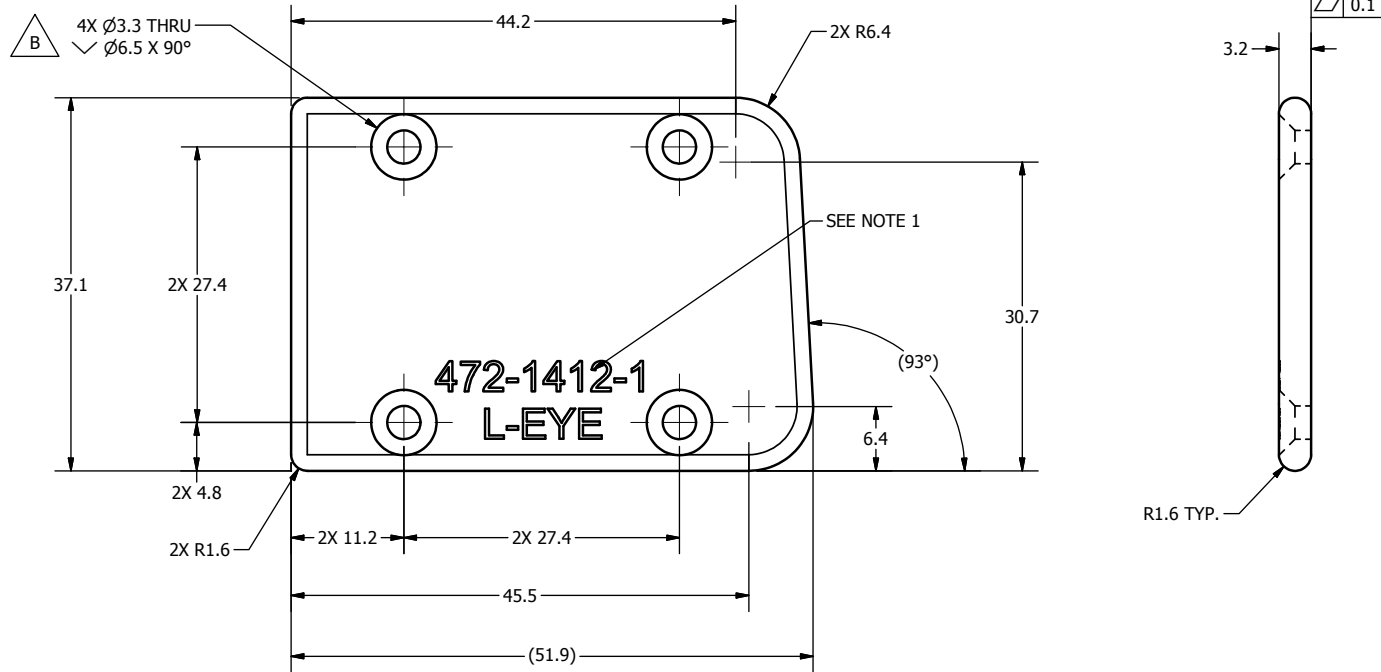
NOTES:

1. STAMP OR ETCH PART NUMBER AND "R-EYE" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-1100	MATERIAL:	440C STAINLESS STEEL	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	8/25/2011	RIGHT EYE LOAD CELL PLATE
CHECKED BY:		HEAT TREAT:	Rc 55-59	SIZE: A3
ENGINEER:	J. WANG	DATE:	1/10/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 2.000
				DRAWING NO.:
				472-1412-2
				REV.:
				B



SCALE 1.000

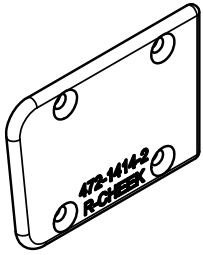


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM113 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82'	5/25/2012	BK

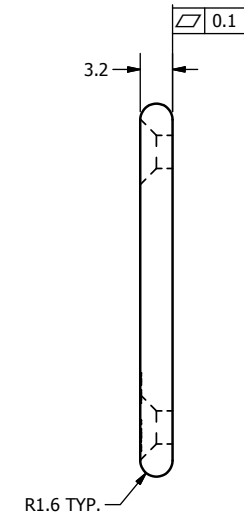
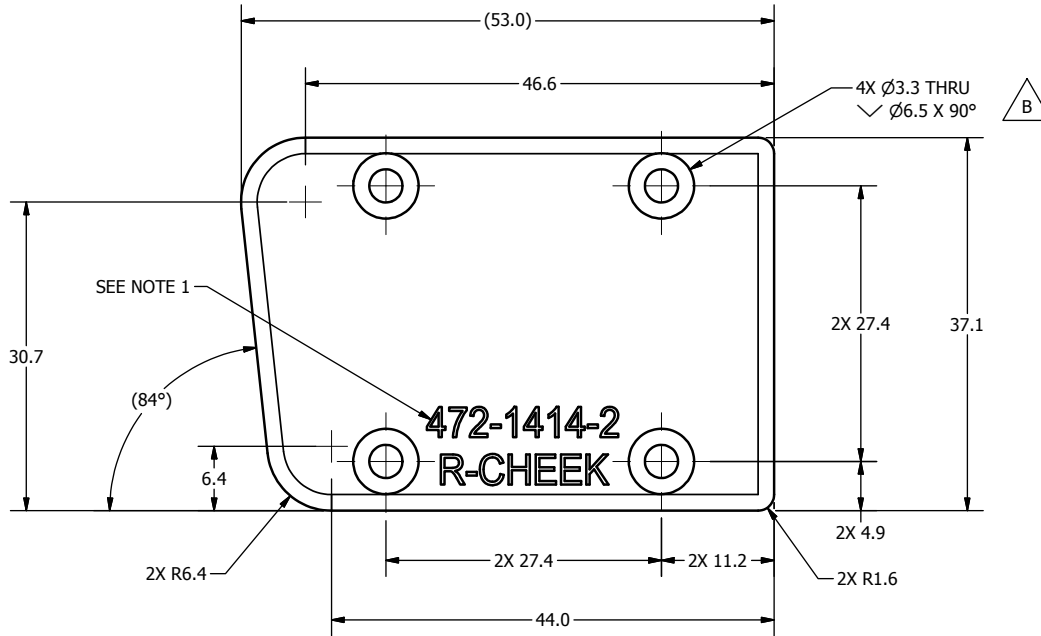
NOTES:

1. STAMP OR ETCH PART NUMBER AND "L-EYE" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-1100	MATERIAL:	440C STAINLESS STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	8/25/2011	LEFT EYE LOAD CELL PLATE
HEAT TREAT:	Rc 55-59	ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/10/2012	SCALE: 2.000
TOTAL QTY IN DUMMY	1	SIZE:	A3	SHEET: 1 OF 1
		DRAWING NO.:	472-1412-1	REV: B



SCALE 1.000

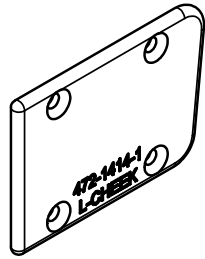


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM114 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82°	5/25/2012	BK

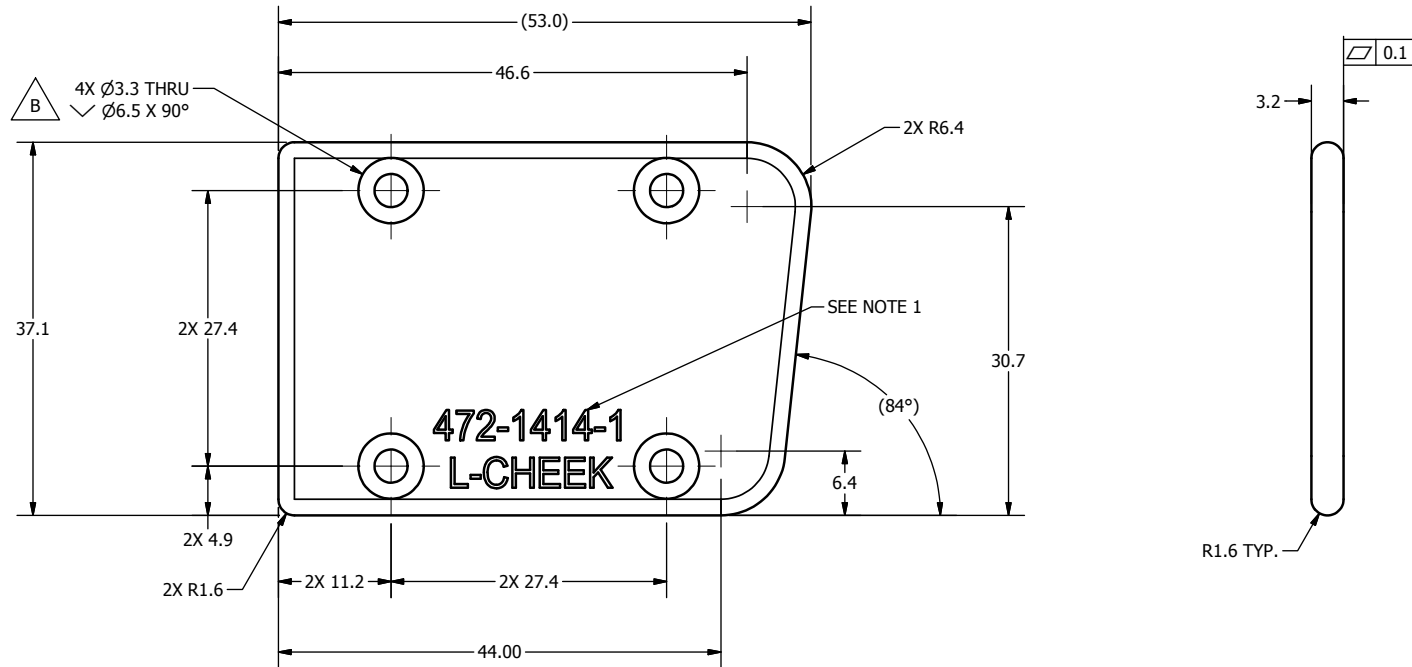
NOTES:

1. STAMP OR ETCH PART NUMBER AND "R-CHEEK" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-1100	MATERIAL:	440C STAINLESS STEEL	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	8/25/2011	RIGHT CHEEK LOAD CELL PLATE
CHECKED BY:		HEAT TREAT:	Rc 55-59	SIZE: A3
ENGINEER:	J. WANG	DATE:	1/10/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 2.000
				DRAWING NO.:
				472-1414-2
				REV.:
				B



SCALE 1.000



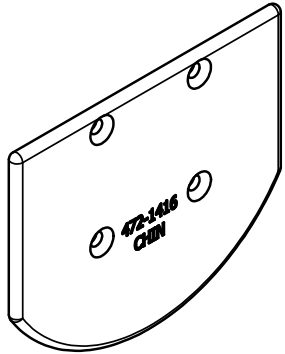
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM115 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82°	5/25/2012	BK

NOTES:

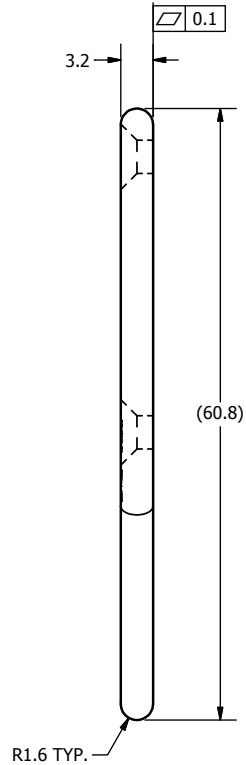
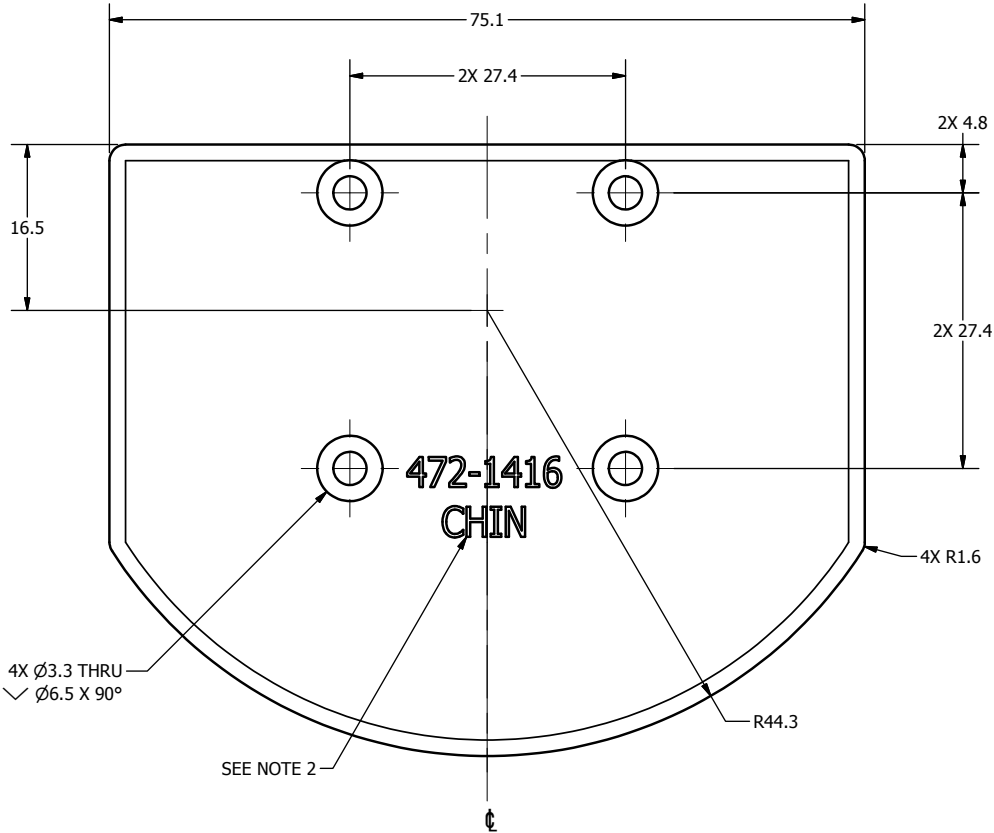
1. STAMP OR ETCH PART NUMBER AND "L-CHEEK" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-1100	MATERIAL:	440C STAINLESS STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	8/25/2011	LEFT CHEEK LOAD CELL PLATE
HEAT TREAT:	Rc 55-59	ENGINEER:	J. WANG	SCALE:
FINISH:		DATE:	1/10/2012	2.000
TOTAL QTY IN DUMMY	1	SIZE:	A3	SHEET:
		OF:	1	DRAWING NO.:
				472-1414-1
				REV:
				B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM116 R04 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82'	5/25/2012	BK

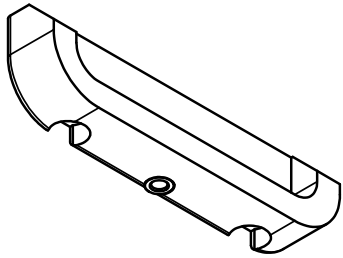


SCALE 1.000

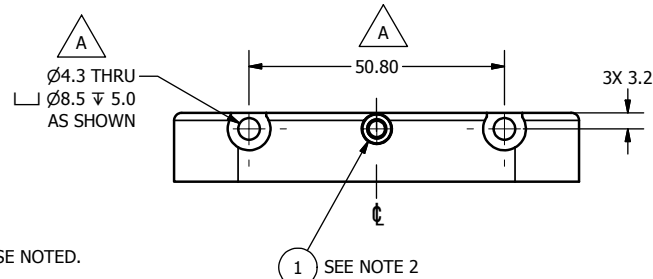
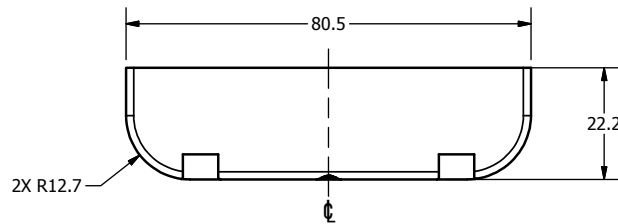
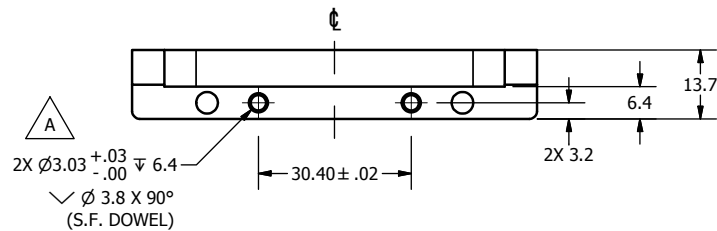
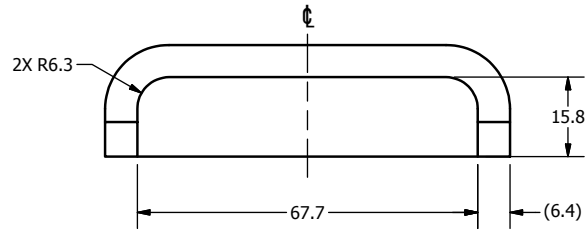


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER AND "CHIN" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

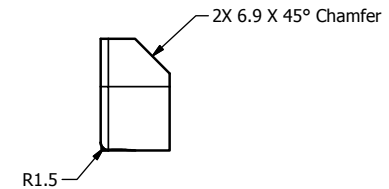
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.57 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-1100	MATERIAL:	440C STAINLESS STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	8/25/2011	CHIN LOAD CELL PLATE
HEAT TREAT:	Rc 55-59	ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/10/2012	SCALE:
TOTAL QTY IN DUMMY	1	FINISH:		SCALE: 2.000
			SIZE: A3	SHEET: 1 OF 1
			DRAWING NO: 472-1416	
			REV: B	



SCALE 1.000



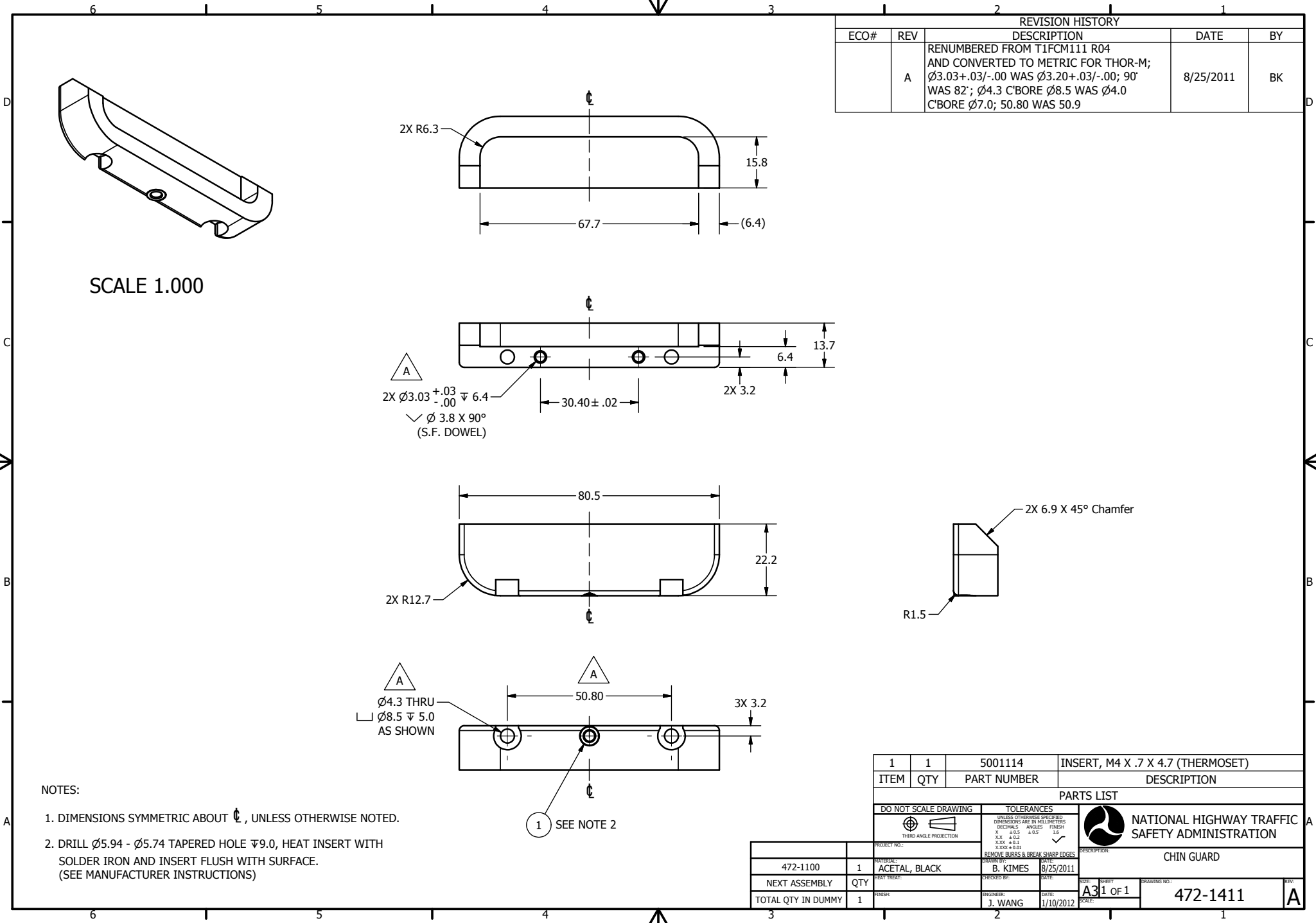
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM111 R04 AND CONVERTED TO METRIC FOR THOR-M; Ø3.03+.03/-00 WAS Ø3.20+.03/-00; 90° WAS 82°; Ø4.3 C'BORE Ø8.5 WAS Ø4.0 C'BORE Ø7.0; 50.80 WAS 50.9	8/25/2011	BK



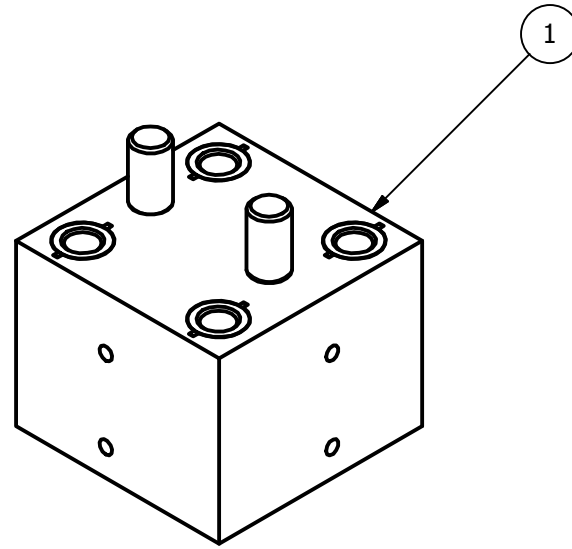
NOTES:

- DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
- DRILL $\phi 5.94 - \phi 5.74$ TAPERED HOLE $\nabla 9.0$, HEAT INSERT WITH SOLDER IRON AND INSERT FLUSH WITH SURFACE. (SEE MANUFACTURER INSTRUCTIONS)

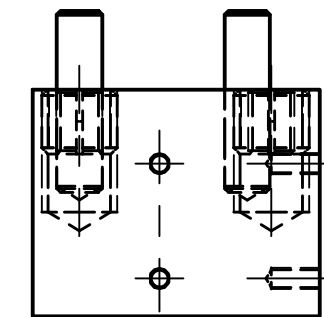
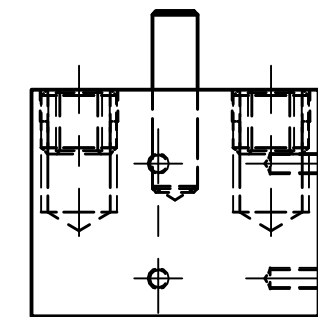
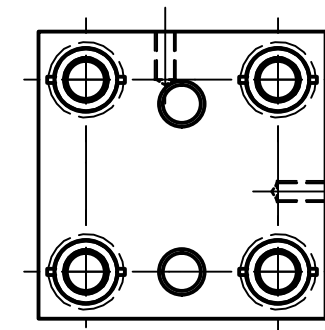
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5001114	INSERT, M4 X .7 X 4.7 (THERMOSET)
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 X .02 ± 0.2 X .03 ± 0.3 X .01 ± 0.01 REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.: 472-1100		MATERIAL: ACETAL, BLACK	
CHECKED BY: B. KIMES		DATE: 8/25/2011	
NEXT ASSEMBLY QTY		HEAT TREAT:	
TOTAL QTY IN DUMMY 1		FINISH:	
ENGINEER: J. WANG		DATE: 1/10/2012	
SCALE: A3		SIZE: SHEET 1 OF 1	
DESCRIPTION: CHIN GUARD			DRAWING NO.: 472-1411
			REV: A





REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM101 R01 AND CONVERTED TO METRIC FOR THOR-M	8/30/2011	BK
	B	UPDATE VIEWS TO SHOW CHANGE TO 472-1119	6/12/2012	BK
	C	REMOVED SA572-S4, ACCELEROMETERS	5/20/2014	DW



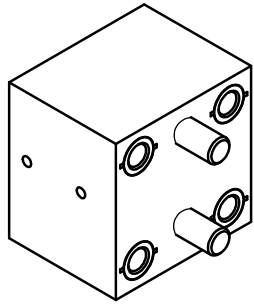
SCALE 2.000



1	1	472-1119	TOP BI-AXIAL ACCEL MOUNT, HEAD
ITEM	QTY	PART NUMBER	DESCRIPTION

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
PROJECT NO.: THOR-M		DATE: 8/25/2011		DESCRIPTION: BIAXIAL ACCELEROMETER ASSEMBLY, HEAD
MATERIAL:		DRAWN BY: B. KIMES		
HEAT TREAT:		CHECKED BY:		SIZE: A3
FINISH:		ENGINEER: J. WANG		SHEET: 1 OF 1
TOTAL QTY IN DUMMY: 1		DATE: 1/10/2012		DRAWING NO.: 472-1101
				SCALE: 2.000

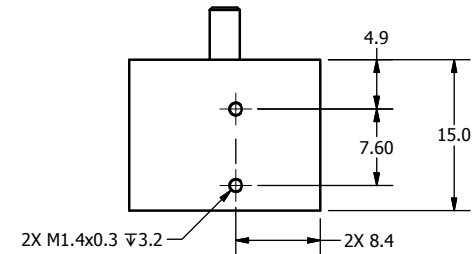
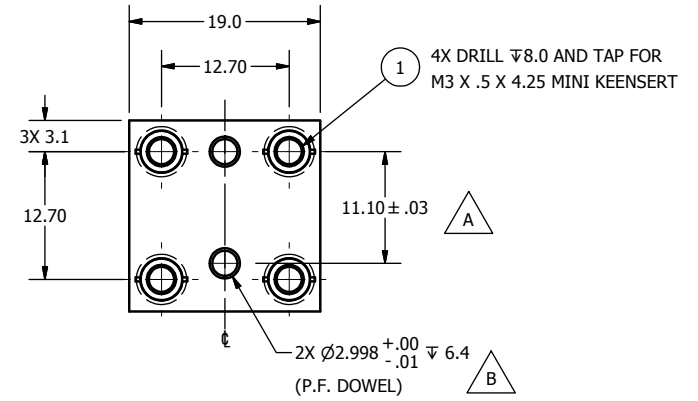
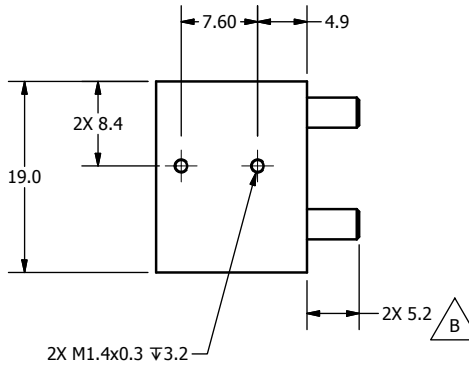
472-1100	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



SCALE 2.000

472-1119

SEE NOTE 2



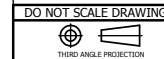
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM119 R02 AND CONVERTED TO METRIC FOR THOR-M; 11.10±.03 WAS 11.10	8/25/2011	BK
	B	ADD 5000183; Ø2.998+ .00/- .01 ↓ 6.4 (P.F. DOWEL) WAS Ø3.20+ .03/- .00 ↓ 6.4 (S.F. DOWEL); ADD 2X 5.2	5/21/2012	TMV

NOTES:

1. DIMENSIONS SYMMETRIC ACROSS \updownarrow , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000183	PIN, DOWEL M3 X 12 mm
1	4	5001107	M3 X 0.5 X 4.25 LG. MINI KEENSERT

PARTS LIST



DO NOT SCALE DRAWING
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X .05 1.6
X .02 1.6
X .03 1.6
X .01 1.6



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

REMOVE BURRS & BREAK SHARP EDGES

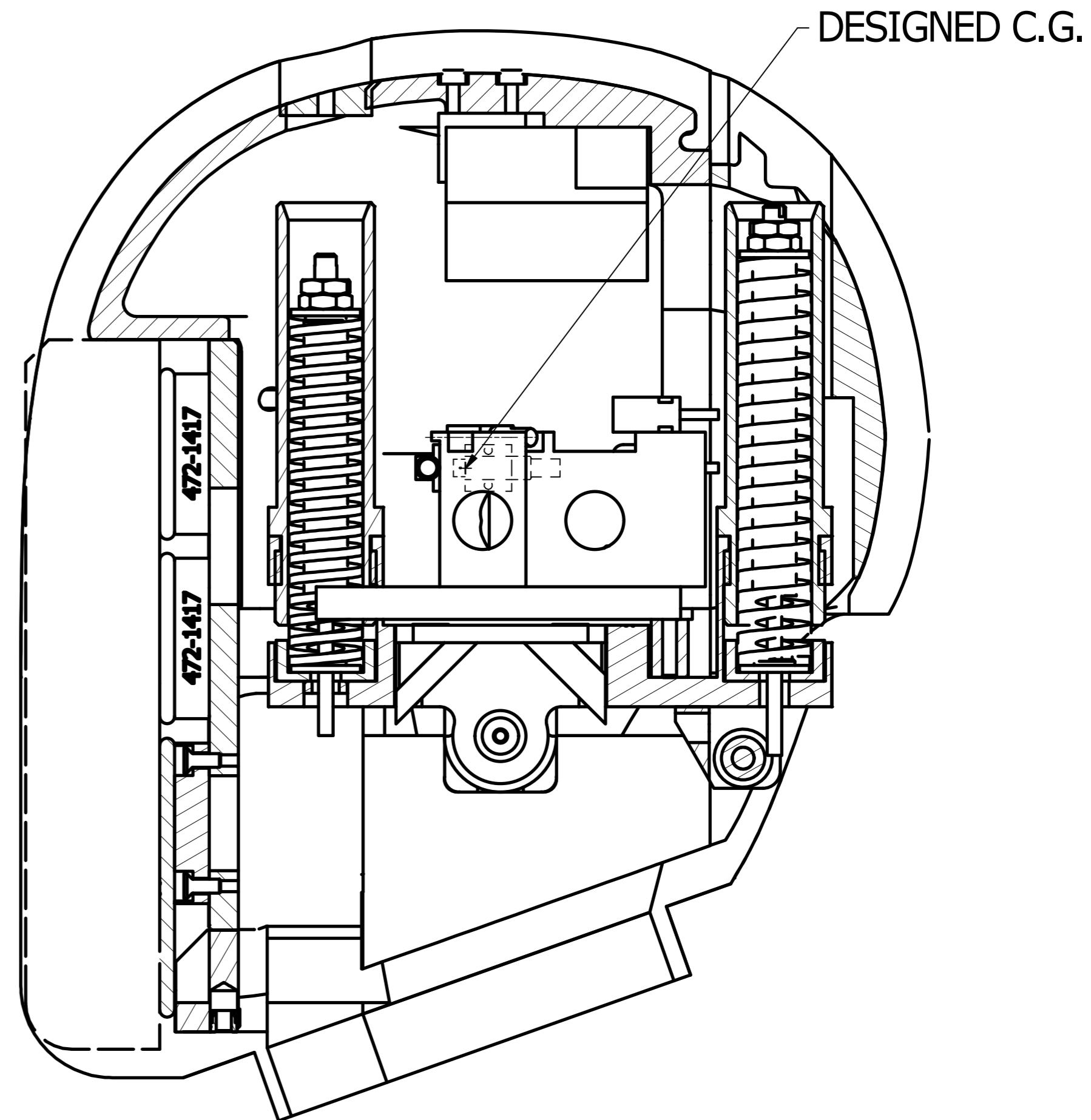
DESCRIPTION: TOP BI-AXIAL ACCEL MOUNT, HEAD

PROJECT NO:	472-1101	1	MATERIAL:	7075-T6 ALUMINUM	DRAWN BY:	B. KIMES	DATE:	8/25/2011	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-1119	REV.:	B
NEXT ASSEMBLY	QTY	1	FINISH:	CLEAR ANODIZE	ENGINEER:	J. WANG	DATE:	1/10/2012	SCALE:	2.000						
TOTAL QTY IN DUMMY	1															

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM118 R3, AND CONVERTED TO METRIC FOR THOR-M	7/30/2015	DW

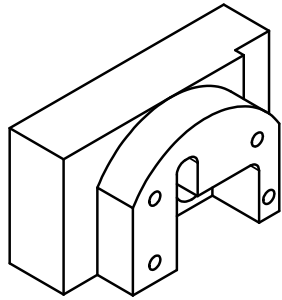
HEAD BALLASTING NOTES:

- DESIGN AND INSTALL THE BALLAST WEIGHT, 472-1120, IN THE HEAD SO THAT THE FOLLOWING DESIGN HEAD WEIGHT AND CG REQUIERMENTS ARE ACHIEVED.
- ALL OF THE PARTS AND ASSEMBLIES LISTED ARE TO BE INCLUDED IN THE WEIGHT AND CG LOCATION DETERMINATION.
- NON ACTIVE INSTRUMENTS (WITHOUT WIRES) ARE TO BE USED IN PLACE OF ACTUAL INSTRUMENTATION.
- THE FRONT AND REAR CABLES WERE SHORTENED SO THAT THE CABLE WOULD NOT EXTEND BELOW THE OCCIPITAL CONDYLE LOCATION.
- THE DESIGN CG LOCATION IS IDENTIFIED BY A SMALL HOLE IN THE SKULL AND SKIN ON EACH SIDE OF THE HEAD.
- THE HEAD WEIGHT IS 4.54 ±0.05 kg.
- THE DESIGN HEAD CG LOCATION RELATIVE TO THE OCCIPITAL CONDYLE IS AS FOLLOWS X = 7.6 Y = 0.0 Z = 58.4

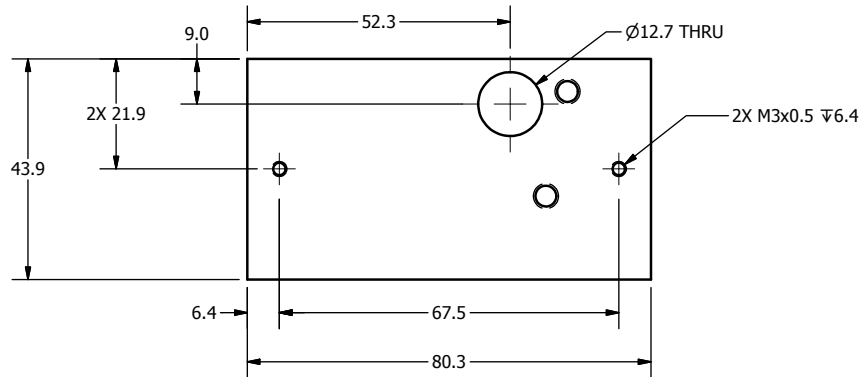
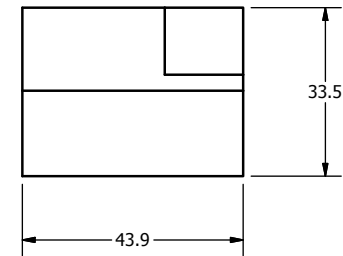
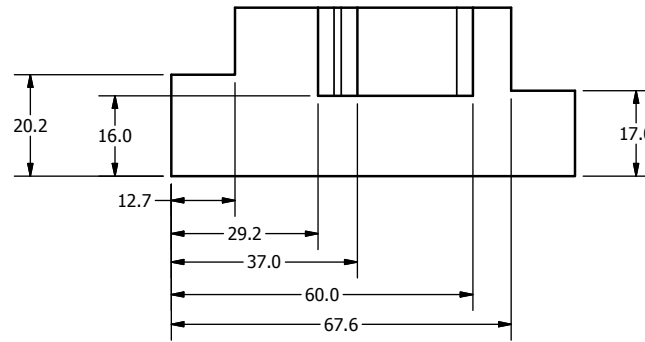
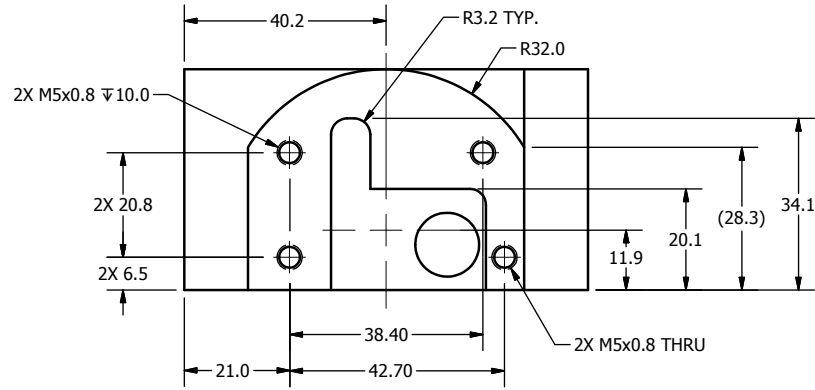


5000749	472-2000	SCREW, BHCS M3-0.5 x 5	2
5000674	472-2000	SCREW, BHCS M3-0.5 x 5	2
5000135	472-1000	SCREW, FHCS M6-1 x 25	4
SA572-S114	472-2000	ROTARY POTENTIOMETER	1
472-2130	472-2100	REAR CABLE ASSEMBLY, NECK SEE NOTE4	1
5000144V	472-2000	NUT, HEX JAM M6-1	4
4772-2150	472-2100	FRONT CABLE ASSEMBLY, NECK SEE NOTE4	1
5000674	472-2000	SCREW, BHCS M3-0.5 x 5	2
5000749	472-2000	SCREW, BHCS M3-0.5 x 30	2
472-2014	472-2000	ROTARY POTENTIOMETER COVER, NECK	1
5000082	472-2000	SCREW, SHCS M2-0.4 x 6	4
472-2020	472-2000	ROTARY POTENTIOMETER CLAMP, NECK	2
472-2021	472-2000	ROTARY POTENTIOMETER WASHER, NECK	1
472-2013	472-2000	ROTARY POTENTIOMETER HOUSING, NECK	1
472-2200	472-2000	MOUNTING PLATFORM ASSEMBLY, NECK	1
472-1310	472-1000	CAP SKIN	1
472-1320	472-1000	SKIN ASSEMBLY	1
5001116	472-1000	SCREW, PHILLIPS NYLON M3 X .5 X 6	2
5000081	472-1000	M6 X 1 X 16 LG. SHCS	4
472-1110	472-1000	HEAD CAP	1
472-1200	472-1000	ACCELEROMETER MOUNTING PLATE ASSEMBLY, HEAD	1
472-1401	472-1000	CONFOR FOAM, FACE	1
472-1100	472-1000	SKULL ASSEMBLY	1
PART NUMBER	ASSEMBLY	DESCRIPTION	QTY

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small> MACHINED ANGLES ±.5°	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: Dave Walker CHECKED:	DATE 7/30/2015	HEAD C.G. PART GROUP FOR BALLAST WEIGHT DESIGN THOR-M	
MATERIAL:	HEAT TREAT: ENG	FINISH: APPROVED	SIZE: A2 SCALE:	DRAWING NUMBER: 472-1115 SHEET: 1 OF 1



SCALE .750



NOTES:

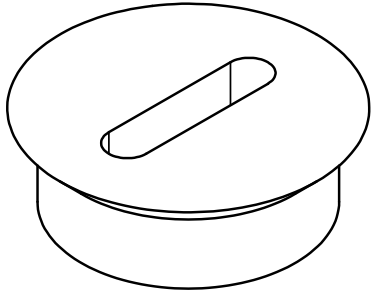
1. POWDER OR BEAD BLAST.
2. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM120 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK

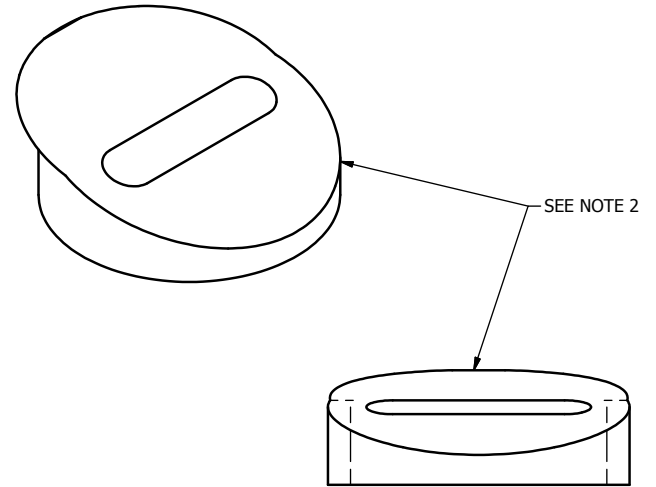
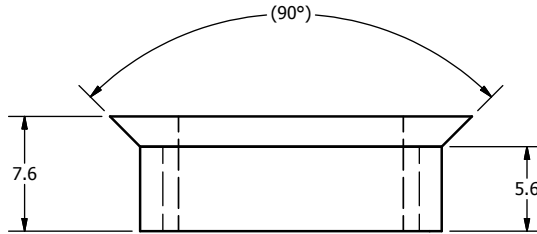
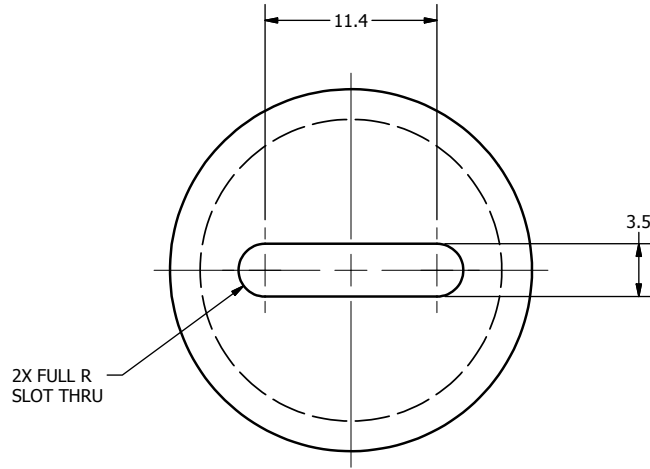
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 16 XX ± 0.2 XXX ± 0.3 XXXX ± 0.51 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-1100	MATERIAL:	1018 STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	8/25/2011	HEAD BALLAST
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FRESH:	SEE NOTES	DATE:	1/10/2012	SCALE:
TOTAL QTY IN DUMMY	1	SEE NOTES		SCALE: 1.000

SIZE	SHEET	DRAWING NO.	REV.
A3	1 OF 1	472-1120	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM116 R04 AND CONVERTED TO METRIC FOR THOR-M	8/26/2011	BK



SCALE 3.000

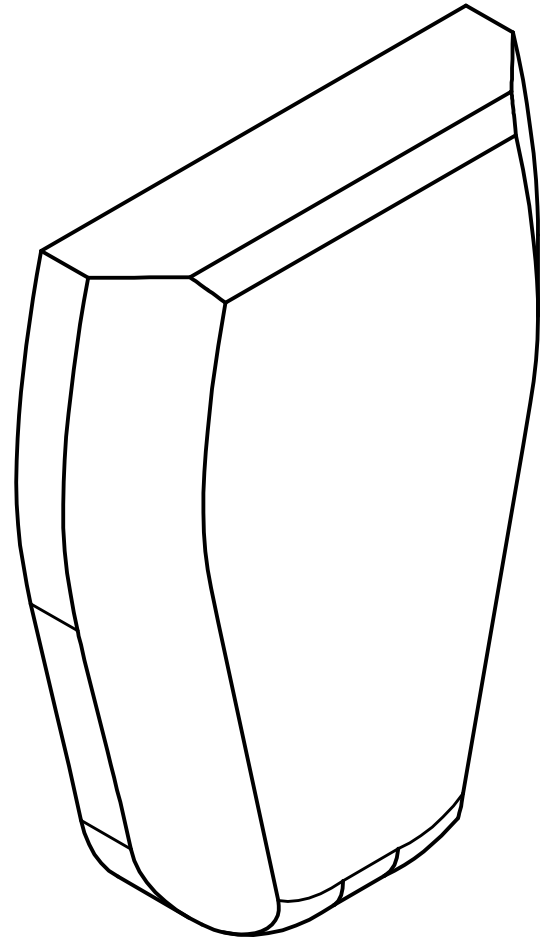


NOTES:

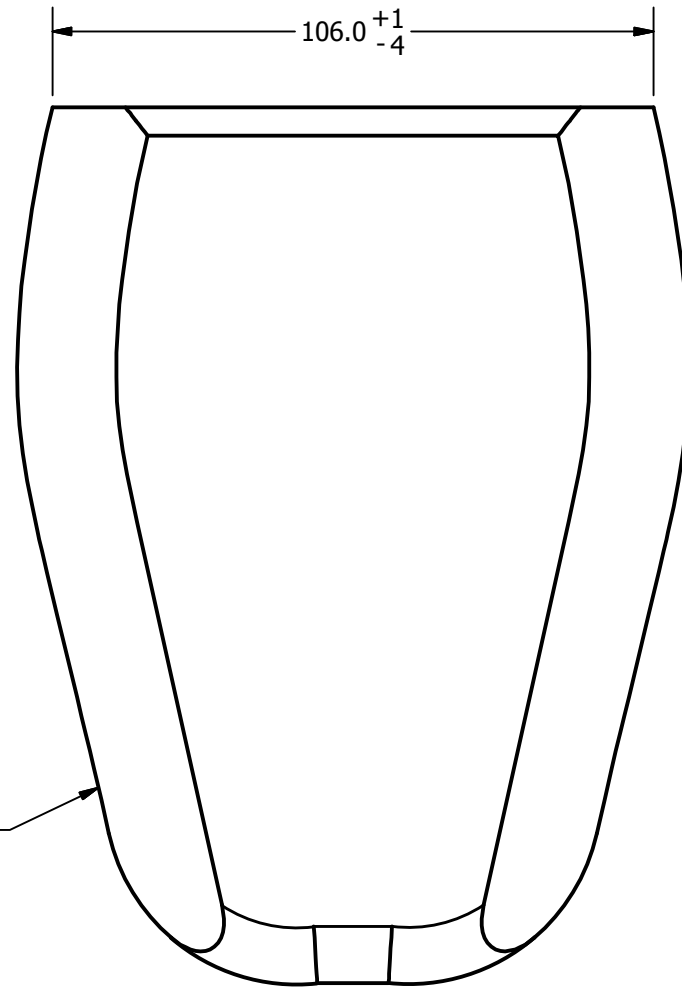
1. MAKE FROM M20 X 2.5 X 40 FHCS (5001115), MODIFY AS SHOWN.
2. PART IS MANUALLY MODIFIED AFTER ASSEMBLING IN SKULL, PROFILE IS GROUND FLUSH WITH OUTER SKULL SURFACE.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.3 XXXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-1100	MATERIAL:	SEE NOTES	DESCRIPTION:
CHECKED BY:	1	HEAT TREAT:		PLUG, HEAD
DRAWN BY:		DATE:	8/25/2011	SIZE: SHEET
ENGINEER:		DATE:	1/10/2012	A3 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 3.000
				DRAWING NO. 472-1116
				REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM061 R03 FOR THOR-M	8/30/2011	BK
	B	MATERIAL WAS CF45 CONFOR FOAM (BLUE)	11/5/2012	BK

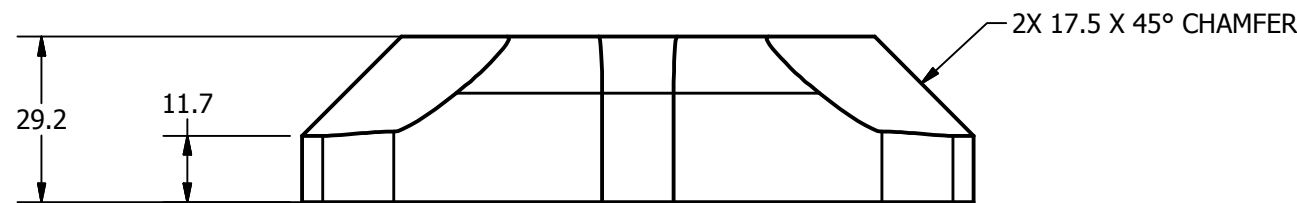
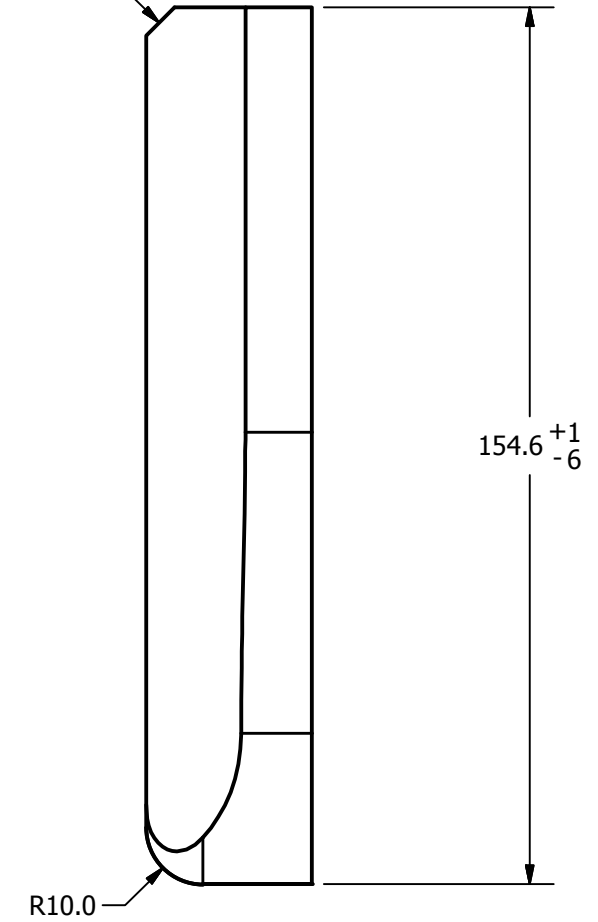


SCALE .750



CUT PROFILE FROM CAD DATA

5.0 x 45° CHAMFER



NOTES:

- 1. FOAM TOLERANCE ±1mm, UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

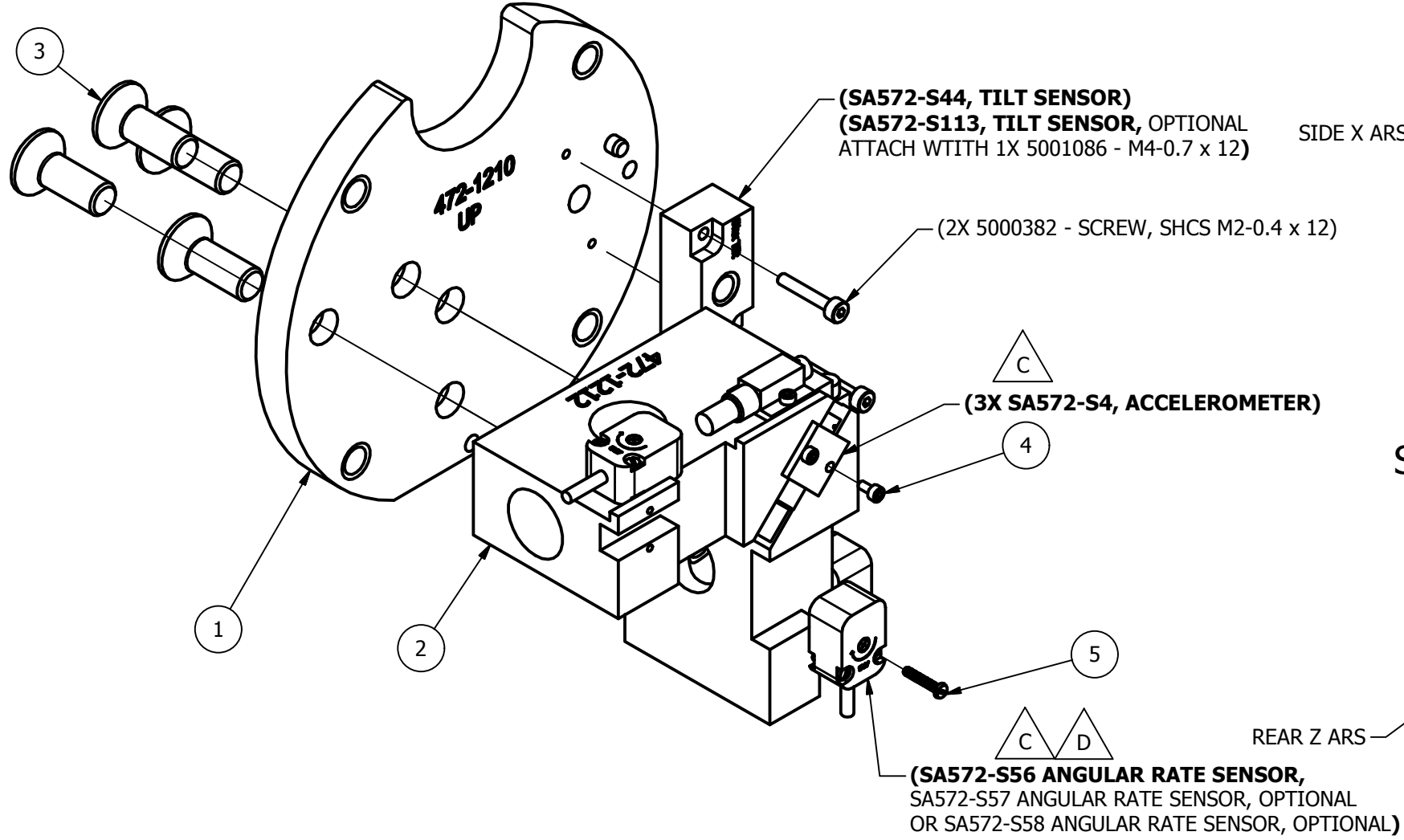
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
XX ±0.2 ±0.5 1.6
XXX ±0.1 ±0.5 1.6
XXXX ±0.01 ±0.5 1.6



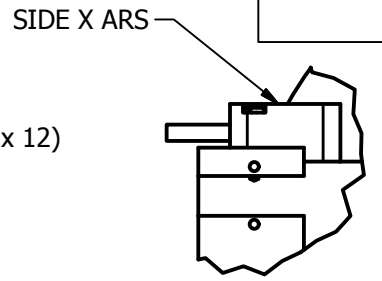
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.:	472-1400	MATERIAL:	CF47 CONFOR FOAM (GREEN)	DATE:	8/30/2011	DESCRIPTION:	CONFOR FOAM, FACE
HEAT TREAT:		CHECKED BY:	B. KIMES	DATE:		SIZE:	A3 1 OF 1
FINISH:		ENGINEER:	J. WANG	DATE:	1/10/2012	DRAWING NO.:	472-1401
TOTAL QTY IN DUMMY	1					SCALE:	.750

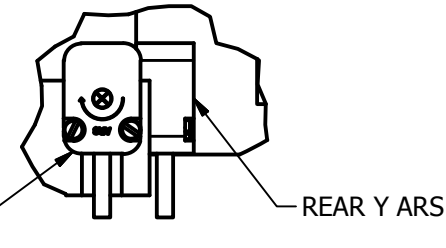
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM200 R12 AND CONVERTED TO METRIC FOR THOR-M	8/31/2011	BK
	B	REORIENT ACCELEROMETERS PER NHTSA PRINT	12/20/2012	BK
	C	CHANGED QUANTITY OF SA572-S4, ACCELEROMETERS TO 3; ADDED ANGULAR RATE SENSORS; CHANGED DEFAULT TILT SENSOR TO SA572-S44; REMOVED PART #5001086 - SCREW, FHCS M4x0.7 x 12 LG FROM PARTS LIST	9/22/2014	DW
	D	REMOVED ANGULAR RATE SENSOR SA572-S55 FROM ARS LIST	8/17/2016	DW



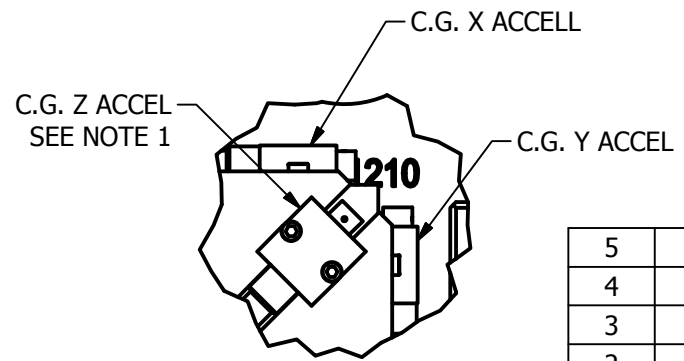
SCALE 1.000



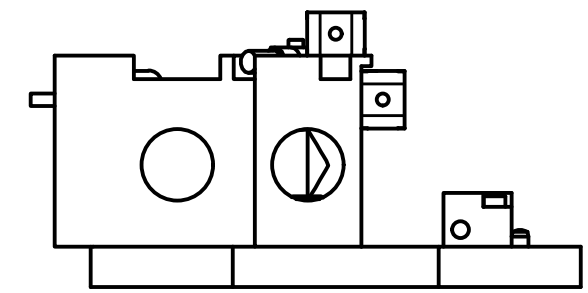
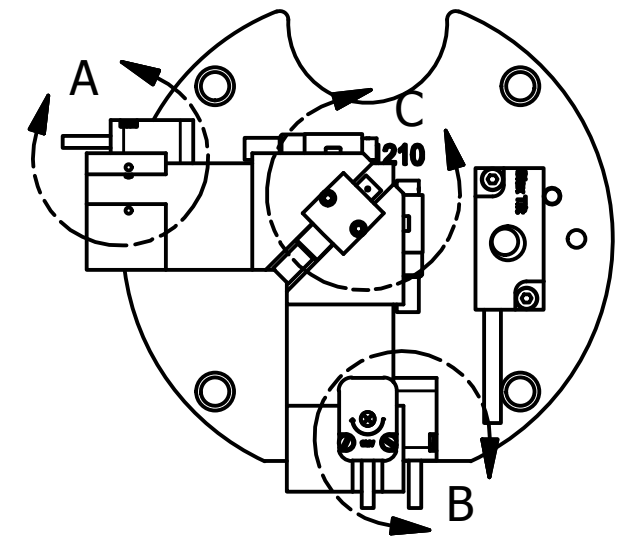
DETAIL A
SCALE 1.000



DETAIL B
SCALE 1.000



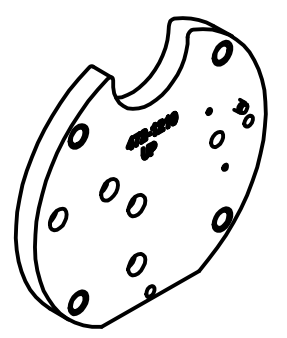
DETAIL C
SCALE 1.000



- NOTES:
- Z AXIS ACCELEROMETERS ARE MOUNTED UPSIDE DOWN ON THE FIXTURE IN ORDER TO HAVE THE SIGN CONVENTION MATCH SAE J211.
 - ORIENTATION OF THE ACCELEROMETERS CORRESPONDS TO SAE J211.

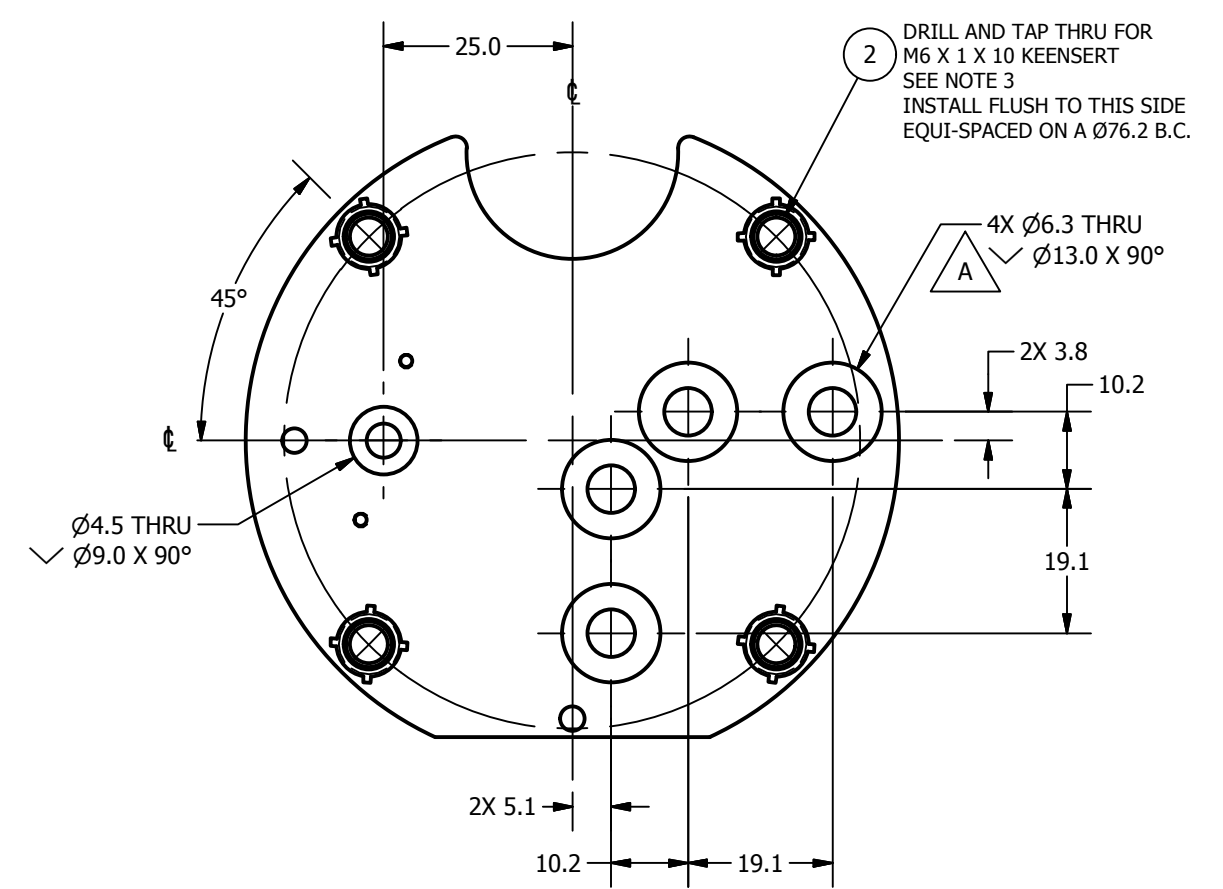
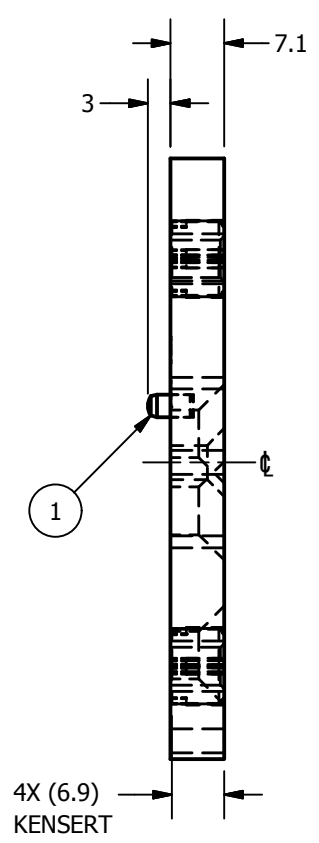
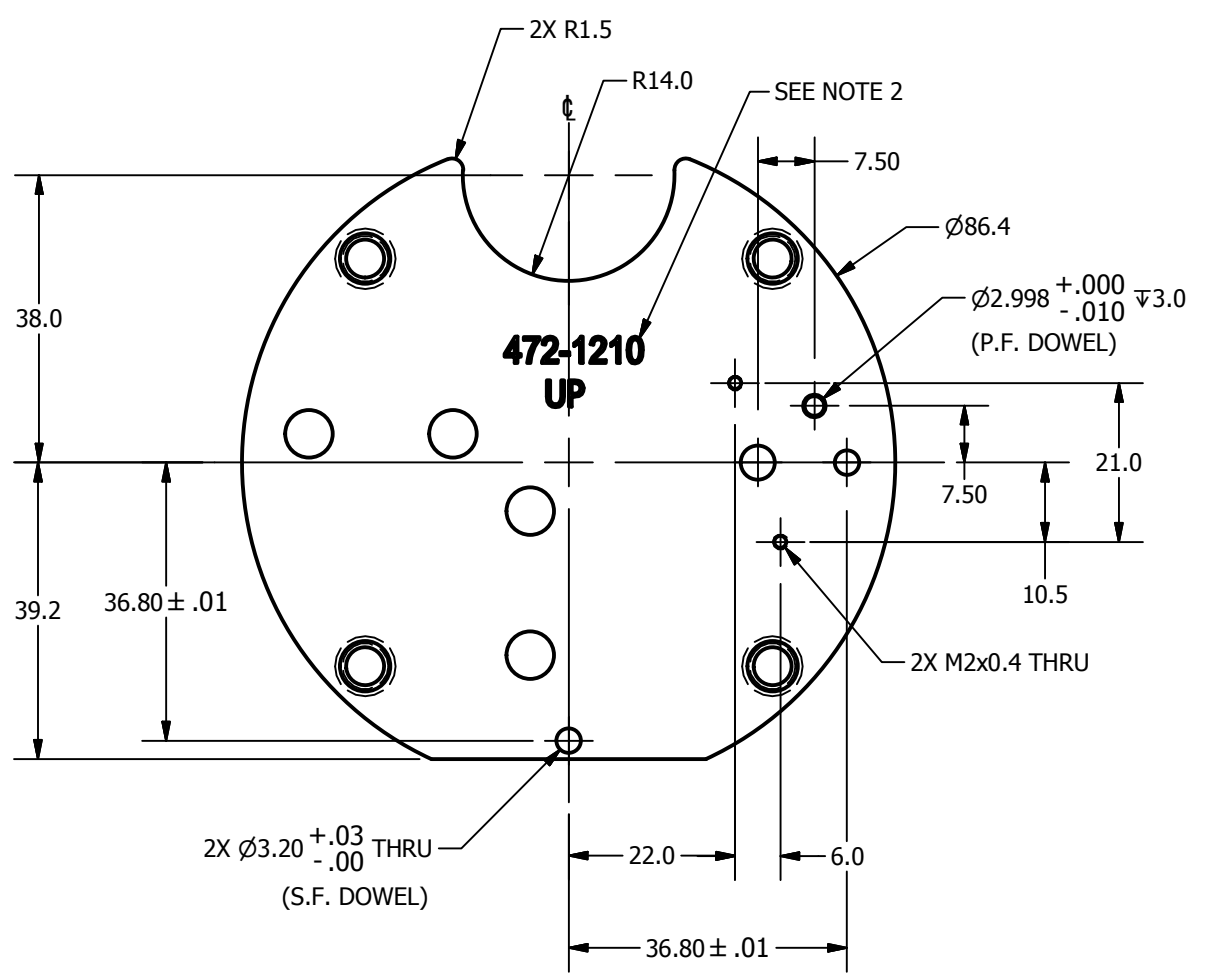
ITEM	QTY	PART NUMBER	DESCRIPTION
5	6	6000000	SCREW, CHESSE HEAD M1.4-0.3 x 8
4	6	5000068	SCREW, SHCS M1.4 - 0.3 X 3 LG.
3	4	9000826	SCREW, FHCS M6 x 1.0 x 16mm
2	1	472-1212	7 ACCELEROMETER ARRAY FIXTURE
1	1	472-1210	ACCELEROMETER MOUNTING PLATE, HEAD

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ° ±0.5 1.6 XX ±0.2 ° ±0.5 1.6 XXX ±0.1 ° ±0.5 1.6 XXXX ±0.01 ° ±0.5 1.6		
PROJECT NO.: THOR-M	DRAWN BY: B. KIMES	DATE: 8/31/2011	<small>REMOVE BURRS & BREAK SHARP EDGES</small> DESCRIPTION: ACCELEROMETER MOUNTING PLATE ASSEMBLY, HEAD	
MATERIAL:	HEAT TREAT:	CHECKED BY:	DATE:	SIZE: A3 SHEET: 1 OF 1 SCALE: .750
NEXT ASSEMBLY	QTY	ENGINEER: J. WANG	DATE: 1/10/2012	DRAWING NO.: 472-1200
TOTAL QTY IN DUMMY	1			REV: D



SCALE .500

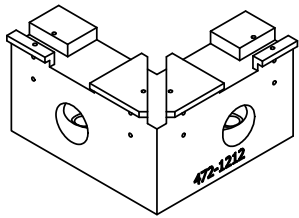
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM210 R10 AND CONVERTED TO METRIC FOR THOR-M; Ø6.3 THRU C'SINK Ø13.0 X 90° WAS Ø6.8 THRU C'SINK Ø13.5 X 82°; ADD NOTE 3	8/30/2011	BK



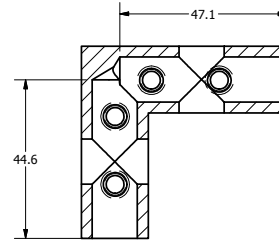
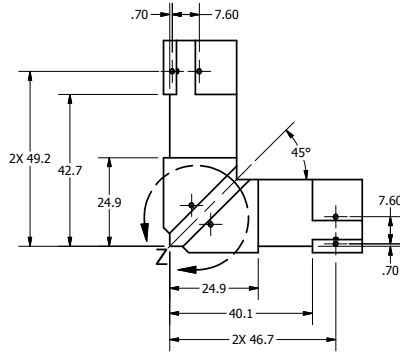
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER AND "UP" (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 3. (4X) GRIND KEENSERT HEIGHT TO 6.9mm BEFORE INSTALLING.
 4. INSTALL KEENSERTS AND DOWEL PINS AFTER FINISH.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	5001108	M6 X 1 X 10 LG. LIGHTWEIGHT KEENSERT
1	1	5000385	M3 X 6 LG. DOWEL

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
PROJECT NO.:	7075-T6 ALUMINUM	REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:
472-1200	1	B. KIMES	8/30/2011	ACCELEROMETER MOUNTING PLATE, HEAD
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	A3 1 OF 1
		J. WANG	1/10/2012	SCALE: 1.000
				DRAWING NO.: 472-1210

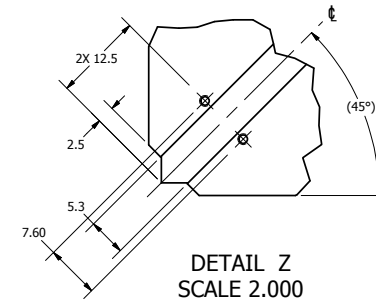
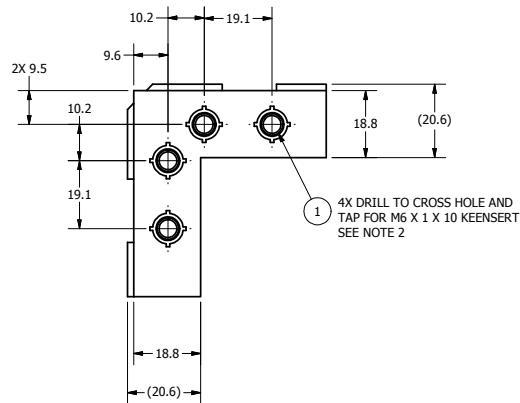
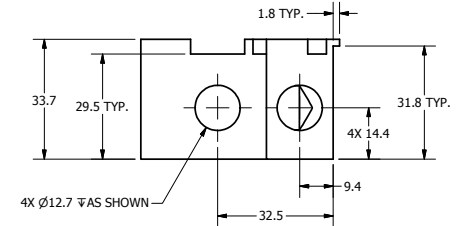
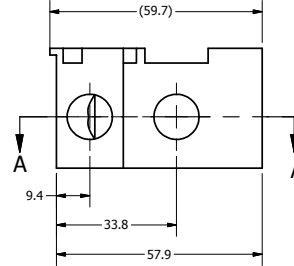
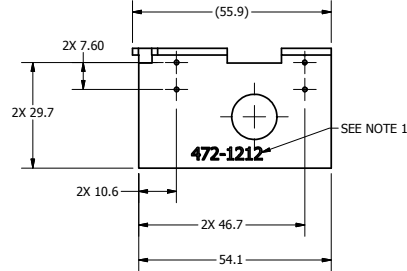
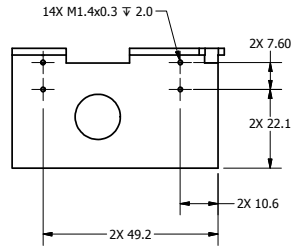


SCALE 1.000



SECTION A-A
SCALE 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM212 R14 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	8/31/2011	BK



DETAIL Z
SCALE 2.000
DIMENSIONS SYMMETRIC ABOUT ϵ

NOTES:

1. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

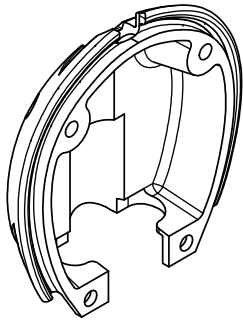
2. (4X) GRIND KEENSERT HEIGHT TO 8.0mm BEFORE INSTALLING. INSTALL AFTER ANODIZE.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	5001108	M6 X 1 X 10 LG. LIGHTWEIGHT KEENSERT

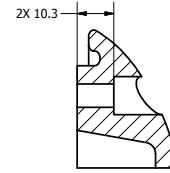
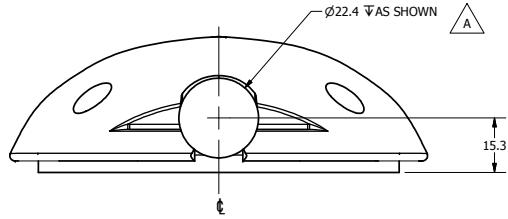
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

ITEM	QTY	PART NUMBER	DESCRIPTION	DATE	BY
472-1200	1	7075-T6 ALUMINUM	B. KIMES	8/31/2011	
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DUMMY	1	CLEAR ANODIZE	J. WANG	1/10/2012	

7 ACCELEROMETER ARRAY FIXTURE
A21 of 1
1.000
472-1212

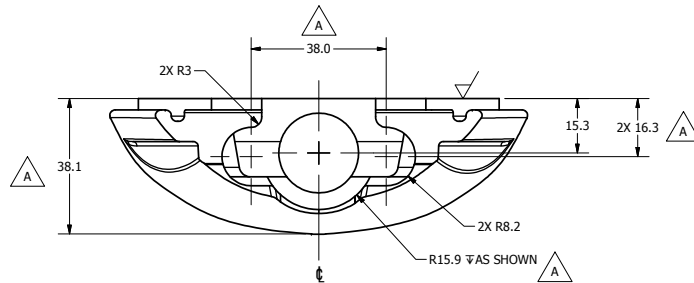
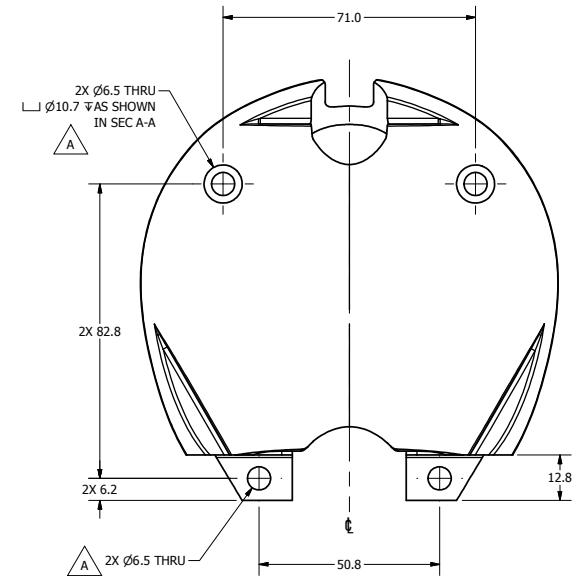
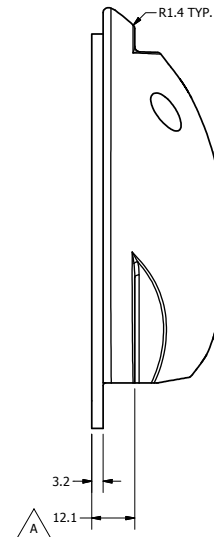
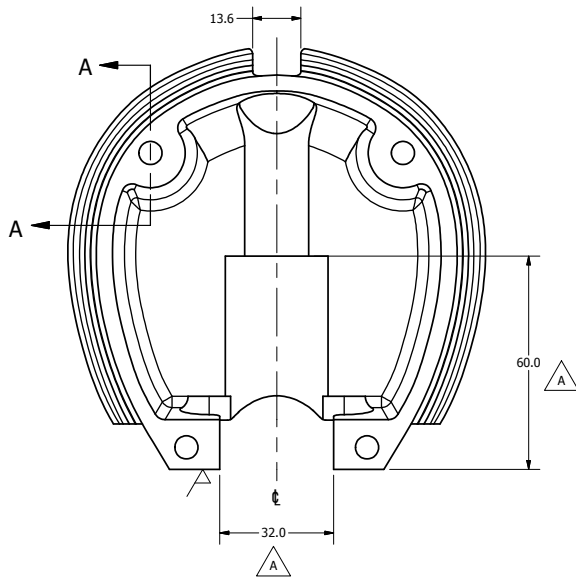


SCALE .750



SECTION A-A
SCALE 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM110 R09 AND CONVERTED TO METRIC FOR THOR-M; DIMENSION Ø22.4 AS SHOWN WAS Ø22.4 THRU; 32.0 WAS 32.1; 38.0 WAS 38.1; 2X 16.3 WAS 2X 16.2; R15.9 ↓ AS SHOWN WAS Ø30.1 ↓ 60.7; 2X Ø6.5 THRU WAS 2X Ø6.8 THRU; 2X Ø6.5 THRU C'BORE Ø10.7 ↓ AS SHOWN IN SEC. A-A WAS 2X Ø6.8 THRU C'BORE Ø10.7 ↓ 16.3 FROM DATUM A; ADDED DIMENSIONS 60.0, 38.1, 12.0 AND SECTION A-A	8/30/2011	BK



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
357 CAST ALUMINUM		B. KIMES		HEAD CAP	
472-1000	1	8/30/2011			
NEXT ASSEMBLY	QTY	DATE			
TOTAL QTY IN DUMMY	1	11/10/2012	A21 of 1		
		3. WANG	DATE	1.000	472-1110

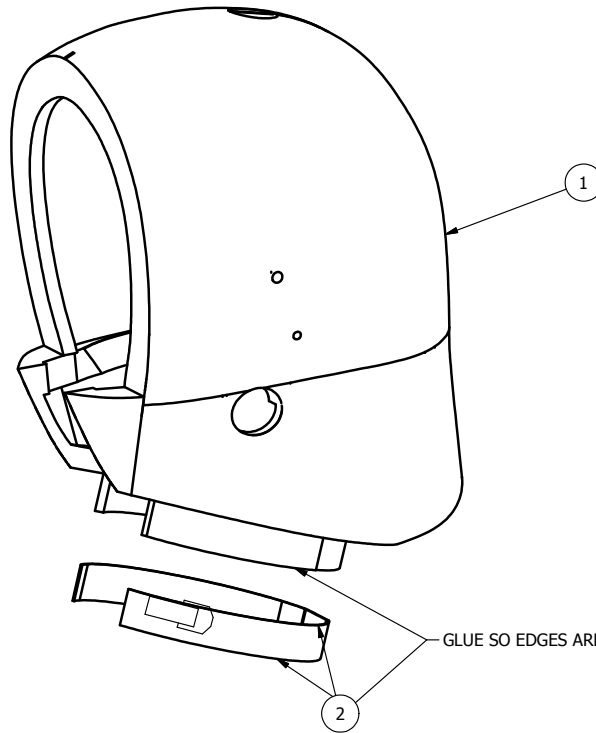
4

3

2

1

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDS020 R10 FOR THOR-M	11/13/2012	BK
	B	REMOVE 472-1322, 472-1323	2/21/2013	BK



GLUE SO EDGES ARE FLUSH

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-1324	HEAD/NECK SKIN ZIPPER
1	1	472-1321	HEAD SKIN, MOLDED

Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.02 0.5° 1.6° X.XX 0.01 X.XXX 0.008		
PROJECT NO: S3744		DRAWN BY: SFice		DATE: 4/12/2012
MATERIAL:		CHECKED BY: TMV		DATE: 4/13/2012
HEAT TREAT: N/A		ENGINEER: J. WANG		DATE: 1/23/2012
FINISH: N/A		SIZE: B		SHEET: 1 OF 1
DRAWING NO: 472-1320		SECRET: N/A		REV: B

ITEM	QTY	DESCRIPTION
472-1000	1	NEXT ASSEMBLY
TOTAL QTY IN DUMMY	1	

4

3

2

1

B

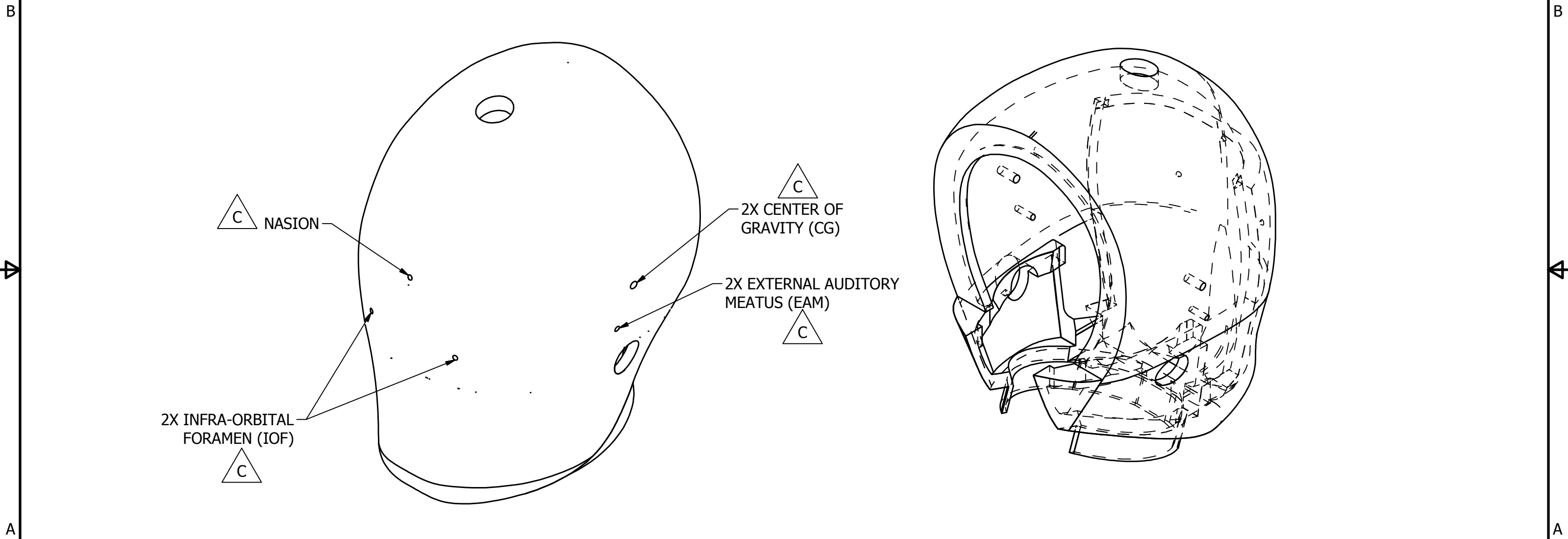
B

A

A



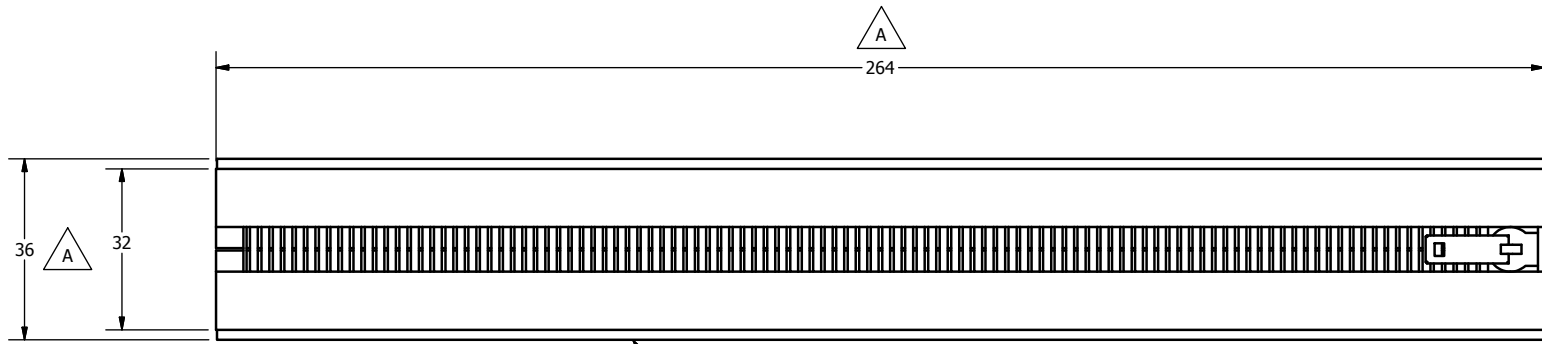
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	8	CONVERTED FROM ENGLISH TO METRIC REMOVED VIEWS NOT USED	2/8/10	C. SPADE
	A	RENUMBERED FROM TIHDS021 R9 FOR THOR-M	11/27/2012	BK
	B	ADDED MATERIAL	4/16/2013	KHS
	C	ADDED HEAD LANDMARKS, CENTER OF GRAVITY (CG), EXTERNAL AUDITORY MEATUS (EAM), INFR-ORBITAL FORAMEN (IOF), & NASION	7/10/2015	DW



DO NOT SCALE DRAWING		TOLERANCES		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		DECIMALS ANGLES FINISH		DESCRIPTION: HEAD SKIN, MOLDED THOR	
PROJECT NO.: 472-1320	1	MATERIAL: URTHANE 67±5 "A"	DRAWN BY: srice	DATE: 4/12/2012	SCALE: B 1 OF 1		DRAWING NO.: 472-1321
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY: TMV	DATE: 4/24/2013	REV: C		
TOTAL QTY IN DUMMY	1	FINISH:	ENGINEER: J. WANG	DATE: 1/23/2012			



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
70706	A	264 WAS 10.4", 36 WAS 1.40"; ADD 32 DIMENSION; ADD MATERIAL AND TOLERANCE SPEC	12/20/2012	BK



VINYL FLAP STITCHED ON UNDERSIDE OF ZIPPER

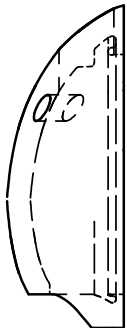
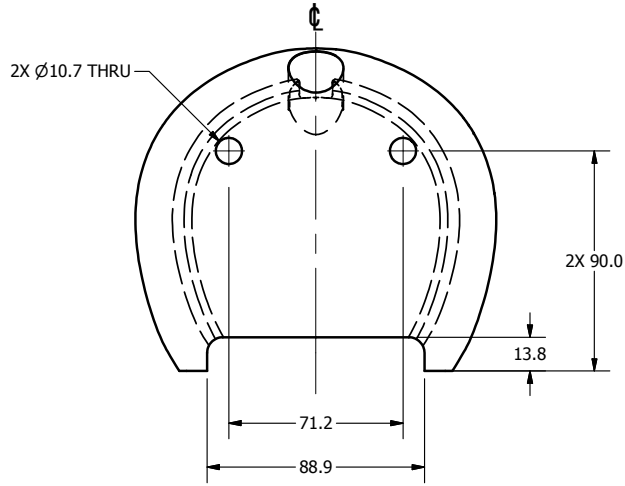
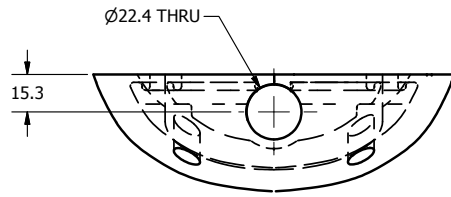
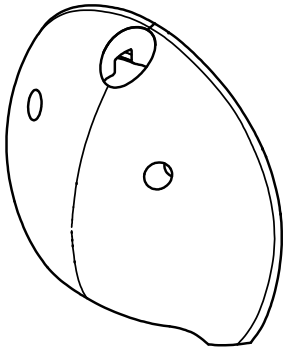
NOTES:

- #5 BLACK OXIDE BRASS ZIPPER
STANDARD AUTOLOCK SLIDER
TOP AND BOTTOM SEPERATING
COLOR: BLACK
(LENZIP)
- TOLERANCE: ±2mm



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO:	472-1320	MATERIAL:	SEE NOTES	DESCRIPTION:
DESIGNED BY:	B. Kimes	DATE:	7/10/2012	NECK/HEAD SKIN ZIPPER
CHECKED BY:	J. WANG	DATE:	1/26/2012	SIZE: A3
HEAT TREAT:		FINISH:		SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	SCALE:	1.000	DRAWING NO.: 472-1324
				REV: A

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDS010 R8 FOR THOR-M; ADD NOTE 1	11/13/2012	BK



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.	MATERIAL:	DIMENSIONAL FINISH	DATE:
472-1000	1	X.X ±0.2	4/13/2012
NEXT ASSEMBLY	QTY	ANGLES FINISH	CHECKED BY:
TOTAL QTY IN DUMMY	1	X.XX ±0.1	J.WANG
		REMOVE BURRS & BREAK SHARP EDGES	DATE:
			1/23/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: CAP SKIN THOR

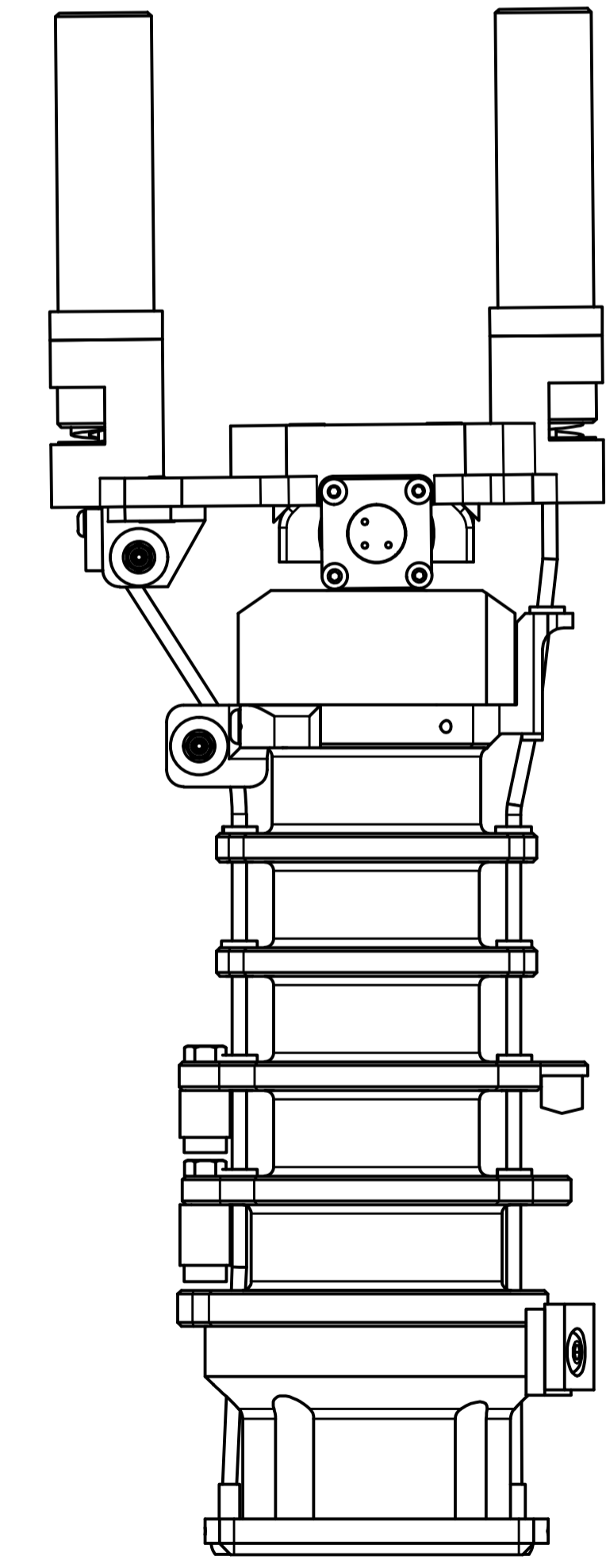
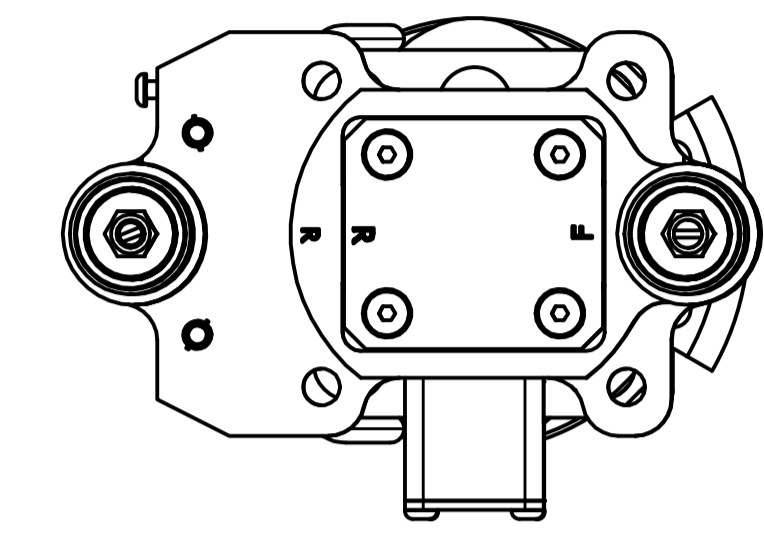
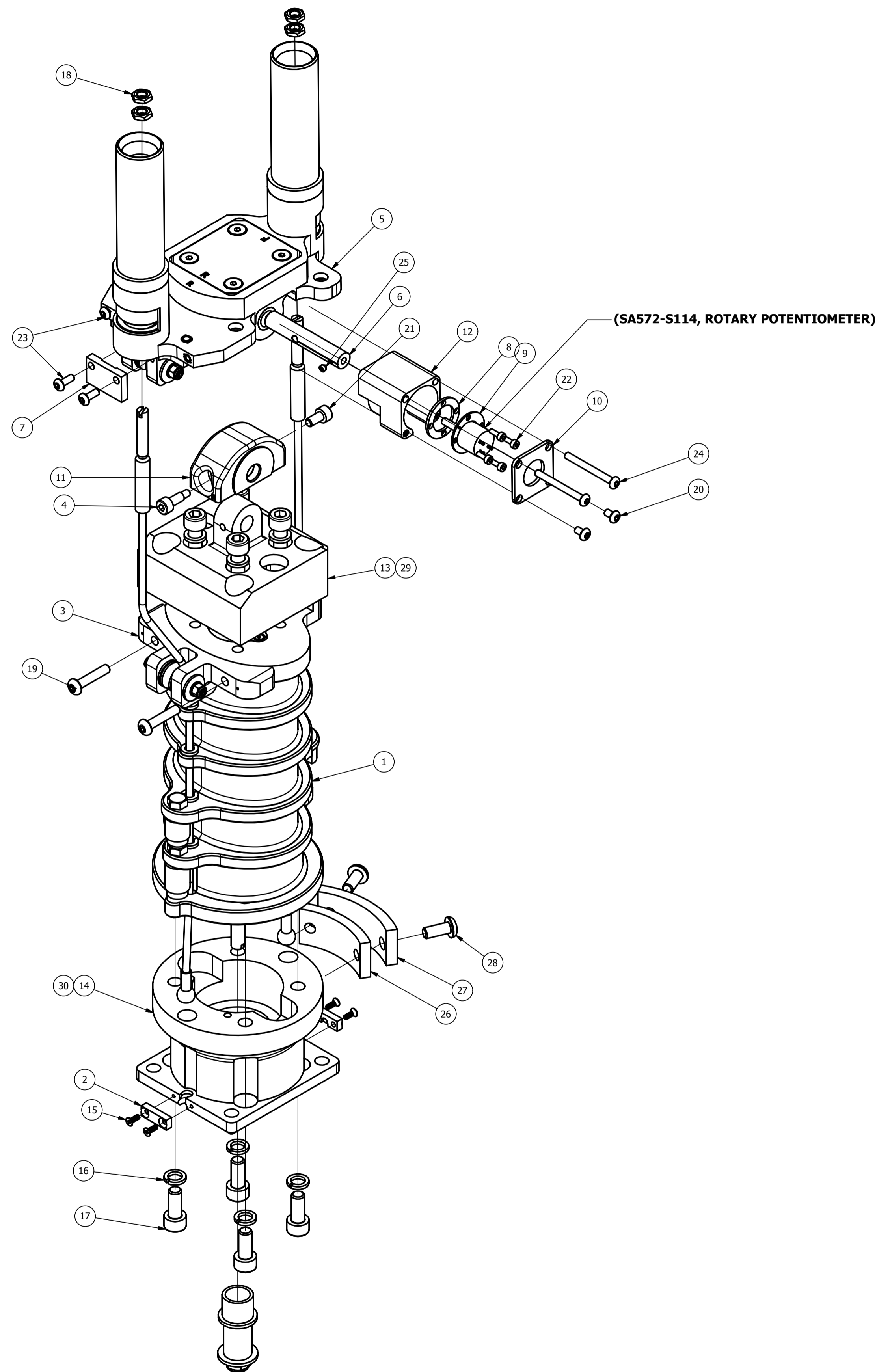
SIZE: B SHEET 1 OF 1

DRAWING NO.: 472-1310

REV: A

PROJECT NO.	472-1000
MATERIAL:	1
QTY	1
DATE:	4/13/2012
CHECKED BY:	J.WANG
DATE:	1/23/2012

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
A		RENUMBERED FROM T1NKM000 R12 AND CONVERTED TO METRIC FOR THOR-M	8/23/2011	BK
B		5000469 WAS 5000763	6/14/2012	BK
C		ITEM #17 PART #5000604 - SCREW, SHCS M6-1 x 14mm WAS PART #5000081 - M6-1 x 16 LG. SHCS; ITEM #18 PART #5000380V - NUT, HEX JAM M5 WAS PART # 5000156 - M5 X 0.8 HEX LOCK NUT SS; ADDED PART #SA572-S110 - UPPER NECK LOAD CELL (OPTIONAL), AND PART #SA572-S111 - LOWER NECK LOAD CELL (OPTIONAL)	9/2/2015	DW
D		REMOVED NOTE 2; REVISED PART #472-2200 - MOUNTING PLATFORM ASSEMBLY, NECK AND 472-2100 - CABLE ASSEMBLY, NECK	5/11/2016	DW



SCALE .750

NOTES:
1. A M3 X .5 X 8 BHCS IS USED TO ATTACH THE HEAD-SPINE GROUND STRAP TO THE HEAD/NECK MOUNTING PLATFORM.

ITEM	QTY	PART NUMBER	DESCRIPTION
30	1	SA572-S111	LOWER NECK LOAD CELL (OPTIONAL)
29	1	SA572-S110	UPPER NECK LOAD CELL (OPTIONAL)
28	2	5000654	M5 X 0.8 X 12 LG. BHCS
27	1	472-2001	LOWER NECK LOAD CELL BUMPER COVER
26	1	472-2002	LOWER NECK LOAD CELL BUMPER
25	1	5001112	M3 X 0.5 X 3 LG. SSS CONE PT.
24	2	5000749	M3 X 0.5 X 30 LG. BHCS SS
23	3	5000410	M3 X 0.5 X 8 LG. BHCS
22	4	5000082	M2 X 0.4 X 6 LG. SHCS
21	1	5000989	M4 X 0.7 X 8 LG. SHCS
20	2	5000674	M3 X 0.5 X 5 LG. BHCS
19	2	5000007	M4 X 0.7 X 20 LG. BHCS
18	4	5000380V	NUT, HEX JAM M5
17	8	5000604	SCREW, SHCS M6-1 x 14 mm
16	8	5001110	M6 HI-COLLAR LOCK WASHER S.S.
15	4	5000469	SCREW, FHCS M4-0.4 x 6
14	1	472-2600	LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
13	1	472-2700	UPPER NECK LOAD CELL STRUCTURAL REPLACEMENT
12	1	472-2013	ROTARY POTENTIOMETER HOUSING, NECK
11	1	472-2019	OCCIPITAL CONDYLE CAM, NECK
10	1	472-2014	ROTARY POTENTIOMETER COVER, NECK
9	2	472-2020	ROTARY POTENTIOMETER CLAMP, NECK
8	1	472-2021	ROTARY POTENTIOMETER WASHER, NECK
7	1	472-2012	NECK PULLEY PLATE
6	1	472-2011	OCCIPITAL CONDYLE PIN, NECK
5	1	472-2200	MOUNTING PLATFORM ASSEMBLY, NECK
4	1	472-2016	OCCIPITAL CONDYLE SCREW
3	1	472-2300	NECK PULLEY BRACKET ASSEMBLY
2	2	472-2015	CABLE SEAT COVER, NECK
1	1	472-2100	CABLE ASSEMBLY, NECK

Parts List

DO NOT SCALE DRAWING

TOLERANCES

UNLESS OTHERWISE SPECIFIED

FINISHES

ALL DIMENSIONS ARE IN MILLIMETERS

UNLESS OTHERWISE SPECIFIED

SMOOTHED EDGES & BREAK SHARP EDGES

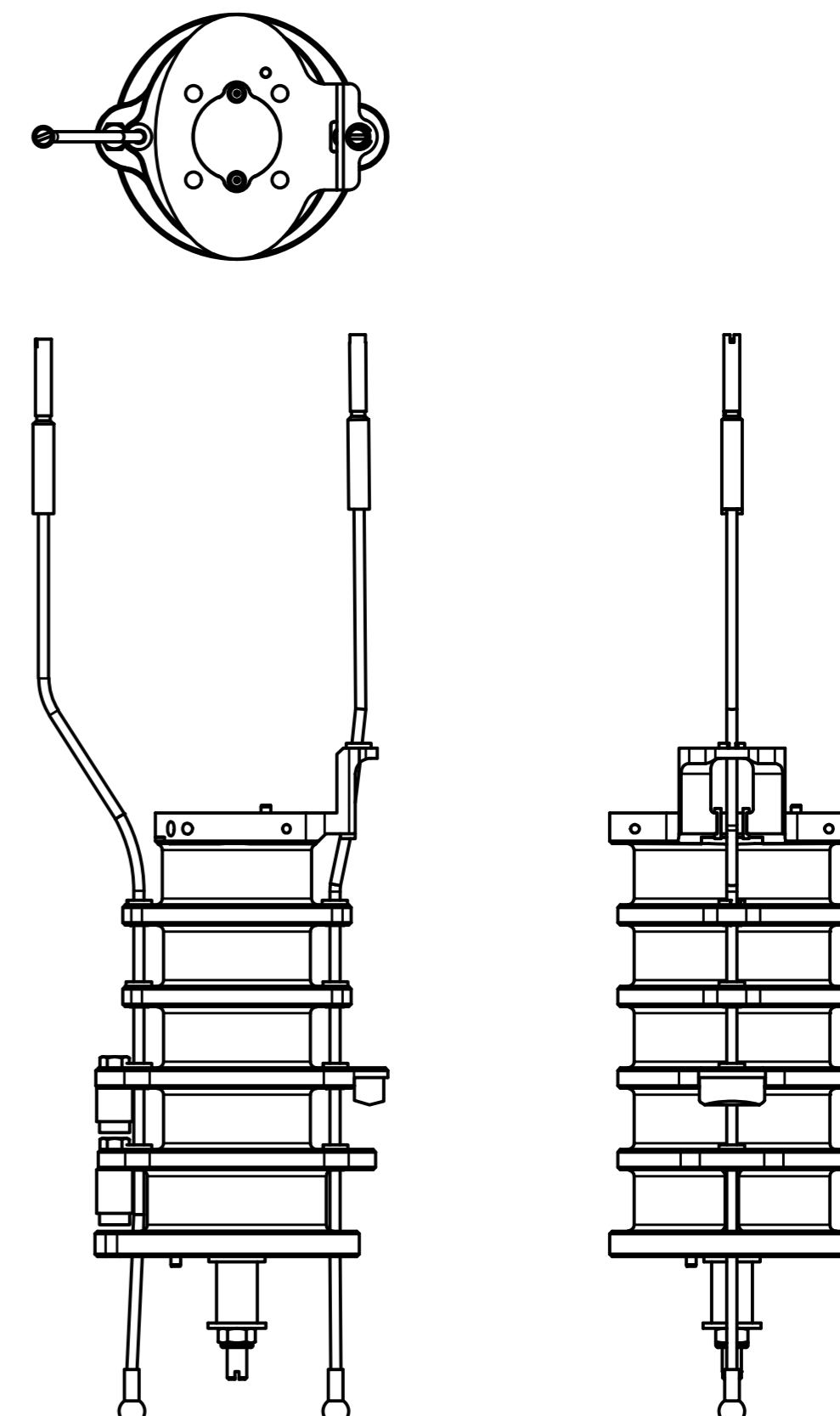
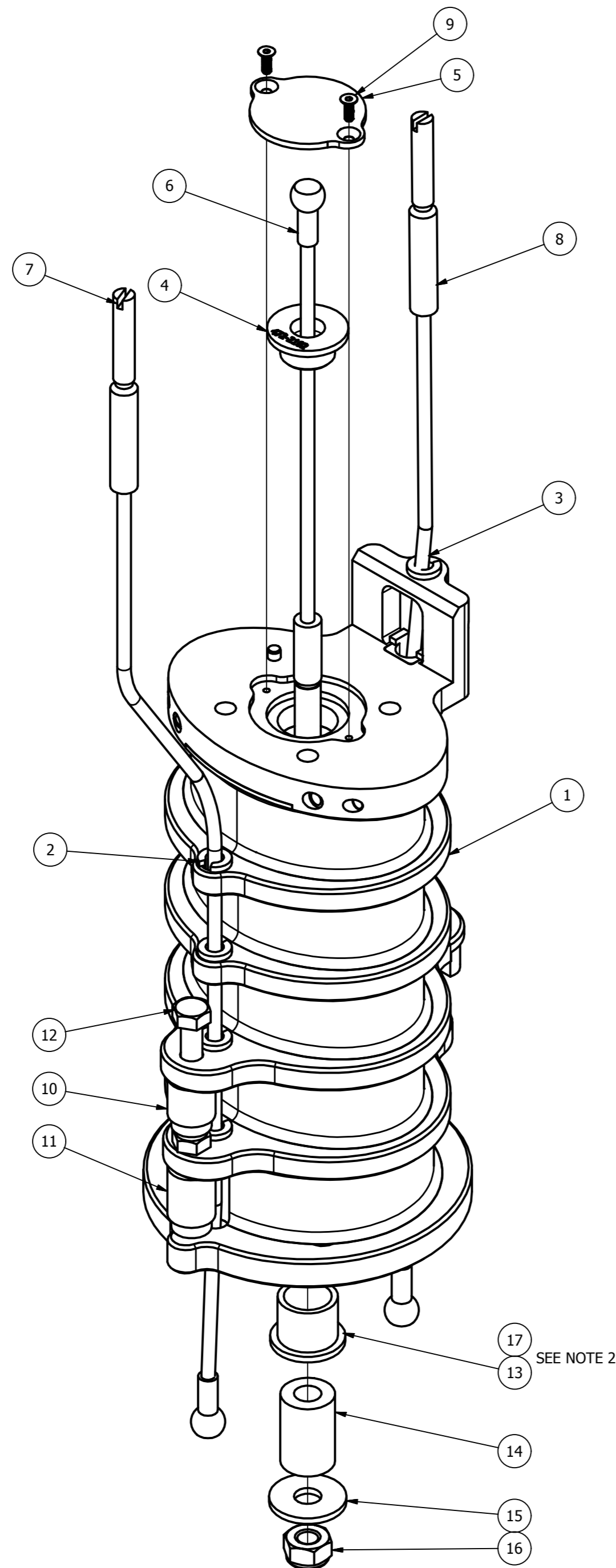
THIRD ANGLE PROJECTION

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

MECHANICAL ASSEMBLY, NECK

472-0000	1	QTY	
NEXT ASSEMBLY	1	QTY	
TOTAL QTY IN DUMMY	1	QTY	

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TINKM100 R11 AND CONVERTED TO METRIC FOR THOR-M	8/28/2011	BK
	B	ITEM #1 PART #472-2110 DESCRIPTION WAS FRONT STOP ASSEMBLY, NECK; ITEM #13 PART #472-2107 DESCRIPTION WAS CENTER CABLE WASHER, NECK; ADDED ITEM #17 AND NOTE #2	6/9/2016	DW



NOTES:

- AFTER THE FRONT AND REAR CABLES ARE ASSEMBLED INTO THE BONDED NECK ASSEMBLY, CLIP THE CABLE GUIDES OVER THE CABLES AND PRESS THEM INTO THE CORRESPONDING NECK PLATES. IF NECESSARY, USE LOCTITE SUPER BONDER 495 OR EQUIVALENT TO SECURE GUIDES INTO PLACE.
- USE ITEM 13 WHEN USING THE, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT, PART #472-2600 AND ITEM 17 WHEN USING THE, LOWER NECK LOAD CELL, PART #SA572-S111

SCALE 1.000

ITEM	QTY	PART NUMBER	DESCRIPTION
B 17	1	472-2108	CENTER CABLE LOWER BUSHING 2, NECK
16	1	5000503	M6 X 1 HEX LOCK NUT SS
15	1	5001113	M6 FENDER WASHER S.S.
14	1	472-2018	NECK NEOPRENE SPACER
B 13	1	472-2107	CENTER CABLE LOWER BUSHING 1, NECK
12	2	5001109	M5 x.8 x 12 HHCS
11	1	472-2520	LOWER NECK STOP ASSEMBLY
10	1	472-2500	UPPER NECK STOP ASSEMBLY
9	2	5000469	SCREW, FHCS M4-0.4 x 6
8	1	472-2150	FRONT CABLE ASSEMBLY, NECK
7	1	472-2130	REAR CABLE ASSEMBLY, NECK
6	1	472-2140	CENTER CABLE ASSEMBLY, NECK
5	1	472-2103	CABLE COVER, NECK
4	1	472-2102	CENTER CABLE FIXTURE, NECK
3	1	472-2106	CABLE GUIDE, NECK
2	8	472-2105	NECK CABLE GUIDE
B 1	1	472-2110	ASSEMBLY, NECK

PARTS LIST

DO NOT SCALE DRAWING

THOR-M

PROJECT NO: 472-2000

MATERIAL: NEXT ASSEMBLY

DATE: 7/28/2011

DESIGNED BY: B. KIMES

CHECKED BY: J. WANG

DATE: 1/9/2012

SCALE: .500

TOLERANCES (UNLESS OTHERWISE SPECIFIED)
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X ±.05 ±0.5° 1.6
 XX ±.02 ±0.2° F
 XXX ±.01 ±0.1° F
 XXXX ±.010

REMOVE BURRS & BREAK SHARP EDGES

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: CABLE ASSEMBLY, NECK

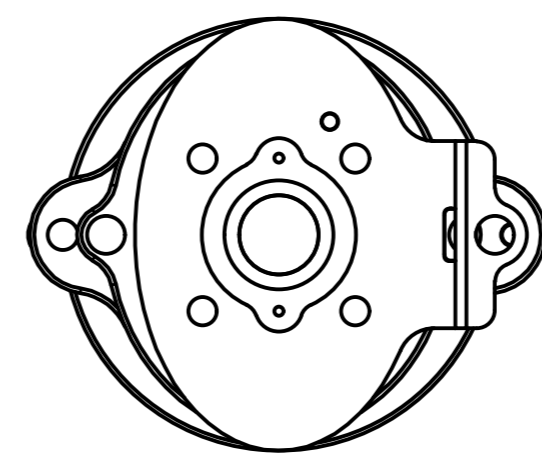
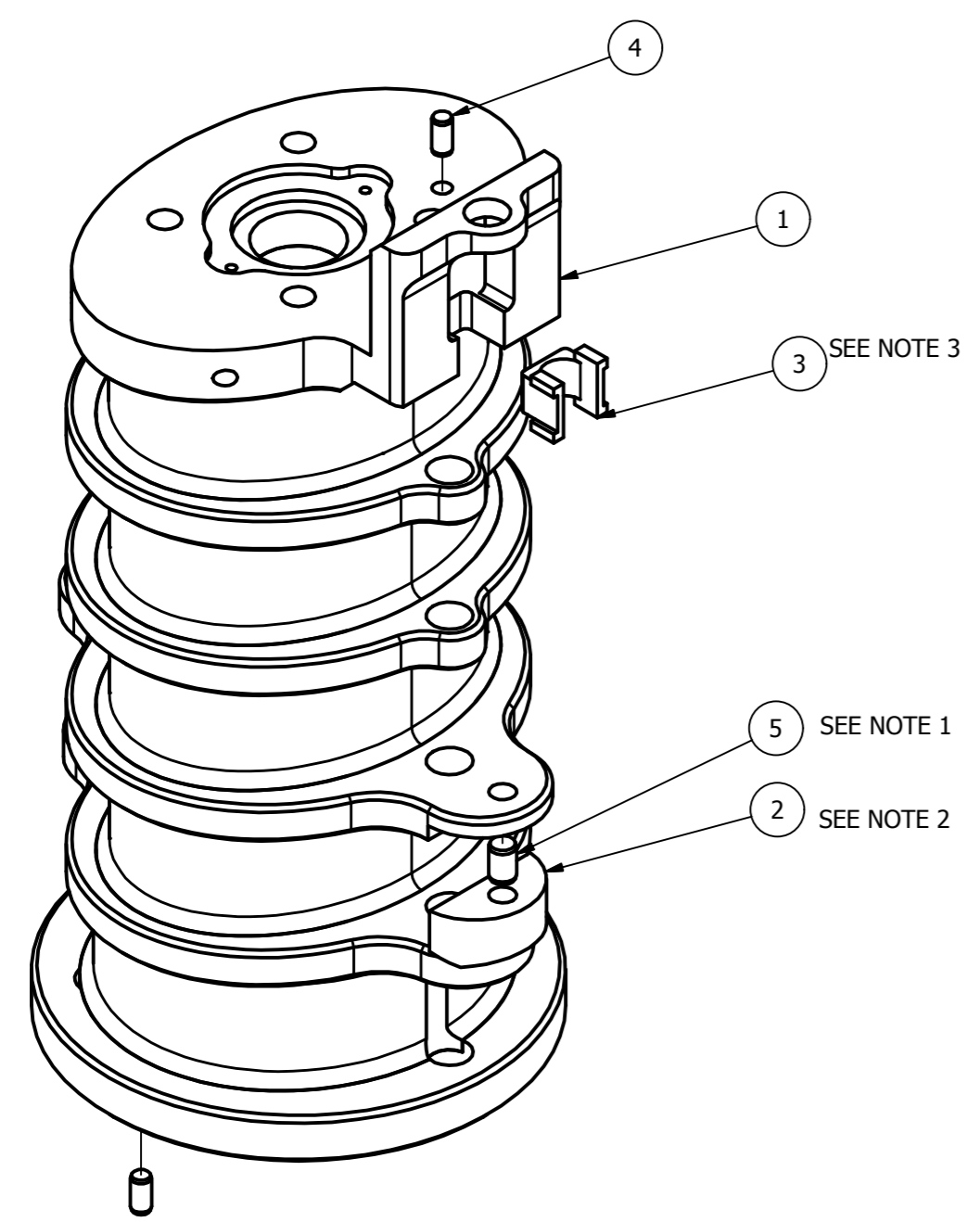
SIZE: A2

SHEET: 1 OF 1

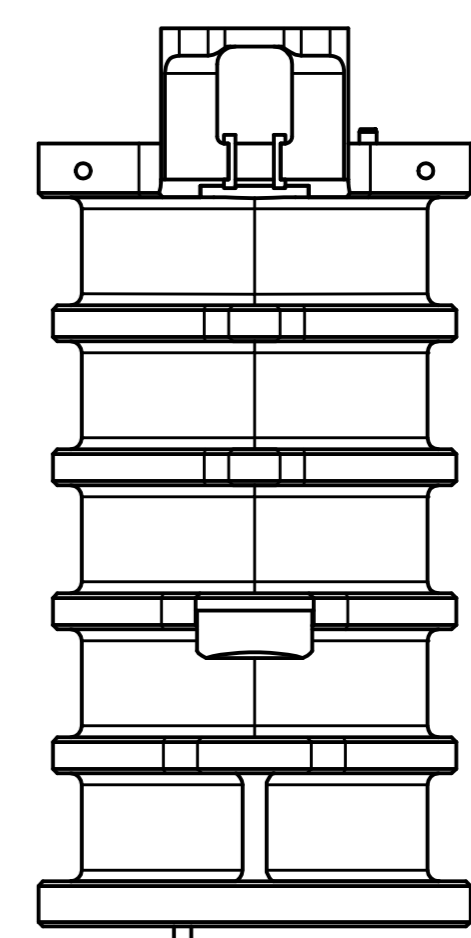
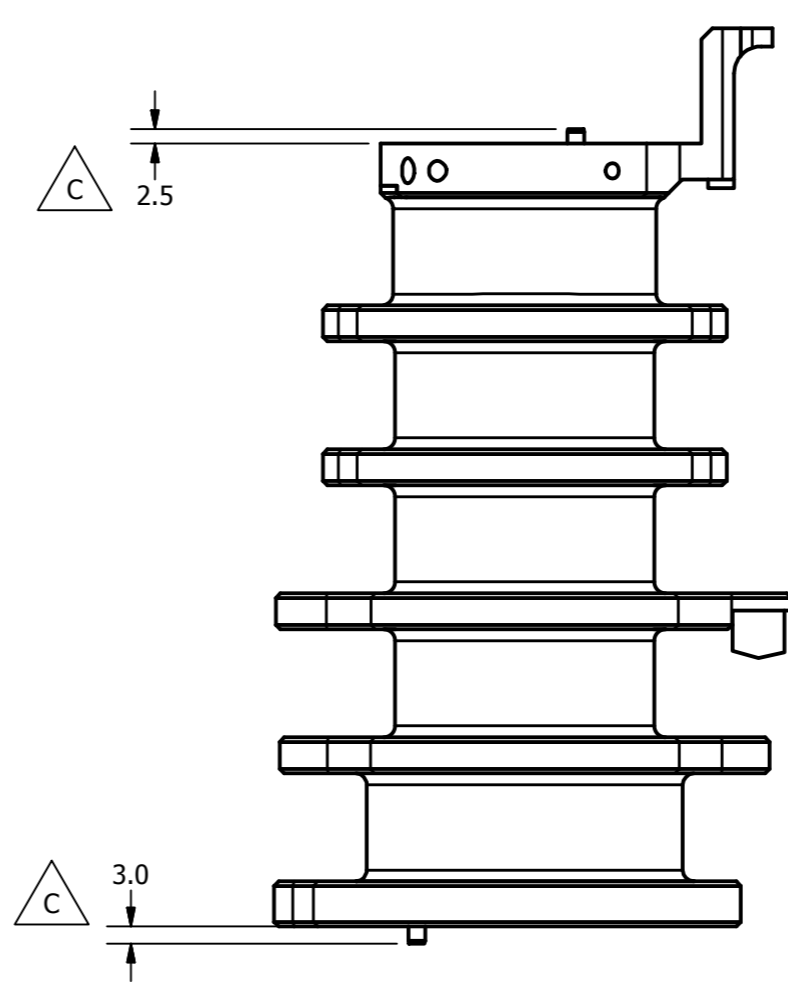
DRAWING NO: 472-2100

REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM104 R03 AND CONVERTED TO METRIC FOR THOR-M	8/22/11	BK
	B	ADD LOCATING DOWELS	12/19/2011	BK
	C	5000680 WAS 5000524; ADD DOWEL DEPTH DIMENSIONS	11/28/2012	BK
	D	TITLE WAS FRONT STOP ASSEMBLY, NECK	6/9/2016	DW



SCALE 1.000

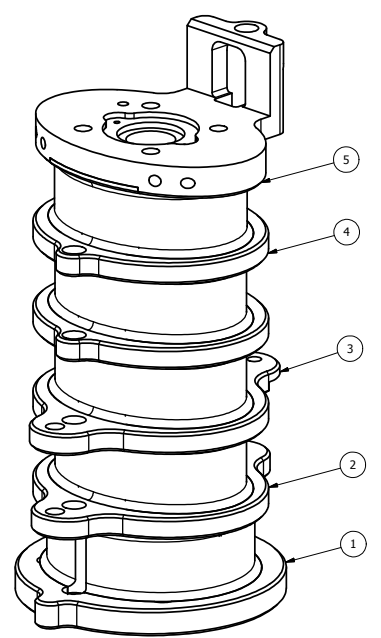


- NOTES:
1. PRESS 5000680 INTO PART UNTIL PIN IS FLUSH WITH THE TOP SURFACE OF THE PLATE.
 2. BOND 472-2101 TO 472-2120 AND 5000680 AS SHOWN, USING A HIGH STRENGTH, FLEXIBLE, TWO PART EPOXY.
 3. SECURE INTO PLACE USING LOCTITE SUPER BONDER 495 OR EQUIVALENT.

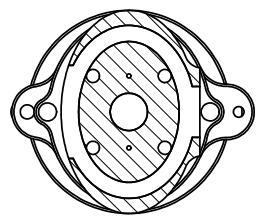
ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	5000680	M4 X 6 LG. DOWEL PIN SS
4	2	5000385	M3 X 6 LG. DOWEL PIN
3	1	472-2104	TOP PLATE CABLE GUIDE, NECK
2	1	472-2101	FRONT STOP, NECK
1	1	472-2120	MOLDED ASSEMBLY, NECK

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH	
PROJECT NO:		DATE: 7/28/2011	
MATERIAL:		REMOVE BURRS & BREAK SHARP EDGES	
HEAT TREAT:		DRAWN BY: B. KIMES	
FINISH:		CHECKED BY:	
TOTAL QTY IN DUMMY: 1		ENGINEER: J. WANG DATE: 1/9/2012	
NEXT ASSEMBLY QTY		SCALE: .750	
SIZE: A2		DRAWING NO: 472-2110	
REV: 1 OF 1		REV: D	

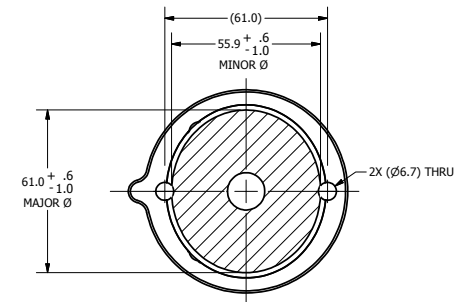
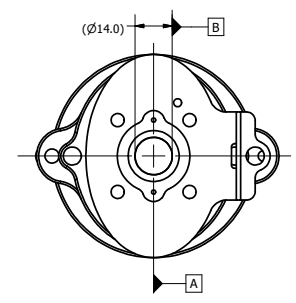
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM10S R02 AND CONVERTED TO METRIC FOR THOR-M	8/22/11	BK



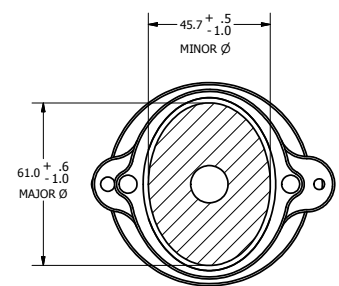
SCALE 1.000



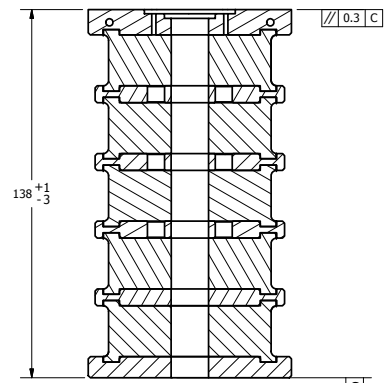
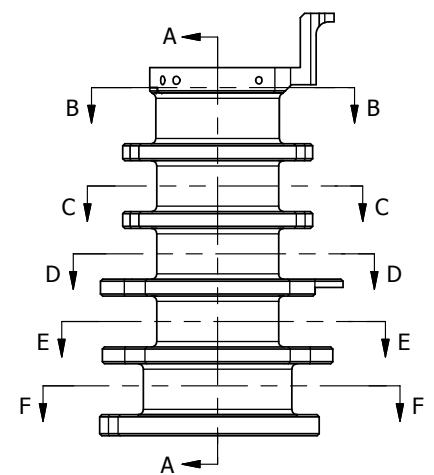
SECTION B-B
SCALE .750



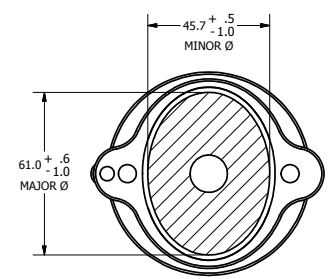
SECTION F-F
SCALE .750



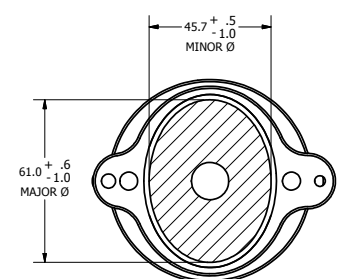
SECTION C-C
SCALE .750



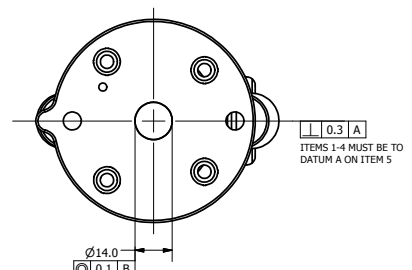
SECTION A-A
SCALE .750



SECTION E-E
SCALE .750



SECTION D-D
SCALE .750



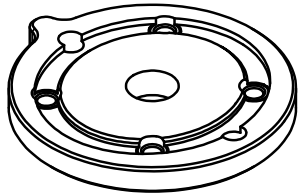
SECTION A-A
ITEMS 1-4 MUST BE TO DATUM A ON ITEM 5

- NOTES:
1. MATERIAL: INJECTION MOLDED BUTYL RUBBER SHORE A 75±2.
 2. PERFORMANCE SPEC TAKES PRECEDENCE OVER DUROMETER.
 3. PLUG ALL HOLES PRIOR TO MOLDING.

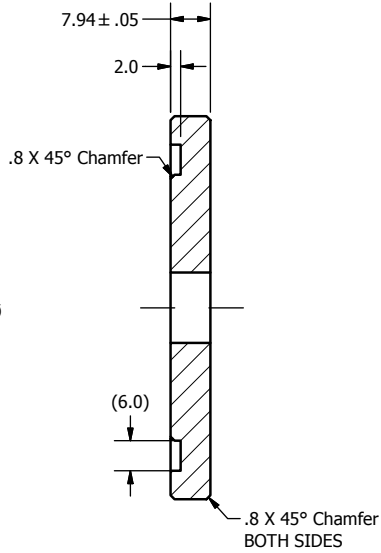
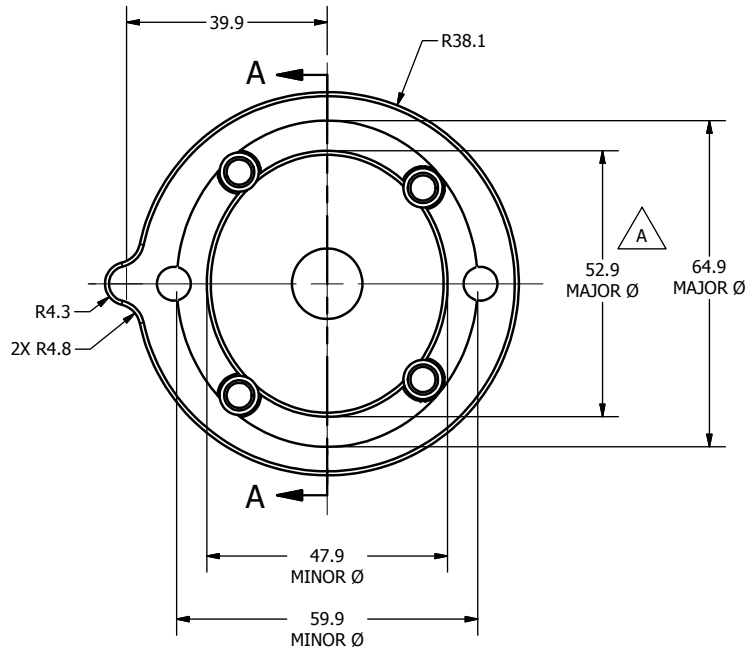
ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	472-2125	TOP PLATE, NECK
4	2	472-2124	NECK PLATE 3
3	1	472-2123	NECK PLATE 2
2	1	472-2122	NECK PLATE 1
1	1	472-2121	NECK BASE

PARTS LIST			
DO NOT SCALE DRAWING	TOLERANCES	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO BE USED FRACTIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED SURFACE FINISH SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED	DIMENSIONS ARE TO BE TO DATUM A ON ITEM 5 UNLESS OTHERWISE SPECIFIED SURFACE FINISH SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED	PREPARED BY: B. KIMES DATE: 7/28/2011 CHECKED BY: J. WANG DATE: 1/9/2012	MOLDED ASSEMBLY, NECK A21 OF 1 472-2120 .750

ITEM	QTY	DESCRIPTION
472-2110	1	SEE NOTES
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

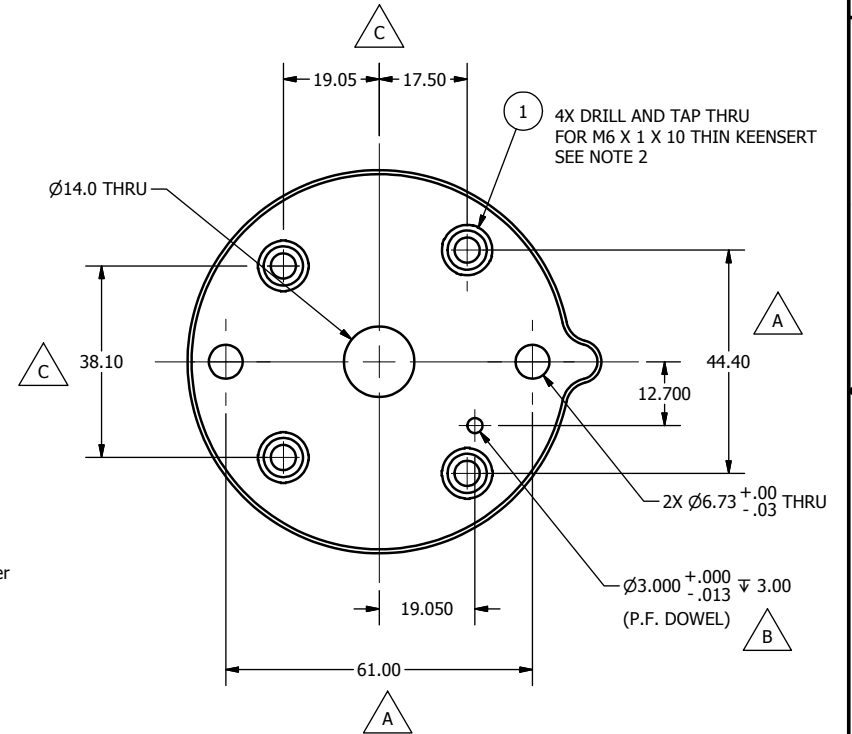


SCALE .750



SECTION A-A
SCALE 1.000

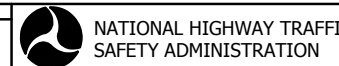
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM110 R11 AND CONVERTED TO METRIC FOR THOR-M; 61.00 WAS 61.0, 52.9 MAJORØ WAS 52.8, 44.40 WAS 44.4	8/22/2011	BK
	B	ADD DOWEL HOLE	12/19/2011	BK
	C	17.50 WAS 17.5; 19.05 WAS 19.0; 38.10 WAS 38.20	3/16/2012	BK



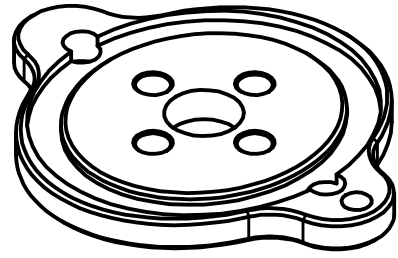
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. GRIND KEENSERTS TO 5.9+0/-1 BEFORE INSTALLING.

1	4	5001108	M6 X 1 X 10 LG. LIGHTWEIGHT KEENSERT
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X X ± 0.2 X.X ± 0.3 X.XX ± 0.01 X.XXX ± 0.01	
PROJECT NO.: 472-2120		DATE: 7/28/2011	
MATERIAL: 6061-T6 ALUMINUM		DRAWN BY: B. KIMES	
NEXT ASSEMBLY QTY		CHECKED BY: DATE:	
TOTAL QTY IN DUMMY 1		ENGINEER: J. WANG DATE: 1/9/2012	
		REMOVE BURRS & BREAK SHARP EDGES	
		DESCRIPTION: NECK BASE	
		SIZE: SHEET: DRAWING NO.: 472-2121	
		SCALE: 1.000	

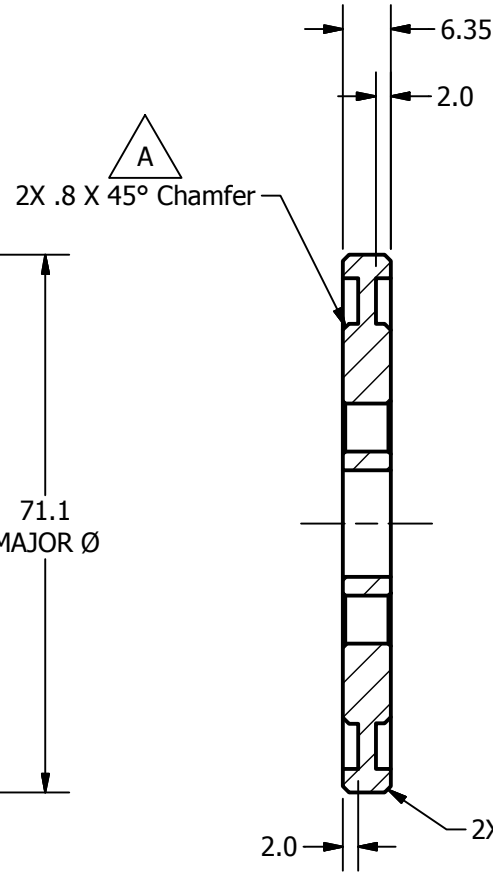
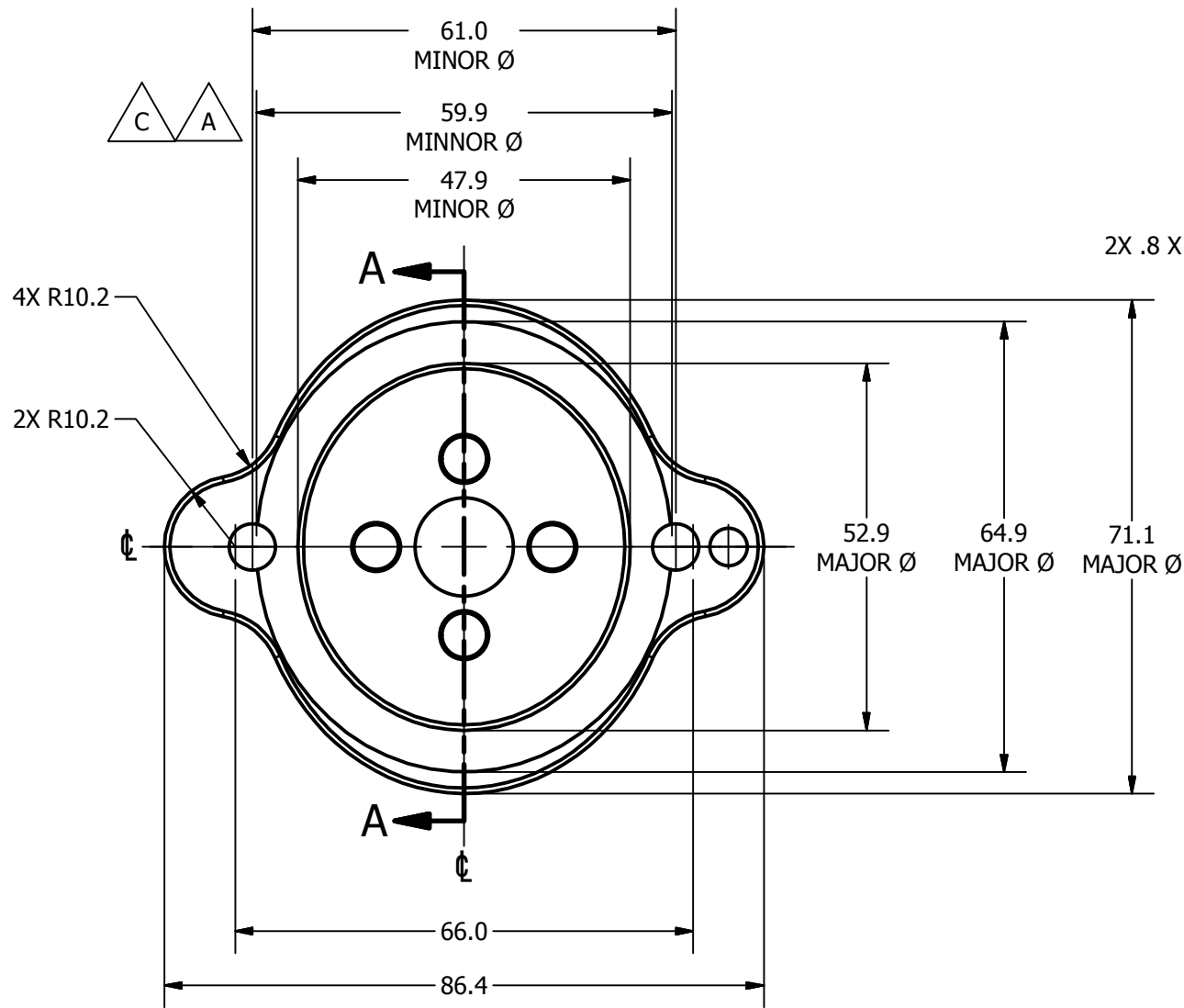


1 OF 1

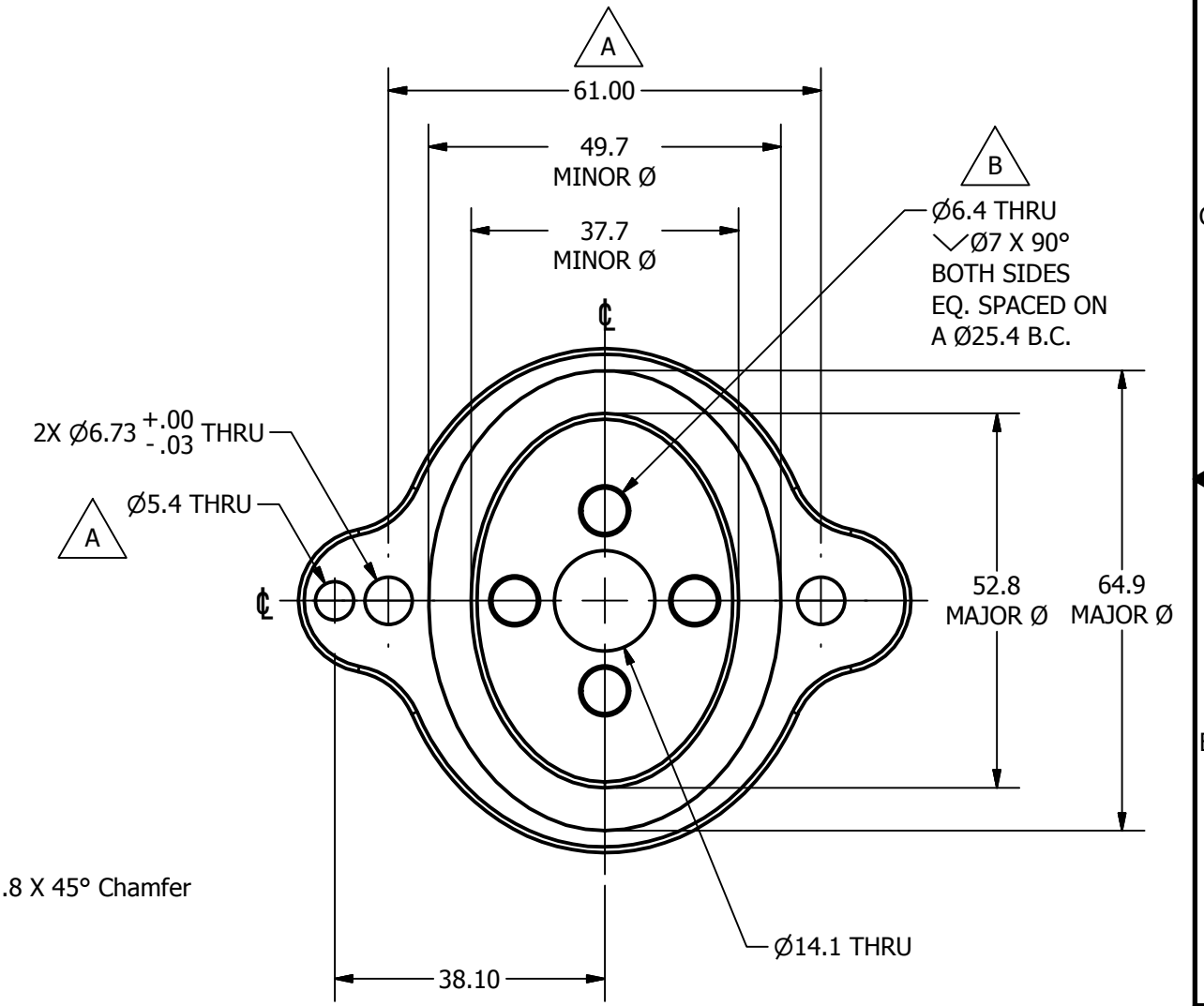


SCALE .750

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM112 R07 AND CONVERTED TO METRIC FOR THOR-M; 59.5 MINOR Ø WAS 59.9; .8 X 45° CHAMFER WAS R.8; Ø5.3 WAS Ø5.1; 61.00 WAS 61.0	7/30/2011	BK
	B	ADDED VENT HOLES FOR MOLDING	6/12/2012	TMV
	C	DIM. 59.9 MINOR Ø WAS 59.5 MINOR Ø	8/31/15	DW

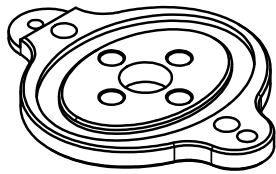


SECTION A-A
SCALE 1.000



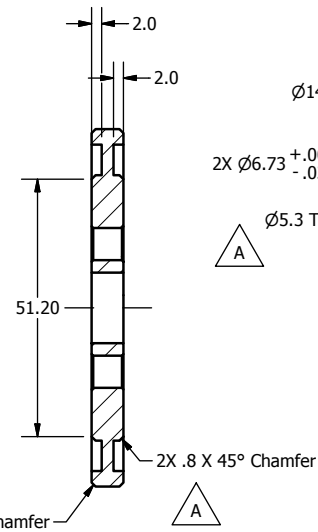
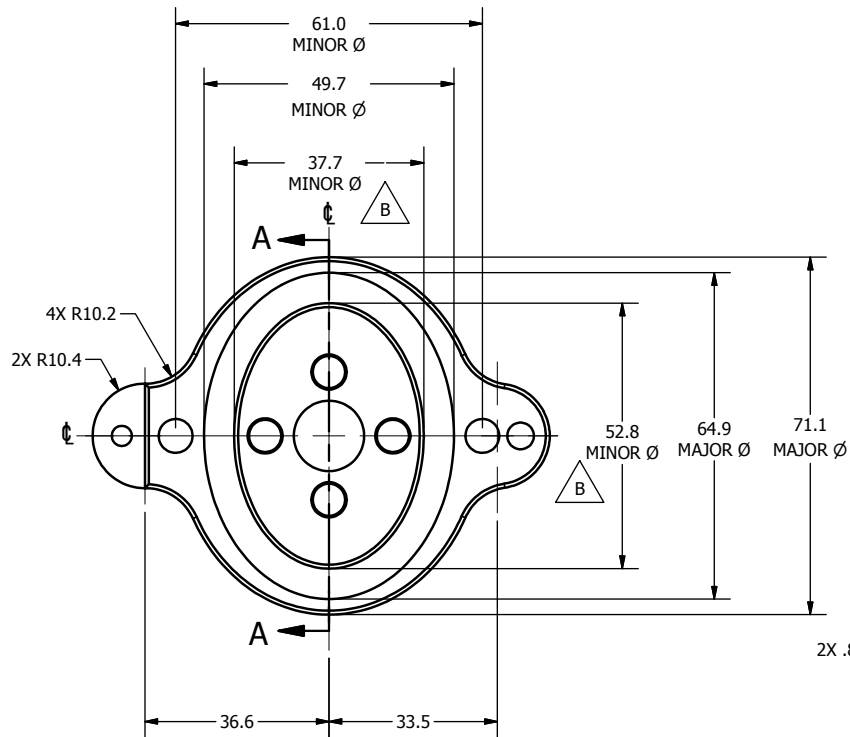
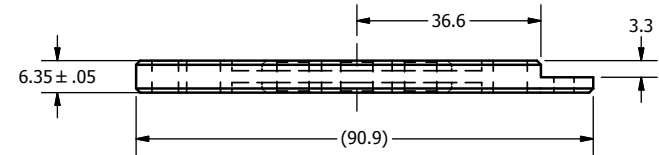
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: NECK PLATE 1	
PROJECT NO.: 472-2120		MATERIAL: 6061-T6 ALUMINUM		DRAWING NO.: 472-2122	
NEXT ASSEMBLY QTY		HEAT TREAT:		DRAWN BY: B. KIMES	
TOTAL QTY IN DUMMY 1		FINISH:		DATE: 7/28/2011	
		ENGINEER: J. WANG		DATE: 1/9/2012	
				SIZE: A3 1 OF 1	
				SCALE: 1.000	

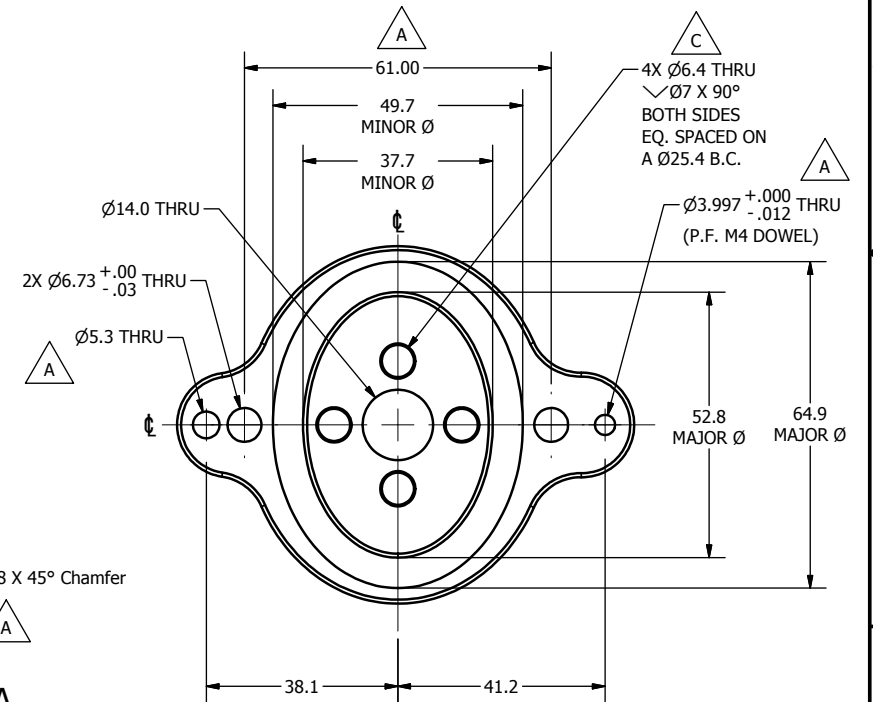


SCALE .750

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM114 R08 AND CONVERTED TO METRIC FOR THOR-M; .8 X 45° CHAMFER WAS R.8; Ø5.3 WAS Ø5.1; 61.00 WAS 61.0; Ø3.997+.000/-0.012 WAS Ø4.758+.000/-0.013	8/22/2011	BK
	B	ADD MISSING MAJOR, MINOR Ø	4/11/2012	BK
	C	ADDED VENT HOLES FOR MOLDING	6/12/2012	TMV



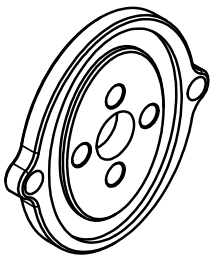
SECTION A-A
SCALE 1.000



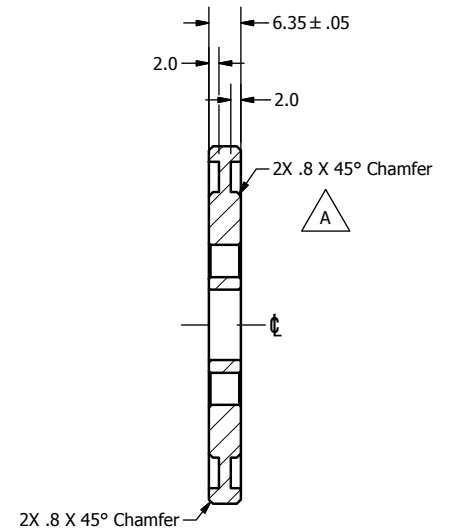
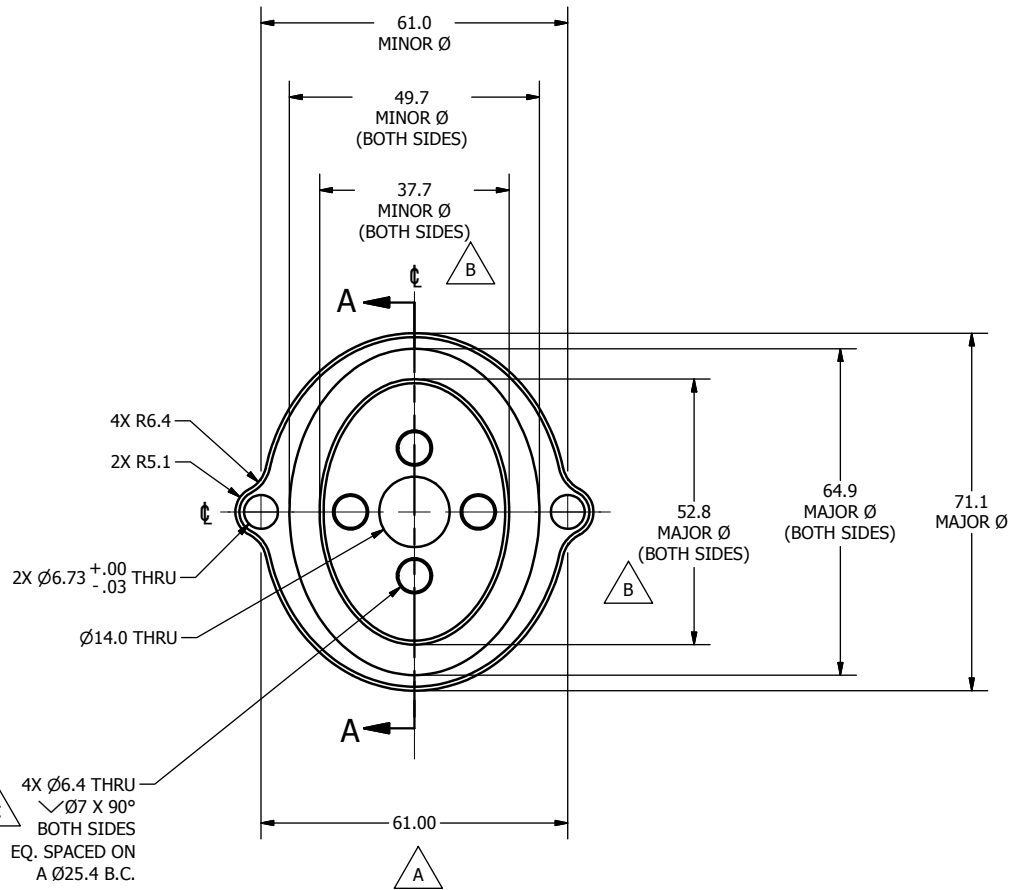
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.05 16 XX .03 0.03 16 XXX .03 0.03 16 XXXX 0.01		
PROJECT NO:	472-2120	MATERIAL:	6061-T6 ALUMINUM	DESCRIPTION:
DATE:	7/28/2011	DESIGNED BY:	B. KIMES	NECK PLATE 2
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	1 OF 1
DATE:	1/9/2012	SCALE:	1.000	DRAWING NO.:
TOTAL QTY IN DUMMY:	1	FINISH:		472-2123



SCALE .750



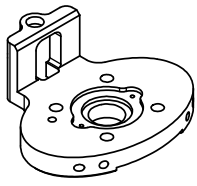
SECTION A-A
SCALE 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM115 R07 FOR THOR-M; 61.00 WAS 61.0, .8 X 45° CHAMFER WAS R.8	7/30/2011	BK
	B	ADD MISSING MAJOR, MONOR Ø	4/11/2012	BK
	C	ADD VENT HOLES FOR MOLDING	6/13/2012	TMV

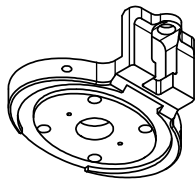
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2120	MATERIAL:	6061-T6 ALUMINUM	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK PLATE 3
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:	1/9/2012	SCALE:	1.000	SIZE: SHEET
TOTAL QTY IN DUMMY	2	FINISH:		A31 OF 1
				472-2124

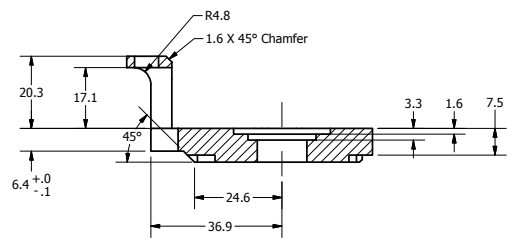
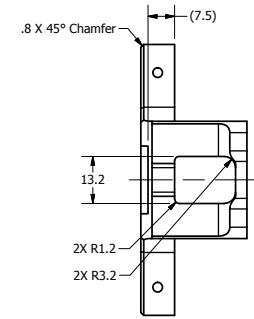
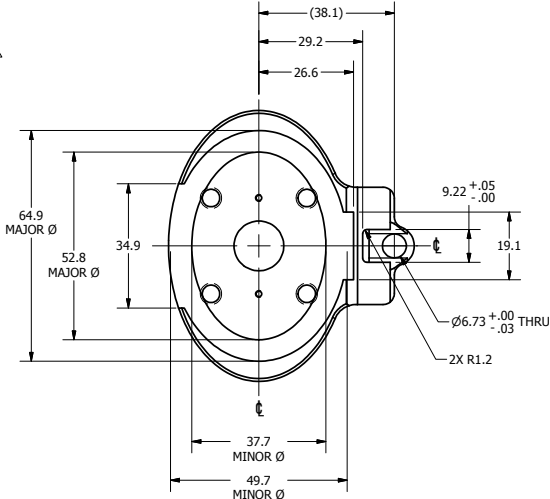
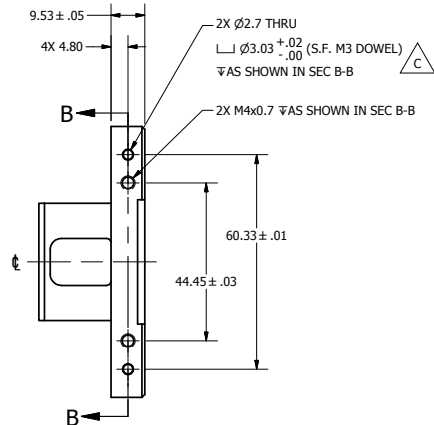
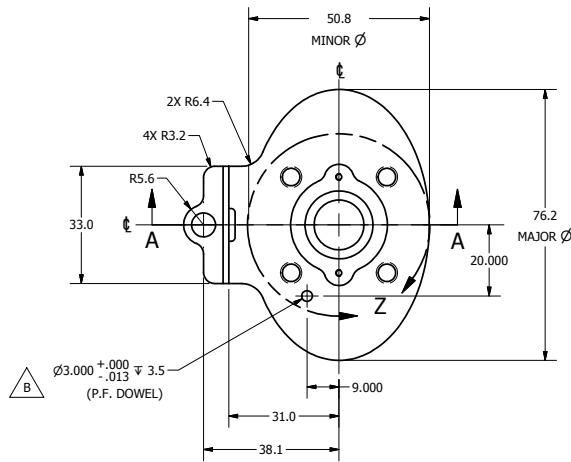


SCALE .750

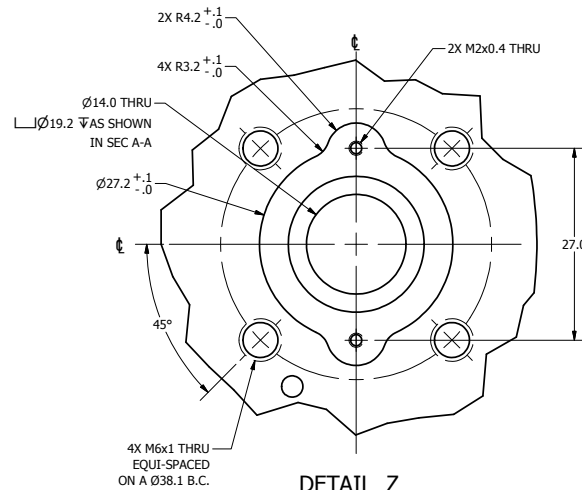


SCALE .750

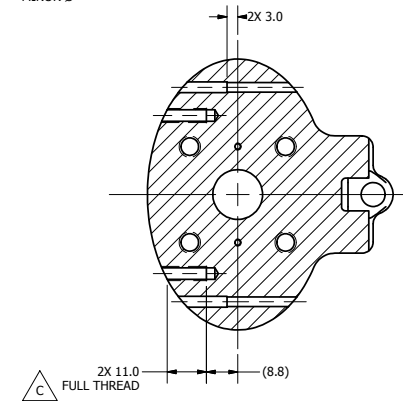
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TINKM116 R17 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTES 2, 3, 4	8/16/2011	BK
	B	ADD LOCATION DOWEL HOLE	12/19/2011	BK
	C	Ø3.03+0.02/-0.00 WAS Ø3.174 +0/-0.013, S.F. DOWEL WAS P.F.; CHANGE THREAD DEPTH, (8.8) WAS 3.1; ADD 2X 11.0 FULL THREAD	4/24/2012	BK



SECTION A-A
SCALE 1.000



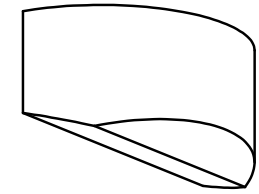
DETAIL Z
SCALE 2.000



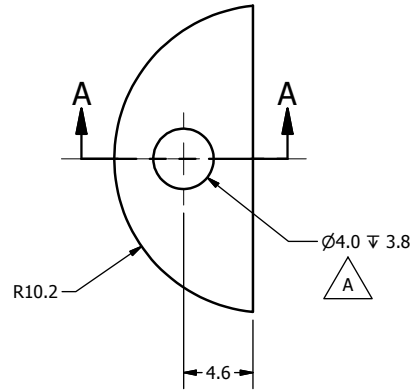
SECTION B-B
SCALE 1.000

- NOTES:
- DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 - POWDER OR BEAD BLAST.
 - NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 - DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

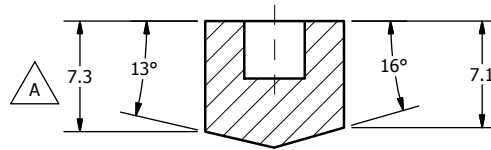
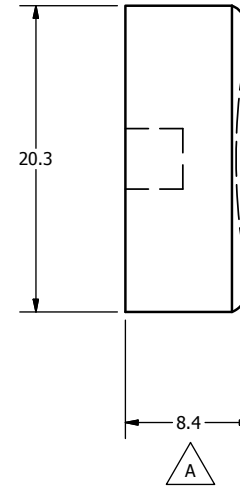
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THREE ANGLE PROJECTION		SHOWING DIMENSIONS & BREAKS (SHRIMP CODES)		TOP PLATE, NECK	
472-2120	1	1018 STEEL	B. KIMES	7/28/2011	A21 OF 1 1.000
NEXT ASSEMBLY	QTY		3. WANG	1/9/2012	
TOTAL QTY IN DUMMY	1	SEE NOTES			
					472-2125



SCALE 3.000



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM123 R02 AND CONVERTED TO METRIC FOR THOR-M; Ø4.0 WAS Ø3.8; 8.4 WAS 8.3; 7.3 WAS 7.1	8/22/2011	BK
	B	MATERAIL WAS SBR RUBBER	3/02/2012	TMV

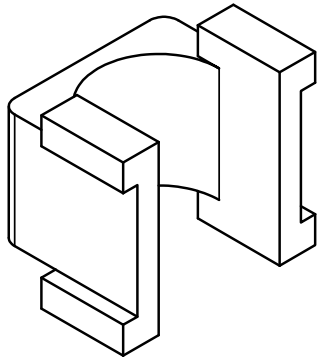


SECTION A-A
SCALE 3.000

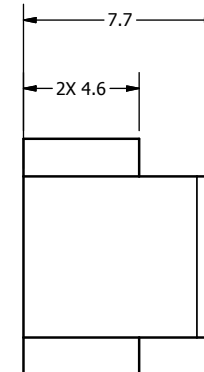
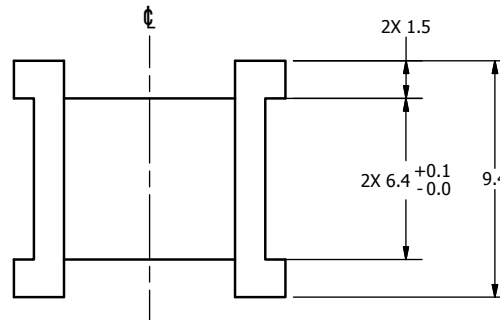
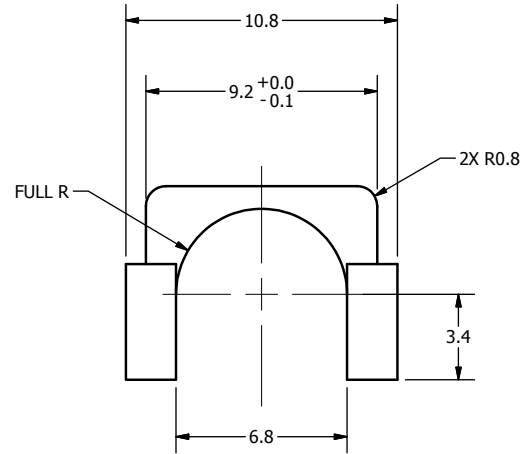
NOTES:

1. RUBBER TOLERANCE ±.5mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION							
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX 0.02 ± 0.02 XXX 0.01 ± 0.01 REMOVE BURRS & BREAK SHARP EDGES									
PROJECT NO.:	472-2110	DATE:	7/28/2011	DESCRIPTION: FRONT STOP, NECK							
MATERIAL:	NATURAL RUBBER 75±5 SHORE A	DESIGNED BY:	B. KIMES								
CHECKED BY:		DATE:									
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/9/2012	SIZE: SHEET	A3 1 OF 1	DRAWING NO.:	472-2101	REV.:	B
TOTAL QTY IN DUMMY	1	FINISH:		SCALE:	3.000						



SCALE 5.000

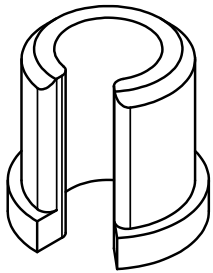


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM125 R03 FOR THOR-M	7/30/2011	BK

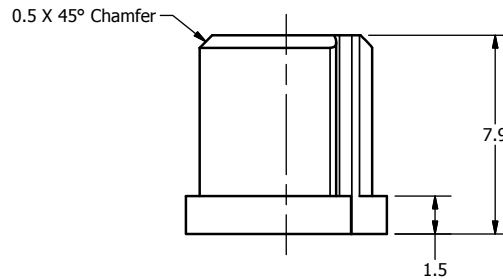
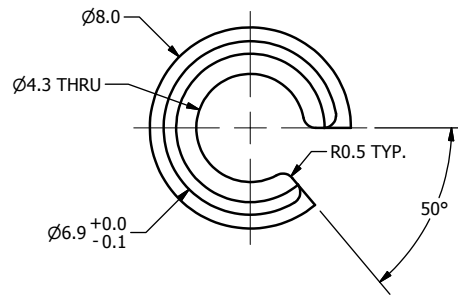
NOTES:
1. DIMENSIONS ARE SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 16 X.X ±0.2 X.XX ±0.3 X.XXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2110	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	TOP PLATE CABLE GUIDE, NECK
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		DATE:		A31 OF 1
FINISH:		ENGINEER:	J. WANG	SCALE: 5.000
TOTAL QTY IN DUMMY	1	DATE:	1/9/2012	DRAWING NO. 472-2104

REV: A



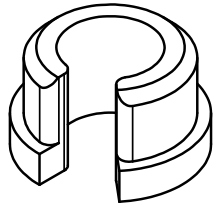
SCALE 5.000



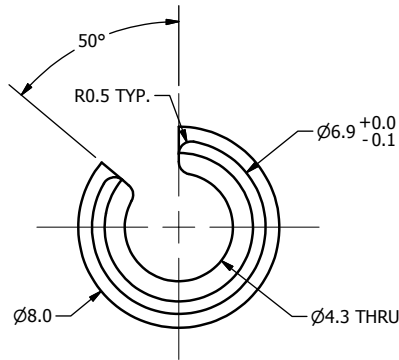
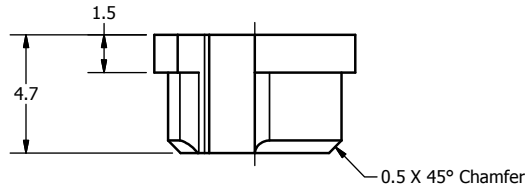
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM129 R01 FOR THOR-M	7/30/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 0.05 1.6 XX 0.02 0.05 XXX 0.01 0.05 XXXX 0.01		
PROJECT NO:	472-2100	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK CABLE GUIDE
ENGINEER:	J. WANG	DATE:	1/9/2012	472-2105
HEAT TREAT:		FINISH:		SCALE: 5.000
TOTAL QTY IN DUMMY	8	SIZE:	A3	SHEET: 1 OF 1
				DRAWING NO. 472-2105

REV: A

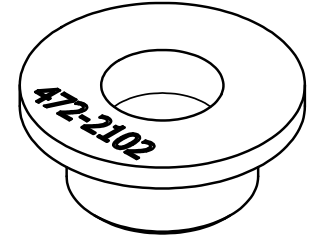


SCALE 5.000

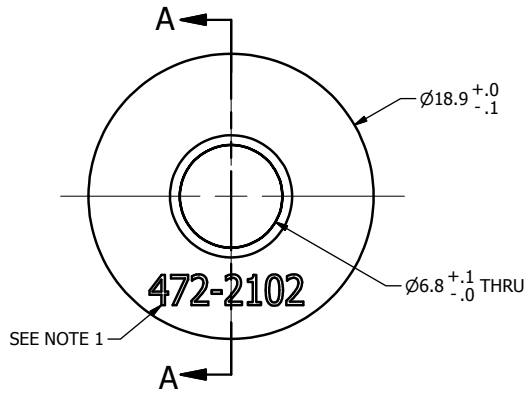


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM130 R01 FOR THOR-M	7/30/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-2100	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	CABLE GUIDE, NECK
HEAT TREAT:		ENGINEER:	J. WANG	SCALE: 5.000
TOTAL QTY IN DUMMY	1	FINISH:		DATE: 1/9/2012
				SIZE: SHEET: DRAWING NO. REV:
				A3 1 OF 1 472-2106 A

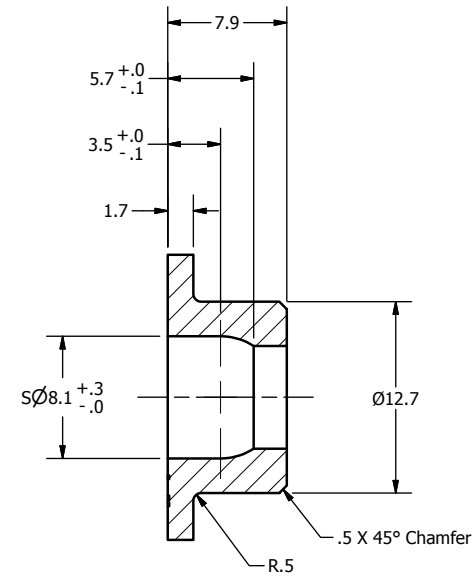


SCALE 3.000



SEE NOTE 1


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM120 R06 AND CONVERTED TO METRIC FOR THOR-M	7/30/2011	BK



SECTION A-A
SCALE 3.000

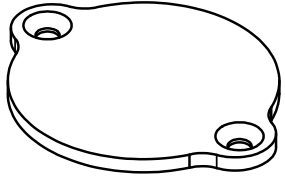
NOTES:

1. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

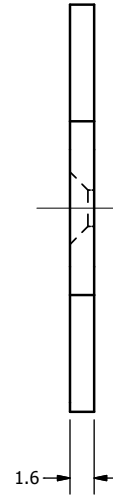
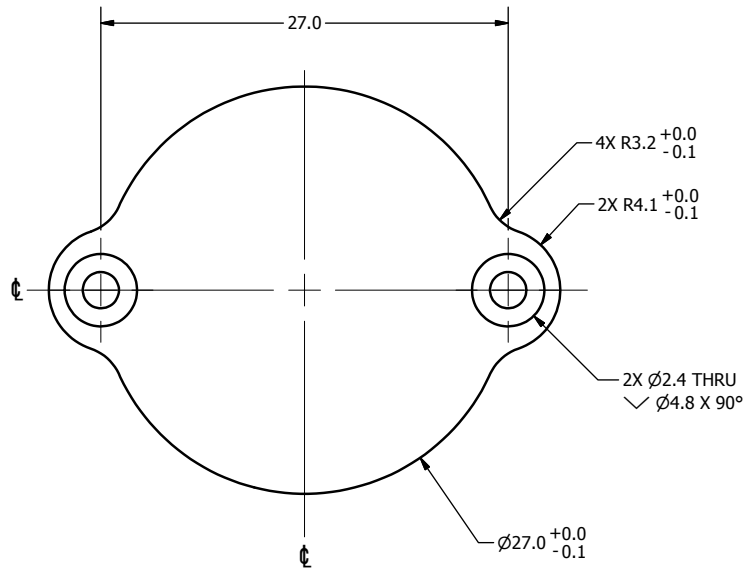
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED		
PROJECT NO.:		DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: CENTER CABLE FIXTURE, NECK
MATERIAL:	7075-T6 ALUMINUM	DECIMALS ANGLES FINISH		
HEAT TREAT:		0.05 16		SCALE: 3.000
CHECKED BY:	B. KIMES	X .02		
DATE:	7/28/2011	X .03		DRAWING NO. 472-2102
ENGINEER:	J. WANG	X .04		
DATE:	1/9/2012	X .05		REV. A
FINISH:	CLEAR ANODIZE	X .06		
DATE:		X .07		
DATE:		X .08		
DATE:		X .09		
DATE:		X .10		

472-2100	1	
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

SIZE: A3
SHEET: 1 OF 1



SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM124 R03 AND CONVERTED TO METRIC FOR THOR-M	7/30/2011	BK

NOTE:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

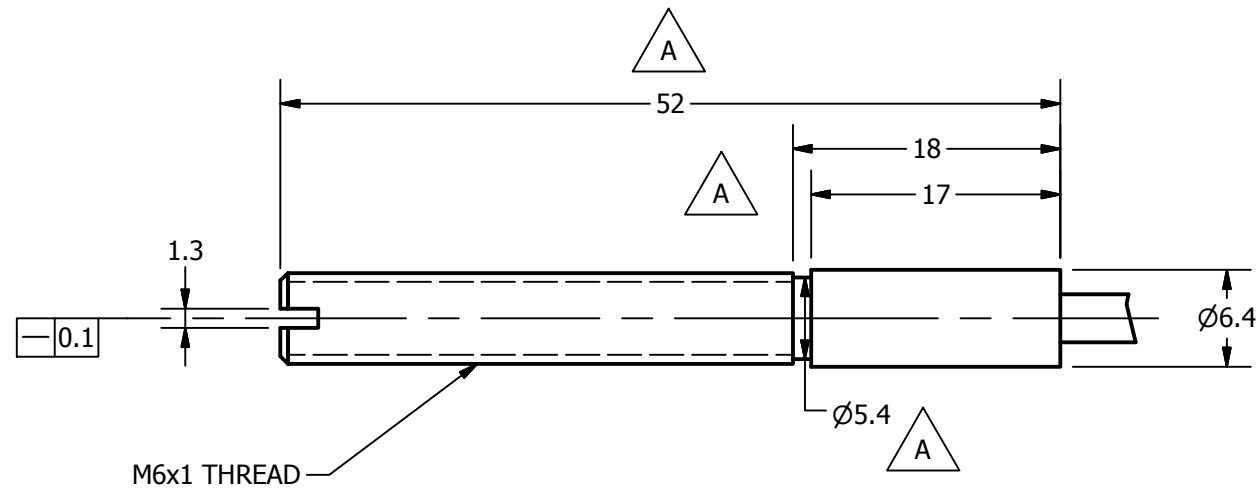
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 16 X 0.2 XX 0.3 XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2100	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	CABLE COVER, NECK
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	
TOTAL QTY IN DUMMY	1	DATE:	1/9/2012	
		FINISH:		

SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-2103	REV.:	A
SCALE:	3.000						

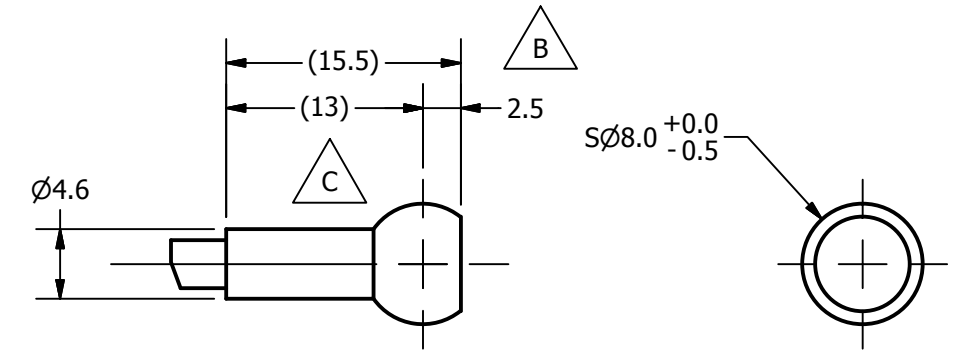
REVISION HISTORY

ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM119 R04 AND CONVERTED TO METRIC FOR THOR-M; 52 WAS 54; 18 WAS 31; 17 WAS 28; Ø5.4 WAS Ø4	8/1/2011	BK
	B	ADD 2.5 DIMENSION; (15.5) WAS 15.5	6/25/2012	BK
	C	DIMENSION (13) WAS 13; REMOVED 10 DIMENSION; ADDED 316 STAINLESS TO MATERIAL; IN NOTE 1 3400 N WAS 1000 LBS.	3/8/2016	DW

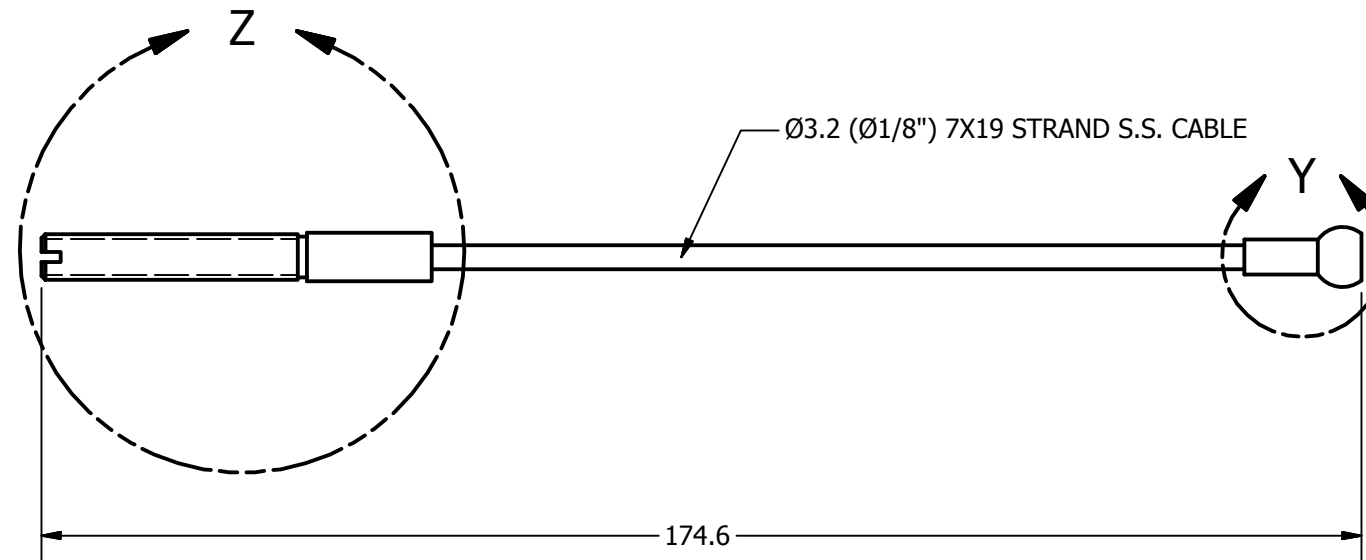
SCALE .500



DETAIL Z
THREADED END
SCALE 2.000



DETAIL Y
BALL END
SCALE 2.000



NOTES:

- TENSILE STRENGTH OF CABLE ASSEMBLY: 3400 N.
- DIMENSIONS SHOWN ARE AFTER SWAGING AND MACHINING.



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
XX ±0.2 ±0.5 1.6
XXX ±0.1 ±0.5 1.6
XXXX ±0.1 ±0.5 1.6

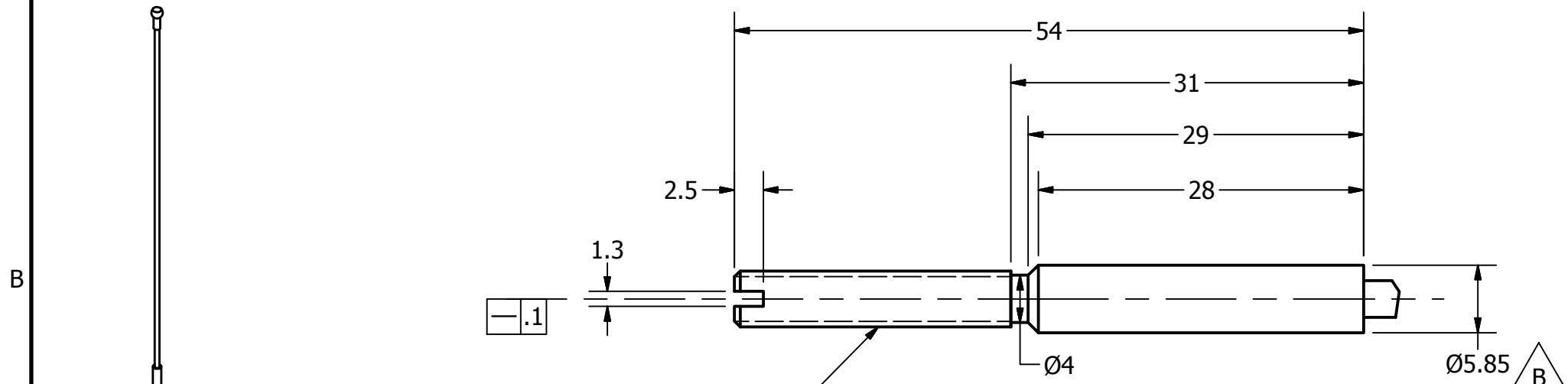


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

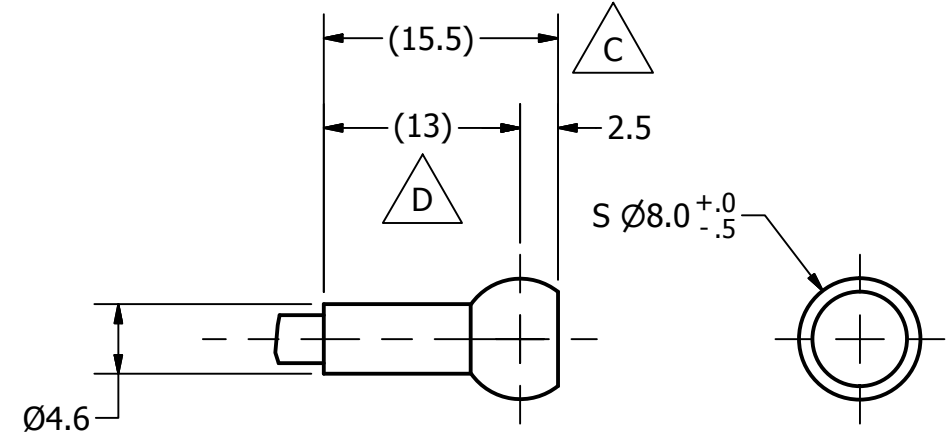
PROJECT NO.: 472-2100	QTY 1	MATERIAL: 316 STAINLESS STEEL	HEAT TREAT:	REMOVE BURRS & BREAK SHARP EDGES DATE: 7/28/2011	DRAWN BY: B. KIMES	DATE: 7/28/2011	DESCRIPTION: CENTER CABLE ASSEMBLY, NECK
NEXT ASSEMBLY	TOTAL QTY IN DUMMY	FINISH:	ENGINEER: J. WANG	CHECKED BY:	DATE: 1/9/2012	SIZE: SHEET A3 1 OF 1 SCALE: 1.000	DRAWING NO.: 472-2140

4 3 2 1

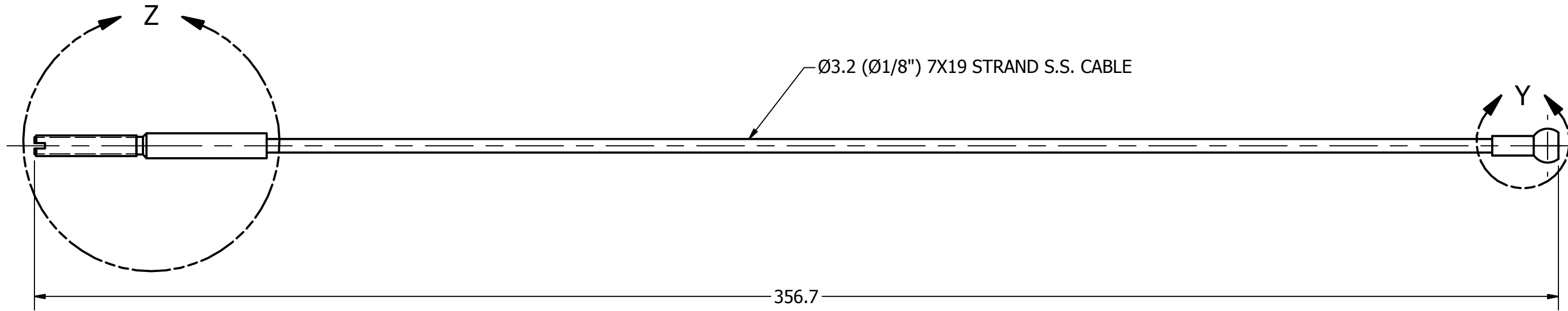
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1NKM117 R1 AND CONVERT TO METRIC FOR THOR-M	8/1/2011	BK
	B	Ø5.85 WAS Ø6.4	6/13/2012	BK
	C	ADD 2.5 DIMENSION; (15.5) WAS 15.5	6/25/2012	BK
	D	DIMENSION (13) WAS 13; IN NOTE 1 3400 N WAS 1700 LBS.; ADDED 316 STAINLESS STEEL TO MATERIAL	3/9/2016	DW



DETAIL Z
THREADED END
SCALE 2 : 1



DETAIL Y
BALL END
SCALE 2 : 1



SCALE .250

- NOTES:
- 1. TENSILE STRENGTH OF CABLE ASSEMBLY: 3400 N.
 - 2. DIMENSIONS SHOWN ARE AFTER SWAGING AND MACHINING.

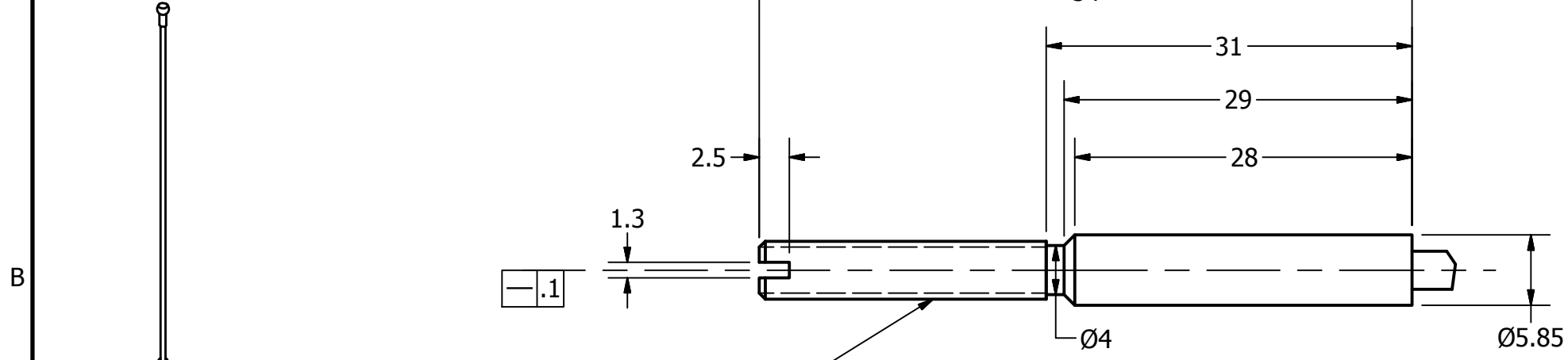


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		REAR CABLE ASSEMBLY, NECK	
PROJECT NO.: 472-2100	1	MATERIAL: 316 STAINLESS STEEL	DRAWN BY: B. KIMES	DATE: 7/28/2011	DESCRIPTION: REAR CABLE ASSEMBLY, NECK
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	DATE:	SIZE: SHEET B 1 OF 1
TOTAL QTY IN DUMMY	1	FINISH:	ENGINEER: J. WANG	DATE: 1/9/2012	DRAWING NO.: 472-2130
				SCALE: 1.000	REV: D

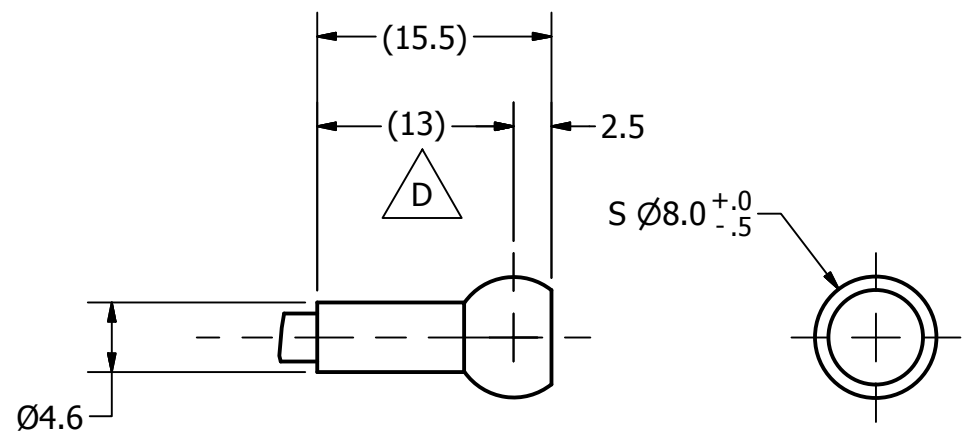
4 3 2 1

4 3 2 1

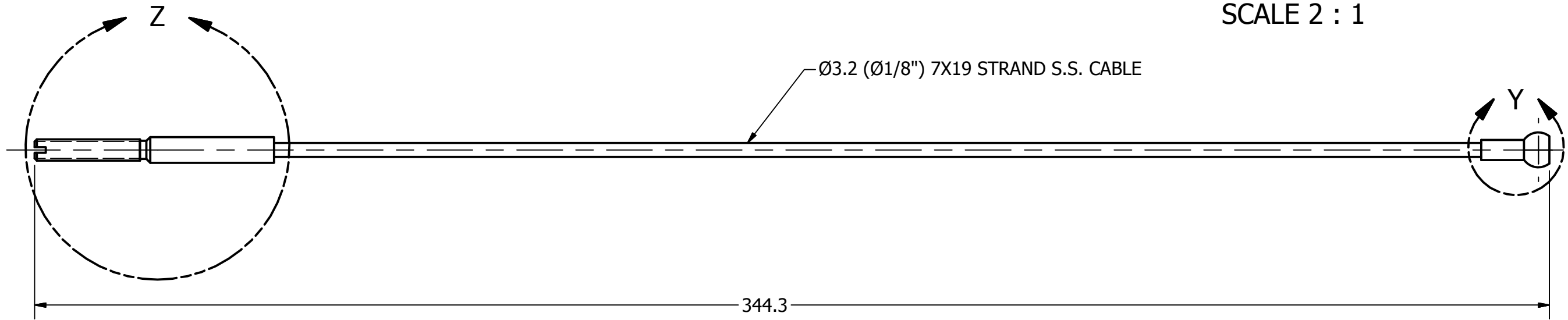
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM122 R12 AND CONVERT TO METRIC FOR THOR-M	8/1/2011	BK
	B	Ø5.85 WAS Ø 6.4	6/13/2012	BK
	C	ADD 2.5 DIMENSION; (15.5) WAS 15.5	6/25/2012	BK
	D	DIMENSION 344.3 WAS 331.3, (13) WAS 13; REMOVED 10 DIMENSION IN DETAIL Y; ADDED THREAD NOTE IN DETAIL Z; ADDED 316 STAINLESS TO MATERIAL; IN NOTE1 3400 N WAS 1700LBS.	3/8/2016	DW



M5x0.8 THREAD
 △ D
**DETAIL Z
 THREADED END
 SCALE 2 : 1**



**DETAIL Y
 BALL END
 SCALE 2 : 1**



344.3
 △ D

- NOTES:
- 1. TENSILE STRENGTH OF CABLE ASSEMBLY: 3400 N.
 - 2. DIMENSIONS SHOWN ARE AFTER SWAGING AND MACHINING.

△ D

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.: 472-2100	MATERIAL: 316 STAINLESS	DRAWN BY: B. KIMES	DATE: 7/28/2011
HEAT TREAT:	FINISH:	CHECKED BY:	DATE:
ENGINEER: J. WANG	DATE: 1/9/2012	REMOVE BURRS & BREAK SHARP EDGES	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: FRONT CABLE ASSEMBLY

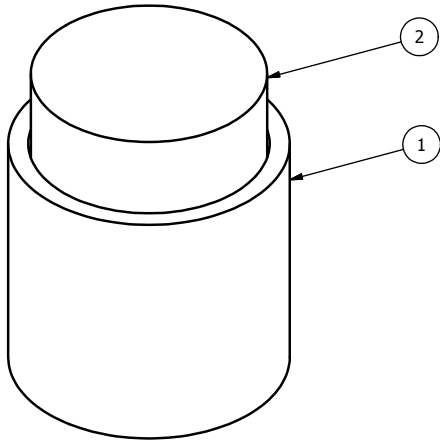
SIZE: SHEET B 1 OF 1

DRAWING NO.: 472-2150

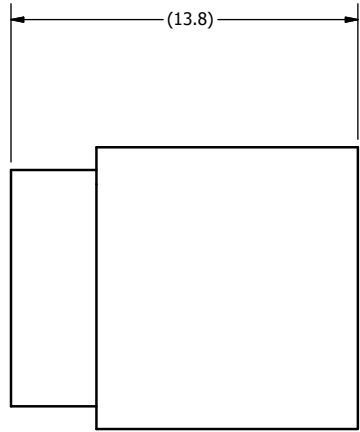
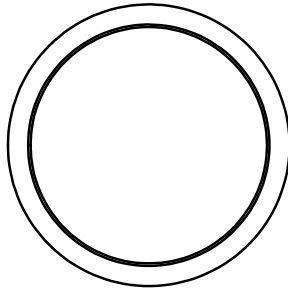
REV: D

472-2100	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM500 R05 FOR THOR-M	8/19/11	BK



SCALE 5.000

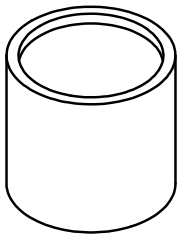


- NOTES:
- BOND 472-2511 TO 472-2510 USING A FLEXIBLE, HIGH STRENGTH, TWO PART RUBBER EPOXY.

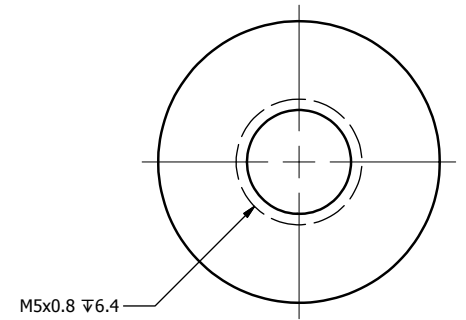
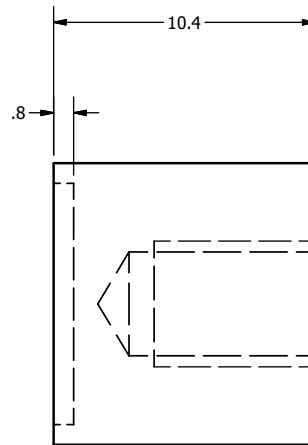
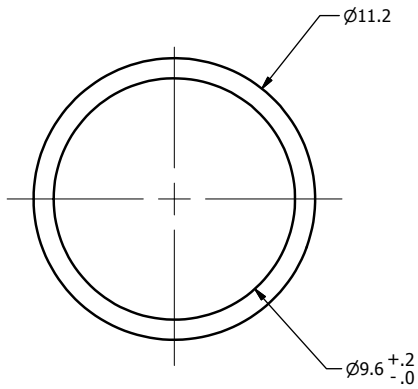
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-2511	NECK SOFT STOP 2
1	1	472-2510	NECK STOP 2

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.2 ±0.5° 1.6 XX ±0.2 ±0.5° 1.6 XXX ±0.2 ±0.5° 1.6 XXXX ±0.01		
PROJECT NO:	MATERIAL:	DATE:	SCALE:	DESCRIPTION: UPPER NECK STOP ASSEMBLY
472-2100	1	B. KIMES	7/28/2011	
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	1	J. WANG	1/10/2012	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-2500 REV: A



SCALE 3.000

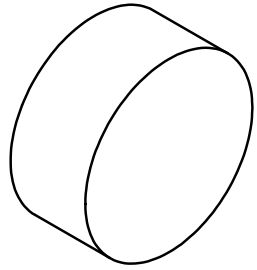


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM510 R06 AND CONVERTED TO METRIC FOR THOR-M $\varnothing 9.6 \pm .2 / - .0$ WAS 9.5	8/19/11	BK

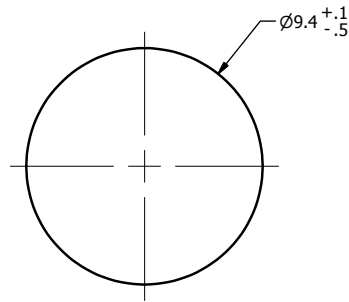
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX .02 XXX .01 XXXX 0.01		
PROJECT NO:	472-2500	MATERIAL:	303 STAINLESS STEEL	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	NECK STOP 2
CHECKED BY:		HEAT TREAT:		SIZE: A3
ENGINEER:	J. WANG	DATE:	1/10/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		DRAWING NO.: 472-2510
				SCALE: 5.000

REVISION HISTORY

ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM511 R03 FOR THOR-M	8/19/11	BK




SCALE 5.000



NOTES:

1. RUBBER TOLERANCE ± 0.5 AND DUROMETER ± 5 , UNLESS OTHERWISE NOTED.

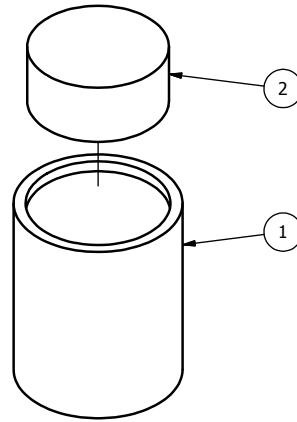
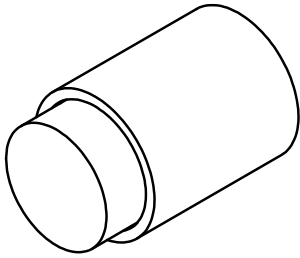
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	REMOVE BURRS & BREAK SHARP EDGES	
		DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION:
DECIMALS	ANGLES	FINISH		NECK SOFT STOP 2
0.0	0.5	1.6		
0.1	0.5	1.6	<input checked="" type="checkbox"/>	
0.2	0.5	1.6	<input checked="" type="checkbox"/>	
0.3	0.5	1.6	<input checked="" type="checkbox"/>	
0.4	0.5	1.6	<input checked="" type="checkbox"/>	
0.5	0.5	1.6	<input checked="" type="checkbox"/>	
0.6	0.5	1.6	<input checked="" type="checkbox"/>	
0.7	0.5	1.6	<input checked="" type="checkbox"/>	
0.8	0.5	1.6	<input checked="" type="checkbox"/>	
0.9	0.5	1.6	<input checked="" type="checkbox"/>	
1.0	0.5	1.6	<input checked="" type="checkbox"/>	
1.1	0.5	1.6	<input checked="" type="checkbox"/>	
1.2	0.5	1.6	<input checked="" type="checkbox"/>	
1.3	0.5	1.6	<input checked="" type="checkbox"/>	
1.4	0.5	1.6	<input checked="" type="checkbox"/>	
1.5	0.5	1.6	<input checked="" type="checkbox"/>	
1.6	0.5	1.6	<input checked="" type="checkbox"/>	
1.7	0.5	1.6	<input checked="" type="checkbox"/>	
1.8	0.5	1.6	<input checked="" type="checkbox"/>	
1.9	0.5	1.6	<input checked="" type="checkbox"/>	
2.0	0.5	1.6	<input checked="" type="checkbox"/>	
2.1	0.5	1.6	<input checked="" type="checkbox"/>	
2.2	0.5	1.6	<input checked="" type="checkbox"/>	
2.3	0.5	1.6	<input checked="" type="checkbox"/>	
2.4	0.5	1.6	<input checked="" type="checkbox"/>	
2.5	0.5	1.6	<input checked="" type="checkbox"/>	
2.6	0.5	1.6	<input checked="" type="checkbox"/>	
2.7	0.5	1.6	<input checked="" type="checkbox"/>	
2.8	0.5	1.6	<input checked="" type="checkbox"/>	
2.9	0.5	1.6	<input checked="" type="checkbox"/>	
3.0	0.5	1.6	<input checked="" type="checkbox"/>	
3.1	0.5	1.6	<input checked="" type="checkbox"/>	
3.2	0.5	1.6	<input checked="" type="checkbox"/>	
3.3	0.5	1.6	<input checked="" type="checkbox"/>	
3.4	0.5	1.6	<input checked="" type="checkbox"/>	
3.5	0.5	1.6	<input checked="" type="checkbox"/>	
3.6	0.5	1.6	<input checked="" type="checkbox"/>	
3.7	0.5	1.6	<input checked="" type="checkbox"/>	
3.8	0.5	1.6	<input checked="" type="checkbox"/>	
3.9	0.5	1.6	<input checked="" type="checkbox"/>	
4.0	0.5	1.6	<input checked="" type="checkbox"/>	
4.1	0.5	1.6	<input checked="" type="checkbox"/>	
4.2	0.5	1.6	<input checked="" type="checkbox"/>	
4.3	0.5	1.6	<input checked="" type="checkbox"/>	
4.4	0.5	1.6	<input checked="" type="checkbox"/>	
4.5	0.5	1.6	<input checked="" type="checkbox"/>	
4.6	0.5	1.6	<input checked="" type="checkbox"/>	
4.7	0.5	1.6	<input checked="" type="checkbox"/>	
4.8	0.5	1.6	<input checked="" type="checkbox"/>	
4.9	0.5	1.6	<input checked="" type="checkbox"/>	
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5.1	0.5	1.6	<input checked="" type="checkbox"/>	
5.2	0.5	1.6	<input checked="" type="checkbox"/>	
5.3	0.5	1.6	<input checked="" type="checkbox"/>	
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5.5	0.5	1.6	<input checked="" type="checkbox"/>	
5.6	0.5	1.6	<input checked="" type="checkbox"/>	
5.7	0.5	1.6	<input checked="" type="checkbox"/>	
5.8	0.5	1.6	<input checked="" type="checkbox"/>	
5.9	0.5	1.6	<input checked="" type="checkbox"/>	
6.0	0.5	1.6	<input checked="" type="checkbox"/>	
6.1	0.5	1.6	<input checked="" type="checkbox"/>	
6.2	0.5	1.6	<input checked="" type="checkbox"/>	
6.3	0.5	1.6	<input checked="" type="checkbox"/>	
6.4	0.5	1.6	<input checked="" type="checkbox"/>	
6.5	0.5	1.6	<input checked="" type="checkbox"/>	
6.6	0.5	1.6	<input checked="" type="checkbox"/>	
6.7	0.5	1.6	<input checked="" type="checkbox"/>	
6.8	0.5	1.6	<input checked="" type="checkbox"/>	
6.9	0.5	1.6	<input checked="" type="checkbox"/>	
7.0	0.5	1.6	<input checked="" type="checkbox"/>	
7.1	0.5	1.6	<input checked="" type="checkbox"/>	
7.2	0.5	1.6	<input checked="" type="checkbox"/>	
7.3	0.5	1.6	<input checked="" type="checkbox"/>	
7.4	0.5	1.6	<input checked="" type="checkbox"/>	
7.5	0.5	1.6	<input checked="" type="checkbox"/>	
7.6	0.5	1.6	<input checked="" type="checkbox"/>	
7.7	0.5	1.6	<input checked="" type="checkbox"/>	
7.8	0.5	1.6	<input checked="" type="checkbox"/>	
7.9	0.5	1.6	<input checked="" type="checkbox"/>	
8.0	0.5	1.6	<input checked="" type="checkbox"/>	
8.1	0.5	1.6	<input checked="" type="checkbox"/>	
8.2	0.5	1.6	<input checked="" type="checkbox"/>	
8.3	0.5	1.6	<input checked="" type="checkbox"/>	
8.4	0.5	1.6	<input checked="" type="checkbox"/>	
8.5	0.5	1.6	<input checked="" type="checkbox"/>	
8.6	0.5	1.6	<input checked="" type="checkbox"/>	
8.7	0.5	1.6	<input checked="" type="checkbox"/>	
8.8	0.5	1.6	<input checked="" type="checkbox"/>	
8.9	0.5	1.6	<input checked="" type="checkbox"/>	
9.0	0.5	1.6	<input checked="" type="checkbox"/>	
9.1	0.5	1.6	<input checked="" type="checkbox"/>	
9.2	0.5	1.6	<input checked="" type="checkbox"/>	
9.3	0.5	1.6	<input checked="" type="checkbox"/>	
9.4	0.5	1.6	<input checked="" type="checkbox"/>	
9.5	0.5	1.6	<input checked="" type="checkbox"/>	
9.6	0.5	1.6	<input checked="" type="checkbox"/>	
9.7	0.5	1.6	<input checked="" type="checkbox"/>	
9.8	0.5	1.6	<input checked="" type="checkbox"/>	
9.9	0.5	1.6	<input checked="" type="checkbox"/>	
10.0	0.5	1.6	<input checked="" type="checkbox"/>	

PROJECT NO:	472-2500
MATERIAL:	SBR RUBBER 75A
HEAT TREAT:	
TOTAL QTY IN DUMMY	1

DESIGNED BY:	B. KIMES
CHECKED BY:	
DATE:	7/28/2011
ENGINEER:	J. WANG
DATE:	1/10/2012

SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-2511	REV.:	A
SCALE:	5.000						

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM500 R05 AND CONVERTED TO METRIC FOR THOR-M	11/22/2011	SKK



SCALE 3.000

NOTES:

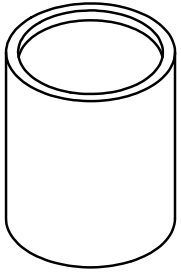
1. BOND TWO PARTS TOGETHER WITH HIGH STRENGTH, FLEXIBLE RUBBER EPOXY.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-2513	NECK SOFT STOP 1
1	1	472-2512	NECK STOP 1

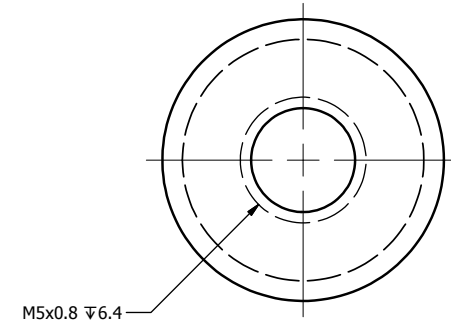
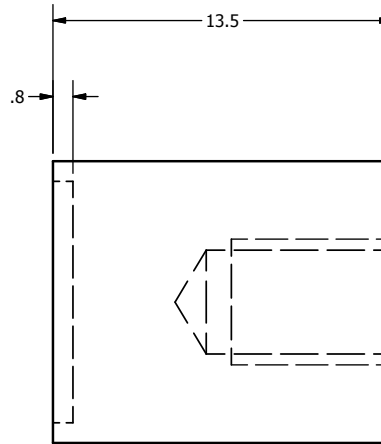
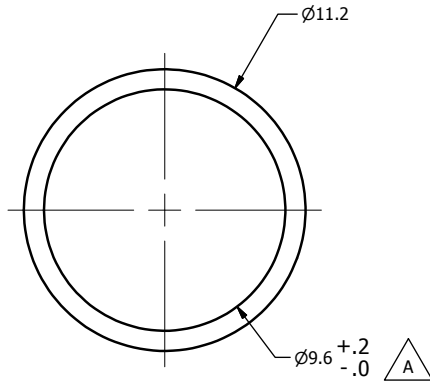
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 X 0.2 XX 0.3 XXX 0.51 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2100	DATE:	11/22/2011	DESCRIPTION: LOWER NECK STOP ASSEMBLY SCALE: 3.000
MATERIAL:		DESIGNED BY:	skantola	
CHECKED BY:		DATE:	1/10/2012	
ENGINEER:	J. WANG	DATE:	1/10/2012	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-2520 REV: A

ITEM	QTY	TOTAL QTY IN DUMMY
472-2100	1	
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	



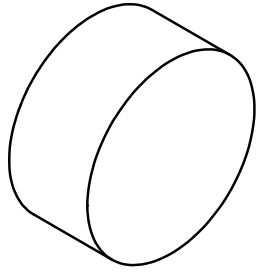
SCALE 3.000



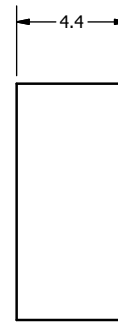
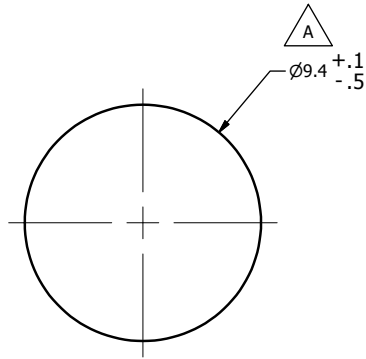
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM512 R06 AND CONVERTED TO METRIC FOR THOR-M; $\phi 9.6^{+.2}_{-.0}$ WAS $\phi 9.5$	8/19/11	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2501	MATERIAL:	303 STAINLESS STEEL	DESCRIPTION:
DRIVEN BY:	B. KIMES	DATE:	7/28/2011	NECK STOP 1
CHECKED BY:		HEAT TREAT:		SIZE: A3
ENGINEER:	J. WANG	DATE:	1/10/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		DRAWING NO.:
				472-2512
				SCALE: 5.000
				REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM513 R02 FOR THOR-M; Ø9.4+.1/-0 WAS Ø9.5	8/19/11	BK



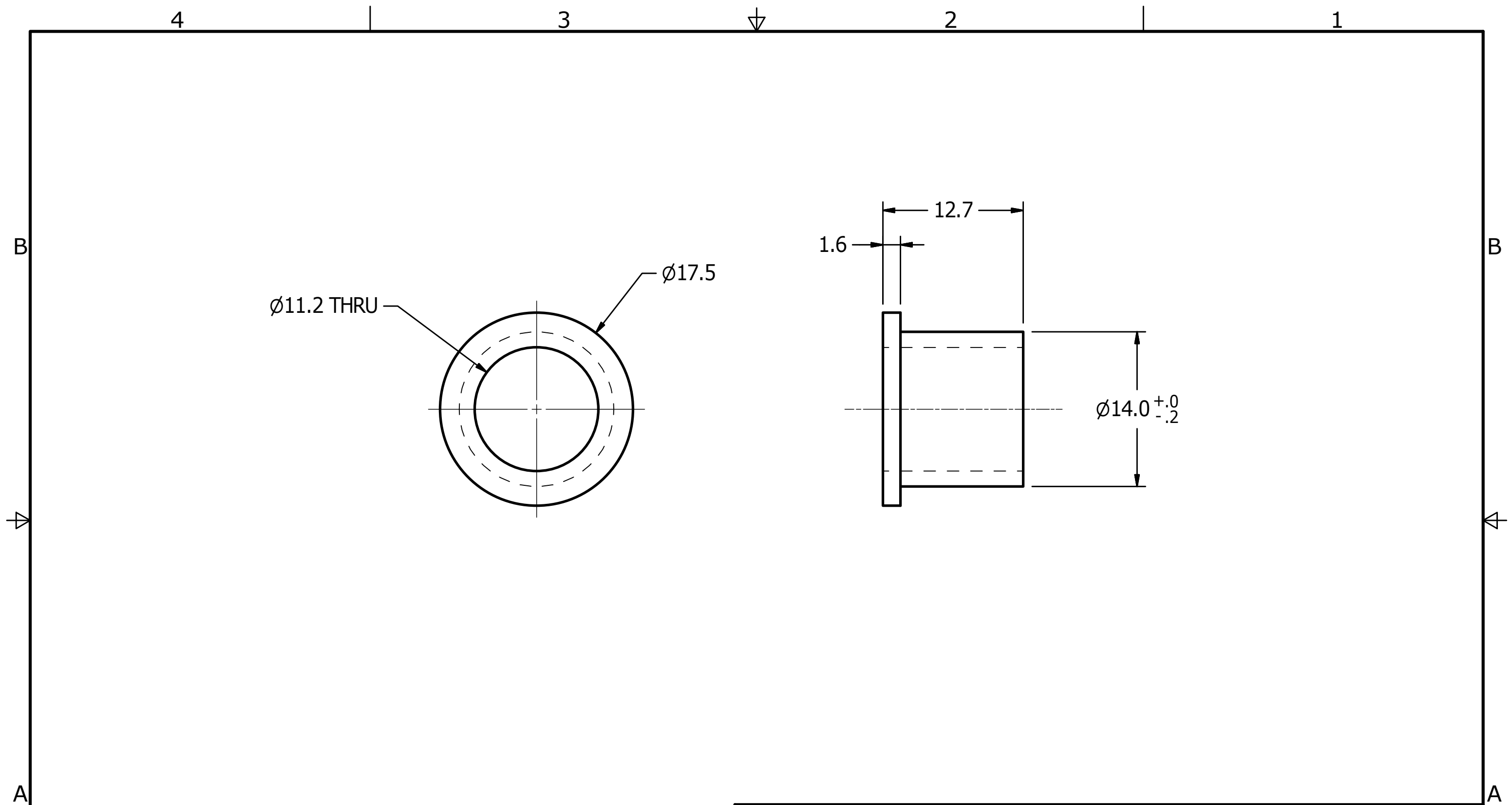
SCALE 5.000


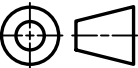


NOTES:

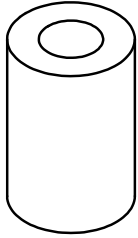
1. RUBBER TOLERANCE ±0.5 AND DUROMETER ±5, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH .0 .01 1.6 .X .02 1.6 .XX .03 1.6 .XXX ±0.01		
PROJECT NO.:	472-2501	MATERIAL:	SBR RUBBER 75A	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	NECK SOFT STOP 1
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	
DATE:		DATE:	1/10/2012	
FINISH:		SCALE:	5.000	
TOTAL QTY IN DUMMY		QTY	1	SIZE SHEET
				A3 1 OF 1
				DRAWING NO. 472-2513
				REV. A

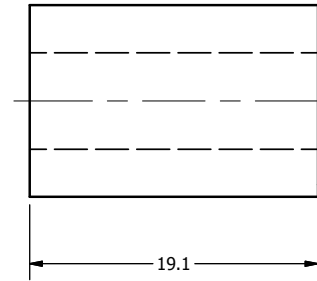
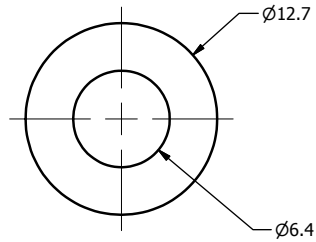


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN Dave Walker CHECKED	DATE 6/10/2016	CENTER CABLE LOWER BUSHING 1, NECK THOR-M	
MATERIAL Nylon 6/6 HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION		
		SCALE: 3 : 1	SHEET 1 OF 1	REV

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM032 R01 FOR THOR-M	7/29/11	BK



SCALE 2.000



NOTES:

1. RUBBER TOLERANCE ± 0.5 AND DUROMETER ± 5 , UNLESS OTHERWISE NOTED.

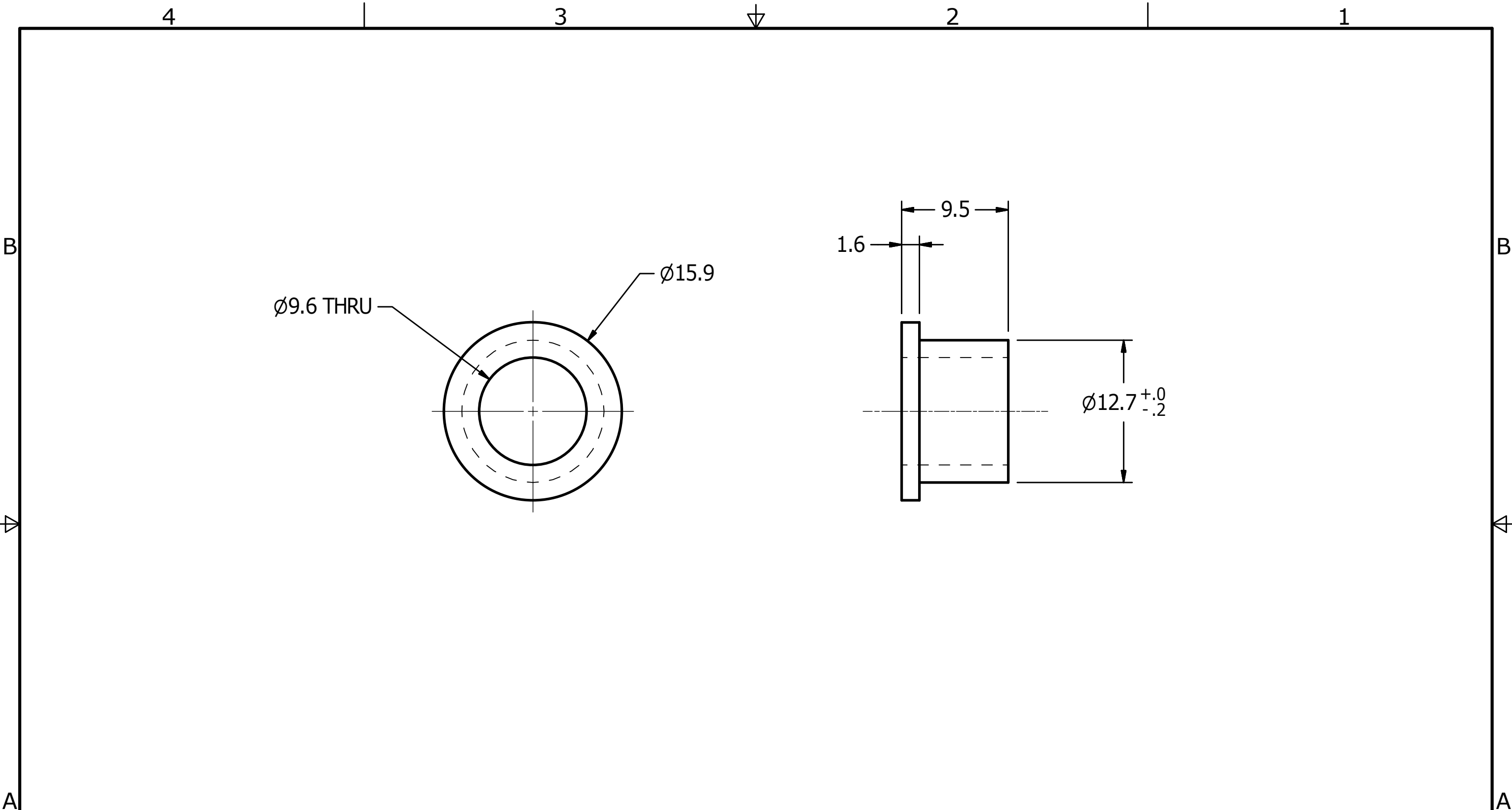
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 16
XX ± 0.2
XXX ± 0.3
XXX ± 0.01
REMOVE BURRS & BREAK SHARP EDGES

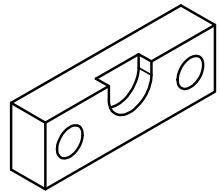


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

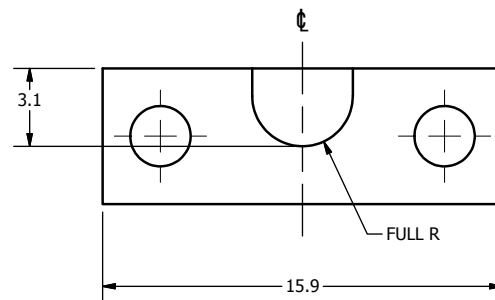
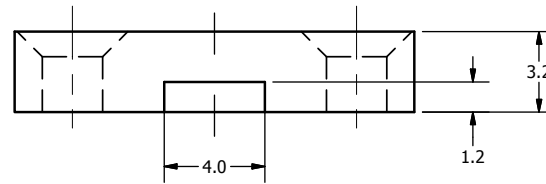
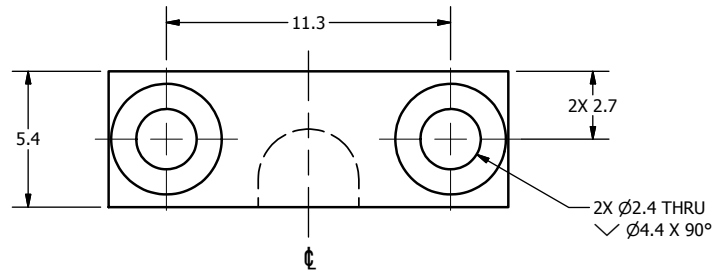
PROJECT NO.: 427-2100	QTY 1	MATERIAL: NEOPRENE 75A	DATE: 7/28/2011	DESCRIPTION: NECK NEOPRENE SPACER	SIZE: SHEET A3 1 OF 1	DRAWING NO.: 472-2018	REV: A
CHECKED BY: B. KIMES	HEAT TREAT:	FINISH:	DATE: 1/9/2012	SCALE: 3.000			
TOTAL QTY IN DUMMY	1	ENGINEER: J. WANG	DATE: 1/9/2012				



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 1.6 X.XX ±.1 1.6 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN Dave Walker CHECKED	DATE 6/10/2016		CENTER CABLE LOWER BUSHING 2, NECK THOR-M	
MATERIAL Nylon 6/6 HEAT TREAT FINISH	ENG APPROVED		SIZE A3		
		SCALE: 3 : 1	SHEET 1 OF 1		



SCALE 3.000



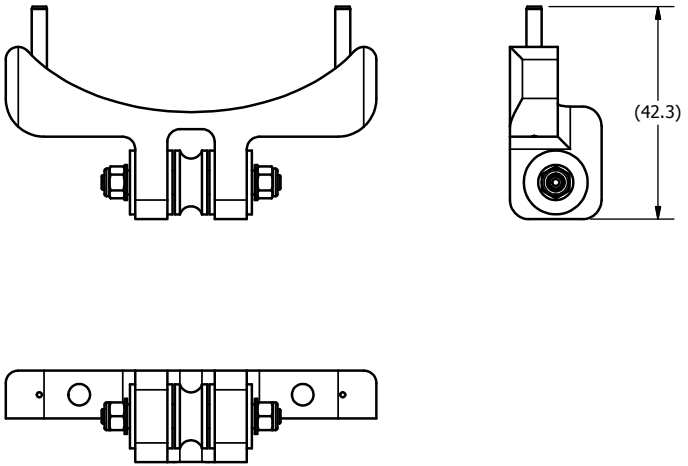
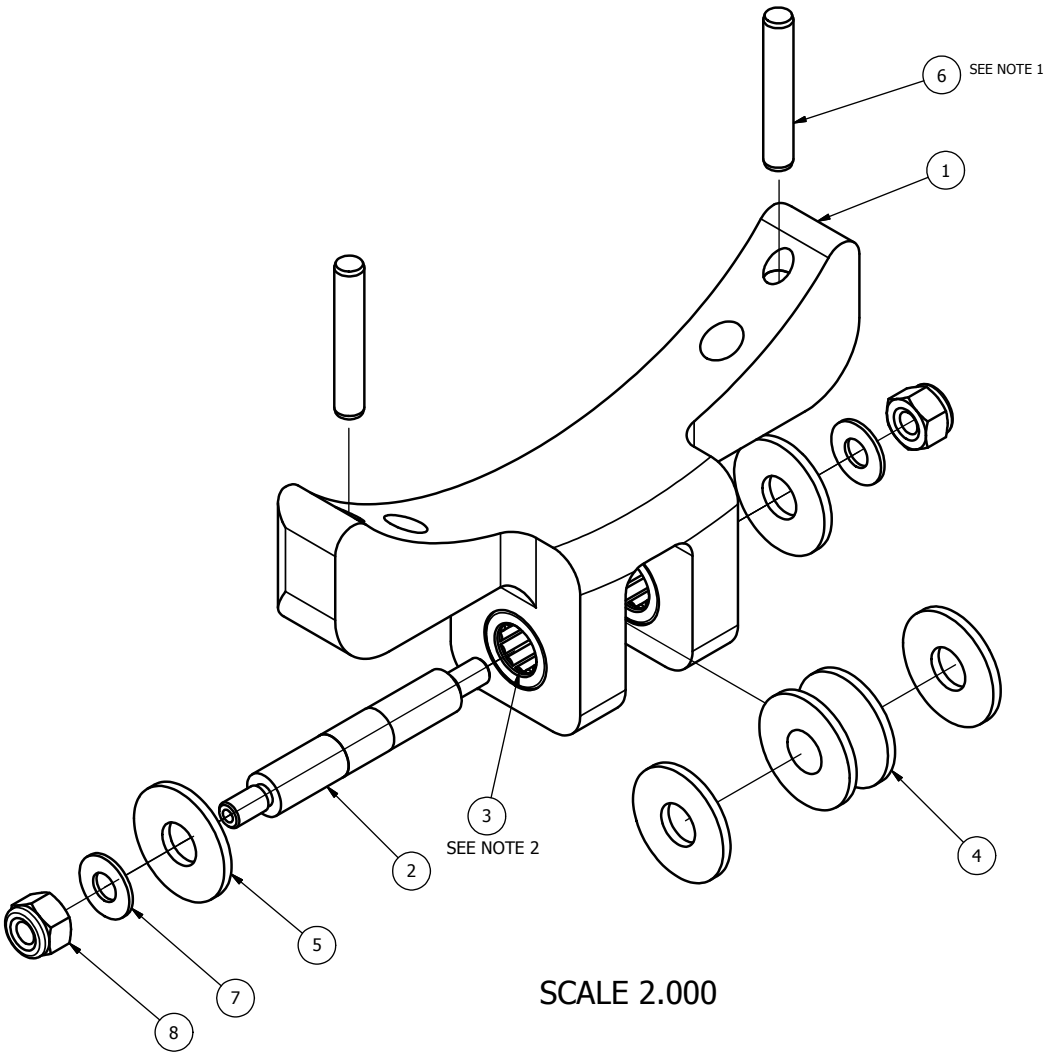
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM022 R05 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X X 0.2 XX 0.3 XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2000	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DESIGNER:	B. KIMES	DATE:	7/28/2011	CABLE SEAT COVER, NECK
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		DATE:	1/9/2012	A31 OF 1
FINISH:		ENGINEER:	J. WANG	SCALE: 5.000
QTY	2	TOTAL QTY IN DUMMY	2	DRAWING NO.:
				472-2015
				REV.:
				A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM300 R05 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	8/18/2011	BK



SCALE 2.000

8	2	5001106	M3 X 0.3 HEX LOCK NUT SS
7	2	5001095	M3 FLAT WASHER PLAIN ZINC
6	2	5000391	M3 X 18 LG. DOWEL PIN SS
5	4	9002595	WASHER, TEFLON .187 X .50 X .04 THK.
4	1	472-2312	NECK REAR CABLE PULLEY
3	2	9002597	BEARING, NEEDLE ROLLER (3/16 BORE)
2	1	472-2311	REAR CABLE PULLEY SHAFT, NECK
1	1	472-2310	REAR PULLEY BRACKET, NECK
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.01 16 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO.: 472-2000	QTY: 1	MATERIAL:	DATE: 7/28/2011	DESCRIPTION: NECK PULLEY BRACKET ASSEMBLY SCALE: 1.000
NEXT ASSEMBLY:	QTY:	CHECKED BY: B. KIMES	DATE: 7/28/2011	
TOTAL QTY IN DUMMY:	1	DRAWN BY: J. WANG	DATE: 1/10/2012	

- NOTES:
- PRESS FIT DOWEL PINS AS SHOWN.

- PRESS THE BEARINGS (9002597) INTO PLACE, FLUSH WITH OUTSIDE SURFACE OF 472-2310.

PROJECT NO.: 472-2000	QTY: 1	MATERIAL:	DATE: 7/28/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: NECK PULLEY BRACKET ASSEMBLY SCALE: 1.000
NEXT ASSEMBLY:	QTY:	CHECKED BY: B. KIMES	DATE: 7/28/2011	
TOTAL QTY IN DUMMY:	1	DRAWN BY: J. WANG	DATE: 1/10/2012	



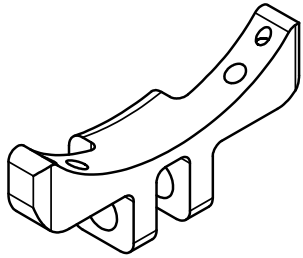
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: NECK PULLEY BRACKET ASSEMBLY

SCALE: 1.000

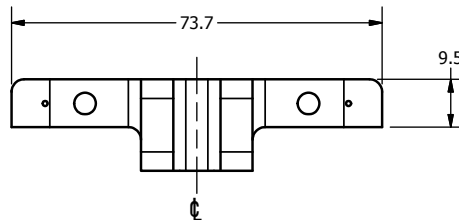
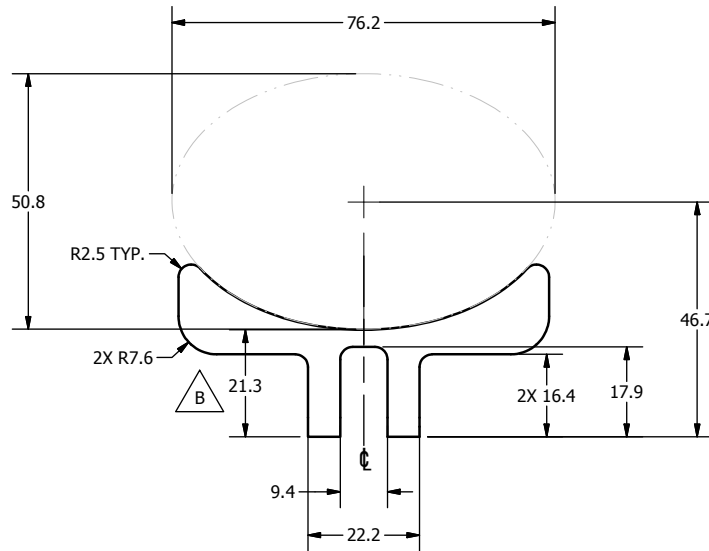
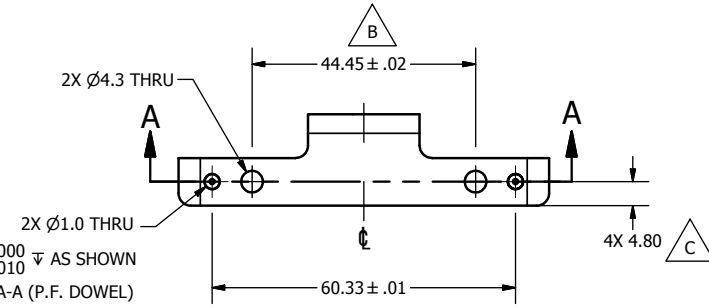
472-2300

A

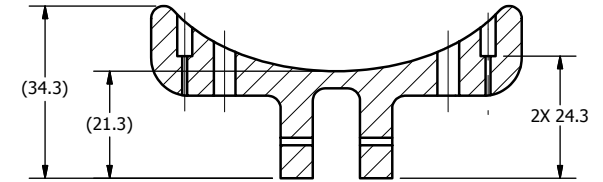


SCALE 1.000

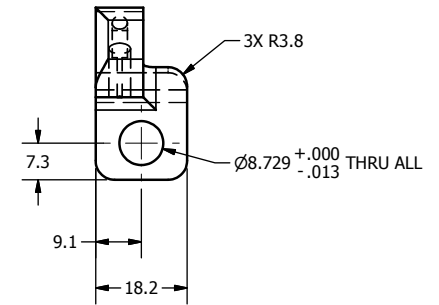
$\triangle A$ \perp $\varnothing 2.998^{+.000}_{-.010}$ AS SHOWN
IN SEC A-A (P.F. DOWEL)



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM310 R07 AND CONVERTED TO METRIC FOR THOR-M; REMOVE NOTE 3, RENUMBER NOTES; C'BORE $\varnothing 2.998^{+.000}/-.010$ WAS $\varnothing 3.175^{+.000}/-.013$	8/18/2011	BK
	B	ADD TOLERANCE; 21.3 WAS 21.4	4/26/2012	BK
	C	ADD DIMENSION	11/27/2012	BK



SECTION A-A
SCALE 1.000

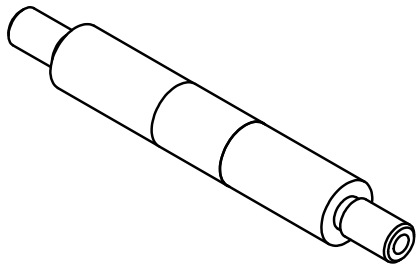


NOTES:

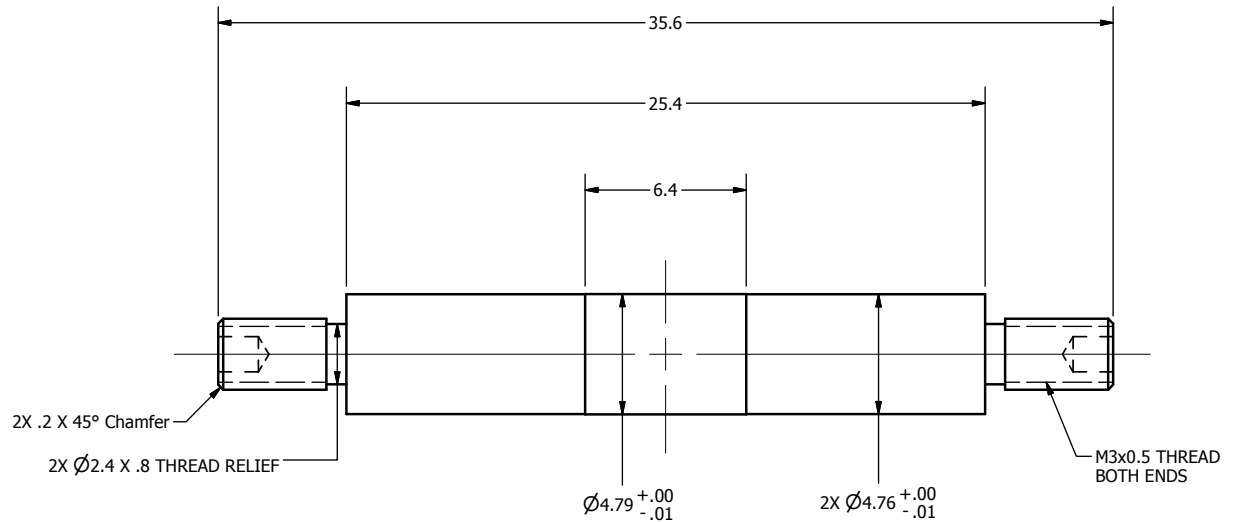
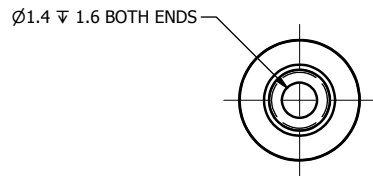
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
2. DIMENSIONS SYMMETRIC ABOUT \perp , UNLESS OTHERWISE NOTED.
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° 1.6 XX 0.2 0.5° 1.6 XXX 0.3 0.5° 1.6 XXXX 0.01		
PROJECT NO:	472-2300	MATERIAL:	1018 STEEL	DESCRIPTION: REAR PULLEY BRACKET, NECK
CHECKED BY:		HEAT TREAT:		
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	SIZE: SHEET A3 1 OF 1 SCALE: 1.000
ENGINEER:	J. WANG	DATE:	1/10/2012	
TOTAL QTY IN DUMMY	1	FRSH:	SEE NOTES	DRAWING NO: 472-2310

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM311 R05 AND CONVERTED TO METRIC FOR THOR-M; REMOVE NOTE 1, RENUMBER NOTES	8/18/2011	BK



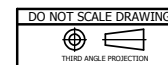
SCALE 3.000



NOTES:



1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.



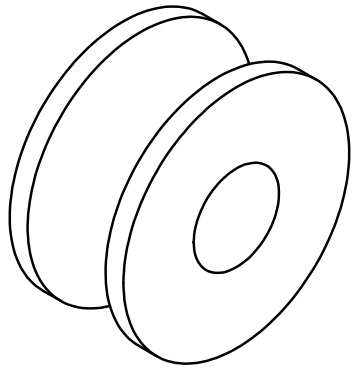
TOLERANCES		
UNLESS OTHERWISE SPECIFIED		
DIMENSIONS ARE IN MILLIMETERS	DECIMALS	ANGLES FINISH
X .05	± 0.07	1.6
X.X	± 0.2	
X.XX	± 0.3	
X.XXX	± 0.01	

REMOVE BURRS & BREAK SHARP EDGES

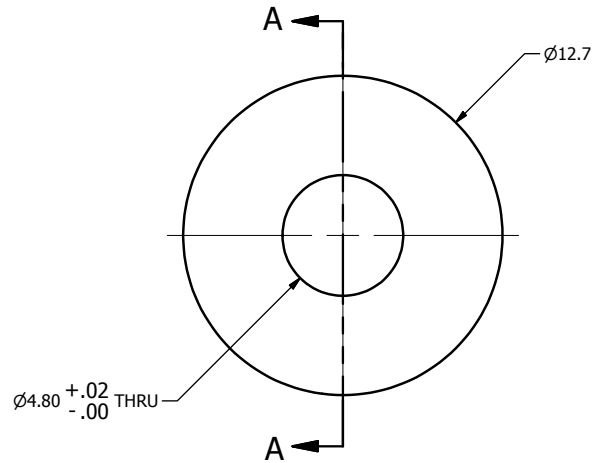


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

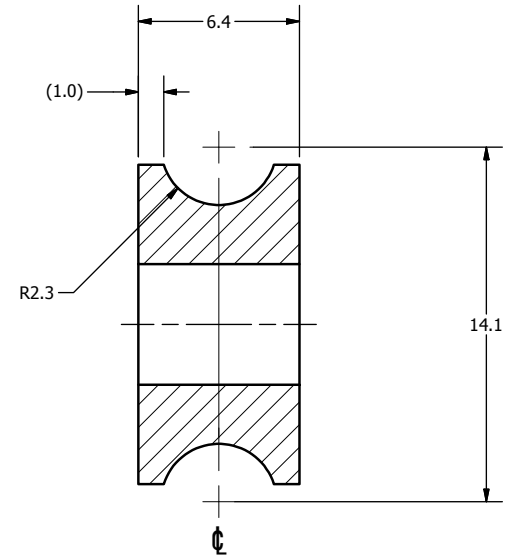
472-2400	1	PROJECT NO.:	DATE:	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.:	REV.:
472-2300	1	MATERIAL: ETD-150 STEEL	7/28/2011				
NEXT ASSEMBLY	QTY	CHECKED BY: B. KIMES	DATE:	DESCRIPTION: REAR CABLE PULLEY SHAFT, NECK		472-2311	A
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/10/2012	SCALE: 5.000			



SCALE 5.000

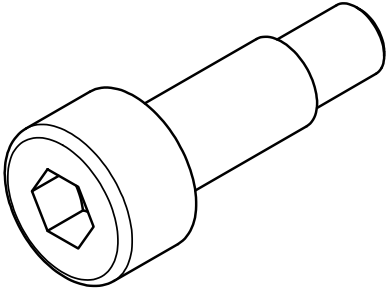


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM312 R04 FOR THOR-M	8/19/11	BK

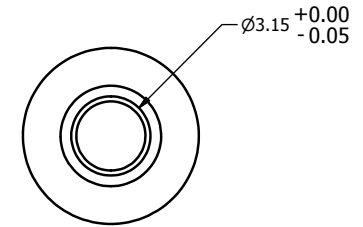
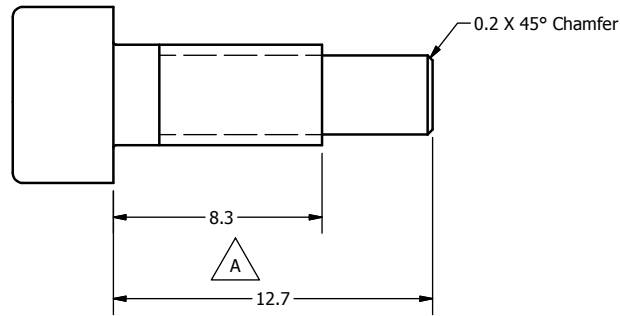


SECTION A-A
SCALE 5.000

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
472-2400	1	PROJECT NO.:	DATE:	DESCRIPTION: NECK REAR CABLE PULLEY
472-2300	1	MATERIAL: OILITE BRONZE (SAE 841)	BY: B. KIMES	
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	2	FINISH:	DATE: 1/10/2012	
		REMOVE BURRS & BREAK SHARP EDGES		SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000
				DRAWING NO.: 472-2312
				REV: A



SCALE 5.000



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM027 R05 AND CONVERTED TO METRIC FOR THOR-M; 8.3 WAS 8.6, 12.7 WAS (12.7); ADD (5000459) TO NOTE	7/28/2011	BK

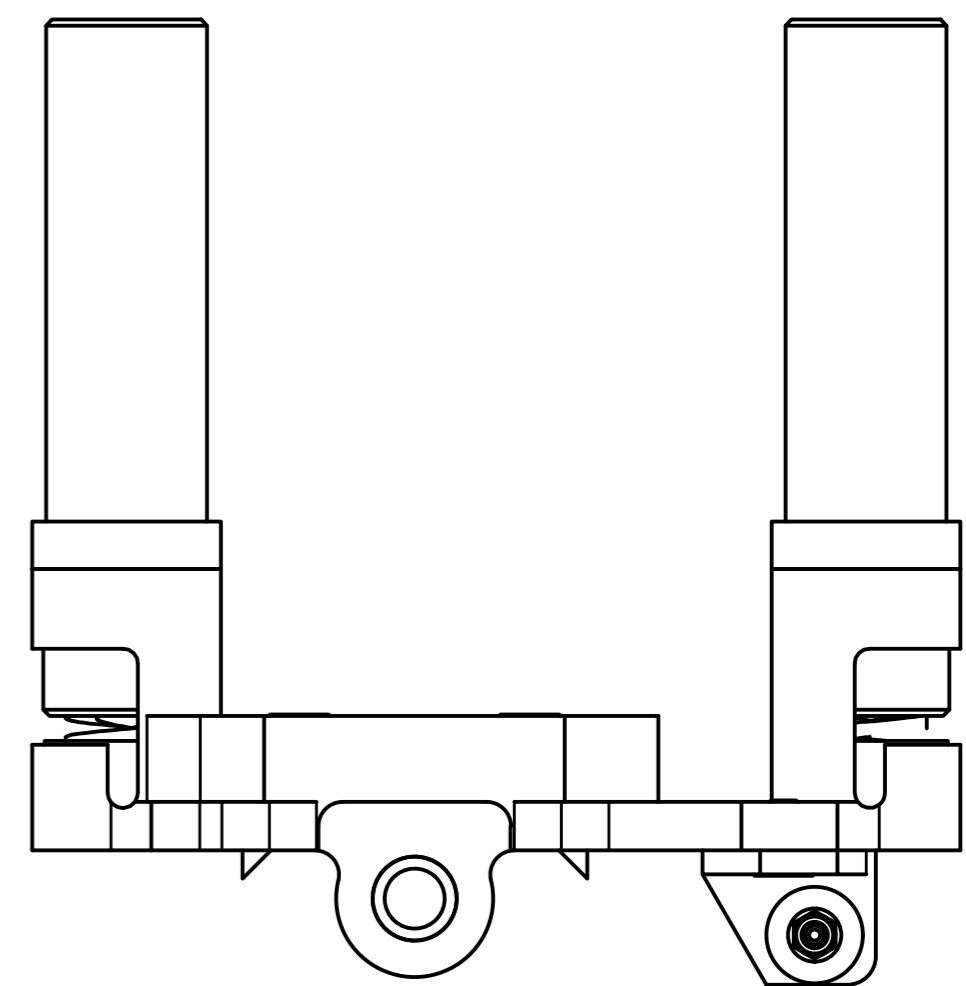
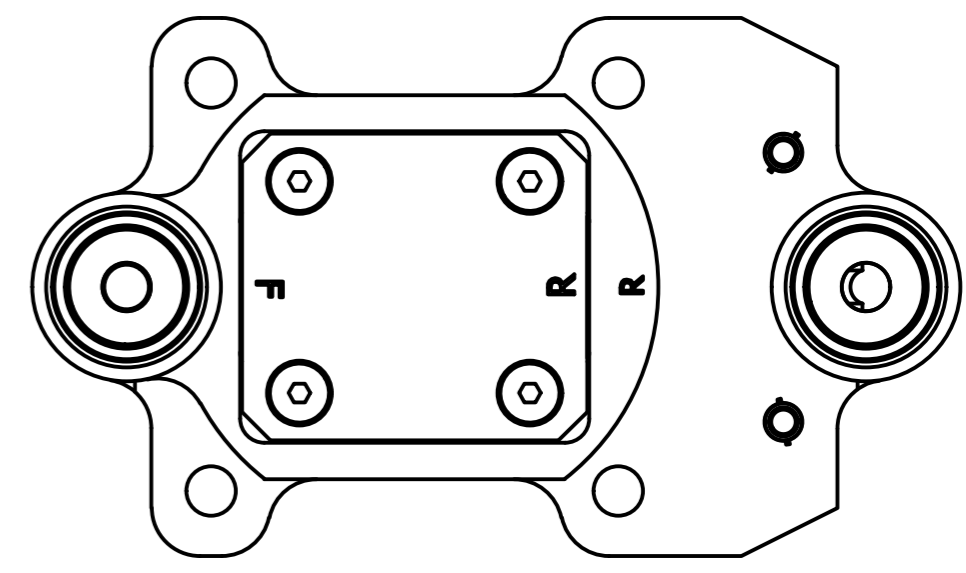
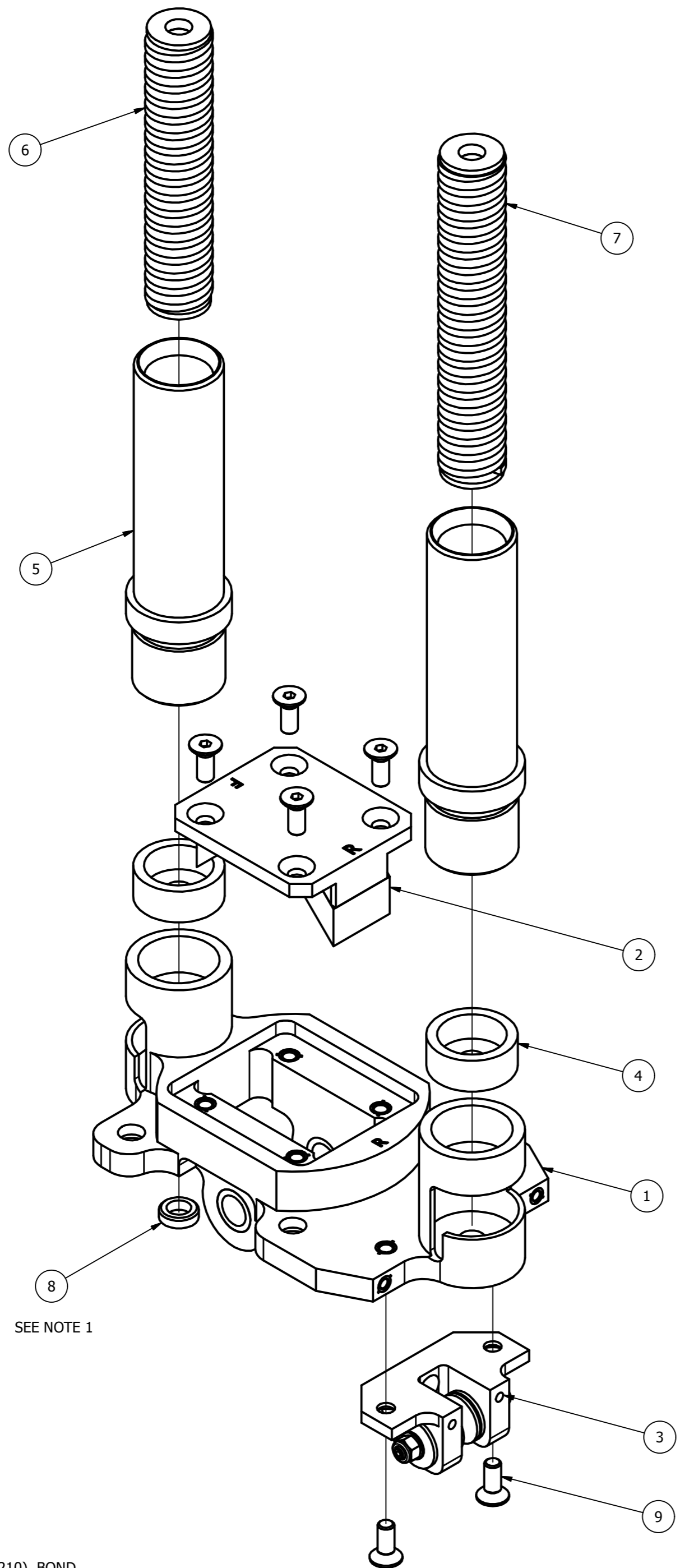
NOTES:



1. MAKE FROM M4 X0.7 X 14 SHCS (5000459), MODIFY AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 ± 0.1 16 XX 0.2 ± 0.1 16 XXX 0.3 ± 0.1 16 XXXX 0.01		
PROJECT NO:	472-2000	MATERIAL:	1	REMOVE BURRS & BREAK SHARP EDGES DESCRIPTION: OCCIPITAL CONDYLE SCREW
CHECKED BY:	B. KIMES	DATE:	7/28/2011	SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000
ENGINEER:	J. WANG	DATE:	1/9/2012	DRAWING NO: 472-2016
TOTAL QTY IN DUMMY:	1	FINISH:		REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM200 R13 AND CONVERTED TO METRIC FOR THOR-M	8/19/11	BK
	B	ADDED PART #SA572-S112 - Ø.850 SKULL SPRING LOAD CELL (OPTIONAL)	9/2/2015	DW
	C	REVISED PART #472-2230 - OC STOP ASSEMBLY	5/11/2016	DW



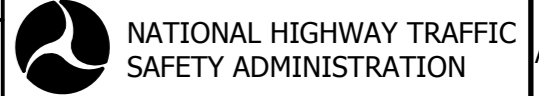
SEE NOTE 1

SCALE 1.000

- NOTES:
- CHEMICALLY CLEAN THE PART AND ITS MATING PART (472-2210). BOND WITH CYANOACRYLATE, MAKING SURE THE BOTTOM SURFACE IS FLUSH WITH ITS MATING PART.
 - SPRING LOAD CELL, SA572-S112, CAN BE USED INSTEAD OF 472-2201.

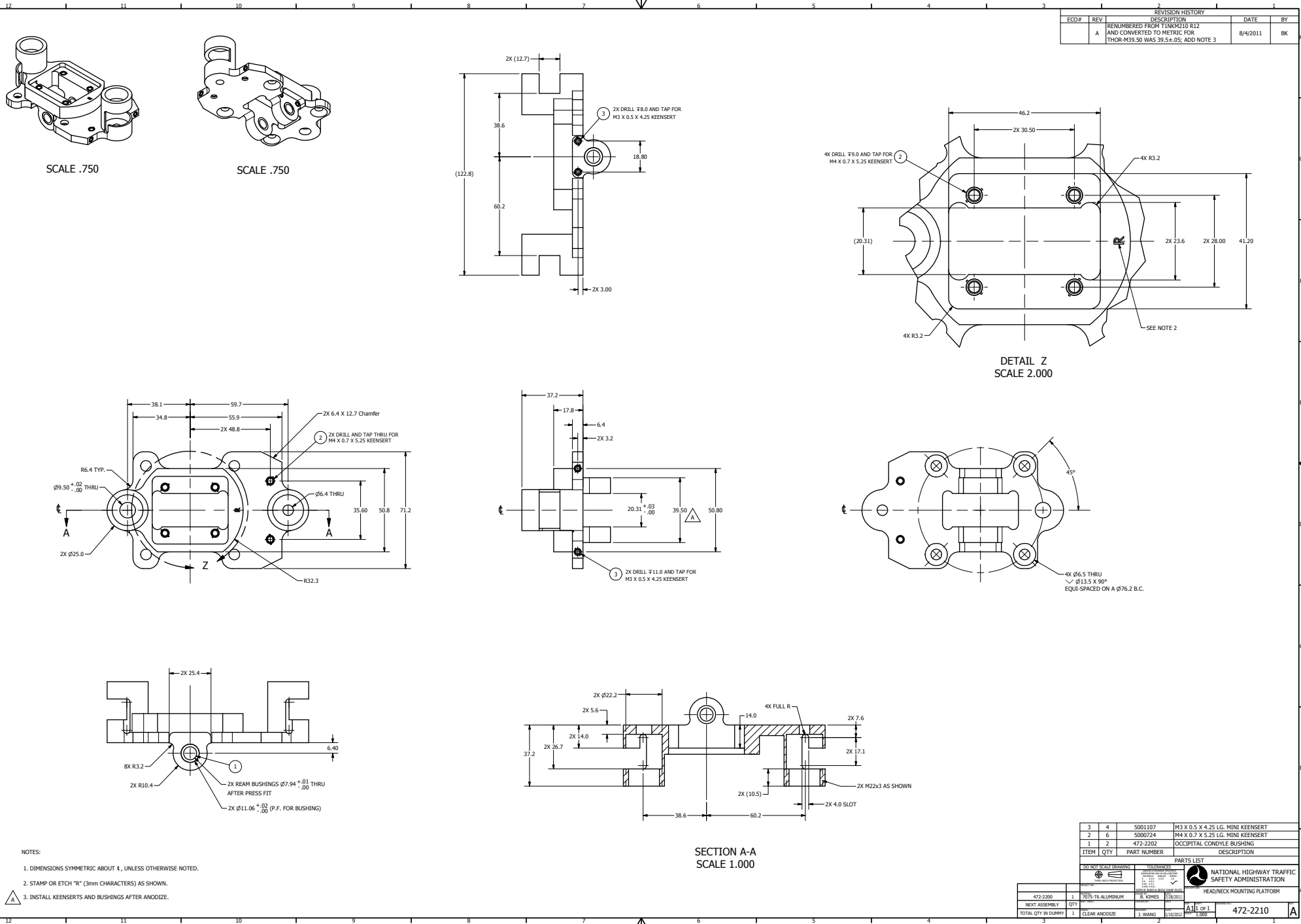
ITEM	QTY	PART NUMBER	DESCRIPTION
10	2	SA572-S112	Ø.850 SKULL SPRING LOAD CELL (OPTIONAL)
9	6	9001459	SCREW, FHCS M4 x 10
8	1	472-2204	FRONT CABLE BUSHING, NECK
7	1	472-2240	REAR SPRING ASSEMBLY
6	1	472-2220	FRONT SPRING ASSEMBLY
5	2	472-2203	NECK FRONT/REAR SPRING TUBE
4	2	472-2201	NECK SPRING LOAD CELL STRUCTURAL REPLACEMENT
3	1	472-2400	HEAD/NECK PULLEY BRACKET ASSEMBLY
2	1	472-2230	OC STOP ASSEMBLY
1	1	472-2210	HEAD/NECK MOUNTING PLATFORM

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.1 XXX ± 0.1 XXXX ± 0.01	
PROJECT NO:	DATE:	DESIGNED BY:	DESCRIPTION:
472-2000	7/28/2011	B. KIMES	MOUNTING PLATFORM ASSEMBLY, NECK
NEXT ASSEMBLY	QTY	CHECKED BY:	SCALE:
TOTAL QTY IN DUMMY	1	J. WANG	1.000



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DRAWING NO: 472-2200

472-2000	1	DATE:	1/10/2012	SCALE:	1.000	DRAWING NO:	472-2200
NEXT ASSEMBLY	QTY	ENGINEER:	J. WANG	DATE:	1/10/2012	SCALE:	1.000
TOTAL QTY IN DUMMY	1	DATE:	1/10/2012	SCALE:	1.000	DRAWING NO:	472-2200



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T11NM210 R12 AND CONVERTED TO METRIC FOR THOR-M39.50 WAS 39.5±.05; ADD NOTE 3	8/4/2011	BK

- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT A, UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH "R" (3mm CHARACTERS) AS SHOWN.
 3. INSTALL KEENSERTS AND BUSHINGS AFTER ANODIZE.

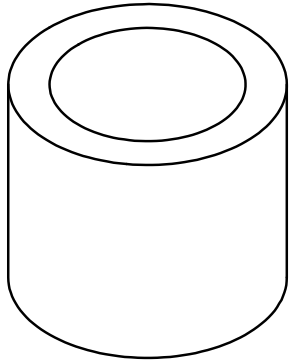
ITEM	QTY	PART NUMBER	DESCRIPTION
3	4	5001107	M3 X 0.5 X 4.25 LG. MINI KEENSERT
2	6	5000724	M4 X 0.7 X 5.25 LG. MINI KEENSERT
1	2	472-2202	OCCIPITAL CONDYLE BUSHING

DO NOT SCALE DRAWING		ISSUES		PARTS LIST	
DATE	BY	DATE	BY	QTY	DESCRIPTION
08/04/11	B. KIMES	08/04/11	B. KIMES	1	HEAD/NECK MOUNTING PLATFORM

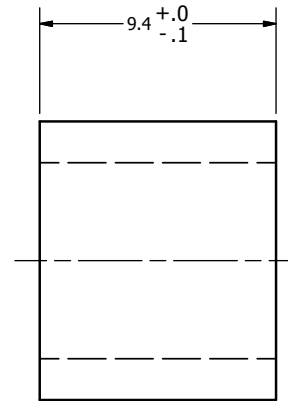
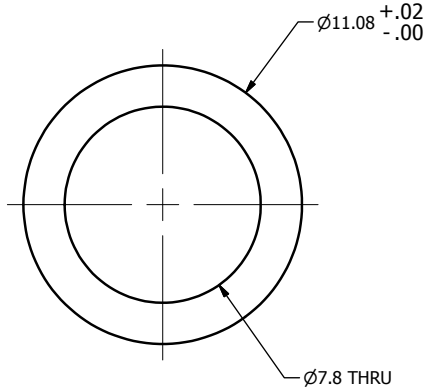
472-2200	1	7075-T6 ALUMINUM	B. KIMES	08/04/11	
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DRAWING	1	CLEAR ANODIZE	J. WANG	08/04/11	

All of 1
1.000
472-2210

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM216 R04 FOR THOR-M	8/1/2011	BK



SCALE 5.000



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 ± 0.05 16
X ± 0.2
XX ± 0.3
XXX ± 0.51
REMOVE BURRS & BREAK SHARP EDGES



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

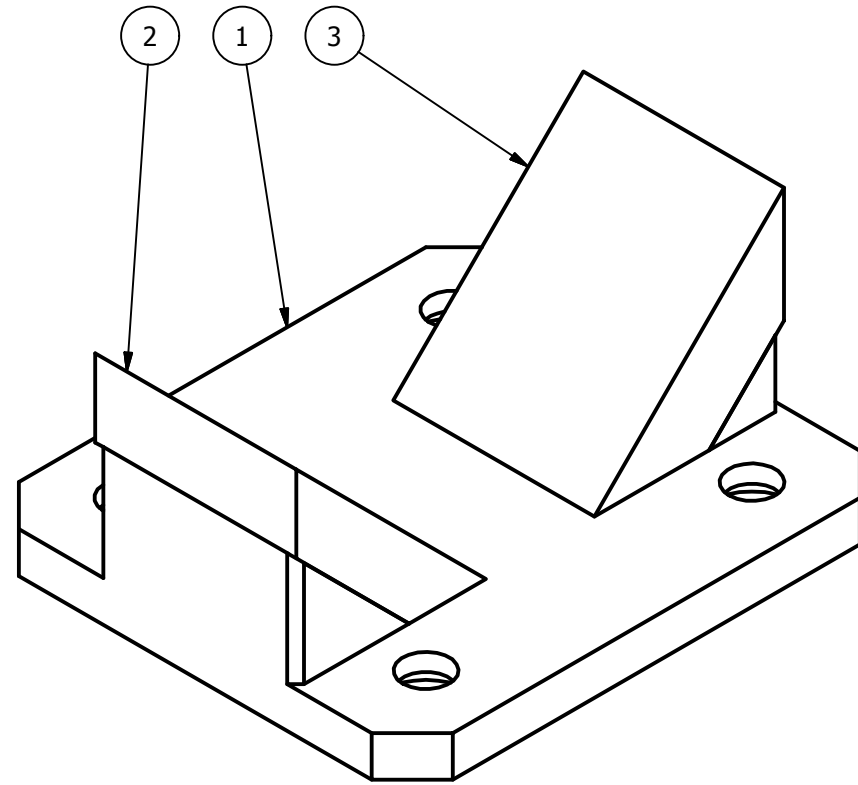
PROJECT NO.: 472-2210	QTY: 2	MATERIAL: OILITE BRONZE (SAE841)	DATE: 7/28/2011	ENGINEER: B. KIMES	SCALE: 5.000	DESCRIPTION: OCCIPITAL CONDYLE BUSHING
CHECKED BY:	HEAT TREAT:	FINISH:	DATE: 1/10/2012	ENGINEER: J. WANG	SCALE: 5.000	DESCRIPTION: OCCIPITAL CONDYLE BUSHING
TOTAL QTY IN DUMMY: 2	FINISH:	DATE: 1/10/2012	ENGINEER: J. WANG	SCALE: 5.000	SCALE: 5.000	DESCRIPTION: OCCIPITAL CONDYLE BUSHING

SIZE: A3
SHEET: 1 OF 1

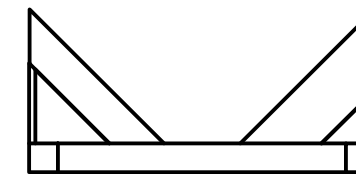
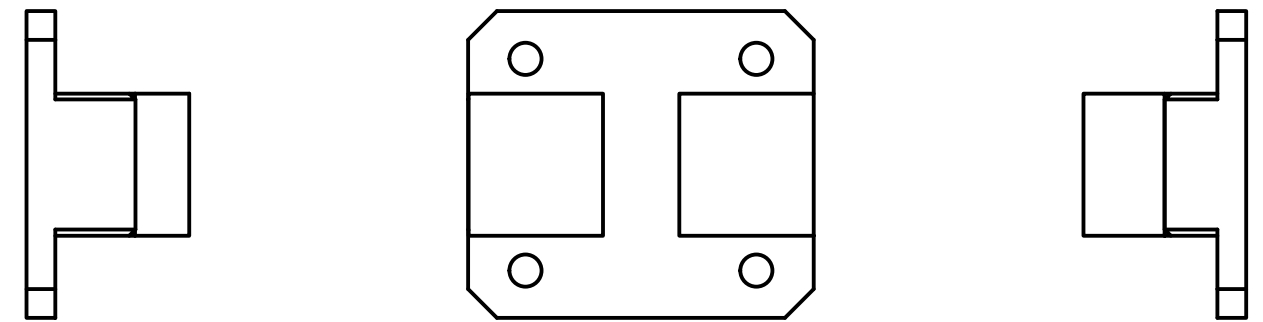
DRAWING NO.: 472-2202

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM045 R02 FOR THOR-M	8/4/11	BK
	B	REVISED PART #472-2231	5/11/2016	DW



SCALE 2.000



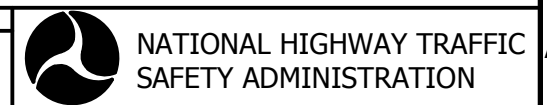
NOTES:

- BOND PARTS 472-2232 AND 472-2233 TO 472-2231 USING HIGH STRENGTH, FLEXIBLE, TWO PART RUBBER EPOXY.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-2233	NECK REAR OC STOP
2	1	472-2232	NECK FRONT OC STOP
1	1	472-2231	FLEXION-EXTENSION STOP PLATE, NECK

PARTS LIST

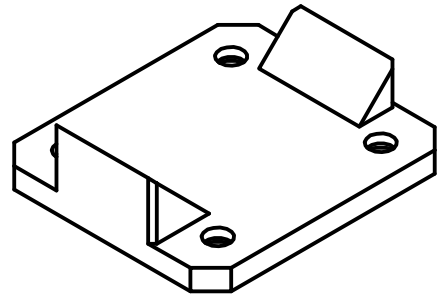
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
	DECIMALS ANGLES FINISH
	X ± 0.5 ± 0.5 1.6
	.XX ± 0.2 ± 0.2 1.6
	.XXX ± 0.1 ± 0.1 1.6
	.XXX ± 0.01 ± 0.01 1.6



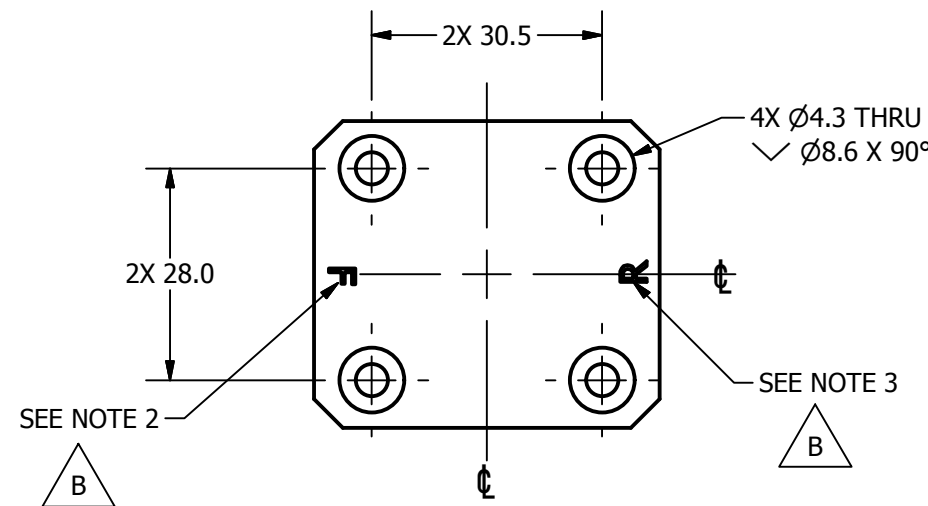
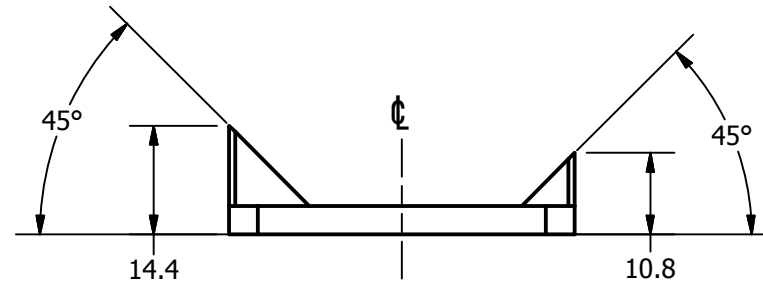
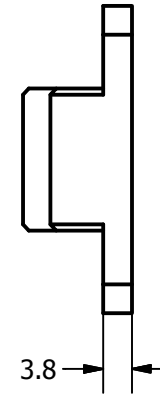
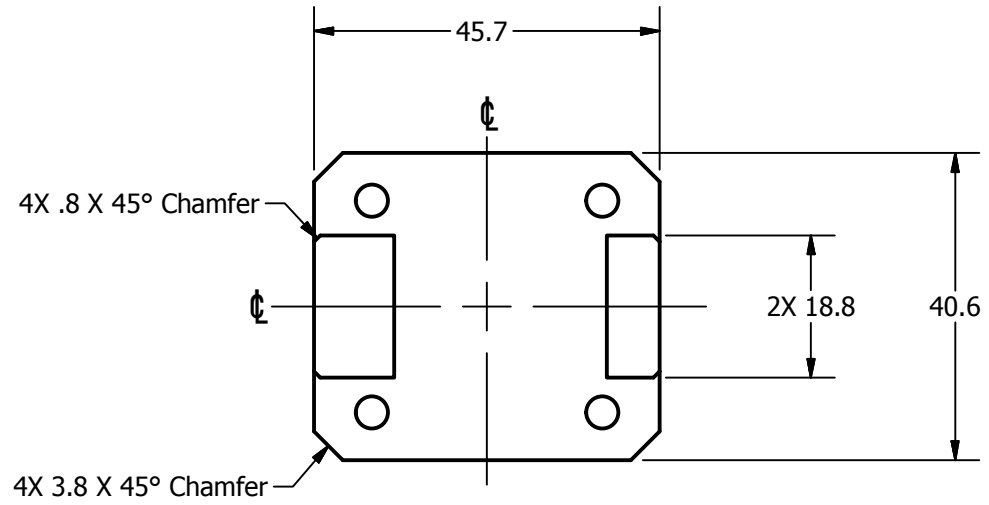
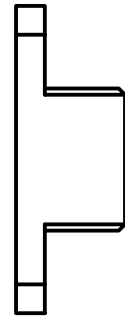
PROJECT NO.:	DATE:	DESCRIPTION:
MATERIAL:	DRAWN BY: B. KIMES	OC STOP ASSEMBLY
HEAT TREAT:	CHECKED BY: J. WANG	DATE: 7/28/2011
FINISH:	ENGINEER:	DATE: 1/10/2012
TOTAL QTY IN DUMMY	1	SCALE: 1.000

SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-2230	REV: B
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM046 R02 AND CONVERTED TO METRIC FOR THOR-M	8/22/11	BK
	B	MOVED "F" AND "R" STAMPS TO THE TOP OF THE PLATE	5/11/2016	DW



SCALE 1.000



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH "F" (3mm CHARACTERS) AT LOCATION SHOWN TO REPRESENT FRONT.
3. STAMP OR ETCH "R" (3mm CHARACTERS) AT LOCATION SHOWN TO REPRESENT REAR.

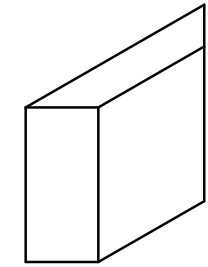
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES		
DECIMALS	ANGLES	FINISH
X ± 0.5	± 0.5°	1.6
.XX ± 0.2		
.XXX ± 0.1		
.XXXX ± 0.01		

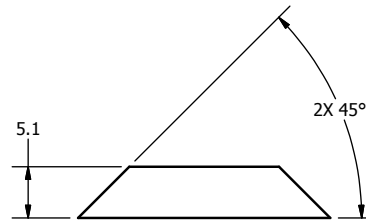
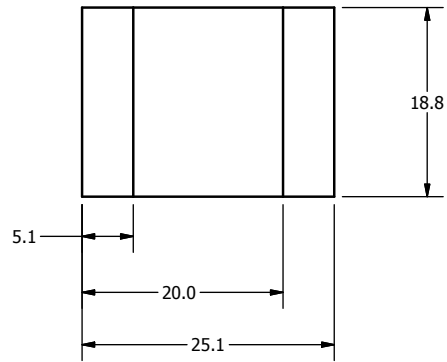


DESCRIPTION: FLEXION-EXTENSION STOP PLATE, NECK

PROJECT NO.: 472-2230	QTY: 1	MATERIAL: 7075-T6 ALUMINUM	ENGINEER: J. WANG	DATE: 1/10/12	FINISH: CLEAR ANODIZE	REMOVED BURRS & BREAK SHARP EDGES	DATE: 7/28/2011	ENGINEER: B. KIMES	DATE: 7/28/2011	SIZE: A3	SHEET: 1 OF 1	SCALE: 1.000	DRAWING NO.: 472-2231	REV: B
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SCALE 2.000



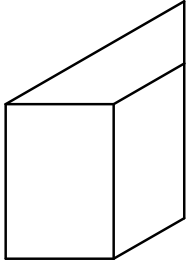
NOTES:

1. NEOPRENE TOLERANCE $\pm .5$ AND DUROMETER ± 5 , UNLESS OTHERWISE SPECIFIED.

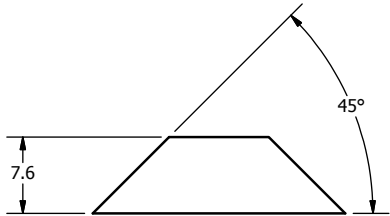
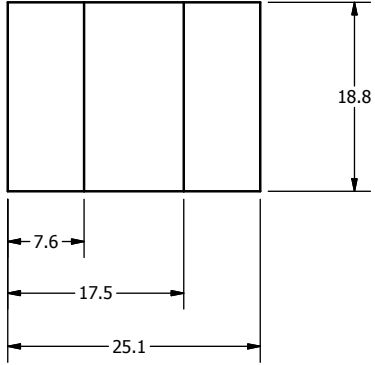
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM047 R03 FOR THOR-M	8/4/11	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2230	MATERIAL:	NEOPRENE 65A	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK FRONT OC STOP
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
TOTAL QTY IN DUMMY	1	FINISH:		DATE:
				1/10/2012
				SCALE: 2.000
				SIZE: A3
				SHEET: 1 OF 1
				DRAWING NO.: 472-2232
				REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM048 R03 FOR THOR-M	8/4/11	BK



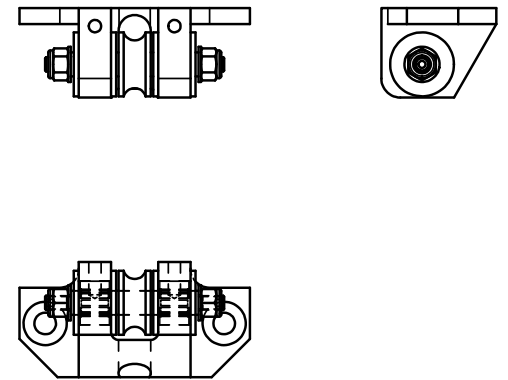
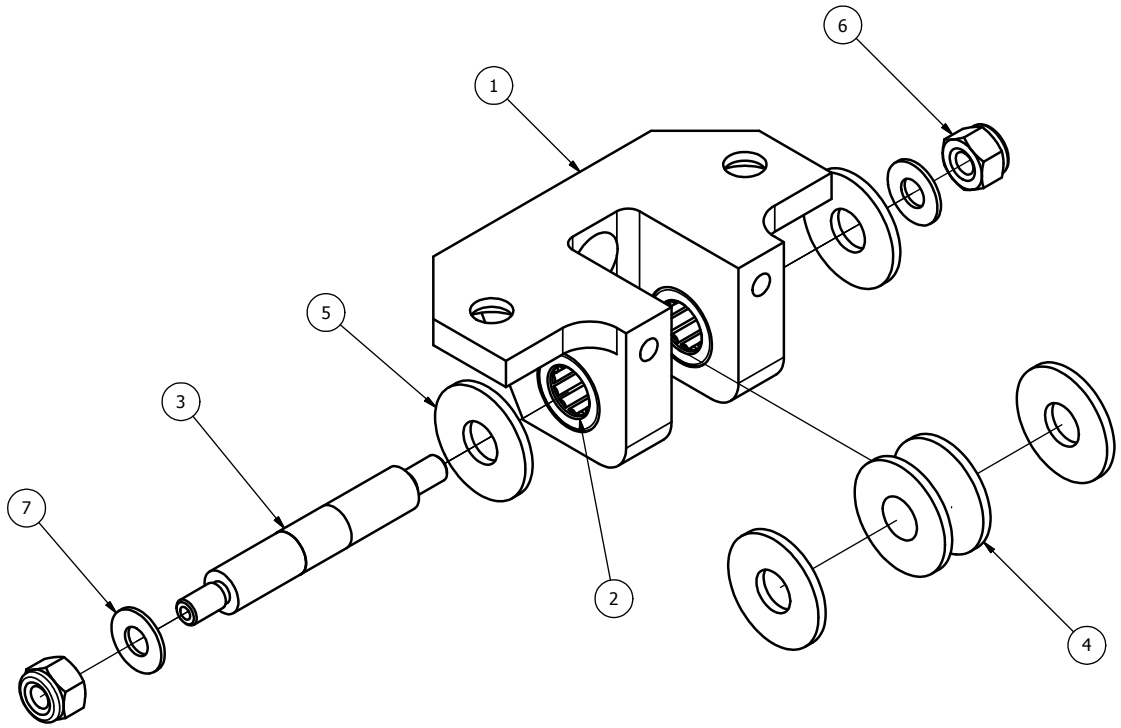
SCALE 2.000



NOTES:
 1. NEOPRENE TOLERANCE ± 0.5 AND DUROMETER ± 5 , UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2230	MATERIAL:	NEOPRENE 65A	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK REAR OC STOP
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/10/2012	SCALE:
TOTAL QTY IN DUMMY		QTY	1	SIZE SHEET
				A3 1 OF 1
				DRAWING NO. 472-2233
				REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM400 R08 AND CONVERTED TO METRIC FOR THOR-M	8/19/11	BK



SCALE 2.000

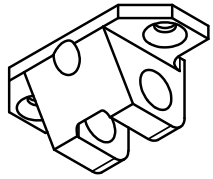
NOTES:

1. PRESS THE BEARINGS (9002597) INTO PLACE, FLUSH WITH OUTSIDE SURFACE OF 472-2410.

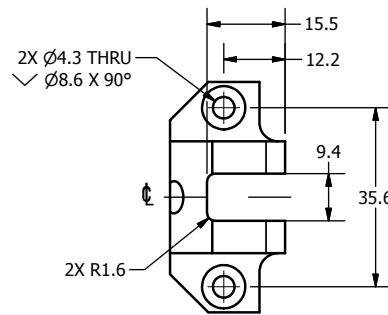
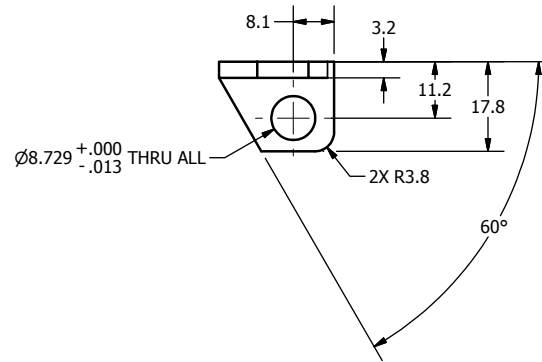
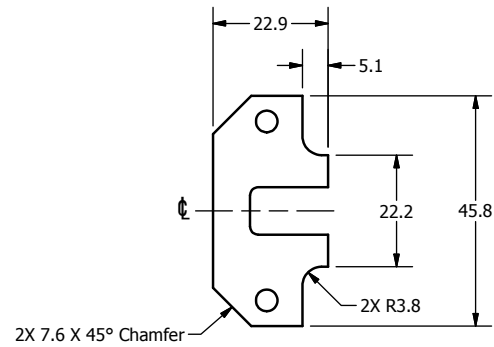
ITEM	QTY	PART NUMBER	DESCRIPTION
7	2	5001095	M3 FLAT WASHER PLAIN ZINC
6	2	5001106	M3 X 0.3 HEX LOCK NUT SS
5	4	9002595	WASHER, TEFLON .187 X .50 X .04 THK
4	1	472-2312	NECK REAR CABLE PULLEY
3	1	472-2311	REAR CABLE PULLEY SHAFT, NECK
2	2	9002597	BEARING, NEEDLE ROLLER
1	1	472-2410	HEAD/NECK PULLEY BRACKET, NECK

PARTS LIST

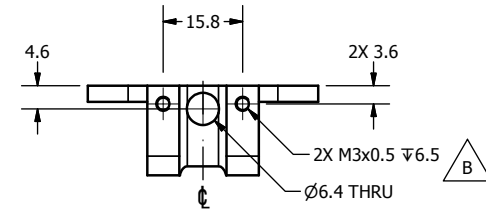
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>X .0.2 ± 0.07 1.6</small> <small>X.X ± 0.2</small> <small>X.XX ± 0.3</small> <small>X.XXX ± 0.01</small> <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO:	472-2000	DATE:	7/28/2011	<small>DESCRIPTION:</small> HEAD/NECK PULLEY BRACKET ASSEMBLY
MATERIAL:		DESIGNED BY:	B. KIMES	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	<small>SCALE:</small> 1.000 <small>SIZE SHEET:</small> A31 OF 1 <small>DRAWING NO.:</small> 472-2400 <small>REV.:</small> A
TOTAL QTY IN DUMMY	1	FINISH:		



SCALE 1.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM410 R11 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	BK
	B	M3 x .5 6.5 DP WAS M4 x .7 6.40 DP	6/14/2012	BK

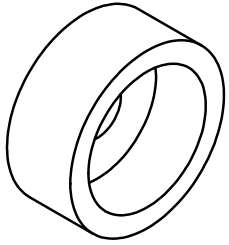


NOTES:

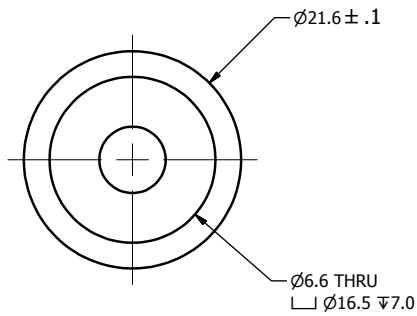
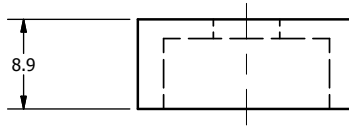
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2400	MATERIAL:	1018 STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	8/19/2011	HEAD/NECK PULLEY BRACKET, NECK
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FRESH:	SEE NOTES	DATE:	1/10/2012	SCALE:
TOTAL QTY IN DUMMY	1	SIZE:	A3	SHEET:
		SCALE:	1.000	DRAWING NO.:
				472-2410
				REV.:
				B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM028 R05 FOR THOR-M	8/1/2011	BK



SCALE 2.000



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

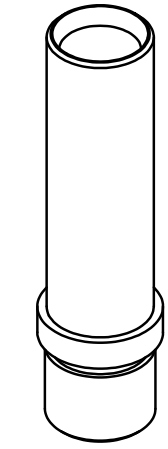
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 ± 0.05 16°
X ± 0.2
XX ± 0.3
XXX ± 0.51
REMOVE BURRS & BREAK SHARP EDGES



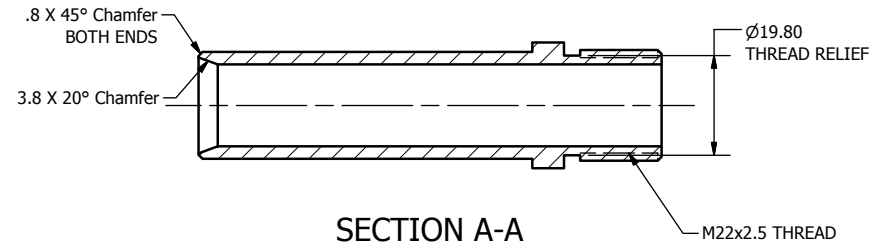
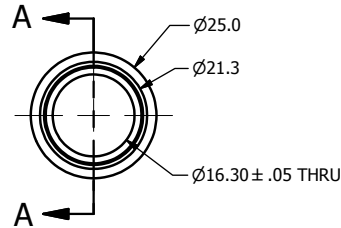
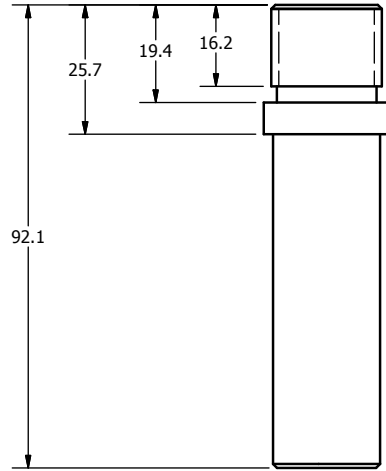
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-2200	QTY 2	MATERIAL: 303 STAINLESS STEEL	DATE: 7/28/2011	DRIVER BY: B. KIMES	DATE: 7/28/2011	DESCRIPTION: NECK SPRING LOAD CELL STRUCTURAL REPLACEMENT
CHECKED BY: J. WANG	DATE: 1/10/2012	FINISH:	SCALE: 2.000	SIZE SHEET: A3 1 OF 1	DRAWING NO.:	472-2201
TOTAL QTY IN DUMMY	2					

REV: A



SCALE 1.000

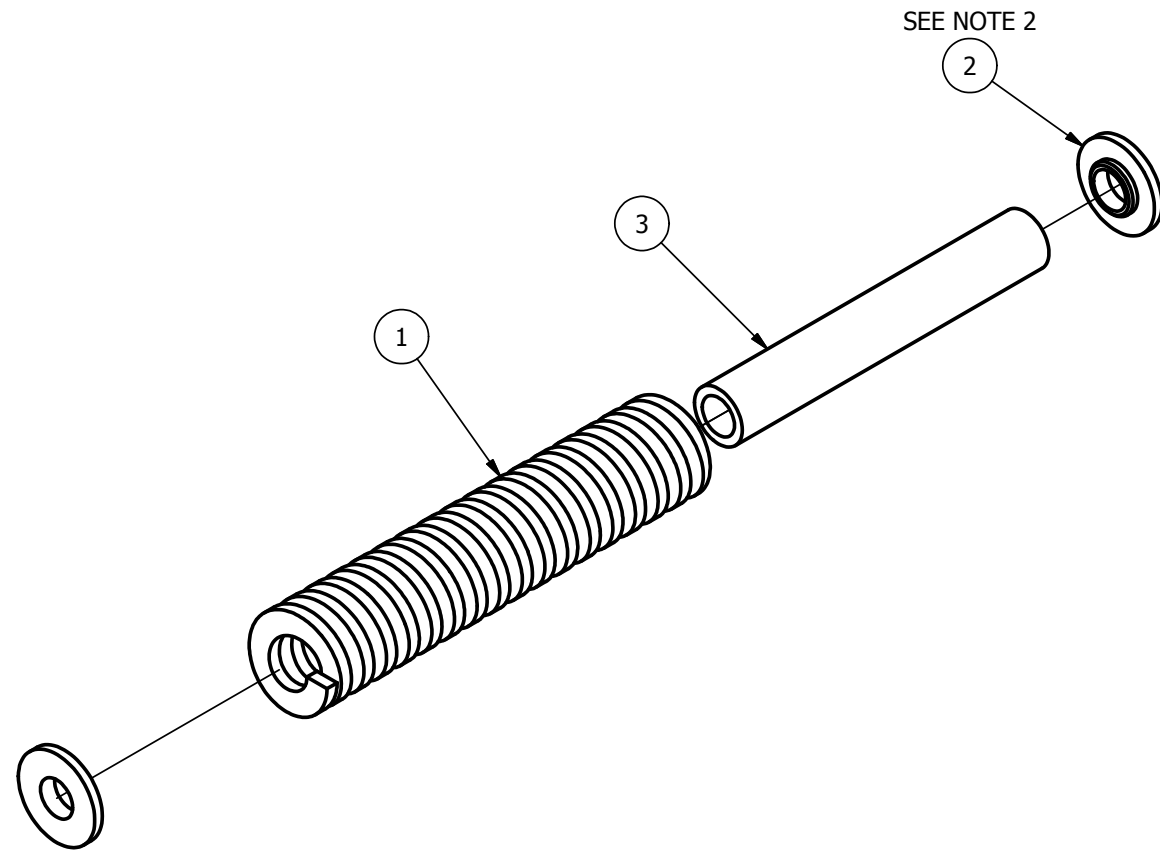


SECTION A-A
SCALE 1.000

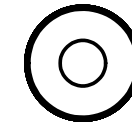
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM211 R07 AND CONVERTED TO METRIC FOR THOR-M	8/4/11	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 1.0 XX 0.02 0.5 XXX 0.03 0.1 XXXX 0.01		
PROJECT NO.:	472-2200	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DRIVEN BY:	B. KIMES	DATE:	7/28/2011	NECK FRONT/REAR SPRING TUBE
CHECKED BY:	J. WANG	DATE:	1/10/2012	SIZE: SHEET
HEAT TREAT:		FINISH:		A31 OF 1
TOTAL QTY IN DUMMY	2	SCALE:	1.000	DRAWING NO.:
				472-2203

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM030 R04 AND CONVERTED TO METRIC FOR THOR-M	8/4/11	BK
	B	MOD NOTE 3 TO CUT 8005531 TO LENGTH AFTER INSERTION INTO SPRING, CHANGED ITEM 3	6/22/2012	TMV
	C	710N TO 790N WAS 830 TO 920 M	11/28/2012	BK



SCALE 1.000



NOTES:

- NOMINAL SPRING RATE IS SUPERSEDED BY STATIC TESTING REQUIREMENTS:
 SPRING RATE 17.8 ± 0.9 N/mm.
 MAXIMUM DEFLECTION TO SOLID HEIGHT MUST EXCEED 36mm.
- NECK SPRING BUSHING: CHEMICALLY CLEAN THE MATING SURFACE AND JOIN WITH 5 MINUTE EPOXY UNDER LIGHT PRESSURE.
- INSERT THE ELASTOMETRIC SPRING ELEMENT MATERIAL INTO THE COMPRESSION SPRING AND CUT TO LENGTH SPECIFIED ABOVE. THIS ASSEMBLY MUST BE STATICALLY TESTED TO MEET THE FOLLOWING REQUIREMENTS:
 DEFLECTION: AT 30mm, FORCE TO BE 710N TO 790N.
 SPRING CAP MUST BE IN PLACE AT EITHER END DURING THIS TEST.
 TEMPERATURE RANGE: 18-27°C 1 HOUR RECOVERY BETWEEN TESTS.



ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-2222	NECK FRONT SPRING DAMPING TUBE
2	2	472-2221	NECK SPRING BUSHING
1	1	5000517	SPRING, 16 X 8 I.D. X 76

PARTS LIST

DO NOT SCALE DRAWING
 THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X ±0.5 ±0.5 1.6
 XX ±0.2
 XXX ±0.1
 XXXX ±0.01

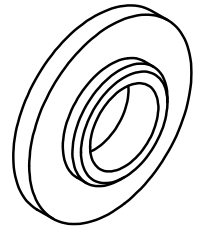


PROJECT NO.:	
MATERIAL:	
HEAT TREAT:	
FINISH:	

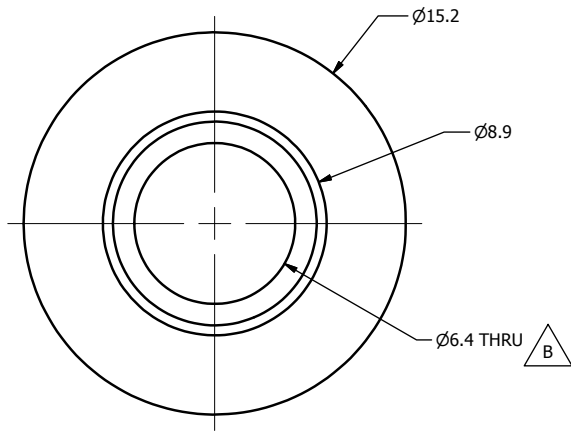
REMOVE BURRS & BREAK SHARP EDGES	
DRAWN BY:	B. KIMES
CHECKED BY:	
ENGINEER:	J. WANG

DATE:	7/28/2011
DATE:	
DATE:	1/10/2012
SIZE:	A3
SHEET:	1 OF 1
SCALE:	1.000
DRAWING NO.:	472-2220
REV:	C

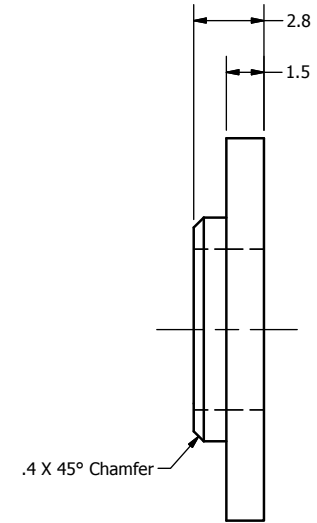
472-2200	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



SCALE 3.000



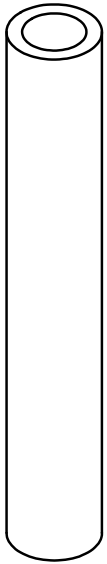
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM023 R06 FOR THOR-M	8/4/11	BK
	B	Ø6.4 WAS Ø5.8	6/13/2012	BK



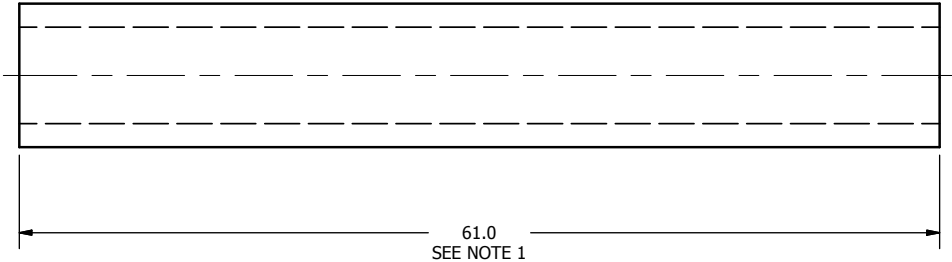
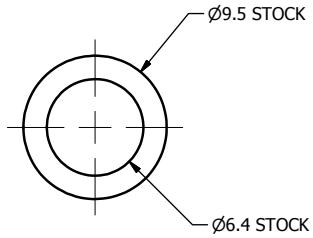
- NOTES:
1. POWDER OR BEAD BLAST.
 2. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
472-2240	2	PROJECT NO.:	DATE:	DESCRIPTION: NECK SPRING BUSHING
472-2220	2	MATERIAL: 4140 STEEL	BY: B. KIMES	
NEXT ASSEMBLY	QTY	HEAT TREAT:	DATE:	
TOTAL QTY IN DUMMY	4	FINISH: SEE NOTES	DATE: 1/10/2012	
		SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000		DRAWING NO.: 472-2221
				REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM031 R04 FOR THOR-M	8/4/11	BK



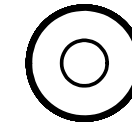
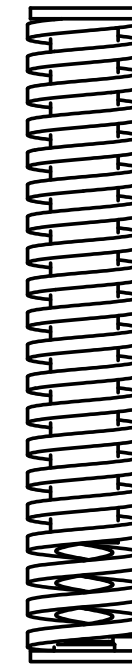
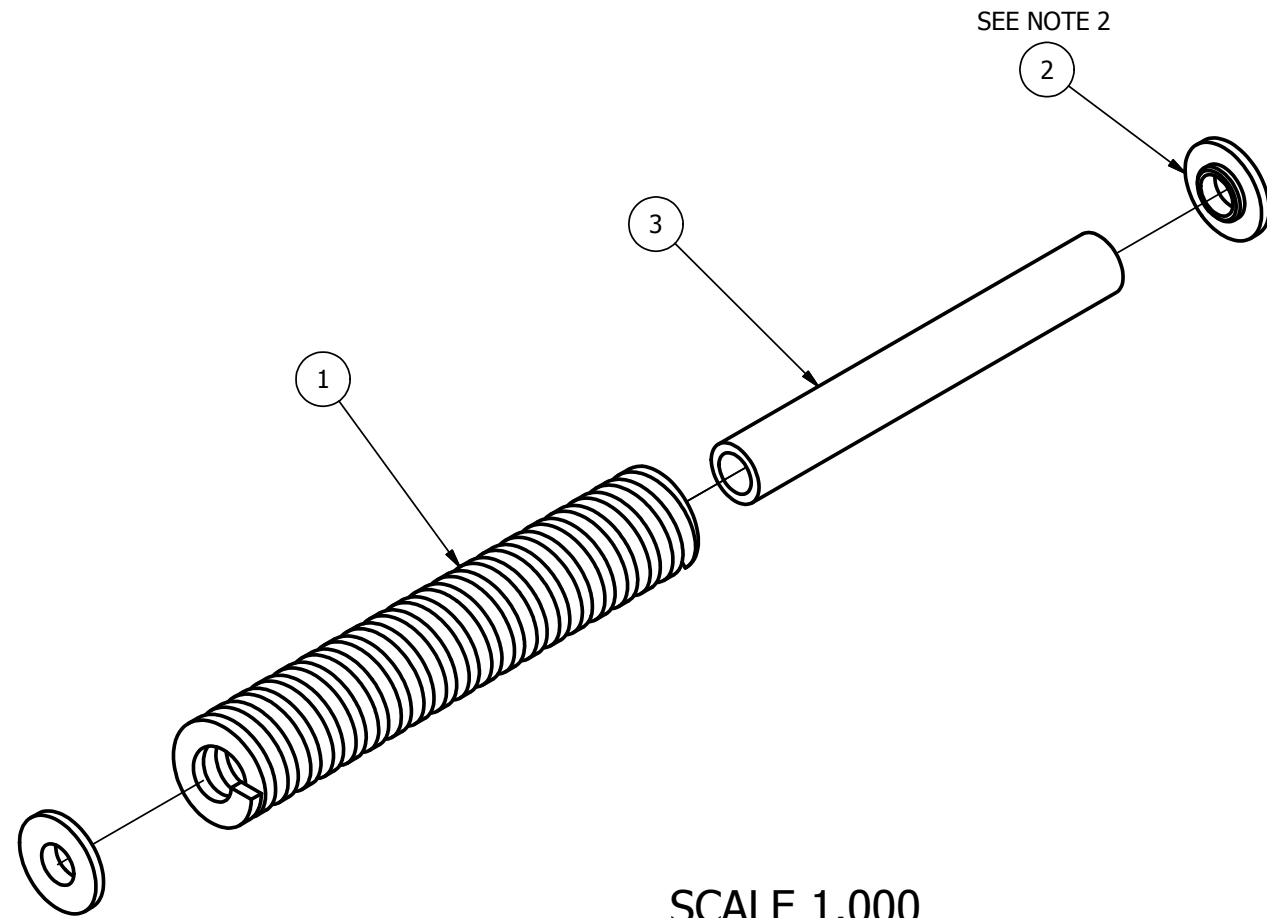
SCALE 2.000



NOTES:
1. FINAL LENGTH TO BE DETERMINED DURING SPRING ASSEMBLY CERTIFICATION.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X 0.2 X.X 0.3 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2220	MATERIAL:	TYGON SE-200	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK FRONT SPRING DAMPING TUBE
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/10/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
TOTAL QTY IN DUMMY:	1	SCALE:	3.000	472-2222

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM050 R05 AND CONVERTED TO METRIC FOR THOR-M	8/4/2011	BK
	B	MOD NOTE 3 TO CUT 8006381 TO LENGTH AFTER INSERTION INTO SPRING, CHANGED ITEM 3	6/22/2012	TMV
	C	684N TO 756N WAS 600 TO 660M	11/28/2012	BK



NOTES:

- NOMINAL SPRING RATE IS SUPERSEDED BY STATIC TESTING REQUIREMENTS:
 SPRING RATE 20.9 ± 1.0 N/mm.
 MAXIMUM DEFLECTION TO SOLID HEIGHT MUST EXCEED 40mm.
- NECK SPRING BUSHING: CHEMICALLY CLEAN THE MATING SURFACE AND JOIN WITH 5 MINUTE EPOXY UNDER LIGHT PRESSURE.
- INSERT THE ELASTOMETRIC SPRING ELEMENT MATERIAL INTO THE COMPRESSION SPRING AND CUT TO LENGTH SPECIFIED ABOVE. THIS ASSEMBLY MUST BE STATICALLY TESTED TO MEET THE FOLLOWING REQUIREMENTS:
 DEFLECTION: AT 30mm, FORCE TO BE 684N TO 756N.
 SPRING CAP MUST BE IN PLACE AT EITHER END DURING THIS TEST.
 TEMPERATURE RANGE: 18-27°C 1 HOUR RECOVERY BETWEEN TESTS.

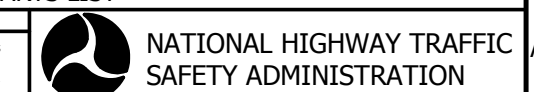


3	1	472-2241	NECK REAR SPRING DAMPING TUBE
2	2	472-2221	NECK SPRING BUSHING
1	1	5000516	SPRING, 16 X 8 I.D. X 89
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING
 THIRD ANGLE PROJECTION

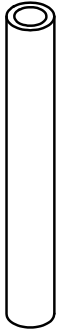
TOLERANCES
UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X ±0.5 ±0.5 1.6
 X.X ±0.2
 X.XX ±0.1
 X.XXX ±0.01



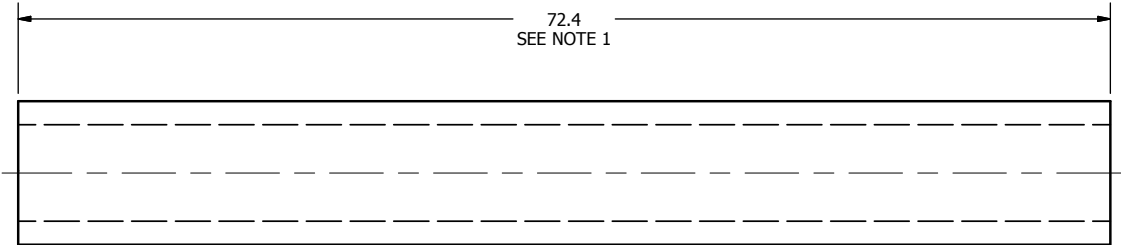
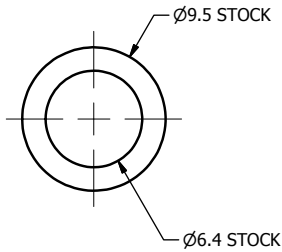
REAR SPRING ASSEMBLY

PROJECT NO.:	472-2200	1	MATERIAL:	DATE:	7/28/2011		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION REAR SPRING ASSEMBLY
DRAWN BY:	B. KIMES	CHECKED BY:	J. WANG	DATE:	1/10/2012		
HEAT TREAT:		FINISH:				SIZE: A3 SHEET: 1 OF 1 SCALE: 1.000	DRAWING NO.: 472-2240 REV: C
TOTAL QTY IN DUMMY	1						

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM051 R04 FOR THOR-M	8/4/2011	BK
	B	VITON 75A WAS VITON 90A	6/12/2012	BK



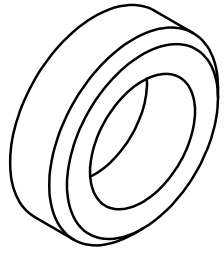
SCALE 1.000



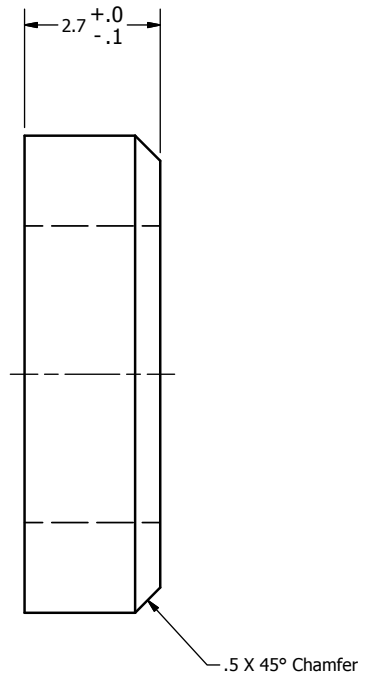
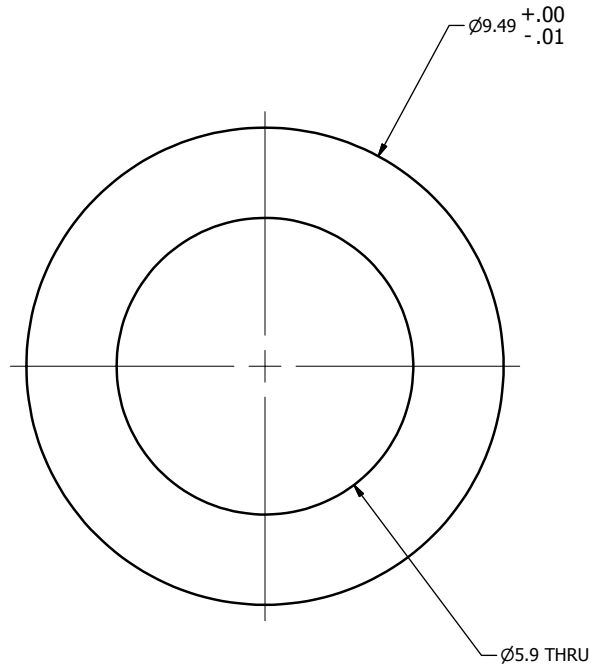
NOTES:

1. FINAL LENGTH WILL BE DETERMINED DURING SPRING ASSEMBLY CERTIFICATION.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 16 XX ±0.2 XXX ±0.3 XXXX ±0.01		
PROJECT NO:	472-2240	MATERIAL:	VITON 75A	DESCRIPTION: NECK REAR SPRING DAMPING TUBE
CHECKED BY:	B. KIMES	DATE:	7/28/2011	
HEAT TREAT:		ENGINEER:	J. WANG	
DATE:	1/10/2012	SCALE:	3.000	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-2241 REV: B
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	1	



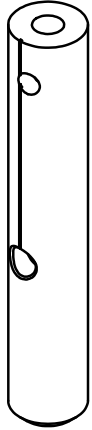
SCALE 5.000



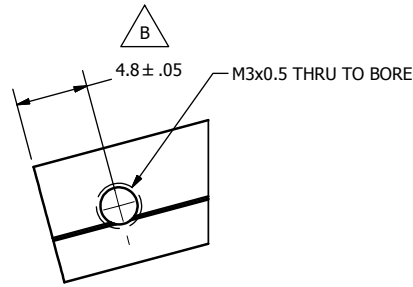
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM214 R07 FOR THOR-M	8/4/11	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2200	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	FRONT CABLE BUSHING, NECK
CHECKED BY:		DATE:		SIZE: SHEET
ENGINEER:	J. WANG	DATE:	1/10/2012	A31 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 10.000
				DRAWING NO. 472-2204
				REV. A

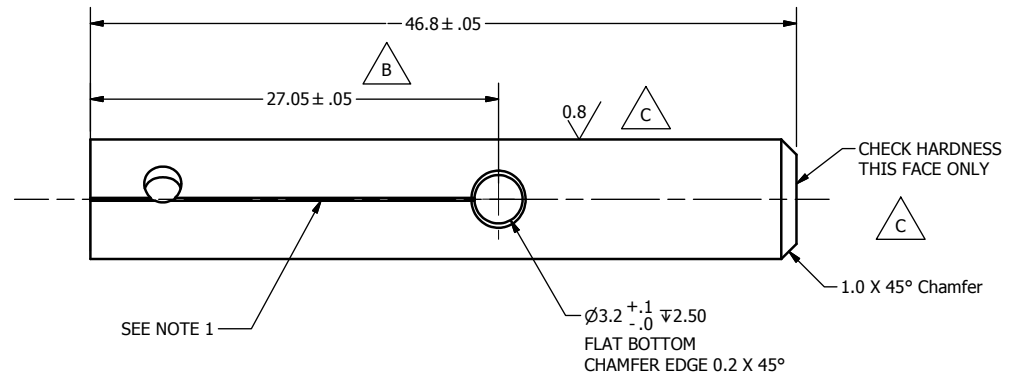
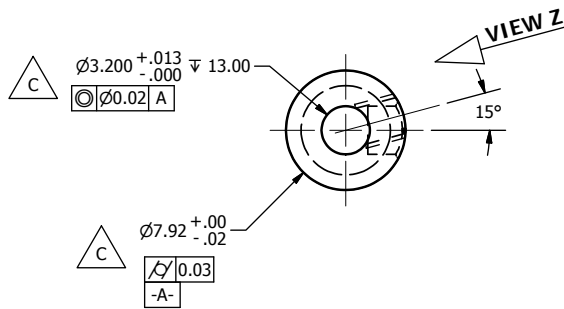
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM013 R01 AND CONVERTED TO METRIC FOR THOR-M	7/29/2011	BK
	B	46.8 WAS 48.8; 27.05 WAS 29.05; 4.80 WAS 6.80	2/7/2012	BK
	C	ADD FINISH MARK, HARDNESS NOTE, FEATURE CONTROL BOXES; DATUM A; Ø3.200+0.013/-0 WAS Ø3.20+0.1/-0; ADD CHAMFER	2/13/2013	BK



SCALE 2.000



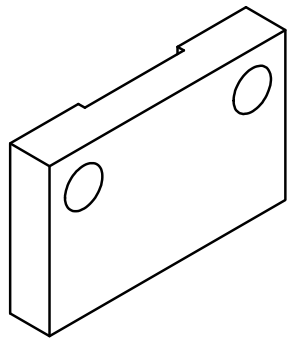
PARTIAL VIEW Z
SCALE 3.000



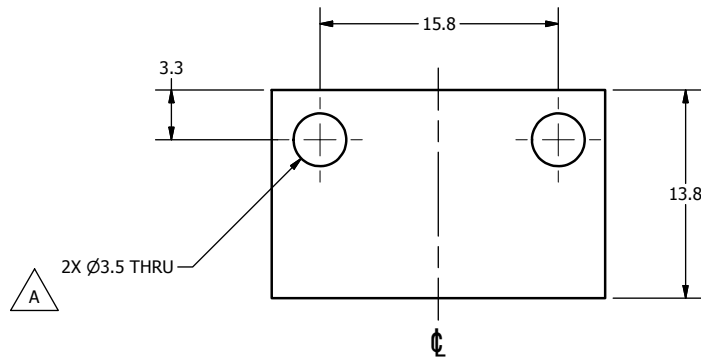
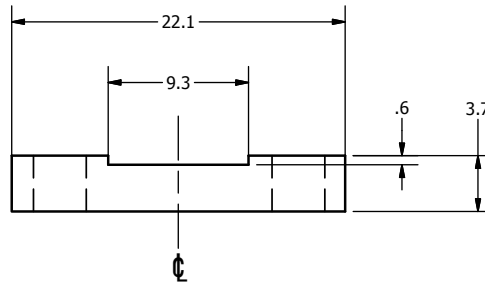
NOTES:

- ENGRAVE A 0.2mm DEEP LINE THRU THE CENTER OF HOLE TO END AS SHOWN.
- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm-0.008mm MAX. AFTER MACHINING AND HEAT TREAT.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: OCCIPITAL CONDYLE PIN, NECK	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DECIMALS ANGLES FINISH Ø .012 ± 0.05 1.6 X .012 ± 0.05 X.XX ± 0.03 X.XXX ± 0.01			
PROJECT NO:	472-2000	MATERIAL:	S7 TOOL STEEL	DESIGNED BY:	B. KIMES
DATE:	7/28/2011	HEAT TREAT:	Rc 55-57	CHECKED BY:	J. WANG
REVISION:	SEE NOTES	DATE:	1/9/2012	DATE:	1/9/2012
SIZE:	A3	SHEET:	1 OF 1	SCALE:	3.000
TOTAL QTY IN DUMMY					1
DRAWING NO.:					472-2011



SCALE 3.000



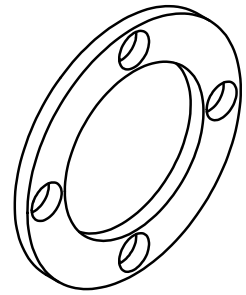
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM014 R05 AND CONVERTED TO METRIC FOR THOR-M; Ø3.5 WAS Ø4.0; REMOVE NOTE 1, RENUMBER NOTES	8/23/2011	BK

NOTES:

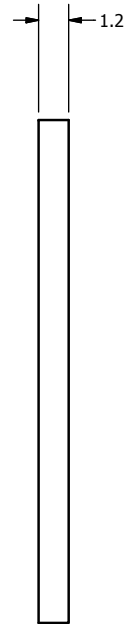
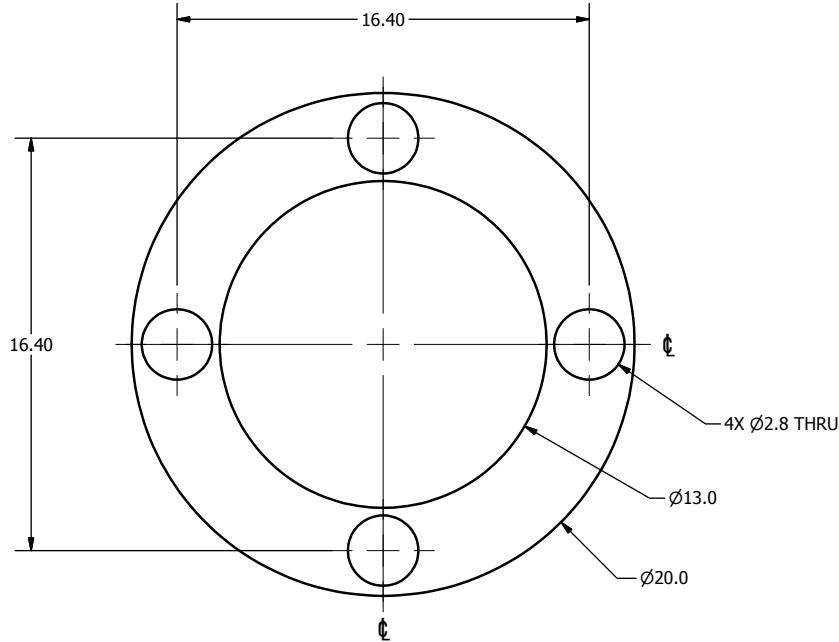


1. DIMENSION SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.57 16 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.	472-2000	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DATE:	7/28/2011	CHECKED BY:	B. KIMES	NECK PULLEY PLATE
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:	1/9/2012	SCALE:	3.000	SIZE: SHEET
TOTAL QTY IN DUMMY	1	FINISH:		A3 1 OF 1
				DRAWING NO. 472-2012
				REV. A



SCALE 3.000



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM053 R01 AND CONVERTED TO METRIC FOR THOR-M	7/30/2011	BK

NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

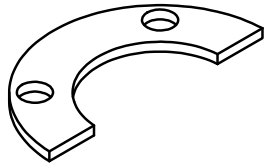
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2000	MATERIAL:	6061-T6 ALUMINUM	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	ROTARY POTENTIOMETER WASHER, NECK
CHECKED BY:		DATE:		
HEAT TREAT:		FINISH:	CLEAR ANODIZE	
ENGINEER:	J. WANG	DATE:	1/9/2012	
TOTAL QTY IN DUMMY	1	SCALE:	5.000	



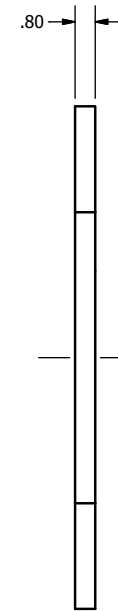
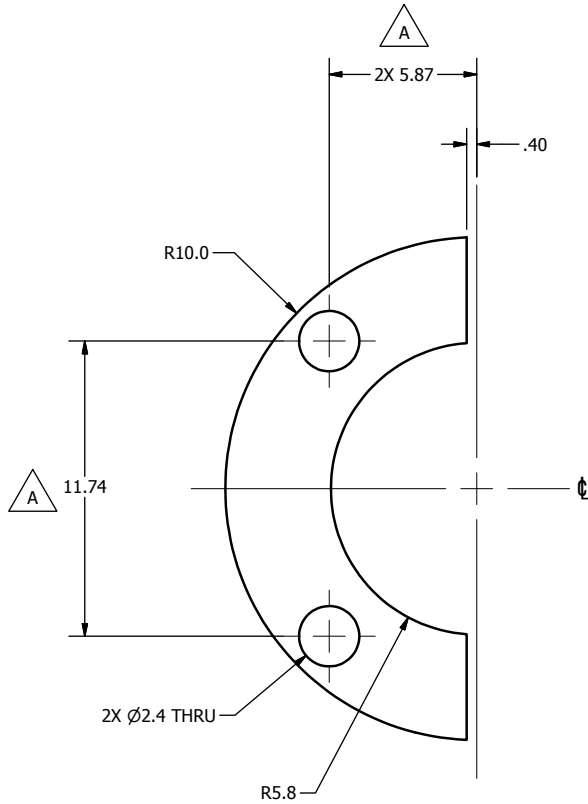
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

ROTARY POTENTIOMETER WASHER, NECK

SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-2021 REV: A



SCALE 3.000

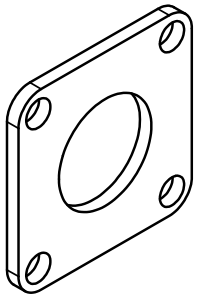


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM052 R01 AND CONVERTED TO METRIC FOR THOR-M; 5.87 WAS 5.80; 11.74 WAS 11.60	8/23/2011	BK

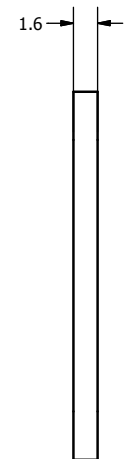
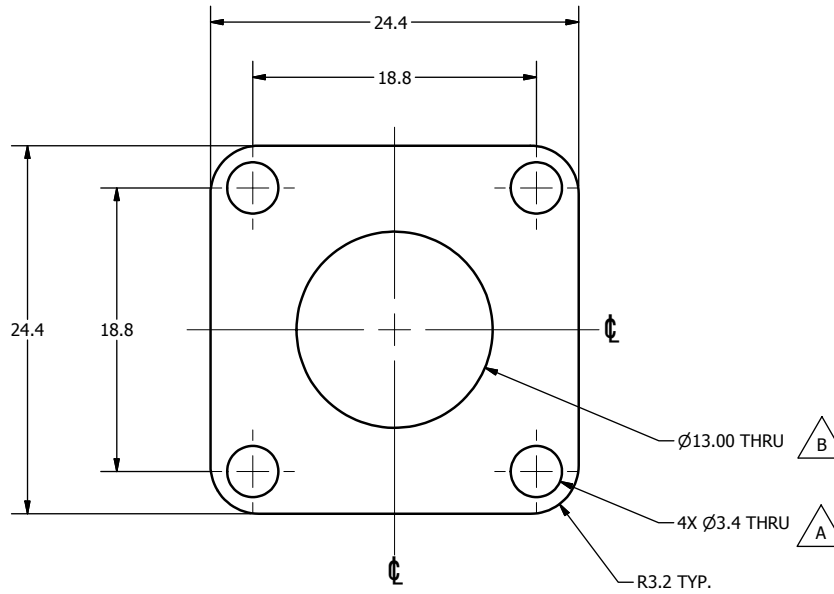
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.	472-2000	MATERIAL:	6061-T6 ALUMINUM	DESCRIPTION:
DATE:	7/28/2011	DESIGNED BY:	B. KIMES	ROTARY POTENTIOMETER CLAMP, NECK
CHECKED BY:		HEAT TREAT:		SIZE: SHEET
DATE:		FINISH:	CLEAR ANODIZE	A31 OF 1
ENGINEER:	J. WANG	DATE:	1/9/2012	SCALE: 5.000
TOTAL QTY IN DUMMY	2			DRAWING NO. 472-2020
				REV. A




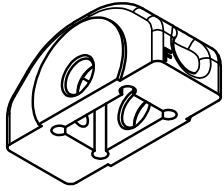
SCALE 2.000



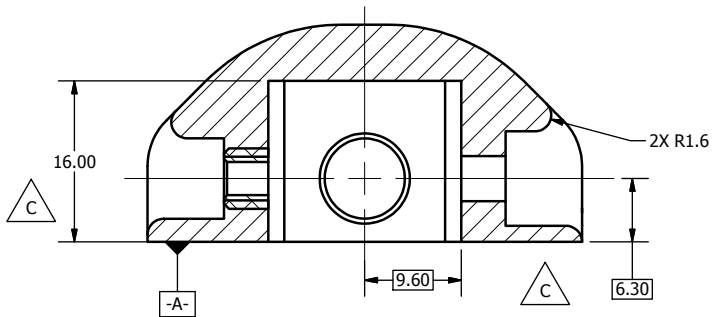
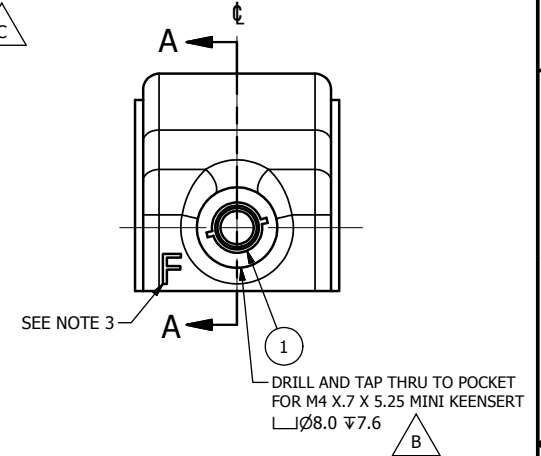
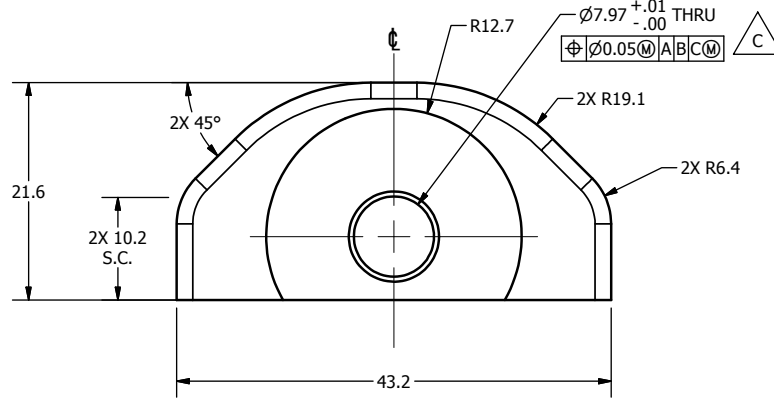
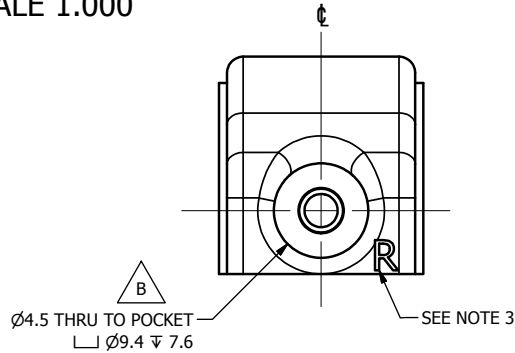
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM018 R12 AND CONVERTED TO METRIC FOR THOR-M; Ø3.4 WAS Ø3.2	7/29/2011	BK
	B	13.00 DIA WAS 6.4	2/8/2012	BK

NOTES:
1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.

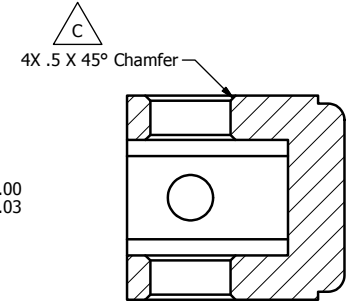
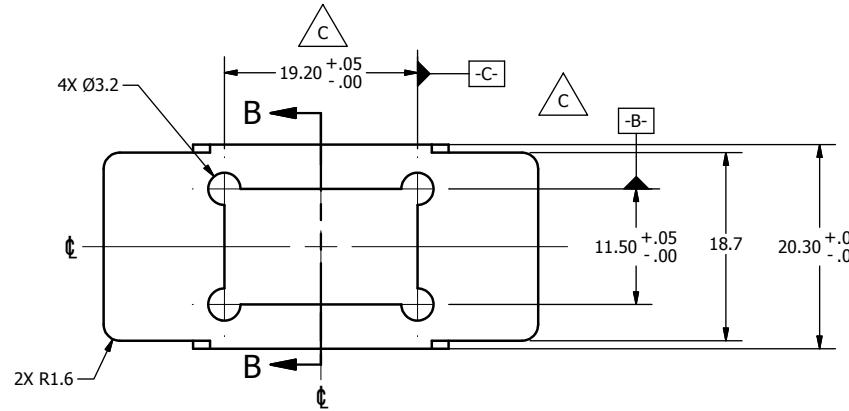
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.2 ±0.5° 1.6 XX ±0.2 XXX ±0.3 XXX ±0.01		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION ROTARY POTENTIOMETER COVER, NECK	
PROJECT NO.: 472-2000		MATERIAL: 6061-T6 ALUMINUM			
NEXT ASSEMBLY QTY		CHECKED BY: B. KIMES		DATE: 7/28/2011	
TOTAL QTY IN DUMMY 1		FINISH: CLEAR ANODIZE		ENGINEER: J. WANG	
		DATE: 1/9/2012		SCALE: 3.000	
				DRAWING NO.: 472-2014	
				REV: B	



SCALE 1.000



SECTION A-A
SCALE 2.000



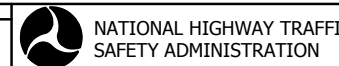
SECTION B-B
SCALE 2.000

NOTES:

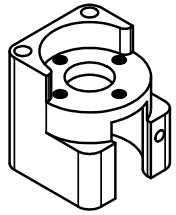
- GRIND KEENSERT TO 4.2mm BEFORE INSTALLING.
- DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
- STAMP OR ETCH (3mm CHARACTERS) AS SHOWN.

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM043 R04 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	BK
	B	POCKET WAS THRU TO \varnothing ; ADD C'BORE DIMENSION	4/3/2012	BK
	C	16.00 WAS 16.0; 19.20+ .05/-0 WAS 19.2+ .1/-0; 6.30 WAS 6.30 +0/- .03; ADD DATUMS A, B, C; ADD FEATURE CONTROL BOX; Ø7.97+ .01/-0 WAS Ø8.1; ADD 4X CHAMFER, SEC B-B, 9.60	2/13/2013	BK

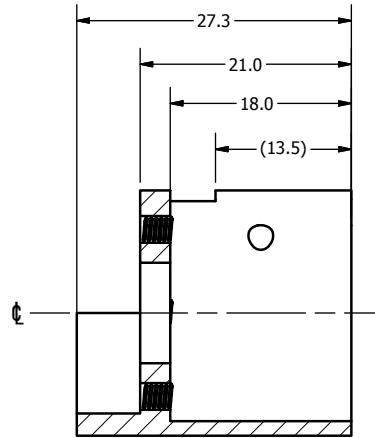
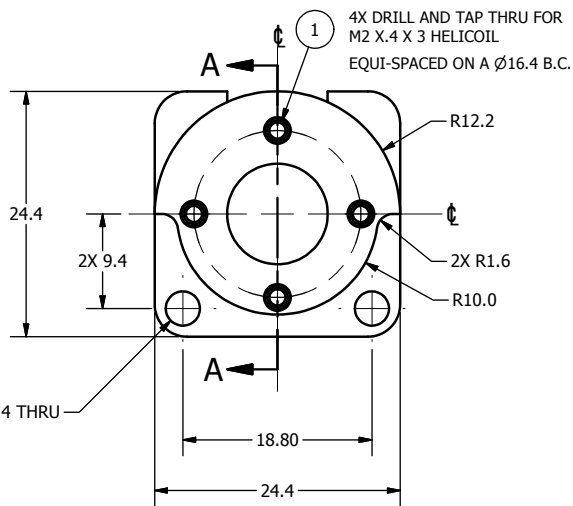
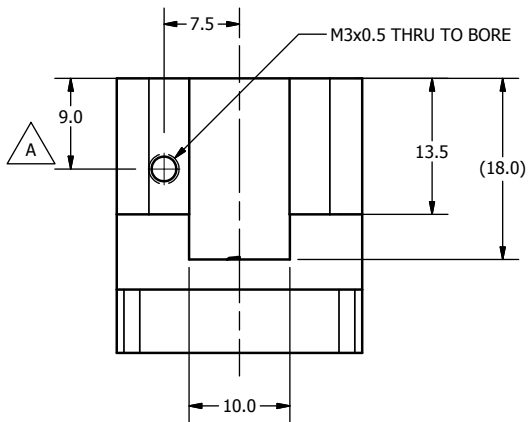
1	1	5000724	M4 X 0.7 X 5.25 LG. MINI KEENSERT
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .02 ± 0.5 16	
		X .01 ± 0.2 16	
		X .005 ± 0.1 16	
		X .002 ± 0.01 16	
		X .001 ± 0.01 16	
REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.: 472-2000		MATERIAL: BRASS	
DRAWN BY: NEXT ASSEMBLY		DATE: 7/28/2011	
CHECKED BY: J. WANG		DATE: 1/9/2012	
TOTAL QTY IN DUMMY: 1		FINISH:	
		ENGINEER: J. WANG	
		DATE: 1/9/2012	
		SCALE: 2.000	
SIZE: A3			SHEET: 1 OF 1
DRAWING NO.: 472-2019			REV: C



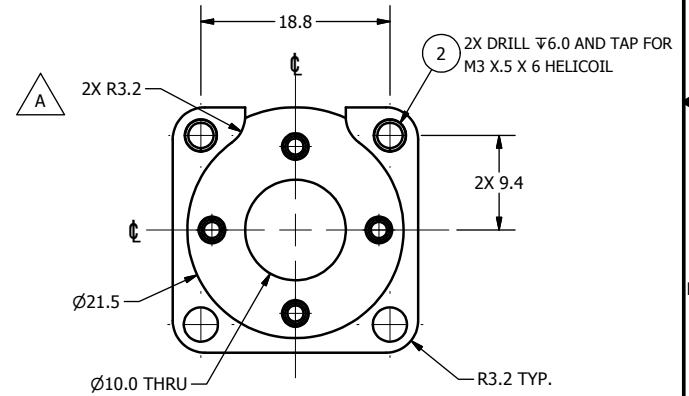
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OCCIPITAL CONDYLE CAM, NECK



SCALE 1.000



SECTION A-A



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM017 R06 AND CONVERTED TO METRIC FOR THOR-M9.0 WAS 7.5, Ø3.4 WAS Ø3.2; ADD 2X R3.2	7/29/2011	BK

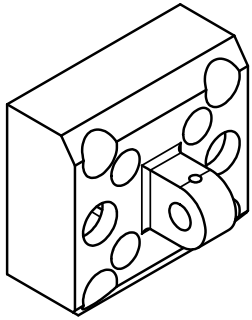
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. INSTALL HELICOILS AFTER FINISH.

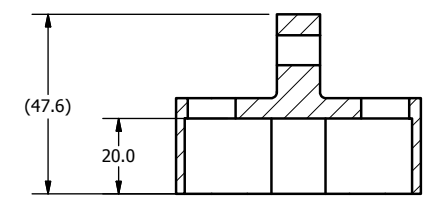
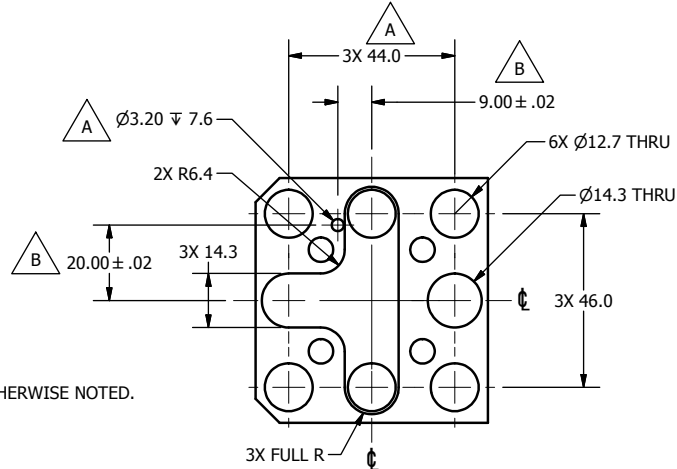
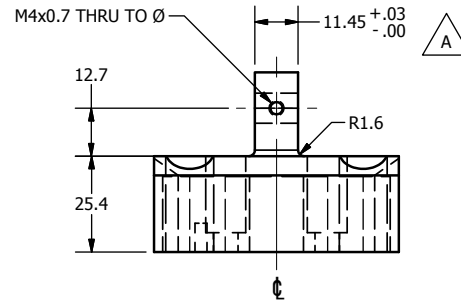
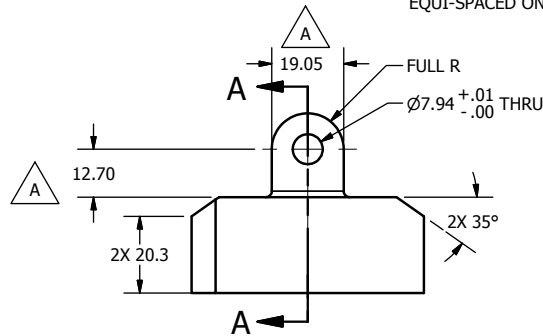
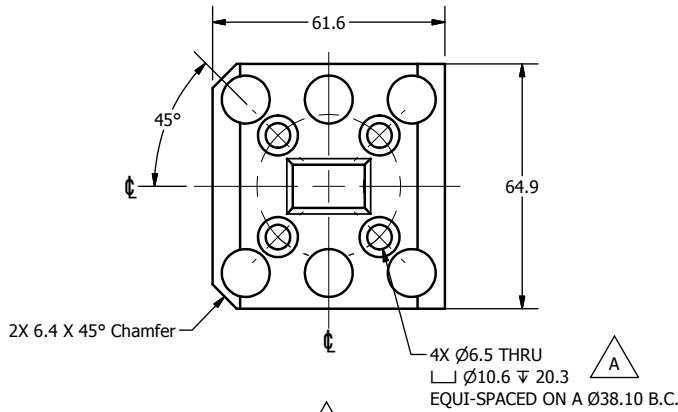
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000333	M3 X 0.5 X 6 LG. HELI-COIL
1	4	5001111	M2 X 0.4 X 3 LG. HELI-COIL

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION ROTARY POTENTIOMETER HOUSING, NECK	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 X .05 16 X .02 X .02 16 X .03 X .03 16 X .01 X .01 16			
PROJECT NO:	472-2000	MATERIAL:	7075-T6 ALUMINUM	DATE:	7/28/2011
DRAWN BY:	B. KIMES	CHECKED BY:	B. KIMES	DATE:	7/28/2011
HEAT TREAT:		FINISH:	CLEAR ANODIZE	DATE:	1/9/2012
ENGINEER:	J. WANG	DATE:	1/9/2012	SCALE:	2.000
TOTAL QTY IN DUMMY		1		SIZE:	A3
				SHEET:	1 OF 1
				DRAWING NO.:	472-2013
				REV.:	A



SCALE .750



SECTION A-A
SCALE .750

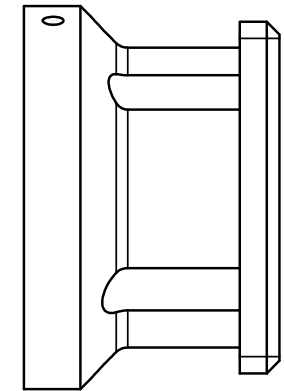
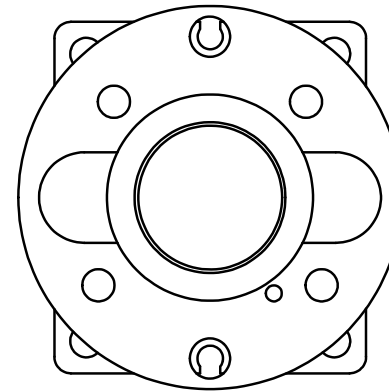
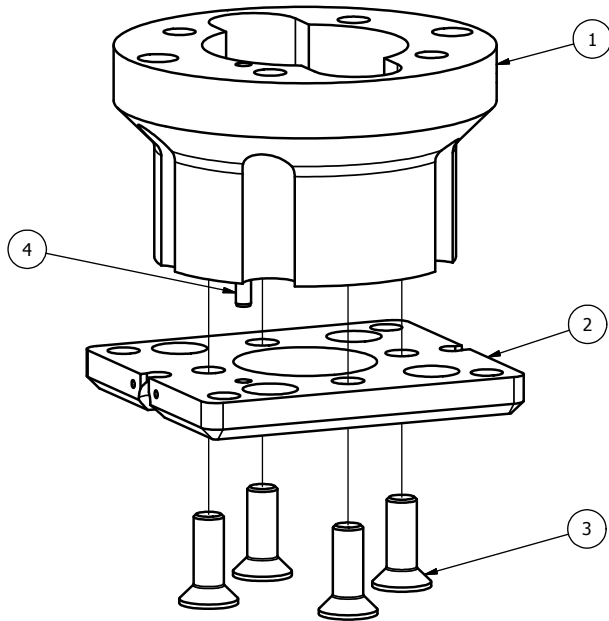
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM700 R02 AND CONVERTED TO METRIC FOR THOR-M; $\phi 6.5$ THRU C'BORE $\phi 10.6 \pm 0.3$ EQUI-SPACED ON A $\phi 38.10$ B.C. WAS $\phi 6.7$ THRU C'BORE $\phi 10.3 \pm 0.19$ EQUI-SPACED ON A $\phi 38.1$ B.C.; 19.05 WAS 19.10 ± 0.03 ; 12.70 WAS 12.7 ± 0.1 ; 44.0 WAS 43.0; 11.45 ± 0.03 WAS 11.40 ± 0.05 ; WEIGHT .426 ± 0.03 WAS .435 ± 0.01	7/29/2011	BK
	B	ADD LOACTING DOWEL HOLE	7/28/2011	BK

NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
5. WEIGHT: .426 ± 0.03 kg

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO:	472-2000	MATERIAL:	1018 STEEL	REMOVE BURRS & BREAK SHARP EDGES B. KIMES DATE: 7/28/2011
CHECKED BY:		HEAT TREAT:		
DATE:		ENGINEER:	J. WANG	DATE: 1/10/2012
FRISON:	SEE NOTES	SCALE:	0.750	SIZE: A31 OF 1
TOTAL QTY IN DUMMY	1	DESCRIPTION:	UPPER NECK LOAD CELL STRUCTURAL REPLACEMENT	DRAWING NO: 472-2700

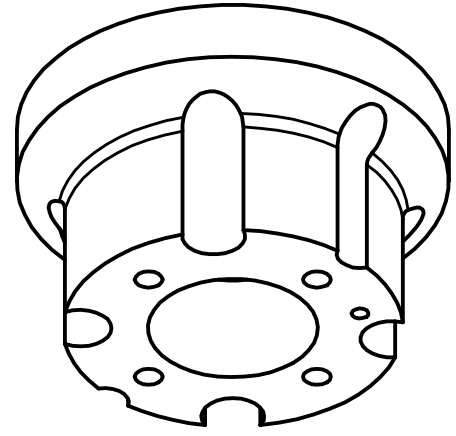
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM600 R03 AND CONVERTED TO METRIC FOR THOR-M; ADD DOWEL, ITEM 4	7/29/2011	BK
	B	5000934 WAS 5000592	7/25/2012	BK



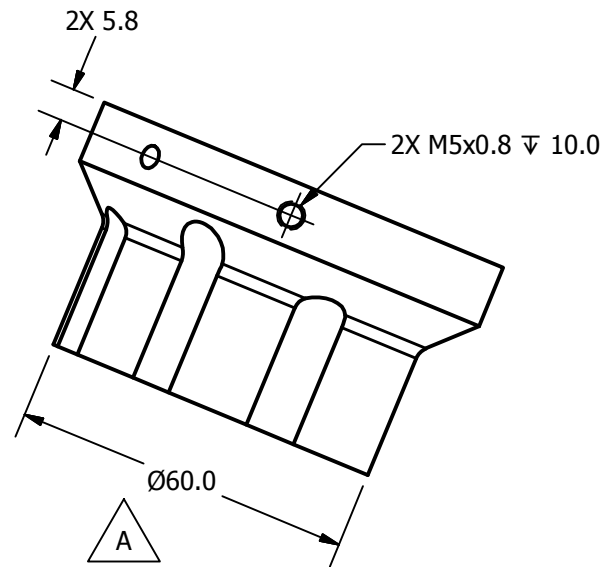
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	5000934	M3 X 12 LG. DOWEL PIN
3	4	5000108	M6 X 1 X 18 LG. FHCS
2	1	472-2612	BOTTOM PLATE, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
1	1	472-2610	TOP, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT

Parts List

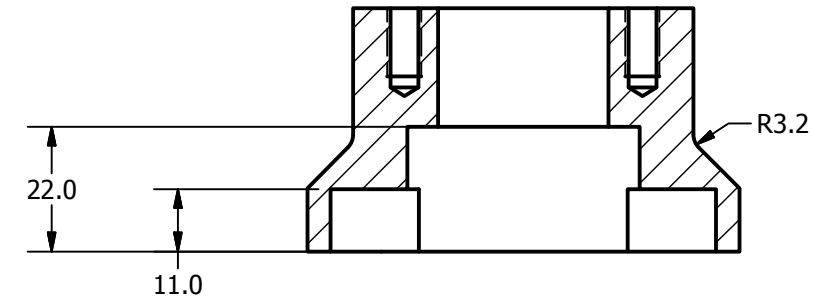
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-2000	MATERIAL:	DATE:	DESCRIPTION:
DESIGNED BY:	B. KIMES	CHECKED BY:	DATE:	LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
HEAT TREAT:		ENGINEER:	DATE:	SCALE: 1.000
TOTAL QTY IN DUMMY:	1	FINISH:	DATE:	SIZE: A3
				SHEET: 1 OF 1
				DRAWING NO: 472-2600
				REV: B



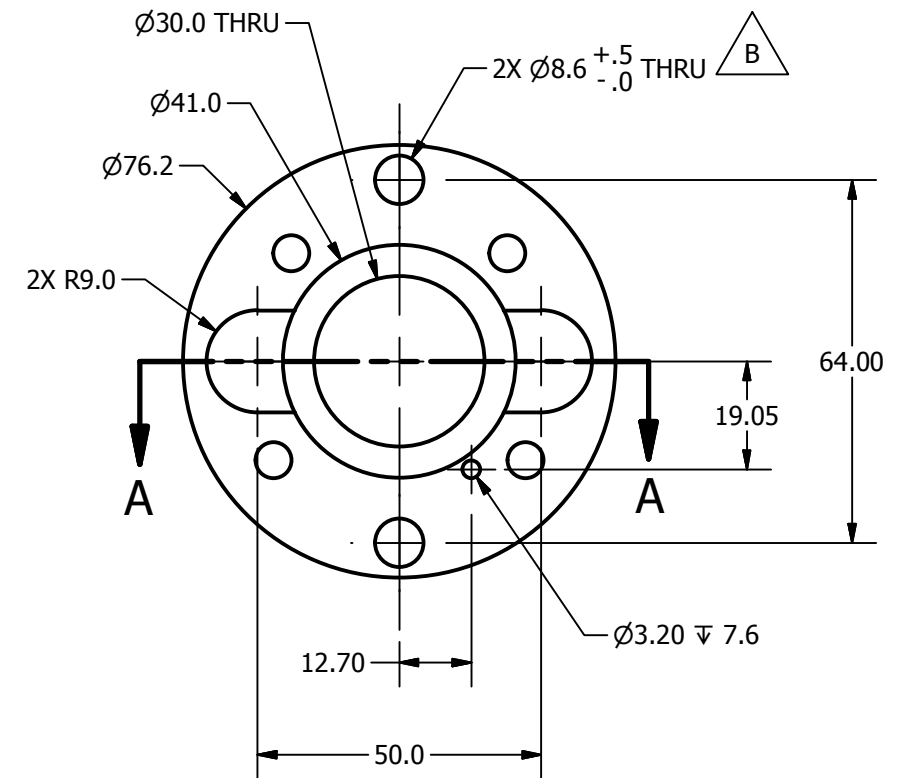
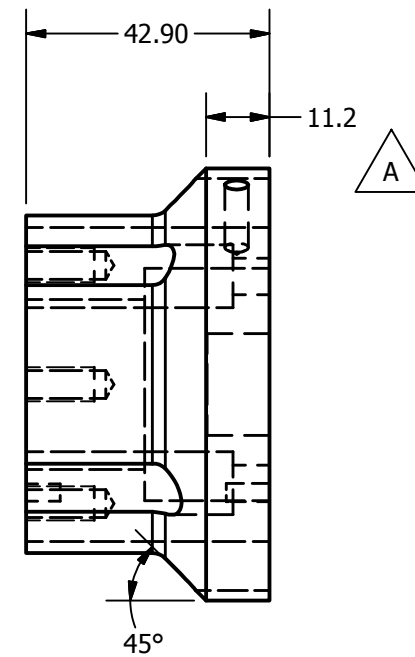
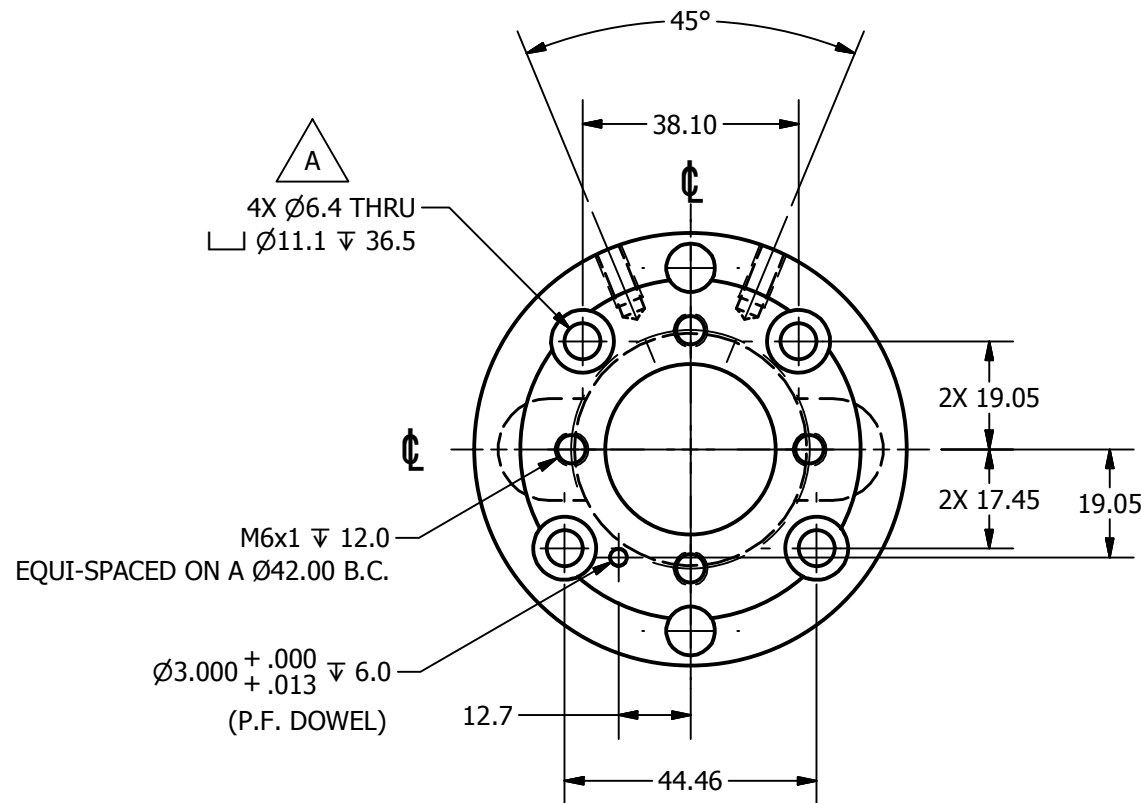
SCALE .750



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM600 R05 AND CONVERTED TO METRIC FOR THOR-M; Ø60.0 WAS Ø62.0; 11.0 WAS 11.4; Ø6.4 WAS Ø6.8	7/29/2011	BK
	B	DIM. 2X Ø8.6 +.5/-0 THRU WAS 2X Ø8.0 THRU	8/27/2015	DW



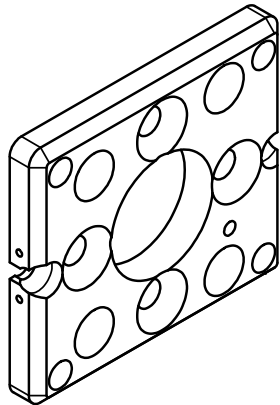
SECTION A-A
SCALE .750



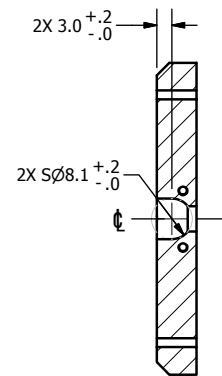
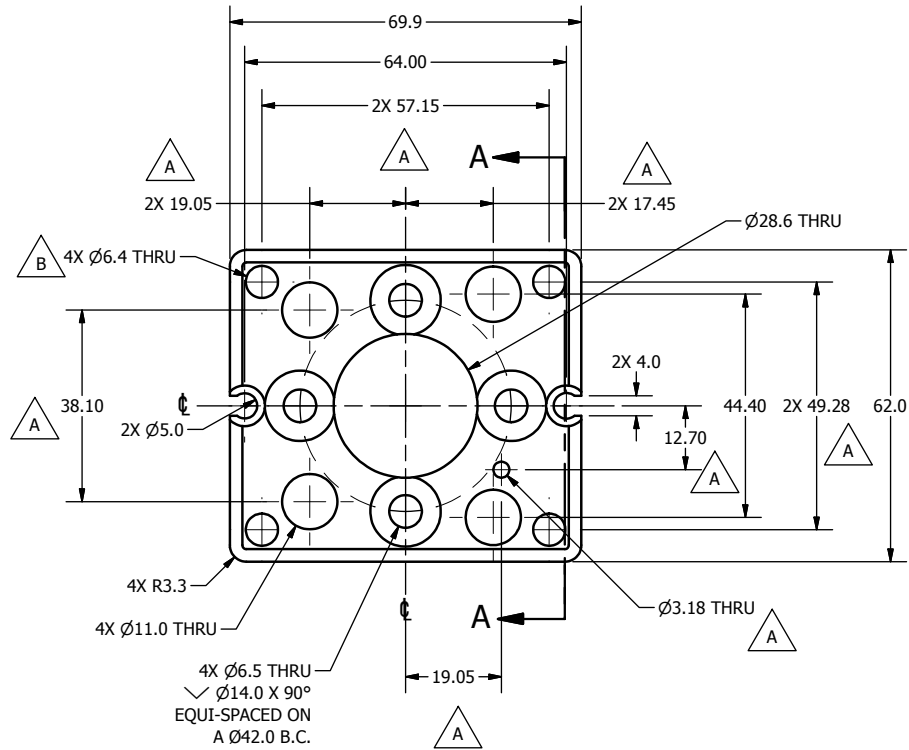
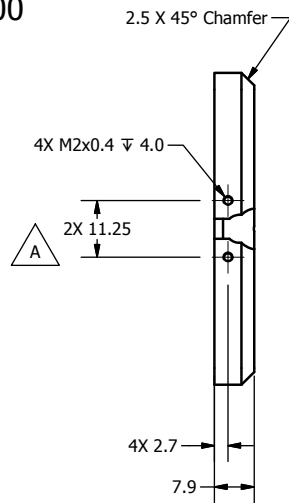
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:	472-2600	MATERIAL:	1018 STEEL	DESCRIPTION:
DATE:	7/28/2011	HEAT TREAT:		TOP, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
DRAWN BY:	B. KIMES	CHECKED BY:	J. WANG	SIZE: SHEET
DATE:	1/10/2012	ENGINEER:	J. WANG	A31 of 1
FINISH:	SEE NOTES	DATE:	1/10/2012	DRAWING NO.:
TOTAL QTY IN DUMMY	1			472-2610



SCALE 1.000



SECTION A-A
SCALE 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM612 R03 AND CONVERTED TO METRIC FOR THOR-M; 57.15 WAS 57.2; 19.05 WAS 19.0; 17.45 WAS 17.5; 38.10 WAS 38.2; 49.28 WAS 49.3; 11.25 WAS 11.3; ADD LOCATING DOWEL PIN HOLE	7/29/2011	BK
	B	4X Ø6.4 WAS Ø5.4	4/25/2012	BK

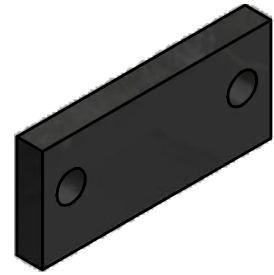
NOTES:

- DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING AND HEAT TREAT.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

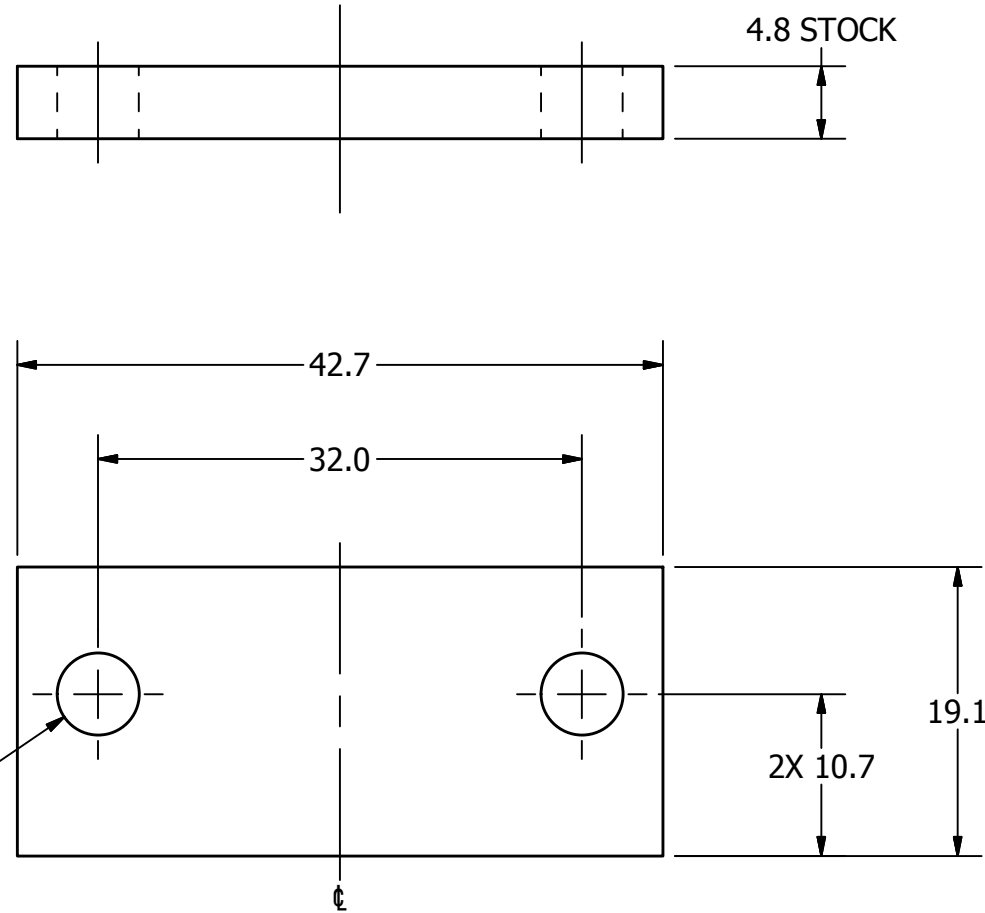
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 ± 0.1 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-2600	MATERIAL:	4140 STEEL	DESCRIPTION: BOTTOM PLATE, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
CHECKED BY:	B. KIMES	HEAT TREAT:	Rc 35-45	
DATE:	7/28/2011	FINISH:	SEE NOTES	
ENGINEER:	J. WANG	DATE:	1/10/2012	SIZE: A3 SHEET: 1 OF 1 SCALE: 1.000
TOTAL QTY IN DUMMY	1	REVISION:	SEE NOTES	DRAWING NO: 472-2612

REVISION HISTORY

ECO#	REV	DESCRIPTION	DATE	DBY
	A	RENUMBER FROM T1NKM025 R05 AND CONVERTED TO METRIC FOR THOR-M	9/7/2011	BK
	B	MATERIAL WAS BUNA-N RUBBER	3/2/2012	TMV
	C	ADDED NOTES 2 & 3; MATERIAL WAS NATURAL RUBBER	7/27/2015	DW



SCALE 1.000



NOTES:

1. DIMENSIONS SYMMETRICAL ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. RUBBER DIMENSIONAL TOLERANCE ± 0.5 UNLESS OTHERWISE SPECIFIED.
3. MATERIAL: BUNA-N RUBBER, 50 ± 5 SHORE A DURAMETER.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES

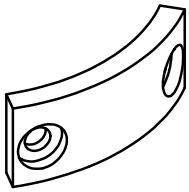
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
.XX ± 0.2
.XXX ± 0.1
XXX ± 0.01



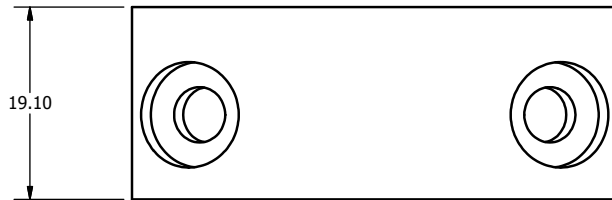
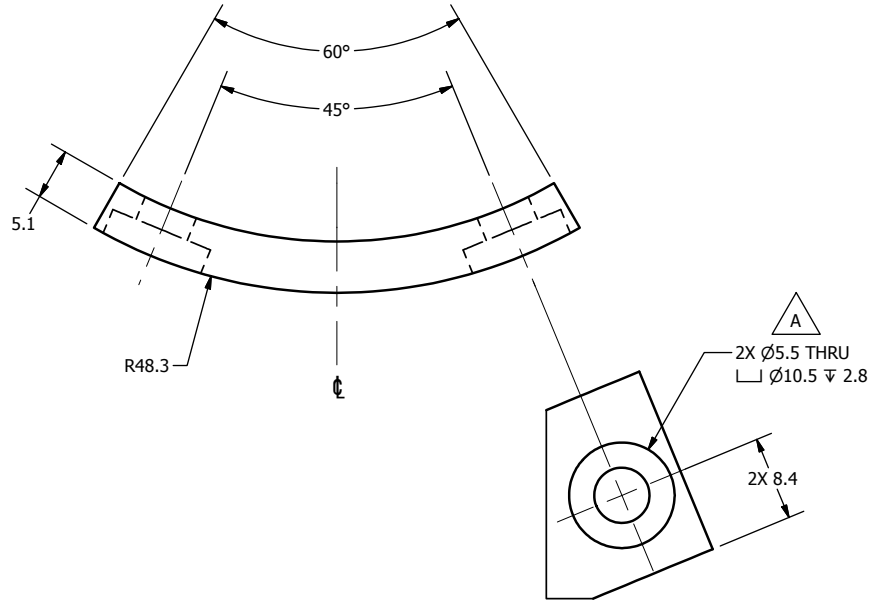
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: LOWER NECK LOAD CELL BUMPER

PROJECT NO.: 472-2000	QTY: 1	HEAT TREAT: SEE NOTES	FINISH: B	PROJECT NO.: 472-2000	QTY: 1	HEAT TREAT: SEE NOTES	FINISH: B	PROJECT NO.: 472-2000	QTY: 1	HEAT TREAT: SEE NOTES	FINISH: B	PROJECT NO.: 472-2000	QTY: 1	HEAT TREAT: SEE NOTES	FINISH: B	PROJECT NO.: 472-2000	QTY: 1	HEAT TREAT: SEE NOTES	FINISH: B
MATERIAL: SEE NOTES		CHECKED BY: B. KIMES		DATE: 9/7/2011		DRAWN BY: B. KIMES		DATE: 9/7/2011		SIZE: A3		SHEET: 1 of 1		DRAWING NO.: 472-2002		REV: C		SCALE: 2:1	
NEXT ASSEMBLY		ENGINEER: J. WANG		DATE: 1/23/2012		CHECKED BY: TMV		DATE: 3/2/2012		SIZE: A3		SHEET: 1 of 1		DRAWING NO.: 472-2002		REV: C		SCALE: 2:1	
TOTAL QTY IN DUMMY		FINISH: B		DATE: 1/23/2012		CHECKED BY: TMV		DATE: 3/2/2012		SIZE: A3		SHEET: 1 of 1		DRAWING NO.: 472-2002		REV: C		SCALE: 2:1	



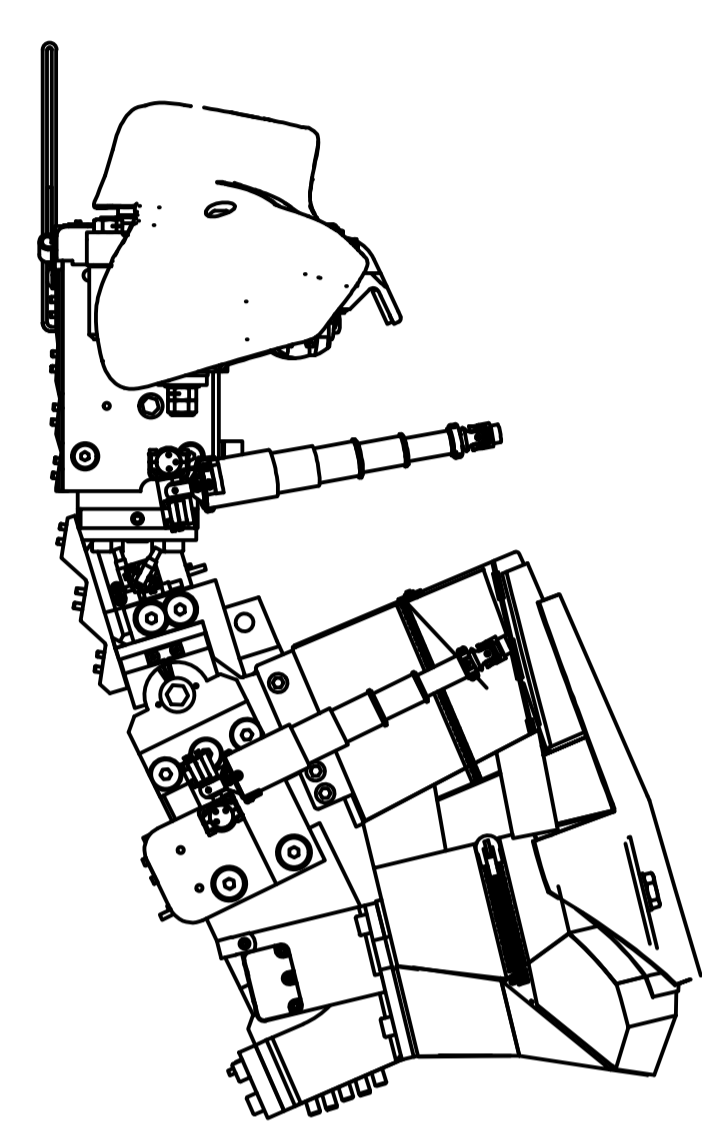
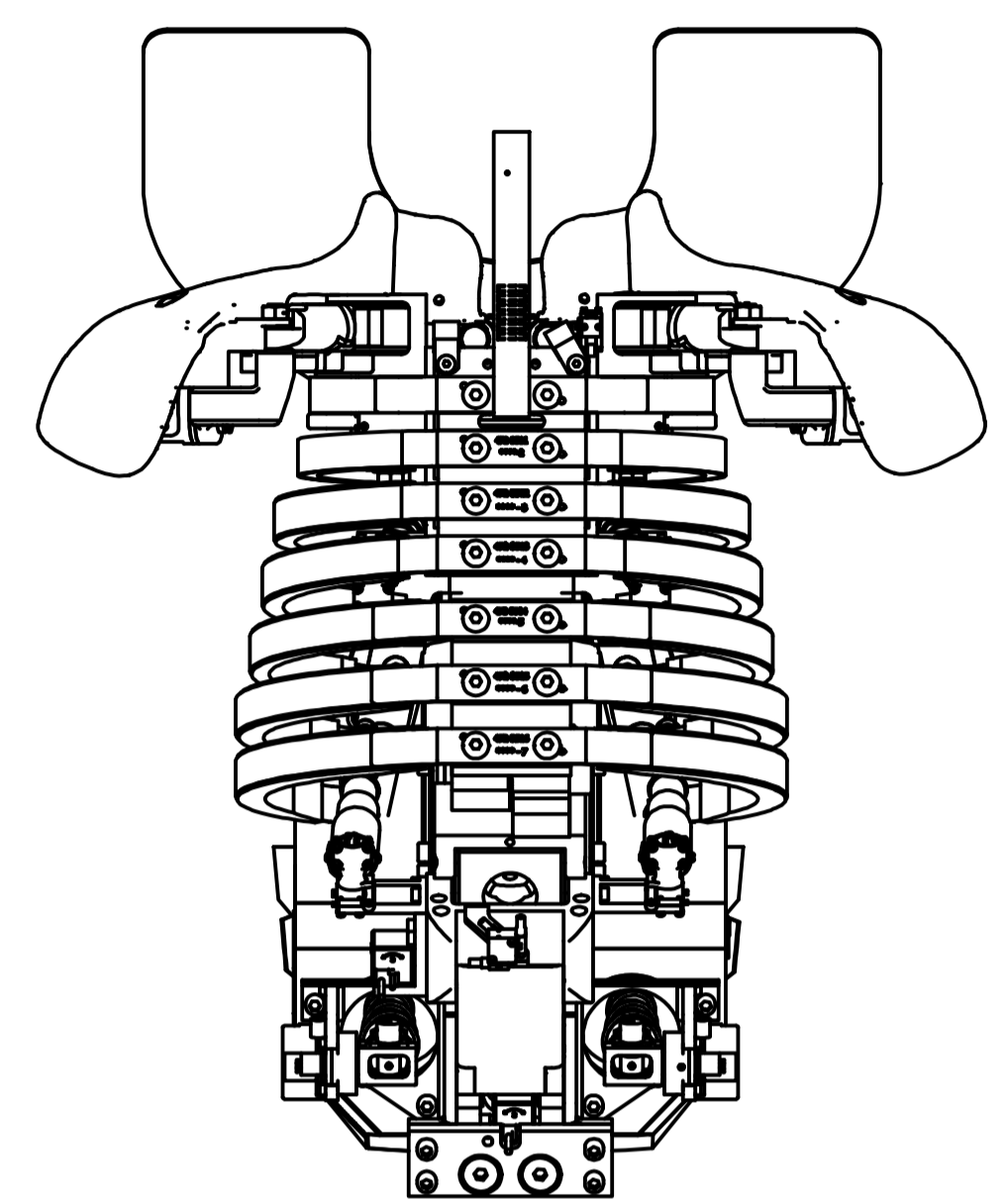
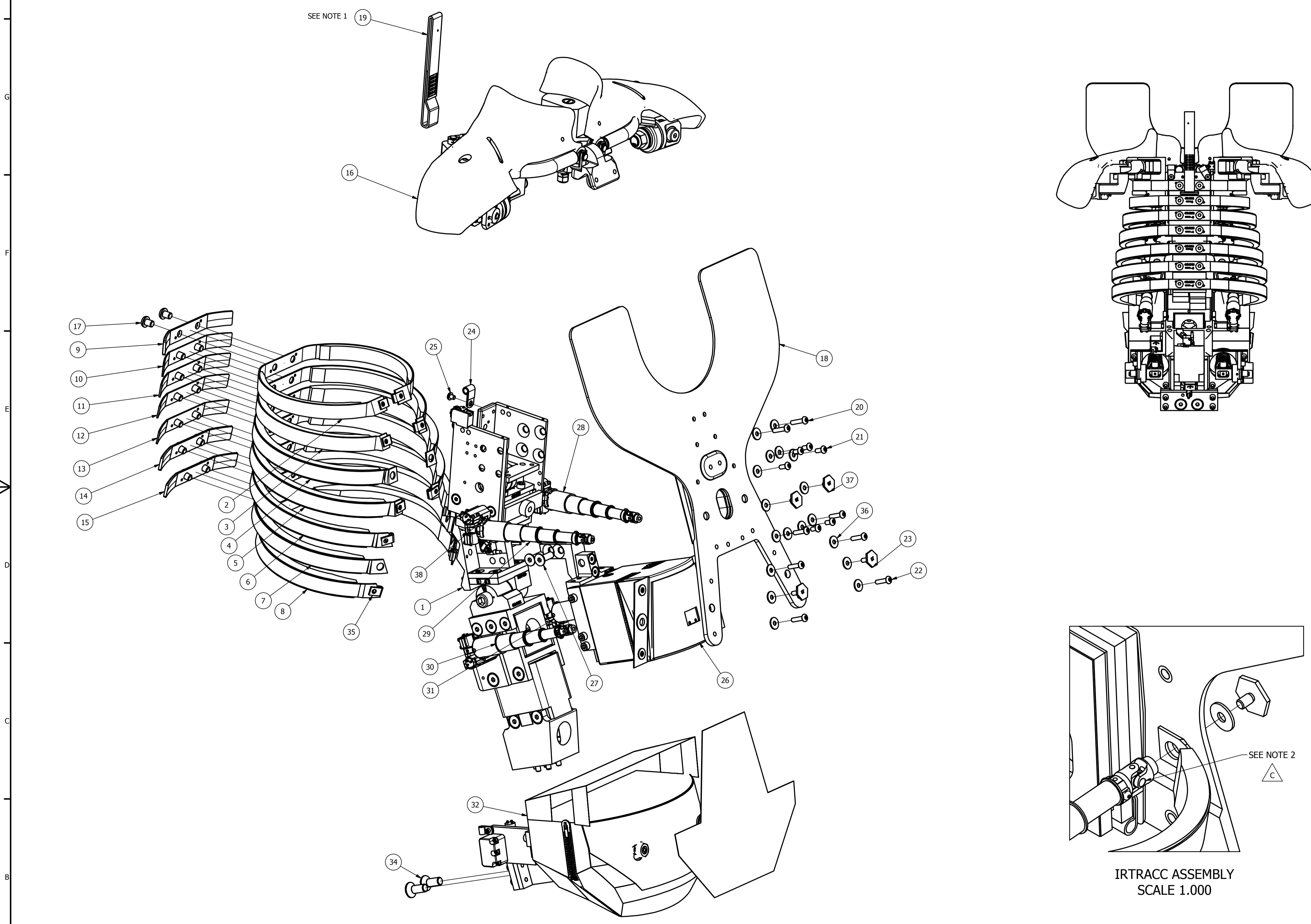
SCALE 1.000



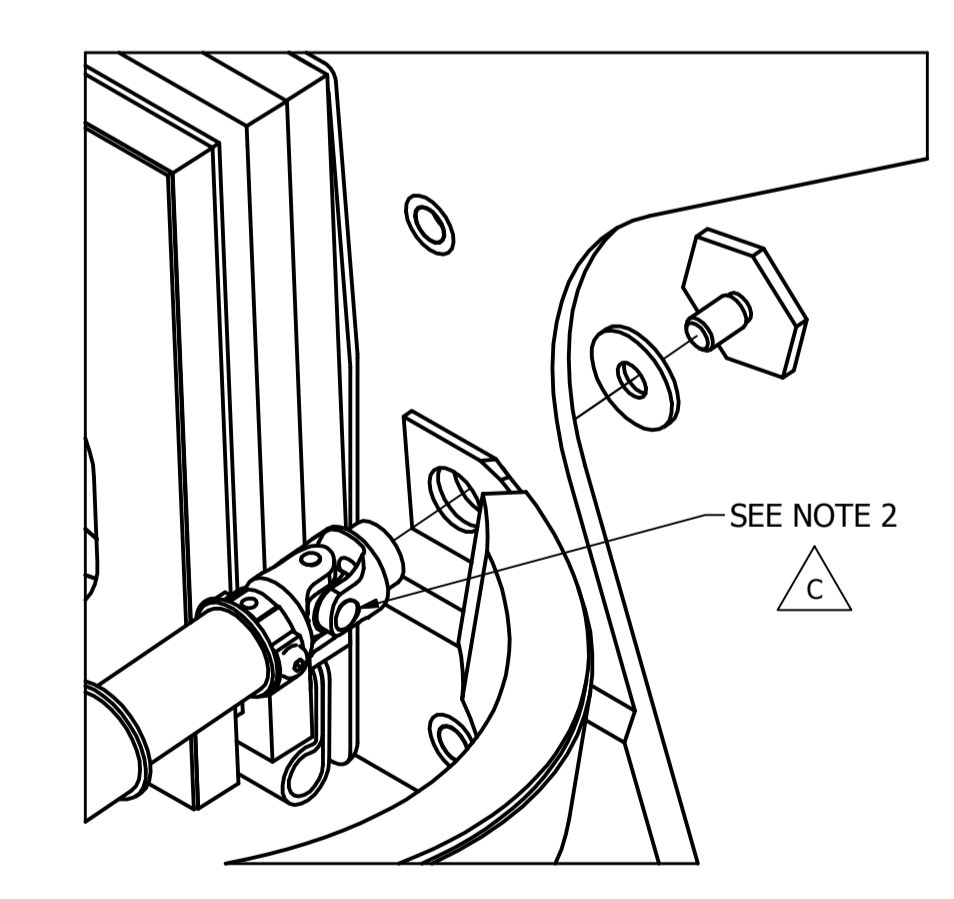
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM024 R03 AND CONVERTED TO METRIC FOR THOR-M; Ø5.5 THRU C'BORE Ø10.5 WAS Ø5.2 THRU C'BORE Ø9.3	9/7/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 ± 0.07 16 X ± 0.2 XX ± 0.3 XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2000	MATERIAL:	Acetal Resin, Black	DESCRIPTION: LOWER NECK LOAD CELL BUMPER COVER
DRAWN BY:		CHECKED BY:	B. KIMES	
DATE:	9/7/2011	DATE:	9/7/2011	
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 SCALE: 2.000
TOTAL QTY IN DUMMY	1	FINISH:		DRAWING NO.: 472-2001 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1TXM000 R01 FOR THOR-M;	10/17/2011	BK
	B	5000989 QTY 8 WAS 5000151; ADD 472-3520 QTY 2, 472-3518 QTY 2 WAS 4; REMOVE 5000614 QTY 10, 5000454 QTY 14 WAS 4	7/20/2012	BK
	C	ADD 5000151 QTY 4; 5000989 QTY 4 WAS 8; UPDATE TO SHOW SPINEBOX CHANGES	10/12/2012	BK
	D	ADDED NOTE 3 AND SEE NOTE 3 TO VIEW; UPDATE BOM TO NEW PART DESCRIPTIONS FOR 472-3520, 472-3518	7/11/2012	BK
	E	ITEM NUMBER 16 WAS PART #472-3100 - SHOULDER MECHANICAL ASSEMBLY, REMOVED NOTE 1, PART NUMBERS 19 - 9003743 - WASHER, 1/4 x 3/4 x 1/8 REINFORCED RUBBER AND PART NUMBER 22 - PART #5000003 - M5 x 0.8 x 10 LG. BHCS.; REVISED ITEM #28 472-3550 - ITRACC ASSEMBLY, UPPER LEFT, ITEM #29 472-3560 - ITRACC ASSEMBLY, UPPER RIGHT, ITEM #30 472-3570 - ITRACC ASSEMBLY, LOWER RIGHT & ITEM #31 472-3580 - ITRACC ASSEMBLY, LOWER LEFT	6/2/2014	DW



RIBS AND BIB REMOVED TO SHOW INTERIOR ASSEMBLIES

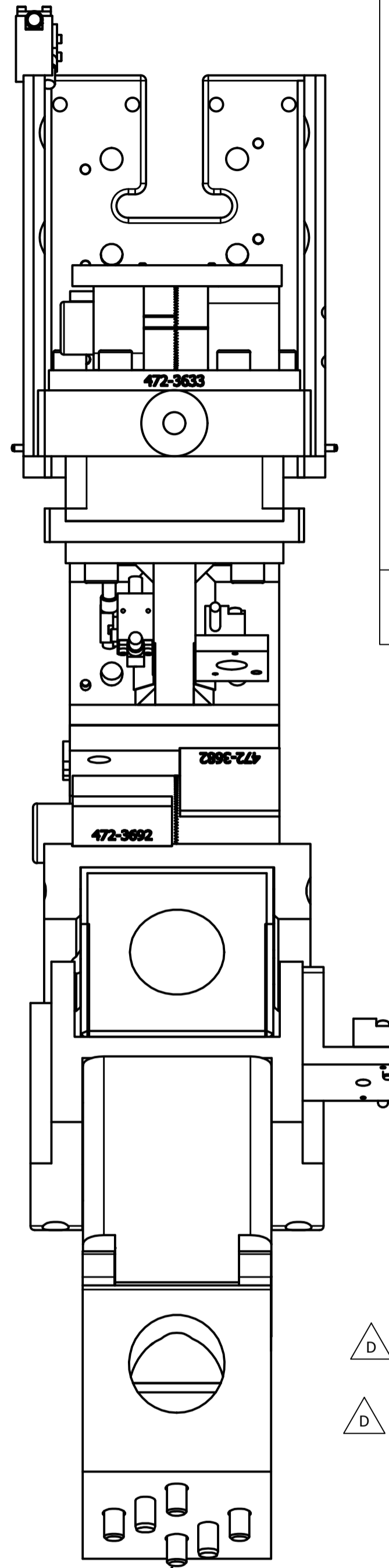
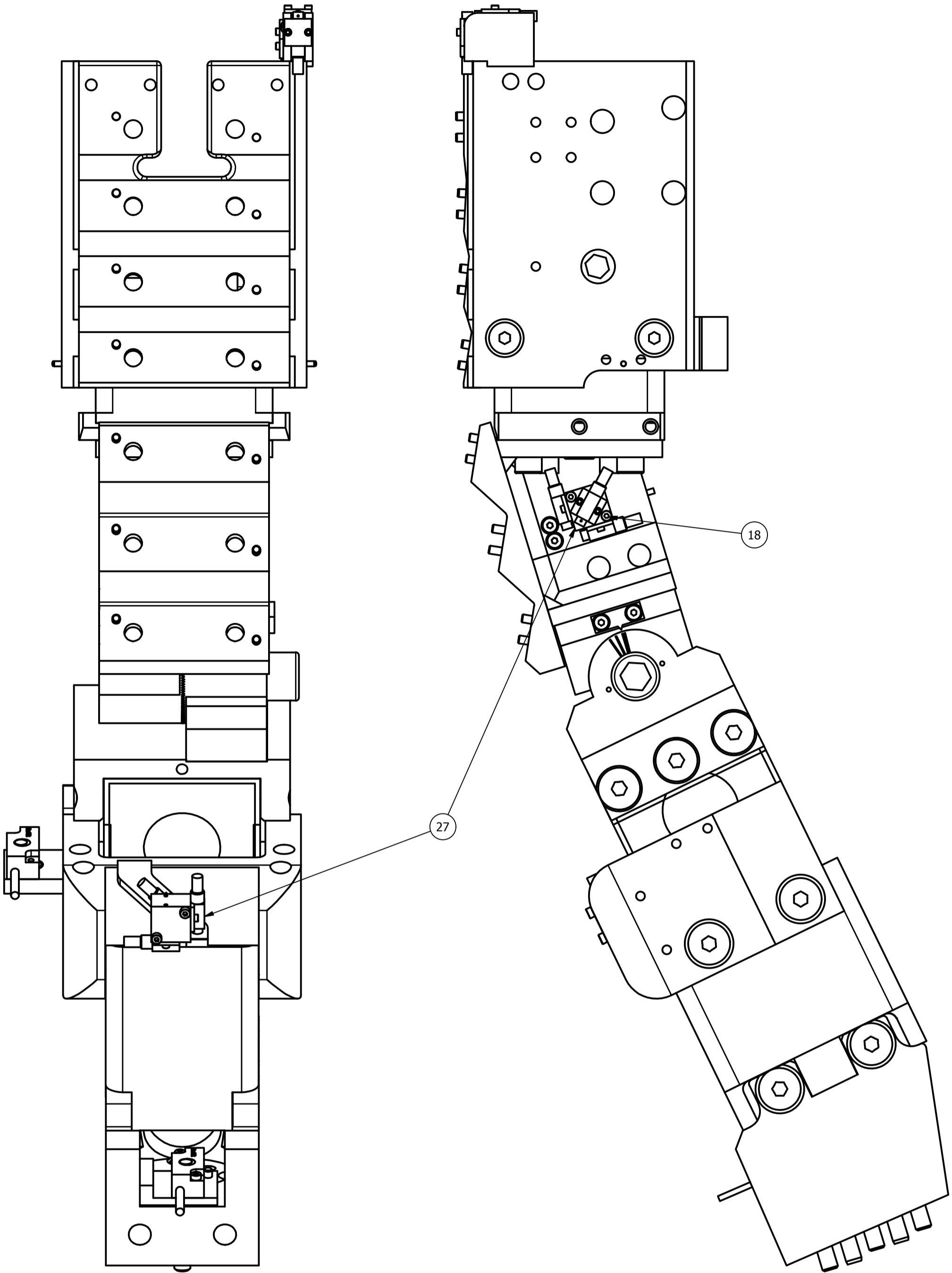
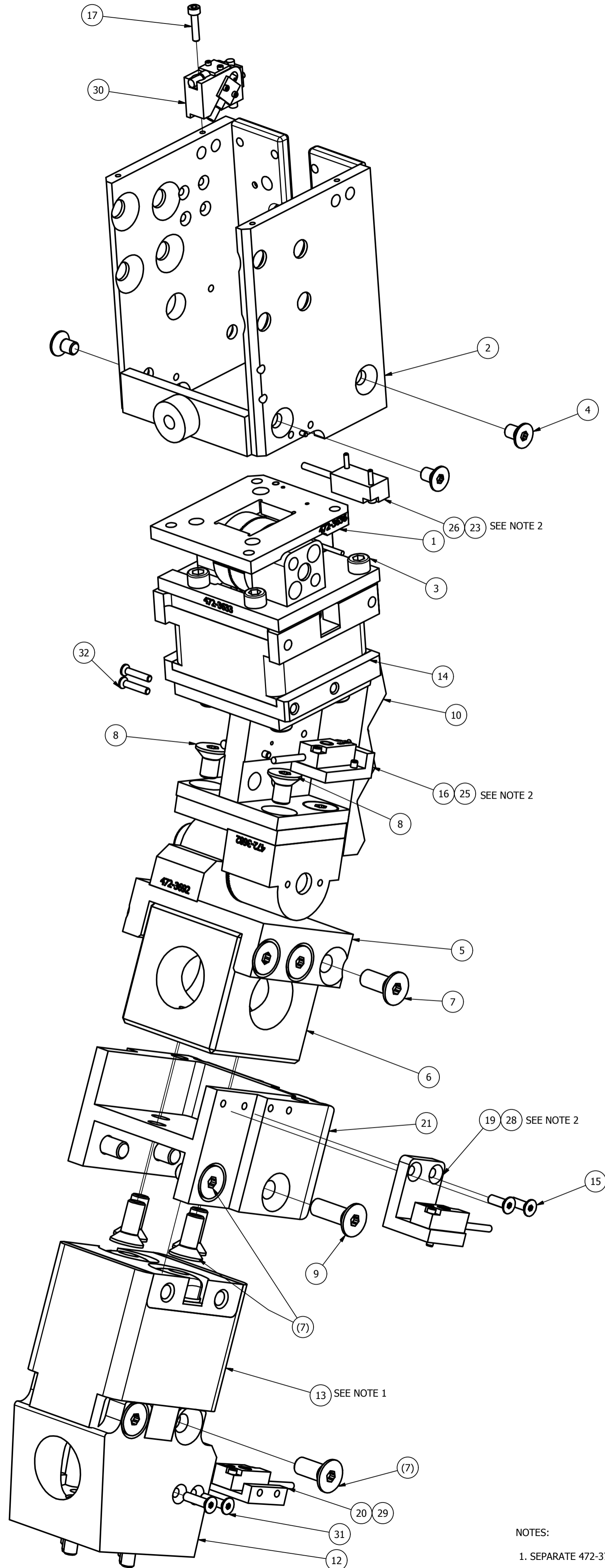


ITRACC ASSEMBLY SCALE 1.000

ITEM	QTY	PART NUMBER	DESCRIPTION
38	4	5000151	M4 X 0.7 X 10 LG. SHCS
37	2	472-3518	ITRACC CONNECTING BOLT, UPPER THORAX
36	14	5001126	M5 FLAT WASHER LARGE OD SS
35	10	5000513	CLIP NUT, M5 (MONADNOCK #130300-M5-1)
34	2	5001127	M10 X 1.5 X 25 LG. FHCS
33	4	5000989	M4 X 0.7 X 8 LG. SHCS
32	1	472-4700	LOWER ABDOMEN MECHANICAL ASSY
31	1	472-3580	ITRACC ASSEMBLY, LOWER LEFT
30	1	472-3570	ITRACC ASSEMBLY, LOWER RIGHT
29	1	472-3560	ITRACC ASSEMBLY, UPPER RIGHT
28	1	472-3550	ITRACC ASSEMBLY, UPPER LEFT
27	2	5000117	M8 X 1.25 X 25 LG. FHCS
26	1	472-4600	UPPER ABDOMEN ASSEMBLY
25	2	5000214	M5 X 0.8 X 6 LG. BHCS
24	2	9003723	1/4 COATED CABLE CLAMP
23	2	472-3520	ITRACC CONNECTING BOLT, LOWER THORAX
22	6	5000210	M5 X 0.8 X 20 LG. BHCS
21	2	5000654	M5 X 0.8 X 12 LG. BHCS
20	2	5000571	M5 X 0.8 X 22 LG. BHCS
19	1	472-3517	THORAX RIB #1 DUMMY LIFT STRAP
18	1	472-3400	THORAX BIB ASSEMBLY
17	14	5000454	M8 X 1.25 X 10 LG. BHCS
16	1	472-3800	SHOULDER ASSEMBLY
15	1	472-3516	THORAX ELLIPTICAL RIB STIFFENER #7
14	1	472-3515	THORAX ELLIPTICAL RIB STIFFENER #6
13	1	472-3514	THORAX ELLIPTICAL RIB STIFFENER #5
12	1	472-3513	THORAX ELLIPTICAL RIB STIFFENER #4
11	1	472-3512	THORAX ELLIPTICAL RIB STIFFENER #3
10	1	472-3511	THORAX ELLIPTICAL RIB STIFFENER #2
9	1	472-3510	THORAX ELLIPTICAL RIB STIFFENER #1
8	1	472-3370	THORAX ELLIPTICAL RIB #7 - ASSEMBLY
7	1	472-3360	THORAX ELLIPTICAL RIB #6 - ASSEMBLY
6	1	472-3350	THORAX ELLIPTICAL RIB #5 - ASSEMBLY
5	1	472-3340	THORAX ELLIPTICAL RIB #4 - ASSEMBLY
4	1	472-3330	THORAX ELLIPTICAL RIB #3 - ASSEMBLY
3	1	472-3320	THORAX ELLIPTICAL RIB #2 - ASSEMBLY
2	1	472-3310	THORAX ELLIPTICAL RIB #1 - ASSEMBLY
1	1	472-3600	SPINE MECHANICAL ASSEMBLY

- NOTES:
- 1. INSERT THE THORAX ELLIPTICAL RIB #1 ASSEMBLY (472-3110) AND THORAX ELLIPTICAL RIB STIFFENER (472-3510) THROUGH STRAP BEFORE ASSEMBLING.
 - 2. ORIENT THE U-JOINT AS SHOWN, WITH THE PIVOT PINS IN THE VERTICAL AND HORIZONTAL DIRECTION.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-0000	1	REVISED BY	B. KIMES	DATE	10/17/2011
NEXT ASSEMBLY	QTY	DESIGNED BY	J. WANG	DATE	11/17/2012
TOTAL QTY IN DUMMY	1	THORAX MECHANICAL ASSEMBLY		472-3000	



SCALE .750

NOTES:

- 1. SEPARATE 472-3760 FROM 472-3740 AND ASSEMBLE THE M6 X 20 SHCS TO MOUNT THE SPINE ASSEMBLY TO THE PELVIS.
- 2. SA572-544 SENSORS ARE SHOWN, SA572-5113 SENORS CAN BE MOUNTED INSTEAD.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM000 R6 AND CONVERTED TO METRIC FOR THOR-M	9/29/2011	BK
	B	UPDATE TO SHOW SPINEBOX CHANGES	10/12/2012	BK
	C	ADDED ITEM #33, T1 ACCEL. MOUNT, PART NUMBER 472-3857	9/9/2014	DW
	D	ITEM #16 PART # 5000326 - SCREW, FHCS M4-0.7 x 12 WAS PART #5000152 - M4 x 0.7 x 12 LG. SHCS; QTY. OF ITEM #18 PART #5000252 - SCREW, SHCS M3-0.5 x 14LG WAS 3, QTY. OF ITEM 24 PART #5000151 - M4 x 0.7 x 10 LG. SHCS WAS 3; QTY OF ITEM #28 PART #SA572-5113 - TILT SENSOR AND ITEM #29 PART #SA572-544 - TILT SENSOR WAS 3; ITEM #31 DESCRIPTION WAS TILT SENSOR ASSY, REAR THORACIC (SA572-5123), ITEM 32 DESCRIPTION WAS TILT SENSOR ASSY, THORACIC SPINE (SA572-5123); ADDED ITEM #34 PART# 5000023 - SCREW, FHCSM4-0.7 x 10, AND ITEM #35 PART #5000378V - SCREW, FHCS M3-0.5 x 14; PART #5000447 - SCREW, FHCS M4-0.7 x 16 WAS PART #5000646 - SCREW, FHCS M3-0.5 x 16 WAS PART #5000354V - SCREW, FHCS M3-0.5 x 16 WAS PART #5000378V - SCREW, FHCS M3-0.5 x 14; PART #472-3778 - LOWER NECK TILT SENSOR ASSY. WAS PART #472-3635 - LOWER NECK TILT SENSOR MOUNT; REMOVED PART #SA572-5113 - TILT SENSOR; IN NOTE 2 SA572-544 WAS SA572-5123; DESCRIPTION OF PART #472-3775-1 WAS TILT SENSOR ASSEMBLY, T6, SA572-5113 & SA572-544, PART #472-3776-1 WAS TILT SENSOR ASSY., T12, SA572-5113 & SA572-544, PART #472-3777-1 WAS TILT SENSOR ASSY., PELVIS, SA572-5113 & SA572-544, PART #472-3775-2 WAS TILT SENSOR ASSEMBLY, T6, SA572-544; ADDED PART #SA572-127 - THORACIC SPINE LOAD CELL (OPTIONAL); SHOW TILT SENSORS SA572-544 AS DEFAULT AND SA572-5113 AS OPTIONAL	9/14/2015	DW
	E	REMOVED PART #5001090 - SCREW, FHCS M8-1.25 x 12; PART #5001092V - SCREW, FHCS M8-1.25 x 14 WAS #5001091 - SCREW, FHCS M8-1.25 x 16, RENUMBERED PARTS LIST	3/11/2016	DW

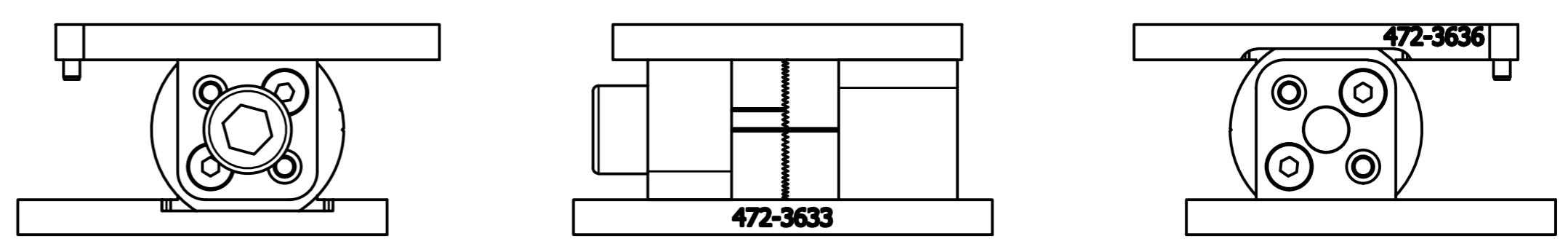
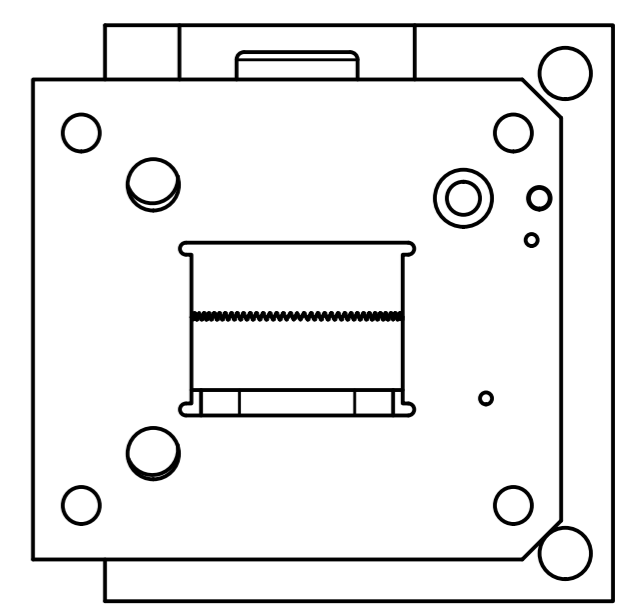
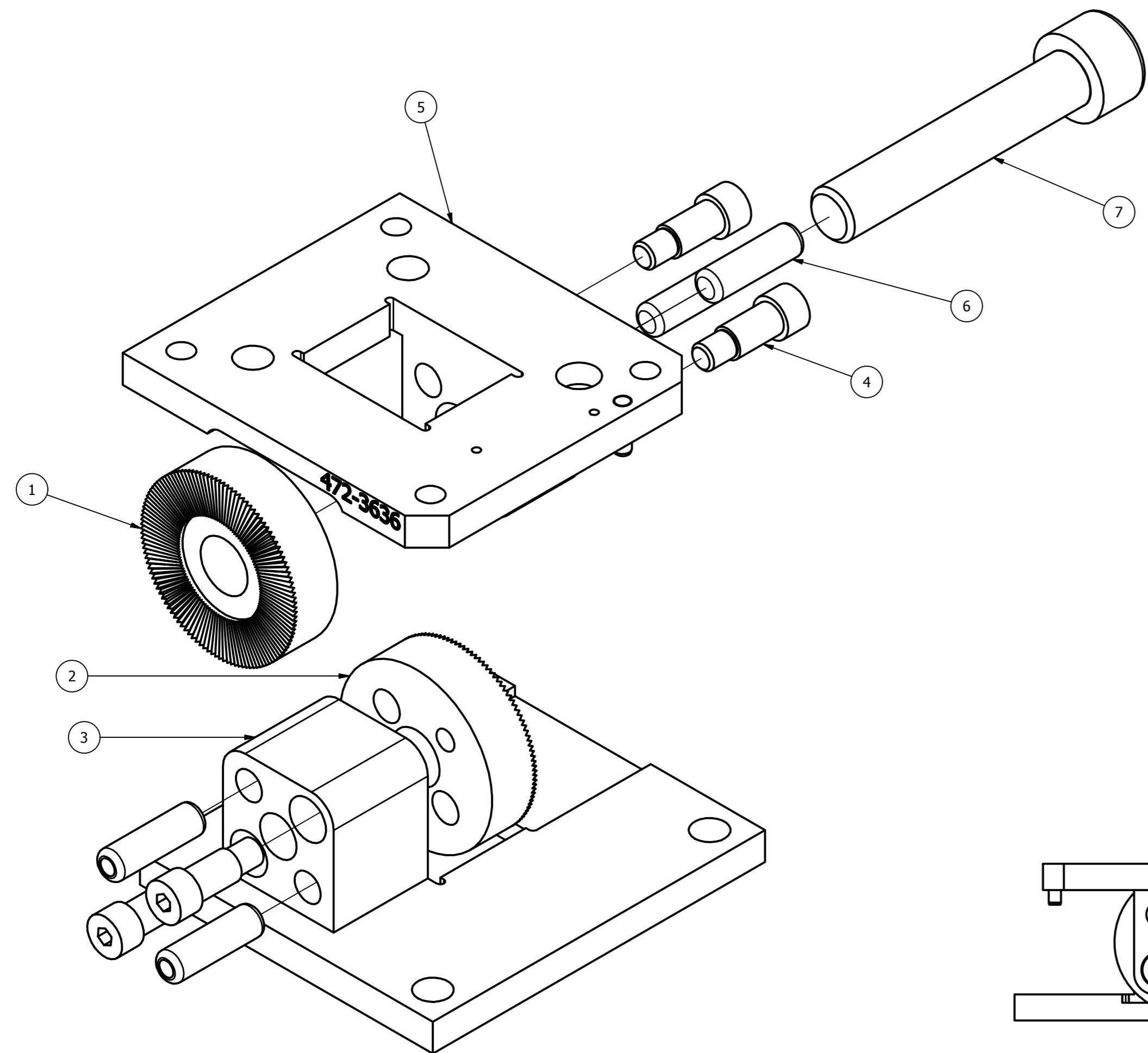
ITEM	QTY	PART NUMBER	DESCRIPTION
33	1	SA572-5127	THORACIC SPINE LOAD CELL (OPTIONAL)
32	2	5000354V	SCREW, FHCS M3-0.5 x 16
31	2	5000447	SCREW, FHCS M4-0.7 x 16
30	1	472-3857	T1 ACCEL. MOUNT ASSEMBLY
29	1	472-3777-2	TILT SENSOR ASSY., PELVIS, SA572-544
28	1	472-3776-2	TILT SENSOR ASSY., T12, SA572-544
27	2	472-4203	TRI-PACK ACCEL ASSY
26	1	SA572-544	TILT SENSOR, DUAL AXIS
25	1	472-3775-2	TILT SENSOR ASSEMBLY, T6, SA572-544
24	2	5001137	M2 X 0.4 X 14 LG. SHCS
23	1	472-3778	LOWER NECK TILT SENSOR ASSY.
22	1	5000151	M4 X 0.7 X 10 LG. SHCS
21	1	472-3731	THORACIC SPINE LOAD CELL FLEX JOINT ADAPTOR PLATE
20	1	472-3777-1	TILT SENSOR ASSY., PELVIS, SA572-5113
19	1	472-3776-1	TILT SENSOR ASSY., T12, SA572-5113
18	4	5000985	M2 X 0.4 X 16 LG. SHCS
17	1	5000252	SCREW, SHCS M3-0.5 x 14 LG.
16	1	472-3775-1	TILT SENSOR ASSEMBLY, T6, SA572-5113
15	2	5000326	SCREW, FHCS M4-0.7 x 12
14	1	472-3646	UPPER THORACIC SPINE FLEX JOINT ASSEMBLY
13	1	472-3746	LUMBAR SPINE FLEX JOINT ASSEMBLY
12	1	472-3760	PELVIS/LUMBAR MOUNTING BLOCK ASSEMBLY
11	4	5000001	M6 X 1 X 20 LG. SHCS
10	1	472-3650	LOWER THORACIC SPINE ASSEMBLY
9	2	5000117	SCREW, FHCS M8-1.25 x 25 LG.
8	4	5001092V	SCREW, FHCS M8-1.25 x 14
7	16	5000868	SCREW, FHCS M8-1.25 x 20
6	1	472-3720	THORACIC SPINE LOAD CELL STRUCTURAL REPLACEMENT
5	1	472-3670	LUMBAR SPINE PITCH CHANGE ASSEMBLY
4	4	5000204	SCREW, FHCS M6-1 x 10
3	8	5000281	SCREW, SHCS M6-1 x 12
2	1	472-3620	UPPER THORACIC SPINEBOX WELDMENT
1	1	472-3630	NECK PITCH CHANGE MECHANISM ASSEMBLY

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
SPINE MECHANICAL ASSEMBLY

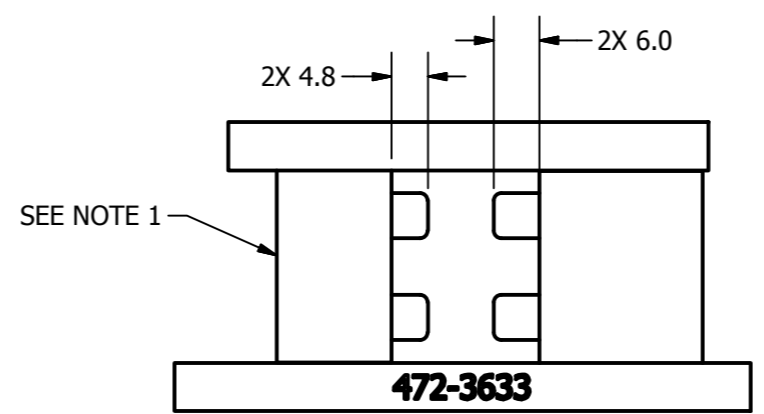
ECO#	REV	DESCRIPTION	DATE	BY
472-0000	1		9/29/2011	BK
NEXT ASSEMBLY				
TOTAL QTY IN DUMMY	1		1/16/2012	DW

1 of 1
J. WANG
472-3600

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM200 R10 AND CONVERTED TO METRIC FOR THOR-M	9/27/2011	BK
	B	REVISED OART #472-3636 - NECK PITCH CHANGE MECHANISM TOP PLATE	9/14/2015	DW



SCALE 1.500



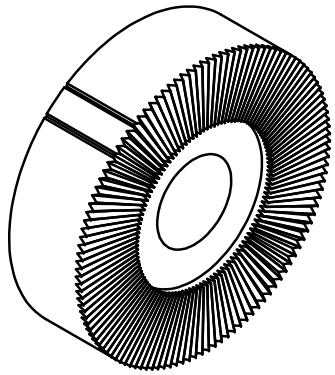
STAR PATTERN MECHANISMS AND BOLTS HIDDEN TO SHOW DOWELS
SCALE 1.000

- NOTES:
1. INSTALL THESE DOWELS (2X) FLUSH OR BELOW SURFACE.
 2. THREADED END OF DOWELS SHOULD FACE OUT, AS SHOWN.

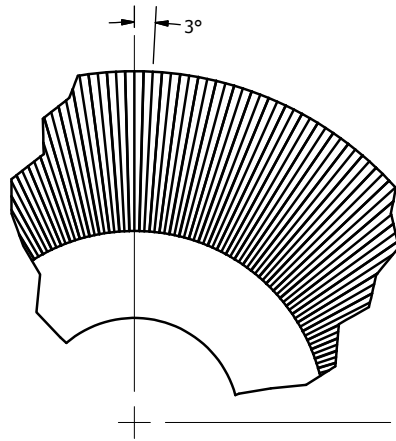
ITEM	QTY	PART NUMBER	DESCRIPTION
7	1	5001132	M10 X 1.5 X 55 LG. SHCS
6	4	5000445	DOWEL PIN, PULL OUT M6 X 20
5	1	472-3636	NECK PITCH CHANGE MECHANISM TOP PLATE
4	4	472-3634	NECK PITCH CHANGE MECHANISM BOLT
3	1	472-3633	NECK PITCH CHANGE MECHANISM BASE PLATE
2	1	472-3631	NECK PITCH CHANGE MECHANISM, STAR PATTERN 2
1	1	472-3632	NECK PITCH CHANGE MECHANISM, STAR PATTERN 1

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH	
PROJECT NO: THOR-M		MATERIAL: 304 SS	
DRAWN BY: B. KIMES		DATE: 9/27/2011	
CHECKED BY: J. WANG		DATE: 1/16/2012	
REVISION: 1		DESCRIPTION: NECK PITCH CHANGE MECHANISM ASSEMBLY	
TOTAL QTY IN DUMMY: 1		SCALE: 1.000	

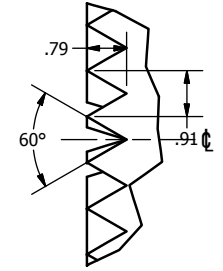
462-3600	1	472-3630	1	472-3630
NEXT ASSEMBLY	QTY	DATE	SCALE	DRAWING NO.
TOTAL QTY IN DUMMY	1	1/16/2012	1.000	472-3630



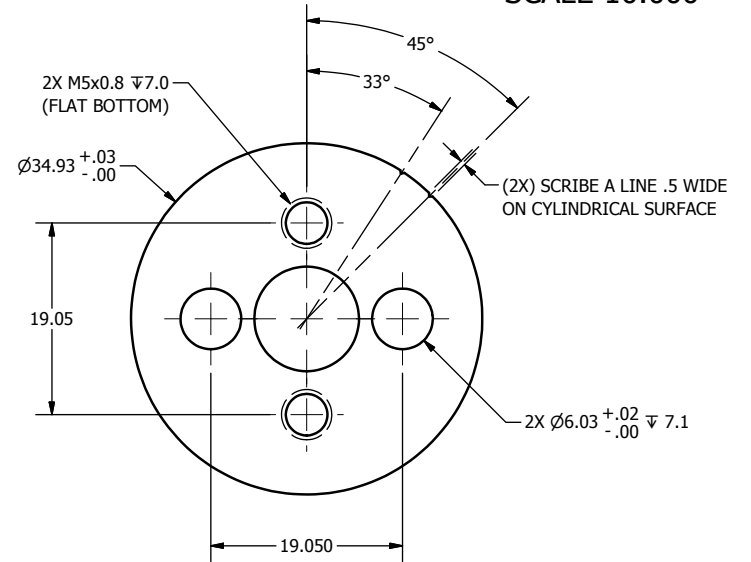
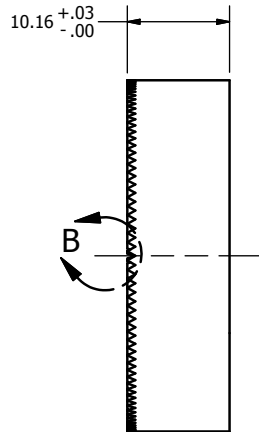
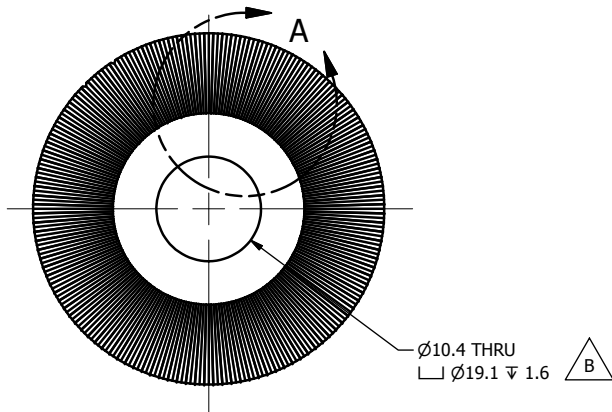
SCALE 2.000



DETAIL A
SCALE 4.000



DETAIL B
TOOTH PATTERN
SCALE 10.000

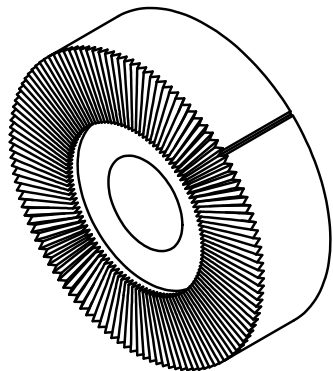


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM210 R4 AND CONVERTED TO METRIC FOR THOR-M;	9/26/2011	BK
	B	Ø10.4 WAS Ø9.53+.03/-0	3/15/2012	BK

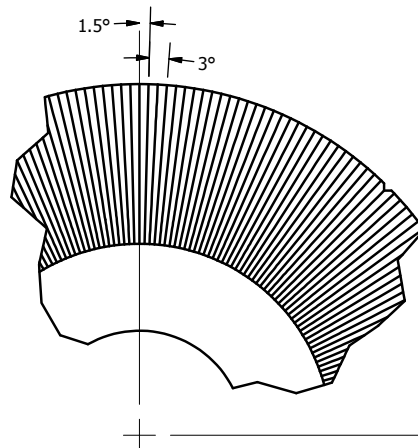
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT \downarrow , UNLESS OTHERWISE NOTED.
2. FIRST CUT OF STAR PATTERN IS ALIGNED WITH VERTICLE; TOTAL OF 120 RADIAL LINES ARE REQUIRED FOR THE STAR PATTERN.

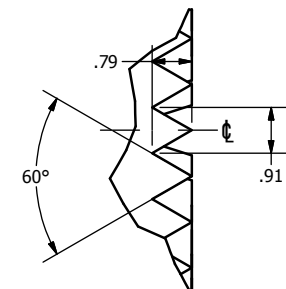
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓		
PROJECT NO:	473-3630	MATERIAL:	Stainless Steel, 440C	DESCRIPTION:
REVISED BY:	1	HEAT TREAT:	Rc 56-59	NECK PITCH CHANGE MECHANISM, STAR PATTERN 1
CHECKED BY:	B. KIMES	DATE:	9/26/2011	SIZE: SHEET
ENGINEER:	J. WANG	DATE:	1/16/2012	A3 1 OF 1
TOTAL QTY IN DUMMY	1	FINISH:		SCALE: 1.000
				DRAWING NO:
				472-3632
				REV:
				B



SCALE 2.000

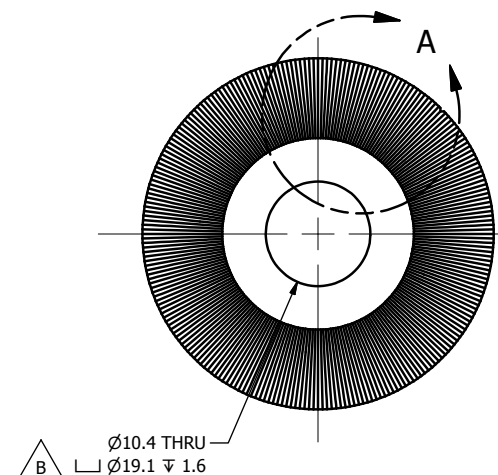
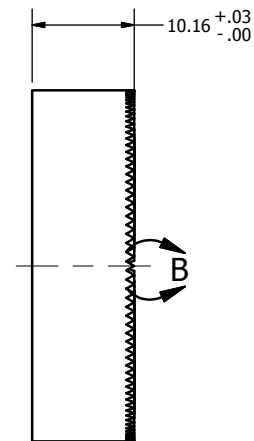
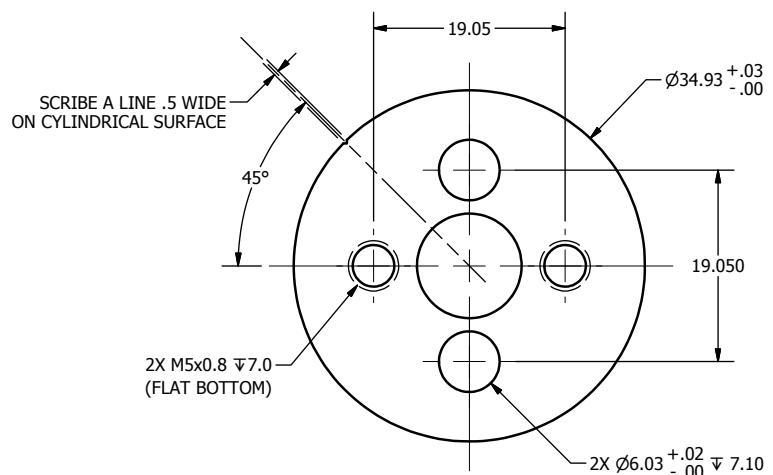


DETAIL A
SCALE 4.000



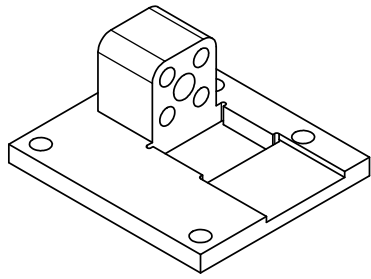
DETAIL B
TOOTH PATTERN
SCALE 10.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM211 R3 AND CONVERTED TO METRIC FOR THOR-M	9/26/2011	BK
	B	Ø10.4 WAS Ø9.53+.03/-0	3/15/2012	BK

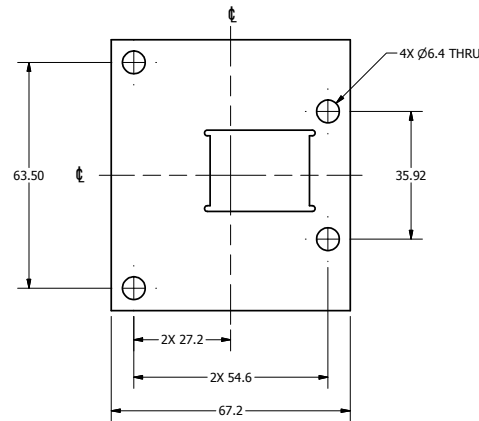
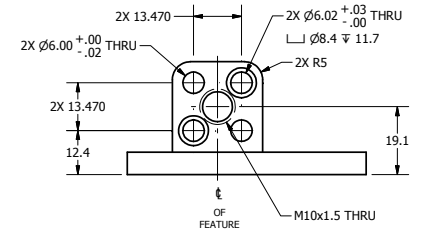
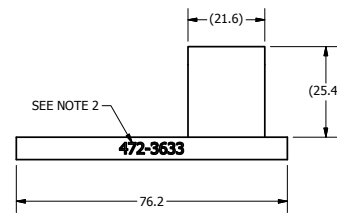
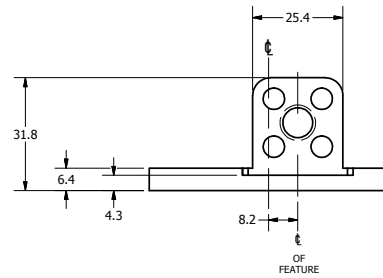
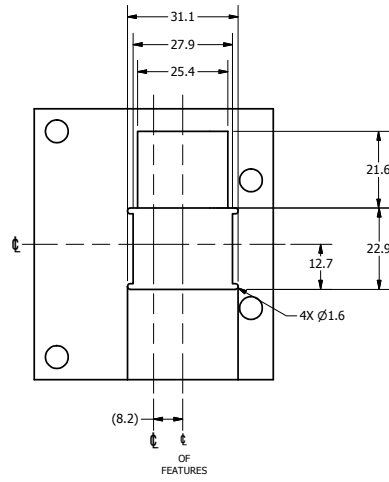


- NOTES:
- DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 - FIRST CUT OF STAR PATTERN IS OFFSET 1.5° FROM VERTICLE; TOTAL OF 120 RADIAL LINES ARE REQUIRED FOR THE STAR PATTERN.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X ±0.1 1.6 ✓ X.X ±0.2 ✓ X.XX ±0.3 ✓ X.XXX ±0.01 ✓		
PROJECT NO:	472-3630	MATERIAL:	Stainless Steel, 440C	DESCRIPTION:
REVISED BY:	1	HEAT TREAT:	Rc 56-59	NECK PITCH CHANGE MECHANISM, STAR PATTERN 2
CHECKED BY:	B. KIMES	DATE:	9/26/2011	SIZE: SHEET
ENGINEER:	J. WANG	DATE:	1/16/2012	A31 OF 1
TOTAL QTY IN DUMMY	1	FINISH:		SCALE: 1.000
				DRAWING NO. 472-3631
				REV. B



SCALE 1.000

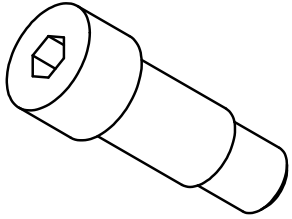


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 3. POWDER OR BEAD BLAST.
 4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

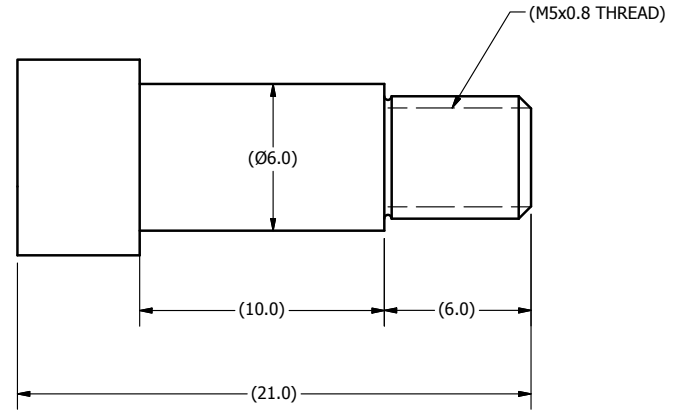
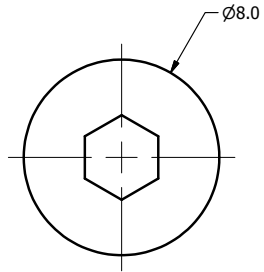
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM213 R10 AND CONVERTED TO METRIC FOR THOR-M	9/26/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE 0.001 INCHES FRACTIONS ARE 1/32 INCH		SHOW HIDDEN & BREAK DIMB END		NECK PITCH CHANGE MECHANISM BASE PLATE	
472-3630	1	1018 STEEL	B. KIMES	9/26/2011	
NEXT ASSEMBLY	QTY	PREPARED BY	DATE	SCALE	
TOTAL QTY IN DUMMY	1	SEE NOTES	J. WANG	1/16/2012	
A21 of 1					472-3633
1.000					

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM220 R01 AND CONVERTED TO METRIC FOR THOR-M	11/16/2011	BK



SCALE 3.000



NOTES:

1. MAKE FROM M6 x 10 SHOULDER SCREW (5001122), MODIFY AS SHOWN.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X.X 0.05 0.5 F
X.XX 0.1 0.5 F
X.XXX 0.05 0.5 F
REMOVE BURRS & BREAK SHARP EDGES

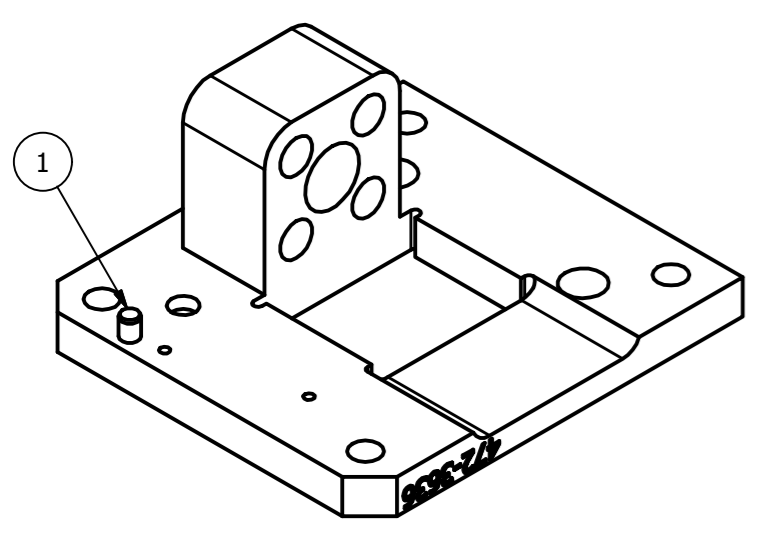


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

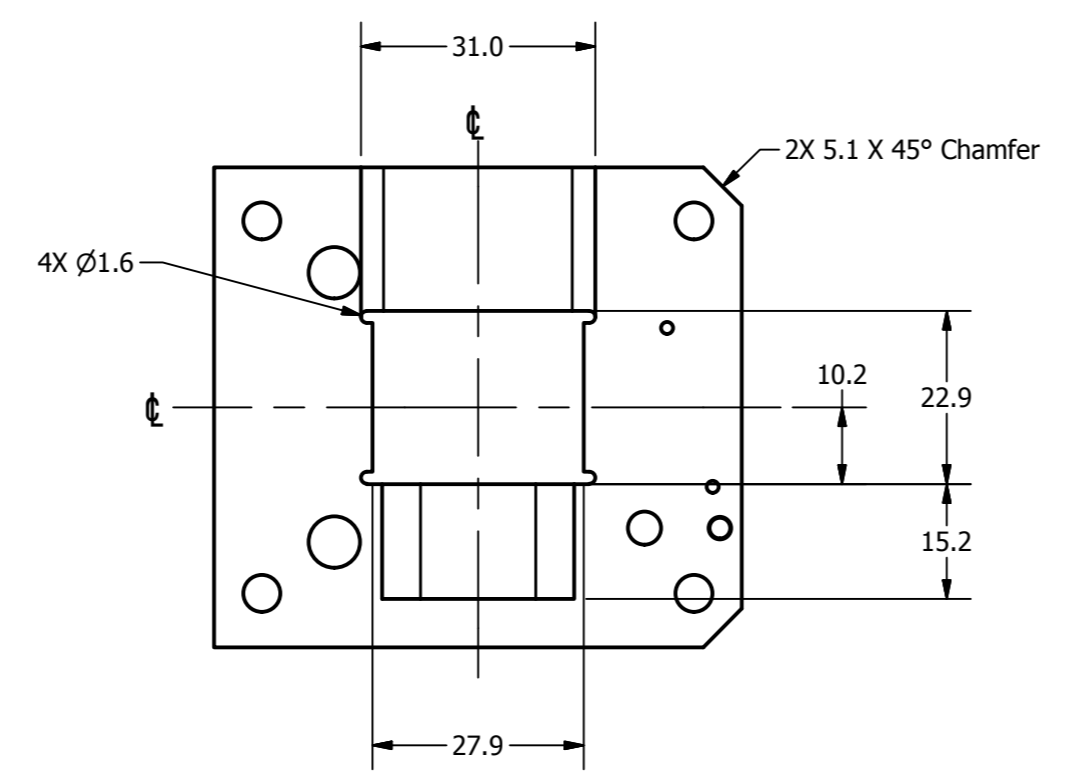
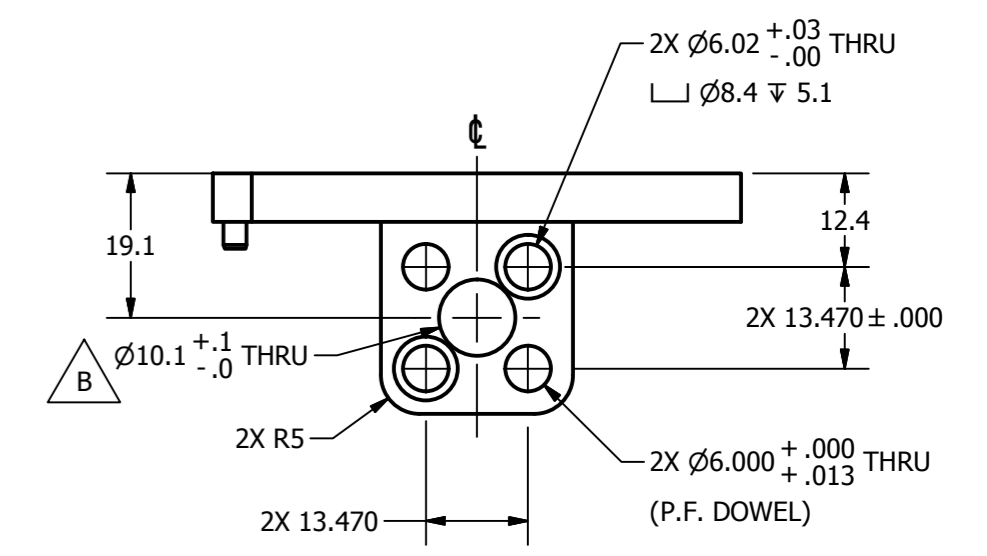
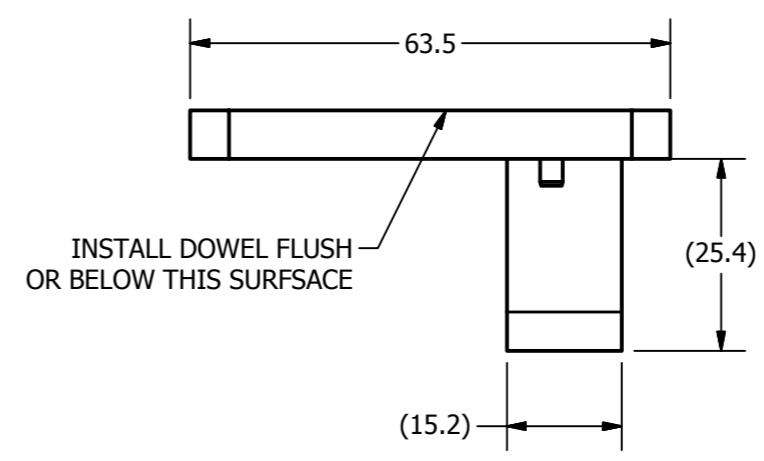
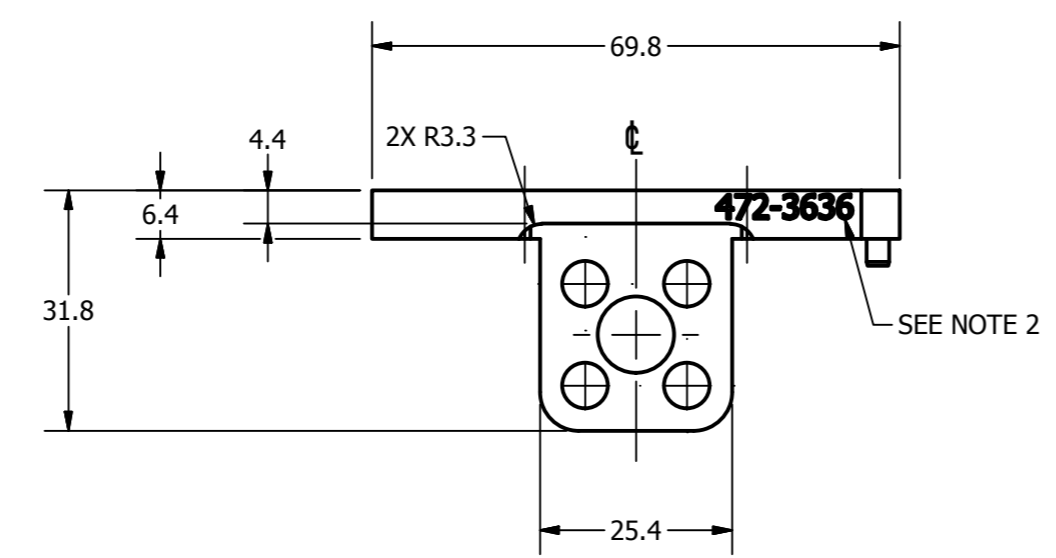
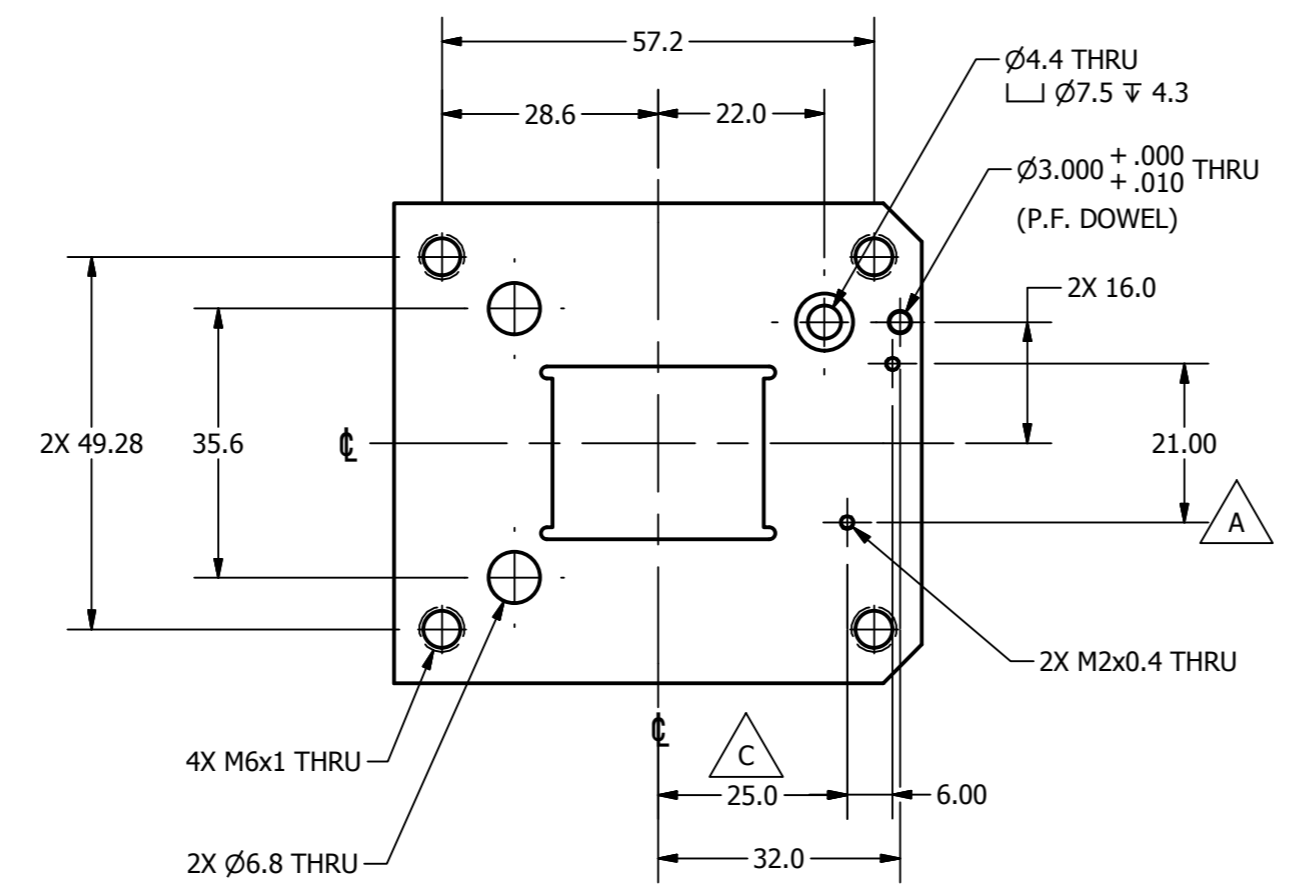
DESCRIPTION: NECK PITCH CHANGE MECHANISM BOLT

PROJECT NO.	472-3630	MATERIAL:	4	DRAWN BY:	B. KIMES	DATE:	11/16/2011	SIZE:	B	SHEET:	1 OF 1	DRAWING NO.:	472-3634	REV:	A
NEXT ASSEMBLY	QTY	HEAT TREAT:		CHECKED BY:		DATE:		SCALE:	5.000						
TOTAL QTY IN DUMMY	4	FINISH:		ENGINEER:	J. WANG	DATE:	1/16/2012								

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM216 R15 AND CONVERTED TO METRIC FOR THOR-M; REORIENT IES SENSOR HOLES (M2)	9/26/2011	BK
	B	Ø10.1+0.1/-0 WAS Ø9.5	3/15/2012	BK
	C	DIMENSION 25.0 WAS 31.0	9/14/2015	DW



SCALE 1.000



- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 3. POWDER OR BEAD BLAST.
 4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
 6. INSTALL DOWEL PIN AFTER PLATING.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000284	M3 X 10 LG. DOWEL PIN

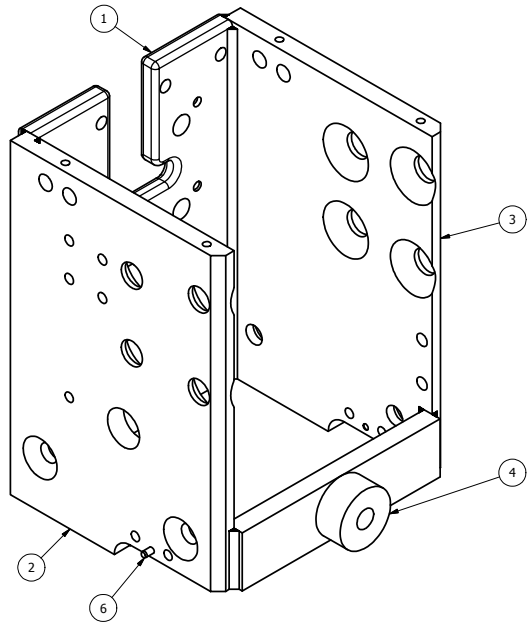
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X ± 0.5 ± 0.5 1.6	
		XX ± 0.2 ± 0.2 1.6	
		XXX ± 0.1 ± 0.1 1.6	
		XXXX ± 0.0 ± 0.0 1.6	
		REMOVE BURRS & BREAK SHARP EDGES	

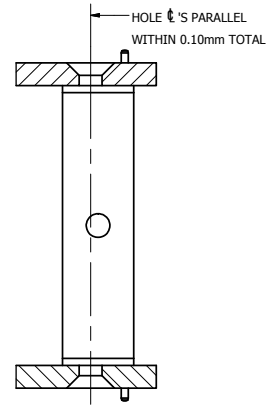
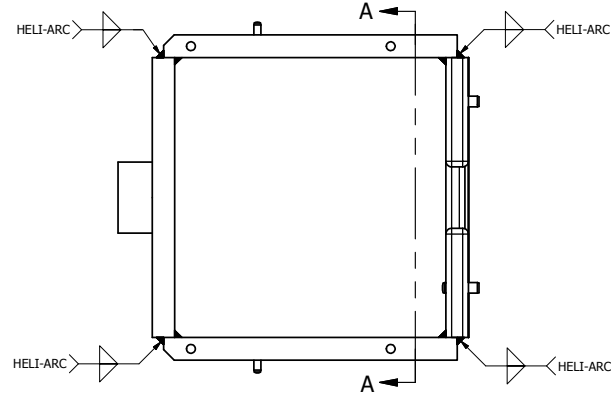
PROJECT NO:	THOR-M	DESIGNER:	B. KIMES	DATE:	9/26/2011
DATE:	1018 CRS	CHECKED BY:		DATE:	
NEXT ASSEMBLY:	QTY	ENGINEER:	J. WANG	DATE:	1/16/2012
TOTAL QTY IN DUMMY:	1	FINISH:	SEE NOTES	SCALE:	1.000

SIZE: A2 1 OF 1
DRAWING NO: 472-3636

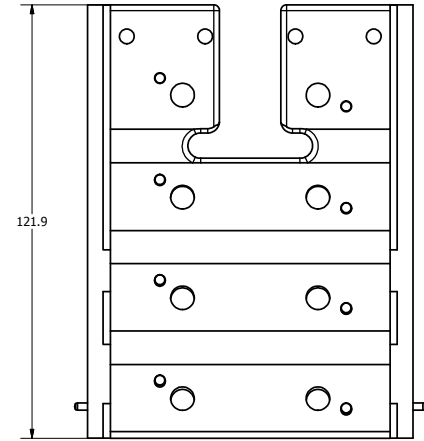
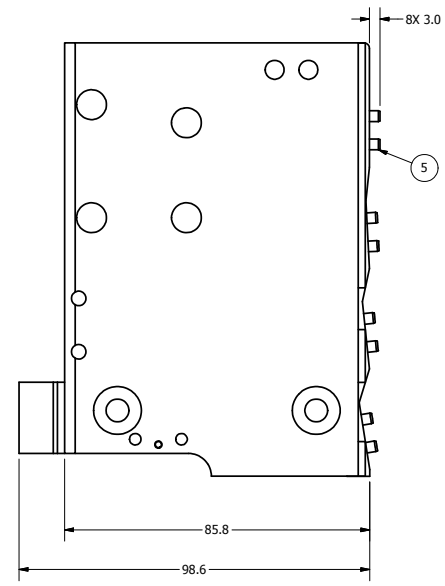
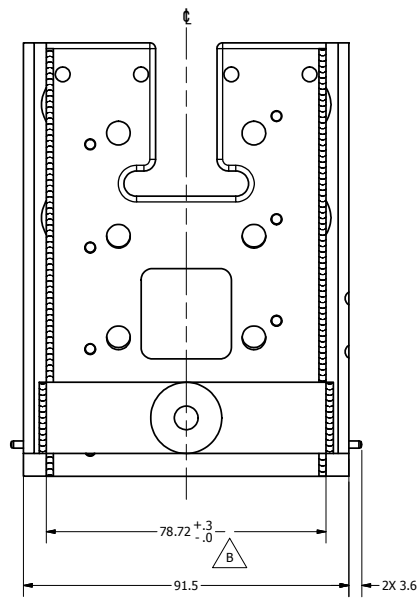
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T15PW120 R3; ADD FRONT PLATE, NICKEL PLATE WAS TEFLON COAT	9/28/2011	BK
	B	78.72 +.3/-0 WAS 78.7	6/25/2012	BK
	C	UPDATE TO SHOW SIDE PLATE CHANGES	10/12/2012	BK



SCALE 1.000



SECTION A-A
SCALE 1.000



NOTES:

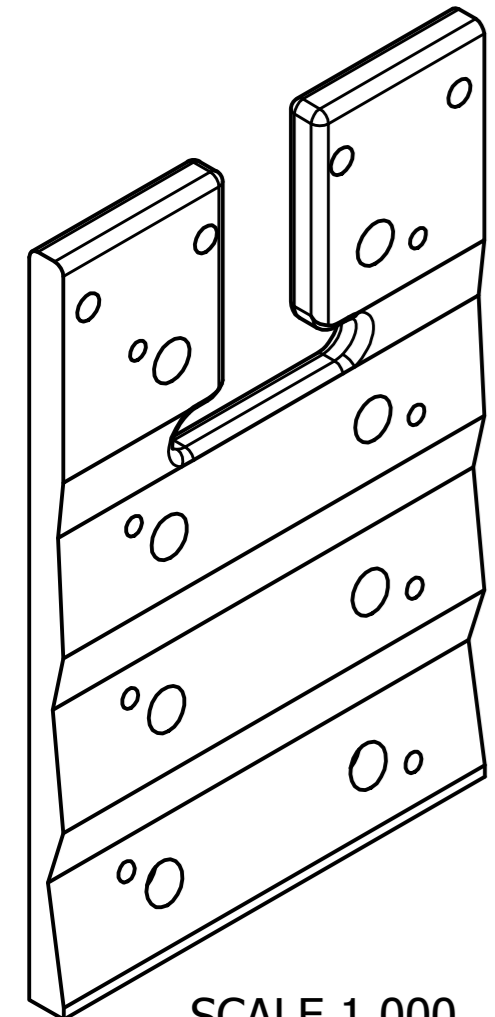
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. WELDMENT TOLERANCE $\pm 0.5\text{mm}$, UNLESS OTHERWISE NOTED.
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER WELDING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
6. INSTALL DOWEL PINS AFTER NICKEL PLATE.

ITEM	QTY	PART NUMBER	DESCRIPTION
6	2	5000933	M2 X 10 LG. DOWEL PIN
5	8	5000384	M3 X 8 LG. DOWEL PIN
4	1	472-3624	UPPER THORACIC SPINE FRONT PLATE
3	1	472-3622	UPPER THORACIC SPINE SIDE PLATE, LEFT
2	1	472-3621	UPPER THORACIC SPINE SIDE PLATE, RIGHT
1	1	472-3623	UPPER THORACIC SPINE BACK PLATE

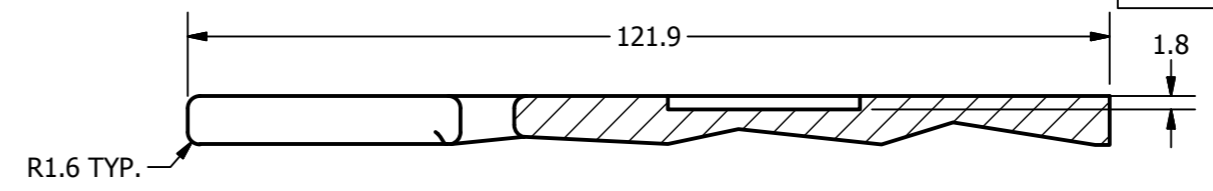
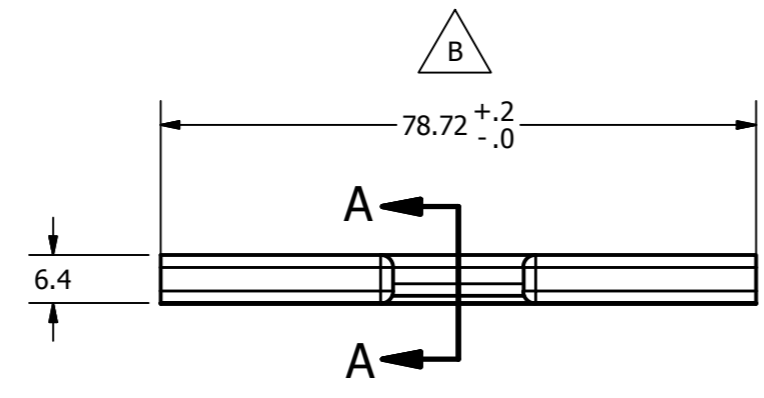
PARTS LIST
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UPPER THORACIC SPINEBOX WELDMENT
472-3600	1	DATE	9/28/2011	
NEXT ASSEMBLY	QTY	PREPARED BY	B. KIMES	
TOTAL QTY IN DUMMY	1	DATE	1/16/2012	A21 OF 1 SCALE 1.000 472-3620

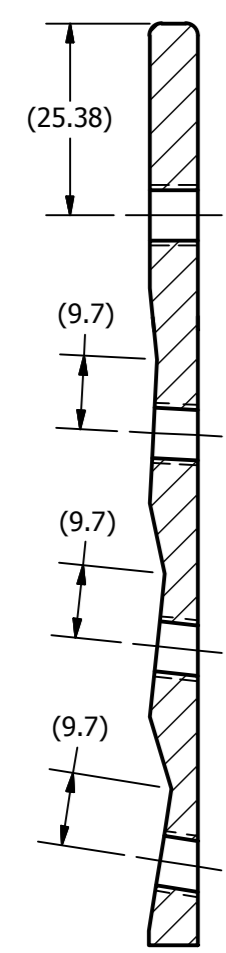
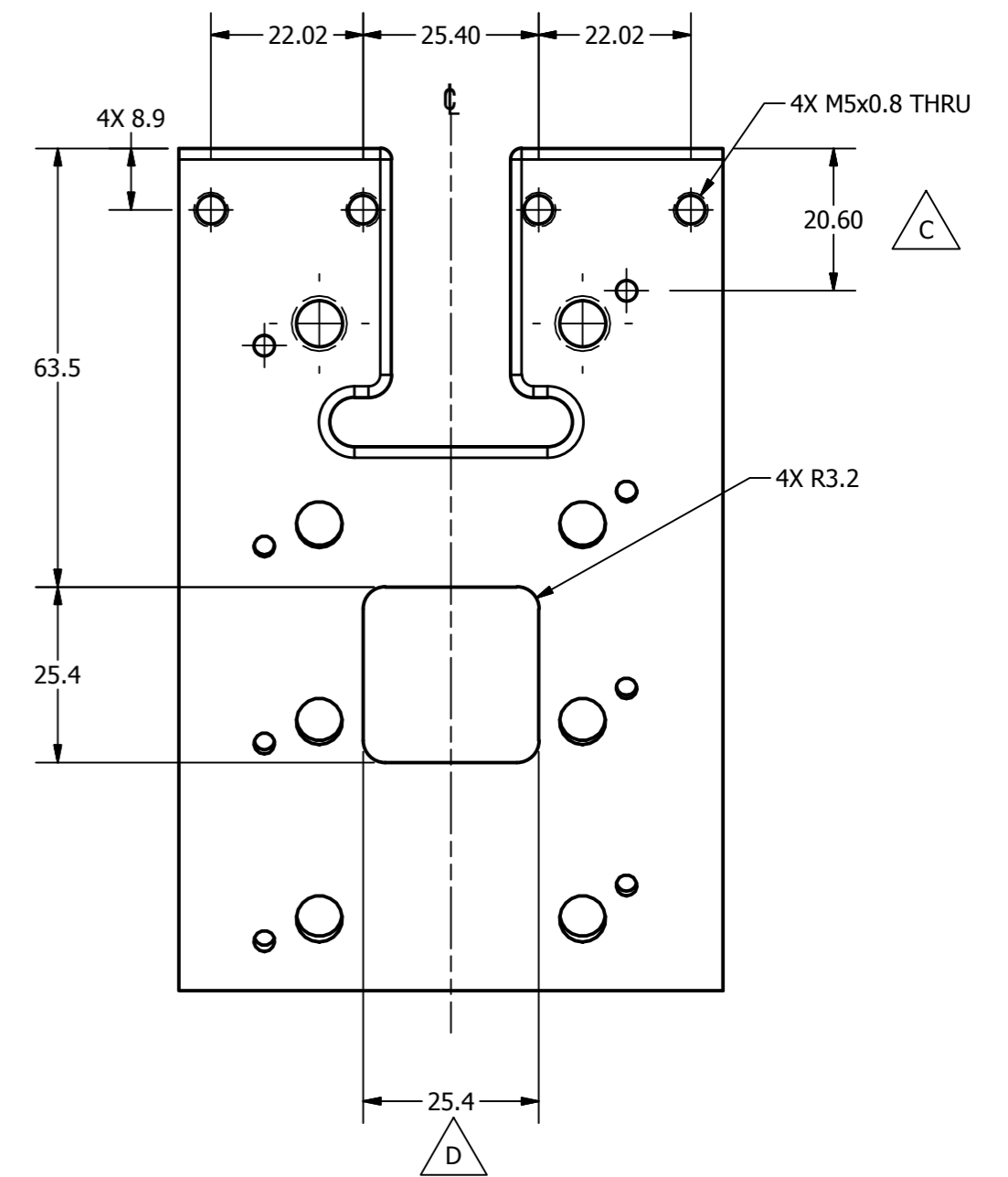
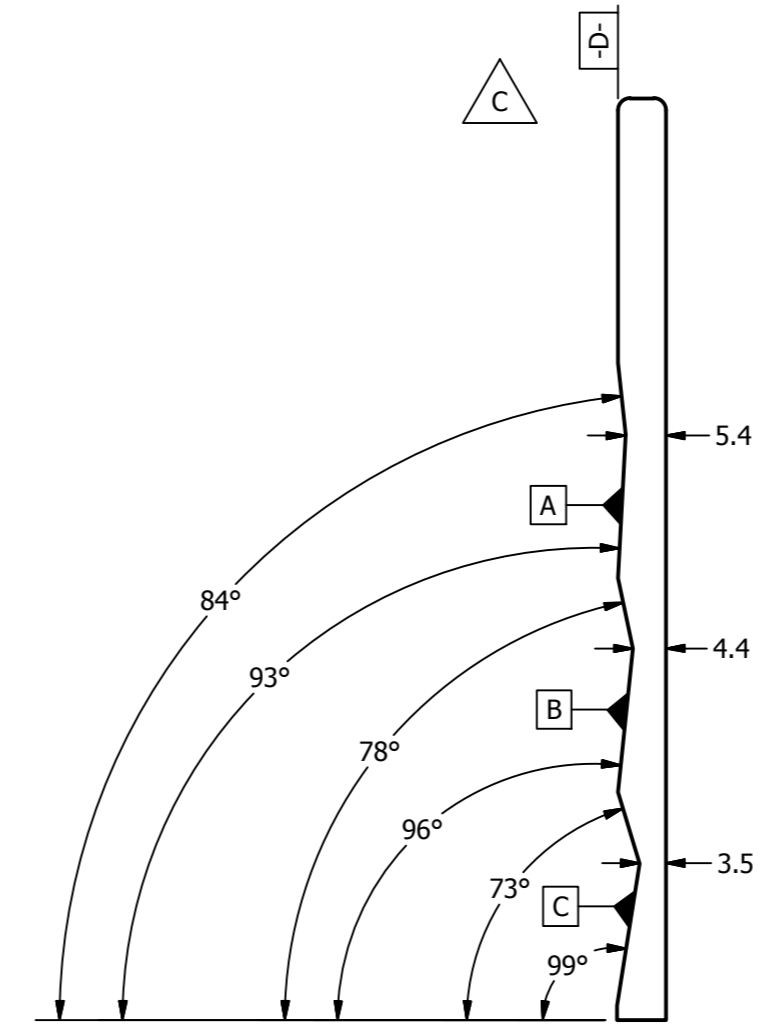
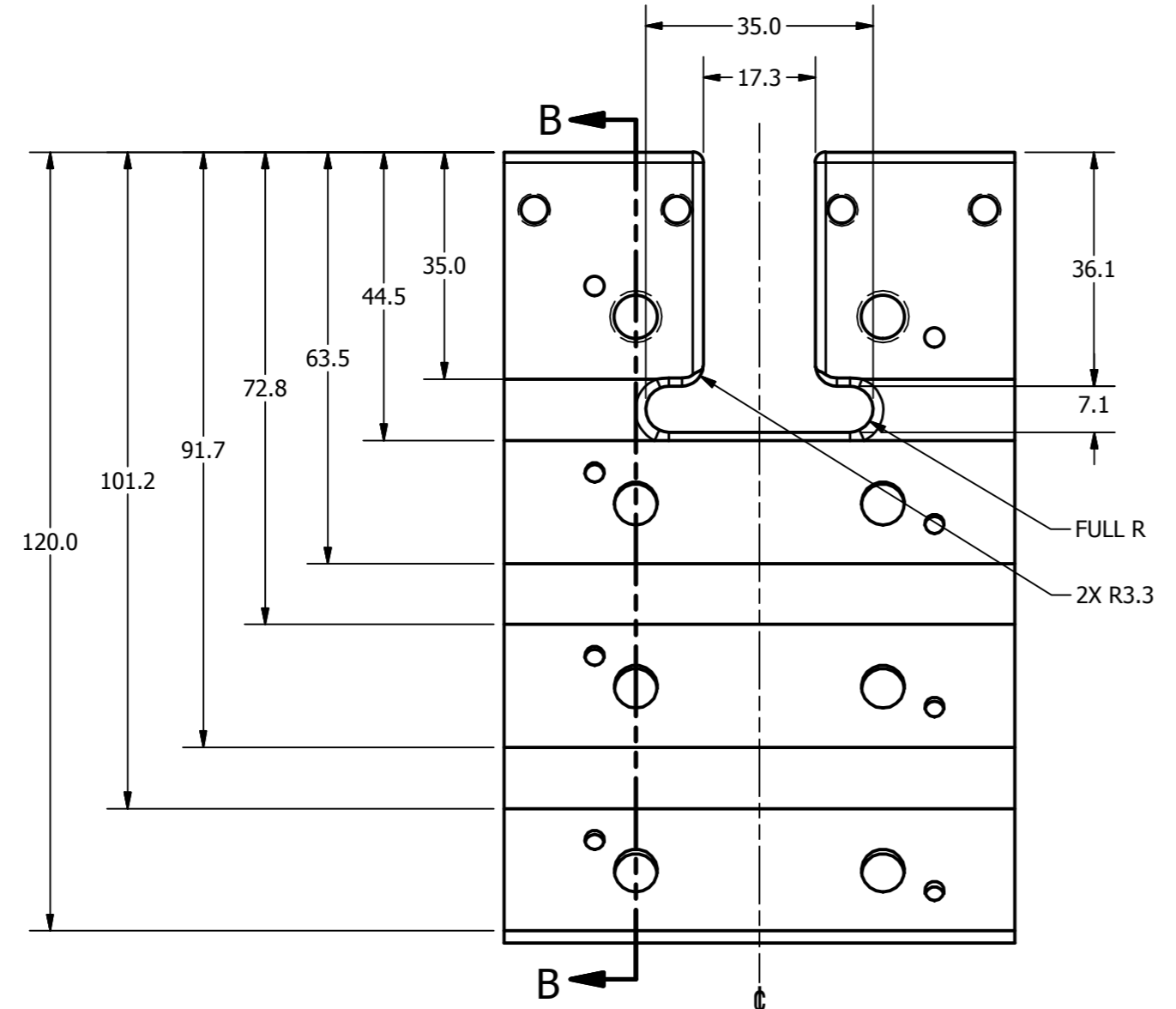
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM123 R8 AND CONVERTED TO METRIC FOR THOR-M	9/27/2011	BK
	B	78.72+/-2/-0 WAS 78.7	6/25/2012	BK
	C	ADD DATUMS D, E, BASIC DIMENSIONS, AND POSITIONAL TOLERANCING; DIMENSION HOLES FROM DATUM E; 38.10, [52.40] WAS (38.10), (52.40); ADD 20.62, NOTE TO DOWEL HOLE	10/1/2012	BK
	D	ADDED DIMENSION 25.4	5/27/2014	DW



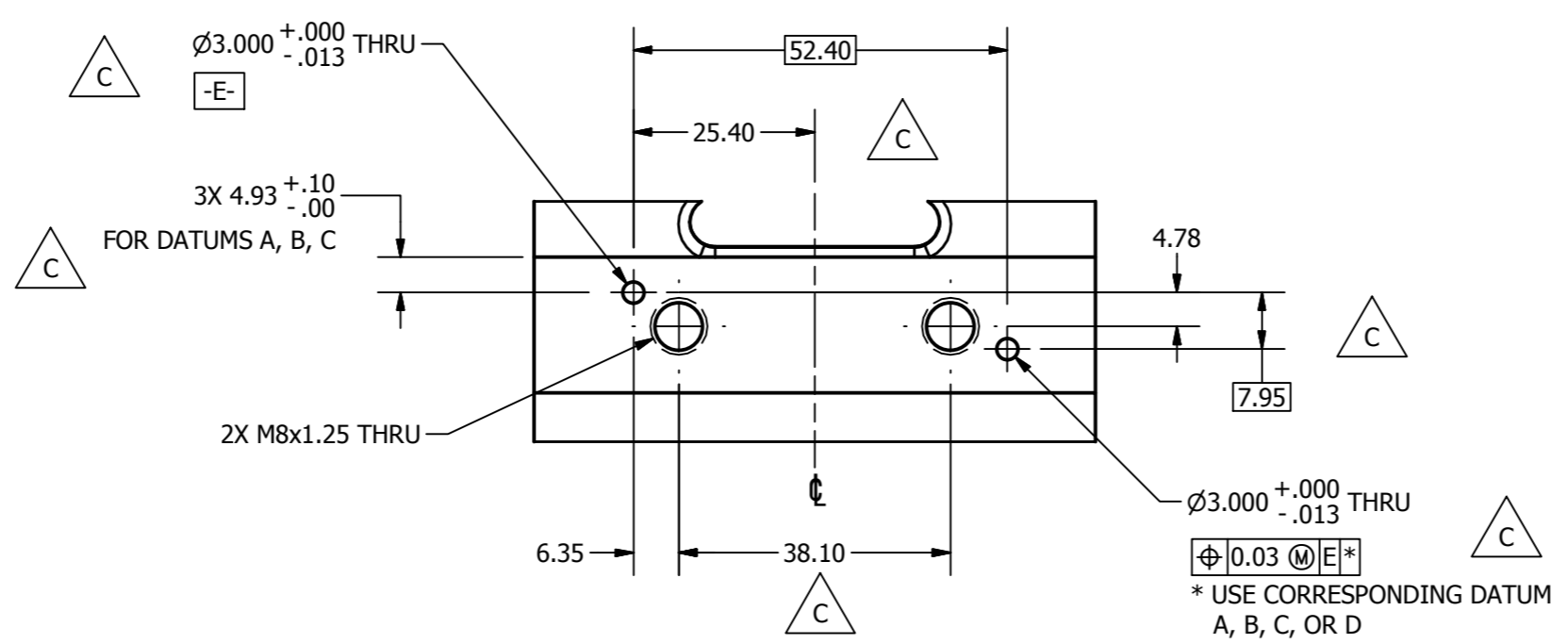
SCALE 1.000



SECTION A-A
SCALE 1.000



SECTION B-B
SCALE 1.000

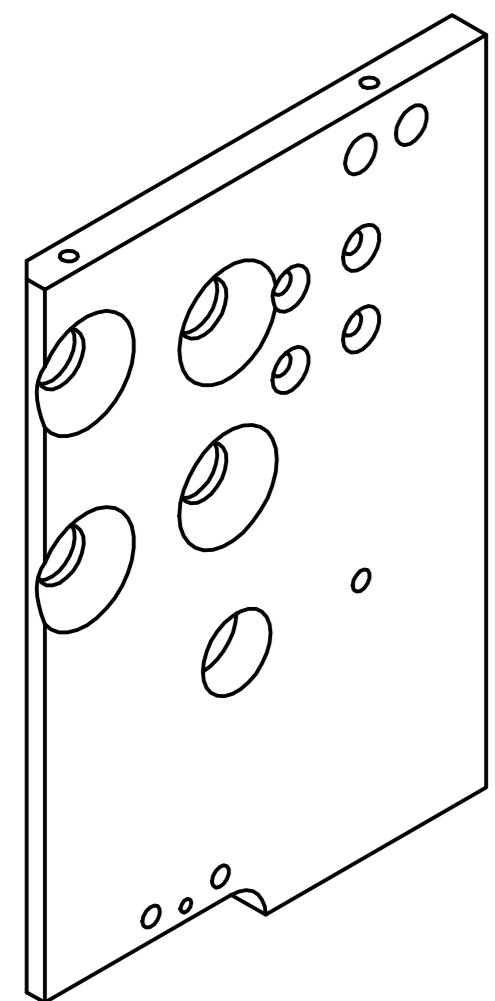


VIEW PERPENDICULAR TO
DATUMS A, B, & C
HOLE PATTERNS TYP. 3 PLACES
SCALE 1.000

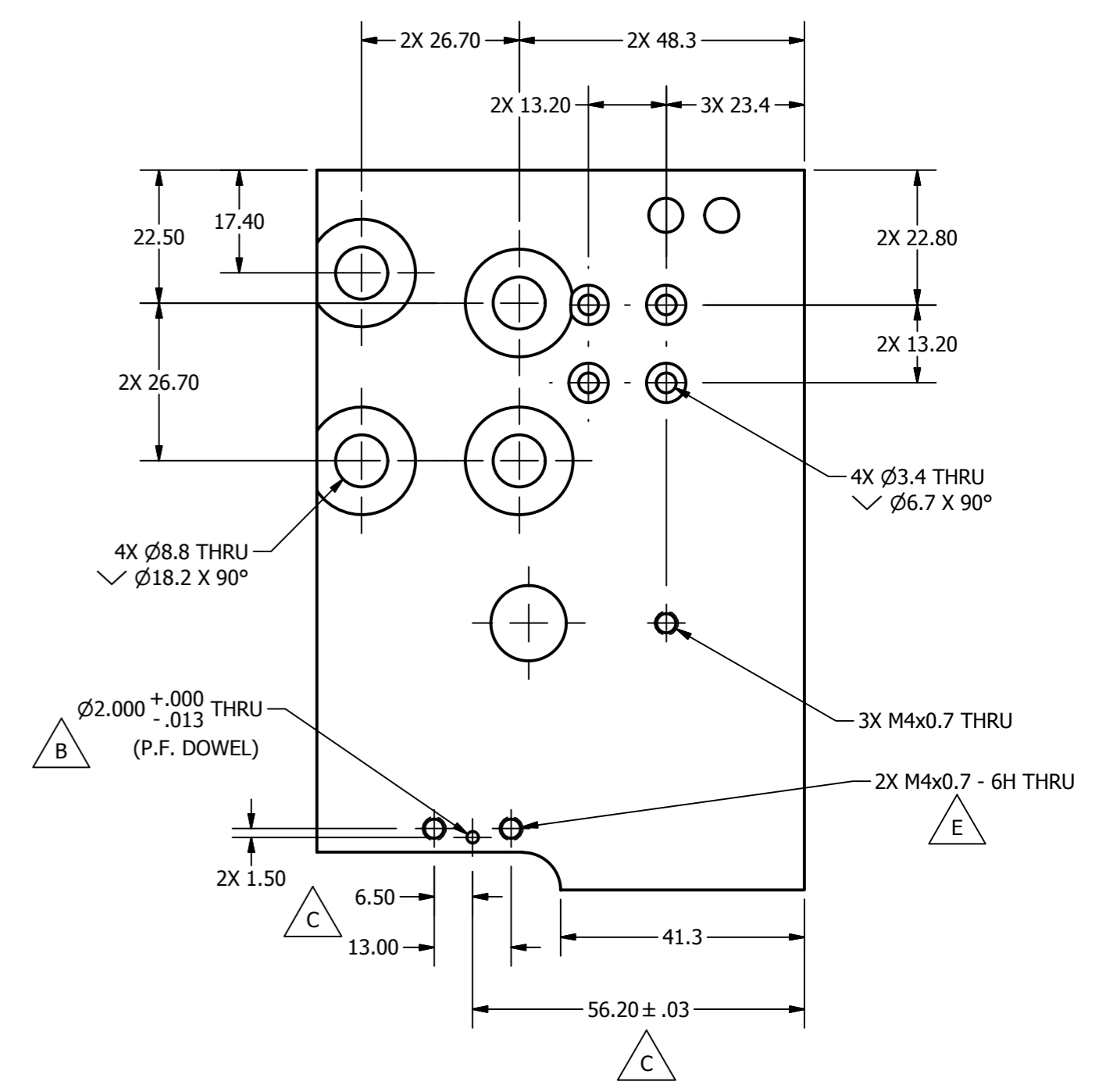
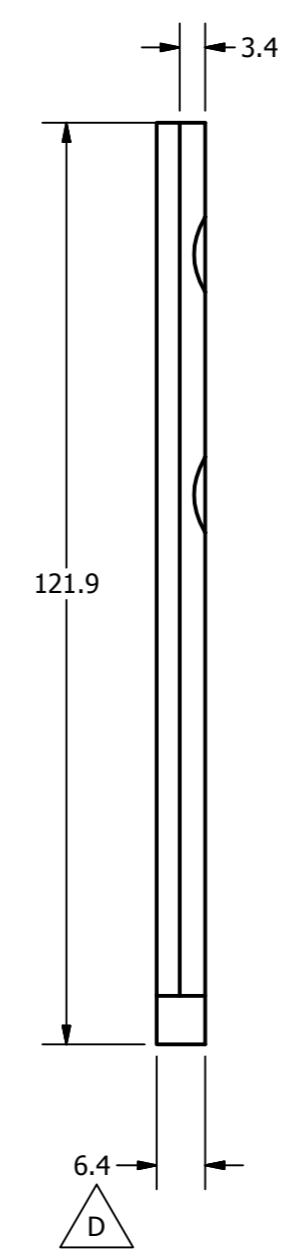
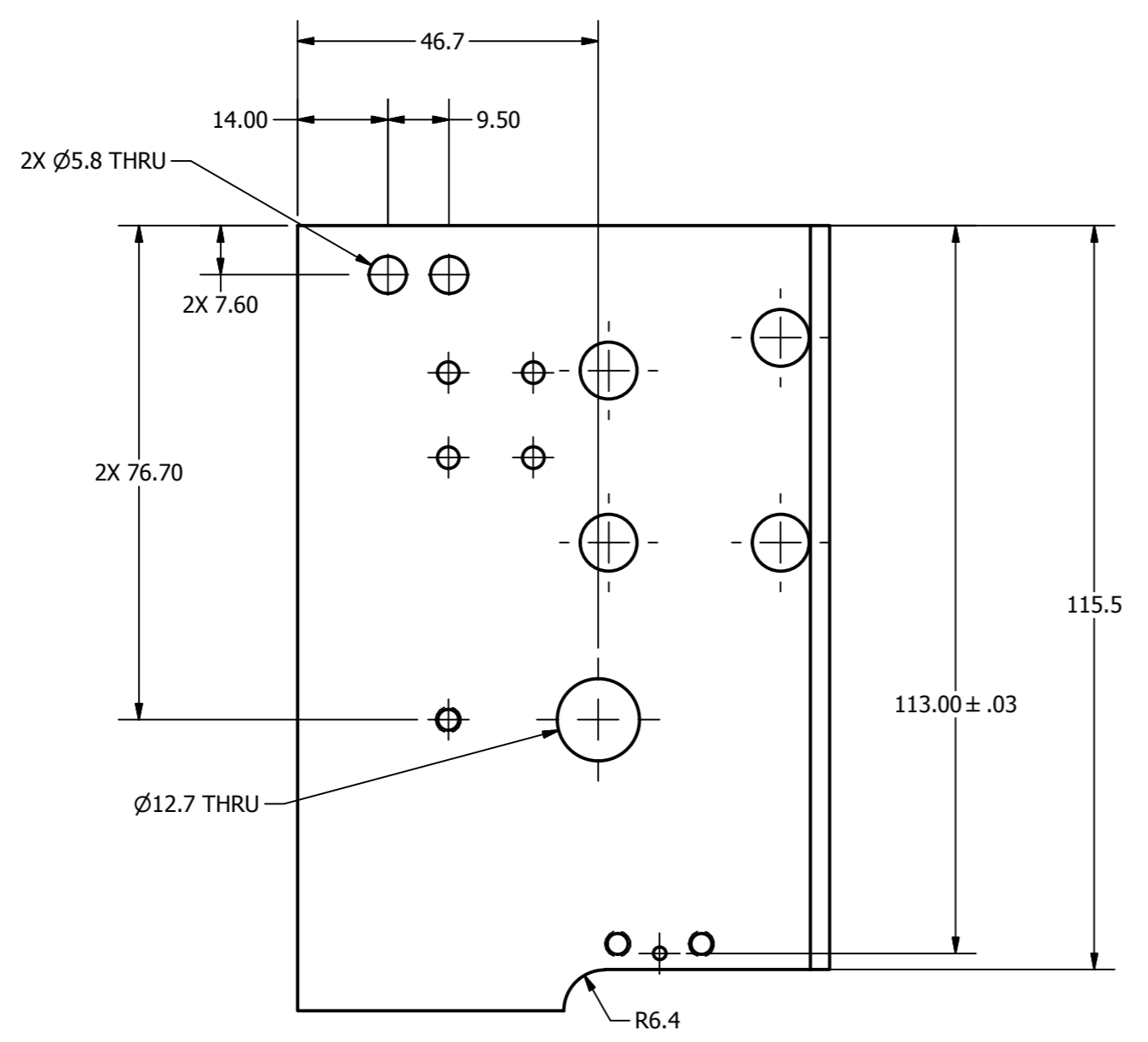
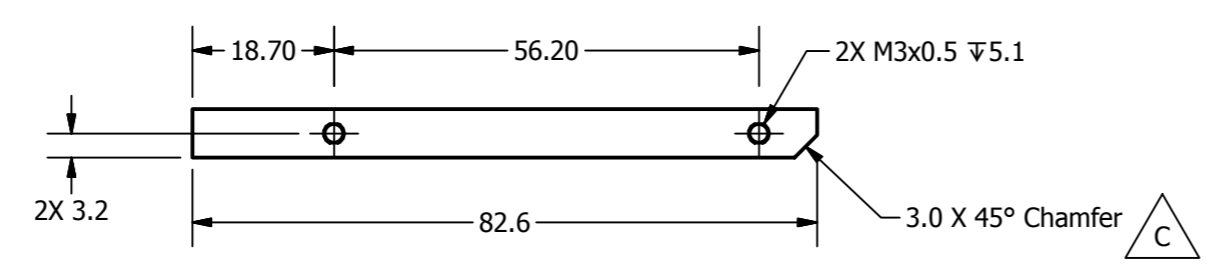
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3620	MATERIAL:	1018 STEEL	DESCRIPTION: UPPER THORACIC SPINE BACK PLATE
DATE:	9/27/2011	DESIGNED BY:	B. KIMES	
QTY:	1	CHECKED BY:	J. WANG	DATE:
DATE:	1/16/2012	SCALE:	1.000	DRAWING NO.:
TOTAL QTY IN DUMMY:	1	FINISH:		472-3623

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM121 R5 AND CONVERTED TO METRIC FOR THOR-M	9/27/2011	BK
	B	CORRECT TYPO, -.013 WAS +.013	5/15/2012	BK
	C	ADD CHAMFER; MOVE HOLE PATTERN, 56.20 WAS 63.30; REMOVE 2X 111.5; ADD 2X 1.50	10/11/2012	BK
	D	ADDED DIMENSION 6.4	5/27/2014	DW
	E	ADDED HOLE NOTE 2X M4x0.7 6H THRU	3/7/2016	DW

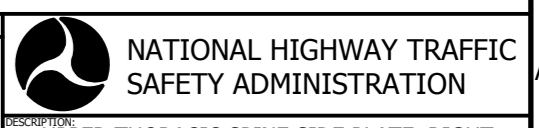


SCALE 1.000



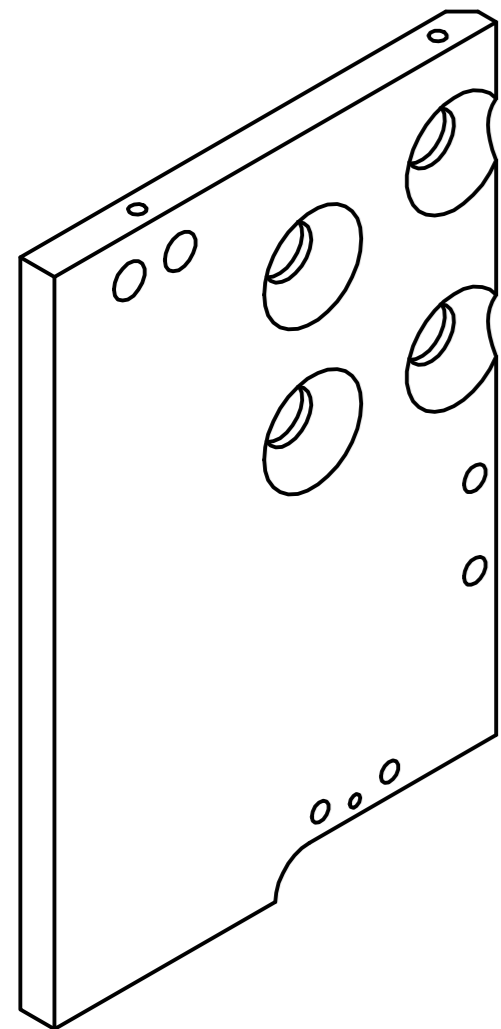
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES	
(UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN MILLIMETERS	
DECIMALS	ANGLES FINISH
X ± 0.5 ± 0.5 1.6	
X.X ± 0.2	
X.XX ± 0.1	
X.XXX ± 0.01	

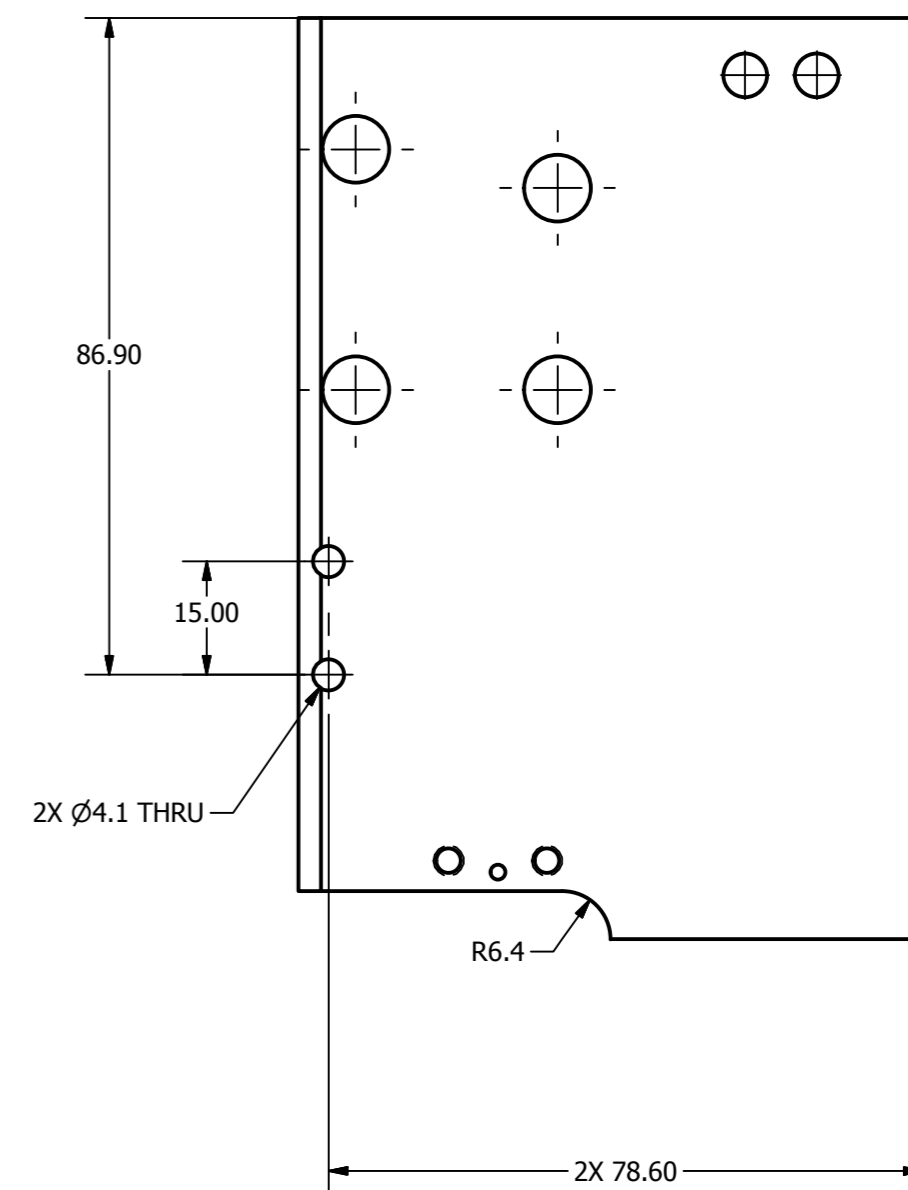
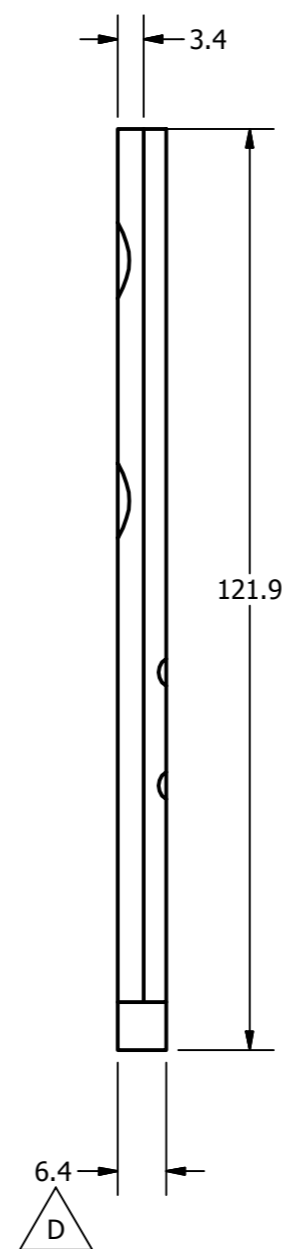
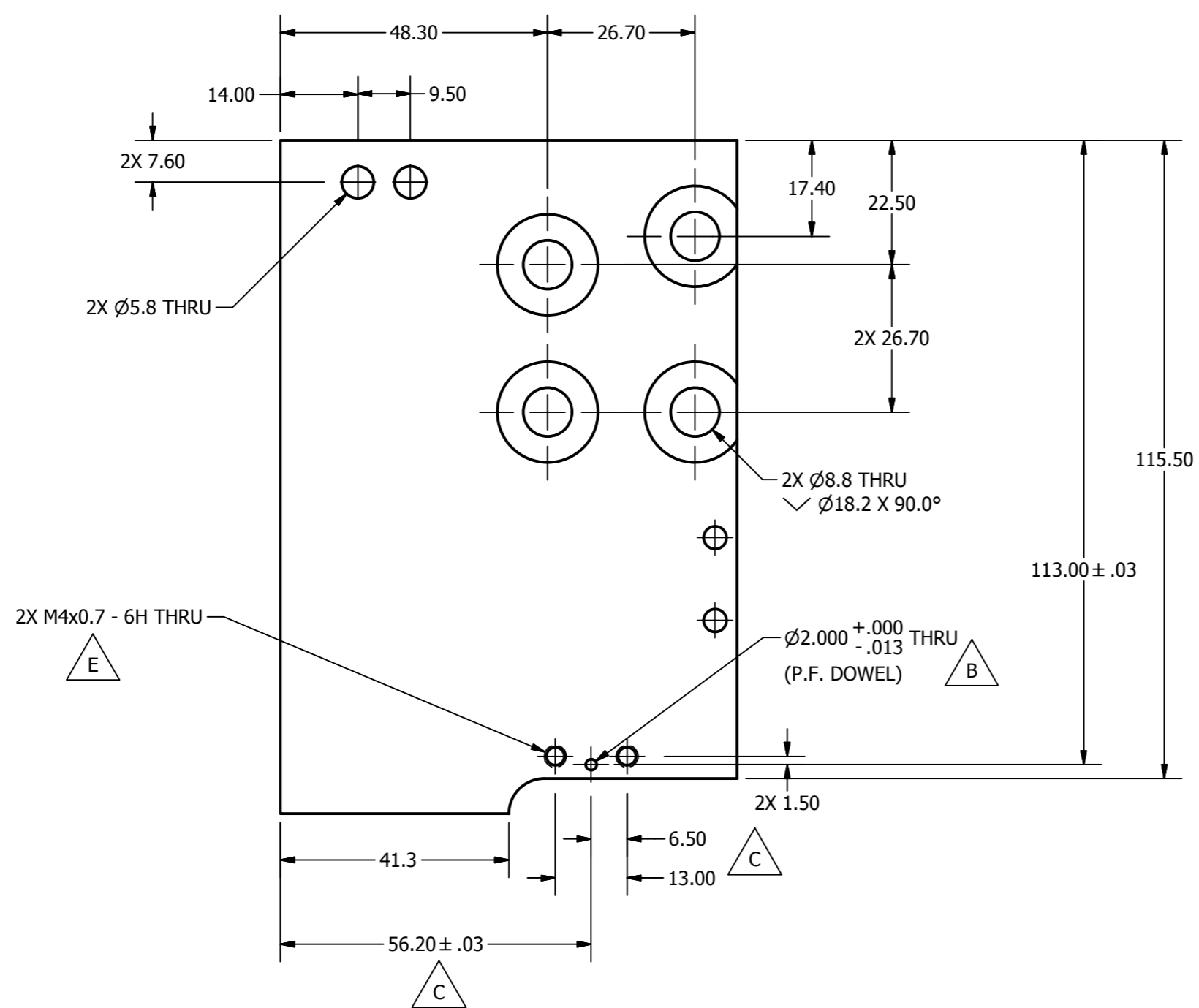
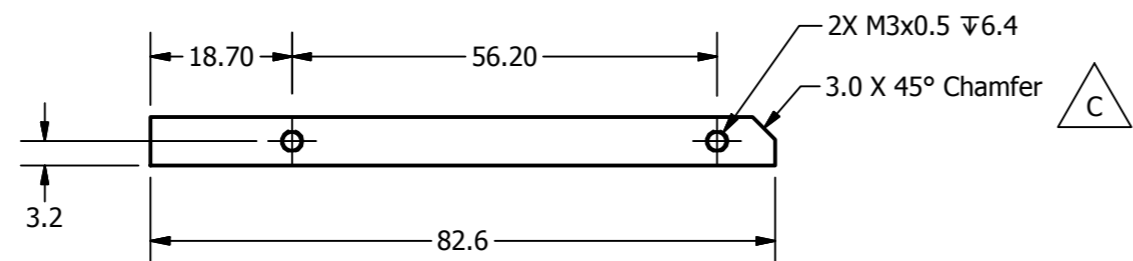


PROJECT NO:	472-3620	DATE:	9/27/2011	DESCRIPTION:	UPPER THORACIC SPINE SIDE PLATE, RIGHT
WORKSHEET:	1018 STEEL	DESIGNED BY:	B. KIMES	SCALE:	A2 1 OF 1
HEAT TREAT:		CHECKED BY:	J. WANG	DRAWING NO.:	472-3621
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE:	1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM122 R2 AND CONVERTED TO METRIC FOR THOR-M	9/27/2011	BK
	B	CORRECT TYPO, -.013 WAS +.013	5/15/2012	BK
	C	ADD CHAMFER; MOVE HOLE PATTERN, 56.20 WAS 63.30; REMOVE 2X 111.5; ADD 2X 1.50	10/12/2012	BK
	D	ADDED DIMENSION 6.4	5/27/2014	DW
	E	ADDED HOLE NOTE 2X M4x0.7 - 6H THRU	3/7/2016	DW

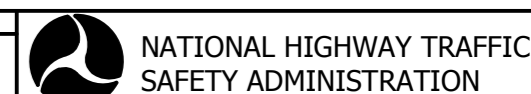


SCALE 1.000



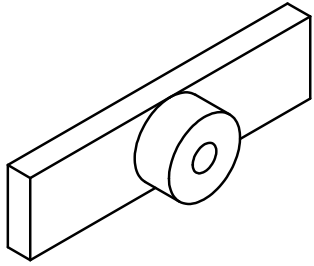
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
(UNLESS OTHERWISE SPECIFIED)
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
XX ± 0.2 ± 0.2 1.6
XXX ± 0.1 ± 0.1 1.6
XXXX ± 0.0 ± 0.0 1.6

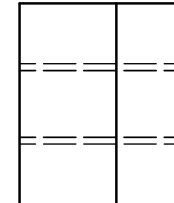
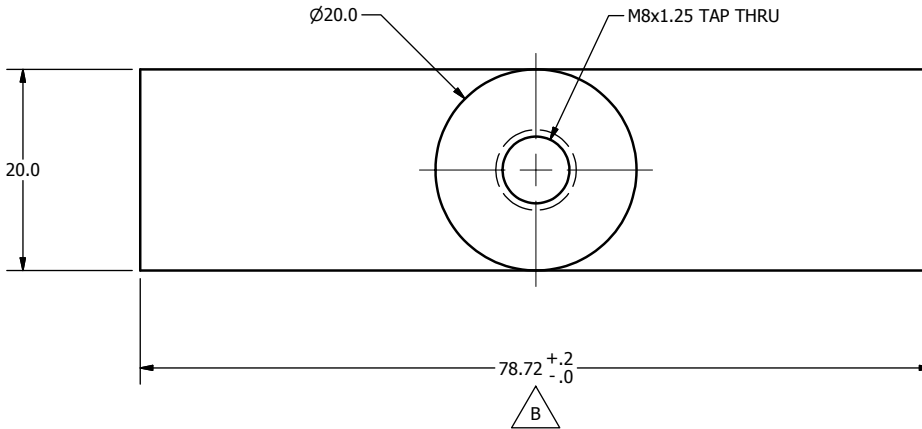
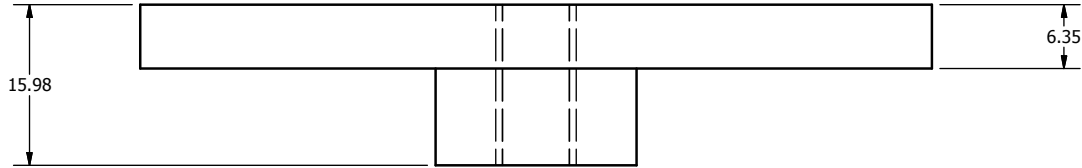


PROJECT NO: THOR-M	DATE: 9/27/2011	DESIGNER: B. KIMES	SCALE: A21 OF 1
PART NO: 472-3620	QTY: 1	FINISH: 1018 STEEL	HEAT TREAT: DATE:
DESCRIPTION: UPPER THORACIC SPINE SIDE PLATE, LEFT	ENGINEER: J. WANG	DATE: 1/16/2012	DRAWING NO: 472-3622
TOTAL QTY IN DUMMY:	1	FINISH:	SCALE:

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	9/23/2011	DW
	B	78.72+.2/-0 WAS 78.74	6/25/2012	BK



SCALE 1.000

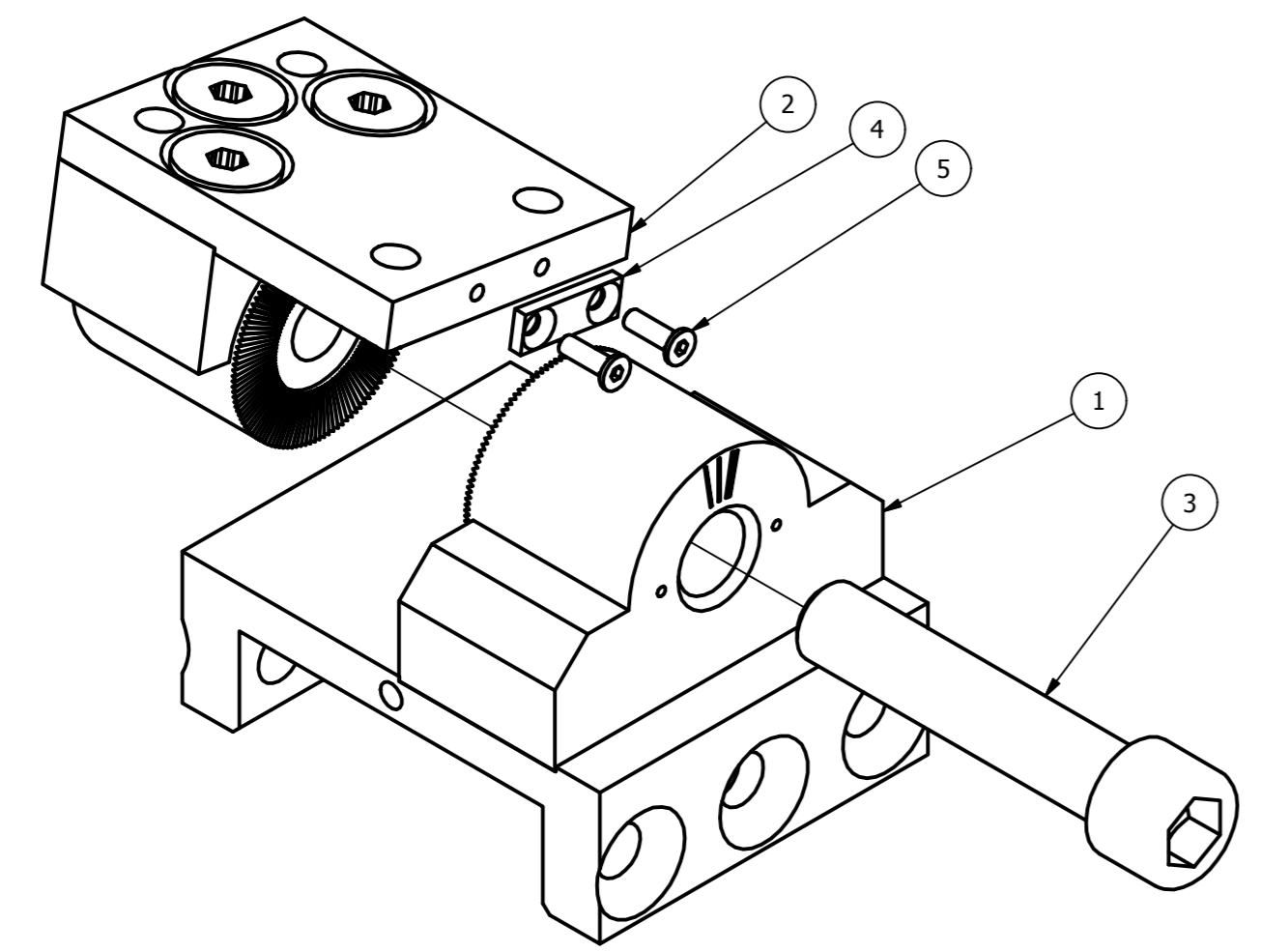


NOTES:

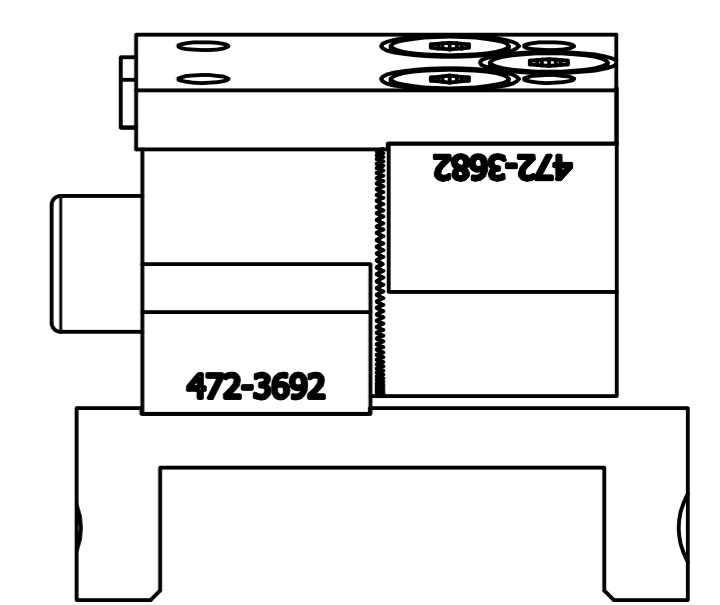
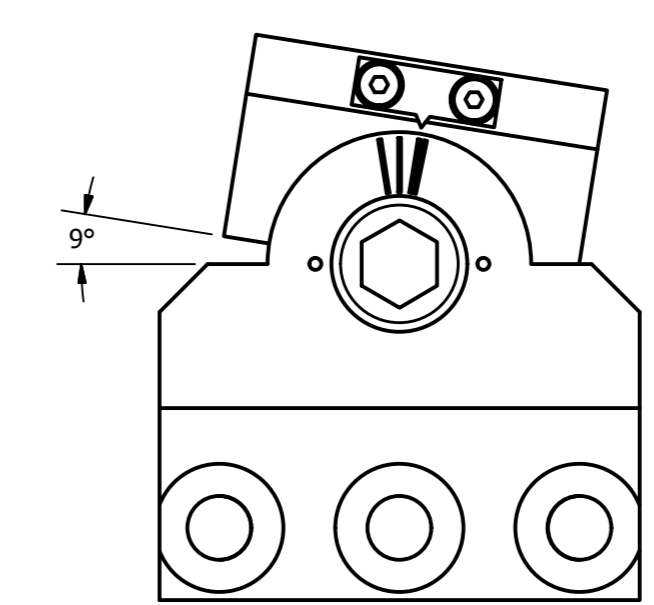
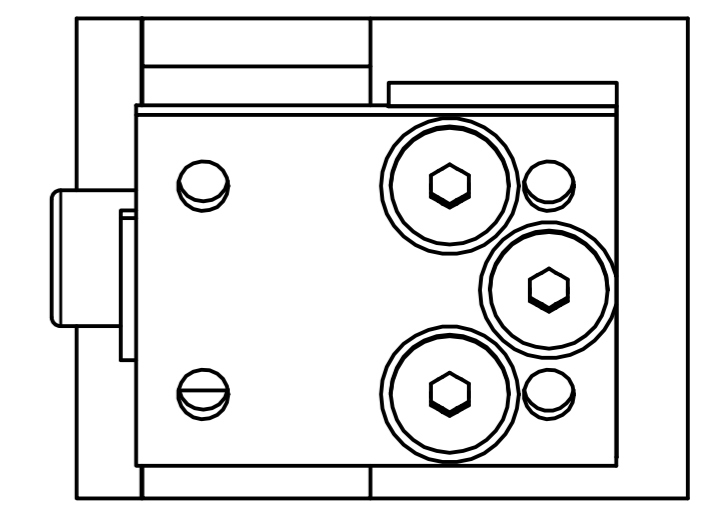
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 1.6 XX 0.2 XXX 0.3 XXXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3620	MATERIAL:	1018 STEEL	DESCRIPTION: UPPER THORACIC SPINE FRONT PLATE
DESIGNED BY:	dwashenko	HEAT TREAT:		
CHECKED BY:		DATE:	9/23/2011	SIZE: A3
ENGINEER:	D. WASHENKO	DATE:	1/16/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 2.000
				DRAWING NO.: 472-3624
				REV: B

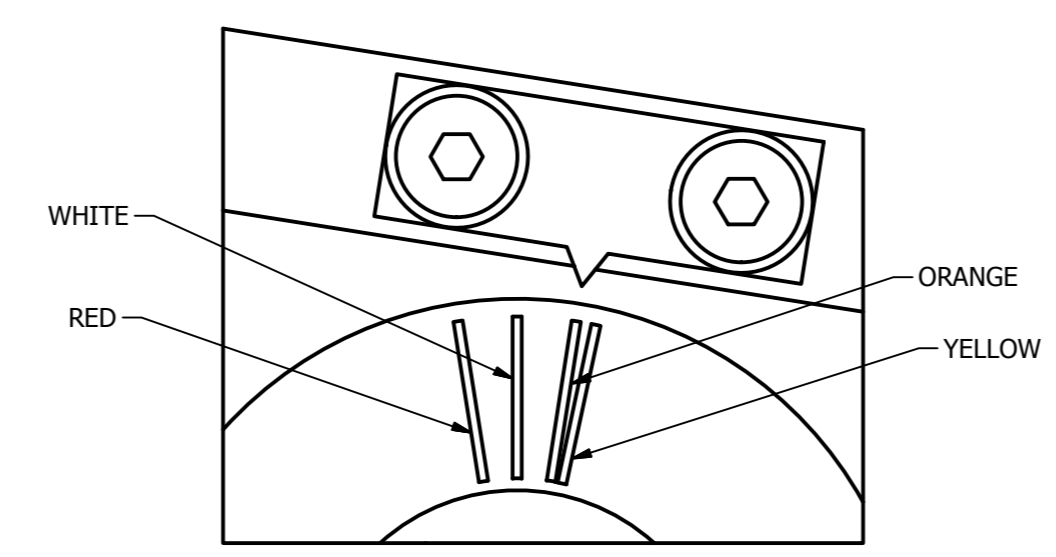
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM500 R04 AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	BK
	B	PART #5000203 SCREW, FHCS M3-0.5 x 10 WAS 5001074 M3 X 0.5 X 10 LG. BHCS; REVISED PART 3 472-3713 LUMBAR SPINE PITCH CHANGE INDICATOR	8/25/2015	DW



SCALE 1.000



POSTURE CHART		
POSTURE	COLOR	ANGLE
ERECT	RED	-9°
NEUTRAL	WHITE	0°
SLOUCHED	ORANGE	9°
SUPER SLOUCHED	YELLOW	12°



POSTURE SETTINGS
SCALE 3.000

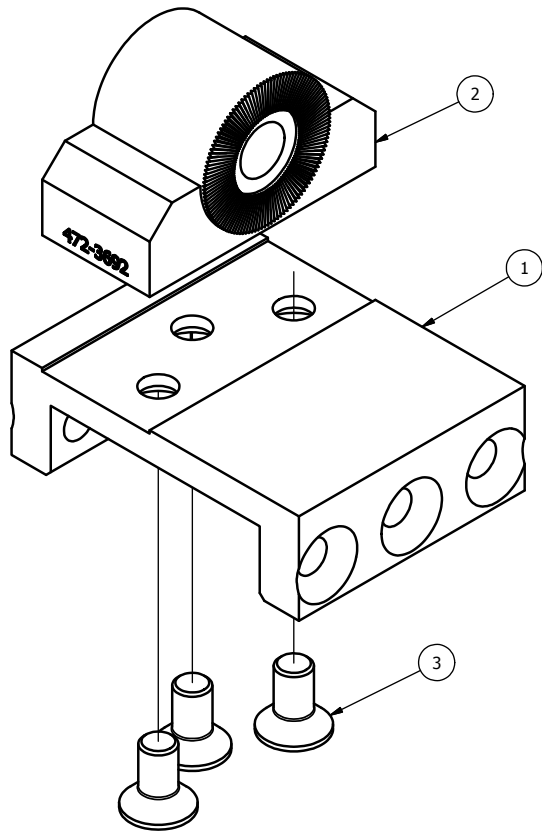
- NOTES:
- USE LOCTITE ANTISEIZE LUBRICANT OR EQUIVALENT ON THE M12 X 16 S.H.C.S. PRIOR TO INSERTION. TORQUE BOLT TO 50 FT-LB TO TIGHTEN PITCH CHANGE MECHANISM.
 - TO ADJUST THE SPINE POSTURE, LOOSEN THE M8 S.H.C.S. AND ROTATE THE UPPER HALF OF THE SPINE WITH RESPECT TO THE LOWER HALF. ALIGN THE INDICATOR WITH THE PROPER COLOR OF THE POSTURE DESIRED. REFERENCE THE COLOR CHART FOR POSTURE SETTINGS.

ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000203	SCREW, FHCS M3-0.5 x 10
4	1	472-3713	LUMBAR SPINE PITCH CHANGE INDICATOR
3	1	5000442	M12 X 1.75 X 60 LG. SHCS
2	1	472-3680	LUMBAR SPINE PITCH CHANGE UPPER HALF ASSEMBLY
1	1	472-3690	LUMBAR SPINE PITCH CHANGE LOWER HALF ASSEMBLY

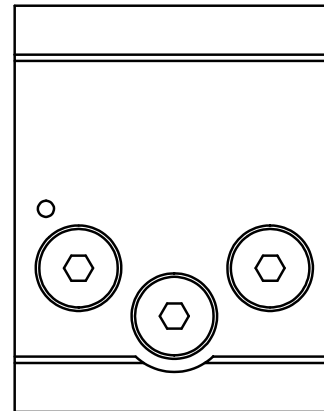
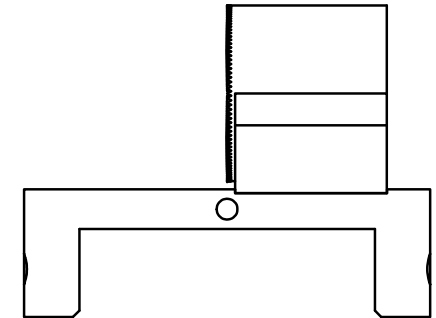
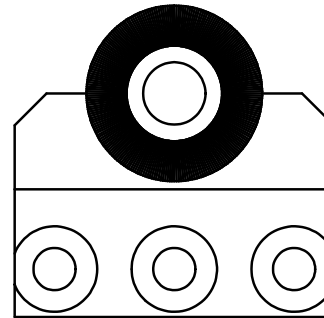
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH	
		X ±0.5 1.0 1.5 XX ±0.2 XXX ±0.1 XXXX ±0.05	
PROJECT NO.: THOR-M		DATE: 9/23/2011	
DRAWN BY: B. KIMES		CHECKED BY: J. WANG	
MATERIAL:		DATE: 1/12/2012	
HEAT TREAT:		SIZE: A2	
FINISH:		SHEET: 1 OF 1	
TOTAL QTY IN DUMMY: 1		SCALE: 2.000	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		DRAWING NO.: 472-3670	
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM520 R04 AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	BK



SCALE 1.000

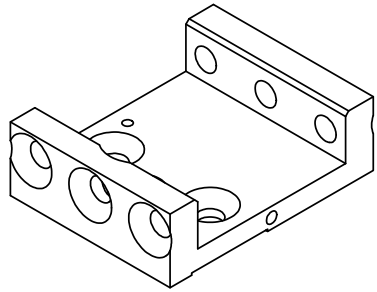


ITEM	QTY	PART NUMBER	DESCRIPTION
3	3	5001091	M8 X 1.25 X 16 LG. FHCS
2	1	472-3692	LUMBAR SPINE PITCH CHANGE STAR WHEEL, RIGHT SIDE
1	1	472-3691	LUMBAR SPINE PITCH CHANGE BOTTOM PLATE

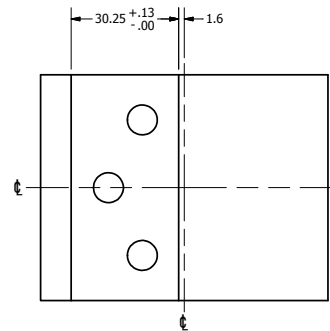
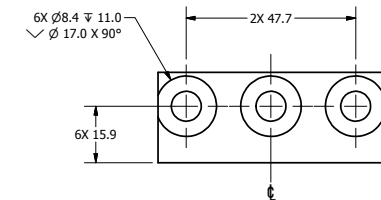
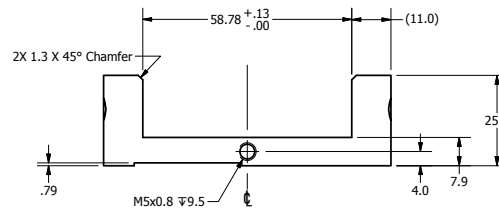
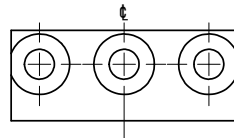
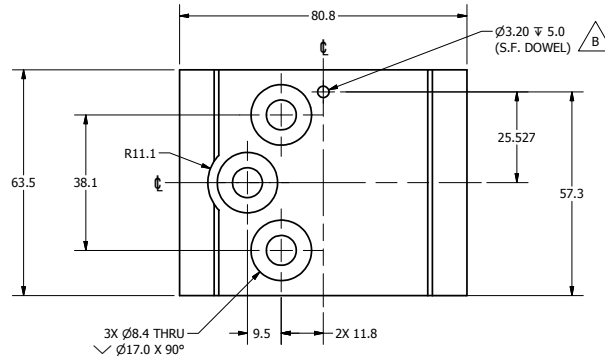
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .05 1.6	
		X.X ±0.2	
		X.XX ±0.3	
		X.XXX ±0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:		DATE:	
MATERIAL:		DRAWN BY:	
473-3670		B. KIMES	
NEXT ASSEMBLY		DATE:	
TOTAL QTY IN DUMMY		1	
FINISH:		ENGINEER:	
		J. WANG	
		DATE:	
		1/16/2012	
		SCALE:	
		1.000	
		SIZE: SHEET	
		A3 1 OF 1	
		DRAWING NO:	
		472-3690	
		REV:	
		A	

NOTES:

1. ASSEMBLE SCREWS USING LOCTITE 271 THREADLOCKER OR EQUIVALENT.



SCALE 1.000

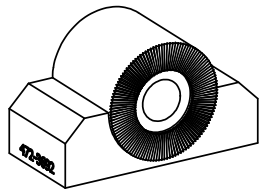


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. POWDER OR BEAD BLAST.
 3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

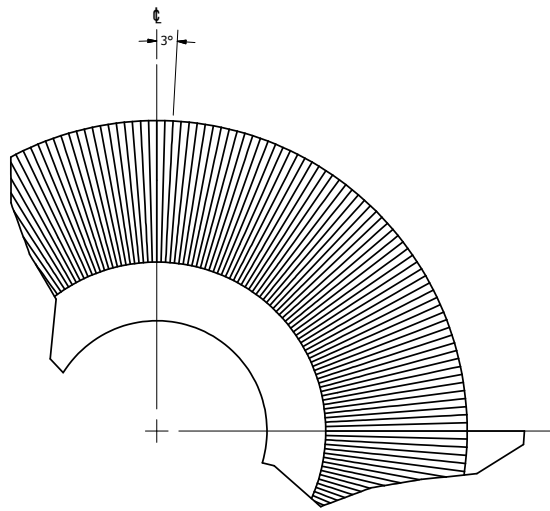
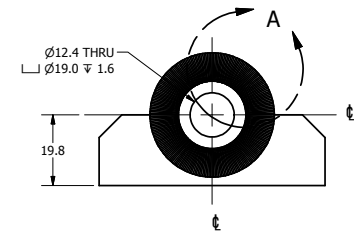
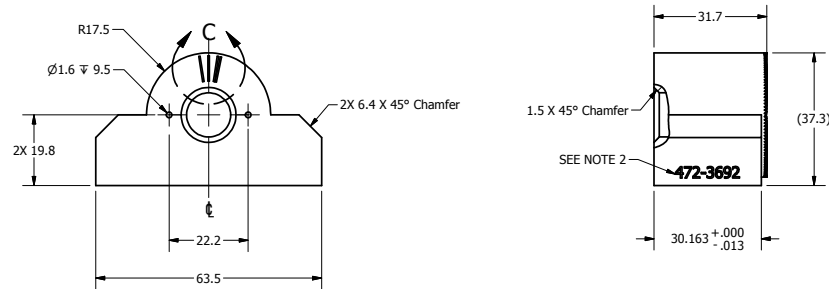
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM521 R06 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK
	B	ADD DOWEL LOCATION HOLE	12/19/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DIMENSIONS SHOWN IN MILLIMETERS DIMENSIONS IN PARENTHESES SHOWN IN INCHES UNLESS OTHERWISE SPECIFIED		DECIMALS FRACTIONS ANGLES HOLE SIZES THREADS SHOW HIDDEN & BREAK SHARP EDGES		
472-3690	1	1018 STEEL	B. KIMES	9/22/2011
NEXT ASSEMBLY	QTY	BY	DATE	REV
TOTAL QTY IN DUMMY	1	SEE NOTES	J. WANG	1/16/2012
LUMBAR SPINE PITCH CHANGE BOTTOM PLATE A21 of 1 1.000			472-3691	

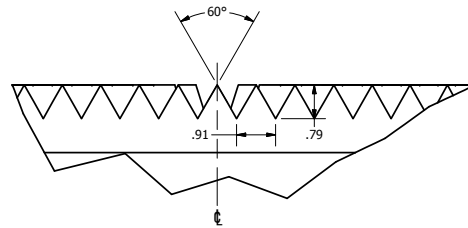
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM523 R0 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK



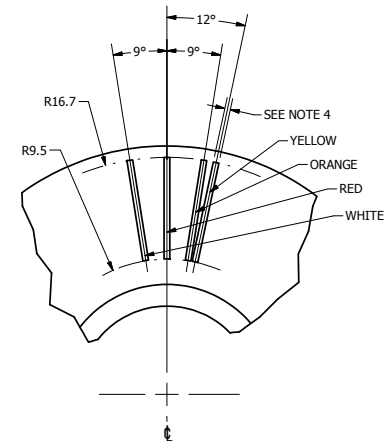
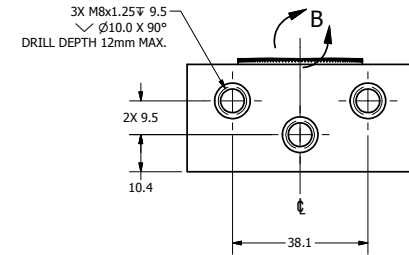
SCALE 1.000



DETAIL A
SCALE 5.000



DETAIL B
TOOTH PATTERN
SCALE 12.000



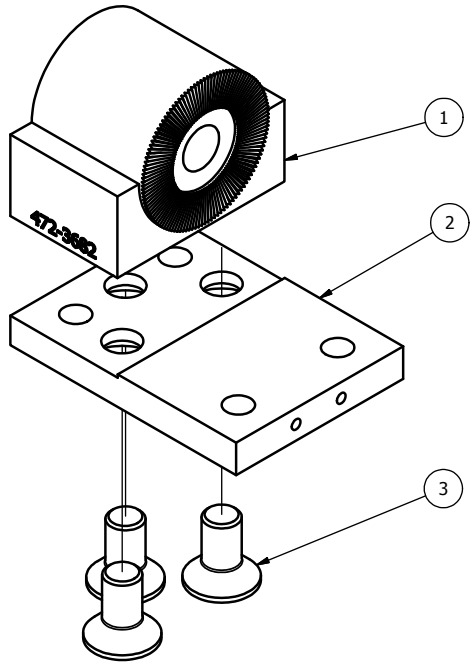
DETAIL C
SCALE 4.000

NOTES:

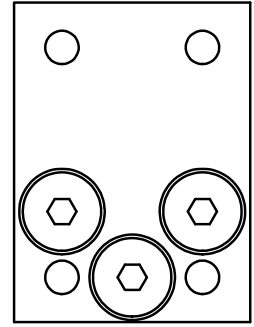
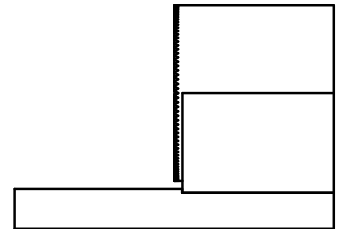
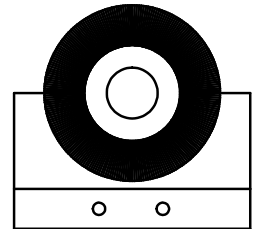
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PAT NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. FIRST CUT OF STAR PATTERN OFFSET 1.5° FROM VERTICLE, TOTAL OF 120 RADIAL LINES ARE REQUIRED.
4. ENGRAVE LINES WITH MAXIMUM THICKNES OF 0.5mm, PAINT IN LINE AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS FRACTIONS .X .XX .XXX 1/16" 1/8" 1/4" 3/8" 1/2" 3/4" 1"		SHOW DIMENSIONS & SURFACE FINISH SYMBOLS FINISH: B. KIMES DATE: 9/22/2011		
472-3690	1	Stainless Steel, 440C	REVISIONS:	LUMBAR SPINE PITCH CHANGE STAR WHEEL, RIGHT SIDE SHEET NO. 1 OF 1 SCALE: 1.000
NEXT ASSEMBLY	QTY	Rc: 56-60	DESIGNED BY:	
TOTAL QTY IN DUMMY	1		DATE: 1/16/2012	
			PREPARED BY: J. WANG	472-3692

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM510 R03 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK



SCALE 1.000



NOTES:
1. ASSEMBLE SCREWS USING LOCTITE 271 THREADLOCKER OR EQUIVALENT.

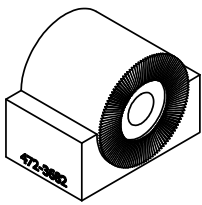
ITEM	QTY	PART NUMBER	DESCRIPTION
3	3	5001091	M8 X 1.25 X 16 LG. FHCS
2	1	472-3681	LUMBAR SPINE PITCH CHANGE TOP PLATE
1	1	472-3682	LUMBAR SPINE PITCH CHANGE STAR WHEEL, LEFT SIDE

PARTS LIST

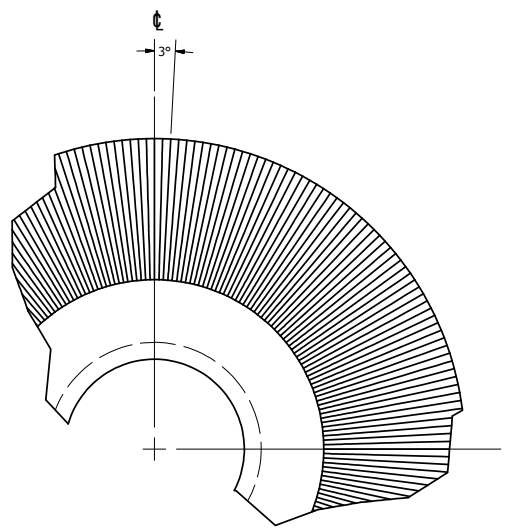
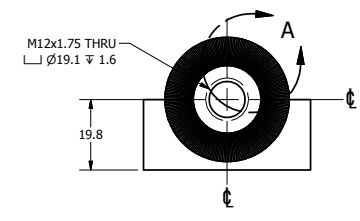
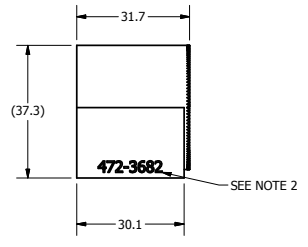
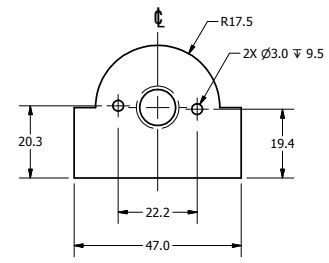
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION									
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 1.6 XX 0.02 XXX 0.03 XXXX 0.01											
PROJECT NO.:	472-3670	DATE:	9/22/2011	DESCRIPTION: LUMBAR SPINE PITCH CHANGE UPPER HALF ASSEMBLY									
MATERIAL:		DESIGNED BY:	B. KIMES										
CHECKED BY:		DATE:											
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/16/2012	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-3680	REV.:	A
TOTAL QTY IN DUMMY	1	FINISH:		SCALE:	1.000								

PROJECT NO.:	472-3670	DATE:	9/22/2011
MATERIAL:		DESIGNED BY:	B. KIMES
CHECKED BY:		DATE:	
HEAT TREAT:		ENGINEER:	J. WANG
TOTAL QTY IN DUMMY	1	FINISH:	

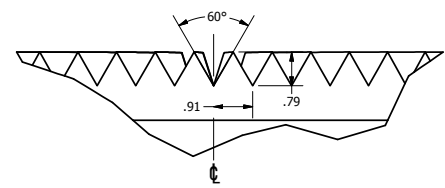
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM523 R0 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK



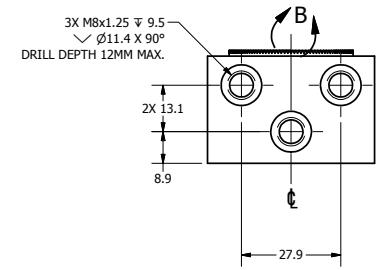
SCALE 1.000



DETAIL A
SCALE 5.000



DETAIL B
TOOTH PATTERN
SCALE 12.000

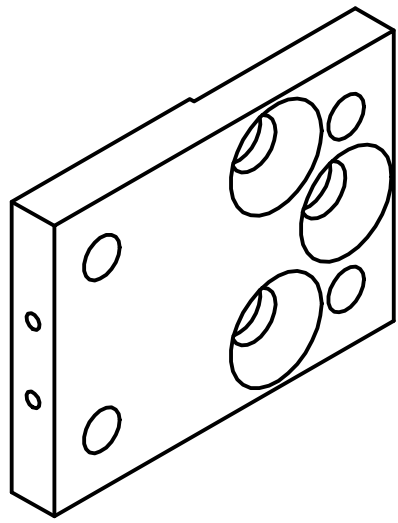


NOTES:

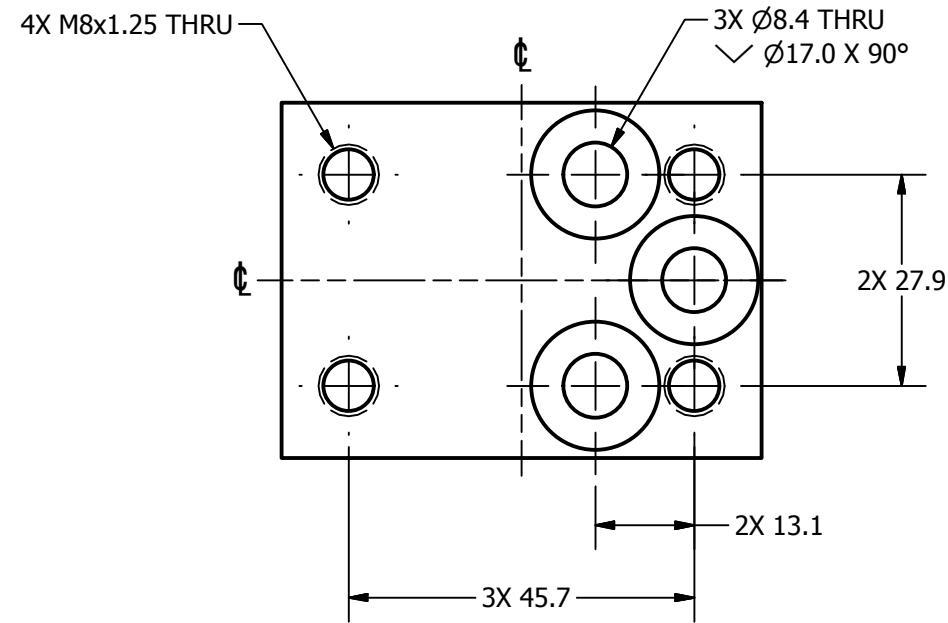
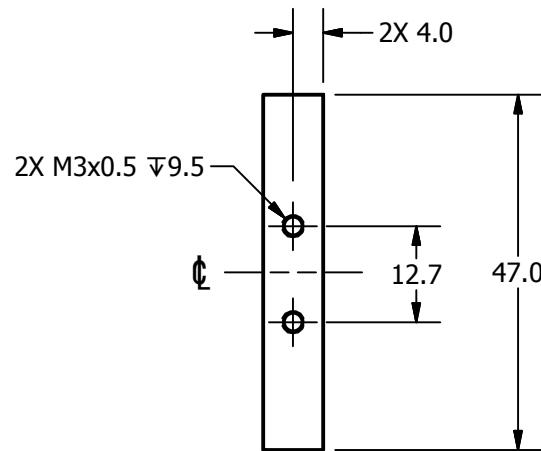
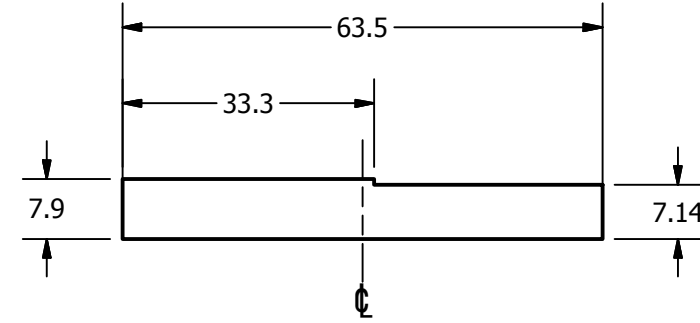
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PAT NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. FIRST CUT OF STAR PATTERN OFFSET 1.5° FROM VERTICLE, TOTAL OF 120 RADIAL LINES ARE REQUIRED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS .1 .001 .001 .001 .2 .002 .002 .002 .3 .003 .003 .003 .4 .004 .004 .004 .5 .005 .005 .005 .6 .006 .006 .006 .7 .007 .007 .007 .8 .008 .008 .008 .9 .009 .009 .009 1.0 .010 .010 .010		SHOW HIDDEN & BREAK SHARP EDGES DESIGNED BY: B. KIMES DATE: 9/22/2011 DRAWN BY: J. WANG DATE: 1/16/2012		
472-3680	1	Stainless Steel, 440C		LUMBAR SPINE PITCH CHANGE STAR WHEEL, LEFT SIDE
NEXT ASSEMBLY	QTY	Rc: 56-60		
TOTAL QTY IN DUMMY	1			
			DATE: 1/16/2012	A21 of 1 SCALE: 1.000
			472-3682	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM511 R05 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK



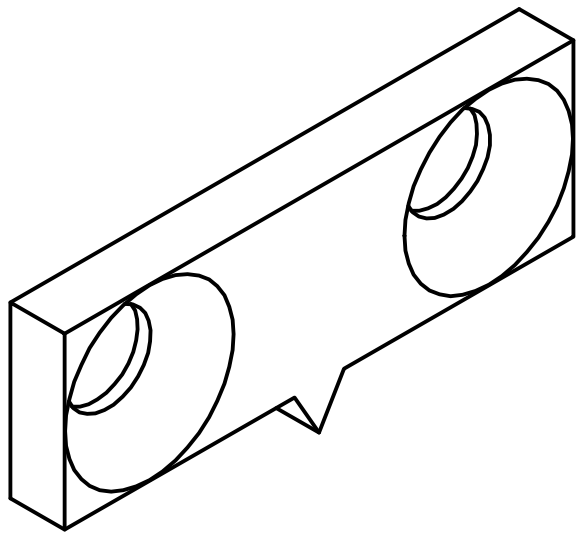
SCALE 1.000



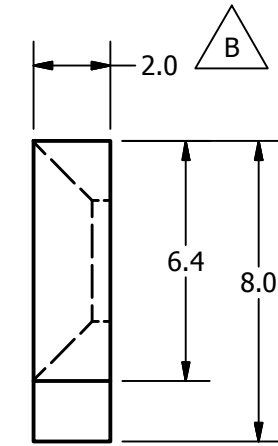
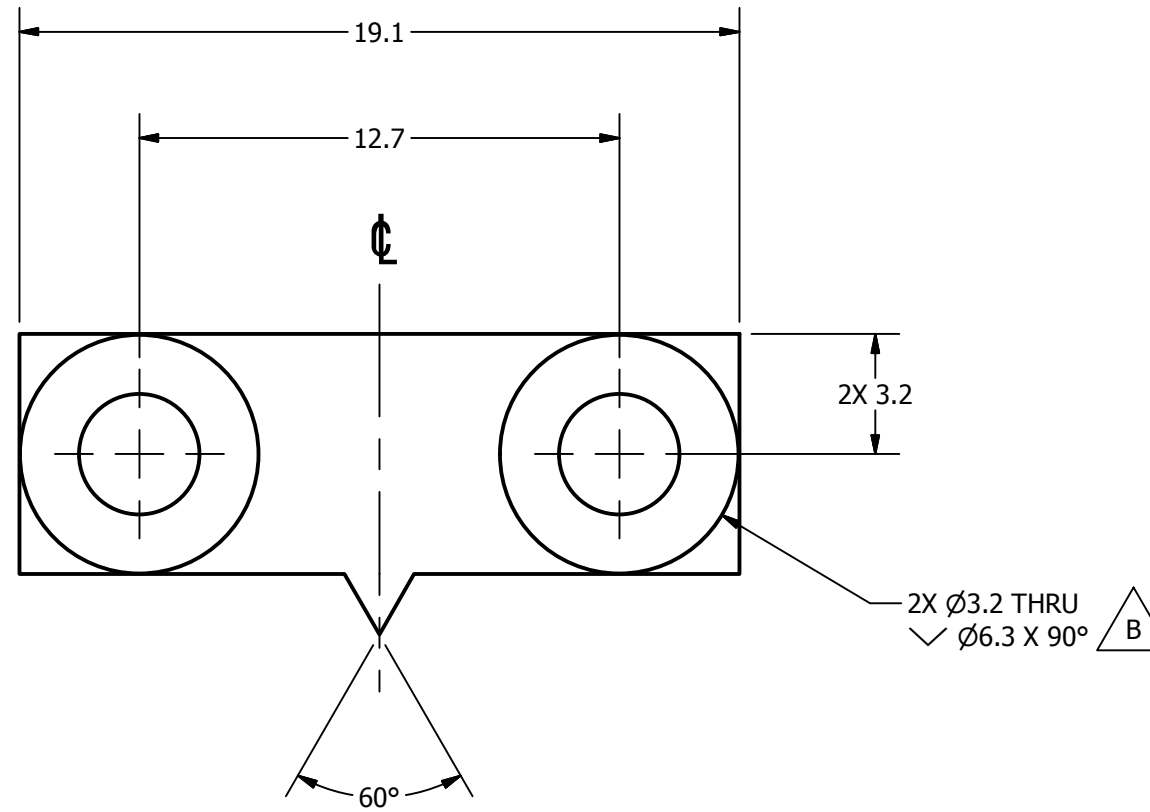
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT \varnothing , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LUMBAR SPINE PITCH CHANGE TOP PLATE	
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ° ± 0.5 1.6 XX ± 0.2 ° ± 0.2 1.6 XXX ± 0.1 ° ± 0.1 1.6 XXXX ± 0.01 ° ± 0.01 1.6			
PROJECT NO.:	472-3680	MATERIAL:	1018 STEEL	DATE:	9/22/2011
NEXT ASSEMBLY:	QTY	HEAT TREAT:		CHECKED BY:	B. KIMES
TOTAL QTY IN DUMMY:	1	FINISH:	SEE NOTES	ENGINEER:	J. WANG
				DATE:	1/16/2012
				SIZE:	A3
				SHEET:	1 OF 1
				SCALE:	1.000
				DRAWING NO.:	472-3681
				REV:	A



SCALE 5.000

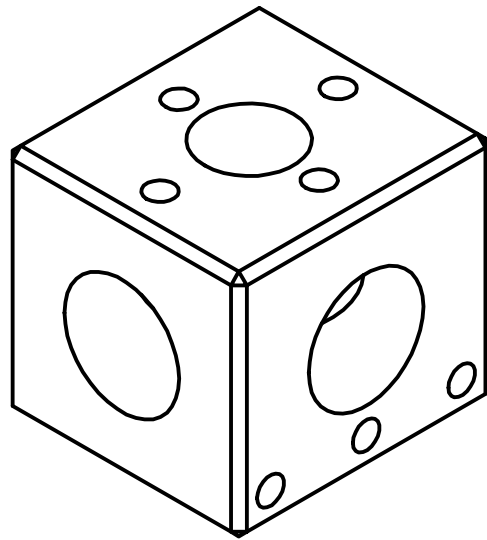


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM523 R0 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	BK
	B	DIM. 2.0 WAS 1.6, AND HOLE DIM 2X Ø3.2 THRU ∇ Ø6.3 X 90 WAS 2X Ø3.3 THRU	8/26/2015	DW

NOTES:

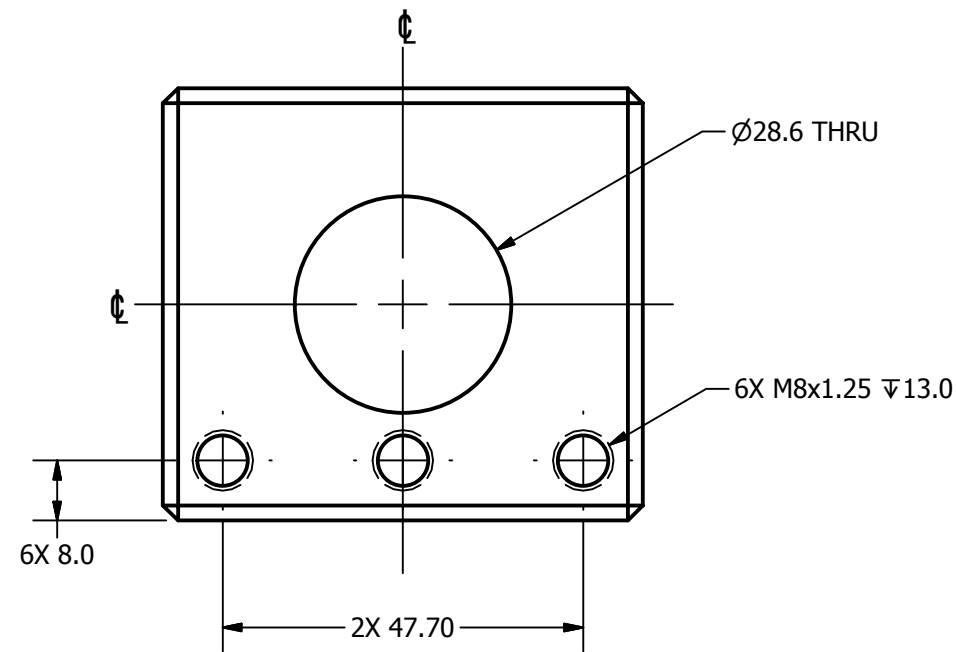
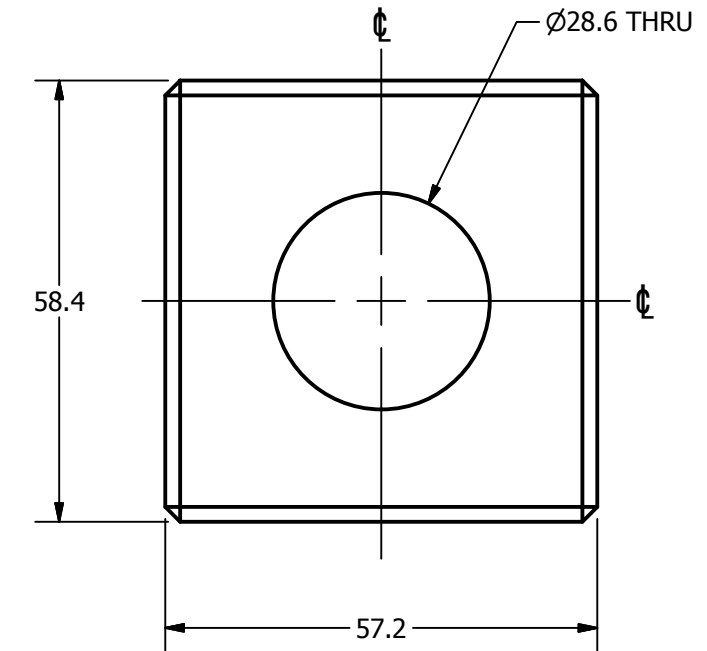
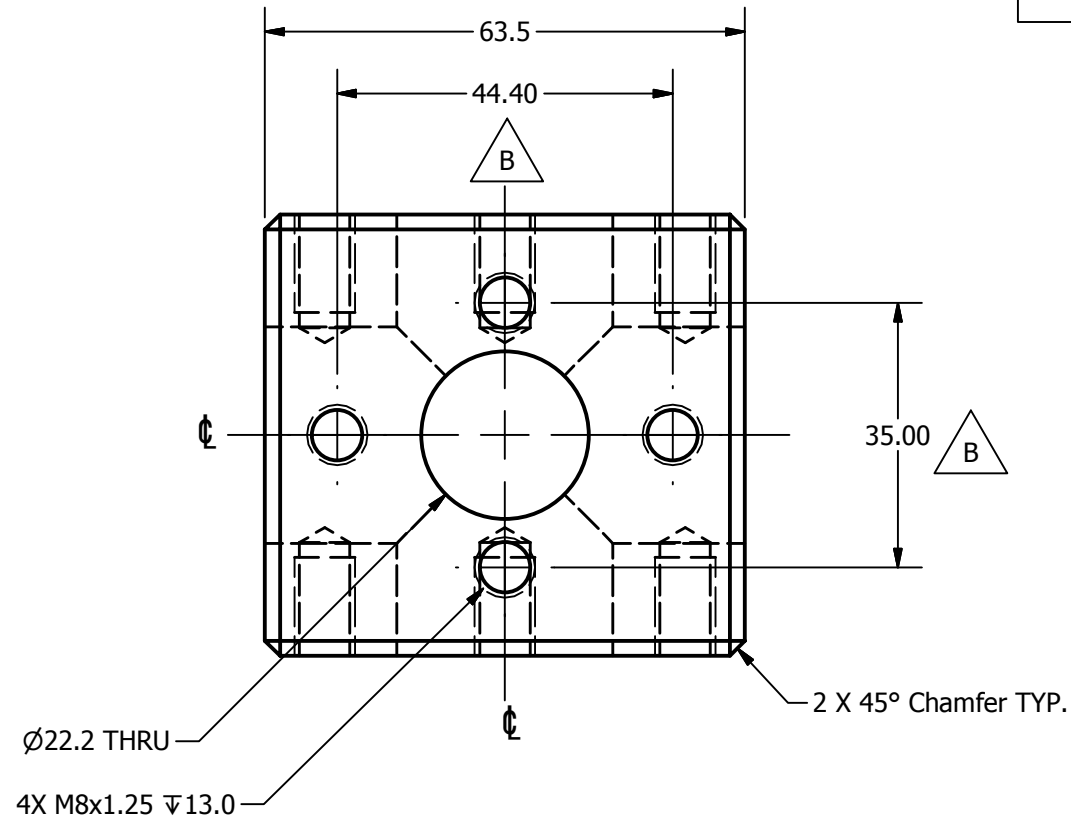
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.5 1.6 XXX ± 0.1 ± 0.5 1.6 XXXX ± 0.01 ± 0.5 1.6		
PROJECT NO:	THOR-M	REMOVE BURRS & BREAK SHARP EDGES	DATE:	<p>DESCRIPTION: LUMBAR SPINE PITCH CHANGE INDICATOR</p>
472-3670	1	MATERIAL: Brass, Soft Yellow	DATE: 9/21/2011	
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY: B. KIMES	
TOTAL QTY IN DUMMY	1	FINISH:	DATE: 1/16/2012	<p>SIZE: A3</p> <p>SHEET: 1 OF 1</p> <p>SCALE: 5.000</p>
			ENGINEER: J. WANG	<p>DRAWING NO.: 472-3713</p>



SCALE .750

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REDESIGNED TO ONE PIECE FROM TWO PIECES FROM T1SPM620 R01; ADD WEIGHT SPEC	9/21/2011	BK
	B	44.45, 34.93 WAS 35.70, 34.90	6/15/2012	BK



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT \varnothing , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
5. PART WEIGHT: 1.03 \pm 0.01 kg (2.27 \pm 0.02 LBS).



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

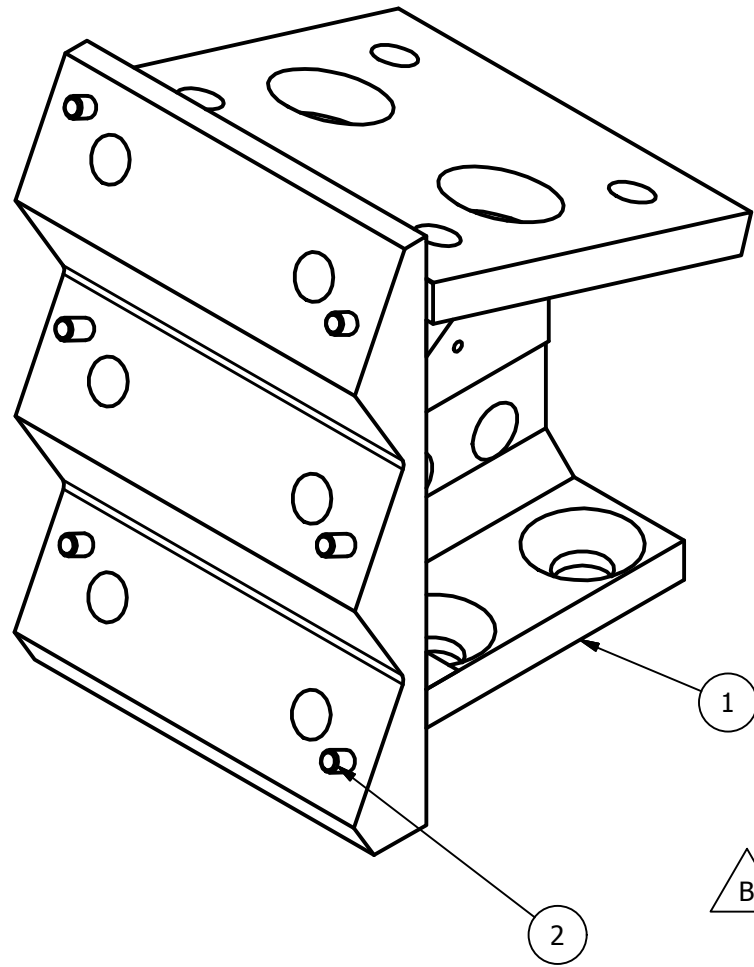
TOLERANCES		
DECIMALS	ANGLES	FINISH
X \pm 0.5	\pm 0.5	1.6
.XX \pm 0.2		
.XXX \pm 0.1		
.XXXX \pm 0.01		



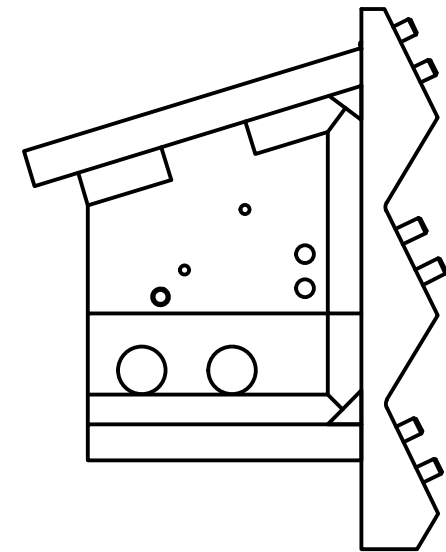
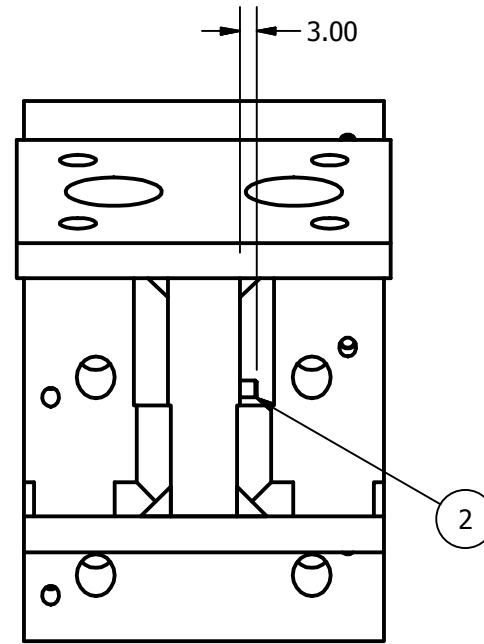
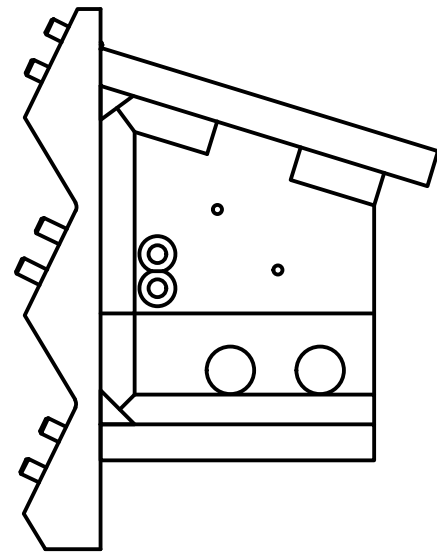
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: THOR-M	REMOVE BURRS & BREAK SHARP EDGES	DATE: 9/21/2011	DESCRIPTION: THORACIC SPINE LOAD CELL STRUCTURAL REPLACEMENT
472-3600	MATERIAL: 1018 STEEL	DRAWN BY: B. KIMES	SIZE: A3
NEXT ASSEMBLY	HEAT TREAT:	CHECKED BY:	SHEET 1 OF 1
TOTAL QTY IN DUMMY	FINISH: SEE NOTES	ENGINEER: J. WANG	DRAWING NO.: 472-3720
		DATE: 1/16/2012	SCALE: 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM400 R3 AND CONVERTED TO METRIC FOR THOR-M	9/28/2011	BK
	B	ADDED COUNTERSINK TO HOLES IN ITEM #1 PART #472-3660; QTY. OF ITEM #2 PART #5000284 WAS 6; REVISED COUNTERSINK HOLES IN ITEM #1 PART #472-3660 - LOWER THORACIC SPINE WELDED ASSEMBLY	6/10/2015	DW





SCALE 1.000

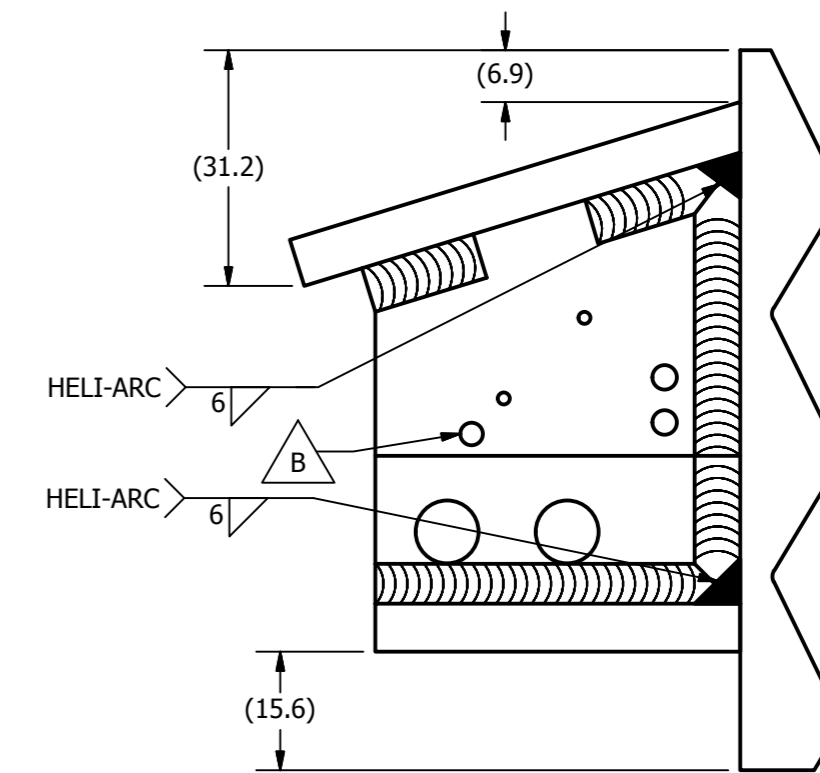
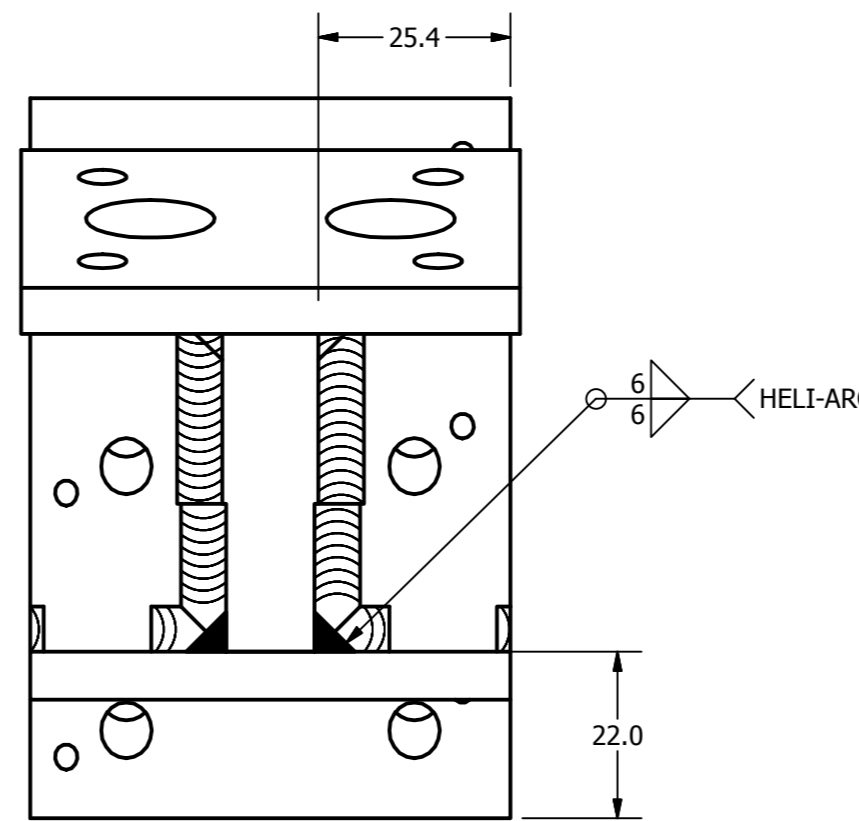
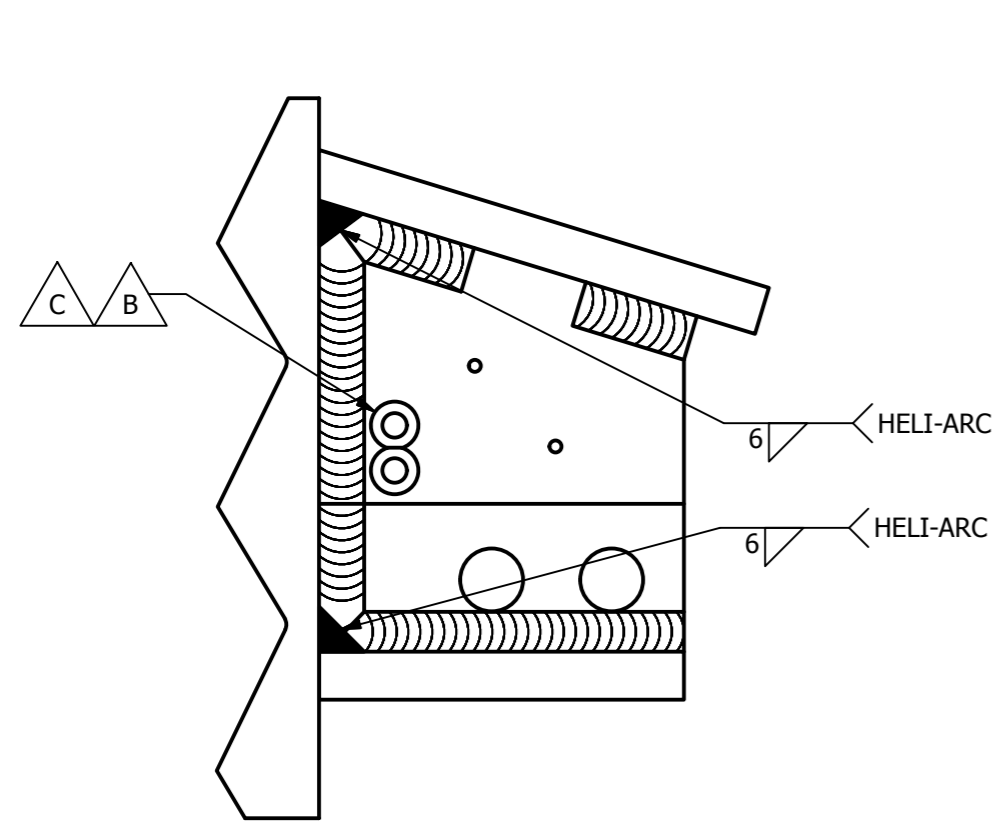
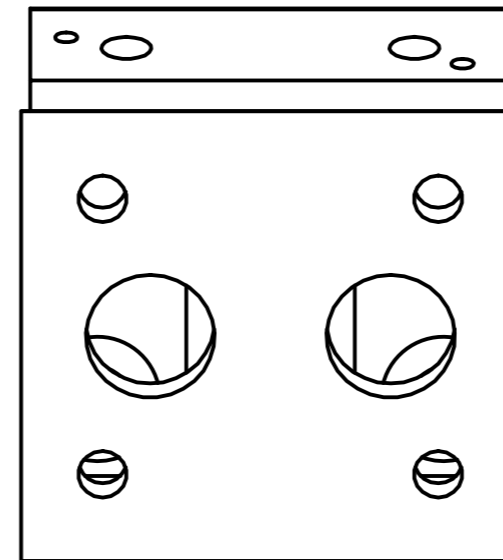
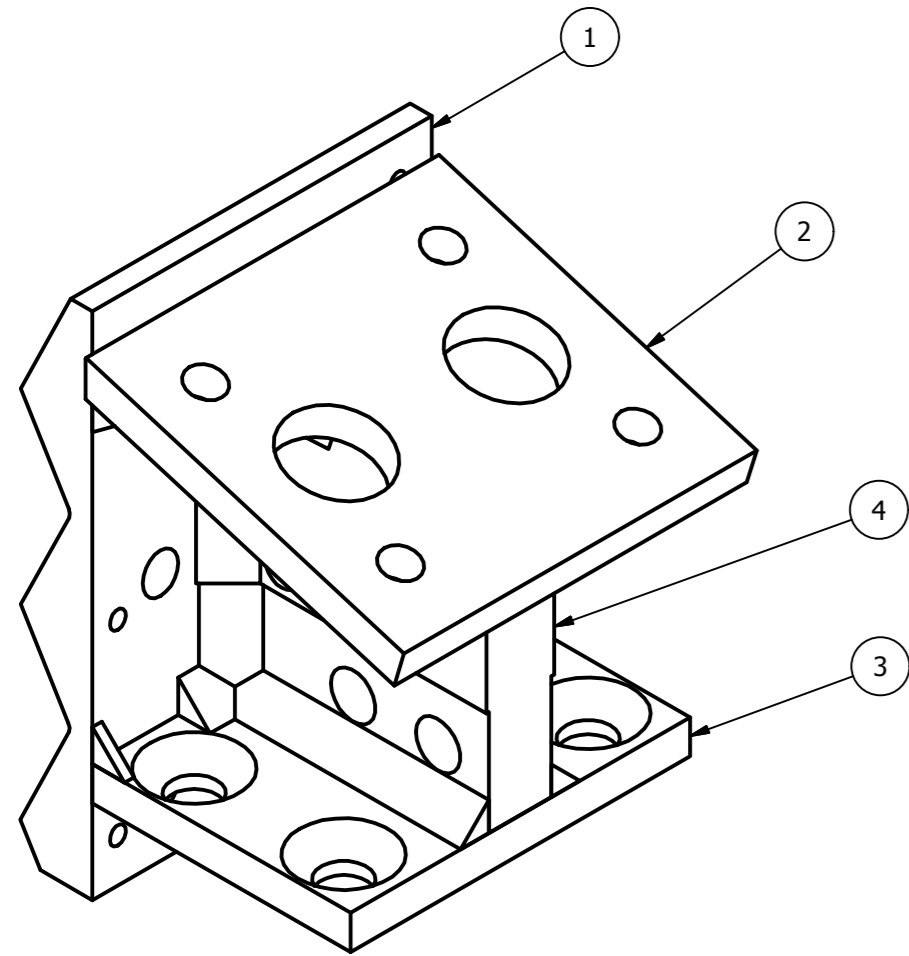


ITEM	QTY	PART NUMBER	DESCRIPTION
2	7	5000284	PIN, DOWEL M3 x 10 LG.
1	1	472-3660	LOWER THORACIC SPINE WELDED ASSEMBLY

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:	472-3600	REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:
DRAWN BY:	B. KIMES	CHECKED BY:	DATE:	LOWER THORACIC SPINE ASSEMBLY
MATERIAL:		ENGINEER:	DATE:	SIZE: SHEET
HEAT TREAT:		J. WANG	1/16/2012	A3 1 of 1
FINISH:		TOTAL QTY IN DUMMY	1	SCALE: .750
				DRAWING NO.: 472-3650
				REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPW400 R7 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK
	B	ADDED COUNTERSINK TO HOLES IN LEFT SIDE VIEW AND HOLE IN RIGHT SIDE VIEW IN ITEM #4 PART #472-3662 - CENTRAL PLATE, LOWER THORACIC SPINE	6/9/2015	DW
	C	REVISED COUNTERSINK HOLES IN ITEM #4 PART #472-3662 - CENTRAL PLATE, LOWER THORACIC SPINE	6/10/2015	DW



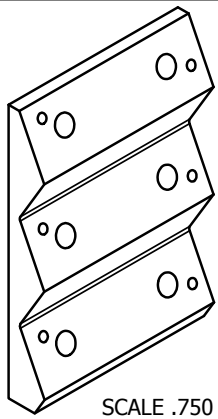
NOTES:

- BEFORE PLATING, CHECK FIT WITH 472-4611 .
- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER WELDING.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-3662	CENTRAL PLATE, LOWER THORACIC SPINE
3	1	472-3663	LOWER THORACIC SPINE BOTTOM PLATE
2	1	472-3661	TOP PLATE, LOWER THORACIC SPINE
1	1	472-3664	RIB MOUNTING PLATE, LOWER THORACIC SPINE

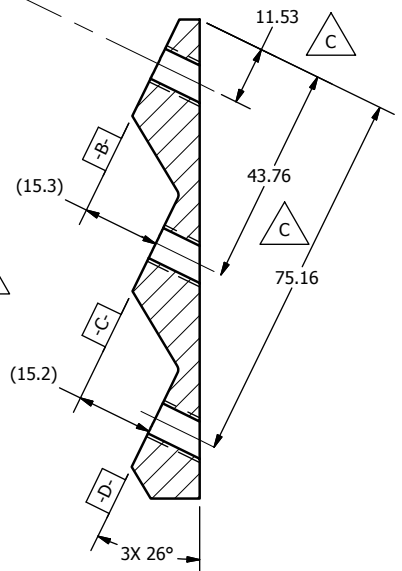
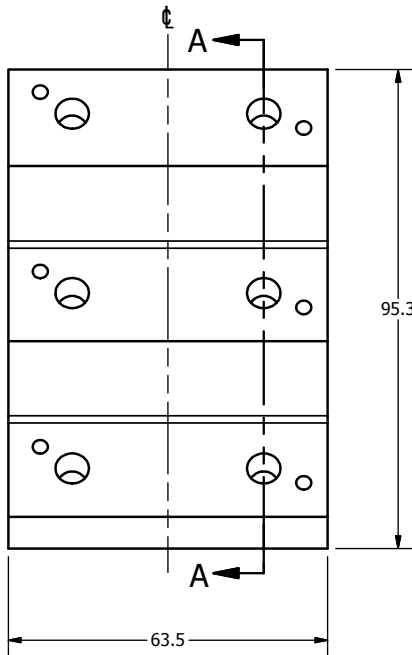
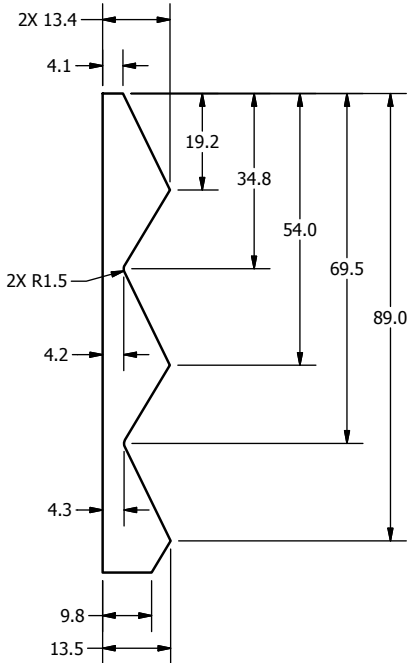
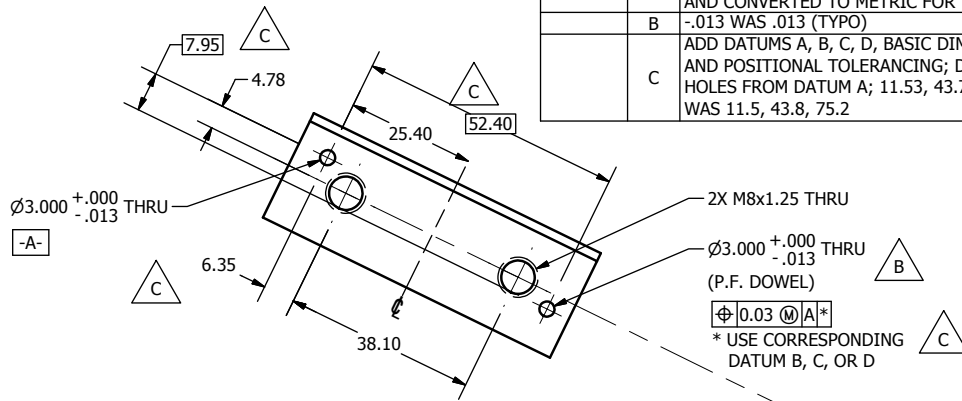
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	DATE:	DESIGNER:	DATE:	DESCRIPTION:
472-3650	9/20/2011	B. KIMES	9/20/2011	LOWER THORACIC SPINE WELDED ASSEMBLY
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	A21 OF 1
		J. WANG	1/16/2012	SCALE: 1.000



SCALE .750

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM410 R04 AND CONVERTED TO METRIC FOR THOR-M	9/19/2011	BK
	B	-.013 WAS .013 (TYPO)	6/15/2012	BK
	C	ADD DATUMS A, B, C, D, BASIC DIMENSIONS, AND POSITIONAL TOLERANCING; DIMENSION HOLES FROM DATUM A; 11.53, 43.76, 75.16 WAS 11.5, 43.8, 75.2	10/3/2012	BK

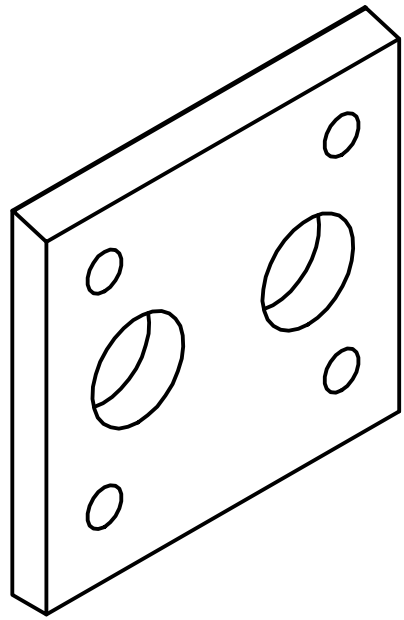


SECTION A-A
SCALE 1.000

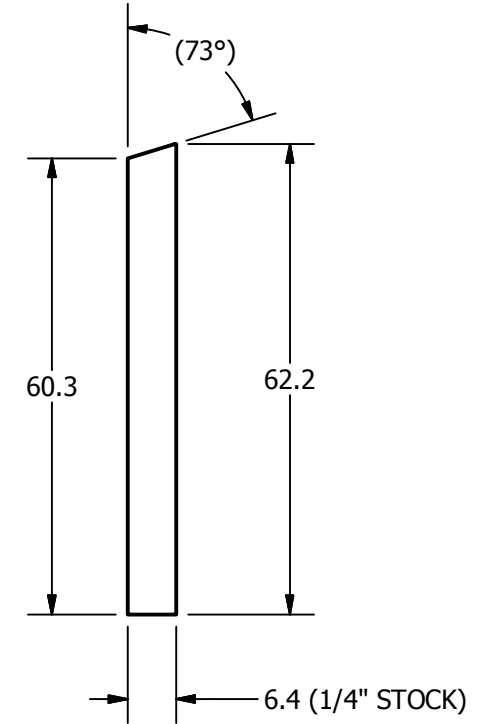
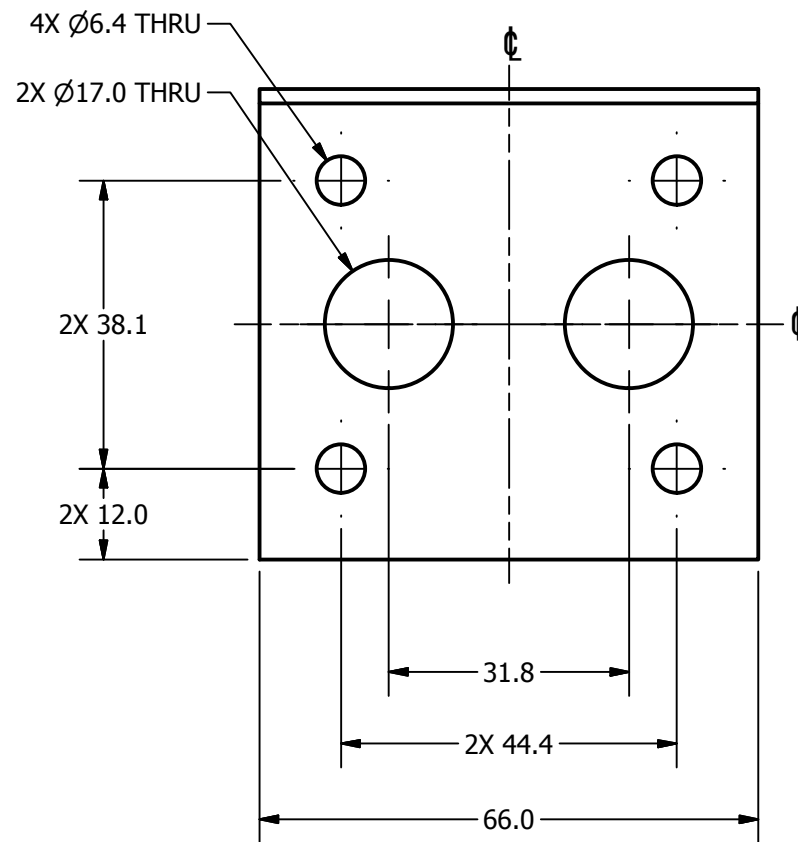
NOTES:
DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 X .05 16 XX .012 X .05 16 XXX .013 X .05 16 XXXX 0.01		
PROJECT NO:	472-3660	MATERIAL:	1018 STEEL	DESCRIPTION:
DATE:	9/19/2011	HEAT TREAT:		RIB MOUNTING PLATE, LOWER THORACIC SPINE
CHECKED BY:	B. KIMES	ENGINEER:	J. WANG	DATE:
DATE:	9/19/2011	DATE:	1/16/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
TOTAL QTY IN DUMMY:	1	FINISH:		472-3664

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM411 R1 AND CONVERTED TO METRIC FOR THOR-M	9/19/2011	BK



SCALE 1.000



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES

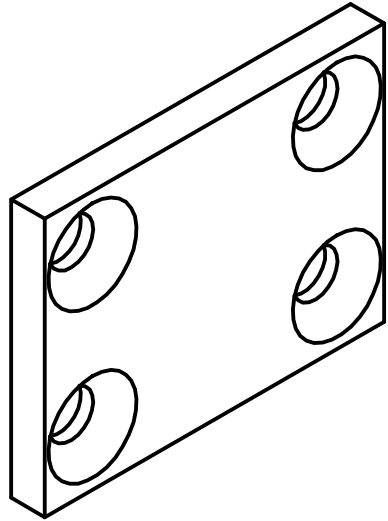
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
.XX ± 0.2 ± 0.5 1.6
.XXX ± 0.1 ± 0.5 1.6
XXX ± 0.01 ± 0.5 1.6



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

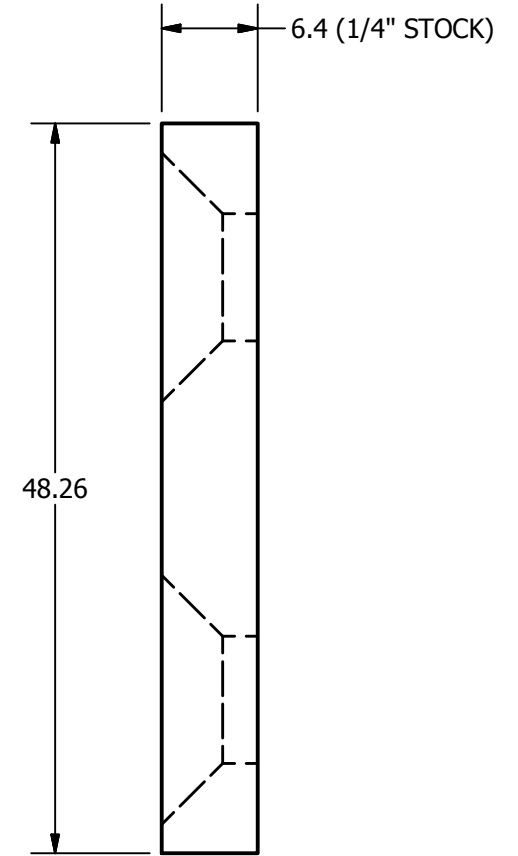
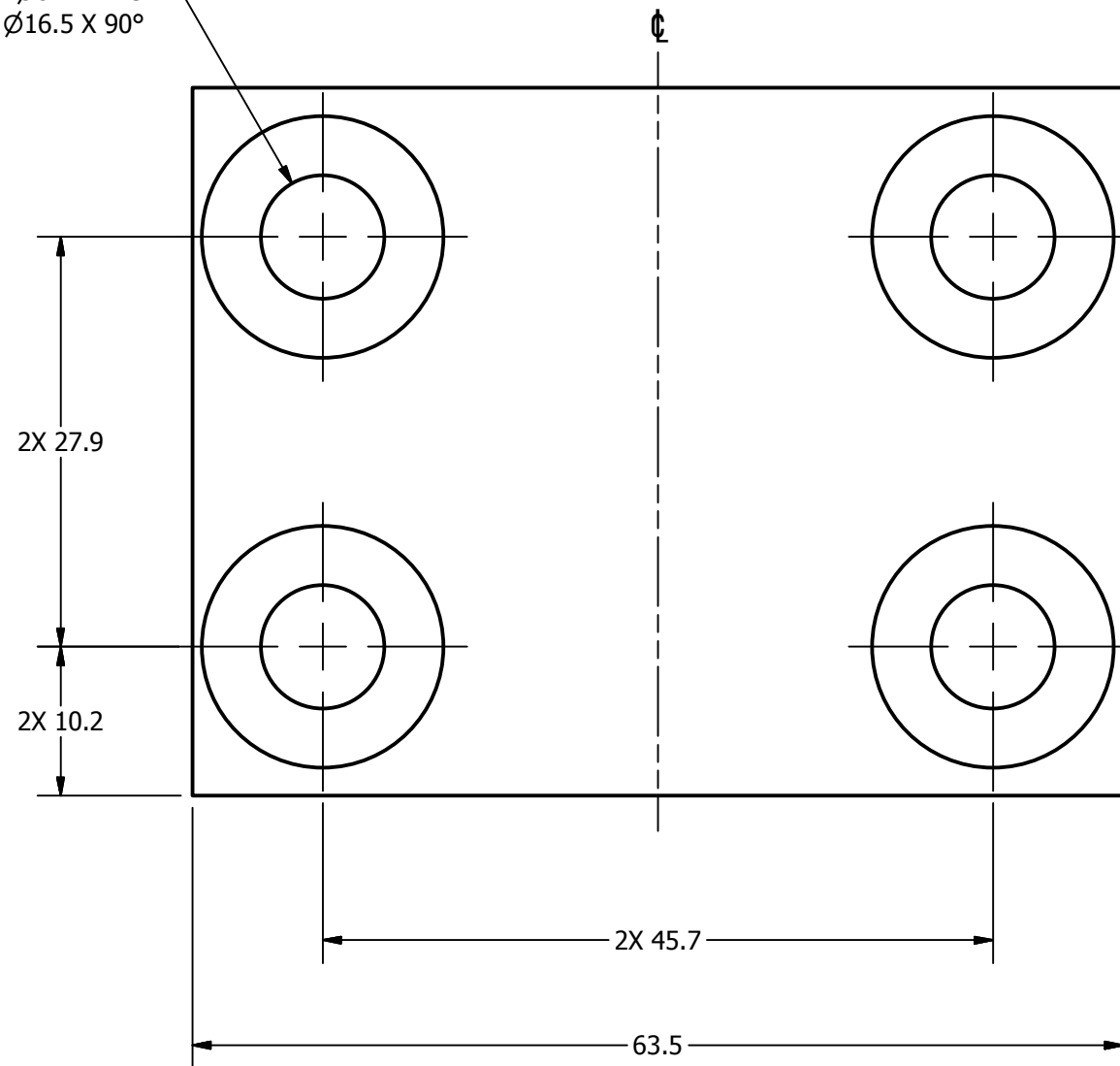
PROJECT NO.: 472-3660	QTY 1	MATERIAL: 1018 STEEL	HEAT TREAT:	ENGINEER: J. WANG	DATE: 1/16/2012	CHECKED BY: B. KIMES	DATE: 9/19/2011	DESCRIPTION: TOP PLATE, LOWER THORACIC SPINE	SIZE: SHEET A3 1 OF 1	DRAWING NO.: 472-3661	REV: A
TOTAL QTY IN DUMMY	1	FINISH:						SCALE: 1.000			

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM413 R01 AND CONVERTED TO METRIC FOR THOR-M	9/19/2011	BK



SCALE 1.000

4X Ø8.4 THRU
✓ Ø16.5 X 90°



- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

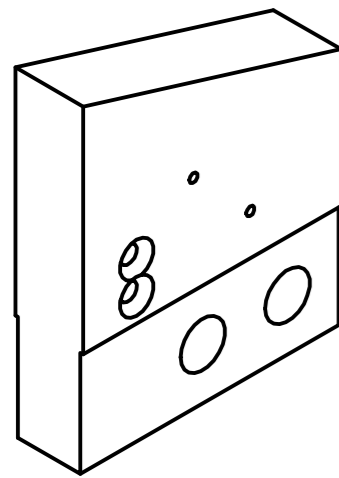
TOLERANCES		
DECIMALS	ANGLES	FINISH
X ± 0.5	± 0.5	1.6
.XX ± 0.2		
.XXX ± 0.1		
.XXXX ± 0.01		



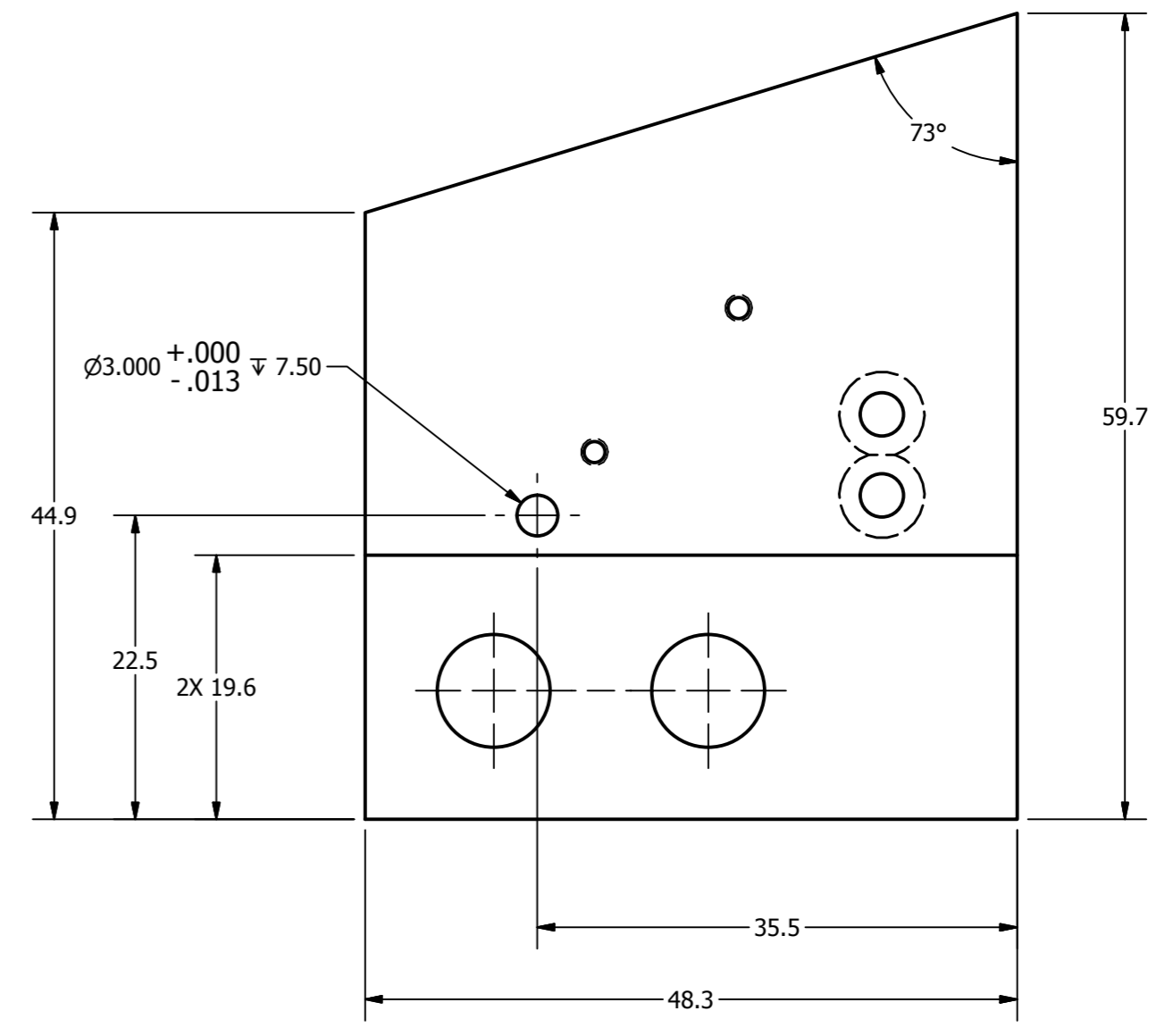
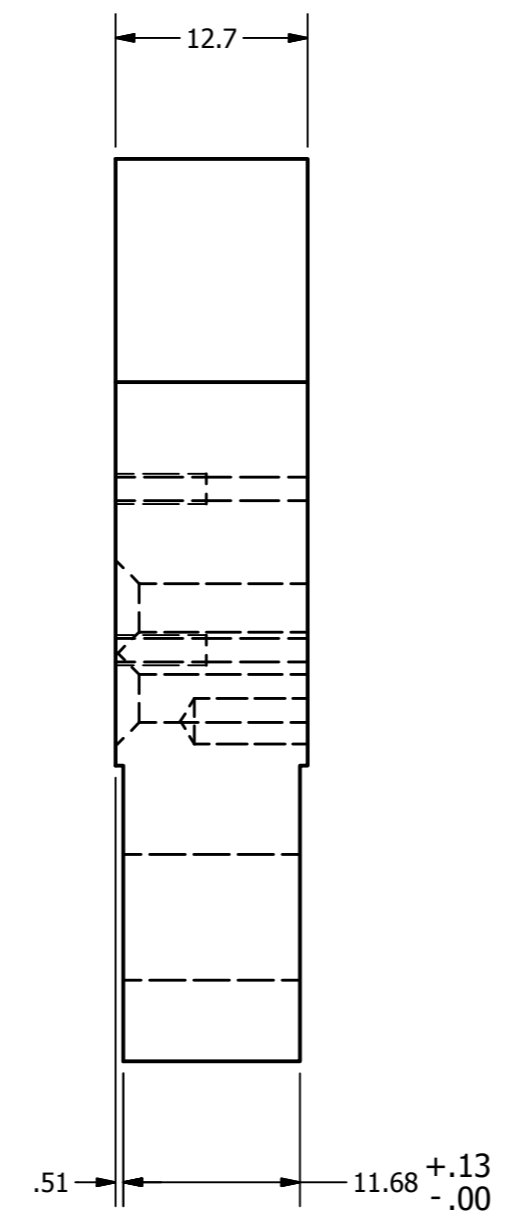
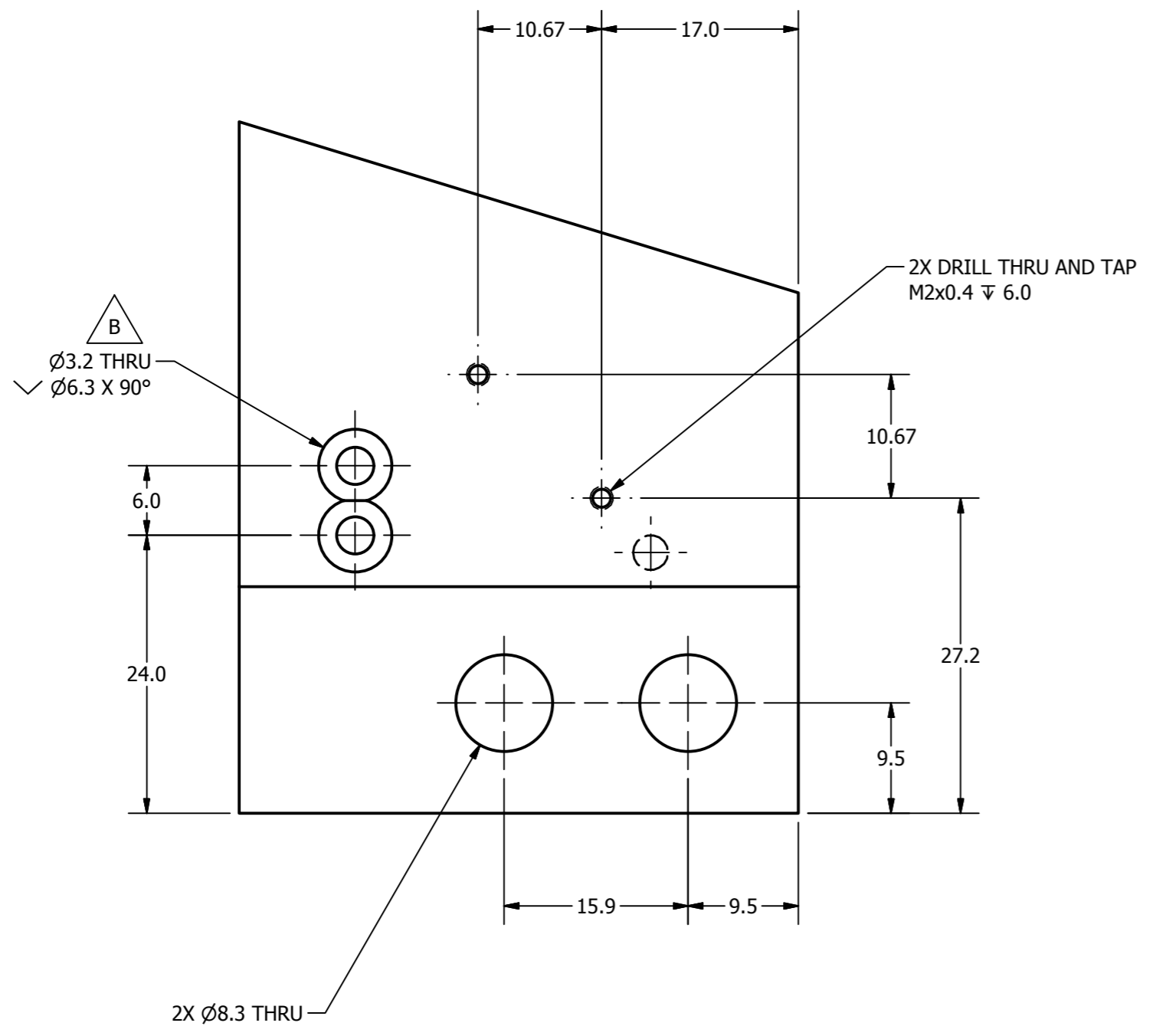
DESCRIPTION: LOWER THORACIC SPINE BOTTOM PLATE

PROJECT NO.: 472-3660	QTY: 1	MATERIAL: 1018 STEEL	HEAT TREAT:	ENGINEER: J. WANG	DATE: 1/16/2012	CHECKED BY: B. KIMES	DATE: 9/19/2011	REMOVE BURRS & BREAK SHARP EDGES	DATE: 9/19/2011	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-3663	REV: A
NEXT ASSEMBLY		TOTAL QTY IN DUMMY								SCALE: 2.000			

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM413 R01 AND CONVERTED TO METRIC FOR THOR-M	9/19/2011	BK
	B	HOLE NOTE Ø3.3 THRU CUTOUT AS SHOWN √4.0 √Ø6.0 X 90° WAS Ø3.3 THRU CUTOUT AS SHOWN √4.0; ADDED HOLE - Ø3.000 +.000/-0.013 √7.5; HOLE NOTE Ø3.2 THRU √Ø6.3 X 90° WAS Ø3.0 THRU CUTOUT AS SHOWN √4.0 √Ø6.3 X 90°	6/10/2015	DW

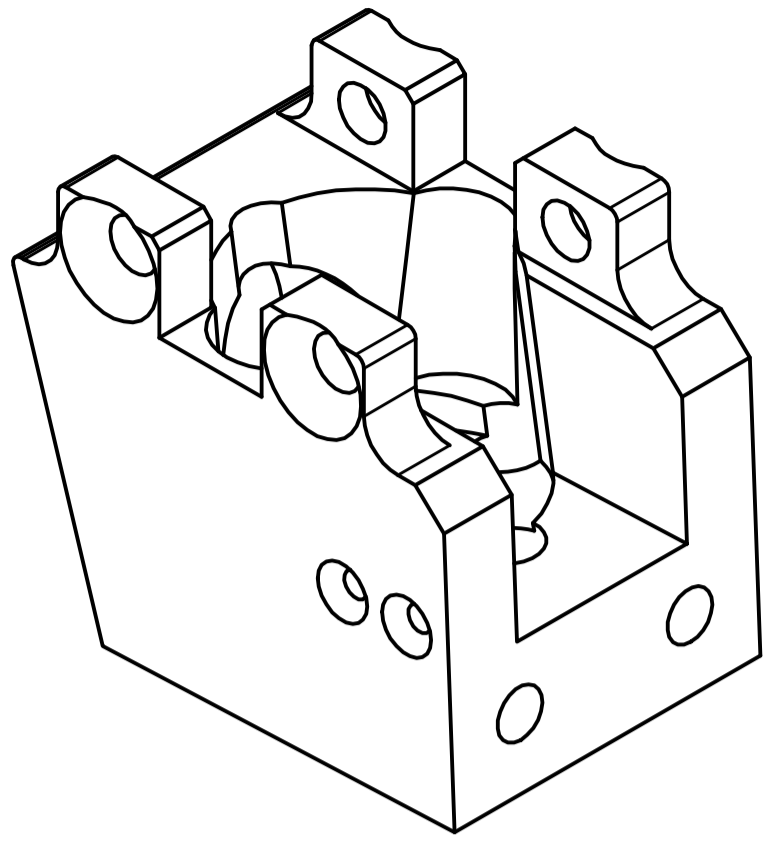


SCALE 1.000

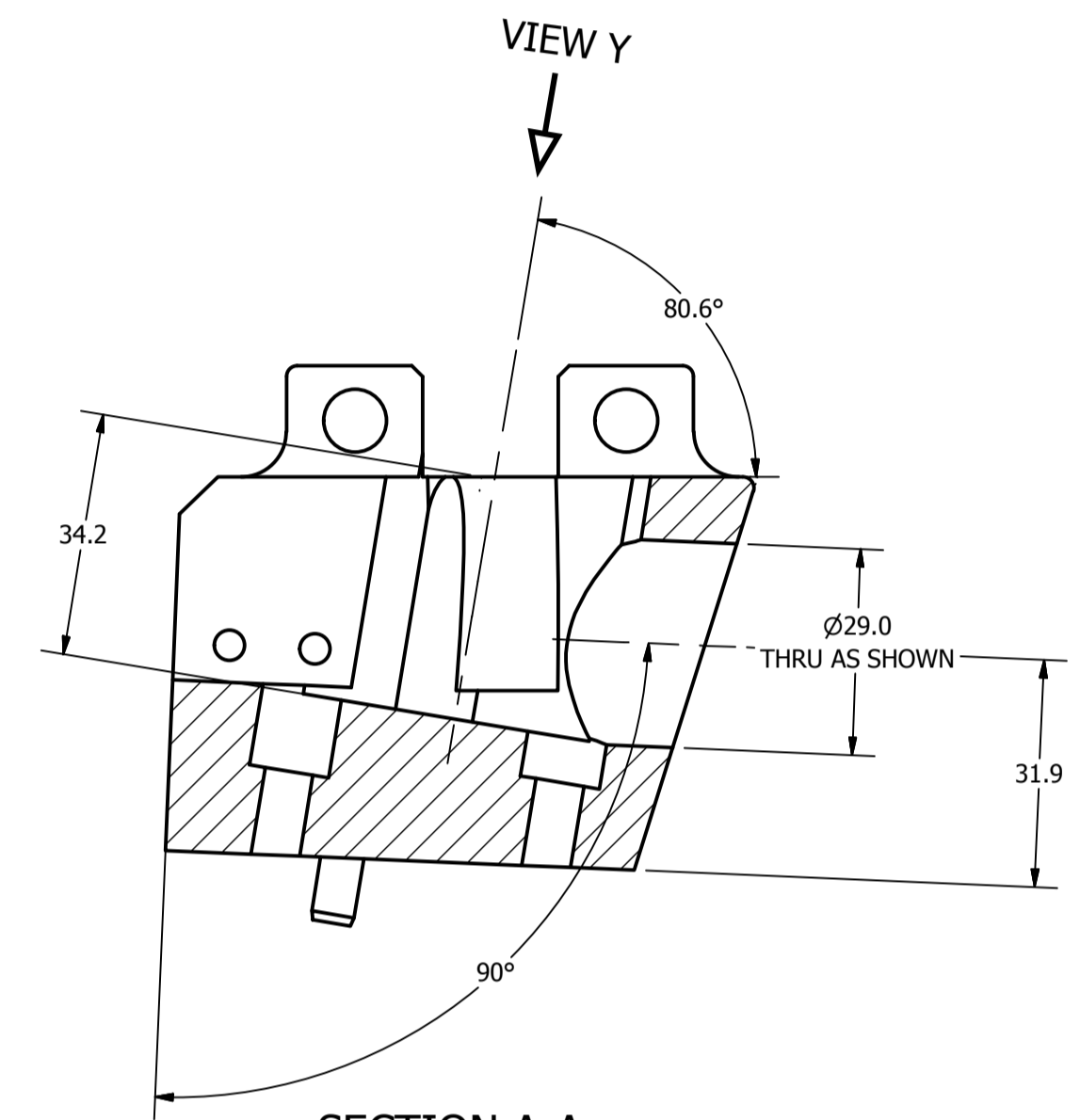
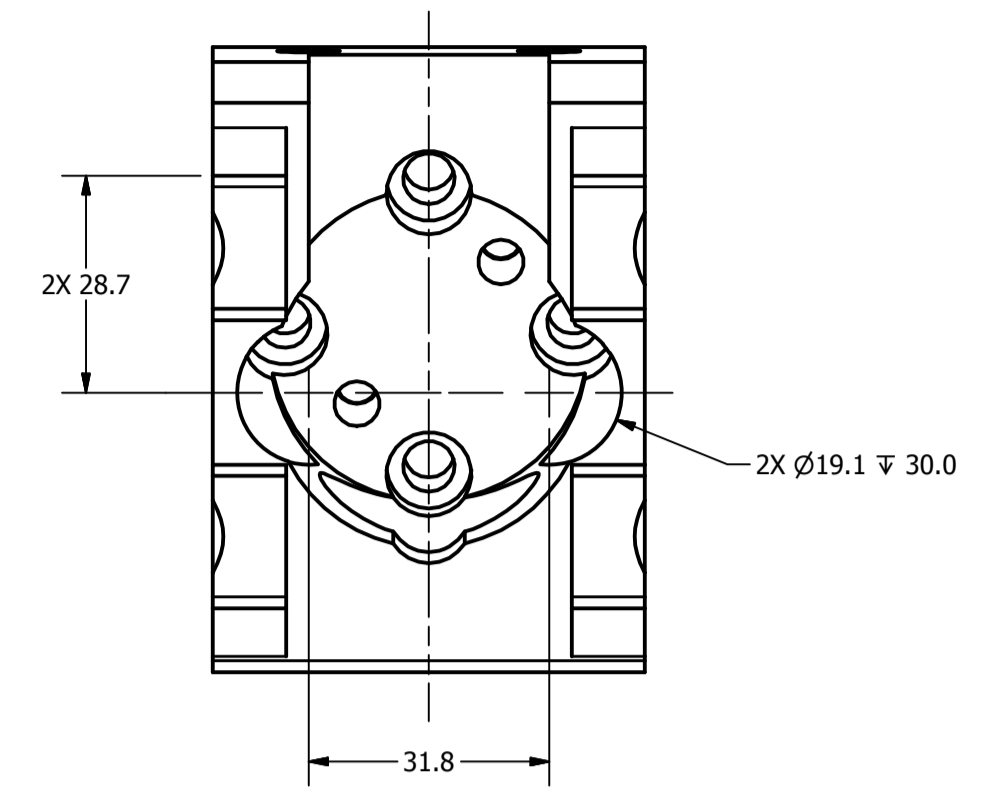


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		DESCRIPTION: CENTRAL PLATE, LOWER THORACIC SPINE	
PROJECT NO:	DATE:	DESIGN BY:	DATE:	SIZE:	DRAWING NO:
472-3660	9/19/2011	B. KIMES	9/19/2011	A2	1 OF 1
MATERIAL:	FINISH:	ENGINEER:	DATE:	SCALE:	DRAWING NO:
1018 STEEL		J. WANG	1/16/2012	2.000	472-3662
QTY:	REVISION:				
1					
TOTAL QTY IN DUMMY:	1				

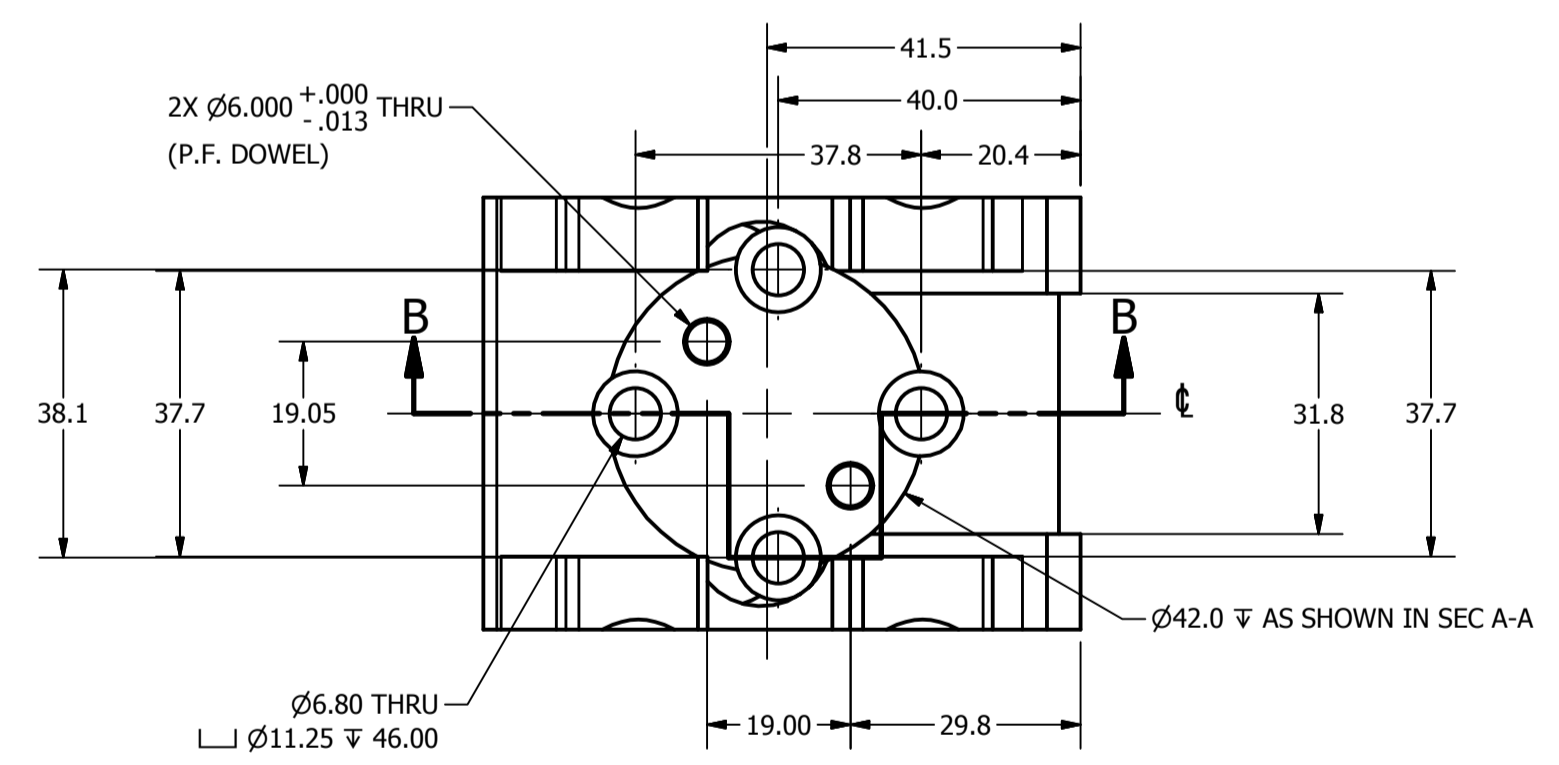
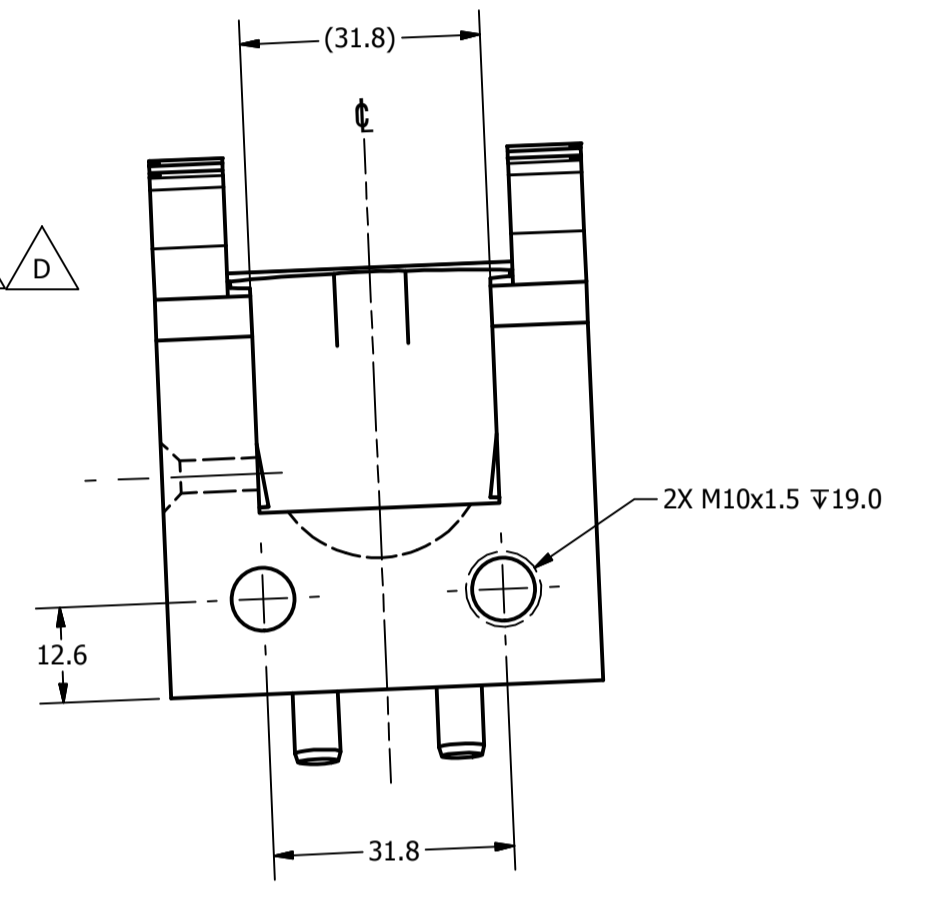
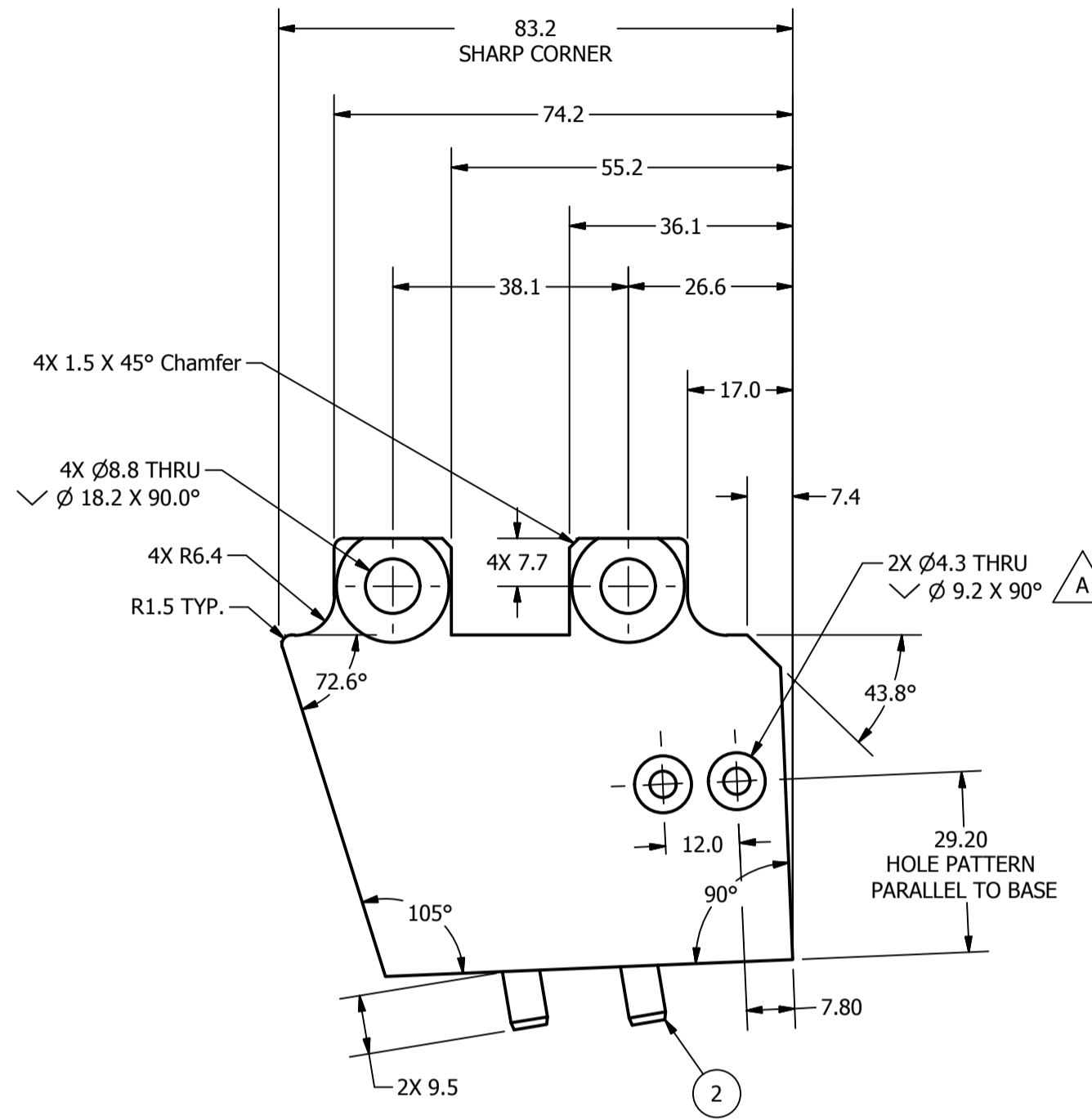
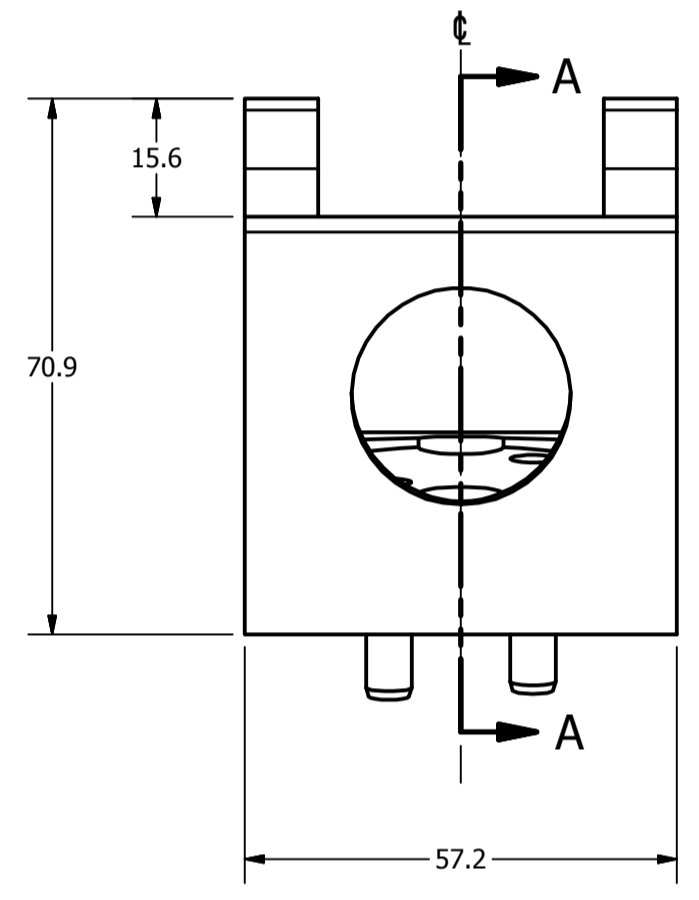
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM805 R0 AND CONVERTED TO METRIC FOR THOR-M. REDESIGNED TILT SENSOR ORIENTATION; 2X 19.1 DIA 30 DEEP WAS 2X R11.01 19 DEEP; 24.3 WAS 27.3	9/16/2011	BK
	B	24.3 WAS 27.3; 31.8, (31.8) WAS 30.3, (30.3)	2/14/2012	BK
	C	HOLE NOTE 2X Ø4.3 THRU L Ø8.0 ∇ 4.0 ∇ Ø8.2 x 90° WAS 2X Ø4.3 THRU L Ø8.00 ∇ 8.0	6/1/2015	DW
	D	HOLE NOTE 2X Ø4.3 THRU ∇ Ø9.2 x 90° WAS Ø4.3 THRU L Ø8.0 ∇ 4.0 ∇ Ø8.2 x 90°	6/9/2015	DW



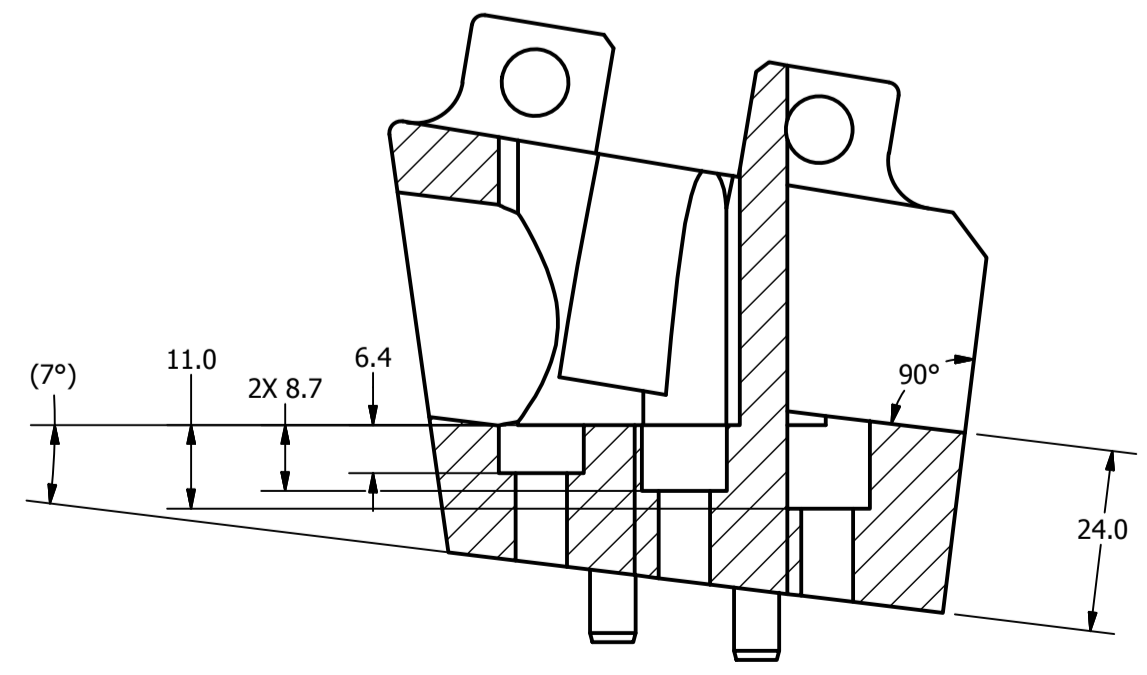
SCALE 1.000



SECTION A-A
SCALE 1.000



VIEW Y



SECTION B-B
SCALE 1.000

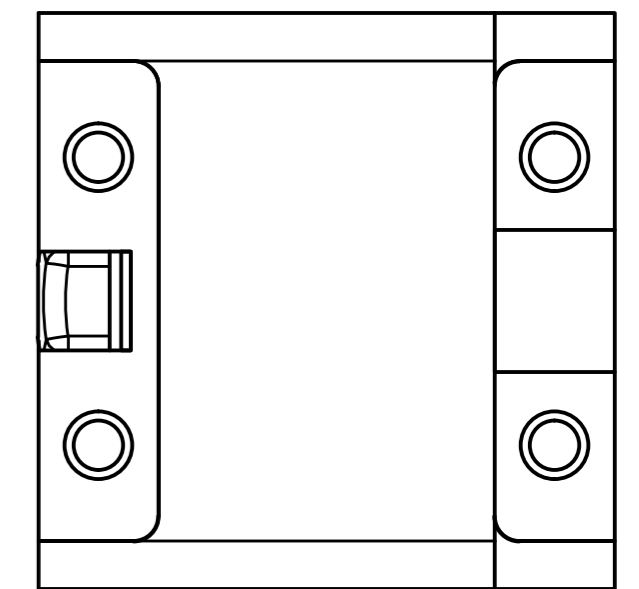
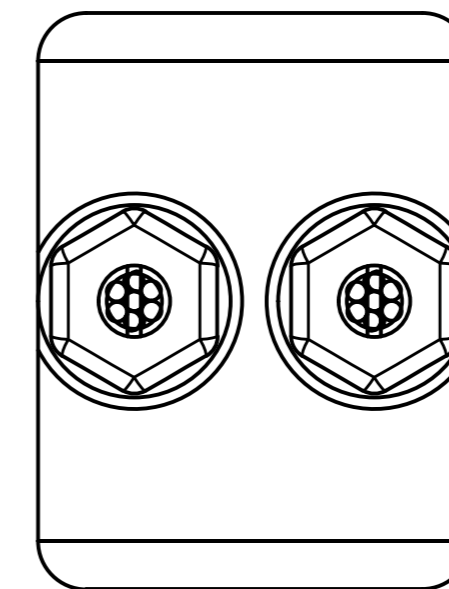
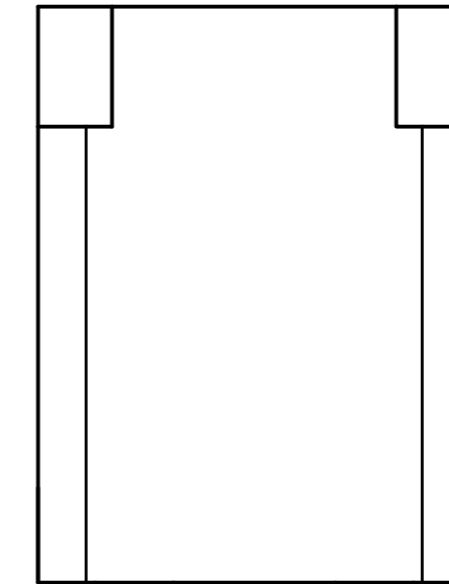
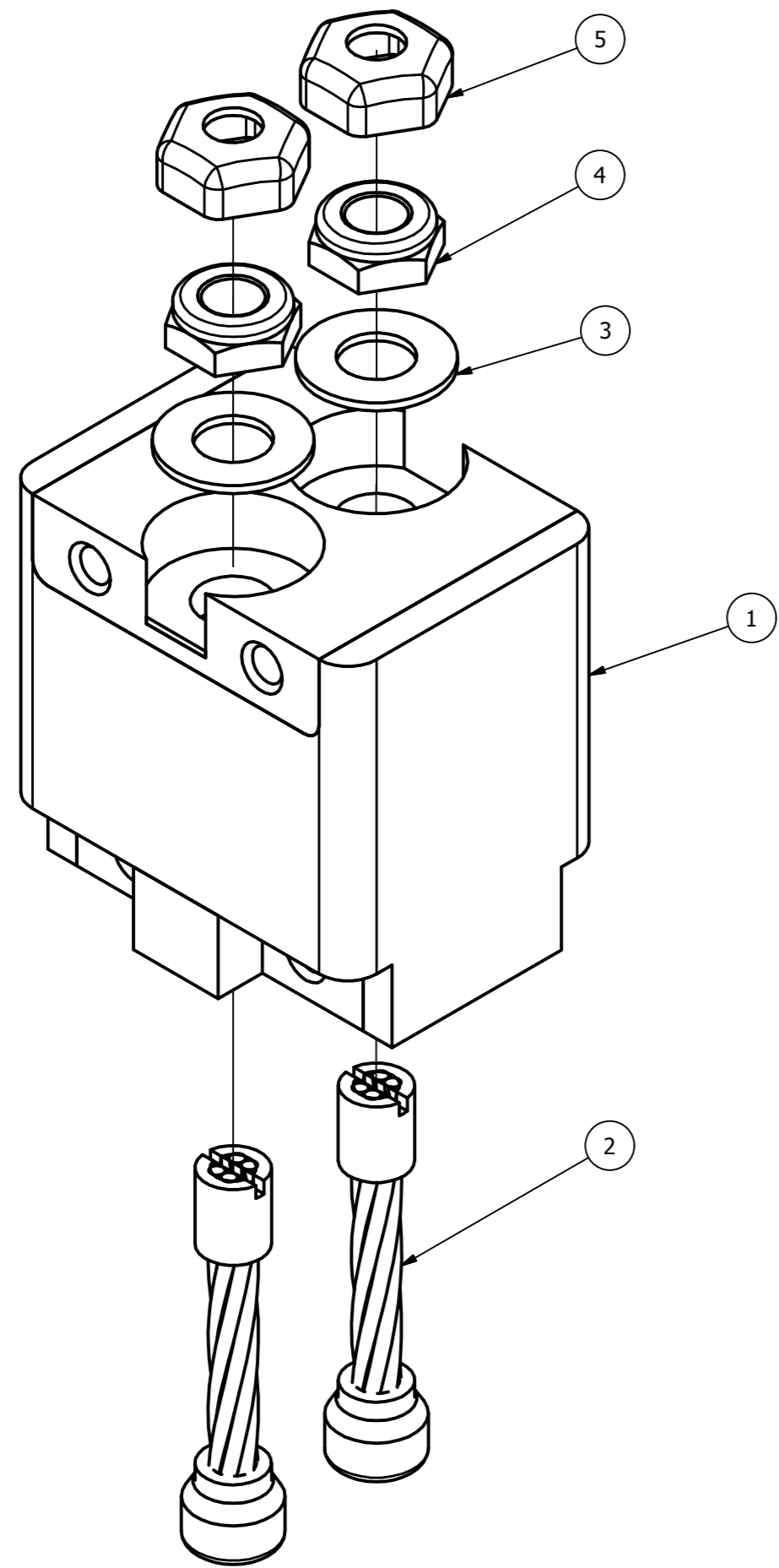
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. POWDER OR BEAD BLAST.
 3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
 5. INSTALL DOWEL PINS AFTER PLATING.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000433	M6 X 12 LG. DOWEL PIN

PARTS LIST			
472-3600	1	1018 STEEL	PELVIS/LUMBAR MOUNTING BLOCK ASSEMBLY
TOTAL QTY IN DUMMY	1	SEE NOTES	

DESIGNED BY: B. KIMES	DATE: 9/16/2011	APPROVED BY: J. WANG	DATE: 1/17/2012
DRAWN BY: J. WANG		DATE: 1/17/2012	
CHECKED BY: J. WANG		DATE: 1/17/2012	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	10/25/2011	BK



SCALE 1.000

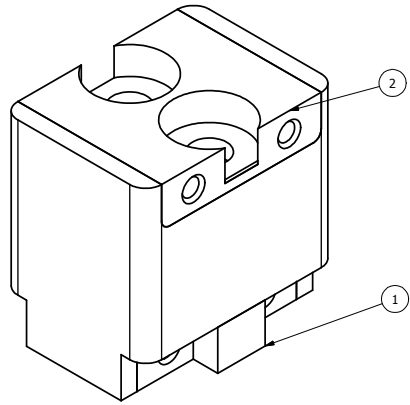
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	472-3647	M12 VINYL NUT COVER
4	2	472-3747	M12x1.75 LOCKNUT, MODIFIED
3	2	9000135	WASHER FLAT 1/2 PTFE
2	2	472-3745	LUMBAR SPINE FLEX JOINT CABLE ASSEMBLY
1	1	472-3740	LUMBAR SPINE FLEX JOINT MOLDED ASSEMBLY

PARTS LIST

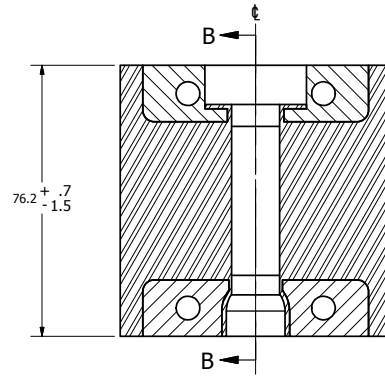
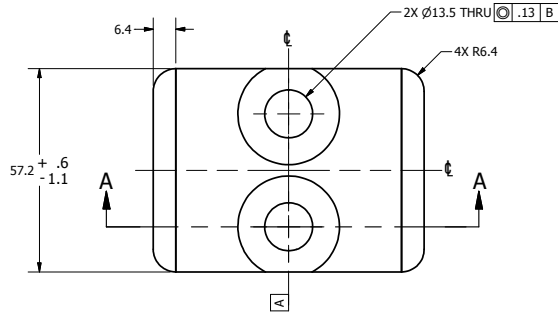
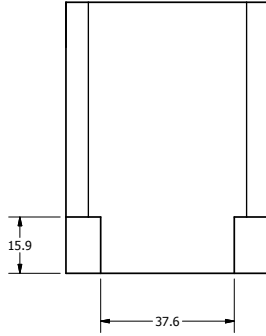
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	DATE:	DESIGN BY:	DATE:	DESCRIPTION:
472-3600	10/25/2011	B. KIMES	10/25/2011	LUMBAR SPINE FLEX JOINT ASSEMBLY
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	A21 OF 1
		J. WANG	1/17/2012	SCALE: 1.000

472-3600	1								
NEXT ASSEMBLY	QTY								
TOTAL QTY IN DUMMY	1								

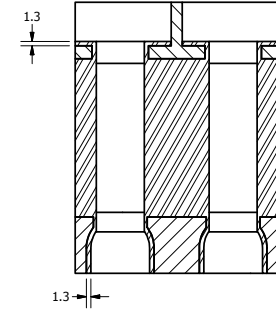
472-3746



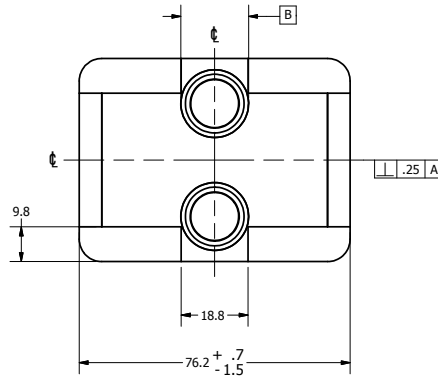
SCALE 1.000



SECTION A-A
SCALE 1.000



SECTION B-B
SCALE 1.000



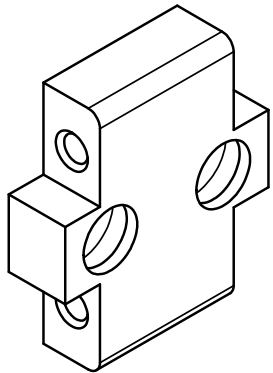
- NOTES:
1. DIMENSIONS REPRESENT PART SIZE AFTER MOLDING.
 2. RUBBER TOLERANCE ±0.5, UNLESS OTHERWISE SPECIFIED.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM710 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK

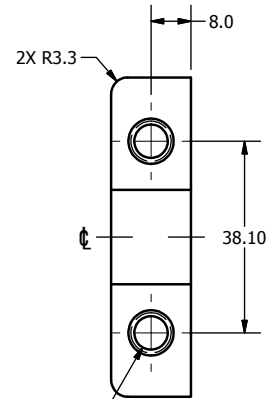
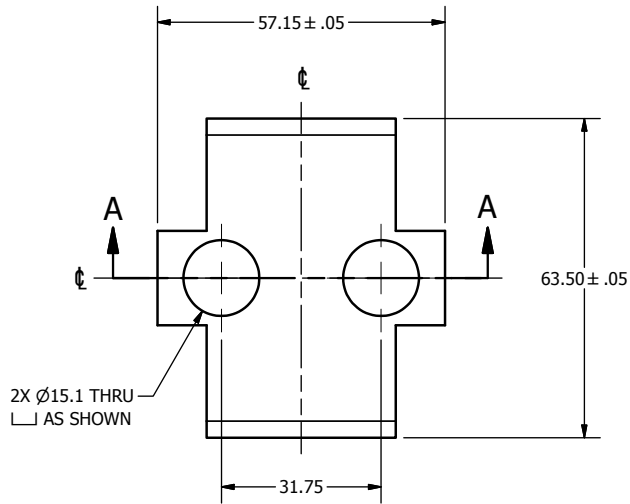
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3741	LUMBAR SPINE FLEX JOINT TOP PLATE
1	1	472-3742	LUMBAR SPINE FLEX JOINT BOTTOM PLATE

PARTS LIST	
DO NOT SCALE DRAWING	TOLERANCES
UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED
OPERATING AREA IN PARENTS	OPERATING AREA IN PARENTS
2" DIMS ±.005	2" DIMS ±.005
1" DIMS ±.002	1" DIMS ±.002
3/4" DIMS ±.001	3/4" DIMS ±.001
1/4" DIMS ±.0005	1/4" DIMS ±.0005
THIRD ANGLE PROJECTION	THIRD ANGLE PROJECTION

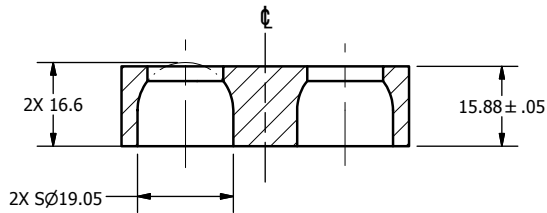
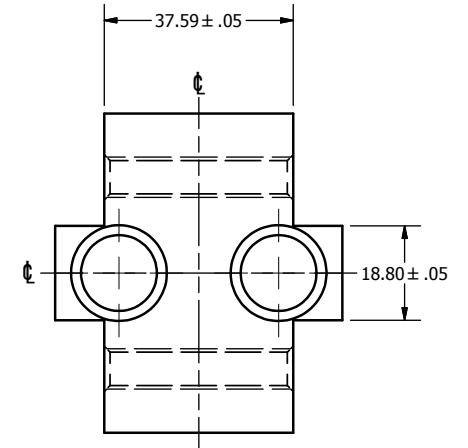
PARTS LIST		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3746	1	BUTYL RUBBER SHORE A 75A5	B. KIMES 9/20/2011
NEXT ASSEMBLY	QTY	DATE	PREPARED BY
TOTAL QTY IN DUMMY	1	1/16/2012	J. WANG
A21 of 1		472-3740	
SCALE 1.000			



SCALE 1.000



2X M8x1.25 THRU
 ✓ Ø9.0 X 90°
 BOTH SIDES



SECTION A-A
 SCALE 1.000

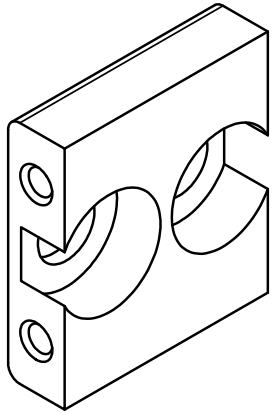
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. SATIN FLASH CHROME PLATE 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

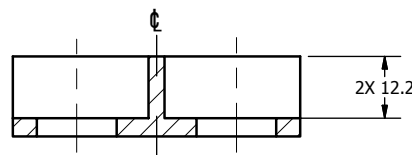
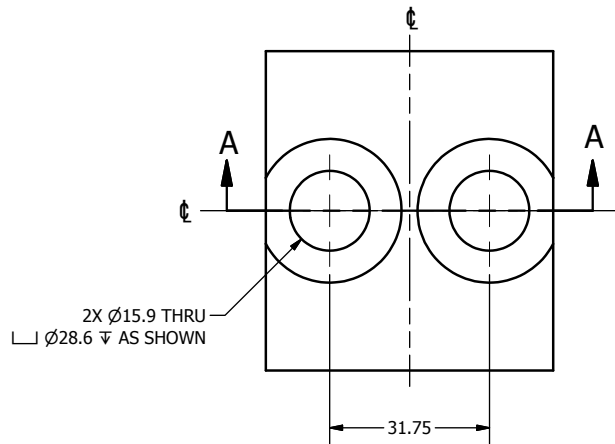


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM712 RBO AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK
	B	2X M8 x 1.25 HOLES WERE Ø6.6	6/15/2012	BK
	C	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	7/23/2012	CEF
	D	FINISH .008mm MAX. WAS .0003 MAX.	11/9/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° 1.6 XX .02 0.5° 1.6 XXX .01 0.5° 1.6		
PROJECT NO:	472-3740	MATERIAL:	1018 STEEL	LUMBAR SPINE FLEX JOINT BOTTOM PLATE DRAWING NO: 472-3742
CHECKED BY:	B. KIMES	DATE:	9/20/2011	
HEAT TREAT:		ENGINEER:	J. WANG	SCALE: 1.000 SHEET: 1 OF 1
FINISH:	SEE NOTES	DATE:	1/17/2012	REV: D
TOTAL QTY IN DUMMY	1			



SCALE 1.000

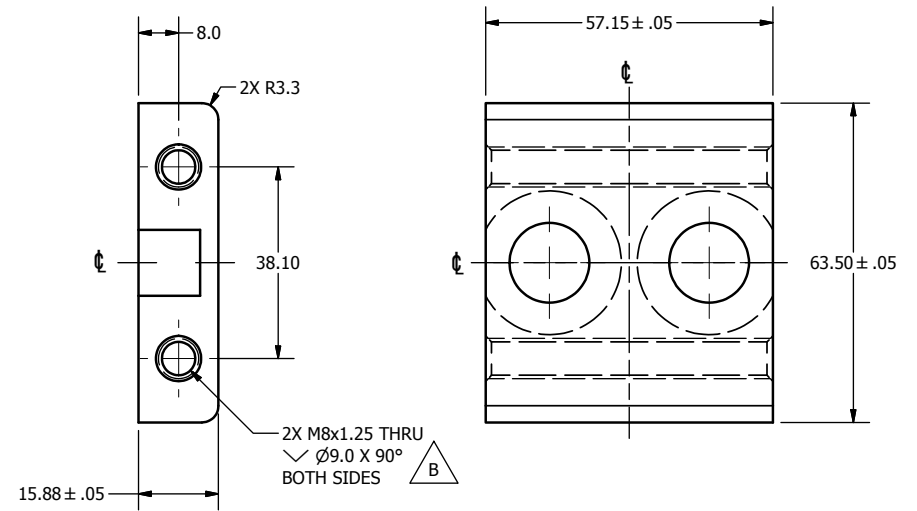


SECTION A-A
 SCALE 1.000

NOTES:

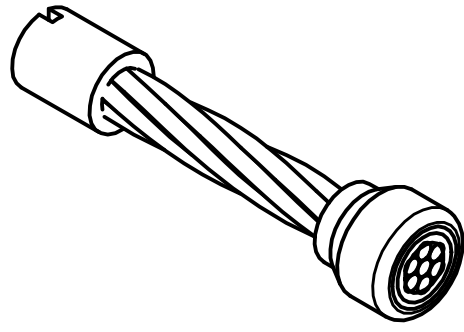
1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. SATIN FLASH CHROME PLATE 0.008mm MAX. AFTER MACHINING. \triangle
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM711 R80 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK
	B	2X M8 x 1.25 HOLES WERE $\varnothing 6.6$	6/15/2012	BK
	C	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	7/23/2012	CEF
	D	FINISH .008mm MAX. WAS .0003 MAX.	11/9/2012	BK

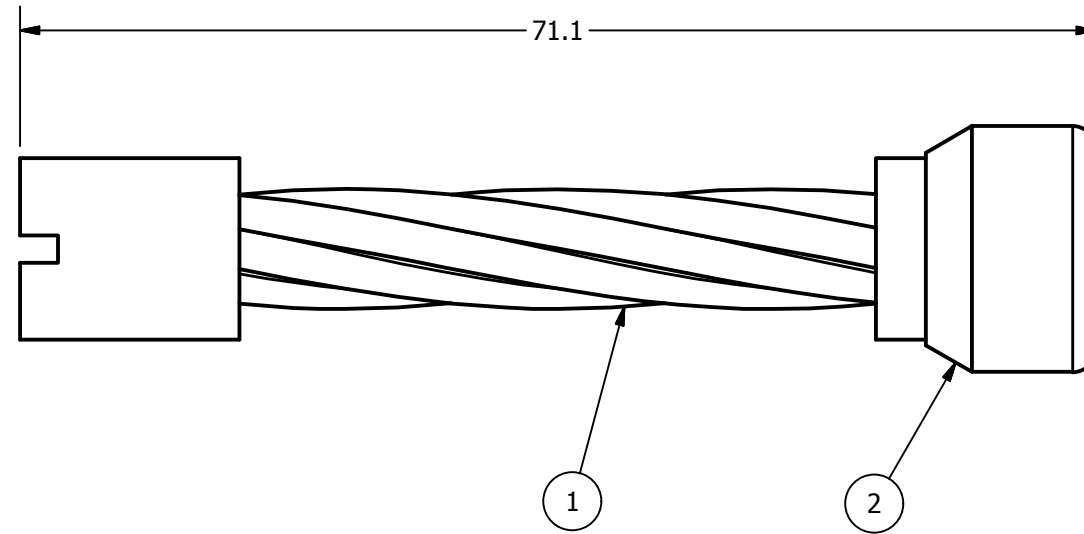
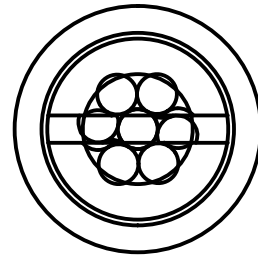


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 .005 1.6 X.X .012 .05 X.XX .02 .05 X.XXX .03 .05 X.XXX .031 .05		
PROJECT NO.:	472-3740	MATERIAL:	1018 STEEL	DESCRIPTION: LUMBAR SPINE FLEX JOINT TOP PLATE
DRIVEN BY:	B. KIMES	DATE:	9/20/2011	
CHECKED BY:	J. WANG	DATE:	1/17/2012	
FINISH:	SEE NOTES	SCALE:	1.000	
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	1	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3741

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM720 R7 AND CONVERTED TO METRIC FOR THOR-M	10/25/2011	BK



SCALE 1.000



NOTES:

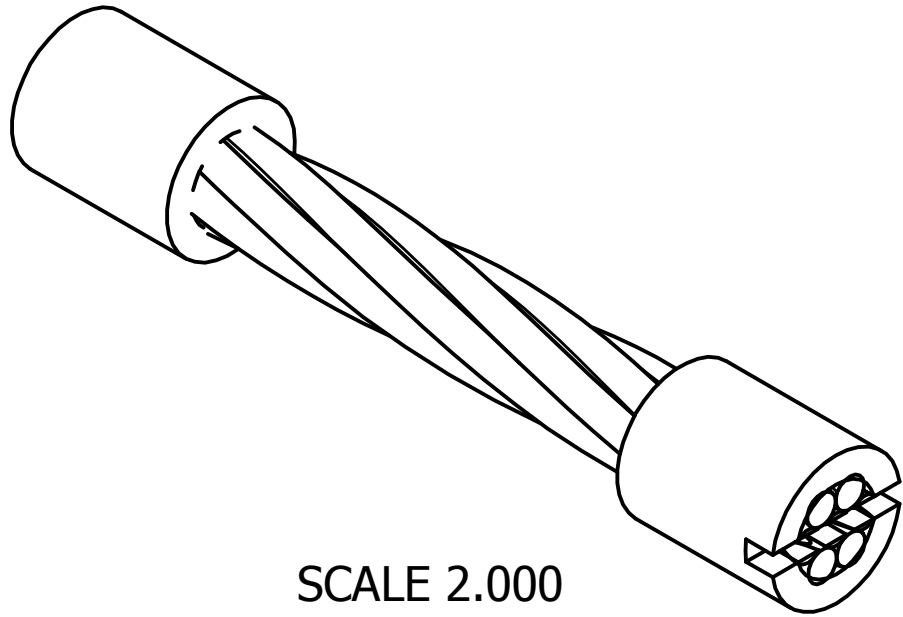
1. USE LOCTITE 271 OR EQUIVALANT TO LOCK 472-3743 IN PLACE AS SHOWN.
2. ONE SAMPLE FROM EACH ASSEMBLY BATCH NEEDS TO BE TESTED TO INSURE NO SLIPPAGE OF THE BALL OR THREADED SLEEVE ON THE CABLE SHALL OCCUR UNDER 1,700 LBS OF TENSILE LOAD.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3743	THREADED BALL END
1	1	472-3744	LUMBAR SPINE FLEX JOINT CABLE

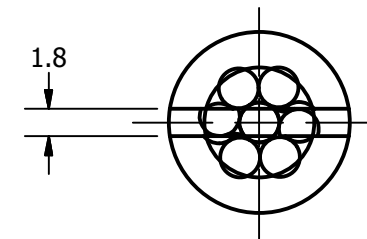
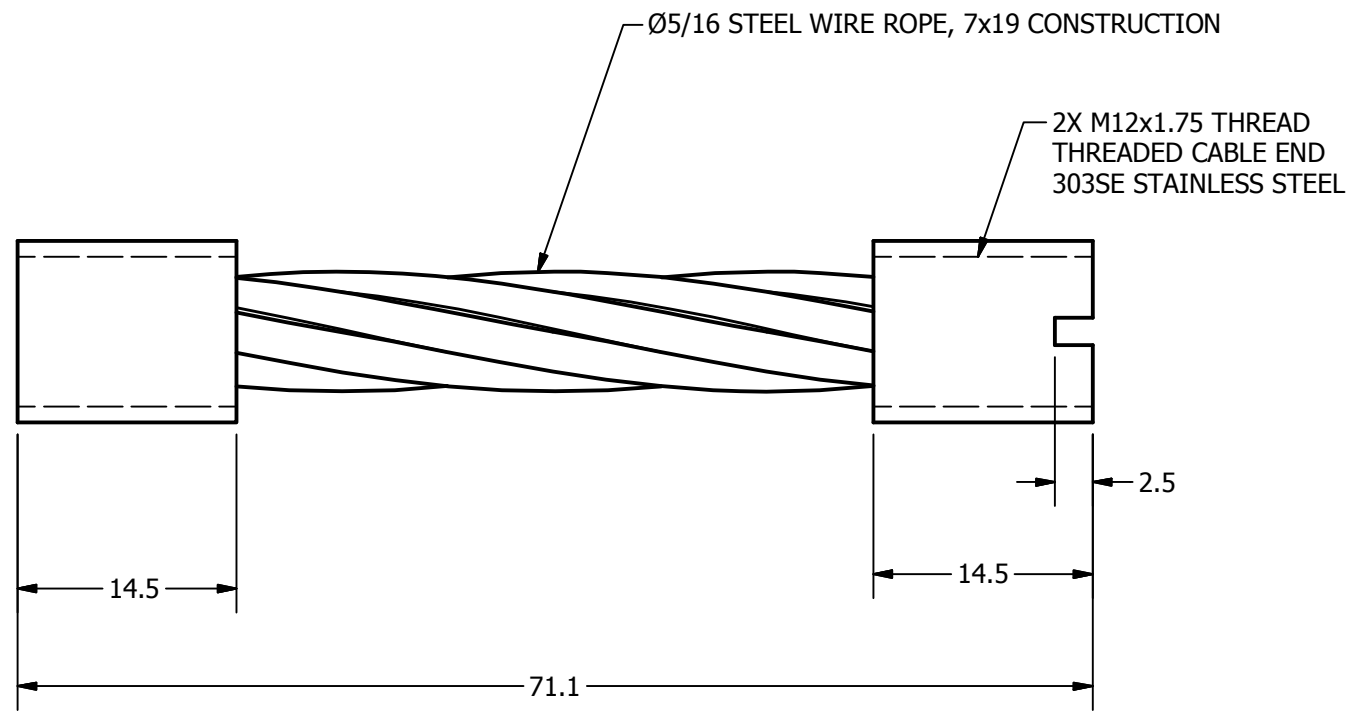
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ° ± 0.5 1.6 X.X ± 0.2 ° ± 0.5 1.6 X.XX ± 0.1 ° ± 0.5 1.6 X.XXX ± 0.01 ° ± 0.5 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:
MATERIAL:		CHECKED BY:	DATE:	LUMBAR SPINE FLEX JOINT CABLE ASSEMBLY
472-3746	2	B. KIMES	10/25/2011	
NEXT ASSEMBLY	QTY	ENGINEER:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	2	J. WANG	1/17/2012	A3 1 of 1
				SCALE: 2.000
				DRAWING NO.: 472-3745
				REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM721 R2 AND CONVERTED TO METRIC FOR THOR-M	10/25/2011	BK




SCALE 2.000

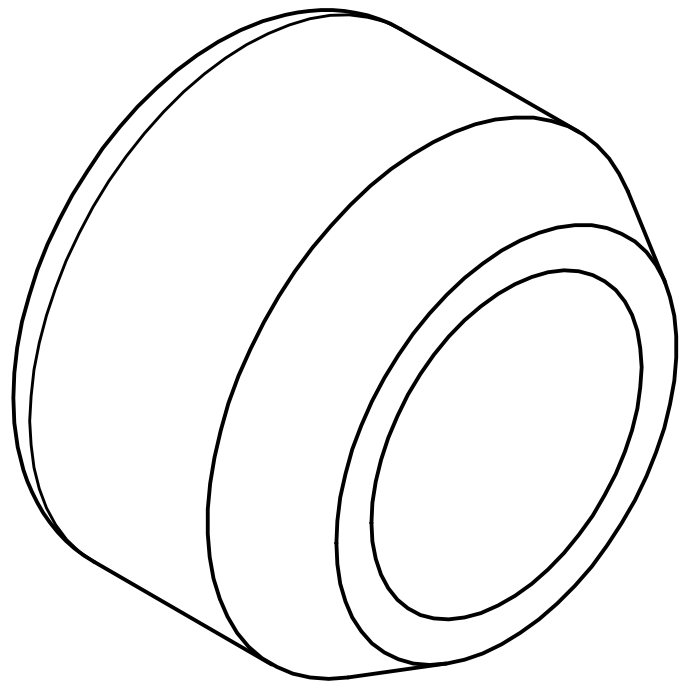


NOTES:

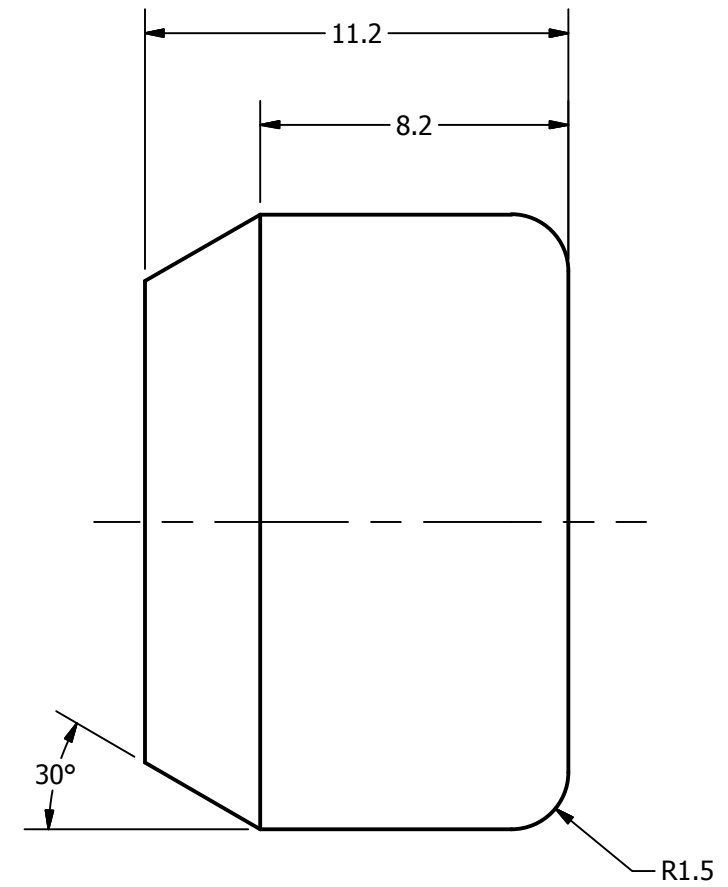
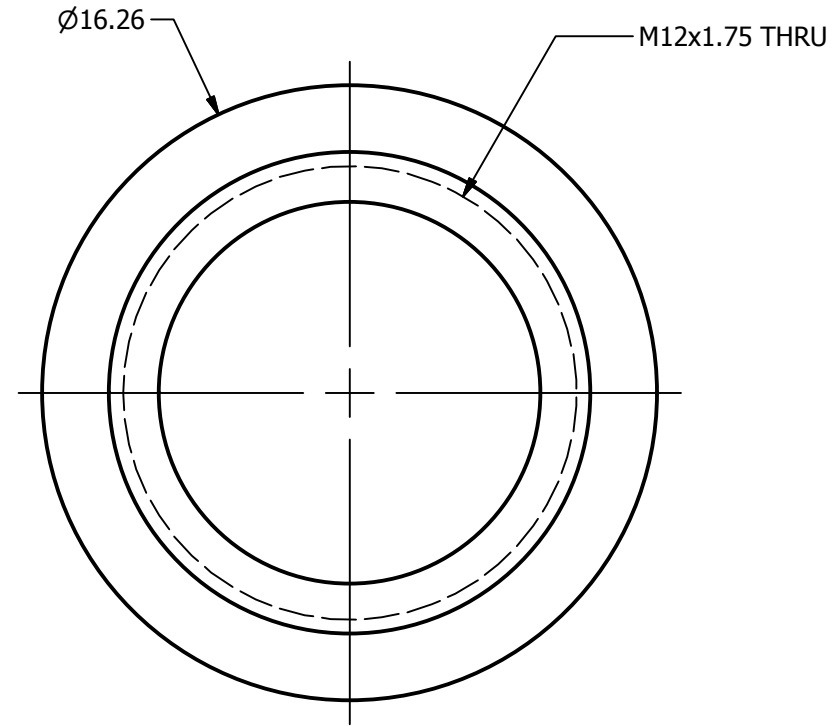
1. DIMENSIONS SHOWN ARE FINAL DIMENSIONS AFTER SWAGING.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
PROJECT NO.:	472-3745	MATERIAL:	1	DESCRIPTION: LUMBAR SPINE FLEX JOINT CABLE
HEAT TREAT:		CHECKED BY:	B. KIMES	DATE: 10/25/2011
FINISH:		ENGINEER:	J. WANG	DATE: 1/17/2012
TOTAL QTY IN DUMMY	2	SIZE:	A3	SHEET 1 OF 1
		SCALE:	2.000	DRAWING NO.: 472-3744

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM321 R9 AND CONVERTED TO METRIC FOR THOR-M	10/25/2011	BK

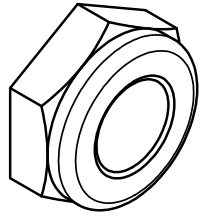


SCALE 5.000

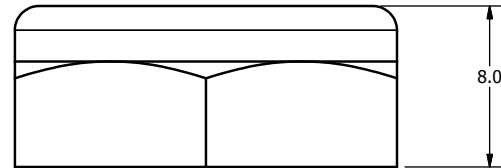
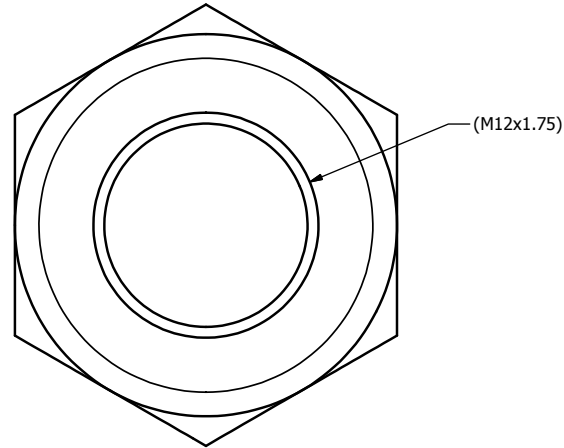


472-3745		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-3645		1	MATERIAL: 304 STAINLESS STEEL	 THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY: B. KIMES	DATE: 10/25/2011	REMOVE BURRS & BREAK SHARP EDGES	
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER: J. WANG	DATE: 1/17/2012	SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000	DRAWING NO.: 472-3743 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	10/25/2011	BK



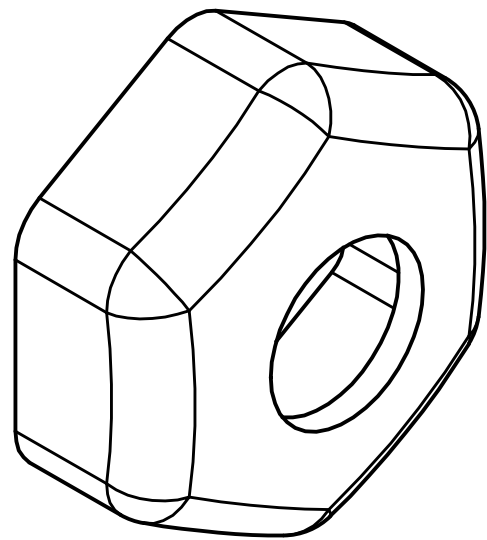
SCALE 2.000



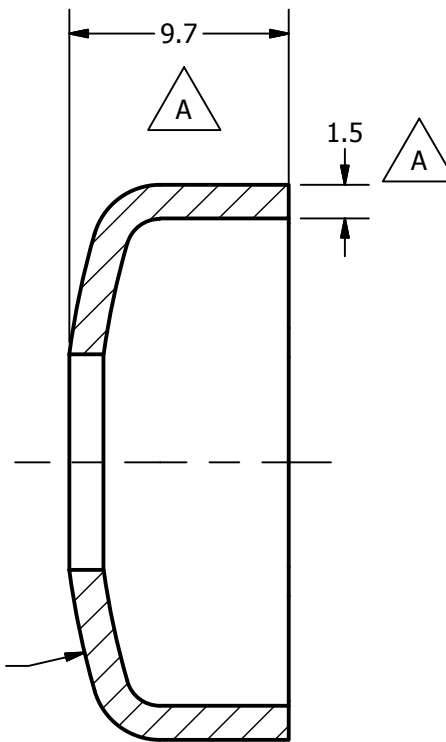
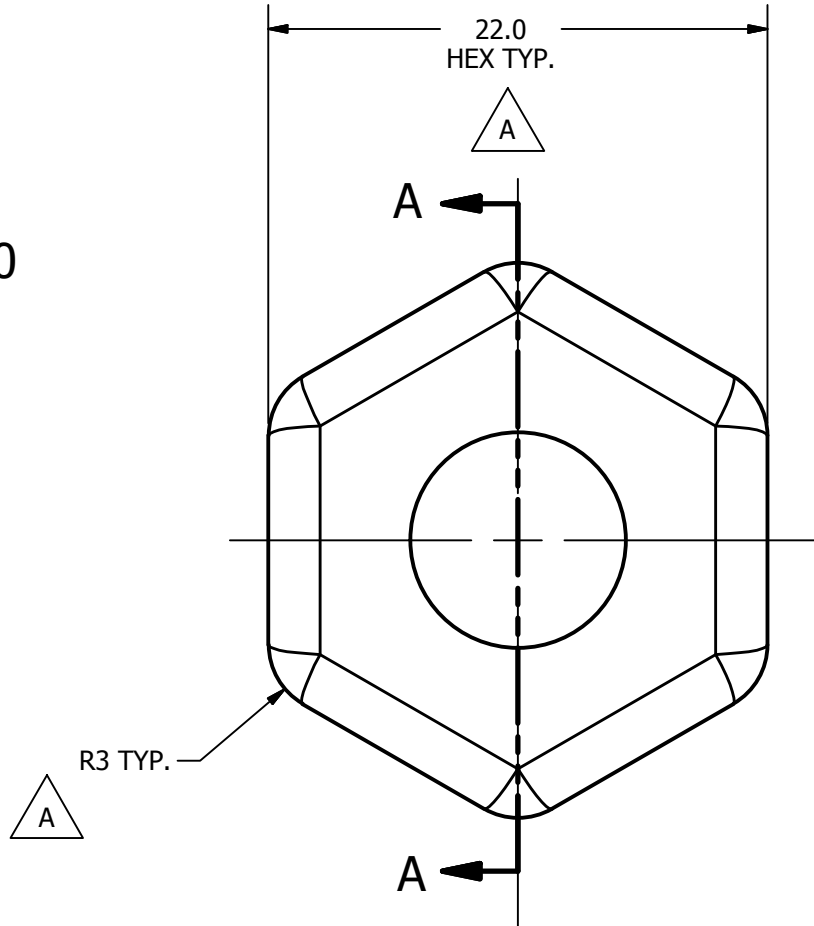
NOTES:

1. MAKE FROM 5000462 (M12x1.75 HEX HEAD LOCKNUT), MODIFY AS SHOWN.

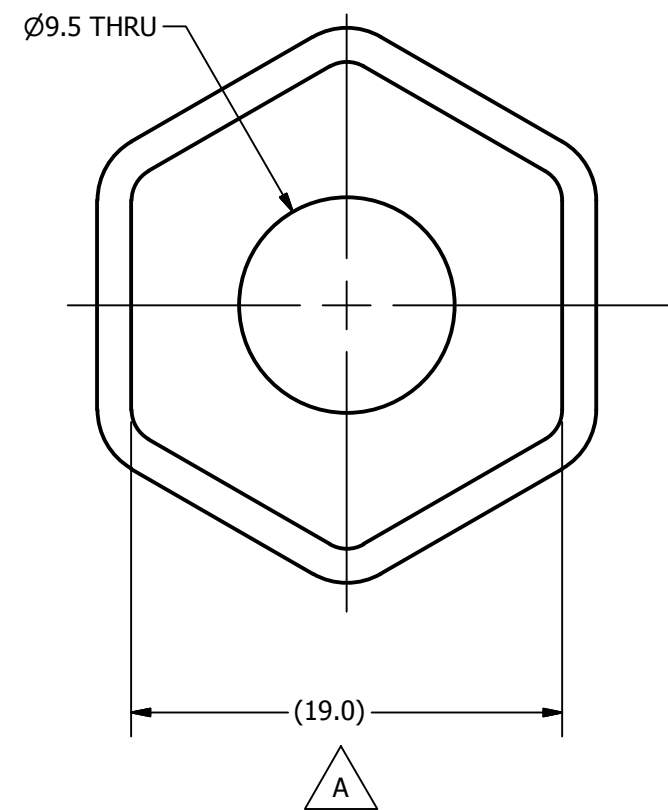
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5° 16 XX ±0.2 XXX ±0.3 XXXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3746	2	DATE:	10/25/2011
MATERIAL:	472-3646	2	CHECKED BY:	B. KIMES
NEXT ASSEMBLY	QTY	4	ENGINEER:	J. WANG
TOTAL QTY IN DUMMY	4	4	DATE:	1/17/2012
			SCALE:	4.000
			SIZE SHEET	A3 1 OF 1
			DRAWING NO.	472-3747
			REV.	A



SCALE 3.000



SECTION A-A
SCALE 3.000



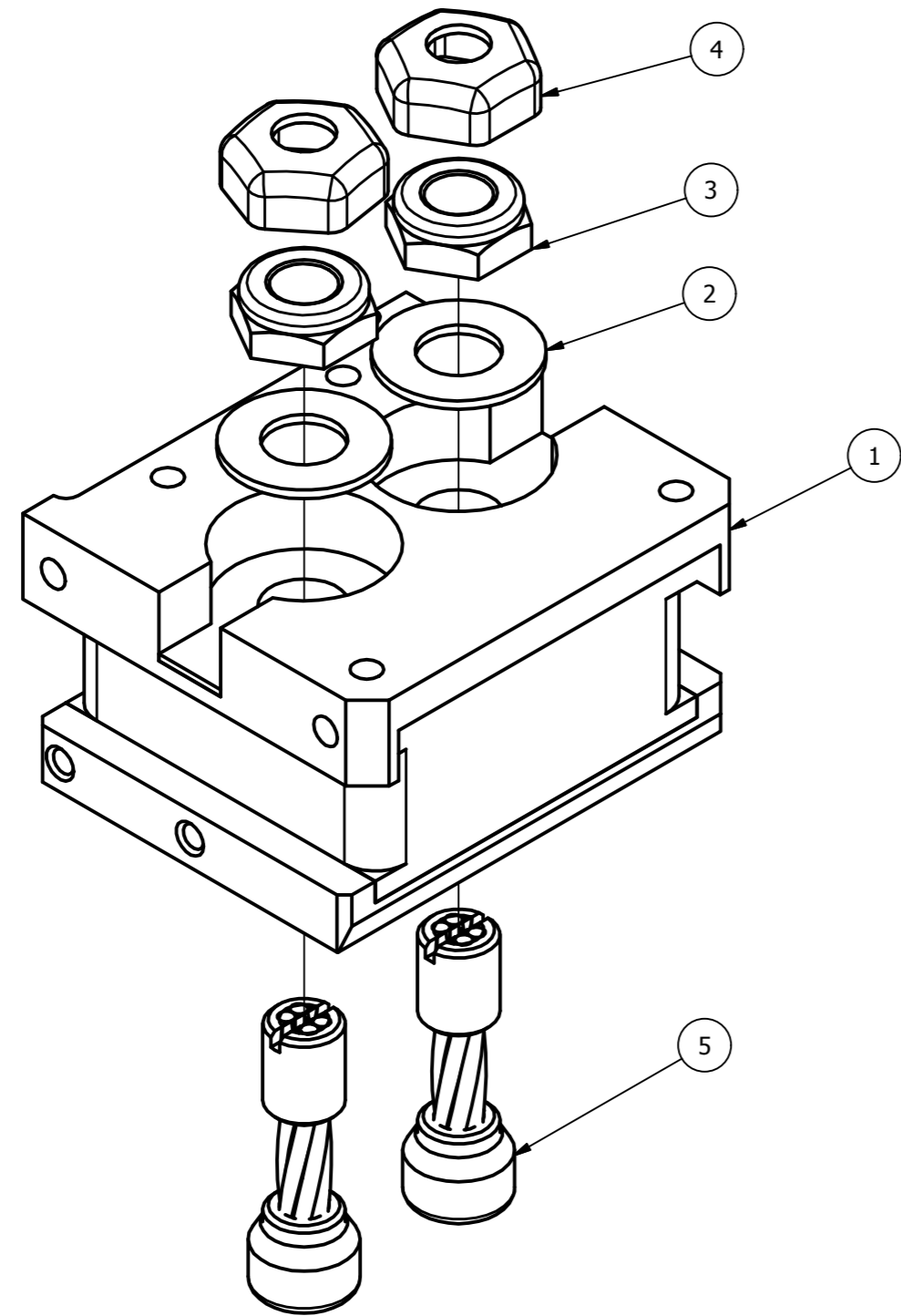
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM313 AND CONVERTED TO METRIC FOR THOR-M; 9.7 WAS 7.6; ADD 1.5, (19.0), R36, R3 TYP., 22.0 HEX TYP.	12/15/2011	BK
	B	IN NOTE 1, 65 ±5 SHORE A WAS 50 ±5 SHORE A	8/12/2014	DW

NOTES:

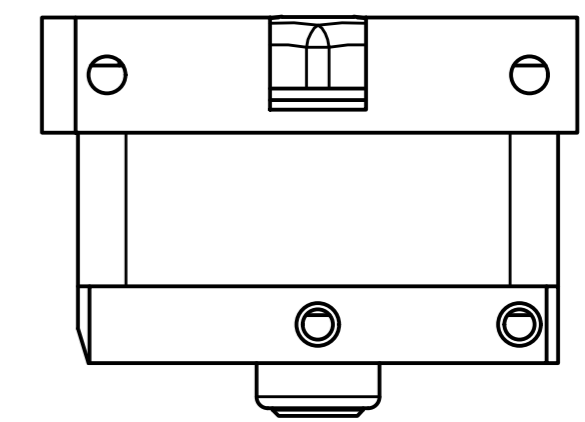
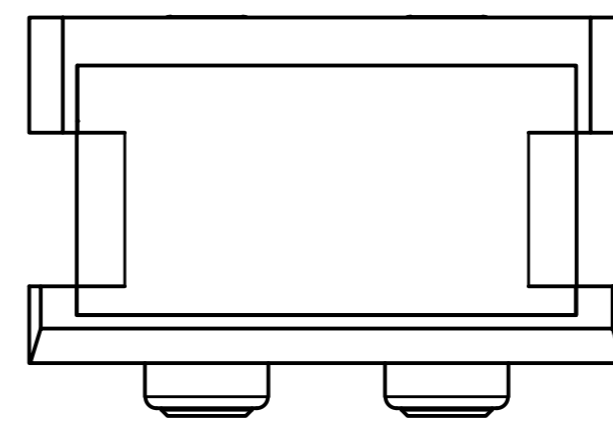
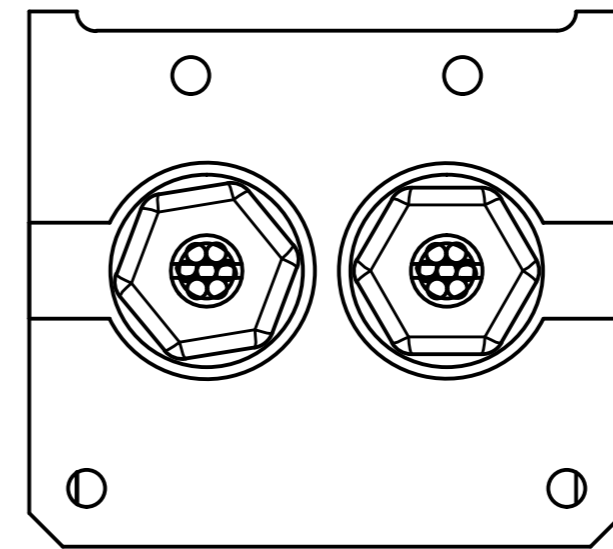
1. MATERIAL: POLYURETHANE OR EQUIVALENT, DUROMETER 65±5 SHORE A.
2. MUST COVER THE TOP OF A STANDARD METRIC LOCK NUT (REF #5000462).

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
472-3746	2	PROJECT NO.: THOR-M	DATE: 12/15/2011	DESCRIPTION: M12 VINYL NUT COVER
472-3646	2	MATERIAL: SEE NOTES	DRAWN BY: B. KIMES	
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY: J. WANG	DATE: 1/16/2012
TOTAL QTY IN DUMMY	4	FINISH:	ENGINEER: J. WANG	DATE: 1/16/2012
		SIZE: A3		SCALE: 3.000
		DRAWING NO.: 472-3647		REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	10/25/2011	BK

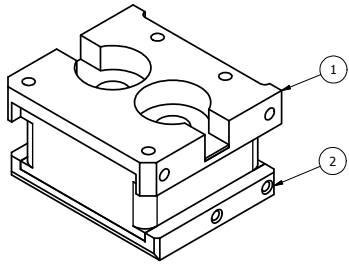


SCALE 1.000

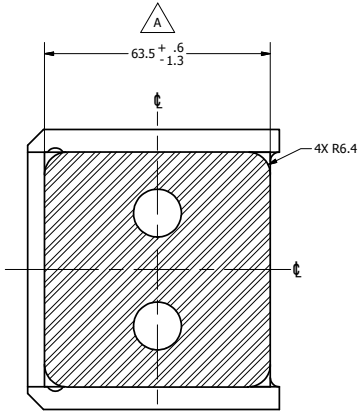


ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	472-3645	UPPER THORACIC SPINE FLEX JOINT CABLE ASS'Y.
4	2	472-3647	M12 VINYL NUT COVER
3	2	472-3747	M12x1.75 LOCKNUT, MODIFIED
2	2	9000135	WASHER FLAT 1/2 PTFE
1	1	472-3640	UPPER THORACIC SPINE FLEX JOINT MOLDED ASSEMBLY

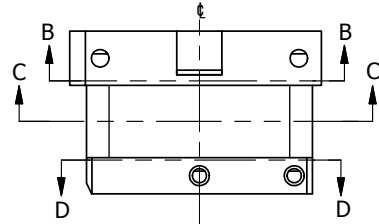
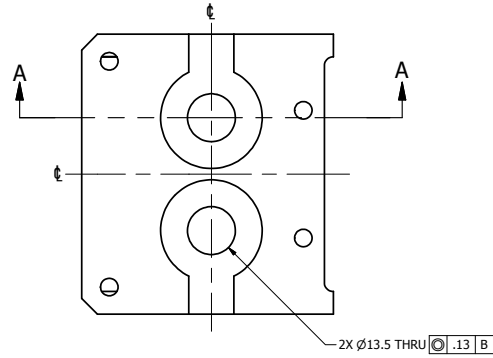
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05	
THOR-M		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	DATE:	DESIGNER:	DESCRIPTION:
472-3600	10/25/2011	B. KIMES	UPPER THORACIC SPINE FLEX JOINT ASSEMBLY
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:
		J. WANG	1/16/2012
		SIZE:	SHEET:
		A2	1 OF 1
		SCALE:	1.000
			DRAWING NO: 472-3646
			REV: A



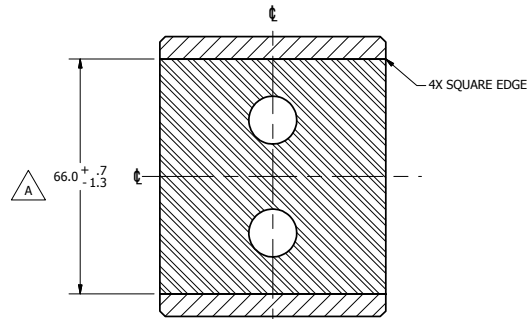
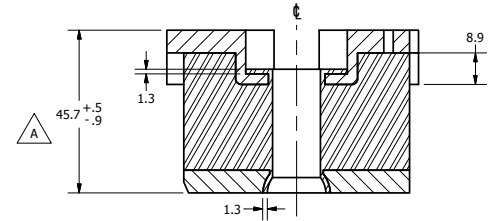
SCALE .750



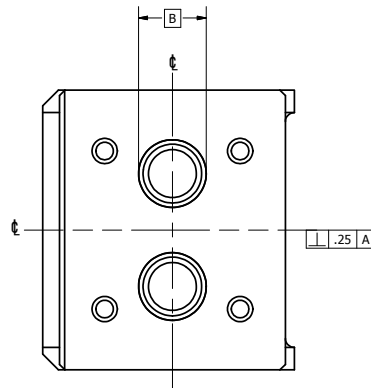
SECTION C-C
SCALE 1.000



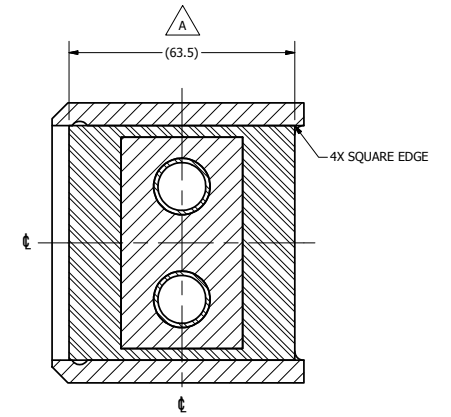
SECTION A-A
SCALE 1.000



SECTION D-D
SCALE 1.000



SECTION B-B
SCALE 1.000



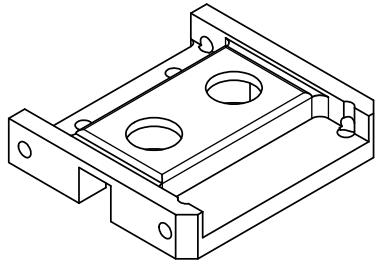
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM310 RB0 AND CONVERTED TO METRIC FOR THOR-M; 63.5 +.6/-1.3 WAS 63.5; 45.7 +.5/-0.9 WAS 45.7; 66.0 +.7/-1.3 WAS 66.0; ADD (63.5)	9/20/2011	BK

- NOTES:
- DIMENSIONS REPRESENT PART SIZE AFTER MOLDING.
 - RUBBER TOLERANCE ±0.5, UNLESS OTHERWISE SPECIFIED.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3642	UPPER THORACIC SPINE FLEX JOINT BOTTOM PLATE
1	1	472-3641	UPPER THORACIC SPINE FLEX JOINT TOP PLATE

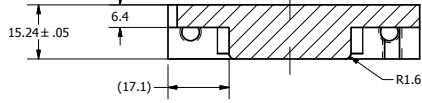
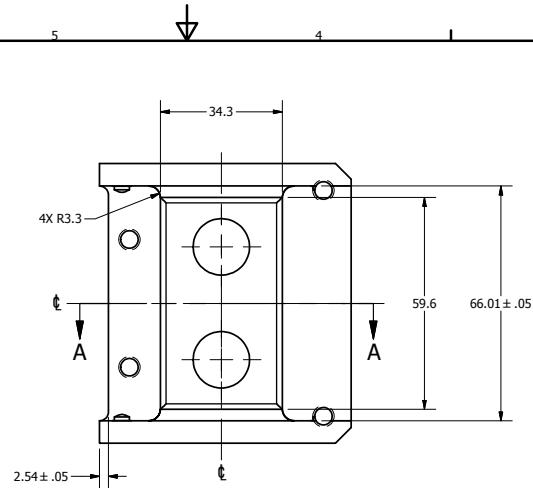
PARTS LIST	
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES DEGREES MINUTES SECONDS FRACTIONS ANGLES DEGREES MINUTES SECONDS HOLE DRILLING HOLE DRILLING HOLE DRILLING HOLE DRILLING

PARTS LIST		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3600	1	BUTYL RUBBER SHORE A 75±5	9/20/2011
NEXT ASSEMBLY	QTY	BY: B. KIMES	DATE: 9/20/2011
TOTAL QTY IN DUMMY	1	BY: J. WANG	DATE: 1/16/2012
		UPPER THORACIC SPINE FLEX JOINT MOLDED ASSEMBLY	
		A21 of 1	
		472-3640	

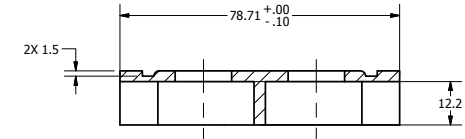
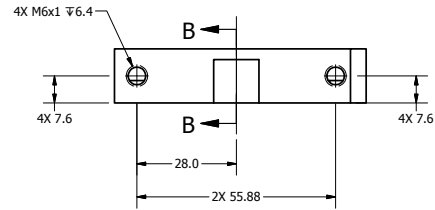


SCALE 1.000

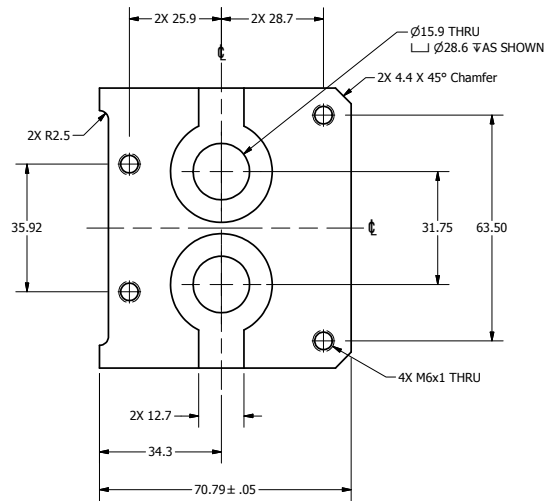
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM311 RBO AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK
	B	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	7/23/2012	CEF
	C	FINISH .008mm MAX. WAS .0003 MAX.	1/9/2012	BK



SECTION A-A
SCALE 1.000




SECTION B-B
SCALE 1.000

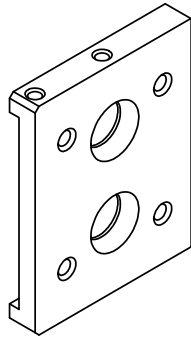


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
 2. POWDER OR BEAD BLAST.

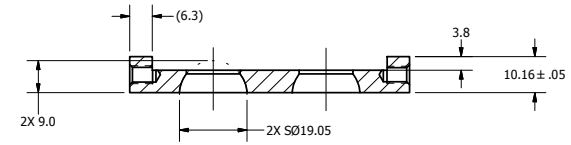
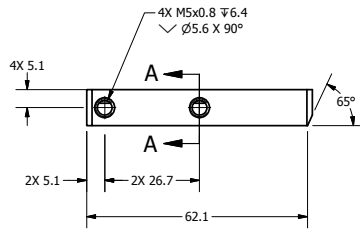
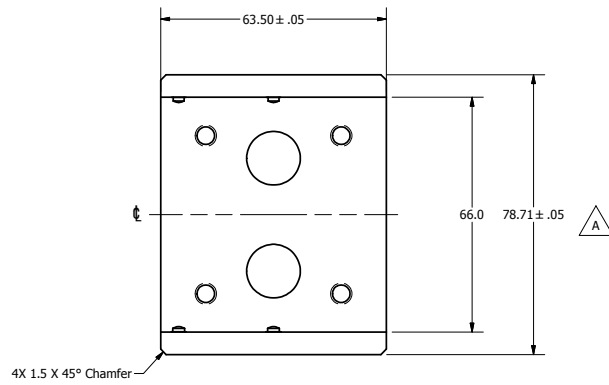


3. SATIN FLASH CHROME PLATE 0.008mm MAX. AFTER MACHINING. 
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

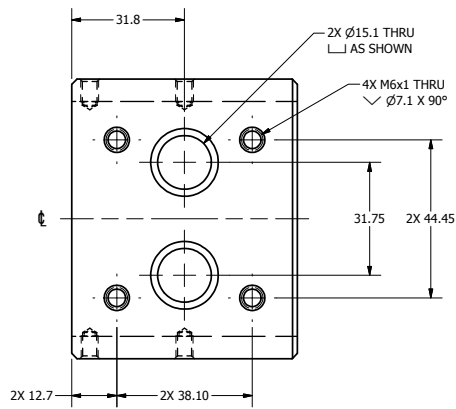
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE 0.0003 0.0005 0.001 0.002 0.005 0.010 0.020 0.050 0.100 0.150 0.200 0.300 0.500 1.000		SHOW DIMENSIONS & BREAKS ON ALL PARTS		UPPER THORACIC SPINE FLEX JOINT TOP PLATE	
472-3640	1	1018 STEEL	B. KIMES	9/20/2011	A21 of 1
NEXT ASSEMBLY	QTY	PREPARED BY	DATE	SCALE	1.000
TOTAL QTY IN DUMMY	1	SEE NOTES	J. WANG	1/16/2012	472-3641



SCALE 1.000



SECTION A-A
SCALE 1.000



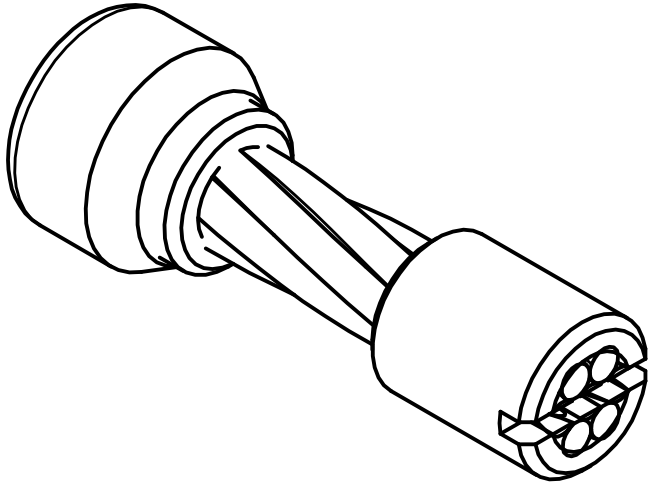
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T15PM312 RB0 AND CONVERTED TO METRIC FOR THOR-M; 78.71 +/- .05 WAS 78.71 +0/- .05	9/20/2011	BK
	B	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	9/20/2011	
	C	FINISH .008mm MAX. WAS .0003 MAX.	11/9/2012	BK

- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 2. POWDER OR BEAD BLAST.

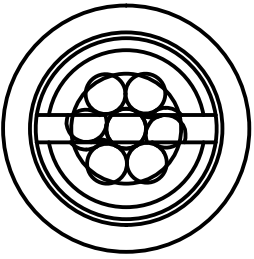
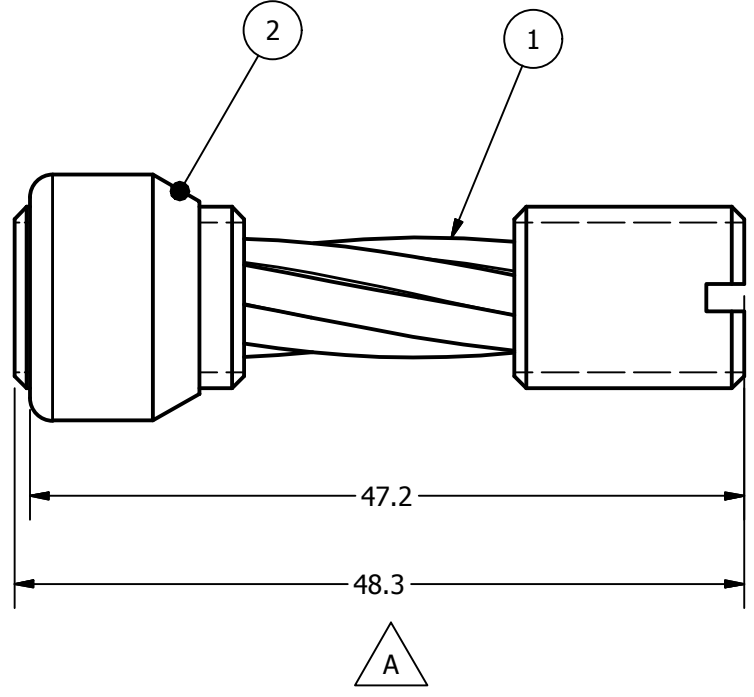
3. SATIN FLASH CHROME PLATE 0.008mm MAX. AFTER MACHINING. \triangle
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THREADED HOLES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS .1 .2 .5 1 2 3 4 5 6 8 10 .125 .156 .188 .250 .312 .375 .438 .500 .625 .750 .875 1.000 1.250 1.500 1.750 2.000 2.500 3.000 3.500 4.000 4.500 5.000 6.000 7.000 8.000 9.000 10.000		SHOW HIDDEN & BREAK DIMB DIMS B. KIMES 9/20/2011 UPPER THORACIC SPINE FLEX JOINT BOTTOM PLATE		
472-3640	1	1018 STEEL	9/20/2011	A21 of 1 1.000
NEXT ASSEMBLY	QTY	SEE NOTES	DATE	
TOTAL QTY IN DUMMY	1	SEE NOTES	11/16/2012	
			J. WANG	472-3642

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM320 R7 AND CONVERTED TO METRIC FOR THOR-M; ADD 48.3	10/25/2011	BK



SCALE 2.000



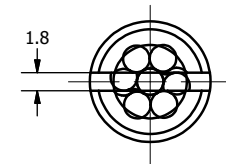
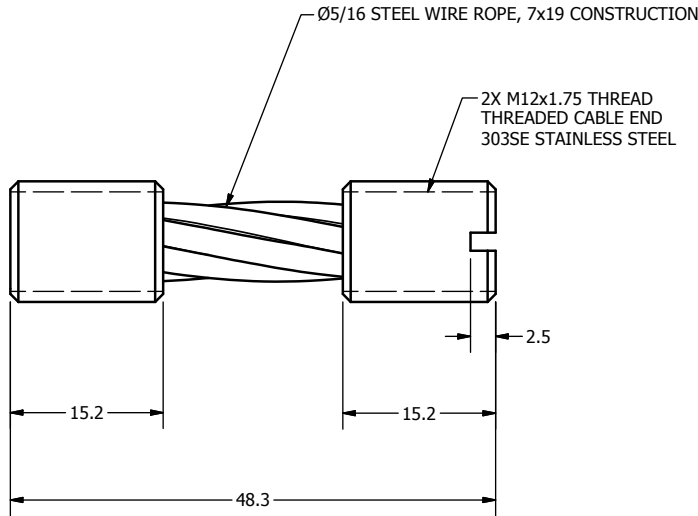
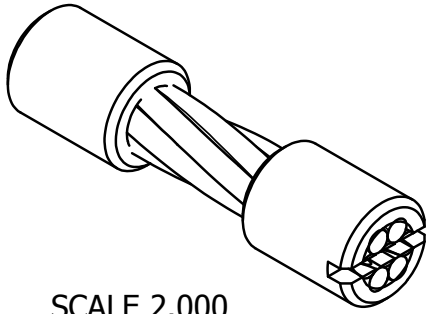
NOTES:

1. USE LOCTITE 271 OR EQUIVALANT TO LOCK 472-3743 IN PLACE AS SHOWN.
2. ONE SAMPLE FROM EACH ASSEMBLY BATCH NEEDS TO BE TESTED TO INSURE NO SLIPPAGE OF THE BALL OR THREADED SLEEVE ON THE CABLE SHALL OCCUR UNDER 1,700 LBS OF TENSILE LOAD.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3743	THREADED BALL END
1	1	472-3644	UPPER THORACIC SPINE FLEX JOINT CABLE

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ° ± 0.5 1.6 XX ± 0.2 ° ± 0.5 1.6 XXX ± 0.1 ° ± 0.5 1.6 XXXX ± 0.01 ° ± 0.5 1.6		
PROJECT NO.: THOR-M	DRAWN BY: B. KIMES	DATE: 10/25/2011	DESCRIPTION: UPPER THORACIC SPINE FLEX JOINT CABLE ASS'Y.	
MATERIAL:	HEAT TREAT:	CHECKED BY: J. WANG	DATE: 1/16/2012	SIZE: A3
NEXT ASSEMBLY	QTY	FINISH:	ENGINEER: J. WANG	DATE: 1/16/2012
TOTAL QTY IN DUMMY	2			SCALE: 2.000
			1 OF 1	DRAWING NO.: 472-3645

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM325 R1 AND CONVERTED TO METRIC FOR THOR-M	10/25/2011	BK

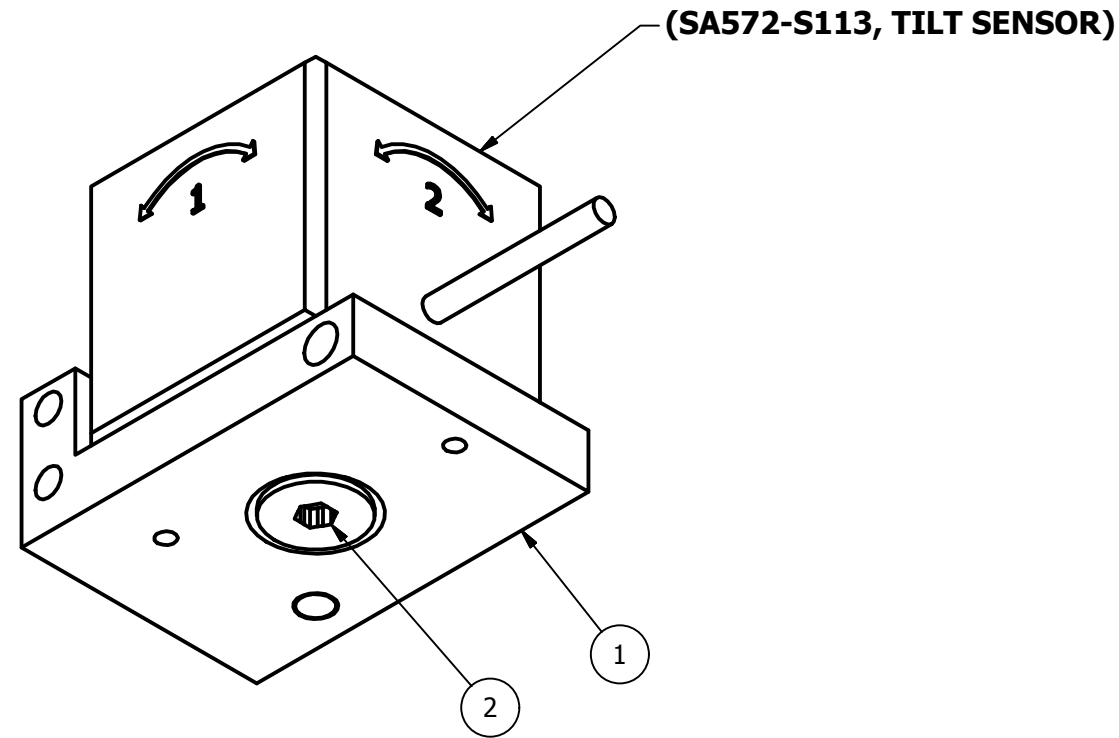


NOTES:

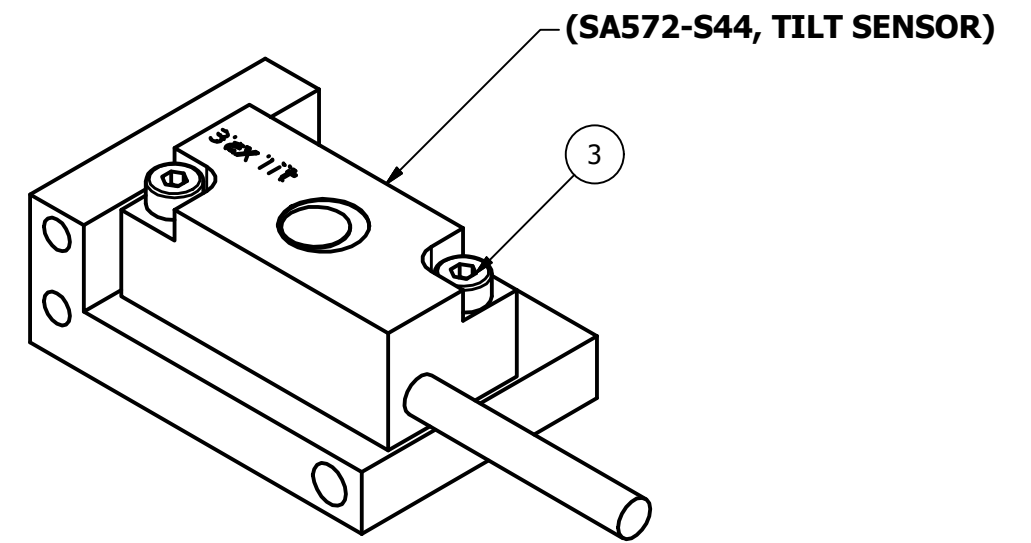
1. DIMENSIONS SHOWN ARE FINAL DIMENSIONS AFTER SWAGING.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.2 ±0.5° 16 XX ±0.2 ✓ XXX ±0.3 XXXX ±0.01		
PROJECT NO.:	472-3645	1	1	UPPER THORACIC SPINE FLEX JOINT CABLE DRAWING NO. 472-3644
MATERIAL:				
CHECKED BY:	B. KIMES	10/25/2011		
HEAT TREAT:				REMOVE BLURBS & BREAK SHARP EDGES DATE: 1/16/2012 ENGINEER: J. WANG
TOTAL QTY IN DUMMY	2	2	2	SCALE: 2.000 SIZE: A3 SHEET: 1 OF 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/10/2011	BK
	B	DESCRIPTION OF ITEM #1 PART #472-3773 WAS "TILT SENSOR MT, UPPER SPINE" AND REVISED ITEM #1 PART #472-3773; DRAWING TITLE WAS TILT SENSOR ASSEMBLY SA572-S113 & SA572-S44	7/6/2015	DW



472-3775-1

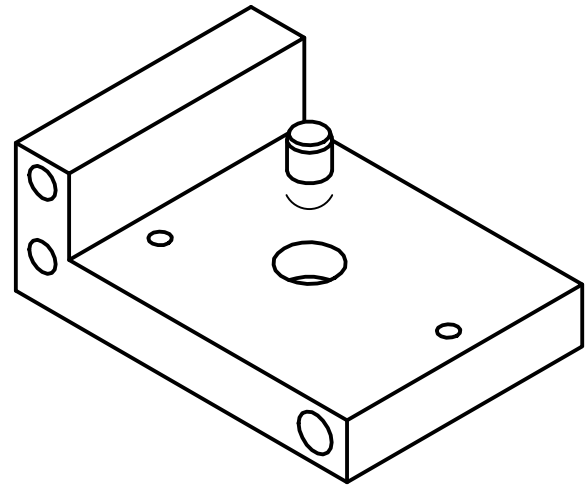


472-3775-2

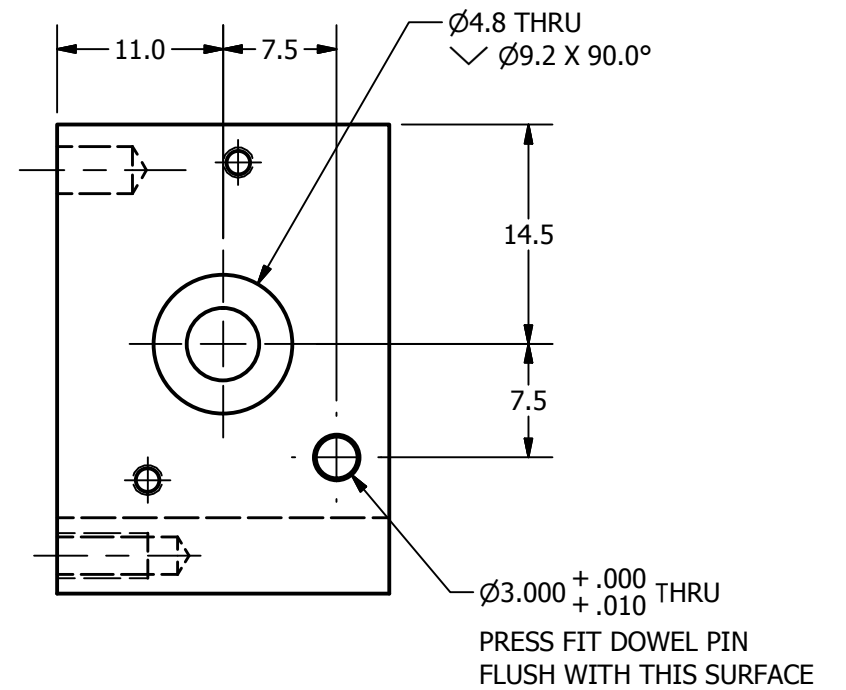
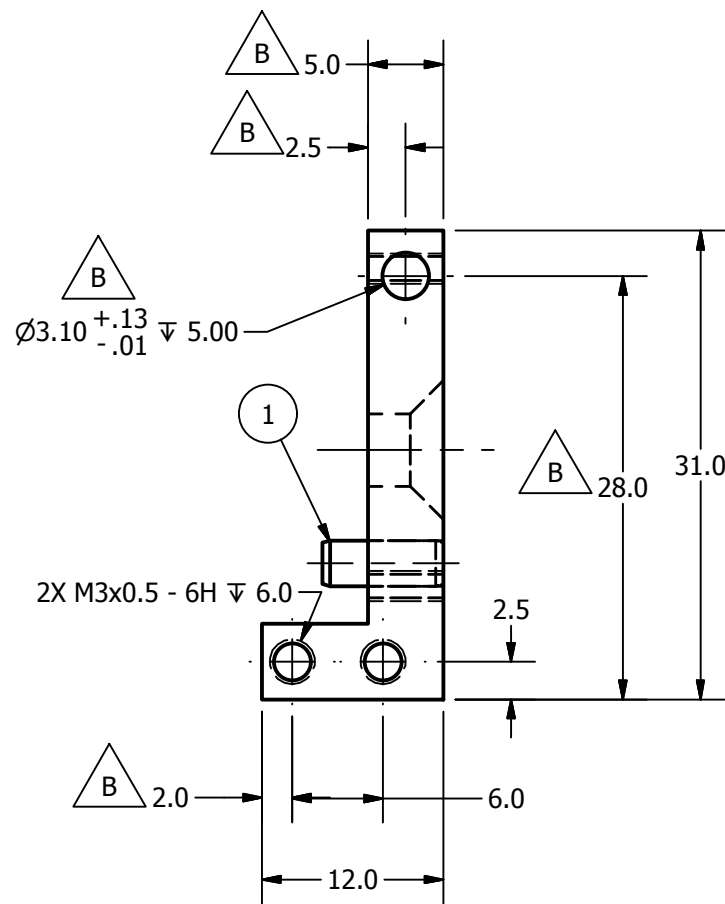
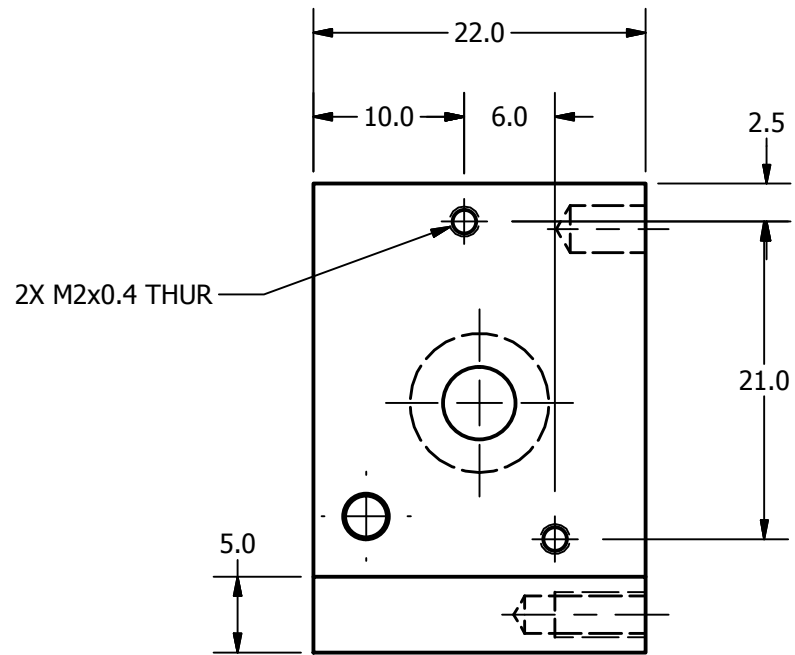
ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000215	M2 X 0.4 X 10 LG. SHCS
2	1	5000646	M4 X 0.7 X 8 LG. FHCS
1	1	472-3773	TILT SENSOR MOUNT, T6 SA572-S113 & SA572-S44

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
PROJECT NO.: THOR-M	DRAWN BY: B. KIMES	DATE: 11/10/2011	DESCRIPTION: TILT SENSOR ASSEMBLY, T6, SA572-S113 & SA572-S44	
MATERIAL:	HEAT TREAT:	CHECKED BY: J. WANG	DATE: 1/17/2012	SIZE: A3 1 OF 1
NEXT ASSEMBLY	QTY	ENGINEER:	DATE:	DRAWING NO.: 472-3775-1 & 2
TOTAL QTY IN DUMMY	1	FINISH:	SCALE: 2.000	REV: B



SCALE 2.000



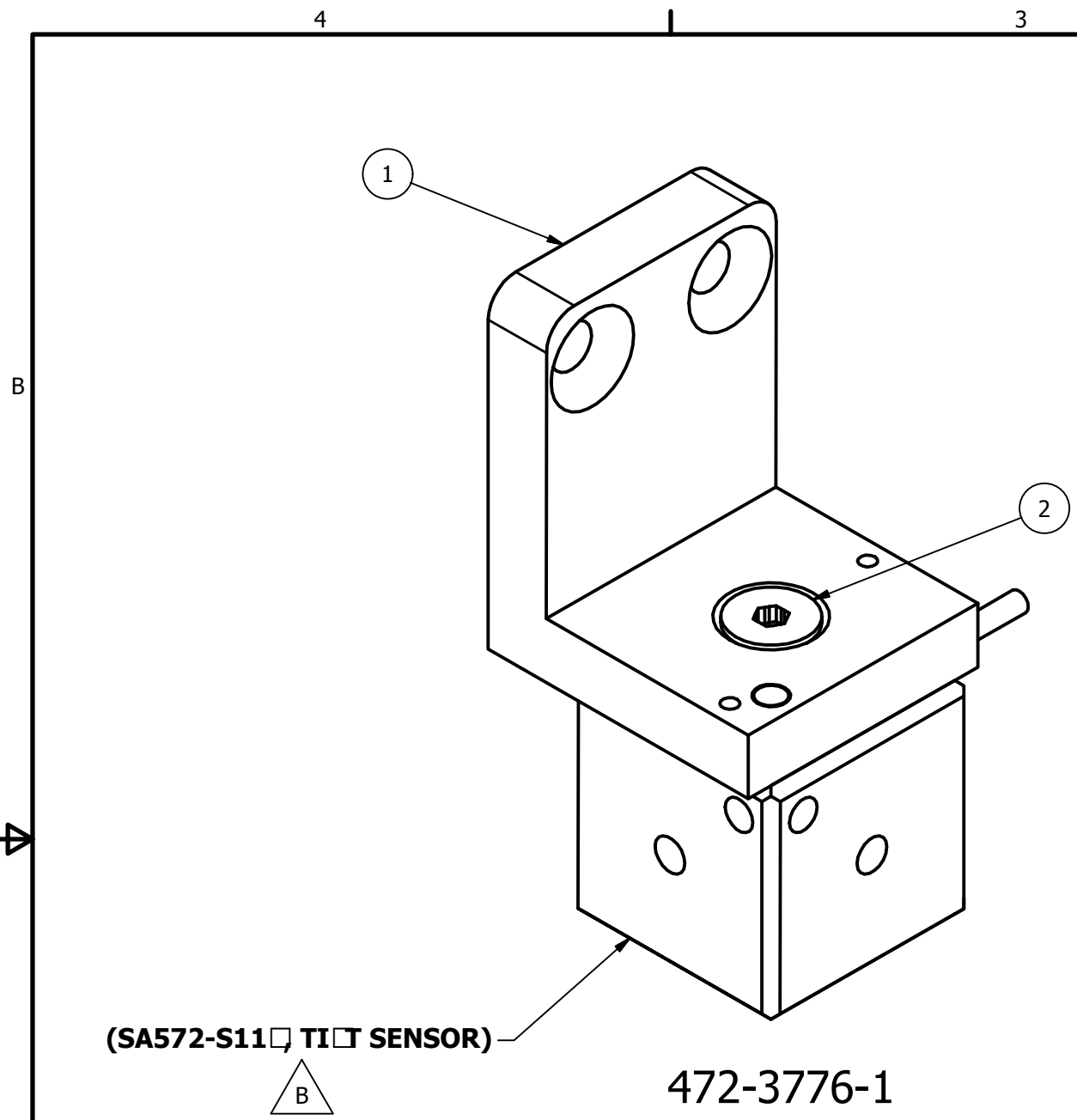
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	NEW DESIGN TO CORRECT SA572-S44 TILT SENSOR ORIENTATION	10/7/2011	JW
	B	DIMENSION 5.0 WAS 3.0 AND 2.0 WAS 3.0; ADDED HOLE Ø3.10 +.13/-0.01 THRU; ITEM #1 PART NUMBER 5000384 WAS 5000385 AND DESCRIPTION WAS M3 X 6 LG. DOWEL PIN; DRAWING TITLE WAS TILT SENSOR MT, UPPER SPINE SA572-S113 & SA572-S44	7/6/2015	DW

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000384	PIN, DOWEL M3 x 8

PARTS LIST

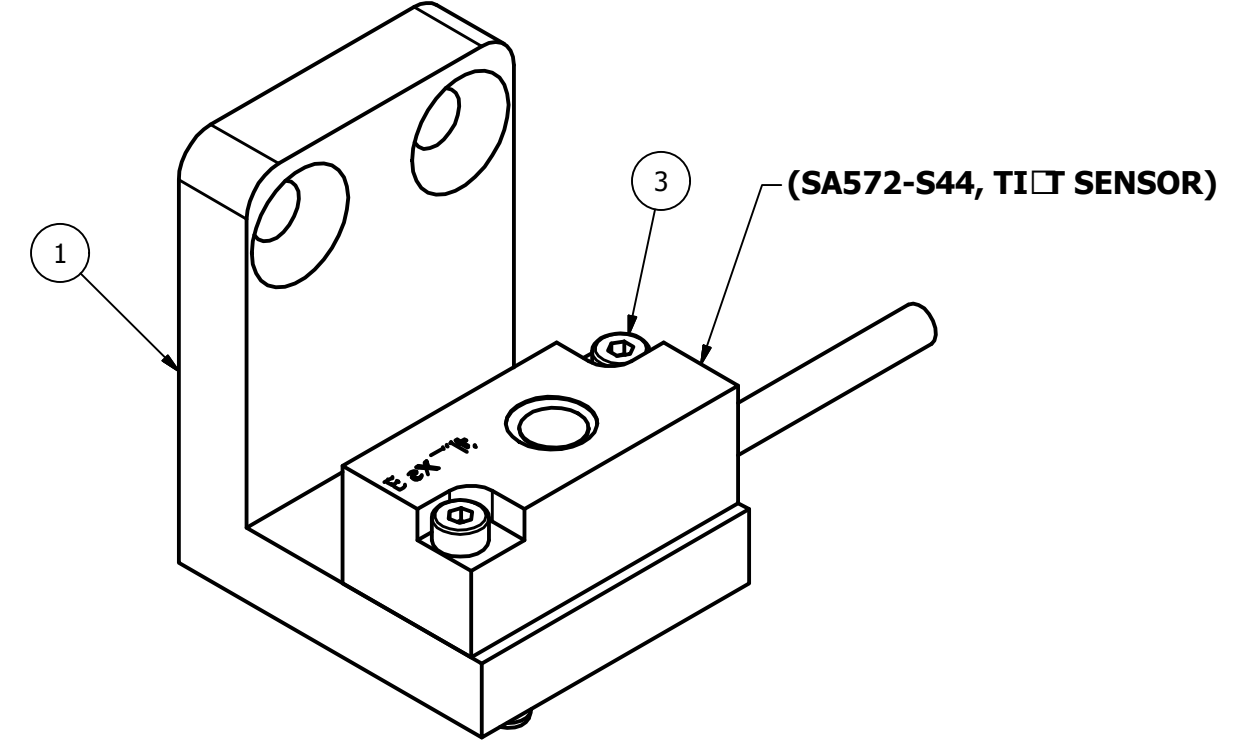
DO NOT SCALE DRAWING	TOLERANCES	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6	
PROJECT NO.: 472-3775-2	MATERIAL: 6061-T6 ALUMINUM	TILT SENSOR MOUNT, T6 SA572-S113 & SA572-S44 DRAWING NO.: 472-3773
472-3775-1	HEAT TREAT:	
NEXT ASSEMBLY	FINISH: CLEAR ANODIZE	
TOTAL QTY IN DUMMY		

DATE: 10/7/2011	DATE: 1/17/2012	SCALE: 2.000	SIZE: A3	SHEET: 1 OF 1
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472-3776-1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/11/2011	BK
	B	DRAWING TITLE WAS TILT SENSOR ASS'Y. THORACIC SPINE SA572-S113 & SA572-S44; REVISED ITEM #1 PART #472-3771 - TILT SENSOR MOUNT, T12, SA572-S44 & SA572-S113; MOVED TILT SENSOR, SA572-S113 TO UNDERSIDE OF BRACKET IN PART #472-3776-1	6/1/2015	DW



472-3776-2

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000215	M2 X 0.4 X 10 LG. SHCS
2	1	5000646	M4 X 0.7 X 8 LG. FHCS
1	1	472-3771	TILT SENSOR MOUNT T12, SA572-S44 & SA572-S113

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ±0.5	±0.5 1.6
		XX ±0.2	
		XXX ±0.1	
		XXXX ±0.01	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL:		DRAWN BY:	DATE:
HEAT TREAT:		B. KIMES	11/11/2011
FINISH:		CHECKED BY:	DATE:
		J. WANG	1/17/2012
TOTAL QTY IN DUMMY		ENGINEER:	DATE:
1			

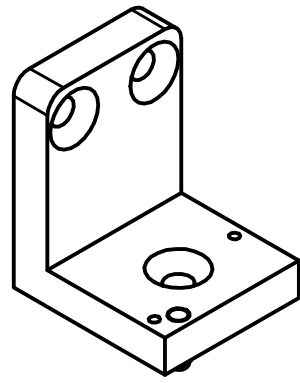
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: TILT SENSOR ASS'Y., T12, SA572-S113 & SA572-S44

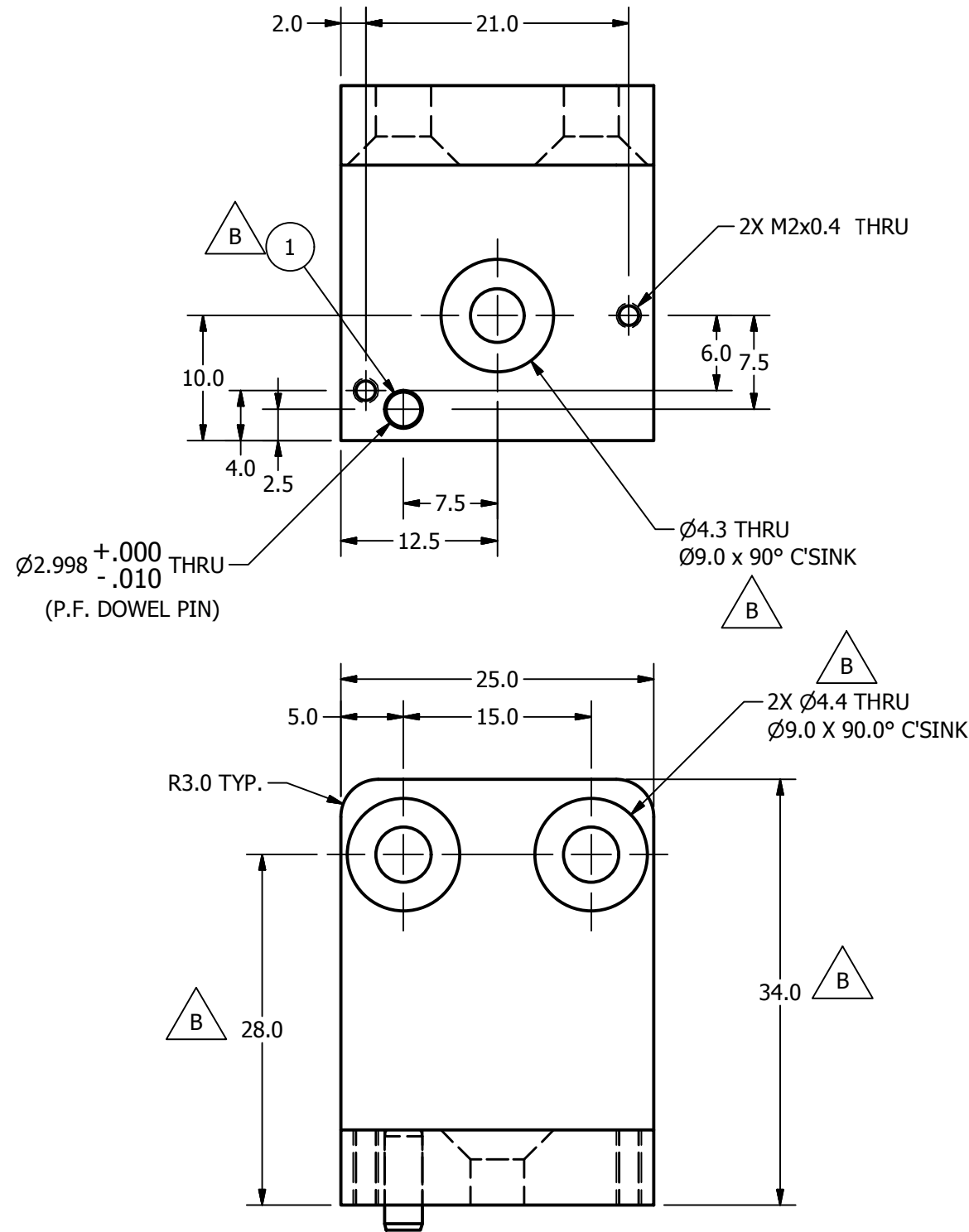
SCALE: 2.000

DRAWING NO.: 472-3776-1 & 2

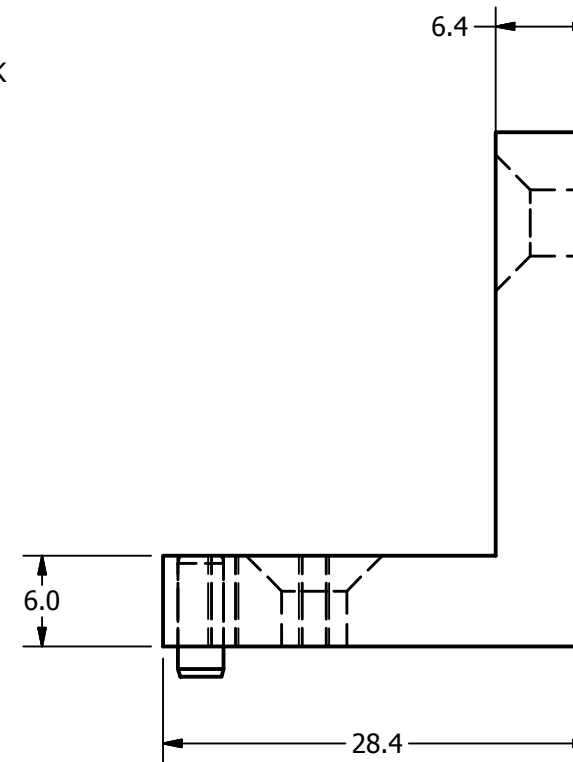
REV: B



SCALE 1.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1SPM612-00. REDESIGN TO CORRECT SA572-S44 TILT SENSOR MOUNTING ORIENTATION	10/5/2011	J.WANG
	B	HOLE DIMENSION 2X Ø4.4 THRU Ø9.0 X 90° C'SINK WAS 2X Ø4.4 THRU, DIM. 34.0 WAS 38.0, AND 28.0 WAS 32.0; RELOCATED DOWEL PIN AND CHANGE PROTRUSION FROM TOP SIDE TO BOTTOM SIDE; MOVED C'SINK OF HOLE - Ø4.3 THRU Ø9.0 X 90° C'SINK - TO TOP SIDE; ADDED MATERIAL - 6061-T6 ALUM.; DRAWING TITLE WAS TILT SENSOR MOUNT, THORACIC SPINE SA572-S44 & SA572-S44	7/6/2015	DW

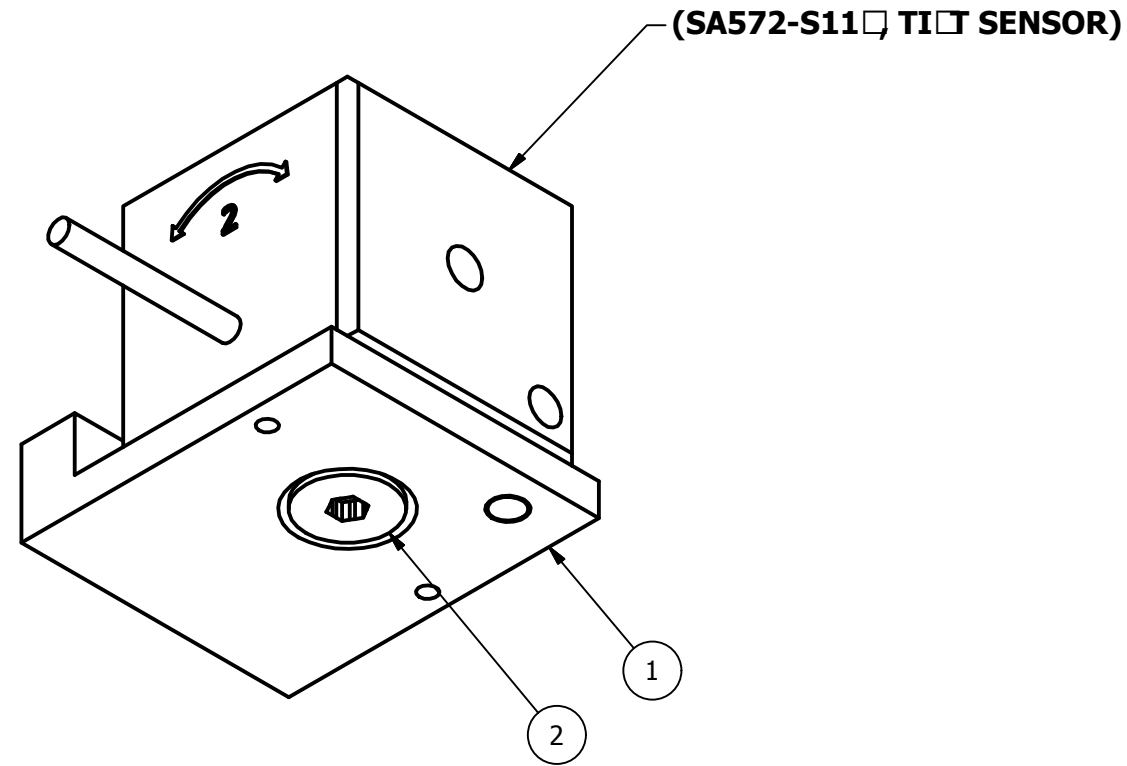


ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000384	M3 X 8 LG. DOWEL PIN

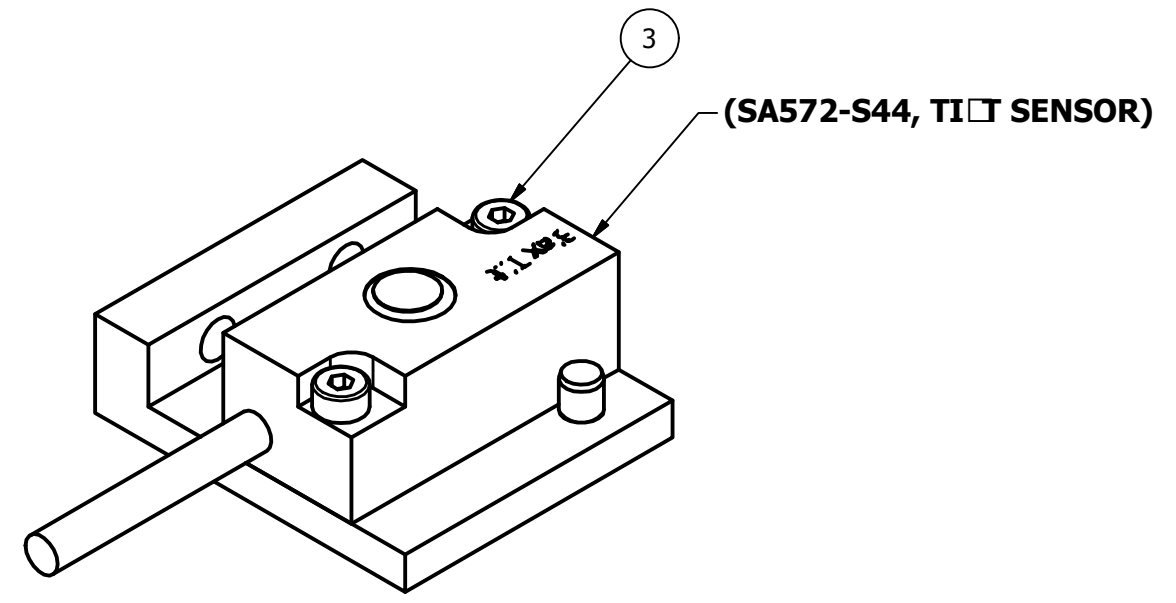
PARTS LIST

DO NOT SCALE DRAWING	TOLERANCES	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6	
PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION:
DRAWN BY: J. WANG	DATE: 10/5/2011	TILT SENSOR MOUNT T12, SA572-S44 & SA572-S113 THOR-M
CHECKED BY:	DATE:	SIZE: SHEET
ENGINEER: J. WANG	DATE: 1/17/2012	A3 1 of 1
TOTAL QTY IN DUMMY	1	SCALE: 2.000
		DRAWING NO.: 472-3771
		REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/11/2011	BK
	B	DRAWING TITLE WAS TILT SENSOR ASSY, REAR THORACIC SA572-S113 & SA572-S44	7/6/2015	DW



472-3777-1



472-3777-2

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000215	SCREW, SHCS M2-0.4 x 10
2	1	5000646	M4 X 0.7 X 8 LG. FHCS
1	1	472-3772	TILT SENSOR MOUNT, REAR THORACIC

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ±0.5	±0.5 1.6
		XX ±0.2	
		XXX ±0.1	
		XXXX ±0.01	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL:		DRAWN BY:	DATE:
HEAT TREAT:		CHECKED BY:	DATE:
FINISH:		ENGINEER:	DATE:

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: TILT SENSOR ASSY., PELVIS, SA572-S113 & SA572-S44

DRAWN BY: B. KIMES DATE: 11/11/2011

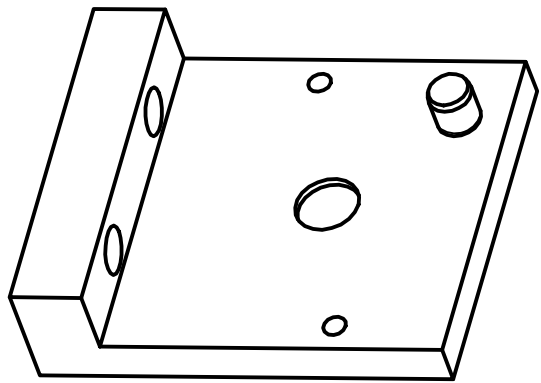
CHECKED BY: DATE:

ENGINEER: J. WANG DATE: 1/17/2012

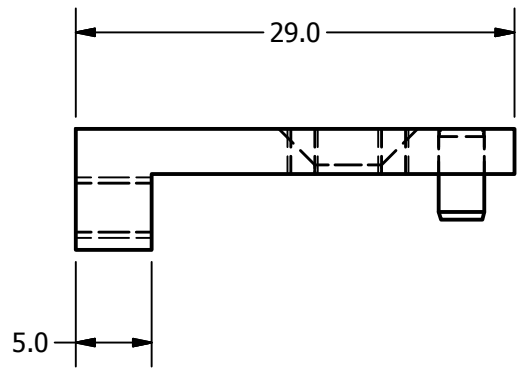
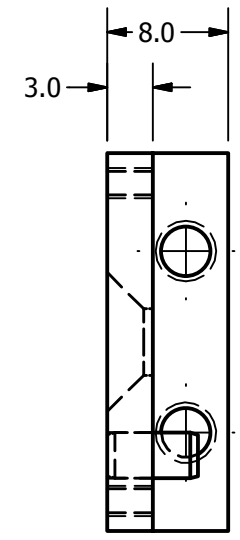
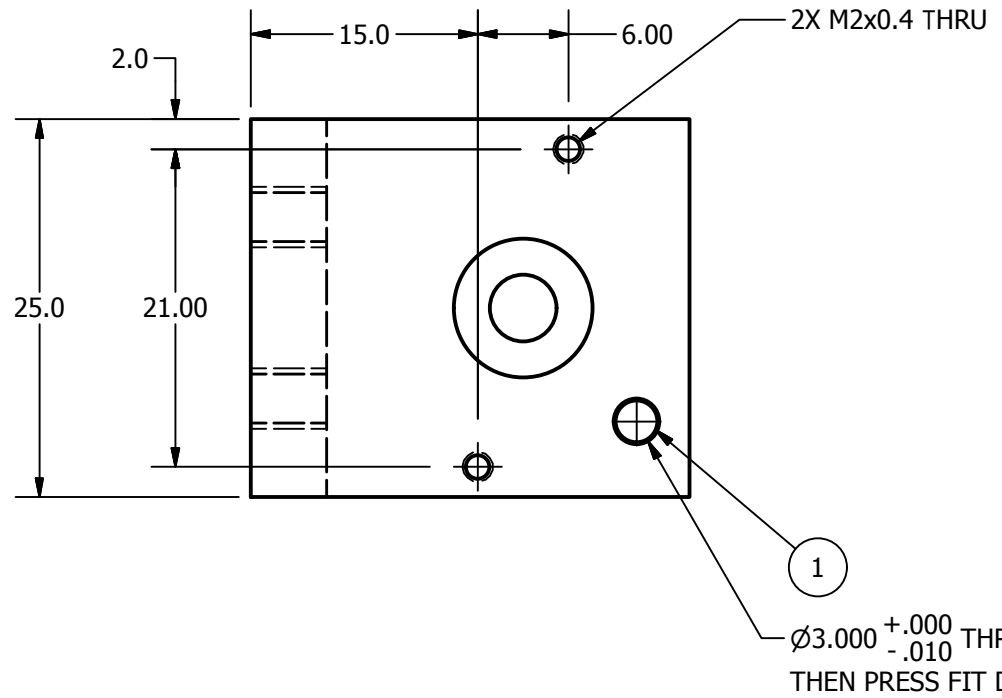
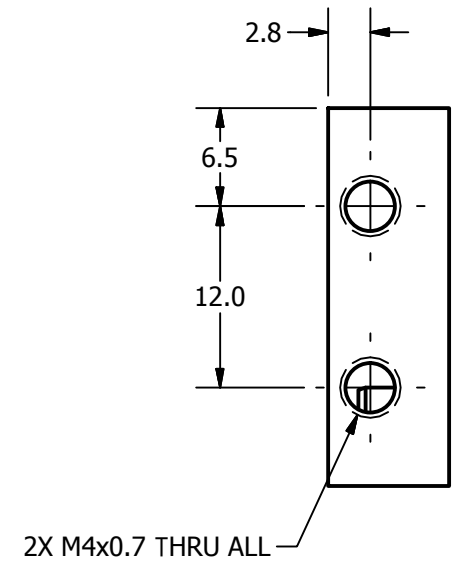
SCALE: 2.000

SIZE: SHEET B 1 OF 1 DRAWING NO.: 472-3777-1 & 2 REV: B

472-3600	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	NEW DESIGN TO CORRECT SA572-S44 TILT SENSOR ORIENTATION	10/7/2011	JW
	B	MATERIAL WAS 1018 STEEL; DRAWING TITLE WAS TILT SENSOR MOUNT, REAR THORACIC SA572-S44 & SA572-S113	7/6/2015	DW

- NOTES:
1. POWDER OR BEAD BLAST.
 2. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000385	M3 X 6 LG. DOWEL PIN

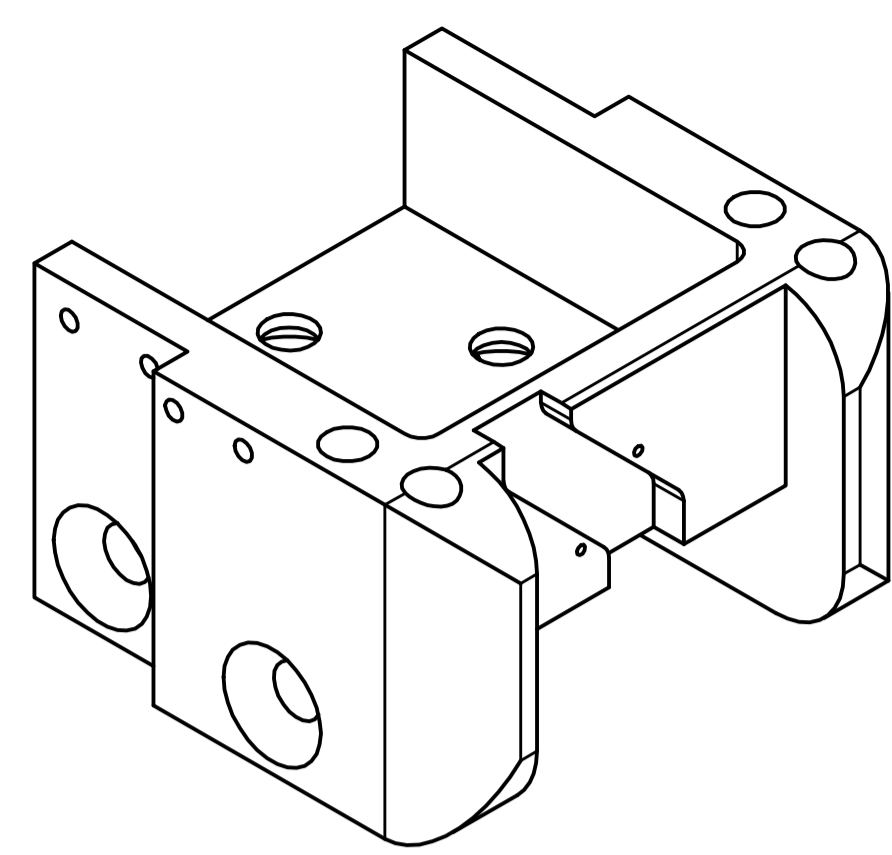
PARTS LIST

DO NOT SCALE DRAWING	TOLERANCES	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>														
<p>THIRD ANGLE PROJECTION</p>	<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</p> <table border="1"> <tr> <th>DECIMALS</th> <th>ANGLES</th> <th>FINISH</th> </tr> <tr> <td>X ± 0.5</td> <td>± 0.5</td> <td>1.6</td> </tr> <tr> <td>.XX ± 0.2</td> <td></td> <td></td> </tr> <tr> <td>.XXX ± 0.1</td> <td></td> <td></td> </tr> <tr> <td>.XXXX ± 0.01</td> <td></td> <td></td> </tr> </table> <p>REMOVE BURRS & BREAK SHARP EDGES</p>		DECIMALS	ANGLES	FINISH	X ± 0.5	± 0.5	1.6	.XX ± 0.2			.XXX ± 0.1			.XXXX ± 0.01	
DECIMALS	ANGLES	FINISH														
X ± 0.5	± 0.5	1.6														
.XX ± 0.2																
.XXX ± 0.1																
.XXXX ± 0.01																

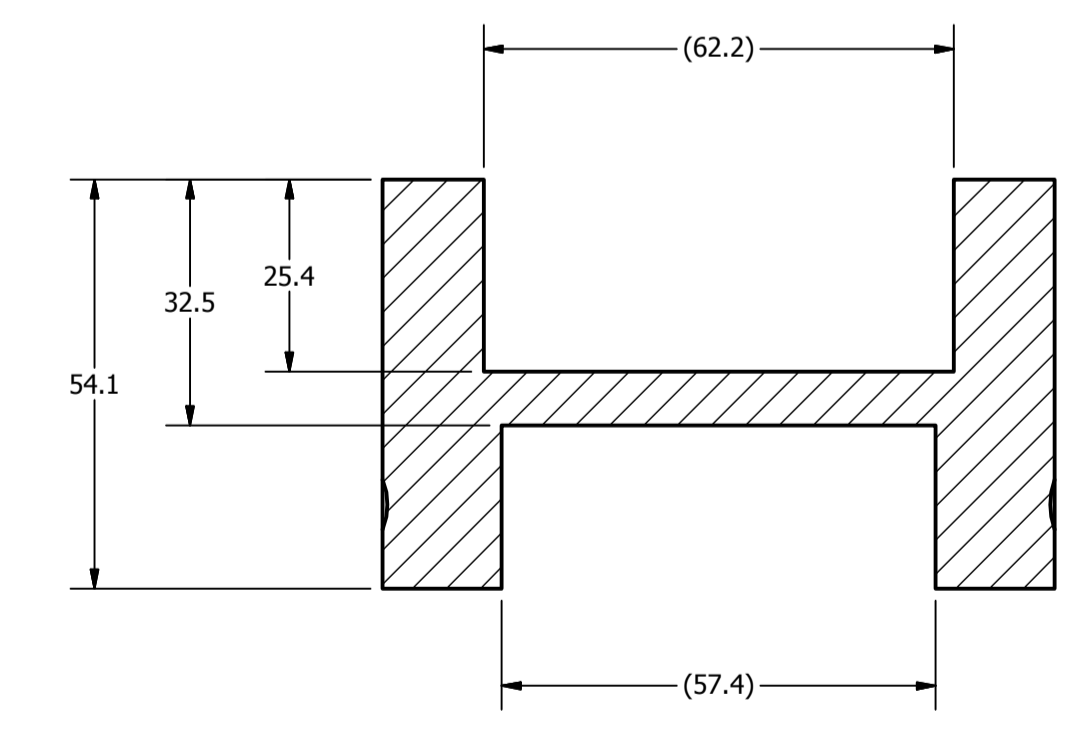
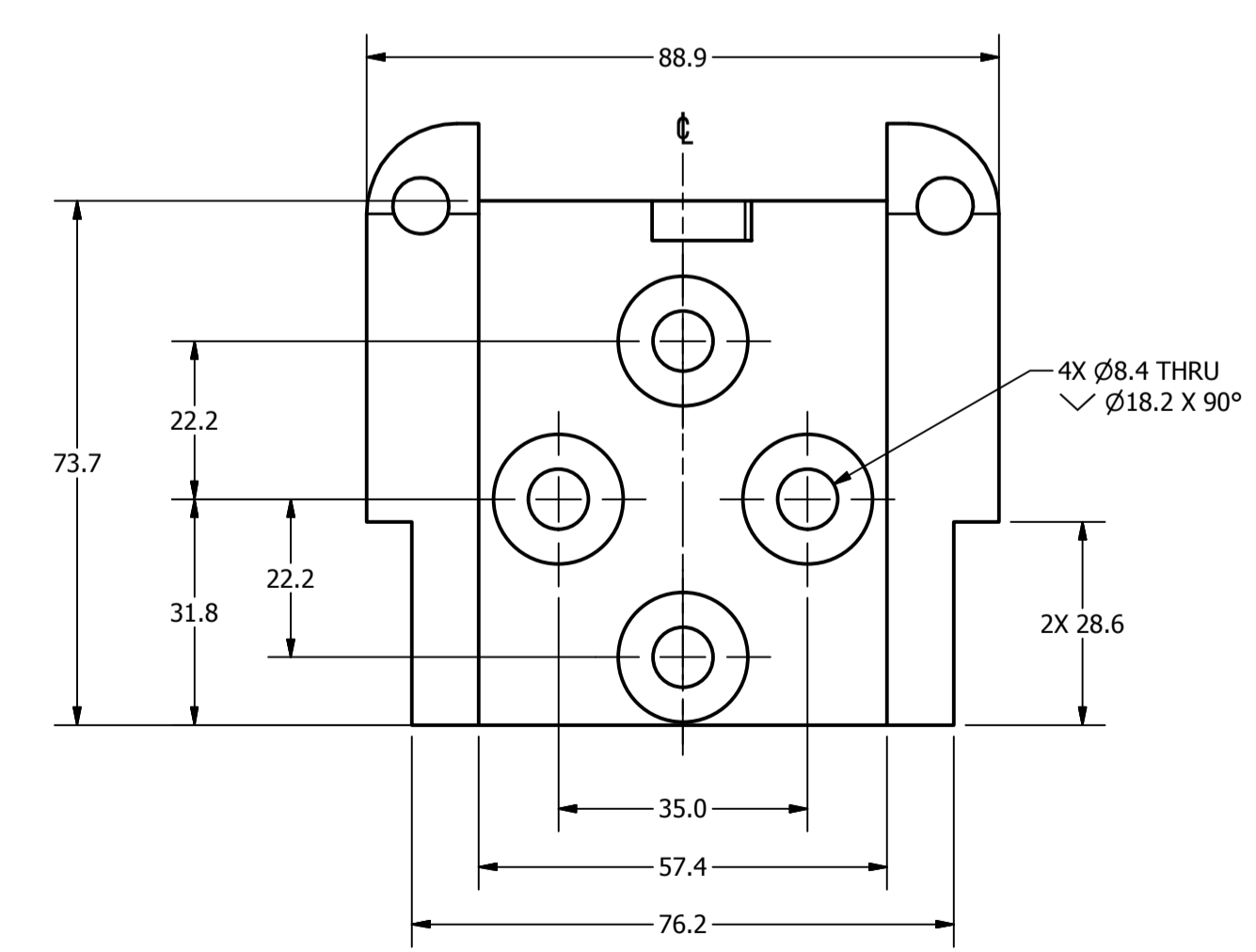
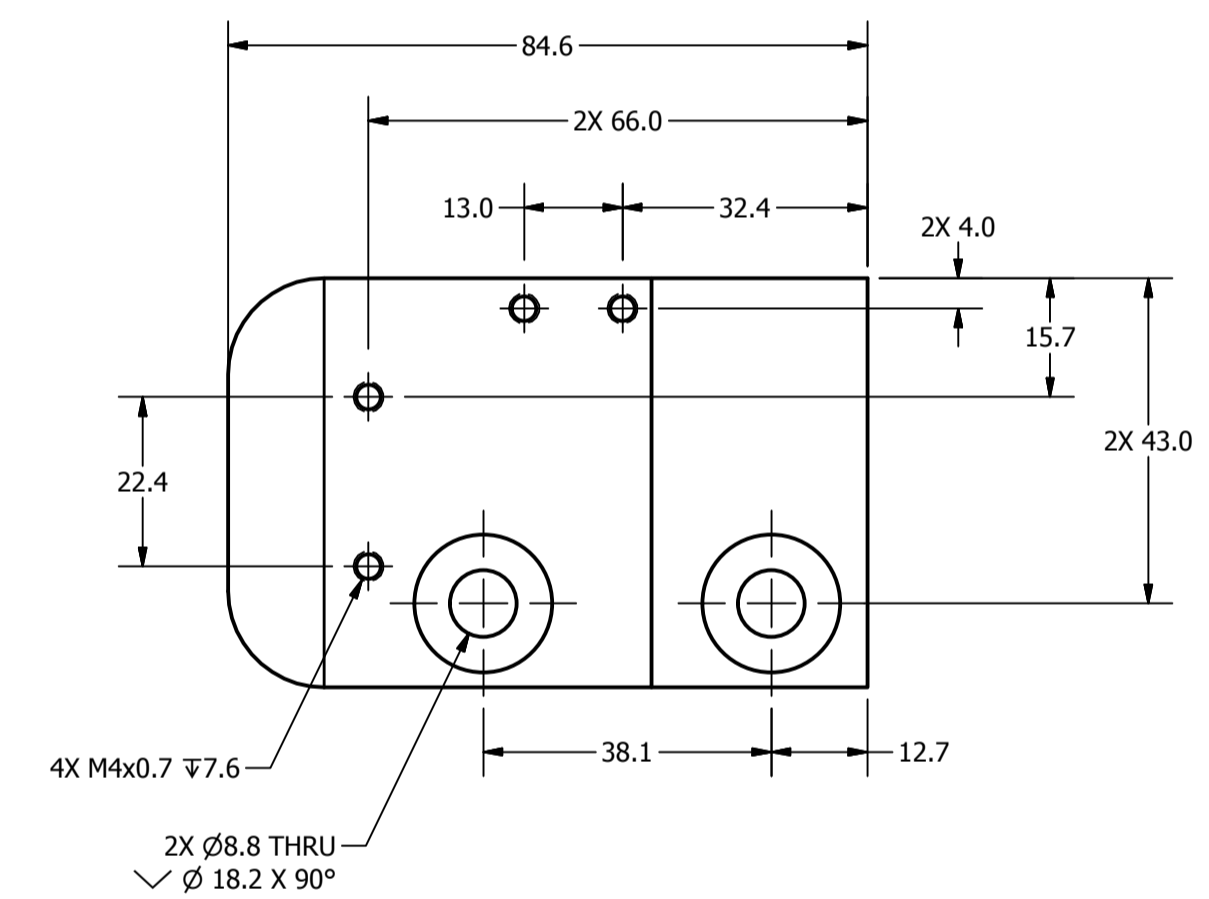
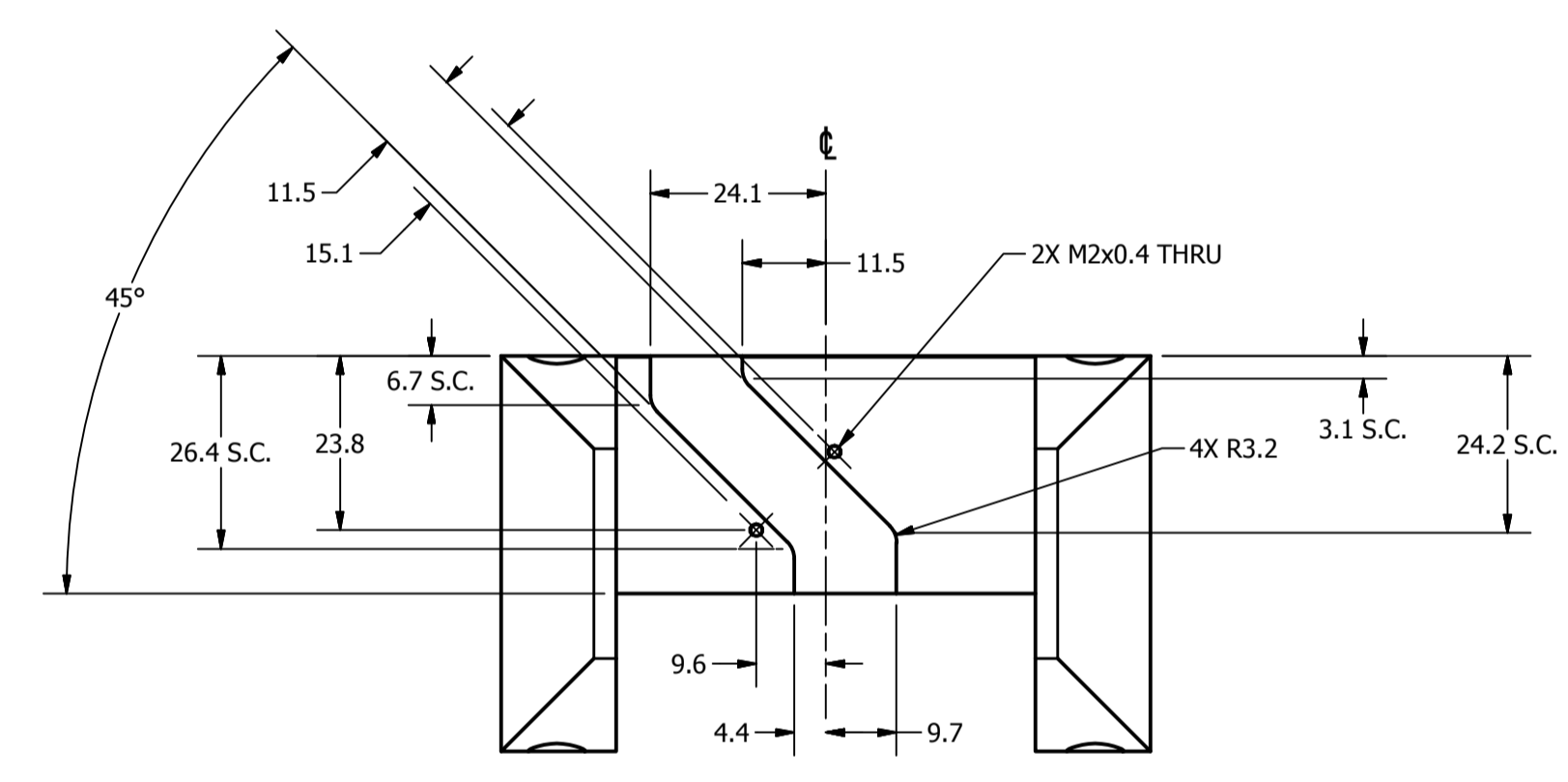
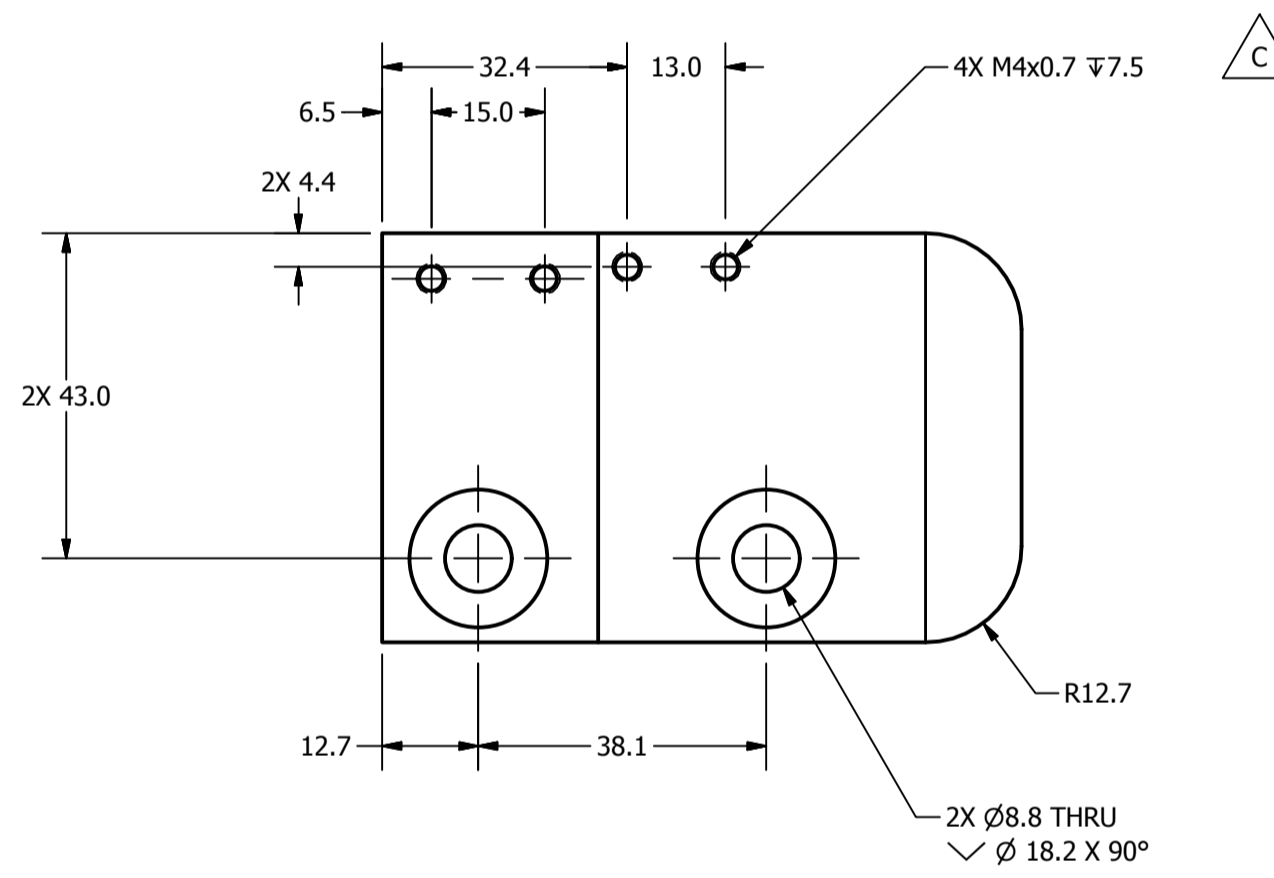
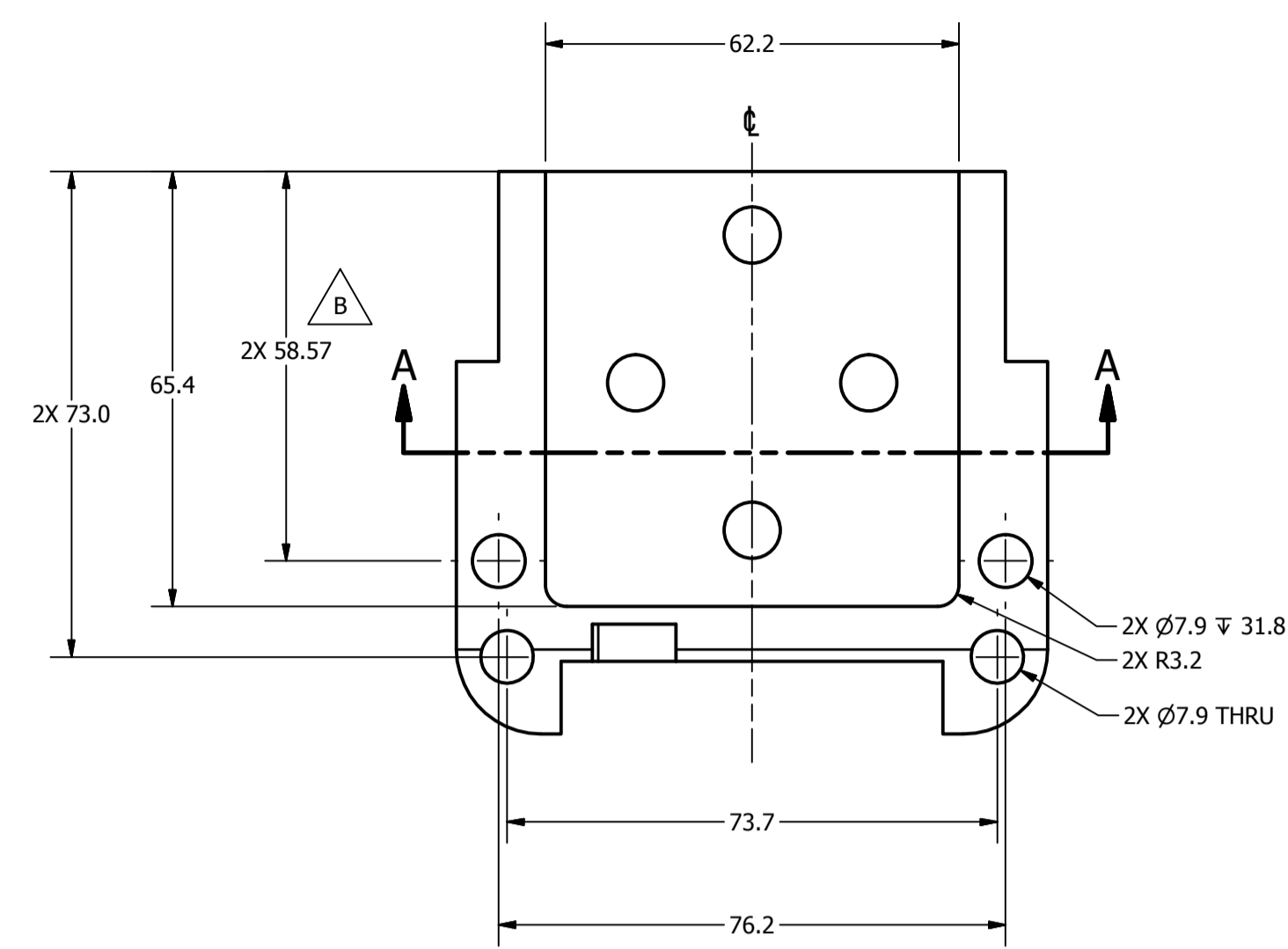
PROJECT NO.: THOR-M	DATE: 10/7/2011	<p>DESCRIPTION: TILT SENSOR MOUNT, PELVIS, SA572-S113 & SA572-S44</p>
MATERIAL: 6061-T6 ALUM.	DRAWN BY: J. WANG	
NEXT ASSEMBLY	QTY	HEAT TREAT:
TOTAL QTY IN DUMMY	1	FINISH: SEE NOTES
CHECKED BY: J. WANG		DATE: 1/17/2012
ENGINEER: J. WANG		DATE: 1/17/2012

SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-3772	REV: B
SCALE: 2.000			

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM610 R11 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	BK
	B	2X 58.57 WAS 2X 54.0	2/20/2012	BK
	C	ADDED M4-0.7 HOLES TO LEFT SIDE VIEW; HOLE NOTE 6X M4x0.7 ∇ 7.5 WAS 8X M4x0.7 ∇ 7.5; AND HOLE NOTE 4X M4x0.7 ∇ 7.6 WAS 2X M4x0.7 ∇ 7.6; HOLE NOTE 4X M4x0.7 ∇ 7.5 WAS 6X M4x0.7 ∇ 7.5	6/3/2015	DW



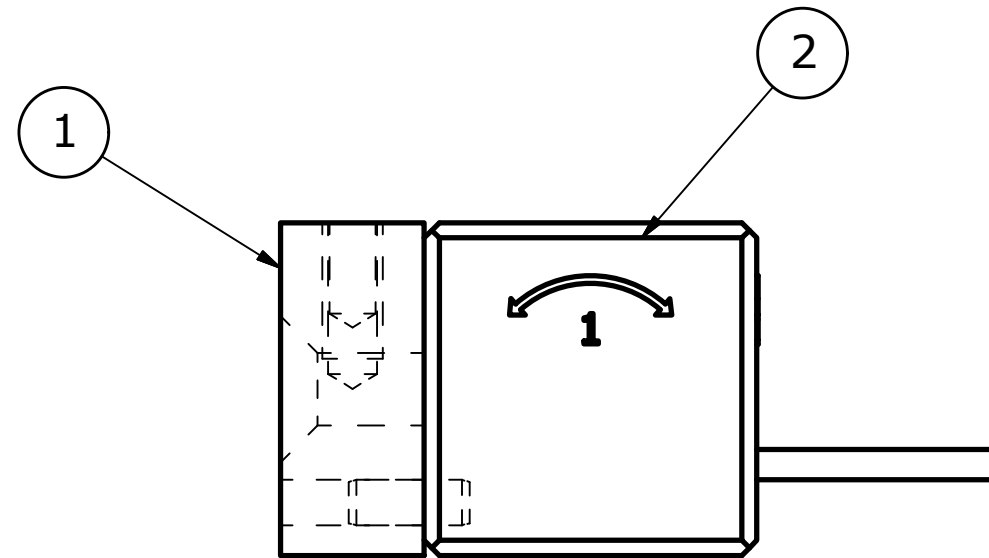
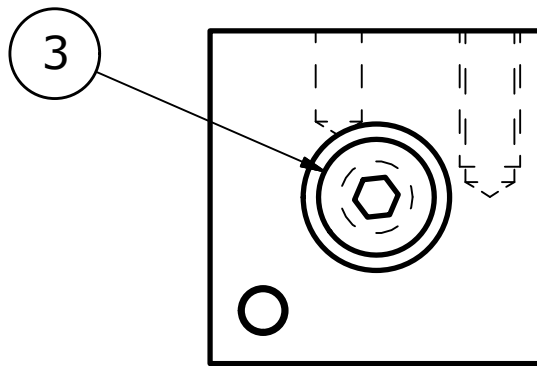
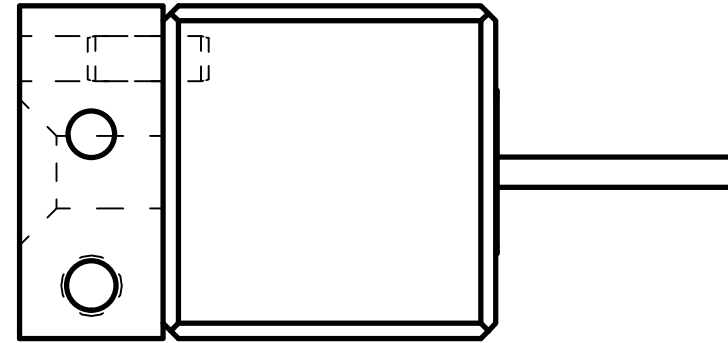
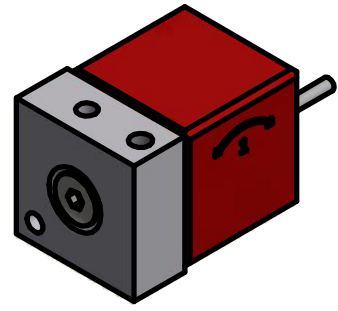
SCALE 1.000



SECTION A-A
SCALE 1.000

- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. POWDER OR BEAD BLAST.
 3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
PROJECT NO:	1018 STEEL	ISO 2768	AS 13	DATE:	9/21/2011
QTY:	1	FINISH:	POWDER OR BEAD BLAST	DESIGNED BY:	B. KIMES
NEXT ASSEMBLY:	SEE NOTES	CHECKED BY:	J. WANG	DATE:	1/16/2012
TOTAL QTY IN DUMMY:	1	DATE:	1/16/2012	SCALE:	1.000

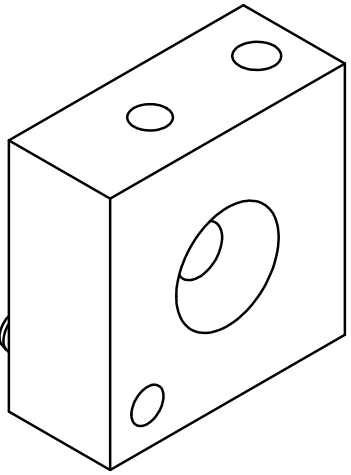


ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	5001086	SCREW, FHCS M4-0.7 x 12
2	1	SA572-S113	TILT SENSOR, DUAL AXIS
1	1	472-3635	LOWER NECK TILT SENSOR MOUNT

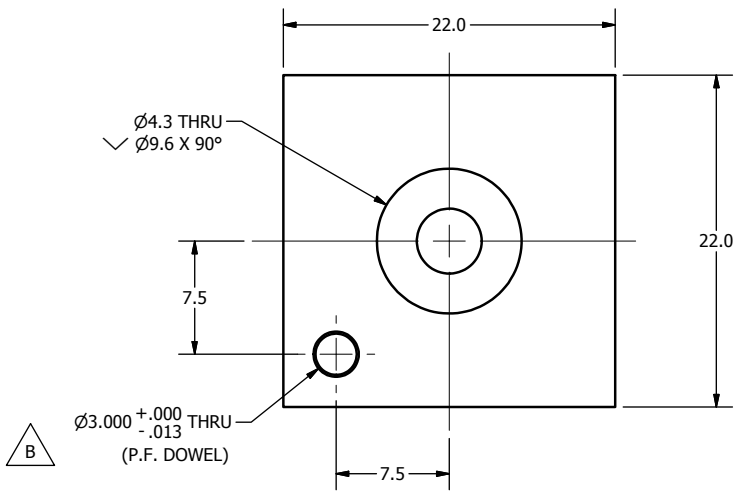
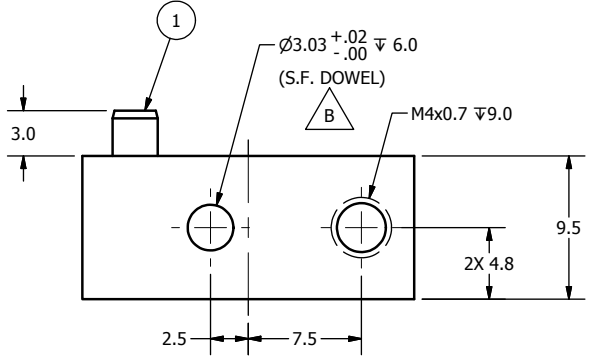
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.5 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Dave Walker	DATE 7/6/2015	
MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1
		DRAWING NUMBER 472-3778	REV SHEET 1 OF 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM225 R00 AND CONVERTED TO METRIC FOR THOR-M ADD PARTS LIST; ADD PARTS LIST;	9/27/2011	BK
	B	Ø3.000+0.000/-0.013 WAS +.000/+0.013 (TYPO) AND WAS +.00/-0.02; Ø3.03 +.02/-0 WAS Ø3.05	2/6/2012	FINK



SCALE 3.000



NOTES:

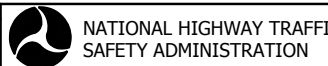
- INSTALL DOWEL PIN AFTER ANODIZE.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000384	M3 X 8 LG. DOWEL PIN

PARTS LIST			
DO NOT SCALE DRAWING	TOLERANCES		
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED		
	DECIMALS	ANGLES	FINISH
	±0.2	±0.5°	1.6
	±0.2		
	±0.3		
	±0.01		
	REMOVE BURRS & BREAK SHARP EDGES		

PROJECT NO:	472-3630	1	7075-T6 ALUMINUM	MATERIAL:	B. KIMES	DATE:	9/27/2011
NEXT ASSEMBLY	QTY	1	CLEAR ANODIZE	FINISH:	J. WANG	DATE:	1/16/2012
TOTAL QTY IN DUMMY	1						

SIZE	SHEET	DRAWING NO.	REV.
A3	1 OF 1	472-3635	B



LOWER NECK TILT SENSOR MOUNT

4

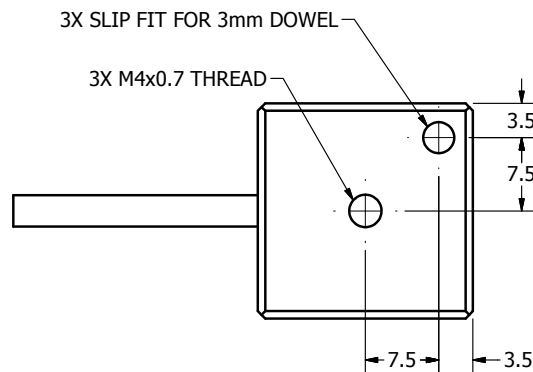
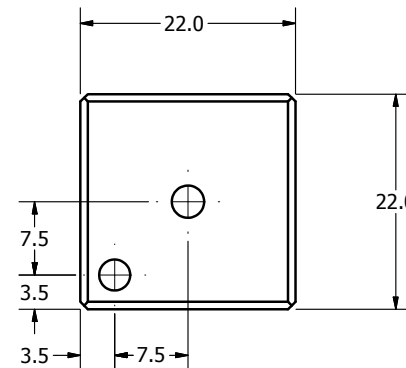
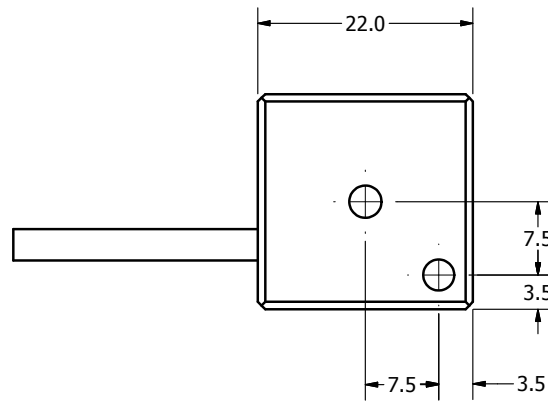
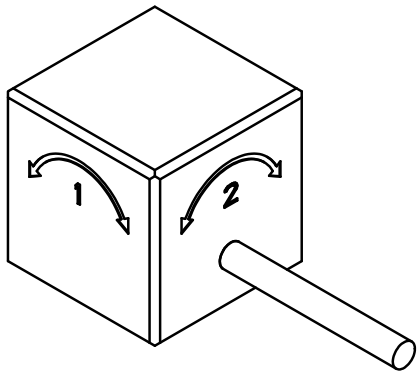
3

2

1

REVISION HISTORY

ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
	A	SPEC RELEASE	BK	JW	5/13/2013



TILT SENSOR SPECIFICATIONS:

MASS: 20g
 RANGE: $\pm 80^\circ$
 RESOLUTION: 0.1°
 ACCURACY: $\pm 0.5^\circ$
 SUPPLY VOLTAGE: 6-7 V
 POWER CONSUMPTION: 15 mA

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 .005 .005 X.X .005 .005 X.XX .005 .005 X.XXX .005 .005 REMOVE ALL BURRS & SHARP EDGES			
PROJECT NO:		DRAWN BY:	B. Kimes	DATE:	11/29/2012
MATERIAL:		CHECKED BY:		DATE:	
HEAT TREAT:		FINISH:		SIZE:	B 1 of 1
				SCALE:	2.000
				DRAWING NO.:	SA572-S113
				REV:	A

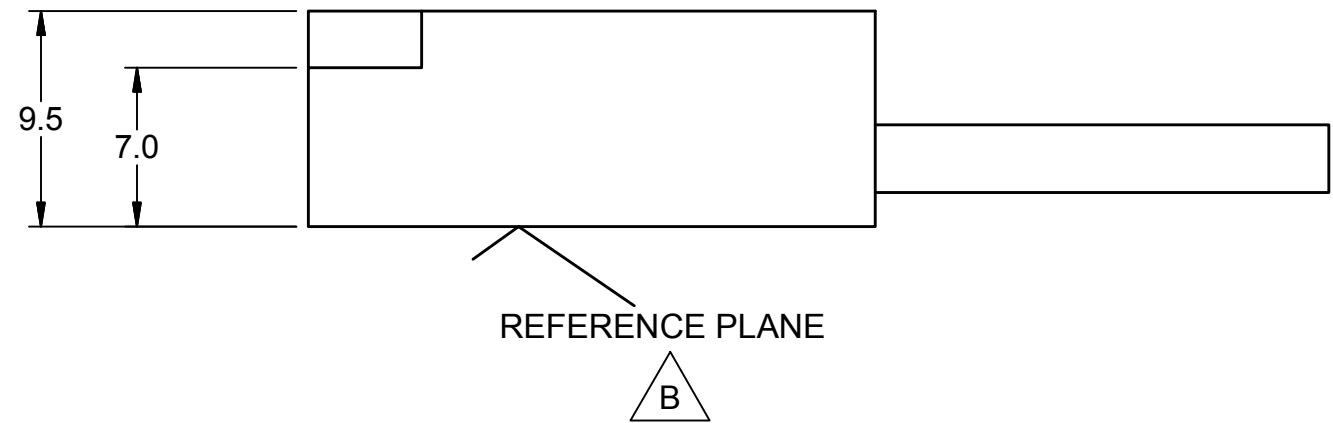
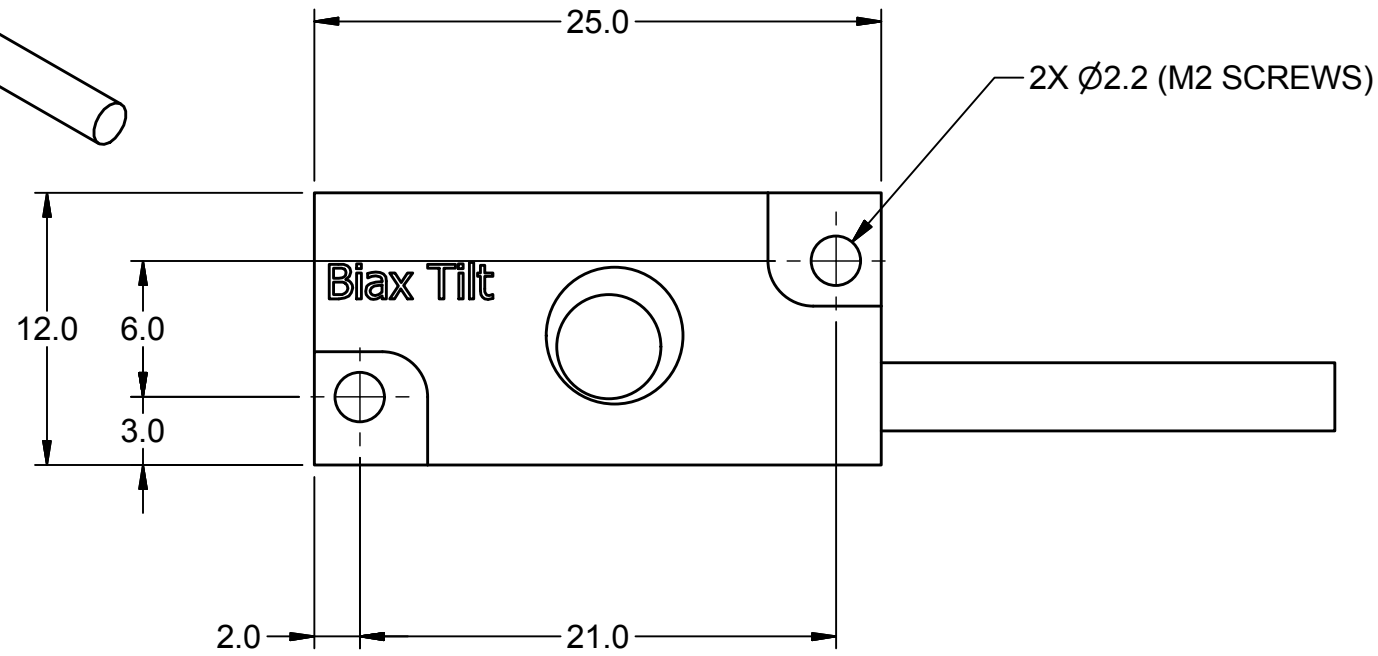
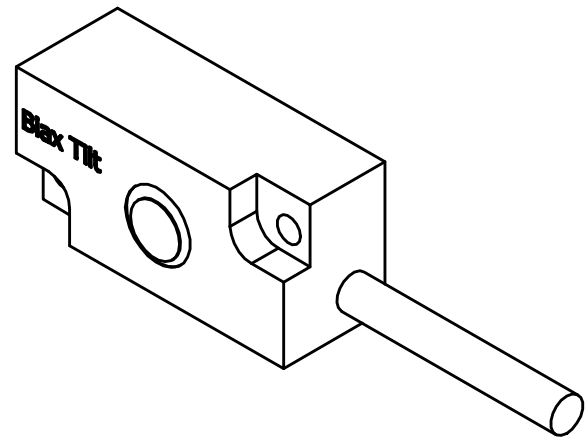
4

3

2

1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	SPEC RELEASE	BK	JW	5/13/2013
	B	ADDED NONLINEARITY TO TILT SENSOR SPECIFICATIONS AND REFERANCE PLANE TO FRONT VIEW	DW		5/25/2016



TILT SENSOR SPECIFICATION:

- MASS: 5g
- RANGE: $\pm 80^\circ$
- RESOLUTION: 0.1°
- NONLINEARITY: $\pm 0.2^\circ$ OR $\pm 1\%$ READING
- ACCURACY: $\pm 0.5^\circ$
- SUPPLY VOLTAGE 5 V
- POWER CONSUMPTION: 6 mA

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01			
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: TILT SENSOR, DUAL AXIS	
MATERIAL:		DRAWN BY: B. KIMES		DATE: 11/29/2012	
HEAT TREAT:		CHECKED BY:		DATE:	
FINISH:		SCALE: 3.000		DRAWING NO.: SA572-S44	

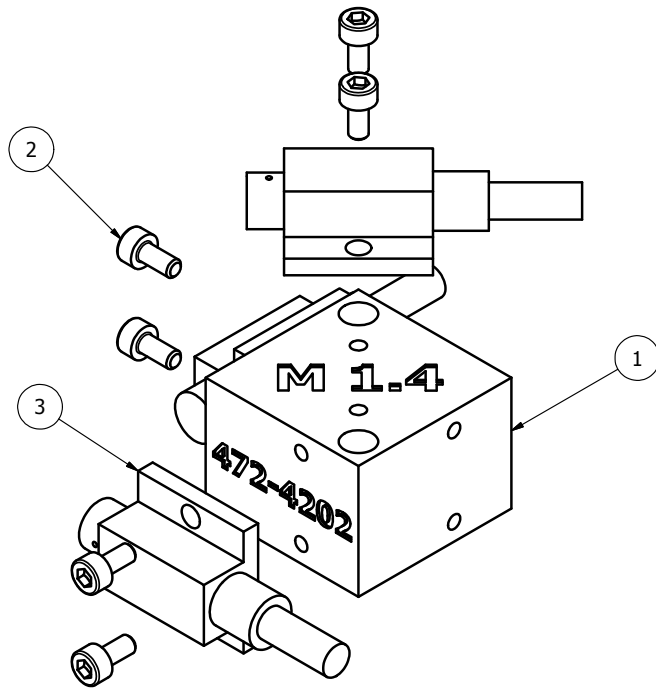
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3

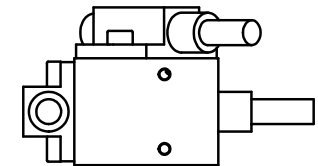
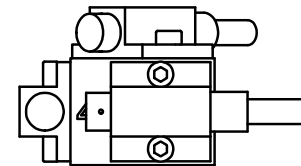
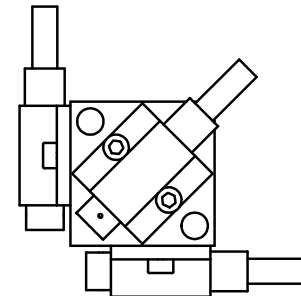
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1

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM100 AND CONVERTED TO METRIC FOR THOR-M	9/1/2011	KHS



SCALE 3.000



ITEM	QTY	PART NUMBER	DESCRIPTION
3	3	SA572-S4	UNIAXIAL ACCELEROMETER
2	6	5000068	M1.4 X 0.3 X 3 LG. SHCS
1	1	SA572-S80M	TRI-PACK BLOCK

Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION TRI-PACK ACCEL. ASSY.	
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.0 0.0 1.6 X.XX 0.1 X.XXX 0.05 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.		DRAWN BY:	KHS	DATE:	9/1/2011
472-4360	1	MATERIAL:		CHECKED BY:	TMV
NEXT ASSEMBLY	QTY	HEAT TREAT:		DATE:	9/14/2011
TOTAL QTY IN DUMMY	1	FINISH:		ENGINEER:	J. WANG
				DATE:	1/18/2012

PROJECT NO.	
472-4360	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

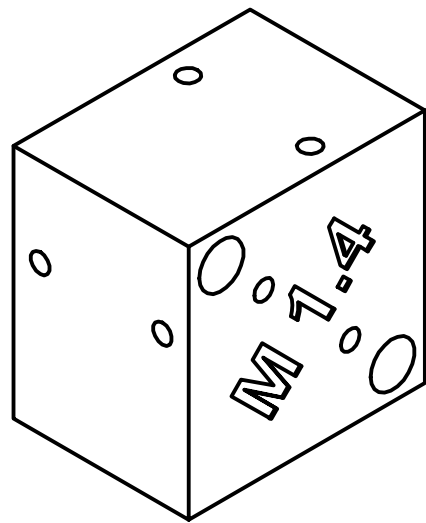
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SCALE:	3:1						

4

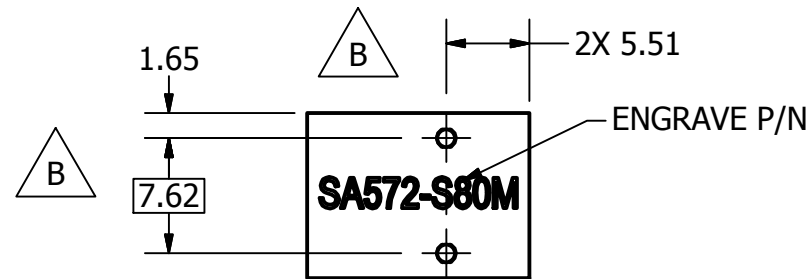
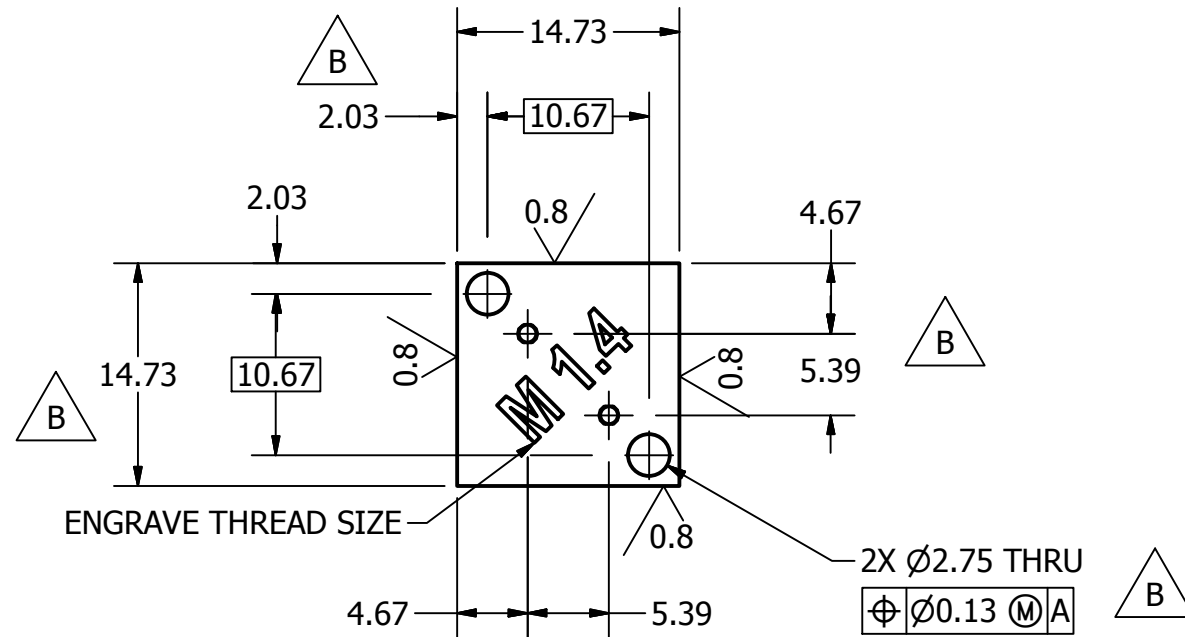
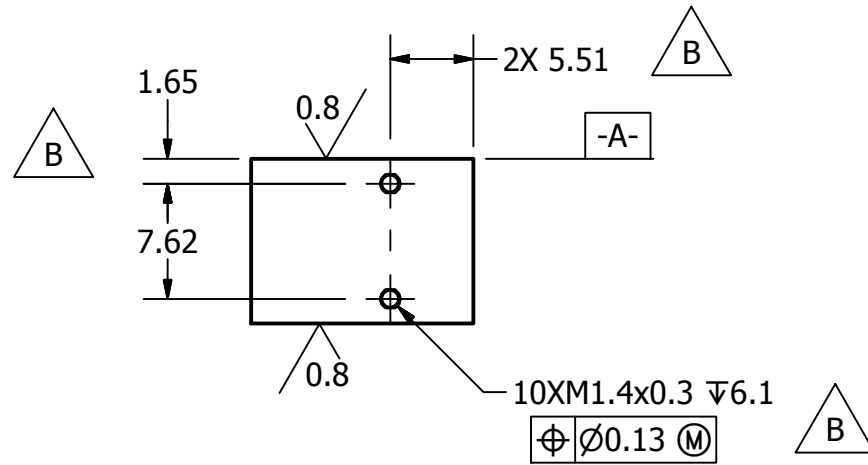
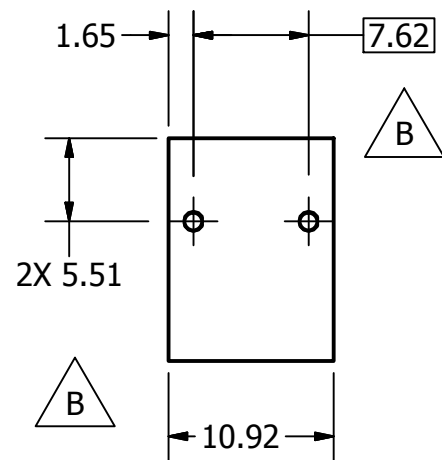
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2

1



SCALE 3.000

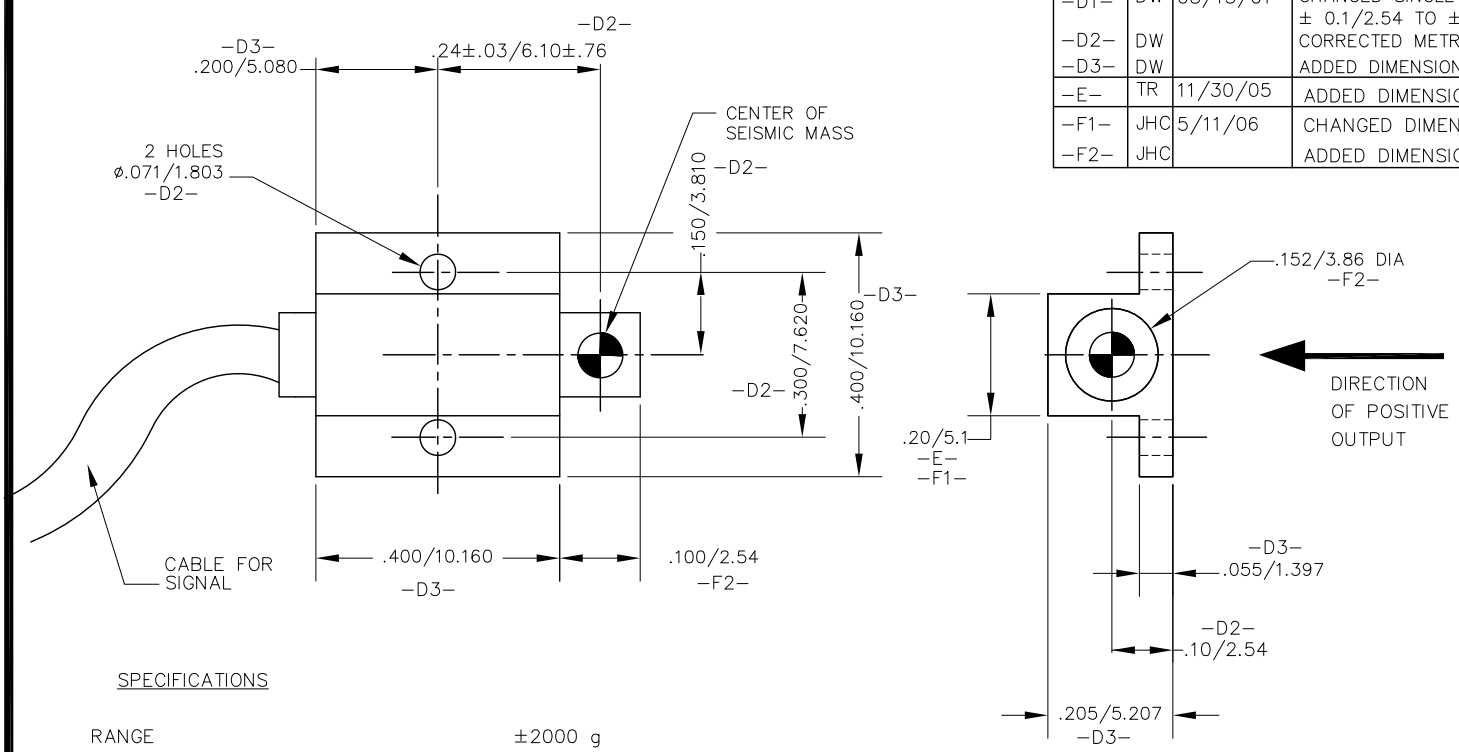


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM130 AND CONVERTED TO METRIC FOR THOR-M	9/1/2011	KHS
	B	ADD TOLERANCE TO HOLES; ADD DATUM A; 10.92 WAS 10.9, 14.73 WAS 14.7, 2.03 WAS 2.0. 1.65 WAS 1.7, 4.67 WAS 4.7; ADD BASIC DIMENSION FOR HOLE SPANS; ADD FINISH MARKS; M1.4 TAP WAS THRU, ADD VIEWS AND DIMENSIONS FOR HOLES	12/21/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6			
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: S4 TRIAXIAL ACCELEROMETER MOUNTING BLOCK METRIC	
MATERIAL: Aluminum-7075-T6		DRAWN BY: KHS		DATE: 9/1/2011	
HEAT TREAT:		CHECKED BY: TMV		DATE: 9/9/2011	
FINISH: CLEAR ANODIZE		ENGINEER: J. WANG		DATE: 1/18/2012	
		SIZE: B		SHEET: 1 OF 1	
		SCALE: 2:1		DRAWING NO.: SA572-S80M	

REVISION RECORD

ITEM NO.	BY	DATE	DESCRIPTION
-A-	HP	01/09/99	TOLERANCES
-B1-	DW	09/27/99	UPDATED NOTE
-B2-			CHANGE TRANSVERSE SENSITIVITY TO 1%
-B3-			REVISED FORMAT, ENLARGED TOLERANCES
-C1-	DW	02/8/00	REVISED TOLERANCE
-D1-	DW	08/15/01	CHANGED SINGLE DECIMAL PLACE TOLERANCE FROM ± 0.1/2.54 TO ± 0.1/2.5
-D2-	DW		CORRECTED METRIC EQUIVALENTS
-D3-	DW		ADDED DIMENSIONS
-E-	TR	11/30/05	ADDED DIMENSION
-F1-	JHC	5/11/06	CHANGED DIMENSION, WAS .150/3.810
-F2-	JHC		ADDED DIMENSIONS



SPECIFICATIONS

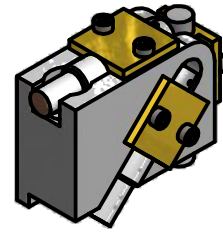
RANGE	±2000 g
SENSITIVITY	.20 mV/g MIN
MOUNTED RESONANCE FREQUENCY	22,000 Hz MIN

-B1- SIGNAL OUTPUT MUST BE COMPATIBLE WITH AND RECORDABLE IN A DATA CHANNEL AS DEFINED BY SAE J211

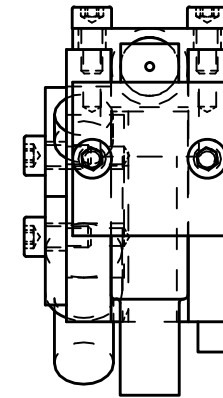
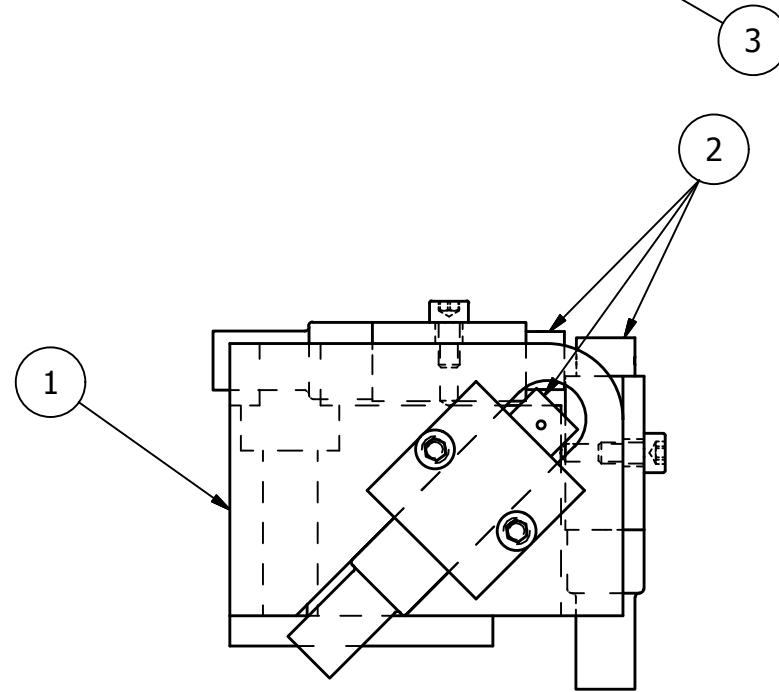
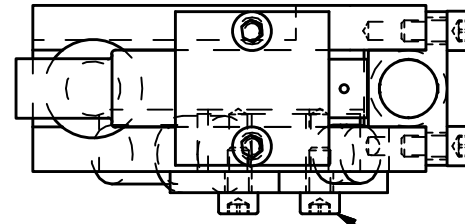
DAMPING RATIO	UNDAMPED (.005)	-D1-
-B2- TRANSVERSE SENSITIVITY	±1% MAX	
NON-LINEARITY & HYSTERESIS	±2% MAX	
ZERO OFFSET	±25 mV	
EXCITATION	10V DC	
THERMAL SENSITIVITY	-5% Typ AT 0°F TO 150°F	-D1-
TEMPERATURE EXPOSURE LIMITS	0°/+200°F WITHOUT DAMAGE	-C1-
WEIGHT	1 gram (WITHOUT CABLE)	-B3-
HUMIDITY	SEALED	

RELEASED
Sept. 15, 2006
NHTSA

UNITS ARE in/mm		MATERIAL:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
TOLERANCES ARE: *		SCALE NONE		
DECIMALS	ANGLES	APPROVALS	DATE	UNIAXIAL PIEZORESISTIVE ACCELEROMETER
.X ±0.1/2.5	+ 0.5°			
.XX ±0.01/.25		DRAWN	3/5/98	HYBRID III DUMMY FAMILY
.XXX ±0.005/.127		CHECKED		
* unless otherwise noted		ENG		SIZE
		J McF		A
		H.P.		DRAWING NUMBER
				SA572-S4
				REV
				F



SCALE 1 : 1

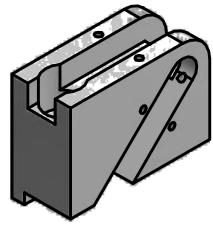


3	6	5000068	SCREW, SHCS M1.4 - 0.3 X 3 LG.
2	3	SA572-S4	UNIAXIAL PIEZORESISTIVE ACCELEROMETER
1	1	472-3858	T1 ACCEL. MOUNT
ITE	QTY	PART NUMBER	DESCRIPTION

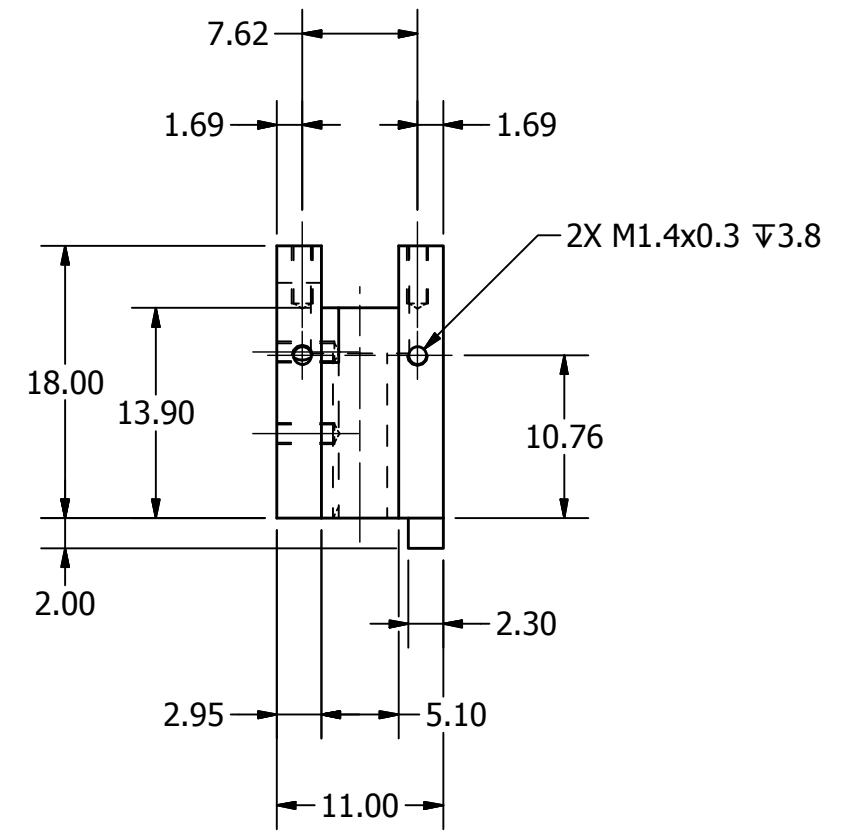
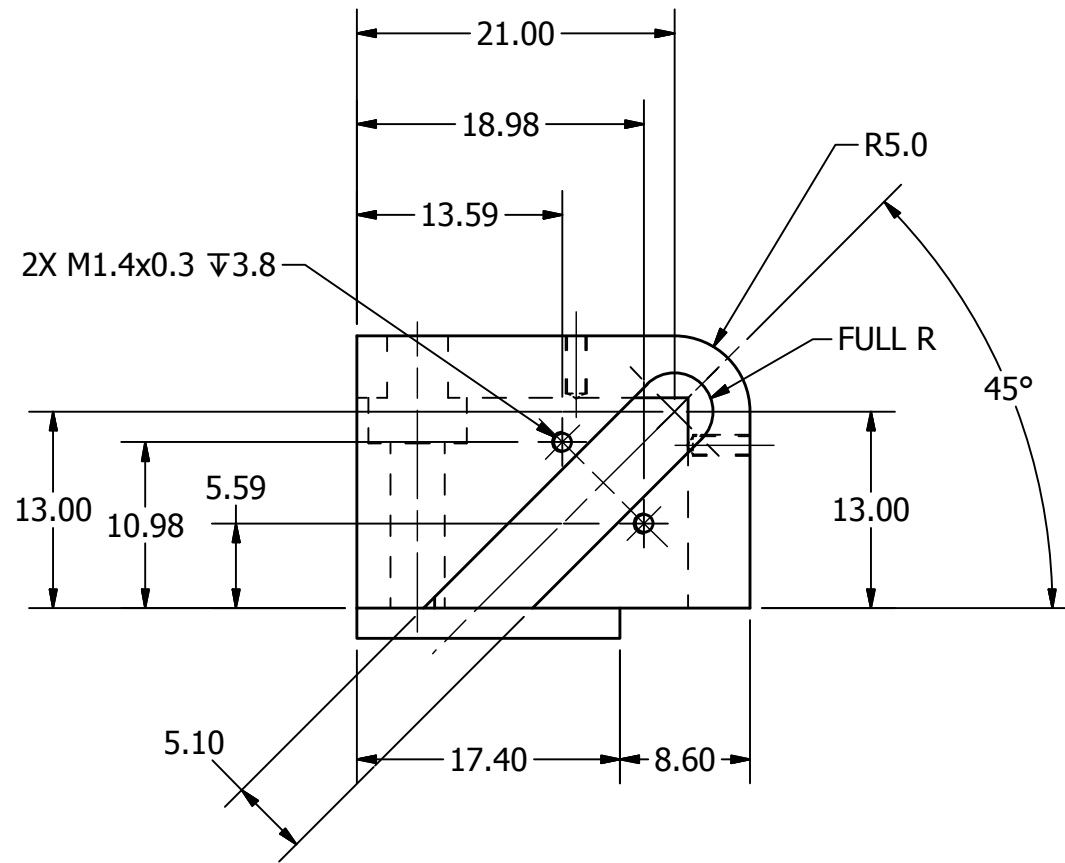
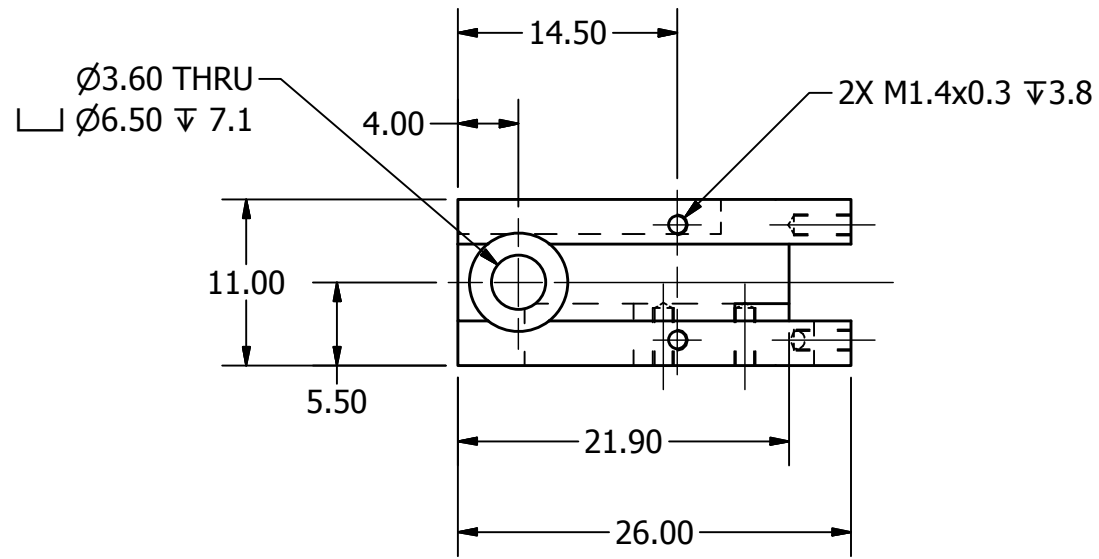
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 X.X ± 0.2 ± 0.5 1.6 X.XX ± 0.1 ± 0.5 1.6 X.XXX ± 0.01 ± 0.5 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK CHAMP EDGES		DESCRIPTION:
MATERIAL:		DATE:		T1 ACCEL. MOUNT ASSEMBLY
HEAT TREAT:		DRAWN BY: Dave Walker		DATE: 9/9/2014
FINISH:		CHECKED BY:		DATE:
ENGINEER:		DATE:		DATE:

472-3600	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

SIZE: A3	SHEET: 1	DRAWING NO.:	REV:
SCALE: 2:1	1 of 1	472-3857	

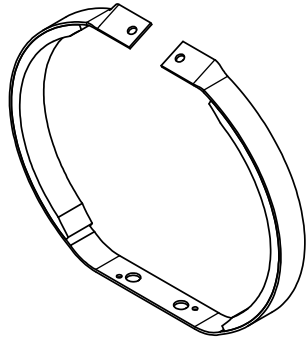


SCALE 1 : 1

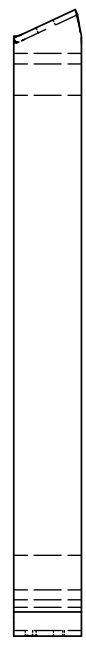
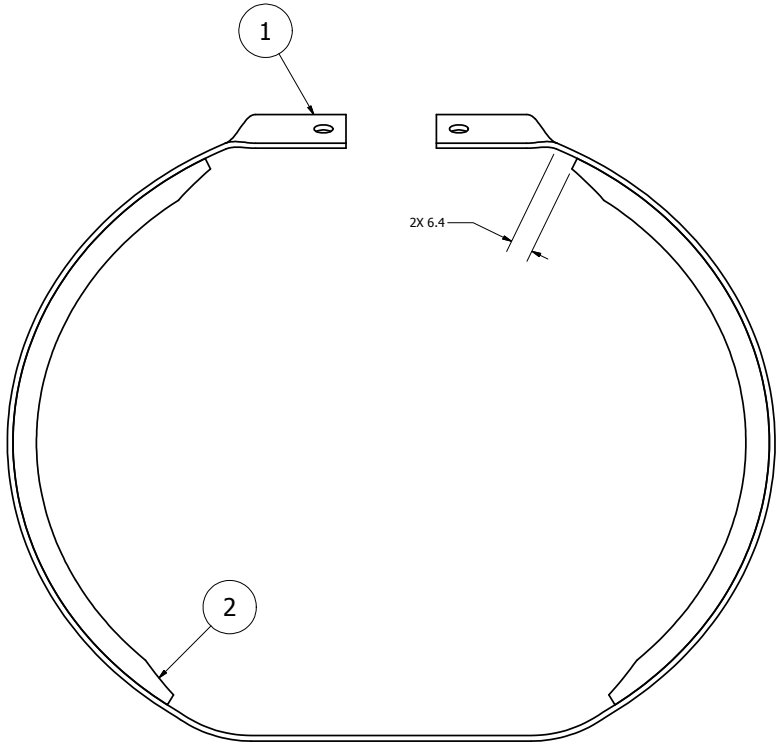


		DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
		THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: T1 ACCEL. MOUNT	
PROJECT NO.: 472-3857		MATERIAL: Aluminum 6061		DRAWN BY: Dave Walker		DATE: 9/9/2014	
NEXT ASSEMBLY		QTY		CHECKED BY:		DATE:	
TOTAL QTY IN DUMMY		1		ENGINEER:		DATE:	
				REMOVE BURRS & BREAK CHAMP EDGES		SIZE: A3	
						SHEET 1 of 1	
						DRAWING NO.: 472-3858	
						SCALE: 2:1	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM310 R2 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	TKN



ISO VIEW
SCALE 1:2



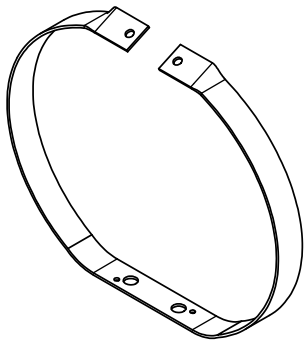
NOTES:
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3312	THORAX ELLIPTICAL RIB #1 - DAMPING MATERIAL
1	1	472-3311	THORAX ELLIPTICAL RIB #1 - STEEL

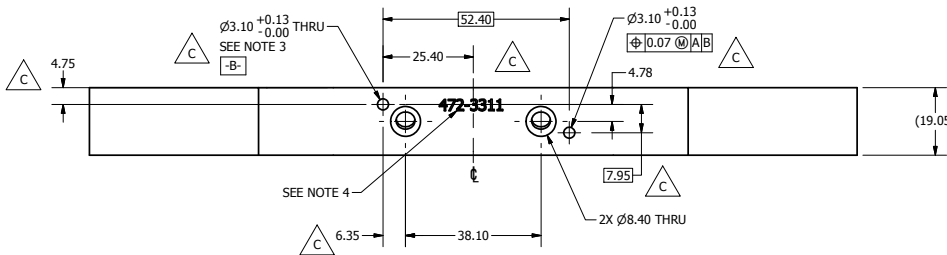
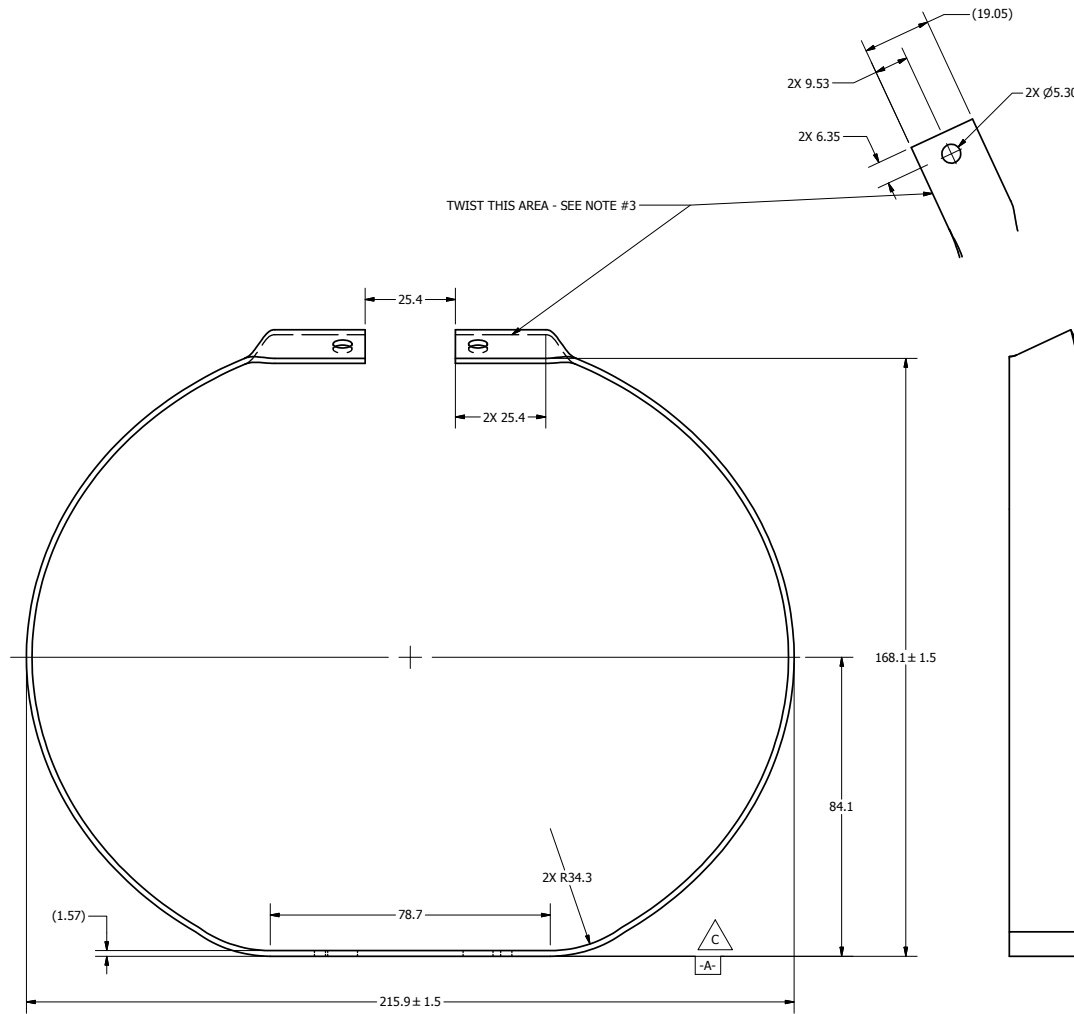
Parts List	
472-3000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO BE USED FRACTIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED HOLE SIZE
DATE: 9/20/2011	DESIGNED BY: Thanh
DATE: 11/17/2012	DESIGNED BY: J. WANG

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THORAX ELLIPTICAL RIB #1 - ASSEMBLY	
DATE: 9/20/2011	DATE: 11/17/2012
REV: A2	REV: FULL
1 of 1	472-3310



ISO VIEW
SCALE 1 : 2

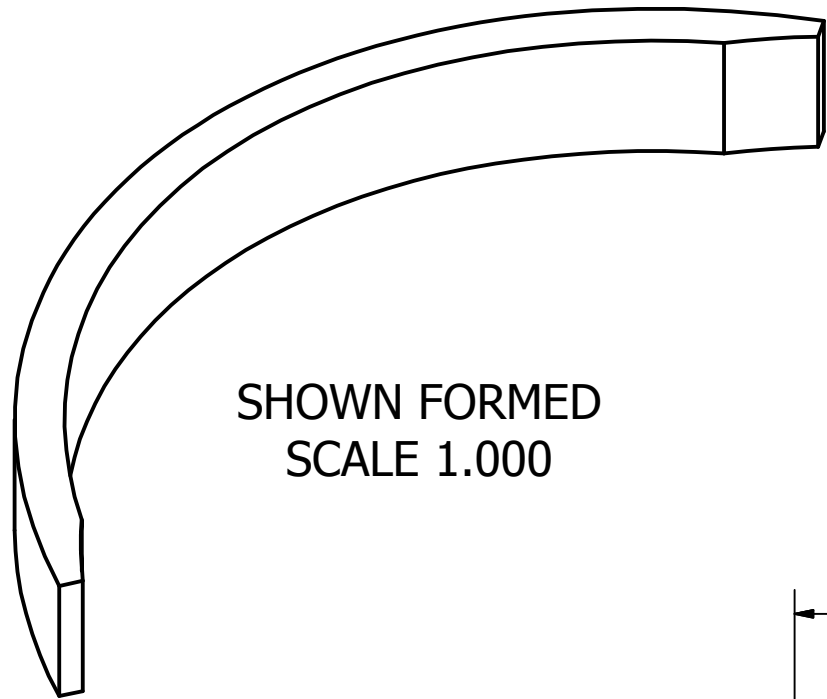


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RUNNUMBER FROM T1TXM311 R3 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK 3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	5/8/2012	BK
	C		8/14/2012	BK

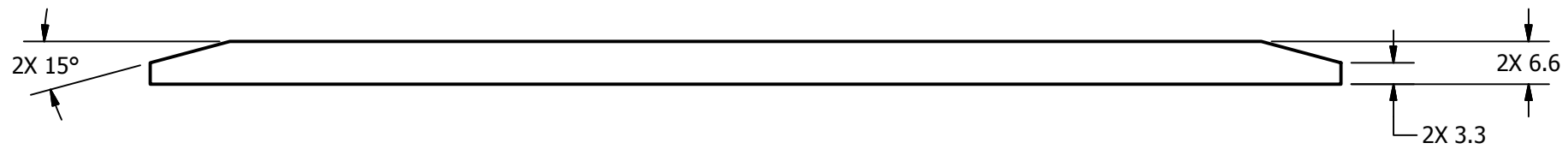
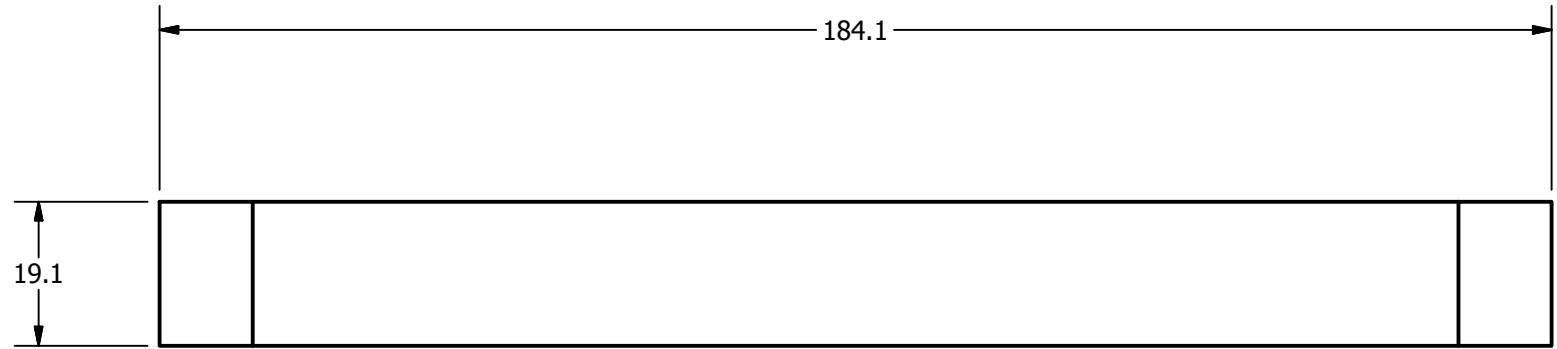
- NOTES: C
1. MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 2. ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:107.95MM Y:93.22MM
 3. AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 25.4MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 25°.
 4. ENGRAVE DWG. #472-3311 AT THE LOCATION SPECIFIED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3310	1	1070 SPRING STEEL	Thanh	9/21/2011	THORAX ELLIPTICAL RIB #1 - STEEL
NEXT ASSEMBLY	QTY	Rc: 43-47	J. WANG	11/17/2012	472-3311
TOTAL QTY IN DUMMY	1	E-COAT			

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM312 R2 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	TKN

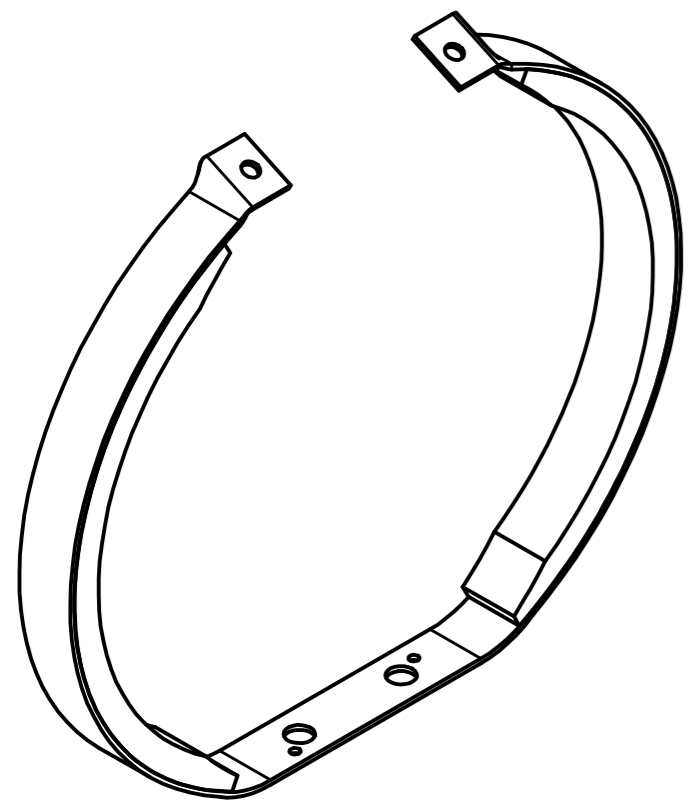


SHOWN FORMED
SCALE 1.000

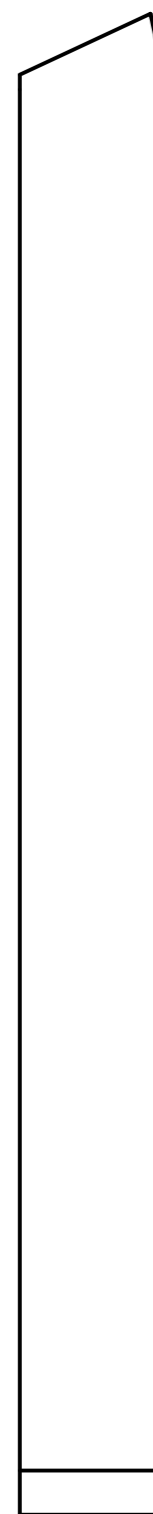
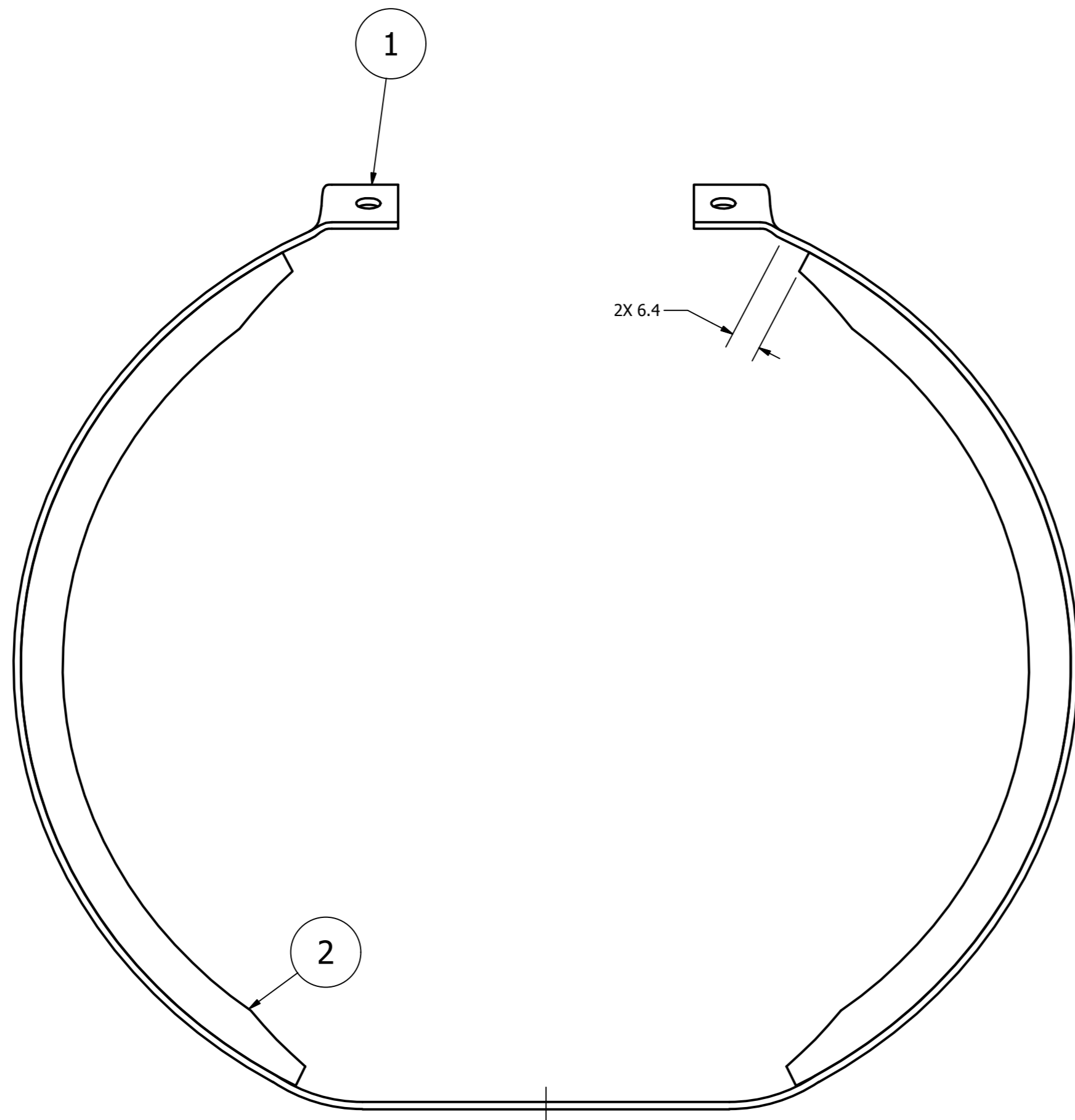


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ° ±0.5 1.6 XX ±0.2 ° ±0.5 1.6 XXX ±0.1 ° ±0.5 1.6 XXXX ±0.01 ° ±0.5 1.6		
PROJECT NO.:		MATERIAL:	ISODAMP CN-62	DESCRIPTION:
472-3310	2	HEAT TREAT:		THORAX ELLIPTICAL RIB #1 - DAMPING MATERIAL
NEXT ASSEMBLY	QTY	FINISH:		SIZE: SHEET
TOTAL QTY IN DUMMY	2	ENGINEER:	J. WANG	A3 1 of 1
		CHECKED BY:	Thanh	SCALE: FULL
		DATE:	9/20/2011	DRAWING NO.:
		DATE:	1/17/2012	472-3312
		REV:		A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM320 R1 AND CONVERTED TO METRIC FOR THOR-M. MODIFY DAMPING COMPONENT BY INCREASE THE LENGTH FROM 209.6 TO 214.1 (TO MAINTAIN THE SAME SPACING BETWEEN LEFT AND RIGHT DAMPING MATERIAL) & REDUCE THICKNESS FROM 13.2 TO 9.0	9/20/2011	TKN



ISO VIEW
SCALE 1 : 2



NOTES:

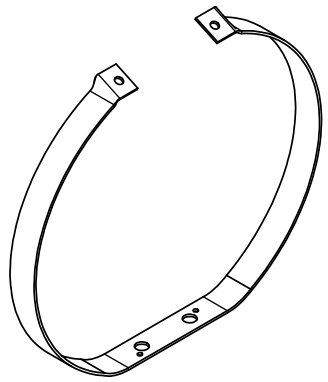
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3322	THORAX ELLIPTICAL RIB #2 - DAMPING MATERIAL
1	1	472-3321	THORAX ELLIPTICAL RIB #2 - STEEL

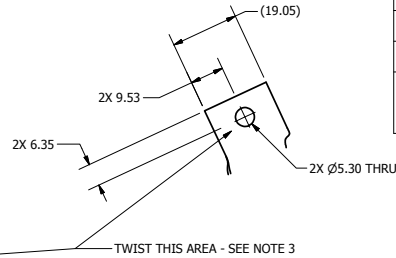
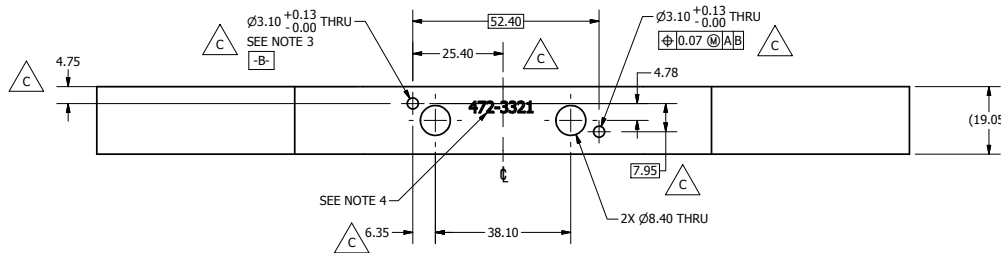
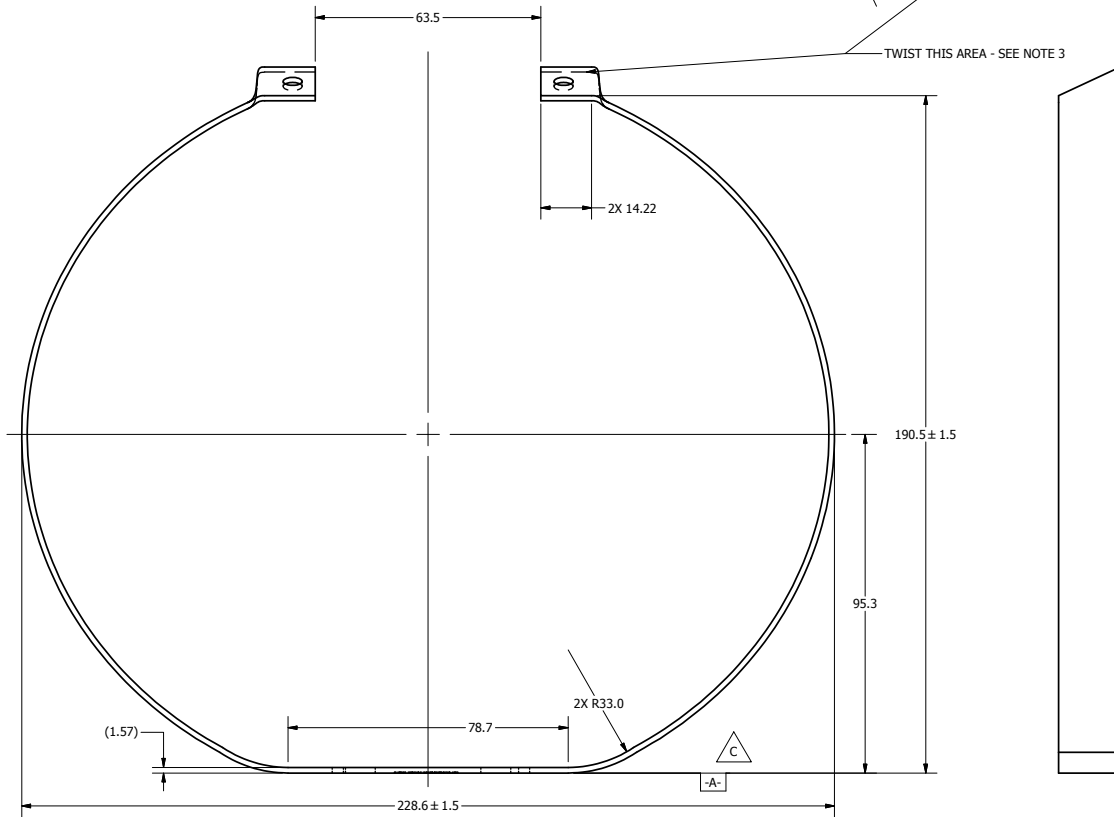
Parts List

DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	MATERIAL:	DATE:	DESCRIPTION:	THORAX ELLIPTICAL RIB #2 - ASSEMBLY 472-3320
472-3000	1	9/20/2011	THORAX ELLIPTICAL RIB #2 - ASSEMBLY	
NEXT ASSEMBLY	QTY	DATE:	SCALE:	
TOTAL QTY IN DUMMY	1	1/17/2012	1 OF 1 FULL	

ENGINEER:	DATE:	SCALE:	DRAWING NO.:	REV.:
J. WANG	1/17/2012	A2	472-3320	A



ISO VIEW
SCALE 1 : 2

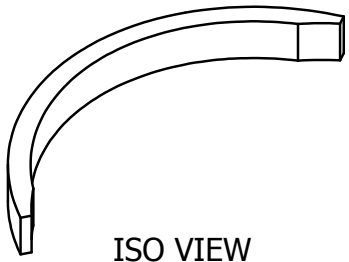


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM321 R3 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	BK
	C	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	8/14/2012	BK

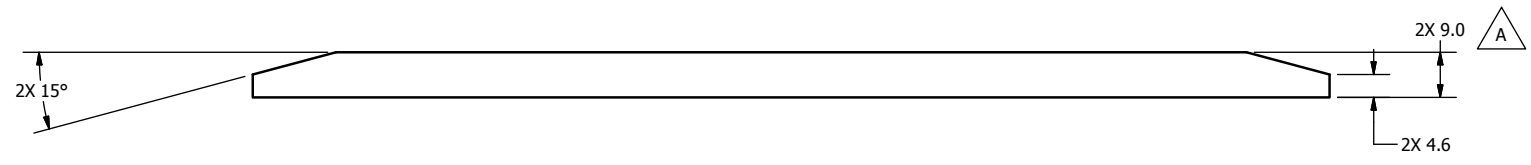
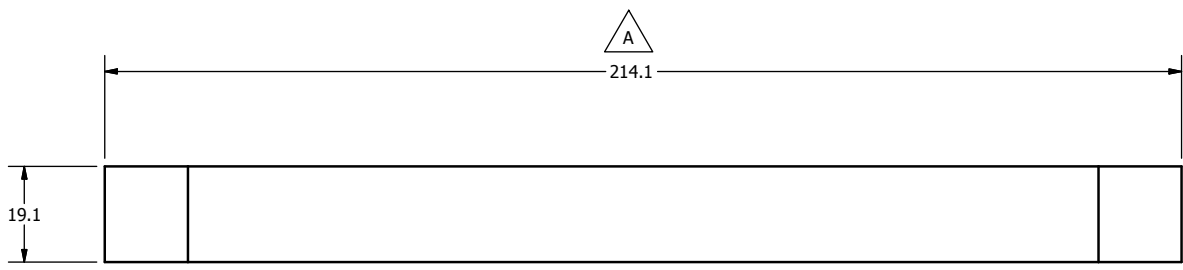
- NOTES: C
- MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 - ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:114.30MM Y:104.14MM
 - AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 14.2MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 25°.
 - ENGRAVE DWG. #472-3321 AT THE LOCATION SPECIFIED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.01		THORAX ELLIPTICAL RIB #2 - STEEL	
472-3320	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc: 43-47	PREPARED BY	DATE	APPROVED BY
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	11/17/2012	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM322 R1 AND CONVERTED TO METRIC FOR THOR-M. INCREASE THE LENGTH FROM 209.6 TO 214.1 TO MAINTAIN THE SAME SPACING BETWEEN LEFT AND RIGHT DAMPING MATERIAL & REDUCE THICKNESS FROM 13.2 TO 9.0	9/20/2011	TKN



ISO VIEW
SCALE 1 : 2



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.:	472-3320	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #2 - DAMPING MATERIAL	
DRAWN BY:	Thanh	DATE:	9/20/2011		
CHECKED BY:		DATE:			
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/17/2012
TOTAL QTY IN DUMMY	2	FINISH:		SCALE:	FULL



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

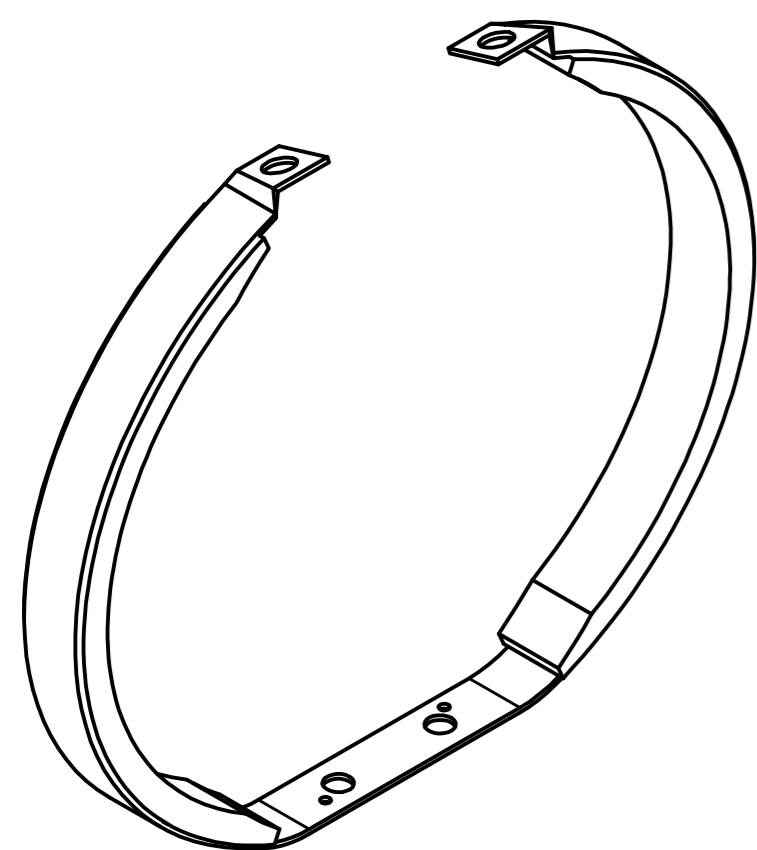
DESCRIPTION:
THORAX ELLIPTICAL RIB #2 - DAMPING MATERIAL

SIZE: A3
SHEET: 1 OF 1
SCALE: FULL

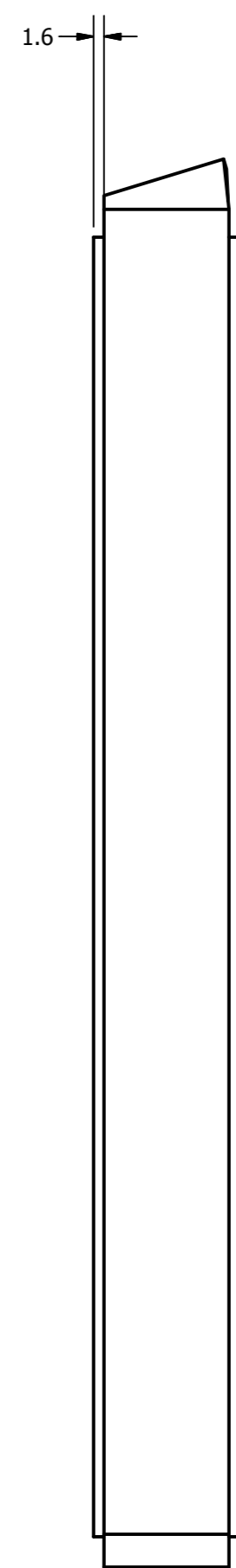
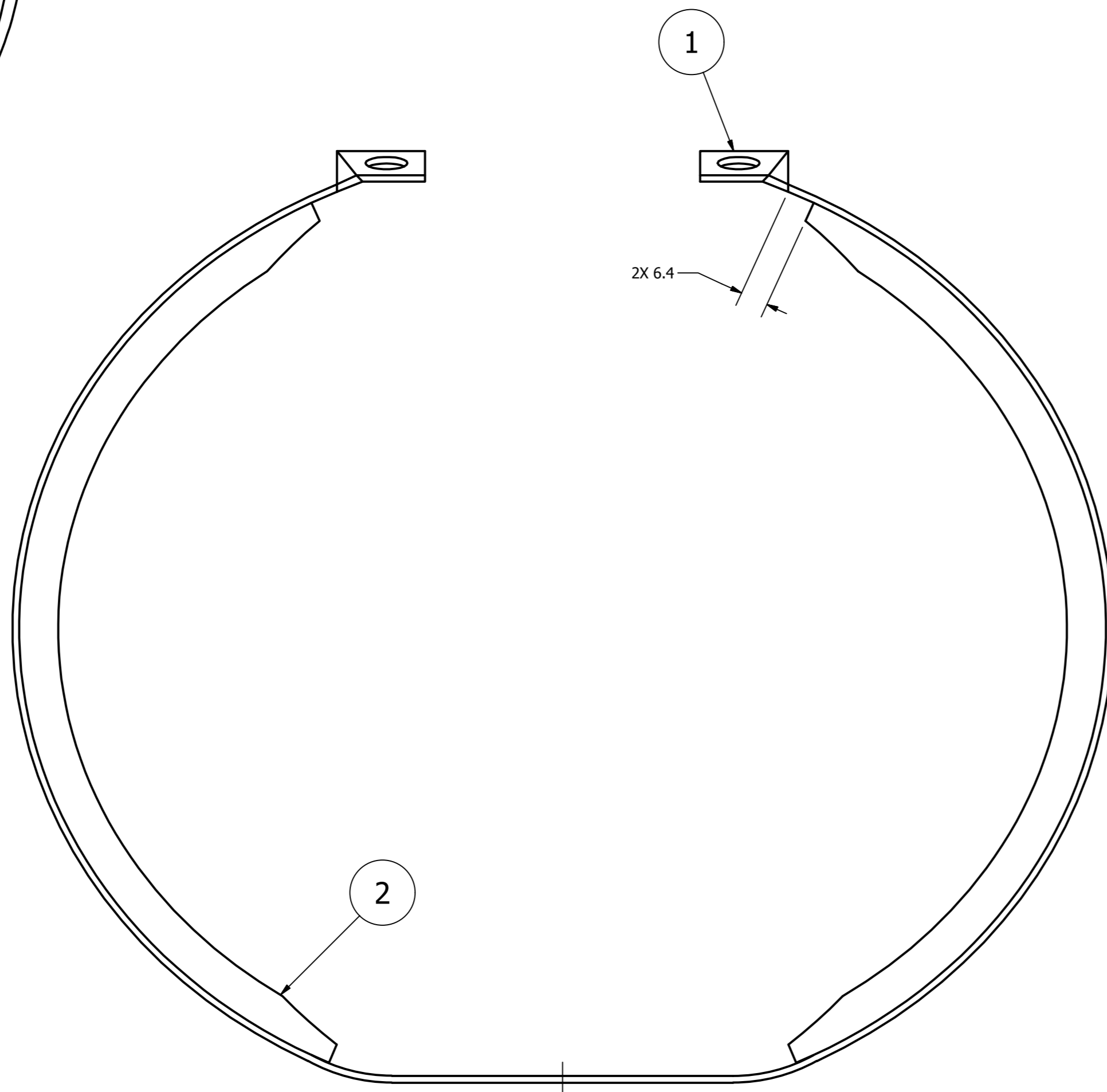
DRAWING NO.: 472-3322

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER T1TXM330 RBO AND CONVERTED TO METRIC FOR THOR-M. MODIFY DAMPING COMPONENT BY INCREASE THE LENGTH FROM 241.3 TO 246.1 (TO MAINTAIN THE SAME SPACING BETWEEN LEFT AND RIGHT DAMPING MATERIAL) & REDUCE THICKNESS FROM 13.2 TO 9.0	9/20/2011	TKN



ISO VIEW
SCALE 1 : 2



NOTES:

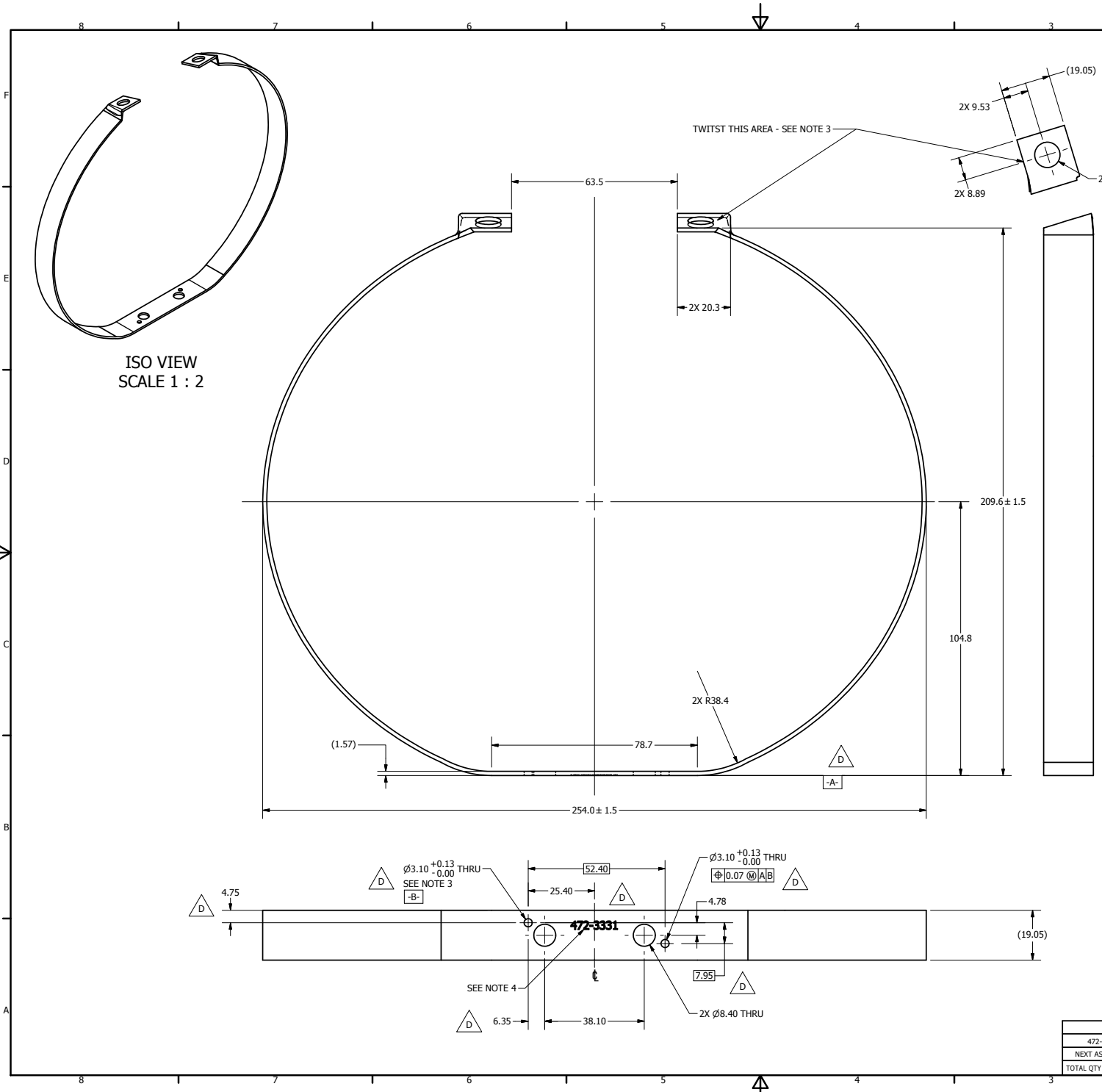
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3332	THORAX ELLIPTICAL RIB #3 - DAMPING MATERIAL
1	1	472-3331	THORAX ELLIPTICAL RIB #3 - STEEL

Parts List

DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO:		DATE:	9/20/2011	DESCRIPTION: THORAX ELLIPTICAL RIB #3 - ASSEMBLY SIZE: A2 SHEET: 1 OF 1 SCALE: FULL	
MATERIAL:		DRAWN BY:	Thanh		
NEXT ASSEMBLY	QTY	CHECKED BY:			
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG		
		DATE:	1/17/2012	DRAWING NO:	472-3330

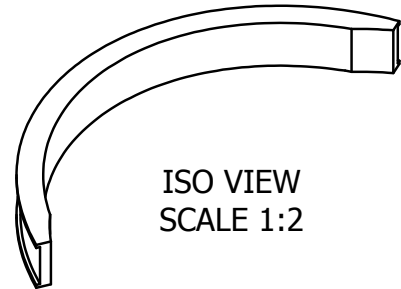
472-3000	1	DATE:	9/20/2011	SIZE:	A2	SHEET:	1 OF 1	DRAWING NO:	472-3330	REV:	A
NEXT ASSEMBLY	QTY	CHECKED BY:		SCALE:	FULL						
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	DATE:	1/17/2012						



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T11XM331 R4 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	112.52 WAS 125.52	4/26/2012	BK
	C	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	BK
	D	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	8/14/2012	BK

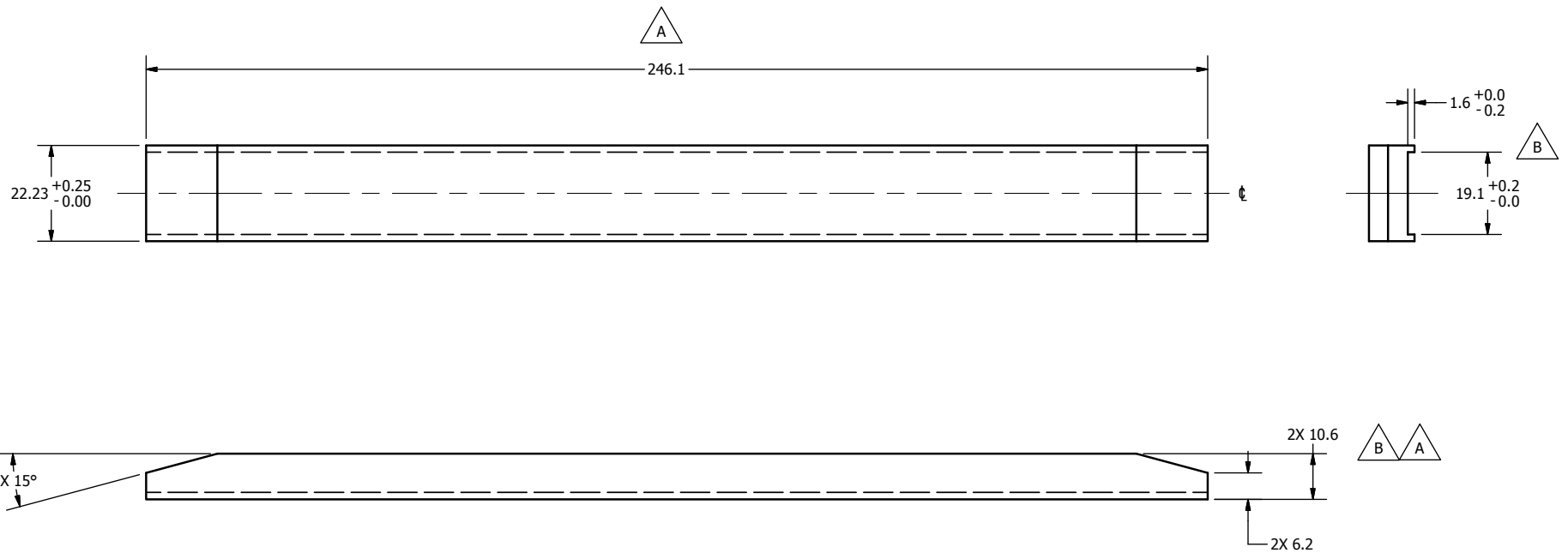
- NOTES: $\triangle D$
1. MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 2. ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:127.00MM Y:112.52MM $\triangle B$
 3. AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 20.3MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 17°.
 4. ENGRAVE DWG. #472-3331 AT THE LOCATION SPECIFIED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO THE TENTH PLACE		THORAX ELLIPTICAL RIB #3 - STEEL	
DRAWN BY: [Signature]		CHECKED BY: [Signature]		DATE: 9/21/2011	
472-3330	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc: 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	11/17/2012	472-3331



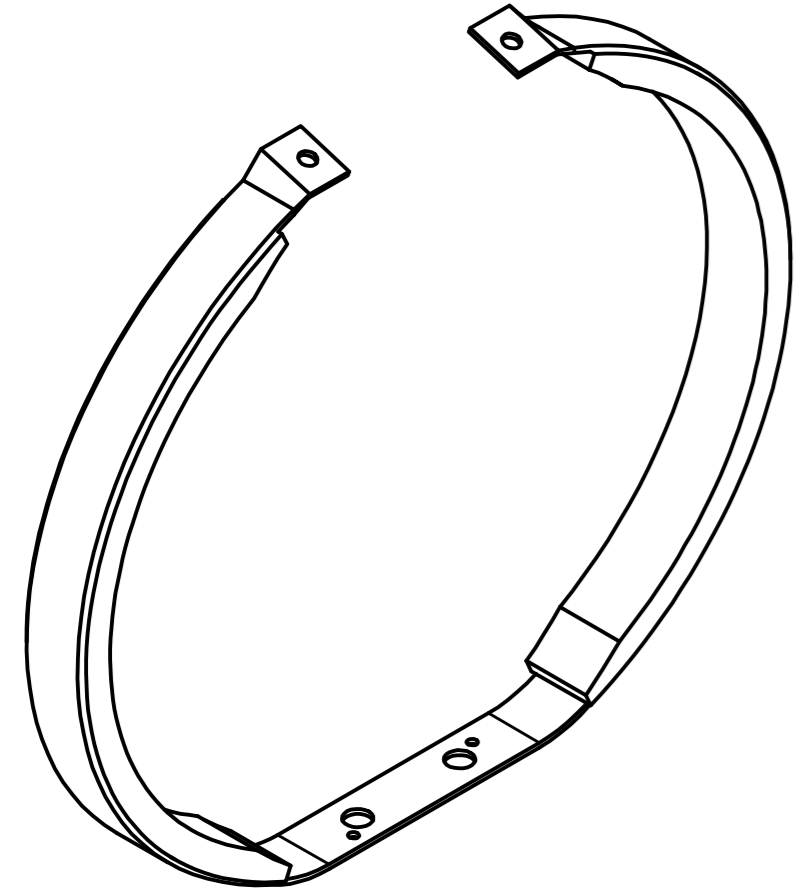
ISO VIEW
SCALE 1:2

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER T1TXM332 RBO AND CONVERTED TO METRIC FOR THOR-M. INCREASE THE LENGTH FROM 241.3 TO 246.1 TO MAINTAIN THE SAME SPACING BETWEEN LEFT AND RIGHT DAMPING MATERIAL & REDUCE THICKNESS FROM 13.2 TO 9.0	9/20/2011	TKN
	B	ADD 1.6 X 19.1 GROOVE, CHANGE 9.0 TO 10.6 TO COMPENSATE DAMPING THICKNESS.	1/30/2011	ZJW

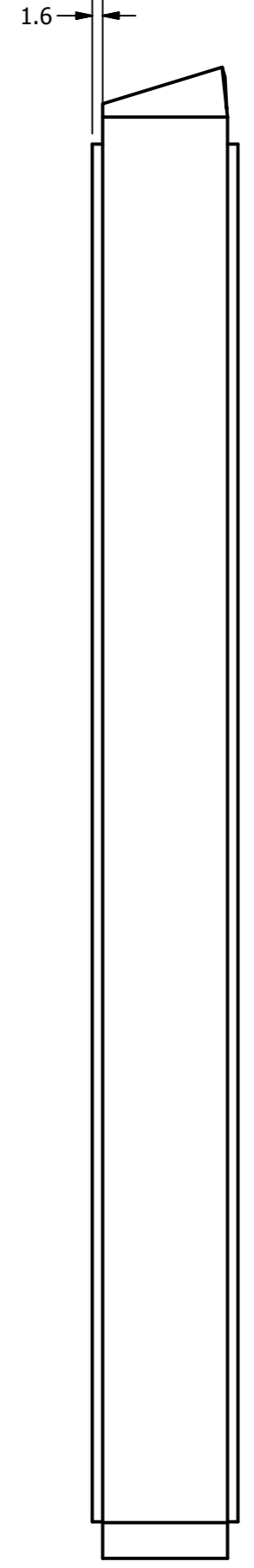
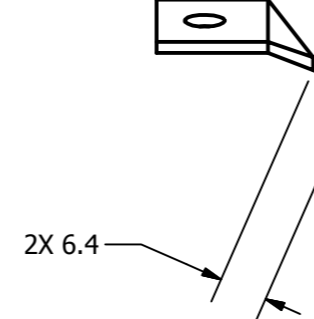
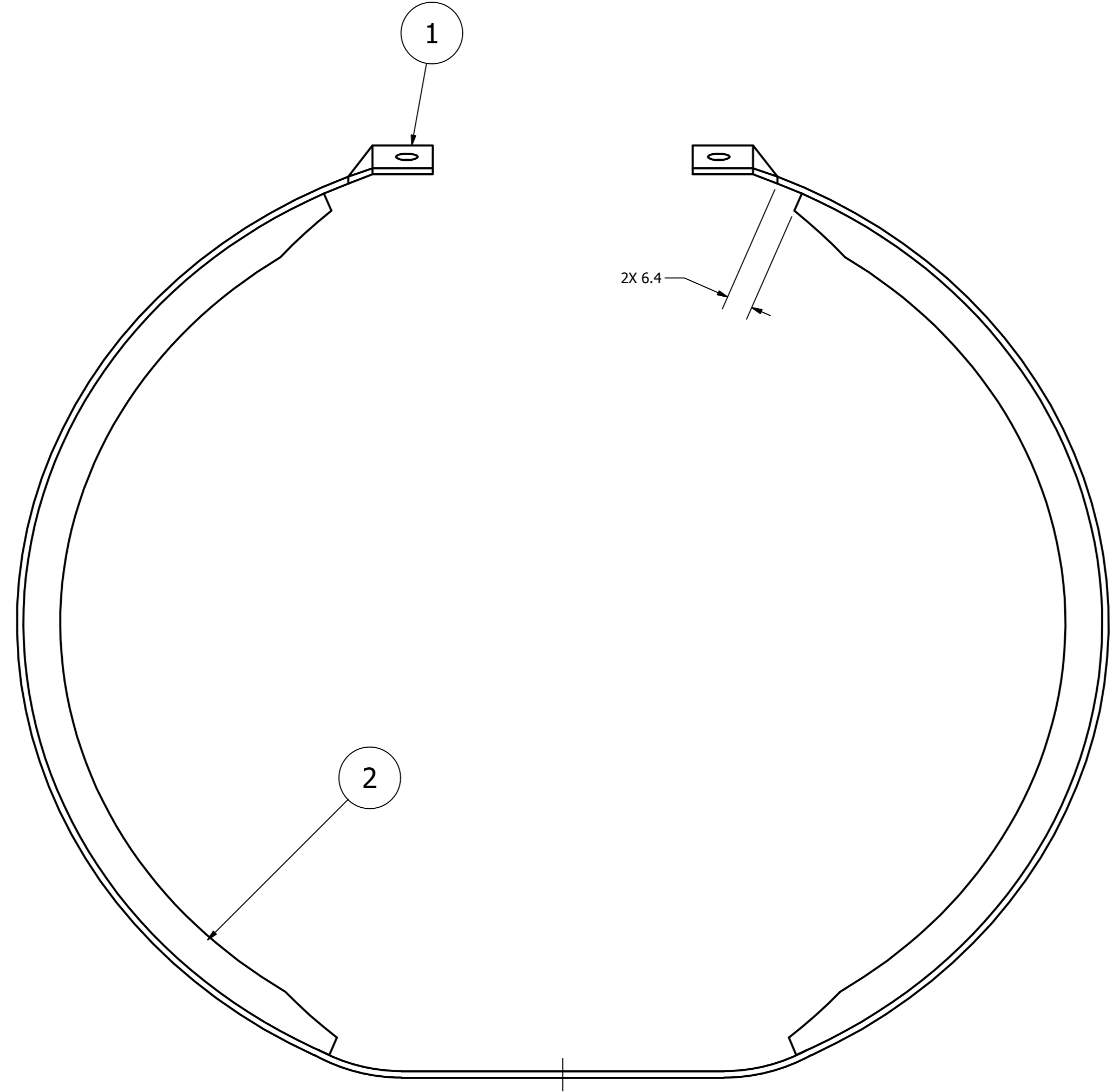


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 X.X 0.2 X.XX 0.3 X.XXX 0.01		
PROJECT NO.:	472-3330	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #3 - DAMPING MATERIAL
DATE:	9/20/2011	CHECKED BY:	Thanh	
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3332 SCALE: FULL
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	2	REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM340 RBO AND CONVERTED TO METRIC FOR THOR-M. MODIFY DAMPING COMPONENT BY INCREASE THE LENGTH FROM 257.3 TO 262.1 (TO MAINTAIN THE SAME SPACING BETWEEN LEFT AND RIGHT DAMPING MATERIAL) & REDUCE THICKNESS FROM 13.2 TO 9.0	9/20/2011	TKN



ISO VIEW
SCALE 1 : 2

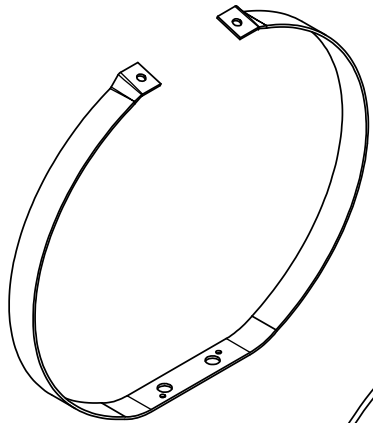


NOTES:
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

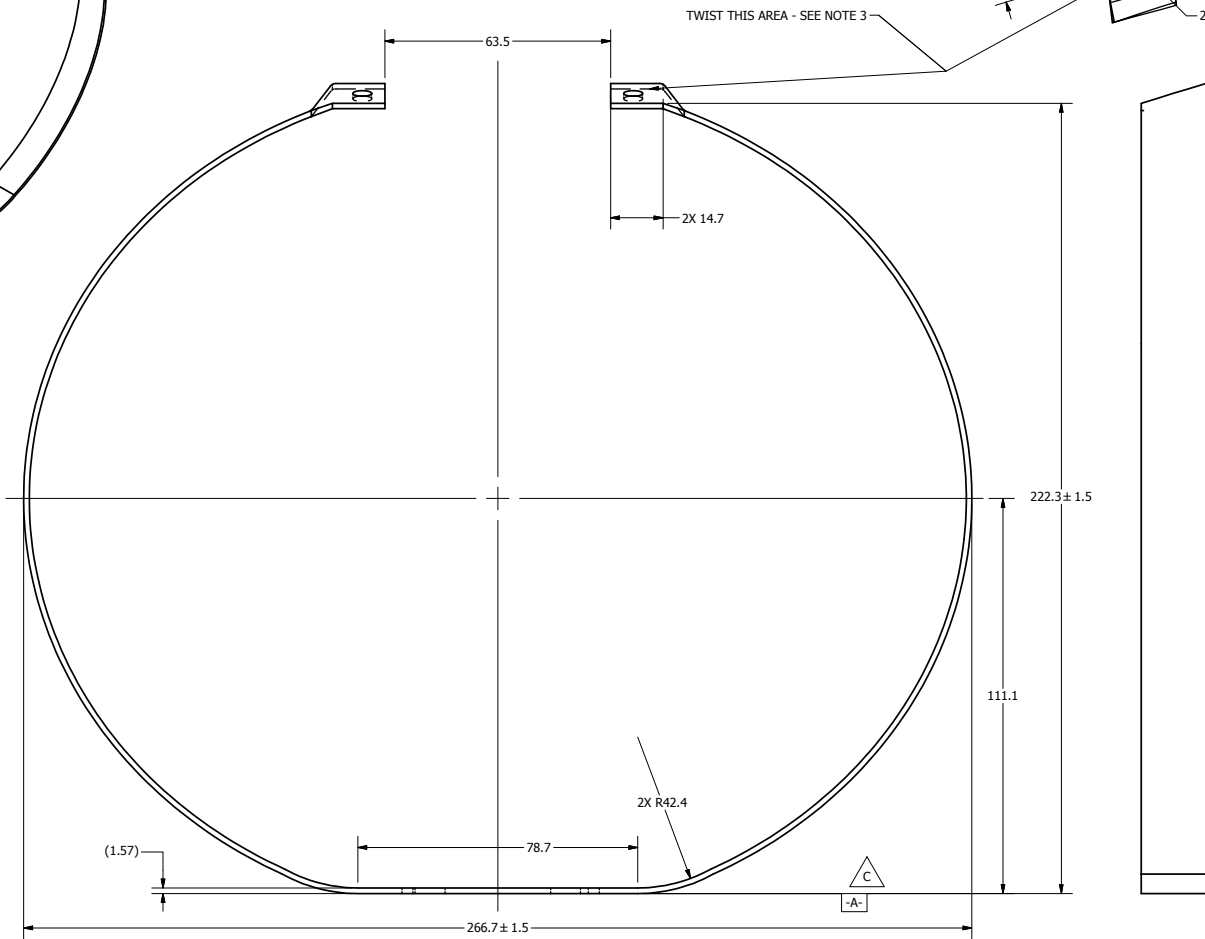
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3342	THORAX ELLIPTICAL RIB #4 - DAMPING MATERIAL
1	1	472-3341	THORAX ELLIPTICAL RIB #4 - STEEL

Parts List

DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO:	MATERIAL:	DRAWN BY:	DATE:	DESCRIPTION:
472-3000		Thanh	9/20/2011	THORAX ELLIPTICAL RIB #4 - ASSEMBLY
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	SCALE: DRAWING NO:
		J. WANG	1/17/2013	A21 OF 1 FULL 472-3340 A

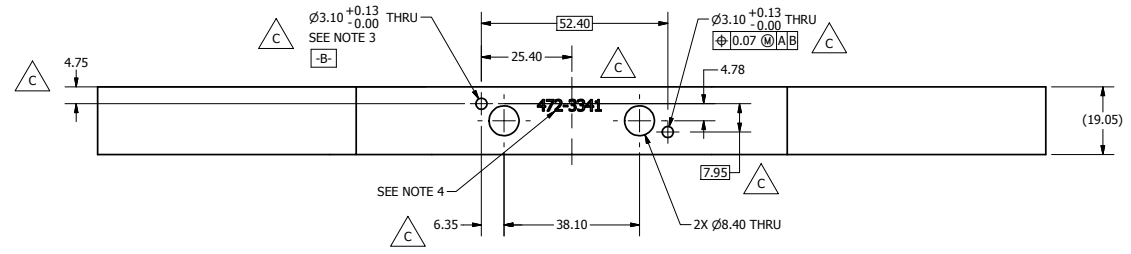


ISO VIEW
SCALE 1 : 2

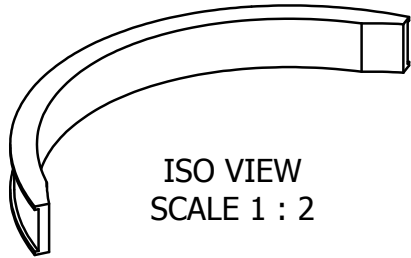


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM341 R3 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	BK
	C	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	8/14/2012	BK

- NOTES: $\triangle C$
1. MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 2. ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:133.35MM Y:118.62MM
 3. AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 14.7MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 17°.
 4. ENGRAVE DWG. #472-3341 AT THE LOCATION SPECIFIED.

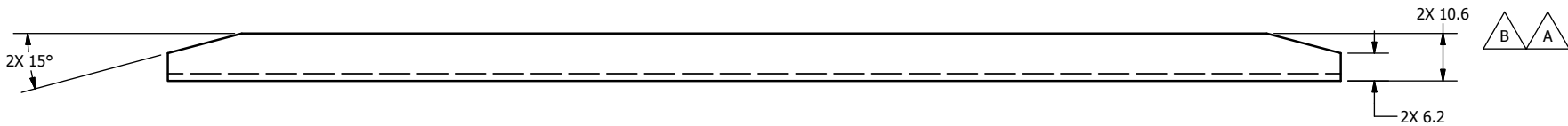
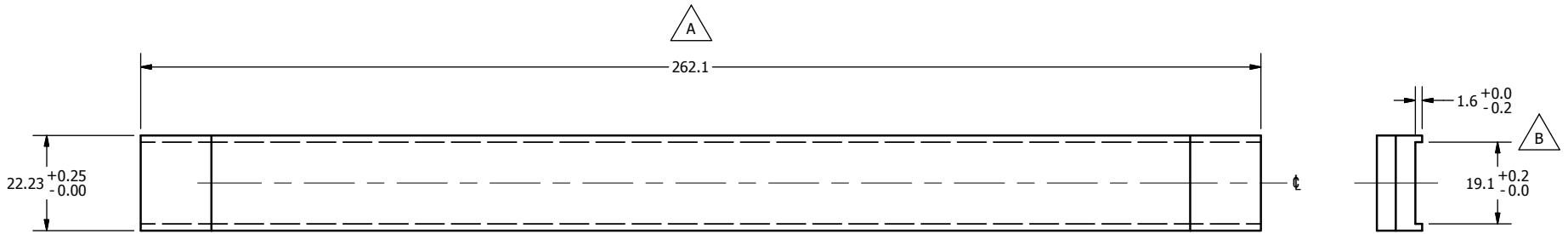


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3340		THORAX ELLIPTICAL RIB #4 - STEEL		DATE: 9/21/2011	
QTY	1	REV	Rc 43-47	DATE	11/17/2012
TOTAL QTY IN DUMMY	1	PREPARED BY	J. WANG	DATE	11/17/2012



ISO VIEW
SCALE 1 : 2

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM342 R BO AND CONVERTED TO METRIC FOR THOR-M. INCREASE THE LENGTH FROM 257.3 TO 262.1 TO MAINTAIN THE SAME SPACING BETWEEN LEFT AND RIGHT DAMPING MATERIAL & REDUCE THICKNESS FROM 13.2 TO 9.0	9/20/2011	TKN
	B	ADD 1.6 X 19.1 GROOVE, CHANGE 9.0 TO 10.6 TO COMPENSATE DAMPING THICKNESS.	1/30/2012	ZJW



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

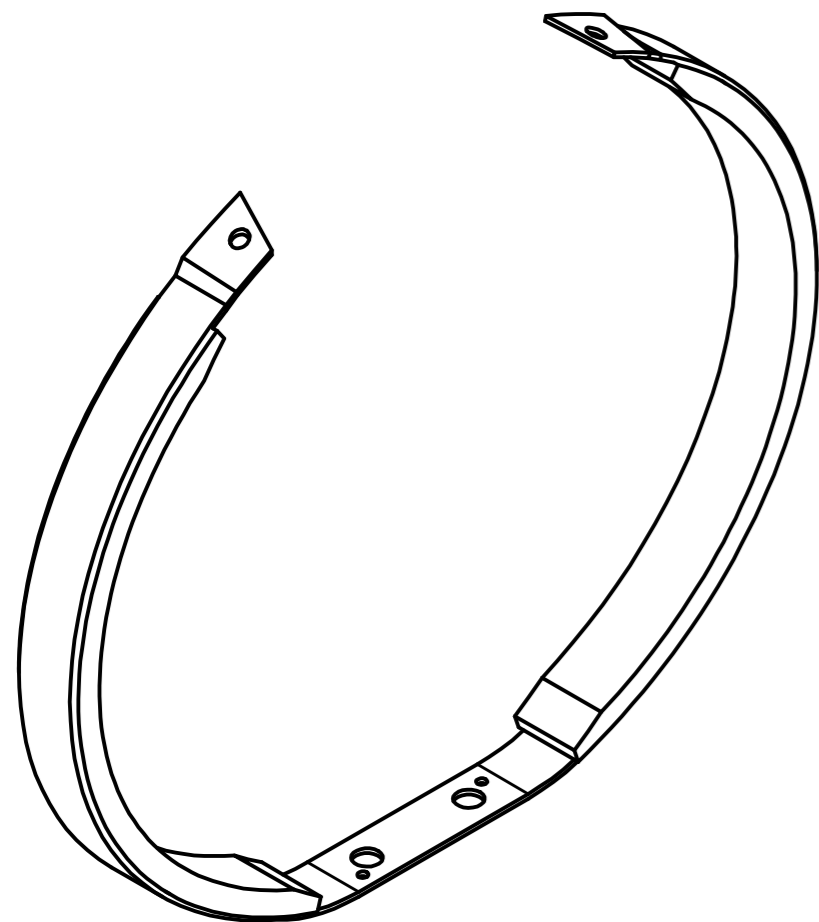
TOLERANCES
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 0.5 1.6
X 0.2 0.5
X.X 0.3
X.XX 0.01
REMOVE BURRS & BREAK SHARP EDGES



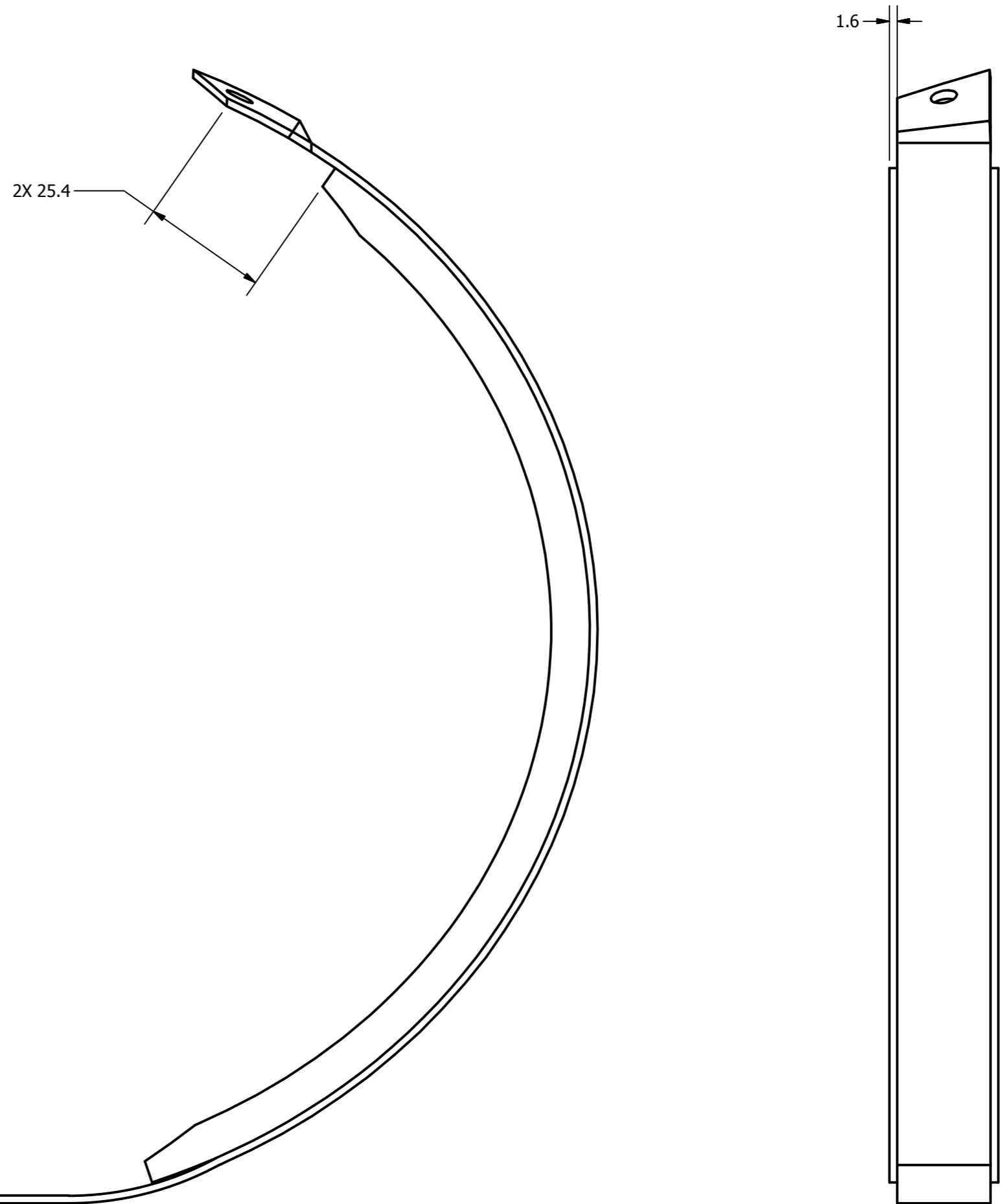
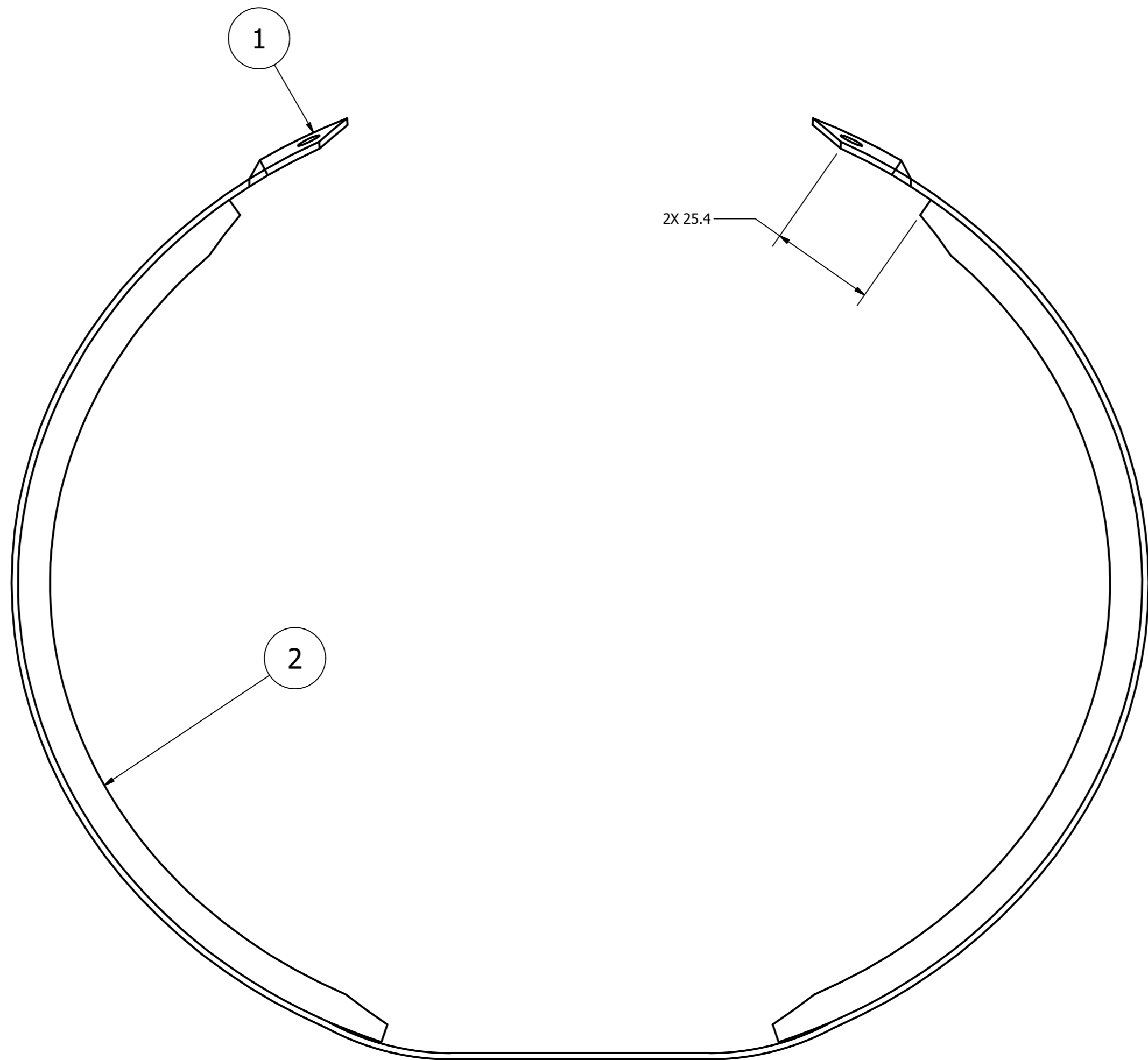
NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

PROJECT NO:	472-3340	QTY	2	MATERIAL:	ISODAMP CN-62	DATE:	9/20/2011	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-3342	REV:	B
HEAT TREAT:		TOTAL QTY IN DUMMY:	2	FINISH:		CHECKED BY:	Thanh	SCALE:	FULL						
DATE:	1/17/2012	ENGINEER:	J. WANG												

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM350 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	TKN



ISO VIEW
SCALE 1 : 2

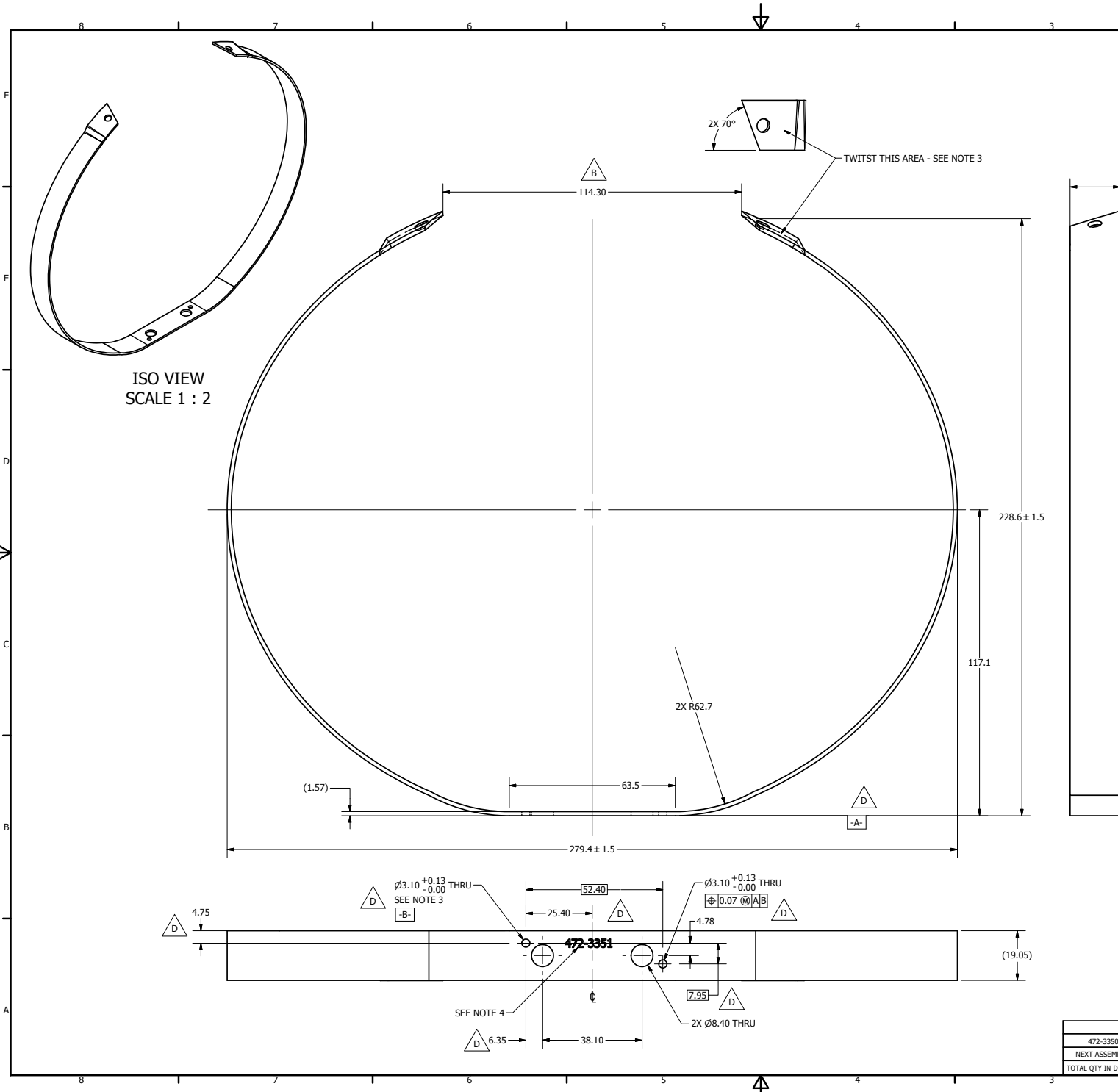


NOTES:
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

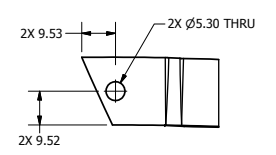
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3352	THORAX ELLIPTICAL RIB #5 - DAMPING MATERIAL
1	1	472-3351	THORAX ELLIPTICAL RIB #5 - STEEL

Parts List			
DO NOT SCALE DRAWING	TOLERANCES	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION	(UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01	THORAX ELLIPTICAL RIB #5 - ASSEMBLY	
PROJECT NO:	DATE	SIZE	DRAWING NO:
472-3000	9/20/2011	A2	1 OF 1
NEXT ASSEMBLY	DATE	SCALE	472-3350
TOTAL QTY IN DUMMY	1	FULL	A

MATERIAL:	DRAWN BY:	DATE:
	Thanh	9/20/2011
HEAT TREAT:	CHECKED BY:	DATE:
	J. WANG	1/17/2012
FINISH:	ENGINEER:	DATE:



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM351 R3 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK; ADD 114.3	5/8/2012	BK
	C	ADD VIEW TO SHOW HOLES	7/11/2012	BK
	D	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	8/14/2012	BK

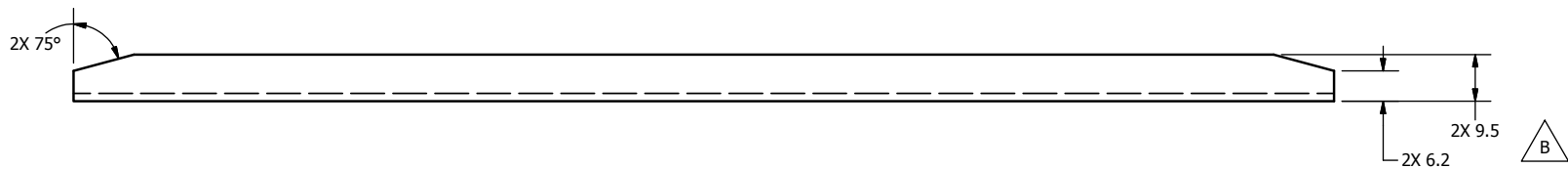
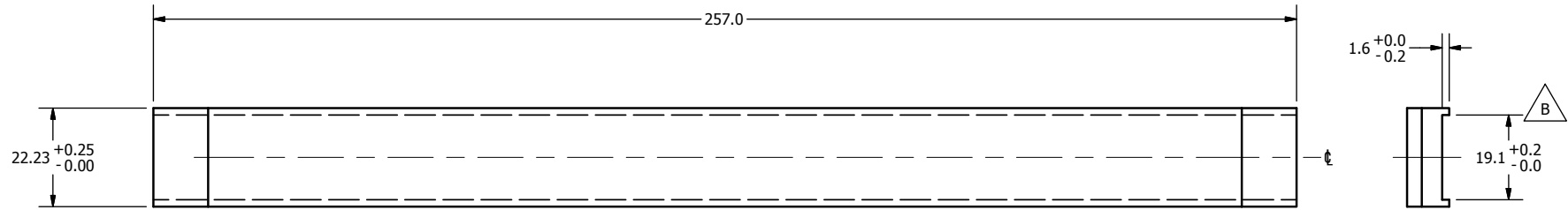
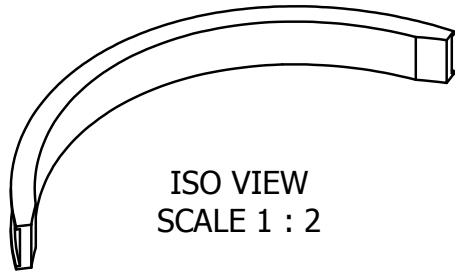


VIEW PERPENDICULAR TO HOLE AXIS SCALE 1.000

- NOTES:
1. MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 2. ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:139.70MM Y:122.17MM
 3. AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 20.3MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 8°.
 4. ENGRAVE DWG. #472-3351 AT THE LOCATION SPECIFIED.

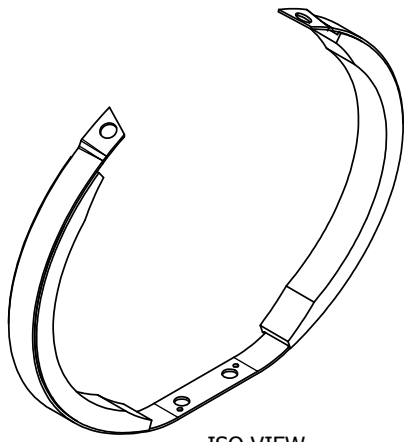
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THREE ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.01		THORAX ELLIPTICAL RIB #5 - STEEL	
472-3350	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/14/2012	472-3351

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER T1TXM352 RBO AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	TKN
	B	ADD 1.6 X 19.1 GROOVE, CHANGE 7.9 TO 9.5 TO COMPENSATE DAMPING THICKNESS.	1/30/2011	ZJW

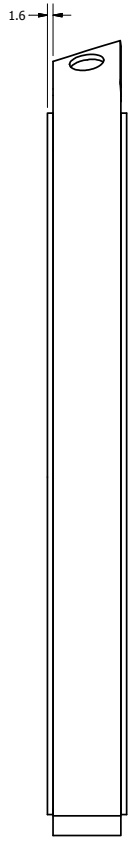
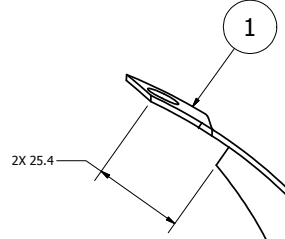
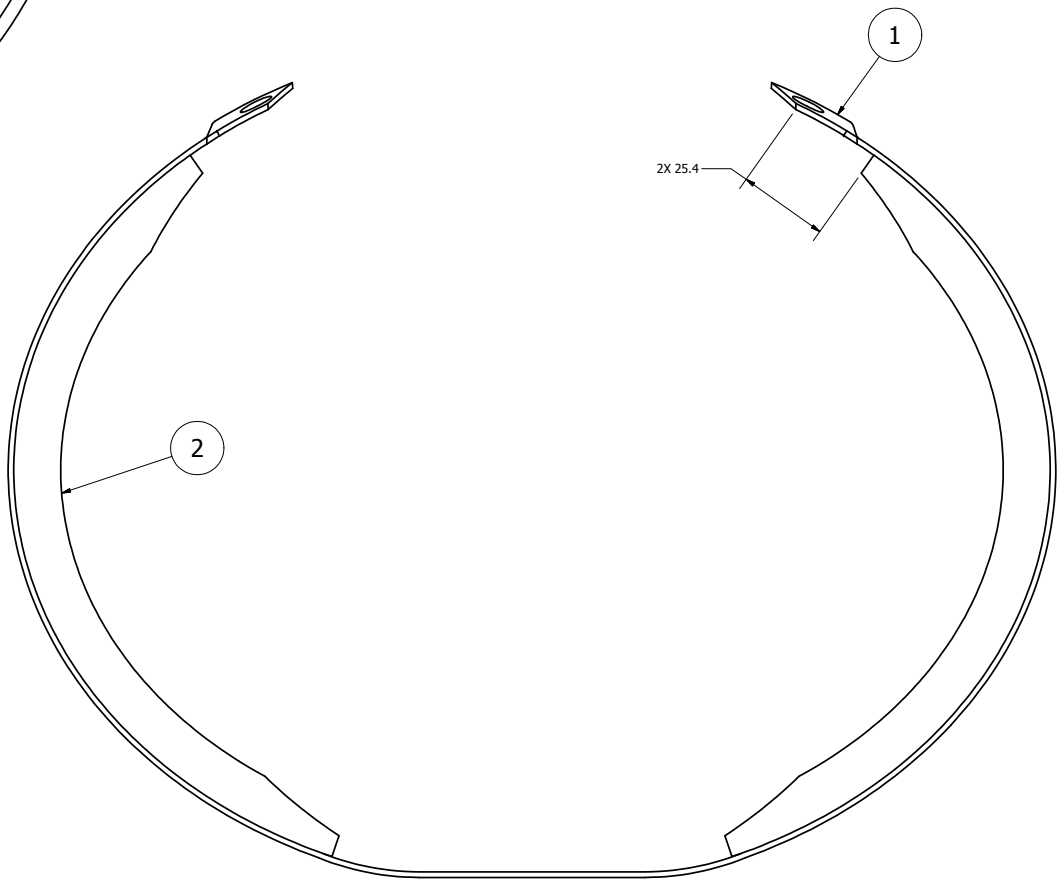


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 1.6 X 0.2 ± 0.5 XX 0.3 XXX 0.01 X-XXX ± 0.01		
PROJECT NO.:	472-3350	MATERIAL:	ISODAMP CN-62	THORAX ELLIPTICAL RIB #5 - DAMPING MATERIAL REMOVE BURRS & BREAK SHARP EDGES
DATE:	9/20/2011	DRAWN BY:	Thanh	
CHECKED BY:		DATE:	9/20/2011	
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 SCALE: FULL
FINISH:		DATE:	1/14/2012	DRAWING NO.:
TOTAL QTY IN DUMMY	2			472-3352

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM360 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN



ISO VIEW
SCALE 1 : 2



NOTES:
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3362	THORAX ELLIPTICAL RIB #6 - DAMPING MATERIAL
1	1	472-3361	THORAX ELLIPTICAL RIB #6 - STEEL

Parts List
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

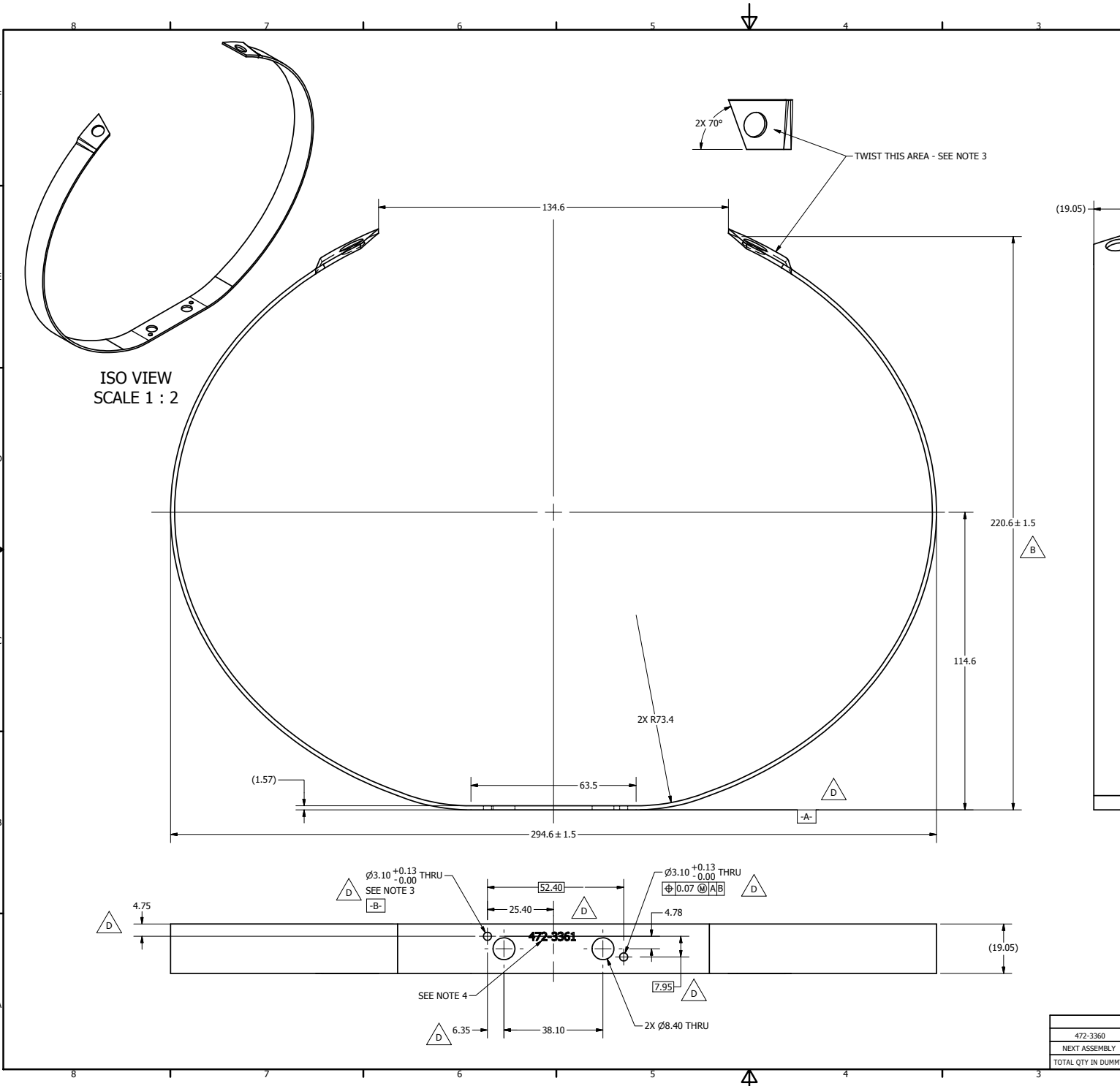
472-3000	1	THORAX ELLIPTICAL RIB #6 - ASSEMBLY
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

THORAX ELLIPTICAL RIB #6 - ASSEMBLY

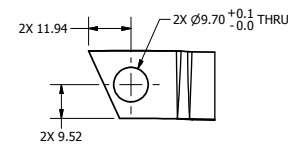
DATE: 9/21/2011
DRAWN BY: Thanh
CHECKED BY: J. WANG
DATE: 1/18/2012

21 of 1
FULL

472-3360



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM361 R3 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK; ADD 220.6 +/-1.5	5/8/2012	BK
	C	ADD VIEW TO SHOW HOLES	7/11/2012	BK
	D	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	8/14/2012	BK



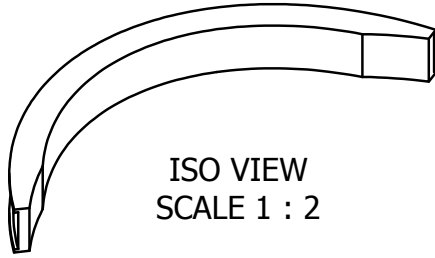
VIEW PERPENDICULAR TO HOLE AXIS
SCALE 1.000

- NOTES: D
- MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 - ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:147.32MM Y:119.38MM
 - AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 20.3MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 8°.
 - ENGRAVE DWG. #472-3361 AT THE LOCATION SPECIFIED.

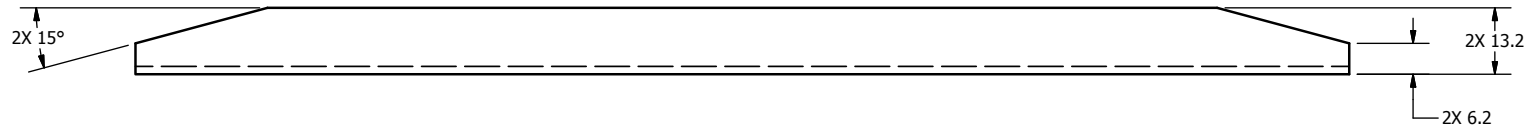
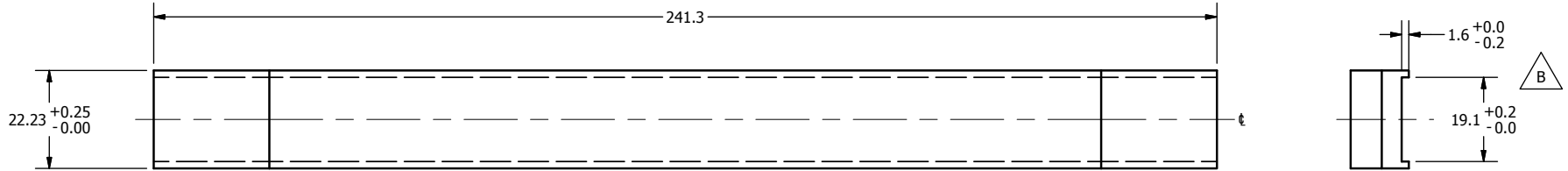
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THREE ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE 0.05 0.10 0.20 0.50 1.00 2.00 5.00 10.00 20.00 50.00 100.00		THORAX ELLIPTICAL RIB #6 - STEEL	
472-3360	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM362 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	ADD GROOVE 1.6 X 19.1 FOR BONDING ALIGNMENT, CHANGE FROM 11.6 TO 13.2 TO COMPENSATE THICKNESS	1/30/2012	ZJW



ISO VIEW
SCALE 1 : 2



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 16 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-3360	MATERIAL:	ISODAMP CN-62	THORAX ELLIPTICAL RIB #6 - DAMPING MATERIAL SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3362 REV: B
DATE:	9/21/2011	ENGINEER:	J. WANG	
DATE:	1/18/2012	SCALE:	FULL	
QTY	2	TOTAL QTY IN DUMMY	2	

6

5

4

3

2

1

6

5

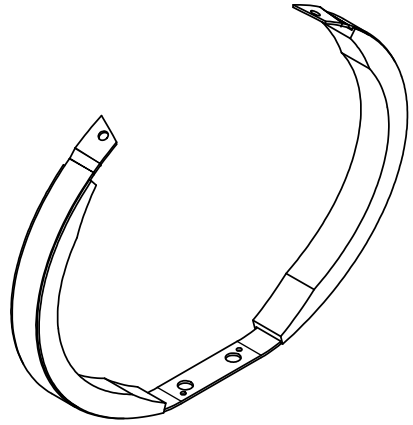
4

3

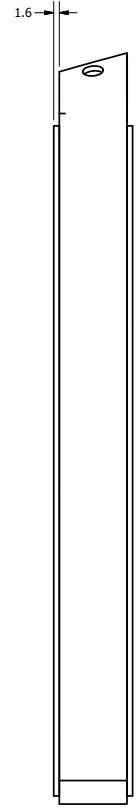
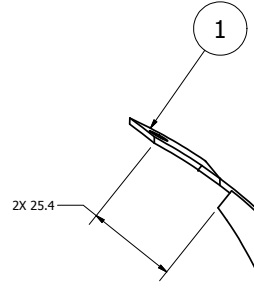
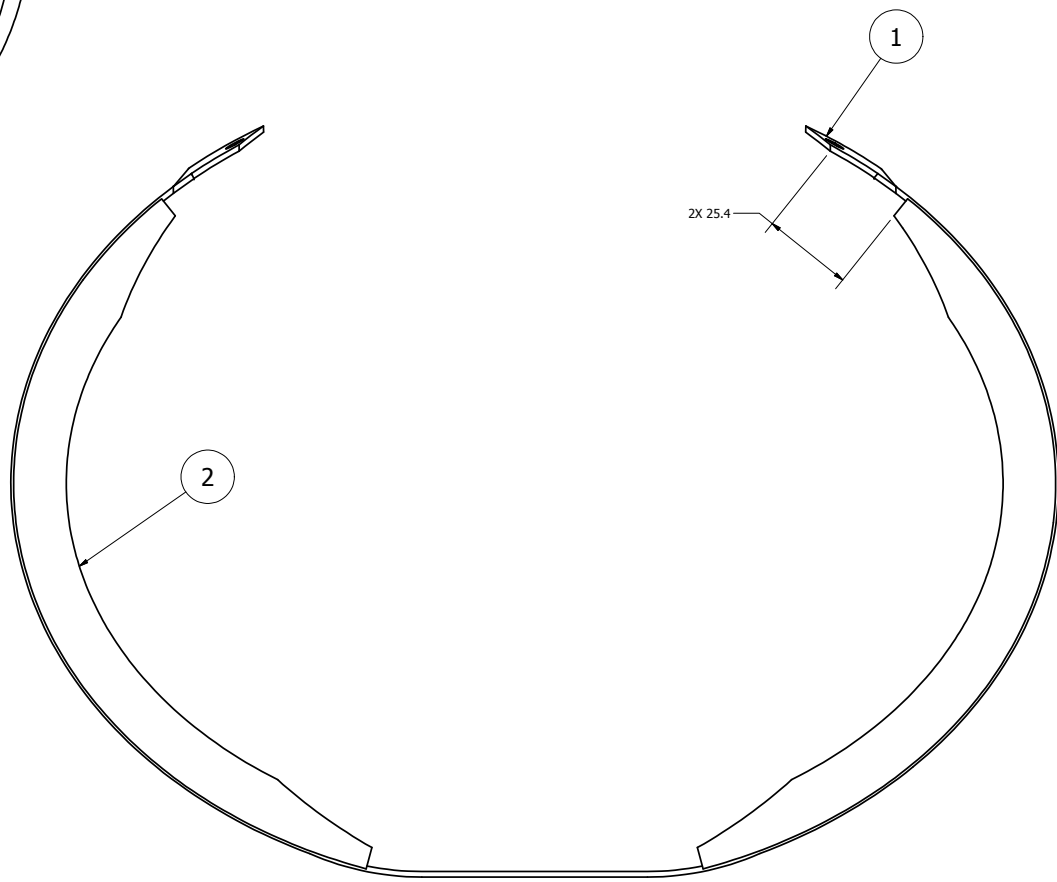
2

1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TSM370 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN



ISO VIEW
SCALE 1 : 2



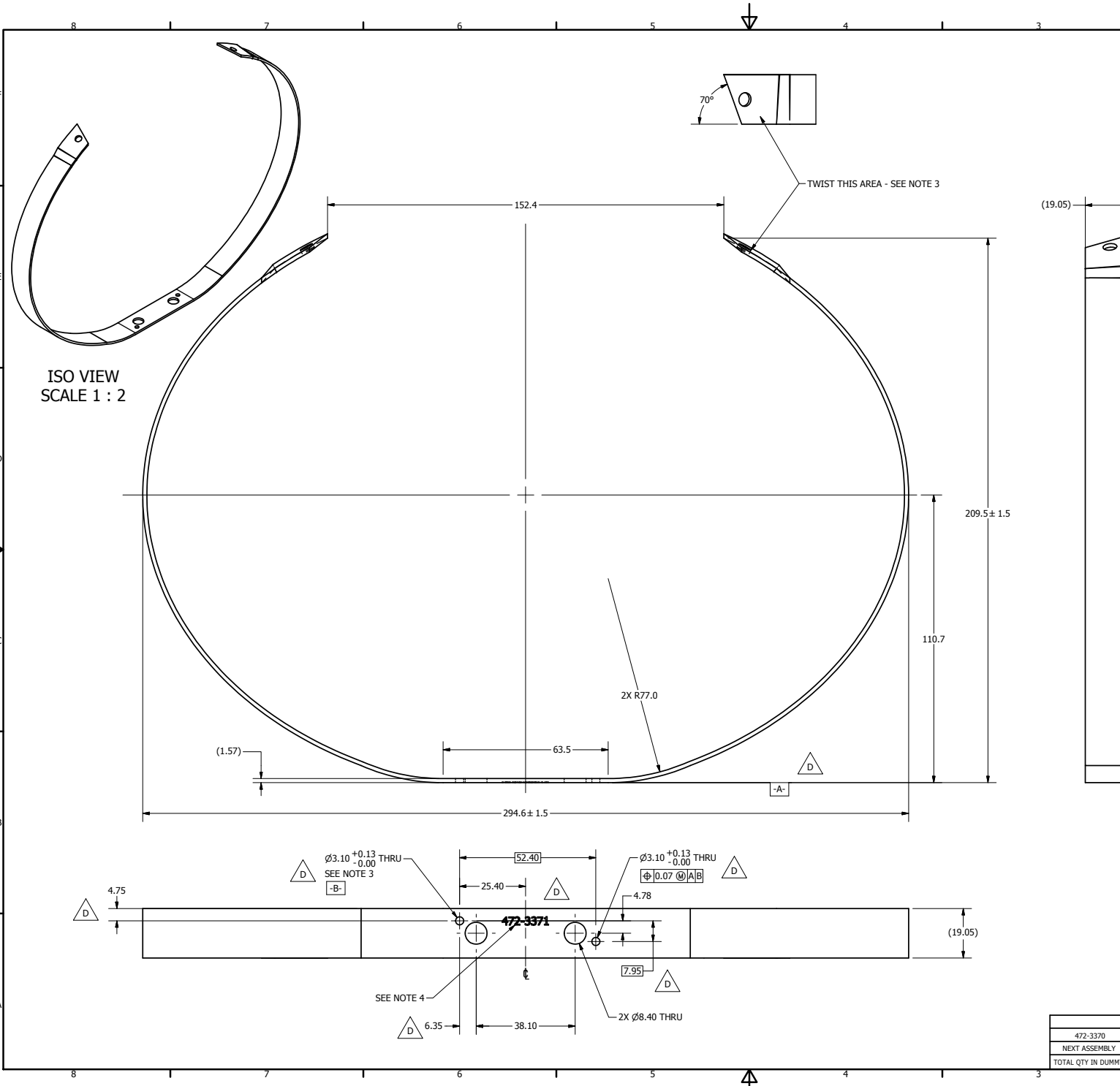
NOTES:
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3372	THORAX ELLIPTICAL RIB #7 - DAMPING MATERIAL
1	1	472-3371	THORAX ELLIPTICAL RIB #7 - STEEL

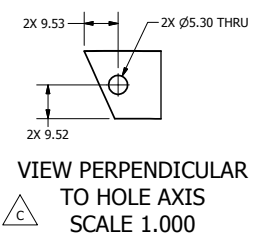
Parts List
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

472-3000	1	THORAX ELLIPTICAL RIB #7 - ASSEMBLY	DATE: 9/21/2011
NEXT ASSEMBLY	QTY	DATE: 1/18/2012	DATE: 9/21/2011
TOTAL QTY IN DUMMY	1	DATE: 1/18/2012	DATE: 9/21/2011

472-3370
A21 of 1
FULL



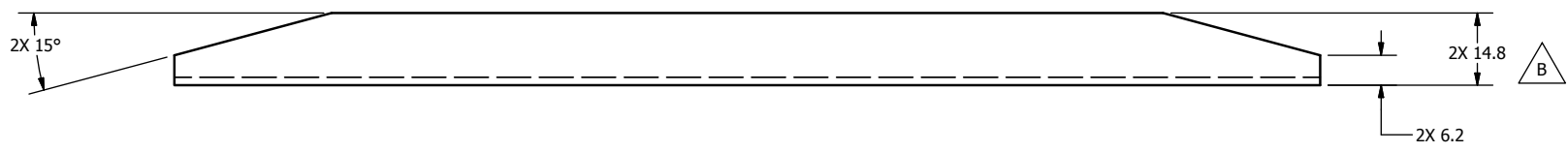
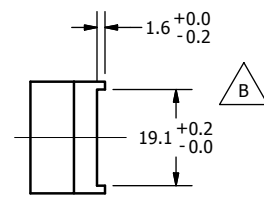
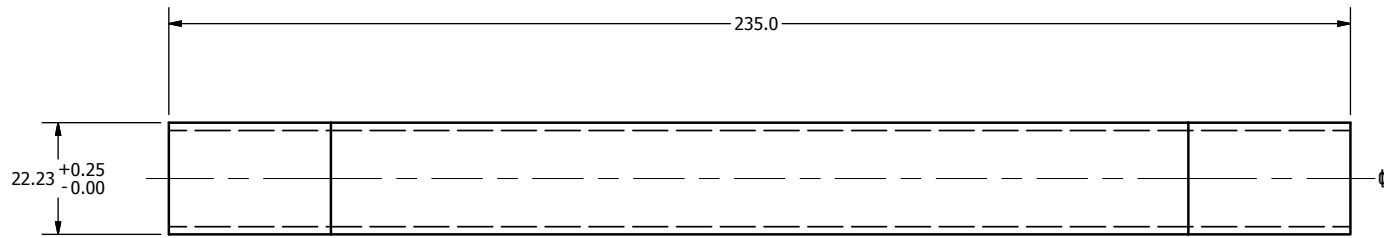
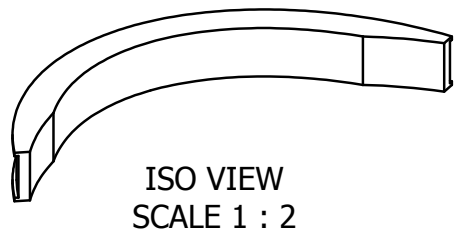
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM371 R4 AND CONVERTED TO METRIC FOR THOR-M0	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	BK
	C	ADD VIEW TO SHOW HOLES	7/11/2012	BK
	D	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL TOLERANCE; DIMENSION HOLES FROM DATUM B; ADD 4.75, 25.40	8/14/2012	BK



- NOTES: $\triangle D$
1. MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 2. ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:147.32MM Y:115.32MM
 3. AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 20.3MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 5°.
 4. ENGRAVE DWG. #472-3371 AT THE LOCATION SPECIFIED.

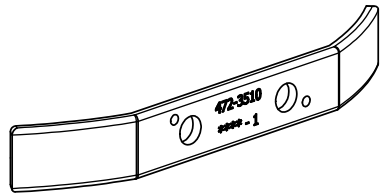
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.01 MILLIMETERS FRACTIONS ARE TO 1/32 INCH		THORAX ELLIPTICAL RIB #7 - STEEL	
472-3370	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc: 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM372 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	ADD 1.6 X 19.1 GROOVE, CHANGE FROM 13.2 TO 14.8 TO COMPENSATE DAMPING THICKNESS.	1/30/2012	ZJW

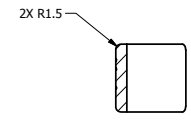
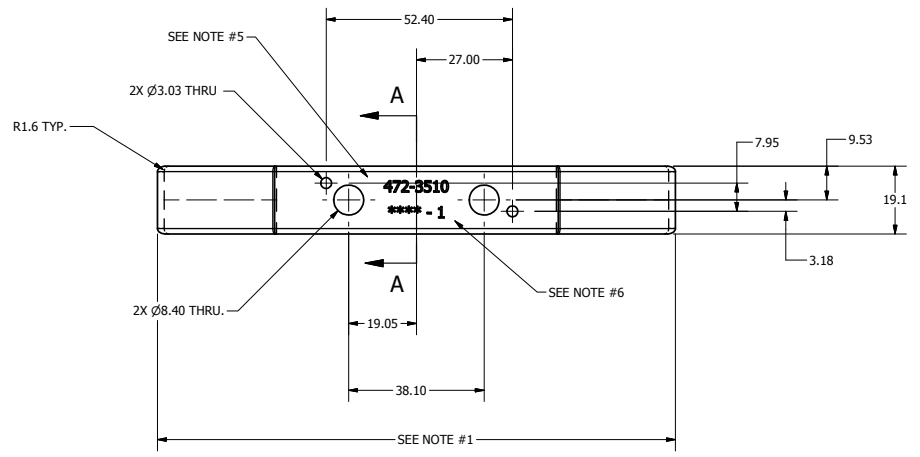
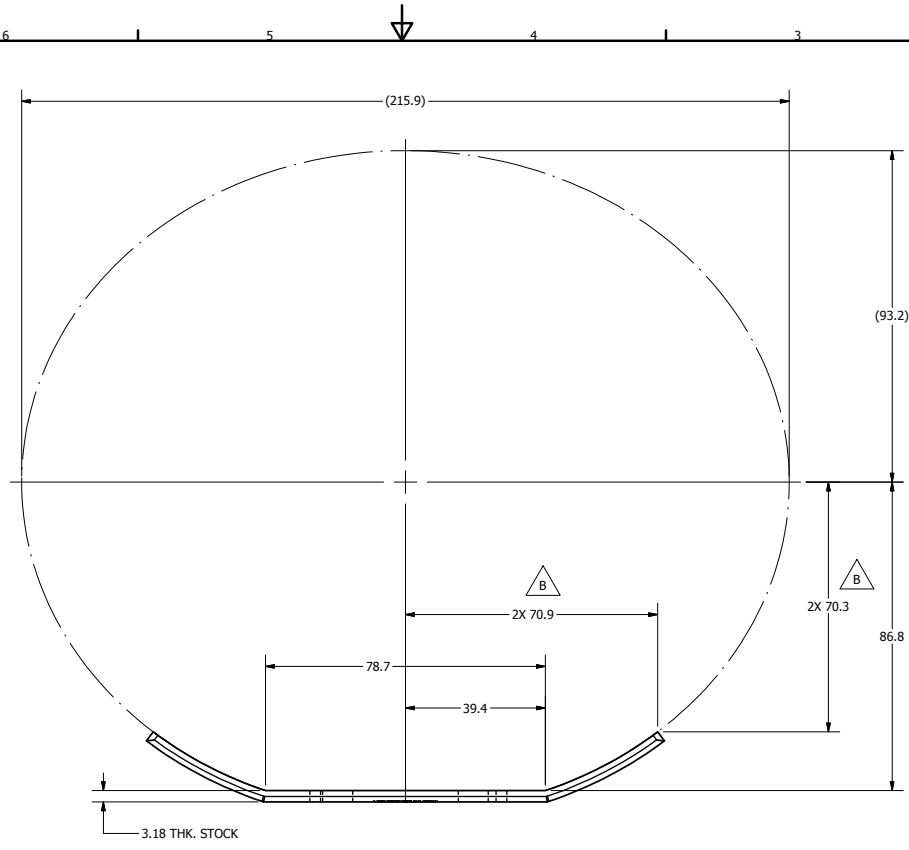


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01		
PROJECT NO:	472-3370	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #7 - DAMPING MATERIAL
DRAWN BY:	Thanh	DATE:	9/21/2011	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3372 SCALE: FULL
FINISH:		DATE:	1/18/2012	REV: B
TOTAL QTY IN DUMMY	2			

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM010 R5 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 70.3, 2X 70.9	3/22/2012	BK



ISO VIEW
SCALE 1 : 1



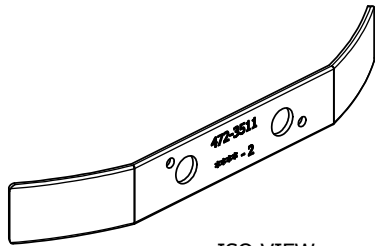
SECTION A-A
SCALE 1 : 1



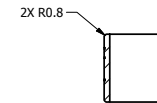
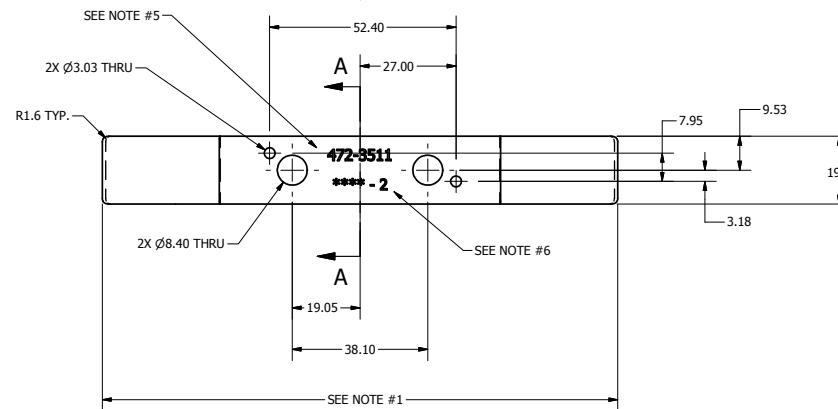
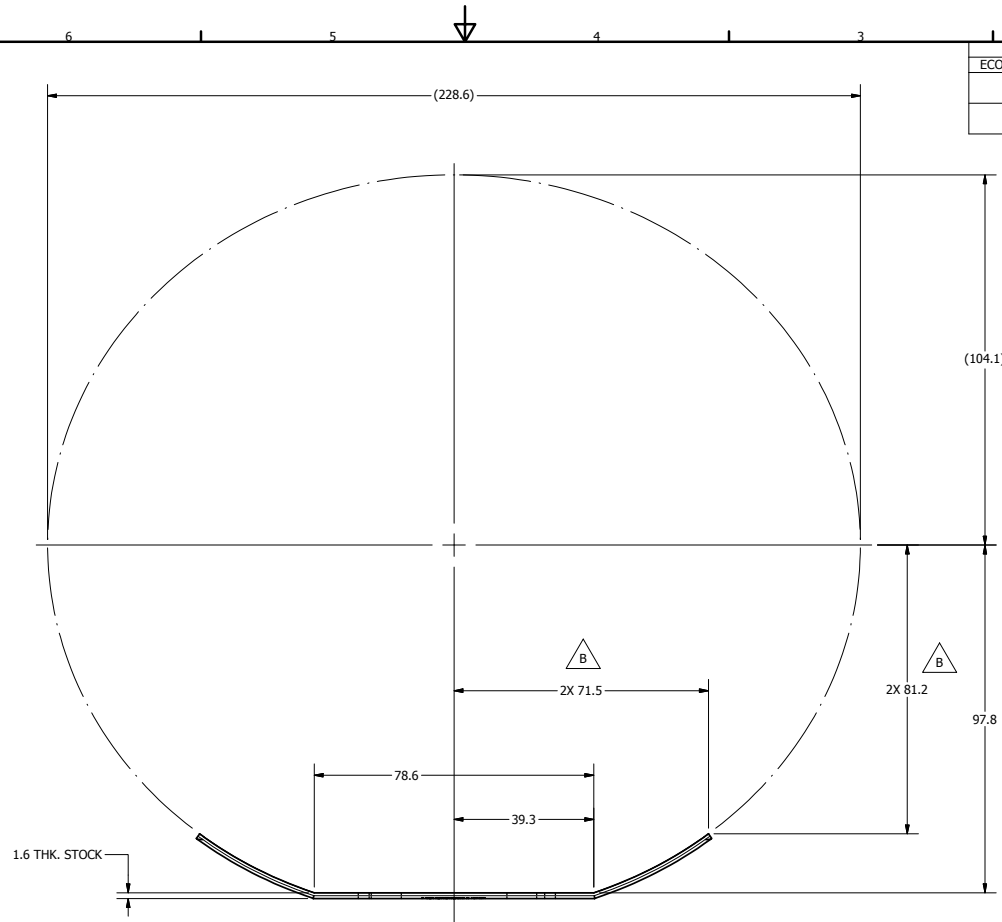
- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=107.9MM, Y=93.2MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3510 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED, WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)

DO NOT SCALE DRAWING		TOLERANCES		
THIRD ANGLE PROJECTION		DECIMAL TO FIFTEEN (15) DIGIT DIMENSIONS ARE IN MILLIMETERS DIMENSIONS ARE IN INCHES DECIMALS ARE 1/16" (16) FRACTIONS ARE 1/8", 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1"		
472-3000 1 01 TOOL STEEL		THORAX ELLIPTICAL RIB STIFFENER #1		
NEXT ASSEMBLY QTY SEE NOTES		DATE 9/22/2011		
TOTAL QTY IN DUMMY 1 E-COAT		J. WANG 1/18/2012		A21 of 1 FULL
				472-3510

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM011 R6 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 81.2, 2X 71.5	3/22/2012	BK



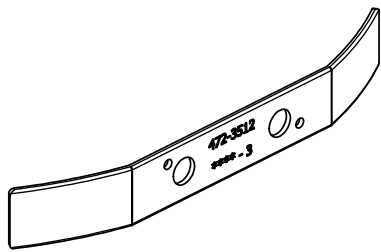
ISO VIEW
SCALE 1 : 1



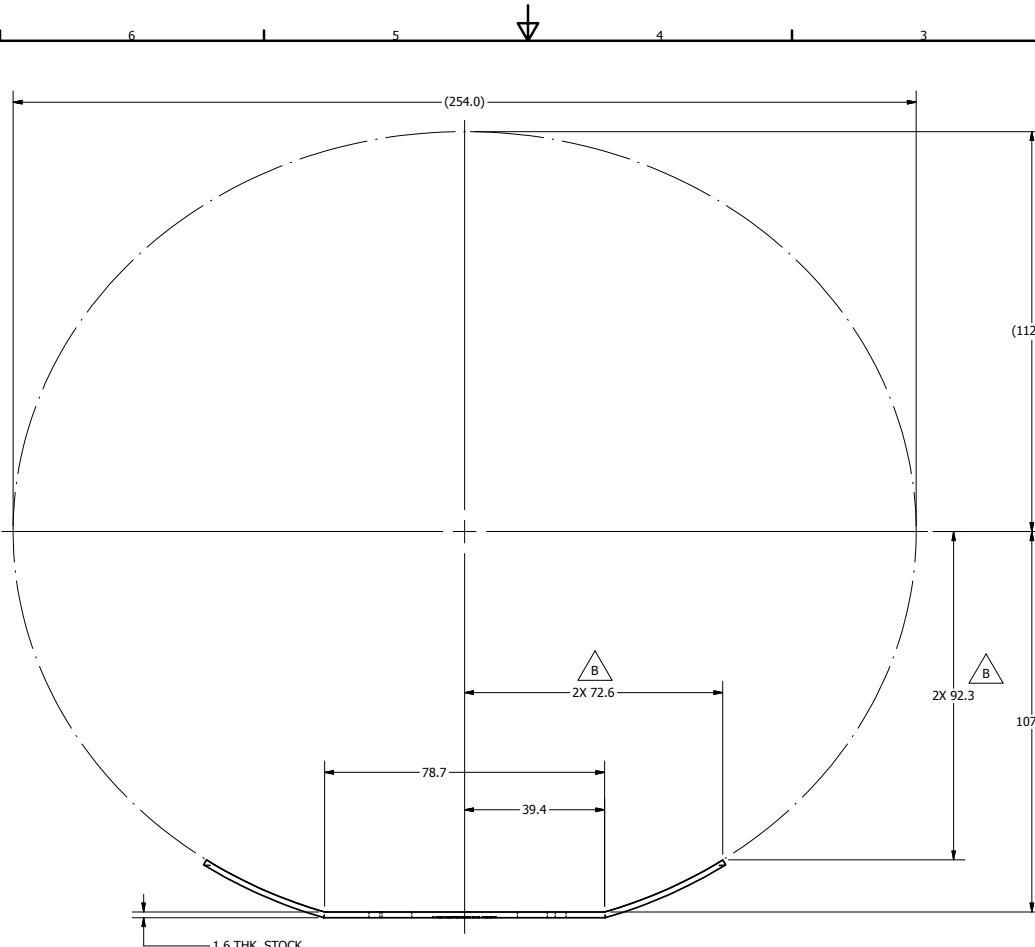
SECTION A-A
SCALE 1 : 1

- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=114.3MM, Y=104.1MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3511 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)

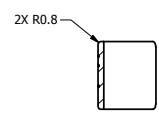
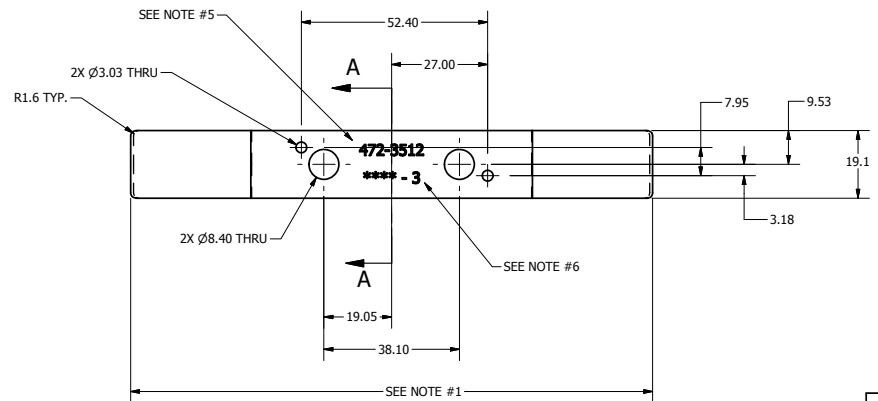
DO NOT SCALE DRAWING				TOLERANCES				NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
472-3000	1	01 TOOL STEEL	Thanh	9/22/2011	THORAX ELLIPTICAL RIB STIFFENER #2	A21 of 1		472-3511		B	
NEXT ASSEMBLY QTY SEE NOTES				DATE: 1/18/2012				FULL			
TOTAL QTY IN DUMMY 1				E-COAT							



ISO VIEW
SCALE 1 : 1



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TYM012 R6 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 92.3, 2X 72.6	3/22/2012	BK

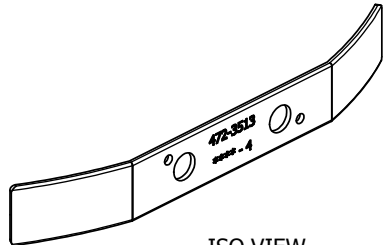


SECTION A-A
SCALE 1 : 1

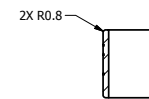
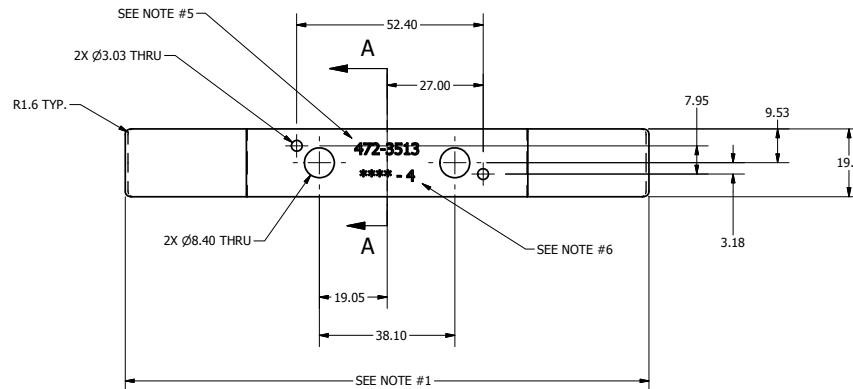
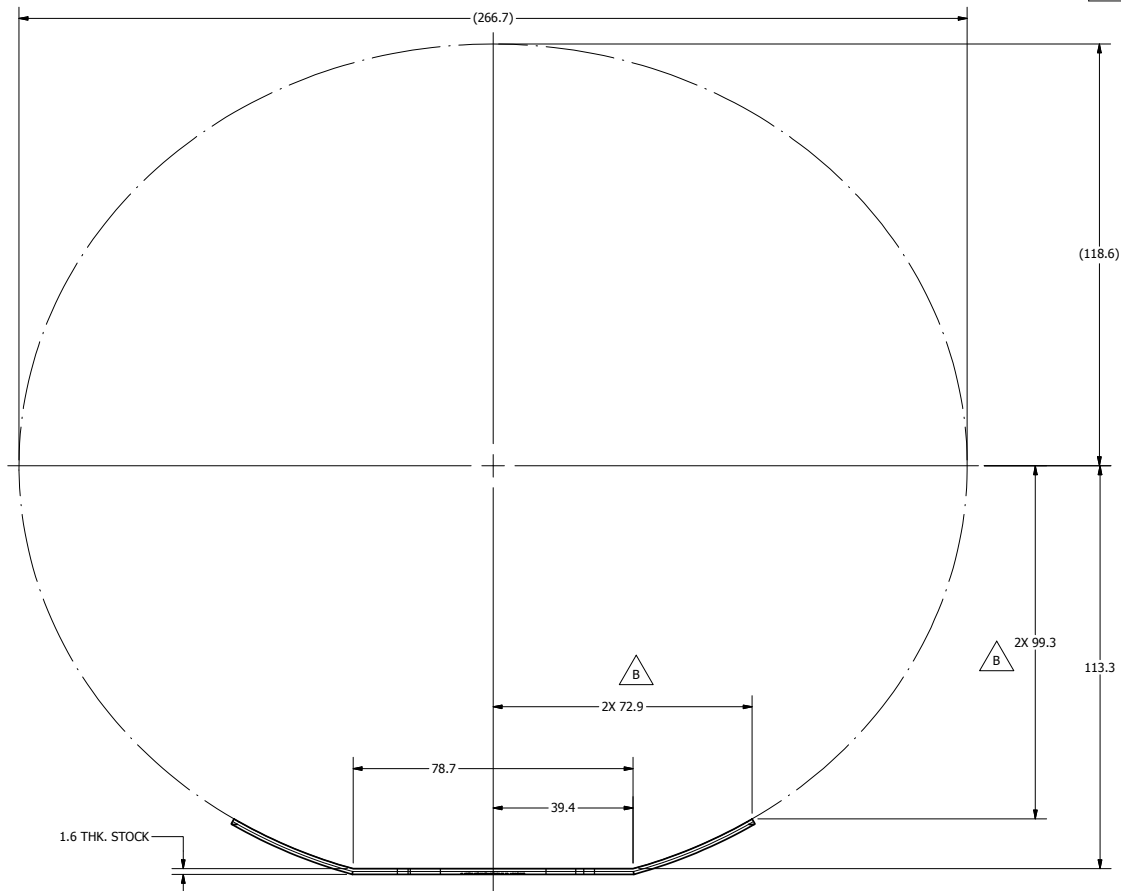
- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=127.0MM, Y=112.5MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3512 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3000		THORAX ELLIPTICAL RIB STIFFENER #3		THORAX ELLIPTICAL RIB STIFFENER #3	
QTY	1	DATE	9/22/2011	REV	A21 of 1
QTY	1	DATE	1/18/2012	REV	FULL
TOTAL QTY IN DUMMY		E-COAT		472-3512	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM013 R6 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 99.3, 2X 72.9	3/22/2012	BK



ISO VIEW
SCALE 1 : 1



SECTION A-A
SCALE 1 : 1

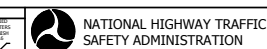


NOTES:

1. LENGTH PRIOR TO BENDING IS 152.4MM
2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
3. SEMI-AXES ARE X=133.4MM, Y=118.6MM
4. HEAT TREAT TO Rc 50 +/- 2
5. ENGRAVE DWG. # 472-3513 AT THE LOCATION SPECIFIED.
6. ENGRAVE SERIAL NUMBER ****.# AT THE LOCATION SPECIFIED, WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)



TOLERANCES	
UNLESS OTHERWISE SPECIFIED	DECIMAL DIMENSIONS
FRACTIONS	FRACTIONS
ANGLES	ANGLES
PLACES	PLACES
THICKNESS	THICKNESS
ROUNDED	ROUNDED



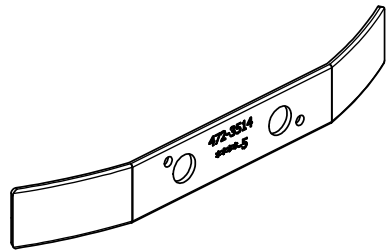
THORAX ELLIPTICAL RIB STIFFENER #4

ECO#	REV	DESCRIPTION	DATE	BY
472-3000	1	01 TOOL STEEL	9/22/2011	Thanh
		SEE NOTES		
		E-COAT		

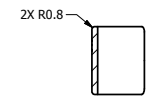
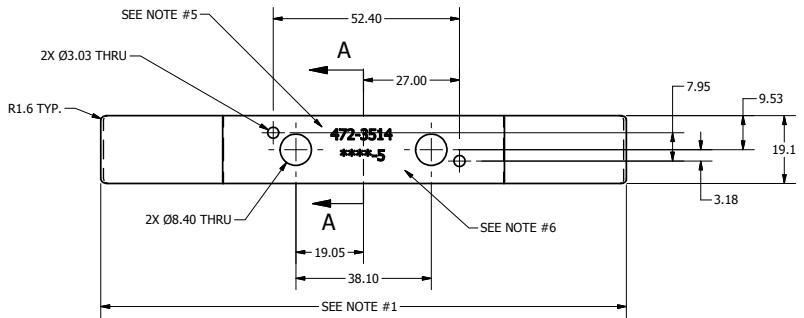
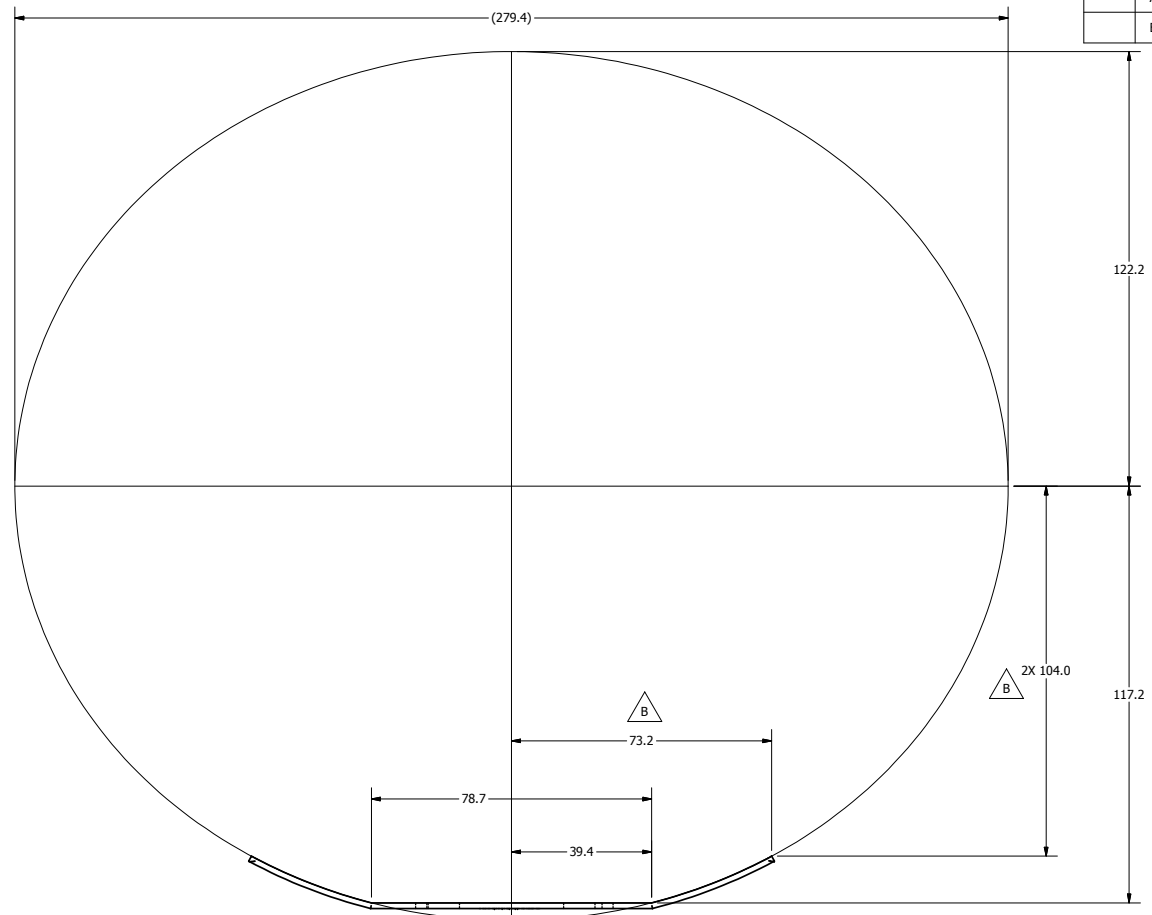
DATE: 1/18/2012
DRAWN BY: J. WANG
CHECKED BY: J. WANG
SCALE: FULL
PART NO: 472-3513

THORAX ELLIPTICAL RIB STIFFENER #4
PAGE: 1 of 1
TOTAL QTY IN DUMMY: 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM014 R6 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 104.0, 2X 73.2	3/22/2012	BK



ISO VIEW
SCALE 1 : 1



SECTION A-A
SCALE 1 : 1

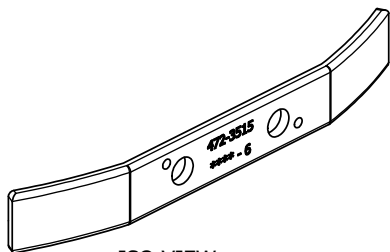


- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=139.7MM, Y=122.2MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3514 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)

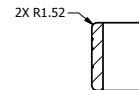
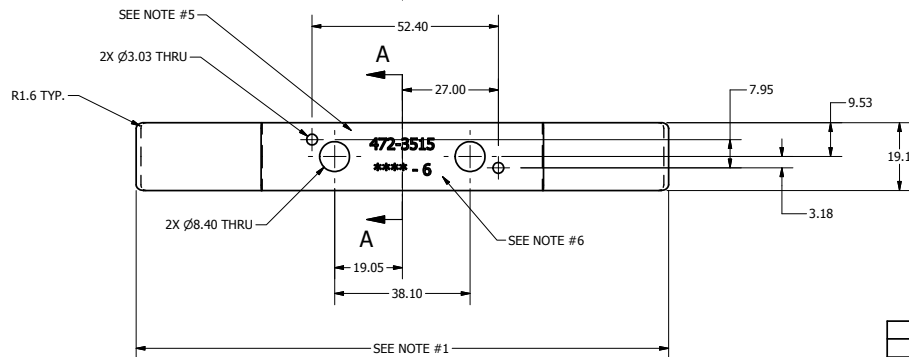
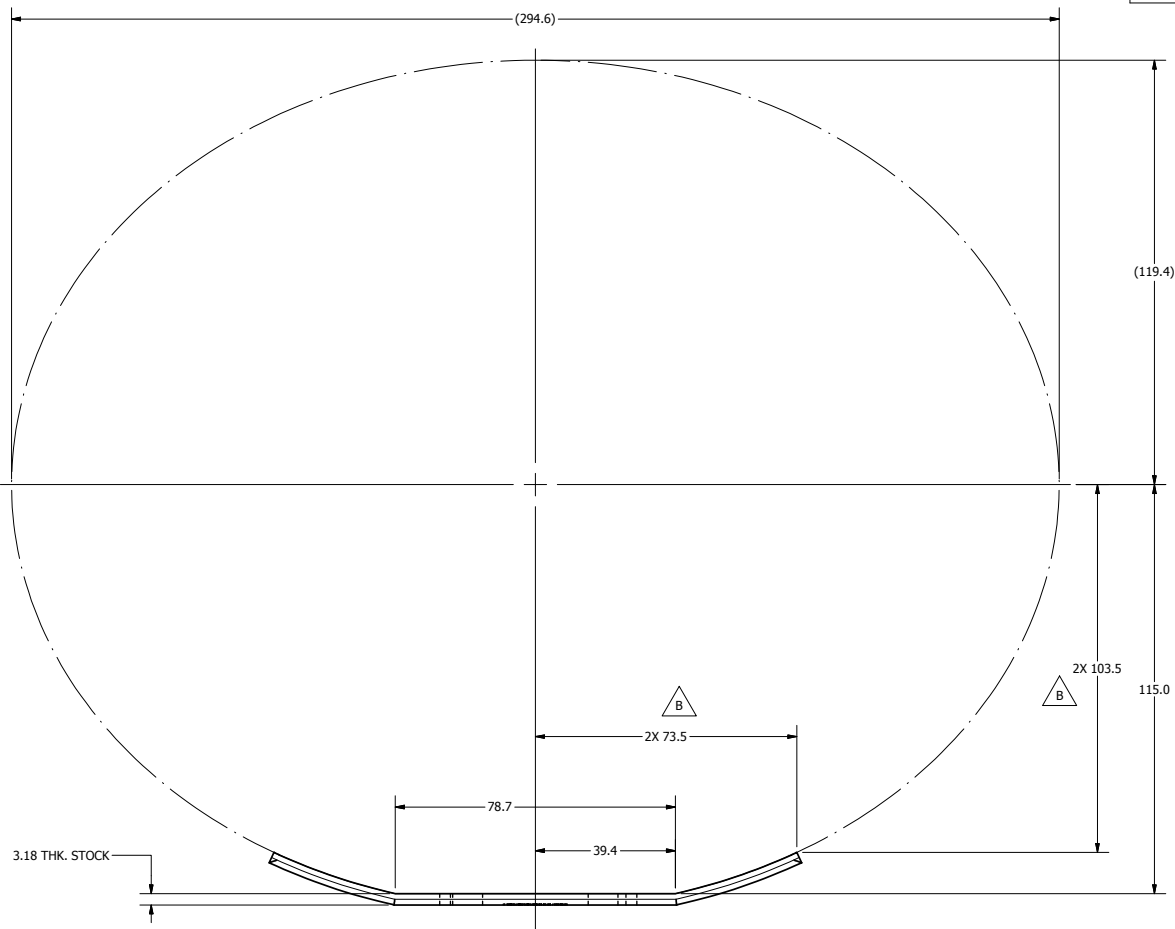
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DECIMAL TO FIFTEEN (15) DIGIT DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED FRACTIONS ARE TO BE IN 16ths UNLESS OTHERWISE SPECIFIED		THORAX ELLIPTICAL RIB STIFFENER #5	
472-3000	1	01 TOOL STEEL	Thanh	9/22/2011	
NEXT ASSEMBLY	QTY	SEE NOTES	PREPARED BY	DATE	
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THORAX ELLIPTICAL RIB STIFFENER #5
 A21 of 1
 FULL
 472-3514

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM015 R5 AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 103.5, 2X 73.5	3/22/2012	BK



ISO VIEW
SCALE 1 : 1

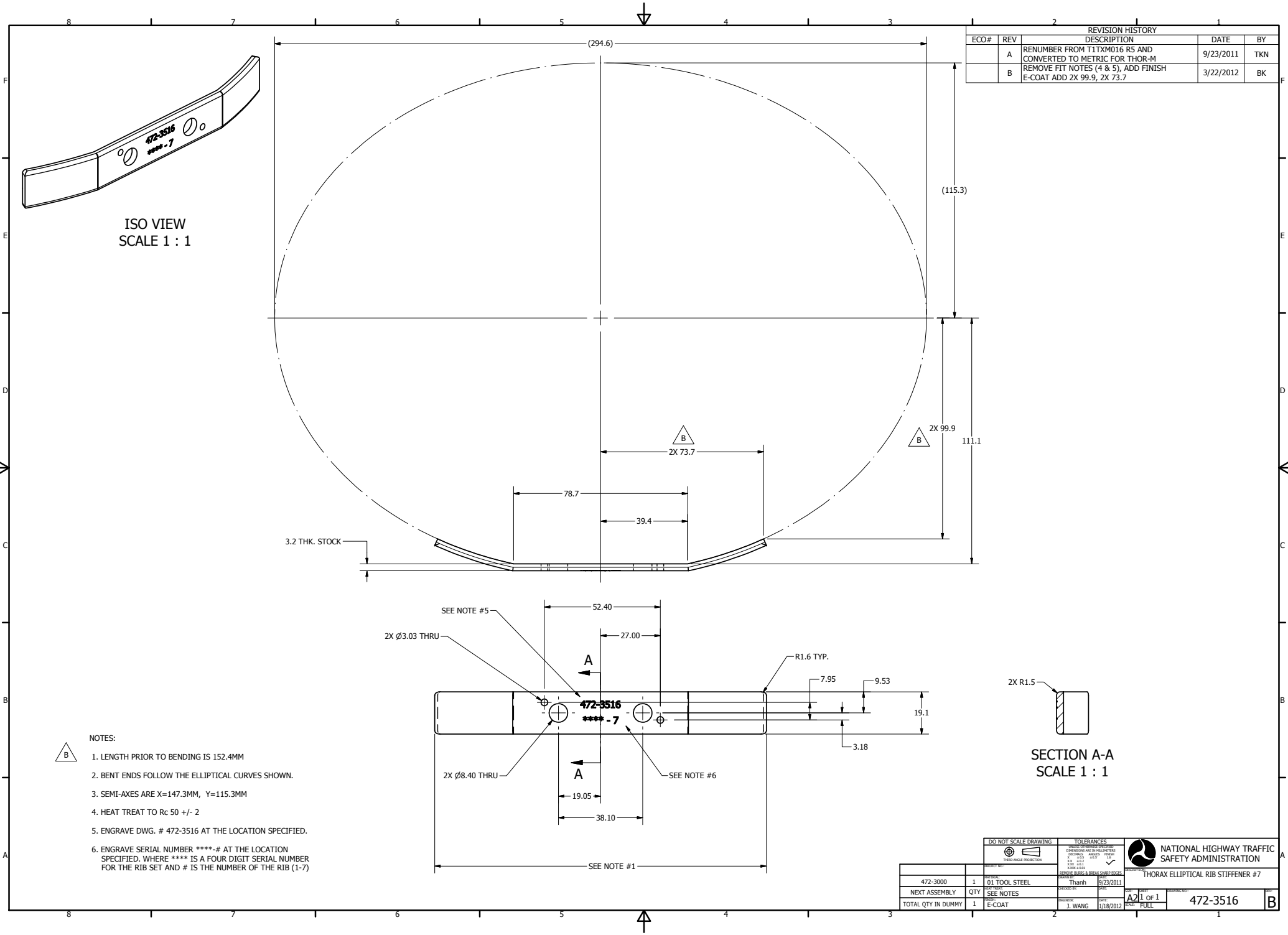


SECTION A-A
SCALE 1 : 1

- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=147.3MM, Y=119.4MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3515 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3000	1	01 TOOL STEEL	Thanh	9/23/2011	THORAX ELLIPTICAL RIB STIFFENER #6
NEXT ASSEMBLY	QTY	SEE NOTES	PREPARED BY	DATE	REV
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	A21 of 1 FULL

472-3515



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM016 R5 AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT ADD 2X 99.9, 2X 73.7	3/22/2012	BK

- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=147.3MM, Y=115.3MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3516 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR DIGIT SERIAL NUMBER FOR THE RIB SET AND # IS THE NUMBER OF THE RIB (1-7)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THORAX ELLIPTICAL RIB STIFFENER #7		THORAX ELLIPTICAL RIB STIFFENER #7		THORAX ELLIPTICAL RIB STIFFENER #7	
472-3000	1	01 TOOL STEEL	Thanh	9/23/2011	
NEXT ASSEMBLY	QTY	SEE NOTES			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	

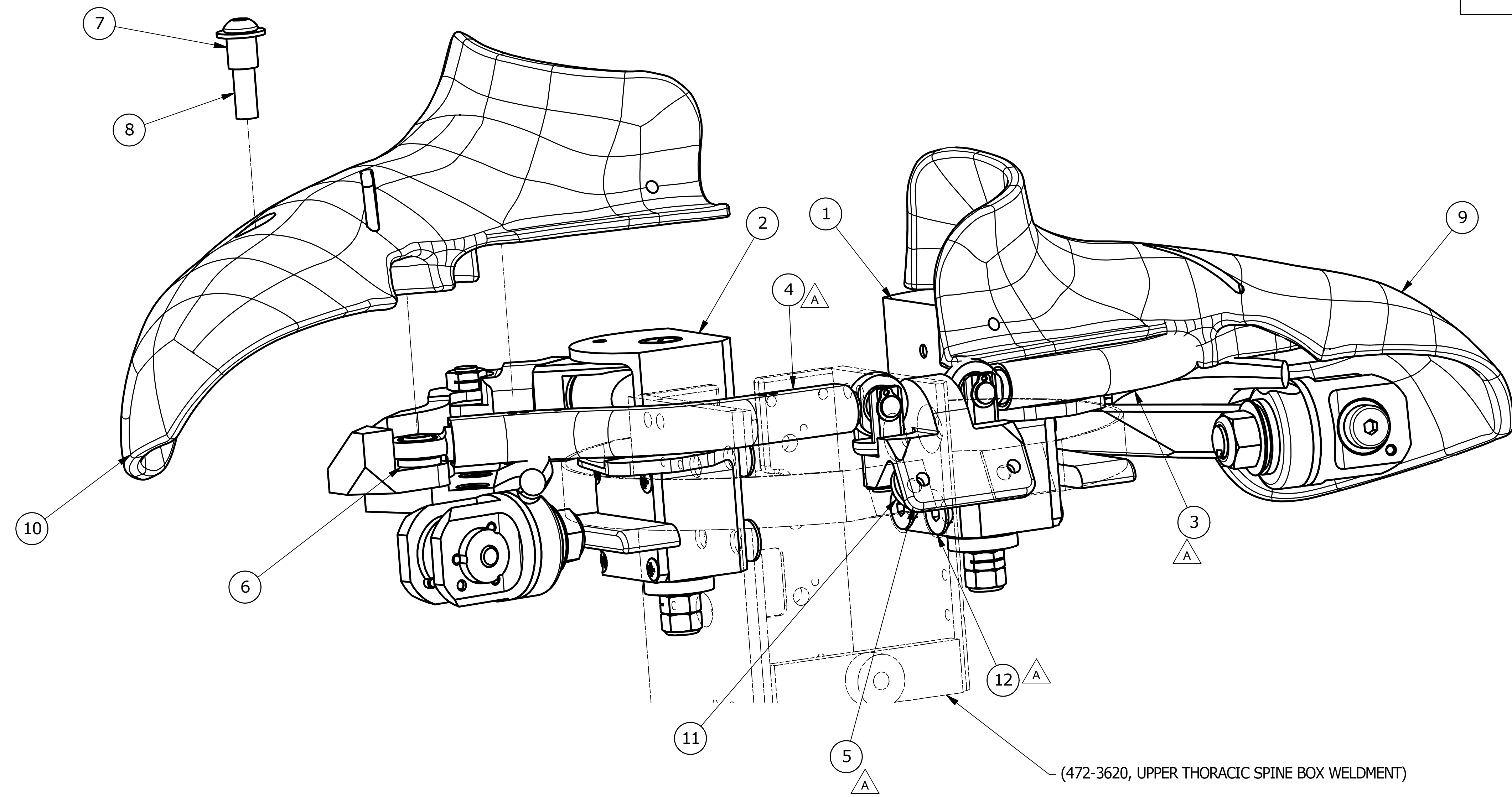
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	REVISED ITEMS 3, 4, 5. ADDED ITEM 12	2/10/2014	JHC
	B	DRAWING NUMBER WAS AXSDM000M; REMOVED SD3 UPPER HUMERUS ASSEMBLY - AXAMM000; TITLE WAS SD3 SHOULDER AND ARMS ASSEMBLY; 472-3810 WAS AXSDM300, 472-3840 WAS AXSDM400, 472-3850 WAS AXSDM100B, 472-3860 WAS AXSDM200B, 472-3870 WAS AXSDM040C, 472-3880 WAS AXSDM038, 472-3890 WAS AXSDM037A, 472-3891 WAS AXSDM037B, 472-3895-1 WAS AXSDM035, 472-3895-2 WAS AXSDM036 & 472-3898 WAS AXSDM033	9/9/2014	DW



12	8	5001090	SCREW, FHCS M8-1.25 x 12
11	2	472-3898	RUBBER SPACER WASHER
10	1	472-3895-2	SHOULDER COVER, RIGHT
9	1	472-3895-1	SHOULDER COVER, LEFT
8	2	472-3891	MODIFIED M8 BOLT
7	2	472-3890	SHOULDER COVER BUSHING
6	2	472-3880	ROD END SPACER ASSY
5	1	472-3870	STERNUM BRACKET
4	1	472-3860	RIGHT CLAVICLE ASSEMBLY
3	1	472-3850	LEFT CLAVICLE ASSEMBLY
2	1	472-3840	RIGHT SHOULDER ASSEMBLY
1	1	472-3810	LEFT SHOULDER ASSEMBLY

ITEM		QTY	PART NUMBER	DESCRIPTION
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: X ±0.5 XX ±2 XXX ±1		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DECIMAL ANGLES: MACHINED: X ±0.5 XX ±2 XXX ±1		APPROVALS	DATE	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN JIM CLEVENGER	8/5/2013	SHOULDER ASSEMBLY THOR-M
MATERIAL		ENG	SCALE: 1:1	DRAWING NUMBER 472-3800
HEAT TREAT		APPROVED	SCALE: 1:1	REV B
FINISH			SCALE: 1:1	SHEET 1 OF 1

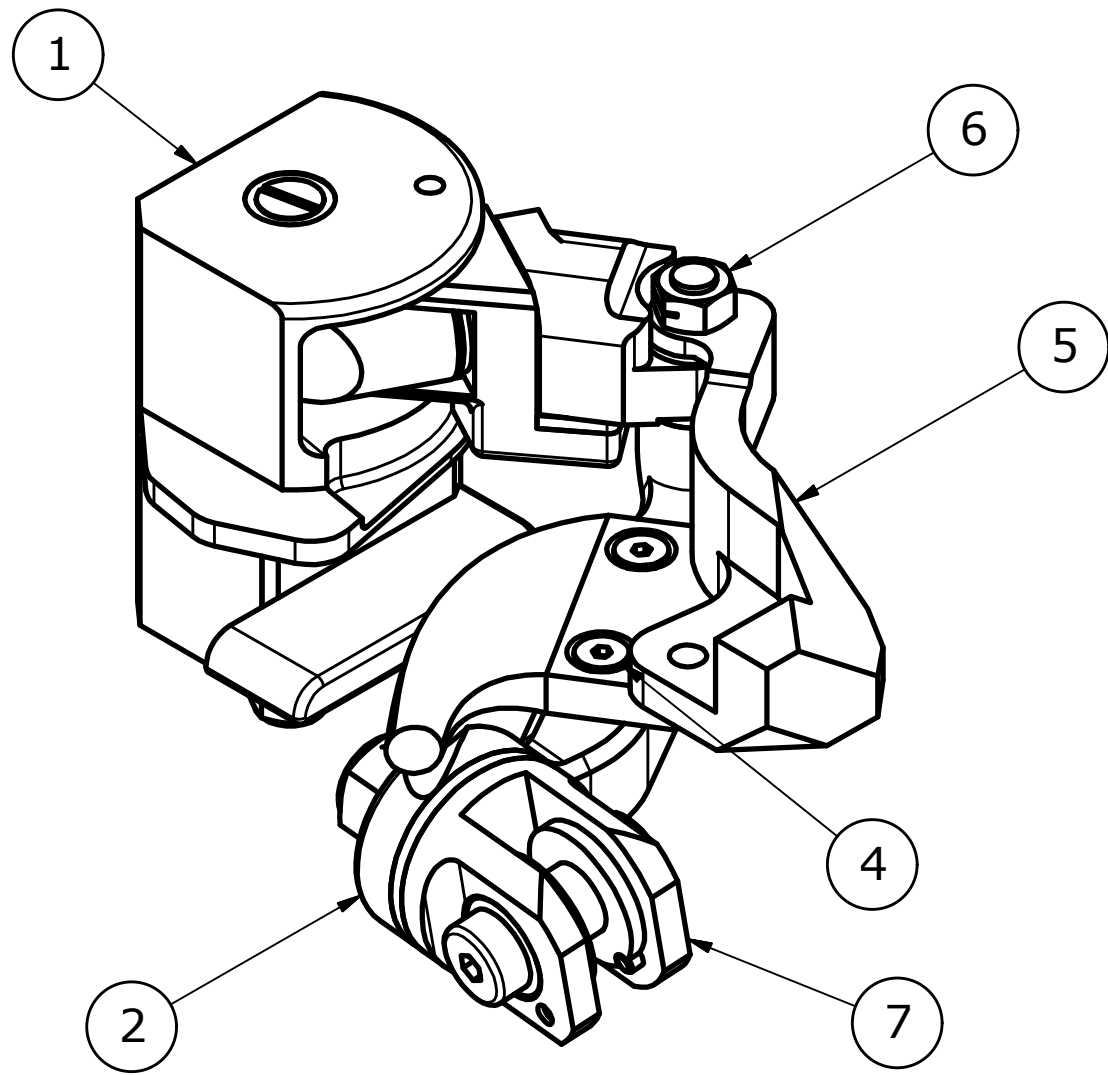
4

3

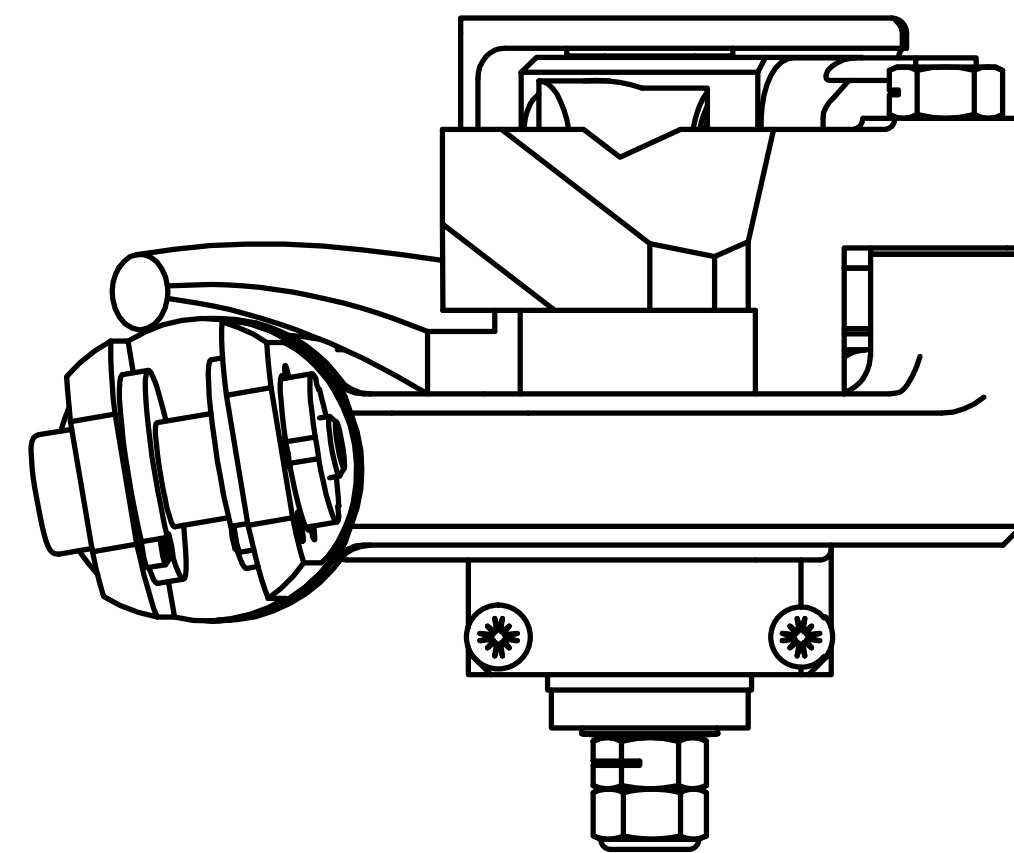
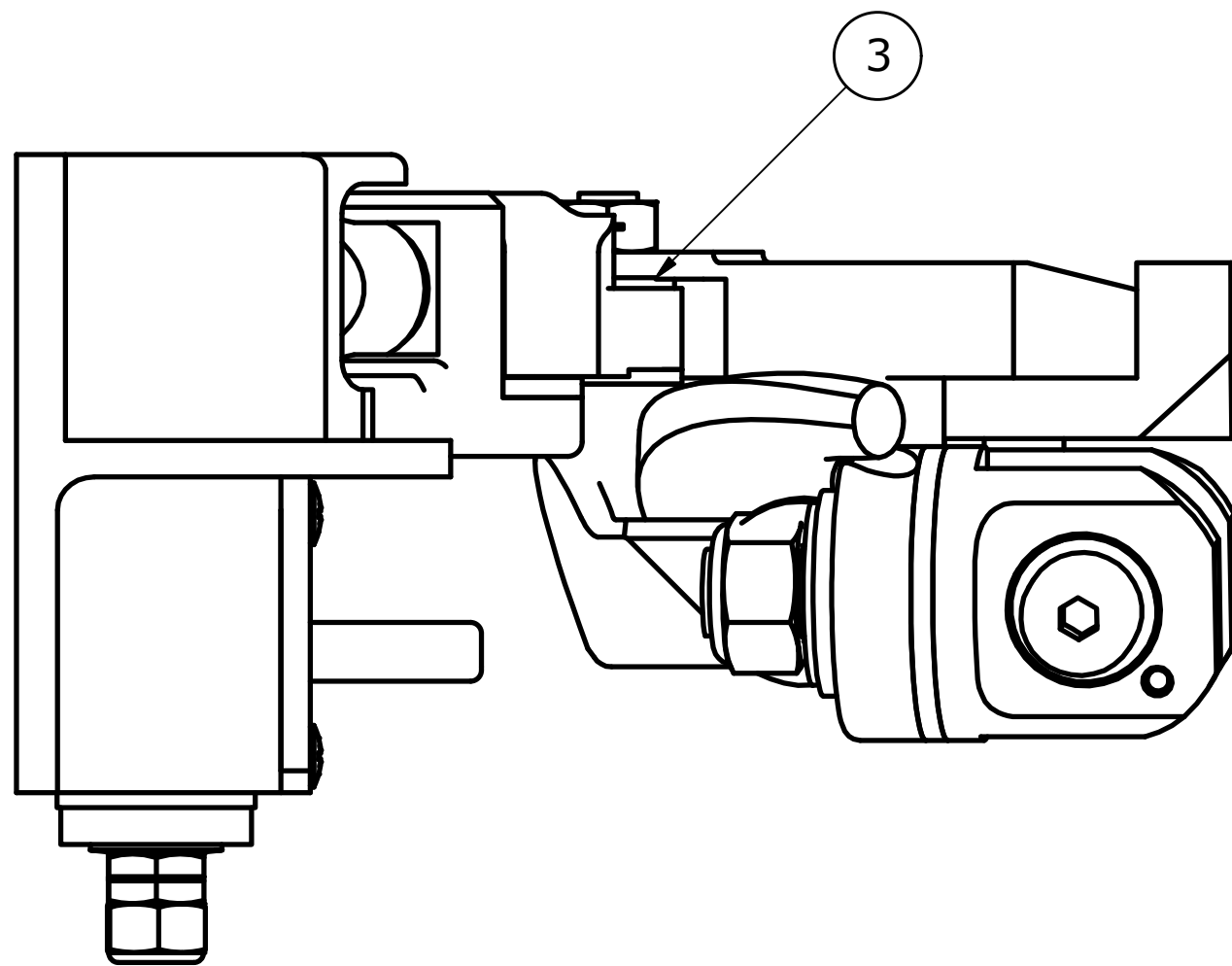
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM300; 472-3811 WAS AXSDM600, 472-3829-1 WAS AXSDM012B, 472-3818 WAS AXSDM030B, 472-3830-1 WAS AXSDM010B & 472-3831 WAS AXSDM500	9/9/2014	DW



SCALE 0.750

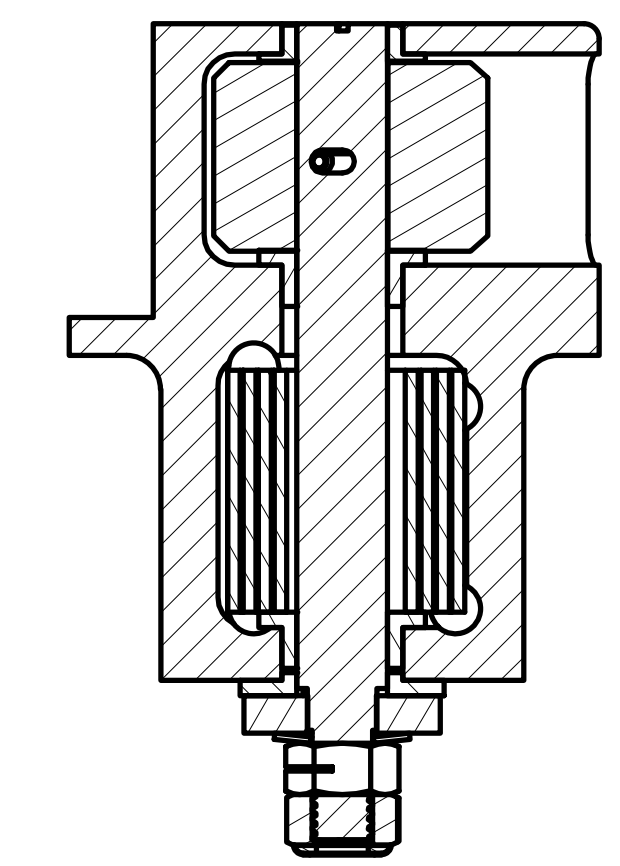
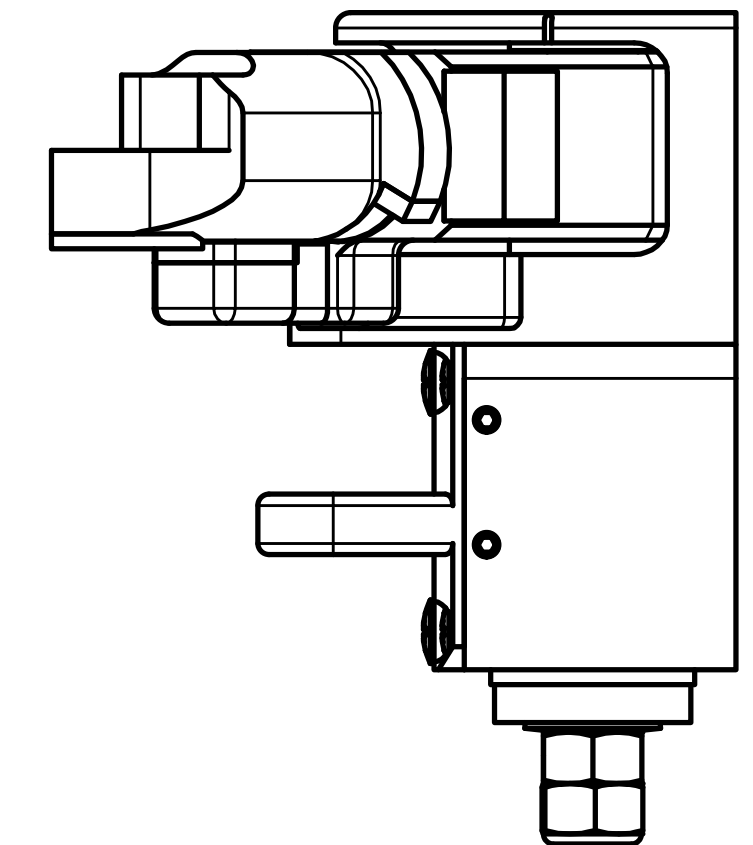
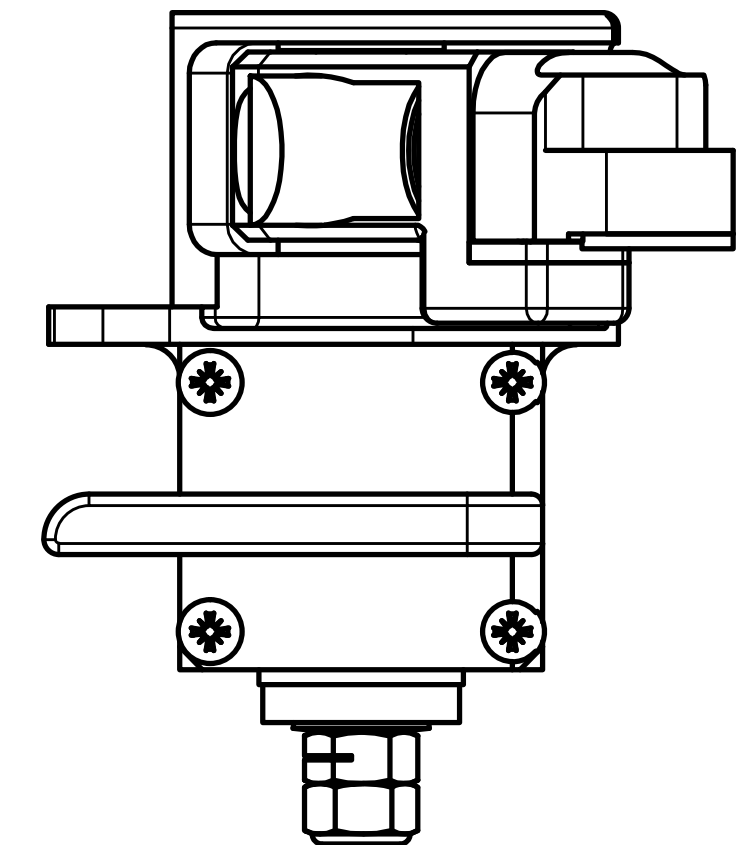
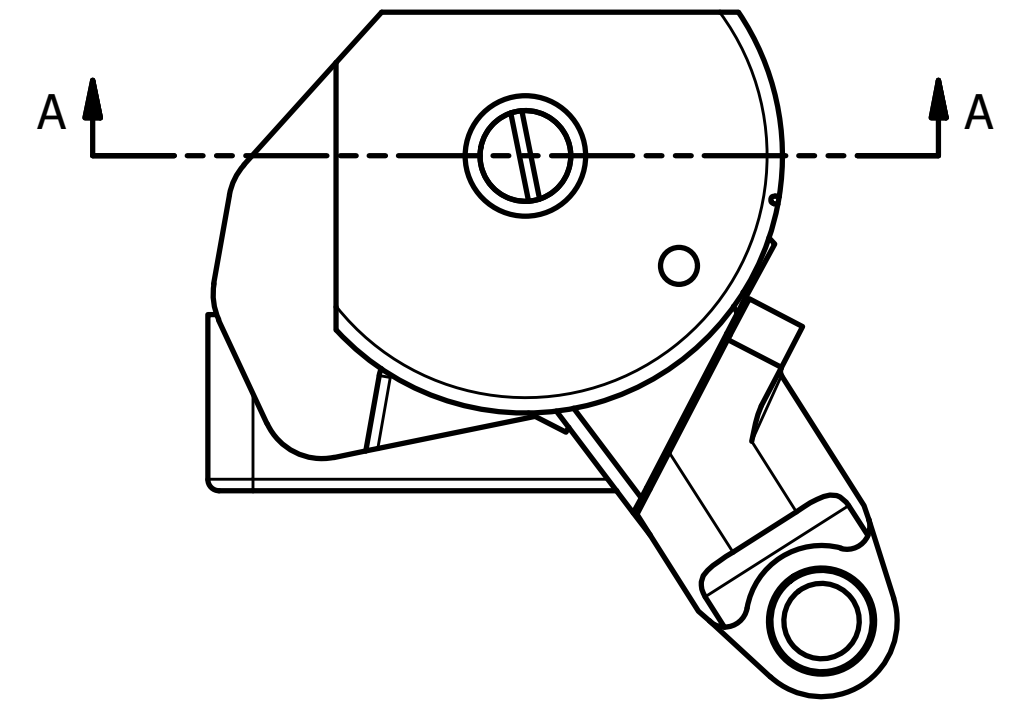
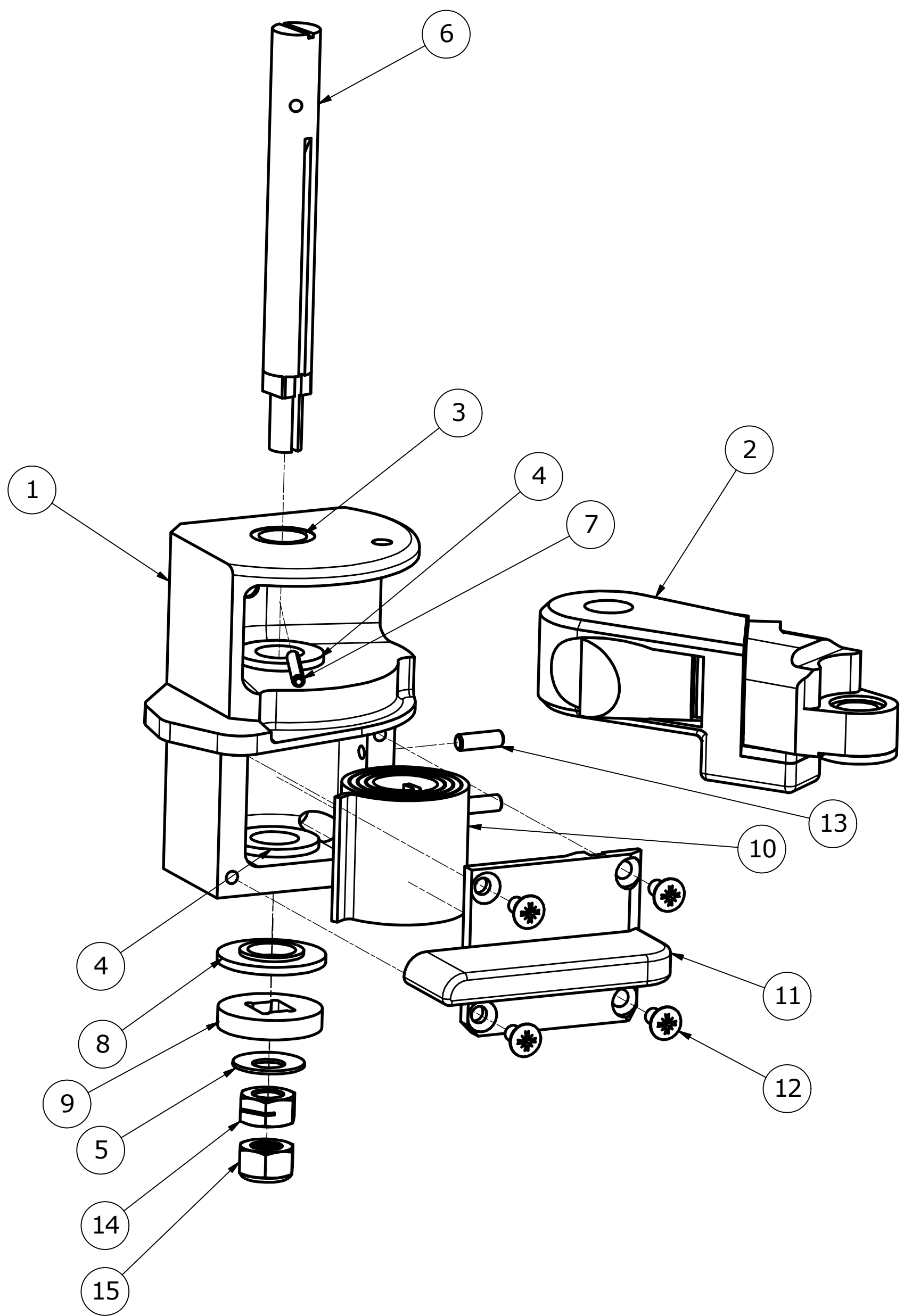


7	1	472-3831	ARM CLEVIS ASSEMBLY
6	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
5	1	472-3830-1	SCAPULA, LH
4	2	5000467	SCREW, FHCS M5 x 0.8 x 16
3	1	472-3818	WASHER LINK, 18 x 8 x 1.5
2	1	472-3829-1	ARM LINK, LH
1	1	472-3811	LEFT SHOULDER PIVOT ASSEMBLY
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS	DATE	LEFT SHOULDER ASSEMBLY	
		DRAWN			
		JIM CLEVENGER	8/5/2013		
		CHECKED			
MATERIAL	ENG			SIZE	DRAWING NUMBER
HEAT TREAT	APPROVED			C	472-3810
FINISH				SCALE: 1:1	REV A
				SHEET	1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM600; IN PARTS LIST, 472-3812-1 WAS AXSDM002B, 472-3813-1 WAS AXSDM700, 472-3822 WAS AXSDFM020B, 472-3823 WAS AXSDM019B, 472-3824 WAS AXSDM001B, 472-3825 WAS AXSDM005C, 472-3826 WAS AXSDM004B, 472-3827 WAS AXSDM018 & 472-3828-1 WAS AXSDM014B	9/10/2014	DW
	B	MOVED BALLOON CALLOUTS TO EXPLODED VIEW	7/27/2015	DW

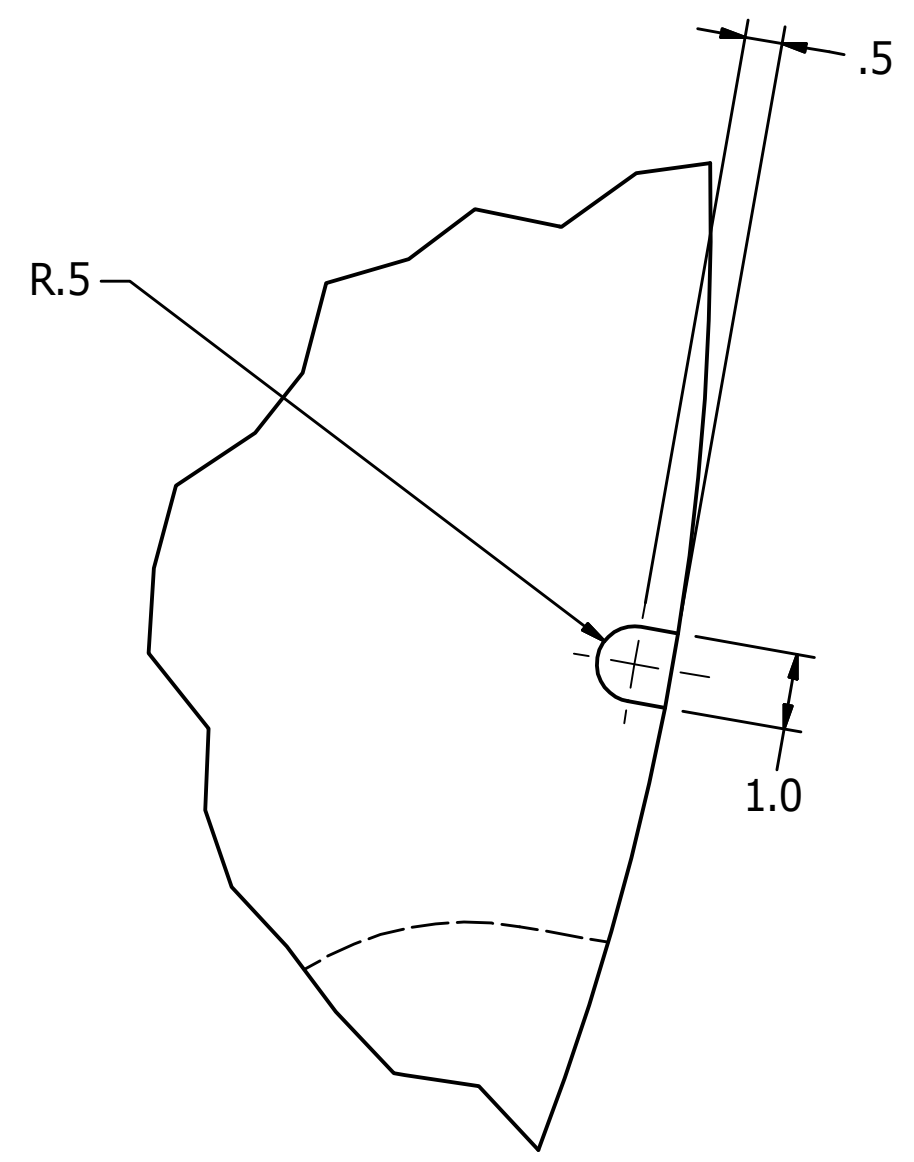
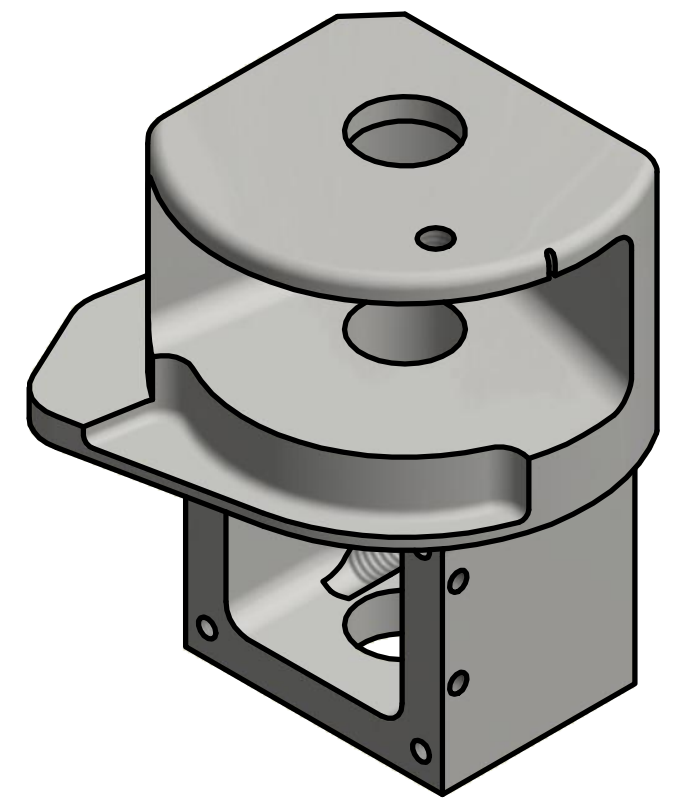


SECTION A-A
SCALE 1:1

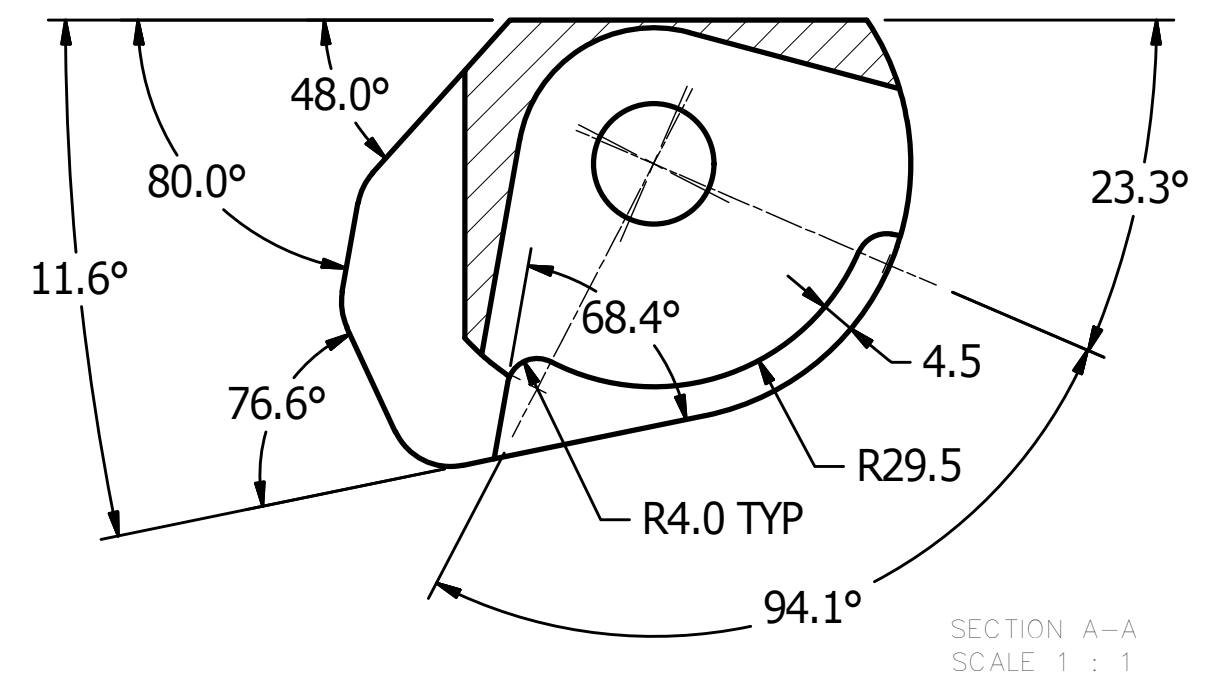
QTY	PART NUMBER	DESCRIPTION
15	1 5001165V	NYLOCK, M8 x 1.25
14	1 5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
13	2 5000292V	SCREW, SSFP M4 x 12
12	4 5000699	SCREW, FHMS M4 x .7 x 8 PHILLIPS
11	1 472-3828-1	RIB GUIDE LOWER, LH
10	1 472-3827	SPRING
9	1 472-3826	WASHER
8	1 472-3825	SPRING HOUSING WASHER, LOWER
7	1 5000140	ROLL PIN, M3 x 24
6	1 472-3824	SPRING SHAFT
5	1 5001170V	SPRING DISC WASHER, 20 x 8.2 x 1.0
4	2 472-3823	SPRING HOUSING BUSHING, LOWER
3	1 472-3822	SPRING HOUSING BUSHING, UPPER
2	1 472-3813-1	SHOULDER SUPPORT ASSEMBLY, LH
1	1 472-3812-1	SPRING HOUSING COVER, LH

PARTS LIST		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ITE	QTY	APPROVALS	DATE	DRAWN	DATE
		JIM CLEVENGER	8/8/2013	JIM CLEVENGER	8/8/2013
		APPROVED		CHECKED	
		ENG		SIZE	
		APPROVED		DRAWING NUMBER	
		SCALE: 1:1		472-3811	
				REV B	
				SHEET 1 OF 1	

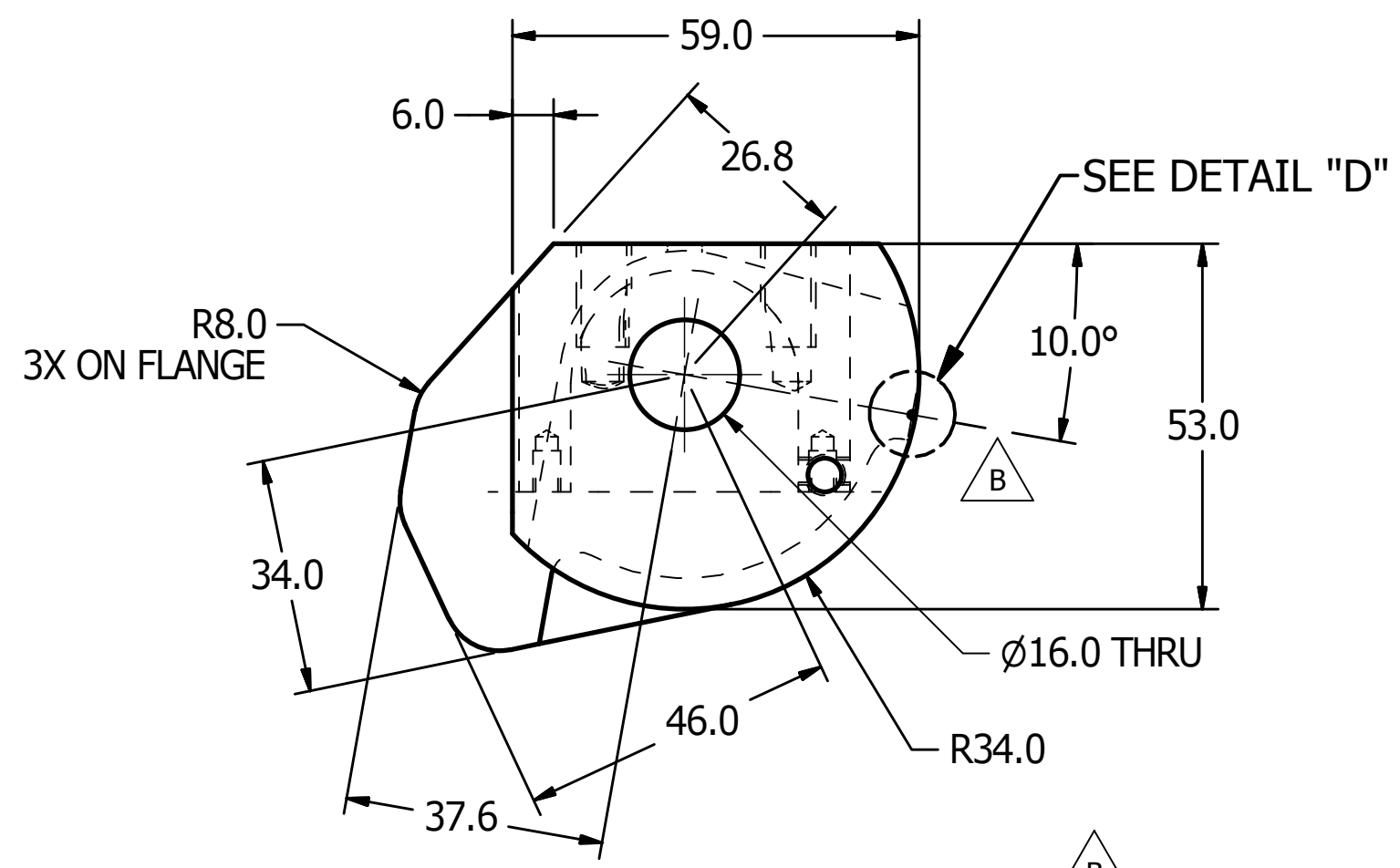
1		REVISION HISTORY		DATE	BY
ZONE	REV	DESCRIPTION			
	A	DRAWING NUMBER WAS AXSDM002B		9/10/2014	
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.; ADDED DIMENSION R2.0; ADDED ALIGNMENT NOTCH AND DETAIL "D"		9/14/2015	DW



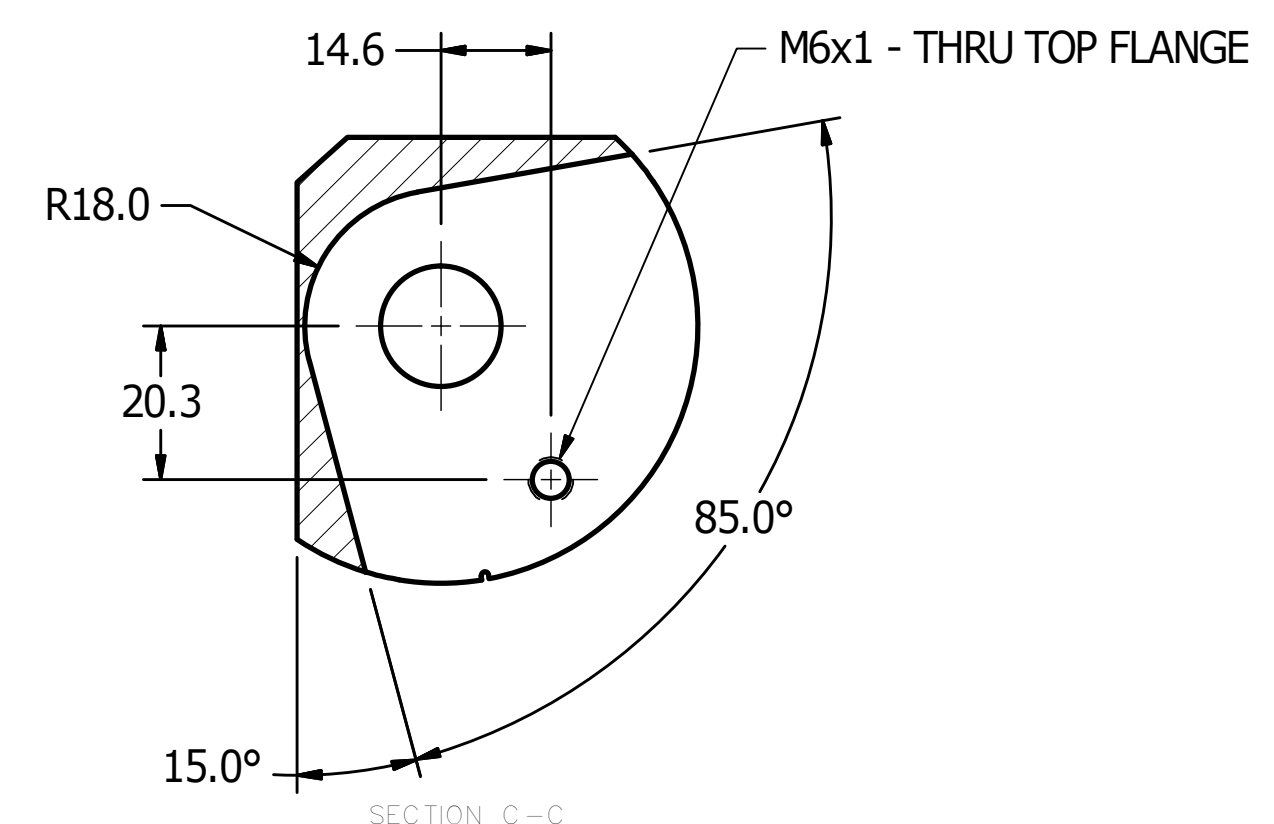
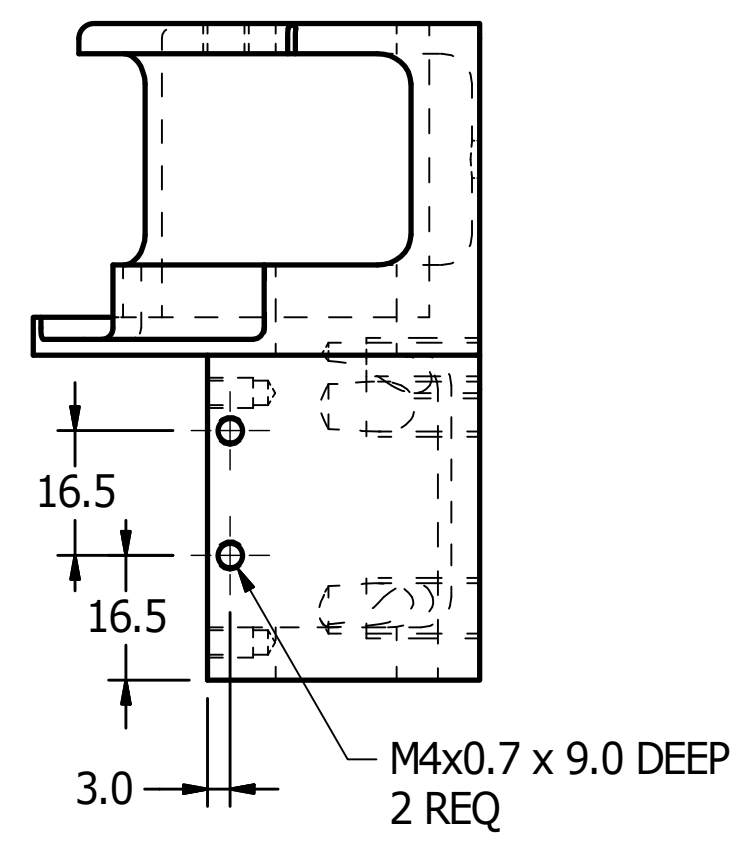
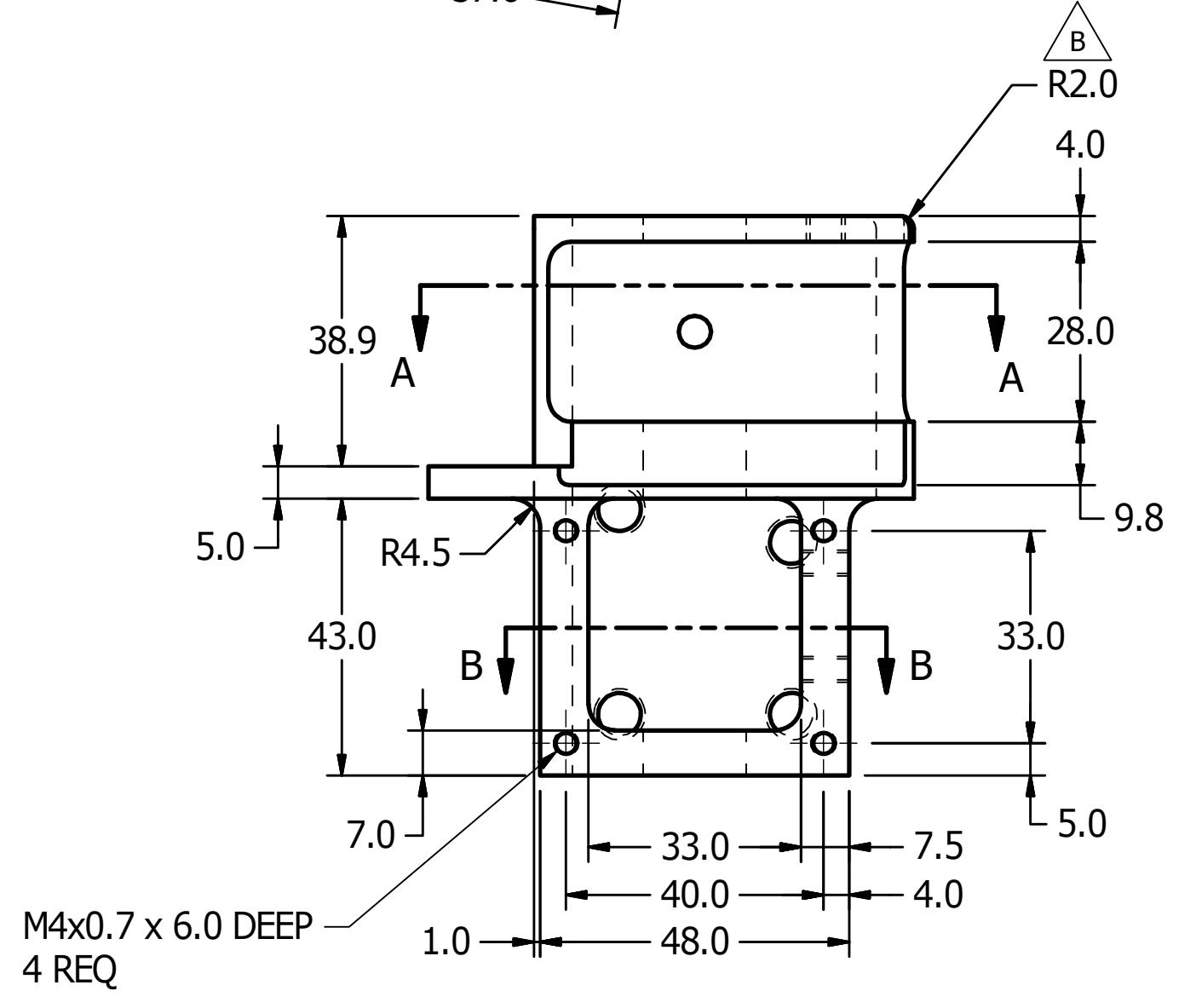
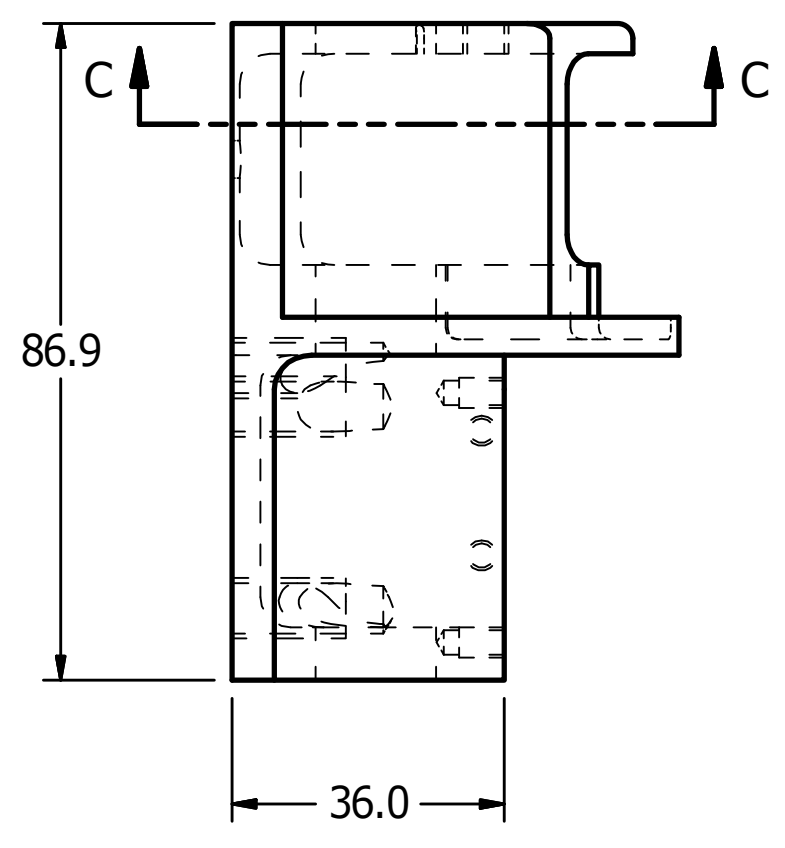
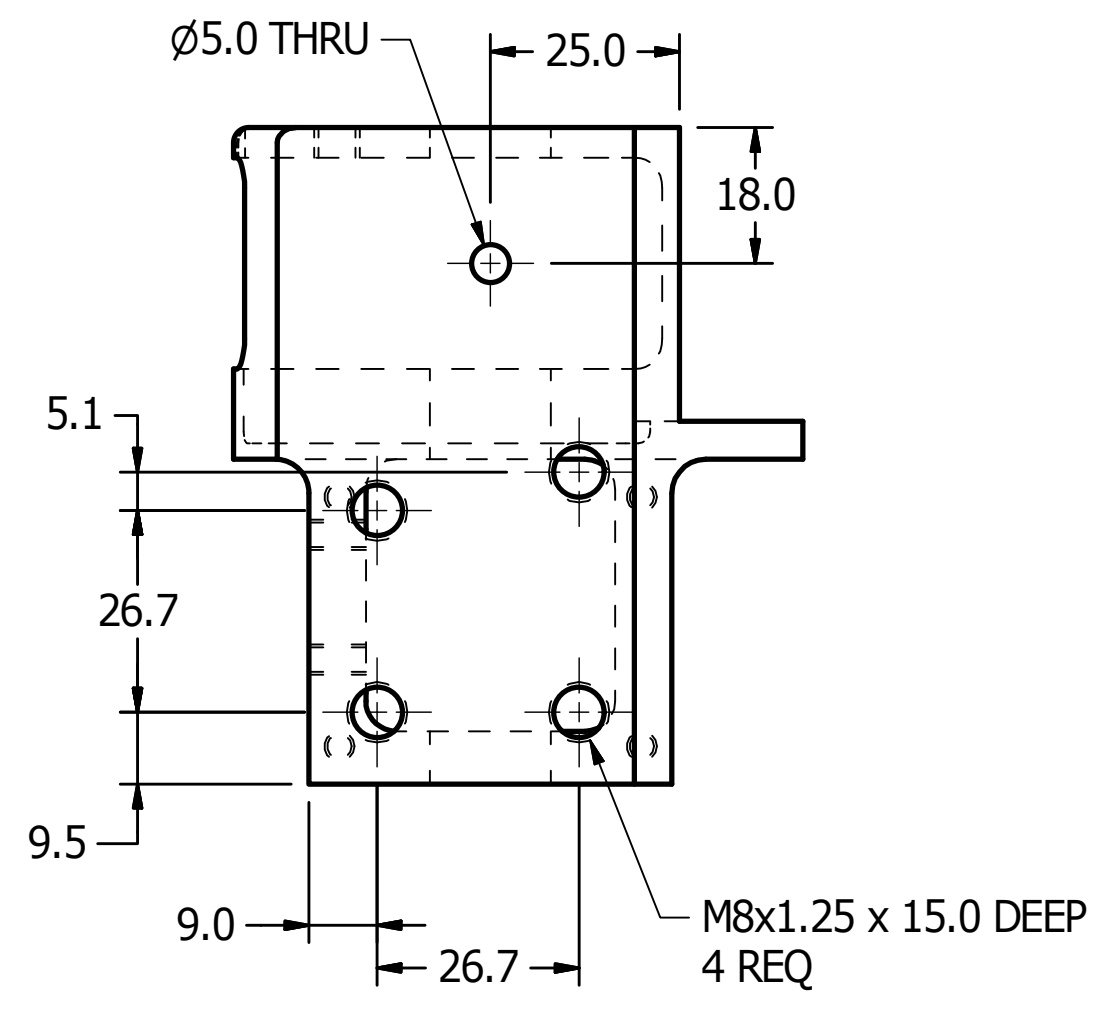
DETAIL D
SCALE 10 : 1



SECTION A-A
SCALE 1 : 1



SECTION B-B
SCALE 1 : 1



SECTION C-C
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: X ±.5 XX ±.2 XXX ±.1	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
APPROVED	8/15/2013	DRAWING NUMBER	
CHECKED		472-3812-1	
MATERIAL: Steel	ENG	SIZE	DRAWING NUMBER
HEAT TREAT	APPROVED	D	472-3812-1
FINISH: ELECTROLESS NICKEL .008 MAX.	SCALE: 1:1	SHEET	1 OF 1

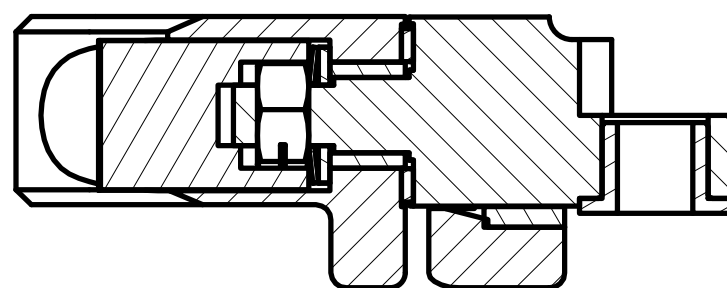
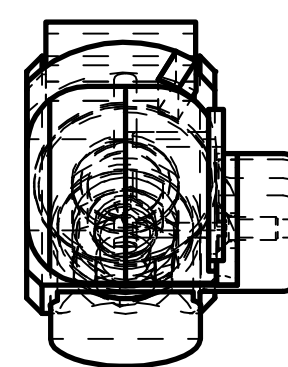
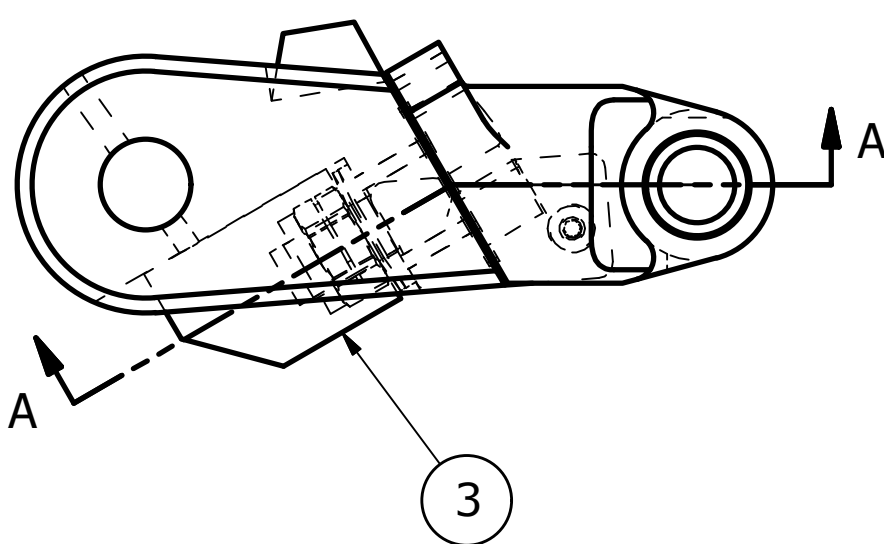
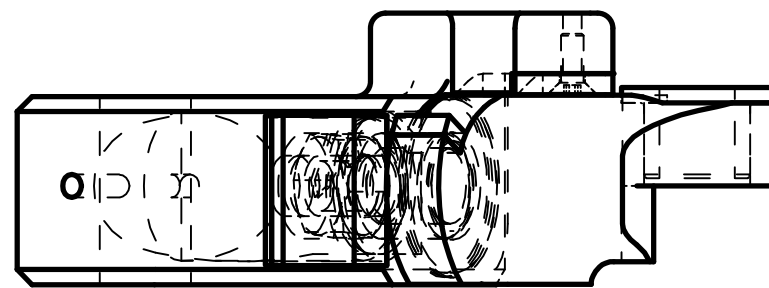
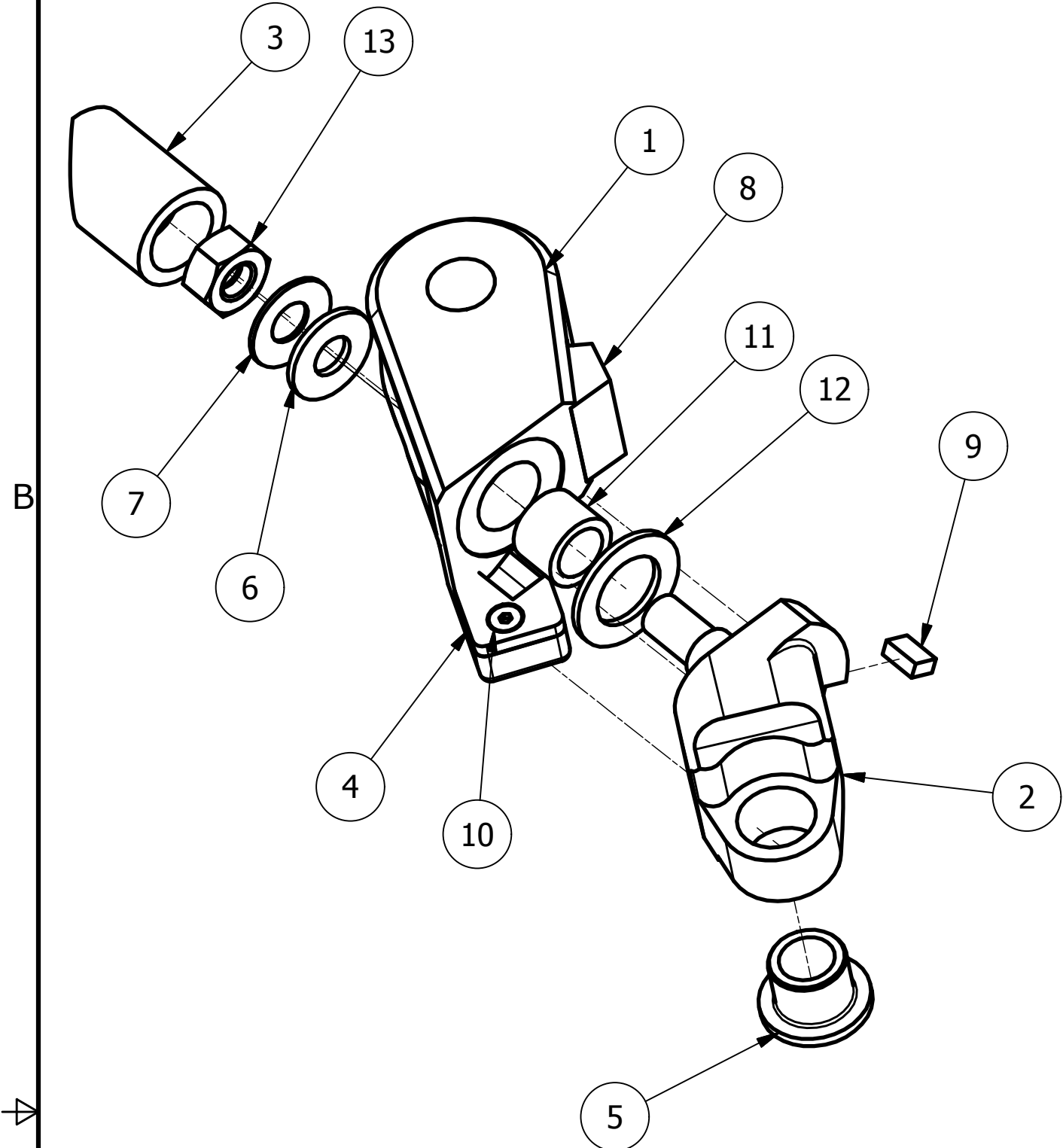
4

3

2

1

REVISION HISTORY				
ZON	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM700; IN PARTS LIST 472-3814 WAS AXSDM006B, 472-3815-1 WAS AXSDM008B, 47-3816 WAS AXSDM016C, 472-3817-1 WAS AXSDM025B, 472-3818 WAS AXSDM030B, 472-3819 WAS AXSDM017B, 472-3820 WAS AXSDM024B & 472-3821 WAS AXSDM031B	9/10/2014	DW
	B	MOVED BALLOON CALLOUTS TO EXPLODED VIEW	7/13/2015	DW



SECTION A-A
SCALE 1 : 1

A	13	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
A	12	1	472-3821	LINK WASHER, 23 x 14.2 x 1.5
A	11	1	5001169V	BEARING, IGLIDUR 14 x 10 X 10 LG
A	10	1	5000116	SCREW, FHCS, M3 x .5 x 8
A	9	1	472-3820	BUFFER, VERTICAL
A	8	1	472-3819	REAR ROM BUFFER
A	7	1	5001170V	SPRING DISC WASHER, 20 x 8.2 x 1.0
A	6	1	472-3818	WASHER LINK, 18 x 8 x 1.5
A	5	1	5001168V	FLANGE BEARING, 14OD x 20 FL x 10ID x 12LG
A	4	1	472-3817-1	BUFFER, LOWER LEFT
A	3	1	472-3816	FORWARD ROM BUFFER
A	2	1	472-3815-1	SHOULDER SUPPORT PIVOT, LH
A	1	1	472-3814-1	SHOULDER SUPPORT, LH
ITEM	QTY	PART NUMBER	DESCRIPTION	

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: _____ DRAWN: JIM CLEVENGER CHECKED: _____ ENG: _____ APPROVED: _____	
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SHOULDERS SUPPORT ASSEMBLY, LH	
MATERIAL:	ENG:	SIZE: C	DRAWING NUMBER: 472-3813-1
HEAT TREAT:	APPROVED:	SCALE: 1:1	REV: B
FINISH:		SHEET: 1	OF 1

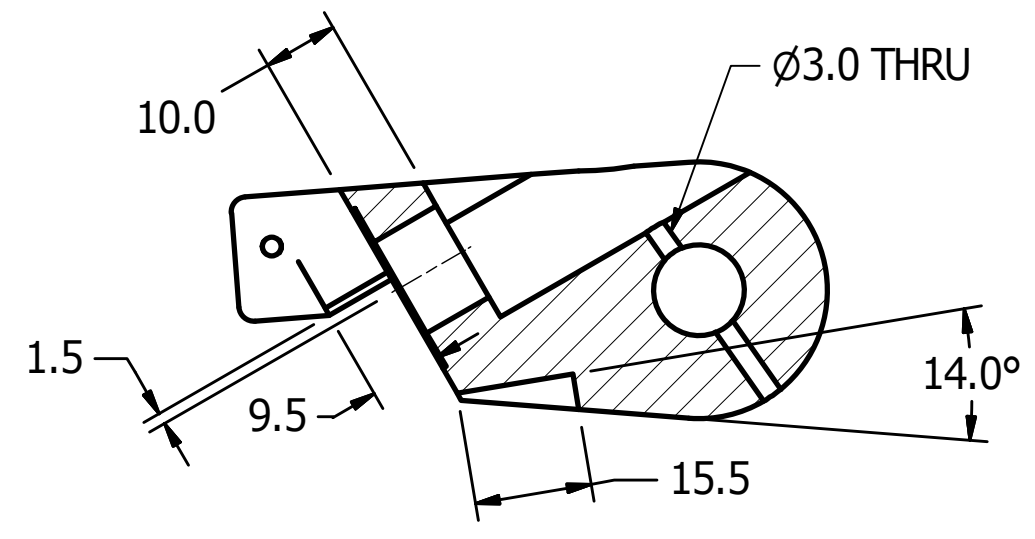
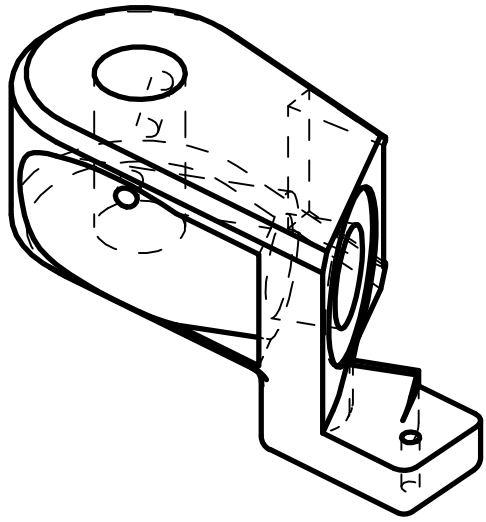
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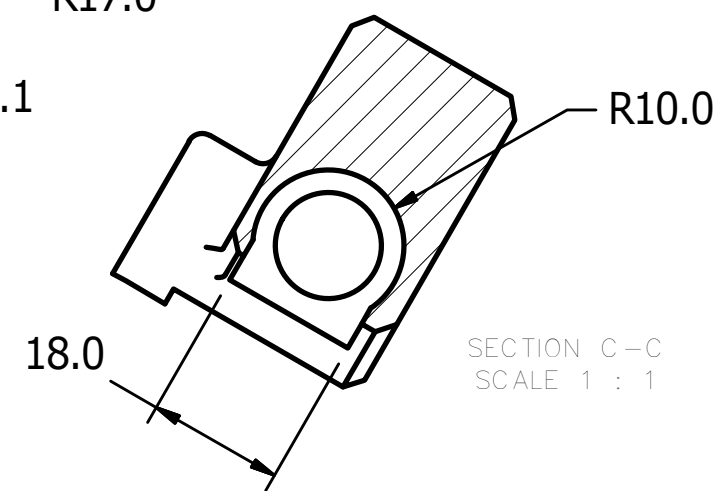
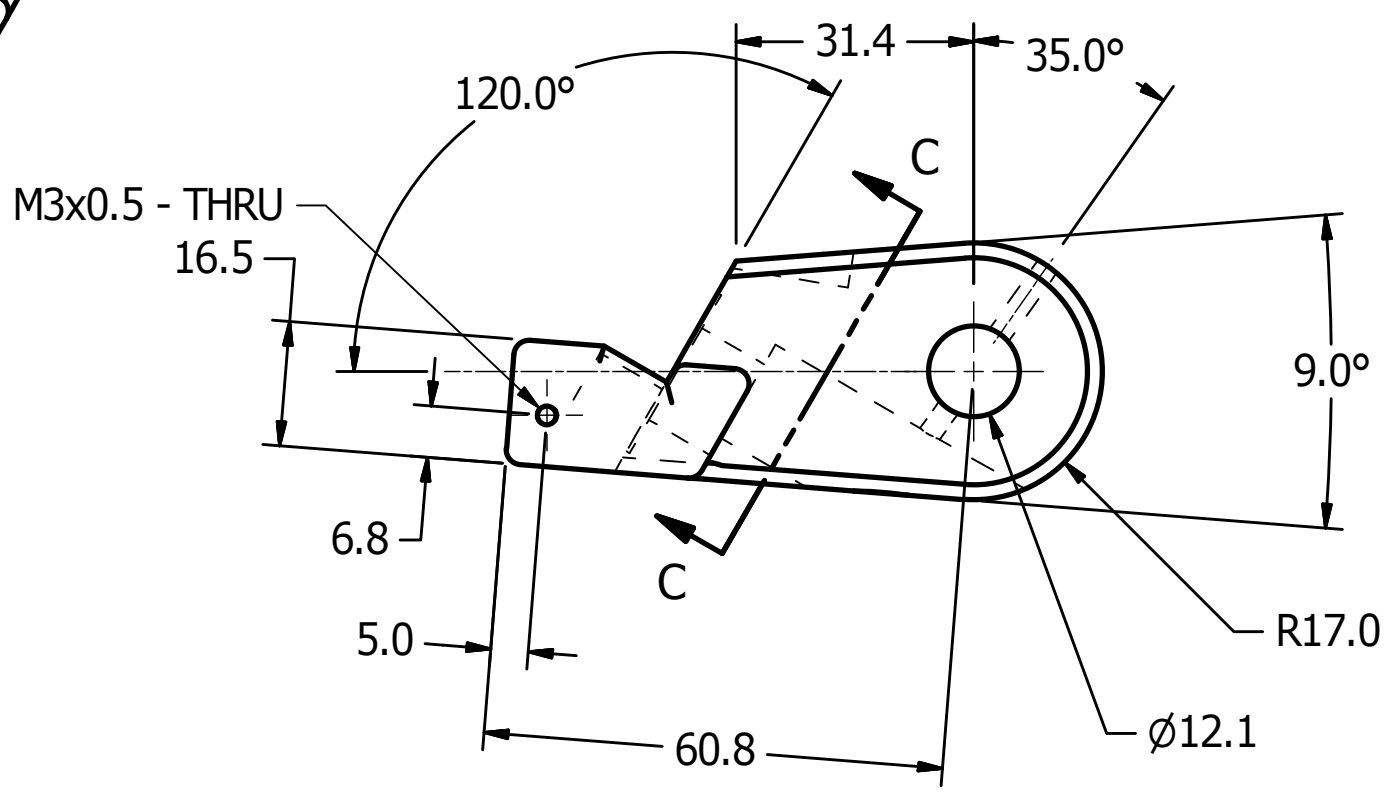
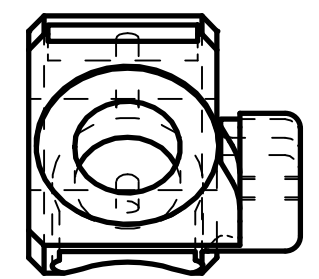
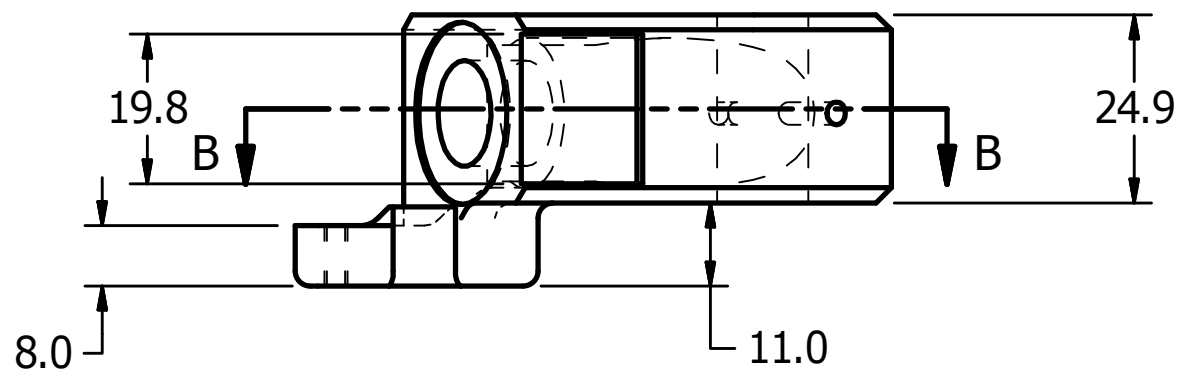
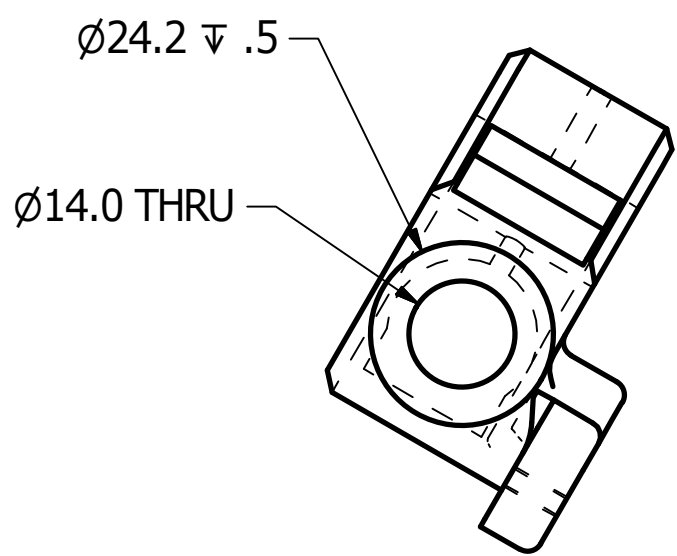
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXSDM006B	9/10/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/29/2015	DW



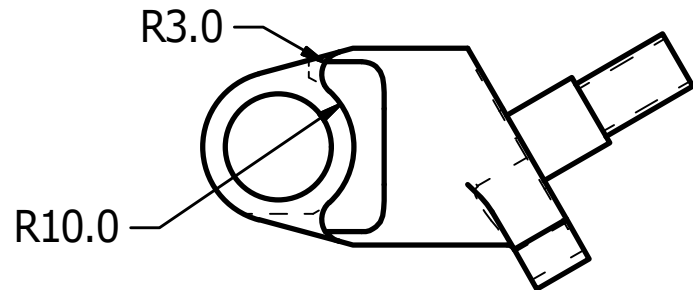
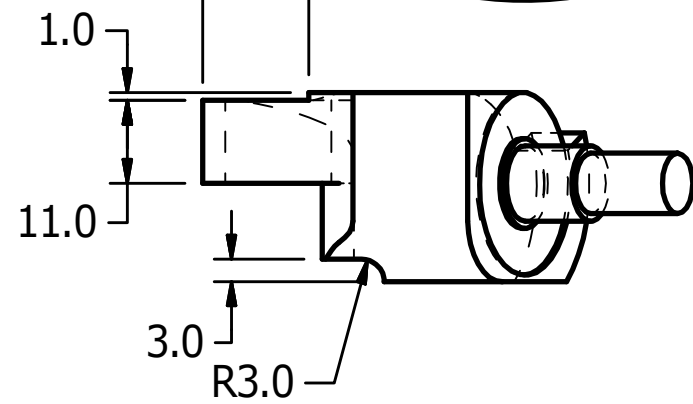
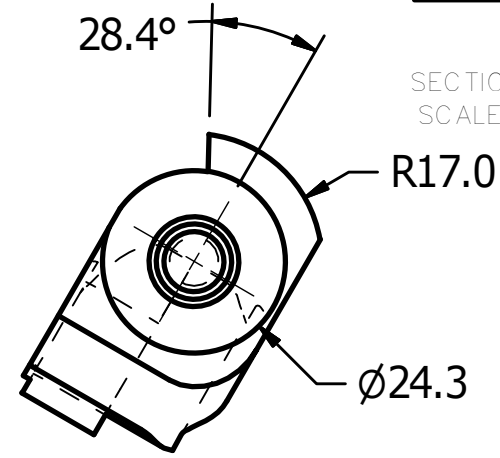
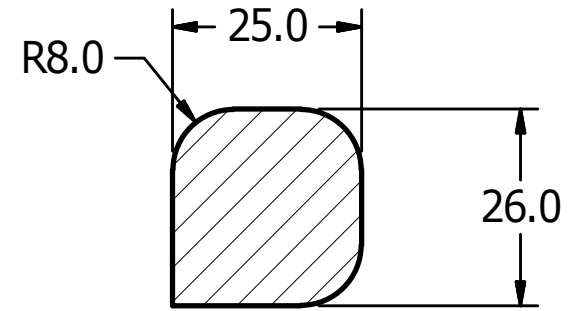
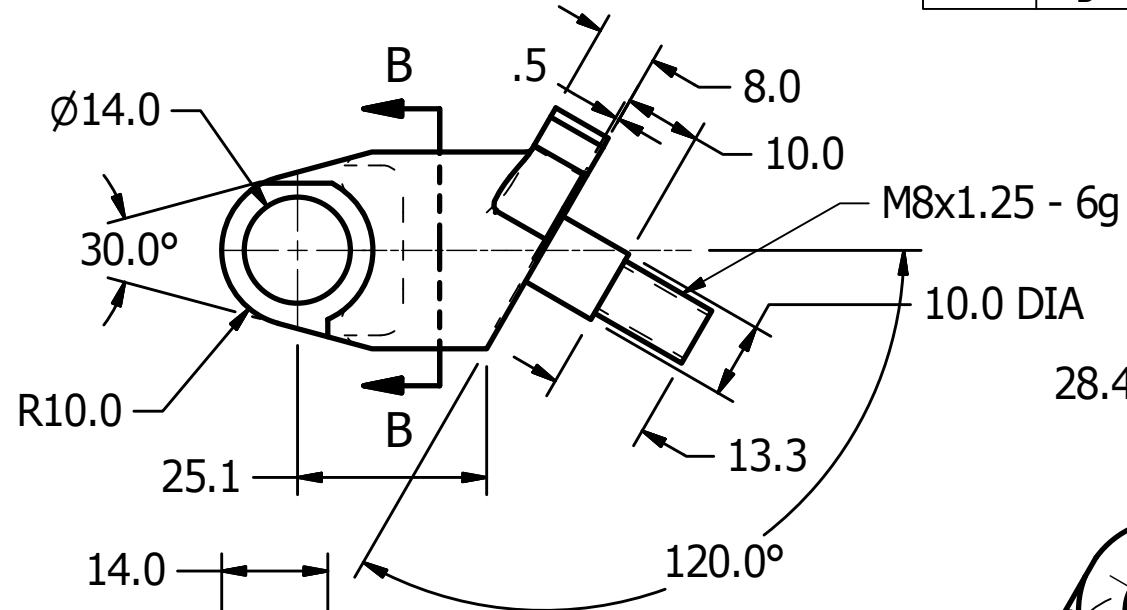
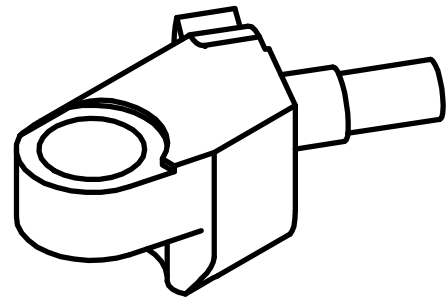
SECTION B-B
SCALE 1 : 1



SECTION C-C
SCALE 1 : 1

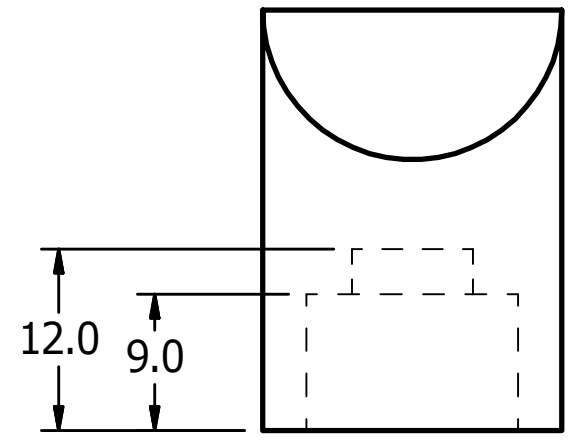
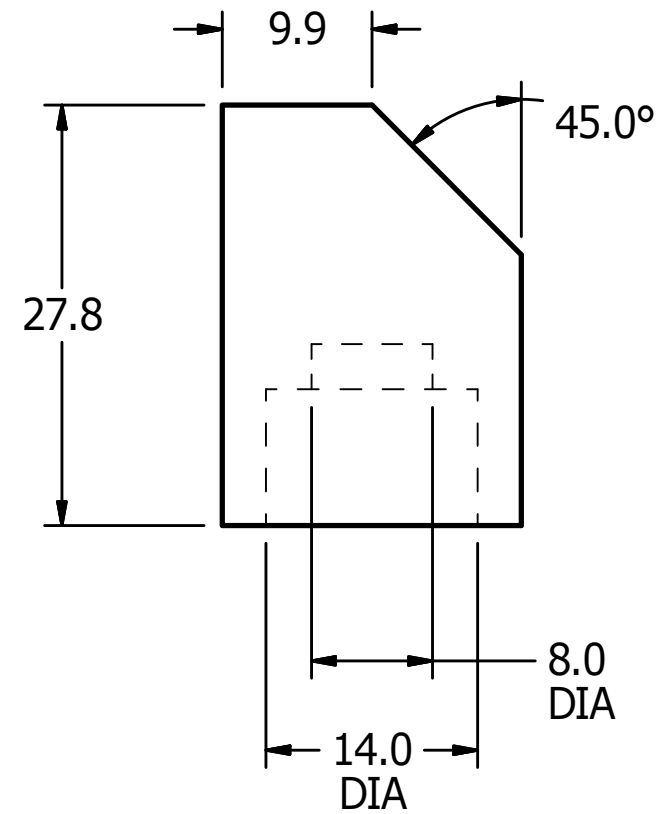
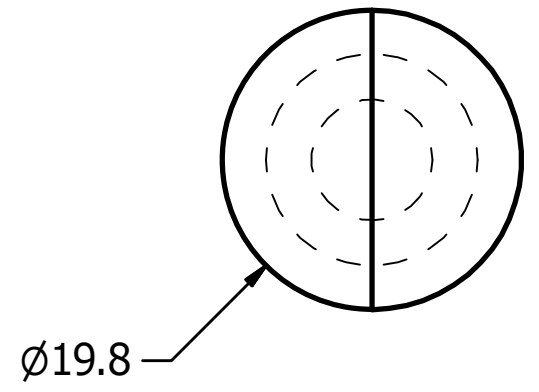
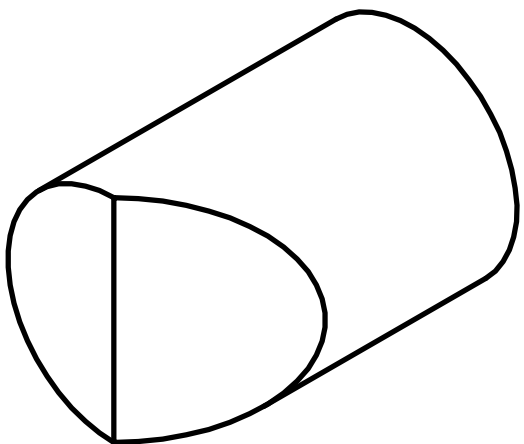
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		SHOULDER SUPPORT, LH	
DRAWN JIM CLEVENGER		8/15/2013		SIZE C	
CHECKED				DRAWING NUMBER 472-3814-1	
MATERIAL Steel		ENG		REV B	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH ELECTROLESS NICKEL .008 MAX.				SHEET 1 OF 1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM008B	9/10/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/29/2015	DW




UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/15/2013	
	CHECKED		
MATERIAL Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3815-1
FINISH ELECTROLESS NICKEL .008 MAX.			REV B
			SCALE: 1:1
			SHEET 1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM016C	9/10/2014	DW



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL: ANGLES: MACHINED:
X ±.5 ±.5 ✓
X.X ±.2
X.XX ±.1
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/20/2013
CHECKED	
ENG	
APPROVED	
FINISH	



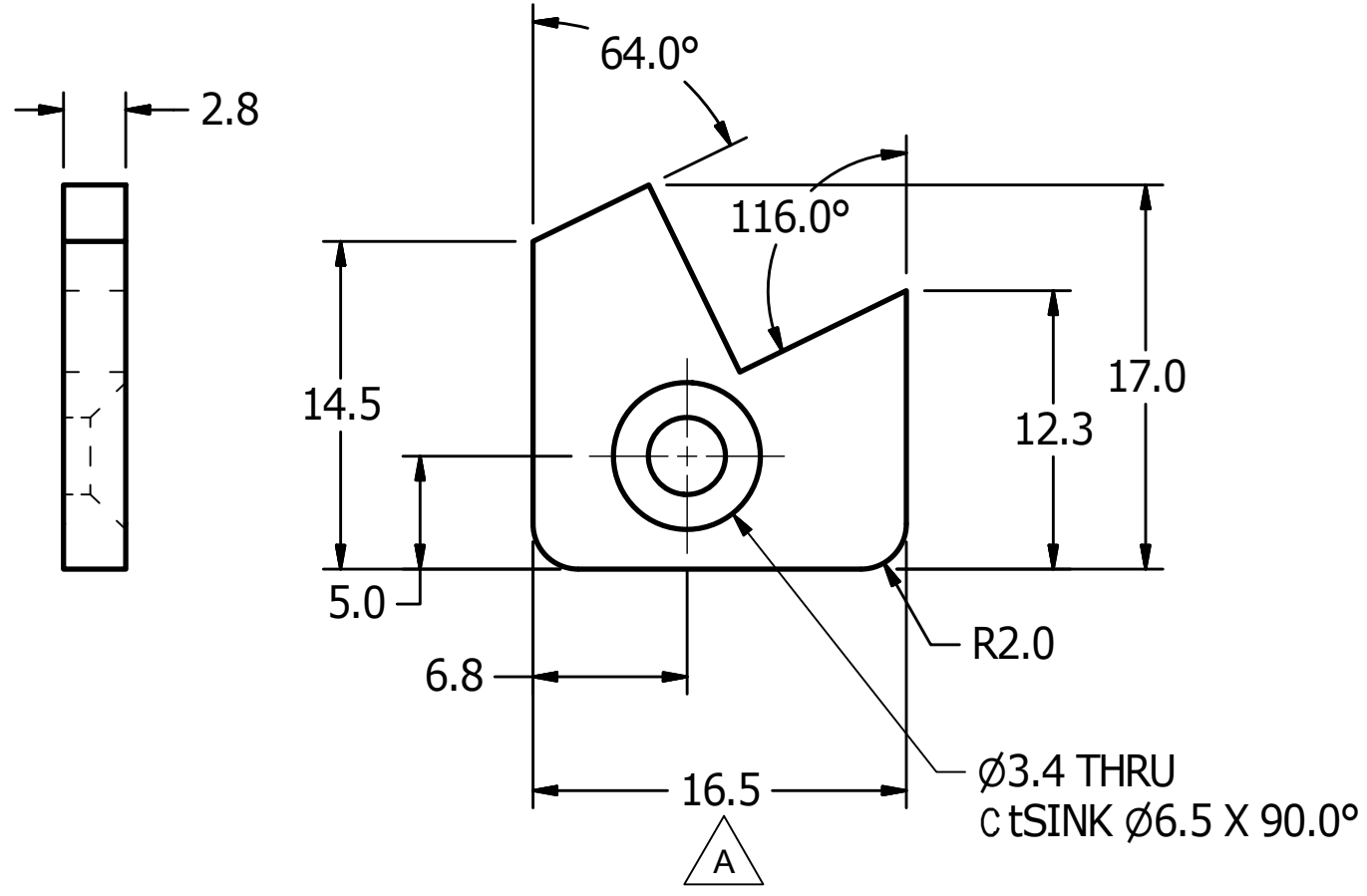
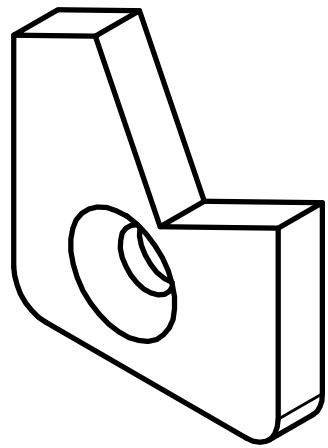
NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION


FORWARD ROM BUFFER

SIZE B	DRAWING NUMBER 472-3816	REV A
SCALE: 2X	SHEET 1	OF 1

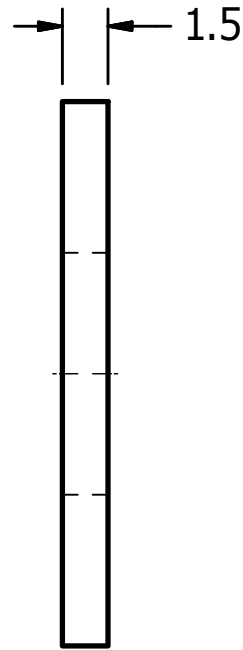
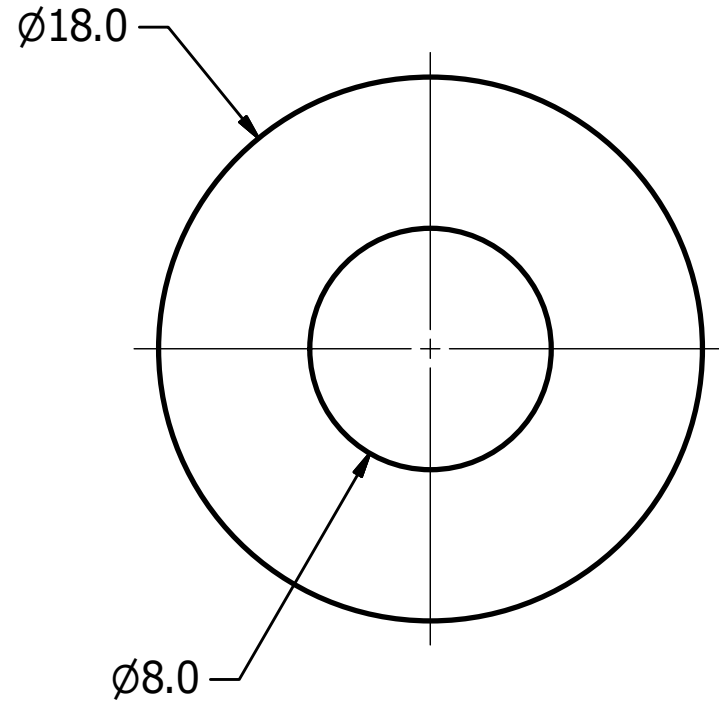
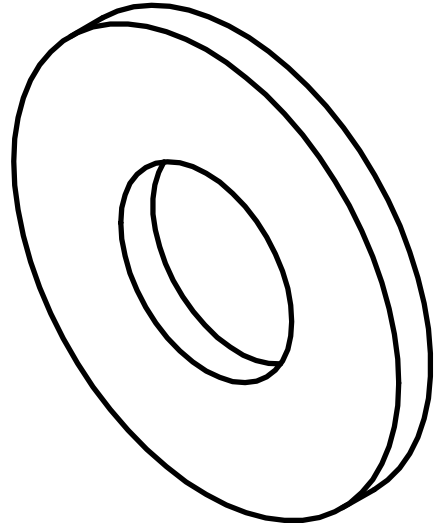
REVISION HISTORY


ZONE	RE	DESCRIPTION	DATE	BY
	A	ADDED DIMENSION 16.5	8/20/2013	DW
	B	DRAWING NUMBER WAS AXSDM025B	9/10/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION BUFFER, LOWER LEFT
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		
HEAT TREAT	APPROVED		
FINISH			
	SIZE B	DRAWING NUMBER 472-3817-1	REV B
	SCALE: 3X	SHEET 1	OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAW AXSDM030B	9/10/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		WASHER LINK, 18 x 8 x 1.5	
DRAWN JIM CLEVINGER		8/20/2013		SIZE	
CHECKED				DRAWING NUMBER	
MATERIAL Acetal Resin, Black		ENG		B	
HEAT TREAT		APPROVED		472-3818	
FINISH				SHEET 1 OF 1	
				REV A	

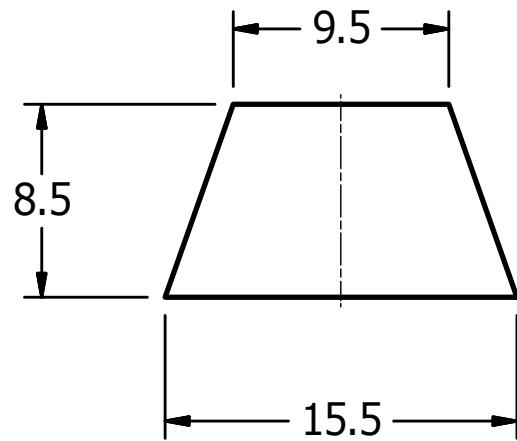
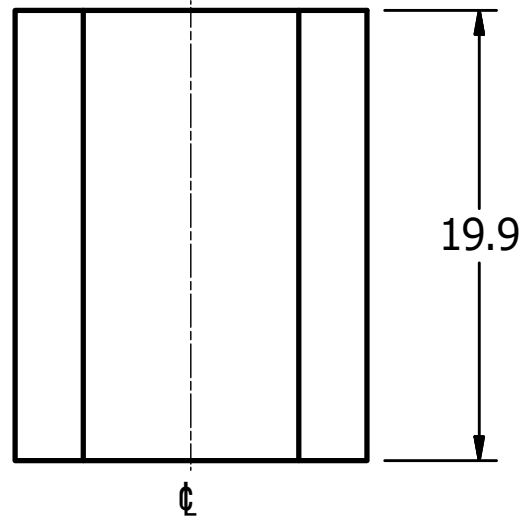
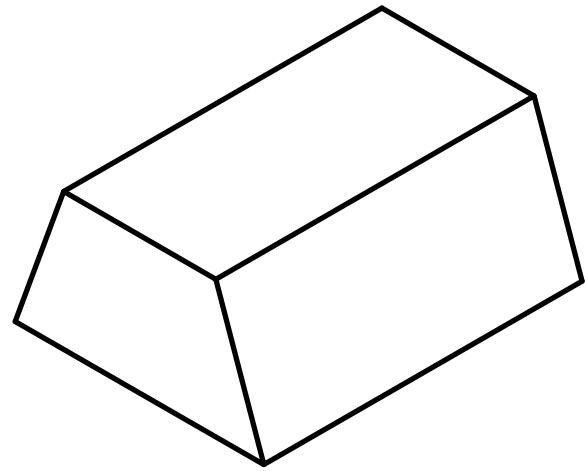
4

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1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS ASXDM017B	9/10/2014	DW



NOTES:

1. DIMENSIONS ARE SYMETRICAL ABOUT ⌀

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL: ANGLES: MACHINED:
X ±.5 ±.5 ✓
X.X ±.2
X.XX ±.1

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

APPROVALS DATE

DRAWN JIM CLEVINGER 8/20/2013

CHECKED

ENG

APPROVED

FINISH



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

REAR ROM BUFFER

SIZE B

DRAWING NUMBER 472-3819 REV A

SCALE: 3X

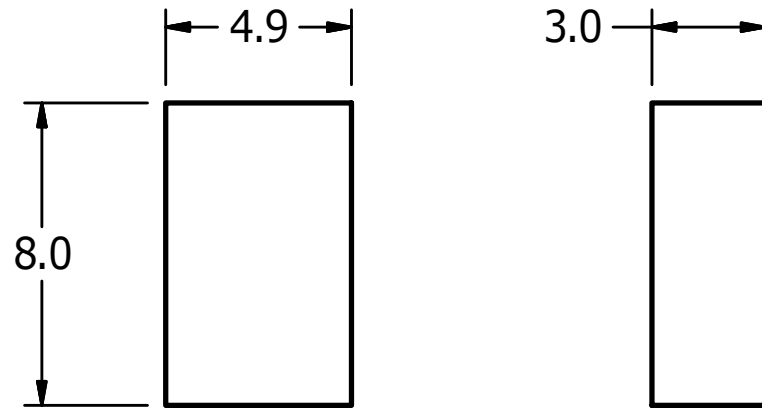
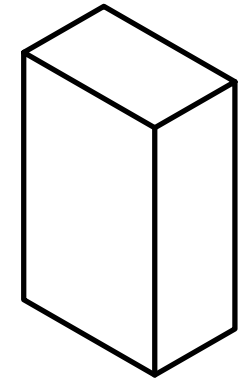
SHEET 1 OF 1

4


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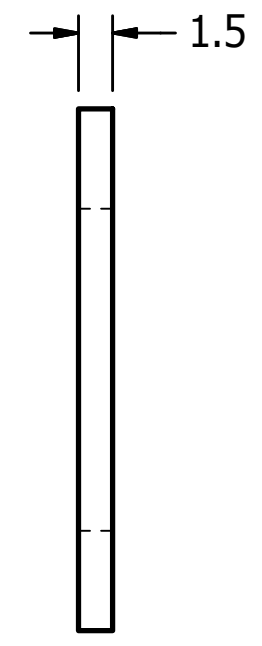
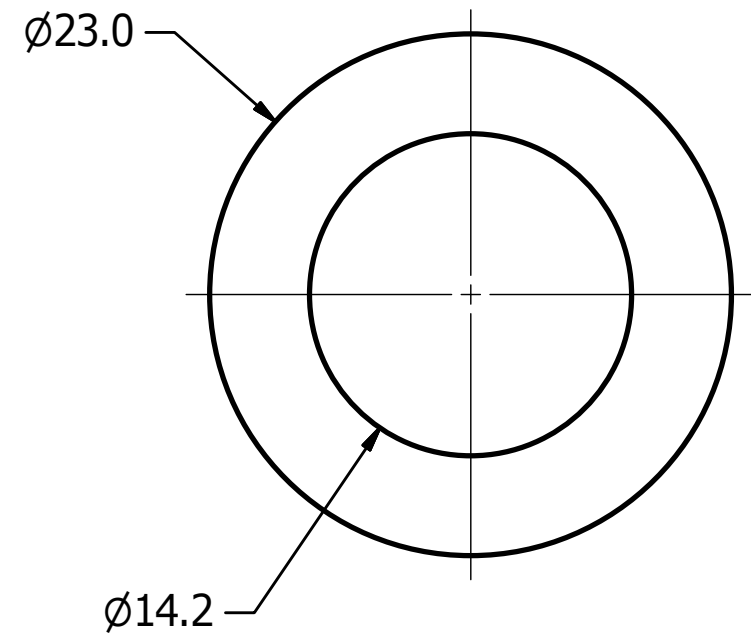
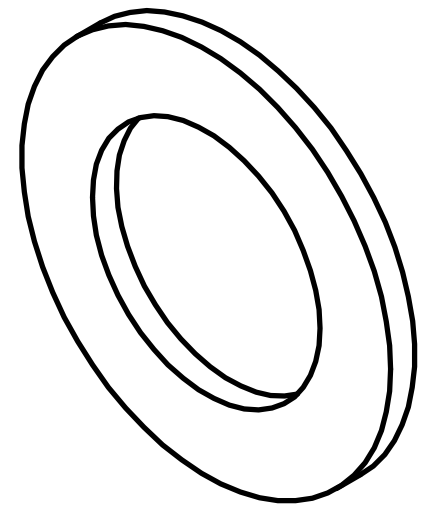
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM024B	9/10/2014	DW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION BUFFER, VERTICAL	
APPROVALS		DATE			
DRAWN JIM CLEVINGER		8/20/2013		SIZE: B DRAWING NUMBER: 472-3820 REV: A	
CHECKED					
MATERIAL: Acetal Resin, Black		ENG		SCALE: 5X SHEET: 1 OF 1	
HEAT TREAT		APPROVED			
FINISH					

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM031B	9/10/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	LINK WASHER, 23 x 14.2 x 1.5
	CHECKED		
MATERIAL Acetal Resin, Black	ENG	SIZE B	DRAWING NUMBER 472-3821
HEAT TREAT	APPROVED	SCALE: 3X	REV A
FINISH		SHEET 1 OF 1	

Washer, Link 23x14.2x1,5 ipt

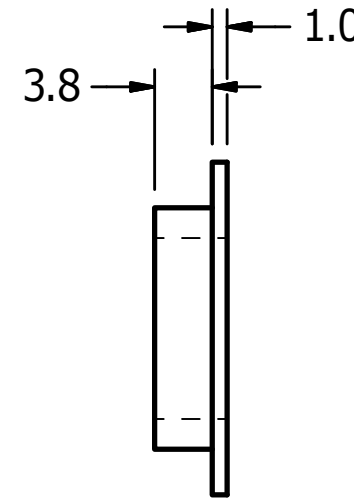
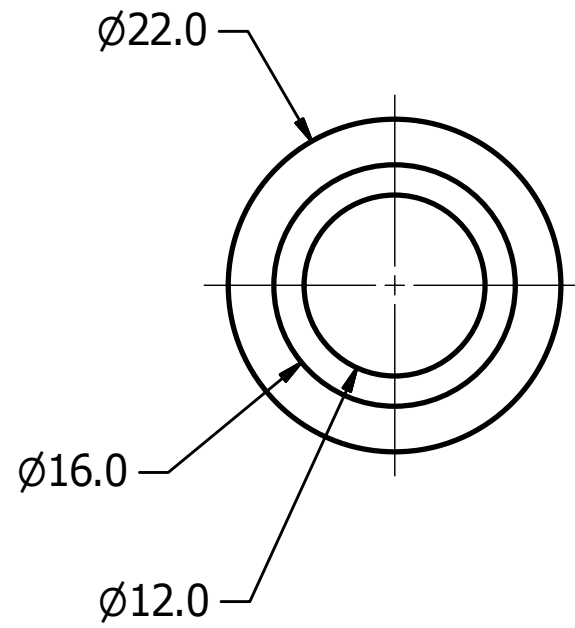
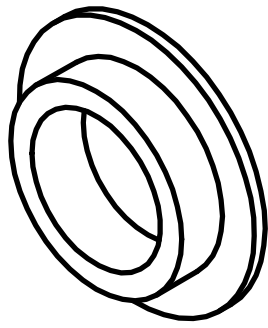
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXSDM020B	9/10/2014	DW




B

B

A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	SPRING HOUSING BUSHING, UPPER
	CHECKED		
MATERIAL Acetal Resin, Black	ENG	SIZE B	DRAWING NUMBER 472-3822
HEAT TREAT	APPROVED	SCALE: 2X	REV A
FINISH		SHEET 1 OF 1	

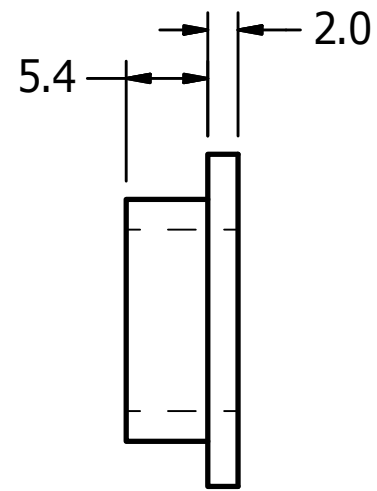
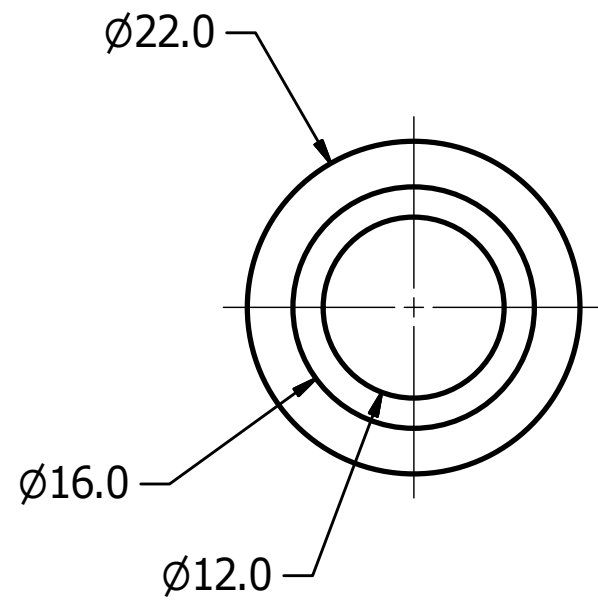
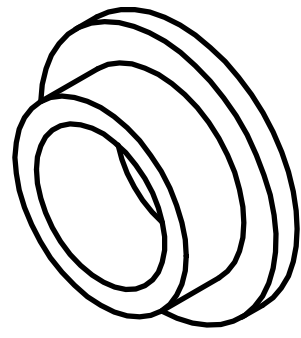
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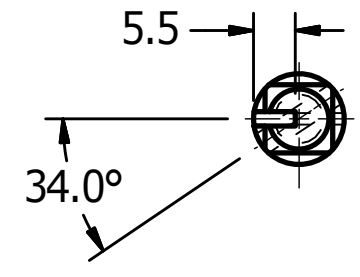
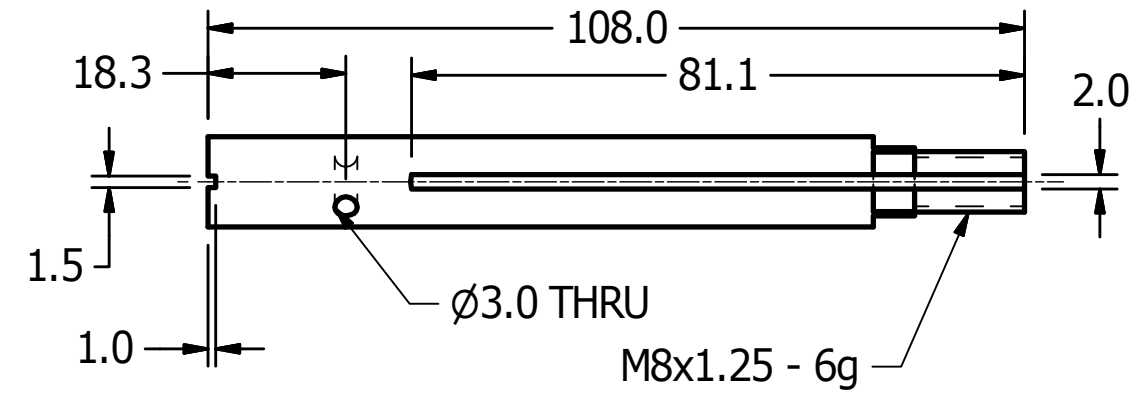
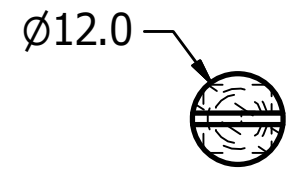
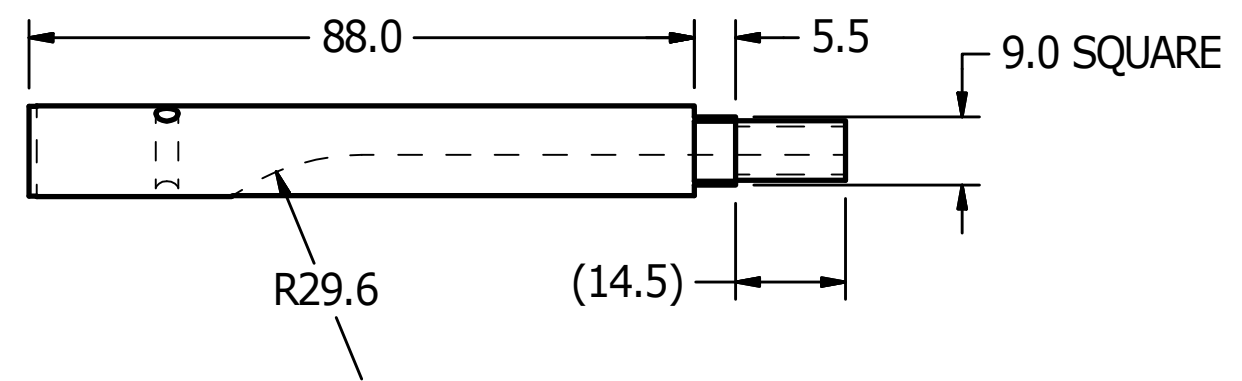
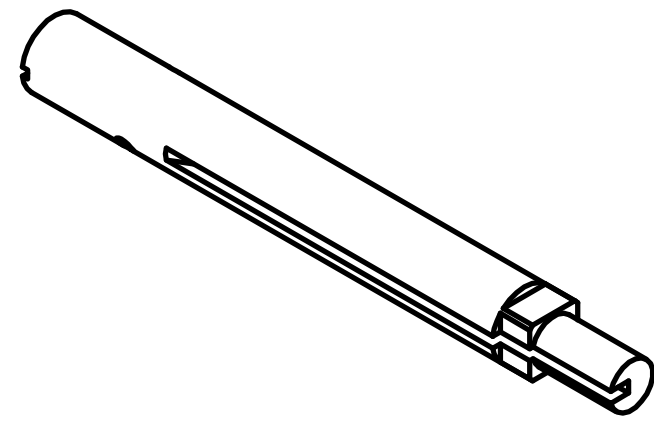
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM019B	9/10/2014	DW

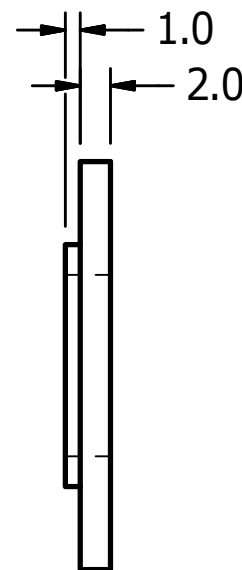
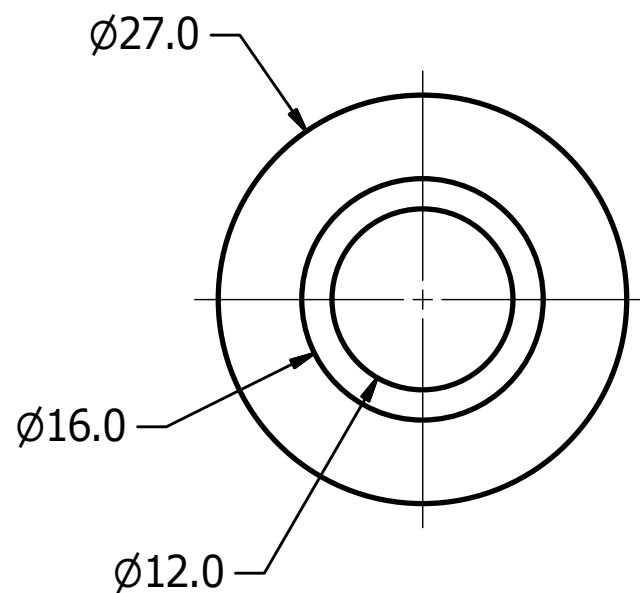
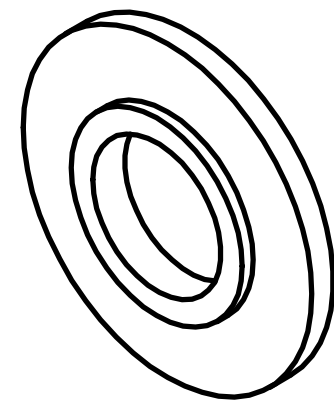


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	SPRING HOUSING BUSHING, LOWER
	CHECKED		
MATERIAL Acetal Resin, Black	ENG	SIZE B	DRAWING NUMBER 472-3823
HEAT TREAT	APPROVED	SCALE: 2X	REV A
FINISH		SHEET 1 OF 1	


REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM001B	9/10/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/30/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SPRING SHAFT	
MATERIAL Steel		APPROVALS	DATE		
HEAT TREAT		DRAWN JIM CLEVINGER	8/21/2013	SIZE B DRAWING NUMBER 472-3824 REV B	
FINISH ELECTROLESS NICKEL .008 MAX.		CHECKED			
		ENG		SHEET 1 OF 1	
		APPROVED		SCALE: 1:1	



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM005C	9/10/2014	DW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	SPRING HOUSING WASHER, LOWER
	CHECKED		
MATERIAL Acetal Resin, Black	ENG	SIZE B	DRAWING NUMBER 472-3825
HEAT TREAT	APPROVED	SCALE: 2X	REV A
FINISH		SHEET 1 OF 1	

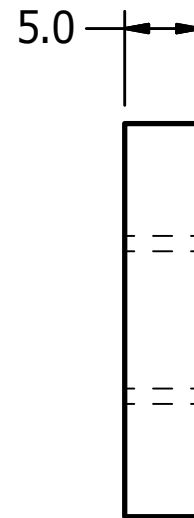
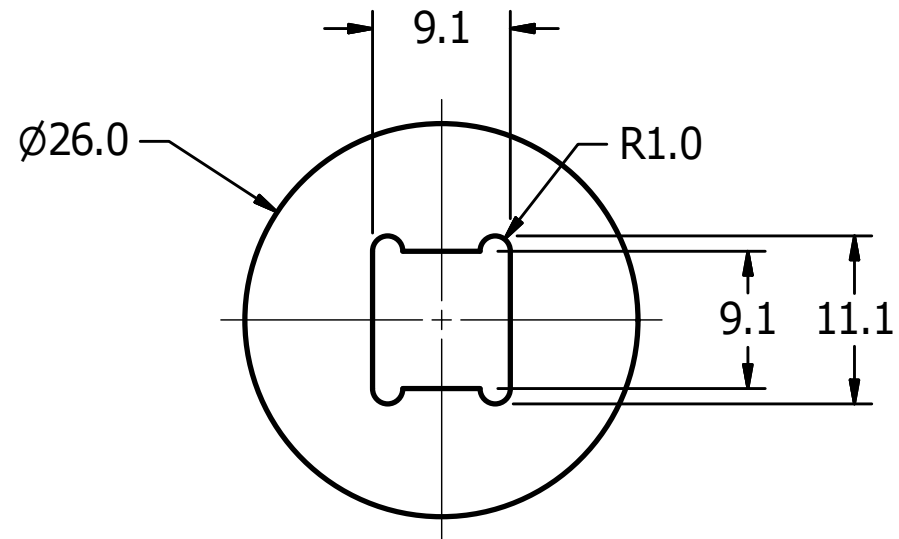
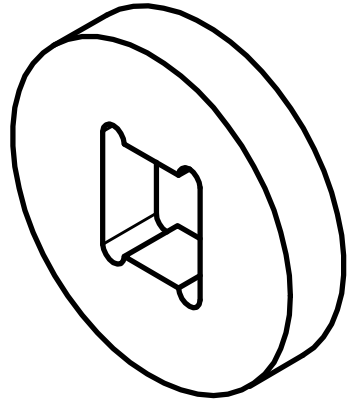
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM004B	9/10/2014	DW




B

B

A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	
	CHECKED		
MATERIAL Aluminum 6061	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3826
FINISH ANODIZE			SCALE: 2X
			REV A
			SHEET 1 OF 1

4

3

2

1

4

3

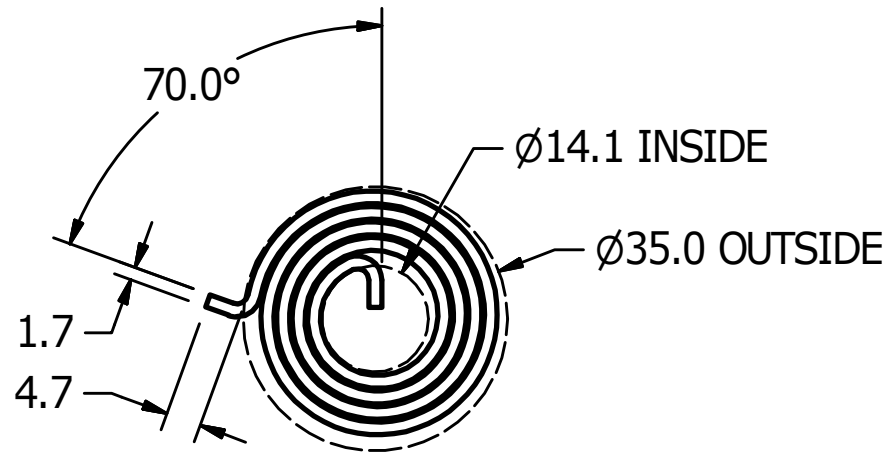
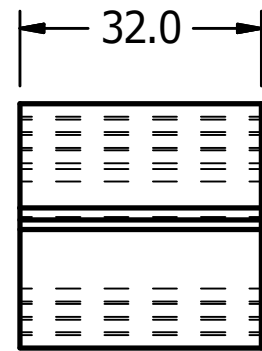
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1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM018	9/10/2014	DW

B

B




A

A

A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	
	CHECKED		
MATERIAL Steel, SPRING	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3827
FINISH			SCALE: 1:1
			SHEET 1 OF 1
			REV A

4

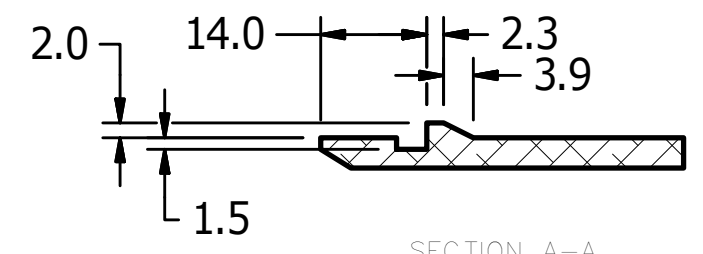
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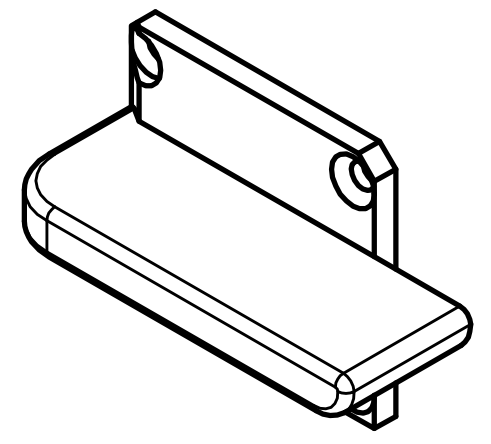
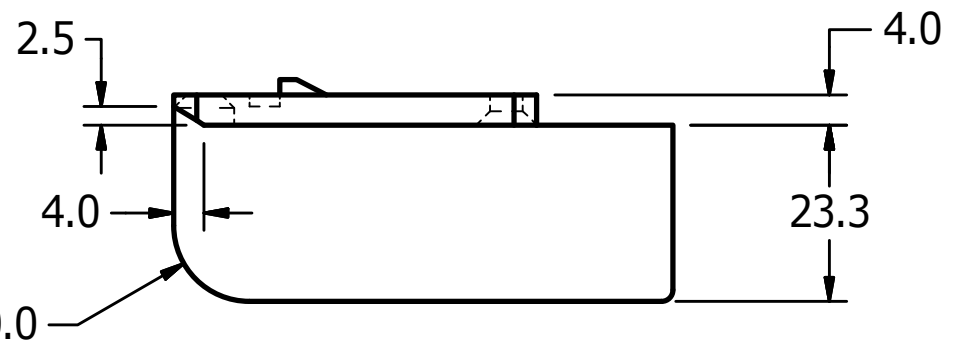
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4 3 2 1

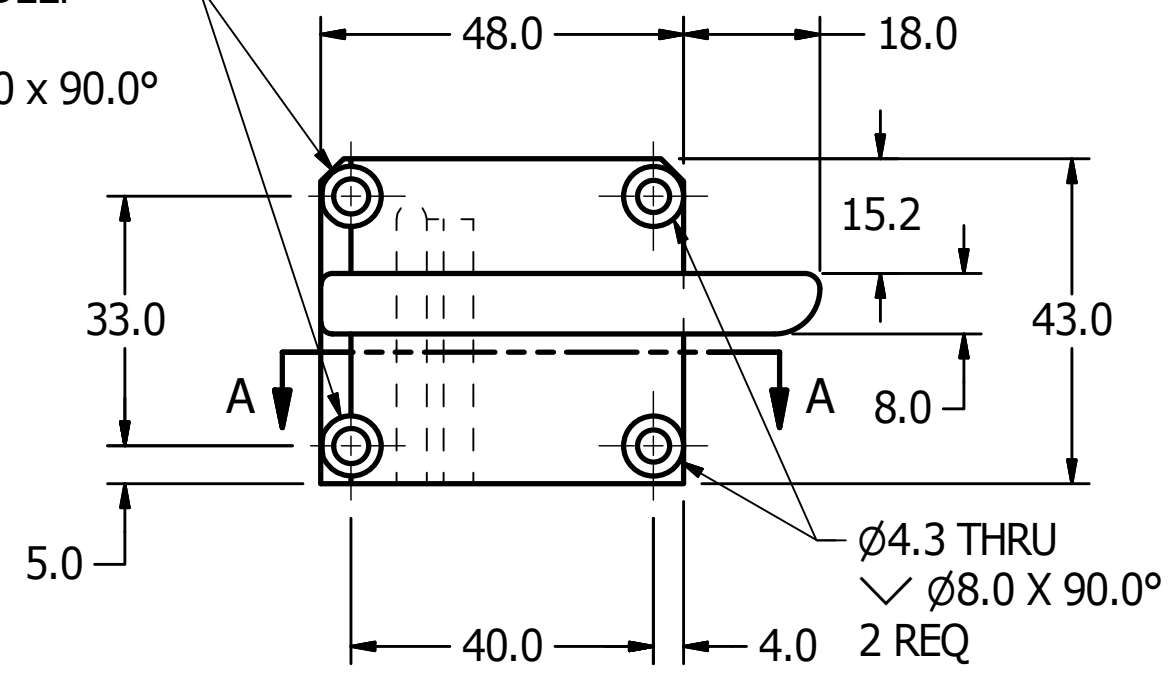
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM014B	9/10/2014	DW



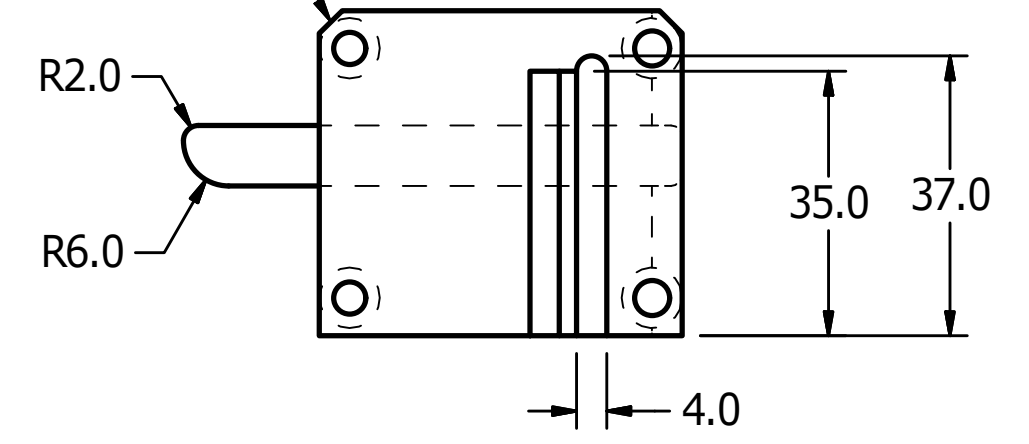
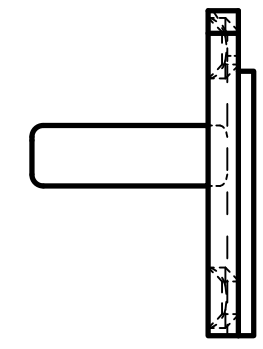
SECTION A-A
SCALE 1 : 1




Ø8.0 x 2.3 DEEP
Ø4.3 THRU
CtSINK Ø8.0 x 90.0°
2 REQ



3.0 X 45.0° CHAMFER



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 ANGLES: ±.5 MACHINED: 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIB GUIDE LOWER, LH
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	
	CHECKED		
MATERIAL Aluminum 6061	ENG		SIZE: B DRAWING NUMBER: 472-3828-1 REV: A
HEAT TREAT	APPROVED		
FINISH ANODIZE			SCALE: 1:1 SHEET: 1 OF 1

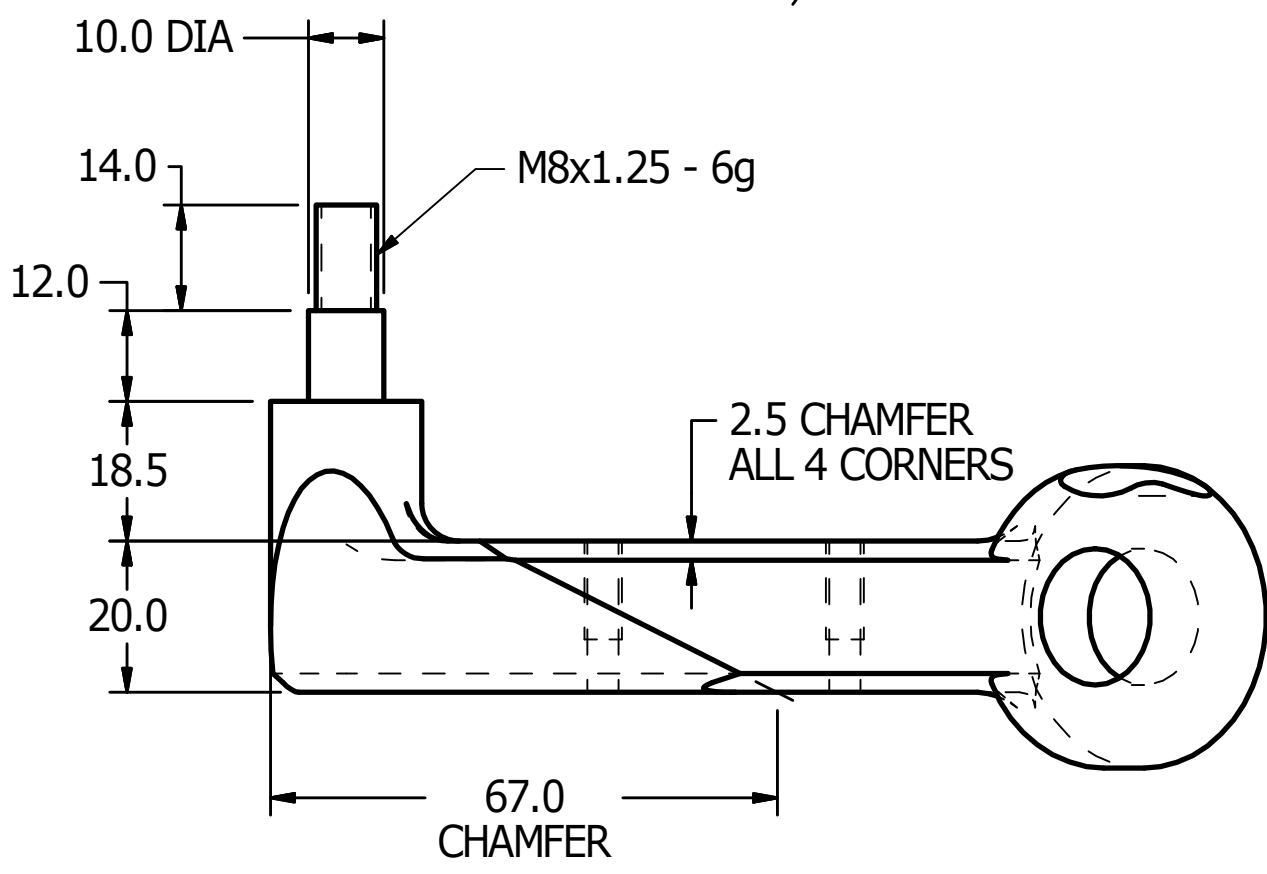
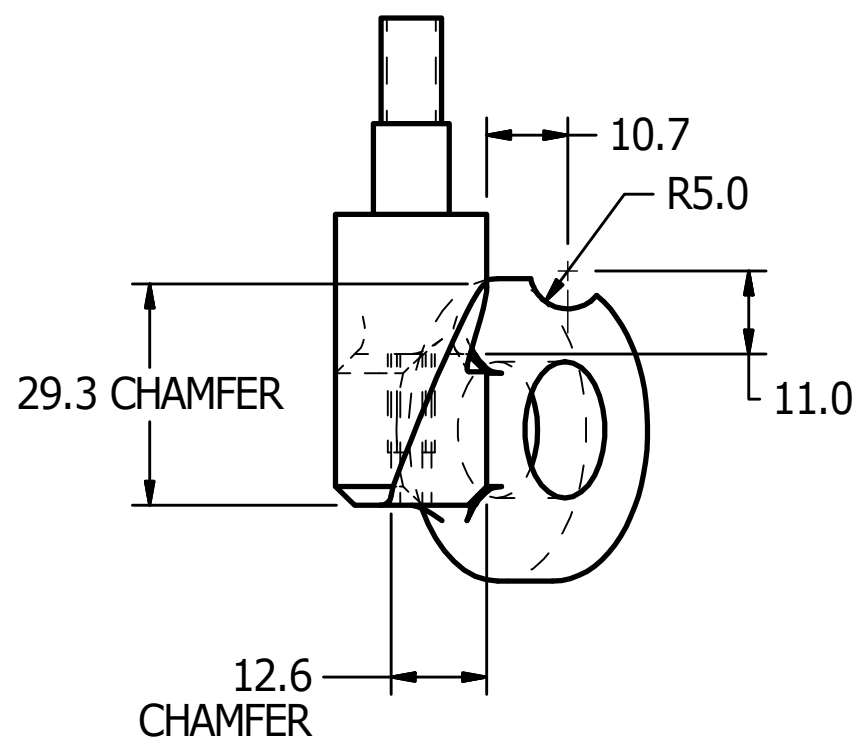
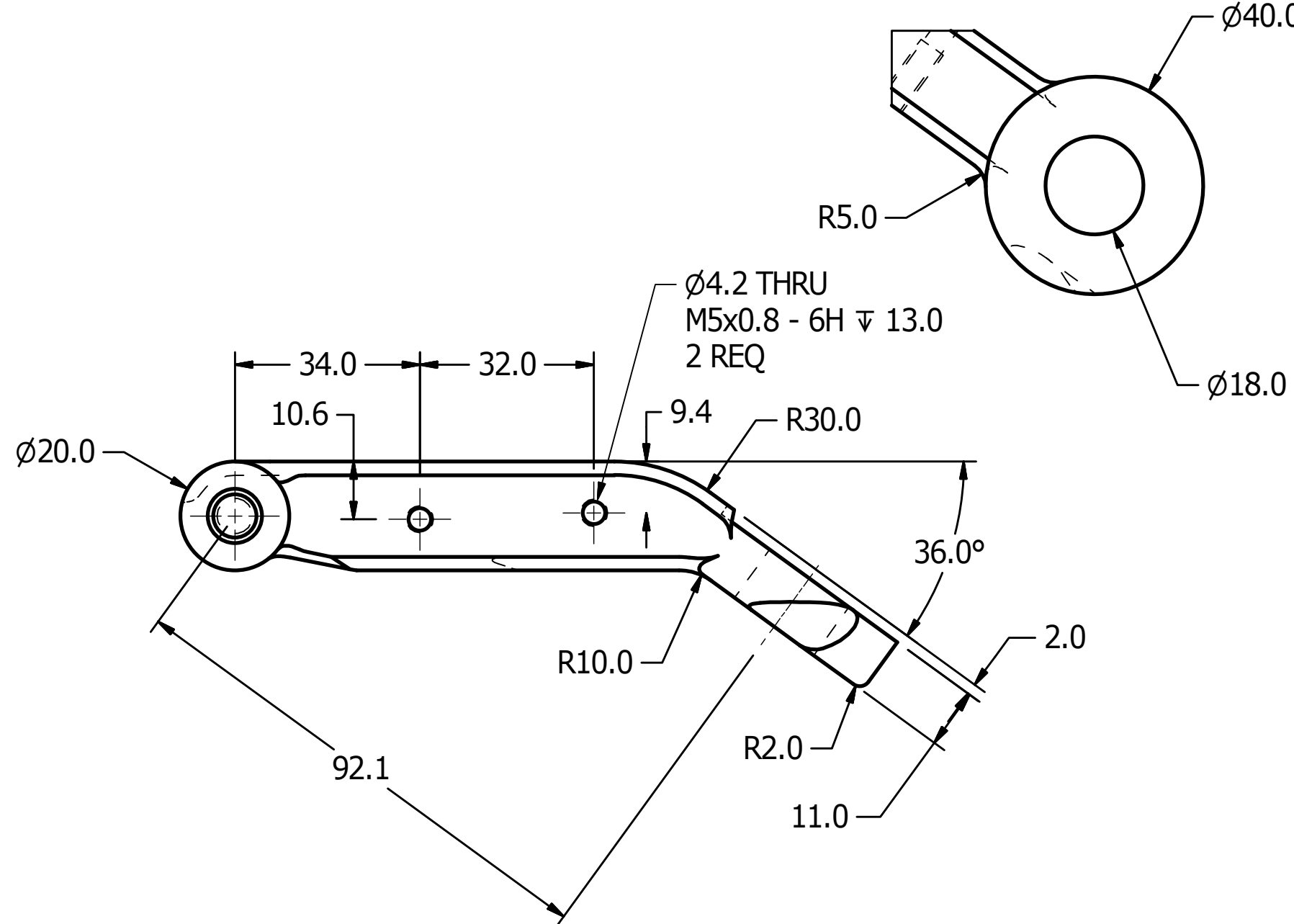
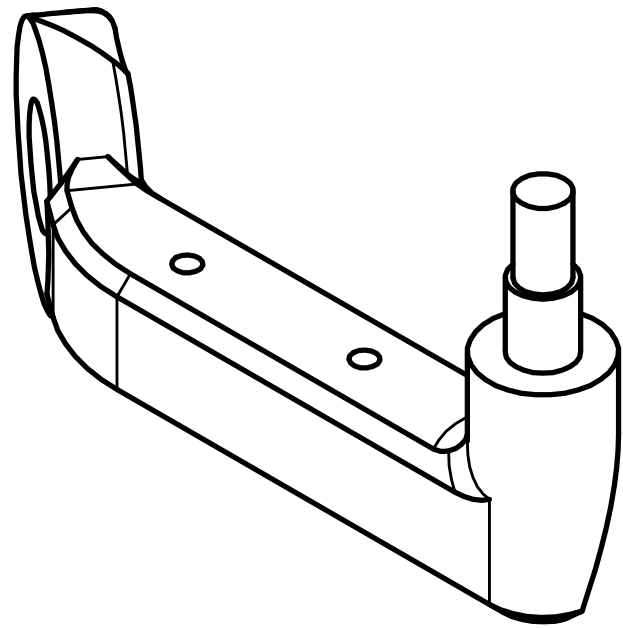
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3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM012B	9/10/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/30/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ARM LINK, LH	
DRAWN JIM CLEVINGER		8/15/2013		DRAWING NUMBER 472-3829-1	
CHECKED				REV B	
MATERIAL Steel		ENG		SIZE C	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH ELECTROLESS NICKEL .008 MAX.				SHEET 1 OF 1	

4

3

2

1

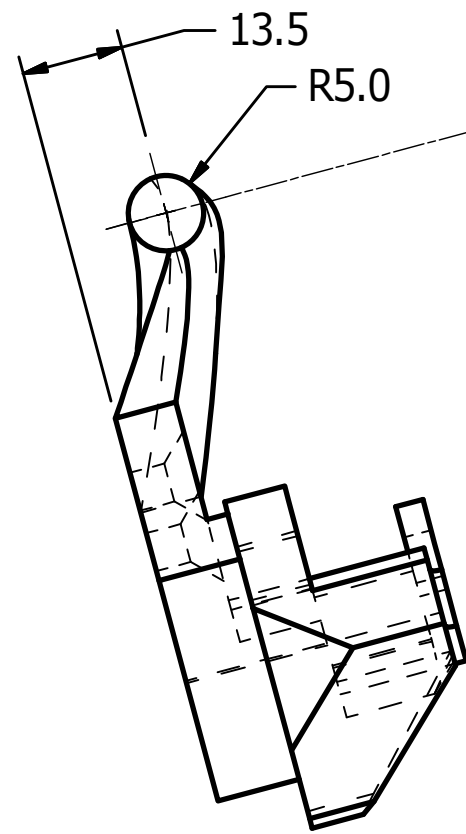
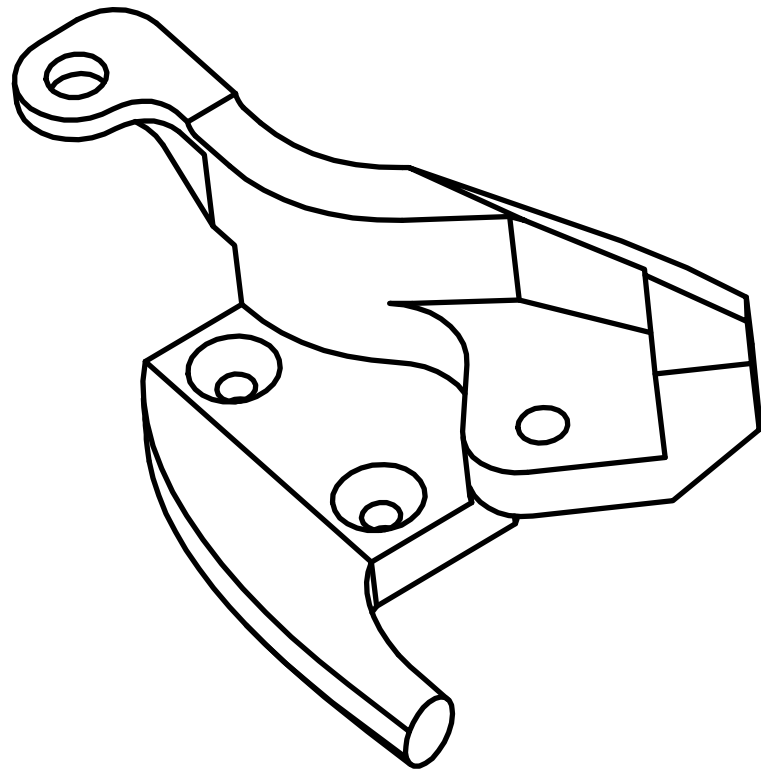
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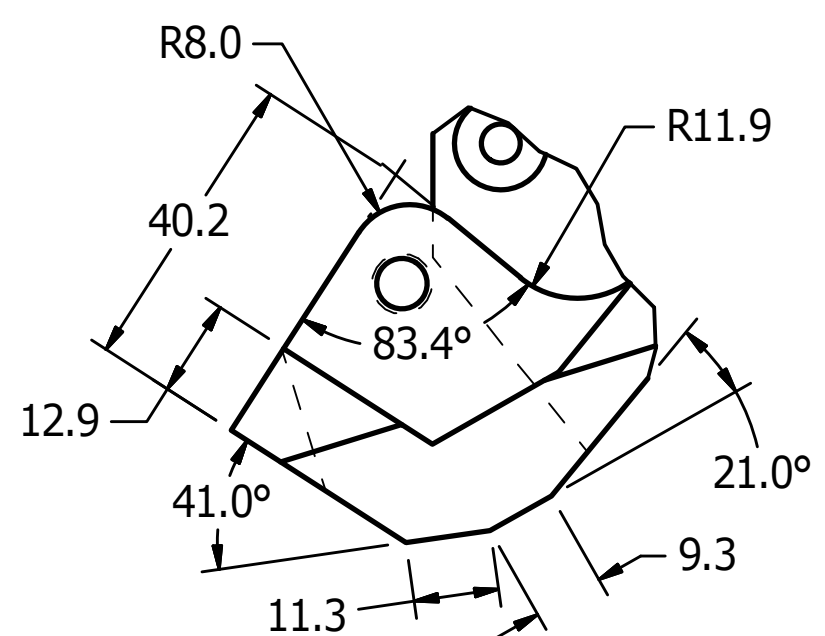
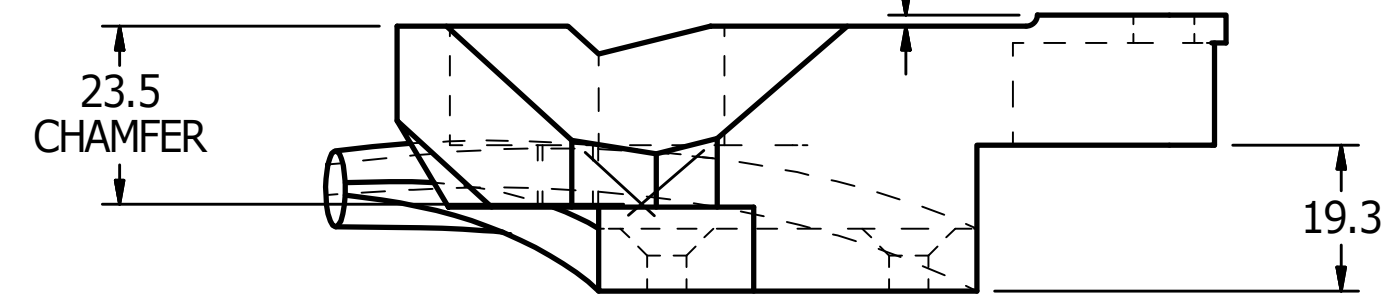
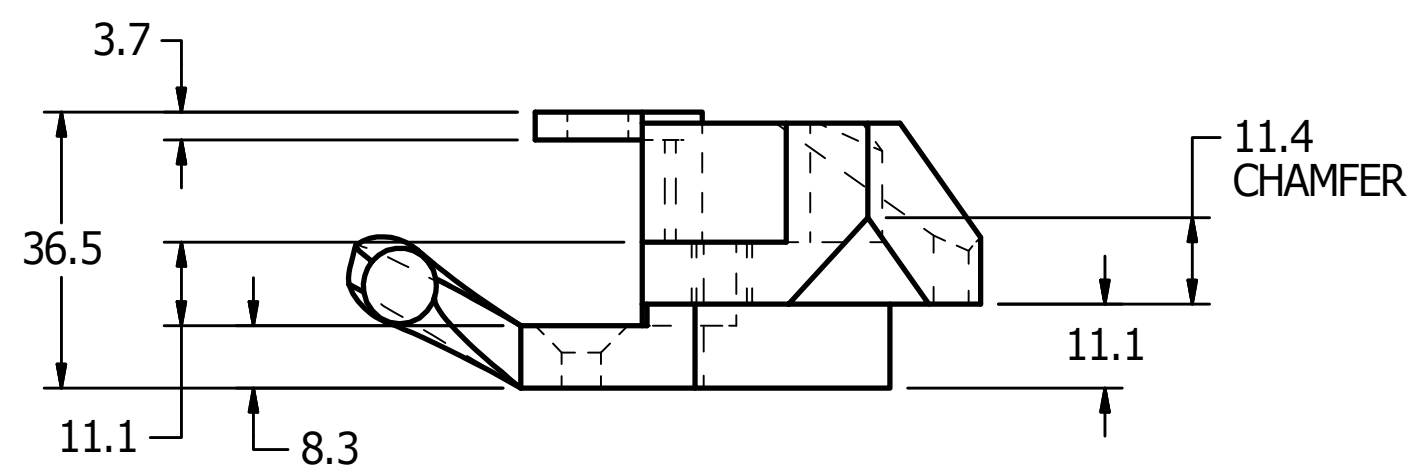
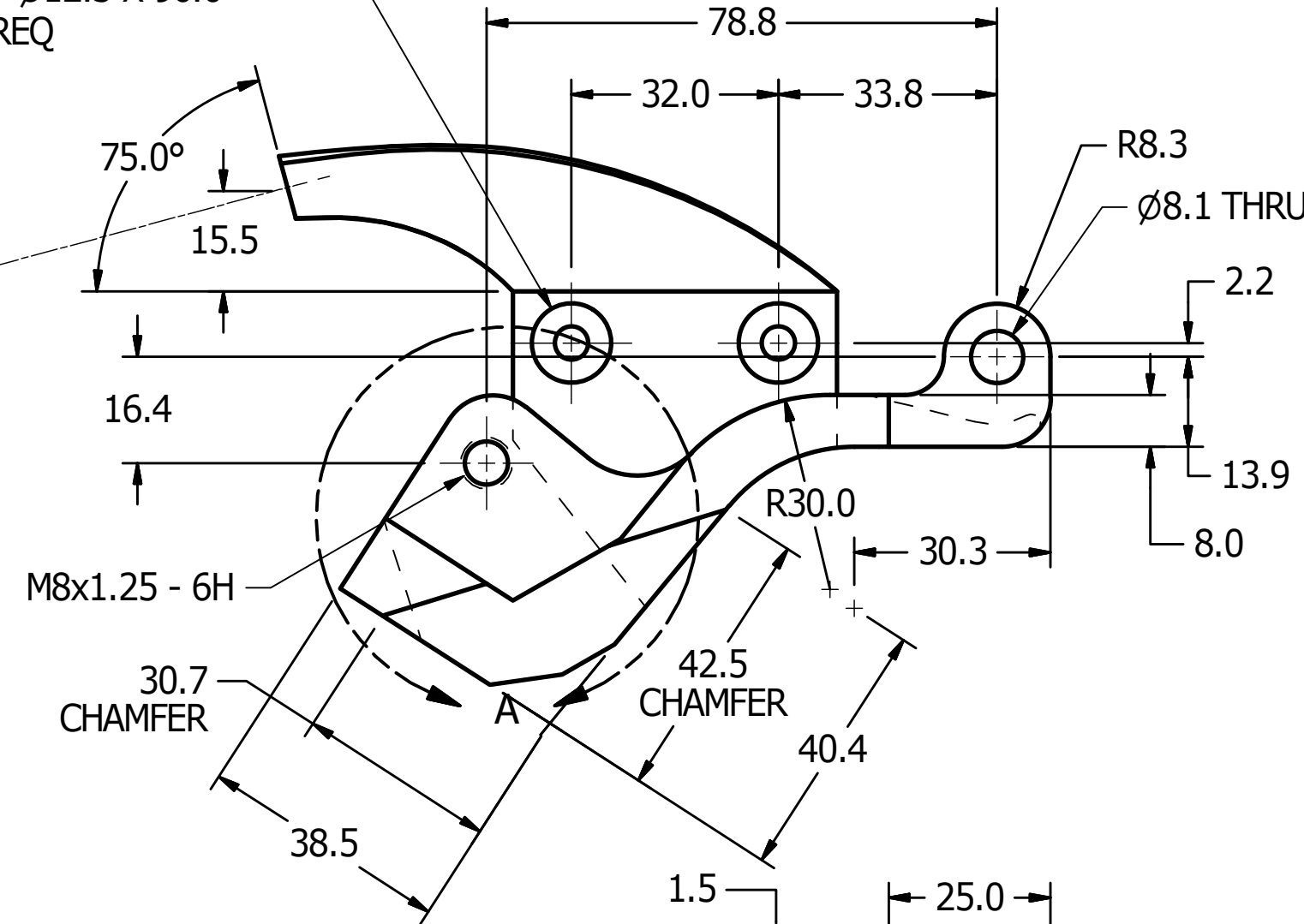
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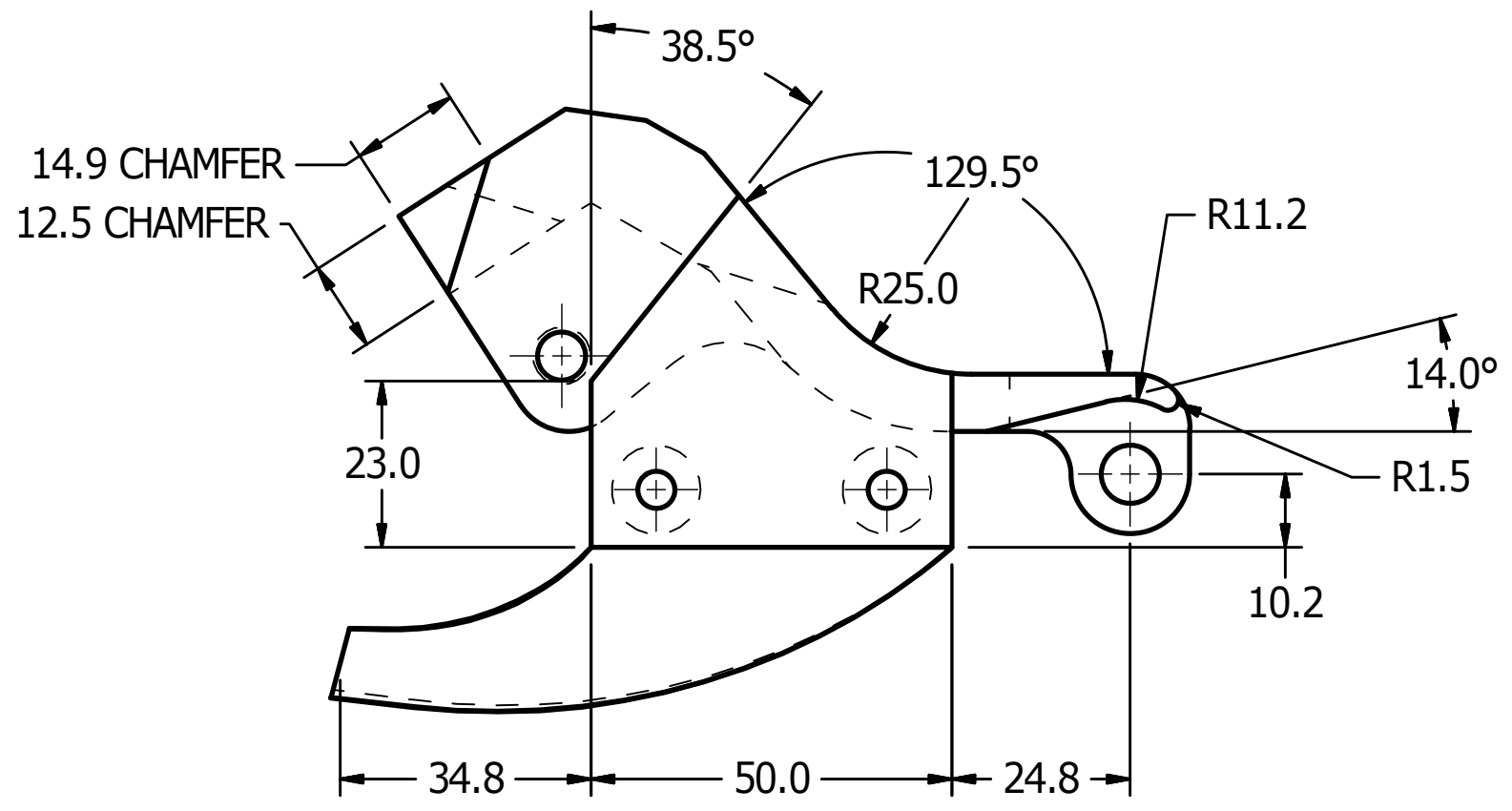
ZONE		REV	DESCRIPTION	DATE	BY
		A	DRAWING NUMBER WAS AXSDM010B	9/10/2014	DW
		B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/30/2015	DW



Ø5.2 THRU
 ✓ Ø12.3 X 90.0°
 2 REQ



DETAIL A
 SCALE 1 : 1



UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 TOLERANCES ARE:
 DECIMAL: ANGLES: MACHINED:
 X ±.5 ±.5 ✓
 XX ±.2
 XXX ±.1
 ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

**VEHICLE RESEARCH
 and TEST CENTER**
 APPROVALS DATE
 DRAWN JIM CLEVINGER 8/19/2013
 CHECKED
 ENG
 APPROVED

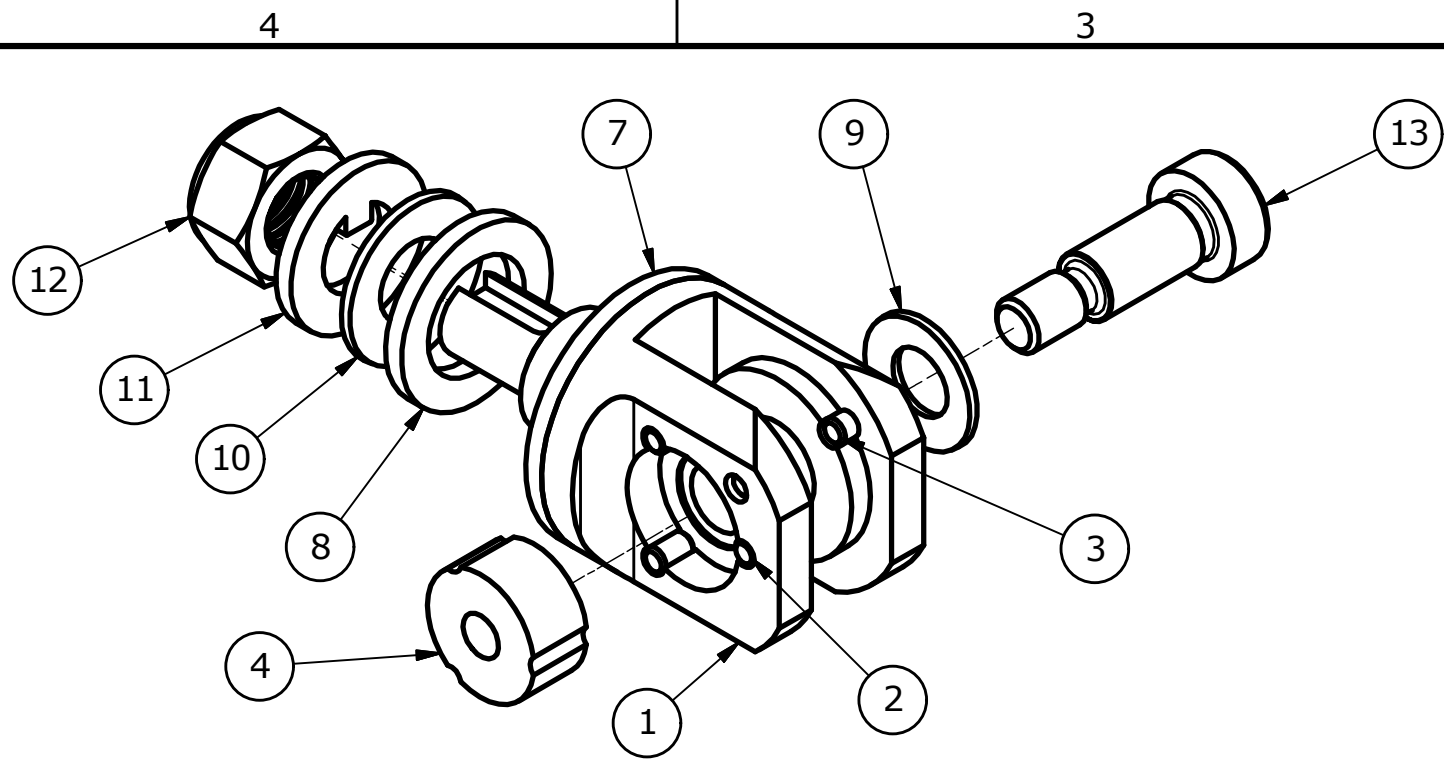
**NATIONAL HIGHWAY TRAFFIC
 SAFETY ADMINISTRATION**
 SCAPULA, LH
 SIZE C DRAWING NUMBER 472-3830-1 REV B
 SCALE: 1:1 SHEET 1 OF 1

4

3

2

1



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM500; IN PARTS LIST 472-3832 WAS AXSDB042B, 472-3833 WAS AXSDM043B, 472-3834 WAS AXSDM056, 472-3835 WAS AXSDM045B, 472-3836 WAS AXSDM028B, 472-3837 WAS AXSDM029B, & 472-3838 WAS AXSDM510V	9/10/2014	DW

	13	1	5001172V	SCREW, SHSS M10 x 20mm LG.
	12	1	5001177V	LOCKNUT, NYLON, M12 x 1.75
A	11	1	472-3838	TABBED WASHER
	10	1	5001167V	DISC SPRING WASHER, 25 x 12.2 x 1.25
	9	1	5001166V	DISC SPRING WASHER, 20 x 10.2 x 1.1
A	8	1	472-3837	WASHER, ARM CLEVIS
	7	1	472-3836	BUSHING, ARM PIVOT
	6	1	472-3835	BUSHING, UPPER ARM
	5	1	472-3834	WASHER, UPPER ARM
A	4	1	472-3833	NUT, UPPER ARM PIVOT
	3	2	5000524	PIN, DOWEL M4 x 8
	2	3	5000680	PIN, DOWEL M4 x 6
A	1	1	472-3832	ARM CLEVIS

ITEM	QTY	PART NUMBER	DESCRIPTION
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PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL: ANGLES: MACHINED:
X ±.5 ±.5 ✓
X.X ±.2
X.XX ±.1
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

APPROVALS DATE
DRAWN JIM CLEVINGER 8/7/2013
CHECKED

ENG APPROVED



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

ARM CLEVIS ASSEMBLY

SIZE B DRAWING NUMBER 472-3831 REV A
SCALE: 1:1 SHEET 1 OF 1

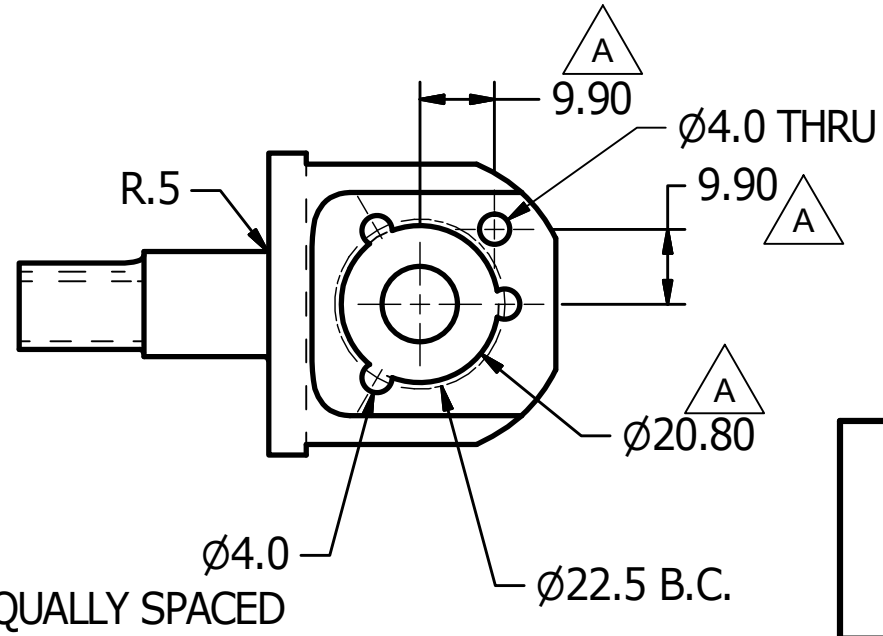
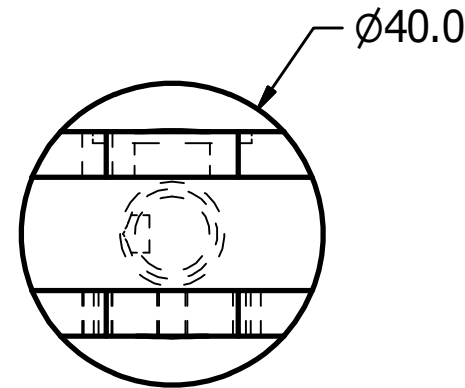
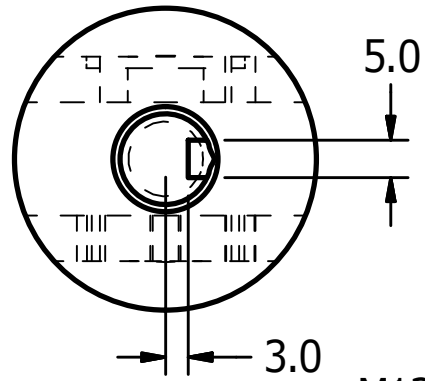
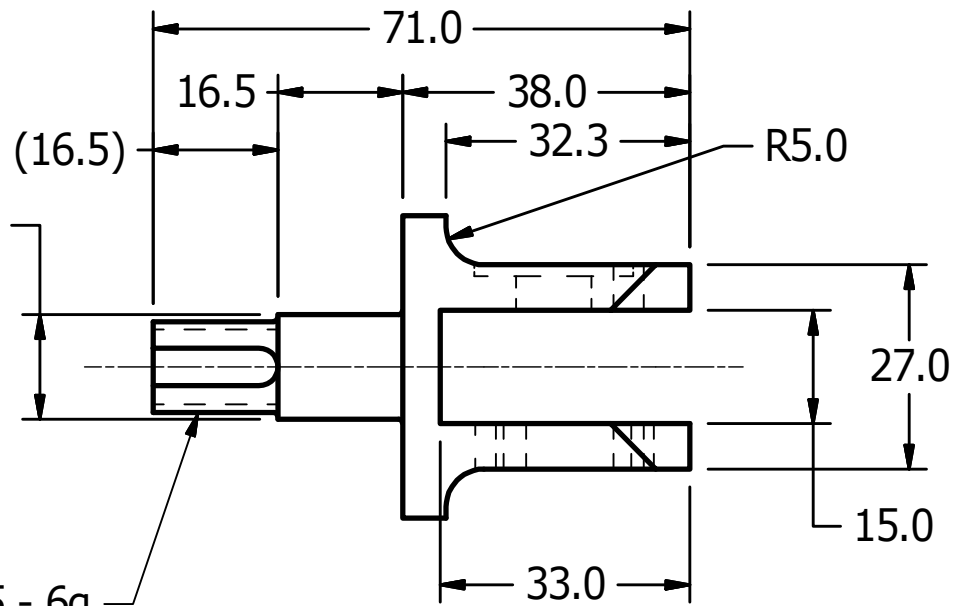
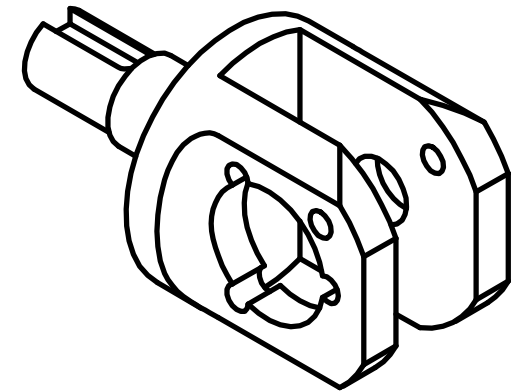
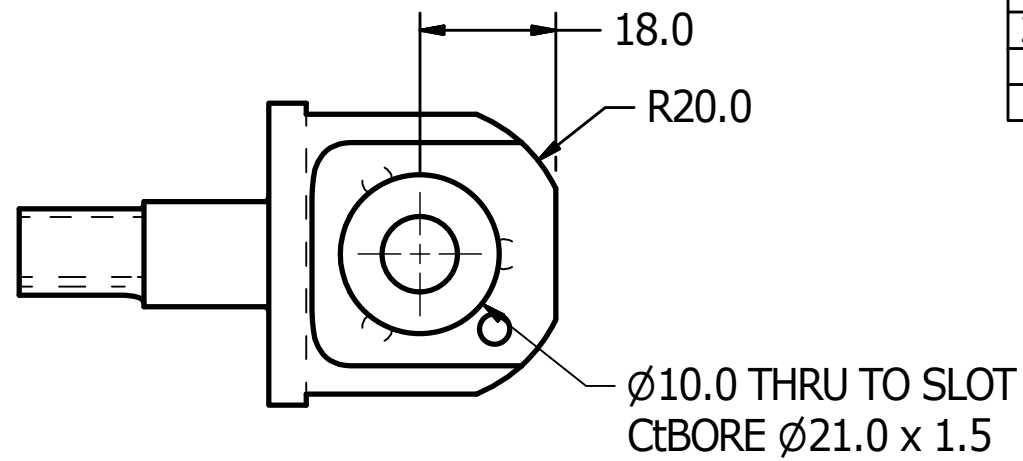
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	9.90 WAS 9.9; 20.80 WAS 19.9	8/20/2013	JHC
	B	DRAWING NUMBER WAS AXSDM042B	9/10/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: ANGLES: MACHINED:
 X ±.5 ±.5 ✓
 XX ±.2
 XXX ±.1

ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

MATERIAL	Aluminum 6061
HEAT TREAT	
FINISH	ANODIZE

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/20/2013
CHECKED	
ENG	
APPROVED	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ARM CLEVIS	
SIZE B	DRAWING NUMBER 472-3832
SCALE: 1:1	SHEET 1 OF 1

B

B

A

A

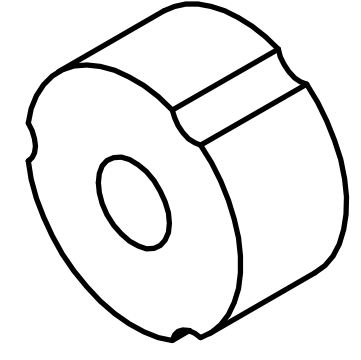
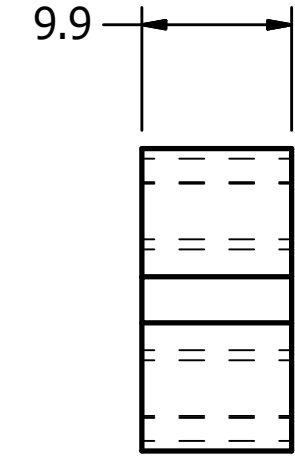
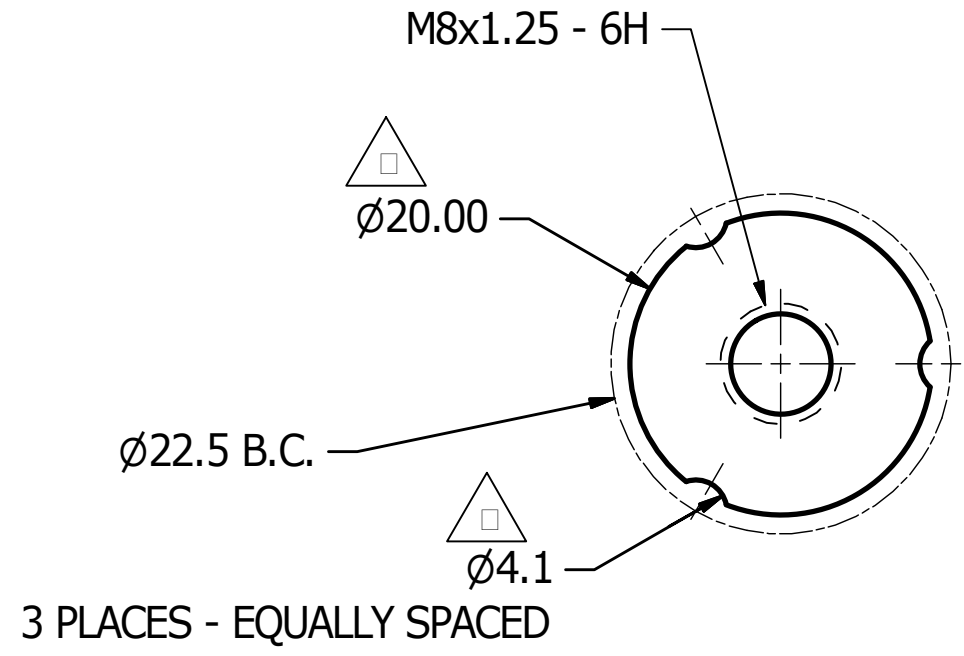
4


3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	1	4.1 WAS 4.0; 20.00 WAS 20.0	8/20/2013	JHC
	A	DRAWING NUMBER WAS AXSDM043B	9/10/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL 303 S.S.	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3833
FINISH			SCALE: 2X
			SHEET 1 OF 1
			REV A

4

3

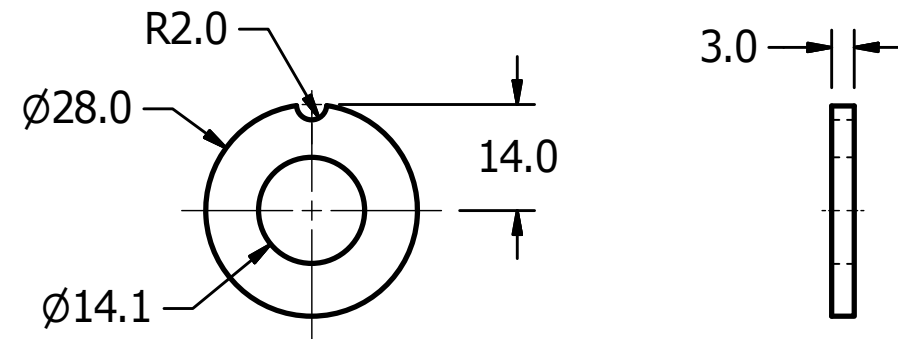
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM046	9/10/2014	DW

B

B




A

A

A

A

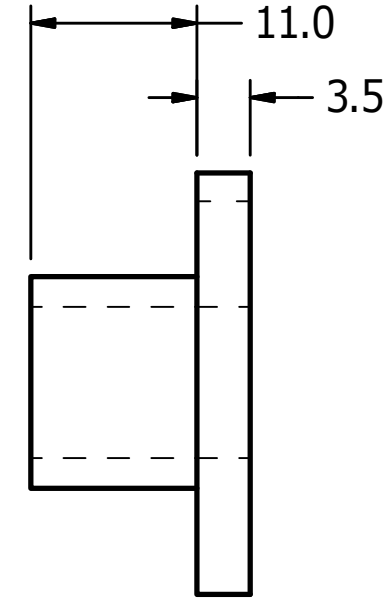
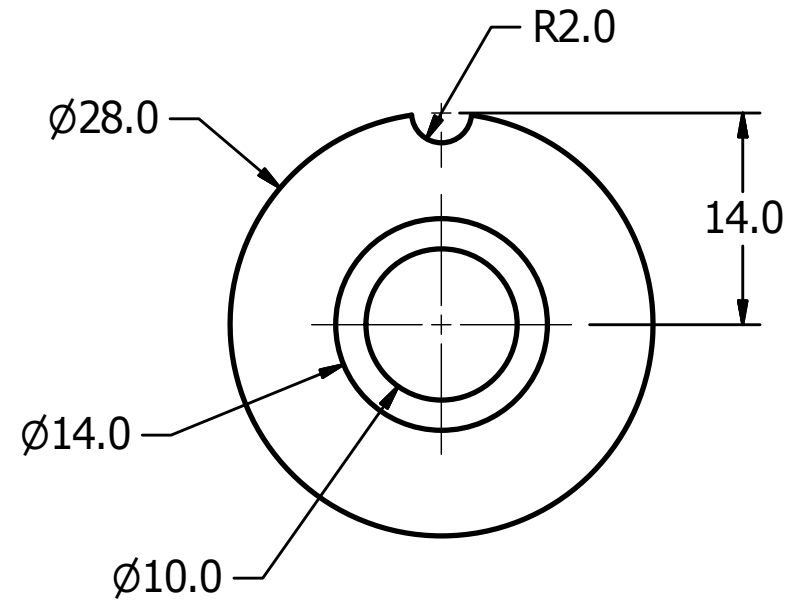
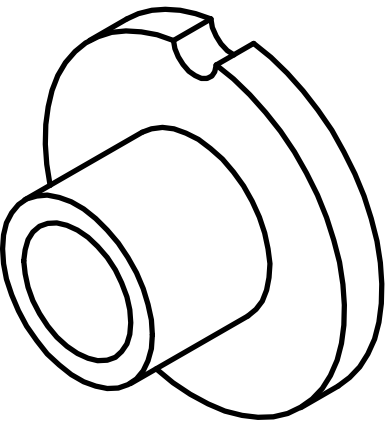
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3834
FINISH			SCALE: 1:1
			SHEET 1 OF 1
			REV A

4


3

2

1



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM045B	9/10/2014	DW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION BUSHING, UPPER ARM
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3835
FINISH			REV A
			SCALE: 2X
			SHEET 1 OF 1

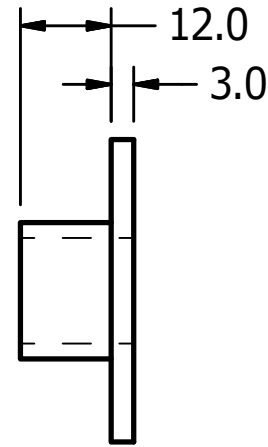
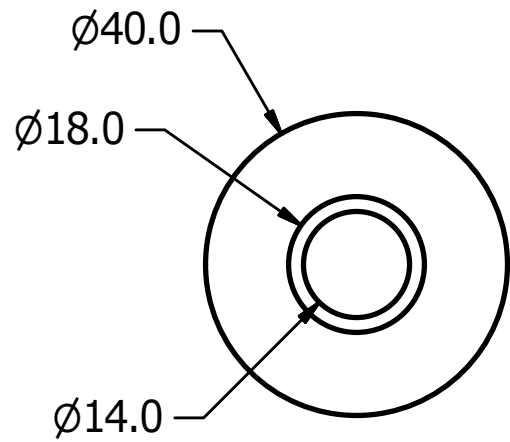
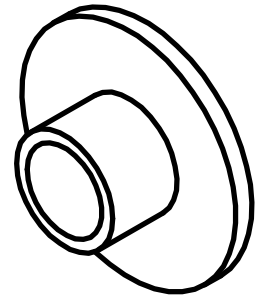
4

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1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM028B	9/10/2014	DW



B


B

A

A

A

A

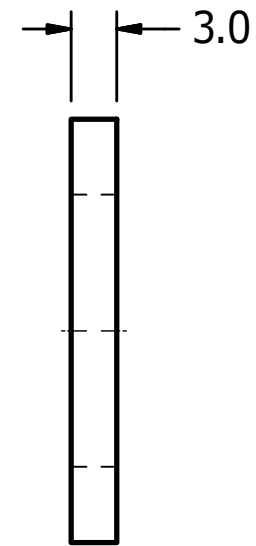
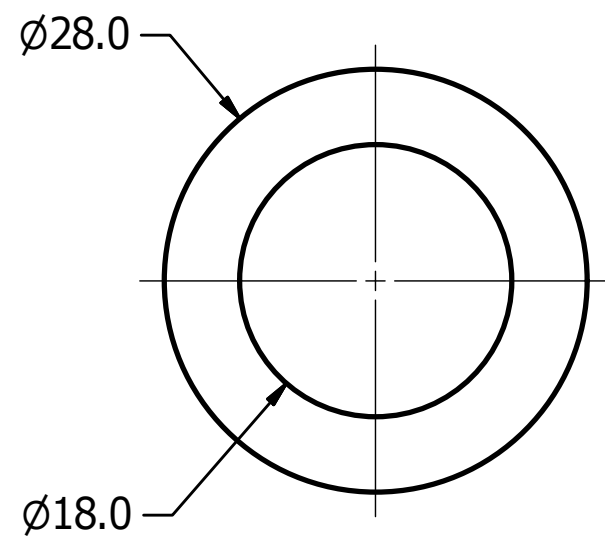
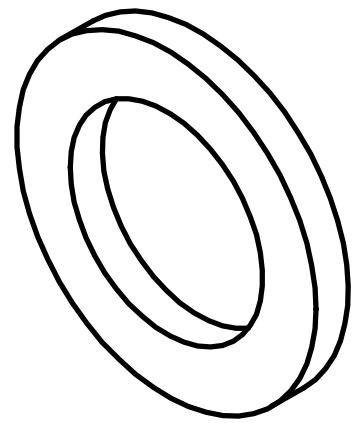
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION BUSHING, ARM PIVOT
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		SIZE: B DRAWING NUMBER: 472-3836 REV: A
HEAT TREAT	APPROVED		
FINISH			SCALE: 1:1 SHEET: 1 OF 1

4


3

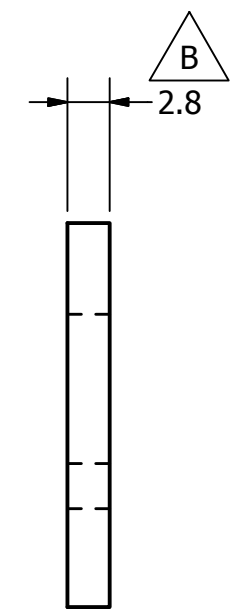
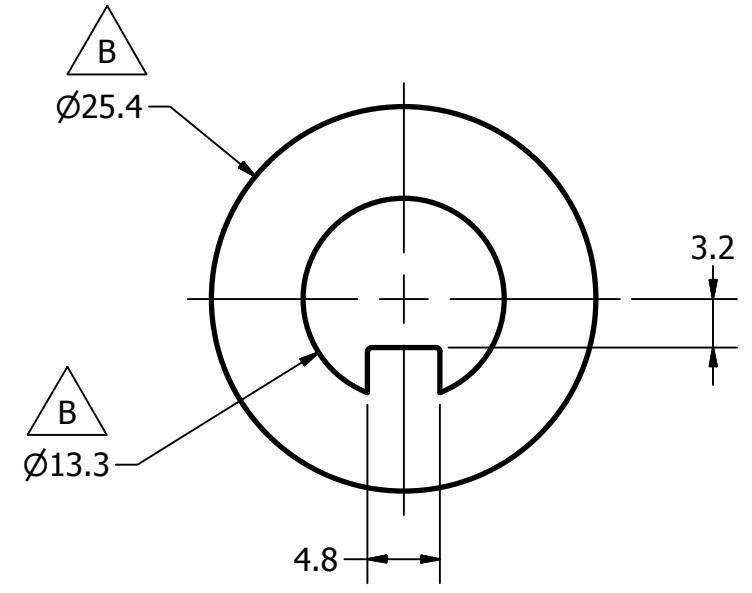
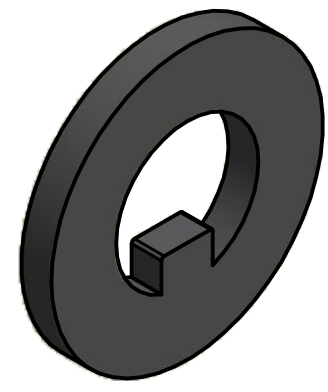
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1




REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM029B	9/11/2014	DW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Stainless Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3837
FINISH			SCALE: 1:1
			SHEET 1 OF 1
			REV A



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM510V	9/11/2014	DW
	B	DIMENSION Ø25.4 WAS Ø27.9, Ø13.3 WAS Ø12.1, AND 2.8 WAS .8; REMOVED BEND IN TAB	9/4/2015	DW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		TABBED WASHER	
DRAWN JIM CLEVINGER		8/20/2013			
CHECKED				SIZE: B DRAWING NUMBER: 472-3838 REV: B	
ENG					
MATERIAL: Steel		APPROVED		SHEET: 1 OF 1 SCALE: 2X	
HEAT TREAT				DRAWING NUMBER: 472-3838 REV: B	
FINISH				SHEET: 1 OF 1	

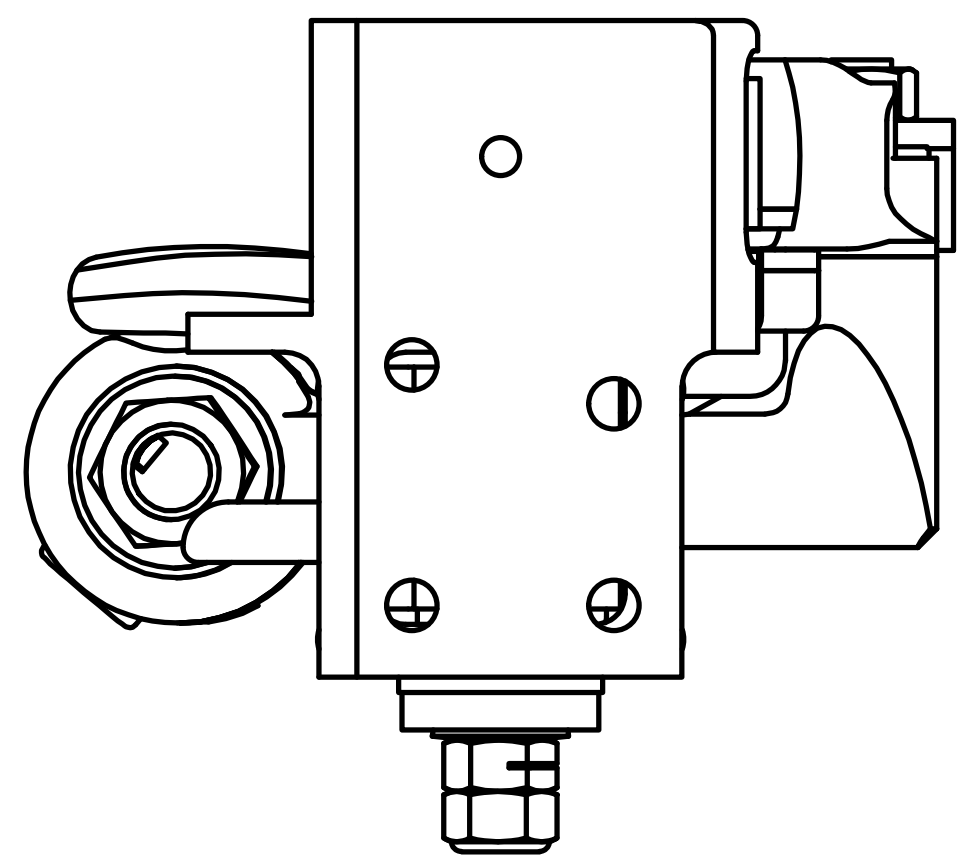
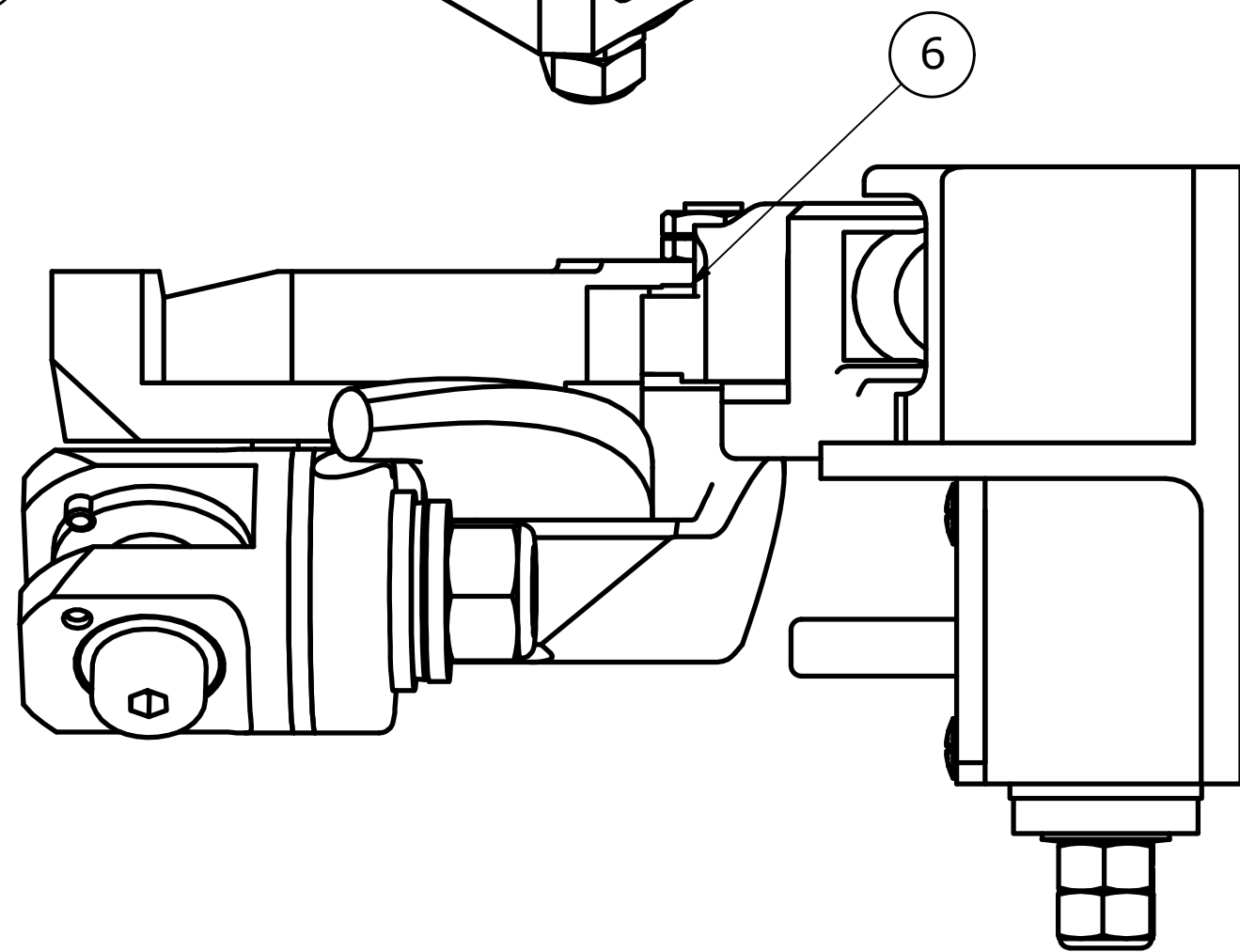
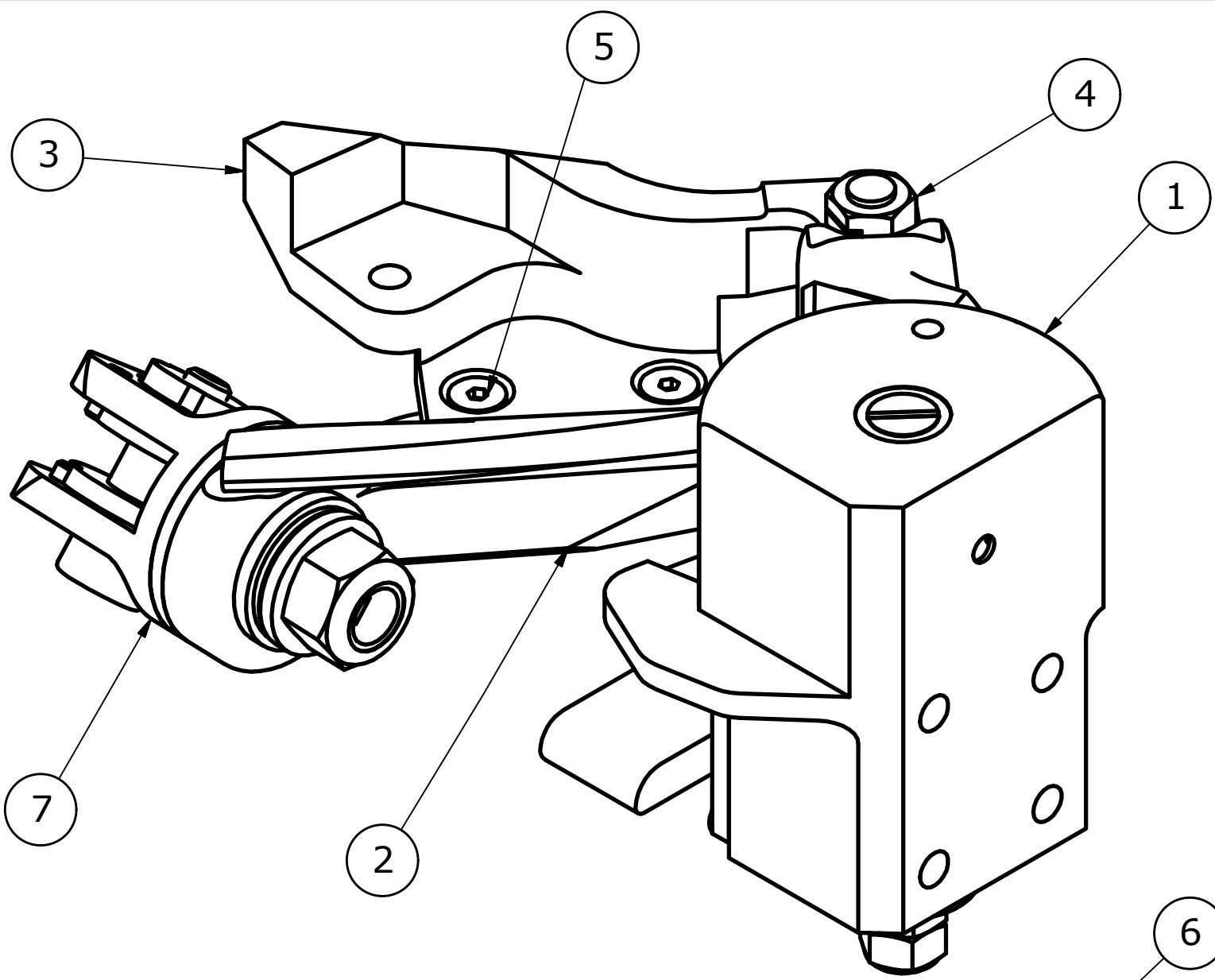
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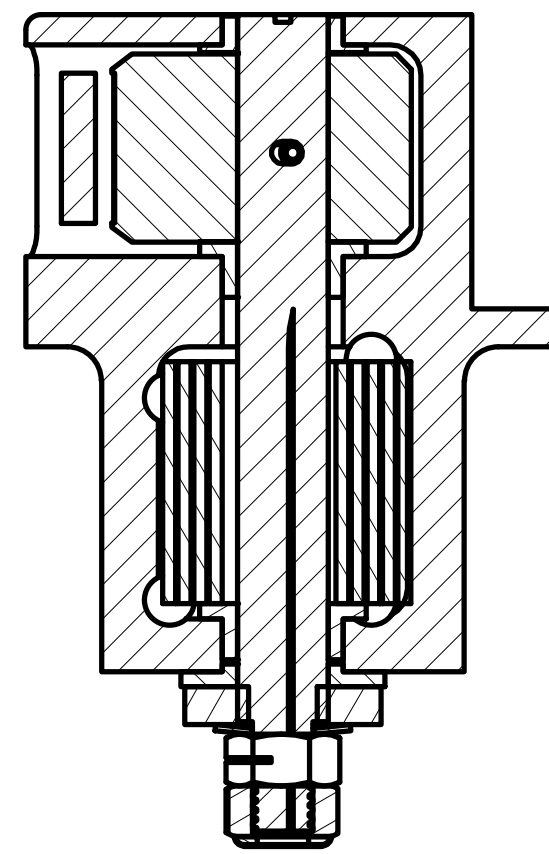
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM400; IN PARTS LIST 472-3841 WAS AXSDM900, 472-3829-2 WAS AXSDM013B, 472-2830-2 WAS AXSDM011B, 472-3818 WAS AXSDM030B & 472-3831 WAS AXSDM500	9/11/2014	DW

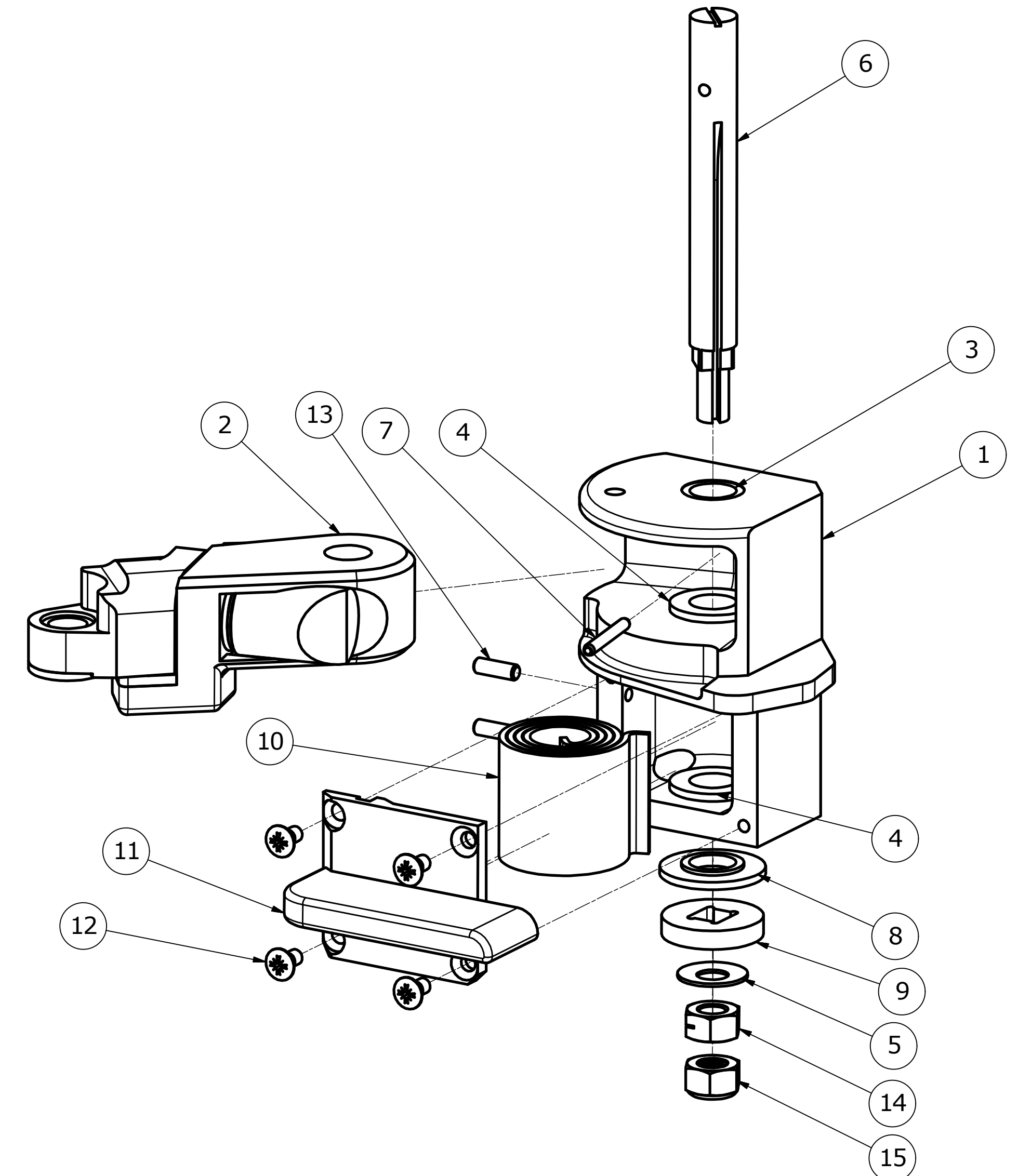
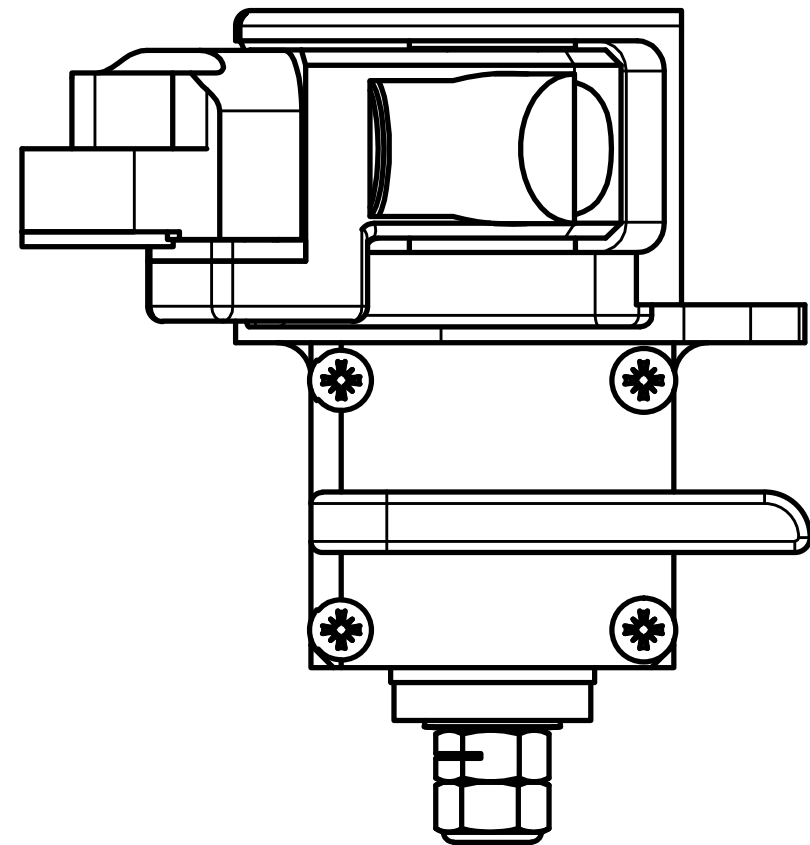
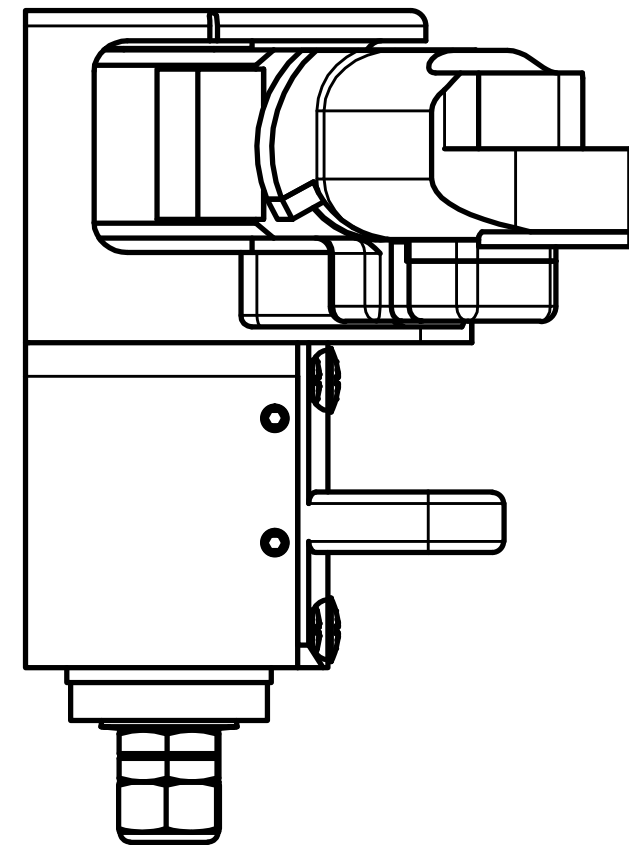
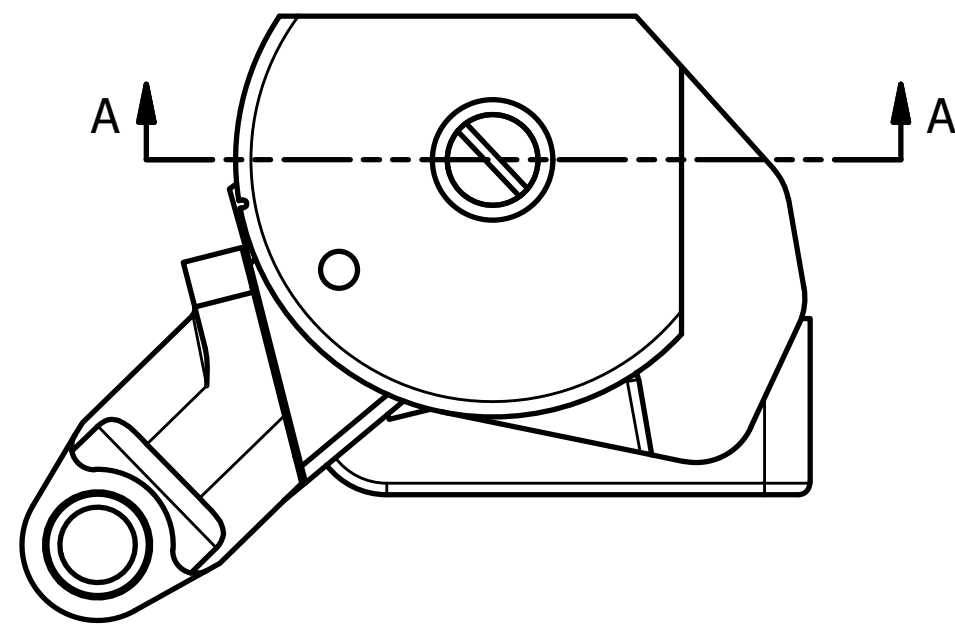


A	7	1	472-3831	ARM CLEVIS ASSEMBLY
A	6	1	472-3818	WASHER LINK, 18 x 8 x 1.5
	5	2	5000467	SCREW, FHCS M5 x 0.8 x 16
	4	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
A	3	1	472-3830-2	SCAPULA, RH
	2	1	472-3829-2	ARM LINK, RH
A	1	1	472-3841	RIGHT SHOULDER PIVOT ASSEMBLY

ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> <small>DECIMAL: ANGLES: MACHINED:</small> X ±.5 ±.5 XX ±.2 XXX ±.1 <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER <small>APPROVALS DATE</small> <small>DRAWN: JIM CLEVINGER 8/5/2013</small> <small>CHECKED:</small>	
<small>MATERIAL:</small> <small>HEAT TREAT:</small> <small>FINISH:</small>		<small>ENG</small> <small>APPROVED:</small>  NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIGHT SHOULDER ASSEMBLY	
<small>SCALE: 1:1</small>		<small>SIZE: C</small> <small>DRAWING NUMBER: 472-3840</small> <small>REV: A</small> <small>SHEET: 1 OF 1</small>	



SECTION A-A
SCALE 1:1



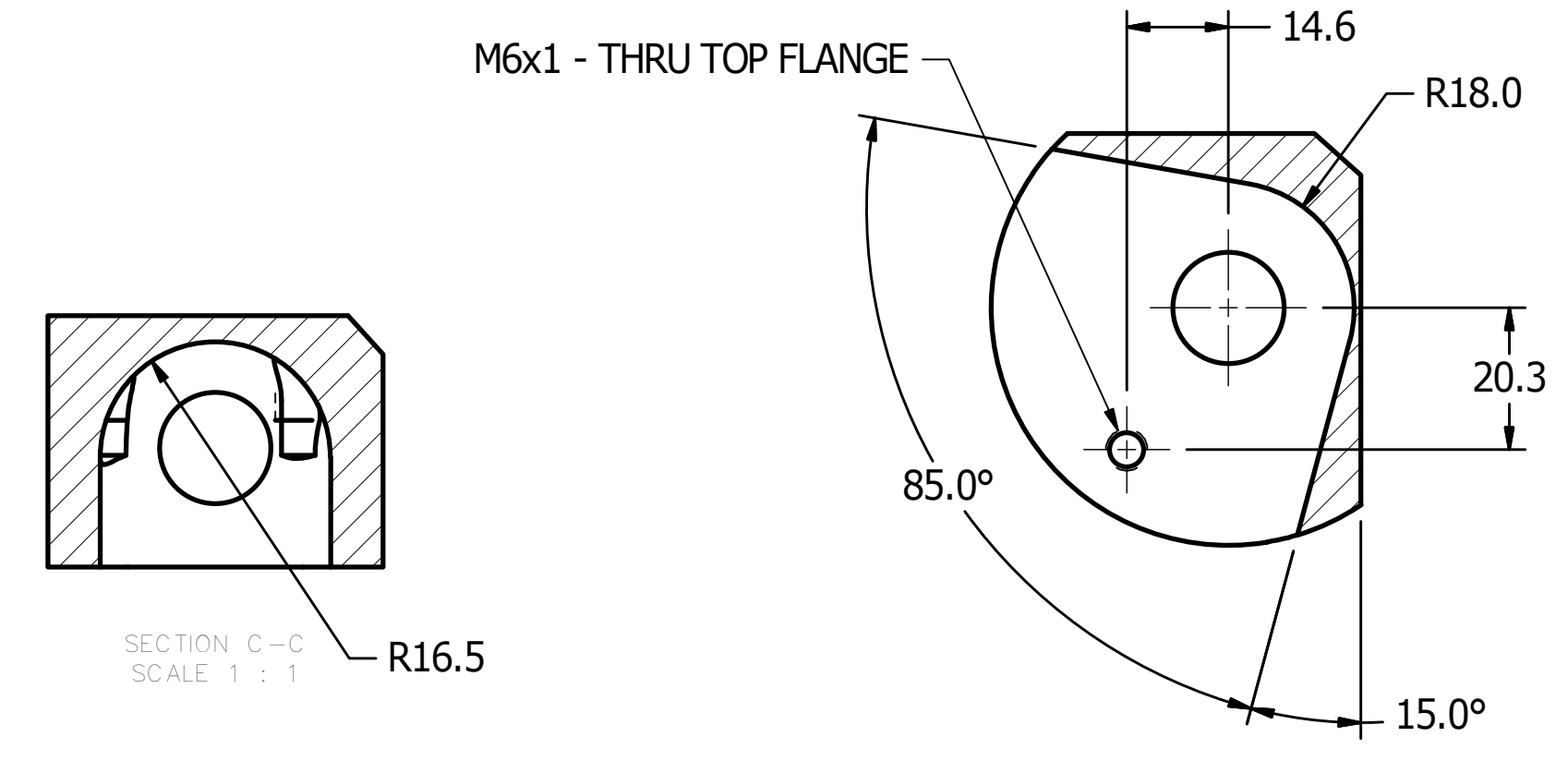
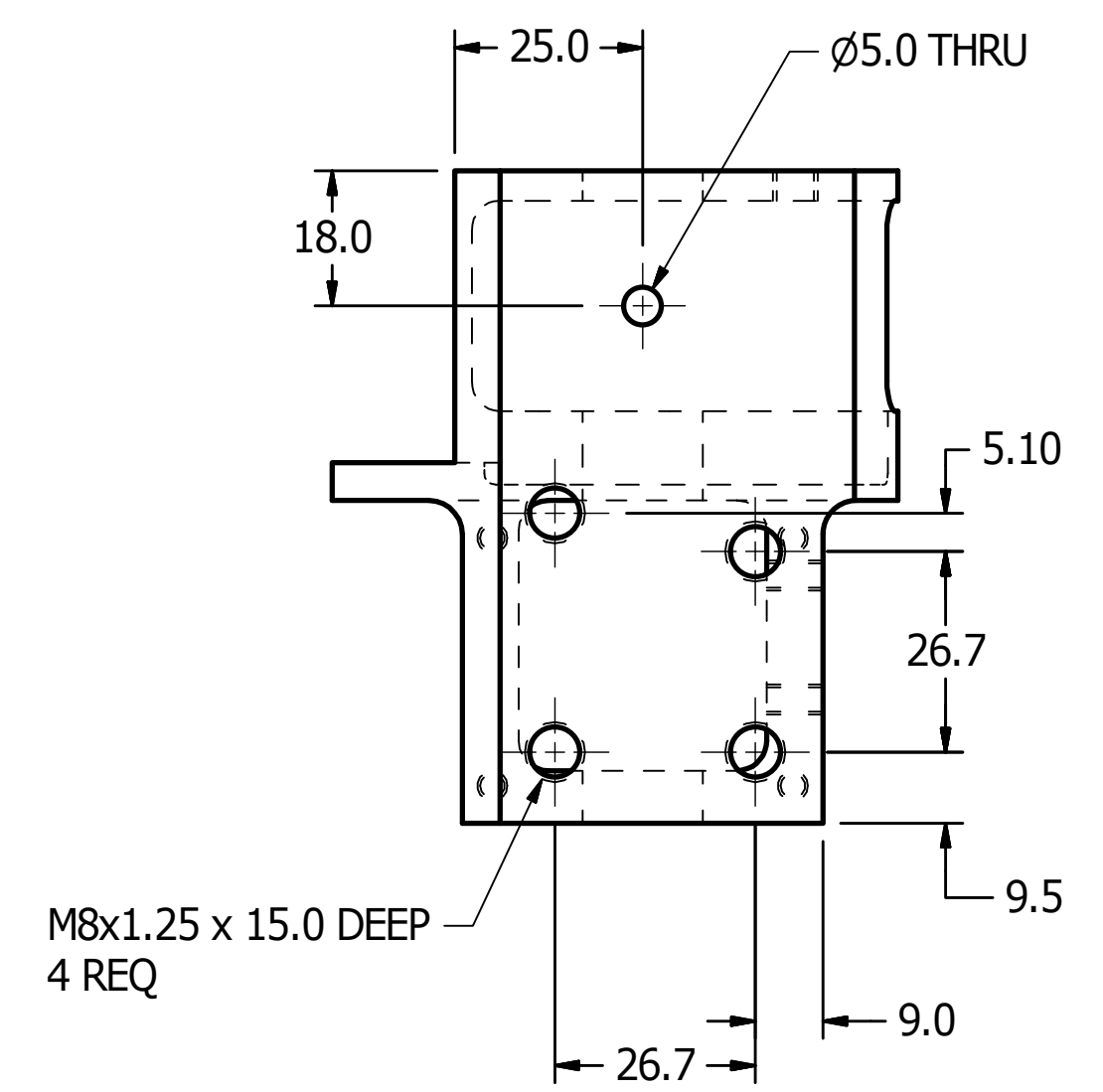
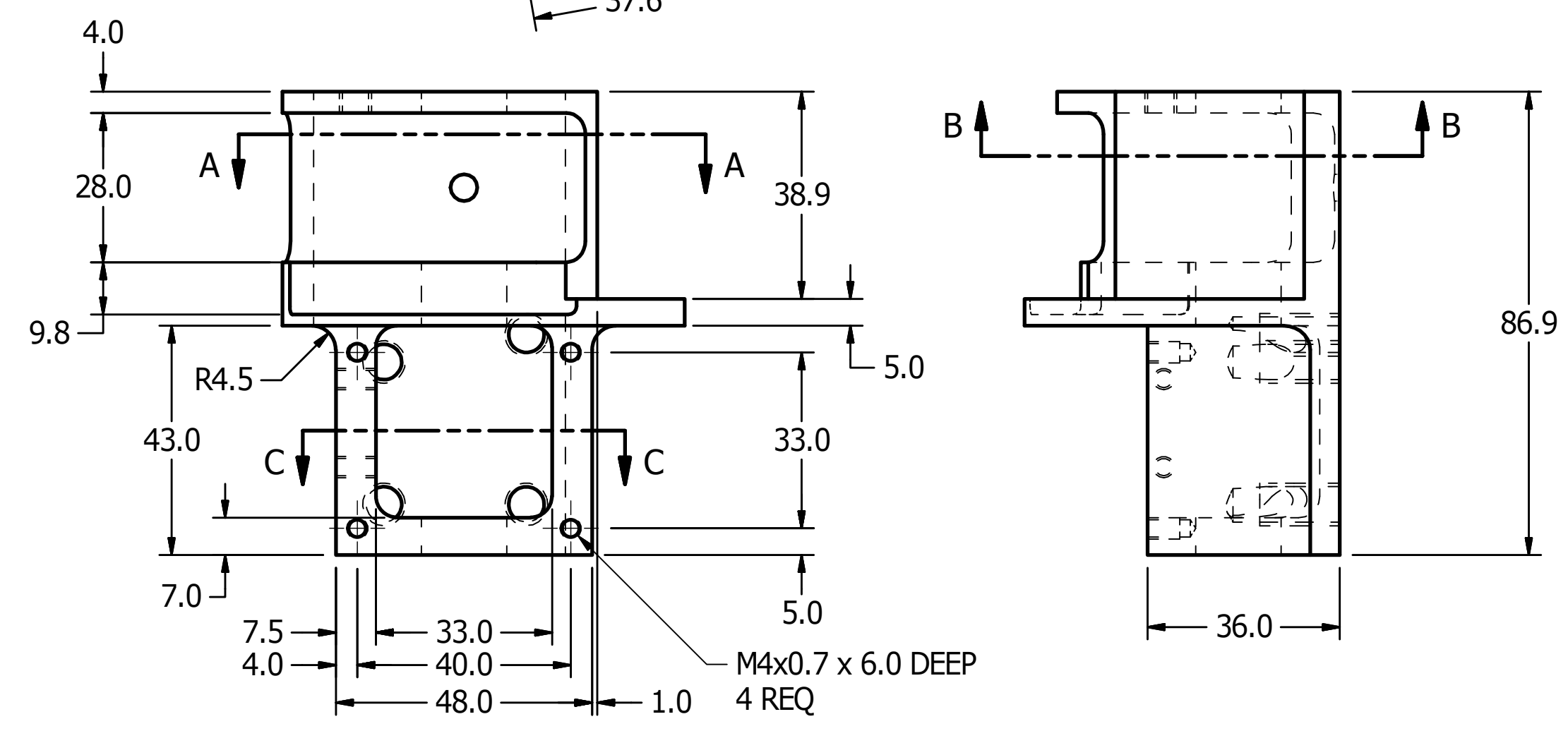
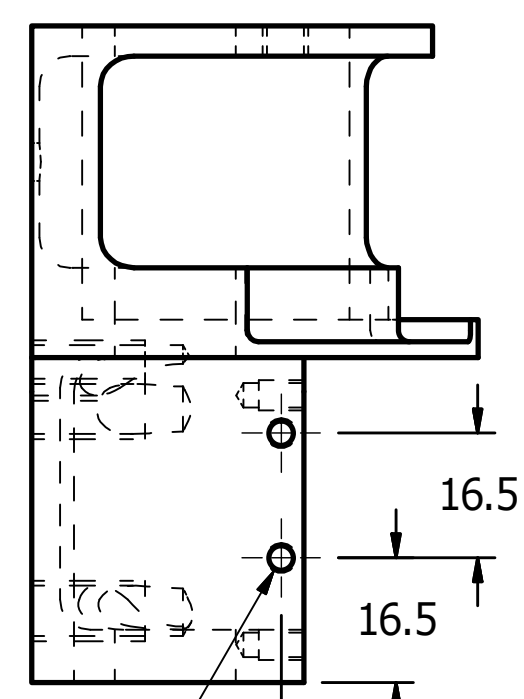
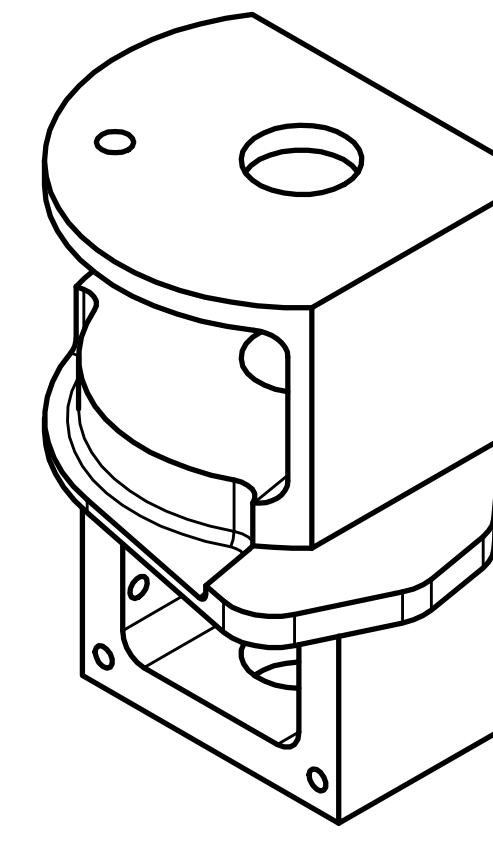
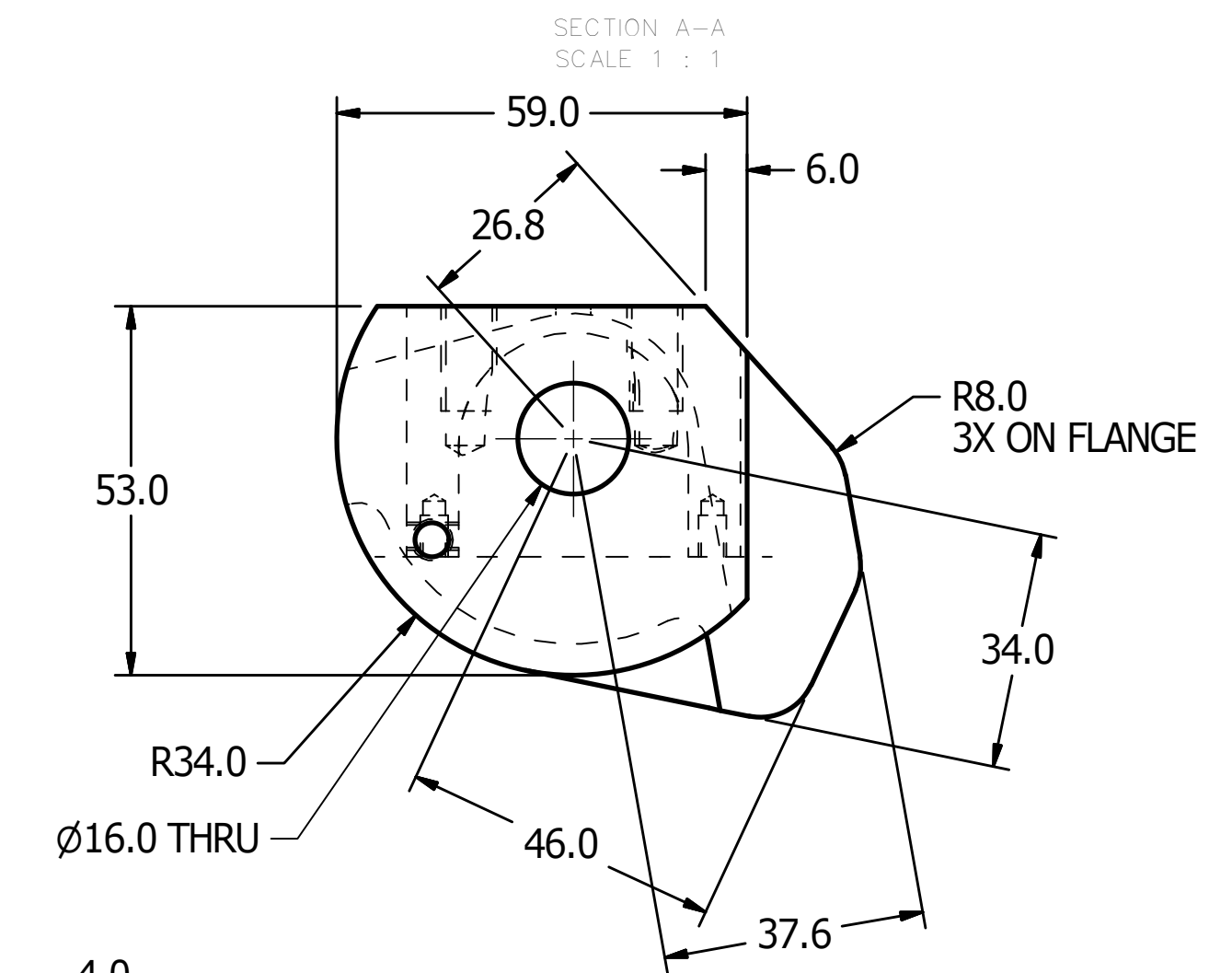
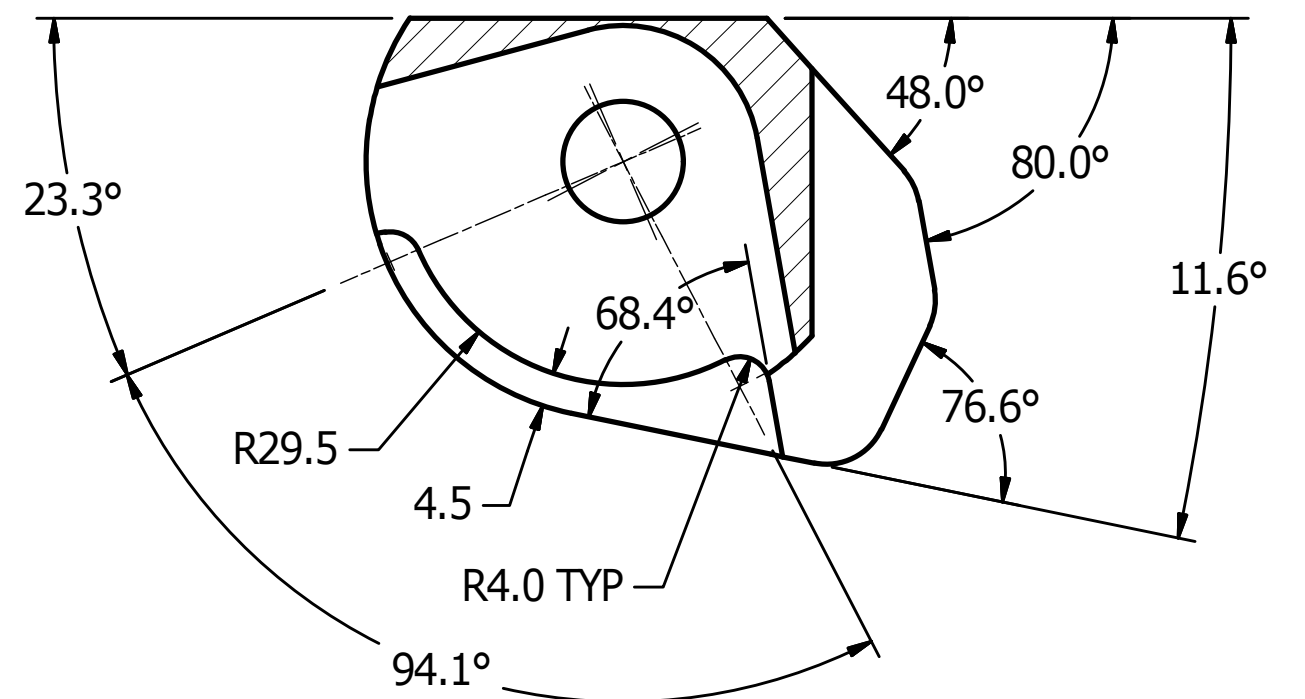
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM900; IN PARTS LIST 472-3812-2 WAS AXSDM003C, 472-3813-2 WAS AXSDM800, 472-3822 WAS AXSDM0020B, 472-3823 WAS AXSDM019B, 472-3824 WAS AXSDM001B, 472-3825 WAS AXSDM005C, 472-3826 WAS AXSDM004B, 472-3827 WAS AXSDM018 & 472-3828-2 WAS AXSDM015B	9/11/2014	DW
	B	MOVED BALLOON CALLOUTS TO EXPLODED VIEW	7/27/2015	DW

15	1	5001165V	NYLOCK, M8 x 1.25
14	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
13	2	5000292V	SCREW, SSFP M4 x 12
12	4	5000699	SCREW, FHMS M4 x .7 x 8 PHILLIPS
11	1	472-3828-2	RIB GUIDE LOWER, RH
10	1	472-3827	SPRING
9	1	472-3826	WASHER
8	1	472-3825	SPRING HOUSING WASHER, LOWER
7	1	5000140	ROLL PIN, M3 x 24
6	1	472-3824	SPRING SHAFT
5	1	5001170V	SPRING DISC WASHER, 20 x 8.2 x 1.0
4	2	472-3823	SPRING HOUSING BUSHING, LOWER
3	1	472-3822	SPRING HOUSING BUSHING, UPPER
2	1	472-3813-2	SHOULDER SUPPORT ASSEMBLY, RH
1	1	472-3812-2	SPRING HOUSING COVER, RH

ITE	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> X ±.5 XX ±.2 XXX ±.1 <small>DECIMAL ANGLES: MACHINED: X .5 XX .2 XXX .1</small> <small>DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 8/9/2013 DRAWN: JIM CLEVENGER CHECKED: _____	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIGHT SHOULDER PIVOT ASSEMBLY
MATERIAL: _____	ENG: _____	SIZE: D
TREAT TREAT: _____	APPROVED: _____	DRAWING NUMBER: 472-3841
FINISH: _____	SCALE: 1:1	REV: B
		SHEET: 1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM003C	9/11/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/29/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: X ±0.5 XX ±2 XXX ±1 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		DRAWING NUMBER	
DRAWN JIM CLEVENGER		8/14/2013		472-3812-2	
CHECKED				REV B	
MATERIAL: Steel		ENG		SIZE: D	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH: ELECTROLESS NICKEL .008 MAX.				SHEET: 1 OF 1	

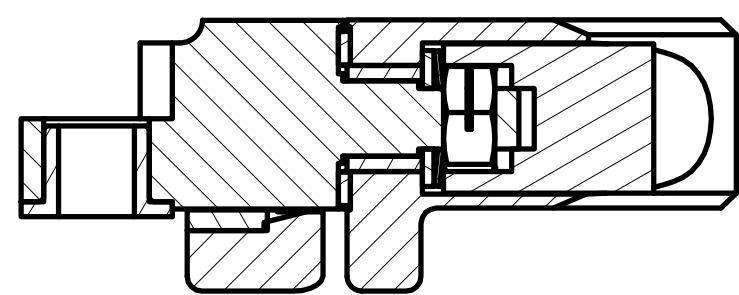
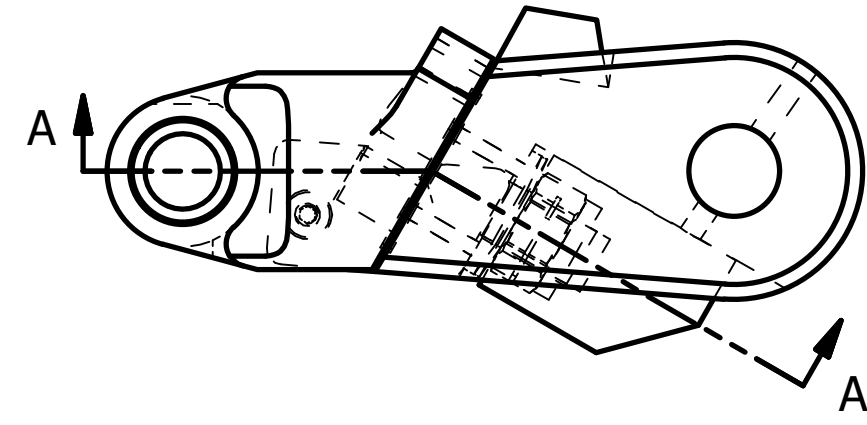
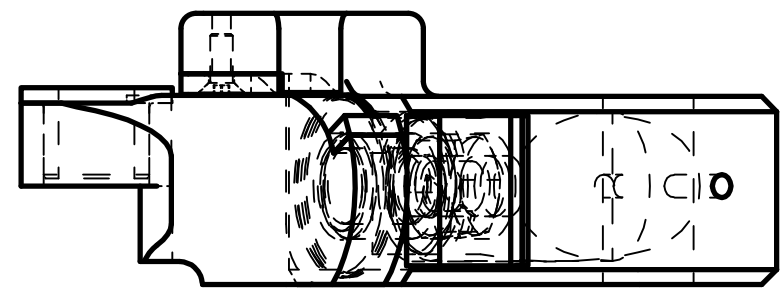
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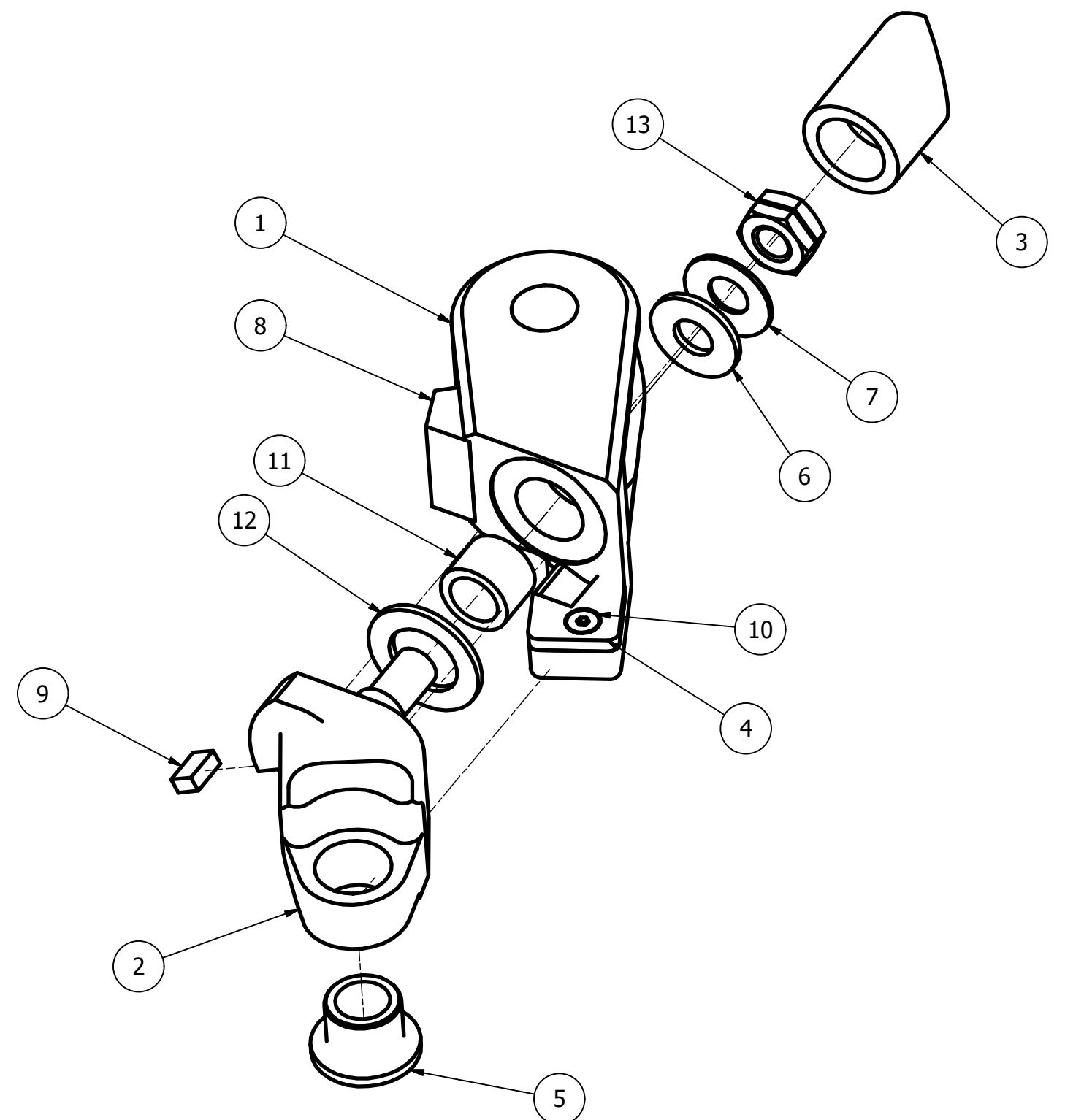
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM800; IN PARTS LIST 472-3814-2 WAS AXSDM007B, 472-3815-2 WAS AXSDM009B, 472-3816 WAS AXSDM016C, 472-3817-2 WAS AXSDM026B, 472-3818 WAS AXSDM030B, 472-3819 WAS AXSDM017B, 472-3820 WAS AXSDM024B & 472-3821 WAS AXSDM031B	9/11/2014	DW
	B	MOVED BALLOON CALLOUTS TO EXPLODED VIEW	7/13/2015	DW



SECTION A-A
SCALE 1 : 1



A	13	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
A	12	1	472-3821	LINK WASHER, 23 x 14.2 x 1.5
A	11	1	5001169V	BEARING, IGLIDUR 14 x 10 X 10 LG
A	10	1	5000116	SCREW, FHCS, M3 x .5 x 8
A	9	1	472-3820	BUFFER, VERTICAL
A	8	1	472-3819	REAR ROM BUFFER
A	7	1	5001170V	SPRING DISC WASHER, 20 x 8.2 x 1.0
A	6	1	472-3818	WASHER LINK, 18 x 8 x 1.5
A	5	1	5001168V	FLANGE BEARING, 14OD x 20 FL x 10ID x 12LG
A	4	1	472-3817-2	BUFFER, LOWER RIGHT
A	3	1	472-3816	FORWARD ROM BUFFER
A	2	1	472-3815-2	SHOULDER SUPPORT PIVOT, RH
A	1	1	472-3814-2	SHOULDER SUPPORT, RH

ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 8/8/2013 DRAWN: JIM CLEVINGER CHECKED: _____ MATERIAL: ENG HEAT TREAT: APPROVED FINISH: _____	
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SHOULDERS SUPPORT ASSEMBLY, RH SIZE: C DRAWING NUMBER: 472-3813-2 REV: B SCALE: 1:1 SHEET: 1 OF 1	

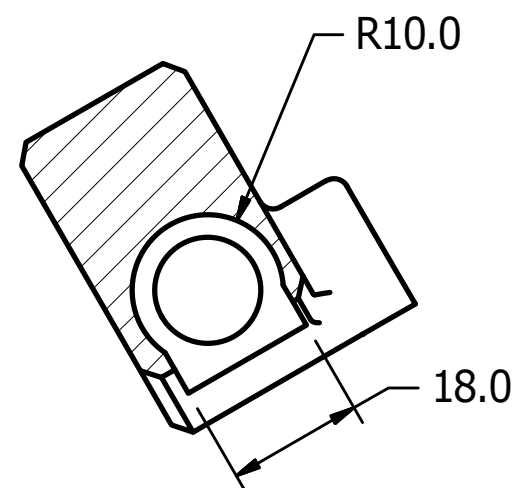
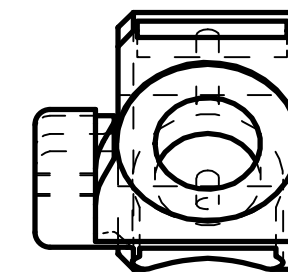
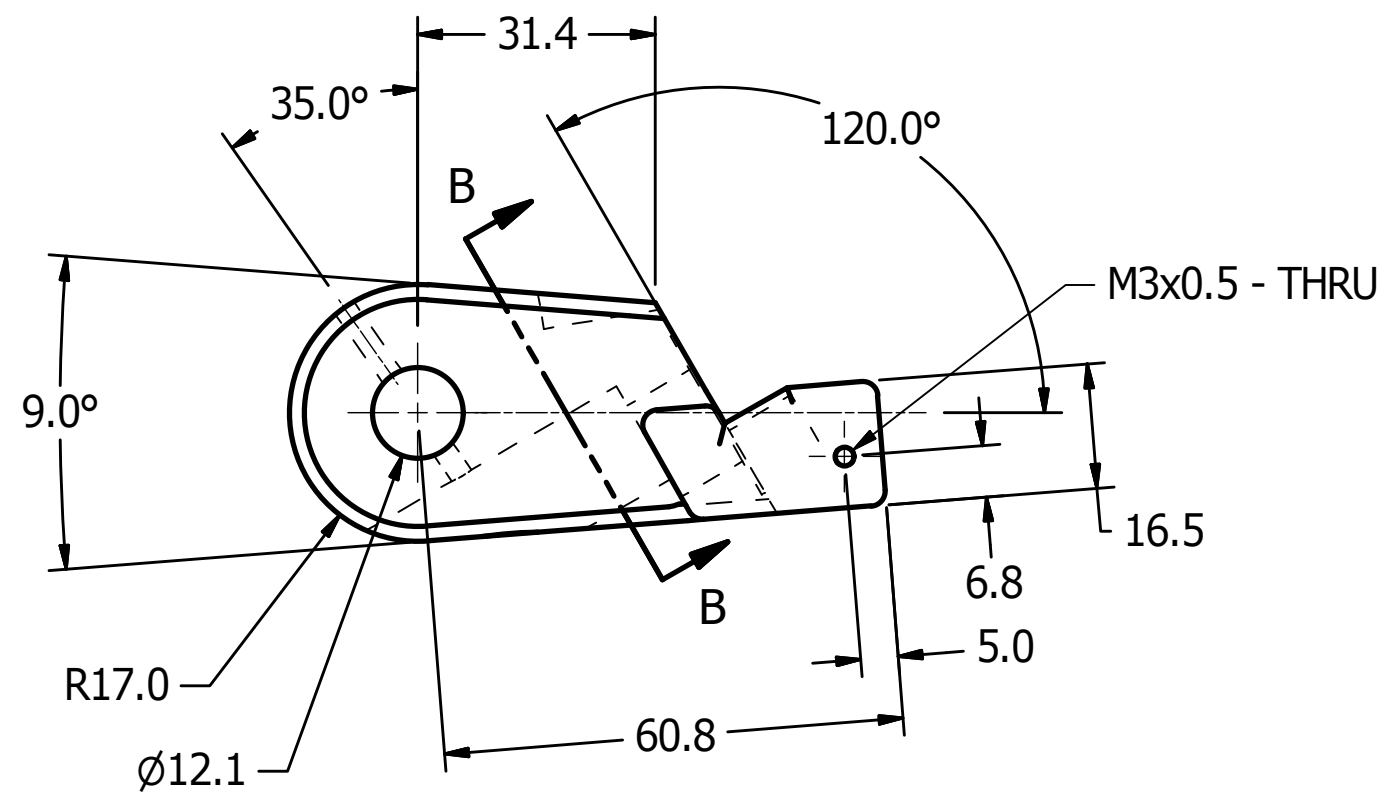
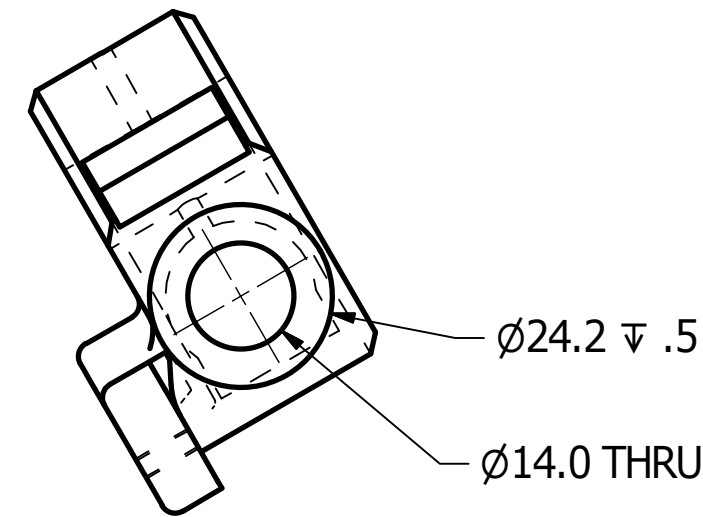
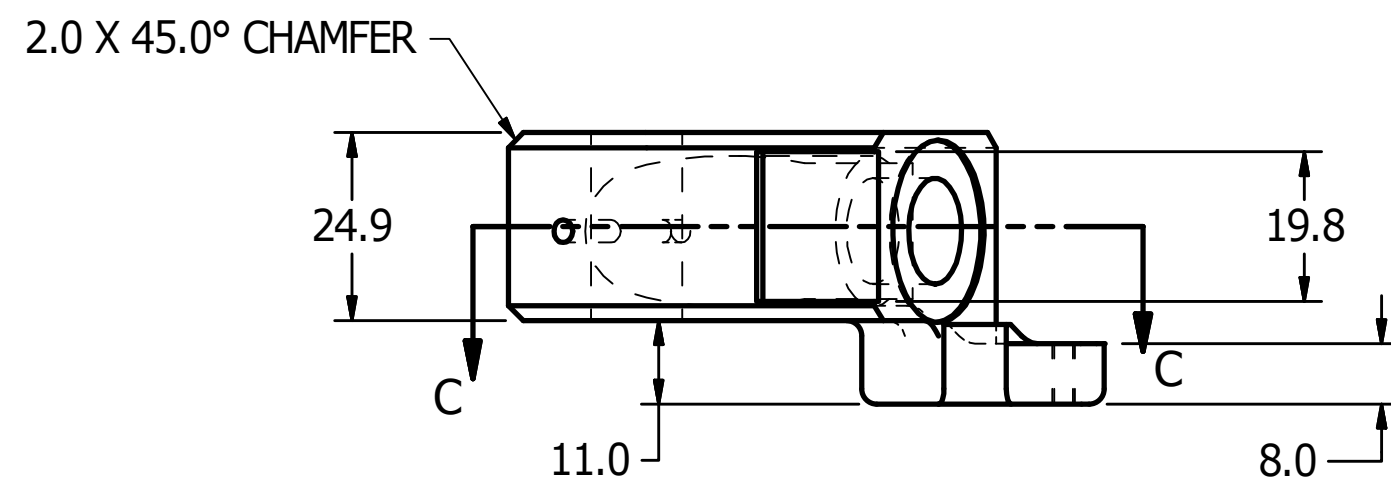
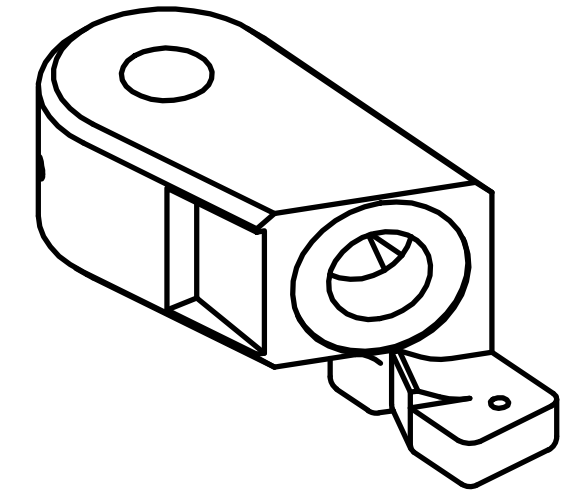
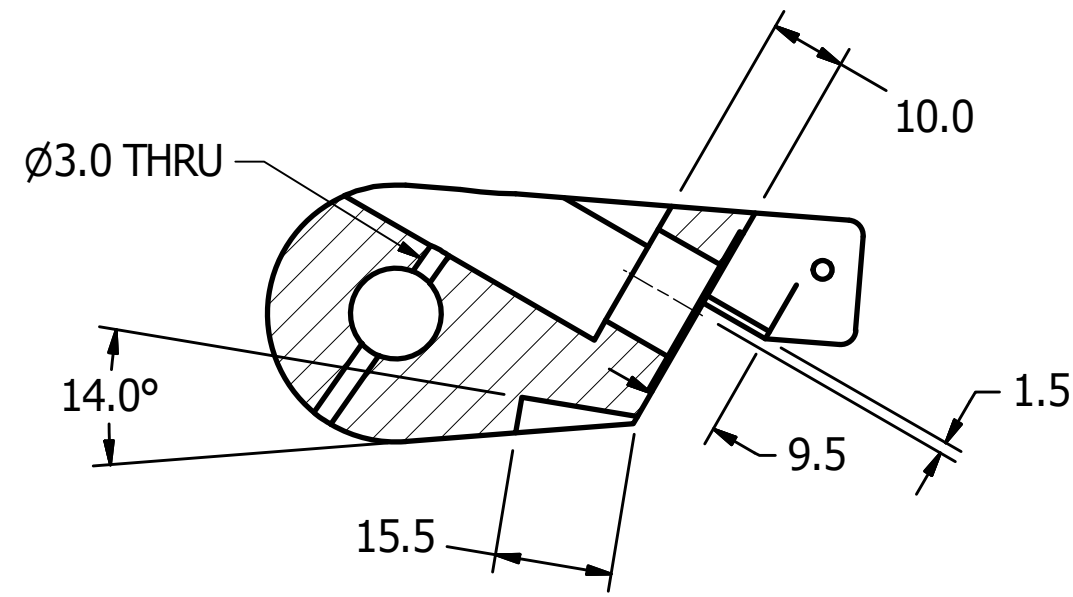
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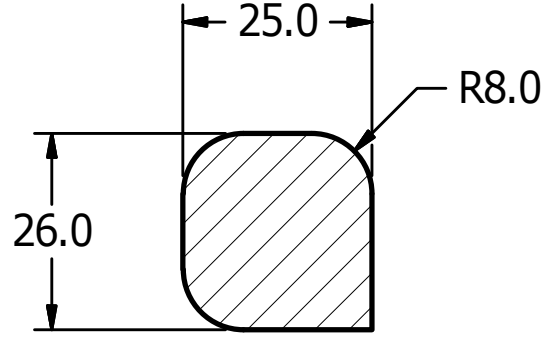
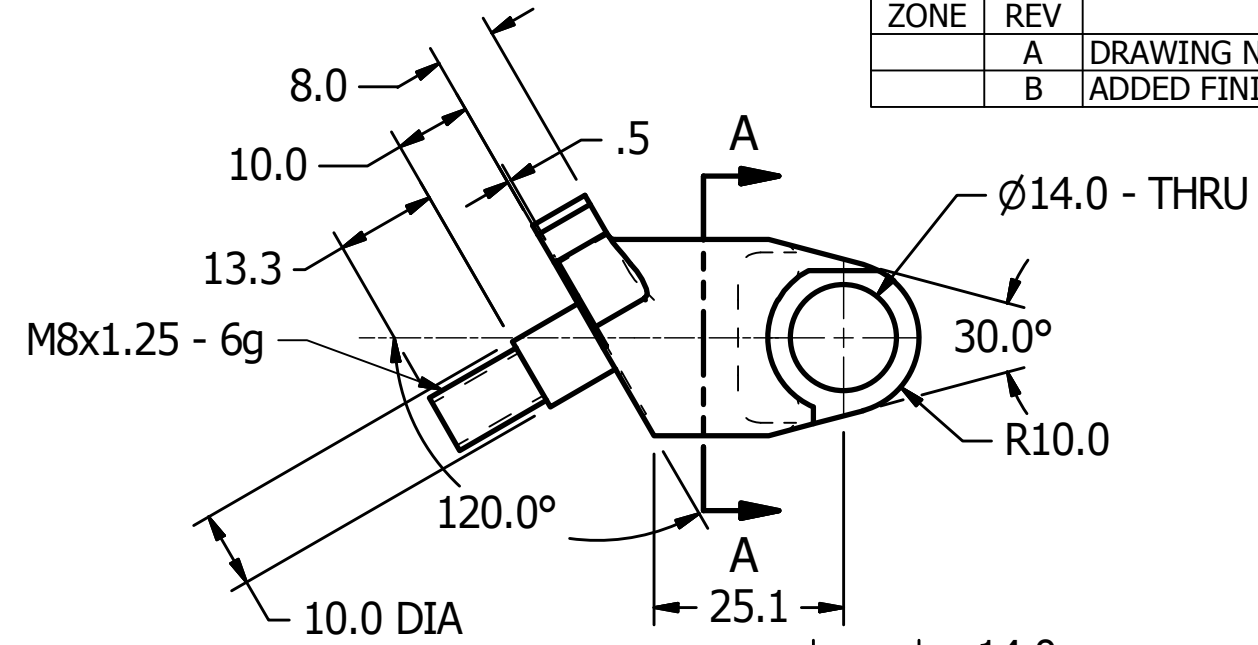
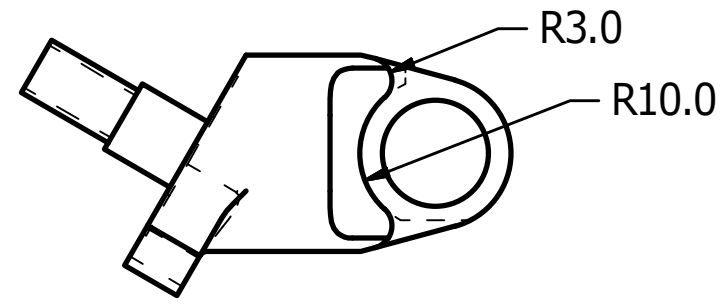
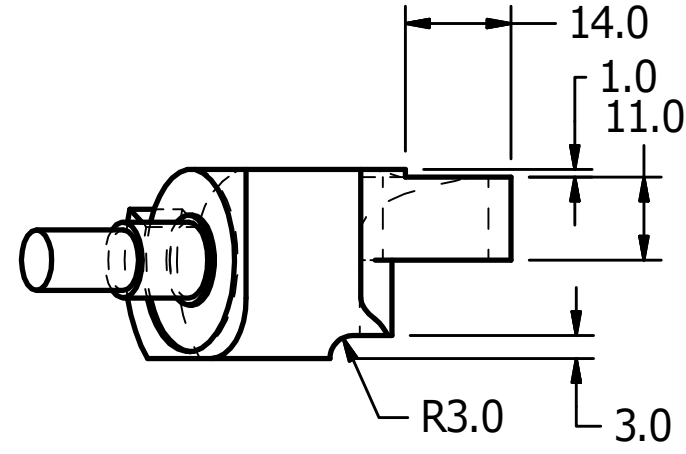
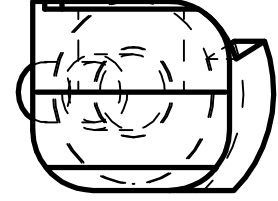
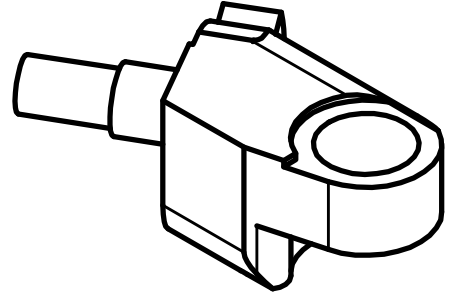
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ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM007B	9/11/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/29/2015	DW



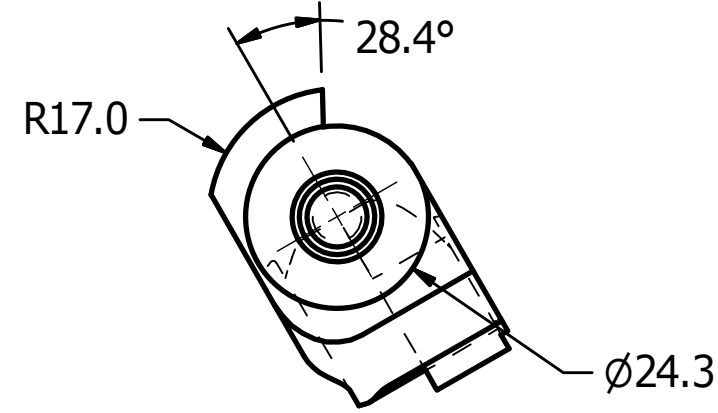
SECTION B-B
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		SHOULDER SUPPORT, RH	
DRAWN JIM CLEVINGER		8/15/2013		DRAWING NUMBER 472-3814-2	
CHECKED				REV B	
MATERIAL Steel		ENG		SIZE C	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH ELECTROLESS NICKEL .008 MAX.				SHEET 1 OF 1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM009B	9/11/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/29/2015	DW




SECTION A-A
SCALE 1 : 1

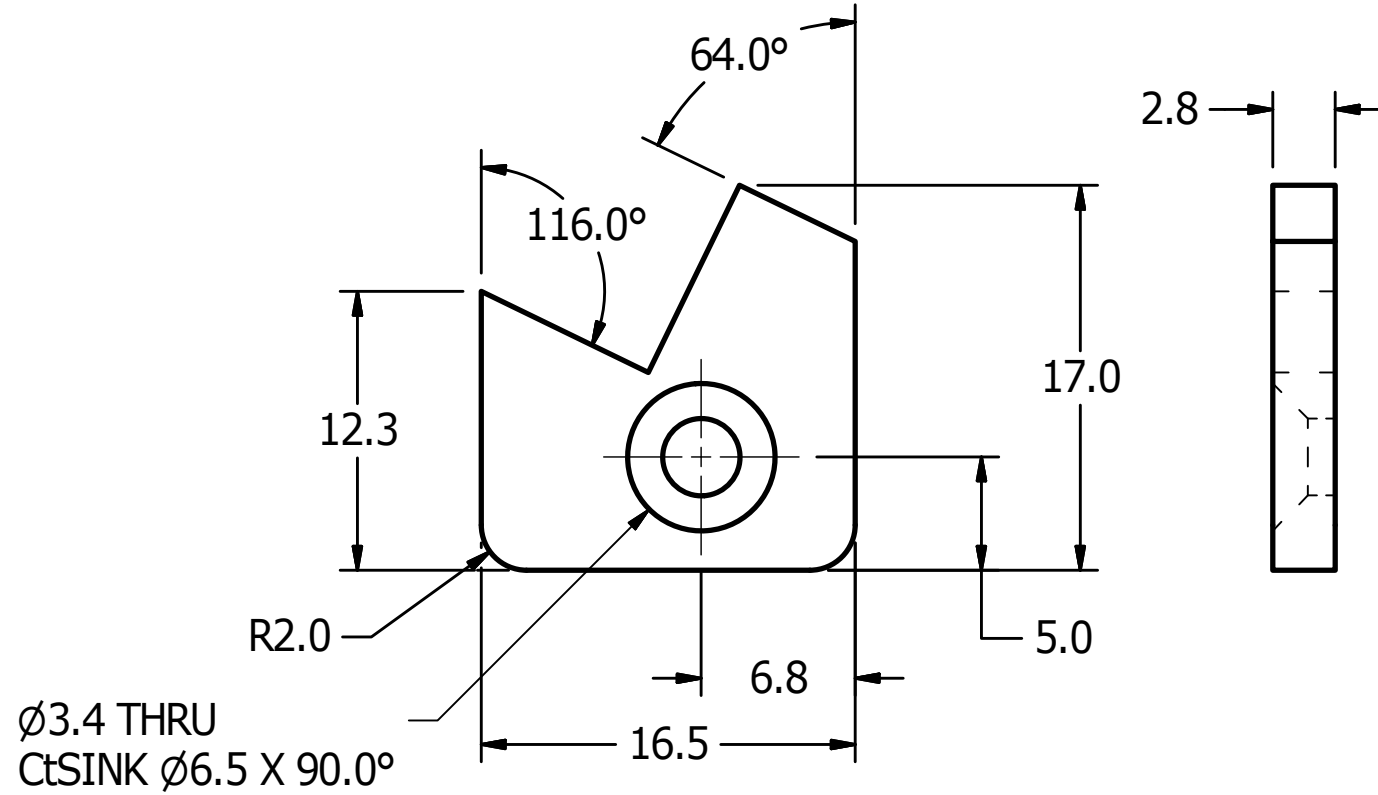
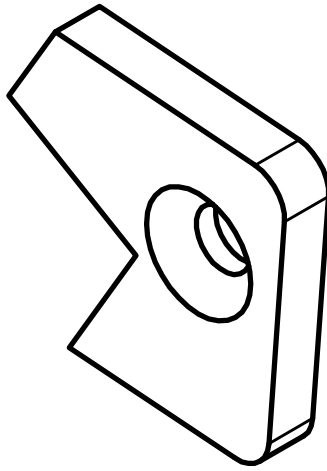


UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL: X ±.5 X.X ±.2 X.XX ±.1
ANGLES: ±.5
MACHINED: ✓
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL Steel
HEAT TREAT
FINISH ELECTROLESS NICKEL .008 MAX.


VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/15/2013
CHECKED	
ENG	
APPROVED	

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		SHOULDER SUPPORT PIVOT, RH	
		SIZE B	REV B
DRAWING NUMBER 472-3815-2		SHEET 1 OF 1	
SCALE: 1:1			



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM026B	9/11/2014	DW

Ø3.4 THRU
CtSINK Ø6.5 X 90.0°

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3817-2
FINISH			REV A
			SCALE: 3X
			SHEET 1 OF 1

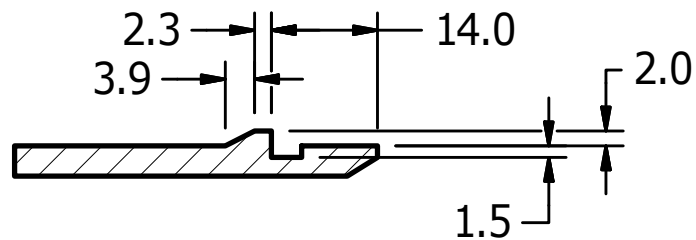
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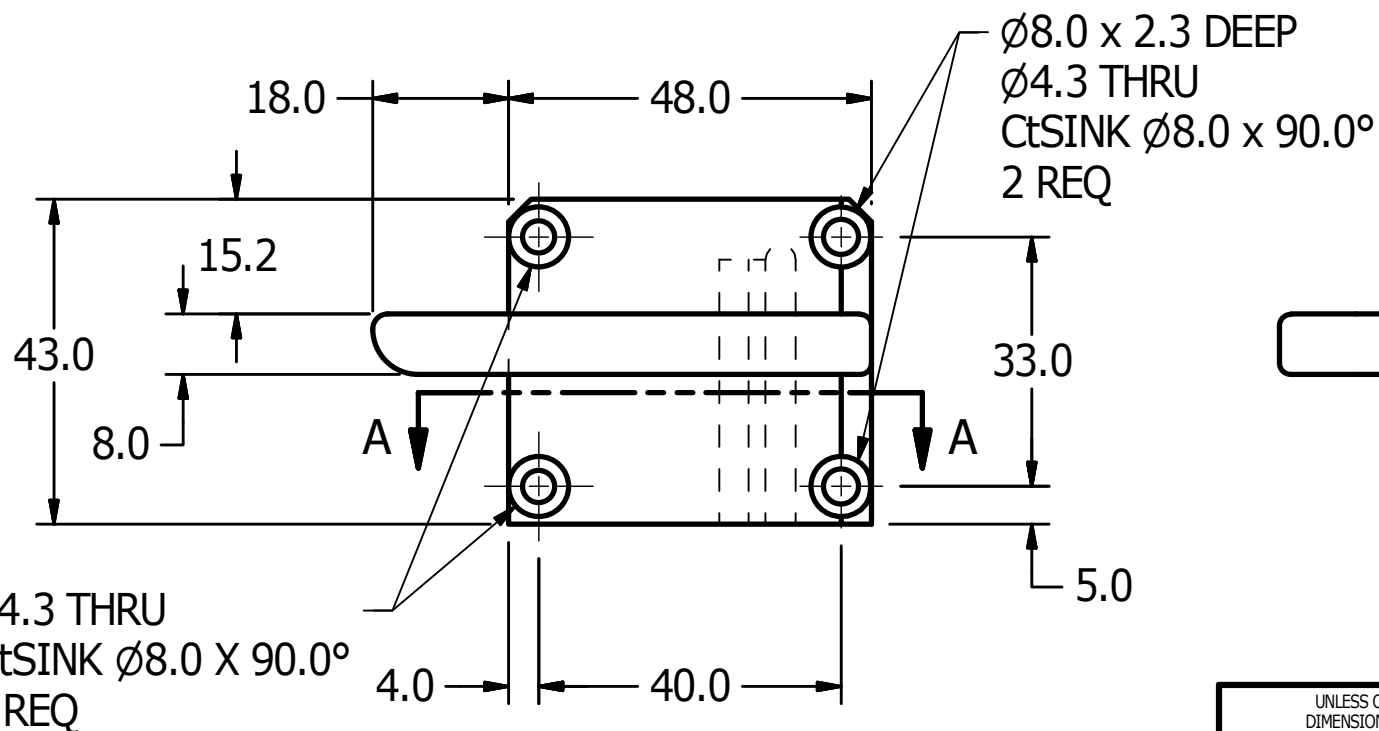
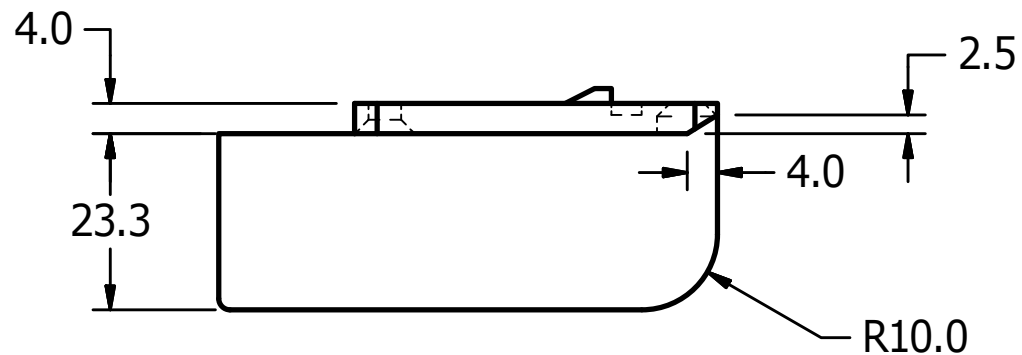
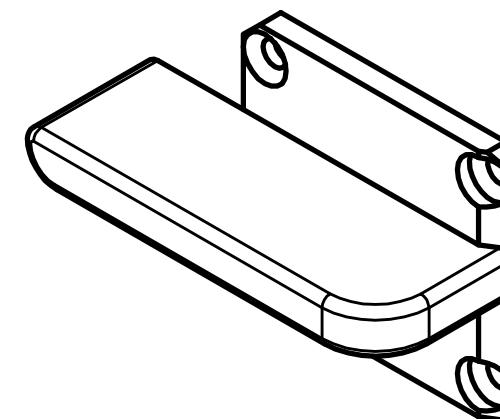
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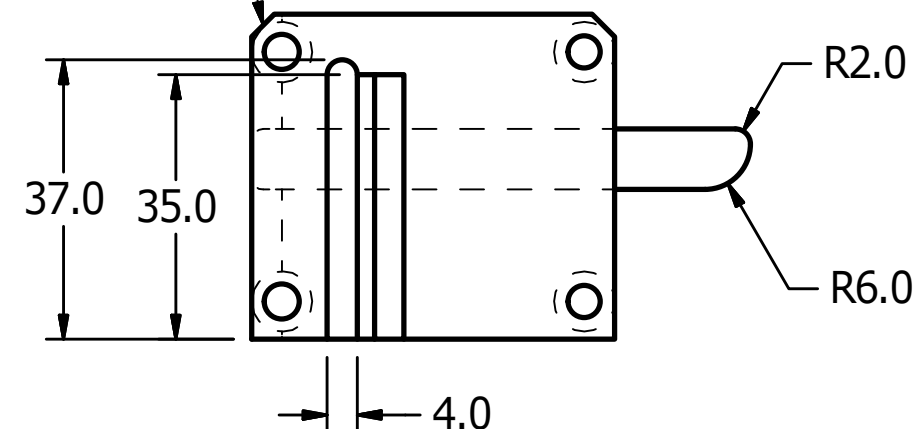
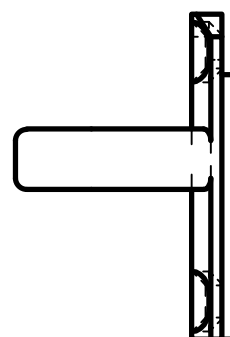
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM015B	9/11/2014	DW



SECTION A-A
SCALE 1 : 1



3.0 X 45.0° CHAMFER



Ø4.3 THRU
CtSINK Ø8.0 X 90.0°
2 REQ

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: ANGLES: MACHINED:
X ±.5 ±.5 ✓
X.X ±.2
X.XX ±.1

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER

APPROVALS DATE

DRAWN JIM CLEVINGER 8/21/2013

CHECKED

ENG

APPROVED



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

RIB GUIDE LOWER, RH

SIZE B

DRAWING NUMBER

472-3828-2

REV A

SCALE: 1:1

SHEET

1 OF 1

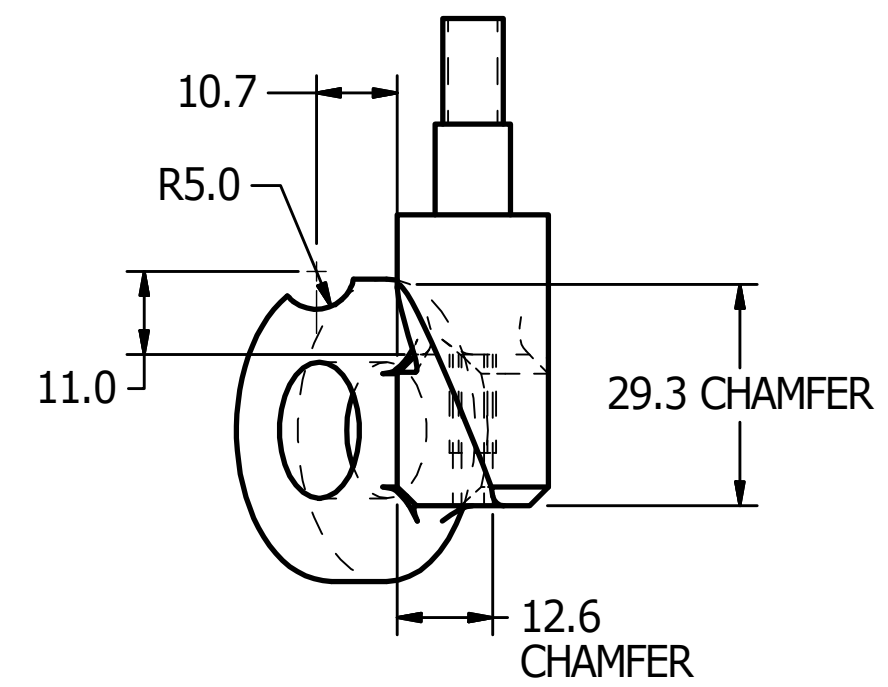
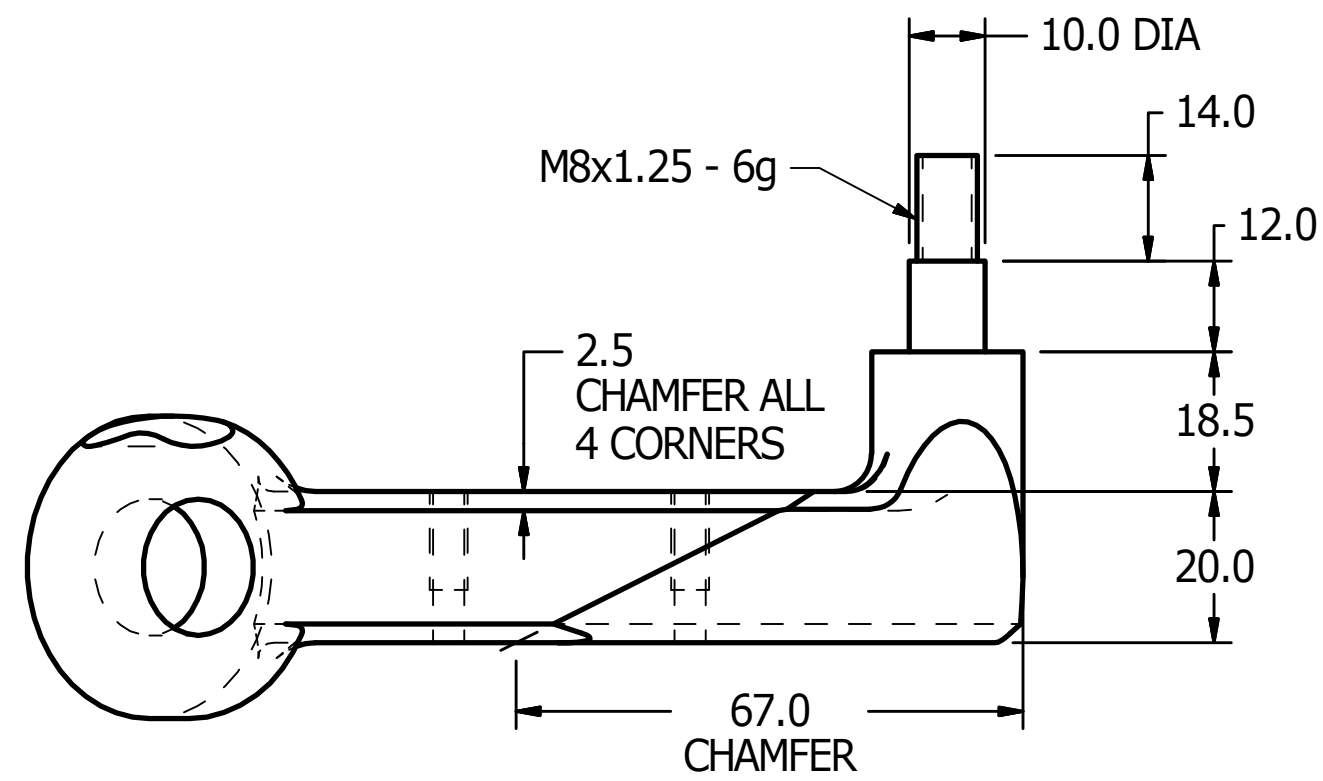
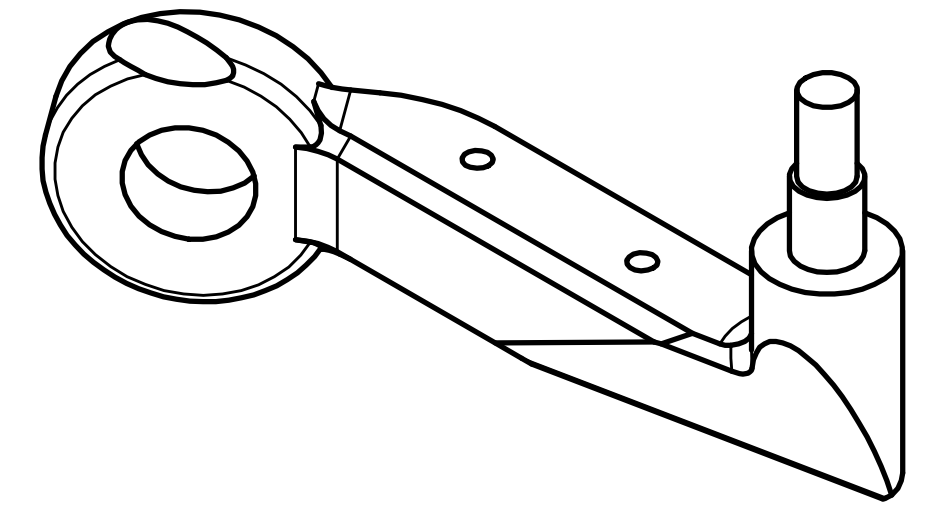
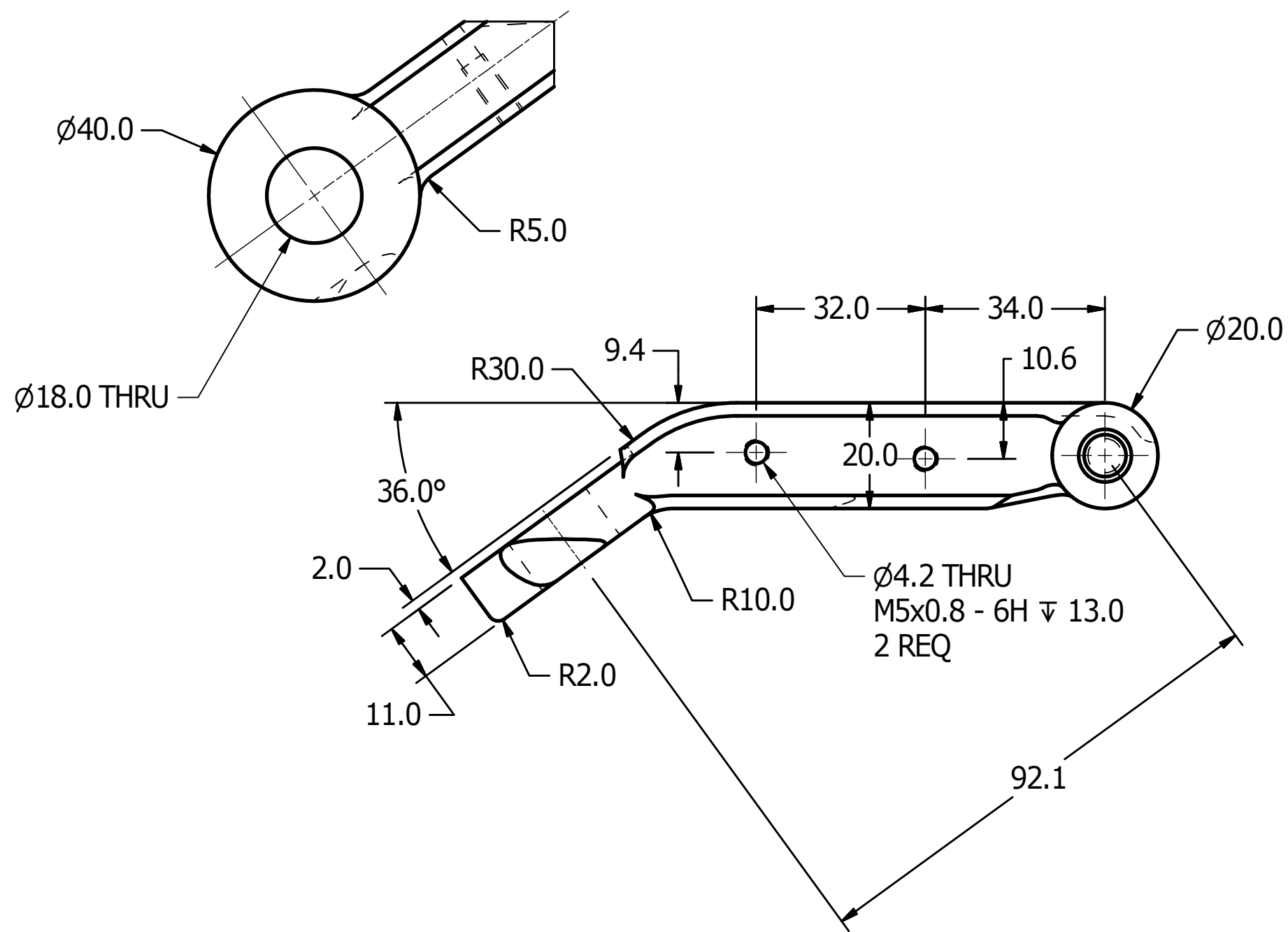
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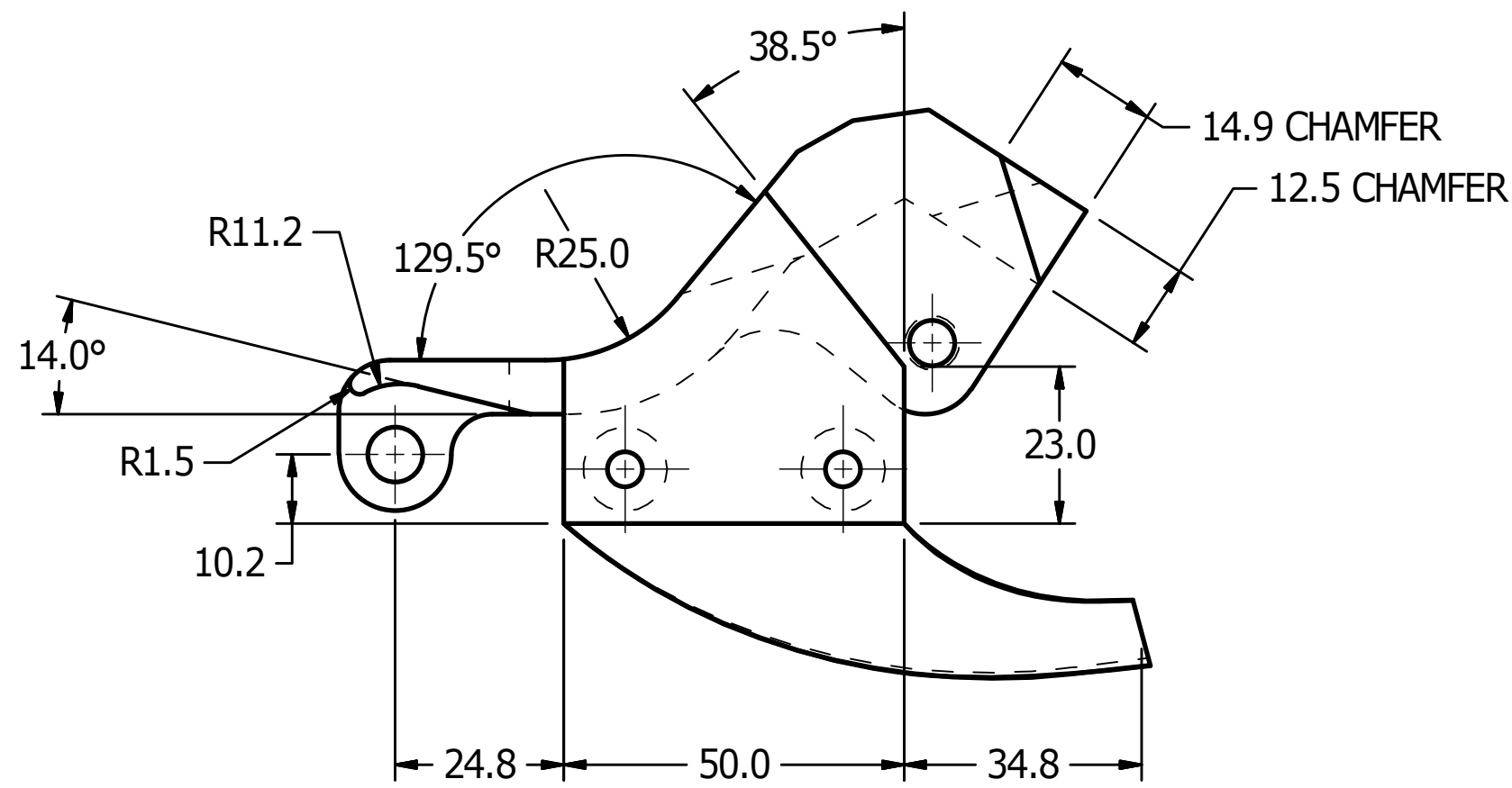
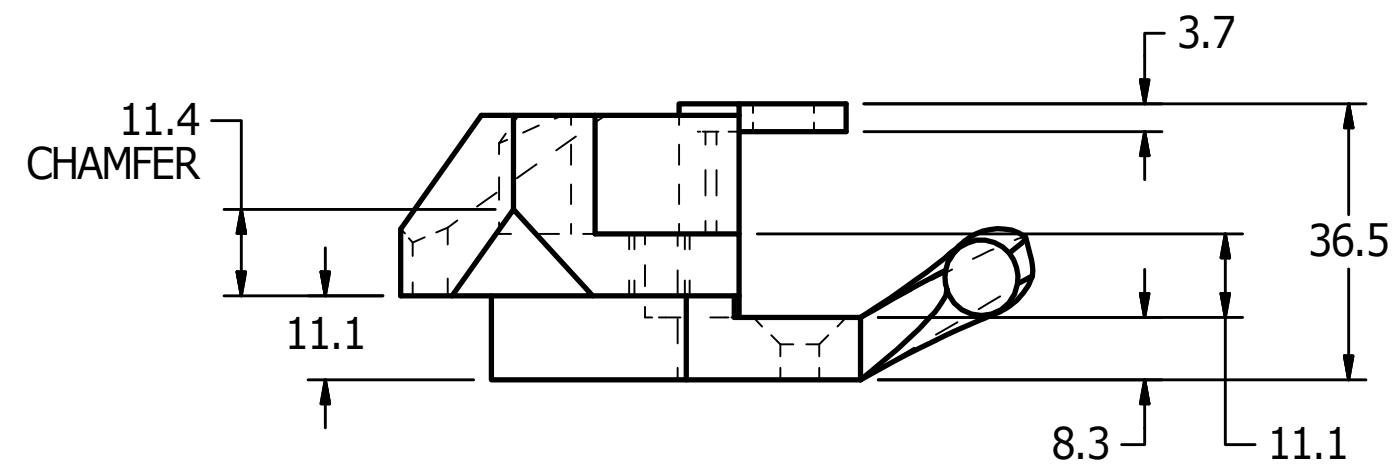
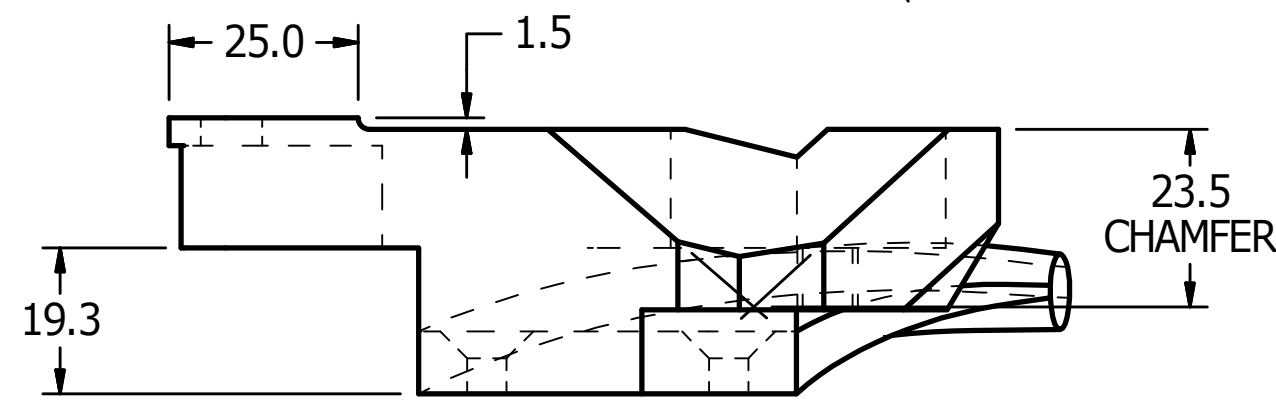
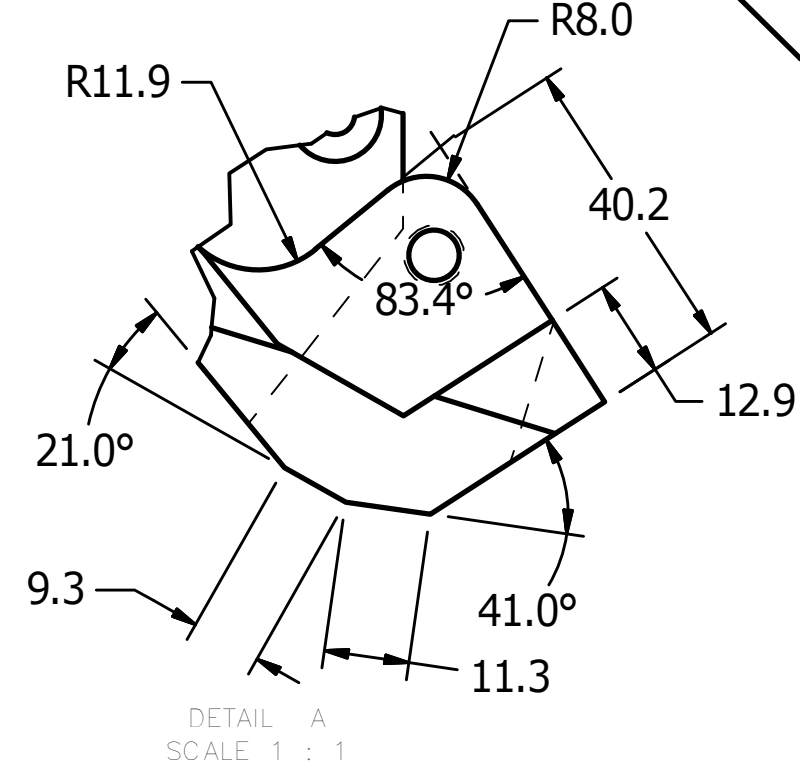
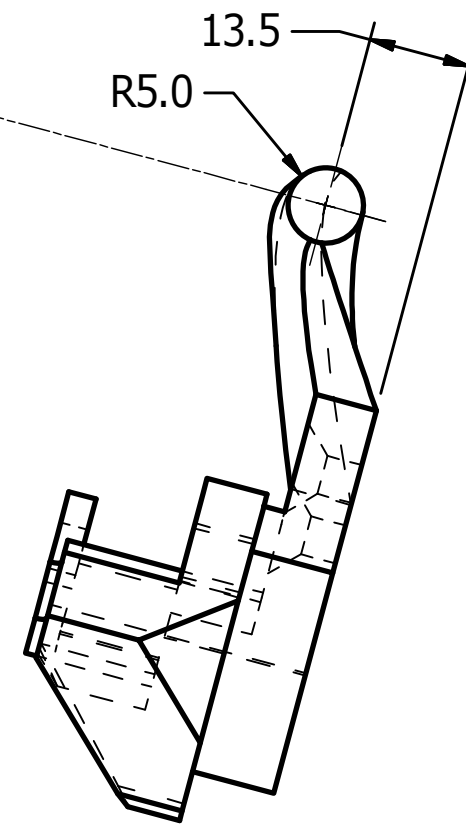
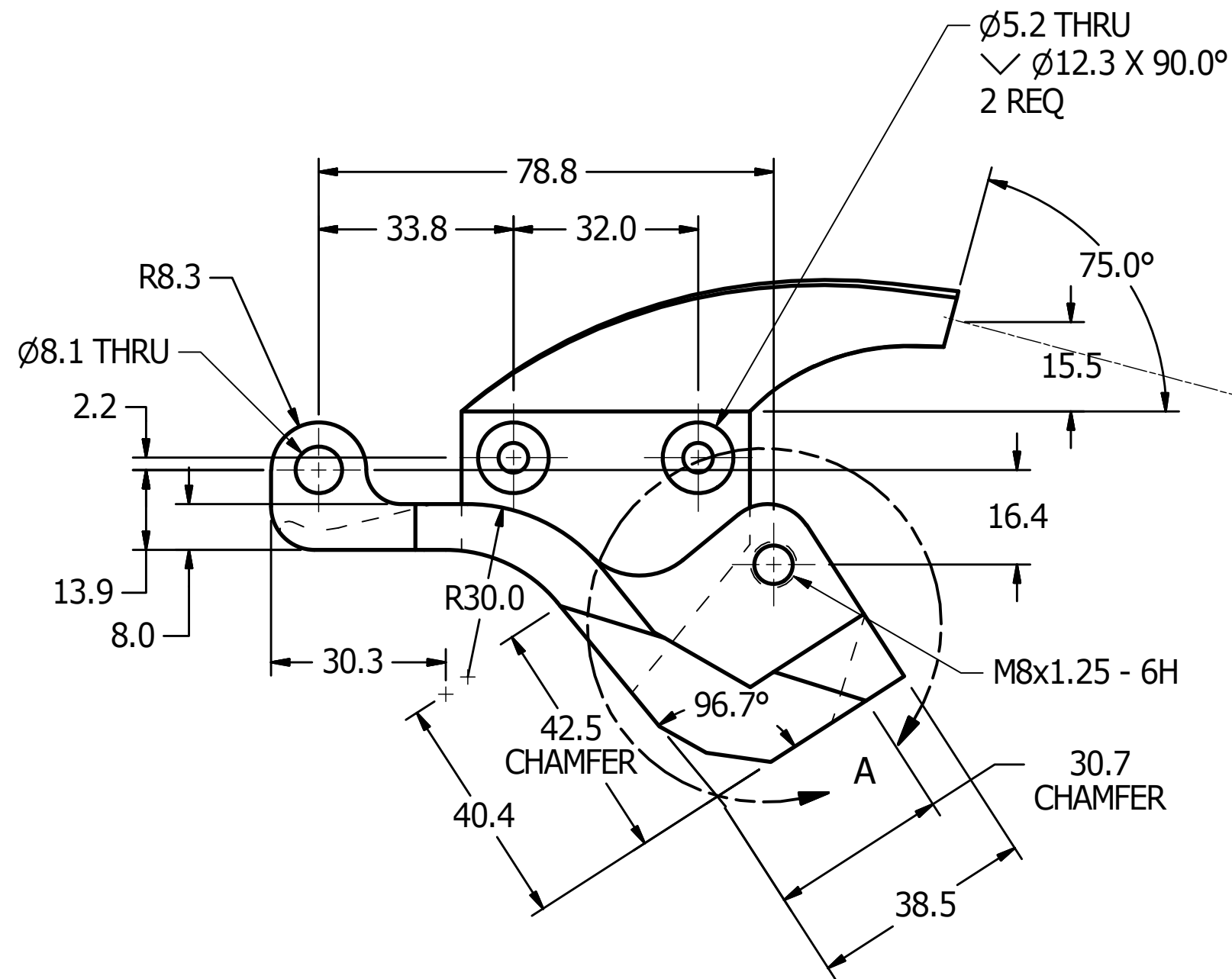
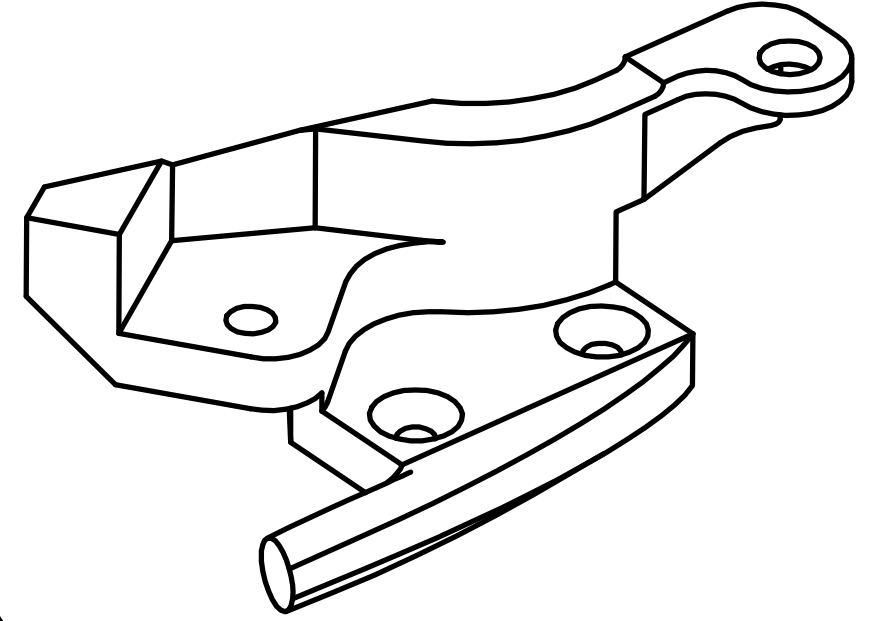
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM013B	9/11/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	8/26/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ARM LINK, RH	
DRAWN JIM CLEVINGER		8/15/2013		SIZE C	
CHECKED				DRAWING NUMBER 472-3829-2	
MATERIAL Steel		ENG		REV B	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH ELECTROLESS NICKEL .008 MAX.				SHEET 1 OF 1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM011B	9/11/2014	DW
	B	ADDED FINISH - ELECTROLESS NICKEL .008 MAX.	6/30/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		SCAPULA, RH	
DRAWN JIM CLEVENGER		8/19/2013		DRAWING NUMBER 472-3830-2	
CHECKED				REV B	
MATERIAL Steel		ENG		SIZE C	
HEAT TREAT		APPROVED		DRAWING NUMBER 472-3830-2	
FINISH ELECTROLESS NICKEL .008 MAX.				SCALE: 1:1	
				SHEET 1 OF 1	

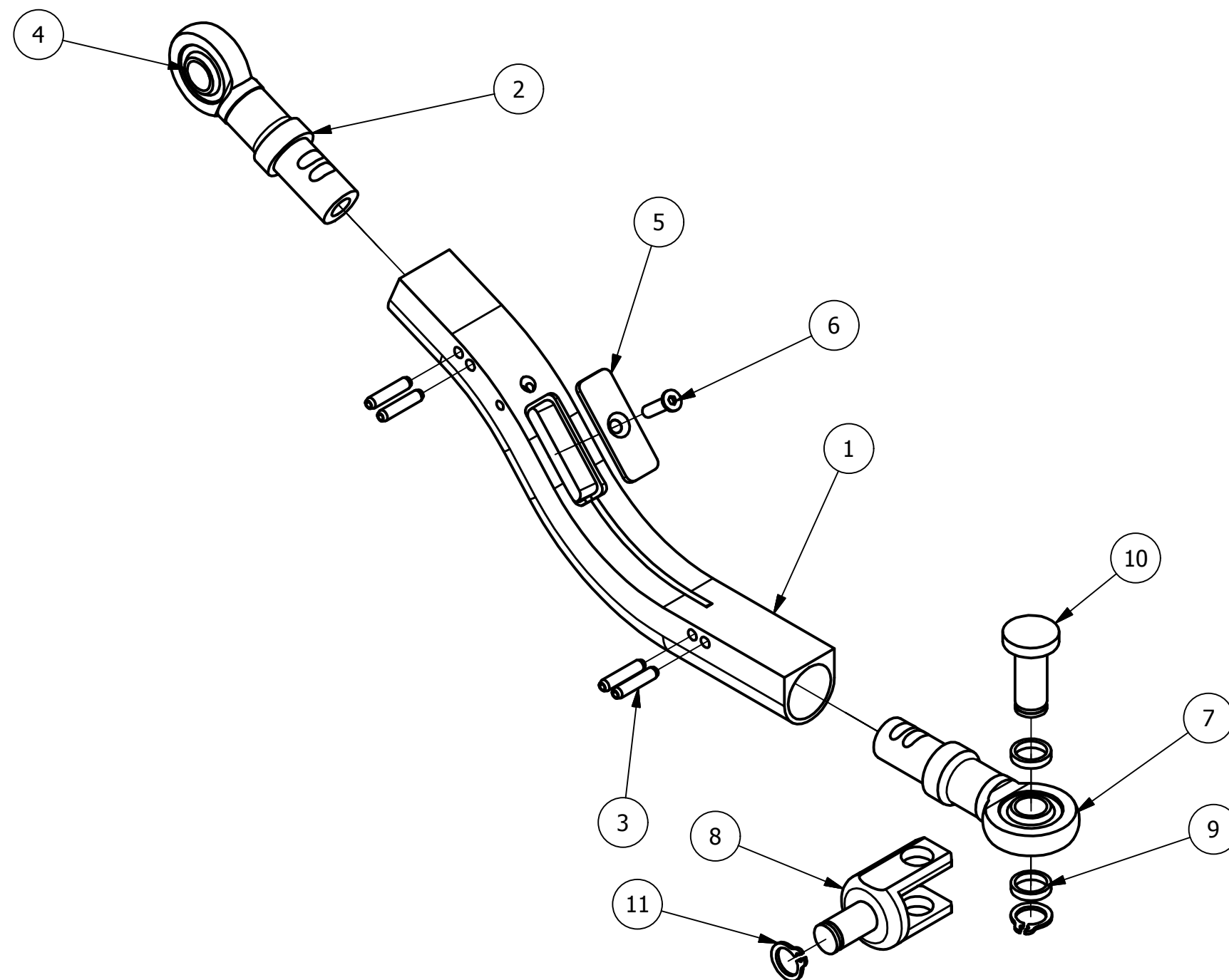
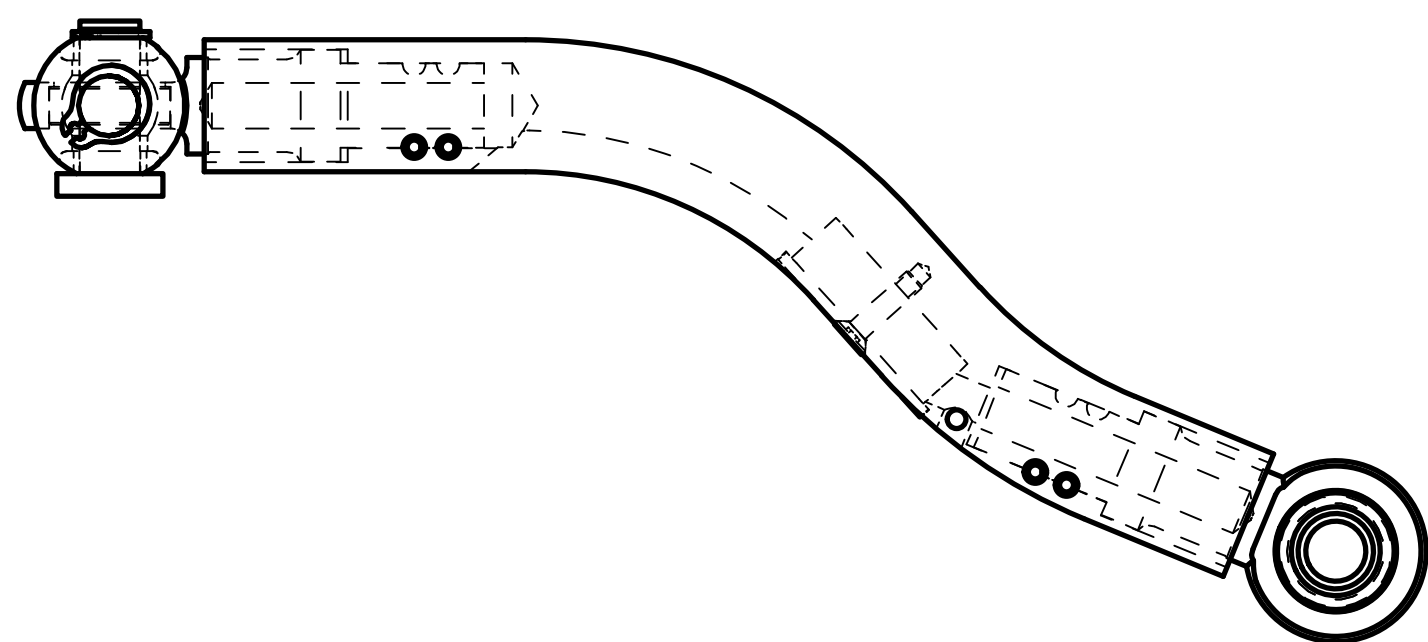
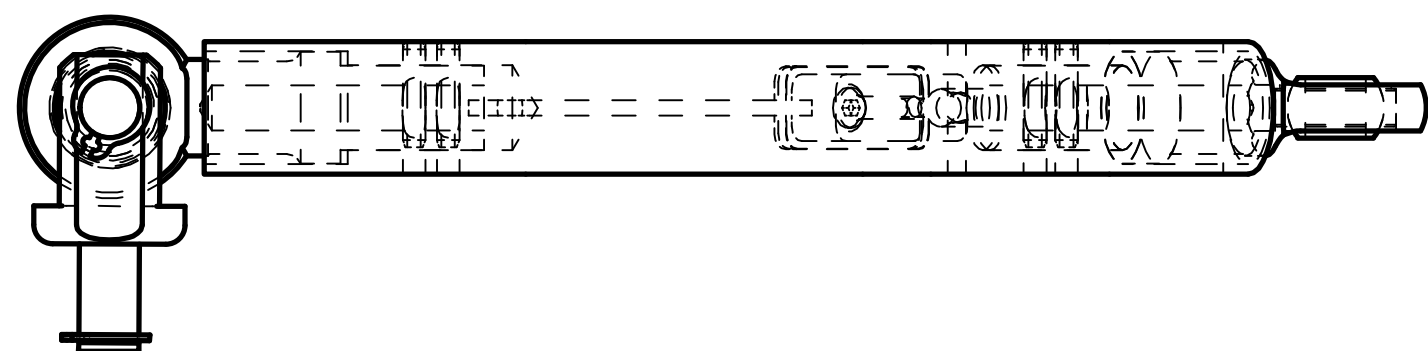
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REVISION HISTORY				
ZON	REV	DESCRIPTION	DATE	BY
	A	CHANGED SHEET SIZE TO C; REPLACED ITEMS AXSDM104B, AXSDM034B, AND AXSDM021B WITH ITEM 7, 8, 9, & 10; REMOVED ITEM 5001175V	2/5/2014	JHC
	B	DRAWING NUMBER WAS AXSDM100B; IN PARTS LIST 472-3851 WAS AXSDM101, 472-3852 WAS AXSDM103, 472-3853 WAS AXSDM102, 472-3854 WAS AXSDM105, 472-3855 WAS AXSDM107, 472-3856 WAS AXSDM108 & 472-3899 WAS AXSDM106	9/11/2014	DW
	C	ADDED EXPLODED VIEW	8/13/2015	DW



11	2	5001174V	8mm RETAINING RING
10	1	472-3899	LINKAGE PIN, INBOARD CLAVICLE
9	2	472-3856	ROD END BEARING SPACER, INBOARD
8	1	472-3855	LINKAGE BASE, INBOARD
7	1	472-3854	ROD END HOUSING, INBOARD
6	1	9010449	SCREW, FHCS M3 x 12
5	1	472-3853	CLAVICLE COVER PLATE
4	2	5000946	METRIC SPHERICAL BEARING
3	4	5000196	ROLL PIN, M3 x 14
2	1	472-3852	ROD END HOUSING, OUTBOARD
1	1	472-3851	CLAVICLE

ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 8/12/2013 DRAWN: JIM CLEVINGER CHECKED: _____	
<small>MATERIAL: ENG HEAT TREAT: APPROVED FINISH: _____</small>		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION 	
LEFT CLAVICLE ASSEMBLY			REV C
SIZE C		DRAWING NUMBER 472-3850	
SCALE: 1:1		SHEET 1 OF 1	

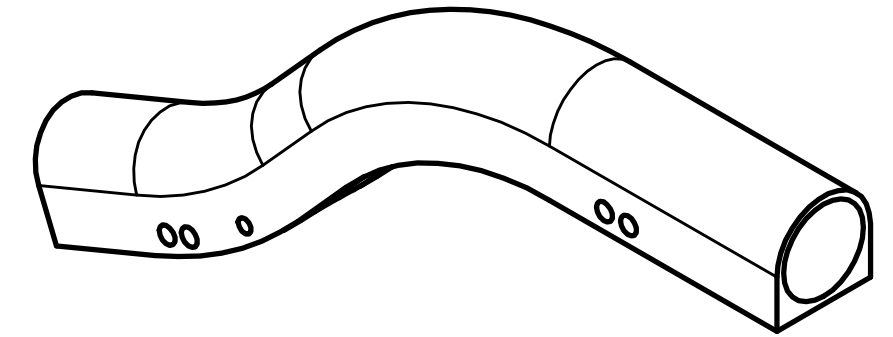
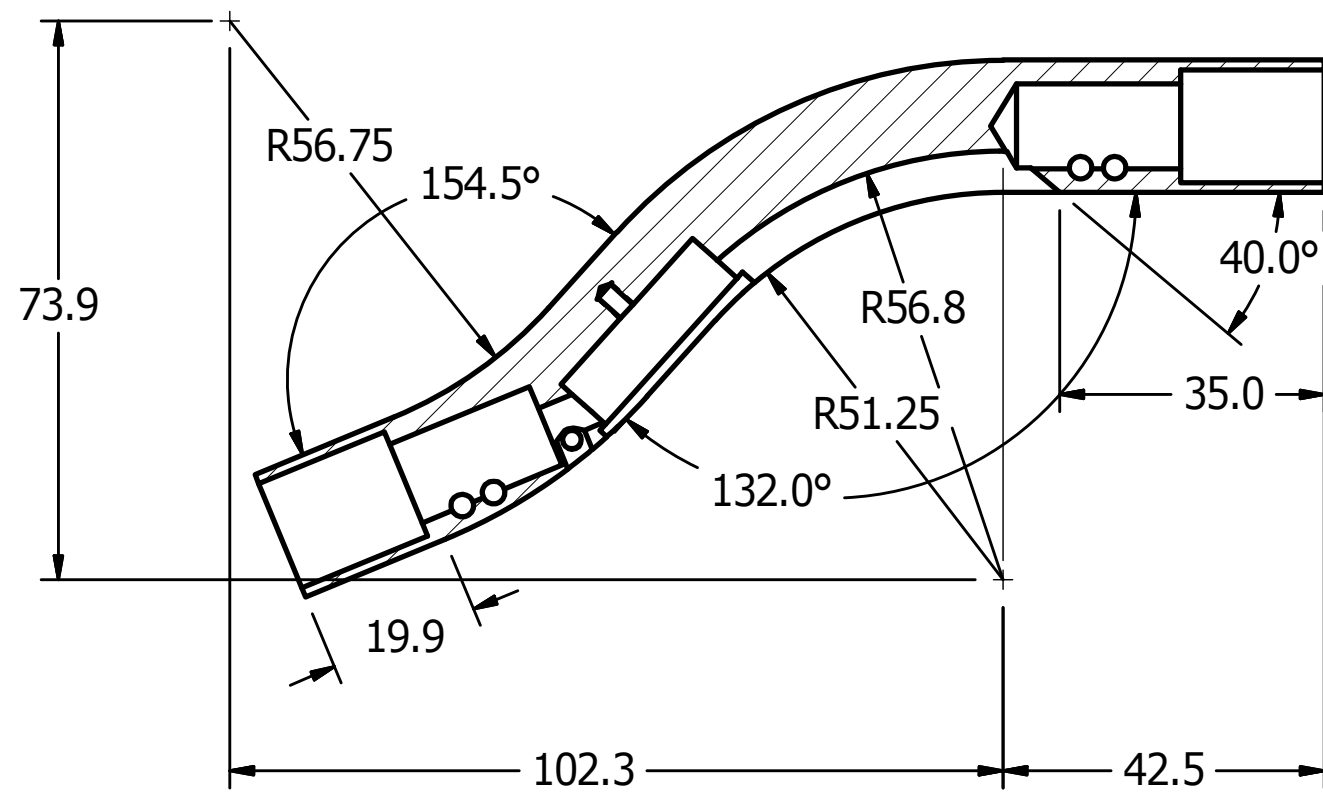
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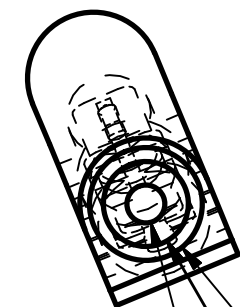
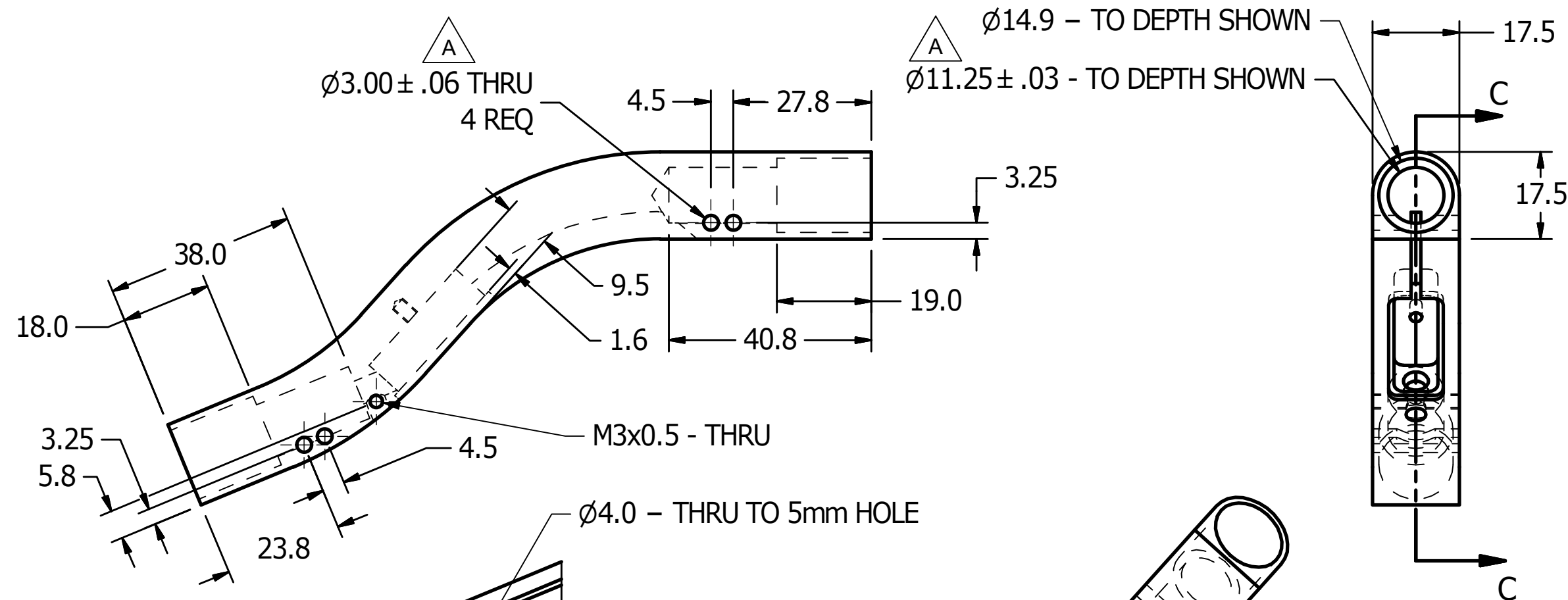
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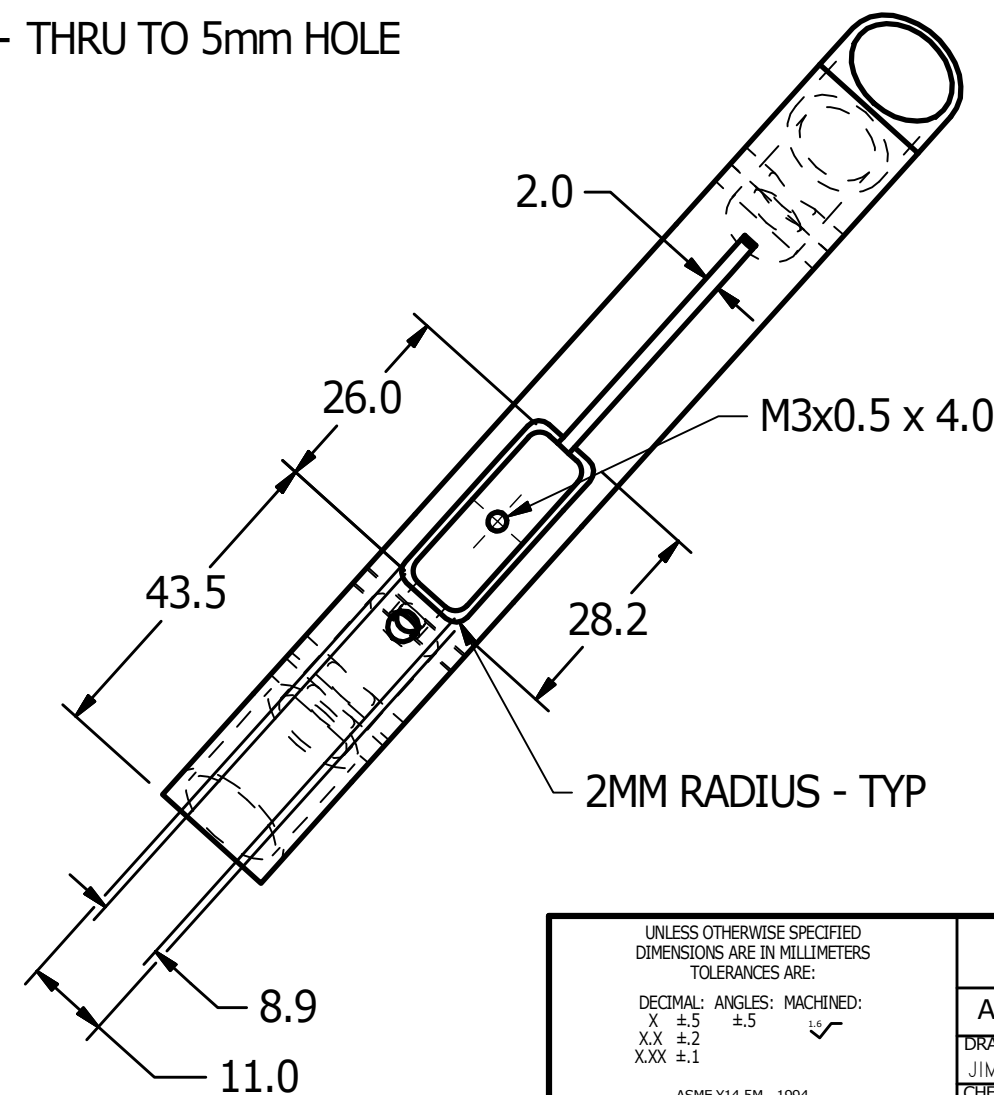
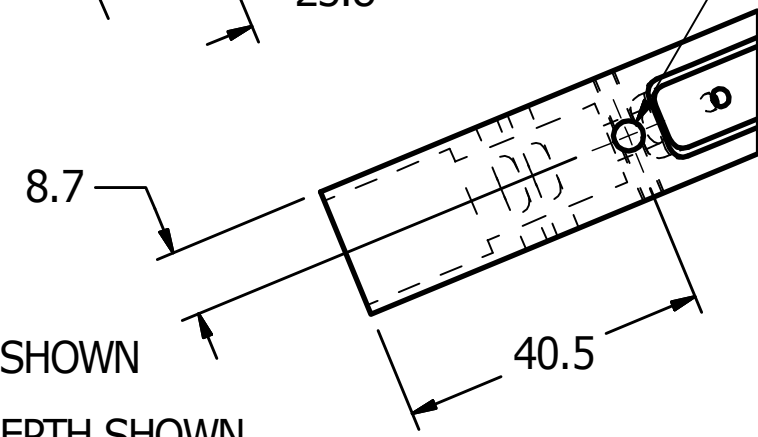
REVISION HISTORY				
ZON	RE	DESCRIPTION	DATE	BY
	A	ADDED TOLERANCES	8/13/2013	JHC
	B	DRAWING NUMBER WAS AXSDM101	9/11/2014	DW



SECTION C-C
SCALE 1 : 1



$\phi 14.9$ - TO DEPTH SHOWN
 $\phi 11.25 \pm .03$ - TO DEPTH SHOWN
 $\phi 5.0$ - THRU



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS	DATE	CLAVICLE	
		DRAWN			
		JIM CLEVENGER	8/13/2013		
		CHECKED			
MATERIAL	4140 STEEL	ENG		SIZE	C
HEAT TREAT	28-32 Rc	APPROVED		DRAWING NUMBER	472-3851
FINISH				SCALE:	1:1
				SHEET	1 OF 1

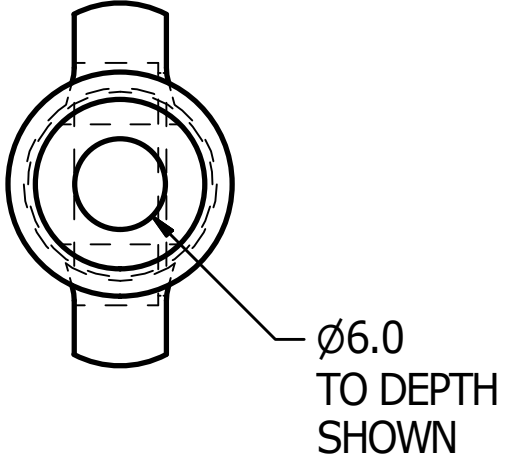
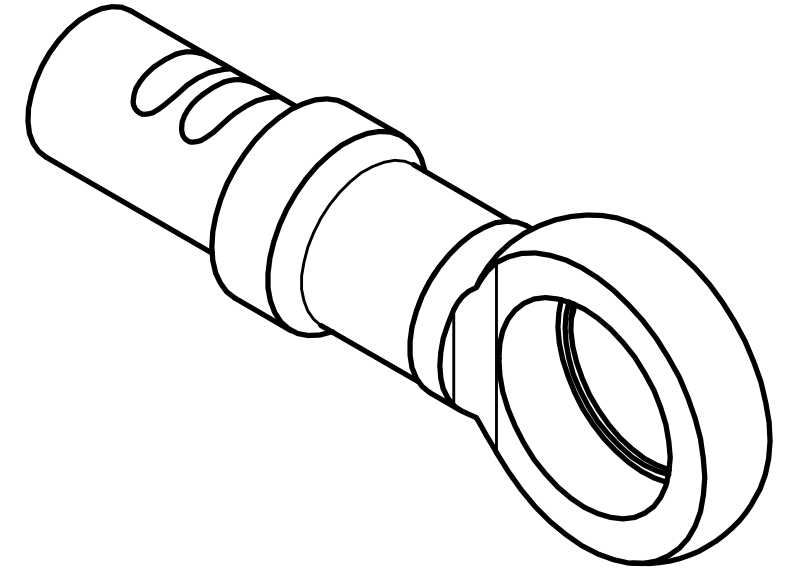
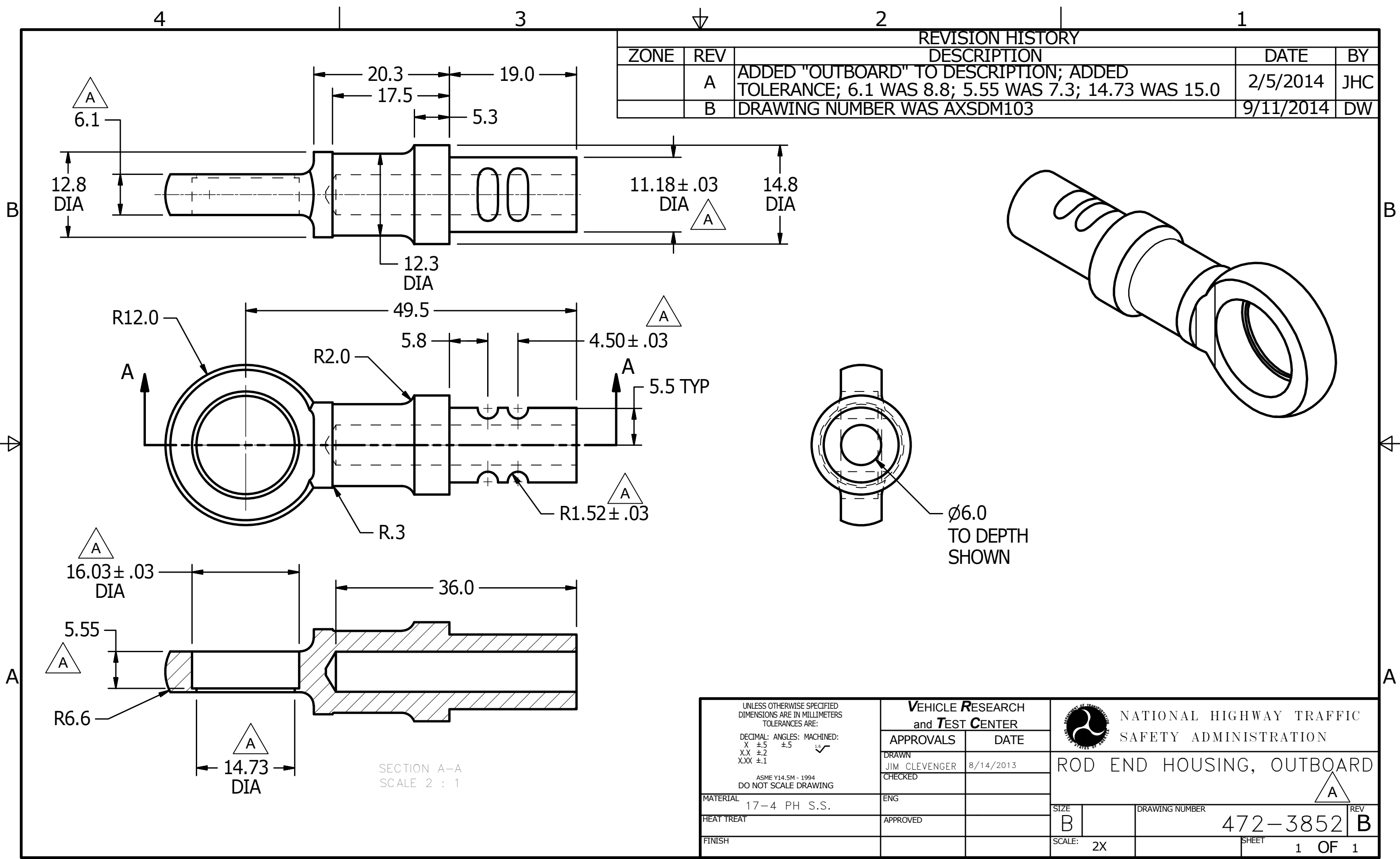
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	ADDED "OUTBOARD" TO DESCRIPTION; ADDED TOLERANCE; 6.1 WAS 8.8; 5.55 WAS 7.3; 14.73 WAS 15.0	2/5/2014	JHC
	B	DRAWING NUMBER WAS AXSDM103	9/11/2014	DW



SECTION A-A
SCALE 2 : 1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 ANGLES: ±.5 MACHINED: X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
MATERIAL 17-4 PH S.S.	DRAWN JIM CLEVINGER	8/14/2013	ROD END HOUSING, OUTBOARD
HEAT TREAT	CHECKED		
FINISH	ENG		
	APPROVED		
		SIZE B	DRAWING NUMBER 472-3852
		SCALE: 2X	SHEET 1 OF 1

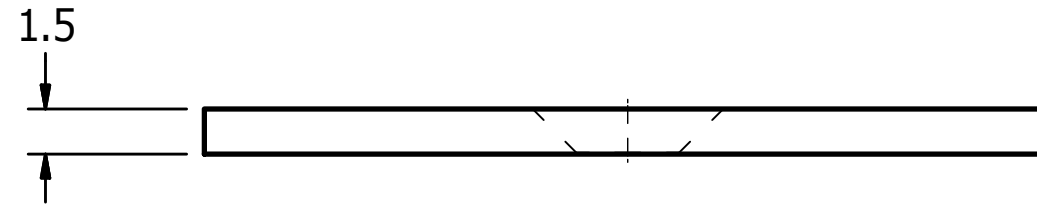
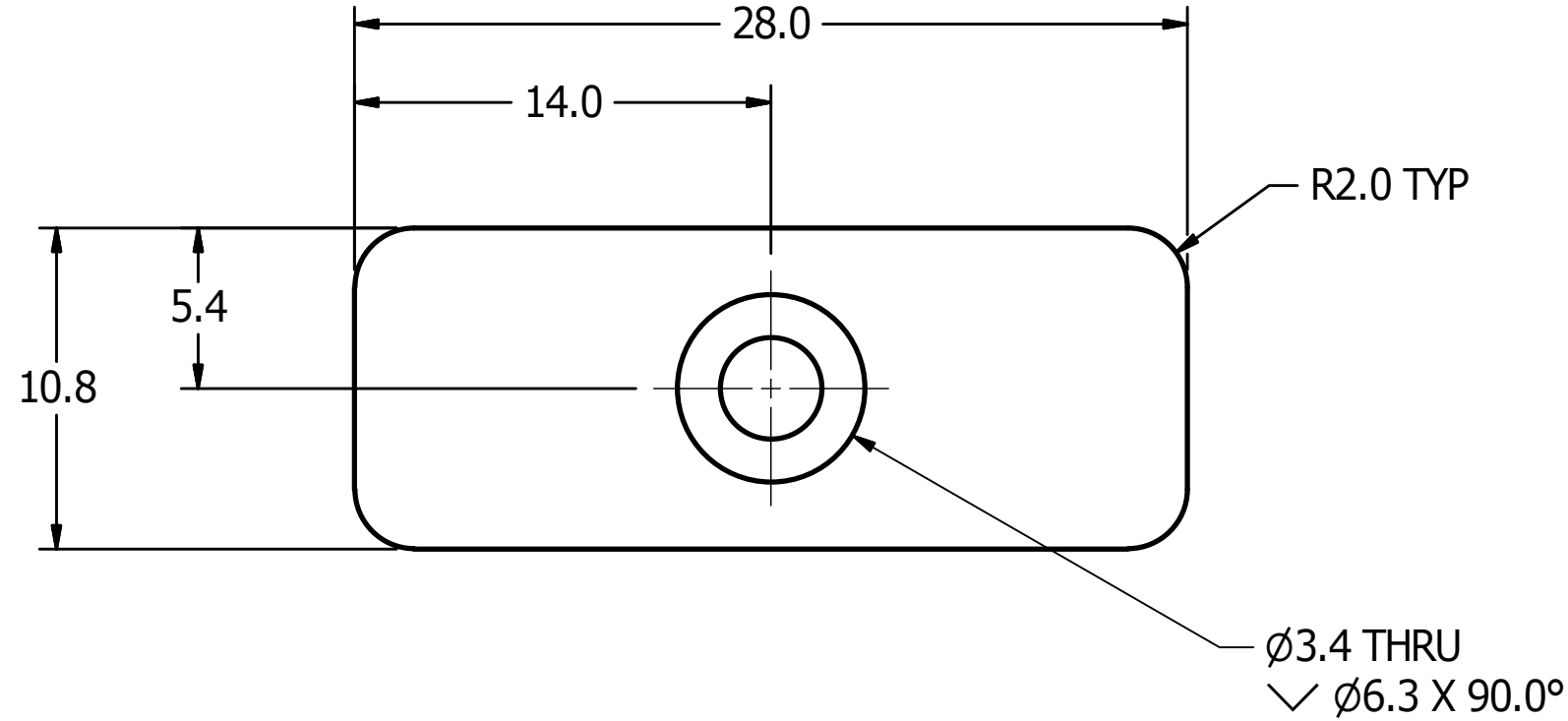
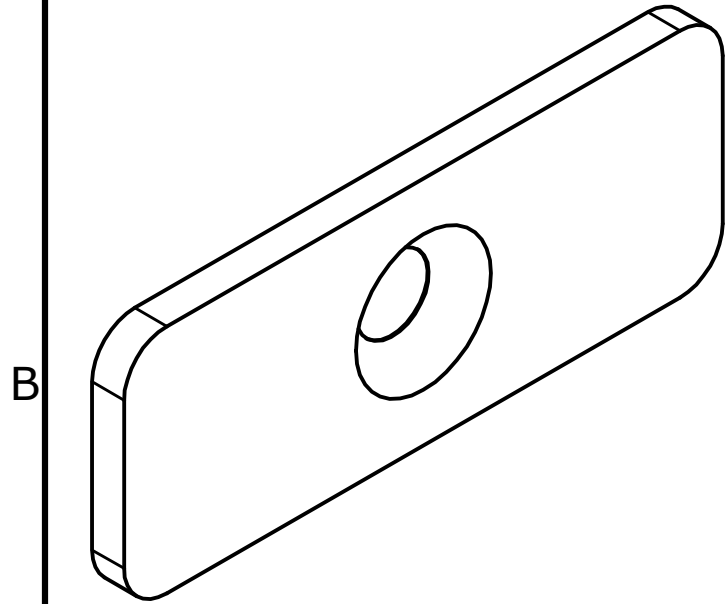
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXSDM102	9/11/2014	DW



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A

A

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: ANGLES: MACHINED:
X ±.5 ±.5 1.6 ✓
X.X ±.2
X.XX ±.1

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

**VEHICLE RESEARCH
and TEST CENTER**

APPROVALS DATE

DRAWN
JIM CLEVINGER 8/14/2013

CHECKED

ENG

APPROVED



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

CLAVICLE COVER PLATE

MATERIAL Steel

HEAT TREAT

FINISH

SIZE B

SCALE: 4X

DRAWING NUMBER 472-3853

SHEET 1 OF 1

REV A

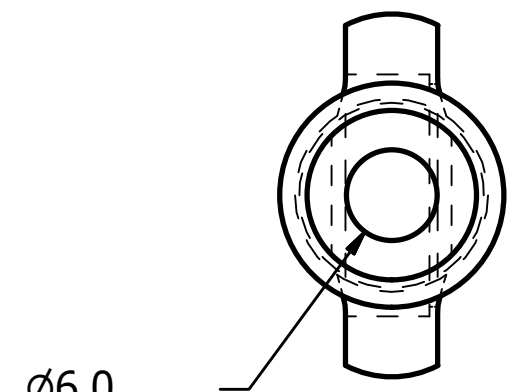
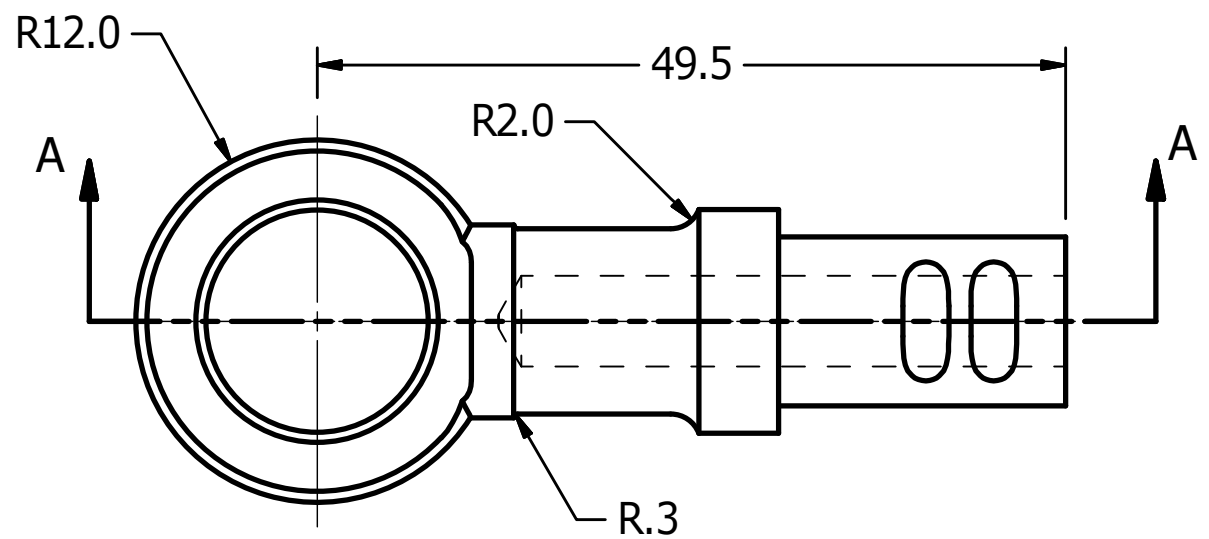
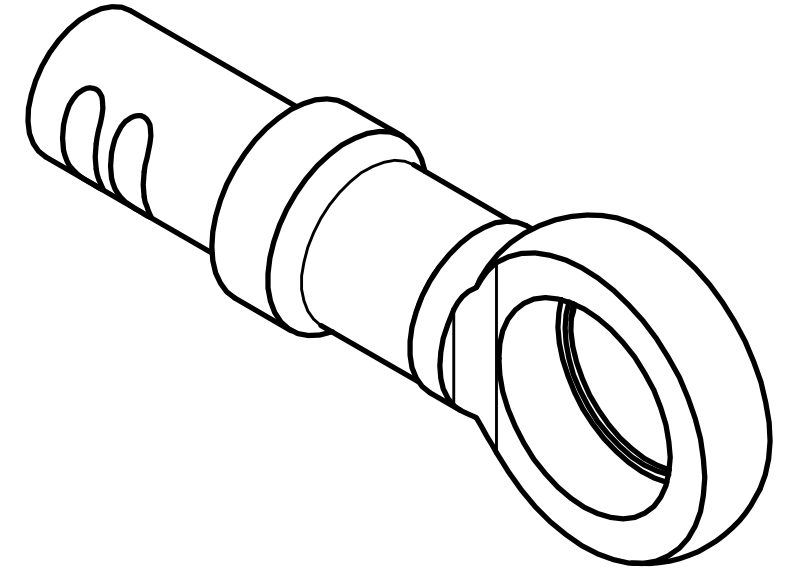
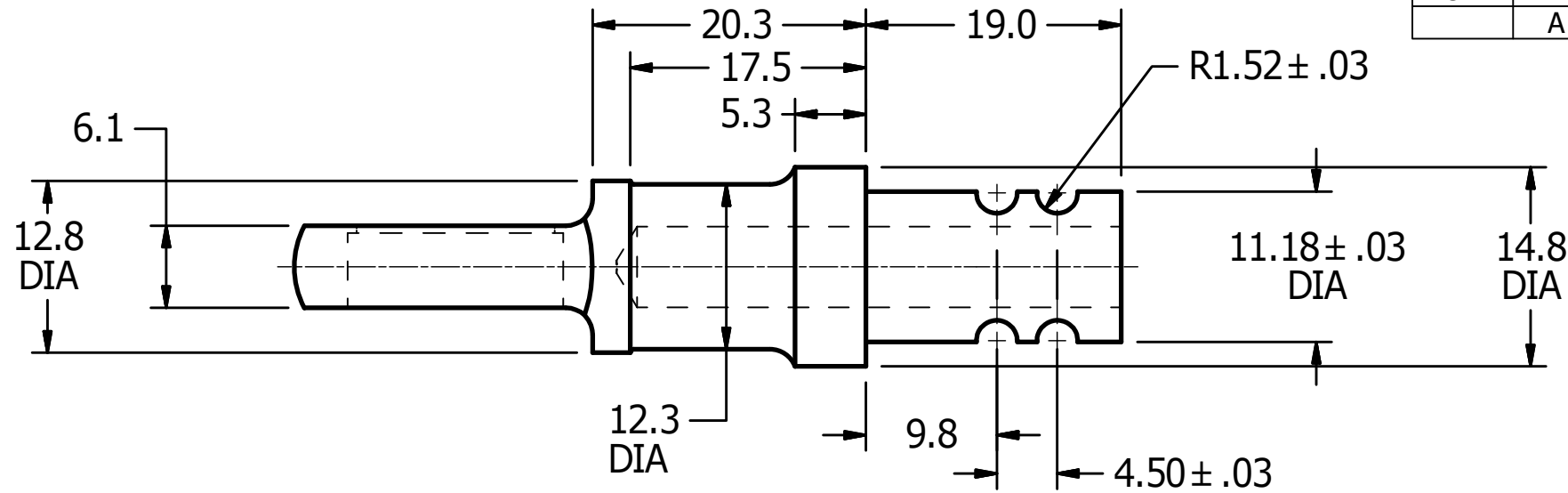
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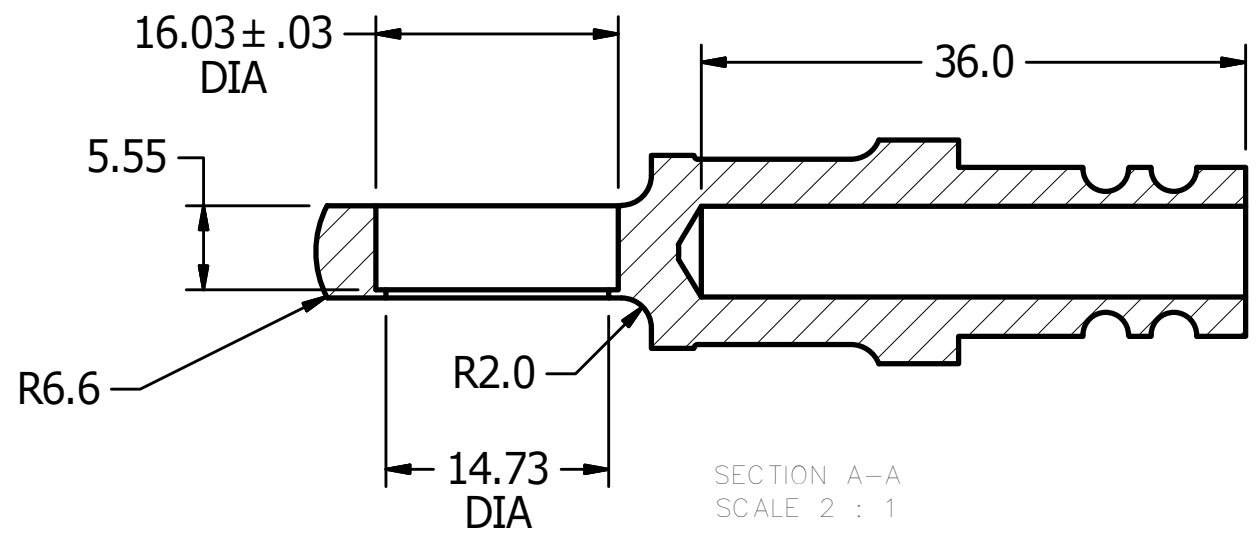
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM105	9/11/2014	DW




Ø6.0
TO DEPTH
SHOWN



SECTION A-A
SCALE 2 : 1

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL: X ±.5 ANGLES: ±.5 MACHINED: ✓
X.X ±.2
X.XX ±.1
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/14/2013
CHECKED	
ENG	
APPROVED	
FINISH	

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ROD END HOUSING, INBOARD	
SIZE B	DRAWING NUMBER 472-3854
SCALE: 2X	SHEET 1 OF 1

4

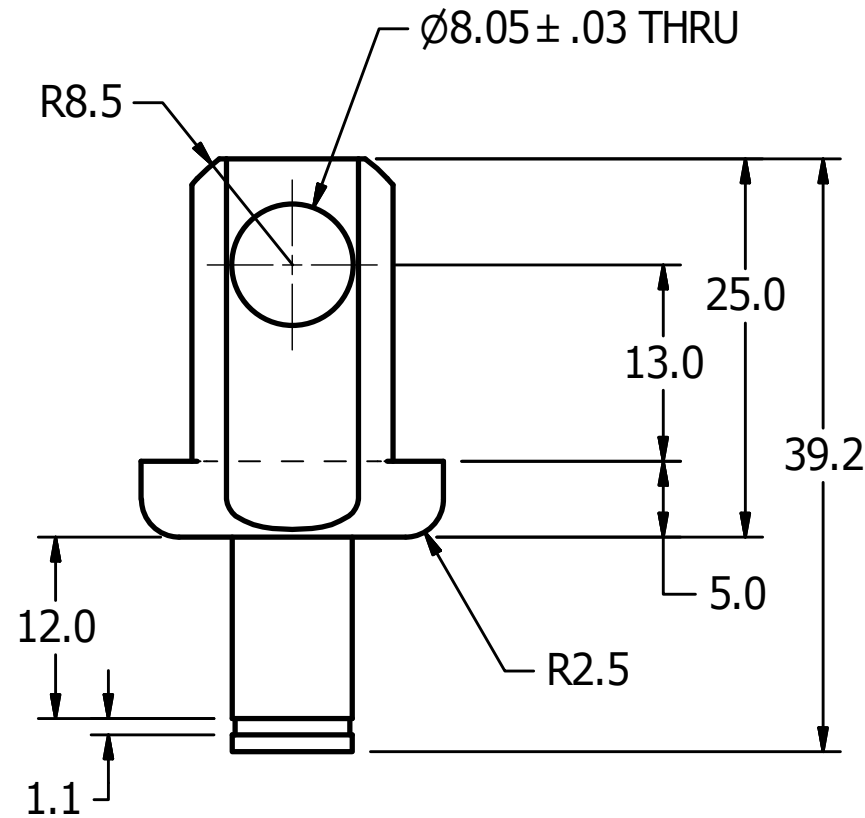
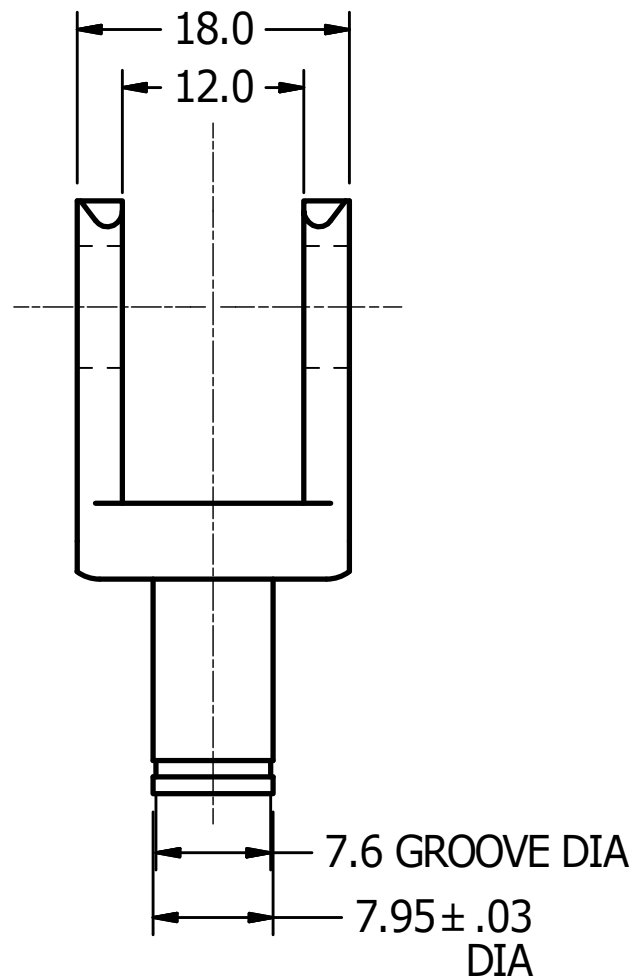
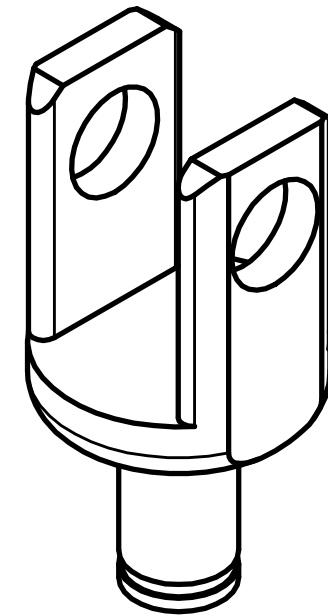
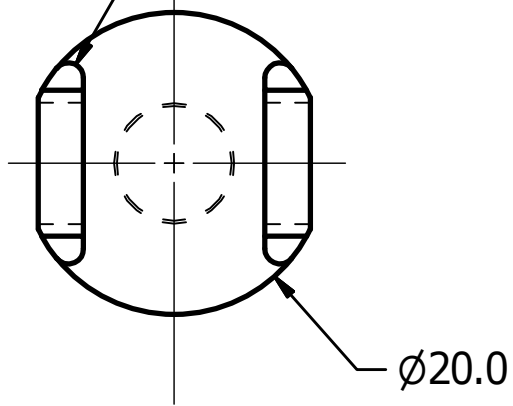
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM107	9/11/2014	DW

R1.0 TYP - 4 PLACES



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: ANGLES: MACHINED:
 X ±.5 ±.5 ✓
 X.X ±.2
 X.XX ±.1

ASME Y14.5M - 1994 DO NOT SCALE DRAWING

MATERIAL	Steel
HEAT TREAT	
FINISH	

VEHICLE RESEARCH and TEST CENTER

APPROVALS	DATE
DRAWN JIM CLEVINGER	2/10/2014
CHECKED	
ENG	
APPROVED	



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LINKAGE BASE, INBOARD THOR-M

SIZE	B	DRAWING NUMBER	472-3855	REV	A
SCALE:		SHEET	1	OF	1

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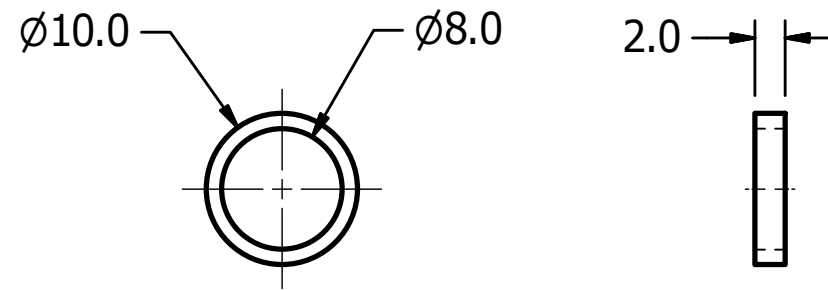
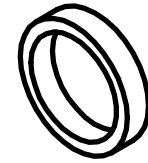
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBRER WAS AXSDM108	9/11/2014	DW




B

B

A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		ROD END BEARING SPACER, INBOARD
	DRAWN JIM CLEVINGER	2/10/2014	SIZE B	
	CHECKED		DRAWING NUMBER 472-3856	
MATERIAL Aluminum 6061	ENG		REV A	
HEAT TREAT	APPROVED		SHEET 1 OF 1	
FINISH				

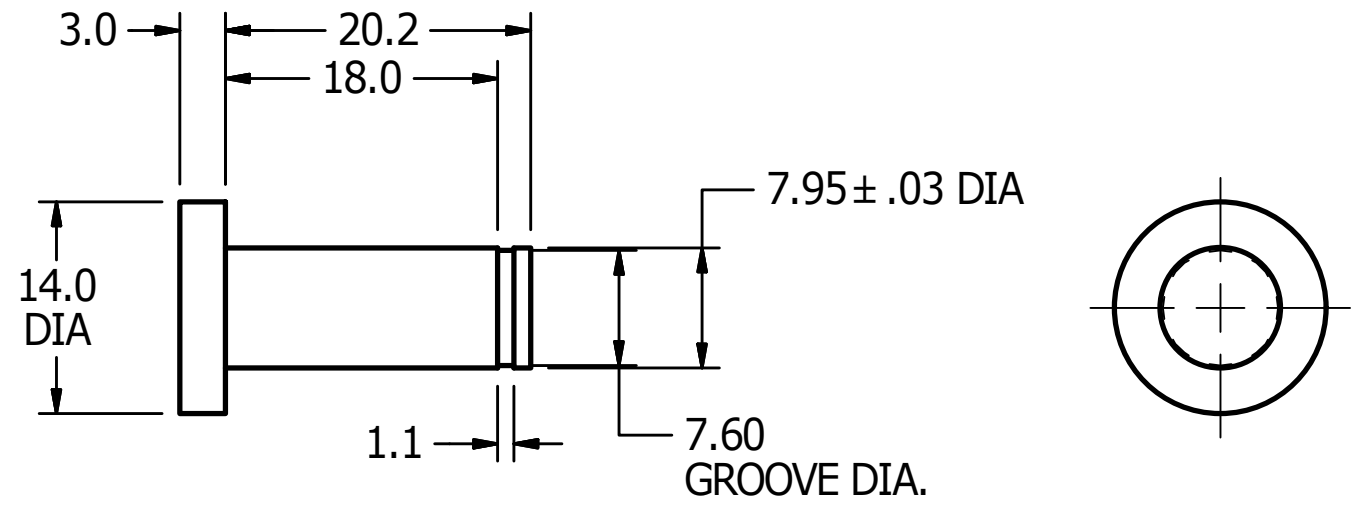
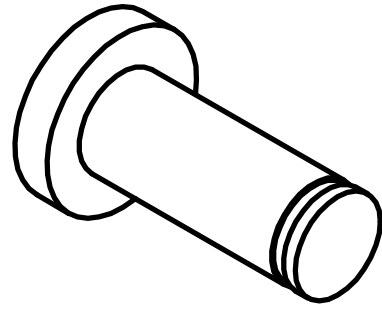
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXADM106	9/15/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	2/10/2014	
	CHECKED		
MATERIAL Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3899
FINISH			REV A
			SHEET 1 OF 1

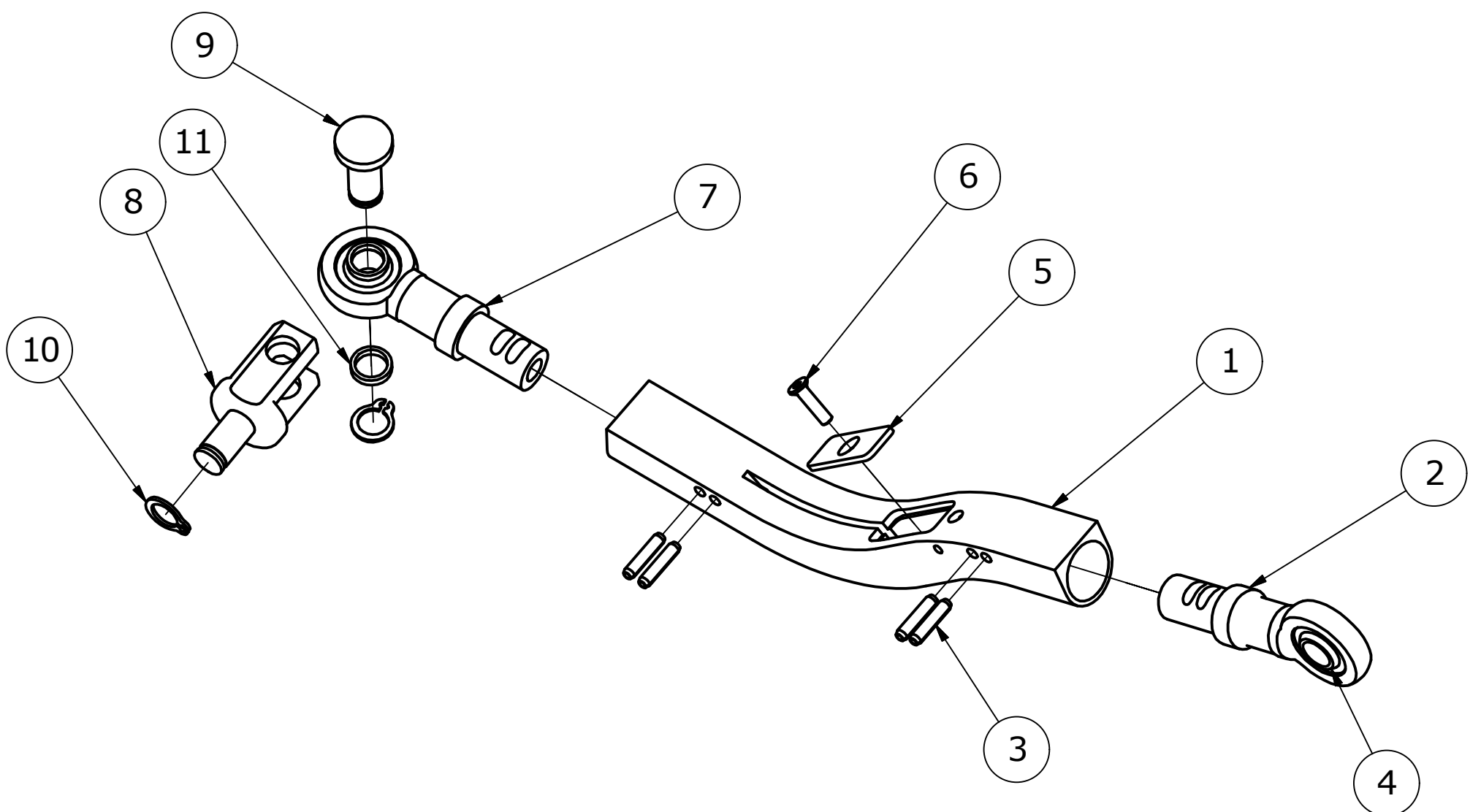
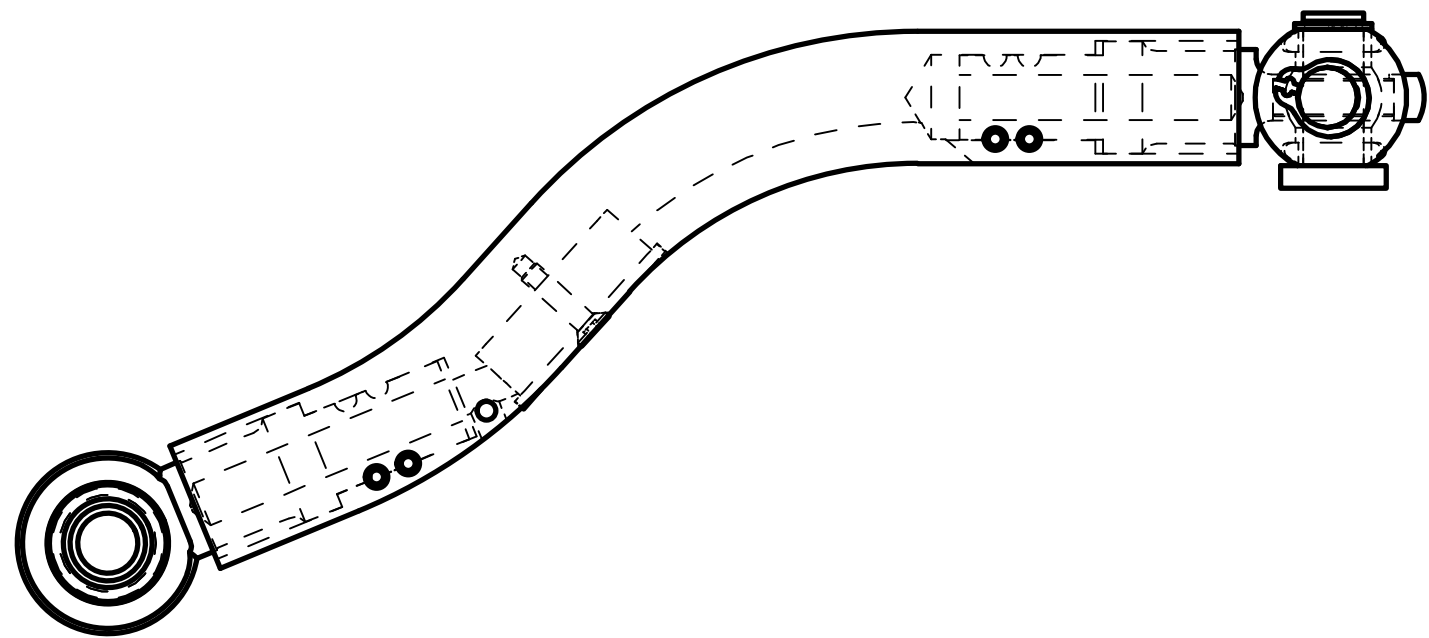
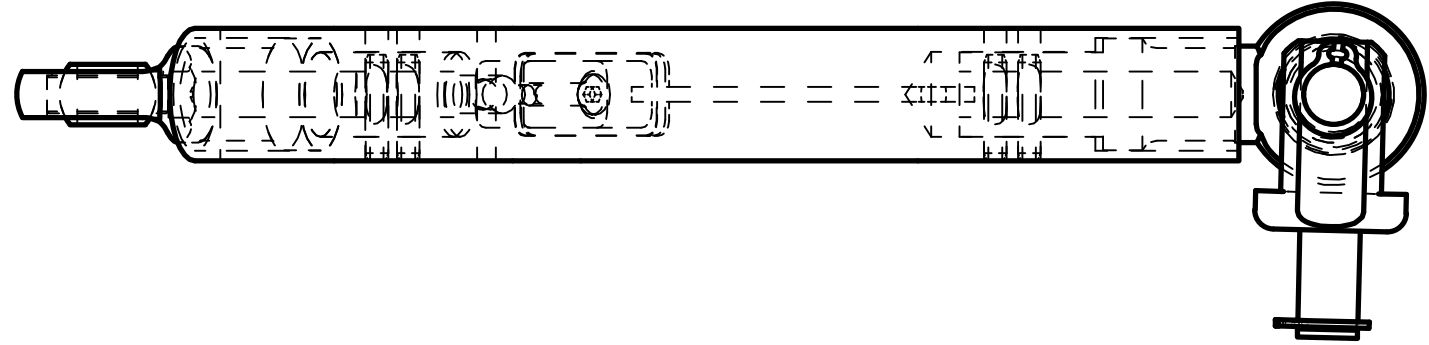
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REVISION HISTORY				
ZON	RE	DESCRIPTION	DATE	BY
	A	CHANGED SHEET SIZE TO C; REPLACED ITEMS AXSDM104B, AXSDM034B, AND AXSDM021B ITEM 7, 8, 9, & 10; REMOVED ITEM 5001175V	2/5/2014	JHC
	B	DRAWING NUMBER WAS AXSDM200B; IN PARTS LIST 472-3851 WAS AXSDM101, 472-3852 WAS AXSDM103, 472-3853 WAS AXSDM102, 472-3854 WAS AXSDM1058, 472-3855 WAS ASXDM107, 472-3857 WAS AXSDM106 & 472-3856 WAS AXSDM108	9/11/2014	DW
	C	ADDED EXPLODED VIEW, MOVED BALLOON CALLOUTS TO EXPLODED VIEW	7/27/2015	DW



B	11	2	472-3856	ROD END BEARING SPACER, INBOARD
	10	2	5001174V	8mm RETAINING RING
B	9	1	472-3899	LINKAGE PIN, INBOARD CLAVICLE
	8	1	472-3855	LINKAGE BASE, INBOARD
B	7	1	472-3854	ROD END HOUSING, INBOARD
	6	1	5000377	SCREW, FHCS M3 x 12
B	5	1	472-3853	CLAVICLE COVER PLATE
	4	2	5000946	METRIC SPHERICAL BEARING
	3	4	5000196	ROLL PIN, M3 x 14
B	2	1	472-3852	ROD END HOUSING, OUTBOARD
B	1	1	472-3851	CLAVICLE

ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 8/12/2013 DRAWN: JIM CLEVINGER CHECKED: _____ MATERIAL: ENG HEAT TREAT: APPROVED FINISH: _____	
		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIGHT CLAVICLE ASSEMBLY	
		SIZE: C	DRAWING NUMBER: 472-3860
		SCALE: 1:1	REV: C
		SHEET 1 OF 1	

4

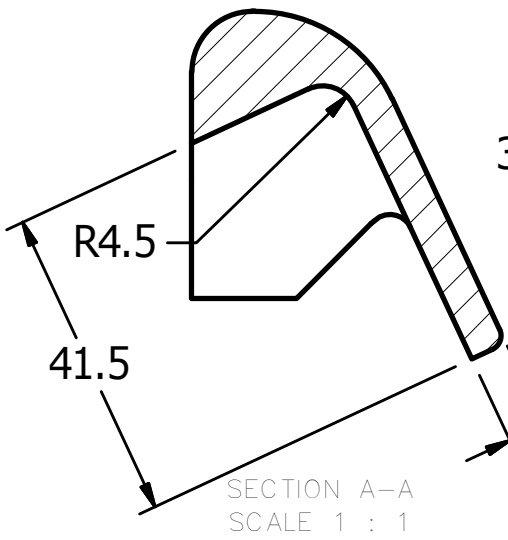
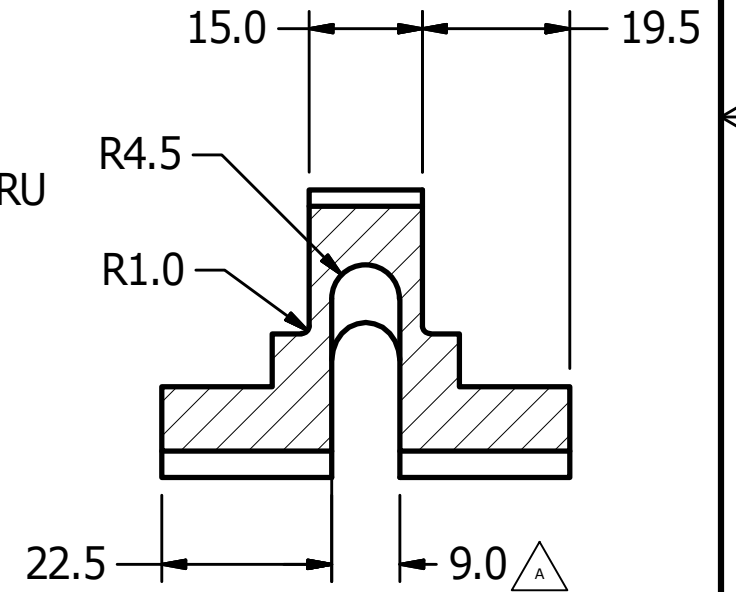
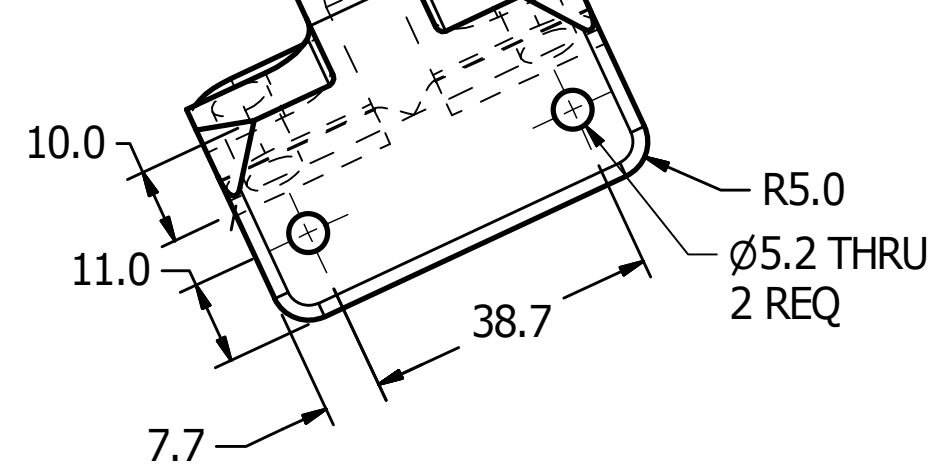
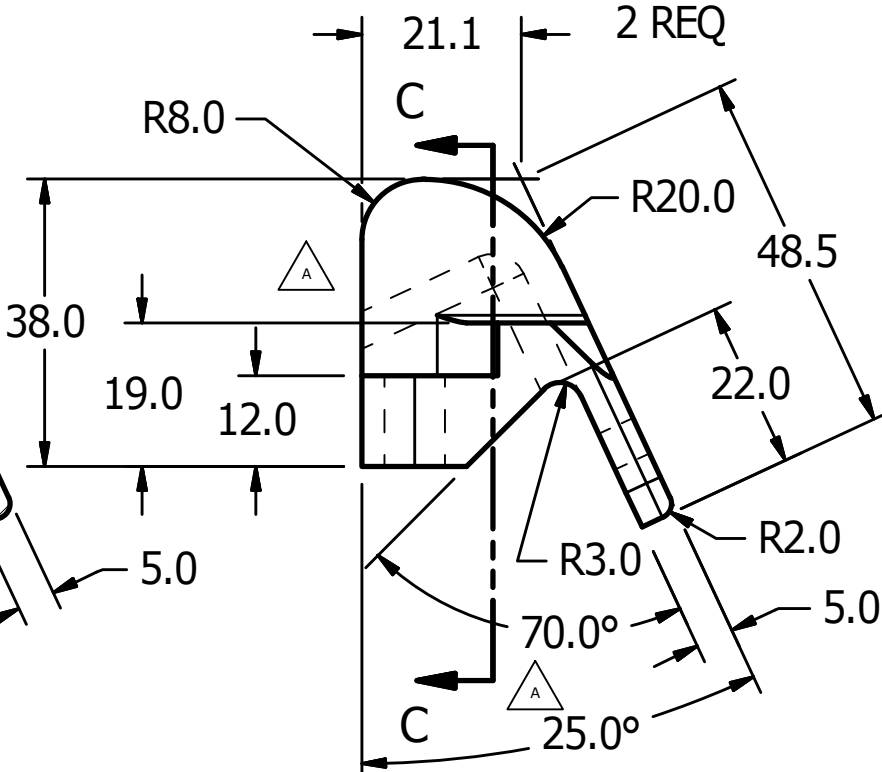
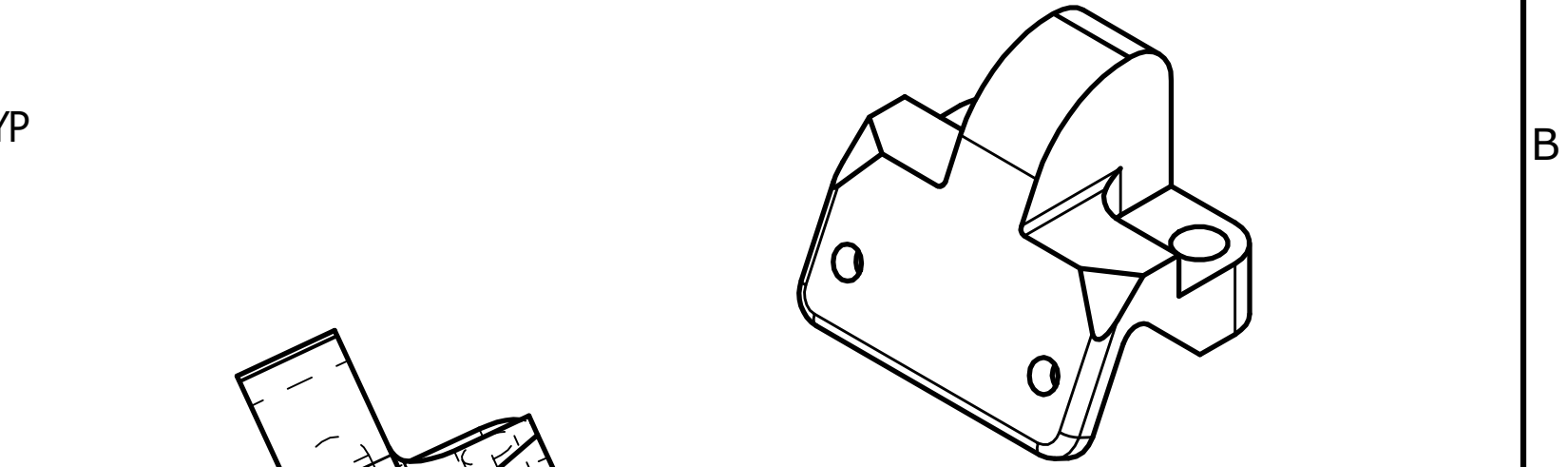
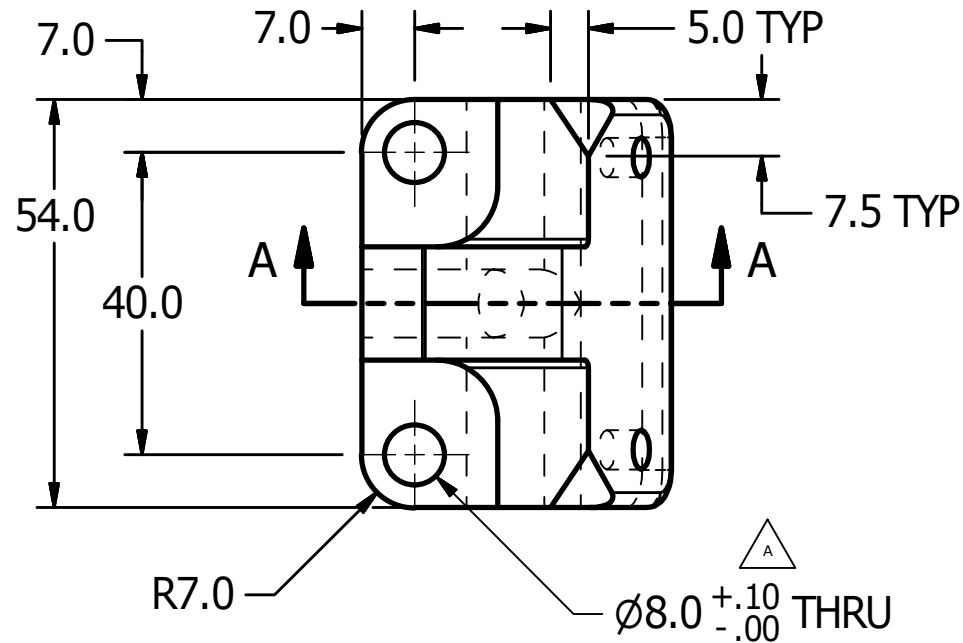
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1

REVISION HISTORY


ZON	REV	DESCRIPTION	DATE	BY
	A	15.0 WAS 18.0, 9.0 WAS 10.0, ADDED 70.0, ADDED 19.0; ADDED TOLERANCE	2/6/2014	JHC
	B	DRAWING NUMBER WAS AXSDM040C	9/11/2014	DW



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:
DECIMAL: X ±.5 ANGLES: ±.5 MACHINED: X.X ±.2 X.XX ±.1 ✓
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

**VEHICLE RESEARCH
and TEST CENTER**

APPROVALS	DATE
DRAWN JIM CLEVINGER	8/13/2013
CHECKED	
ENG	
APPROVED	

 NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

STERNUM BRACKET

SIZE B	DRAWING NUMBER 472-3870	REV B
SCALE: 1:1	SHEET 1 OF 1	

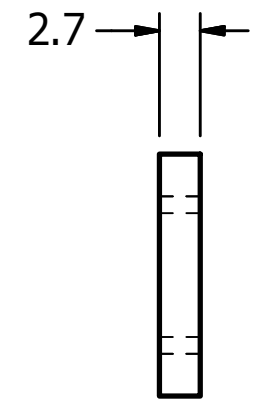
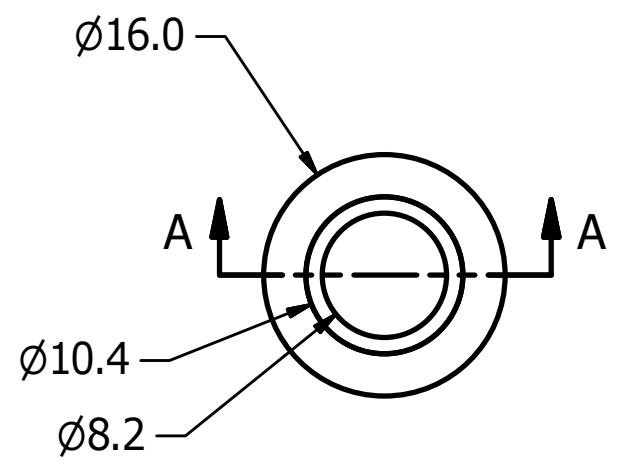
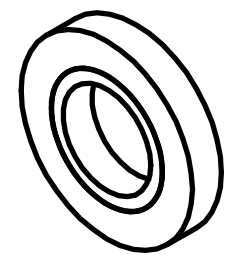
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3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM038	9/11/2014	DW
	B	ADDED NOTE 1	7/27/2015	DW



RUBBER OUTER RING MOLDED AROUND ALUMINUM INNER HUB, SEE NOTE 1

SECTION A-A
SCALE □□□

NOTES:
 1. MATERIAL:
 INNER RING: ALUMINUM 6061-T6.
 OUTER RING: NATURAL RUBBER, 50 ±5 SHORE A DUROMETER.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION ROD END SPACER ASSY
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	10/29/2013	
	CHECKED		
MATERIAL SEE NOTES	ENG		SIZE: B DRAWING NUMBER: 472-3880 REV: B
HEAT TREAT	APPROVED		
FINISH			
		SCALE: 2X	SHEET 1 OF 1

4

3

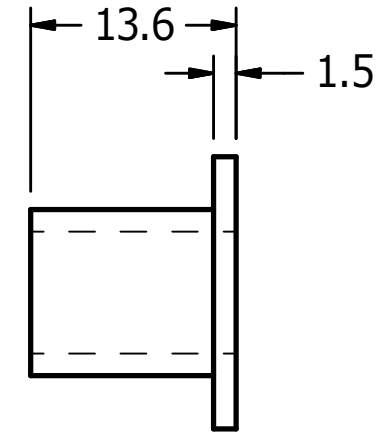
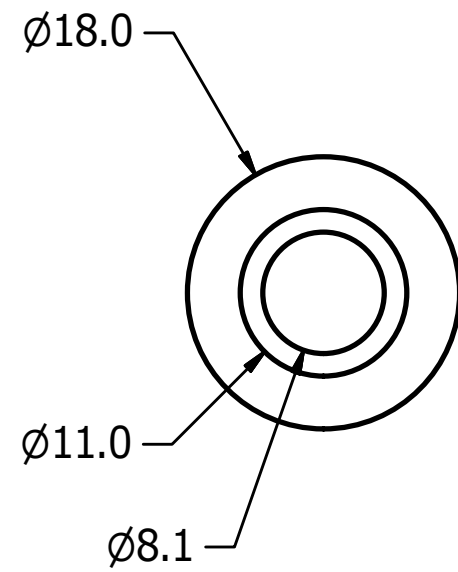
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM037A	9/11/2014	DW

B

B




A

A

A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	10/29/2013	
	CHECKED		
MATERIAL Aluminum 6061	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3890
FINISH			REV A
			SCALE: 2X
			SHEET 1 OF 1

4

3

2

1

4

3

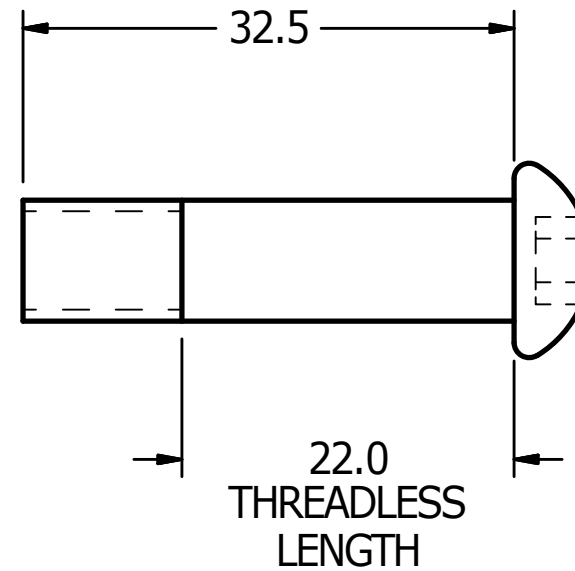
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM037B, ADDED "(5000260V) MODIFY AS SHOWN" TO MATERIAL NOTE	9/11/2014	DW

B

B



A


A

MATERIAL

START WITH A M8-1.25 x 50mm LONG BHCS (5000260V)
MODIFY AS SHOWN.

A

A

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MODIFIED M8 BOLT
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	10/29/2013	
	CHECKED		
MATERIAL Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3891
FINISH			SCALE: 2X
			SHEET 1 OF 1

4

3

2

1

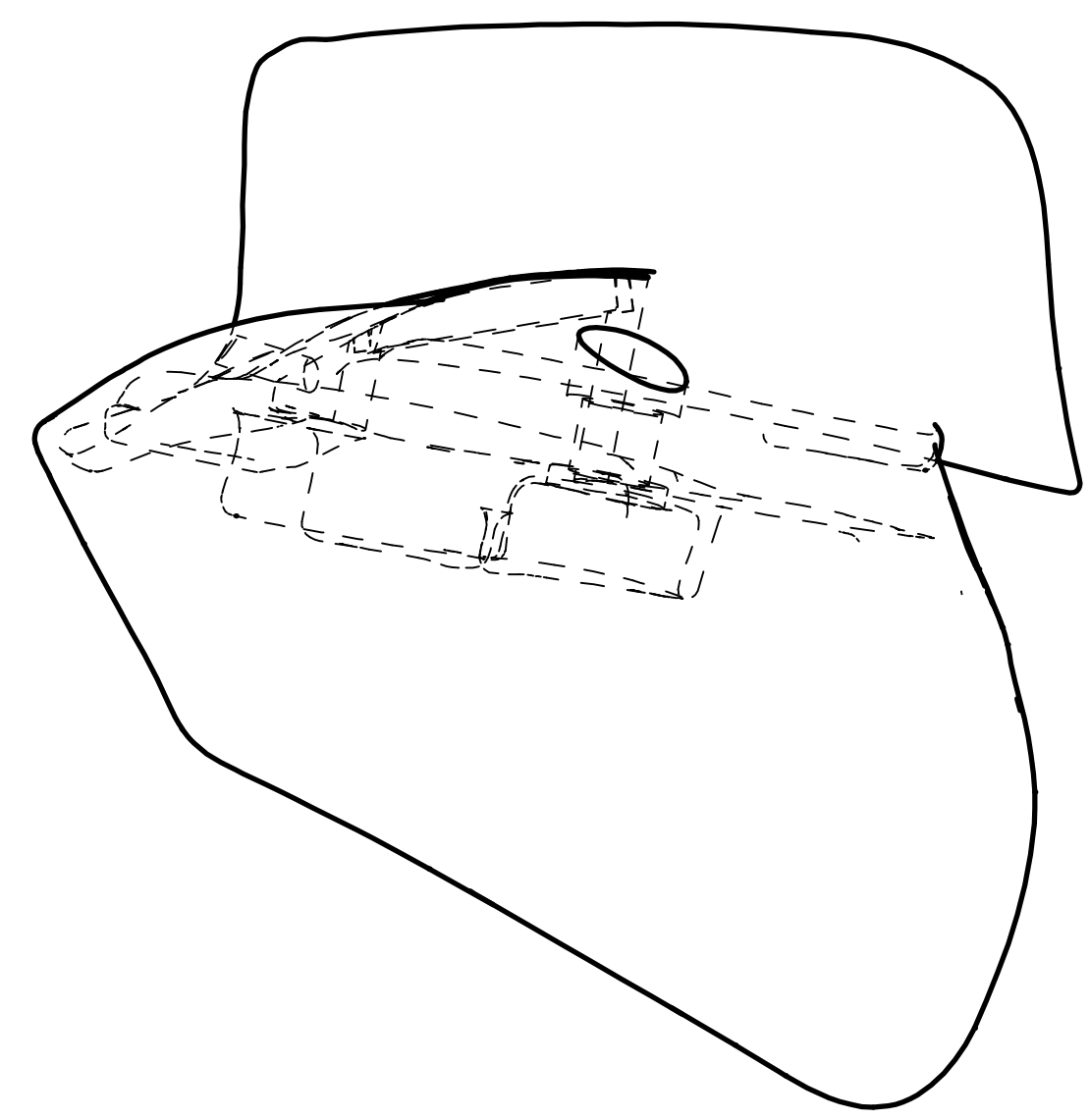
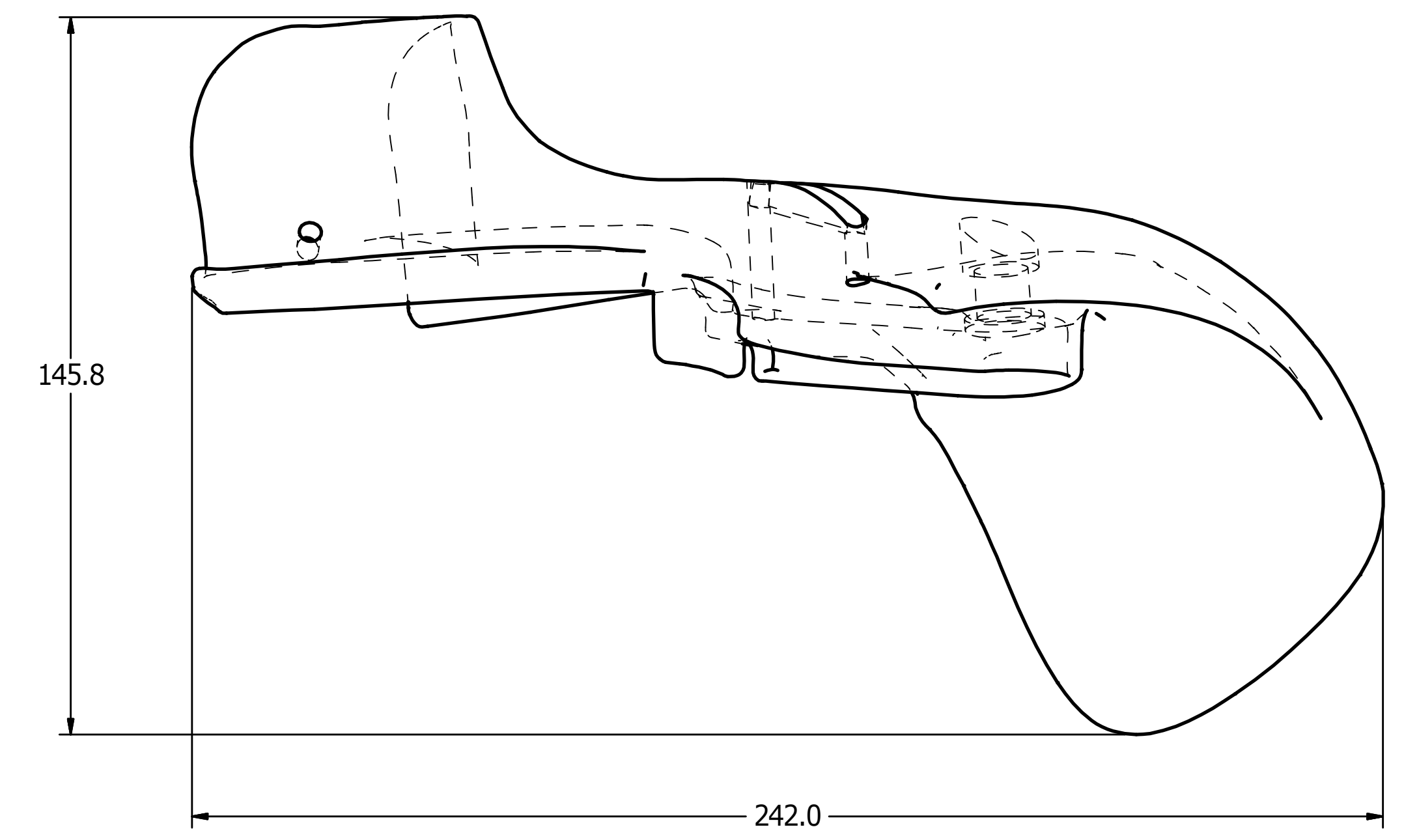
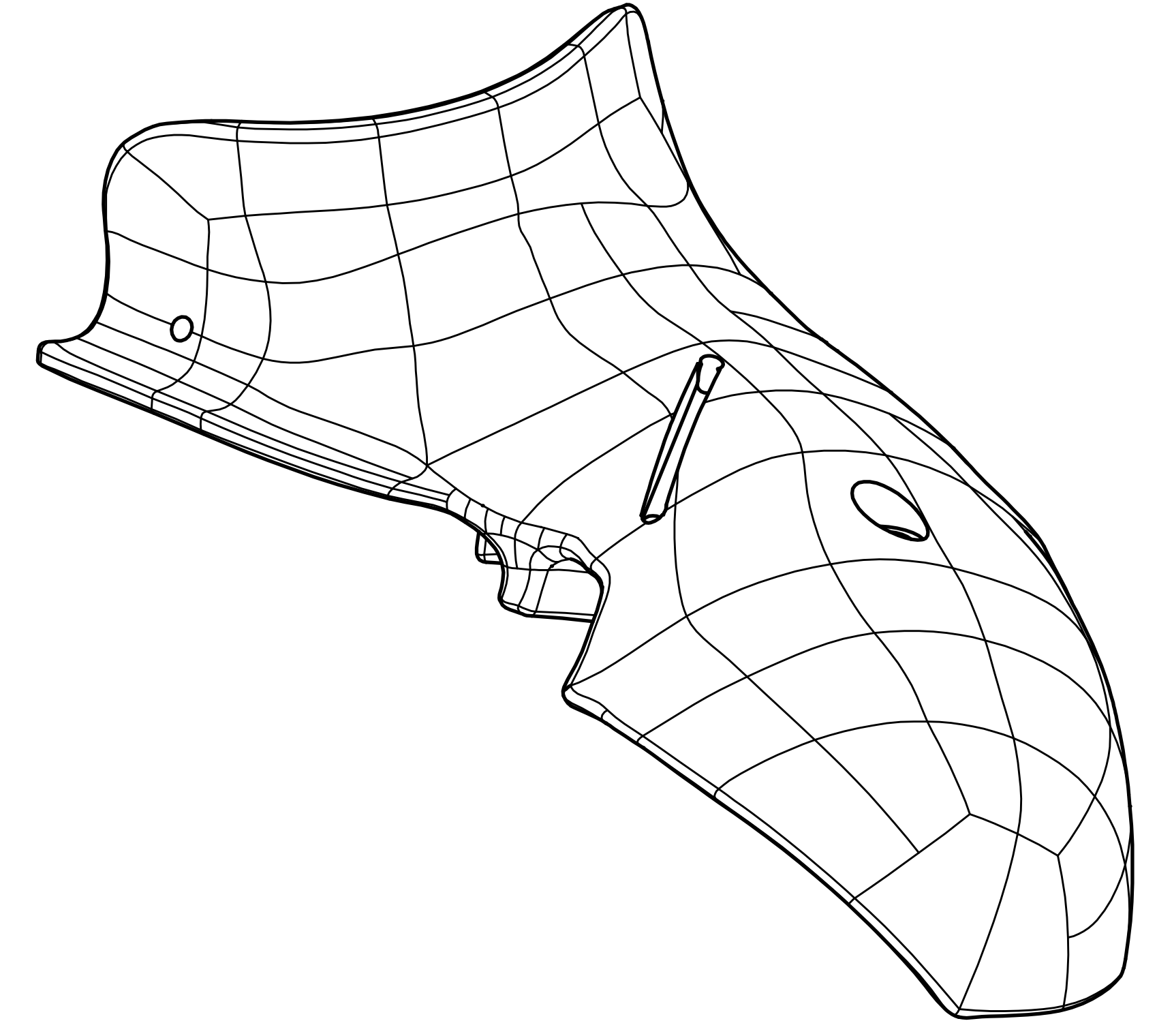
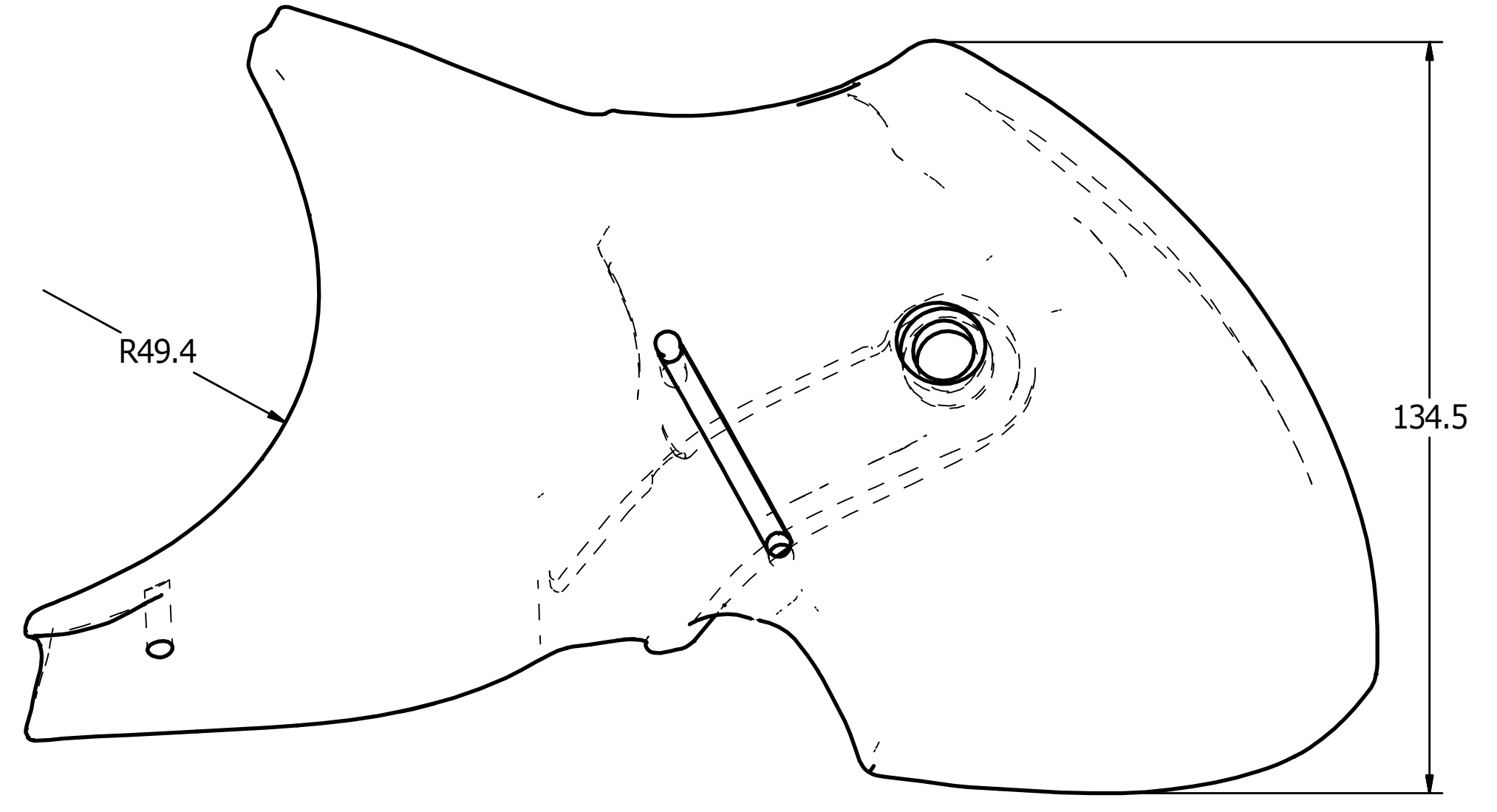
4

3

2

1

ZONE		REV	REVISION HISTORY	DATE	BY
A			CHANGED SHEET SIZE TO "D", DRAWING NUMBER WAS AXSDM035	9/11/2014	DW



NOTE:
A 3-D FILE IS AVAILABLE
FOR REFERENCE FROM NHTSA

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: X ±0.5 XX ±2 XXX ±1		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL ANGLES: MACHINED: X ±0.5 XX ±2 XXX ±1		APPROVALS	DATE	SHOULDER COVER, LEFT	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN JIM CLEVELER	8/21/2013		
MATERIAL: Urethane, Clear		CHECKED			
FINISH		ENG		SIZE D	DRAWING NUMBER 472-3895-1
		APPROVED		SCALE 1:1	REV A
				SHEET 1	OF 1

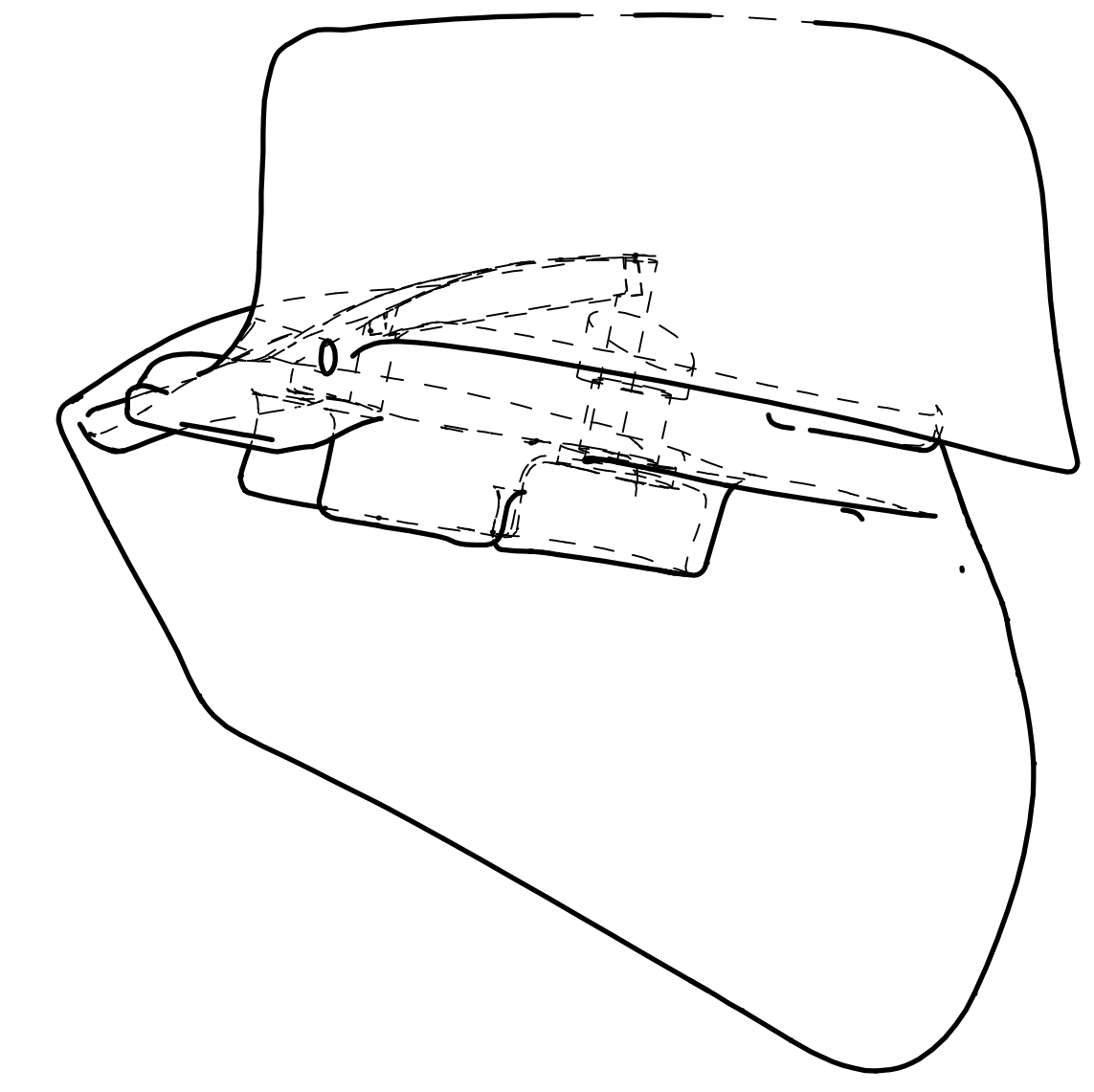
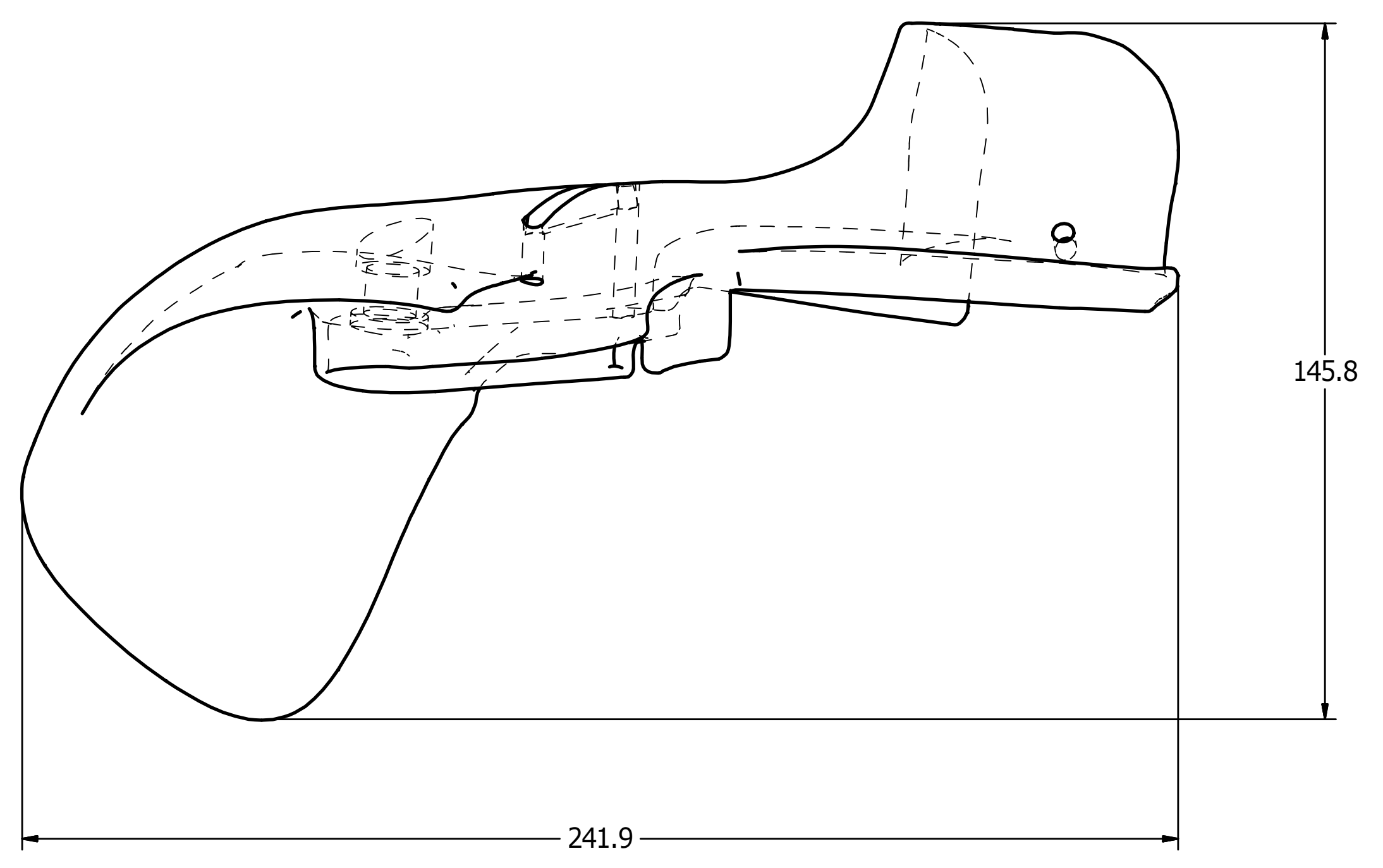
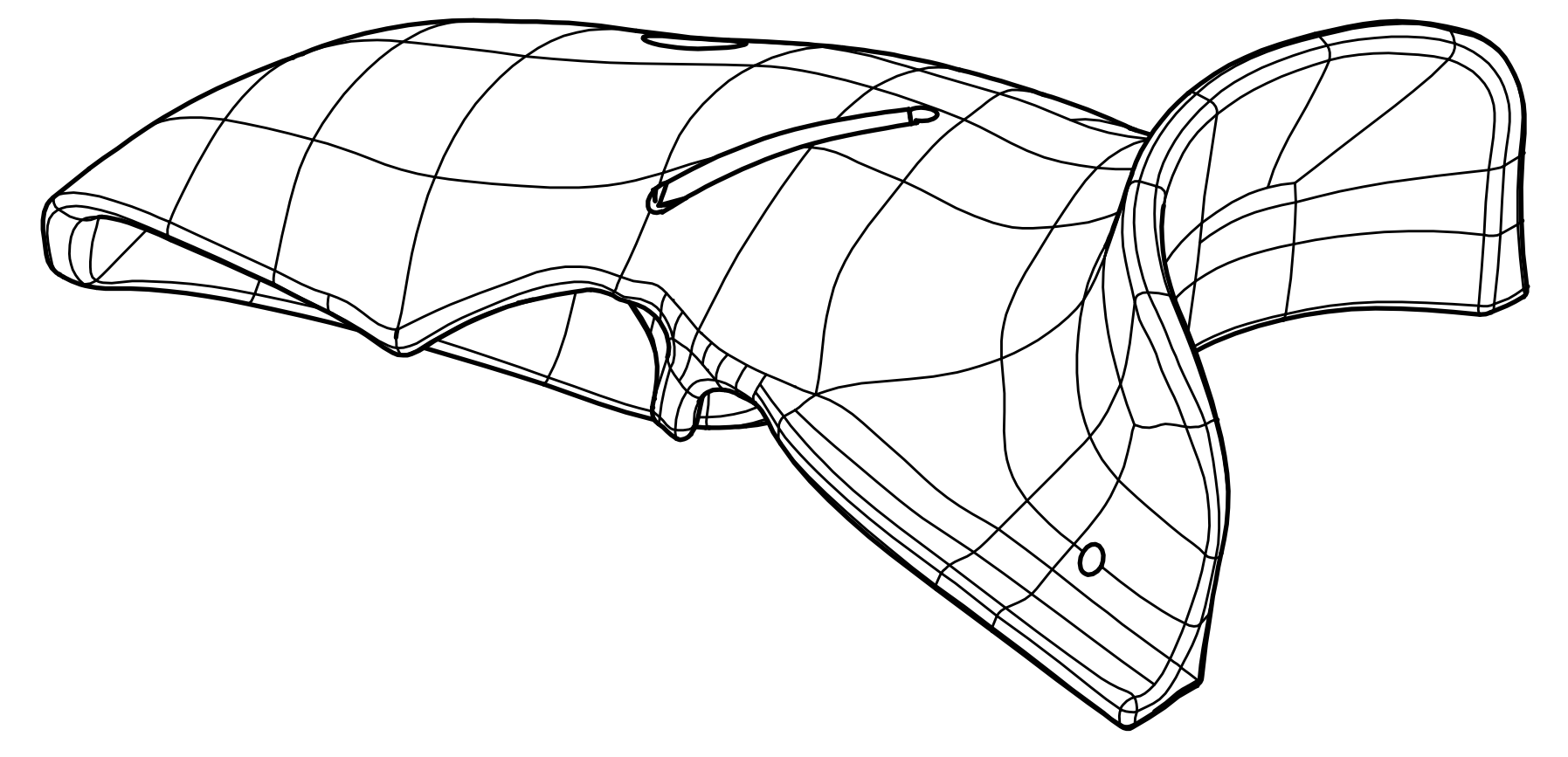
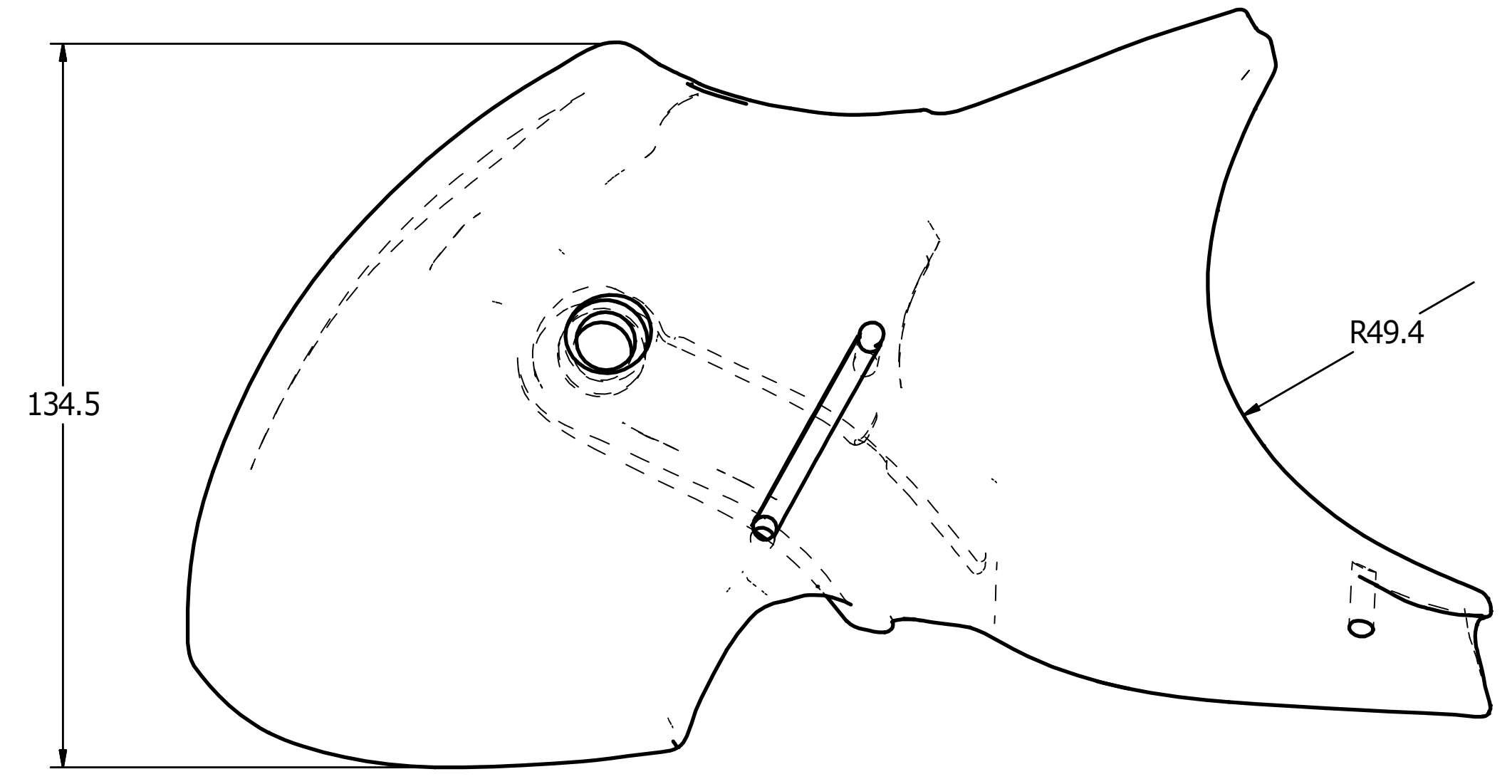
4

3

2

1

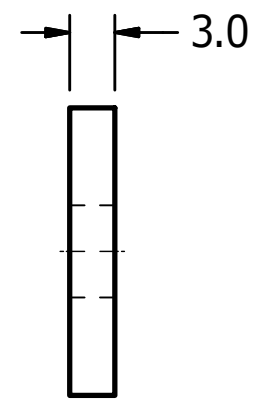
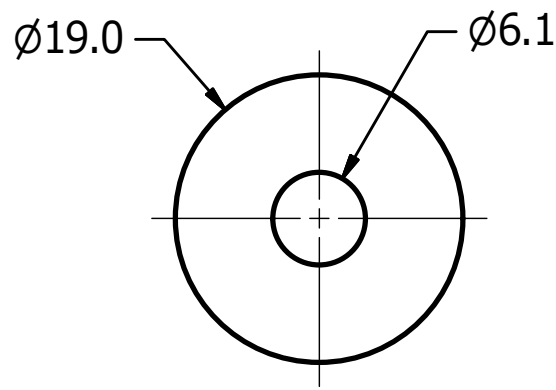
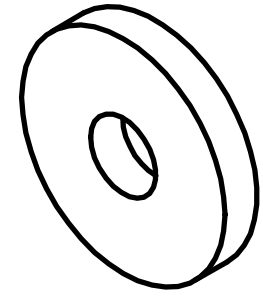
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANGE SHEET SIZE TO "D", DRAWING NUMVBER WAS AXSDM036	9/11/2014	DW





NOTE:
A 3-D FILE IS AVAILABLE
FOR REFERENCE FROM NHTSA


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: X ±0.5 XX ±2 XXX ±1		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL ANGLES: MACHINED: X ±0.5 XX ±2 XXX ±1		APPROVALS	DATE	SHOULDER COVER, RIGHT	
DO NOT SCALE DRAWING		DRAWN JIM CLEVENGER	8/21/2013	DRAWING NUMBER 472-3895-2	
MATERIAL Urethane, Clear	ENG	CHECKED	APPROVED	SCALE 1:1	REV A
FINISH		APPROVED		SHEET 1 OF 1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM033	9/11/2014	DW
	B	ADDED NOTES 1 & 2; MATERIAL WAS RUBBER	7/27/2015	DW

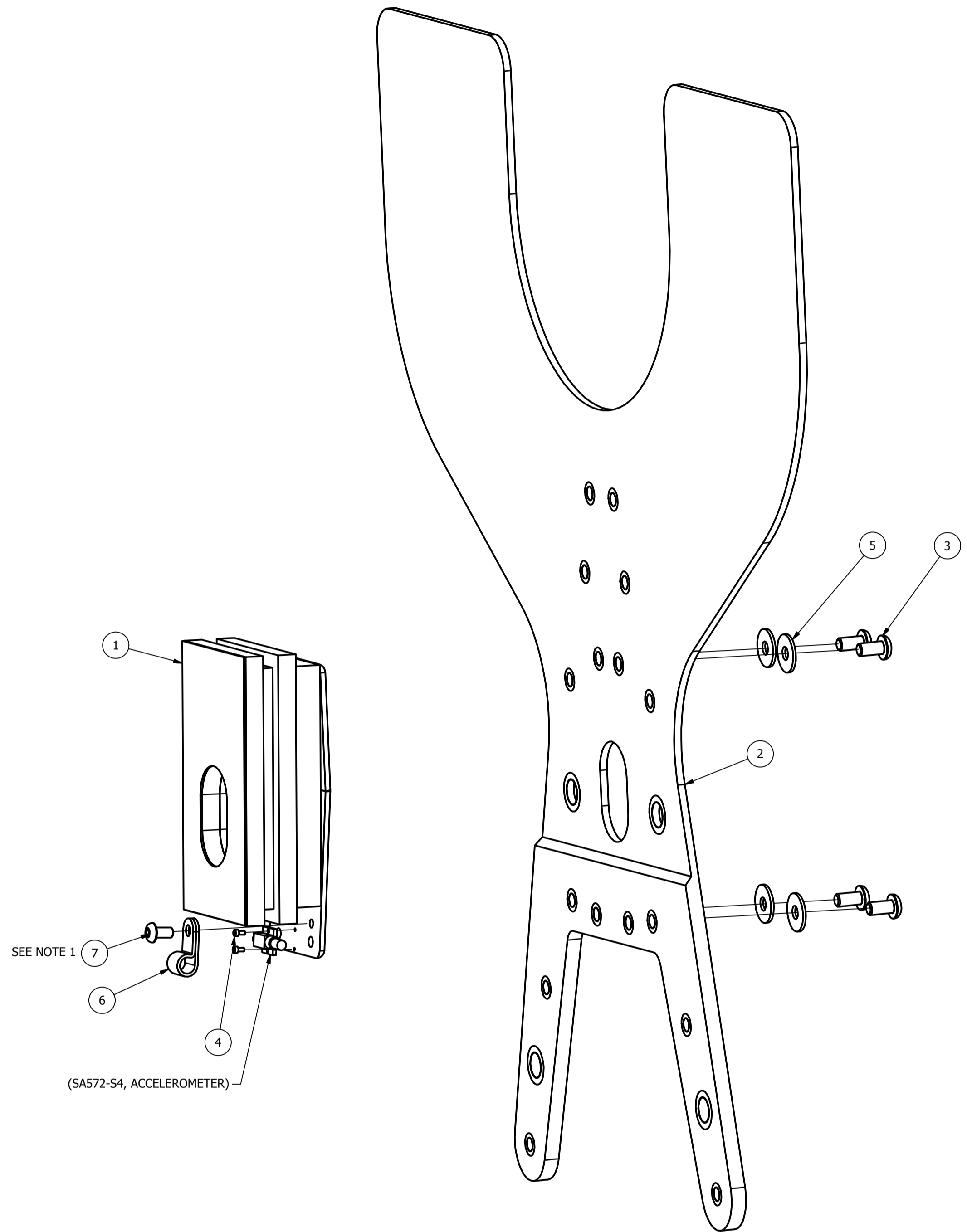


NOTES:

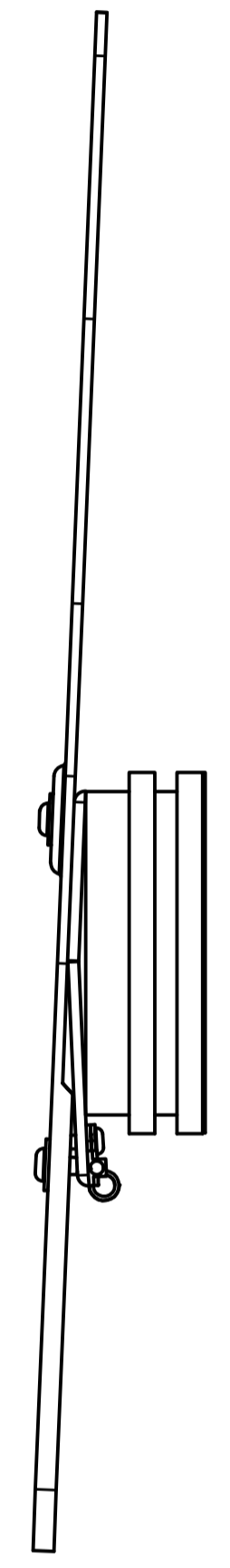
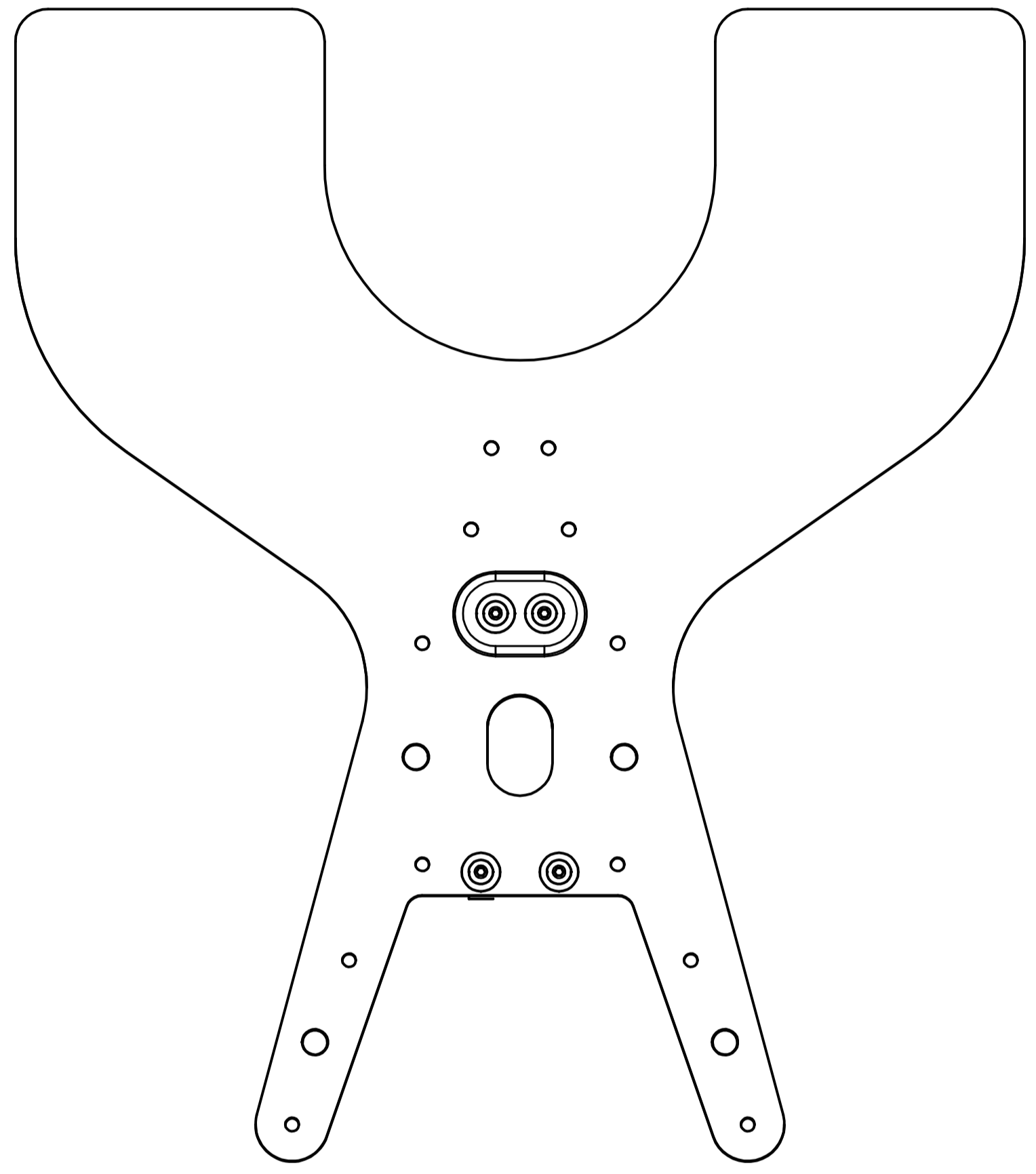
-  1. RUBBER DIMENSIONAL TOLERANCE ± 0.5 UNLESS OTHERWISE SPECIFIED.
-  2. MATERIAL: BUNA-N RUBBER, 50 ± 5 SHORE A DURAMETER.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ± 0.5 ± 0.5 ± 0.1 X.X ± 0.2 X.XX ± 0.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RUBBER SPACER WASHER
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER CHECKED	2/10/2014	
MATERIAL	SEE NOTES	ENG	SIZE
HEAT TREAT		APPROVED	B
FINISH			DRAWING NUMBER
			472-3898
			REV
			B
			SHEET
			1 OF 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1TXM100 R5 AND CONVERTED TO METRIC FOR THOR-M	10/26/2011	BK
	B	5001163 WAS 5000674	6/14/2012	BK
	C	UPDATE TO SHOW 472-3420 HOLE CHANGE	7/20/2012	BK
	D	ITEM 7 - 5000103 - SCREW, BHCS M4-0.7 X 8 WAS 5001163 - M4 X 0.7 X 5 LG. BHCS	2/24/2016	DW



SCALE .750

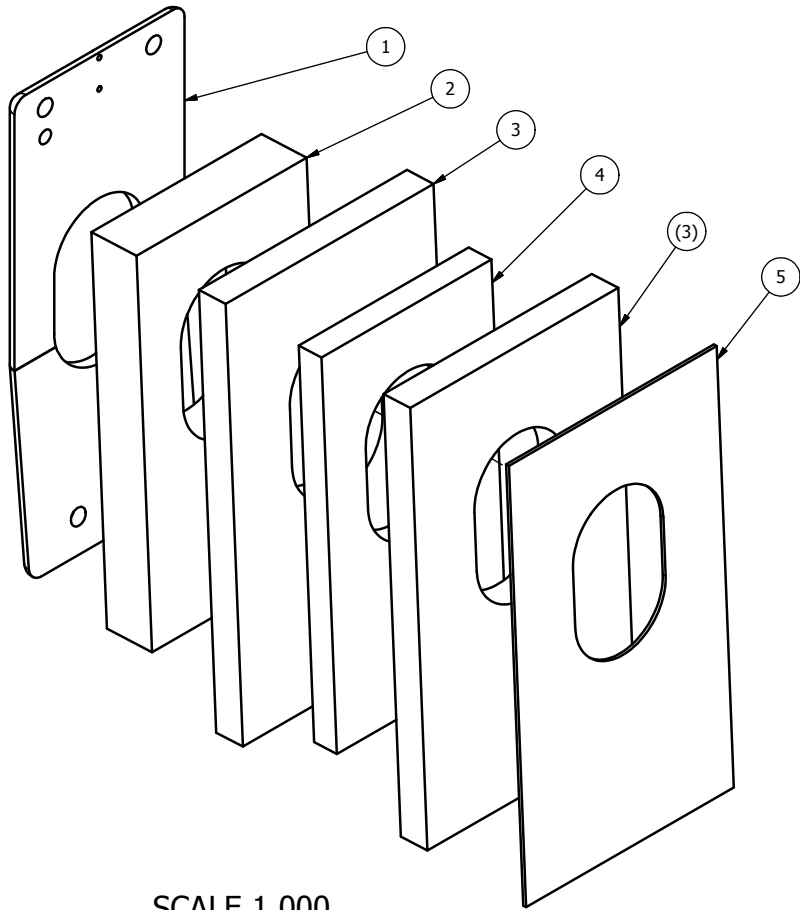


NOTES:
1. STRAIN RELIEVE THE ACCELEROMETER WIRE TO THE MID-STERNUM PLATE AS SHOWN.

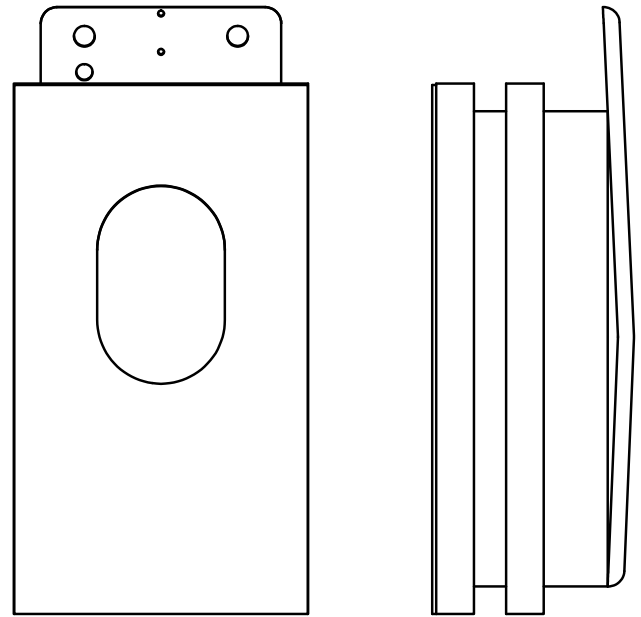
ITEM	QTY	PART NUMBER	DESCRIPTION
7	1	5000103	SCREW, BHCS M4 x 0.7 x 8
6	1	9002655	WIRE CLAMP, NYLON 1/8 DIA.
5	4	5001126	WASHER, M5 X 15 X 1.2 S.S.
4	2	5000068	SCREW, SHCS M1.4 - 0.3 X 3 LG.
3	4	5000003	M5 X 0.8 X 10 LG. BHCS
2	1	472-3420	THORAX OUTER BIB
1	1	472-3410	MID-STERNUM BONDING ASSEMBLY

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
PROJECT NO:	472-3000	DESIGNED BY:	B. KIMES	DATE:	10/26/2011
REV:	1	CHECKED BY:	J. WANG	DATE:	1/18/2012
NEXT ASSEMBLY:	QTY: 1	THORAX BIB ASSEMBLY		1 OF 1	
TOTAL QTY IN DUMMY:	1	472-3400		.500	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM015 R0 FOR THOR-M	9/13/2011	BK



SCALE 1.000



NOTES:

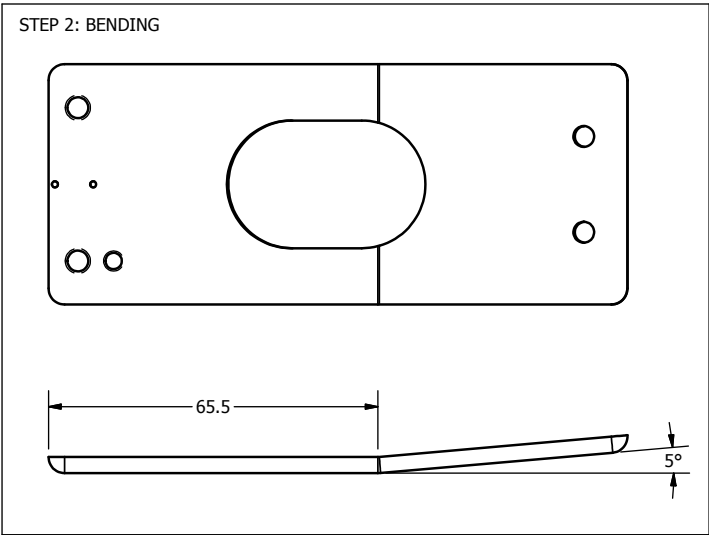
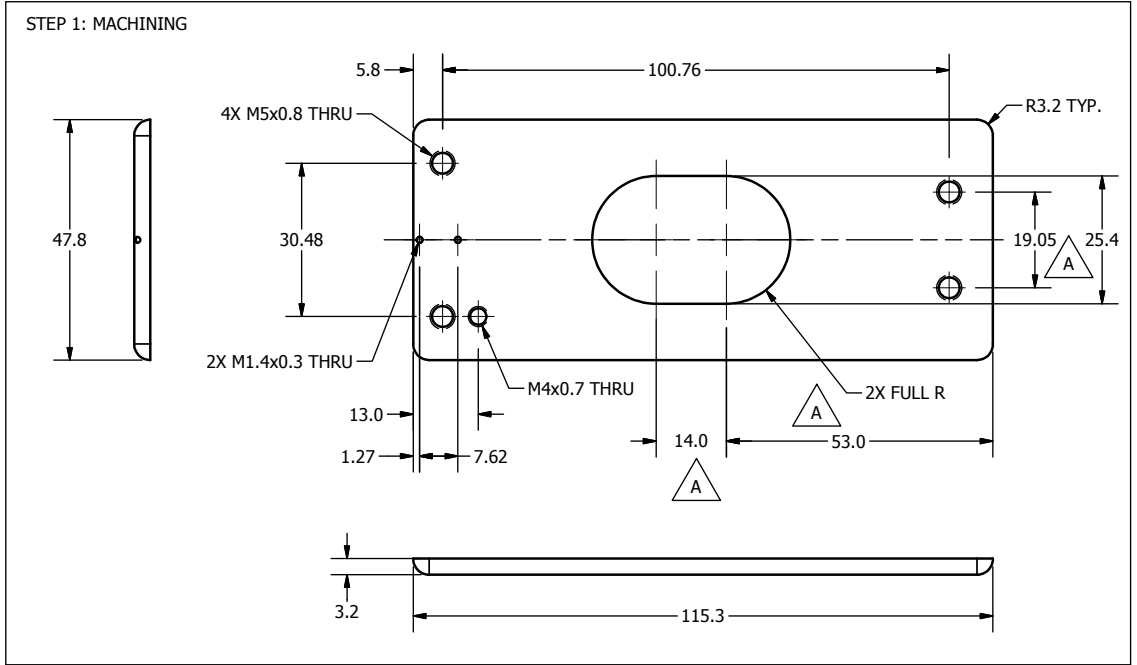
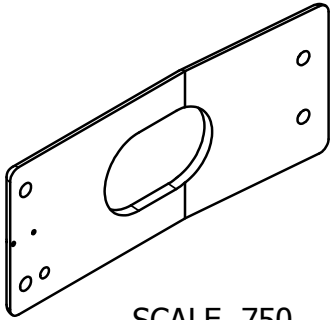
1. SAND BLAST AND CLEAN WITH ACETONE, THE AREA OF EACH METAL PLATE THAT WILL MAKE CONTACT WITH EITHER THE FOAM OR RUBBER.
2. ALIGN AND CENTER THE FRONT EDGE OF 472-3414 WITH 472-3413. MAKE SURE THE HOLE PATTERN ON THE METAL PLATE IS AS SHOWN.
3. CENTER EACH MID-STERNUM MASS PLATE (472-3411) ON EACH MASS DAMPING FOAM (472-3414 AND 472-3412).
4. BOND FOAM AND RUBBER PADS TO PLATES USING THERMOSETTING CONTACT ADHESIVE OR EQUIVALENT.

5	1	472-3415	MID-STERNUM RUBBER PAD
4	1	472-3412	MASS DAMPING FOAM #2, MID-STERNUM
3	2	472-3411	MID-STERNUM MASS
2	1	472-3414	MASS DAMPING FOAM #1, MID-STERNUM
1	1	472-3413	MID-STERNUM PLATE
ITEM	QTY	PART NUMBER	DESCRIPTION

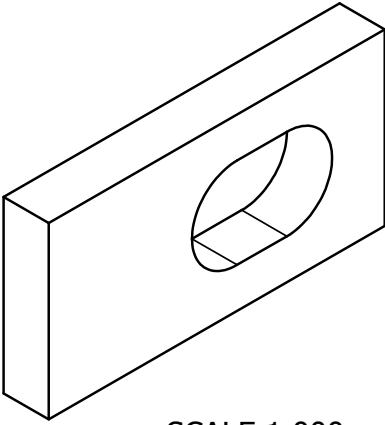
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ±0.2	16°
		XX ±0.3	
		XXX ±0.5	
		XXXX ±0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	DATE:	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3400	9/13/2011	MID-STERNUM BONDING ASSEMBLY	
MATERIAL:	DESIGNED BY:	DRAWING NO. 472-3410	
	B. KIMES	REV. A	
CHECKED BY:	DATE:	SCALE: 2.000	
		SIZE: SHEET 1 OF 1	
NEXT ASSEMBLY	ENGINEER:	DRAWING NO. 472-3410	
QTY	J. WANG	REV. A	
TOTAL QTY IN DUMMY	DATE: 1/17/2012		
1			

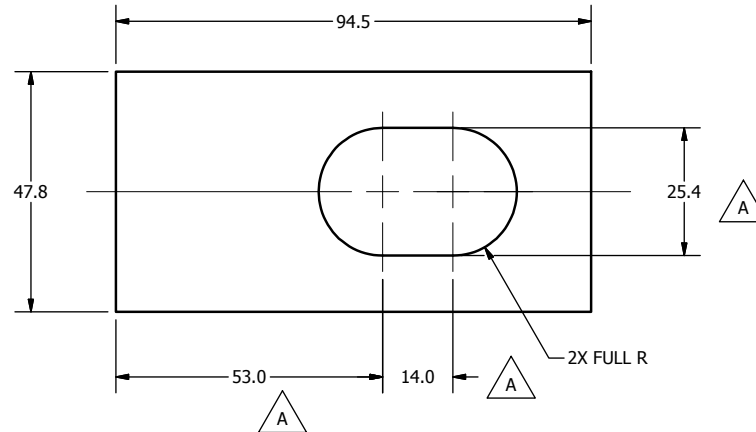
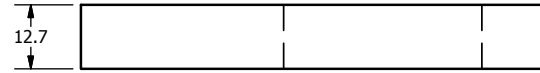
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM010 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD CENTER HOLE	9/13/2011	BK



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.2 ±0.5° 1.6 XX ±0.2 ±0.5° ✓ XXX ±0.3 ±0.5° XXX ±0.01		
PROJECT NO.:	472-3410	MATERIAL:	01 TOOL STEEL	DESCRIPTION:
DRIVEN BY:	1	HEAT TREAT:	Rc 40-43	MID-STERNUM PLATE
CHECKED BY:		TREATMENT:	TEFLON COATING	DATE:
		ENGINEER:	J. WANG	1/17/2012
TOTAL QTY IN DUMMY		QTY	1	SIZE SHEET
				A31 OF 1
				SCALE: 1.000
				DRAWING NO. 472-3413
				REV. A



SCALE 1.000



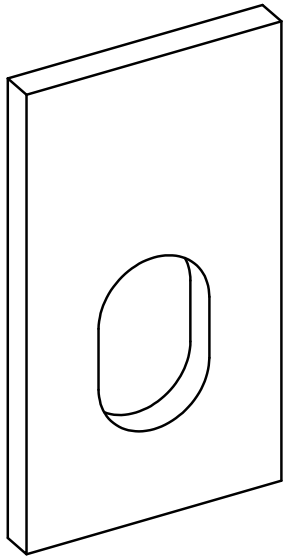
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM014 R0 FOR THOR-M; ADD CENTER HOLE	9/13/2011	BK

NOTES:

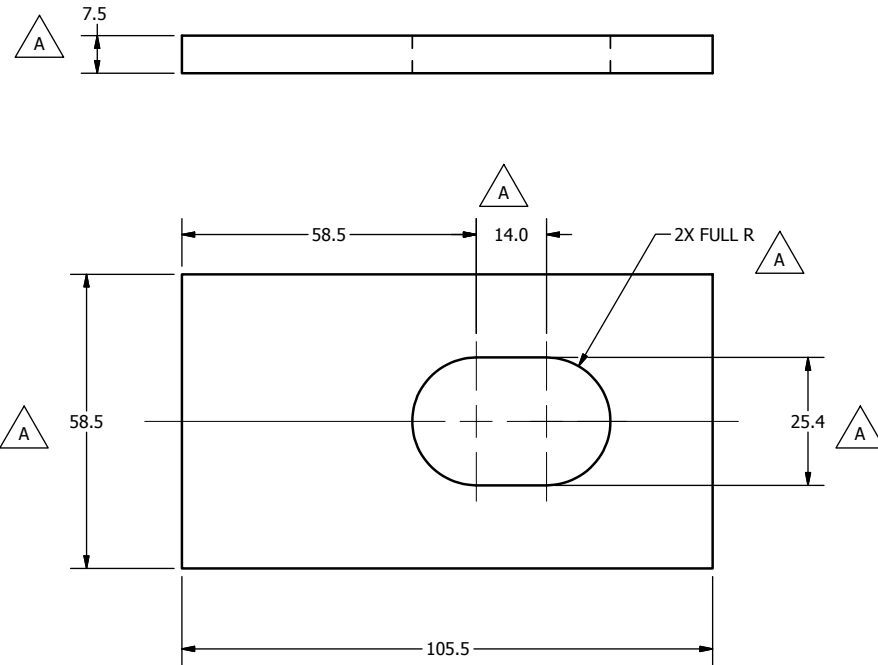
1. DIMENSION TOLERANCE ± 0.8 , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MASS DAMPING FOAM #1, MID-STERNUM
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3410	MATERIAL:	ESTER FOAM (6lb., CHARCOAL)	DATE:
DESIGNED BY:		CHECKED BY:	B. KIMES	DATE:
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:		TOTAL QTY IN DUMMY:	1	DATE:
SIZE: A3		SHEET: 1 OF 1		DRAWING NO.: 472-3414
SCALE: 1.000				REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM011 RB0 AND CONVERTED TO METRIC FOR THOR-M; 7.5, 58.5, 105.5 WAS 6.4, 58.4, 105.2; ADD CENTER HOLE, NOTES	10/26/2011	BK




SCALE 1.000



NOTES:

1. POWDER OR BEAD BLAST.
2. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>0.0 0.1 1.6</small> <small>X 0.2 ± 0.5</small> <small>XX 0.3</small> <small>XXX 0.01</small> <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO:	472-3410	MATERIAL:	1018 STEEL	DESCRIPTION:
HEAT TREAT:		ENGINEER:	J. WANG	MID-STERNUM MASS
DATE:	8/17/2011	CHECKED BY:	A. ABRAMOSKI	DATE:
DATE:	1/17/2012	ENGINEER:	J. WANG	DATE:
FINISH:	SEE NOTES	DATE:	1/17/2012	SCALE:
TOTAL QTY IN DUMMY	2	DATE:	1/17/2012	SCALE:
		DATE:	1/17/2012	SCALE:



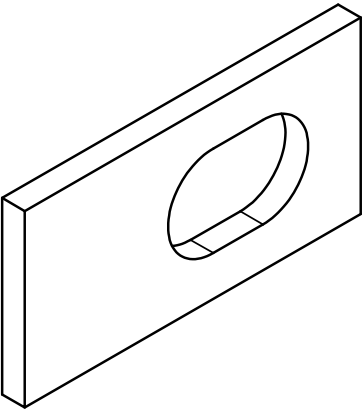
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

MID-STERNUM MASS

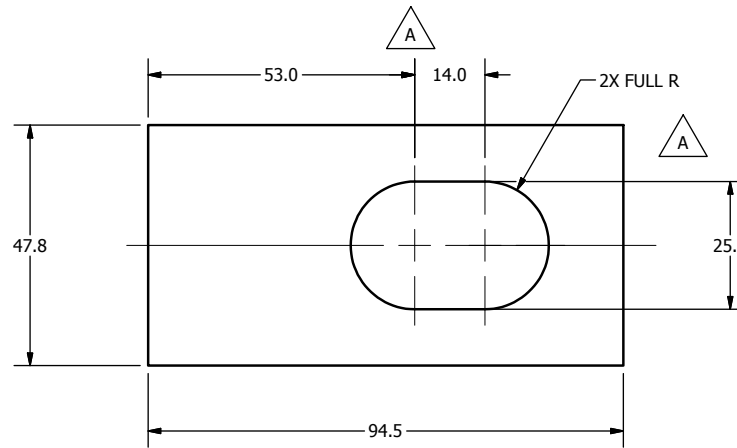
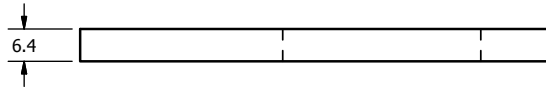
SIZE: A3
SHEET: 1 OF 1
SCALE: 1.000

DRAWING NO: 472-3411

REV: A



SCALE 1.000

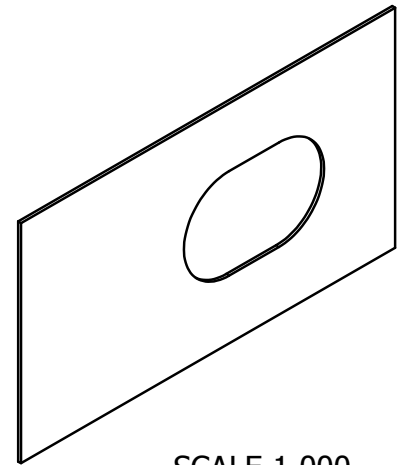


NOTES:

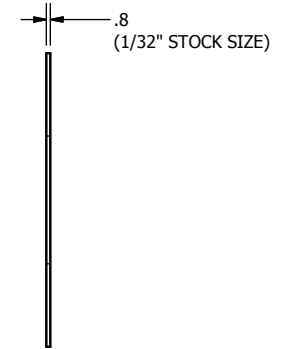
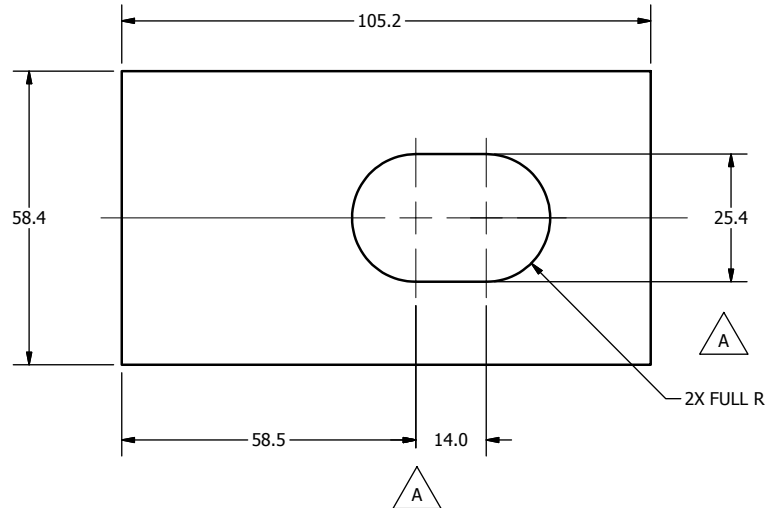
1. DIMENSION TOLERANCE $\pm .8$, UNLESS OTHERWISE NOTED.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM012 RB0 FOR THOR-M; ADD CENTER HOLE	9/12/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH .0 .05 1.6 .1 .1 .1 .2 .2 .2 .3 .3 .3 .4 .4 .4		
PROJECT NO:	472-3410	MATERIAL:	ESTER FOAM (6LB., CHARCOAL)	DESCRIPTION:
DATE:	9/12/2011	DESIGNED BY:	B. KIMES	MASS DAMPING FOAM #2, MID-STERNUM
CHECKED BY:		DATE:	9/12/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
FINISH:		DATE:	1/17/2012	SCALE: 1.000
DRIVING NO.:		REVISION:		472-3412
				A



SCALE 1.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM015 R0 FOR THOR-M; ADD CENTER HOLE	9/13/2011	BK

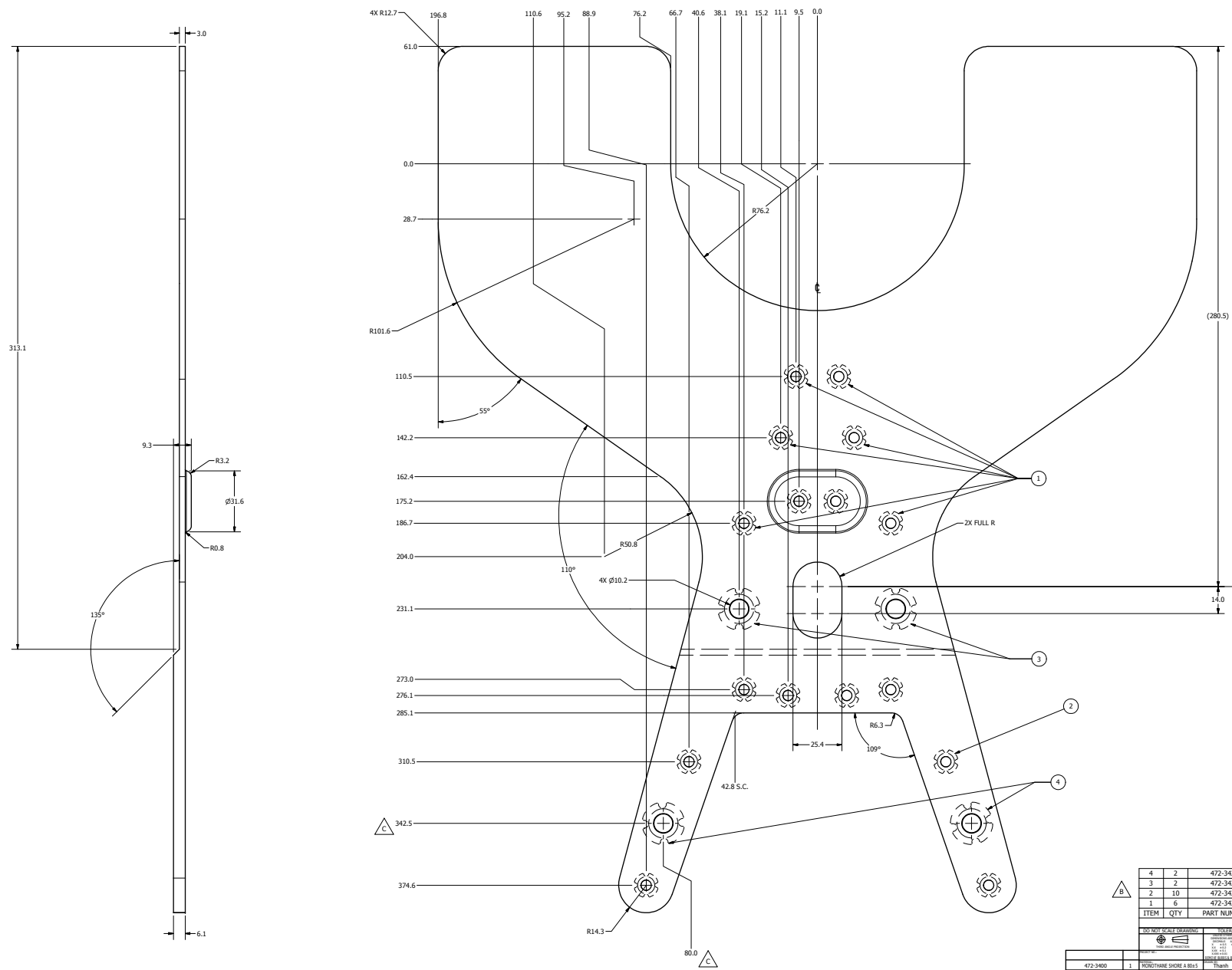
NOTES:

1. RUBBER TOLERANCE $\pm .5$ AND DUROMETER ± 5 , UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO.:	472-3410	MATERIAL:	BUNA-N RUBBER 50A	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	9/13/2011	MID-STERNUM RUBBER PAD
CHECKED BY:		ENGINEER:	J. WANG	DATE:
DATE:		DATE:	1/17/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
SCALE:	1.000			472-3415

REVISION HISTORY					
ECO#	REV	DESCRIPTION	DATE	BY	
	A	RENUMBER FROM T11TXM110 RBD AND CONVERTED TO METRIC FOR THORAX	9/23/2011	TKN	
	B	REMOVED NOTE; REPLACED MESH WITH ADD MATERIAL	1/9/12	KHS	
	C	342.5, 80.0 WERE 334.5, 79.4	7/20/2012	BK	

PART IS SYMMETRICAL ACROSS CENTERLINE

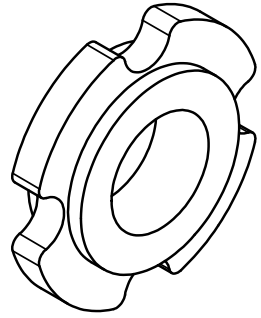


ITEM	QTY	PART NUMBER	DESCRIPTION
4	2	472-3424	BIB INSERT - THICK, LARGE
3	2	472-3423	BIB INSERT - THIN, LARGE
2	10	472-3422	BIB INSERT - THICK, SMALL
1	6	472-3421	BIB INSERT - THIN, SMALL

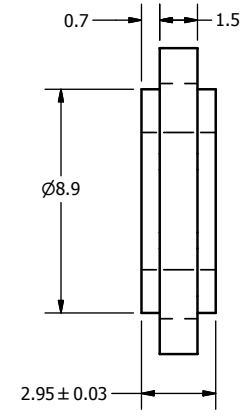
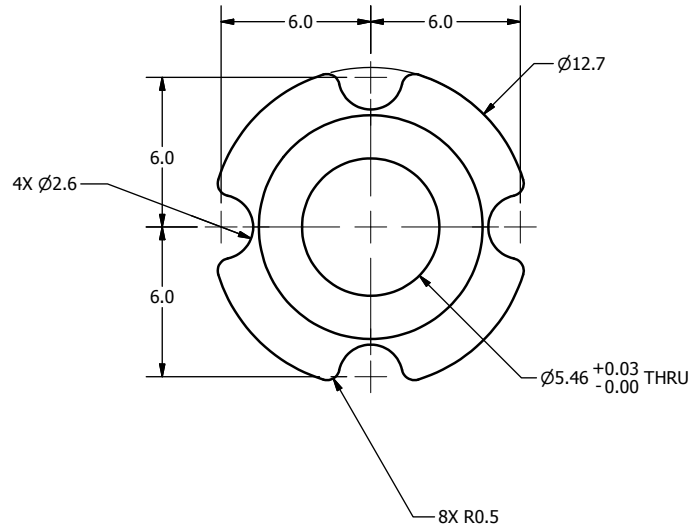
NO TEXT SCALE DRAWING		Partic List	
472-3400	1	THORAX OUTER BIB	
NEXT ASSEMBLY	QTY		
TOTAL QTY IN DRAWING	1		

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THORAX OUTER BIB
 472-3420
 1 of 1
 7/20/2012

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	1/6/2012	KHS

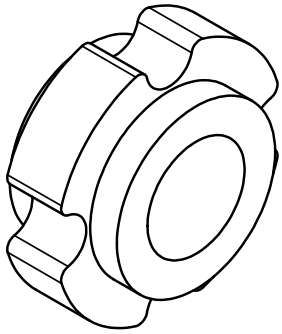


SCALE 5.000

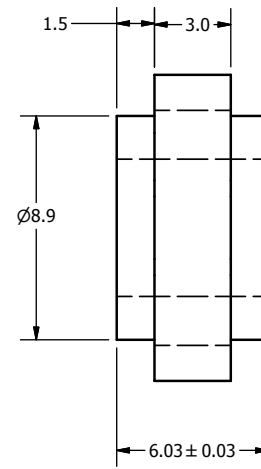
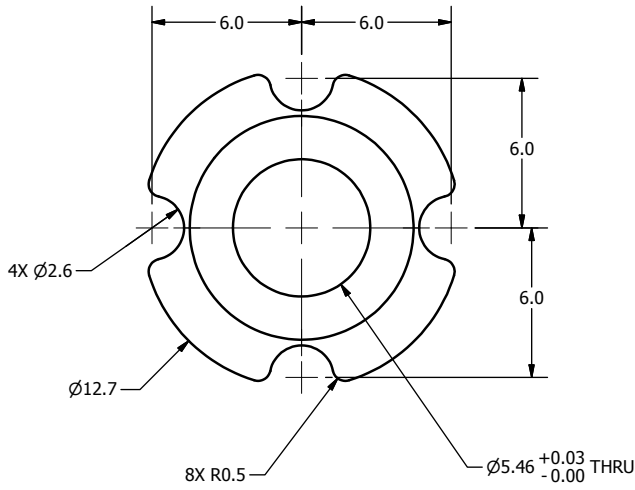


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 ± 0.05 16 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 <input checked="" type="checkbox"/> REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3420	MATERIAL:	Aluminum-7075	DESCRIPTION:
DATE:	1/6/2012	CHECKED BY:	KHS	BIB INSERT - THIN, SMALL
DATE:	1/9/2012	ENGINEER:	TMV	SIZE: SHEET
DATE:	1/18/2012	ENGINEER:	J. WANG	A3 1 OF 1
SCALE:	5:1	DRAWING NO.:	472-3421	REV:
				A

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	1/18/2012	KHS



SCALE 5.000



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

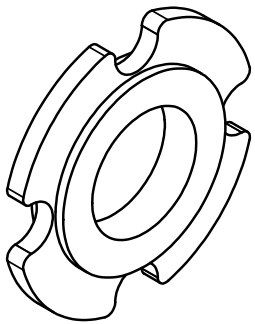
TOLERANCES			
DECIMALS	ANGLES	FINISH	OTHER
± 0.05	± 0.5°	1.6	
± 0.2			
± 0.3			
± 0.01			



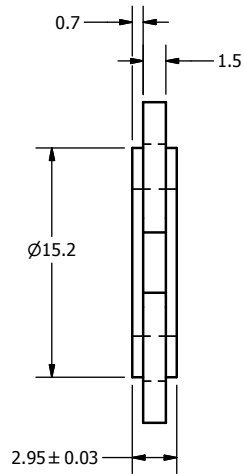
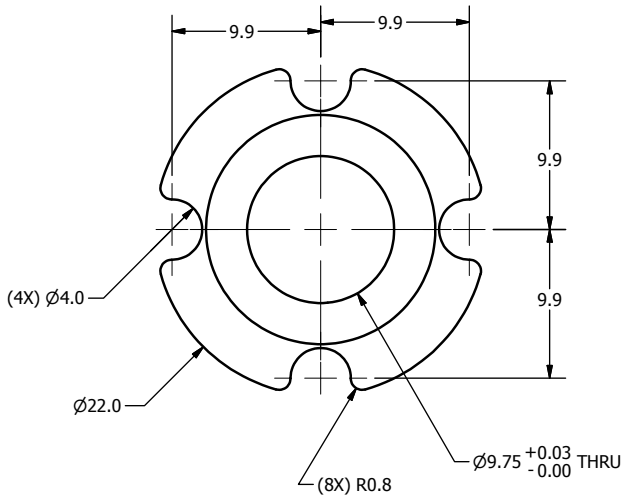
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-3420	QTY: 10	MATERIAL: Aluminum-7075	DATE: 1/9/2012	SIZE: A3 SHEET: 1 OF 1 SCALE: 5:1	DRAWING NO.: 472-3422 REV: A
CHECKED BY: TMV	DATE: 1/9/2012	ENGINEER: J. WANG	DATE: 1/18/2012		
HEAT TREAT:	FINISH:	REMOVE BURRS & BREAK SHARP EDGES			
TOTAL QTY IN DUMMY: 10		DESCRIPTION: BIB INSERT - THICK, SMALL			

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	1/9/2012	KHS



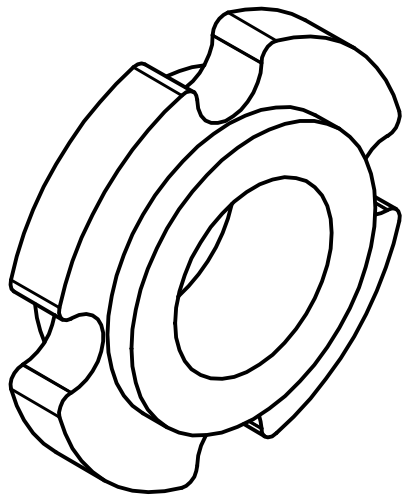
SCALE 3.000



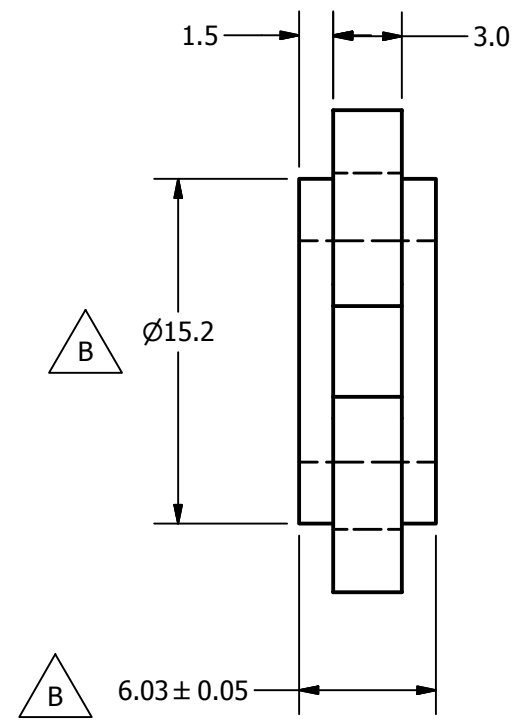
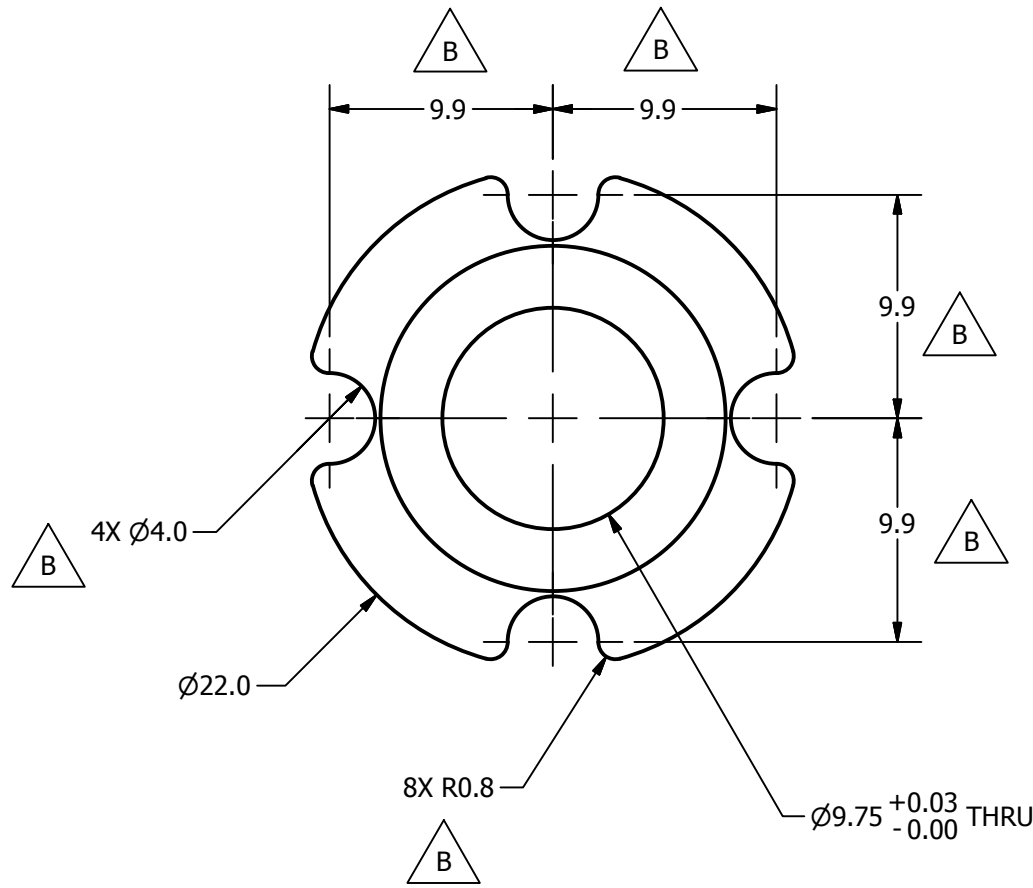
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 0.1 16 0.2 16 0.3 16 0.01 16		
PROJECT NO:	472-3420	MATERIAL:	Aluminum-7075	DESCRIPTION:
DATE:	1/9/2012	CHECKED BY:	KHS	BIB INSERT - THIN, LARGE
DATE:	1/9/2012	HEAT TREAT:		
DATE:	1/18/2012	ENGINEER:	J. WANG	
SIZE:	A3	SCALE:	3:1	DRAWING NO:
SHEET:	1 OF 1			472-3423
REV:				A

472-3420	2	Aluminum-7075
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	2	

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	1/18/2012	KHS
70324	B	9.9 WAS 9.3, Ø4.0 WAS 5.0, R0.8 WAS R1.0, Ø15.2 WAS 13.5 THICKNESS WAS 6.02 +/- .03 MATERIAL WAS ALUMINUM 6061	11/27/2012	TMV



SCALE 3.000



DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		.XXXX ± 0.01	
PROJECT NO.: 472-3420		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL: Aluminum-7075	DATE: 1/9/2012	DRAWN BY: KHS	
HEAT TREAT:	DATE: 1/9/2012	CHECKED BY: TMV	DATE: 1/9/2012
FINISH:	DATE: 1/18/2012	ENGINEER: J. WANG	DATE: 1/18/2012

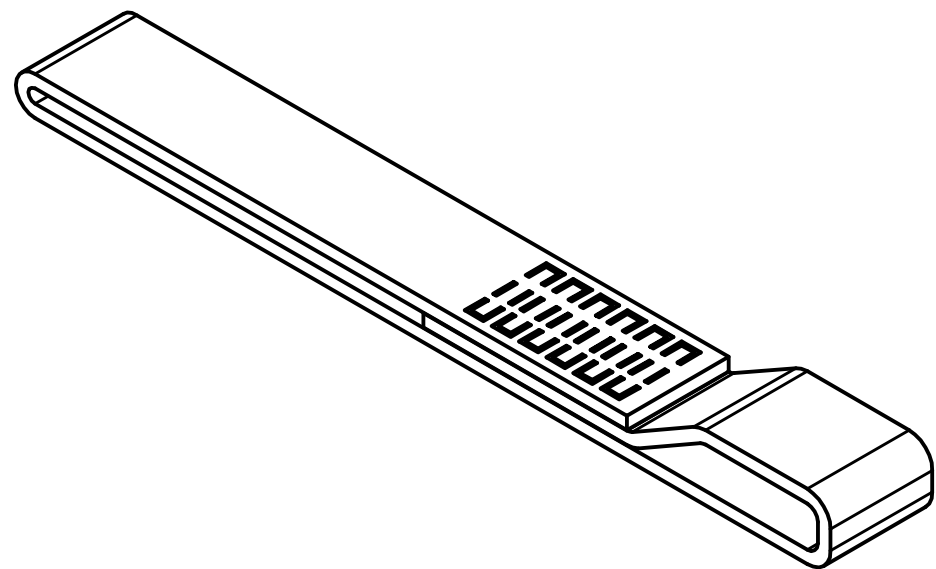
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: BIB INSERT - THICK, LARGE

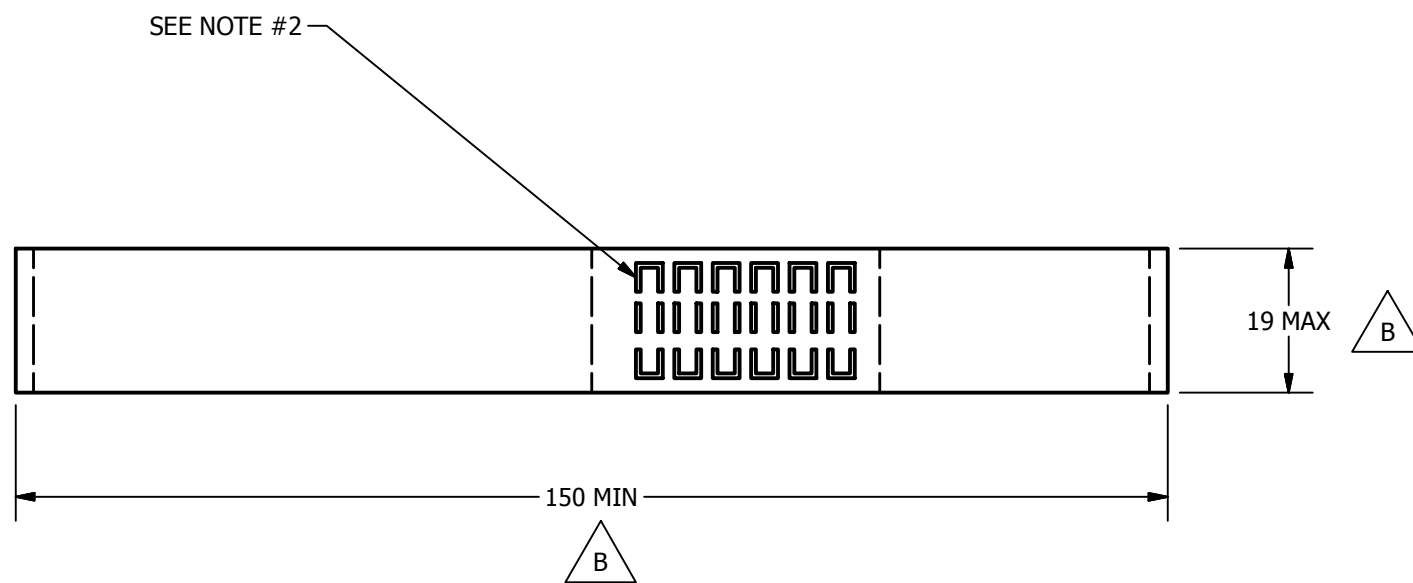
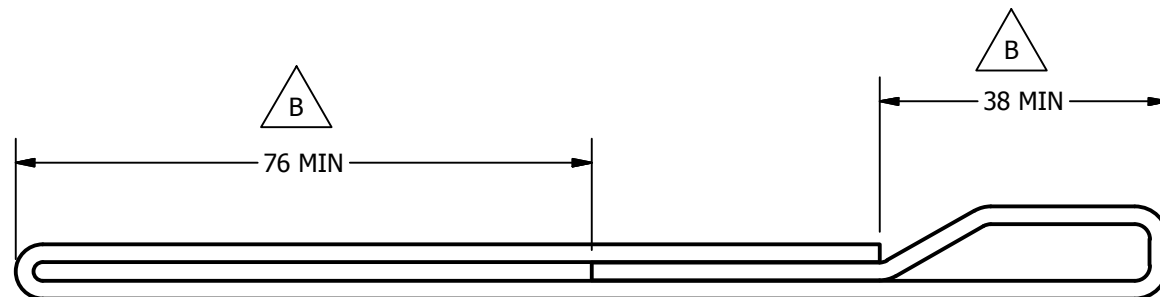
SIZE: A3 1 OF 1
SCALE: 3:1

DRAWING NO.: 472-3424

472-3420	2
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2



ISO VIEW
SCALE 1 : 1



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER T1TXM017 RN/C AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	TKN
	B	REMOVED PARTS LIST; DIM. 150 MIN WAS 152, 76 MIN WAS 76, AND 38 MIN WAS 38; REMOVED STITCHING DIMENSIONS; ADDED DIMENSION 20 MAX; IN NOTE 1, 336mm WAS 343MM; IN NOTE 2, AS NECESSARY WAS AS DIMENSIONED; ADDED NOTE 3	8/27/2015	DW

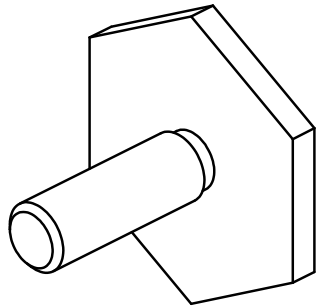
NOTES:

- CUT THE NYLON WEBBING TO A LENGTH OF 336mm AND OVERLAP AS DIMENSIONED.
- STITCH THE NYLON WEBBING USING KEVLAR THREAD AS NECESSARY.
- MAKE FROM NYLON WEBBING WITH A 10 kN BREAKING STRENGTH MIN.

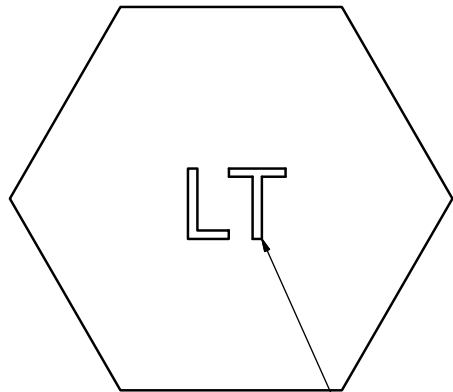


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
PROJECT NO.: THOR-M	MATERIAL:	REMOVE BURRS & BREAK SHARP EDGES	DATE: 9/23/2011	DESCRIPTION: THORAX RIB #1 DUMMY LIFT STRAP
472-3000	1	Checked by: Thanh	DATE:	SIZE: A3
NEXT ASSEMBLY	QTY	ENGINEER: J. WANG	DATE: 1/18/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY	1			DRAWING NO.: 472-3517

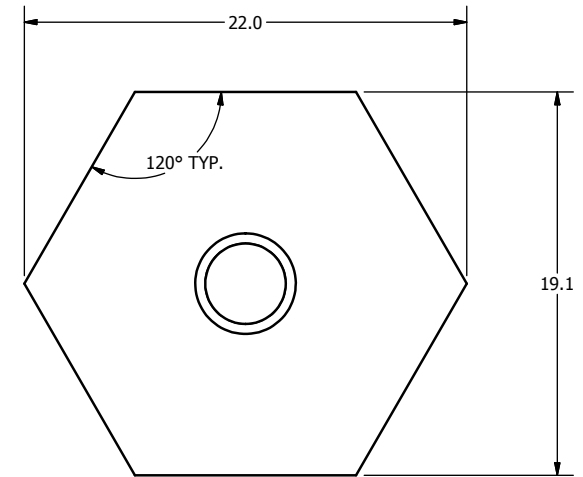
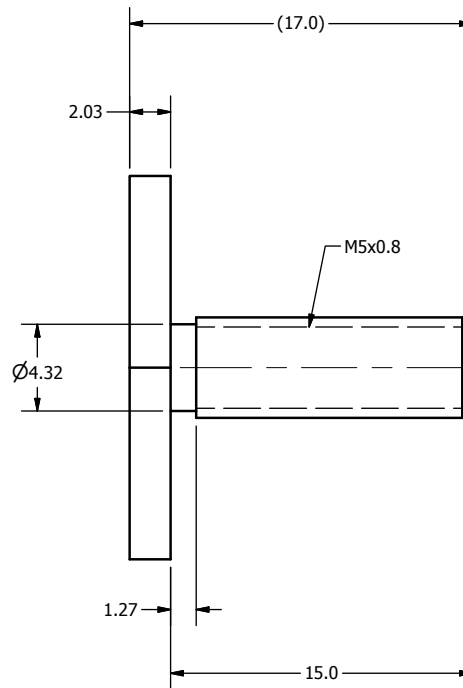
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	7/25/2012	BK
	B	CHANGE DESC, "LOWER THORAX" WAS "ABDOMEN"; STAMP "LT" ON PART AND ADD NOTE 4; ADD VIEW	7/11/2013	BK



ISO VIEW
SCALE 3.000



B SEE NOTE 4



NOTES:

- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
- STAMP OR ETCH "LT" (3mm MIN. CHARACTERS) WHERE SHOWN.

B

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION IRTRACC CONNECTING BOLT, LOWER THORAX
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 1.6 ✓ 0.1 0.2 ✓ 0.3 0.3 ✓ 0.01		
PROJECT NO:	472-3000	MATERIAL:	1018 STEEL HEX	DATE:
QTY:	2	CHECKED BY:	Thanh	DATE:
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:	SEE NOTES	DATE:	1/18/2012	SCALE:
TOTAL QTY IN DUMMY:	2	SEE NOTES		SCALE: 4.000



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

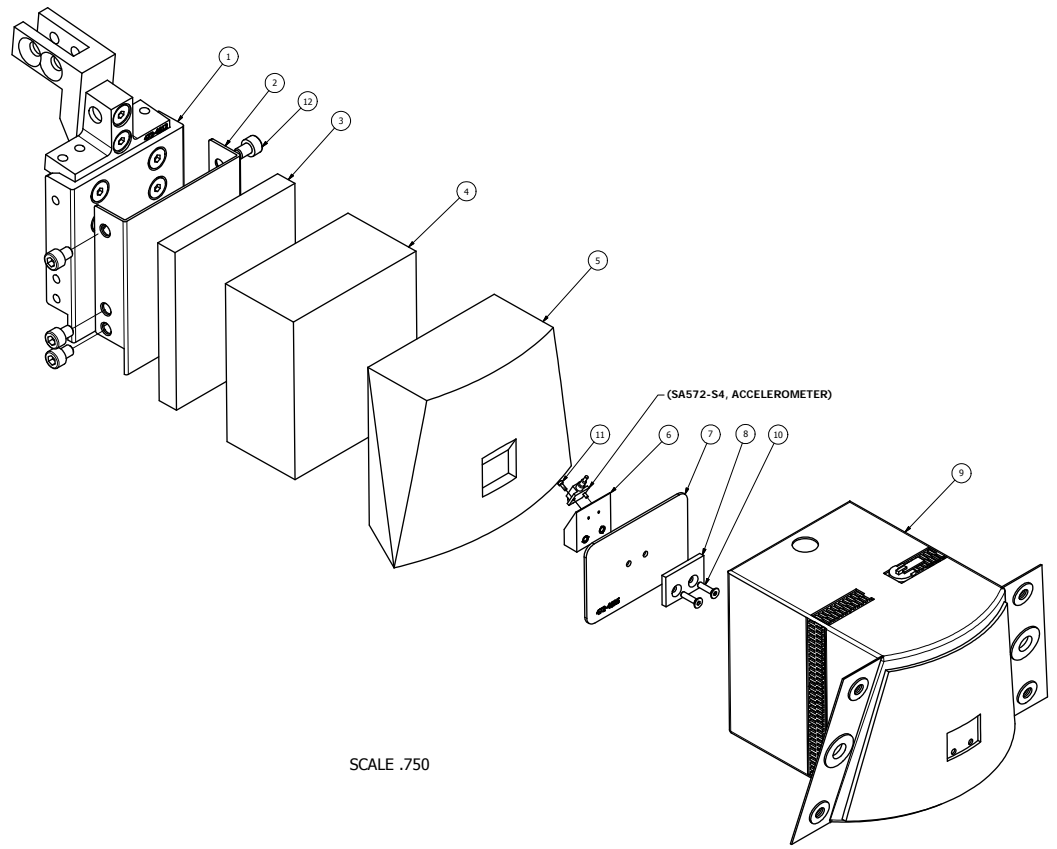
IRTRACC CONNECTING BOLT, LOWER THORAX

SIZE: A3
SHEET: 1 OF 1
SCALE: 4.000

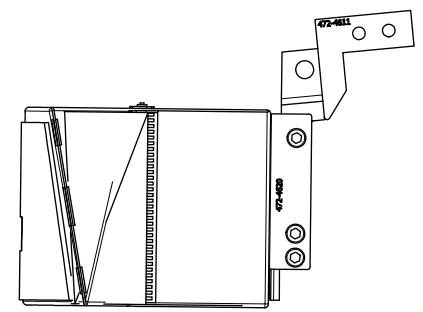
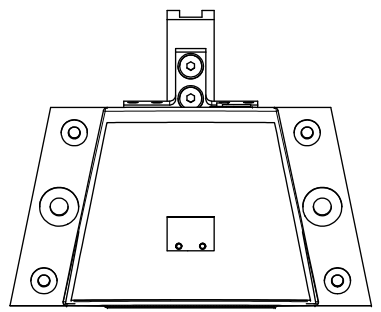
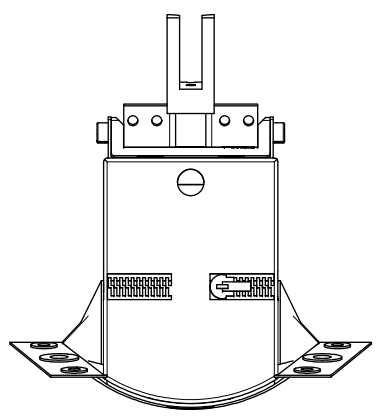
DRAWING NO.: 472-3520

REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
A		RENUMBERED FROM T1UAM000 R05	9/8/2011	BK
B		AND CONVERTED TO METRIC FOR THOR-M	2/4/2012	BK
C		UPDATE TO SHOW CHANGES TO 472-4622, 472-4623	4/3/2012	BK
		UPDATE TO SHOW PROPER VELCRO LOCATION	4/3/2012	BK



SCALE .750



ITEM	QTY	PART NUMBER	DESCRIPTION
12	6	5000085	M6 X 1 X 8 LG. SHCS
11	2	5000375	M1.4 X 0.3 X 4 LG. SHCS
10	2	5000377	M3 X 0.5 X 12 LG. FHCS SS
9	1	472-4627	GROMMET ASSEMBLY, UPPER ABDOMEN BAG
8	1	472-4626	ACCELEROMETER MOUNT PLATE
7	1	472-4625	LOAD DISTRIBUTION PLATE
6	1	472-4624	ACCELEROMETER MOUNT, UPPER ABDOMEN
5	1	472-4623	INTERNAL FOAM FRONT LAYER
4	1	472-4622	INTERNAL FOAM MIDDLE LAYER
3	1	472-4621	INTERNAL FOAM REAR LAYER
2	1	472-4620	UPPER ABDOMEN INTERN. MOUNT PLATE FRONT
1	1	472-4610	SPINAL MOUNT BRACKET ASSEMBLY

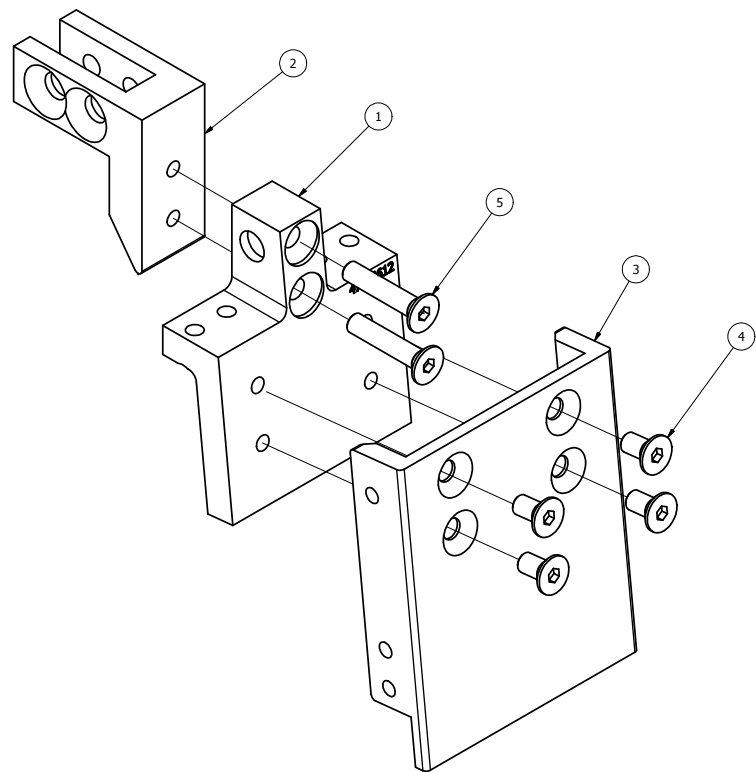
DO NOT SCALE DRAWING		TOLERANCES		PARTS LIST	
472-3000	1				
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DRAWING	1				

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

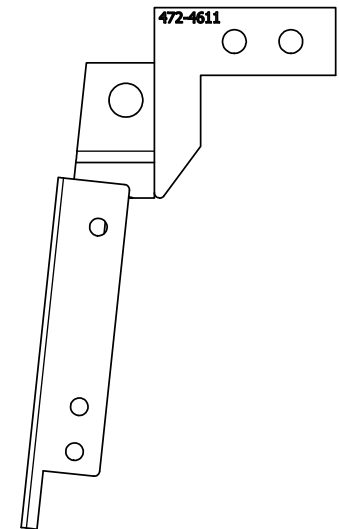
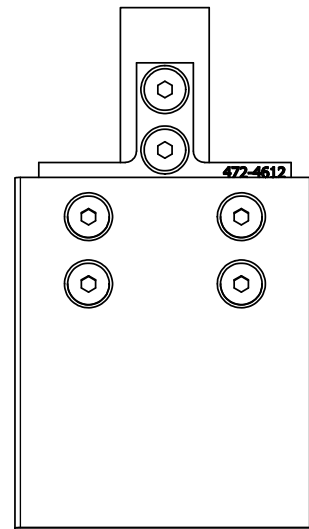
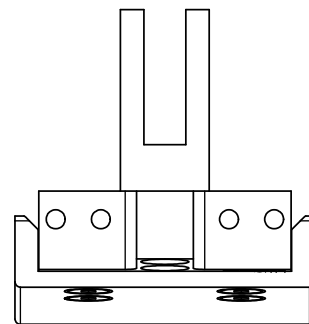
472-4600	1				
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DRAWING	1				

All of 1 472-4600

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM100 R05 (AND CONVERTED TO METRIC) FOR THOR-M	9/7/2011	BK



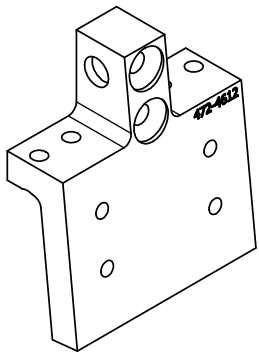
SCALE 1.000



NOTES:
1. ASSEMBLE USING PERMANENT LIQUID THREAD LOCKER.

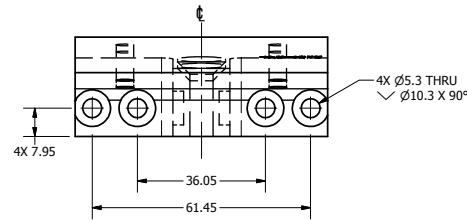
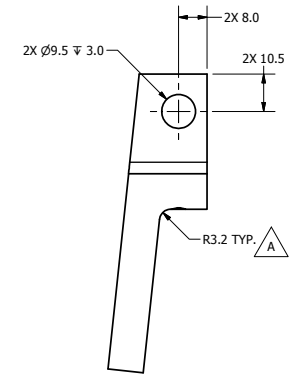
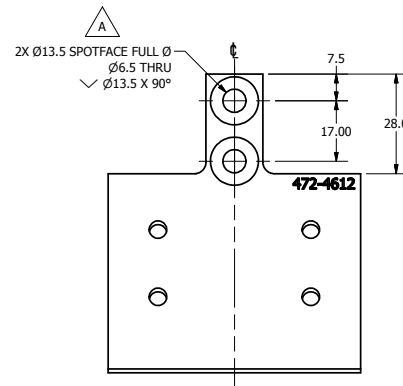
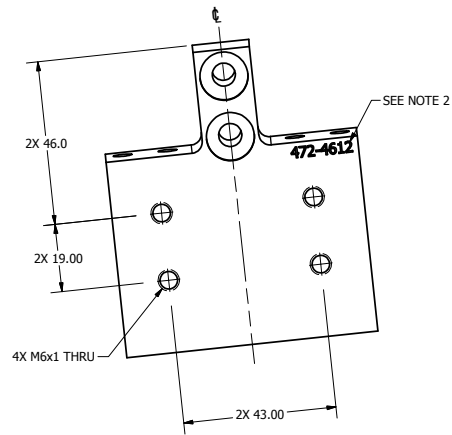
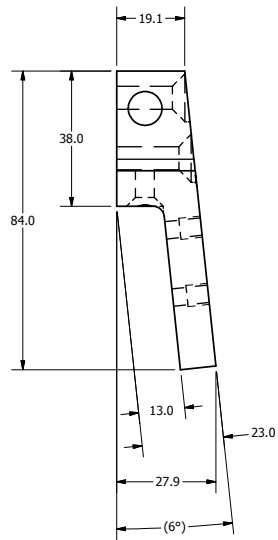
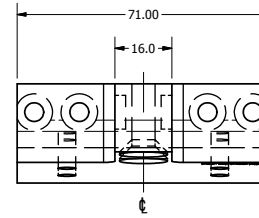
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000265	M6 X 1 X 30 LG. FHCS
4	4	5000139	M6 X 1 X 12 LG. FHCS
3	1	472-4613	UPPER ABDOMEN SPINAL MOUNT BRACKET
2	1	472-4611	THORACIC INSTR. BRACKET, UPPER ABDOMEN
1	1	472-4612	THORACIC INSTR. BRACKET BASE PLATE

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
		DECIMAL FRACTIONS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS: FRACTION 0.1 1/16 0.2 1/8 0.5 1/4 1.0 1/2 2.0 1 3.0 3/8 4.0 1/2 6.0 3/4 8.0 1 10.0 1 1/8 12.0 1 1/4 16.0 1 1/2 20.0 1 3/4 25.0 2 30.0 1 1/4 40.0 1 3/4 50.0 2 1/4 60.0 2 1/2 80.0 3 1/4 100.0 4	
SHOW HIDDEN & BREAK SHARP EDGES PART NUMBER: 472-4610 REV: 1 DATE: 1/18/2012 DRAWN BY: J. WANG CHECKED BY: B. KIMES DATE: 9/7/2011		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SPINAL MOUNT BRACKET ASSEMBLY A21 of 1 472-4610	
472-4600	1		
NEXT ASSEMBLY	QTY		
TOTAL QTY IN DUMMY	1		



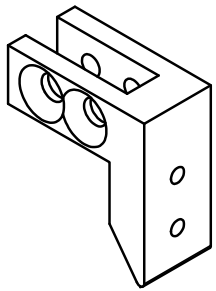
SCALE 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM111 R03 AND CONVERTED TO METRIC FOR THOR-M; ADD 2X SPOTFACE, R3.2 TYP., (OPTIONAL) TO NOTE 2, NOTES 1,3,5; FINISH WAS FLOUROCARBON	9/6/2011	BK

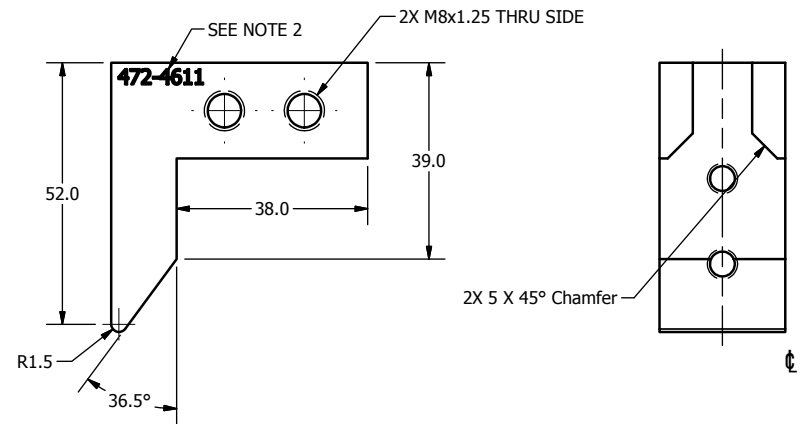
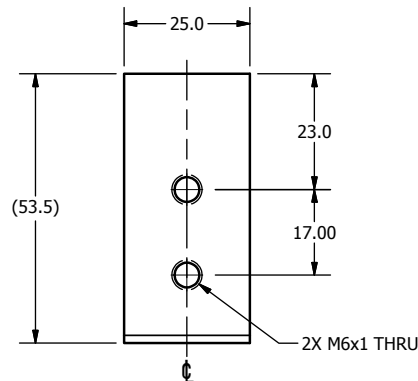
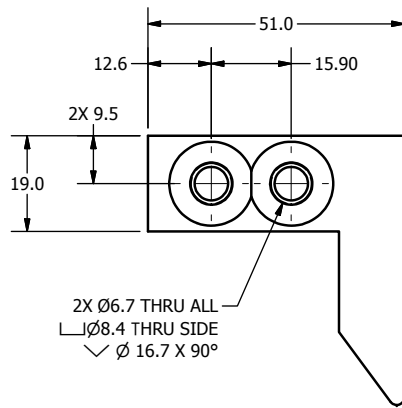
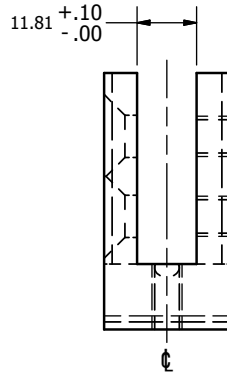


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 3. POWDER OR BEAD BLAST.
 4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		DECIMAL FRACTIONS: ±0.13mm DIMENSIONS ARE IN MILLIMETERS DIMENSIONS ARE IN INCHES: ±0.005"		
472-4610	1	1018 STEEL	9/6/2011	THORACIC INSTR. BRACKET BASE PLATE
NEXT ASSEMBLY	QTY	PREPARED BY	DATE	 1.000
TOTAL QTY IN DUMMY	1	SEE NOTES	1/18/2012	472-4612



SCALE .750



NOTES:

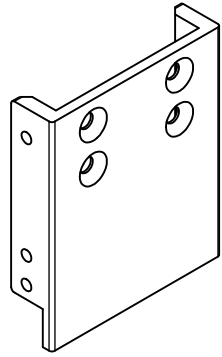
1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM110 R06 AND CONVERTED TO METRIC FOR THOR-M; ADD (OPTIONAL) TO NOTE 2, NOTES 1,3,5; FINISH WAS FLOUROCARBON COATING	9/6/2011	BK

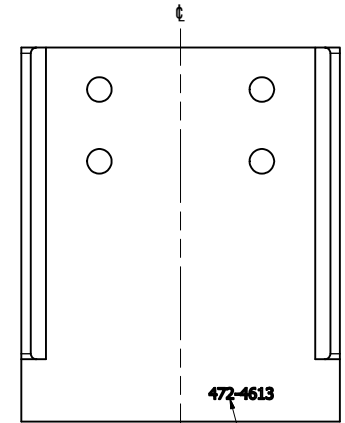
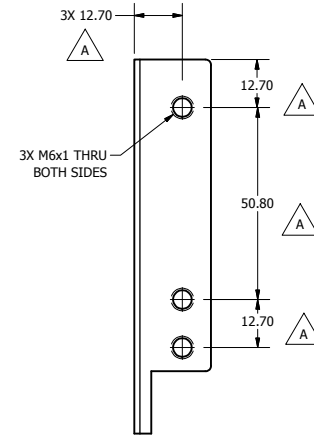
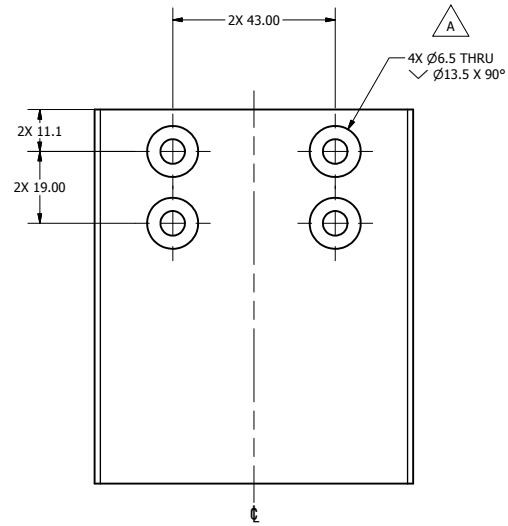
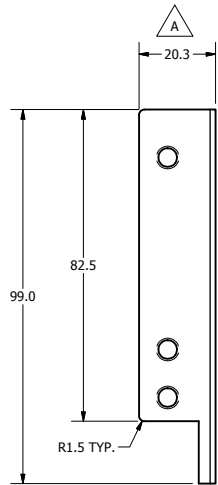
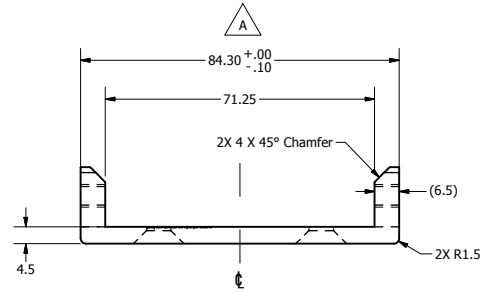
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION THORACIC INSTR. BRACKET, UPPER ABDOMEN	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO:	472-4610	MATERIAL:	1018 STEEL	DESIGNED BY:	B. KIMES
HEAT TREAT:		CHECKED BY:	J. WANG	DATE:	1/18/2012
FINISH:	SEE NOTES	ENGINEER:	J. WANG	DATE:	1/18/2012
TOTAL QTY IN DUMMY	1	FRONT:	SEE NOTES	SCALE:	1.000

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THORACIC INSTR. BRACKET, UPPER ABDOMEN
 SIZE: A31 OF 1
 SHEET: 1 OF 1
 DRAWING NO.: 472-4611
 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIUAM113 R08 AND CONVERTED TO METRIC FOR THOR-M; 20.3 WAS 20.5±.2; 4X Ø6.5 C'SINK Ø13.5 WAS Ø6.6 C'SINK Ø12.6; 3X 12.70 WAS 3X 12.700±.100; 50.80 WAS 50.800±.100; 84.30 ±.00/-0.10 WAS 84.3	9/6/2011	BK



SCALE .750



472-4613
SEE NOTE 2

NOTES:

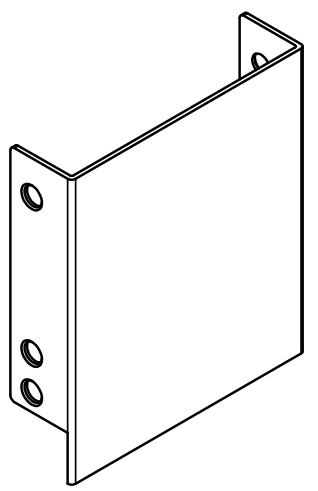
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.



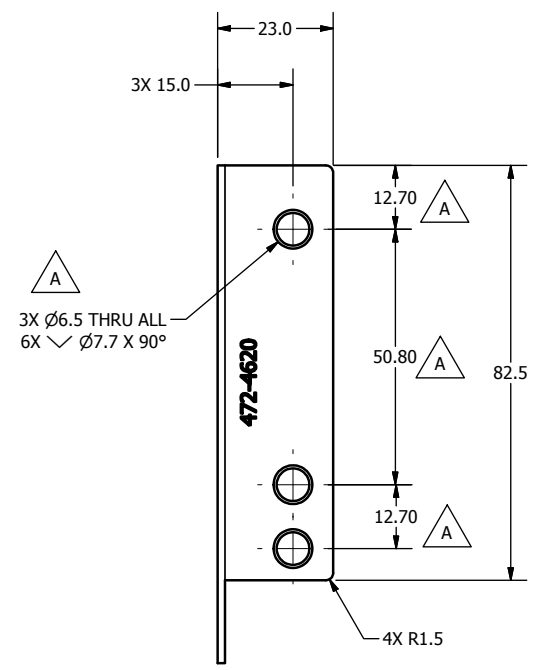
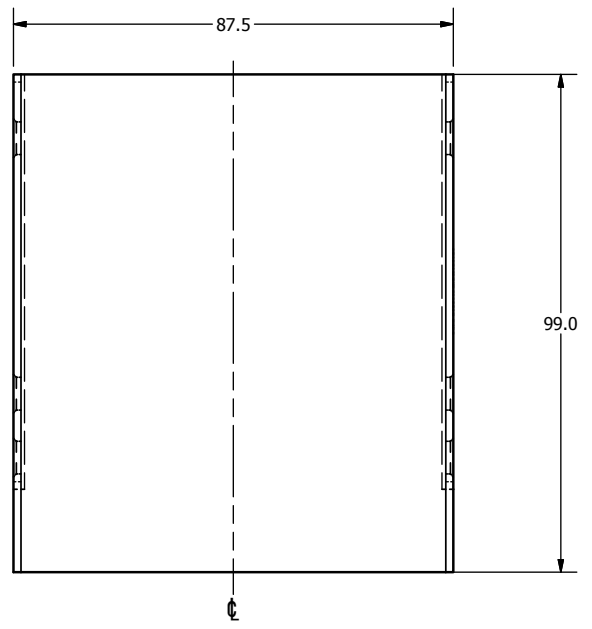
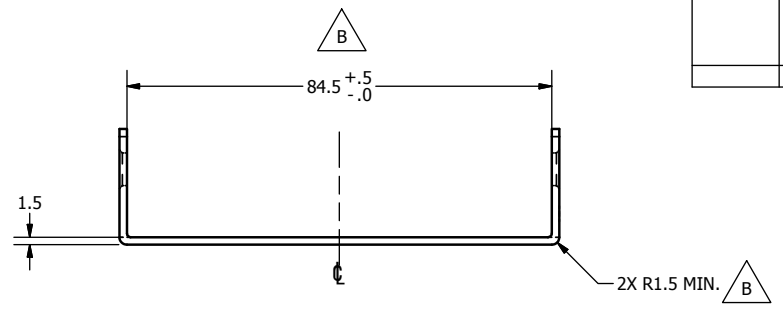
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>FRAMES ARE IN MILLIMETERS</small> <small>ANGLES ARE IN DEGREES</small> <small>UNLESS OTHERWISE SPECIFIED</small> <small>FINISHES ARE AS SHOWN</small> <small>UNLESS OTHERWISE SPECIFIED</small>		
472-4610	1	1018 STEEL	B. KIMES	9/6/2011
NEXT ASSEMBLY	QTY			
TOTAL QTY IN DUMMY	1	SEE NOTES	J. WANG	1/18/2012

1 OF 1
472-4613

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM113 R08 AND CONVERTED TO METRIC FOR THOR-M; ADD 12.70, 50.80, (OPTIONAL) TO NOTE 2; NOTES 1,3,5; FINISH WAS FLOUROCARBON COATING; 3X Ø6.5 C'SINK Ø7.7 X 90° WAS 3X Ø6.756±.100 C'SINK Ø7.7 X 82°	9/6/2011	BK
	B	84.5+.5/-0 WAS +.1/-0; ADD "MIN." TO R1.5	6/14/2012	BK

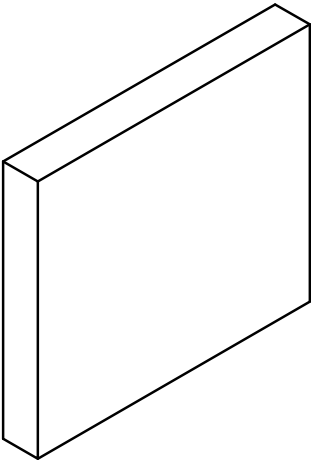


SCALE .750

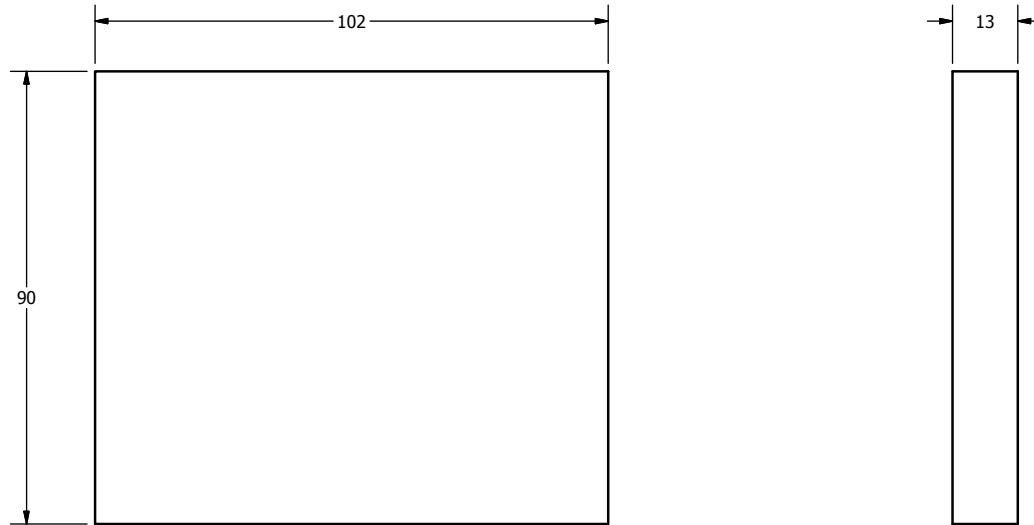


- NOTES:
- DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
 - STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 - POWDER OR BEAD BLAST.
 - NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 - DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UPPER ABDOMEN INTERN. MOUNT PLATE FRONT
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 1.6 ✓ 0.1 0.2 ✓ 0.3 0.3 ✓ 0.01 0.01 ✓		
PROJECT NO:	472-4600	MATERIAL:	1018 STEEL	REMOVED
CHECKED BY:	B. KIMES	DATE:	9/6/2011	REMOVE BURRS & BREAK SHARP EDGES
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:	SEE NOTES	DATE:	1/18/2012	SCALE:
TOTAL QTY IN DUMMY	1	SIZE:	A3	SHEET:
		SCALE:	1.000	DRAWING NO.:
				472-4620
				B



SCALE .750



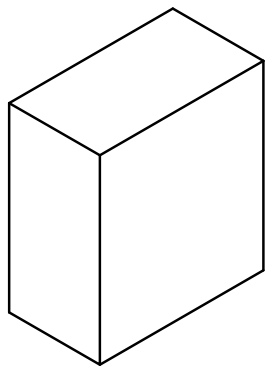
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM010 R03 FOR THOR-M	9/7/2011	BK

NOTES:

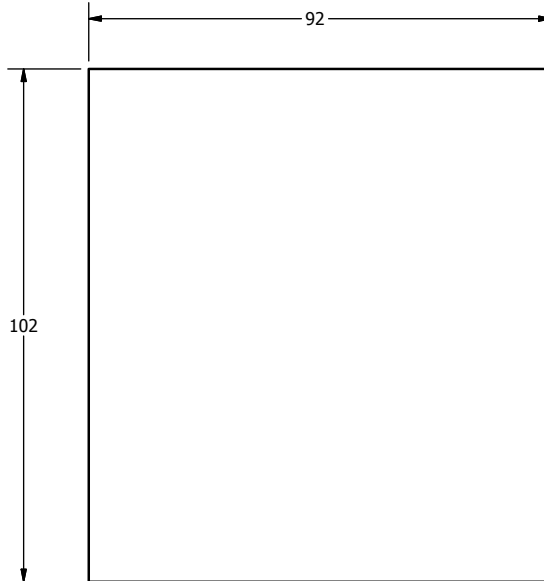
- MATERIAL: BUNA-N (SHORE 60A ±5)
SAE J2000 SPECIFICATION: 2BG617B14K11 Z1Z2Z3
2-GRADE 2
BG-SWELL 405 @ CONSTANT TEMP 100°C
6-DUROMETER 60
17-17 MPA
B14-COMPRESSION SET 22H @ 110°C < 50%
K11-ADHESION > 1.4 MPA
Z1-BUNA-N
Z2-DUROMETER 55-65A
Z3-PERFORMANCE SPECIFICATIONS TAKE PRECEDENCE OVER DUROMETER
- NOMINAL STIFFNESS @ 25% COMPRESSION: 900±50 KPA (130±7 PSI)
REFER TO THOR CERTIFICATION MANUAL FOR DYNAMIC PERFORMANCE SPECIFICATIONS.
- FOAM TOLERANCE ±1mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.05 1.6 XX 0.2 XXX 0.3 XXXX 0.01		
PROJECT NO:	472-4600	MATERIAL:	SEE NOTES	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	9/7/2011	INTERNAL FOAM REAR LAYER
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:		DATE:	1/18/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
SCALE:	1.000			472-4621

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM111 R03 FOR THOR-M	9/7/2011	BK
	B	REDESIGN TO ORIGINAL NHTSA DESIGN REV 2 (WITHOUT HOLES)	2/4/2012	BK



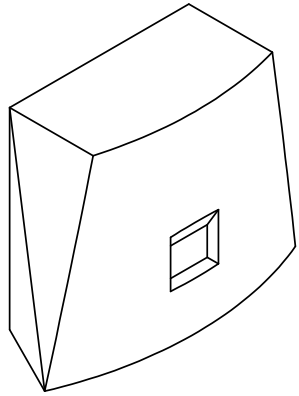
SCALE .500



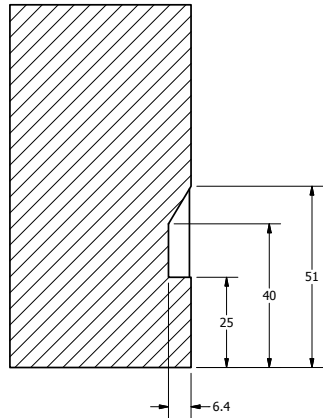
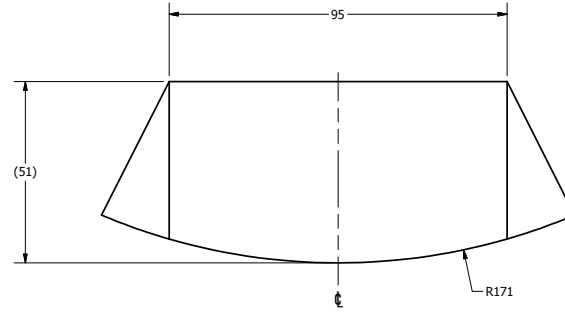
NOTES:

- FOAM MATERIAL IS BLENDED SPONGE RUBBER
NEOPRENE/SBR/EPDM FOAM RUBBER (NOMINAL DUROMETER 20A ±5)
SAE J18 SPECIFICATION: 1A5
1-OPEN CELL FOAM
A-NON-OIL RESISTANT
5-COMPRESSION DEFLECTION 25% 119-168 KPA (17-24 PSI)
- NOMINAL STIFFNESS @ 50% COMPRESSION: 200±15 KPA (29±2 PSI)
REFER TO THOR CERTIFICATION MANUAL FOR PERFORMANCE SPECIFICATIONS.
- FOAM TOLERANCE ±1mm, UNLESS OTHERWISE NOTED.

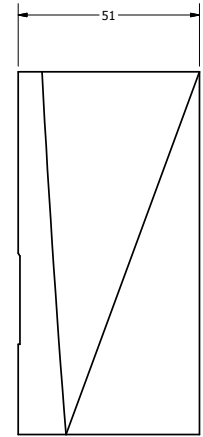
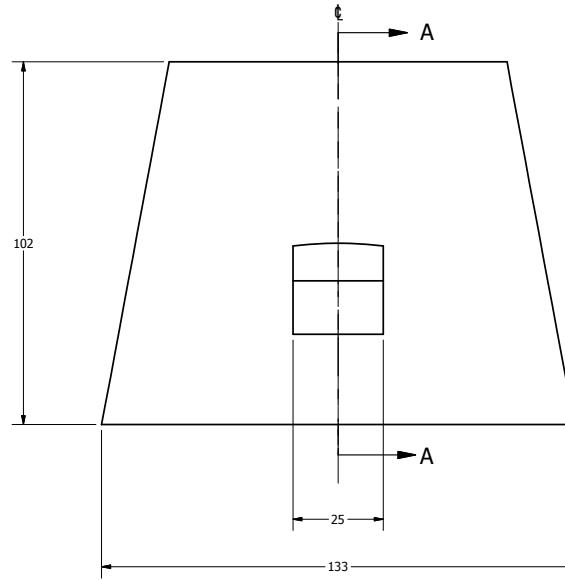
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX ±0.2 XXX ±0.3 XXXX ±0.01		
PROJECT NO:	472-4600	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	9/7/2011	DESIGNED BY:	B. KIMES	INTERNAL FOAM MIDDLE LAYER
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
TOTAL QTY IN DUMMY	1	DATE:	1/18/2012	SCALE: 1.000
				DRAWING NO. 472-4622
				REV. B



SCALE .750



SECTION A-A
SCALE 1.000



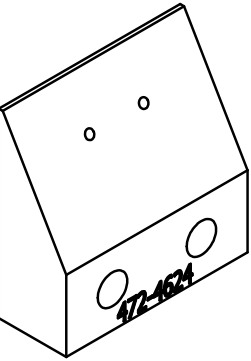
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM012 R04 FOR THOR-M; ADD NOTE 1 & 2	9/8/2011	BK
	B	REDESIGN TO ORIGINAL NHTSA DESIGN REV 3 (WITHOUT HOLES)	2/4/2012	BK

NOTES:

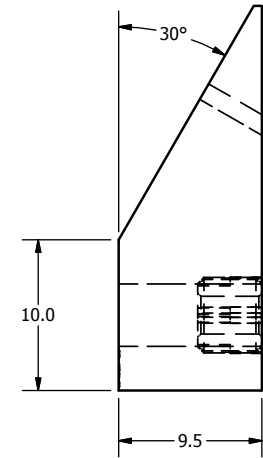
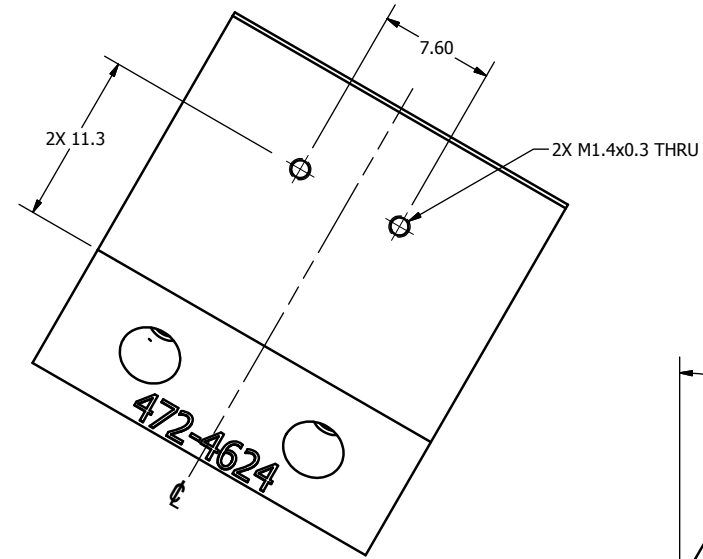
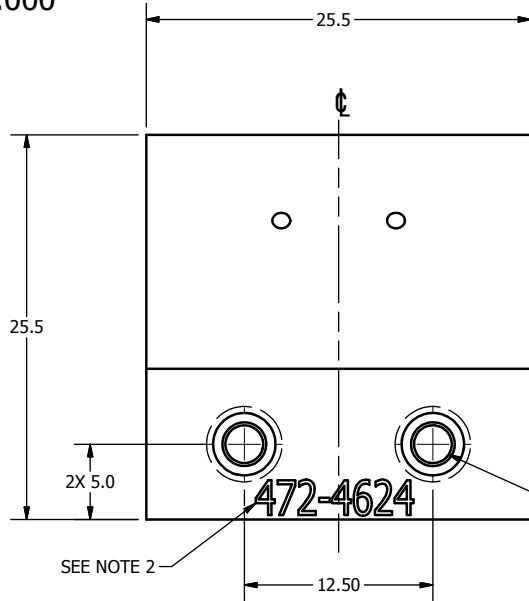


1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED
2. FOAM TOLERANCE $\pm 1\text{mm}$, UNLESS OTHERWISE NOTED.
3. MATERIAL: CHARCOAL POLYESTER FOAM WITH NOMINAL DENSITY OF 6 LB/CU FT OR EQUIVALENT. MATERIAL CAN BE ADJUSTED TO MEET CERTIFICATION REQUIREMENT.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DECIMAL FRACTIONS: FRACTIONS DIMENSIONS ARE IN MILLIMETERS DECIMALS: .1 .2 .5 .10 .15 ANGLES: .5 .10 .15 HOLE SIZES: HOLE SIZES SHOW HIDDEN & BREAK SHARP EDGES		INTERNAL FOAM FRONT LAYER	
472-4600	1	SEE NOTES	B. KIMES	9/8/2011	
NEXT ASSEMBLY	QTY		J. WANG	1/18/2012	
TOTAL QTY IN DUMMY	1				
A21 of 1				472-4623	B



SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM015 R05 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 1 AND (OPTIONAL) TO NOTE 2	9/7/2011	BK
	B	INSTALL KEENSERTS FROM OTHER SIDE; ADD NOTE	7/19/2012	BK

1	2	5001107	M3 X 0.5 X 4.25 LG. MINI KEENSERT
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .50 ± 0.07 16	
		X.X ± 0.2	
		X.XX ± 0.3	
		X.XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:		DATE:	
472-4600		9/7/2011	
MATERIAL:		DRAWN BY:	
6061-T6 ALUMINUM		B. KIMES	
HEAT TREAT:		DATE:	
		1/18/2012	
CHECKED BY:		ENGINEER:	
		J. WANG	
NEXT ASSEMBLY		DATE:	
TOTAL QTY IN DUMMY		SCALE:	
1		3.000	
		SIZE: SHEET: DRAWING NO.:	
		A3 1 OF 1 472-4624	

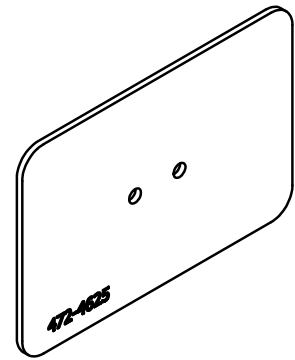
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

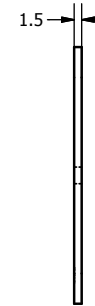
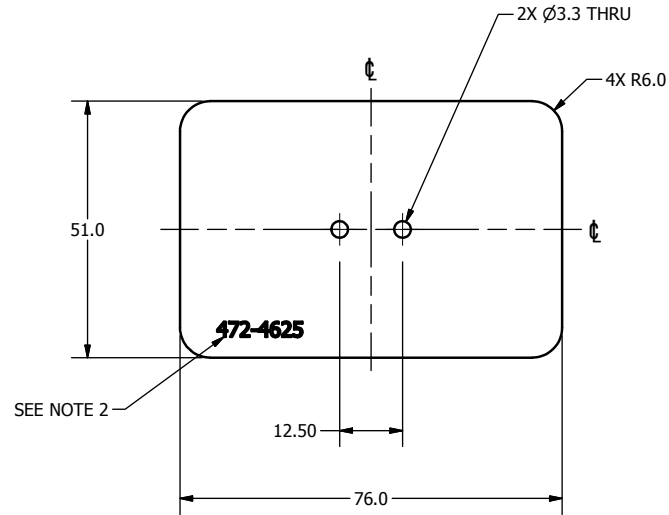


6 5 4 3 2 1

6 5 4 3 2 1



SCALE 1.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM013 R04 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 1 AND (OPTIONAL) TO NOTE 2	9/7/2011	BK

NOTES:



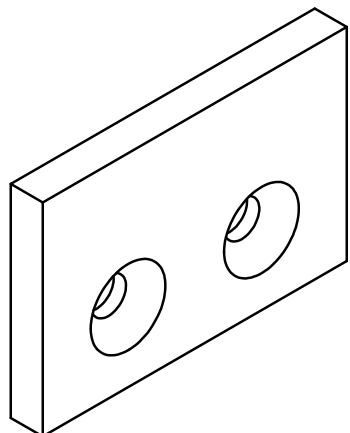
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LOAD DISTRIBUTION PLATE
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-4600	MATERIAL:	High Density Polyethylene	DATE:
DESIGNED BY:	B. KIMES	CHECKED BY:	J. WANG	DATE:
DATE:	9/7/2011	DATE:	1/18/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
SCALE:	1.000			472-4625

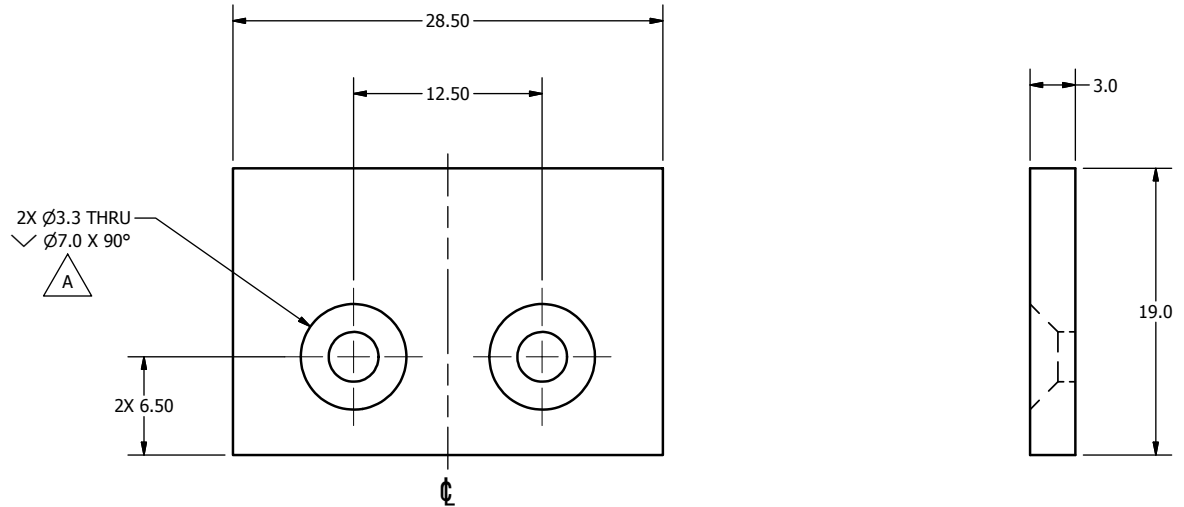
472-4600	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM014 R03 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 1; $\phi 7.0 \times 90^\circ$ WAS $\phi 6.9 \times 82^\circ$	9/7/2011	BK



SCALE 3.000



2X $\phi 3.3$ THRU
 $\checkmark \phi 7.0 \times 90^\circ$
 A

2X 6.50

3.0

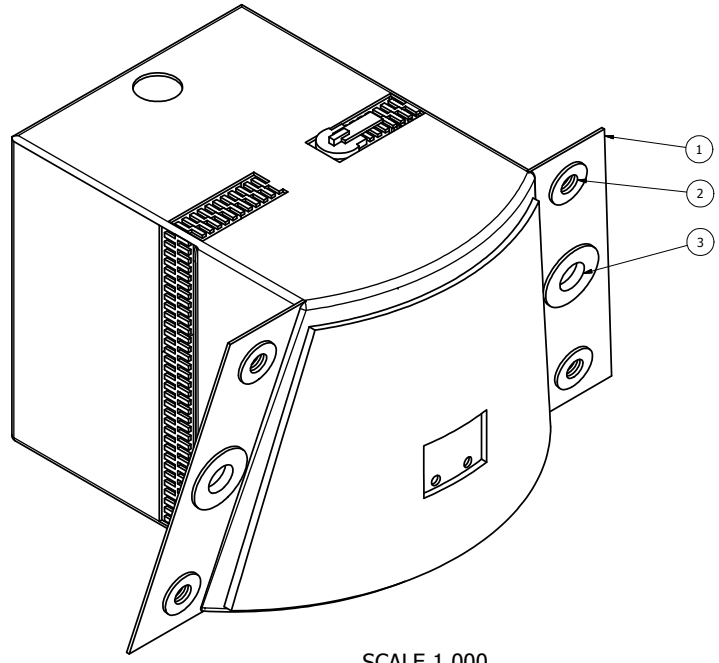
19.0

NOTES:
 1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.

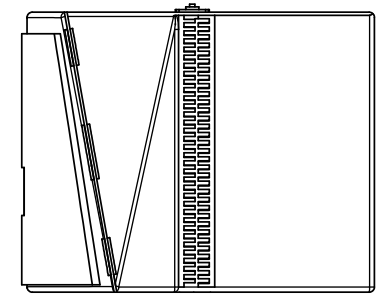
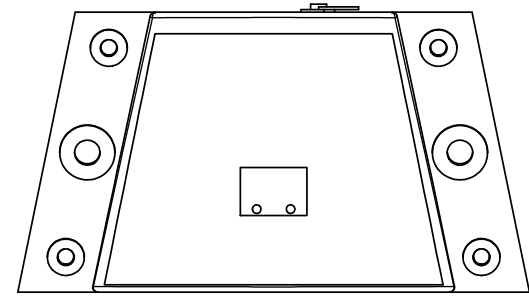
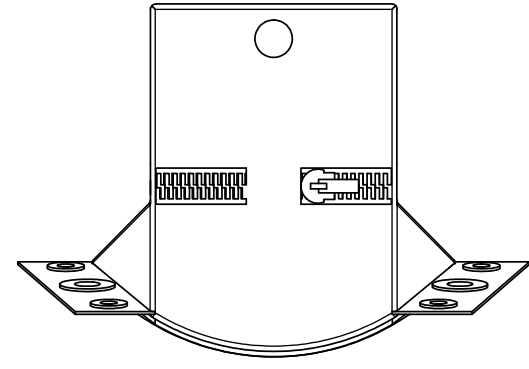


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: ACCELEROMETER MOUNT PLATE
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.XX ± 0.1 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-4600	MATERIAL:	DELTRIN BLACK	DATE:
DESIGNED BY:	B. KIMES	CHECKED BY:	B. KIMES	DATE:
DATE:	9/7/2011	DATE:	1/18/2012	SCALE:
HEAT TREAT:		ENGINEER:	J. WANG	SCALE: 3.000
FINISH:		DATE:	1/18/2012	SCALE: 3.000
TOTAL QTY IN DUMMY		1		SIZE SHEET: A3 1 OF 1
				DRAWING NO.: 472-4626
				REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF301 R02 FOR THOR-M	9/12/2011	BK
	B	UPDATE TO SHOW PROPPER VELCRO LOCATION; ADD GROMMET TO DESC; REMOVE MATERIAL NOTES	4/2/2012	BK



SCALE 1.000



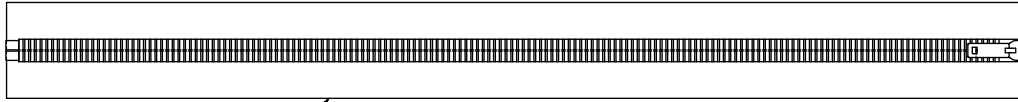
NOTES:
1. PUNCH GROMMET TO FLAPS OF COMPLETED ASSEMBLY USING GROMMET TOOL.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	6002912	GROMMET, .375 I.D. X .815 O.D.
2	4	6002911	GROMMET, .250 I.D. X .545 O.D.
1	1	472-4650	BAG-SEWING ASSEMBLY, UPPER ABDOMEN

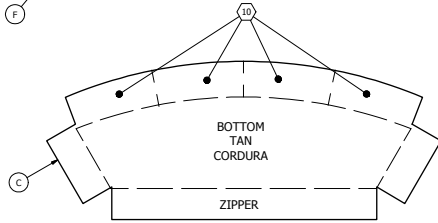
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
 THIRD ANGLE PROJECTION		DECIMAL FRACTIONS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED FRACTIONS ARE TO BE IN 16ths UNLESS OTHERWISE SPECIFIED HOLE SIZE H .0015 S .0015 T .0015 V .0015 W .0015 X .0015 Y .0015 Z .0015 UNLESS OTHERWISE SPECIFIED	
PREPARED BY: B. KIMES DATE: 9/12/2011		CHECKED BY: J. WANG DATE: 1/18/2012	
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION GROMMET ASSEMBLY, UPPER ABDOMEN BAG		SHEET NO. 1 OF 1 PART NO. 472-4627	

472-4600	1	
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

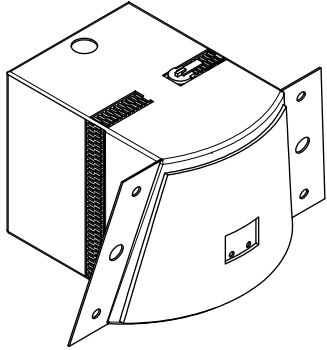
REVISION HISTORY					
ECO#	REV	DESCRIPTION	DATE	BY	
	A	RENUMBERED FROM 11LUF300 R04 FOR THORAX; ADD ISO VIEW	9/8/2011	BK	
	B	SHOW VELCRO PATCH IN CORRECT POSITION; ADD HOLE DIMENSIONS, SEWING AND MATERIAL NOTES	4/3/2012	BK	



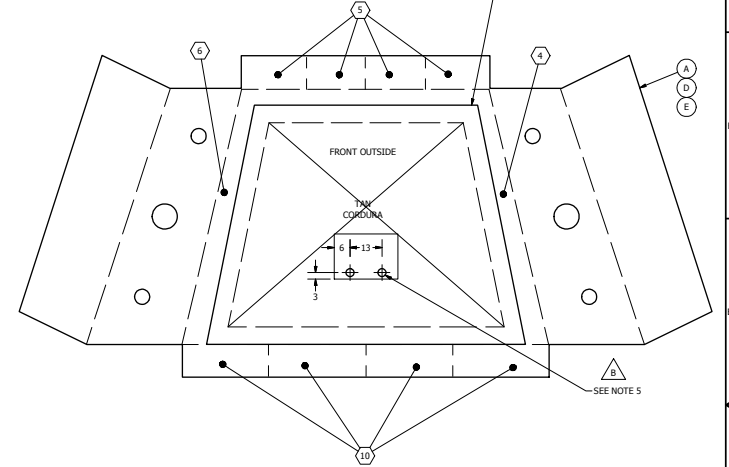
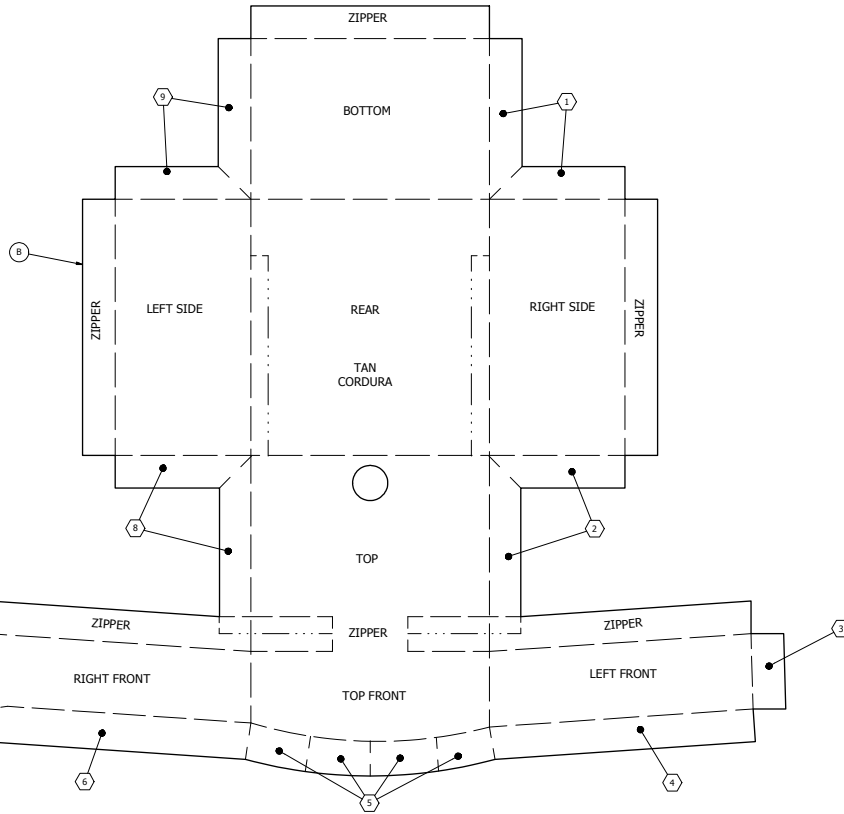
F



ALIGN THE TOP OF THE STIFFENING CLOTH (472-4654) ALONG THIS LINE AND SEW IT TO THE INSIDE OF THE FRONT OVERLAY FABRIC PATTERN (472-4655).
ALIGN THE TOP OF THE FRONT VELCRO PATCH (472-4651) ALONG THIS LINE AND SEW IT TO THE OUTSIDE SURFACE OF THE FRONT OVERLAY FABRIC PATTERN (472-4655).



SCALE .750



SEE NOTE 5

LEGEND	
---	PATTERN EDGES
- - -	STITCH LINES
---	CUT LINES

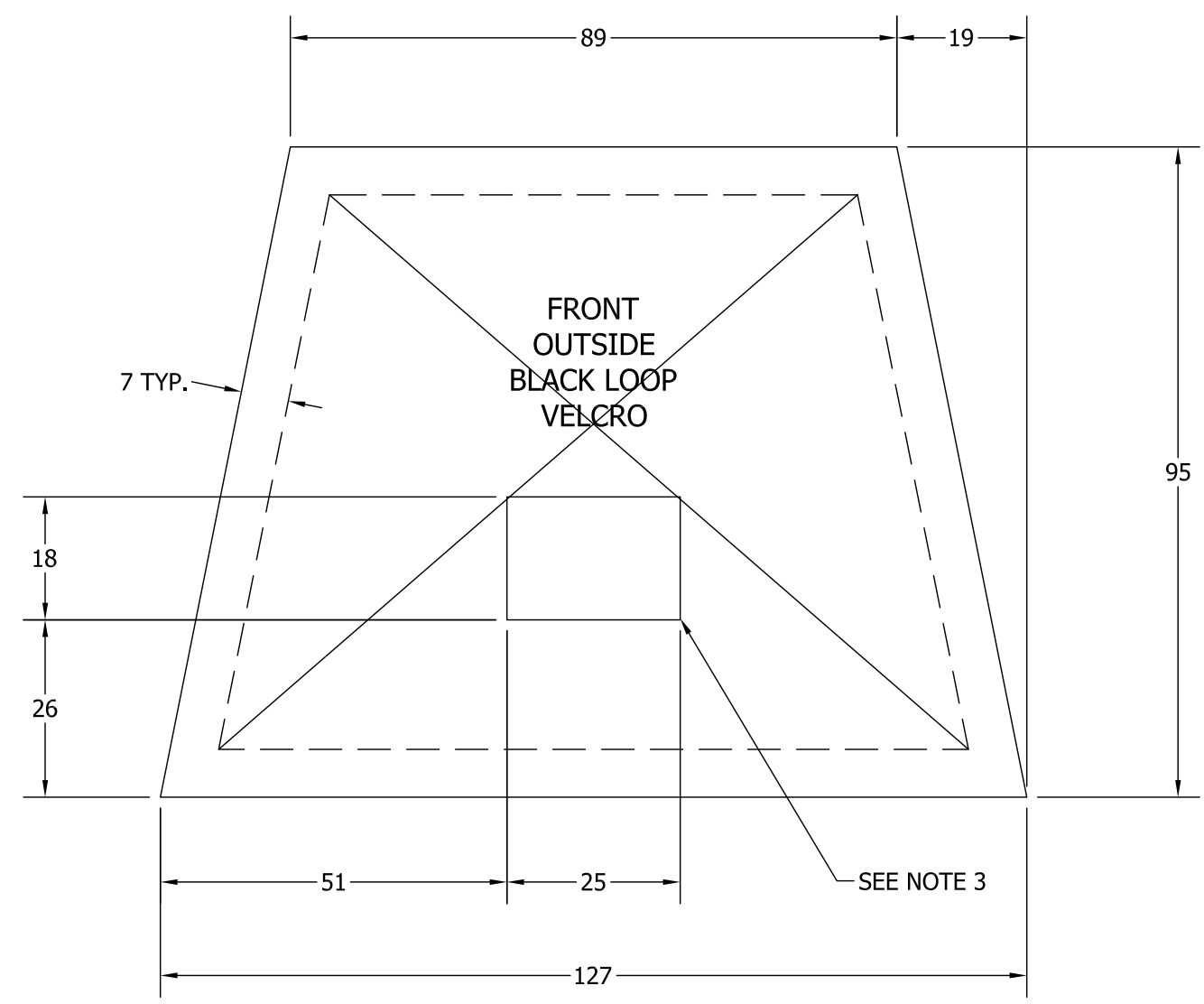
NOTES:

1. THE NUMBERING SCHEME IS USED TO INDICATE WHICH PATTERN EDGES ARE SEWN TOGETHER TO CREATE THE UPPER ABDOMEN BAG.
2. STITCHES MUST BE CONSISTANT AND SECURE.
3. THE BAG IS STITCHED WITH KEVLAR THREAD (MINIMUM 3 STITCHES/CM).
4. FABRIC: CORDURA NYLON (TAN)
ZIPPER: STIFFENED NYLON (WHITE)
SIZE: #10, LENGTH 405mm, BRASS, OPEN TOP, CLOSED BOTTOM
5. ADD 2X Ø3.2 HOLES AFTER SEWING.

ITEM	QTY	PART NUMBER	DESCRIPTION
F	1	472-4656	ZIPPER, UPPER ABDOMEN
E	1	472-4655	FRONT OVERLAY FABRIC PATTERN
D	1	472-4654	FRONT STIFFENING CLOTH
C	1	472-4653	BOTTOM FABRIC PATTERN
B	1	472-4652	TOP/SIDE REAR FABRIC PATTERN
A	1	472-4651	FRONT VELCRO PATCH

DO NOT SCALE DRAWING		TOLERANCES		PARTS LIST	
472-4657	1	B. KIMES	03/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
NEXT ASSEMBLY	QTY			BAG SEWING ASSEMBLY, UPPER ABDOMEN	
TOTAL QTY IN DRAWING	1	1 NAME	03/2012	Alt of 1	472-4650

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
78027	A	RENUMBERED FROM T1UAF310 R02 FOR THOR-M; ADD NOTE 2	9/9/2011	BK



LEGEND	
	PATTERN EDGES
	STITCH LINES

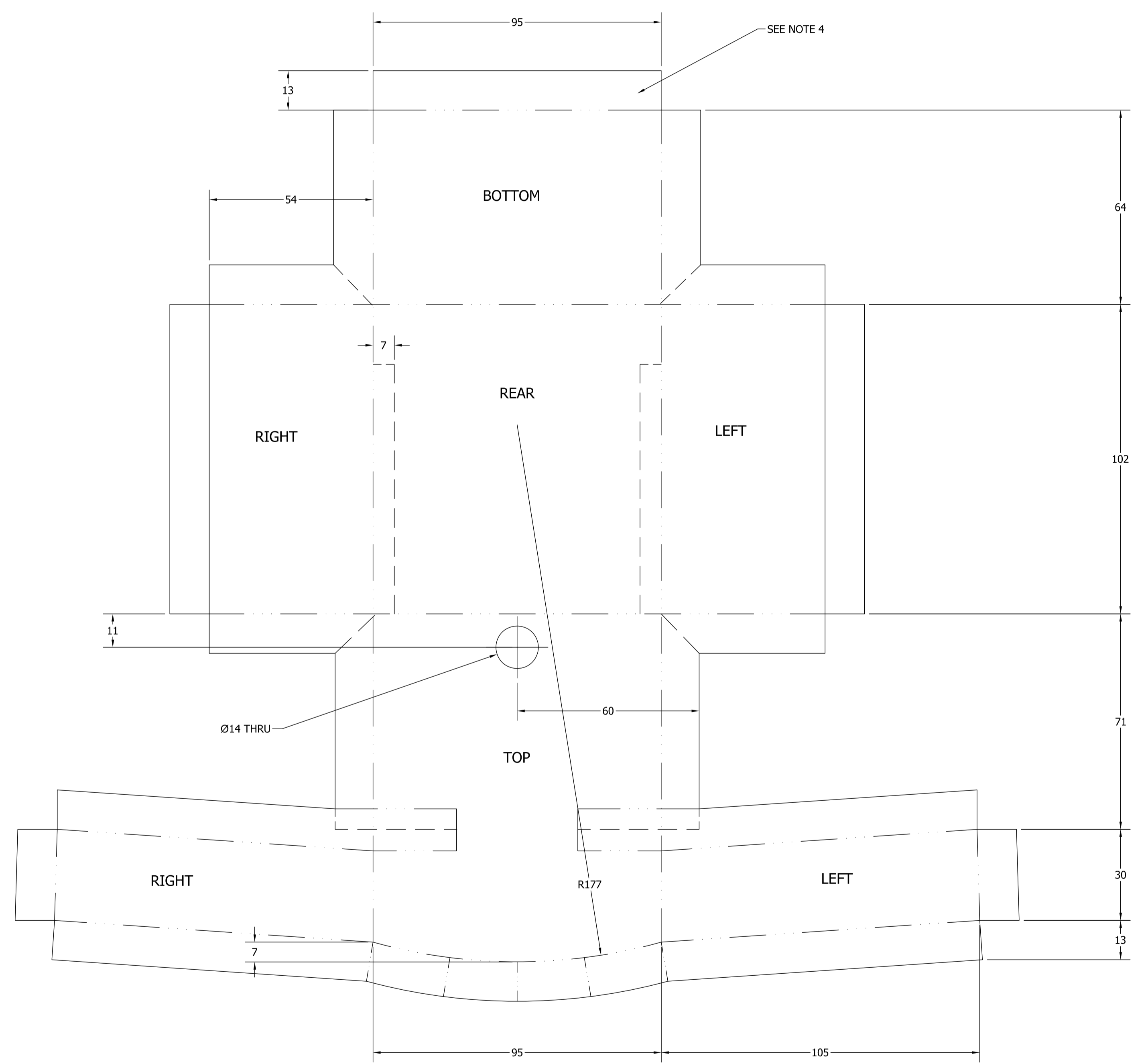
NOTES:

1. USE BLACK LOOP VELCRO MATERIAL AND SEW TO THE FRONT OF THE UPPER ABDOMEN FRONT OVERLAY FABRIC PATTERN (472-4655).
2. TOLERANCE $\pm 1\text{mm}$, UNLESS OTHERWISE NOTED.
3. PRINT SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.
4. CUT OUT ACCELEROMETER MOUNTING HOLE AFTER SEWING.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO.:		MATERIAL:	SEE NOTES	DESCRIPTION: FRONT VELCRO PATCH
472-4650	1	HEAT TREAT:		SIZE: A31 OF 1
NEXT ASSEMBLY	QTY	CHECKED BY:	B. KIMES	SCALE: 1.000
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	DRAWING NO.: 472-4651
		DATE:	9/9/2011	REV: A
		DATE:	1/18/2012	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF311 R04 FOR THOR-M; ADD NOTE 2	9/9/2011	BK

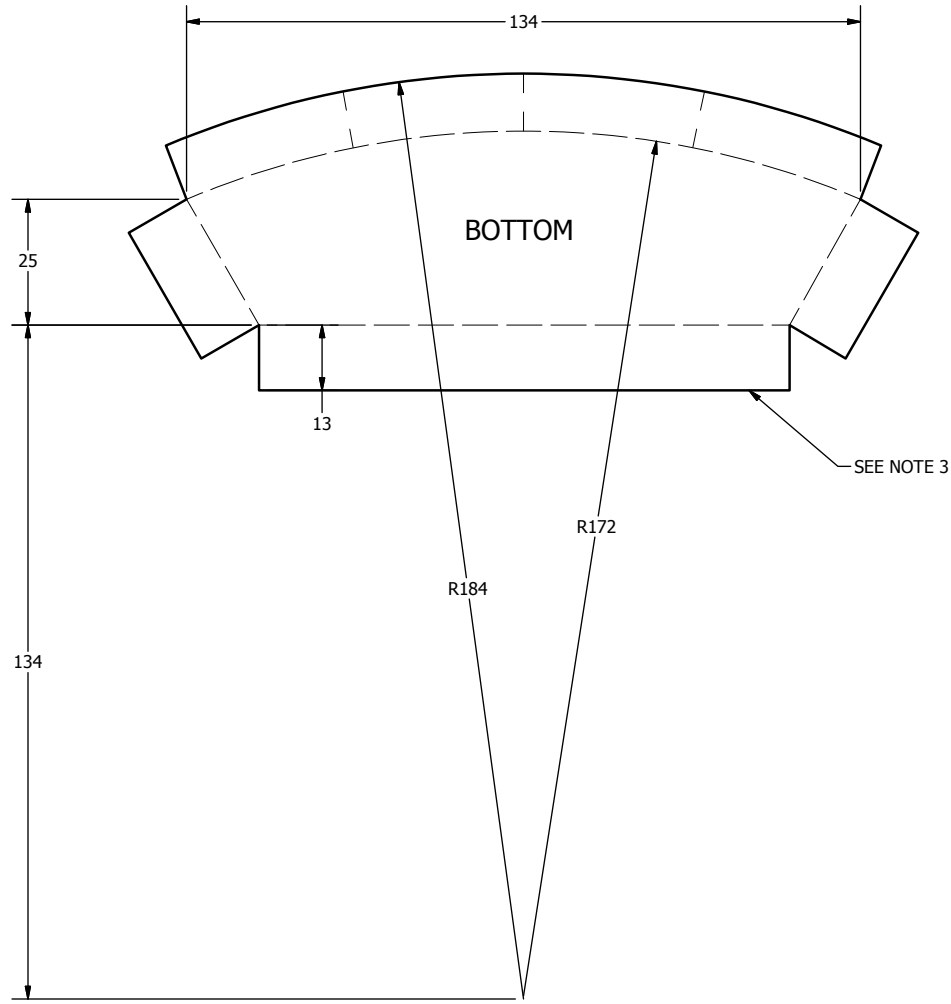


LEGEND	
	PATTERN EDGES
	CUT LINES
	FOLD LINES

- NOTES:
1. USE CORDURA NYLON FABRIC (1000 DENIER - 10 OZ/YD)
 2. TOLERANCE ±1mm, UNLESS OTHERWISE NOTED.
 3. PRINT TO SCALE AND USE AS A PATTERN FOR CUTTING OUT MATERIAL.
 4. VIEW SHOWN IS THE OUTSIDE OF THE BAG.
 5. SEE DRAWING 472-4650 FOR ASSEMBLY PROCEDURES.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS: 0.1, 0.2, 0.5, 1.0, 2.0, 5.0, 10.0 FRACTIONS: 1/16, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8		
PROJECT NO:	472-4650	DATE:	9/9/2011	TOP/SIDE REAR FABRIC PATTERN A11 of 1 SCALE: 1:1000 472-4652
ISSUE NO:	1	DESIGNED BY:	B. KIMES	
ISSUED FOR:	SEE NOTES	CHECKED BY:	J. WANG	
NEXT ASSEMBLY:	QTY	DATE:	1/18/2012	
TOTAL QTY IN DUMMY:	1	SCALE:	1:1000	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF312 R02 FOR THOR-M; ADD NOTE 2	9/9/2011	BK



LEGEND	
———	PATTERN LINES
- - - - -	FOLD LINES
· · · · ·	CUT LINES

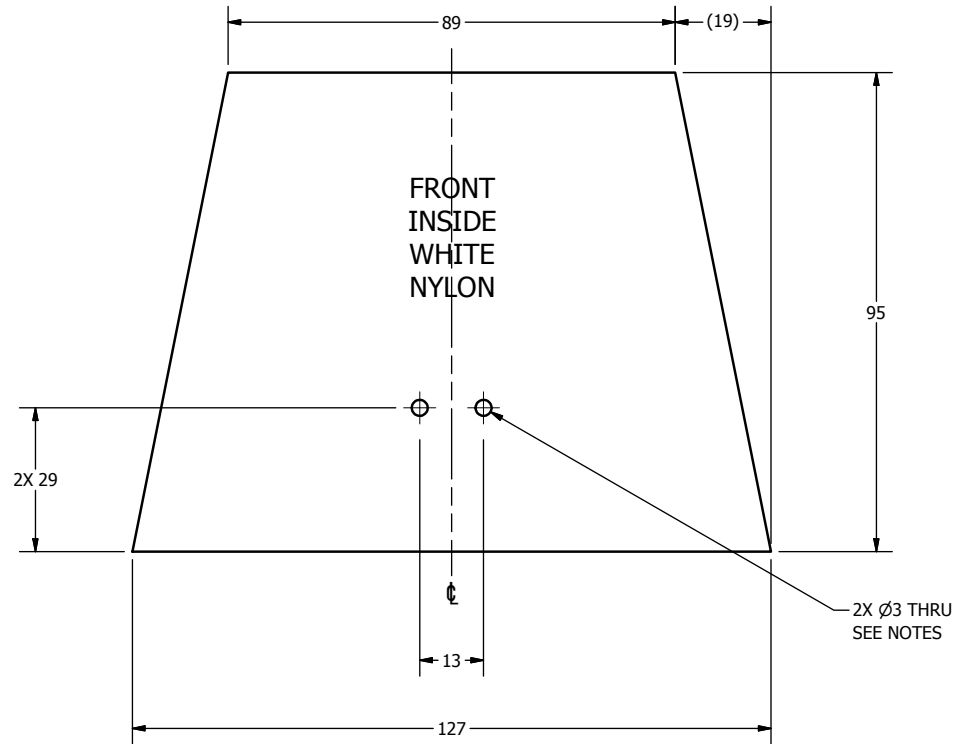
NOTES:

1. USE CORDURA NYLON FABRIC (1000 DENIER 10 OZ/YD).
2. TOLERANCE ± 1 mm, UNLESS OTHERWISE NOTED.
3. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.
4. SEE DRAWING 472-4650 FOR ASSEMBLY PROCEDURE.







DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 1.6 XX 0.2 XXX 0.3 XXXX 0.01		
PROJECT NO.:	472-4650	MATERIAL:	SEE NOTES	DESCRIPTION: BOTTOM FABRIC PATTERN
CHECKED BY:	B. KIMES	DATE:	9/9/2011	SIZE: A3
HEAT TREAT:		ENGINEER:	J. WANG	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	DATE:	1/18/2012	DRAWING NO.: 472-4653
		SCALE:	1.000	REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF313 R03 FOR THOR-M; ADD NOTE 1 & 3	9/12/2011	BK

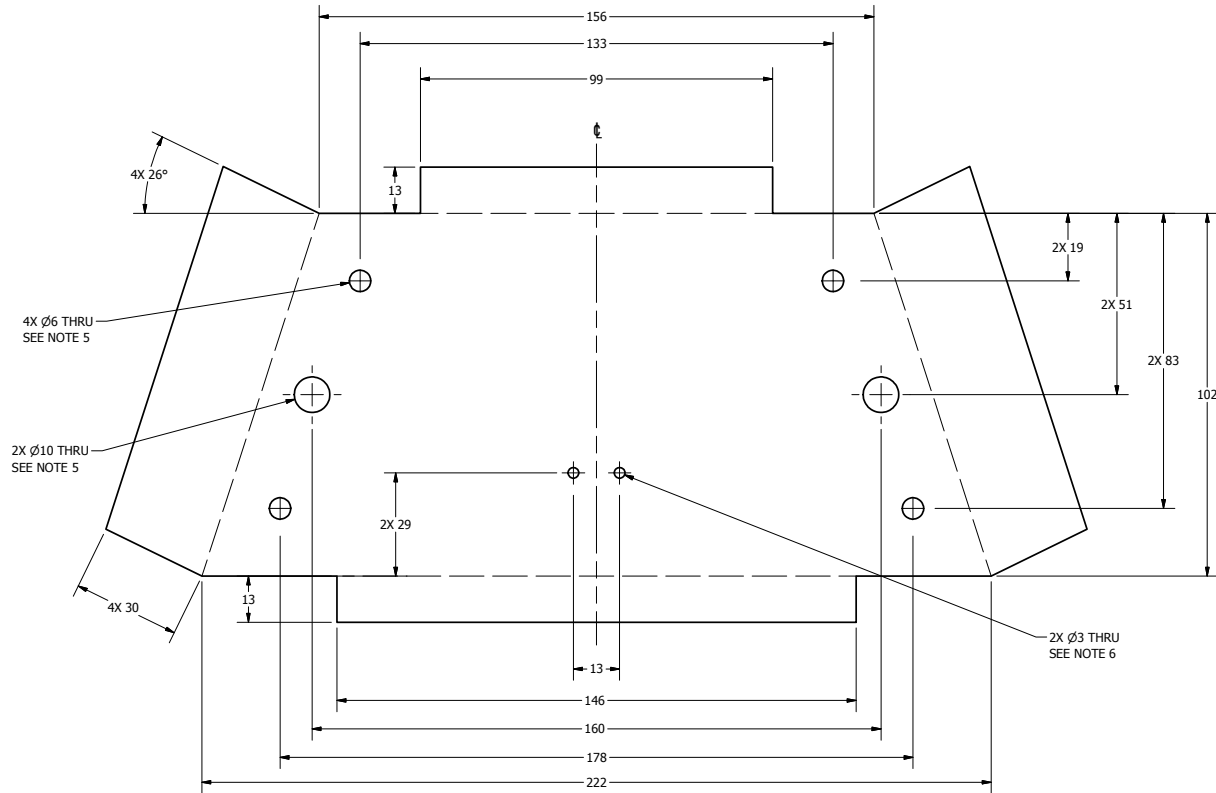


NOTES:

-  1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
-  2. MATERIAL: NYLON STIFFENING CLOTH (DUCK CLOTH) (20 OZ.YD MEETS MIL-C-3953)
-  3. CLOTH TOLERANCE $\pm 1\text{mm}$, UNLESS OTHERWISE NOTED.
- 4. ADD ACCELEROMETER MOUNTING HOLES AFTER SEWING.
- 5. SEE DRAWING 472-4650 FOR ASSEMBLY PROCEDURE.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>0.05 0.5 1.6</small> <small>X 0.2</small> <small>X.X 0.3</small> <small>X.XX 0.01</small> <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO.:	472-4650	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	9/12/2011	DESIGNED BY:	B. KIMES	FRONT STIFFENING CLOTH
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
DATE:	1/18/2012	SCALE:	1.000	DRAWING NO.:
TOTAL QTY IN DUMMY	1	REV:		472-4654

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF314 R04 FOR THOR-M; ADD NOTES 1 & 3	9/12/2011	BK



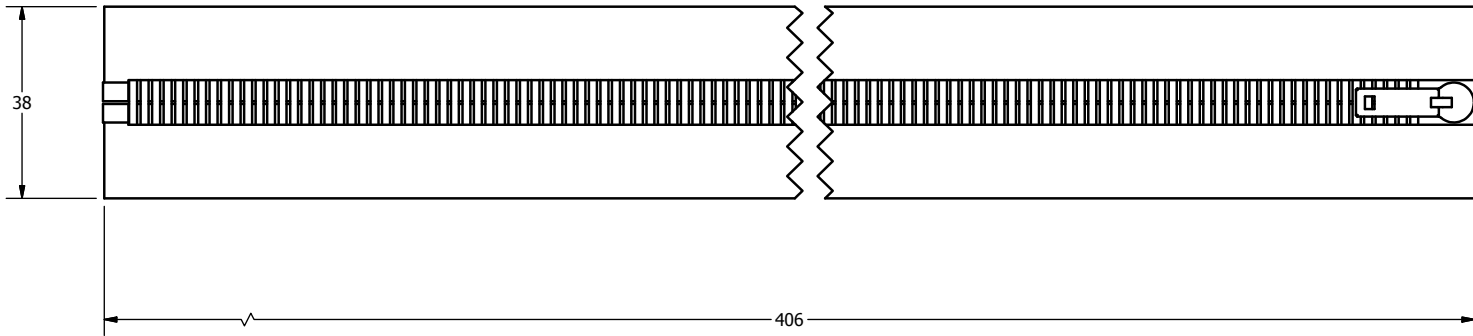
LEGEND	
—	PATTERN EDGES
- - -	FOLD LINES

NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. USE CORDURA NYLON FABRIC (1000DENIER 10 OZ/YD)
3. FABRIC TOLERANCE ± 1 mm, UNLESS OTHERWISE NOTED.
4. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING MATERIAL.
5. PUNCH HOLES THROUGH FLAP AFTER SEWING.
6. CUT OUT ACCELEROMETER MOUNTING HOLES AFTER SEWING.
7. THE DRAWING AS SHOWN REPRESENTS THE FRONT VIEW OF THE BAG. (AS IF VIEWING THE THOR FROM THE FRONT)
8. SEE DRAWING 472-4650 FOR ASSEMBLY PROCEDURE.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		SHOW HIDDEN & BREAK SHARP EDGES		FRONT OVERLAY FABRIC PATTERN	
472-4650	1	Default	B. KIMES	9/12/2011	
NEXT ASSEMBLY	QTY	BY	DATE	SCALE	
TOTAL QTY IN DUMMY	1	J. WANG	1/18/2012	A21 of 1	472-4655
				1.000	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF315 R05 FOR THOR-M; ADD NOTE 3	9/12/2011	BK



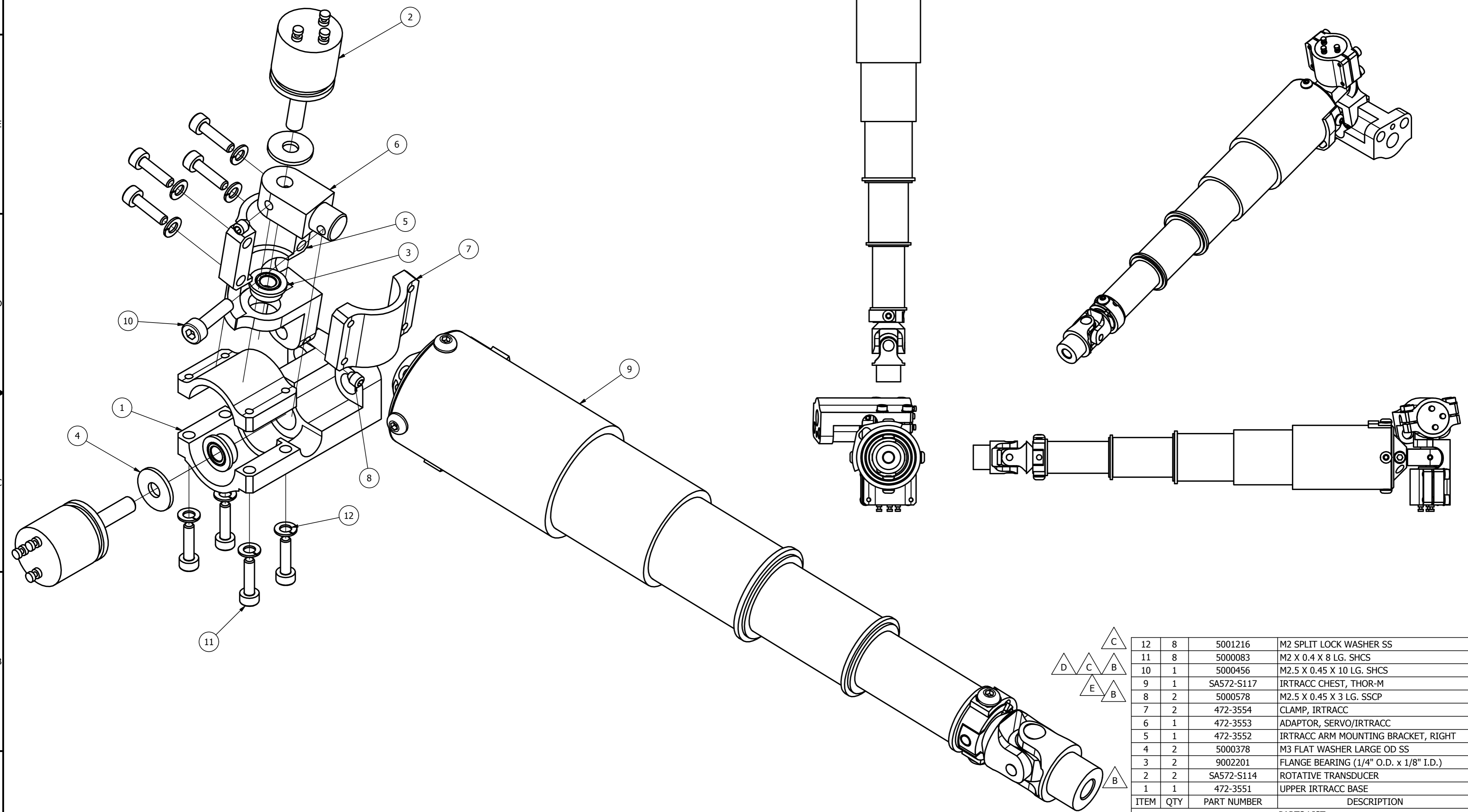
NOTES:

1. SIZE: #10, BROWN POLYESTER, METAL (BRASS)
ZIPPER TYPE: OPEN TOP -CLOSED BOTTOM STYLE.
2. THE ENDS SHOULD BE SEWN TOGETHER TO PREVENT THE SLIDER FROM PULLING OFF THE TRACK.
3. ZIPPER TOLERANCE $\pm 1\text{mm}$, UNLESS OTHERWISE NOTED.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 1.6 XX 0.2 XXX 0.3 XXXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-4650	MATERIAL:	Default	DESCRIPTION:
DRIVEN BY:	1	CHECKED BY:	B. KIMES	ZIPPER, UPPER ABDOMEN
DATE:	9/12/2011	DATE:	9/12/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
FINISH:	1	DATE:	1/18/2012	SCALE: 1.000
TOTAL QTY IN DUMMY:	1	ENGINEER:	J. WANG	DRAWING NO.:
				472-4656
				REV: A

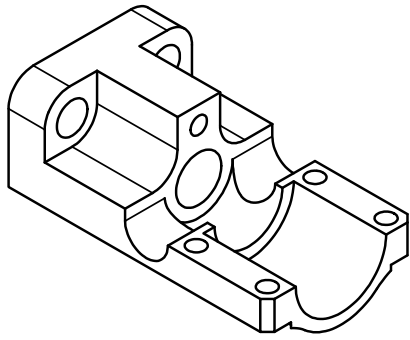
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM101 RB FOR THOR-M	10/7/2011	BK
	B	MADE ITEMS 2 AND 10 VISIBLE TO PARTS LIST	6/8/2012	JBH
	C	REDESIGN PARTS FOR NEW LOCATION; ADD 8X LOCK WASHERS; 8X M2 X 8 SHCS WERE M2 X 6 BHCS	10/11/2012	BK
	D	5000456 WAS 5000600	12/17/2012	BK
	E	REVISED ITEM #9 SA572-S117 - IRTRACC CHEST, THOR-M	5/30/2014	DW



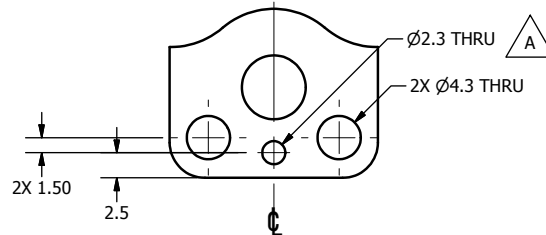
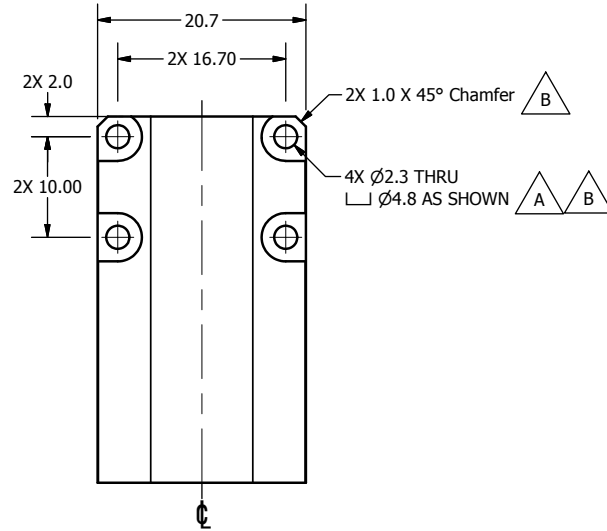
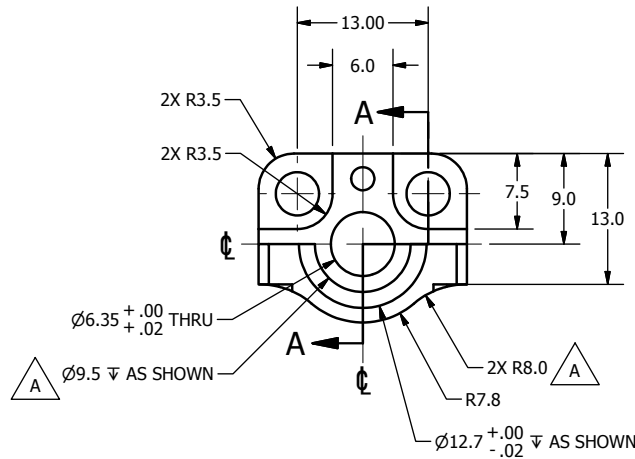
SCALE 2.000

ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
9	1	SA572-S117	IRTRACC CHEST, THOR-M
8	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
7	2	472-3554	CLAMP, IRTRACC
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3552	IRTRACC ARM MOUNTING BRACKET, RIGHT
4	2	5000378	M3 FLAT WASHER LARGE OD SS
3	2	9002201	FLANGE BEARING (1/4" O.D. x 1/8" I.D.)
2	2	SA572-S114	ROTATIVE TRANSDUCER
1	1	472-3551	UPPER IRTRACC BASE

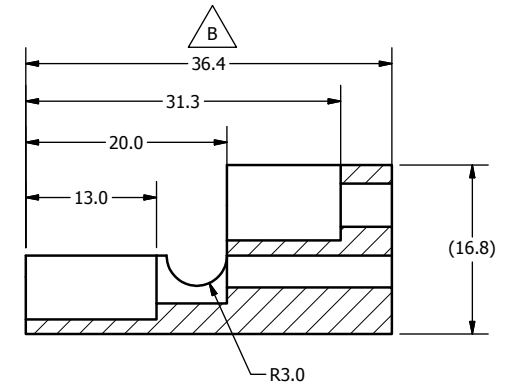
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH	
PROJECT NO. 472-3000		DRAWN BY B. KIMES DATE 9/7/2012	
NEXT ASSEMBLY QTY 1		CHECKED BY J. WANG DATE 1/10/2012	
TOTAL QTY IN DUMMY 1		ENGINEER J. WANG DATE 1/10/2012	
MATERIAL:		REMOVED BURRS & BREAK SHARP EDGES	
HEAT TREAT:		DESCRIPTION: IRTRACC ASSEMBLY, UPPER LEFT	
FINISH:		SCALE: 1.000	
SIZE: A2		DRAWING NO: 472-3550	
SHEET: 1 OF 1		REV: E	



SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM110 R01 FOR THOR-M 2.3 DIA. HOLES WERE M2 THREADED; ADD 2.3 DIA. HOLE; 2X R8.0 WAS 4.8; Ø9.5 WAS Ø9.53; FINISH WAS RED ANODIZE	10/5/2011	BK
	B	ADD 2X 1.0 X 45° CHAMFERS; 36.4 WAS 26.0, 31.3 WAS 24.0; C'BORE Ø 4.8 WAS Ø4.3	10/11/12	BK



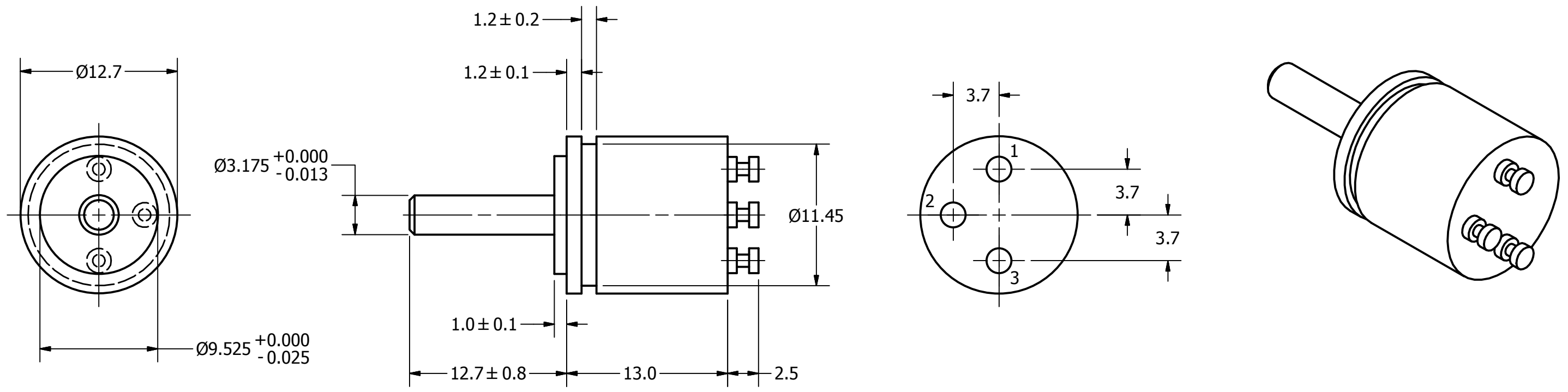
SECTION A-A
SCALE 2.000

NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° 1.6 XX 0.2 0.5° ✓ XXX 0.3 XXXX 0.01		
PROJECT NO.:	472-3560	1	DATE:	9/7/2012
MATERIAL:	7075-T6 ALUMINUM	1	CHECKED BY:	B. KIMES
HEAT TREAT:			DATE:	1/10/2012
FINISH:	CLEAR ANODIZE	2	ENGINEER:	J. WANG
TOTAL QTY IN DUMMY		2	SCALE:	2.000
DESCRIPTION:				UPPER INTRACC BASE
SIZE SHEET				A31 OF 1
DRAWING NO.:				472-3551
REV.:				B

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	INDEPENDENT LINEARITY (TEA) WAS ±0.25%	9/17/2015	DW



SPECIFICATIONS

SHAFT GUIDING: BALL BEARINGS
 INDEPENDENT LINEARITY (TEA): $\pm 0.5\%$
 OHMIC VALUES: 1000 OHMS
 ACTUAL ELECTRICAL ANGLE 330°: $\pm 5\%$
 MAXIMUM POWER RATING @ 70°C: 0.2 WATTS
 WEIGHT: $5 \pm 2g$ (LESS CABLES)
 OPERATING TEMPERATURE RANGE: -55°C TO +125°C
 MAXIMUM SPEED ROTATION: 600

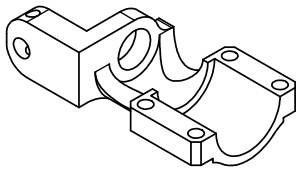
PIN DESIGNATION

1 = -EXCITATION
 2 = +SIGNAL
 3 = +EXCITATION

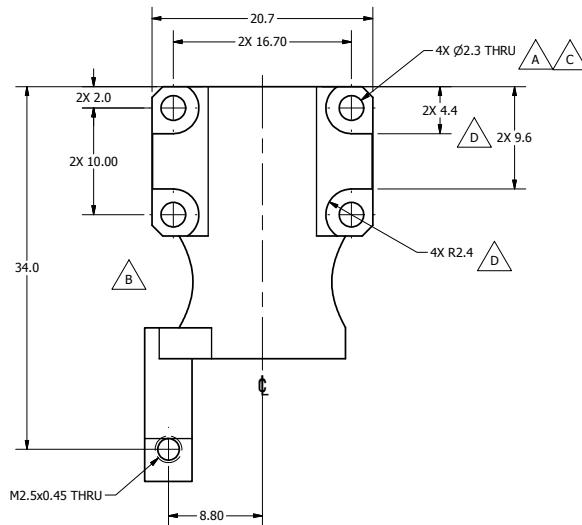
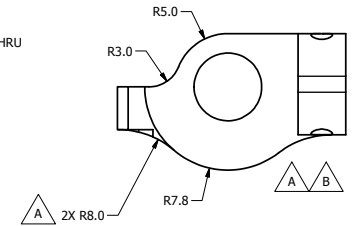
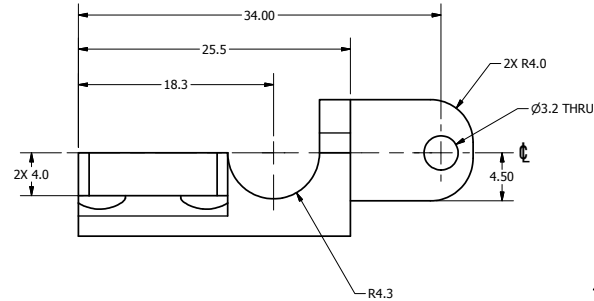
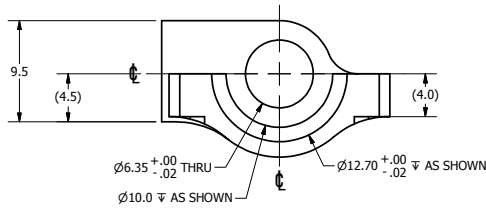
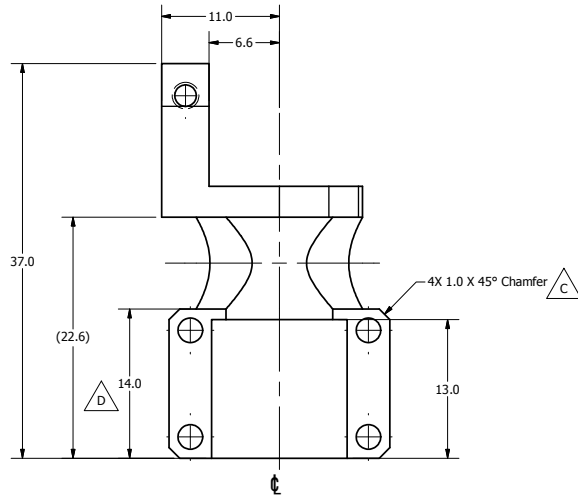
REFERENCE: VISHAY SFERNICE #ECO-50-ESC-102

UNLESS OTHERWISE SPECIFIED:
 ALL MACHINED SURFACES 1.60 OR BETTER.

PARTS LIST				DEPARTMENT OF TRANSPORTATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ANGLES $\pm 5^\circ$ DECIMALS X ± 1 mm X.X ± 0.1 mm *DO NOT SCALE DRAWING*	ENGINEERED: C Torchala	DATE: 4/21/2010	MATERIAL:		
	DRAWN: C Torchala	DATE: 6/15/2010	FINISH:		
	CHECKED: M Salloum	DATE: 8/10/2010	HEAT TREAT:		
	DEBUR AND BREAK ALL SHARP EDGES		QTY./ASSEMBLY: 2	DRAWING TITLE: ROTARY POTENTIOMETER	
	SCALE: 3 : 1	SIZE: A3	REVISION: A	QTY./DUMMY: 4	DRAWING NUMBER: SA572-S114
					Page: 1 of 1



SCALE 2.000

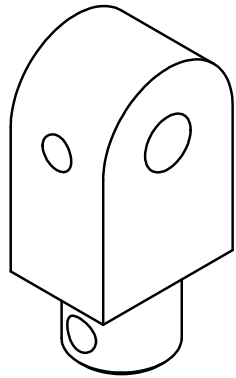


NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

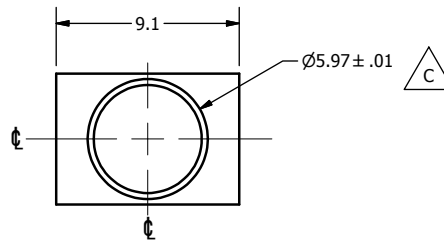
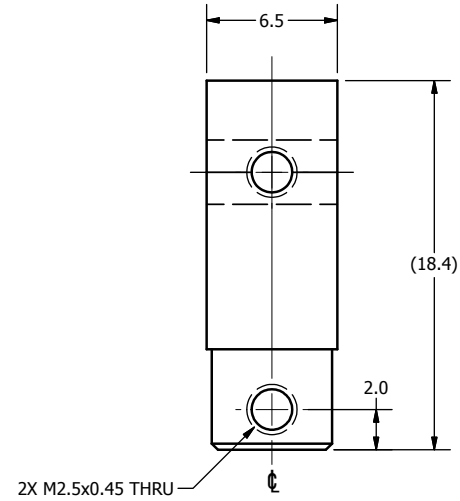
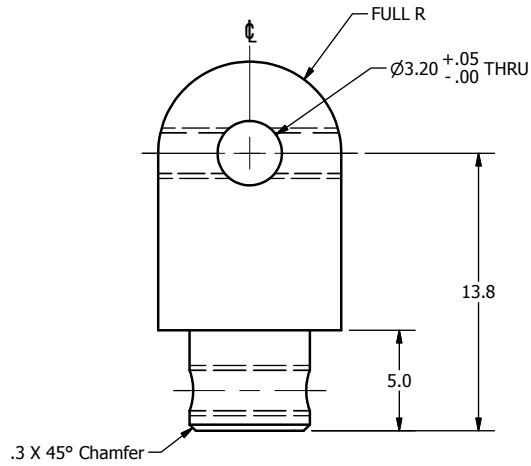
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM113 R01 FOR THOR-M 2.3 DIA. HOLES WERE M2 THREADED; 2X R8.0 WAS 3.0; ADD VIEW, R3.0 DIMENSION; FINISH WAS RED ANODIZE	10/5/2011	BK
	B	REMOVE CUT OUT, R3.0	3/22/2012	BK
	C	ADD 4X 1.0 X 45° CHAMFER; C'BORE $\phi 4.8$ WAS $\phi 4.3$	10/11/2012	BK
	D	CORRECT DIMENSIONING ERROR; REDIMENSION 4X COUNTERBORE SLOTS	12/12/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS		IRTRACC ARM MOUNTING BRACKET, RIGHT	
472-3550	1	7075-T6 ALUMINUM	B. KIMES	9/7/2012	A21 of 1
NEXT ASSEMBLY	QTY	PREPARED BY	DATE	SCALE	3.000
TOTAL QTY IN DUMMY	1	CLEAR ANODIZE	J. WANG	1/11/2012	472-3552

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM115 R01 FOR THOR-M	10/6/2011	BK
	B	REMOVE Ø1.143 THRU HOLE	2/7/2012	BK
	C	Ø5.97±.01 WAS Ø5.80	11/9/2012	BK



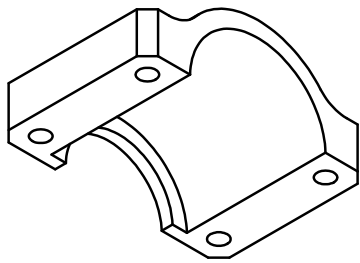
SCALE 4.000



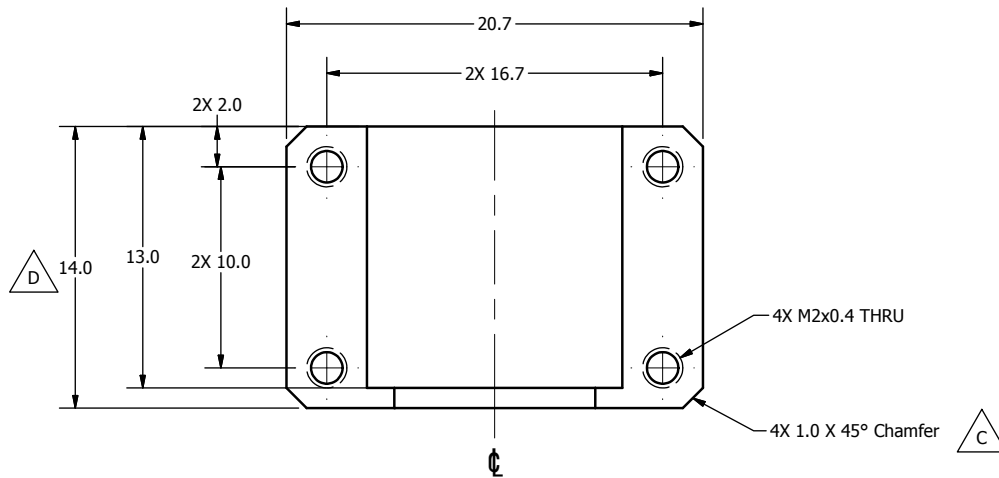
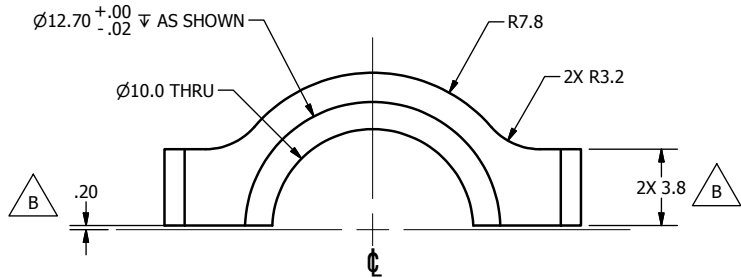
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3570	1	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH Ø .05 ± .05 16 X .02 ± .02 XX .03 ± .03 XXX ± 0.01	DESCRIPTION: ADAPTOR, SERVO/IRTRACC	
472-3560	1		REMOVE BURRS & BREAK SHARP EDGES		
472-3550	1	MATERIAL: 303 STAINLESS STEEL	DESIGNED BY: B. KIMES	DATE: 10/6/2011	DRAWING NO.: 472-3553
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	3	FINISH:	ENGINEER: J. WANG	DATE: 1/11/2012	SIZE: SHEET: A3 1 OF 1 SCALE: 4.000



SCALE 3.000



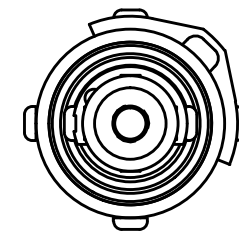
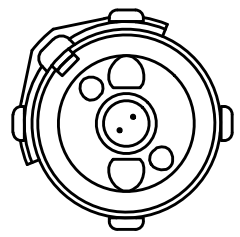
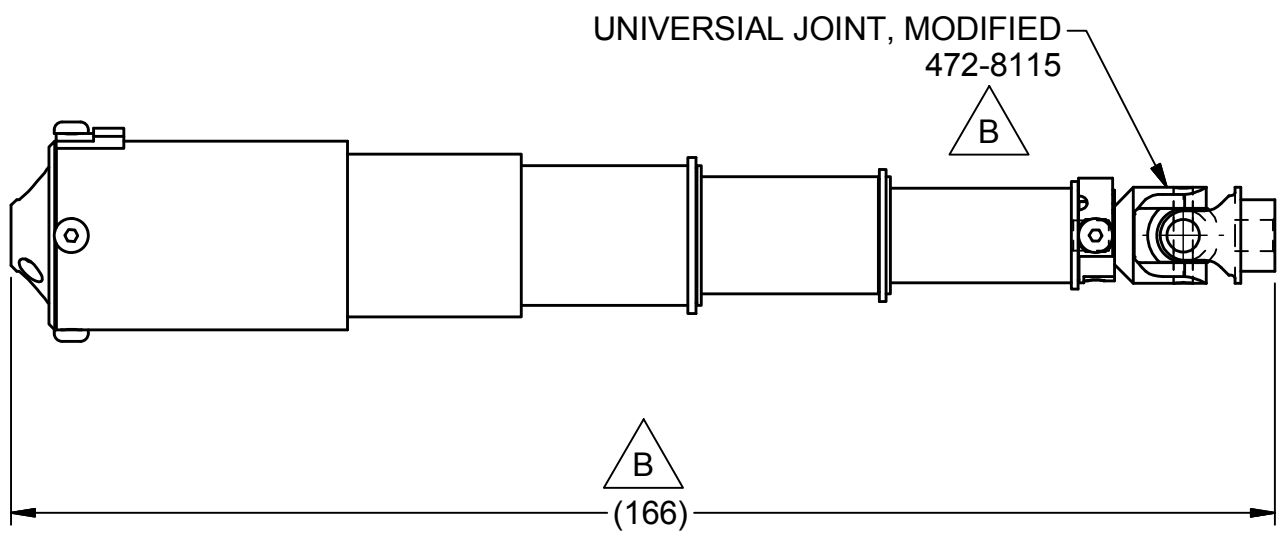
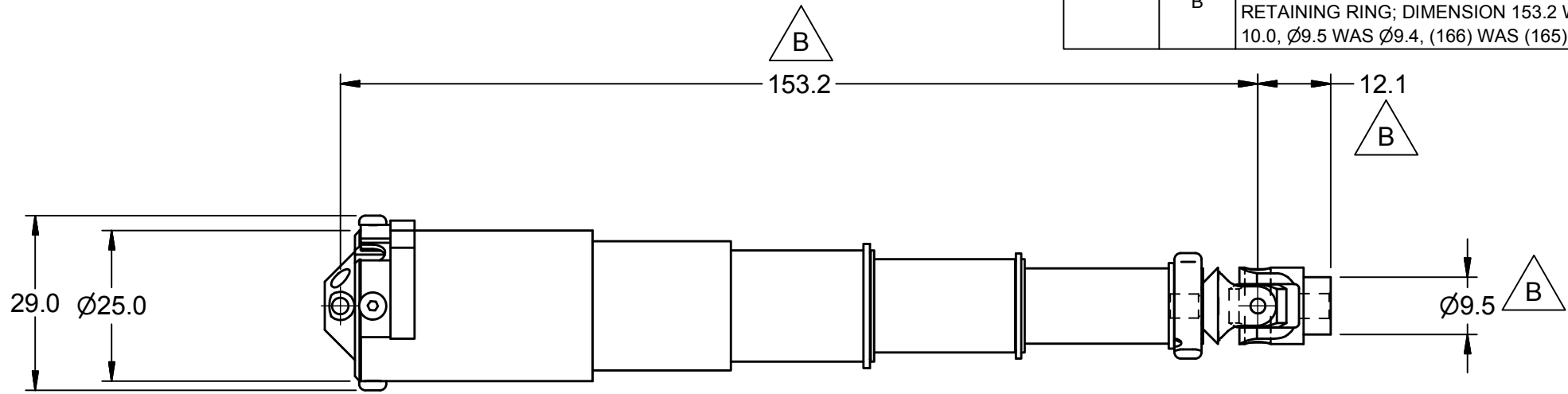
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM112 R01 FOR THOR-M CHANGE 2.2 DIA. HOLES TO M2 THREADED; REMOVE BURR NOTE; FINISH WAS RED ANODIZE	10/6/2011	BK
	B	REMOVE .20 FROM BOTTOM OF PART; 2X 3.8 WAS 4.0; ADD NEXT ASSY, TOTAL QTY 4 WAS 3	3/15/2012	BK
	C	ADD 4X 1.0 X 45° CHAMFERS	10/11/2012	BK
	D	CORRECT DIMENSIONING ERROR	12/12/2012	BK

NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

472-3580	1	DO NOT SCALE DRAWING	TOLERANCES	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
472-3570	1	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.5° ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓	
472-3560	1	PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	
472-3550	1	MATERIAL: 7075-T6 ALUMINUM	DRAWN BY: B. KIMES DATE: 9/7/2012 CHECKED BY: _____ HEAT TREAT: _____ FINISH: CLEAR ANODIZE ENGINEER: J. WANG DATE: 1/11/2012	
NEXT ASSEMBLY	QTY	SIZE: A3 SHEET: 1 OF 1 SCALE: 4.000		DESCRIPTION: CLAMP, ITRACC
TOTAL QTY IN DUMMY	4	DRAWING NO. 472-3554		REV. D

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RELEASED TO PRODUCTION	7/3/2012	BK
	B	UNIVERSAL JOINT MODIFIED - 472-8115 WAS UNIVERSAL JOINT MODIFIED - 472-8110; REMOVED EXTERNAL RETAINING RING; DIMENSION 153.2 WAS 152.2, 12.1 WAS 10.0, Ø9.5 WAS Ø9.4, (166) WAS (165)	5/30/2014	DW



WIRE ASSIGNMENTS		
WIRE #1	WIRE COLOR	FUNCTION
1	RED	+EXC
2	GREEN	+SIG
3	ORANGE	ID
4	SHIELD	GROUND
5	WHITE	-SIG
6	BLACK	-EXC
7	NONE	GUIDE


LINEARITY SPECIFICATIONS:

MAXIMUM DISPLACEMENT: 90mm
 LINEARITY: 2% FS
 MAXIMUM ERROR: 2% FS

INPUT VOLTAGE: 5V @20mA
 OUTPUT VOLTAGE: 0V to 1.7V

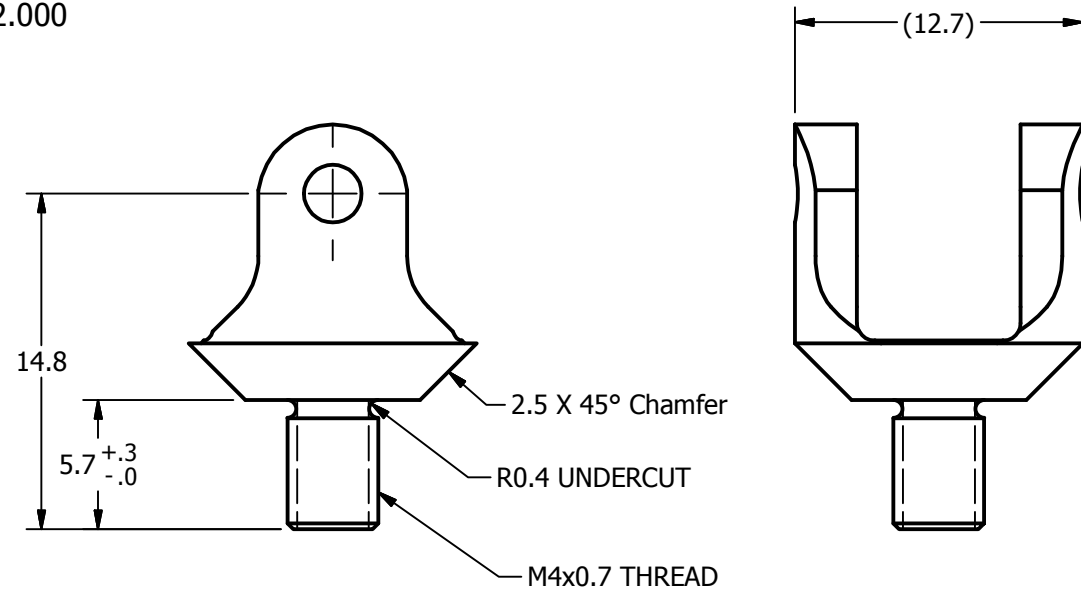
NOTES:
 THE ITRACC IS AN INHERENTLY NON-LINEAR TRANSDUCER. AN ITRACC'S RAW VOLTAGE VALUES MUST BE ADJUSTED BY THE APPLICATION OF A LINEARIZATION EXPONENT APPLIED THROUGH POST TEST PROCESSING SOFTWARE IN ORDER TO ACHIEVE ACCURATE DISPLACEMENT DATA.

MATERIAL	
HEAT TREAT	
FINISH	
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	4

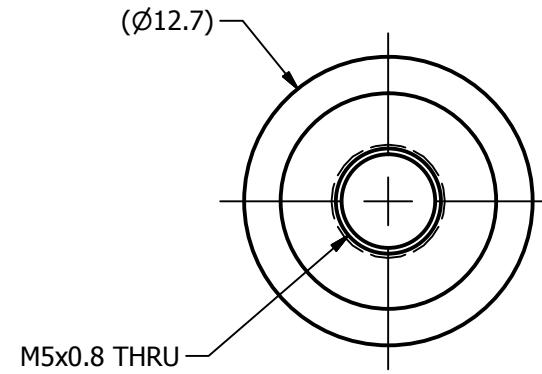
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5' ✓ X.X ±.2 X.XX ±.1 X.XXX ±.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION ITRACC CHEST, THOR-M	
APPROVALS	DATE	DRAWN	DATE	SIZE	DRAWING NUMBER
		B. Kimes	7/3/2012	A3	SA572-S117
CHECKED		APPROVED	DATE	SCALE:	SHEET
		J. WANG	7/3/2012		1 OF 1
				REV B	



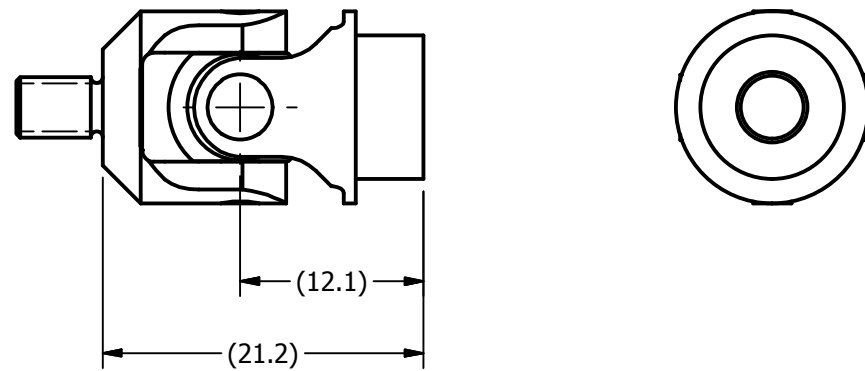
SCALE 2.000



IRTRACC SEGMENT
SCALE 3.000



BIB SEGMENT
SCALE 3.000



NOTES:

1. MAKE FROM 9002660V, MODIFY AS SHOWN.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
.XX ± 0.2 ± 0.2 1.6
.XXX ± 0.1 ± 0.1 1.6
XXXX ± 0.01 ± 0.01 1.6



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

PROJECT NO.:

REMOVE BURRS & BREAK SHARP EDGES

DESCRIPTION:
UNIVERSIAL JOINT, MODIFIED, THOR-M

MATERIAL:

DATE:
Dave Walker 5/30/2014

HEAT TREAT:

CHECKED BY: DATE:

SIZE: SHEET DRAWING NO. REV:

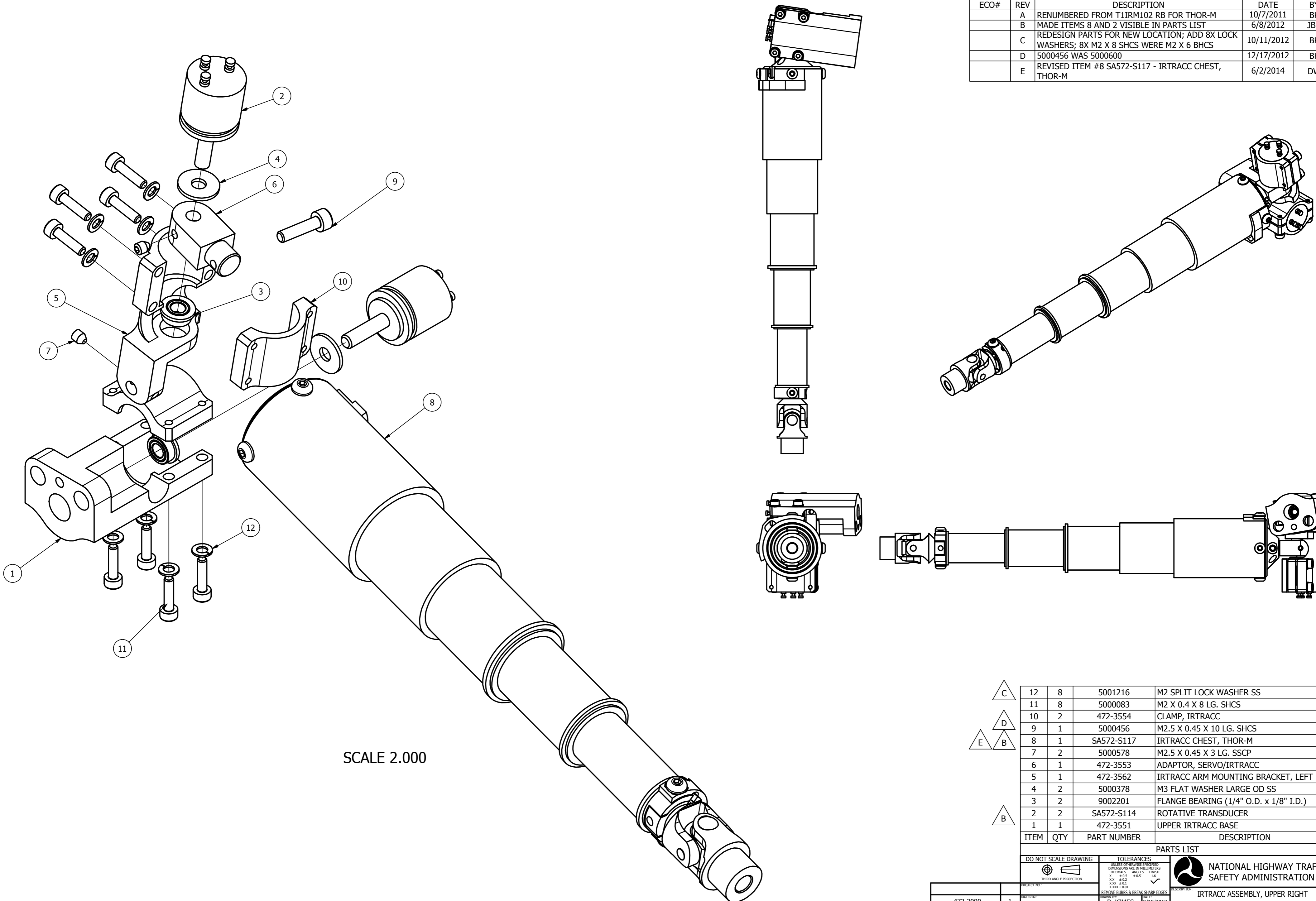
FINISH:

ENGINEER: DATE:

A3 1 of 1
SCALE: 2.000 472-8115

		PROJECT NO.:	
SA572-S117	1	MATERIAL:	
NEXT ASSEMBLY	QTY	HEAT TREAT:	
TOTAL QTY IN DUMMY	1	FINISH:	

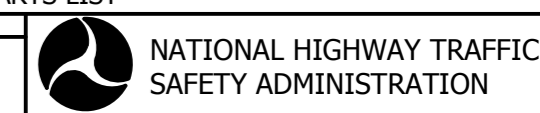
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM102 RB FOR THOR-M	10/7/2011	BK
	B	MADE ITEMS 8 AND 2 VISIBLE IN PARTS LIST	6/8/2012	JBH
	C	REDESIGN PARTS FOR NEW LOCATION; ADD 8X LOCK WASHERS; 8X M2 X 8 SHCS WERE M2 X 6 BHCS	10/11/2012	BK
	D	5000456 WAS 5000600	12/17/2012	BK
	E	REVISED ITEM #8 SA572-S117 - IRTRACC CHEST, THOR-M	6/2/2014	DW



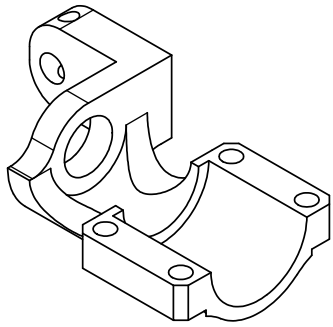
SCALE 2.000

ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	2	472-3554	CLAMP, IRTRACC
9	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
8	1	SA572-S117	IRTRACC CHEST, THOR-M
7	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3562	IRTRACC ARM MOUNTING BRACKET, LEFT
4	2	5000378	M3 FLAT WASHER LARGE OD SS
3	2	9002201	FLANGE BEARING (1/4" O.D. x 1/8" I.D.)
2	2	SA572-S114	ROTATIVE TRANSDUCER
1	1	472-3551	UPPER IRTRACC BASE

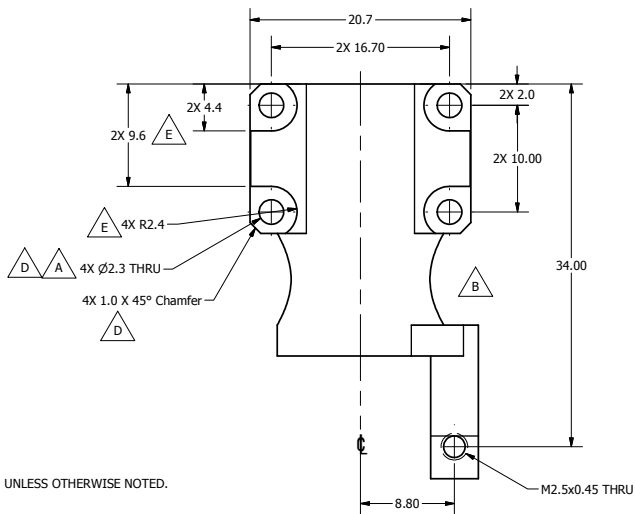
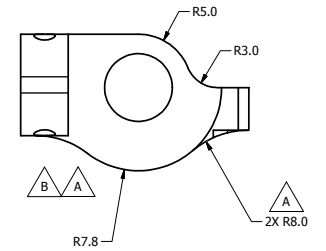
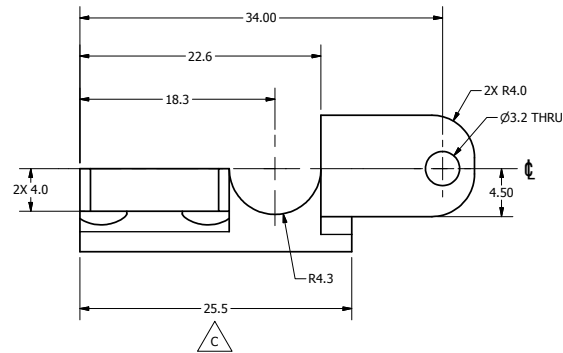
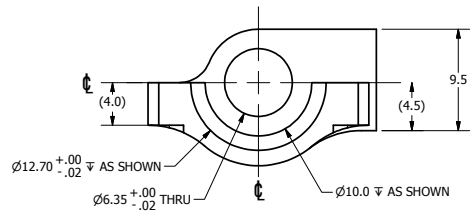
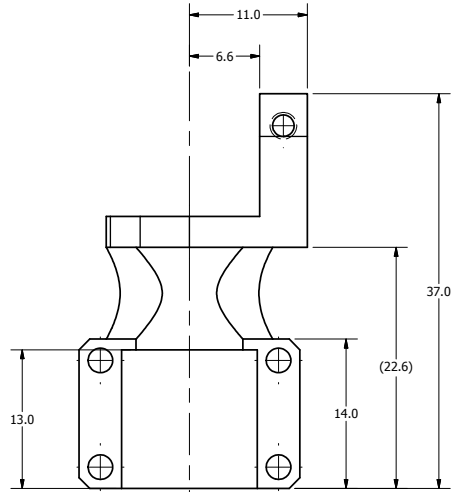
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 0.5° 1.6 XX ± 0.2 0.2° 1.6 XXX ± 0.1 0.1° 1.6 XXXX ± 0.01 0.01° 1.6	
PROJECT NO:	DATE:	DESIGNER:	DESCRIPTION:
472-3000	9/10/2012	B. KIMES	IRTRACC ASSEMBLY, UPPER RIGHT
NEXT ASSEMBLY	DATE:	CHECKED BY:	SCALE:
TOTAL QTY IN DUMMY	1	J. WANG	1.000



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



SCALE 3.000



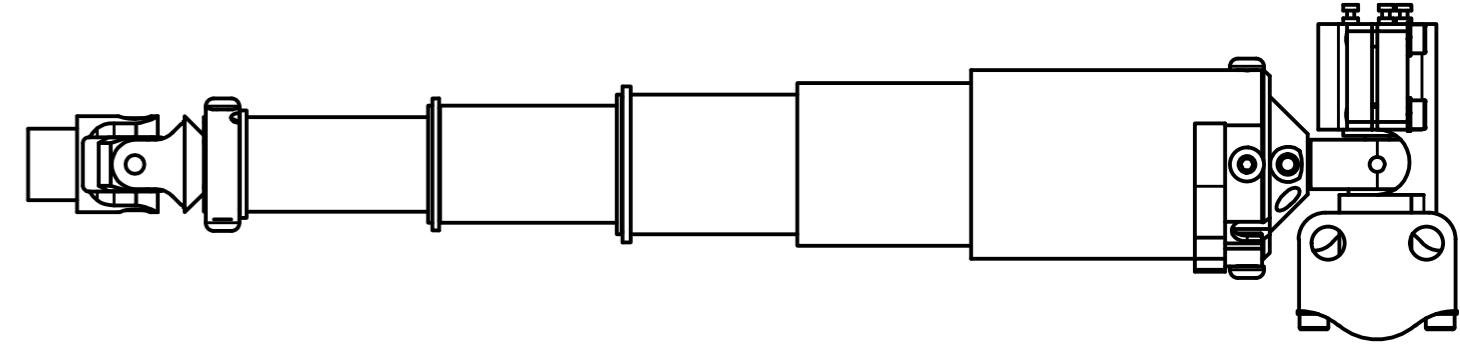
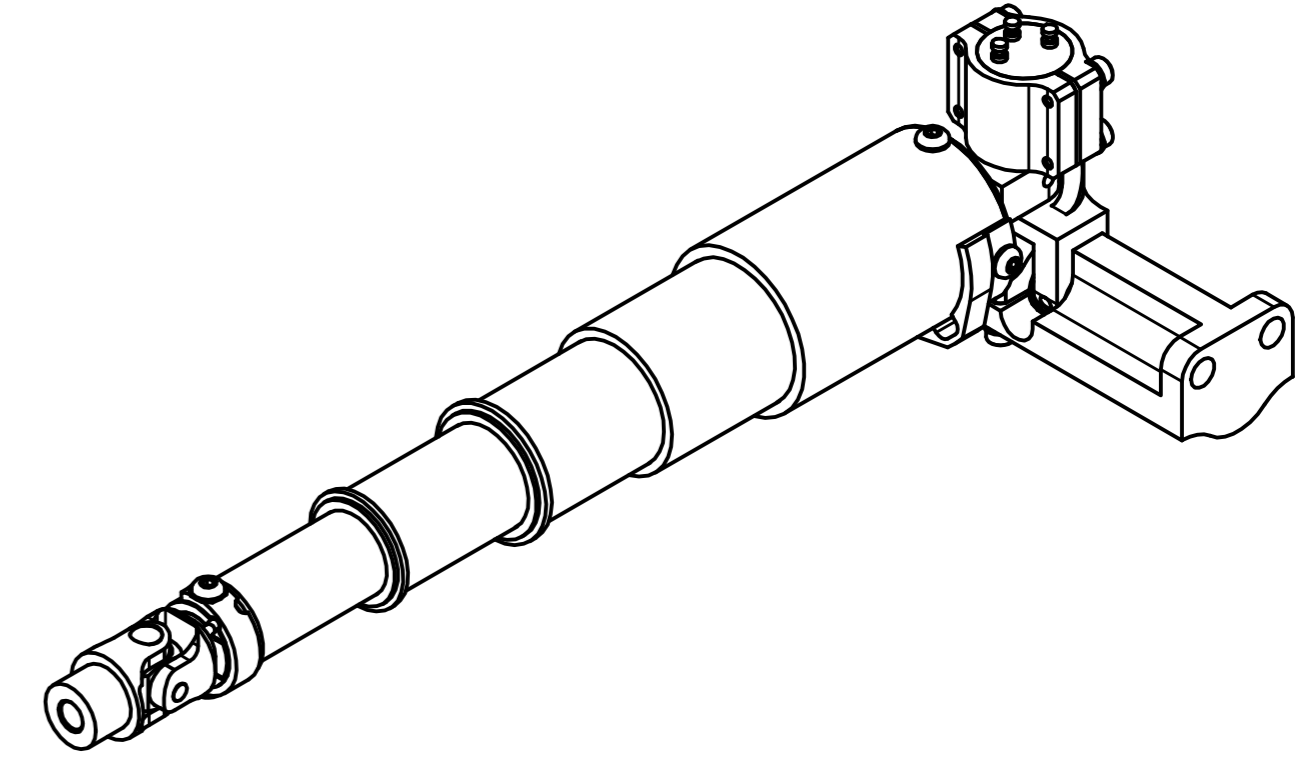
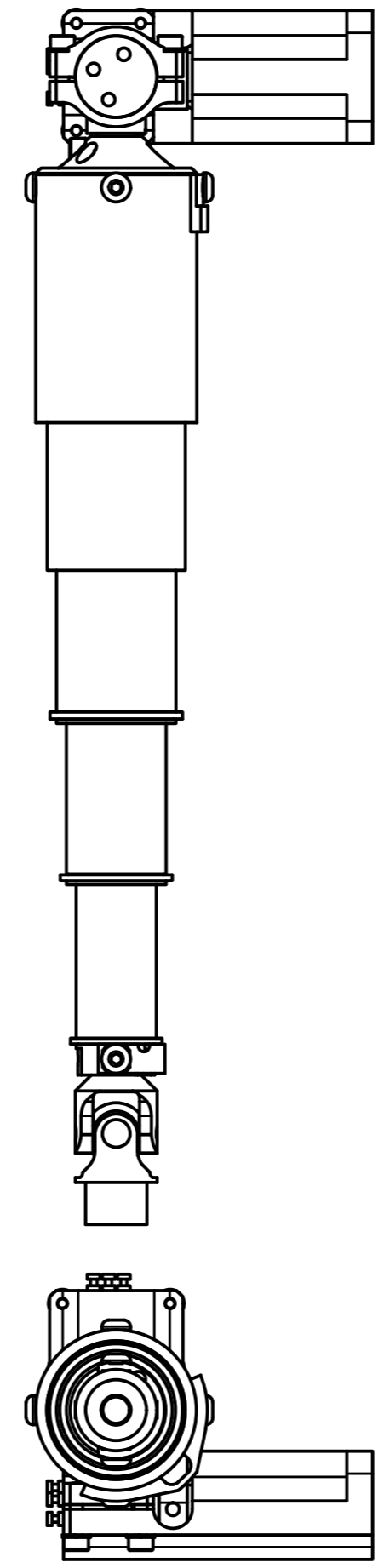
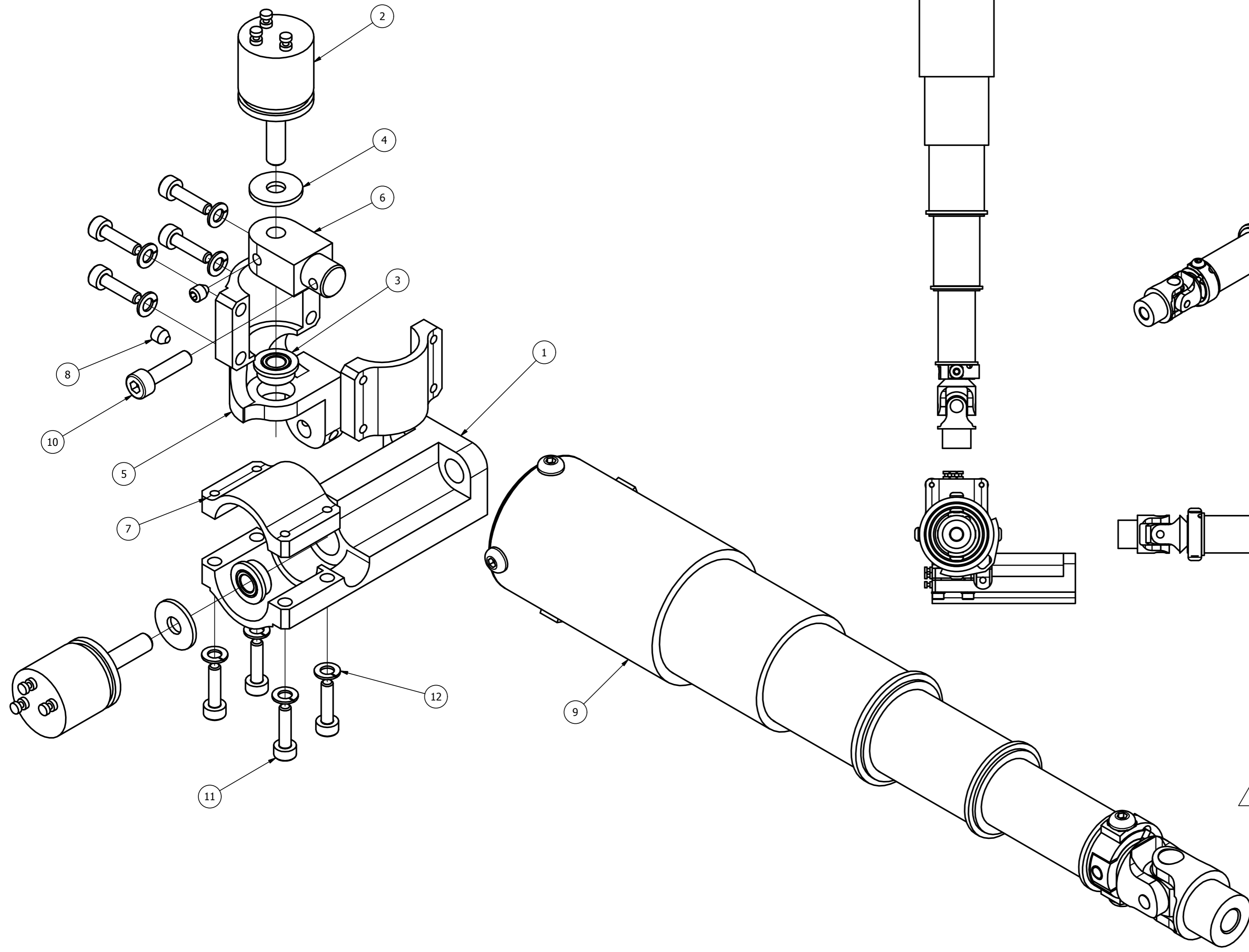
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM114 R01 FOR THOR-M 2.3 DIA. HOLES WERE M2 THREADED; 2X R8.0 WAS 3.0; ADD VIEW, R3.0 DIMENSION; FINISH WAS RED ANODIZE	10/6/2011	BK
	B	REMOVE CUT OUT, R3.0	3/22/2012	BK
	C	ADD DIMENSION	4/3/2012	BK
	D	ADD 4X 1.0 X 45° CHAMFER; C'BORE $\phi 4.8$ WAS $\phi 4.3$	10/11/2012	BK
	E	REDIMENSION 4X COUNTERBORE SLOTS	12/12/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS 0.1 1/16 0.05 1/32 0.2 1/16 0.1 1/16 0.5 1/16 0.2 1/16 1.0 1/8 0.5 1/16 2.0 1/4 1.0 1/8 5.0 1/2 2.5 1/2 10.0 1 5.0 1		ITRACC ARM MOUNTING BRACKET, LEFT NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
QTY	1	MATERIAL	7075-T6 ALUMINUM	DESIGNED BY	B. KIMES
NEXT ASSEMBLY		DATE	9/10/2012	APPROVED BY	
TOTAL QTY IN DUMMY	1	FINISH	CLEAR ANODIZE	DATE	11/11/2012
		PREPARED BY	J. WANG	DATE	11/11/2012
			A21 of 1		472-3562
			3.000		

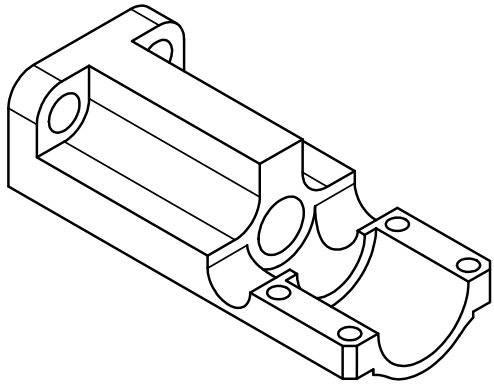
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM103 RB FOR THOR-M	10/7/2011	BK
	B	MADE ITEMS 9 AND 2 VISIBLE IN PARTS LIST	6/8/2011	JBH
	C	REDESIGN PARTS FOR NEW LOCATION; ADD 8X LOCK WASHERS; 8X M2 X 8 SHCS WERE M2 X 6 BHCS	10/11/2012	BK
	D	5000456 WAS 5000600	12/17/2012	BK
	E	REVISED ITEM #9 SA572-S114 - IRTRACC CHEST, THOR-M	6/2/2014	DW



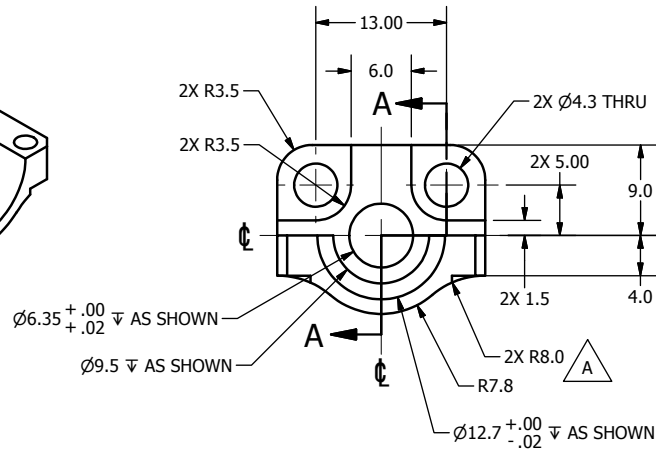
ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
9	1	SA572-S117	IRTRACC CHEST, THOR-M
8	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
7	2	472-3554	CLAMP, IRTRACC
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3552	IRTRACC ARM MOUNTING BRACKET, RIGHT
4	2	5000378	M3 FLAT WASHER LARGE OD SS
3	2	9002201	FLANGE BEARING (1/4" O.D. x 1/8" I.D.)
2	2	SA572-S114	ROTATIVE TRANSDUCER
1	1	472-3571	UPPER IRTRACC BASE

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH	
PROJECT NO: 472-3000		DATE: 10/7/2011	
MATERIAL:		DRAWN BY: B. KIMES	
NEXT ASSEMBLY QTY		CHECKED BY:	
TOTAL QTY IN DUMMY 1		ENGINEER: J. WANG	
		DATE: 1/11/2012	
		SCALE: 1.000	
		DESCRIPTION: IRTRACC ASSEMBLY, LOWER RIGHT	
		SIZE: A2	
		SHEET: 1 OF 1	
		DRAWING NO: 472-3570	
		REV: E	

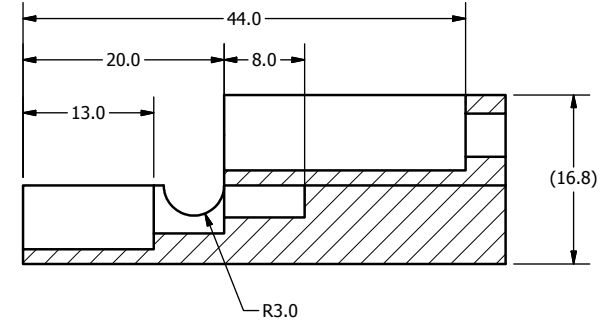
SCALE 2.000



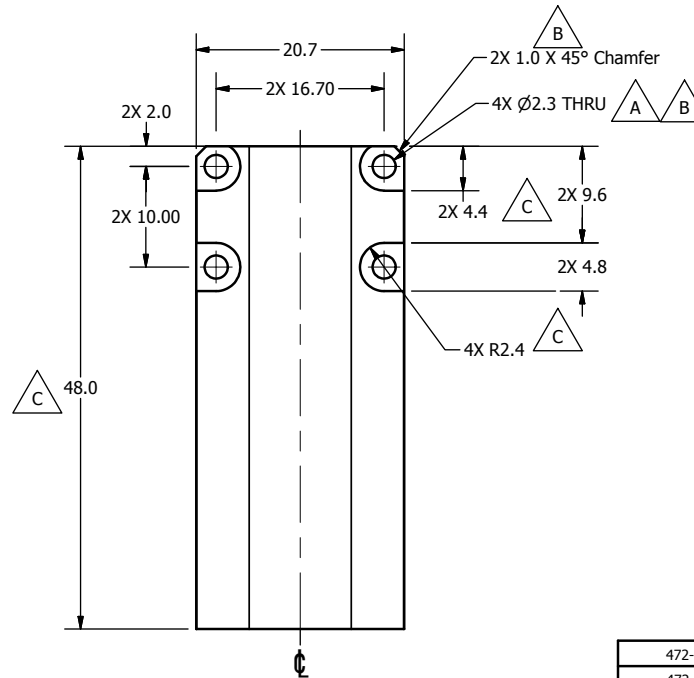
SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM111 R01 FOR THOR-M 2.3 DIA. HOLES WERE M2 THREADED; 2X R8.0 WAS R4.8; FINISH WAS RED ANODIZE	10/6/2011	BK
	B	Ø4.8 WAS Ø4.3; ADD 2X 1.0 X 45° CHAMFERS	10/11/2012	BK
	C	CORRECT DIMENSIONING ERROR; REDIMENSION 4X COUNTERBORE SLOTS	12/12/2012	BK



SECTION A-A
SCALE 2.000

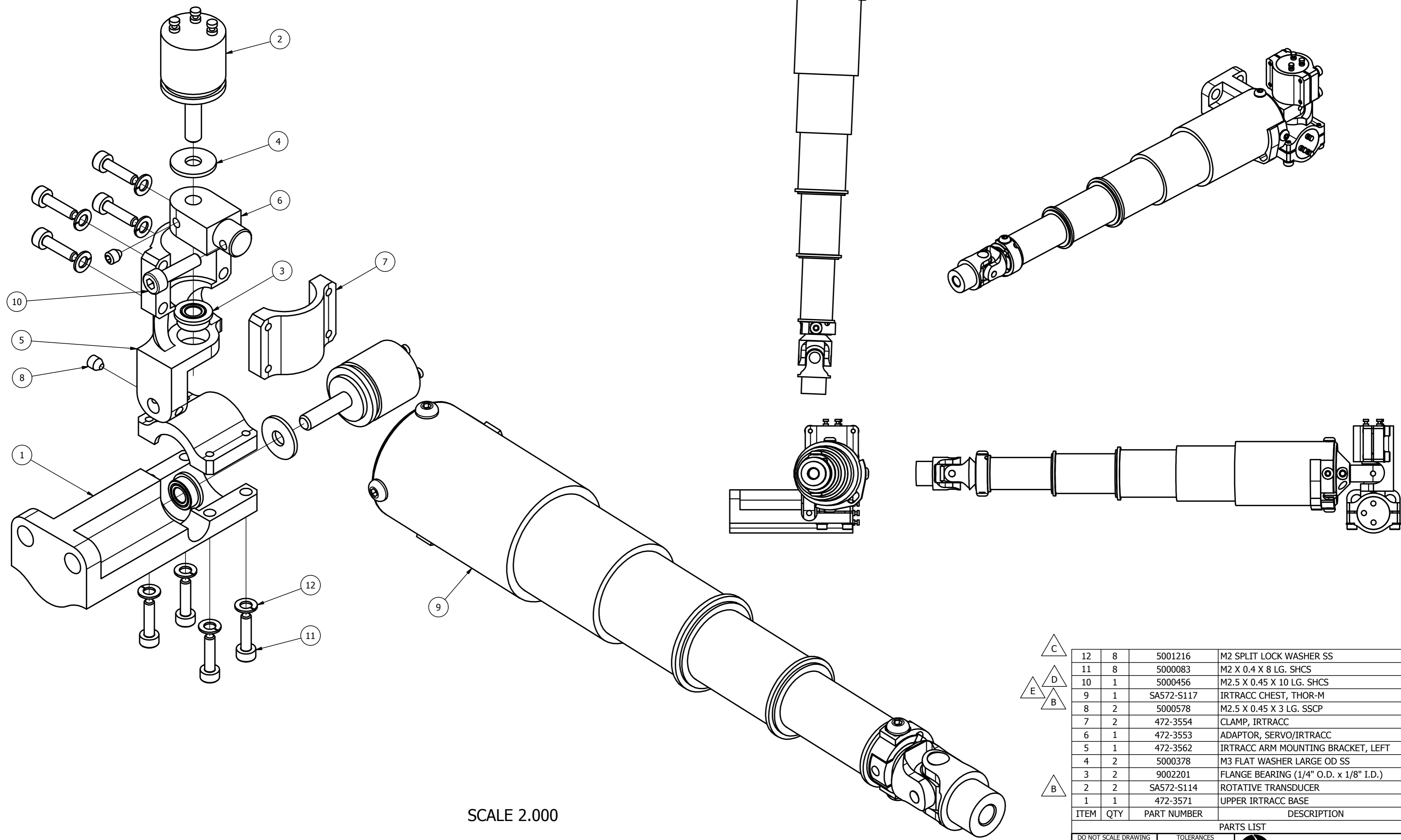


NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		DESCRIPTION: UPPER ITRACC BASE	
PROJECT NO.: 472-3560	1	MATERIAL: 7075-T6 ALUMINUM	DATE: 10/6/2011	SIZE: A3	SHEET: 1 OF 1
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY: B. KIMES	DATE: 10/6/2011	DRAWING NO.: 472-3571
TOTAL QTY IN DUMMY	2	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/11/2012	SCALE: 2.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM104 RA FOR THOR-M	10/27/2011	BK
	B	MADE ITEMS 9 AND 2 VISIBLE IN PARTS LIST	6/8/2012	JBH
	C	REDESIGN PARTS FOR NEW LOCATION; ADD 8X LOCK WASHERS; 8X M2 X 8 SHCS WERE M2 X 6 BHCS	10/11/2012	BK
	D	5000456 WAS 5000600	12/17/2012	BK
	E	REVISED ITEM #9 SA572-S117 - IRTRACC CHEST, THOR-M	6/2/2014	DW



SCALE 2.000

ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
9	1	SA572-S117	IRTRACC CHEST, THOR-M
8	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
7	2	472-3554	CLAMP, IRTRACC
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3562	IRTRACC ARM MOUNTING BRACKET, LEFT
4	2	5000378	M3 FLAT WASHER LARGE OD SS
3	2	9002201	FLANGE BEARING (1/4" O.D. x 1/8" I.D.)
2	2	SA572-S114	ROTATIVE TRANSDUCER
1	1	472-3571	UPPER IRTRACC BASE

PARTS LIST

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

TOLERANCES
(UNLESS OTHERWISE SPECIFIED)
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X ± 0.5 0.5° 1.6
 XX ± 0.2 0.2° 1.6
 XXX ± 0.1 0.1° 1.6
 XXXX ± 0.01 0.01° 1.6

REMOVE BURRS & BREAK SHARP EDGES

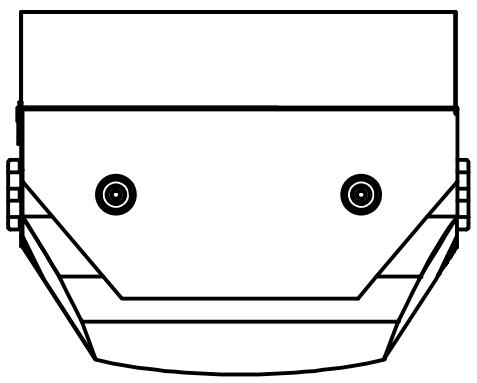
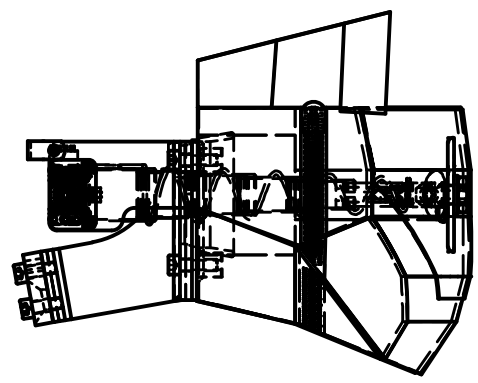
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: IRTRACC ASSEMBLY, LOWER LEFT

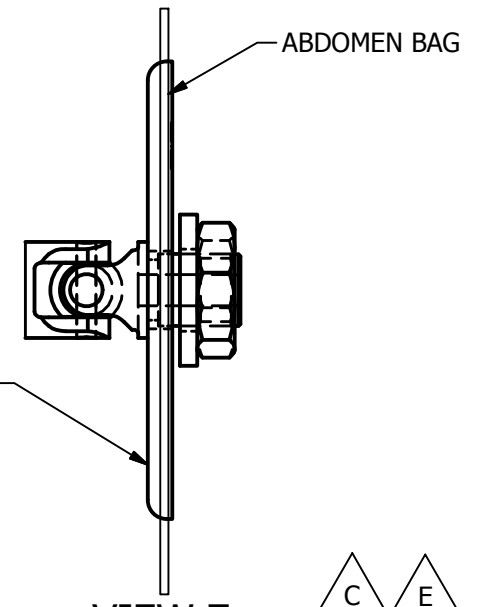
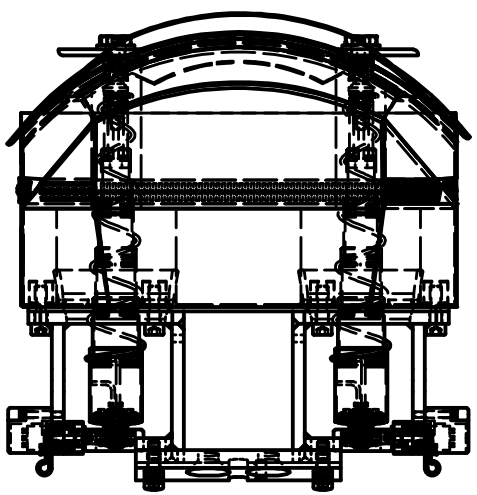
PROJECT NO:	472-3000	1	DATE:	10/27/2011
DESIGN BY:	B. KIMES		DATE:	
CHECKED BY:			DATE:	
ENGINEER:	J. WANG		DATE:	1/11/2012
TOTAL QTY IN DUMMY:	1		SCALE:	1.000

SIZE: A2
 SHEET: 1 OF 1
 DRAWING NO: 472-3580

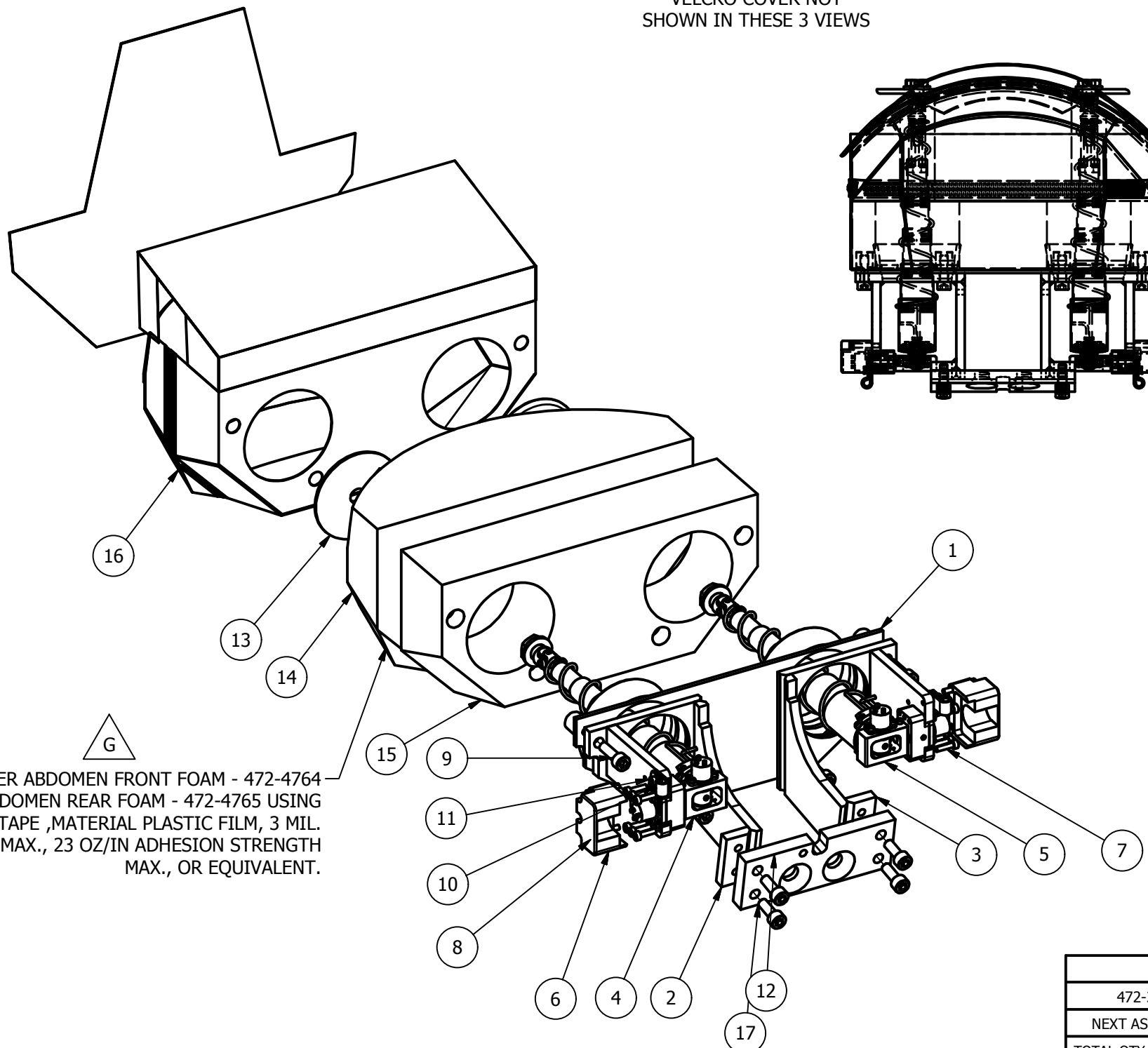
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM000 R08 AND CONVERTED TO METRIC; RESTRUCTURED BOM COMPONENTS TO CREATE 3D ITRACC ASSYS	8/23/2011	DW
	B	UPDATE TO SHOW PROPER VELCRO LOCATIONS	4/3/2012	BK
	C	ADD VIEW Z	6/25/2012	BK
	D	5000081 WAS 5000457	7/19/2012	BK
	E	ADD 5001415 QTY 2; UPDATE VIEW	2/14/2013	BK
	F	REMOVED ITEM 18 - PART #5001415	8/14/2014	DW
	G	ADDED NOTE TO ATTACH FOAMS USING DOUBLE SIDED TAPE	8/25/2015	DW



VELCRO COVER NOT SHOWN IN THESE 3 VIEWS



VIEW Z
SCALE 1.000



ATTACH LOWER ABDOMEN FRONT FOAM - 472-4764 TO LOWER ABDOMEN REAR FOAM - 472-4765 USING DOUBLE SIDED TAPE, MATERIAL PLASTIC FILM, 3 MIL. THICKNESS MAX., 23 OZ/IN ADHESION STRENGTH MAX., OR EQUIVALENT.

ITEM	QTY	PART NUMBER	DESCRIPTION
17	4	5000081	M6 X 1 X 16 LG. SHCS
16	1	472-4763	LOWER ABDOMEN BAG, SEWING ASSEMBLY
15	1	472-4765	LOWER ABDOMEN REAR FOAM LAYER
14	1	472-4764	LOWER ABDOMEN FRONT FOAM LAYER
13	2	472-4762	LOWER ABDOMEN DISTRIBUTION PLATE
12	1	472-4761	REAR ATTACHMENT PLATE
11	2	5000388	M3 X 0.5 X 8 LG. SHCS
10	2	6004191	3/16 CABLE CLAMP
9	4	5000001	M6 X 1 X 20 LG. SHCS
8	6	5000312	M3 X 0.5 X 20 LG. SHCS
7	12	5001103	M3 X 0.5 X 12 LG. SHCS
6	2	472-4760	POTENTIOMETER COVER
5	1	472-4730-2	3D ITRACC ASS'Y, RIGHT, THOR ABDOMEN - METRIC
4	1	472-4730-1	3D ITRACC ASS'Y, LEFT, THOR ABDOMEN - METRIC
3	1	472-4720-2	ATTACH BRACKET WELD ASS'Y. RIGHT
2	1	472-4720-1	ATTACH BRACKET WELD ASS'Y, LEFT
1	1	472-4710	INTERNAL MOUNTING WELD ASSEMBLY

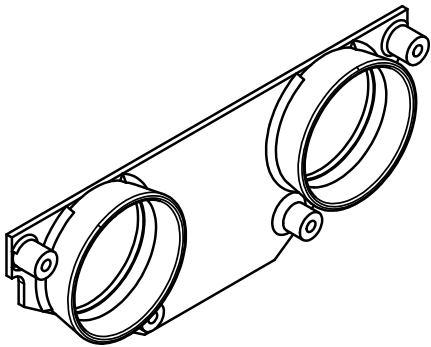
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ° ± 0.5 1.6
XX ± 0.2 ° ± 0.5 1.6
XXX ± 0.1 ° ± 0.5 1.6
XXXX ± 0.01 ° ± 0.5 1.6

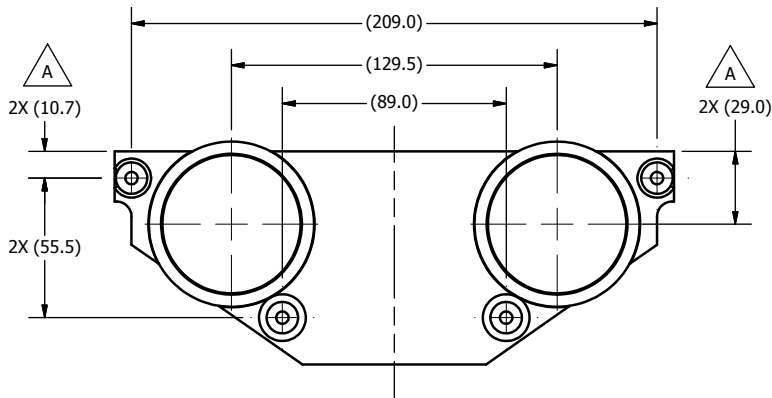
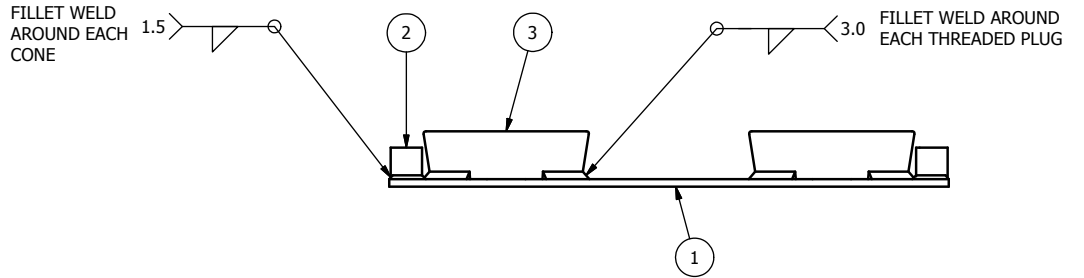


PROJECT NO.: THOR-M	DRAWN BY: dwashenko	DATE: 8/23/2011	DESCRIPTION: LOWER ABDOMEN MECHANICAL ASS'Y
MATERIAL:	HEAT TREAT:	CHECKED BY:	DATE:
472-3000	1	J. WANG	1/11/2012
NEXT ASSEMBLY	QTY	ENGINEER:	DATE:
TOTAL QTY IN DUMMY	1	J. WANG	1/11/2012
SIZE: A3		SHEET: 1 OF 1	
SCALE: .750		DRAWING NO.: 472-4700	

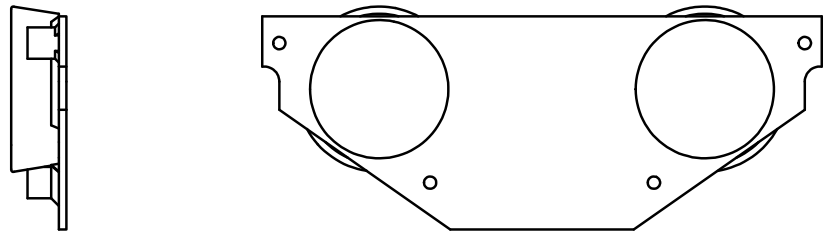
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM080 R04 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTES 4 & 6; 2X (10.7) WAS 9.7, 2X (29.0) WAS 28.0	8/22/2011	DW



SCALE .500



DIMENSIONS SYMMETRIC ABOUT CENTERLINE



NOTES:

- 472-4713 PARTS WILL OVERHANG 472-4711 PLATE SLIGHTLY IN SEVERAL PLACES.
- USE M6 BOLTS TO AFFIX 472-4712 PARTS TO 472-4711 PLATE DURING WELDING.
- CLEAR ALL HOLES OF EXCESS WELD MATERIAL.
- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm-0.008mm MAX. AFTER MACHINING.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	472-4713	FLARED OVERLOAD CONE
2	4	472-4712	THREADED PLUG
1	1	472-4711	INTERNAL PLATE

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES					
PROJECT NO.:	472-4700	DATE:	8/22/2011	DESCRIPTION: INTERNAL MOUNTING WELD ASSEMBLY			
MATERIAL:		DESIGNED BY:	dwashenko				
HEAT TREAT:		CHECKED BY:					
FINISH:	SEE NOTES	DATE:	1/11/2012	SIZE: A3 SHEET: 1 OF 1 SCALE: .500			
TOTAL QTY IN DUMMY	1	ENGINEER:	D. WASHENKO	DRAWING NO.:	472-4710	REV.:	A

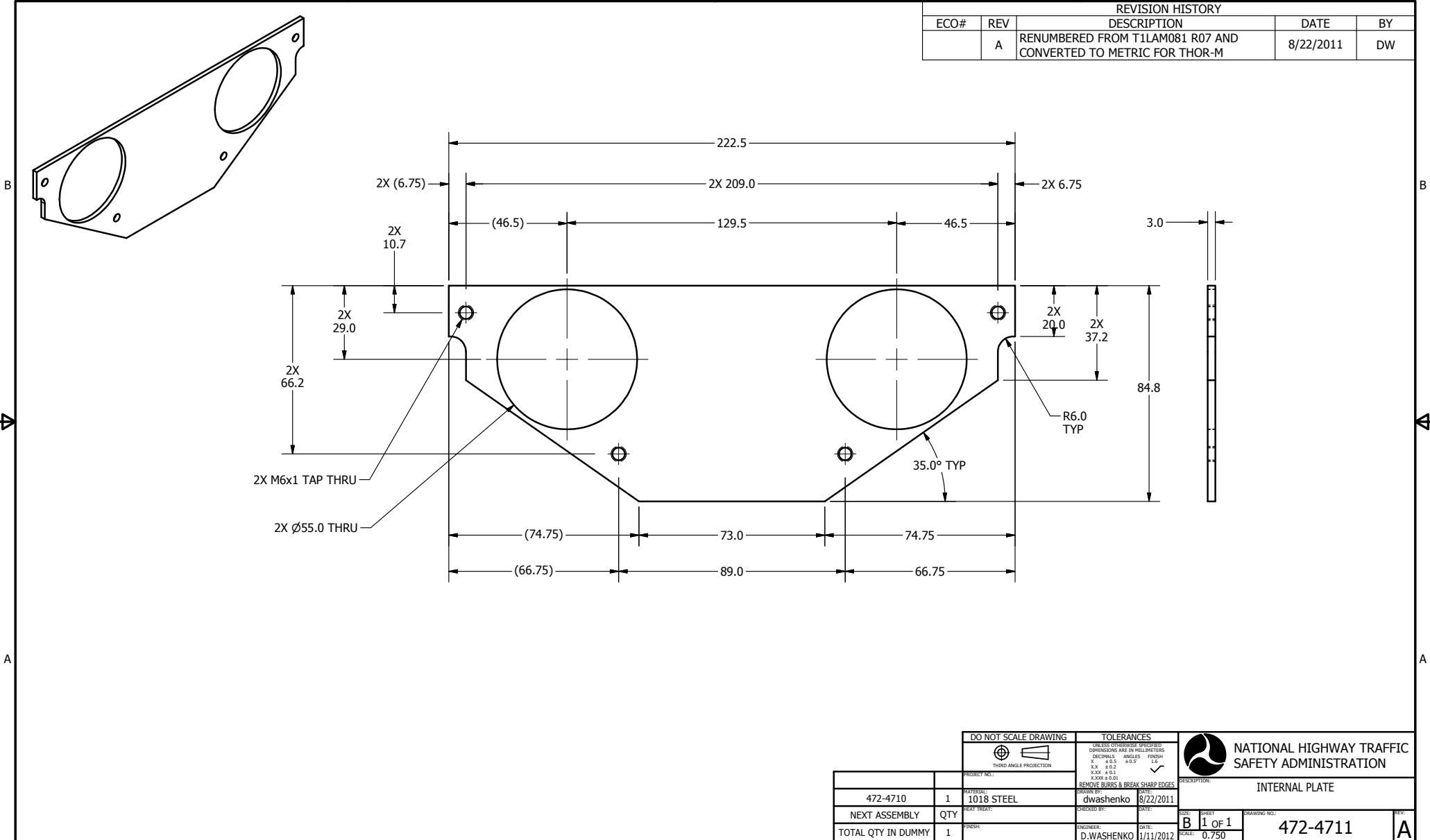
4

3

2

1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM081 R07 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	DW



B

B

A

A

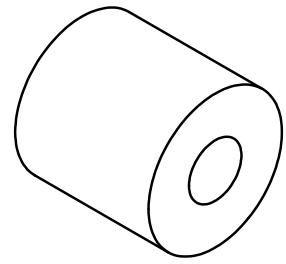
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3

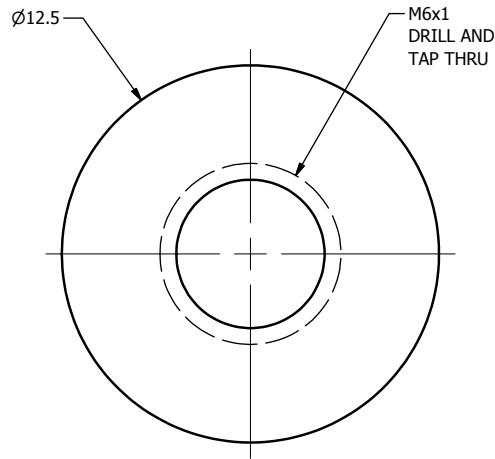
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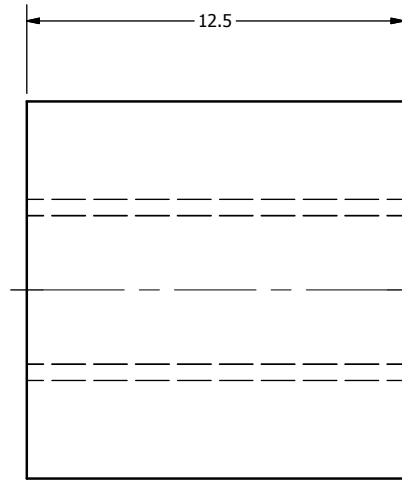
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X.X 0.02 1.6 X.XX 0.01 X.XXX 0.008		
PROJECT NO:	472-4710	MATERIAL:	1018 STEEL	DESCRIPTION:
DATE:	8/22/2011	DRAWN BY:	dwashenko	INTERNAL PLATE
QTY:	1	CHECKED BY:		SIZE: B
FINISH:		ENGINEER:	D.WASHENKO	SHEET: 1 OF 1
		DATE:	1/11/2012	DRAWING NO.: 472-4711
		SCALE:	0.750	REV: A



SCALE 3.0

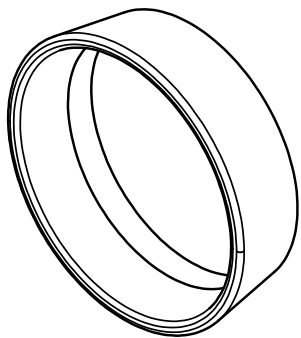


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM083 R02 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	DW

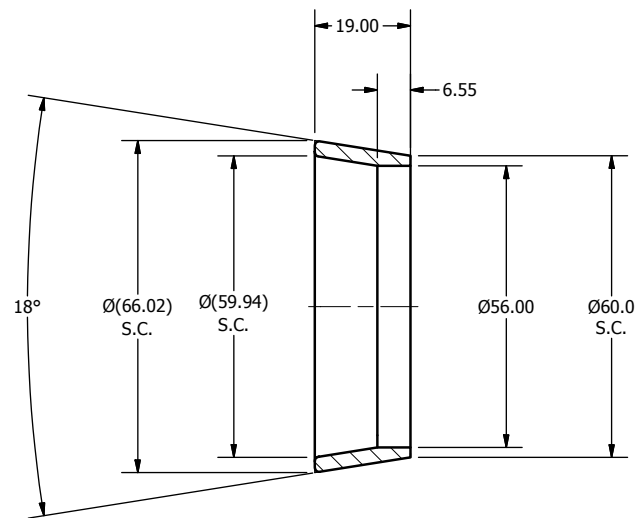
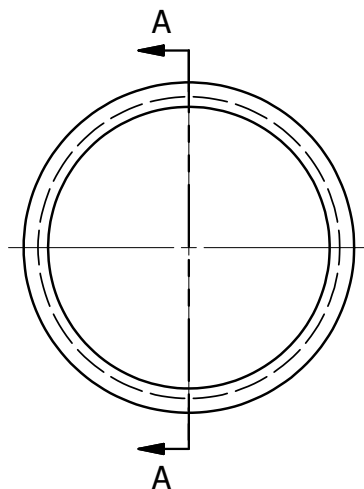
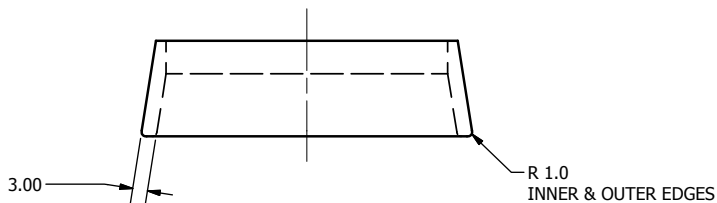


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-4710	MATERIAL:	1018 STEEL	DESCRIPTION:
DESIGNER:	dwashenko	DATE:	8/22/2011	THREADED PLUG
CHECKED BY:		HEAT TREAT:		SIZE: SHEET
ENGINEER:	D. WASHENKO	FINISH:		A3 1 OF 1
DATE:	1/11/2012	SCALE:	6.000	DRAWING NO.:
TOTAL QTY IN DUMMY	4			472-4712

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM082 R6 AND CONVERTED TO METRIC FOR THOR-M	08/30/11	DW



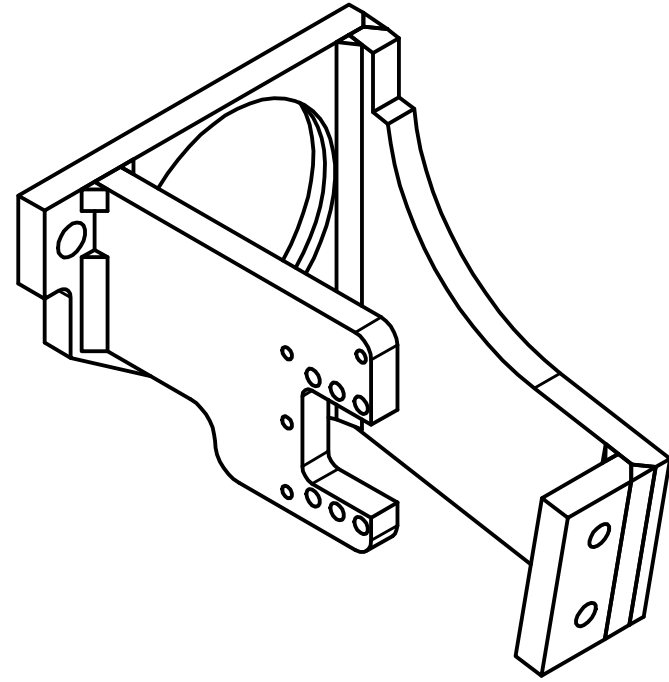
SCALE 1.000



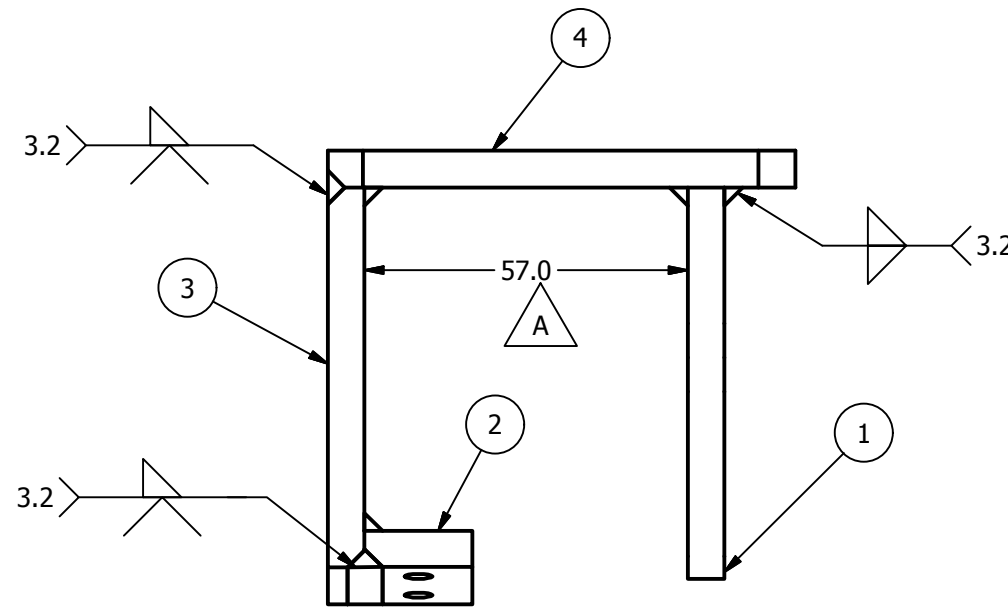
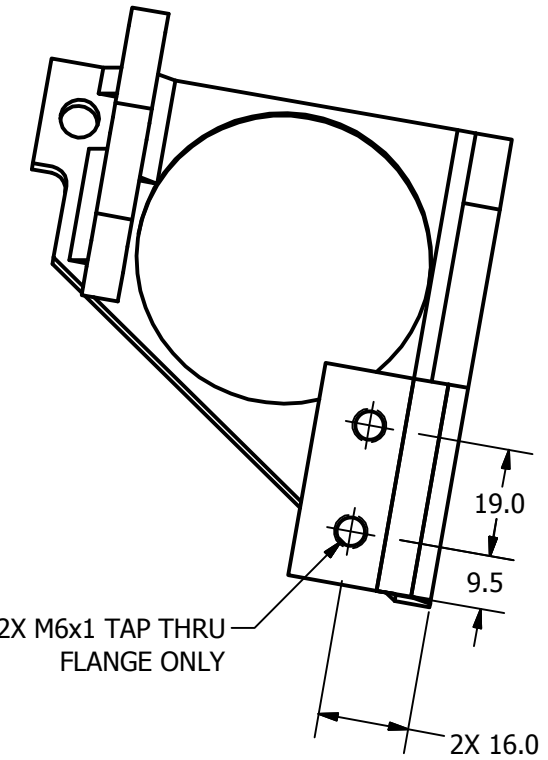
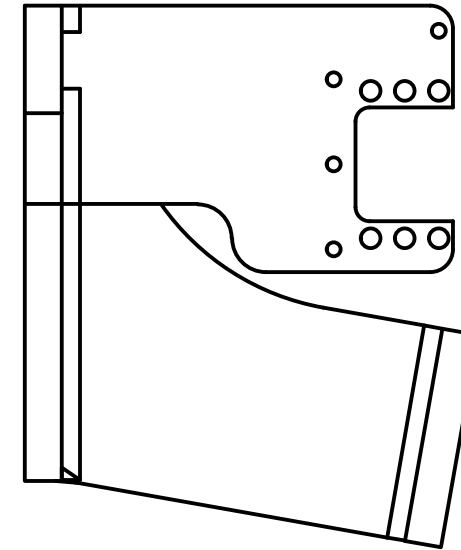
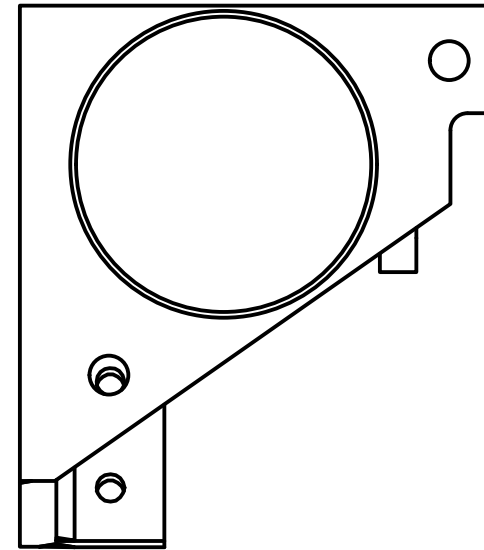
SECTION A-A
SCALE 1.000

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-4710	MATERIAL:	1018 STEEL	DESCRIPTION: FLARED OVERLOAD CONE
QTY:	2	DESIGNED BY:	dwashenko	
DATE:	6/16/2010	CHECKED BY:	D. WASHENKO	DATE:
DATE:	1/11/2012	DATE:	1/11/2012	DATE:
SCALE:	1.000	SCALE:	1.000	SCALE:
TOTAL QTY IN DUMMY			2	SIZE: SHEET: A31 OF 1
DRAWING NO:			472-4713	REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAW040 R09 AND CONVERTED TO METRIC FOR THOR-M; ADD 57.0; ADD NOTES 3, 4, 5	8/22/2011	DW
	B	ADDED NOTCH TO PART #472-4721 - DGSP MOUNT	8/13/2015	DW



SCALE .750



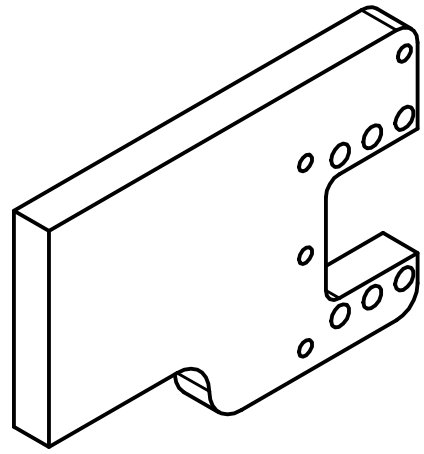
NOTES:

- EXTERIOR BUTT WELDS TO BE GROUND DOWN TO STOCK FINISH.
- CLEAR ALL HOLES OF EXCESS WELD MATERIAL.
- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm-0.008mm MAX. AFTER MACHINING.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

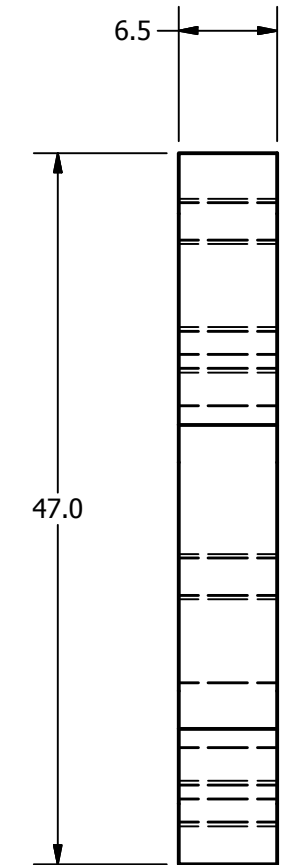
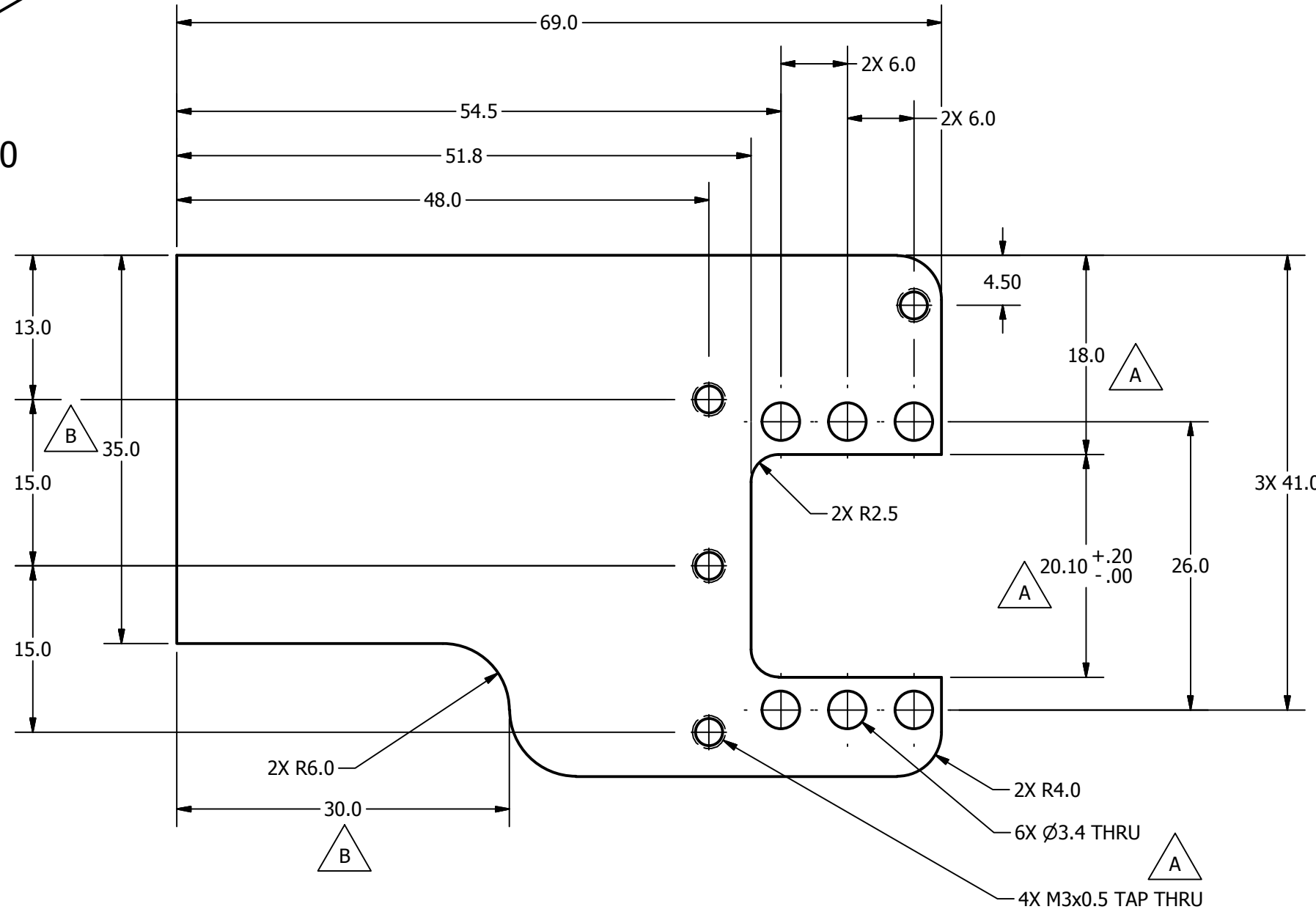


ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-4724-1	SIDE ATTACH BRACKET FRONT LEFT PLATE
3	1	472-4723-1	SIDE BRACKET PLATE, LEFT
2	1	472-4722	SIDE BRACKET REAR FLANGE
1	1	472-4721	DGSP MOUNT

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 .XX ±0.2 .XXX ±0.1 XXXX ±0.01			
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES			
MATERIAL:		DRAWN BY: dwashenko		DATE: 8/22/2011	
NEXT ASSEMBLY		CHECKED BY:		DATE:	
TOTAL QTY IN DUMMY		FINISH: SEE NOTES		ENGINEER: D. WASHENKO	
				DATE: 1/1/2012	
				SIZE: A3 1 OF 1	
				SCALE: 0.750	
				DRAWING NO.: 472-4720-1	
				REV: B	



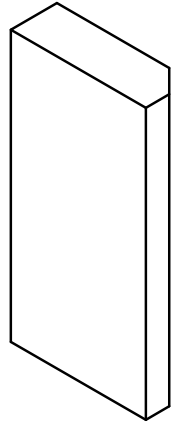
SCALE 1.0



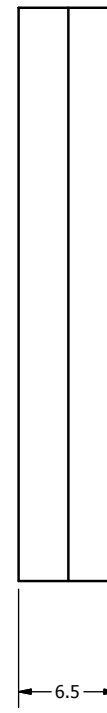
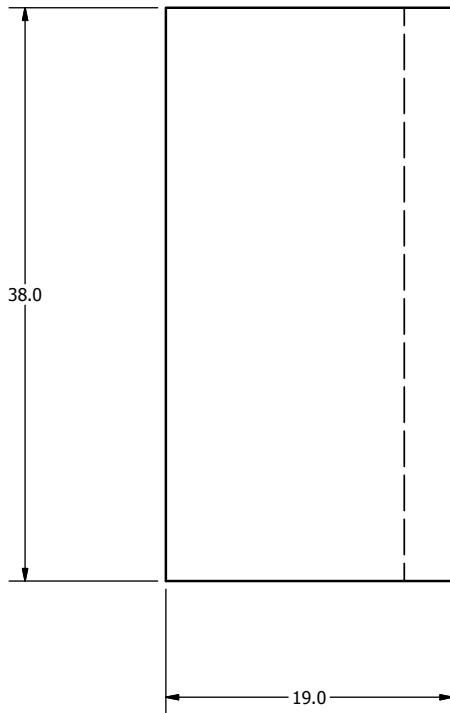
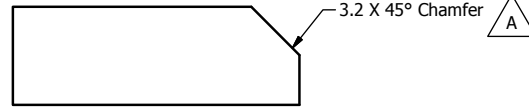
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM044 R3 FOR THOR-M; 18.0 WAS 17.95; 20.10 \pm .20/-0.00 WAS 20.10 \pm .05/-0.00; \varnothing 3.4 WAS \varnothing 3.18; 4X M3x.5 WAS 4X #4-40	8/22/2011	DW
	B	ADDED NOTCH IN BOTTOM	9/4/2015	DW

472-4720-2		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: DGSP MOUNT
472-4720-1		1	MATERIAL:	THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X \pm 0.5 \pm 0.5 1.6 XX \pm 0.2 XXX \pm 0.1 XXXX \pm 0.01 REMOVE BURRS & BREAK SHARP EDGES		
NEXT ASSEMBLY		QTY	HEAT TREAT:	dwashenko	DATE:	8/22/2011	
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER:	DATE:	1/12/2012	
			CHECKED BY:		DATE:	SIZE: SHEET	DRAWING NO.:
			D. WASHENKO		1/12/2012	A3 1 OF 1	472-4721
						SCALE: 2.000	B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM041 R1 FOR THOR-M; ADD CHAMFER	8/31/2011	DW



SCALE 2.000



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 0.5° 1.6
X 0.2
XX 0.3
XXX 0.01
REMOVE BURRS & BREAK SHARP EDGES



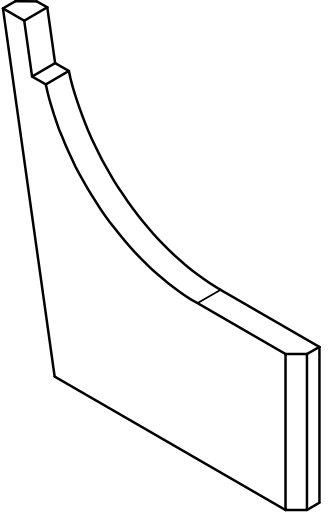
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

472-4720-2	1	PROJECT NO.:	
472-4720-1	1	MATERIAL:	1018 STEEL
NEXT ASSEMBLY	QTY	CHECKED BY:	dwashenko
TOTAL QTY IN DUMMY	2	DATE:	8/31/2011

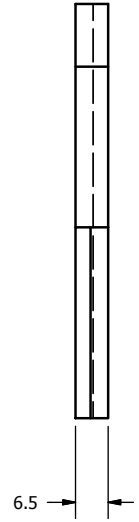
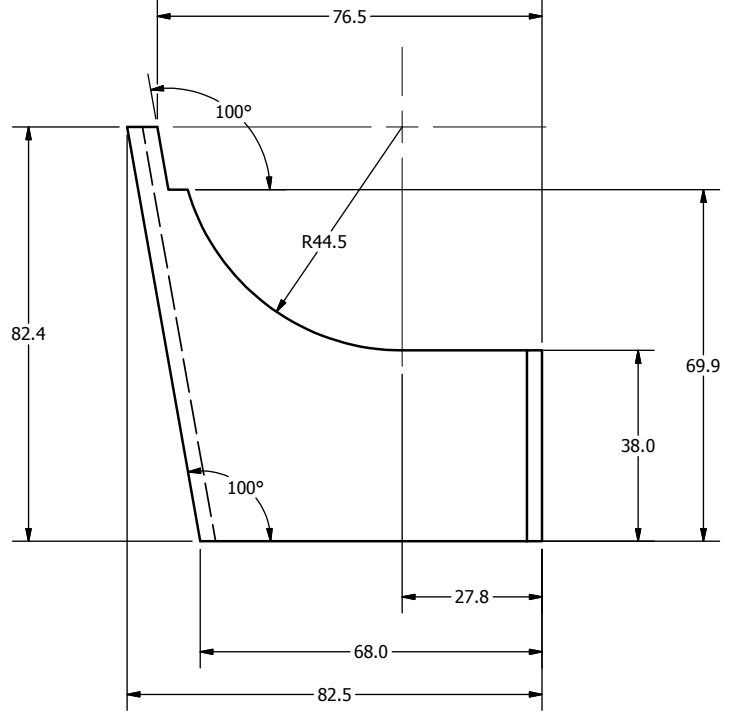
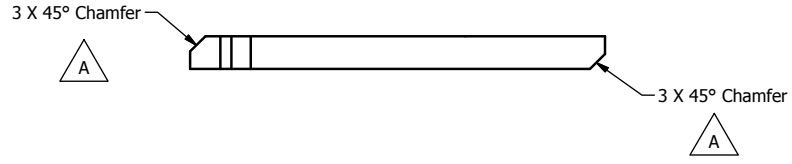
PROJECT NO.:		DATE:	8/31/2011
MATERIAL:	1018 STEEL	CHECKED BY:	dwashenko
CHECKED BY:	dwashenko	DATE:	1/12/2012
DATE:	1/12/2012	ENGINEER:	D. WASHENKO

DESCRIPTION:	SIDE BRACKET REAR FLANGE
SIZE:	A3
SHEET:	1 OF 1
DRAWING NO.:	472-4722
SCALE:	3.000
REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TILAM042 R4 FOR THOR-M; ADD CHAMFERS TO CREATE LEFT SIDE	8/31/2011	DW

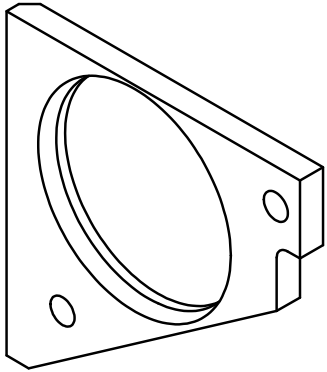


SCALE 1.000

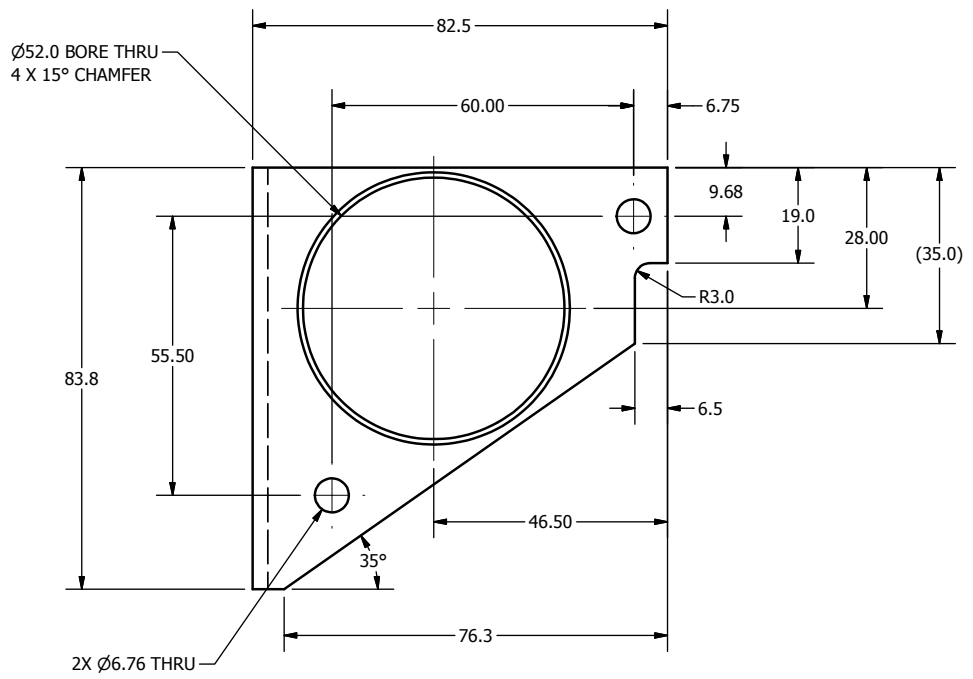
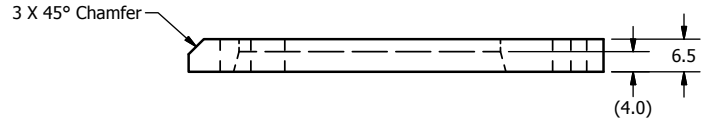


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X 0.2 0.5 XX 0.3 0.3 XXX 0.01					
PROJECT NO:	472-4720-1	MATERIAL:	1018 STEEL	DESCRIPTION: SIDE BRACKET PLATE, LEFT			
DRAWN BY:	dwashenko	DATE:	8/31/2011				
CHECKED BY:		HEAT TREAT:		SIZE: A3 SHEET: 1 OF 1 SCALE: 1.000			
ENGINEER:	D. WASHENKO	DATE:	1/12/2012				
TOTAL QTY IN DUMMY		QTY	1	DRAWING NO.:	472-4723-1	REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM043L R07 FOR THOR-M	8/31/2011	DW

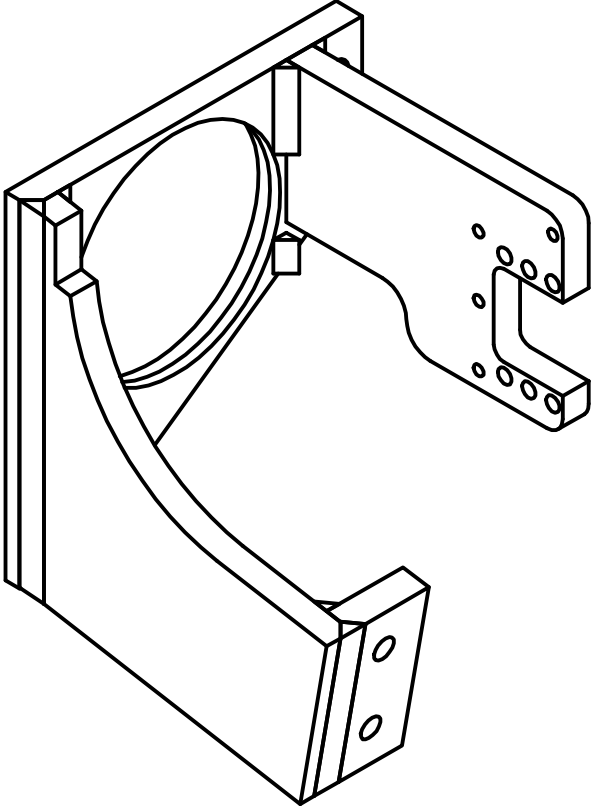


SCALE 1.000

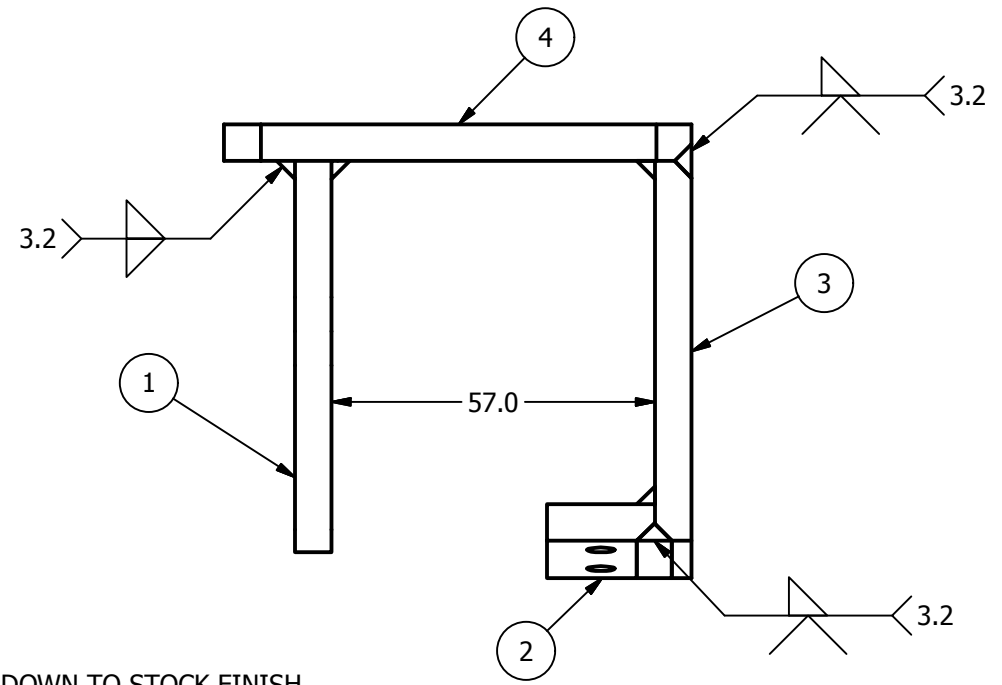
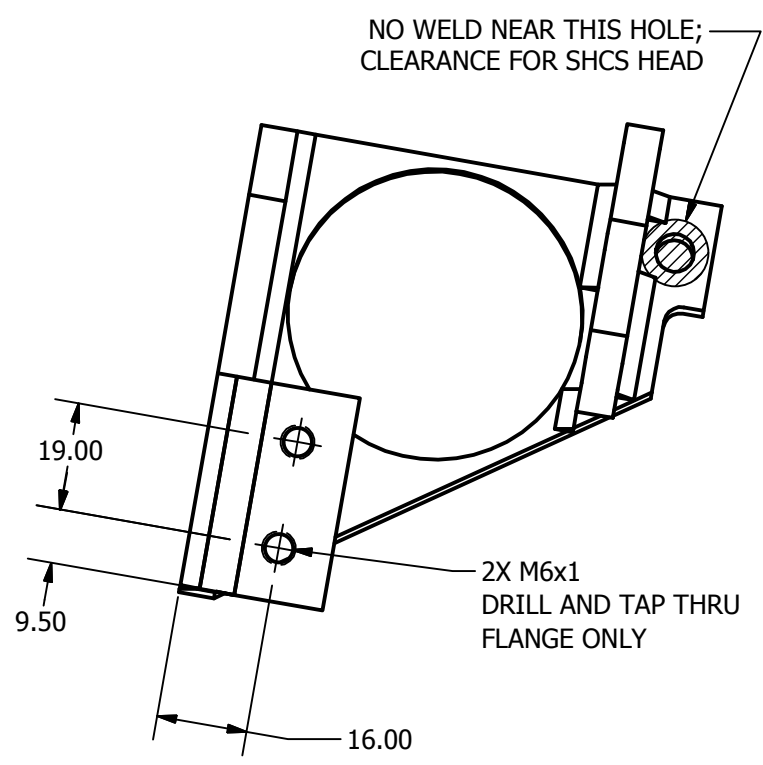
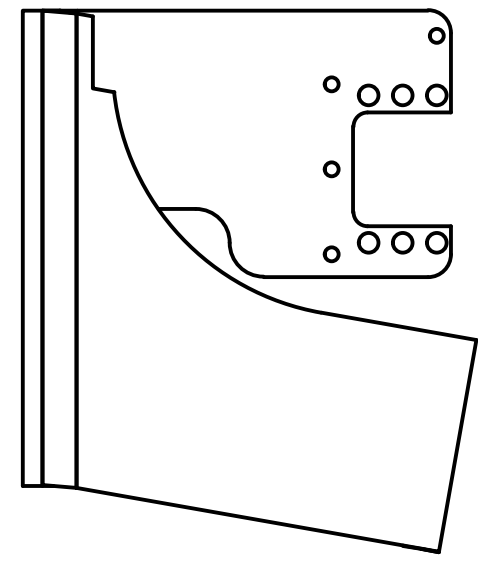
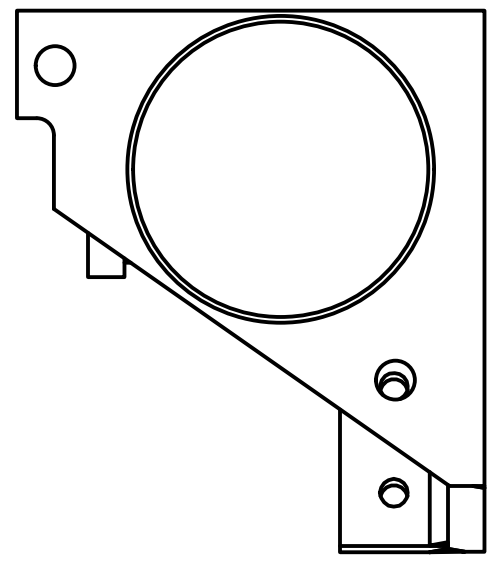


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-4720-1	MATERIAL:	1018 Steel	DESCRIPTION: SIDE ATTACH BRACKET FRONT LEFT PLATE
DATE:	8/31/2011	DESIGNED BY:	dwashenko	
CHECKED BY:		DATE:		
HEAT TREAT:		FINISH:		SIZE: A3 SHEET: 1 OF 1 SCALE: 1.000
ENGINEER:	D. WASHENKO	DATE:	1/12/2012	DRAWING NO.: 472-4724-1
TOTAL QTY IN DUMMY:	1	REV:	A	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAW060 R9 FOR THOR-M; ADD NOTES 3, 4, 5	8/22/2011	DW
	B	ADDED NOTCH TO PART #472-4721 - DGSP MOUNT	8/13/2015	DW



SCALE .750



NOTES:

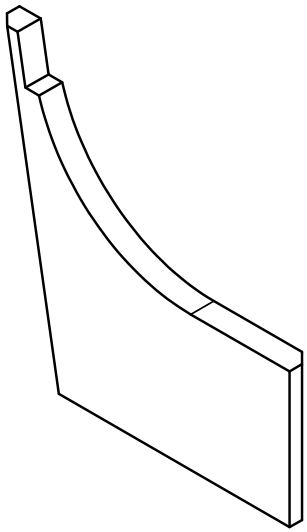
1. EXTERIOR BUTT WELDS TO BE GROUND DOWN TO STOCK FINISH.
2. CLEAR ALL HOLES OF EXCESS WELD MATERIAL.
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm-0.008mm MAX. AFTER MACHINING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.



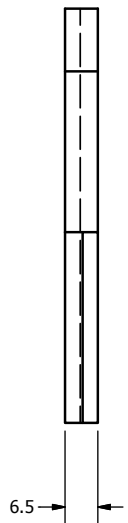
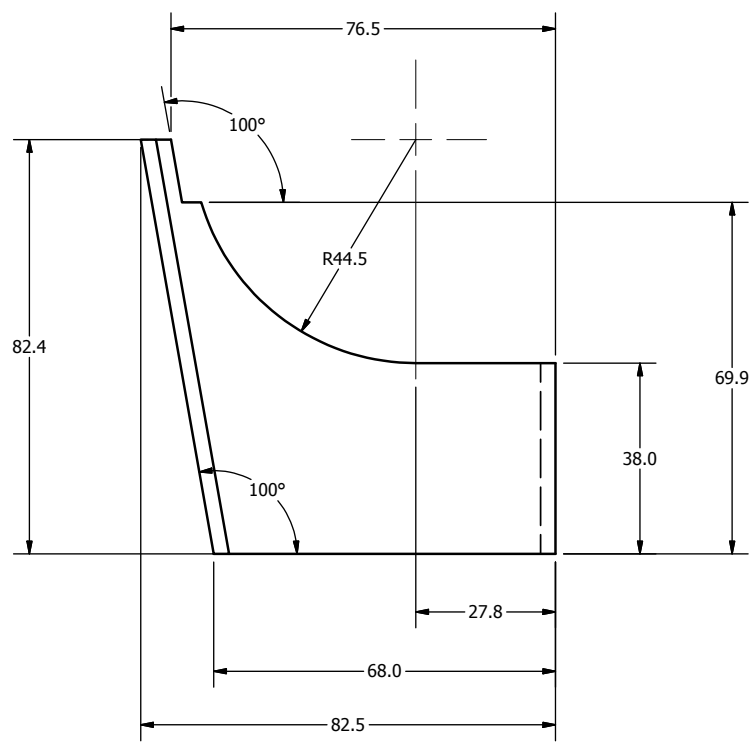
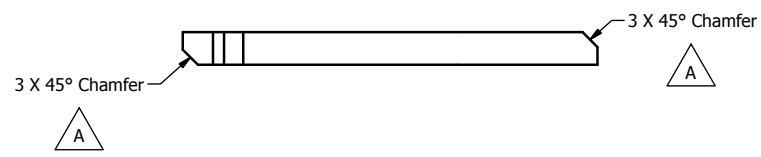
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-4724-2	SIDE ATTACH BRACKET FRONT RIGHT PLATE
3	1	472-4723-2	SIDE BRACKET PLATE, RIGHT
2	1	472-4722	SIDE BRACKET REAR FLANGE
1	1	472-4721	DGSP MOUNT

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.1 ±0.5 1.6			
PROJECT NO:	472-4700	DRAWN BY:	dwashenko	DATE:	8/22/2011
MATERIAL:		CHECKED BY:		DATE:	
HEAT TREAT:		ENGINEER:	D. WASHENKO	DATE:	1/11/2012
FINISH:	SEE NOTES	<small>REMOVE BURRS & BREAK SHARP EDGES</small>			
TOTAL QTY IN DUMMY	1	SCALE:	0.750		

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TILAM042 R4 FOR THOR-M; ADD CHAMFERS TO CREATE RIGHT SIDE	8/31/2011	DW

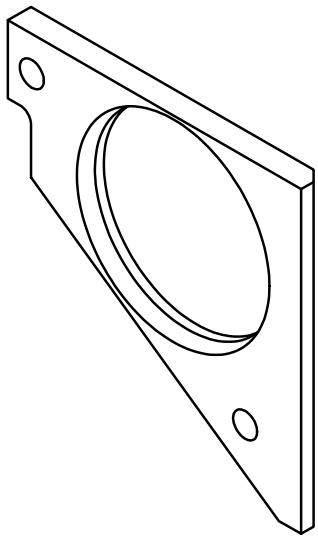


SCALE 1.000

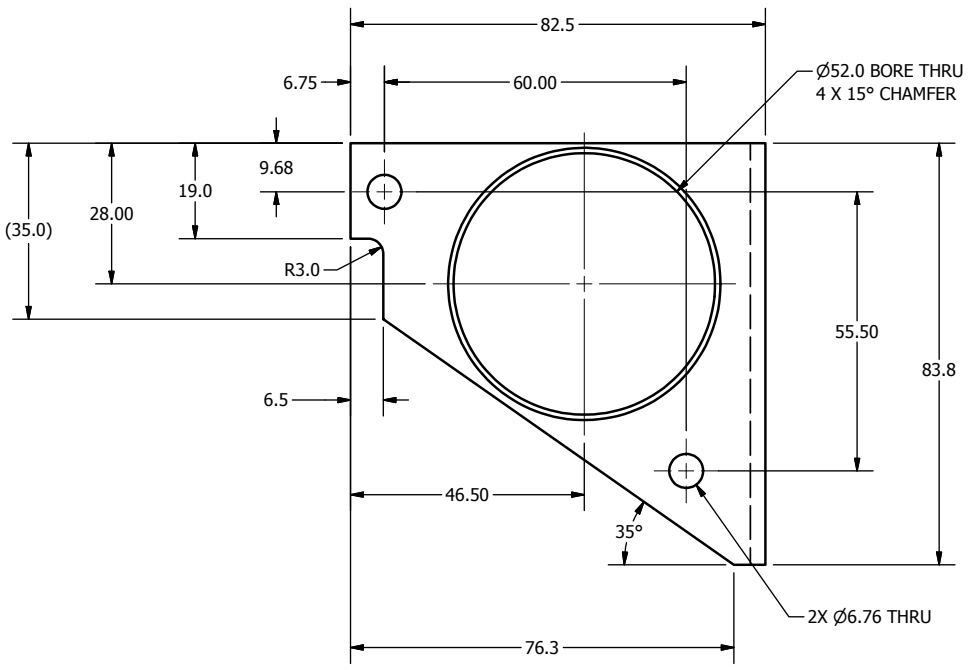
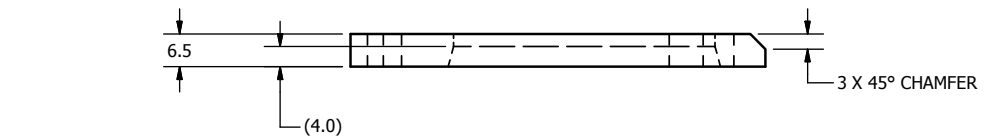


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>0.05 ± 0.5° 1.6</small> <small>0.1 ± 0.2</small> <small>0.2 ± 0.3</small> <small>0.3 ± 0.3</small> <small>0.5 ± 0.5</small>		
PROJECT NO:	472-4720-2	MATERIAL:	1018 STEEL	<small>REMOVE BURRS & BREAK SHARP EDGES</small> <small>DATE: 8/31/2011</small> <small>ENGINEER: D. WASHENKO</small>
CHECKED BY:	dwashenko	DATE:	8/31/2011	
NEXT ASSEMBLY	QTY	FINISH:		<small>DESCRIPTION:</small> SIDE BRACKET PLATE, RIGHT
TOTAL QTY IN DUMMY	1	SCALE:	1.000	<small>SIZE SHEET</small> A3 1 OF 1
		ENGINEER:	D. WASHENKO	<small>DRAWING NO.:</small> 472-4723-2
		DATE:	1/12/2012	<small>REV.:</small> A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM043R R7 FOR THOR-M	9/1/11	DW

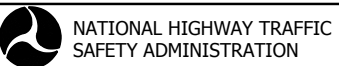


SCALE 1.000



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES		
UNLESS OTHERWISE SPECIFIED	DECIMALS	ANGLES
±0.2	±0.5°	±1.0°
±0.1	±0.25°	±0.5°
±0.05	±0.125°	±0.25°
±0.02	±0.0625°	±0.125°



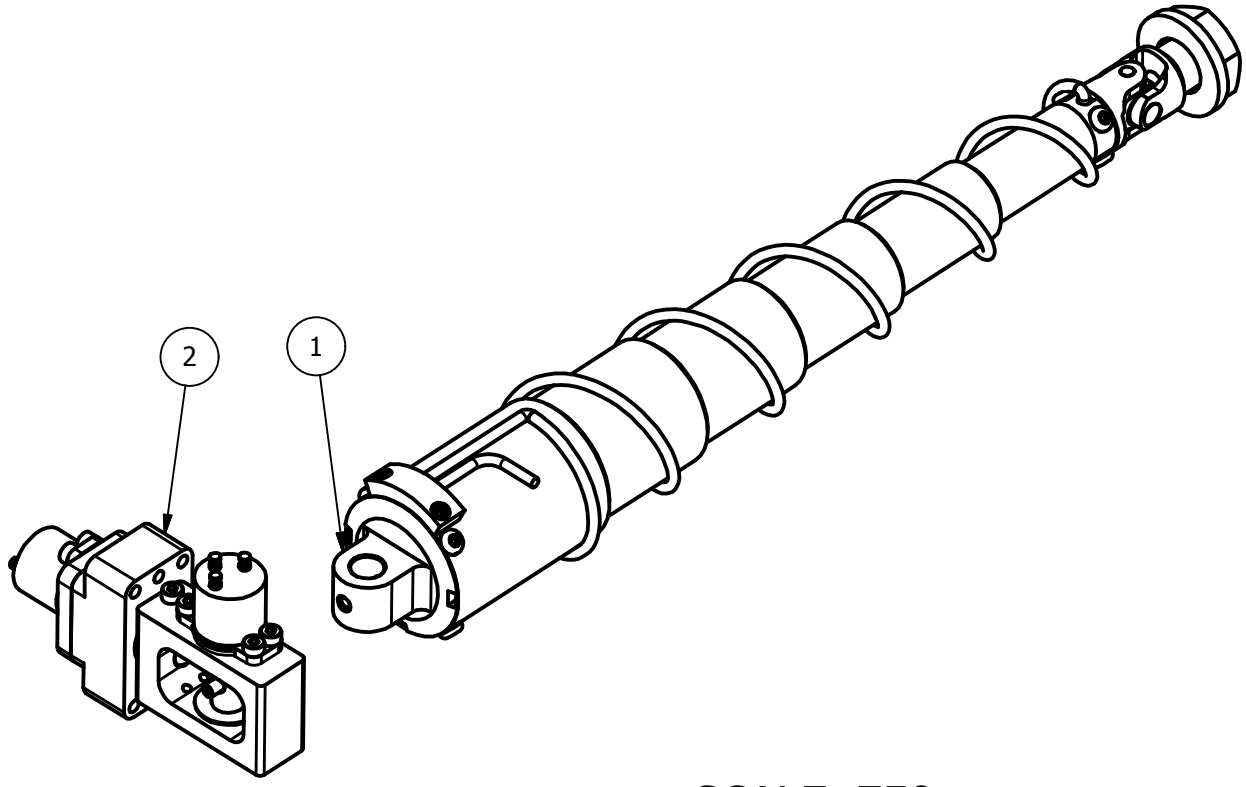
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-4720-2	QTY: 1	MATERIAL: 1018 STEEL	DATE: 7/2/2010	SCALE: 1.000	DRAWING NO.: 472-4724-2	REV: A
CHECKED BY: [Signature]	HEAT TREAT:	ENGINEER: D. WASHENKO	DATE: 1/12/2012	SIZE: A3		
TOTAL QTY IN DUMMY: 1	FINISH:	DRIVER BY: d washenko	DATE: 7/2/2010	SHEET: 1 OF 1		

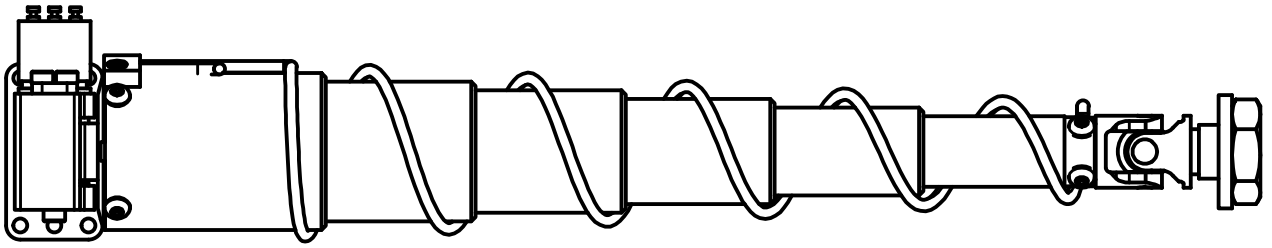
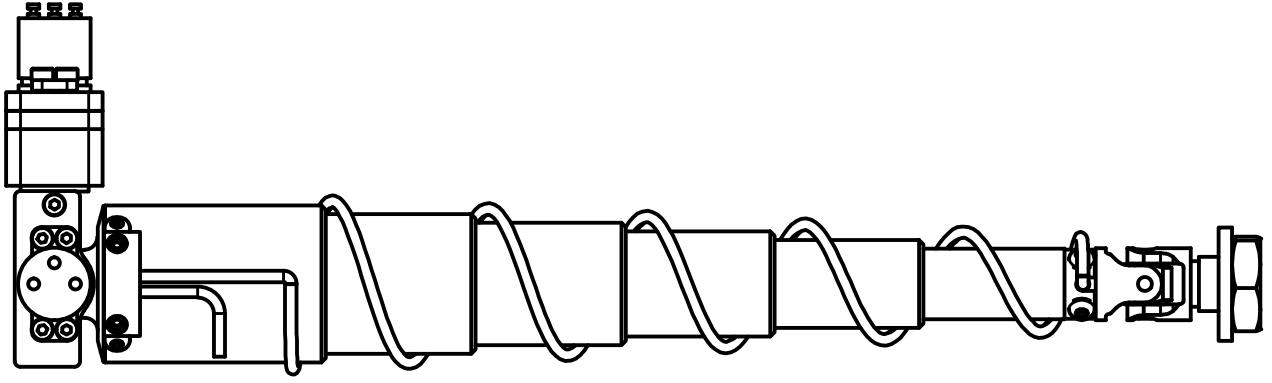
DESCRIPTION: SIDE ATTACH BRACKET FRONT RIGHT PLATE

SIZE: A3 1 OF 1
SCALE: 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED AS NEW ASSEMBLY FOR THOR-M	8/23/2011	DW
	B	MADE PARTS UNTESTED	6/8/2012	JBH



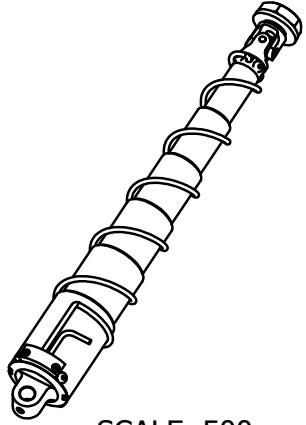
SCALE .750



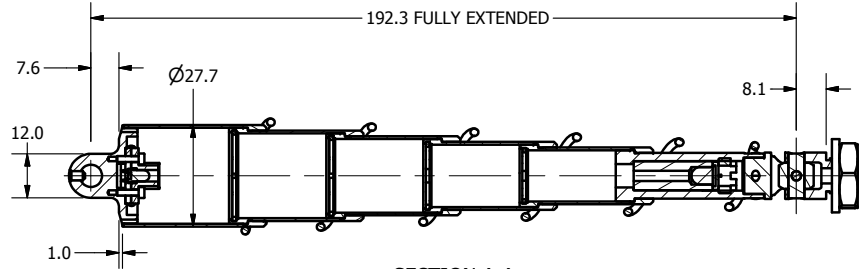
- NOTES:
1. ASSEMBLE IRTRACC TO PIVOT ASSEMBLY AS SHOWN.
 2. PROVIDE INDIVIDUAL CERT SHEETS FOR IRTRACC AND (2) POTENTIOMETERS.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-4740-1	PIVOT ASSEMBLY, LEFT
1	1	SA572-S121	120mm IRTRACC ASSEMBLY - METRIC

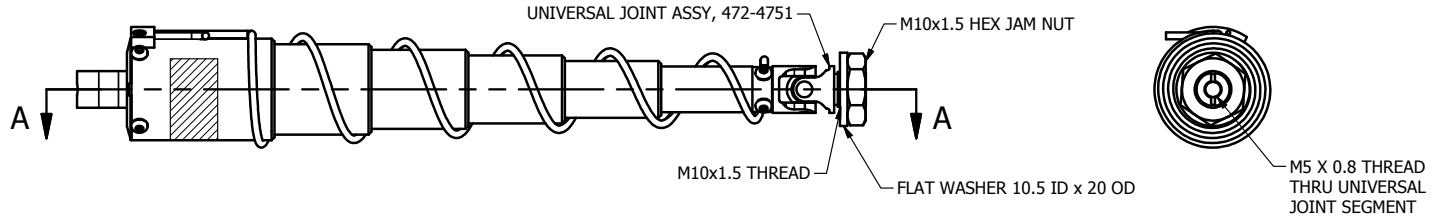
DO NOT SCALE DRAWING 		TOLERANCES <small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
PROJECT NO.: THOR-M MATERIAL: HEAT TREAT: FINISH:		REMOVE BURRS & BREAK SHARP EDGES DRAWN BY: dwashenko CHECKED BY: DATE: ENGINEER: D. WASHENKO DATE: 8/23/2011 1/12/2012		
TOTAL QTY IN DUMMY 1		SIZE: A3 SHEET: 1 OF 1 SCALE: .750		DRAWING NO.: 472-4730-1 REV: B



SCALE .500

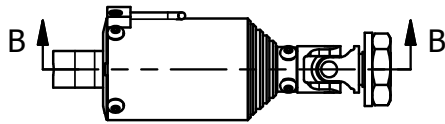


SECTION A-A
FULLY EXTENDED
SCALE 0.75



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC FOR THOR-M; MECHANICAL TRAVEL WAS 120mm; ADD COLLAPSED VIEW AND SEC B-B	8/23/2011	DW

WIRE COLOR	FUNCTION
RED	+EXC
GREEN	+SIG
ORANGE	ID
SHIELD	GND
WHITE	-SIG
BLACK	-EXC

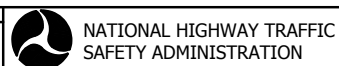


SECTION B-B
FULLY COLLAPSED
SCALE 0.75

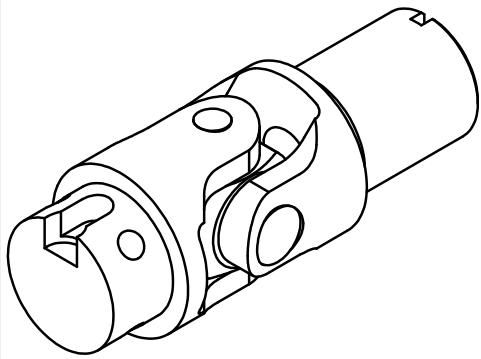
SPECIFICATIONS:
 MECHANICAL TRAVEL: 123 mm $\triangle A$
 MEASURED RANGE: 105 mm
 PRE/POST TRAVEL: 7.5 mm
 MAXIMUM ERROR: $\pm 3\%$
 INPUT VOLTAGE: 5 VOLTS ($\pm 1\%$) @20mA
 OUTPUT RANGE: 0 TO 4.0 VOLTS
 WEIGHT: 163 g (.36 LBS) LESS MAIN CABLE
 NONLINEARITY: (LINEARIZED DATA) < 2% FULL SCALE
 SEE CALIBRATION REPORT FOR LINEARITY CONSTANT FIGURE.
 DIMENSIONS NOT SHOWN TO BE MANUFACTURER'S STANDARDS.

NOTES:
 THE IRTRACC IS AN INHERENTLY NON-LINEAR DISPLACEMENT TRANSDUCER.
 AN IRTRACC'S RAW VOLTAGE VALUES MUST BE ADJUSTED BY THE APPLICATION
 OF A LINEARIZATION EXPONENT APPLIED THROUGH POST TEST PROCESSING SOFTWARE IN
 ORDER TO ACHIEVE ACCURATE DISPLACEMENT DATA.

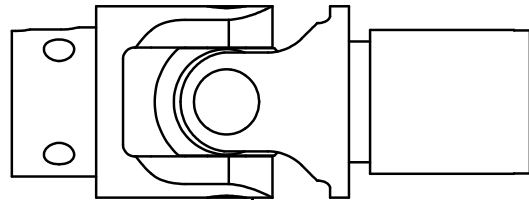
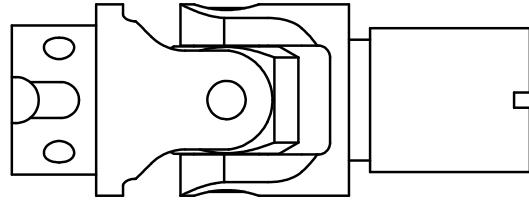
DO NOT SCALE DRAWING
 TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X.X 0.05 0.5 1.6
 X.XX 0.1 0.5
 X.XXX 0.025



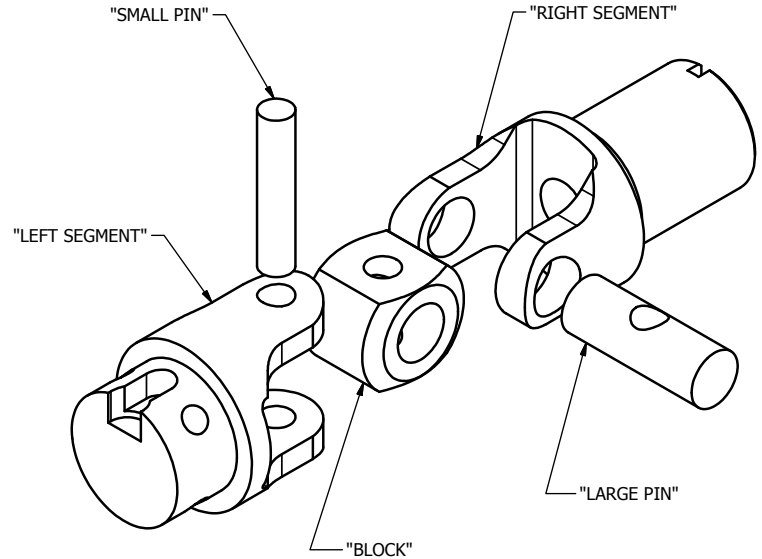
PROJECT NO.	472-4730-2	1	DRAWN BY:	dwashenko	DATE:	8/23/2011	DESCRIPTION:	120mm IRTRACC ASSEMBLY - METRIC
MATERIAL:	472-4730-1	1	CHECKED BY:		DATE:		SIZE:	B 1 OF 1
HEAT TREAT:	NEXT ASSEMBLY	QTY	ENGINEER:	D. WASHENKO	DATE:	1/12/2012	SCALE:	0.750
TOTAL QTY IN DUMMY		2	REVISION:				DRAWING NO.:	SA572-S121



SCALE 3.000



1

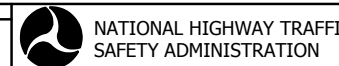


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION; NEW VERSION BASED ON 9900	8/23/2011	DW
	B	ADD SHEET 3 WITH LEFT SEGMENT DIMENSIONS	3/8/2012	DW
	C	REMOVED PLATING; ITEM WAS UJ500	6/18/2012	MCO
	D	CHANGE UNDERCUT; Ø8.0 WAS Ø 8.5, 1.4±.13 WAS 1.0 (SHT 2)	1/10/2013	BK
	E	20.4 WAS 16.8; 12.24 WAS 8.64 (SHT 2)	2/14/2013	BK

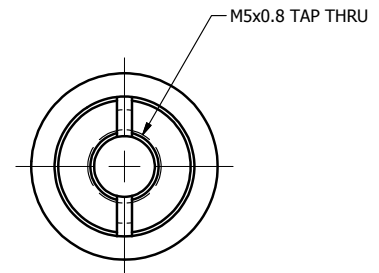
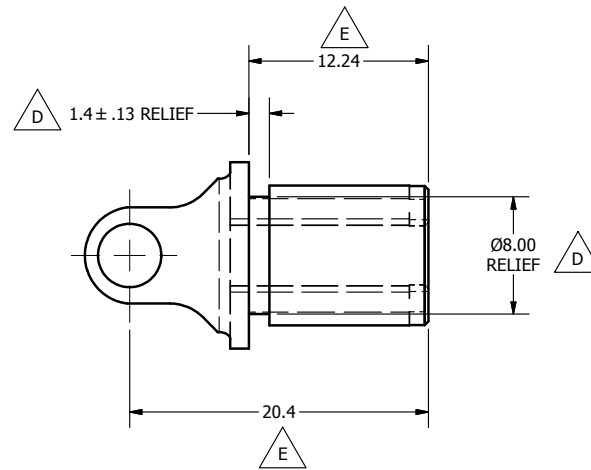
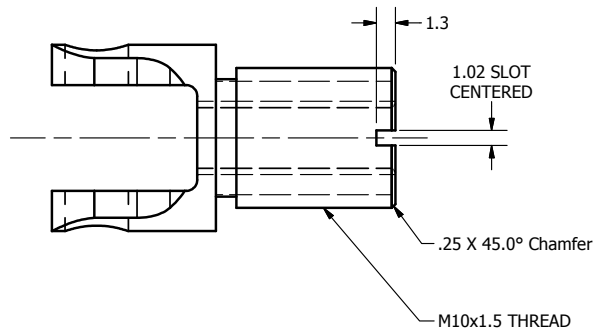
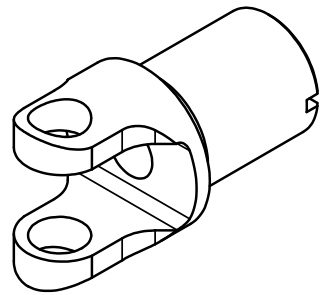
NOTES:

- UNIVERSAL JOINT ASSEMBLY IS PURCHASED IN KIT FORM.
- MODIFY "RIGHT SEGMENT" AS SHOWN ON SHEET 2.
- MODIFY "LEFT SEGMENT" AS SHOWN ON SHEET 3.
- NICKEL PLATE "RIGHT SEGMENT" AFTER MACHINING. 0.008mm MAXIMUM PER SIDE.
- PREASSEMBLE UNIVERSAL JOINT WITHOUT GREASE TO VERIFY SMOOTH AND CORRECT MOVEMENT. REMOVE NICKEL PLATE MATERIAL FROM I.D. OF RIGHT SEGMENT, AS NECESSARY.
- DISASSEMBLE JOINT ASSEMBLY. LIGHTLY GREASE AL BEARING AND CONTACT SURFACES.
- INSTALL THE LARGE PIN THRU THE RIGHT SEGMENT AND BLOCK WITH CENTER HOLES ALIGNED.
- ORIENT LEFT SEGMENT OVER BLOCK WITH CENTER HOLES ALIGNED AND INSTALL SMALL PIN THRU LEFT SEGMENT, BLOCK, & LARGE PIN.
- PLACE THE ASSEMBLED JOINT ON A FLAT, HARD SURFACE AND PEEN THE ENDS OF THE SMALL PIN WITH A PUNCH AND HAMMER.
- (CAUTION: DO NOT CRUSH THE YOKE OR OVER PEEN THE PIN.)**
- CHECK THE ASSEMBLY FOR CORRECT MOVEMENT. THE SMALL PIN SHOULD NOT HAVE ANY SIDE TO SIDE MOVEMENT.

1	1	6004070	UJ500 U-JOINT KIT 1/2 OD
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 X-XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:	MATERIAL:	DRAWN BY:	DATE:
SA572-S121		dwashenko	8/23/2011
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	2	SEE NOTES	
ENGINEER:		DATE:	
D. WASHENKO		1/12/2012	
SIZE:		SHEET:	
A3		1 OF 3	
SCALE:		DRAWING NO.:	
3.0		472-4751	
			REV.:
			E



UNIVERSAL JOINT ASSEMBLY




RIGHT SEGMENT

DO NOT SCALE DRAWING

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS

DIMENSIONAL	ANGLES	FINISH
X.X	0.0	0.0
X.XX	0.0	0.0
X.XXX	0.0	0.0

REMOVE BURRS & BREAK SHARP EDGES

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: UNIVERSAL JOINT ASSEMBLY

PROJECT NO.	
MATERIAL:	SA572-S121
QTY	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

THIRD ANGLE PROJECTION

DATE: 8/23/2011

ENGINEER: D.WASHENKO

DATE: 8/23/2011

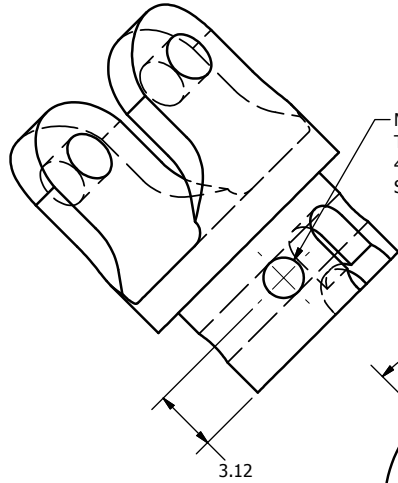
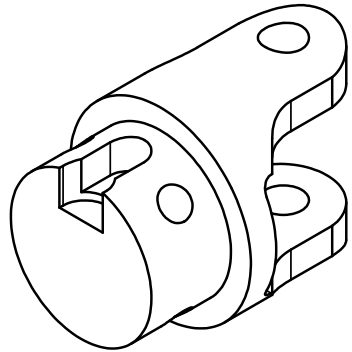
ENGINEER: D.WASHENKO

SIZE: B

SHEET: 2 OF 3

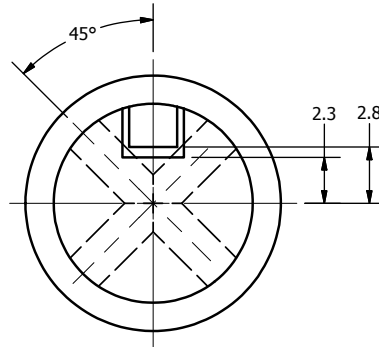
SCALE: 3.0

DRAWING NO.: 472-4751



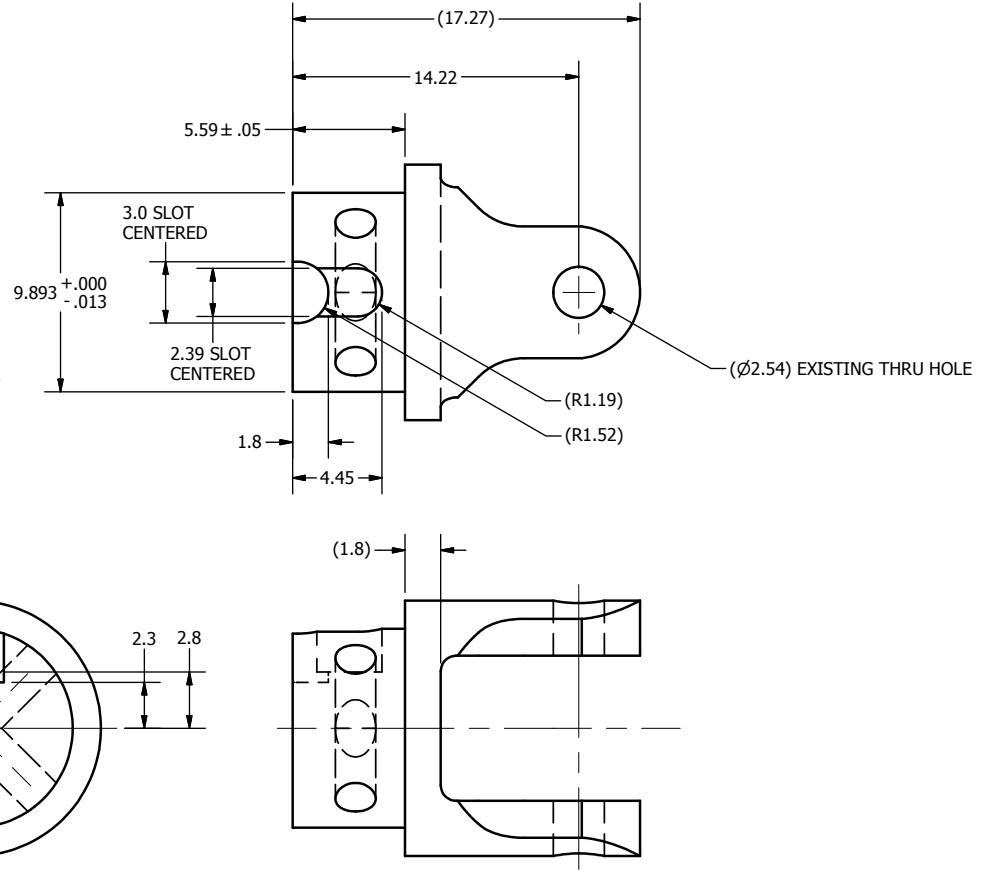
M2.5x0.45 TAP
THRU TO CENTER
4 HOLES EQUALLY
SPACED ON O.D.

3.12




45°

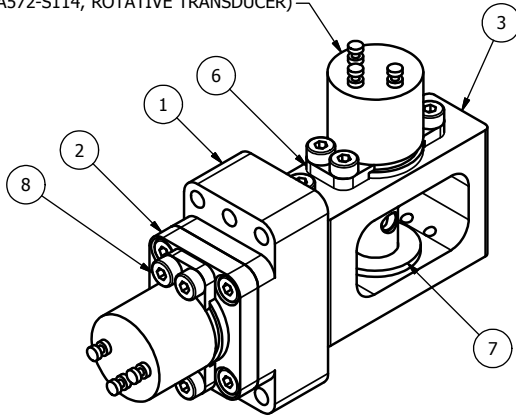
2.3 2.8



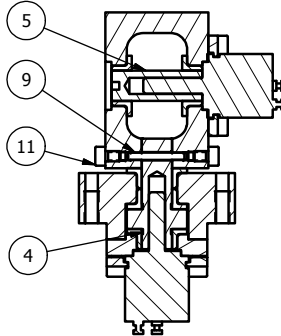
LEFT SEGMENT

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: UNIVERSAL JOINT ASSEMBLY
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.01 0.05 1.6 X 0.2 XX 0.3 XXX 0.01		
PROJECT NO.:	SA572-S121	QUANTITY:	1	SCALE: 3.0 DRAWING NO.: 472-4751 REV: E
MATERIAL:		NEXT ASSEMBLY:	QTY	
HEAT TREAT:		TOTAL QTY IN DUMMY:	2	
DESIGNED BY:	D. WASHENKO	DATE:	8/23/2011	
CHECKED BY:		DATE:		
FINISH:	SEE NOTES	DATE:		

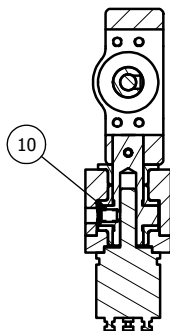
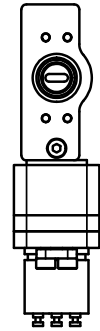
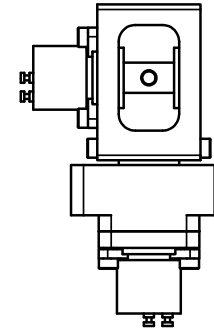
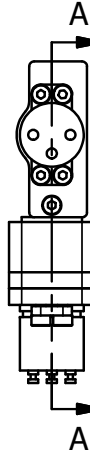
(2X SA572-S114, ROTATIVE TRANSDUCER)



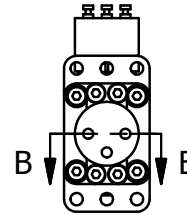
SCALE 1.50



SECTION A-A
SCALE 1.0



SECTION B-B



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIRM200 R00 AND CONVERTED TO METRIC FOR THOR-M; CREATE LEFT SIDE	8/22/2011	DW

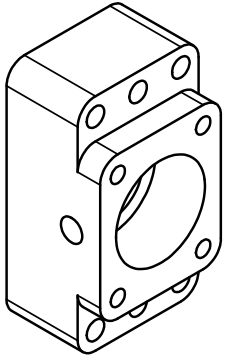
ITEM	QTY	PART NUMBER	DESCRIPTION
11	2	5001136	M2 X 0.4 X 3 LG. SHCS
10	1	5001043	M2.5 X 0.45 X 4 LG. SSSCP SS
9	1	5000514	M1.5 X 12 LG. DOWEL SS
8	12	5001079	M2 X 0.4 X 5 LG. SHCS
7	5	5000949	FLANGE BEARING 6 X 8 X 4 LG.
6	4	472-4746	CLAMP POT
5	1	472-4745	SHAFT VERTICAL
4	1	472-4744	SHAFT HORIZONTAL
3	1	472-4743	BLOCK PIVOT
2	1	472-4742	COVER
1	1	472-4741	BLOCK MOUNTING

PARTS LIST

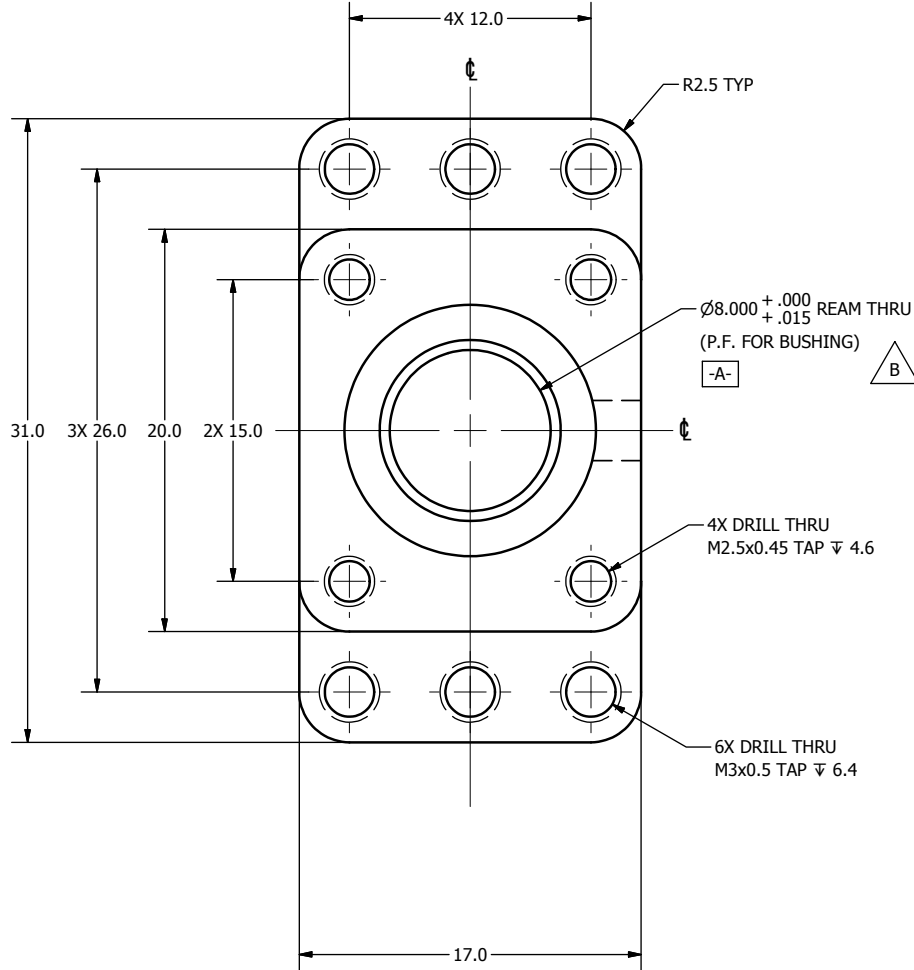
DO NOT SCALE DRAWING	TOLERANCES	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 1.6 XX 0.02 0.05 XXX 0.01 0.01 X-XXX 0.01	
PROJECT NO.: 472-4730-1	MATERIAL: NEXT ASSEMBLY	DESCRIPTION: PIVOT ASSEMBLY, LEFT
CHECKED BY: dwashenko	DATE: 8/22/2011	SIZE: A3
DRUMMER: D. WASHENKO	DATE: 1/12/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY: 1	SCALE: 1.000	DRAWING NO.: 472-4740-1

472-4730-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

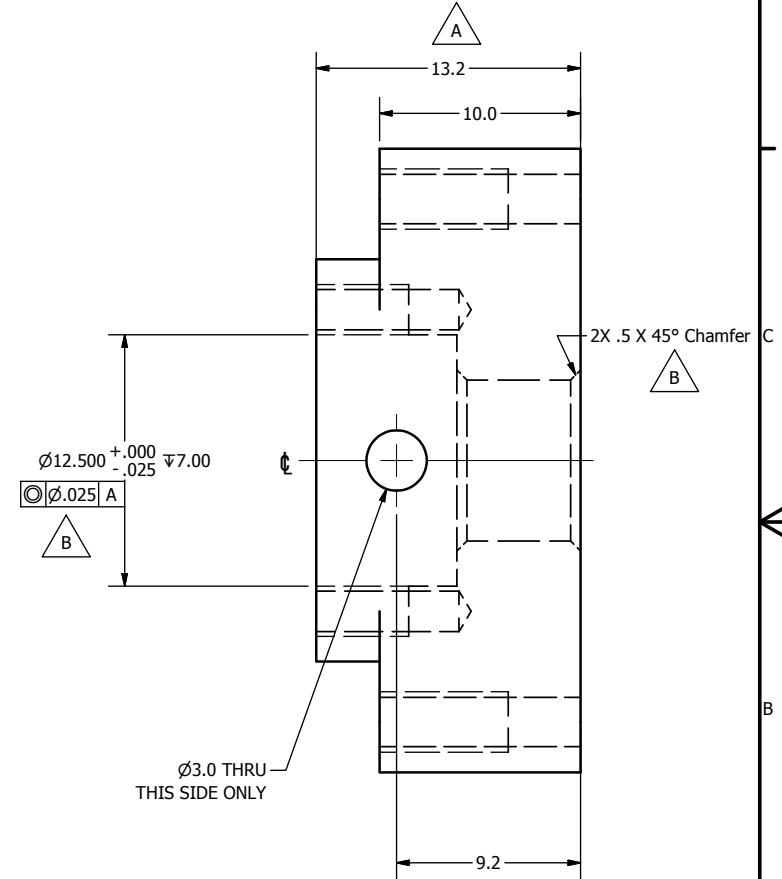
A



SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1TRM201 FOR THOR-M; 13.2 WAS 13.15	8/22/2011	DW
	B	ADD TOLERANCES, GD&T BOX, MISSING DIMENSION, AND NOTE	8/1/2012	BK



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

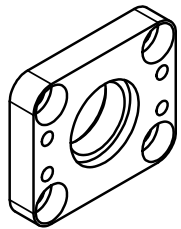
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X .05 ± 0.07 1.6
X.X ± 0.2
X.XX ± 0.3
X.XXX ± 0.01



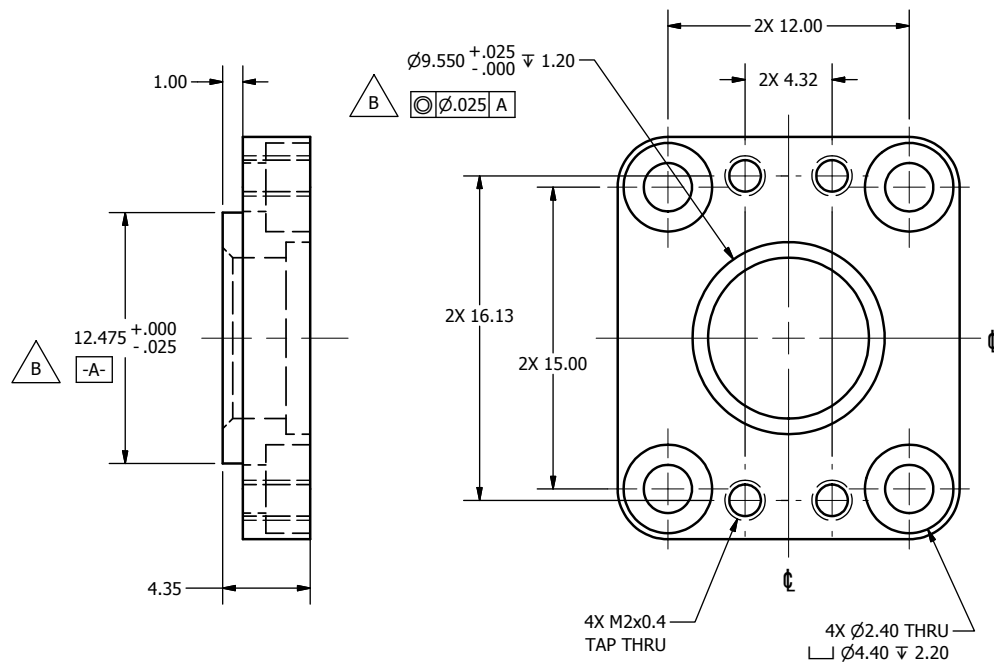
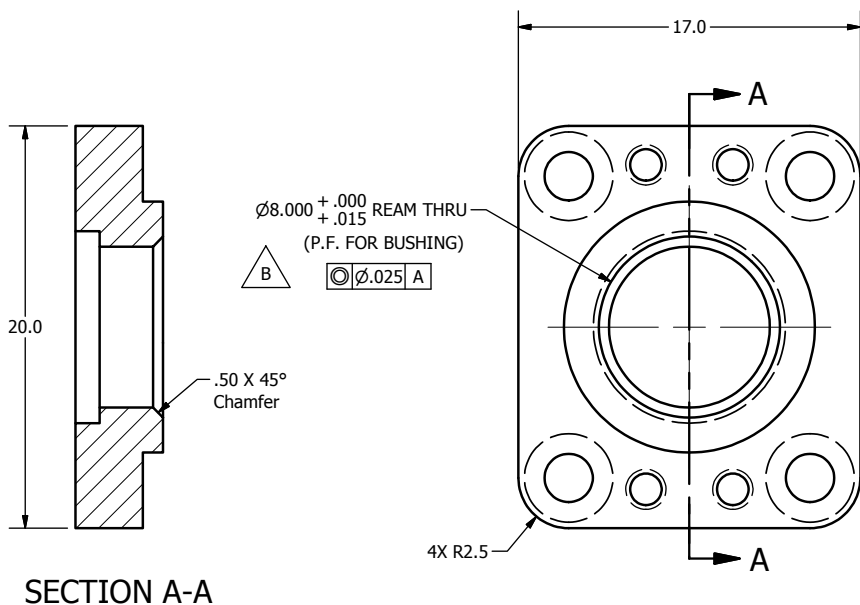
NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

472-4740-2	1	PROJECT NO.:	DATE:	SIZE	SHEET	DRAWING NO.	REV.
472-4740-1	1	MATERIAL:	8/22/2011	A3	1 OF 1	472-4741	B
NEXT ASSEMBLY	QTY	303 S.S. OR EQUIVALENT	dwashenko	SCALE:	4.000		
TOTAL QTY IN DUMMY	2	HEAT TREAT:	D. WASHENKO	DATE:	1/12/2012		

DESCRIPTION:
BLOCK MOUNTING

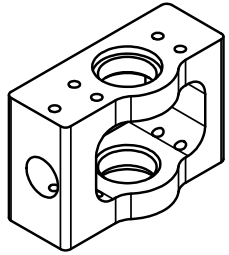


SCALE 2.000



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM202 R00 FOR THOR-M	8/22/2011	DW
	B	ADD TOLERANCES, GD&T BOXES; Ø12.475 WAS Ø12.48	8/1/2012	BK

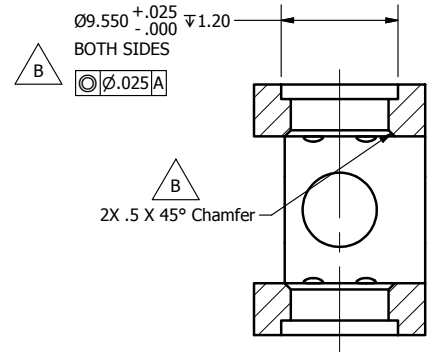
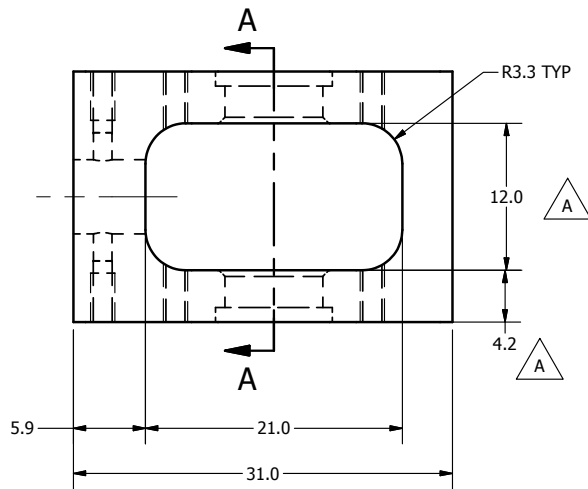
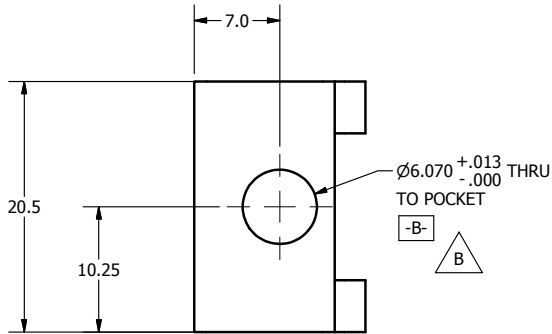
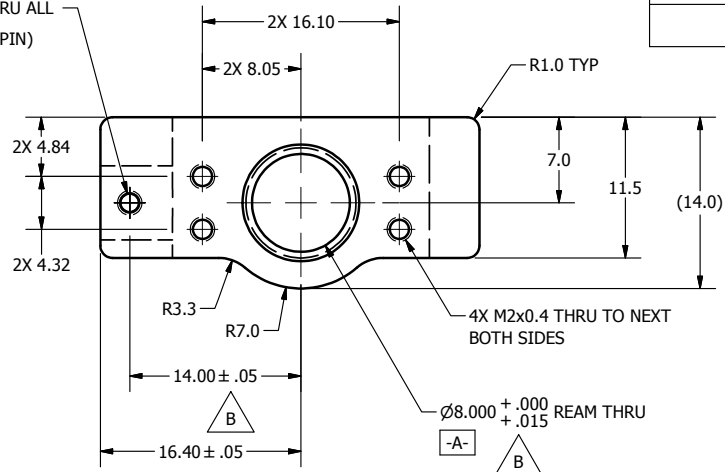
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5 1.6 XX 0.2 0.5 1.6 XXX 0.3 0.5 1.6 XXXX 0.01		
PROJECT NO:	472-4740-2	1	MATERIAL:	303 S.S. OR EQUIVALENT
DATE:	8/22/2011		DESIGNED BY:	dwashenko
CHECKED BY:			DATE:	8/22/2011
HEAT TREAT:			ENGINEER:	D. WASHENKO
DATE:	1/12/2012		SCALE:	4.000
FINISH:			SIZE SHEET	A3 1 OF 1
TOTAL QTY IN DUMMY	2		DRAWING NO.	472-4742
			REV.	B



SCALE 1.50

Ø1.510 ^{+0.010}/_{-.000} DRILL THRU ALL
(FOR S.F. Ø1.5 DOWEL PIN)
TAP M2X0.4 ∇4.0
BOTH SIDES

△ B
□ .013 B



SECTION A-A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM203 R00 FOR THOR-M; 12.0 WAS 12.02; 4.2 WAS 4.24	8/22/2011	DW
	B	ADD ADD TOLERANCES, GD&T BOXES, MISSING DIMENSIONS; ADD CHAMFER	8/1/2012	BK

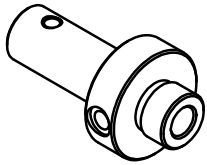
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X.X 0.0 0.0 1.6
X.XX 0.01 1.6
X.XXX 0.001

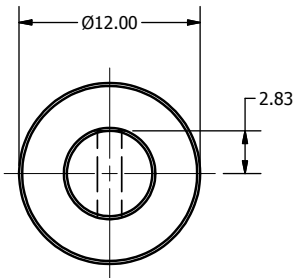
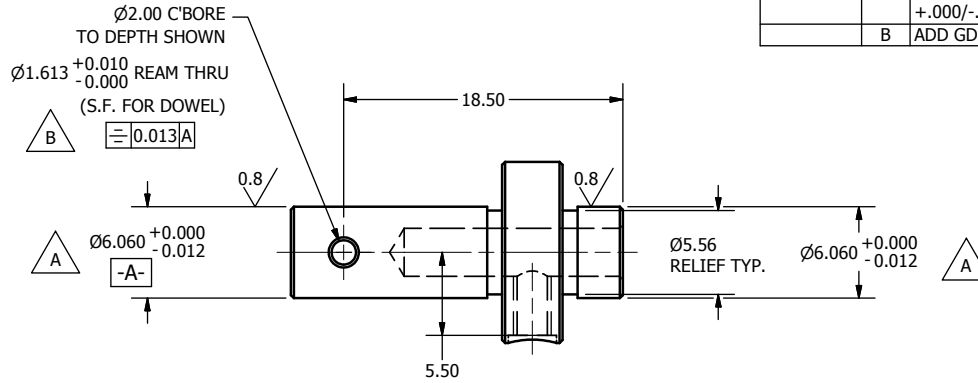


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

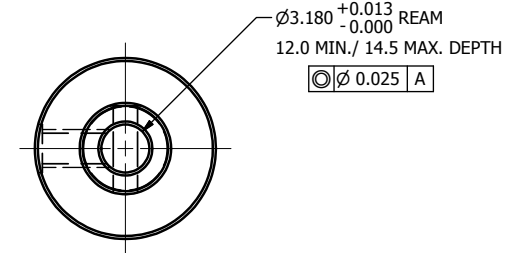
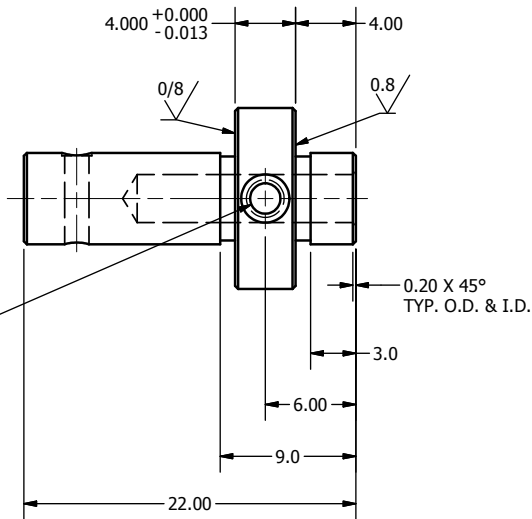
472-4740-2	1	PROJECT NO.	DATE	DESCRIPTION:	BLOCK PIVOT
472-4740-1	1	MATERIAL: 7075-T6 Aluminum	DRAWN BY: dwashenko	DATE: 8/22/2011	
NEXT ASSEMBLY	QTY	PART NAME:	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	2	FINISH: CLEAR ANODIZE	ENGINEER: D. WASHENKO	DATE: 1/12/2012	
		SIZE: B	SHEET: 1 OF 1	DRAWING NO.:	472-4743
		SCALE: 2.5	FOR:		



SCALE 2.000



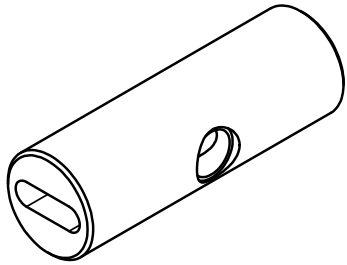
Ø3.20 C'BORE TO DEPTH SHOWN
Ø2.05 DRILL THRU TO CENTER HOLE
M2.5x0.45 TAP THRU TO CENTER HOLE



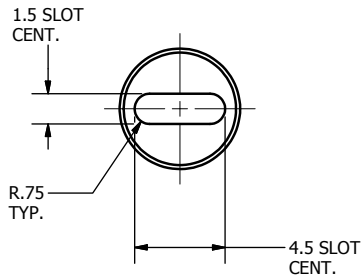
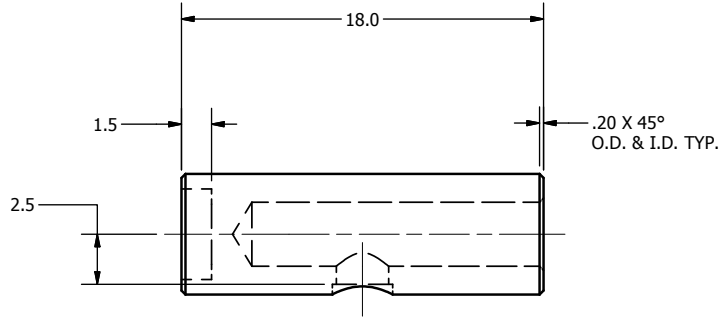
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T11RM204 R00 FOR THOR-M; Ø1.613 +.010/-0.000 WAS Ø1.613; Ø6.060 +.000/-0.012 WAS Ø6.060 +.000/-0.013	9/1/11	DW
	B	ADD GD&T BOX	8/1/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.5 1.6 X 0.2 0.5 XX 0.3 0.5 XXX 0.01		
PROJECT NO:	472-4740-2	1	DATE:	6/17/2010
MATERIAL:	303 S.S. OR EQUIVALENT	1	DESIGNED BY:	ctorchala
NEXT ASSEMBLY	QTY	2	CHECKED BY:	
TOTAL QTY IN DUMMY	2	2	DATE:	1/12/2012
			DRIVER:	D. WASHENKO
			SCALE:	3.000
			SIZE SHEET	A3 1 OF 1
			DRAWING NO.:	472-4744
			REV:	B

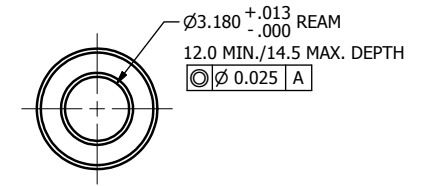
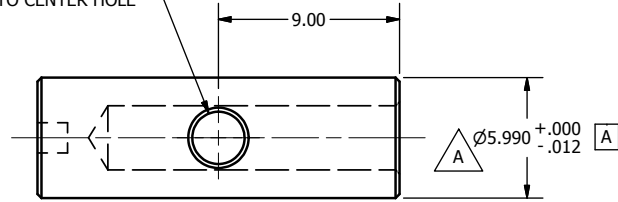
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM205 R00 FOR THOR-M; Ø5.990+ .000/- .012 WAS Ø5.990+ .000/- .013	9/1/11	DW



SCALE 4.000

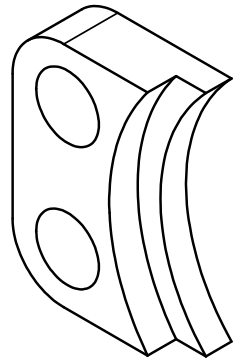


Ø3.00 C'BORE TO DEPTH SHOWN
Ø2.60 DRILL THRU TO CENTER HOLE

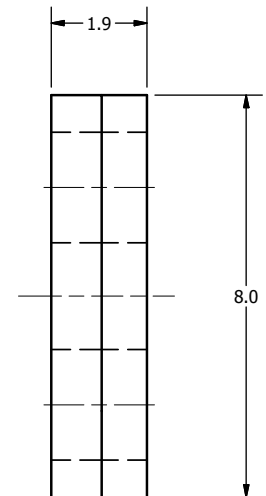
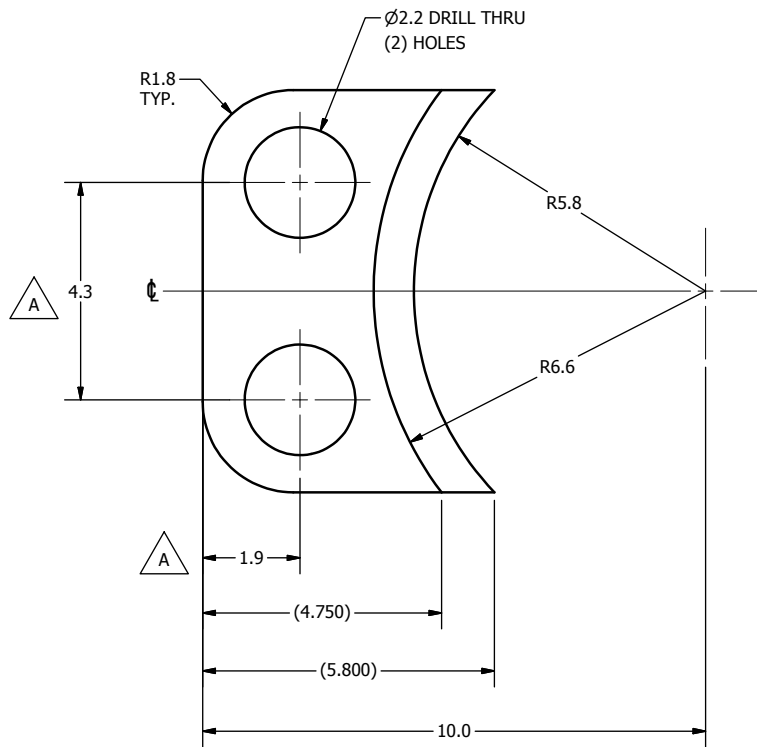
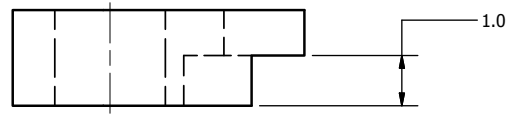


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.5° 16 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-4740-2	1	DATE:	6/18/2010
MATERIAL:	303 S.S. OR EQUIVALENT	1	CHECKED BY:	ctorchala
HEAT TREAT:			DATE:	
CHECKED BY:			DATE:	
FINISH:			DATE:	
DRIVER:	D. WASHENKO		DATE:	1/12/2012
TOTAL QTY IN DUMMY:	2		SCALE:	4.000
DESCRIPTION:				SHAFT VERTICAL
SIZE SHEET:				A3 1 OF 1
DRAWING NO.:				472-4745
REV.:				A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM206 R00 FOR THOR-M; 4.3 EAS 4.32; 1.9 WAS 1.93	9/1/11	DW



SCALE 8.000

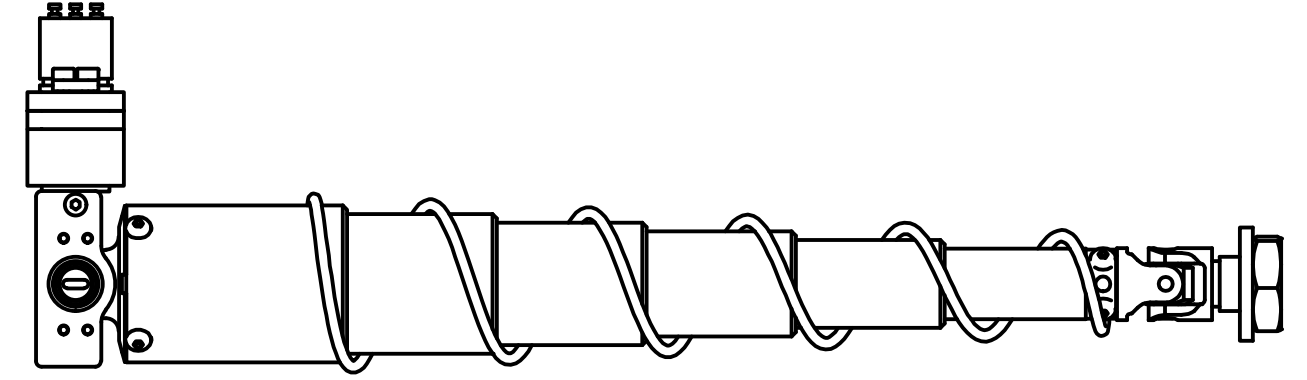
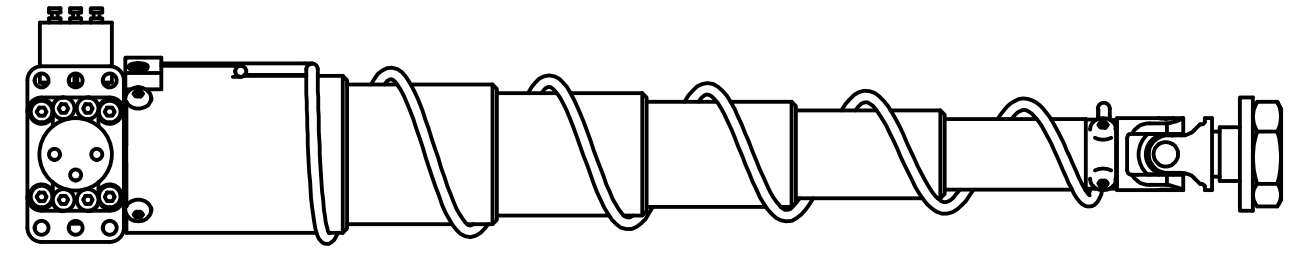
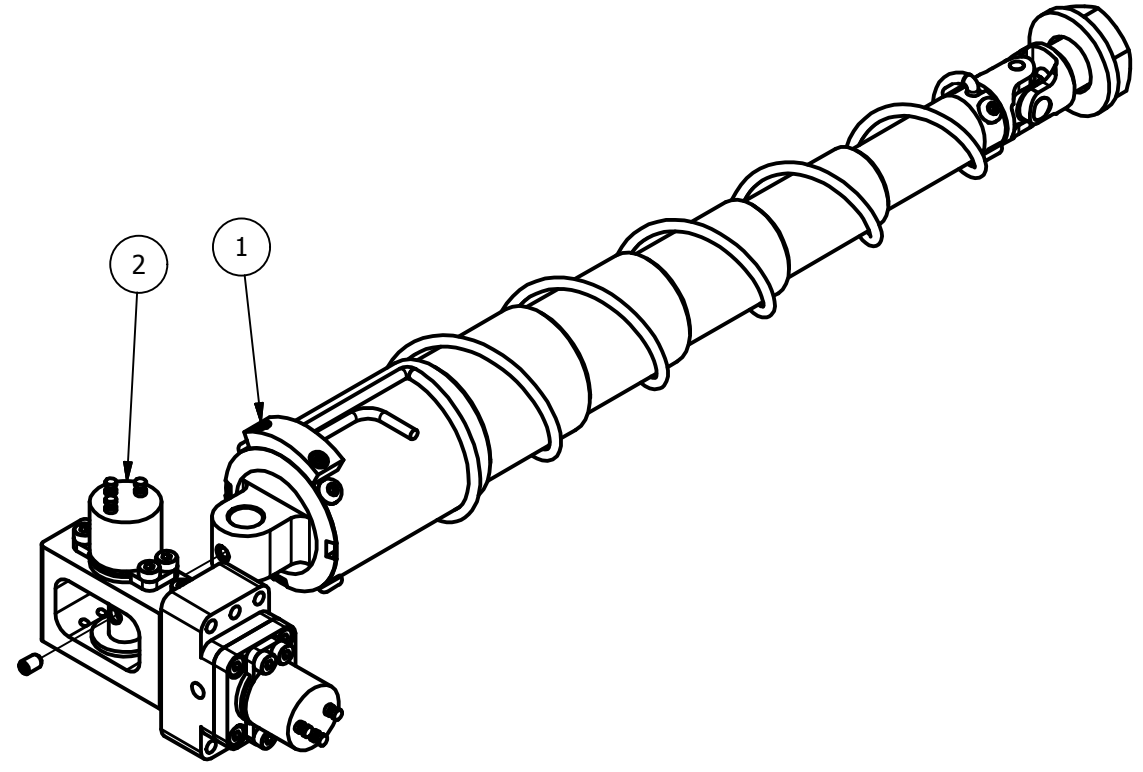


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.05 1.6 XX 0.02 ± 0.02 1.6 XXX 0.01 ± 0.01 1.6 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-4740-2	4	DATE:	6/18/2010
MATERIAL:	Aluminum-6061	4	CHECKED BY:	ctorchala
HEAT TREAT:			DATE:	
FINISH:	CLEAR ANODIZE	8	ENGINEER:	D. WASHENKO
TOTAL QTY IN DUMMY			DATE:	1/12/2012

PROJECT NO:	472-4740-2	4
MATERIAL:	Aluminum-6061	4
HEAT TREAT:		
FINISH:	CLEAR ANODIZE	8

DESCRIPTION:	CLAMP POT
SIZE:	A3
SHEET:	1 OF 1
DRAWING NO.:	472-4746
SCALE:	10.000
REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED AS NEW ASSEMBLY FOR THOR-M	8/23/2011	DW
	B	MADE PARTS UNTESTED	6/8/2012	JBH

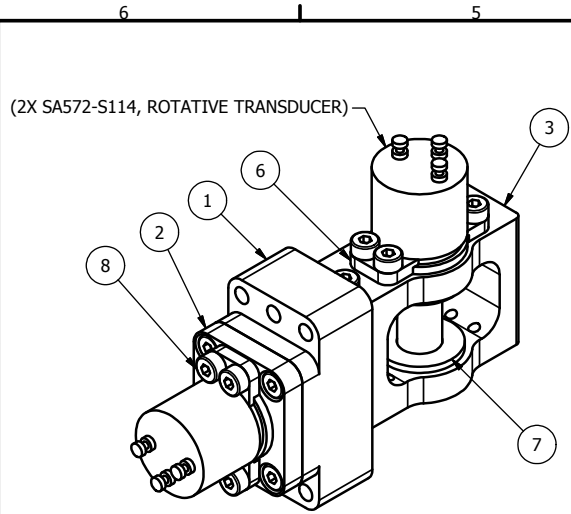


- NOTES:
1. ASSEMBLE ITRACC TO PIVOT ASSEMBLY AS SHOWN.
 2. PROVIDE INDIVIDUAL CERT SHEETS FOR ITRACC AND (2) POTENTIOMETERS.

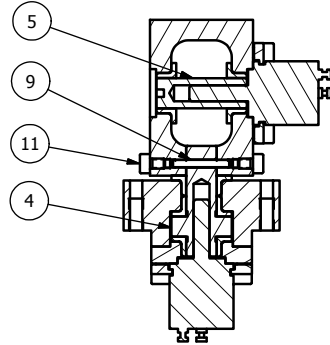


ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-4740-2	PIVOT ASSEMBLY, RIGHT
1	1	SA572-S121	120mm ITRACC ASSEMBLY - METRIC UNTESTED

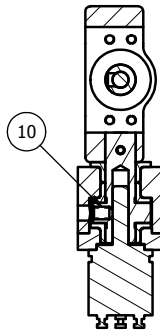
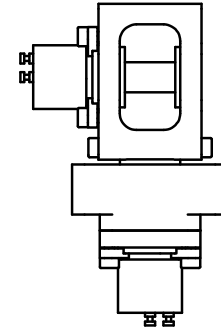
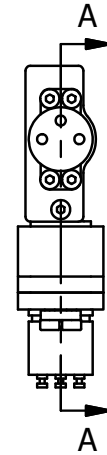
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ±0.5	±0.5 1.6
		XX ±0.2	
		XXX ±0.1	
		XXXX ±0.01	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: 3D ITRACC ASSY, RIGHT, THOR ABDOMEN - METRIC
MATERIAL:		DRAWN BY: dwashenko	DATE: 8/23/2011
HEAT TREAT:		CHECKED BY:	DATE:
FINISH:		ENGINEER: D. WASHENKO	DATE: 1/12/2012
472-4700 1		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
NEXT ASSEMBLY QTY		DRAWING NO.: 472-4730-2	
TOTAL QTY IN DUMMY 1		SCALE: .750	



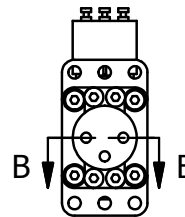
SCALE 1.50



SECTION A-A
SCALE 1.0



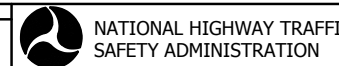
SECTION B-B



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM202 R00 AND CONVERTED TO METRIC FOR THOR-M; CREATE RIGHT SIDE	8/22/2011	DW

ITEM	QTY	PART NUMBER	DESCRIPTION
11	2	5001136	M2 X 0.4 X 3 LG. SHCS
10	1	5001043	M2.5 X 0.45 X 4 LG. SSSCP SS
9	1	5000514	M1.5 X 12 LG. DOWEL SS
8	12	5001079	M2 X 0.4 X 5 LG. SHCS
7	5	5000949	FLANGE BEARING 6 X 8 X 4 LG.
6	4	472-4746	CLAMP POT
5	1	472-4745	SHAFT VERTICAL
4	1	472-4744	SHAFT HORIZONTAL
3	1	472-4743	BLOCK PIVOT
2	1	472-4742	COVER
1	1	472-4741	BLOCK MOUNTING

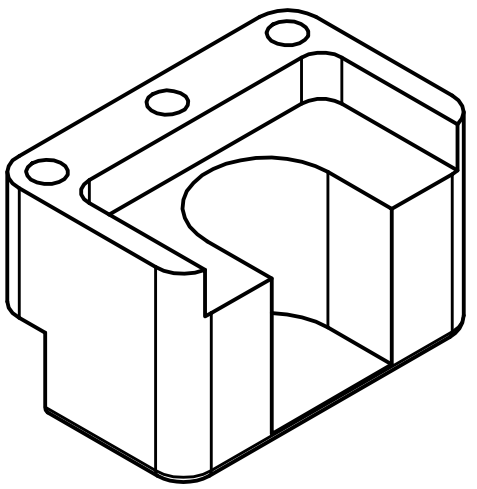
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .005 1.6	
		X.X ± 0.2	
		X.XX ± 0.3	
		X.XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.: 472-4730-2		DATE: 8/22/2011	
MATERIAL:		DRAWN BY: dwashenko	
NEXT ASSEMBLY QTY: 1		CHECKED BY:	
TOTAL QTY IN DUMMY: 1		DATE: 1/12/2012	
		FINISH:	
		DRAWN BY: D. WASHENKO	
		DATE: 1/12/2012	
		SCALE: 1.000	
		SIZE: A3	
		SHEET: 1 OF 1	
		DRAWING NO.: 472-4740-2	
		REV: A	



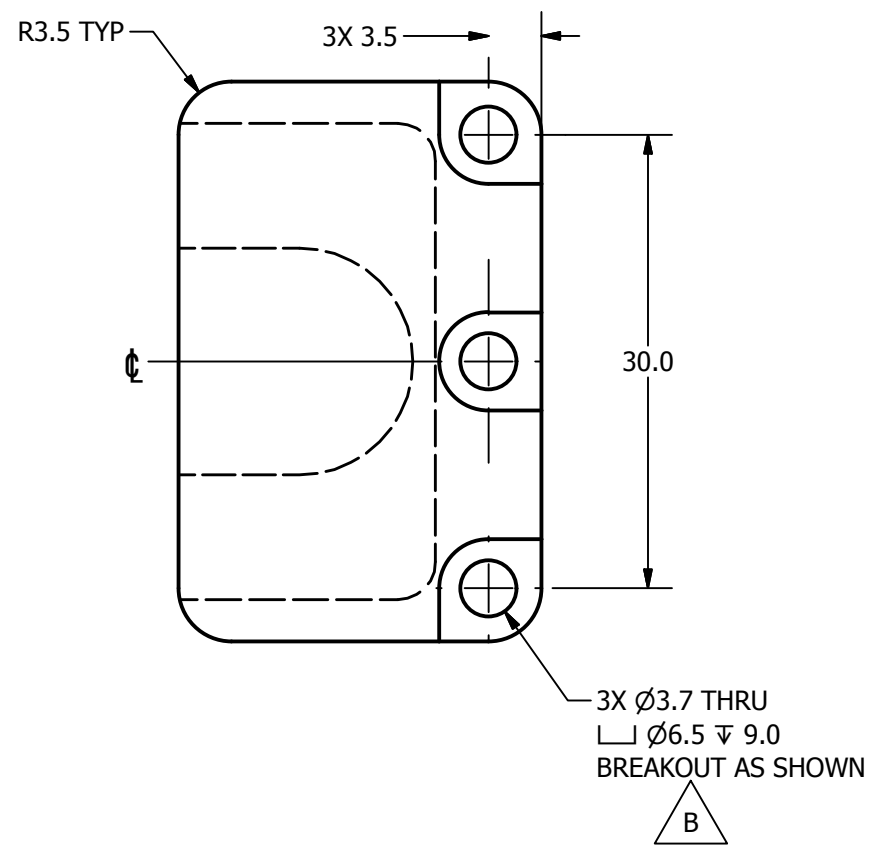
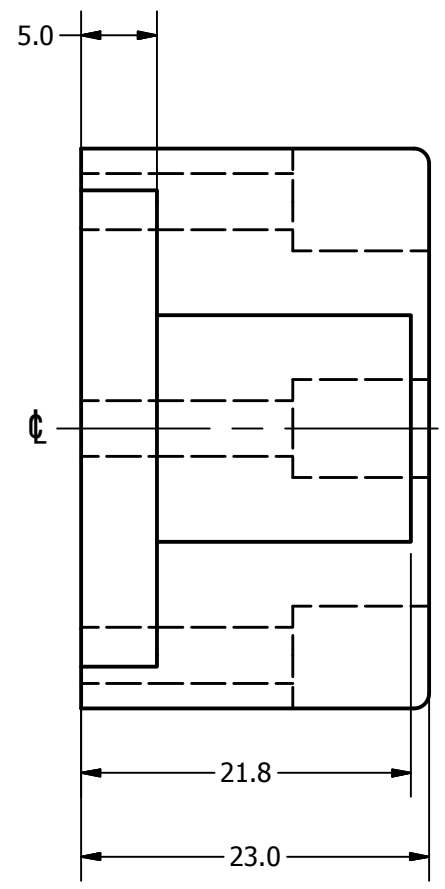
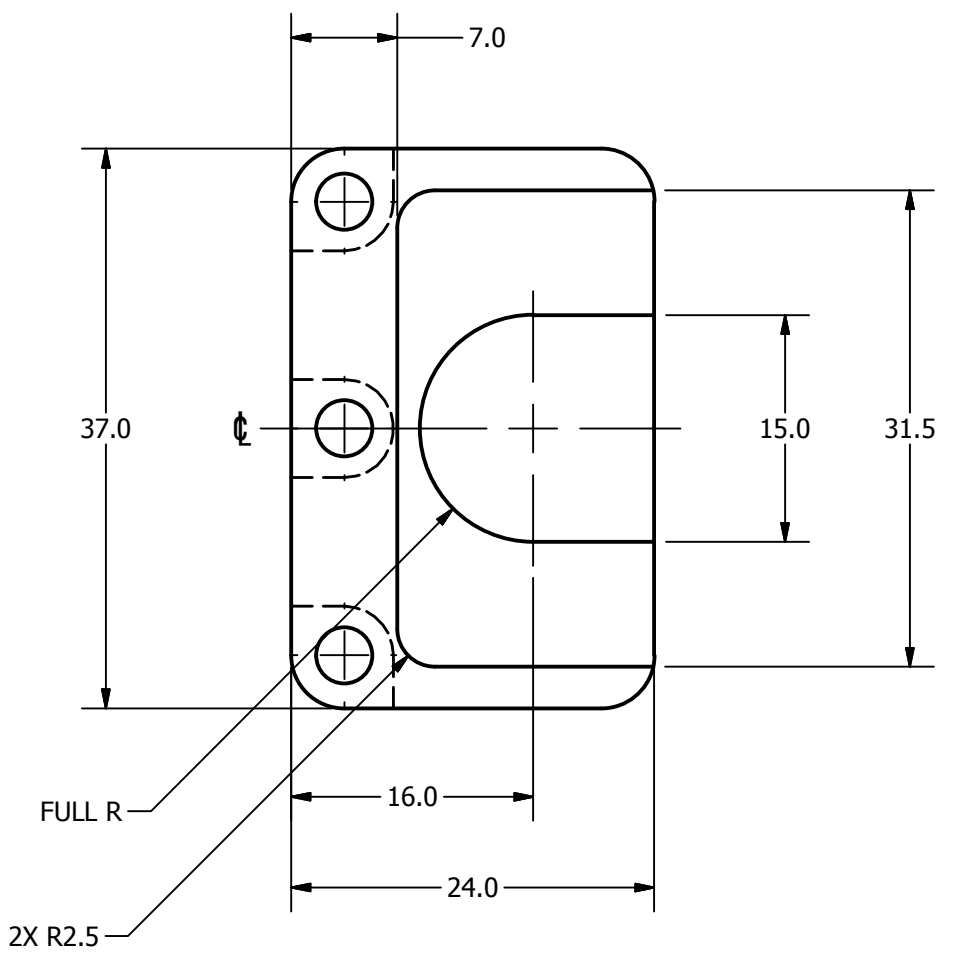
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PIVOT ASSEMBLY, RIGHT

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM018 R2 FOR THOR-M; ADD NOTE 1	8/22/2011	DW
	B	ADDED BREAKOUT TO COUNTERBORE	8/14/2014	DW



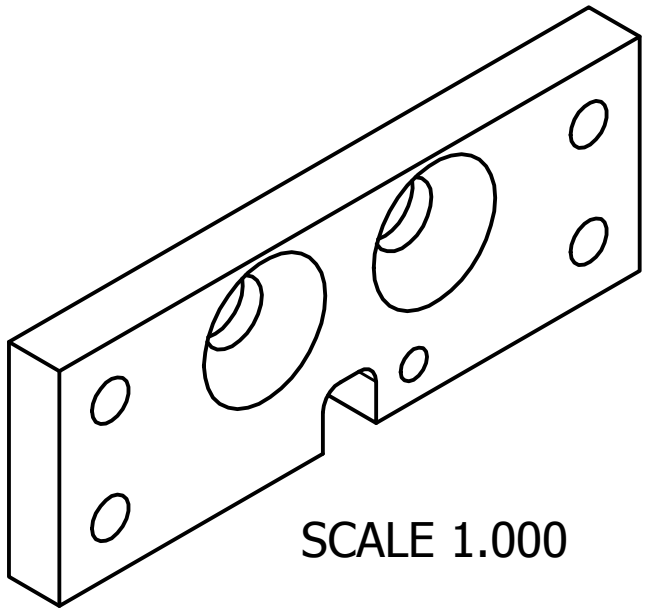
SCALE 1.5



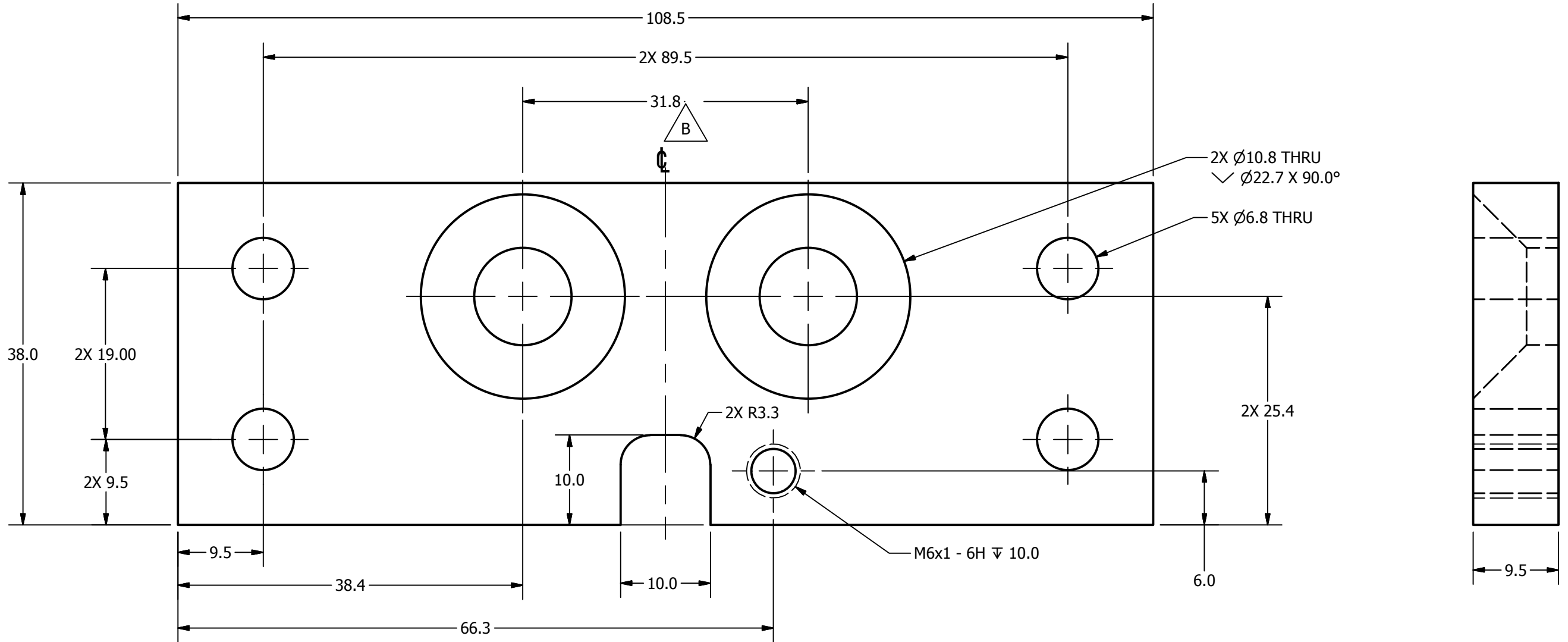
NOTES:
 A 1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.5 1.6 XXX ± 0.1 ± 0.5 1.6 XXXX ± 0.01 ± 0.5 1.6		
PROJECT NO.:	THOR-M	REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:
472-4700	2	Nylon-6/6	8/22/2011	POTENTIOMETER COVER
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	SIZE: SHEET
TOTAL QTY IN DUMMY	2	FINISH:	D. WASHENKO	A3 1 OF 1
			1/12/2012	SCALE: 2.000
				DRAWING NO.: 472-4760
				REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM010 R03 AND CONVERTED TO METRIC FOR THOR-M	9/1/2011	DW
	B	DIMENSION 31.8 WAS 31.75	2/24/2016	DW



SCALE 1.000



NOTES:

1. POWDER OR BEAD BLAST.
2. NICKEL PLATE 0.003mm-0.008mm MAX. AFTER MACHINING.
3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
XX ±0.2
XXX ±0.1
XXXX ±0.01
REMOVE BURRS & BREAK SHARP EDGES

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: REAR ATTACHMENT PLATE

PROJECT NO.: THOR-M
MATERIAL: 1018 STEEL
HEAT TREAT:
FINISH: SEE NOTES

DRAWN BY: dwashenko
CHECKED BY: D. WASHENKO
ENGINEER: D. WASHENKO

DATE: 9/1/2011
DATE: 1/12/2012
DATE: 1/12/2012

SIZE: A3
SHEET: 1 OF 1
SCALE: 2.000

DRAWING NO.: 472-4761

PROJECT NO.	QTY
472-4700	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

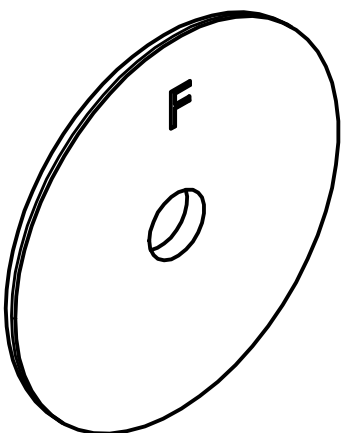
4

3

2

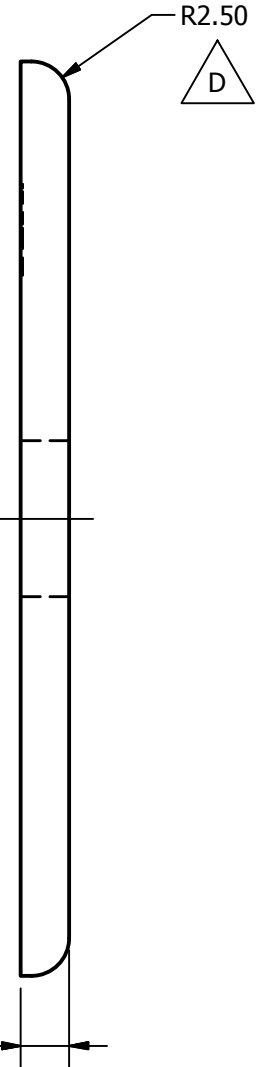
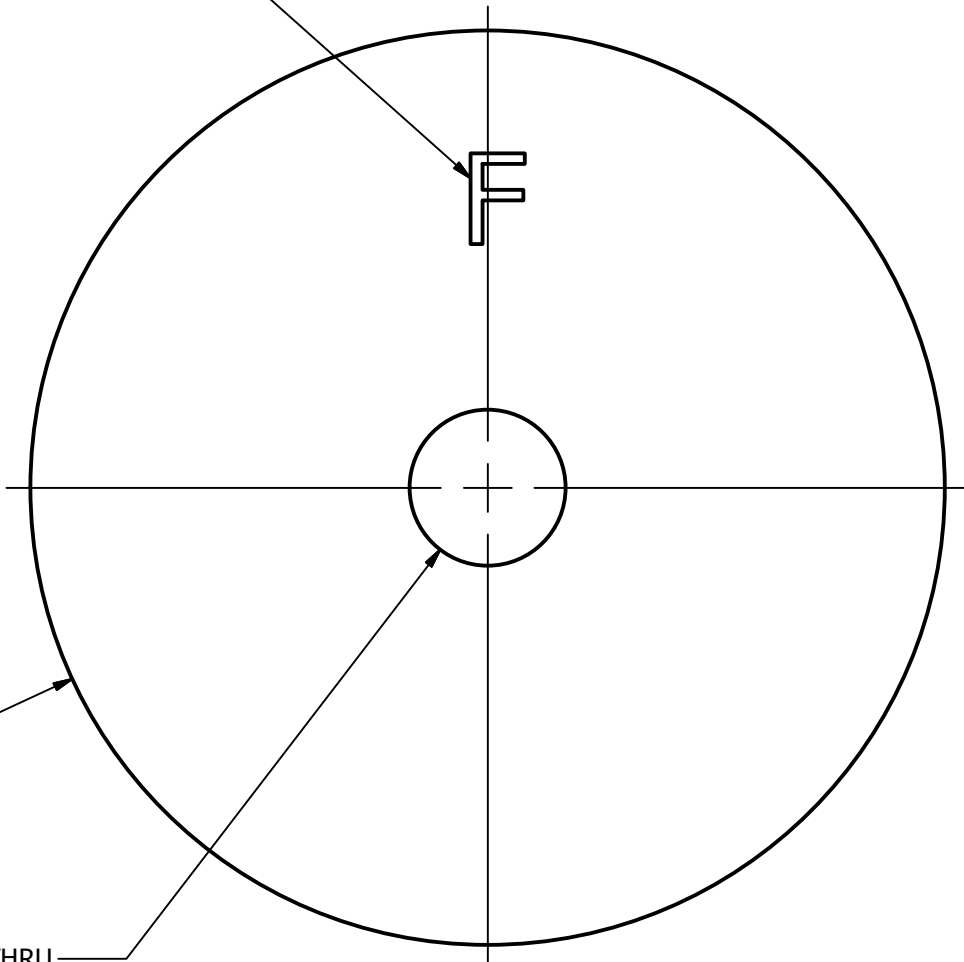
1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM014 R1 FOR THOR-M	9/1/2011	DW
	B	Ø10.3 THRU C'BORE Ø14.0 WAS Ø12.7 THRU C'BORE Ø19.05	6/20/2012	BK
	C	REMOVE C'BORE FROM HOLE	2/14/2013	BK
	D	ADDED R2.5 AND NOTE 1	4/29/2014	DW



SCALE 1.000

SEE NOTE 1



NOTES:

- 1. STAMP OR ETCH "F" AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
DECIMALS	ANGLES	FINISH	
X ±0.5	±0.5	1.6	
XX ±0.2			
XXX ±0.1			
XXXX ±0.01			
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL: Acetal Resin, Black		DRAWN BY: dwashenko	DATE: 9/1/2011
HEAT TREAT:		CHECKED BY:	DATE:
FINISH:		ENGINEER: D. WASHENKO	DATE: 1/12/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

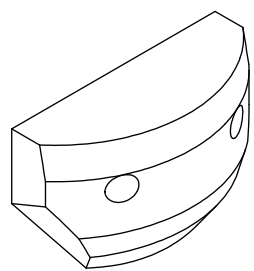
DESCRIPTION: LOWER ABDOMEN DISTRIBUTION PLATE

SIZE: SHEET **B 1 OF 1** DRAWING NO.: **472-4762** REV: **D**

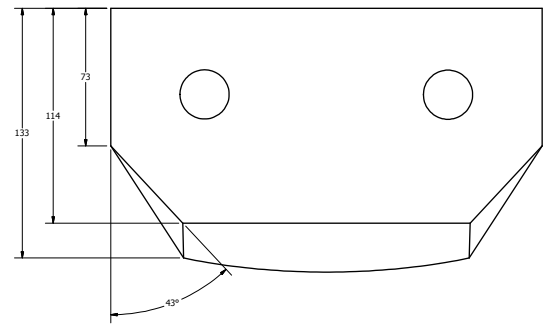
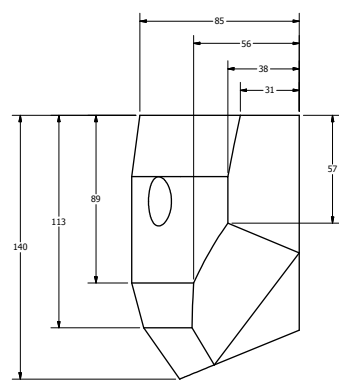
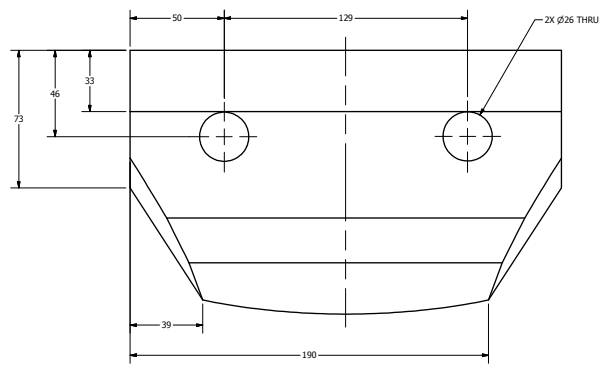
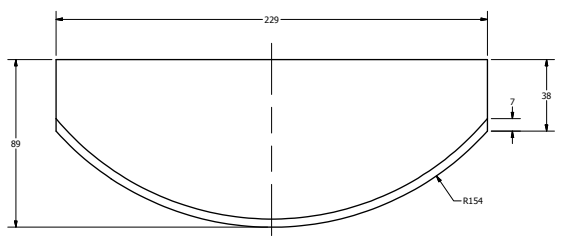
SCALE: 2.000

472-4700	2
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	5	CONVERTED FROM ENGLISH TO METRIC EXCLUDING FASTENERS	9/20/2006	C. SPADE
	A	RENUMBERED FROM Y1L4M012 R05 FOR THOR-M	12/8/2011	BK



SCALE .500



- NOTES:
- MATERIAL: CHARCOAL POLYESTER FOAM WITH NOMINAL DENSITY OF 6 LBS/CU FT
SAE J118 SPECIFICATION: 1A0
1- OPEN CELL
A- NONCIL RESISTANT
O- COMPRESSION DEFLECTION 25% 3.5-14 KPA (0.5-2 PSI)
 - NOMINAL STIFFNESS @ 75% COMPRESSION: 43+3 KPA (6.2+0.5 PSI)
@ 90% COMPRESSION: 420+30 KPA (62+0.5 PSI)
REFER TO CERTIFICATION MANUAL FOR PERFORMANCE SPECIFICATIONS FOR THIS PART.

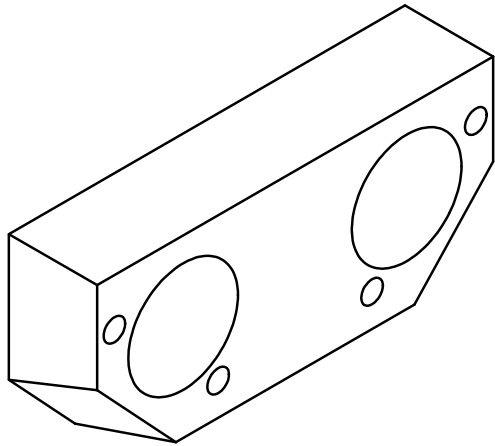
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-4760	1	SEE NOTES	B. KIMES	12/8/2011	LOWER ABDOMEN FRONT FOAM LAYER
TOTAL QTY IN DRAWING	1				



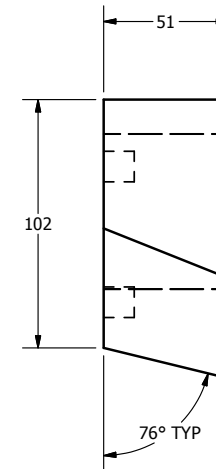
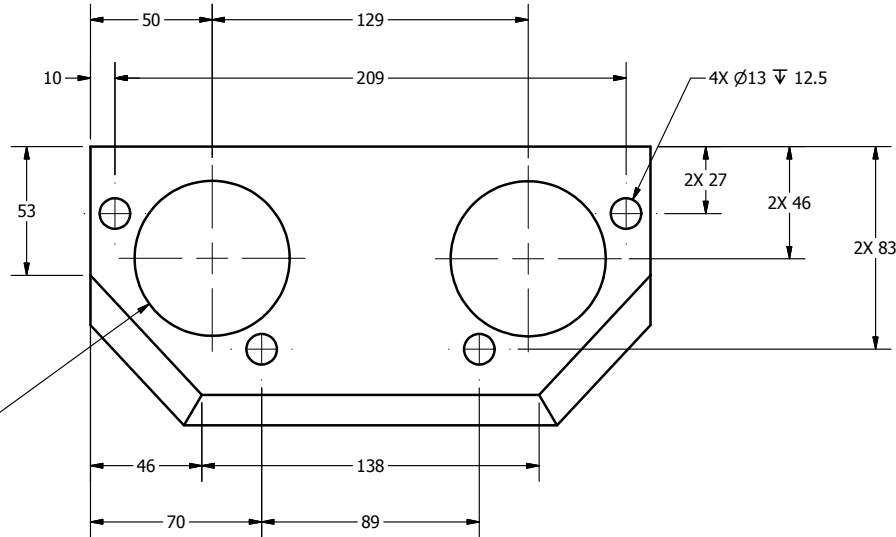
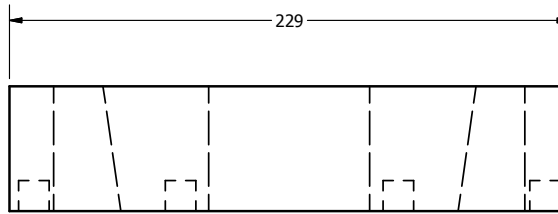
LOWER ABDOMEN FRONT FOAM LAYER

1 of 1

472-4764



SCALE .500



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM013 R5 FOR THOR-M	9/1/2011	DW

NOTES:
 THE FOAM MATERIAL IS BLENDED SPONGE RUBBER
 NEOPRENE / EPDM / SBR FOAM RUBBER (NOMINAL DUROMETER 20A± 5A)
 SAE J18 SPECIFICATION: 1A5
 1-OPEN CALL FOAM
 2-NON-OIL RESISTANT
 S-COMPRESSION DEFELCTION 25% 119-168 kPa (17-24 PSI)

NOMINAL STIFFNESS @ 50% COMPRESSION: 200± 15 kPa (29± 2 PSI)
 REFER TO THE CERTIFICATION MANUAL FOR PERFORMANCE SPECIFICATION FOR THIS PART.

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO:	DATE:	DIGITALS:	ANGLES:
472-4700	9/1/2011	X ± 0.5	1.6
1	SEE NOTES	X.X ± 0.2	0.5
NEXT ASSEMBLY	QTY	X.XX ± 0.1	0.2
TOTAL QTY IN DUMMY	1	5.XXX ± 0.20	
ENGINEER:	D. WASHENKO	REMOVE BURRS & BREAK SHARP EDGES	
CHECKED BY:		DRAWN BY:	dwashenko
DATE:	1/12/2012	DATE:	9/1/2011

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: LOWER ABDOMEN REAR FOAM LAYER

SIZE: B 1 OF 1 SHEET
 SCALE: .500

DRAWING NO.: 472-4765

REV: A

PROJECT NO:	DATE:
472-4700	9/1/2011
1	SEE NOTES
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1
ENGINEER:	D. WASHENKO
CHECKED BY:	
DATE:	1/12/2012

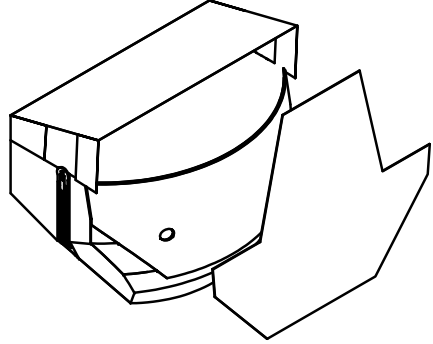
4

3

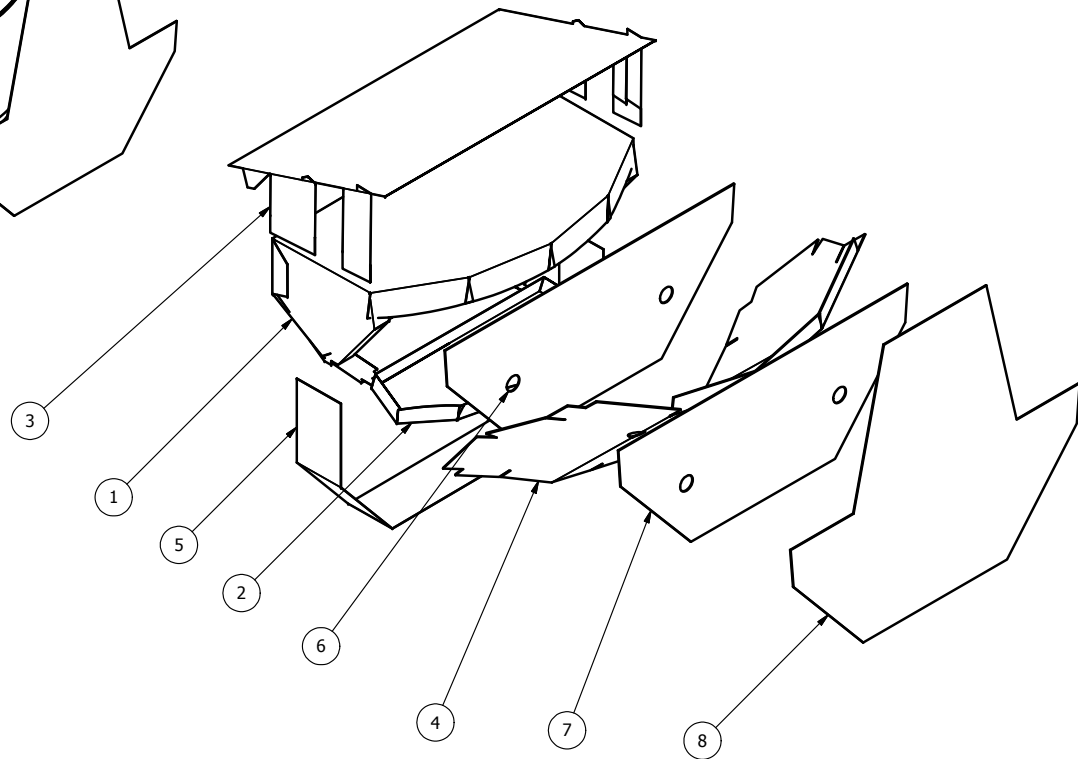
2

1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TILAF101 R1 FOR THOR-M	9/8/2011	DW
	B	SHOW VELCRO PATCH AND COVER IN CORRECT LOCATION; ADD NOTE 4	4/3/2012	BK



SCALE .250



ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	472-4763-8	UPPER AND LOWER ABDOMEN VELCRO COVER
7	1	472-4763-7	LOWER ABDOMEN OUTSIDE VLECOR PATCH
6	1	472-4763-6	LOWER ABDOMEN STIFFENING CLOTH
5	1	472-4763-5	LOWER ABDOMEN ZIPPER
4	1	472-4763-4	LOWER ABDOMEN FRONT PATTERN
3	1	472-4763-3	LOWER ABDOMEN TOP POCKET PATTERN
2	1	472-4763-2	LOWER ABDOMEN BOTTOM BAG PATTERN
1	1	472-4763-1	LOWER ABDOMEN TOP / SIDES / REAR PATTERN

NOTES:

- EXPLODED VIEW SHOWS SOME COMPONENTS IN PARTIALLY FOLDED STATE.
- ISO VIEW SHOWS COMPONENTS IN IDEAL STATE.
- STITCH ALL ADJACENT TABS TO FORM SEWN ASSEMBLY AS SHOWN. SEE INDIVIDUAL PATTERN DRAWINGS FOR MORE INFORMATION.
- 472-4763-8 ASSEMBLES BETWEEN THE LOWER AND UPPER ABDOMEN AT THORAX ASSEMBLY.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X.X 0.0 1.6 X.XX 0.01 X.XXX 0.001		
PROJECT NO:	MATERIAL:	DRAWN BY:	DATE:	DESCRIPTION:
472-4700	1	dwashenko	9/8/2011	LOWER ABDOMEN SEWING ASSEMBLY
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: B 1 OF 1
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	DRAWING NO: 472-4763
		D. WASHENKO	1/12/2012	SCALE: .333

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2

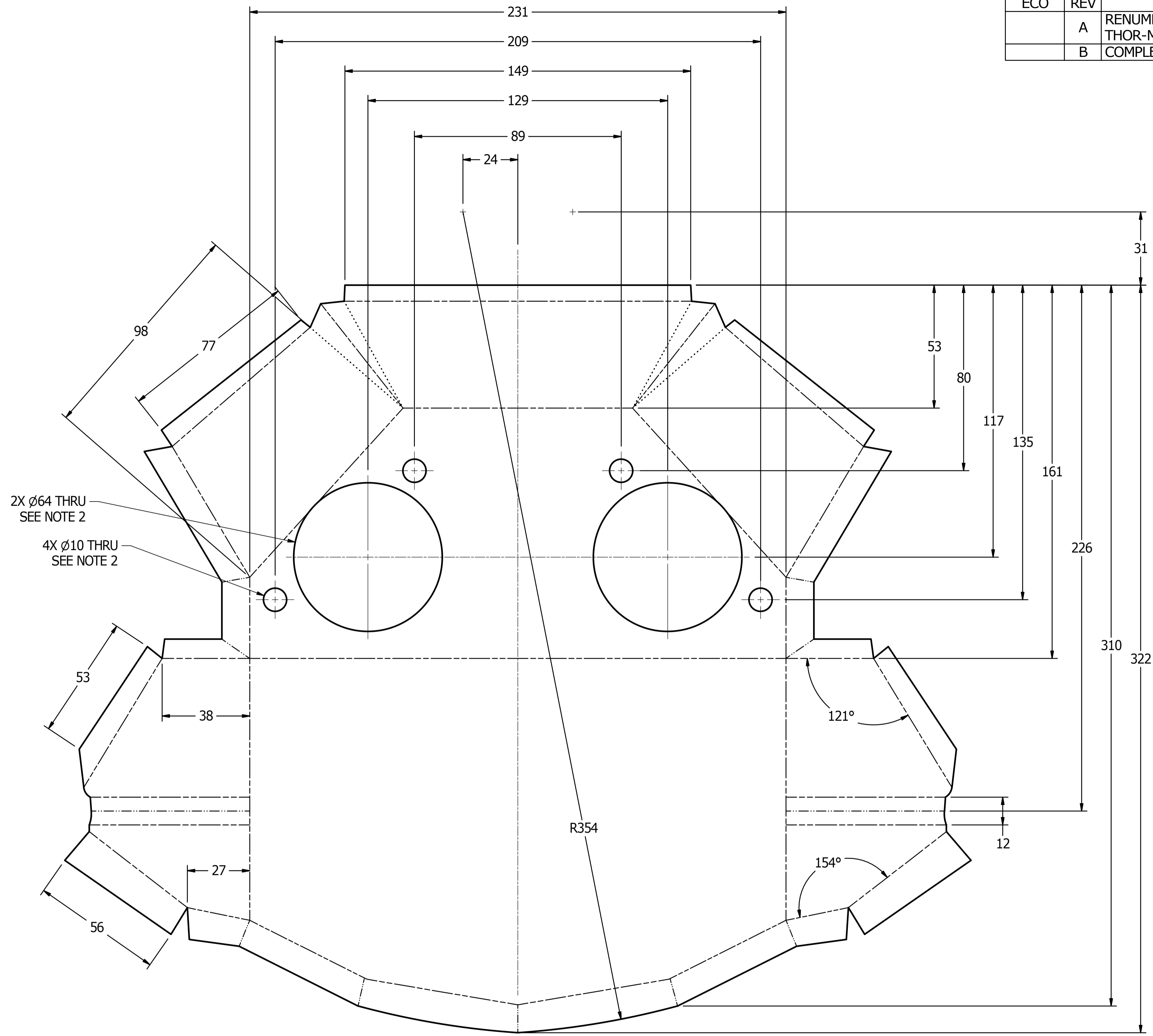
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B

B

1				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF110 R1 FOR THOR-M	9/8/2011	DW
	B	COMPLETE REDESIGN	10/26/2015	DW

LEGEND	
	PATTERN EDGE
	FOLD LINES
	CUT LINES
	STITCH LINES



- NOTES:
1. USE CORDURA NYLON FABRIC (1000 DENIER NYLON - 10 OZ/YD)
 2. ADD HOLES AFTER SEWING.
 3. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.
 4. PATTERN IS SYMMETRICAL ABOUT CENTERLINE.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5	MACHINED X ±.2	APPROVALS	DATE	LOWER ABDOMEN TOP/SIDES/REAR PATTERN THOR-M	
X.X ±.2	ANGLES X.XX ±.5°	DAVE WALKER	10/26/2015	DRAWN BY: Dave Walker	
X.XX ±.1	DO NOT SCALE DRAWING	CHECKED		DRAWING NUMBER: 472-4763-1	
MATERIAL: SEE NOTES	FINISH	APPROVED		SIZE: A1	REV: B
THIRD ANGLE PROJECTION			SCALE: 1:1	SHEET 1 OF 1	

4

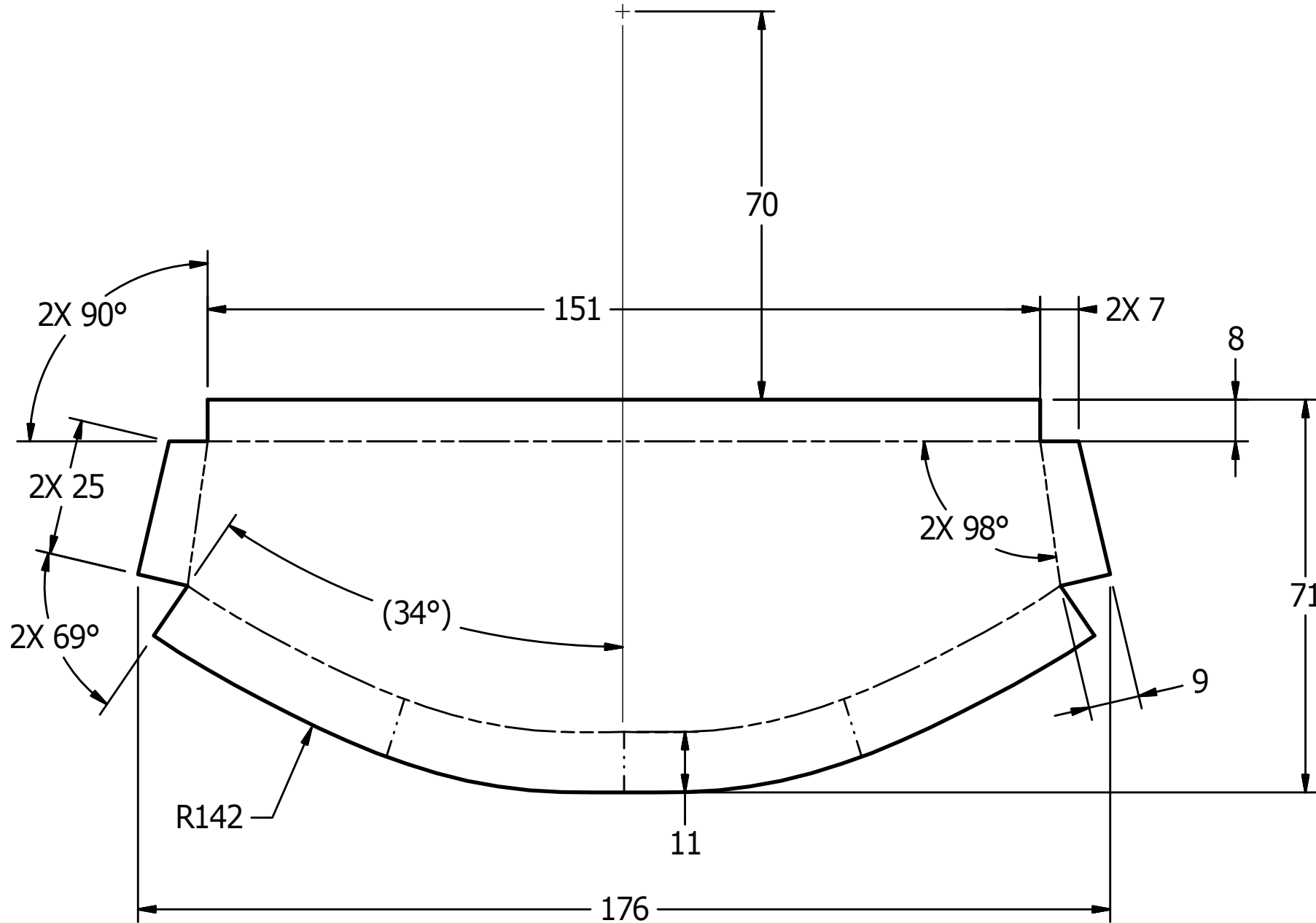
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENIMBERED FROM T1LAF111 R1 FOR THOR-M	9/8/2011	DW
	B	COMPLETE REDESIGN	11/13/2015	DW

LEGEND	
	PATTERN EDGE
	FOLD LINES
	CUT LINES



NOTES:

1. USE CORDURA NYLON FABRIC (1000 DENIER NYLON - 10 OZ/YD)
2. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.
3. PATTERN IS SYMETRICAL ABOUT CENTERLINE.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN dwashenko CHECKED	DATE 9/8/2011	LOWER ABDOMEN BOTTOM BAG PATTERN THOR-M	
MATERIAL SEE NOTES HEAT TREAT	ENG D. WASHENKO APPROVED	DATE 1/12/2012		
FINISH	DRAWING NUMBER 472-4763-2	SCALE: 1 : 1	SHEET 1 OF 1	REV B

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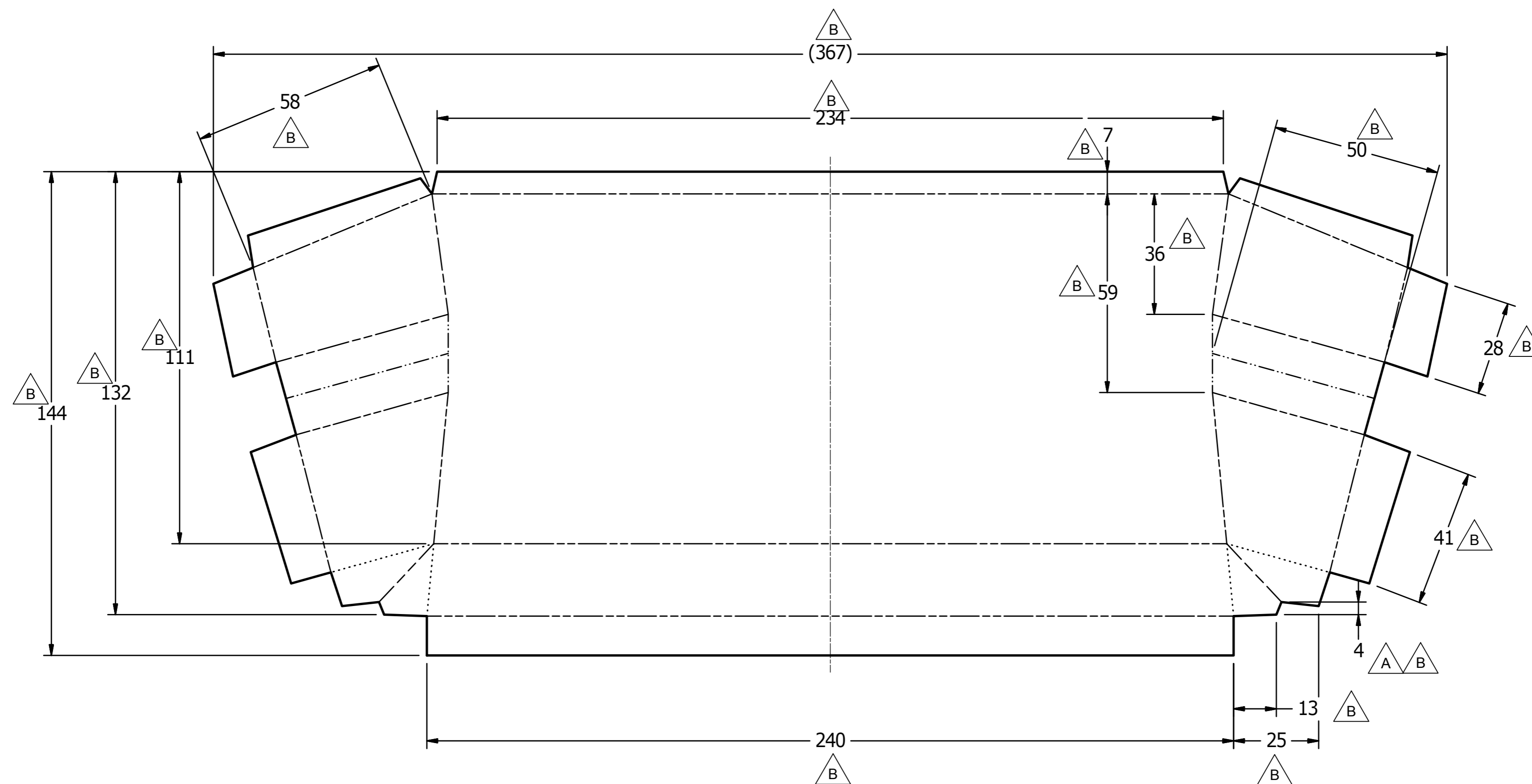
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REVISION HISTORY

ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF112 R1 FOR THOR-M; 6 WAS 7; 95' WAS 94'	9/8/2011	DW
	B	DIEMENSION (367) WAS (362), 234 WAS 235, 7 WAS 13 TYP. FOR ALL TABS, 50 WAS 53, 59 WAS 51, 36 WAS 25, 28 WAS 24, 41 WAS 39, 4 WAS 6, 25 WAS 27, 111 WAS 105, 132 WAS 130, & 144 WAS 143; ADDED DIMENSIONS 240 AND 58	11/16/2015	DW

LEGEND

- PATTERN EDGE
- - - - - FOLD LINES
- · - · - · CUT LINES
- STITCH LINES



NOTES:

1. USE CORDURA NYLON FABRIC (1000 DENIER NYLON - 10 OZ/YD)
2. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.
3. PATTERN IS SYMETRICAL ABOUT CENTERLINE.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: dwashenko CHECKED:	DATE 9/8/2011	
MATERIAL: SEE NOTES HEAT TREAT:	ENG: D WASHENKO APPROVED:	1/12/2012	SIZE: A2 SCALE: 1:1
DRAWING NUMBER: 472-4763-3			REV: B SHEET: 1 OF 1

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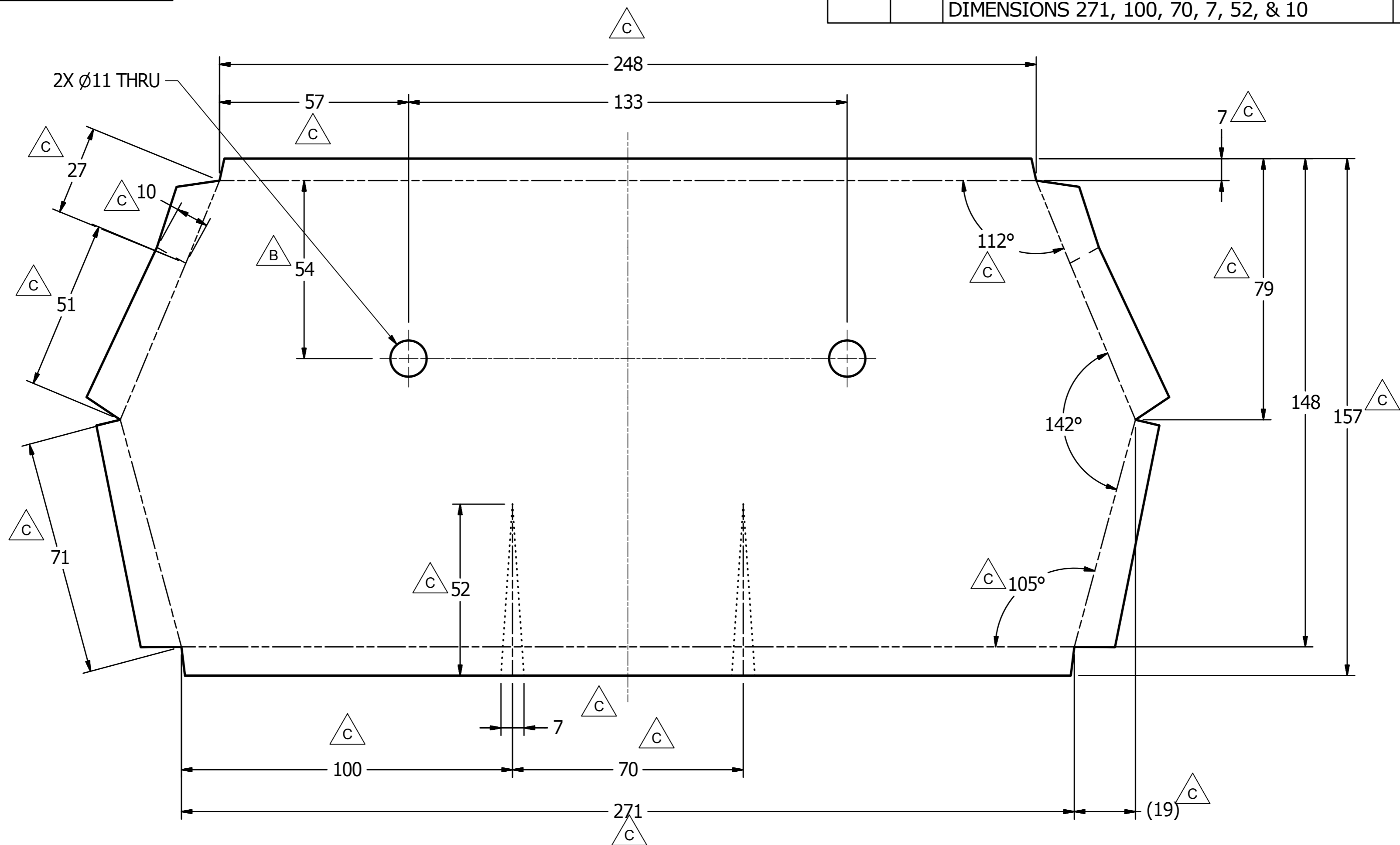
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REVISION HISTORY

ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF113 R1 FOR THOR-M ADD NOTE 4; 44 WAS 45, 148 WAS 150, (14) WAS 15	9/8/2011	DW
	B	DIMENSION 54 WAS FROM EDGE OF MATERIAL	8/12/2014	DW
	C	COMPLETE REDESIGN; DIMENSION 248 WAS 254, 57 WAS 61, 7 WAS 13 TYP. FOR ALL TABS, 79 WAS 84, 157 WAS 161, (19) WAS (14), 71 WAS 66, 51 WAS 44, 27 WAS 25, 112° WAS 26°, & 105° WAS 93°; ADDED DIMENSIONS 271, 100, 70, 7, 52, & 10	11/17/2015	DW

LEGEND

- PATTERN EDGE
- - - - FOLD LINES
- · - · - CUT LINES
- STITCH LINES



NOTES:

1. MATERIAL: CORUDRA NYLON FABRIC (1000 DENIER NYLON - 10 OZ/YD)
2. ADD HOLES AFTER SEWING.
3. PRINT TO SCALE AND USE A S PATTERN FOR CUTTING OUT MATERIAL.
4. DIMENSIONS ARE SYMETRIC ABOUT CENTERLINE.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: dwashenko CHECKED:	DATE 9/8/2011		LOWER ABDOMEN FRONT PATTERN THOR-M
MATERIAL: SEE NOTES HEAT TREAT:	ENG: D. WASHENKO APPROVED:	1/12/2012	SIZE: A2 SCALE: 1:1	
FINISH:			SHEET: 1 OF 1	

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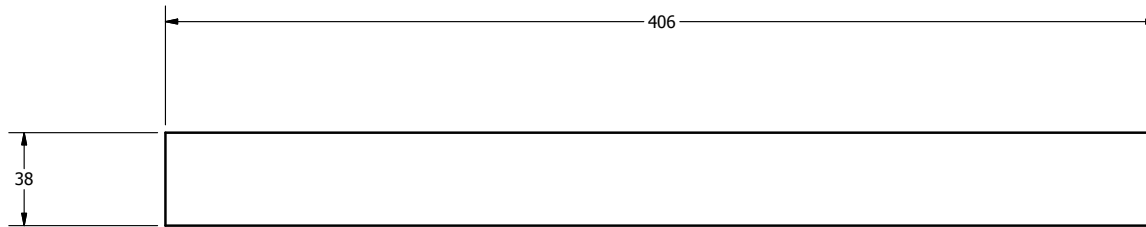
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF114 R2 FOR THOR-M	9/8/2011	DW



NOTES:

1. ZIPPER SHOWN AS EXTERNAL SHAPE ONLY.
2. SIZE: #10, LENGTH: 406mm, MATERIAL: BROWN POLYESTER METAL (BRASS), ZIPPER TYPE: OPEN TOP - CLOSED BOTTOM STYLE.
3. THE END SHOULD BE SEWN TOGETHER TO PREVENT THE SLIDER FROM PULLING OFF THE TRACK.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 <small>THIRD ANGLE PROJECTION</small>		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X.X ±0.2 0.5' ±0.5' ✓ X.XX ±0.1 0.0' ±0.01 X.XXX ±0.01		
PROJECT NO.	DATE:	DRAWN BY:	DATE:	DESCRIPTION:
472-4763	1	SEE NOTES	9/8/2011	LOWER ABDOMEN ZIPPER
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: B
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	SHEET: 1 OF 1
		D. WASHENKO	1/12/2012	DRAWING NO.: 472-4763-5

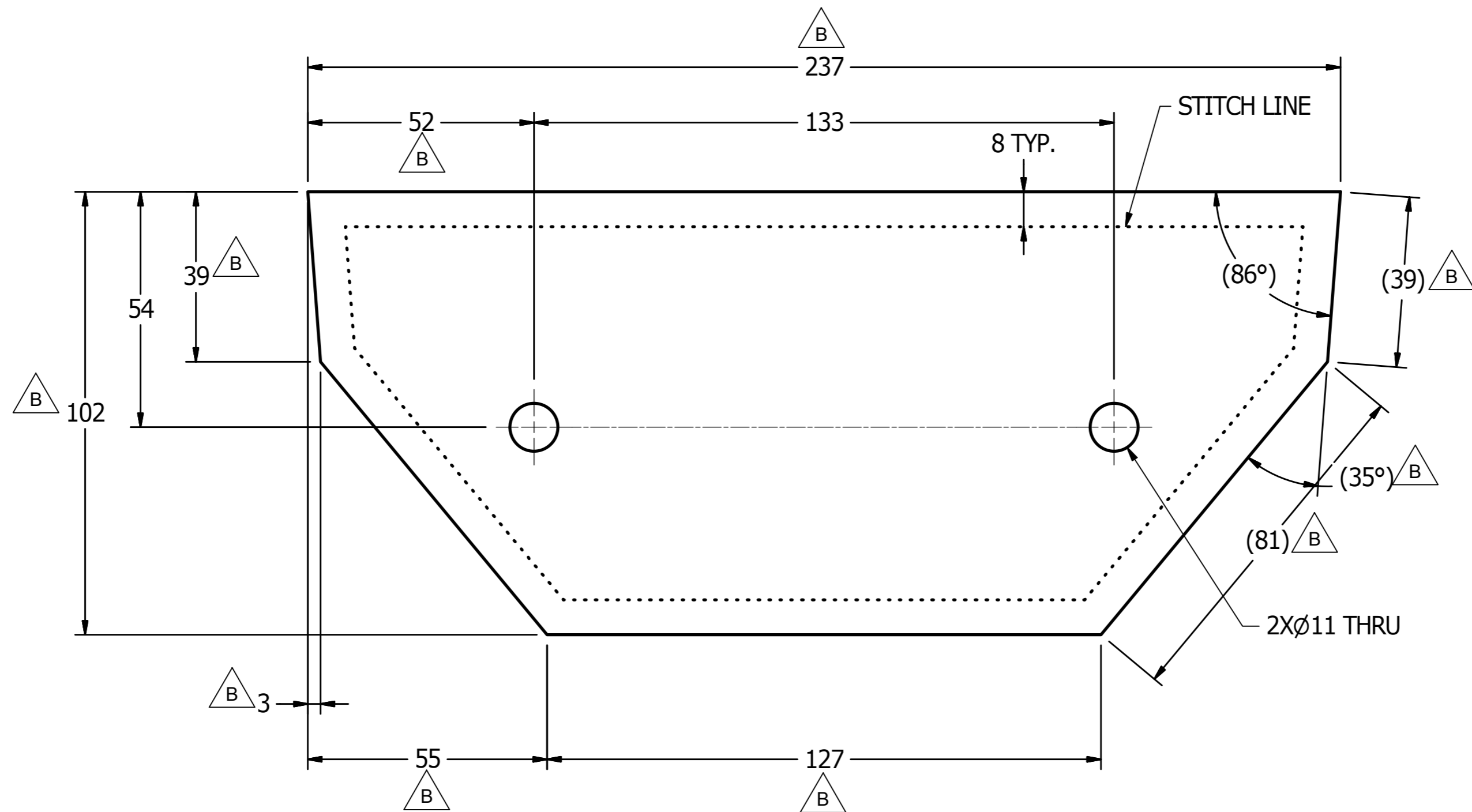
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1LAF115 R11 FO THOR-M	9/8/2011	DW
	B	DIMENSION 237 WAS 251, 52 WAS 59, (39) WAS (28), (35') WAS (36'), 127 WAS 125, 55 WAS 63, 3 WAS 2, 39 WAS 28, & 102 WAS 100	9/8/2011	DW

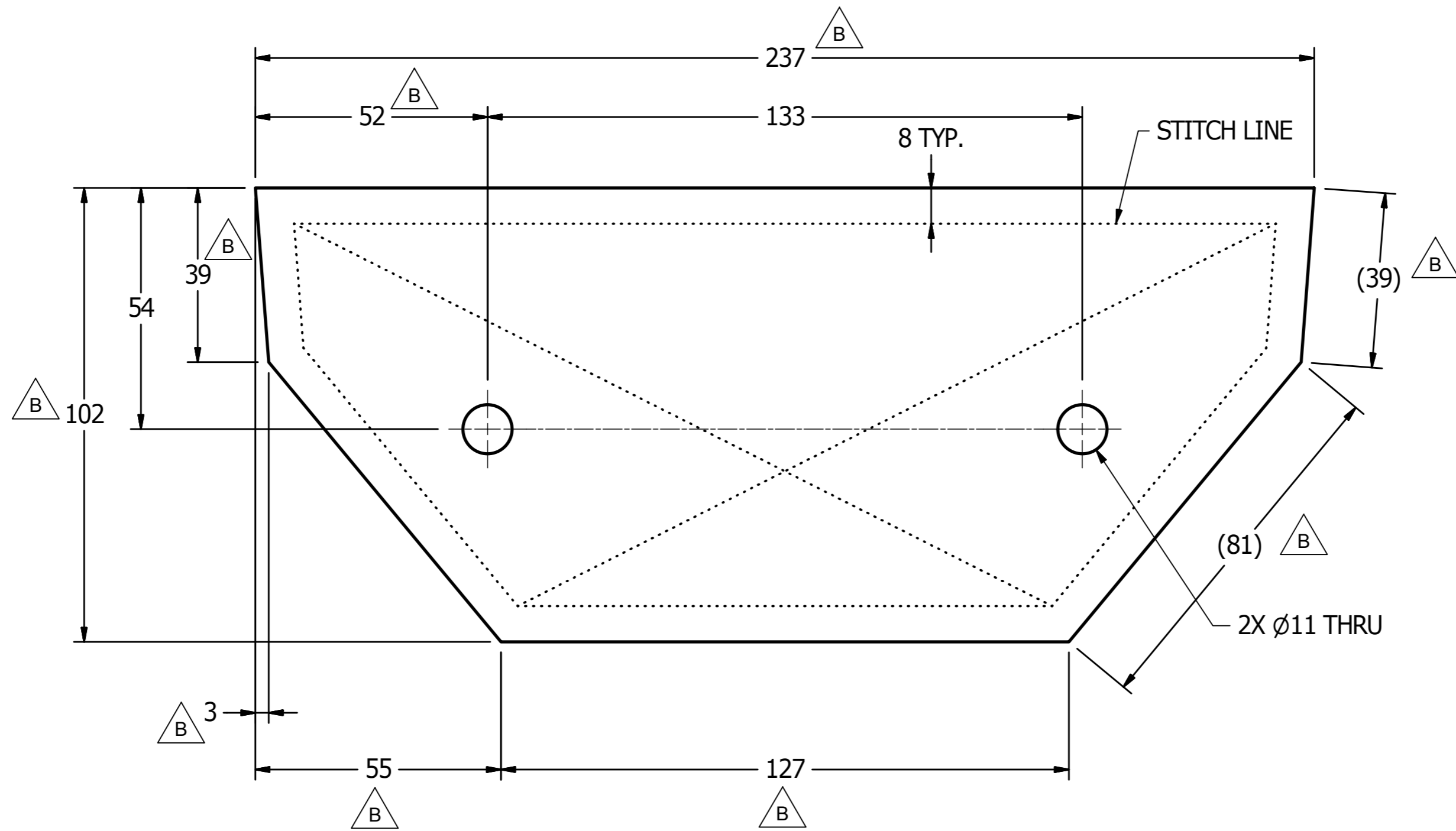


NOTES:

1. USE NYLON STIFFENING CLOTH (DUCT CLOTH) (20 OZ/TD; MEETS MIL-C-3953 SEW TO INSIDE OF PATTERN 472-4763-4
2. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.
3. PATTERN IS SYMETRICAL ABOUT CENTERLINE.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: dwashenko CHECKED:	DATE 9/8/2011		LOWER ABDOMEN STIFFENING CLOTH THOR-M
MATERIAL: SEE NOTES HEAT TREAT:	ENG: D. WASHENKO APPROVED:	1/12/2012	SIZE: A2 SCALE: 1:1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF116 R2 FOR THOR-M	9/8/2011	DW
	B	DIMENSION 237 WAS 251, 52 WAS 59,(39) WAS (28), (81) WAS (94), 127 WAS 125, 55 WAS 63, 3 WAS 2, 39 WAS 28, & 102 WAS 100	9/8/2011	DW



NOTES:

1. MATERIAL: BLACK LOOP VELCRO. SEW TO FRONT OF THE FRONT PATTERN 472-4763-4.
2. CUT HOLES AFTER SEWING.
3. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: dwashenko CHECKED:	DATE 9/8/2011	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:	ENG: D. WASHENKO APPROVED:	1/12/2012	SIZE: A2 SCALE: 1:1 DRAWING NUMBER: 472-4763-7 SHEET: 1 OF 1 REV: B

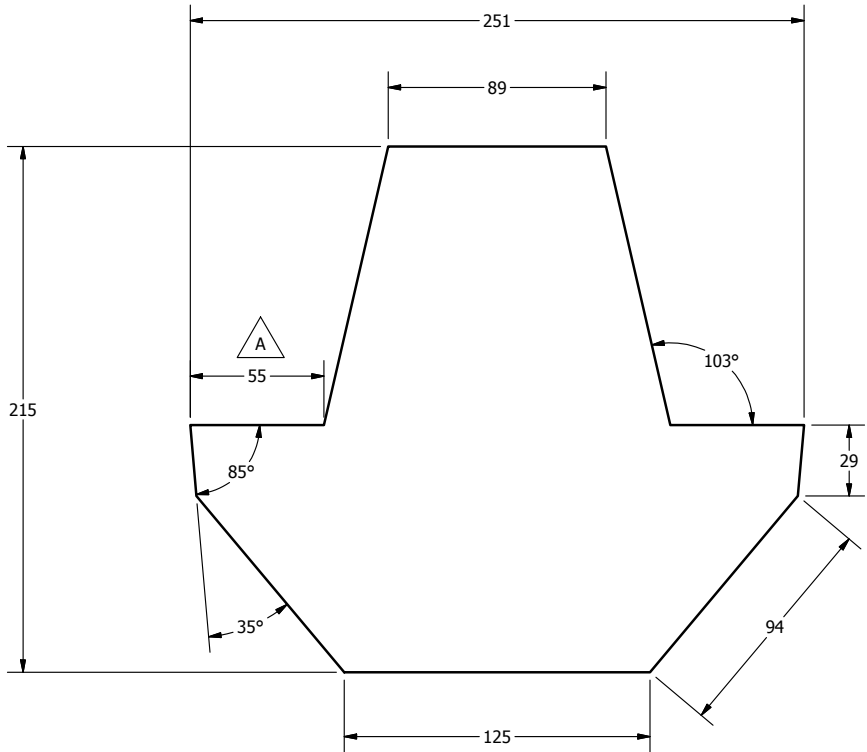
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF117 R1 FOR THOR-M; 55 WAS 56	9/8/2011	DW



- NOTES:
1. MATERIAL: BLACK VELCRO - HOOK SIDE
 2. VELCRO COVER ATTACHES TO MATCHING FRONT VELCRO PATCH OF UPPER ABDOMEN BAG (472-4627)
 3. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.

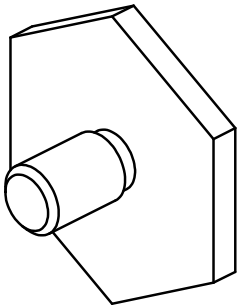
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.0 0.0 1.6 X.XX 0.01 X.XXX 0.001		
PROJECT NO.	DATE:	DRAWN BY:	DATE:	DESCRIPTION:
472-4763	1	SEE NOTES	9/8/2011	UPPER AND LOWER ABDOMEN VELCRO COVER
NEXT ASSEMBLY	QTY	PART NAME:	CHECKED BY:	SIZE: B
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	SHEET: 1 OF 1
		D. WASHENKO	1/12-2012	DRAWING NO.: 472-4763-8
				SCALE: 1.000

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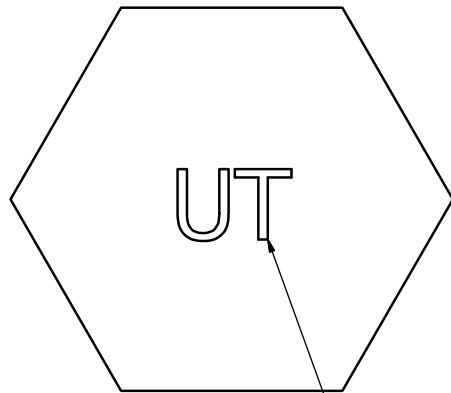
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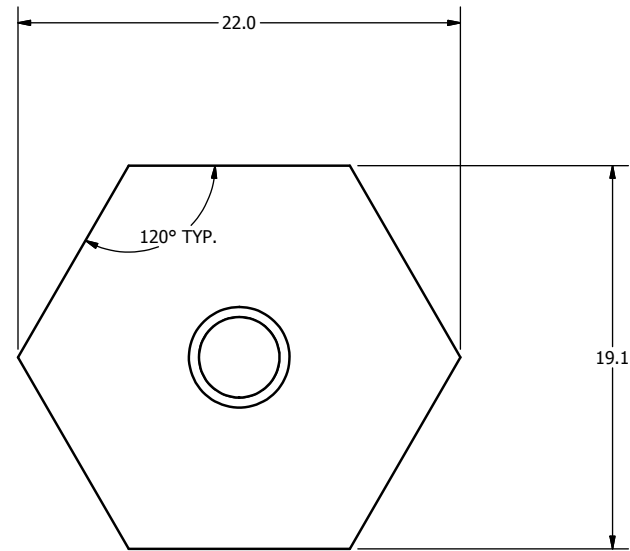
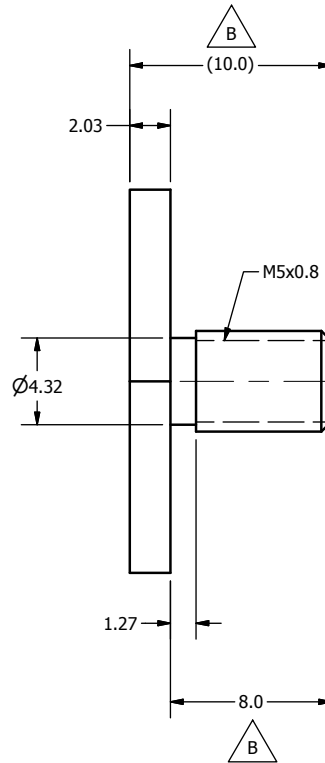
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ISO VIEW
SCALE 3.000



SEE NOTE 4



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1CXM010 R2 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTES	9/23/2011	TKN
	B	8.0 WAS 10.49; 10.0 WAS 12.52; QTY 2 WAS 4	7/25/2012	BK
	C	CHANGE DESC, "UPPER THORAX" WAS "THORAX"; STAMP "UT" ON PART AND ADD NOTE 4; ADD VIEW	7/11/2013	BK



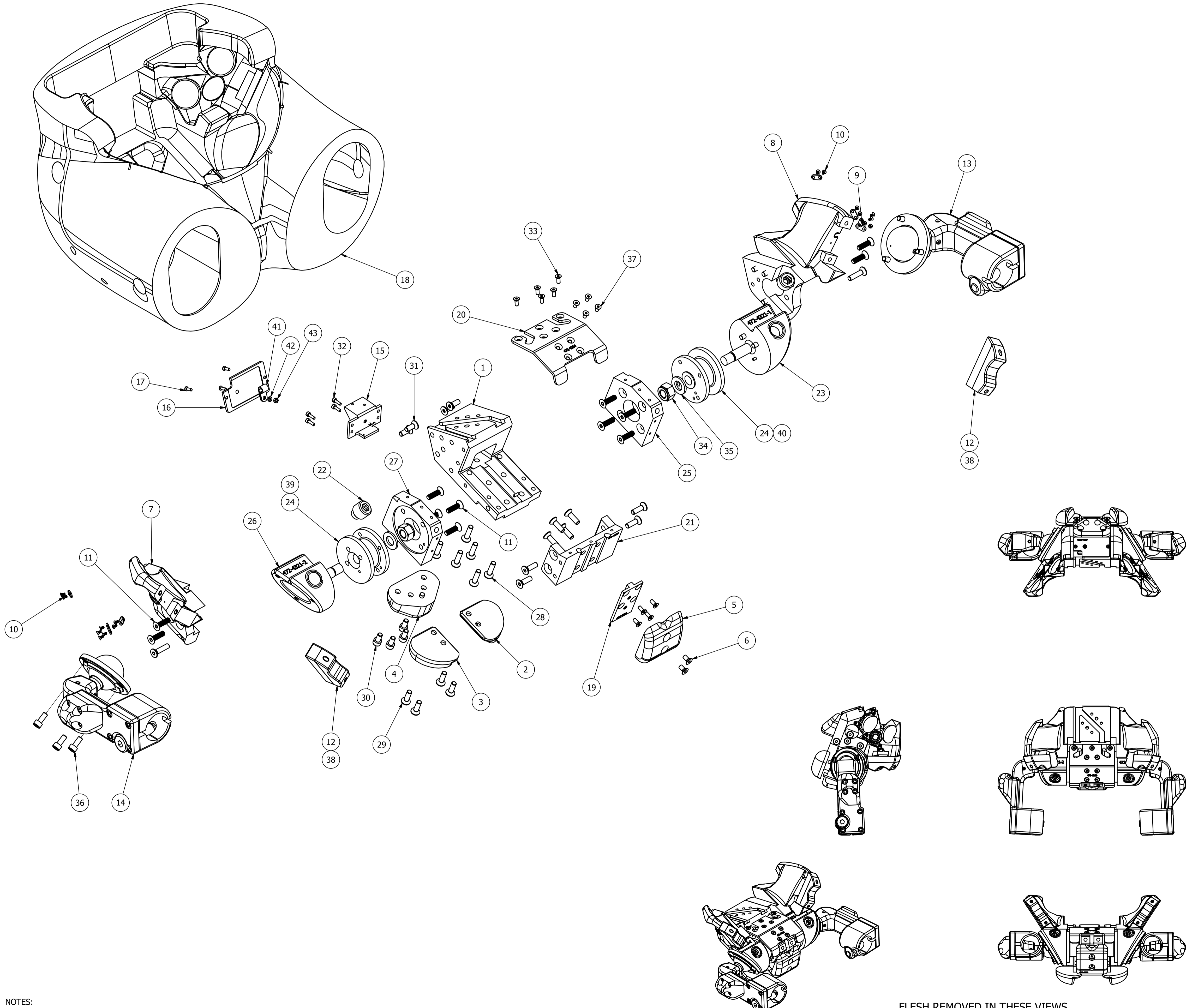
NOTES:

1. POWDER OR BEAD BLAST.
2. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
4. STAMP OR ETCH "UT" (3mm MIN. CHARACTERS) WHERE SHOWN.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX 0.02 ± 0.02 1.6 XXX 0.01 ± 0.01 1.6 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3000	MATERIAL:	1018 STEEL HEX	DESCRIPTION:
DATE:	9/23/2011	CHECKED BY:	Thanh	IRTRACC CONNECTING BOLT, UPPER THORAX
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:	1/18/2012	FRSH:	SEE NOTES	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
SCALE:	4.000	TOTAL QTY IN DUMMY:	2	472-3518

ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLS000 R02 AND CONVERTED TO METRIC FOR THOR-M	8/15/2011	JSJ
	B	ADD 5000604 QTY. 6, 5000646 QTY. 4; 5000023 QTY 9 WAS 13	6/27/2012	BK
	C	472-4375 WAS 472-4373; REMOVED 5000416	9/18/2014	DW
	D	REVISED 472-4380-2 RIGHT WING ASSEMBLY AND 472-4380-1 LEFT WING ASSEMBLY; ADDED PART #SA572-S119 A.S.I.S. LOAD CELL (OPTIONAL), SA572-S129 ACETABULAR LOAD CELL ASS'Y., RIGHT, & SA572-S128 ACETABULAR LOAD CELL ASS'Y., LEFT	9/3/2015	DW
	E	ADDED ITEMS, 41 - 9002655 - WIRE CLAMP, NYLON 1/8 DIA, 42 - 5001111V - WASHER, SPRING LOCK M3, 43 - 9009248V - NUT, HEX M3-0.5	2/24/2016	DW



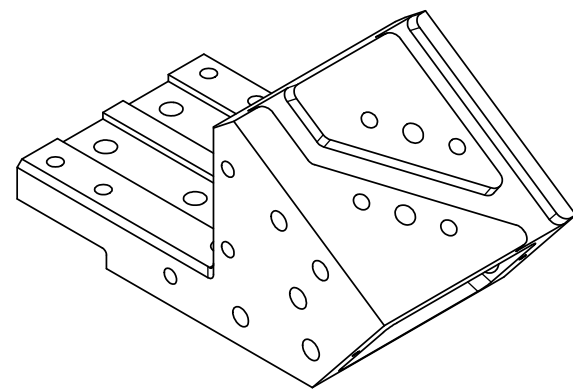
ECO#	REV	QTY	PART NUMBER	DESCRIPTION
E		43	1	9009248V NUT, HEX M3-0.5
E		42	1	5001111V WASHER, SPRING LOCK M3
E		41	1	9002655 WIRE CLAMP, NYLON 1/8 DIA.
D		40	1	SA572-S128 ACETABULAR LOAD CELL ASS'Y., LEFT
D		39	1	SA572-S129 ACETABULAR LOAD CELL ASS'Y., RIGHT
D		38	2	SA572-S119 A.S.I.S. LOAD CELL (OPTIONAL)
B		37	4	5000646 SCREW, FHCS M4-0.7 x 8
B		36	6	5000604 SCREW, SHCS M6-1 x 14 mm
B		35	2	5000267 M12 FLAT WASHER PLAIN ZINC
B		34	2	5000462 M12 X 1.75 HEX LOCK NUT ZINC
B		33	9	5000023 SCREW, FHCS M4-0.7 x 10
B		32	4	5000119 M3 X 0.5 X 10 LG. SHCS
B		31	4	5000090 SCREW, FHCS M6-1 x 16
B		30	4	5000281 M6 X 1 X 12 LG. SHCS
B		29	12	5001089 SCREW, FHCS M6X1 X 20
B		28	8	5000135 SCREW, FHCS M6-1 x 25
B		27	1	472-4325-2 PELVIS LOAD CELL MTG. PLATE (RIGHT)
B		26	1	472-4321-2 PELVIS SOCKET ADAPTER (RIGHT)
B		25	1	472-4325-1 PELVIS LOAD CELL MTG. PLATE LEFT
B		24	2	472-4323 ACETABULAR LOAD CELL STRUCTURAL REPLACEMENT
B		23	1	472-4321-1 PELVIS SOCKET ADAPTOR (LEFT)
B		22	2	472-4310 FRICTION ADJUSTMENT SET SCREW ASSEMBLY
B		21	1	472-4205 PELVIS, REAR PLATE
B		20	1	472-4204 PELVIS TOP PLATE
B		19	1	472-4330 PELVIS FRONT PLATE
B		18	1	472-4100 PELVIS FLESH, MOLDED
B		17	3	5000203 SCREW, FHCS M3-0.5 x 10
B		16	1	472-4371 PELVIS ACCELEROMETER COVER
B		15	1	472-4361 PELVIS TRI-PACK MOUNTING BRKT.
B		14	1	472-4800-2 RIGHT FEMUR BALL JOINT ASS'Y
B		13	1	472-4800-1 LEFT FEMUR BALL JOINT ASS'Y
C		12	2	472-4375 S.R. THOR A.S.I.S.
C		11	12	5000572 SCREW, FHCS M6-1 x 22
C		10	16	5000723 SCREW, FHCS M2.5-0.45 x 5
D		9	8	472-4372 ILIAC CABLE COVER, PELVIS
D		8	1	472-4380-1 LEFT ILIAC ASSEMBLY
D		7	1	472-4380-2 RIGHT ILIAC ASSEMBLY
D		6	2	5000084 SCREW, FHCS M5 x 0.8 x 10
D		5	1	472-4370 MACHINED FRONT PELVIC CASTING
D		4	1	472-4350 PELVIS COCCYX
D		3	1	472-4340-2 PELVIS RIGHT D-PT
D		2	1	472-4340-1 PELVIS LEFT D-PT
D		1	1	472-4211 PELVIS BASE MODULE

NOTES:
1. WEIGHT OF ASSEMBLY TO BE 10.60 ±.25kg.

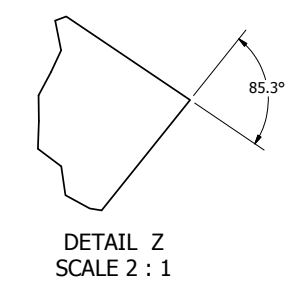
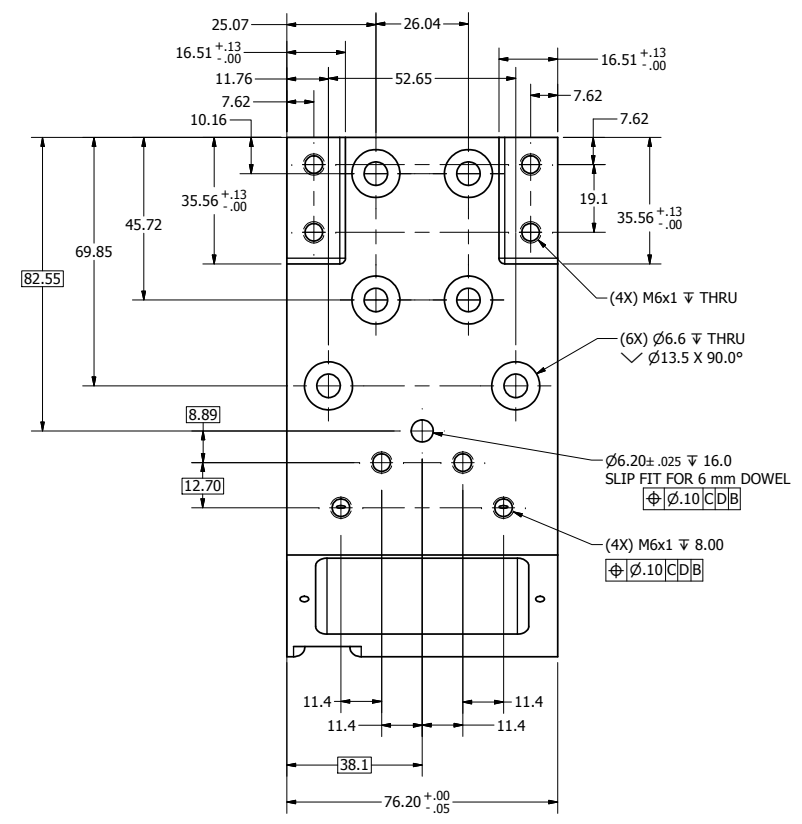
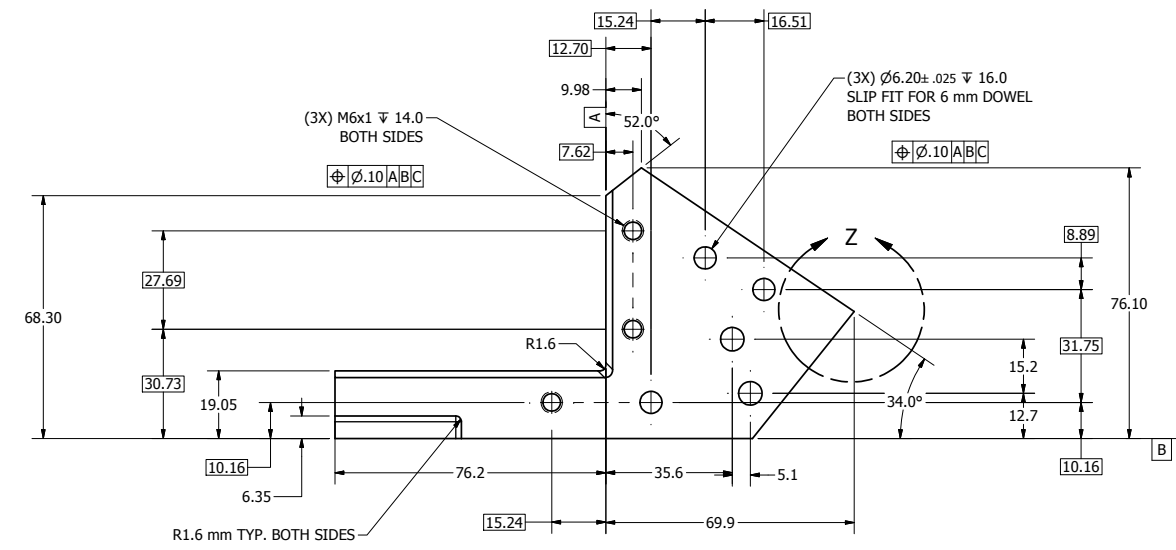
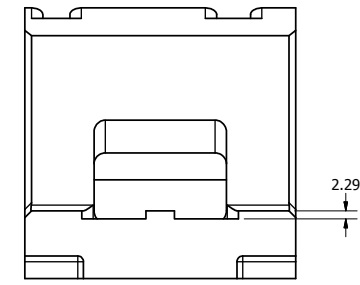
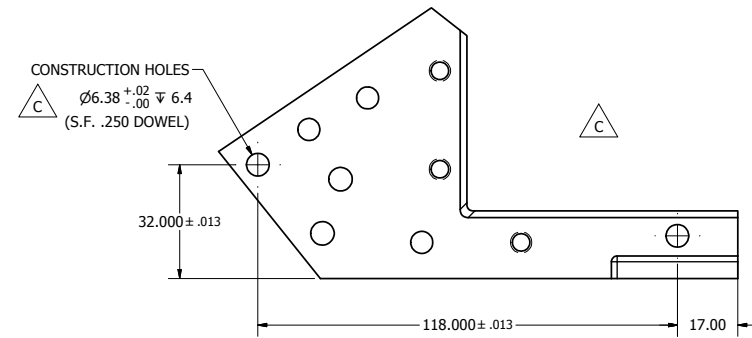
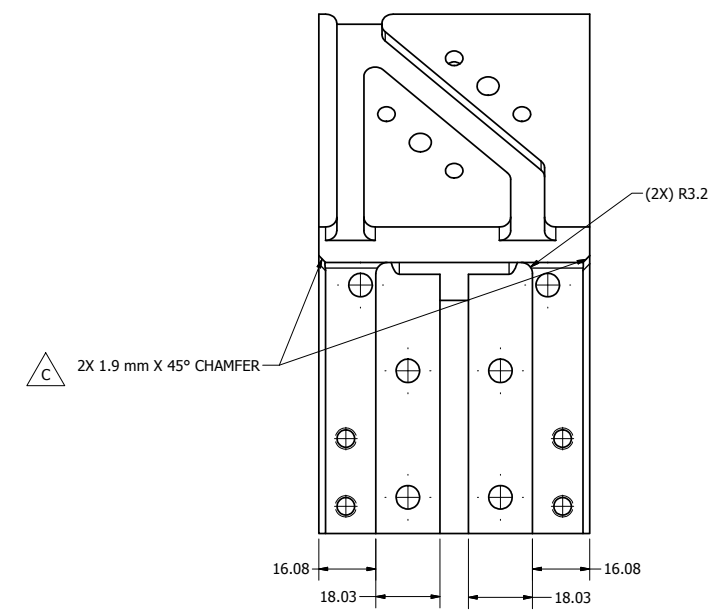
FLESH REMOVED IN THESE VIEWS

PARTS LIST		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-0000	1	DATE	8/15/2011	PELVIS ASSEMBLY	
NEXT ASSEMBLY	QTY	DESIGNED BY	HORCHLER	DRAWN BY	
TOTAL QTY IN DUMMY	1	CHECKED BY	J. WANG	DATE	1/20/2012

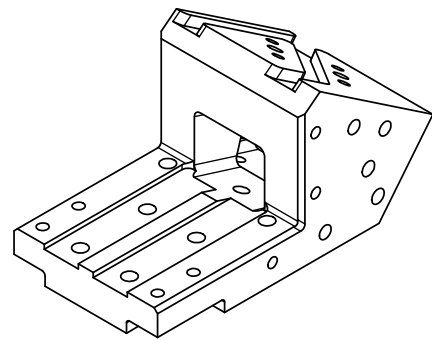
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM010-03 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ
	B	NICKEL PLATE FINISH WAS TEFLON	12/22/2011	TMV
	C	ADD VIEW TO SHOW ADDED CONSTRUCTION HOLES; 2X M3 WAS M2.5 (SHT 2); 1.9 WAS 1.91	6/27/2012	BK



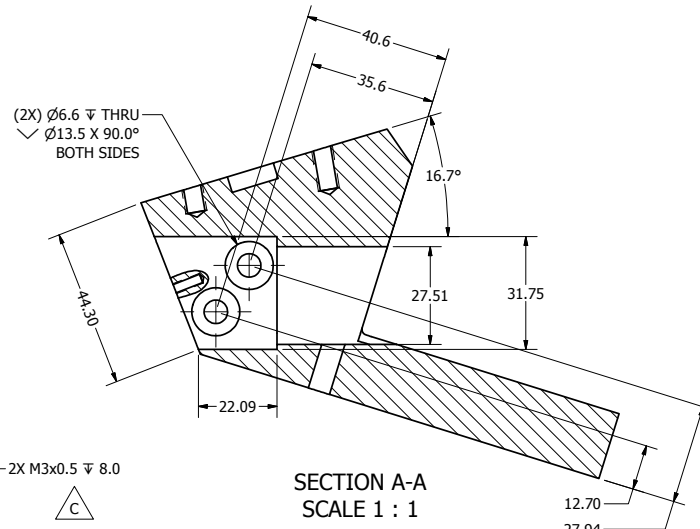
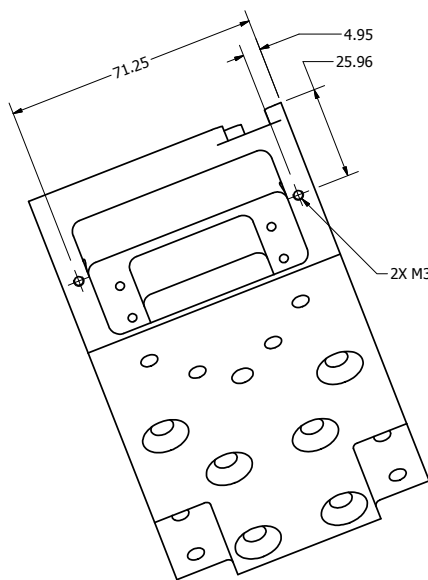
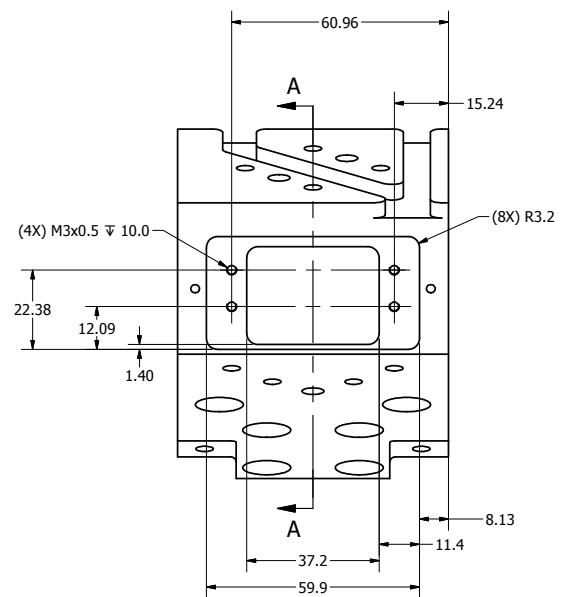
SCALE 1.000



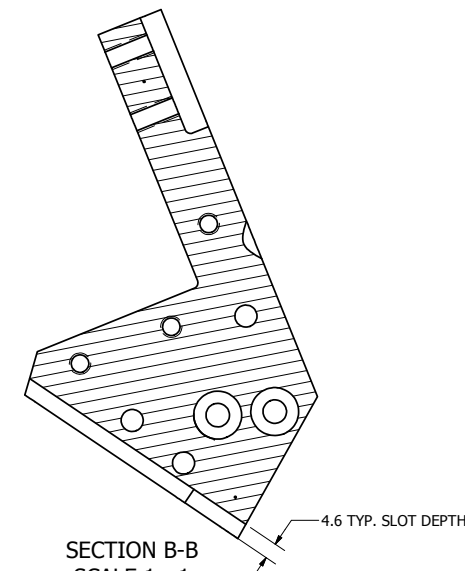
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-4210		1018 STEEL		PELVIS BASE MODULE	
NEXT ASSEMBLY		QTY		A11 OF 2	
TOTAL QTY IN DUMMY		1		472-4211	



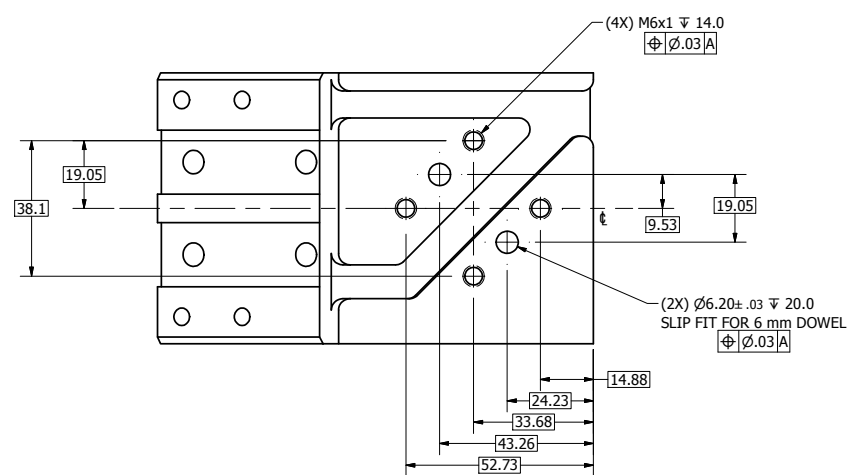
SCALE .750



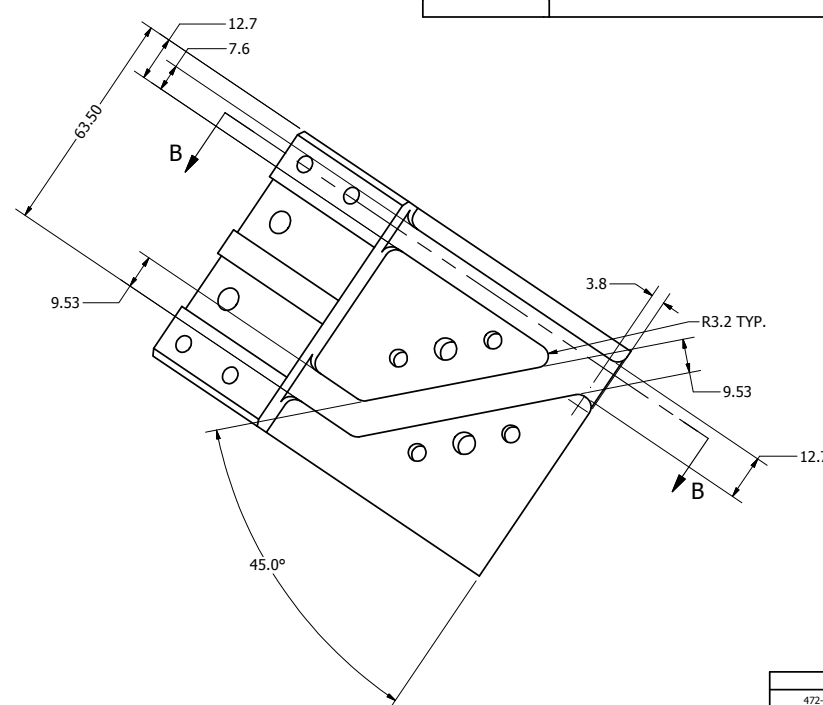
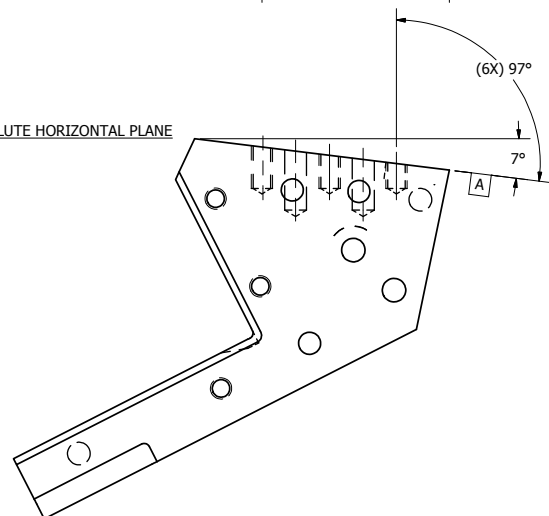
SECTION A-A
SCALE 1 : 1



SECTION B-B
SCALE 1 : 1

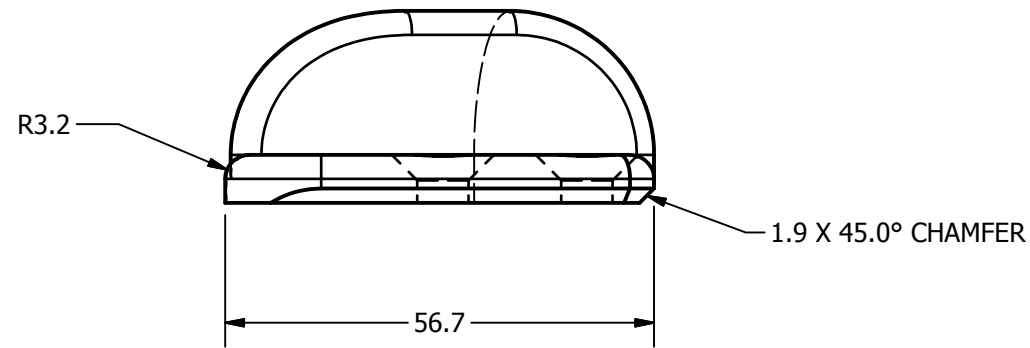
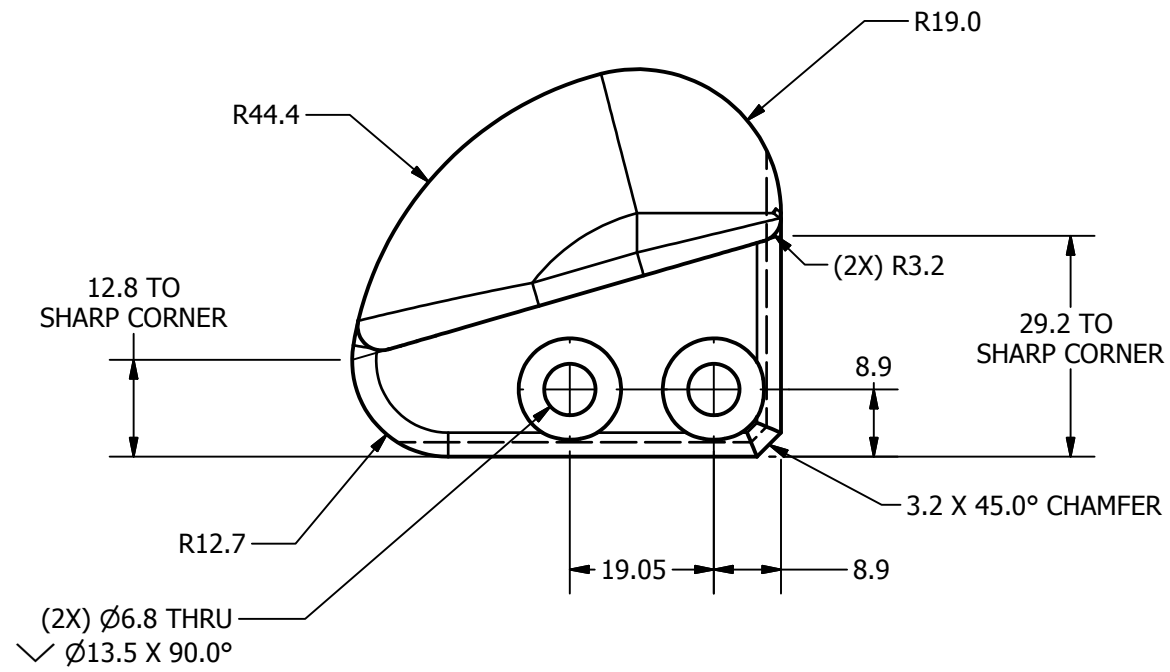
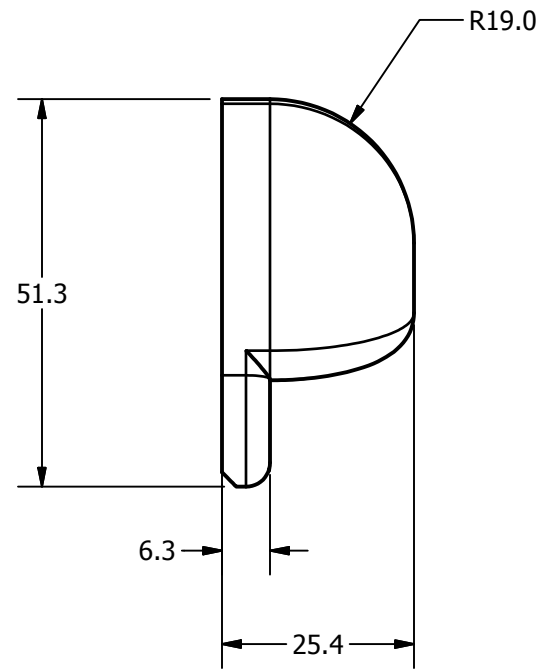
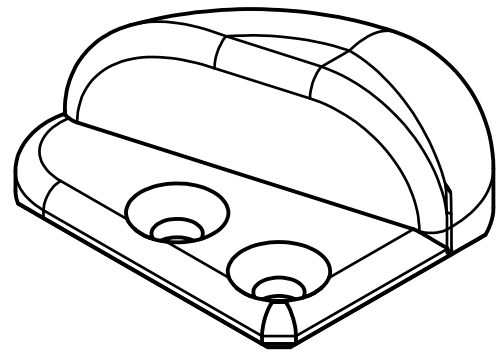


ABSOLUTE HORIZONTAL PLANE



DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED		MILLIMETERS		PELVIS BASE MODULE	
472-4210	1	1018 STEEL	DLW	8/20/2011	A12 OF 2 1:1
NEXT ASSEMBLY	QTY		TWV	12/29/2011	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL RATE 888 RW	J. WANG	1/29/2012	
					472-4211

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM014 R3 AND CONVERTED TO METRIC FOR THOR-M	8/24/2011	JSJ



DO NOT SCALE DRAWING

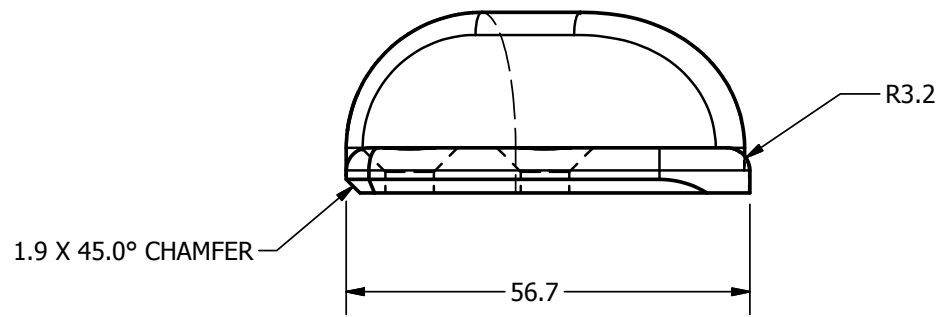
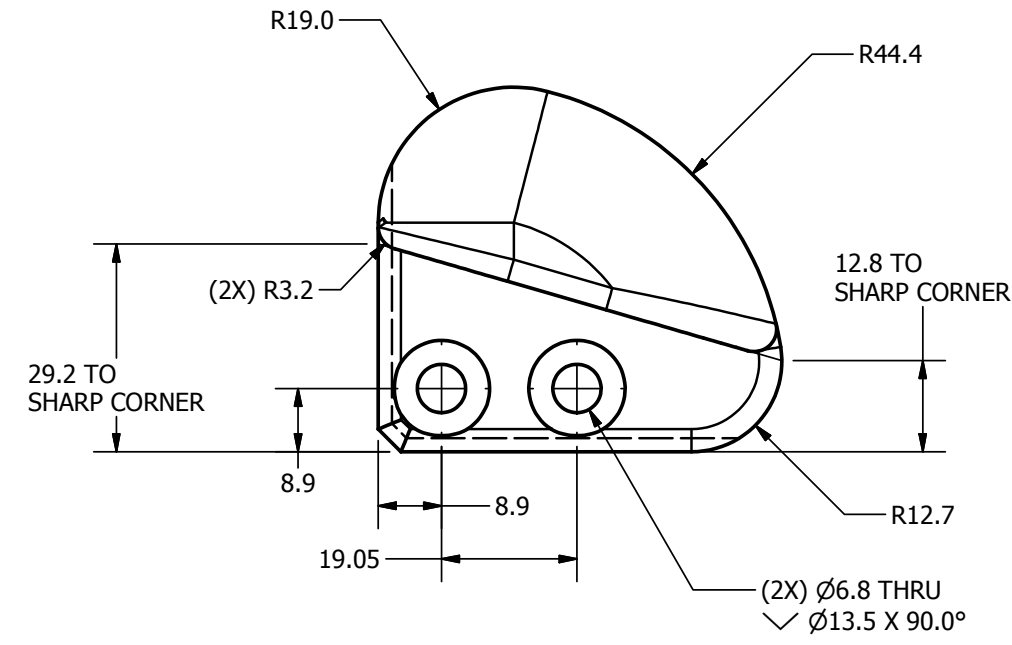
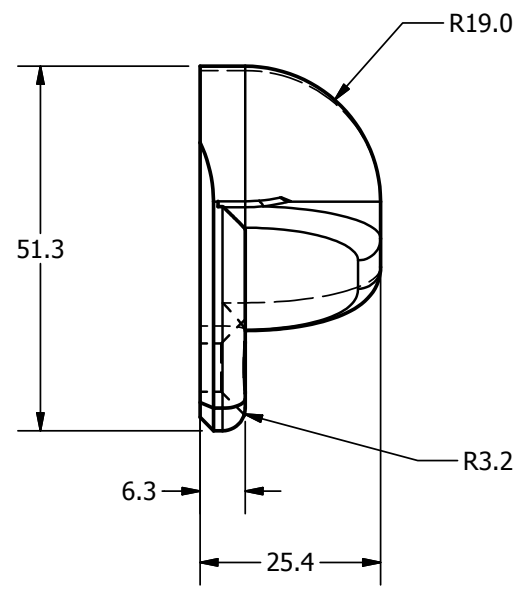
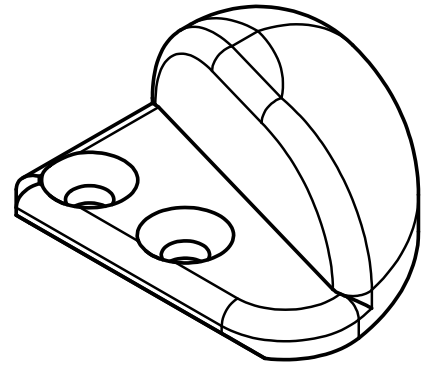
THIRD ANGLE PROJECTION

TOLERANCES		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		
DECIMALS	ANGLES	FINISH
X ±0.5	±0.5°	1.6
X.X ±0.2		✓
X.XX ±0.1		
X.XXX ±0.01		

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-4000	QTY: 1	MATERIAL: Aluminum-6061	DRAWN BY: jjordan	DATE: 8/24/2011	DESCRIPTION: PELVIS LEFT D-PT	DRAWING NO.: 472-4340-1	REV: A
NEXT ASSEMBLY		HEAT TREAT:	CHECKED BY: TMV	DATE: 10/26/2011			
TOTAL QTY IN DUMMY	1	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/23/2012			
				SIZE: B	SHEET: 1 OF 1	SCALE: 1:1	

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM015 R3 AND CONVERTED TO METRIC FOR THOR-M	8/24/2011	JSJ



DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.: 472-4000		DECIMALS	ANGLES FINISH
MATERIAL: Aluminum-6061	DATE: 8/24/2011	X ± 0.5	± 0.5 1.6
HEAT TREAT:	CHECKED BY: TMV	X.X ± 0.2	
FINISH: CLEAR ANODIZE	DATE: 10/26/2011	X.XX ± 0.1	
	ENGINEER: J. WANG	X.XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: PELVIS RIGHT D-PT

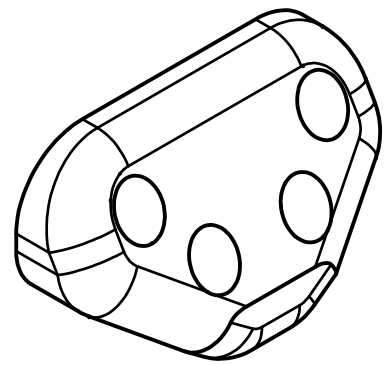
SIZE: A3 1 OF 1 SHEET

SCALE: 1:1

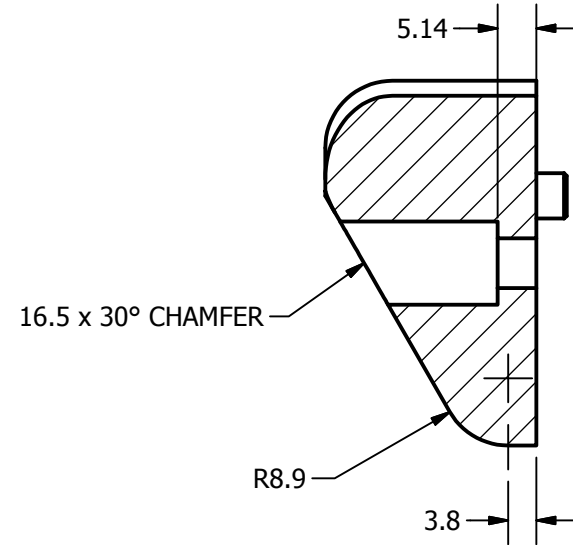
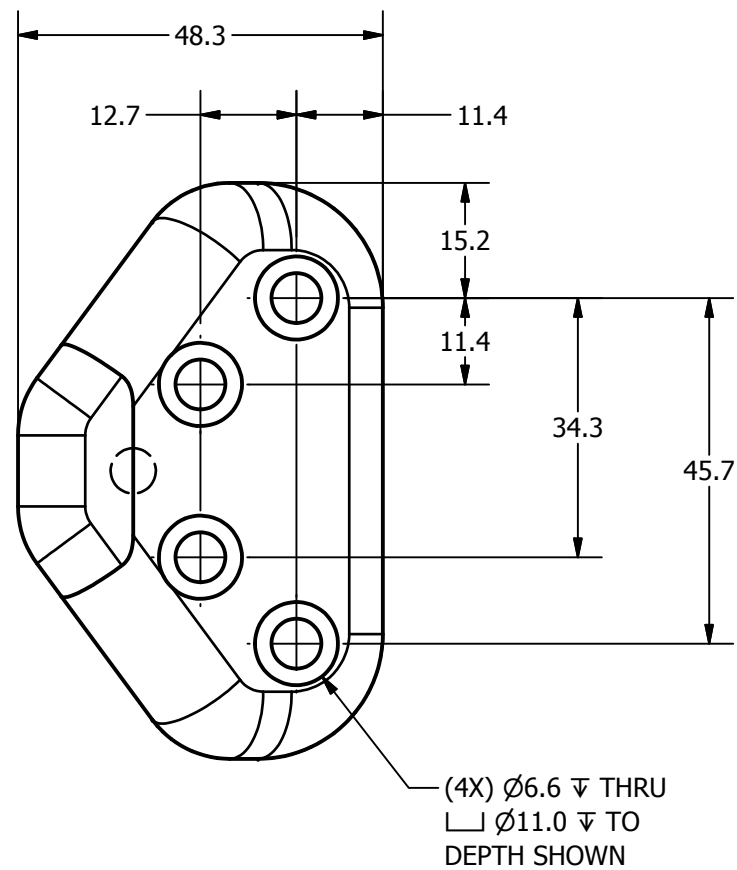
DRAWING NO.: 472-4340-2

REV: A

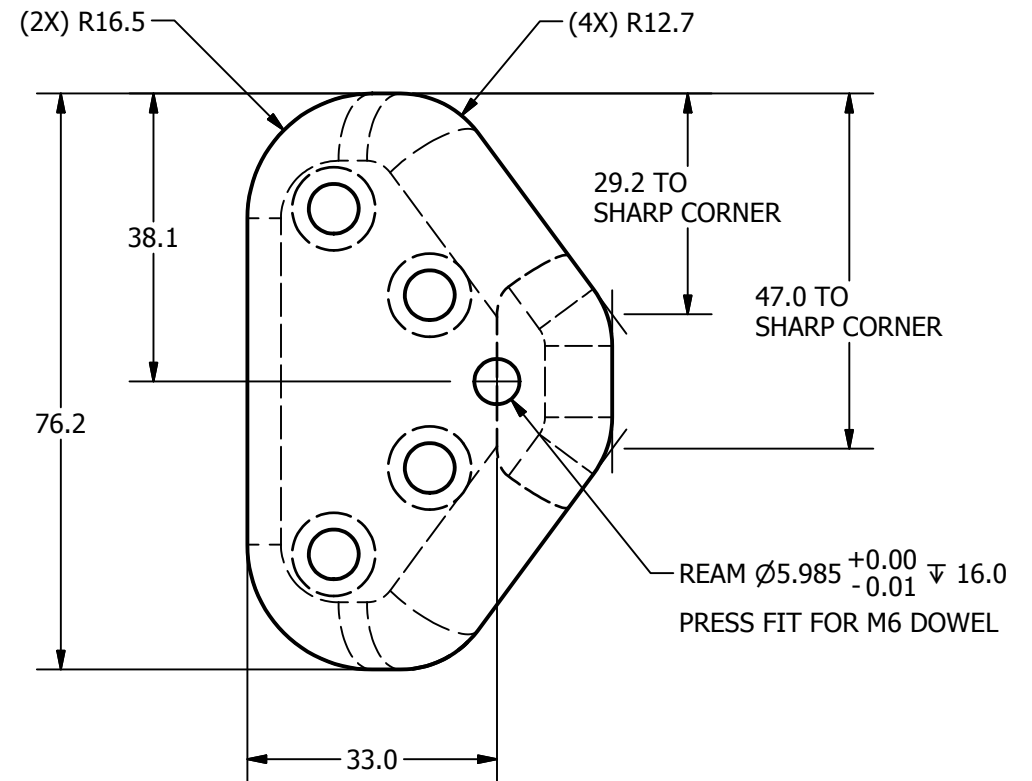
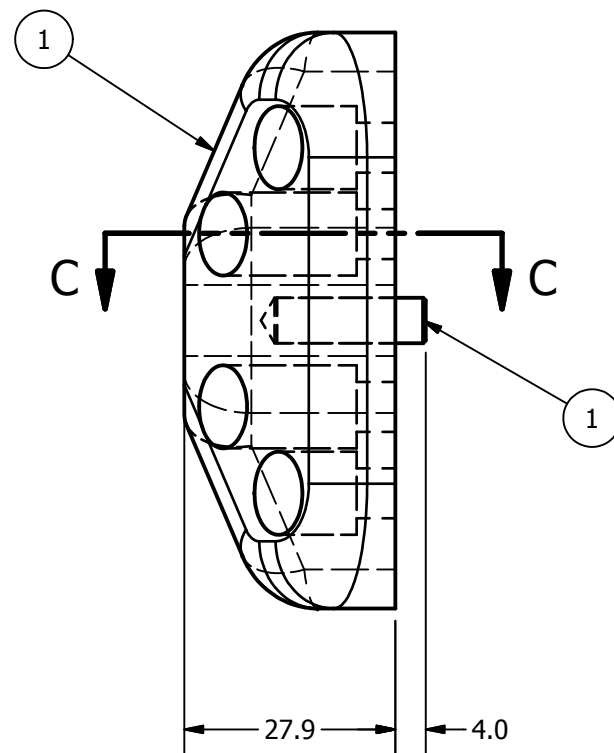
472-4000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



SCALE .750



SECTION C-C
SCALE 1 : 1



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM013-04 AND CONVERTED TO METRIC FOR THOR-M	8/23/2011	JSJ

1	1	5000570	PIN, DOWEL M6 X 20 mm
ITEM	QTY	PART NUMBER	DESCRIPTION

Parts List

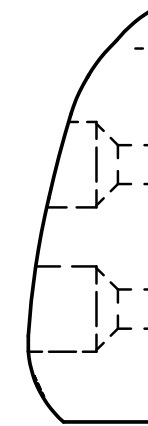
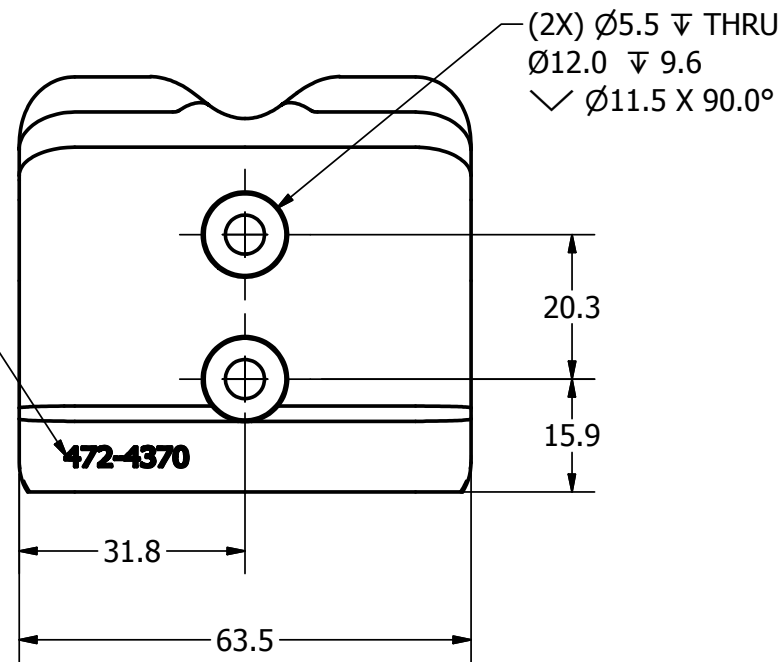
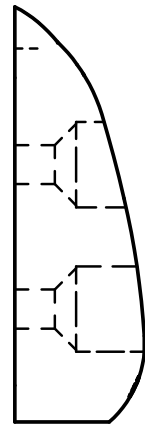
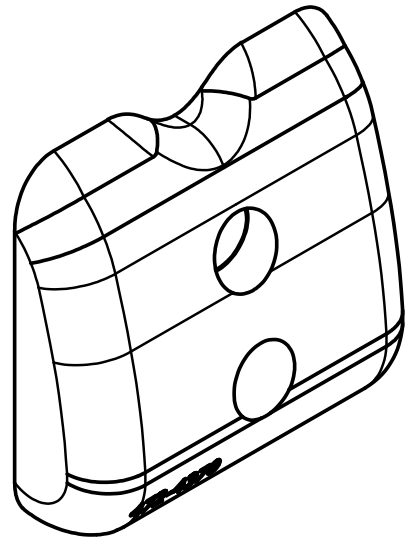
DO NOT SCALE DRAWING		TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		DECIMALS	ANGLES	
PROJECT NO.:		X	± 0.5	FINISH
MATERIAL:		X.X	± 0.2	1.6
DRAWN BY:		X.XX	± 0.1	
DATE:		X.XXX	± 0.01	
REMOVE BURRS & BREAK SHARP EDGES		DATE:		DESCRIPTION:
HEAT TREAT:		jjordan		8/23/2011
FINISH:		TMV		10/28/2011
CLEAR ANODIZE		J. WANG		1/23/2012
TOTAL QTY IN DUMMY		1		SCALE: 1:1

472-4000	1	Aluminum-6061	8/23/2011	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
NEXT ASSEMBLY	QTY	TMV	10/28/2011	
TOTAL QTY IN DUMMY		1		DESCRIPTION:
CLEAR ANODIZE		J. WANG		1/23/2012
REMOVE BURRS & BREAK SHARP EDGES		jjordan		8/23/2011
HEAT TREAT:		TMV		10/28/2011
FINISH:		J. WANG		1/23/2012
TOTAL QTY IN DUMMY		1		SCALE: 1:1

PELVIS COCCYX

SIZE:	SHEET	DRAWING NO.:	REV:
B	1 OF 1	472-4350	A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM219 R05 AND CONVERTED TO METRIC FOR THOR-M; ADD (OPTIONAL) TO NOTE 2; REMOVE VENDOR REFERENCE FROM NOTE 3; REMOVE NOTE 4	8/22/2011	JSJ



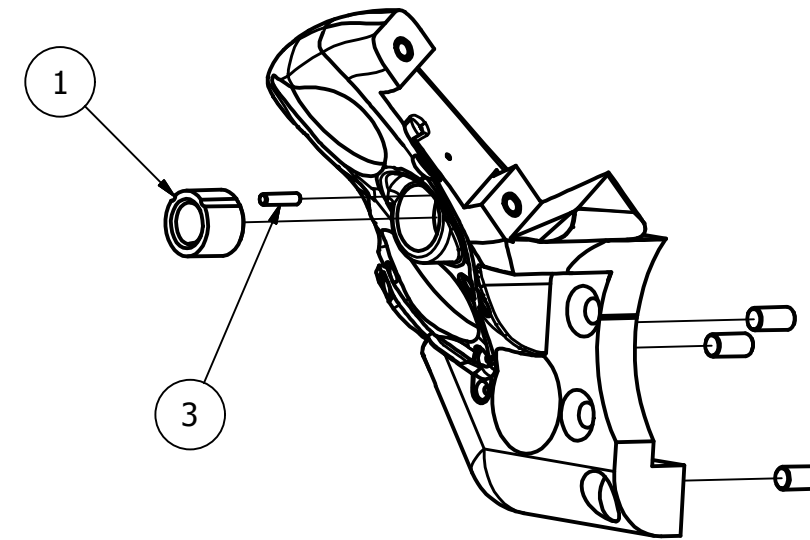
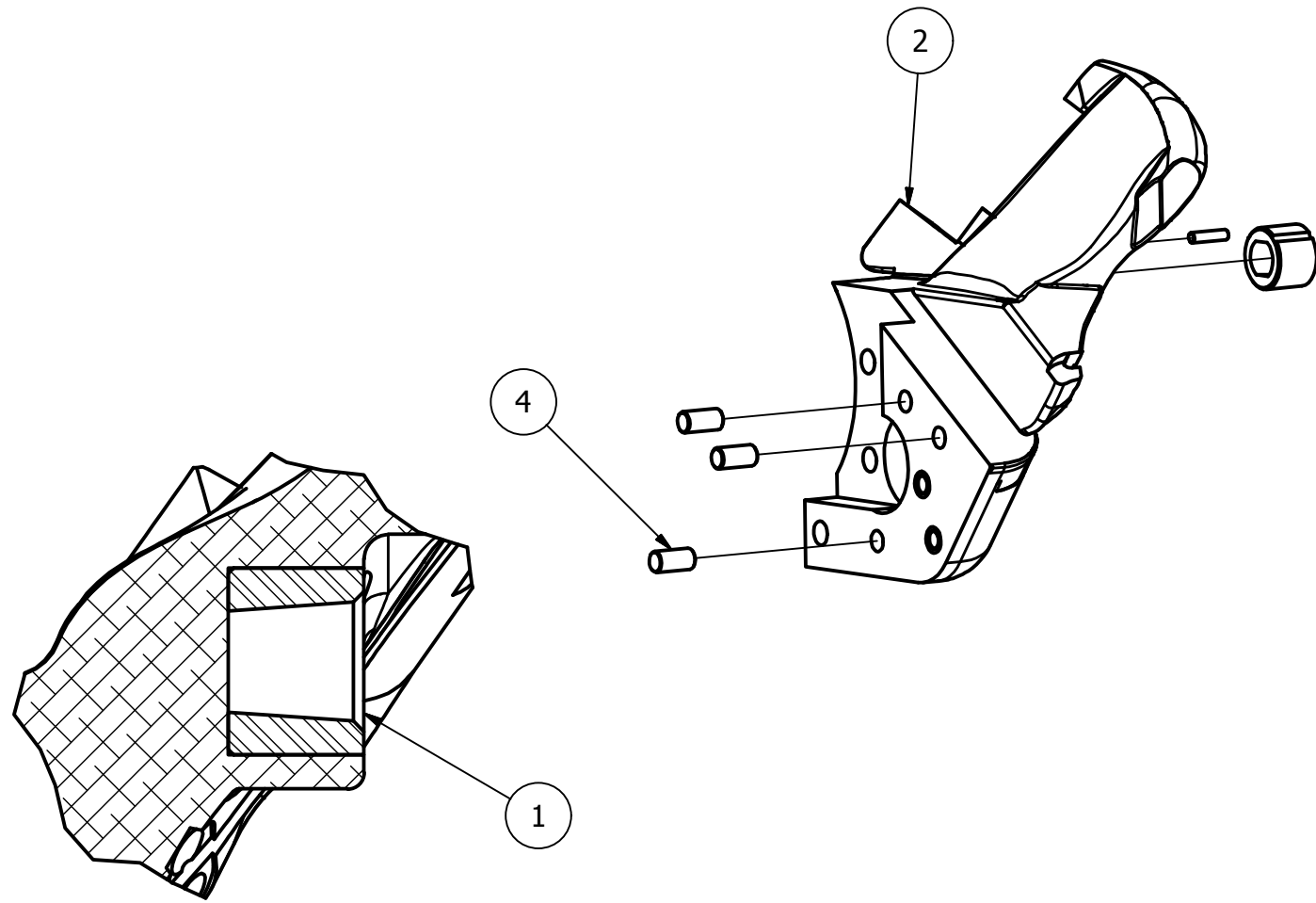
NOTES:

- FRONT PELVIC CASTING IS A CONTOURED CAST PART WHICH REPRESENTS THE CURVATURE AT THE FRONT OF THE PELVIS.
- ENGRAVE DWG. # 472-4370 ON THE SPECIFIED AREA ABOVE. (OPTIONAL)
- THE FRONT PELVIC CASTING IS A URETHANE CASTING, THE CASTING MATERIAL IS CIBI-GIEGY RP6430 URETHANE (75 ± 3 D)

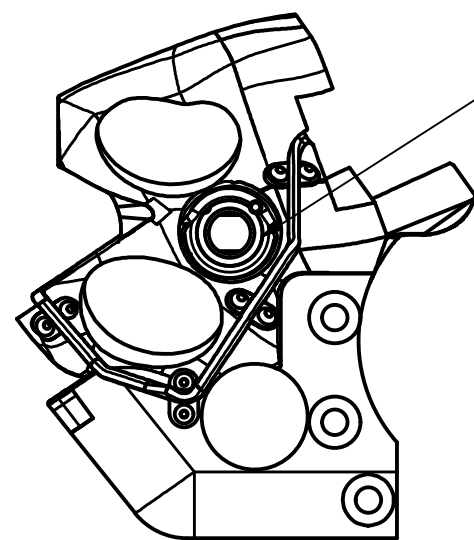
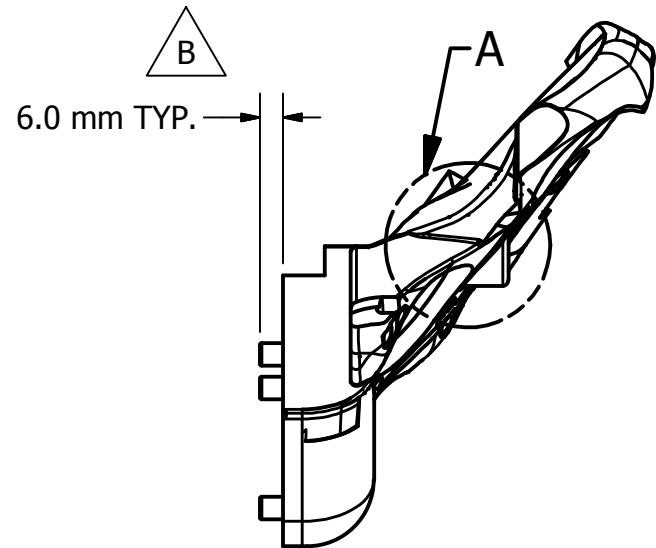


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 X.X ± 0.2 X.XX ± 0.1 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.:		MATERIAL:	Thermoplastic Resin	DESCRIPTION: MACHINED FRONT PELVIC CASTING	
DRAWN BY:	DLW	DATE:	8/10/2011		
CHECKED BY:	TMV	DATE:	10/25/2011		
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/23/2012
FINISH:		SCALE:	1:1	SIZE: SHEET	A31 OF 1
TOTAL QTY IN DUMMY			1	DRAWING NO.:	472-4370
NEXT ASSEMBLY			QTY	REV:	A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM402 R0 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ
	B	ADDED VIEW WITH PIN HEIGHT DIMENSION	7/24/2012	TMV
	C	REVISED PART #472-4382-2 PELVIS WING MACHINING (RIGHT)	8/25/2015	DW
	D	REVISED ITEM #1 PART #472-4381 AND ADDED DETAIL A	4/28/2016	DW



DETAIL A
SCALE 1.5 : 1



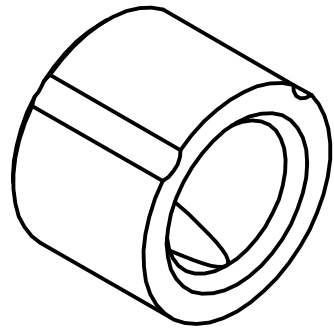
472-4381 TO BE INSTALLED AS SHOWN
REF. DETAIL A

ITEM	QTY	PART NUMBER	DESCRIPTION
4	3	5000433	PIN, DOWEL M6 X 12 mm
3	1	5000183	PIN, DOWEL M3 X 12 mm
2	1	472-4382-2	PELVIS WING MACHINING (RIGHT)
1	1	472-4381	PELVIS H-PT. TOOL BEARING

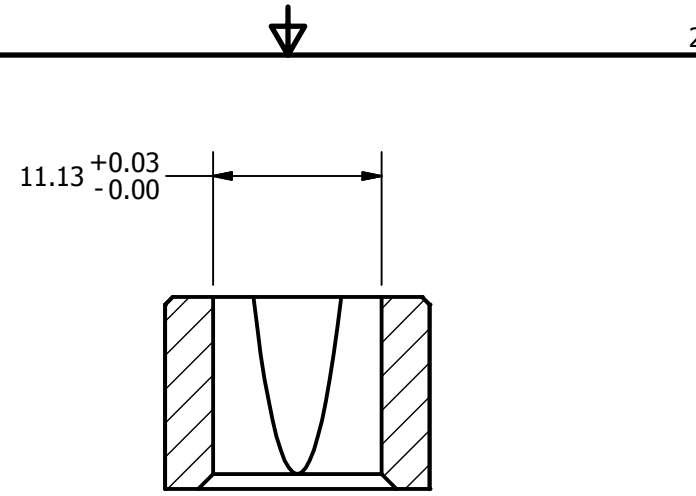


Parts List

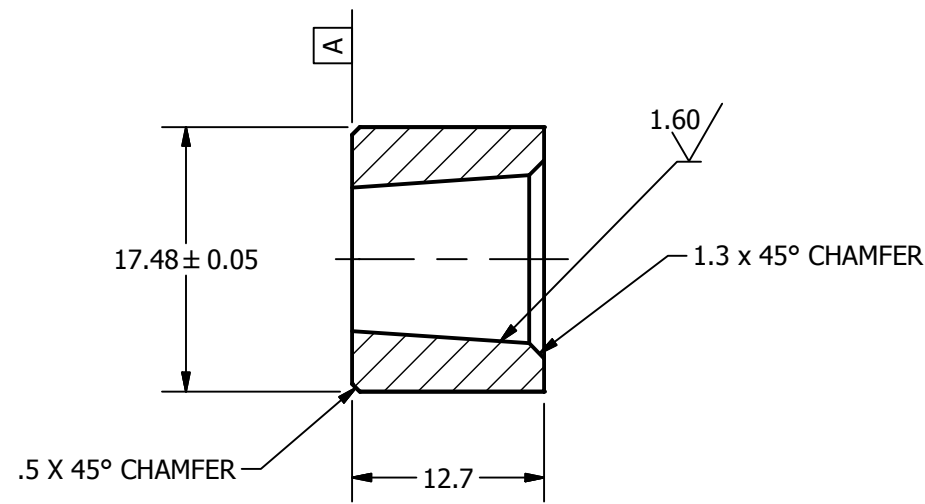
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ° ± 0.5 1.6 XX ± 0.2 ° ± 0.5 1.6 XXX ± 0.1 ° ± 0.5 1.6 XXXX ± 0.01 ° ± 0.5 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:
472-4000	1	MATERIAL:	S. RICE	8/10/2011
NEXT ASSEMBLY	QTY	HEAT TREAT:	TMV	9/21/2011
TOTAL QTY IN DUMMY	1	FINISH:	J. WANG	1/24/2012
		SIZE: SHEET	DRAWING NO.:	
		A31 of 1	472-4380-2	
		SCALE: 1:2	REV: D	



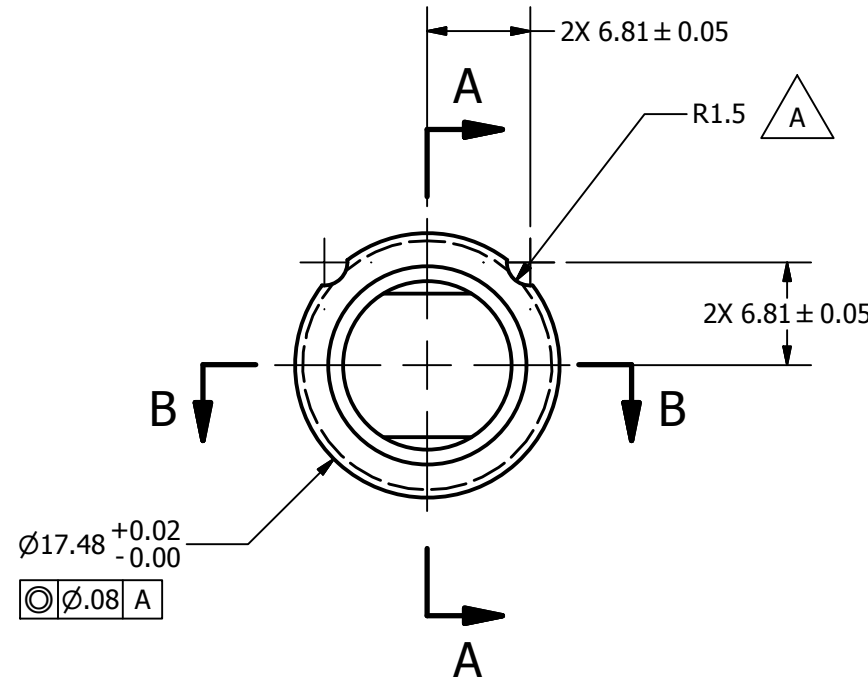
SCALE 2.000



SECTION B-B



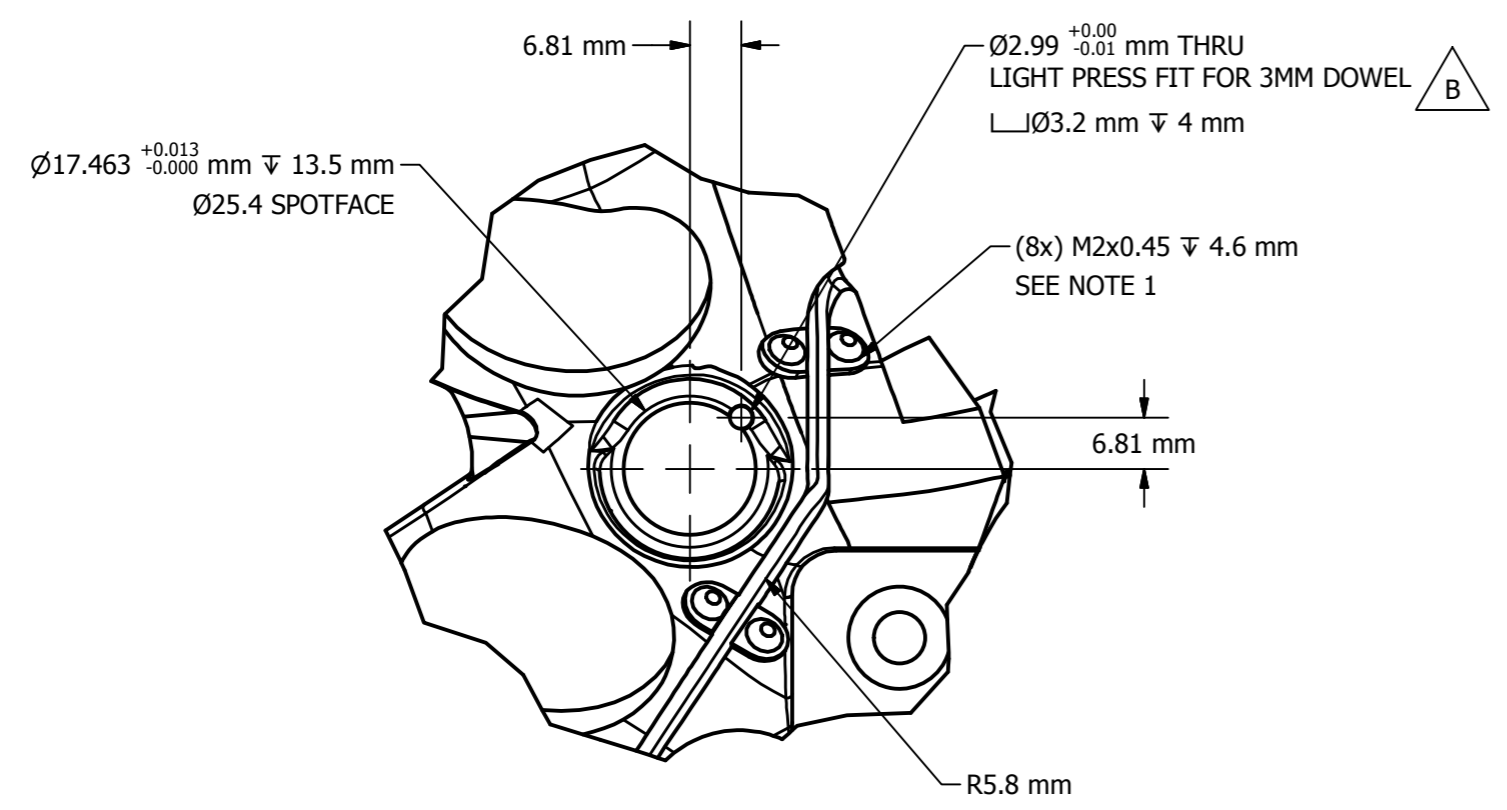
SECTION A-A



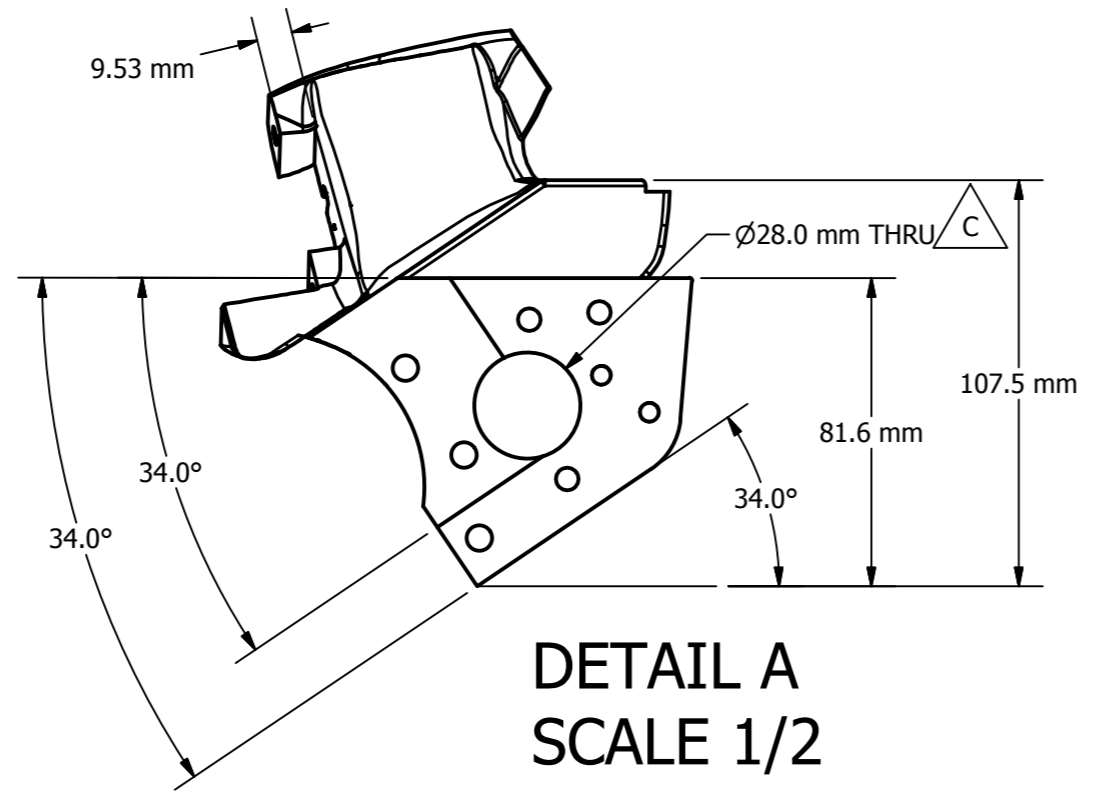
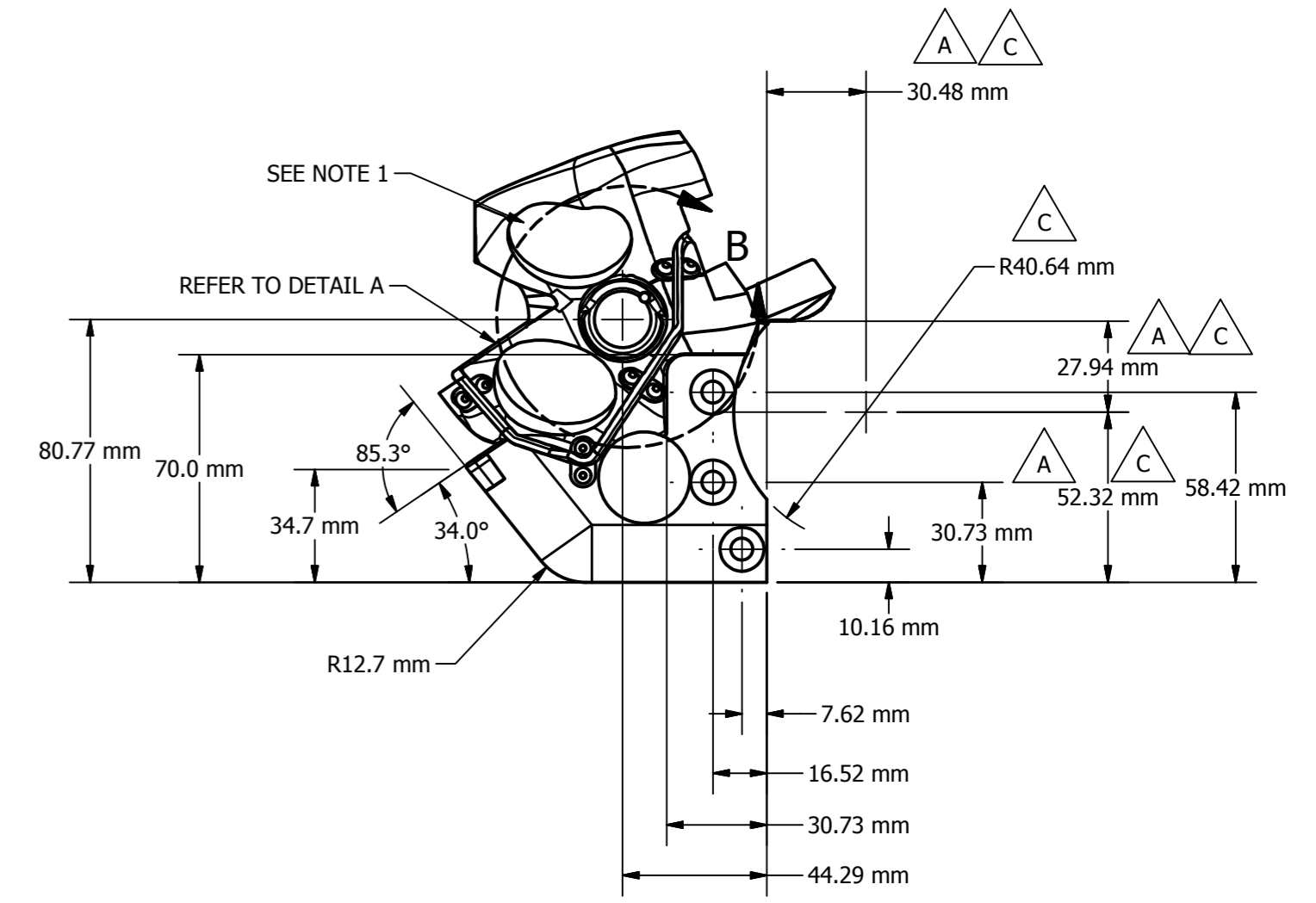
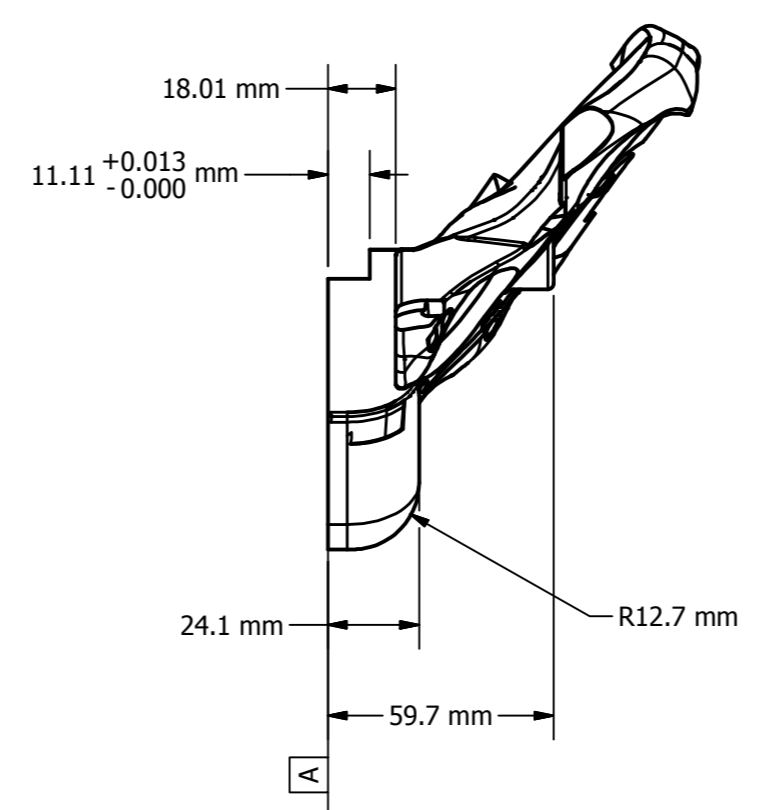
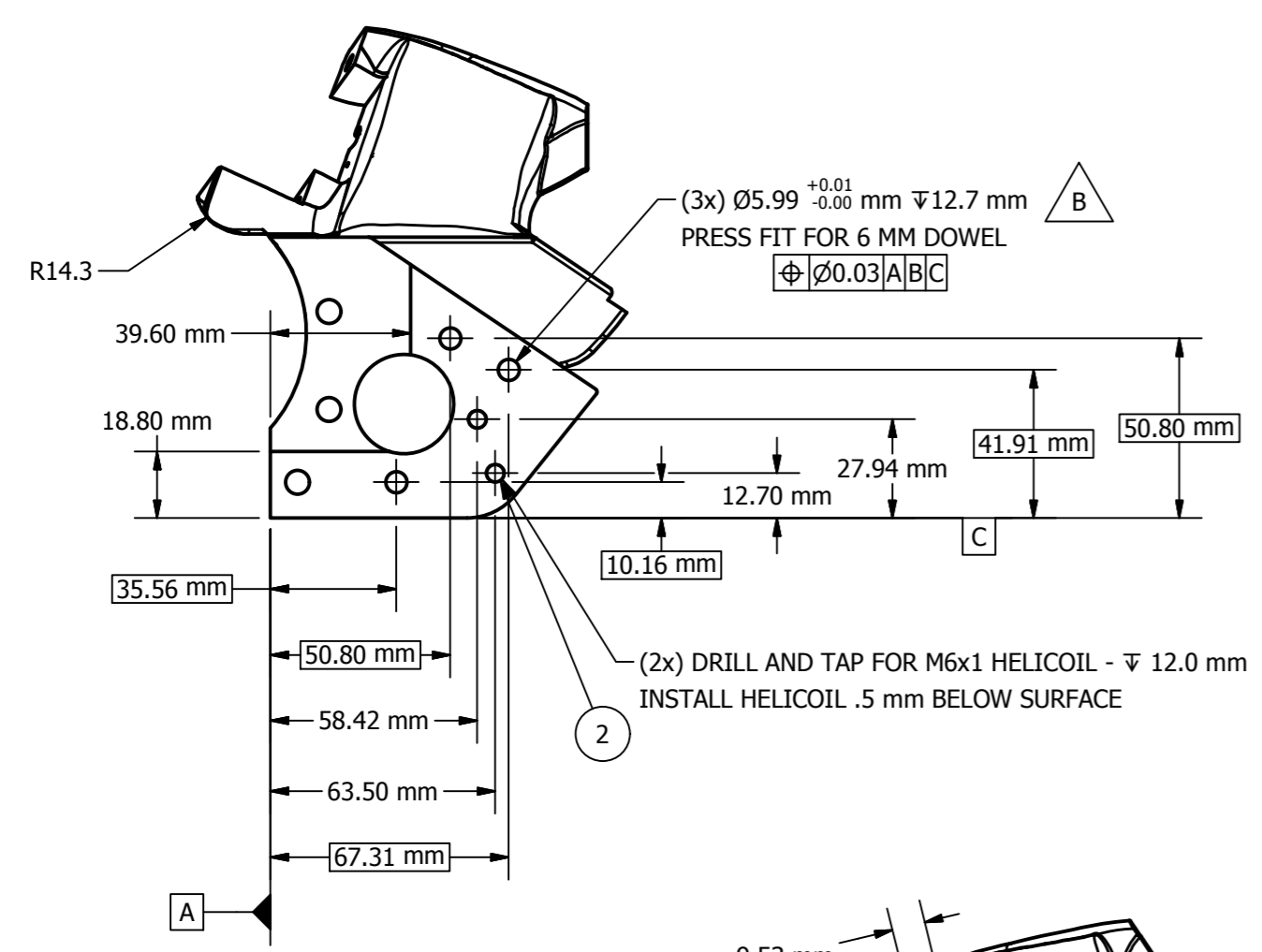
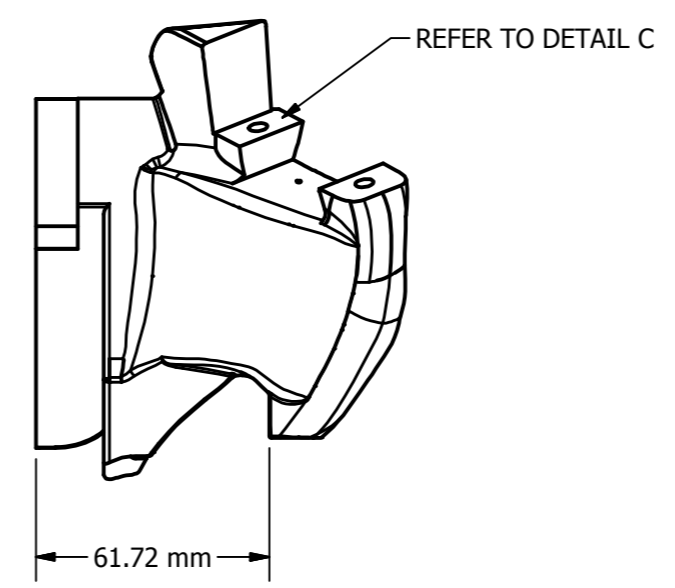
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM019 R1 AND CONVERTED TO METRIC FOR THOR-M; R1.5 WAS R1.6	8/23/2011	JSJ
	B	COMPLETE REDESIGN, CHANGED FROM RECTANGULAR THRU HOLE TO TAPERED THRU HOLE	4/28/2016	DW

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: PELVIS H-PT. TOOL BEARING	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.2 XXX ±0.1 ±0.1 XXXX ±0.01 ±0.01			
472-4380-2	1	PROJECT NO.: THOR-M	DATE: 8/23/2011	SIZE: B	SHEET 1 OF 1
472-4380-1	1	MATERIAL: 4140 STEEL	DRAWN BY: jjordan	SCALE: 2:1	
NEXT ASSEMBLY	QTY	HEAT TREAT: RC 44-48	CHECKED BY: TMV	DATE: 10/26/2011	DRAWING NO.: 472-4381
TOTAL QTY IN DUMMY	2	FINISH: ELECTROLESS NICKEL PLATE .008 MAX	ENGINEER: J. WANG	DATE: 1/23/2012	

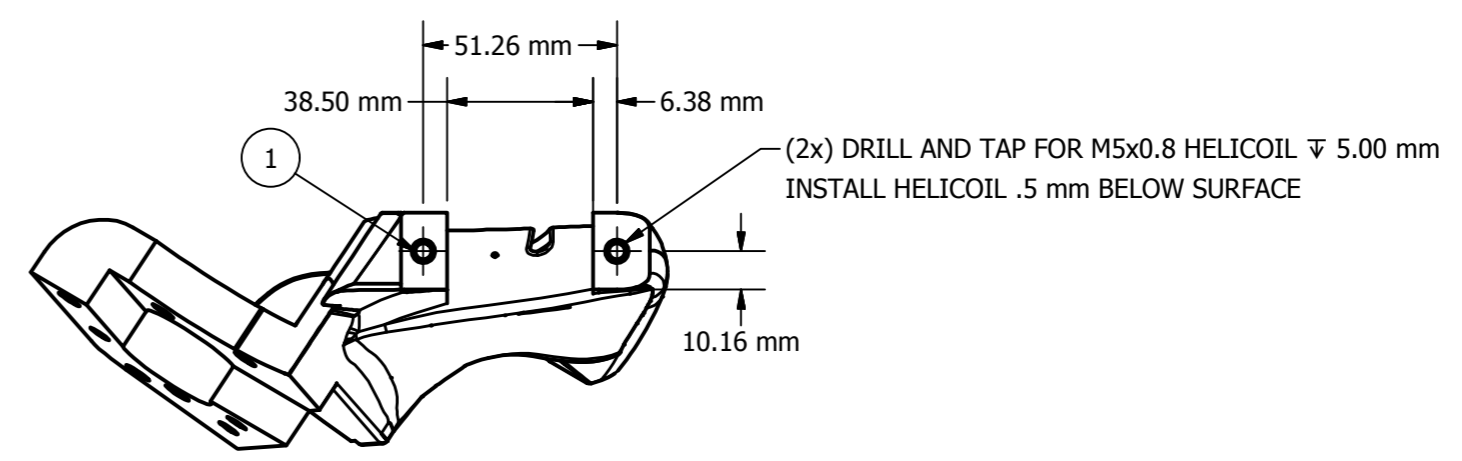
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM012-05 AND CONVERTED TO METRIC FOR THOR-M; 30.04 WAS 30.48; R40.1 WAS 40.6; 28.20 WAS 27.94; 52.06 WAS 52.32	8/26/2011	JSJ
	B	Ø2.99 +.00/-0.01 WAS +.01/-0.00 12.7 DEEP WAS 16.00	5/3/2012	TMV
	C	REDESIGNED TO STRENGTHEN PART, MATERIAL WAS ALUMINUM CAST 357-T6, ADDED HOLE Ø28.00 mm THRU; DIM. 30.48 mm WAS 30.04 mm, R40.64 mm WAS R40.1 mm, 27.94 mm WAS 28.20 mm, AND 52.32 mm WAS 52.06 mm	8/26/2015	DW



DETAIL B
SCALE 1 : 1



DETAIL A
SCALE 1/2



DETAIL C
SCALE 1/2

NOTES:
1. USE CAD GEOMETRY TO DETERMINE LOCATION OF COUNTERBORES, TRAJECTORY AND LOCATION OF CABLE SLOT, AND HOLES FOR CABLE COVERS

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000088	HELICOIL, M6 X 1 X 9mm
1	2	5000086	HELICOIL, M5 X 0.8 X 7.5

Parts List

PROJECT NO:	472-4380-2	1	ALUMINUM 6061	DATE:	8/26/2011	DRAWN BY:	Jordan	DATE:	8/26/2011	DESIGNER:	TMV	DATE:	9/13/2011	SCALE:	1:1	DRAWING NO.:	472-4382-2	REV:	C
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DO NOT SCALE DRAWING

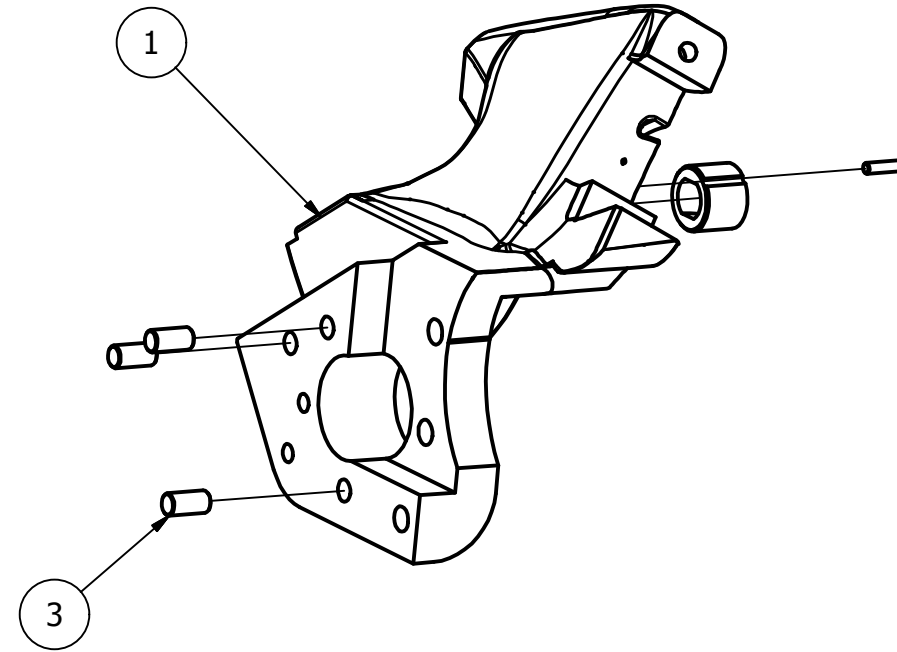
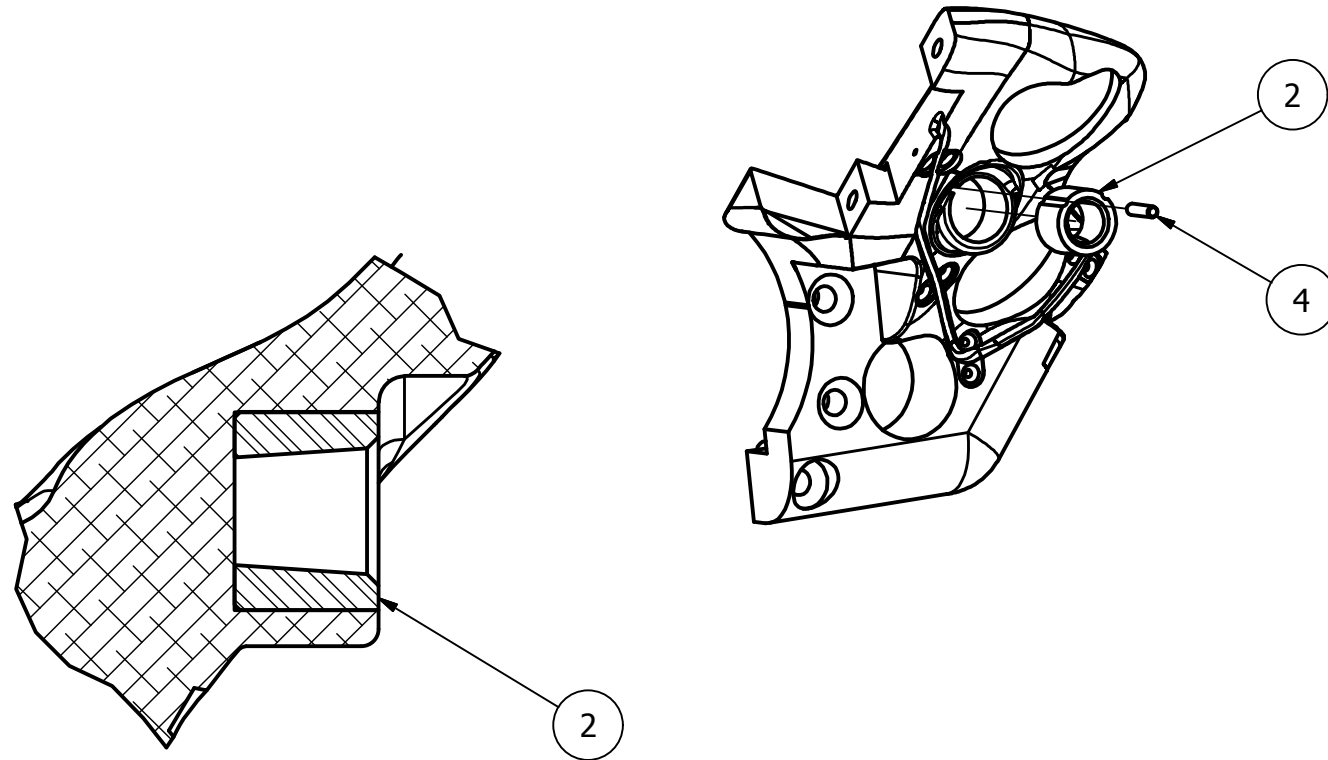
TOLERANCES
UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
XX ±0.2 ±0.2
XXX ±0.1 ±0.1
XXXX ±0.01 ±0.01

REMOVE BURRS & BREAK SHARP EDGES

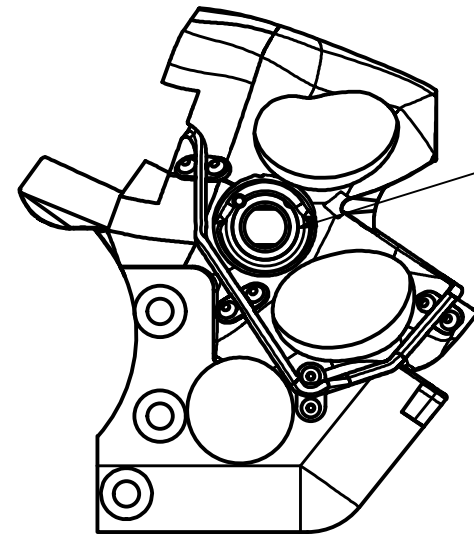
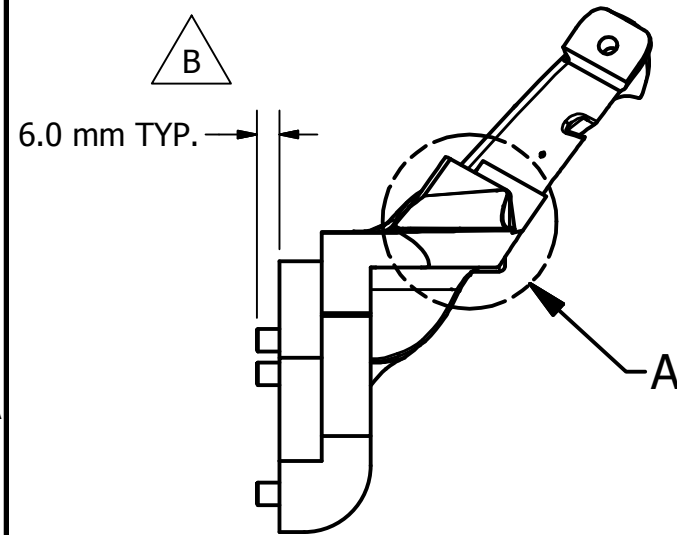
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PELVIS WING MACHINING (RIGHT)

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM401-00 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ
	B	ADDED VIEW WITH PIN HEIGHT DIMENSION	7/24/2012	TMV
	C	REVISED PART #472-4382-1 PELVIS WING MACHINING (LEFT)	8/25/2015	DW
	D	REVISED ITEM #2 PART #472-4381 AND ADDED DETAIL A	4/28/2016	DW



DETAIL A
SCALE 1.5 : 1



472-4381 TO BE INSTALLED AS SHOWN
REF. DETAIL A

ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	5000183	PIN, DOWEL M3 X 12 mm
3	3	5000433	PIN, DOWEL M6 X 12 mm
2	1	472-4381	PELVIS H-PT. TOOL BEARING
1	1	472-4382-1	PELVIS WING MACHINING (LEFT)



Parts List

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.:		DECIMALS	ANGLES FINISH
MATERIAL:		X ± 0.5	± 0.5 1.6
HEAT TREAT:		.XX ± 0.2	
FINISH:		.XXX ± 0.1	
DRAWN BY:		.XXX ± 0.01	
CHECKED BY:		REMOVE BURRS & BREAK SHARP EDGES	
ENGINEER:		S. RICE	8/10/2011
DATE:		TMV	9/21/2011
DATE:		J. WANG	1/23/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

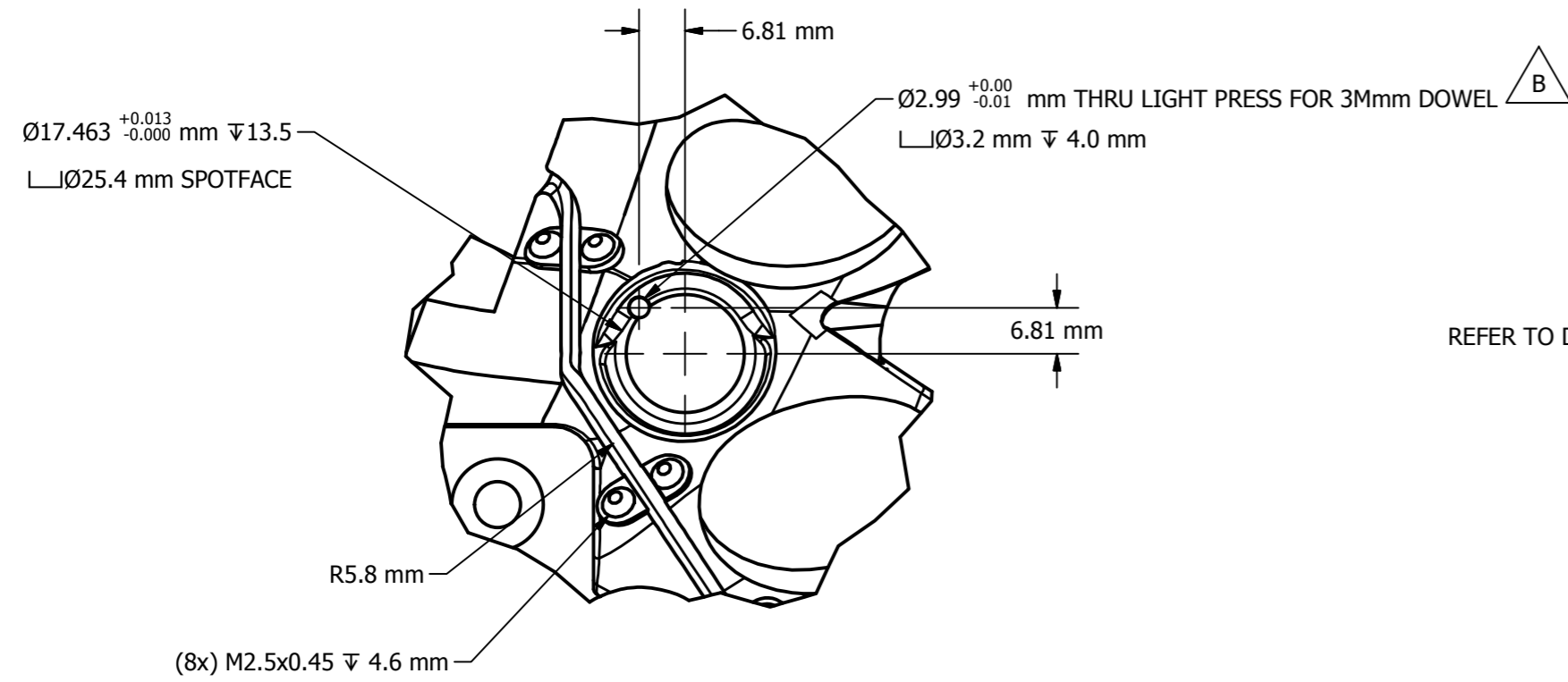
DESCRIPTION: LEFT ILIAC ASSEMBLY

SIZE: A3 1 OF 1
SCALE: 1:2

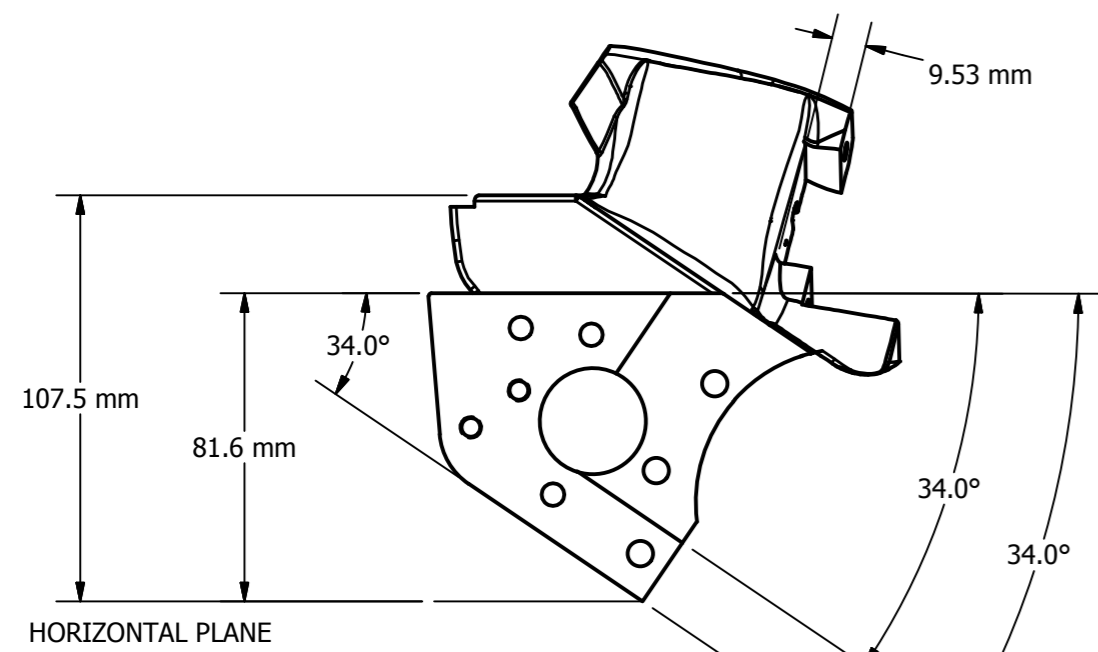
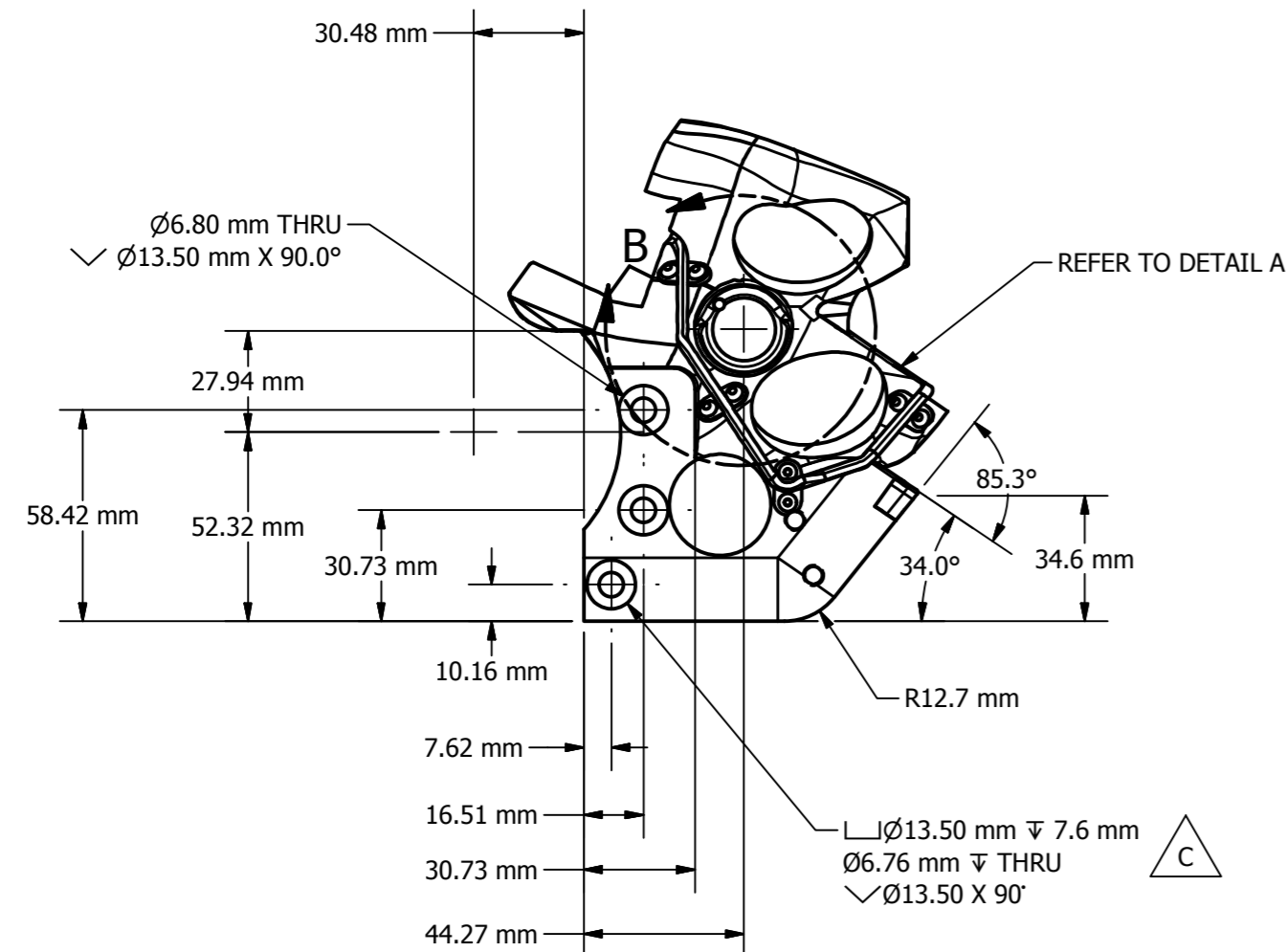
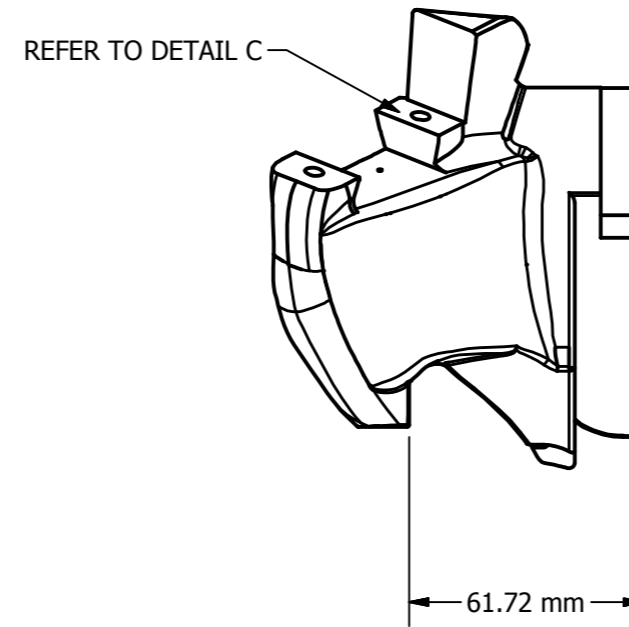
DRAWING NO.: 472-4380-1

472-4000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

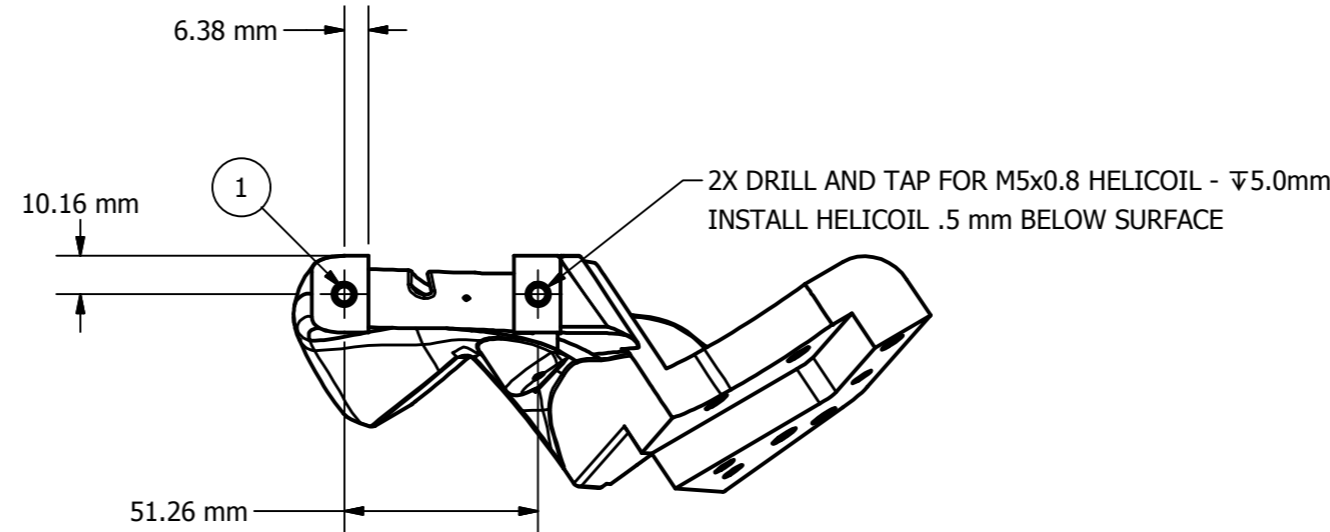
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
78027	A	RENUMBERED FROM T1PLM011-05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	JSJ
10439	B	Ø2.99 +.00/-0.01 WAS +.01/-0.00 12.7 DEEP WAS 16.00	5/3/2012	TMV
70784	C	CBORE Ø13.50 WAS Ø6.8	1/31/2013	BK
	D	REDESIGNED TO STRENGTHEN PART, MATERIAL WAS ALUMINUM CAST 357-T6, ADDED HOLE 28.00 mm THRU	8/25/2015	DW



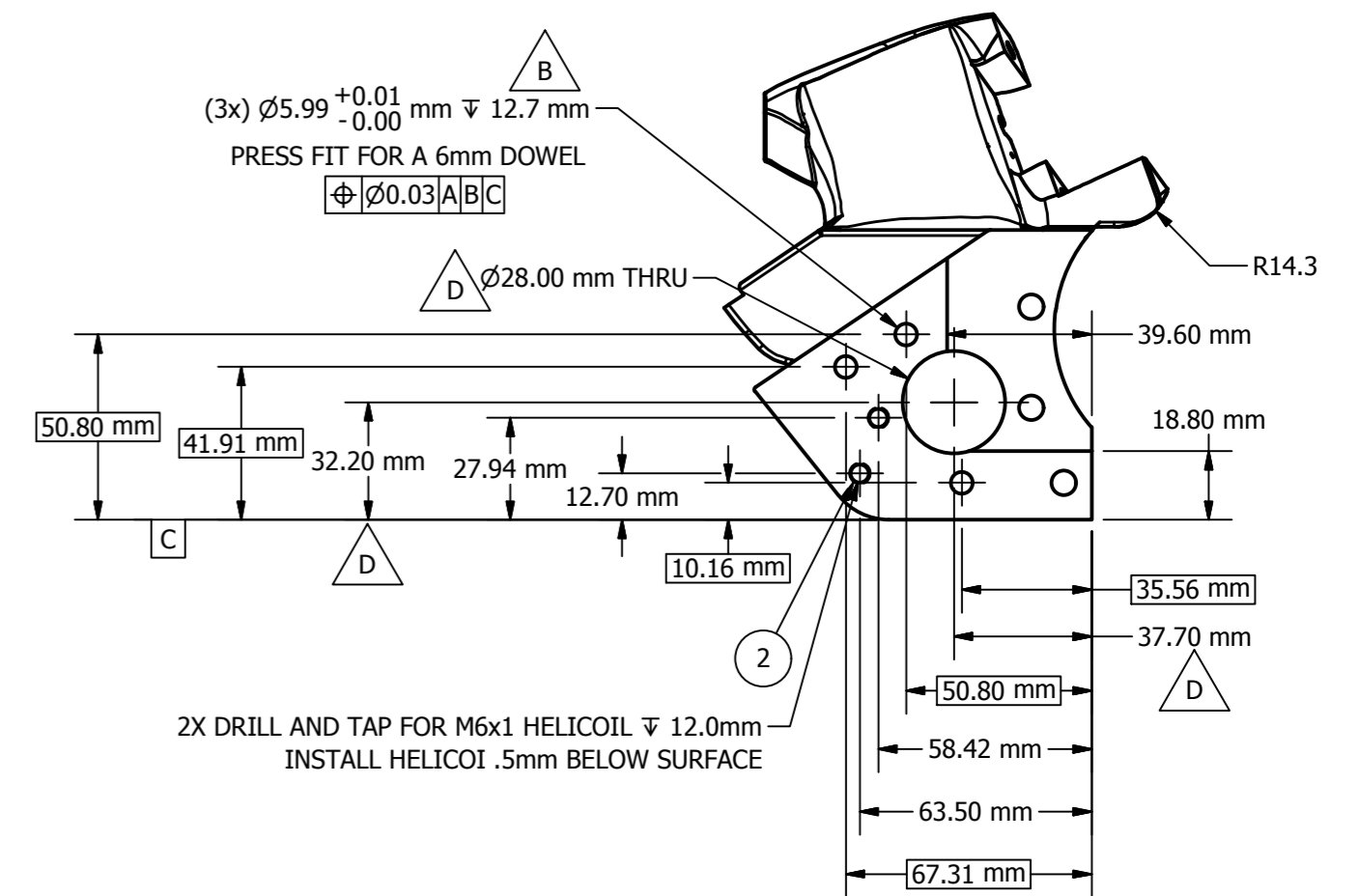
DETAIL B
SCALE 1 : 1



DETAIL A
SCALE 1/2



DETAIL C
SCALE 1/2



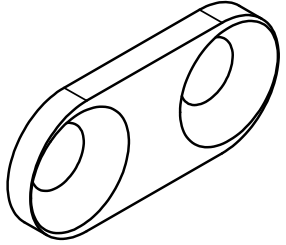
NOTES:
1. USE CAD GEOMETRY TO DETERMINE LOCATION OF COUNTERBORES, TRAJECTORY AND LOCATION OF CABLE SLOT, AND HOLES FOR CABLE COVERS

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000088	HELICOIL, M6 X 1 X 9mm
1	2	5000086	HELICOIL, M5 X 0.8 X 7.5

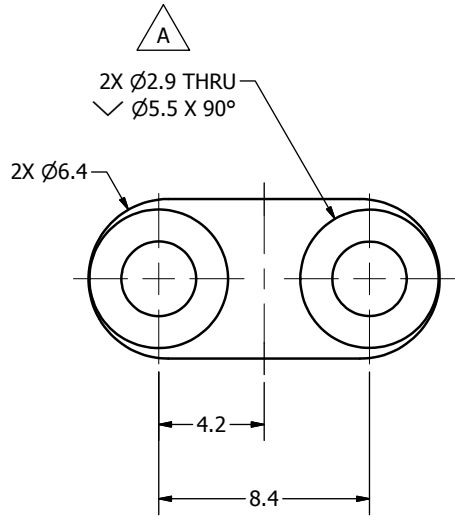
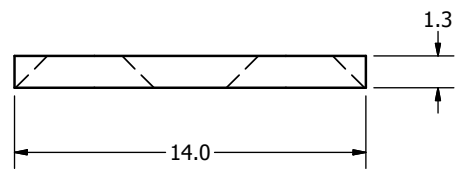
Parts List

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		PELVIS WING MACHINING (LEFT)	
PROJECT NO.:		DRAWN BY: Jordan		DATE: 8/25/2011	
MATERIAL: Aluminum 6061		CHECKED BY:		SCALE: 1:2	
HEAT TREAT:		ENGINEER:		DRAWING NO.:	
FINISH:		DATE:		REV: D	
NEXT ASSEMBLY QTY:		TOTAL QTY IN DUMMY: 1		SIZE: 1 OF 1	
DRAWING NO.:		DATE:		DRAWING NO.:	
472-4380-1		8/25/2011		472-4382-1	

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM020 FOR THOR-M; 2X Ø2.9 THRU C'SINK Ø5.5 X 90° WAS Ø2.3 THRU C'SINK Ø5.1 X 82°	8/18/2011	JSJ

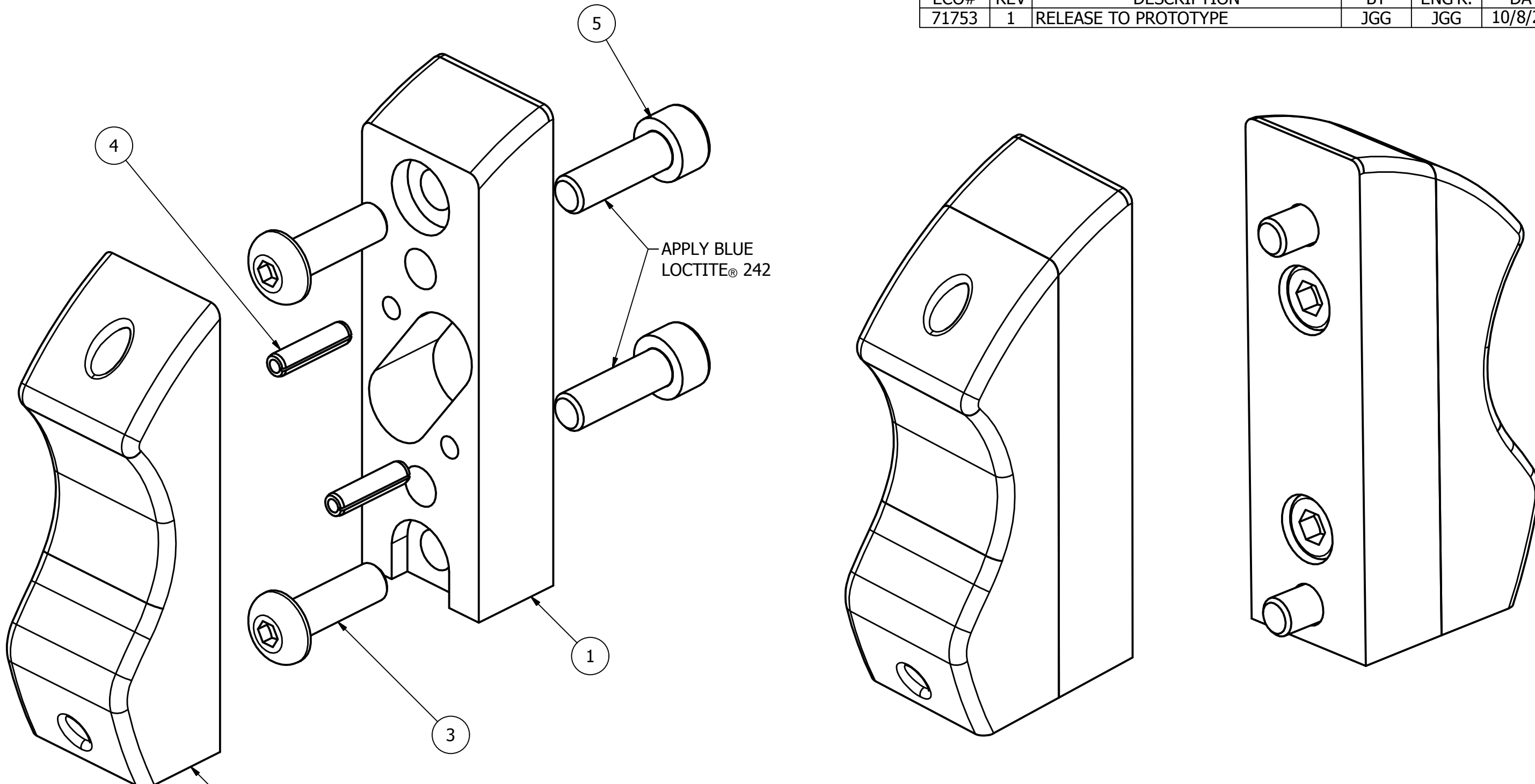


SCALE 5.000



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 ± 0.1 16 ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓		
PROJECT NO.	472-4000	MATERIAL	Acetal Resin, White	DESCRIPTION
DATE	8/10/2011	DRW BY	DLW	ILIAC CABLE COVER, PELVIS
CHECKED BY	TMV	DATE	9/8/2011	SIZE SHEET
HEAT TREAT		ENGINEER	J. WANG	A31 OF 1
TOTAL QTY IN DUMMY	8	FINISH		SCALE: 5.000
				DRAWING NO. 472-4372
				REV. A

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71753	1	RELEASE TO PROTOTYPE	JGG	JGG	10/8/2013



ASSEMBLY INSTRUCTIONS

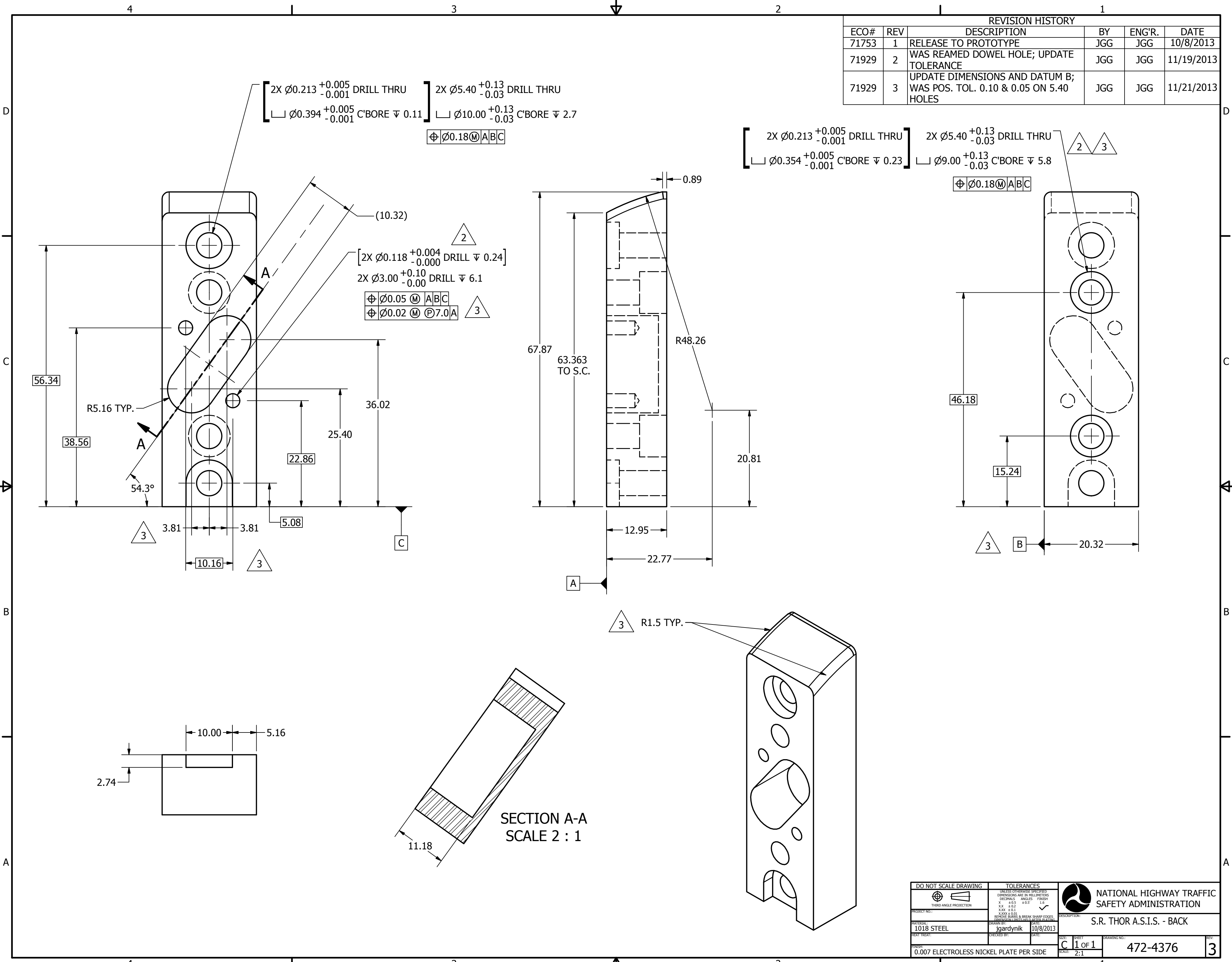
1. PRESS THE M3 ROLL PINS INTO PART #472-4376 AS SHOWN.
2. PLACE THE M5 X 0.8 X 16MM LG. BHCS IN THE CLEARANCE HOLES.
3. PRESS PART #472-4377 ONTO THE ROLL PINS AS SHOWN.
4. FASTEN THE TWO SIDES TOGETHER USING M5 X 0.8 X 16MM LG SHCS WITH LOCTITE® BLUE 242 AS SHOWN. TORQUE TO 7 Nm [60 IN-LBF]

ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000020	SCREW, SHCS M5 x 0.8 x 16 LG.
4	2	5000166	PIN, ROLL M3 x 12 LG.
3	2	5000416	SCREW, BHCS M5 x 0.8 x 16 LG.
2	1	472-4377	S.R. THOR A.S.I.S. - FRONT
1	1	472-4376	S.R. THOR A.S.I.S. - BACK

PARTS LIST

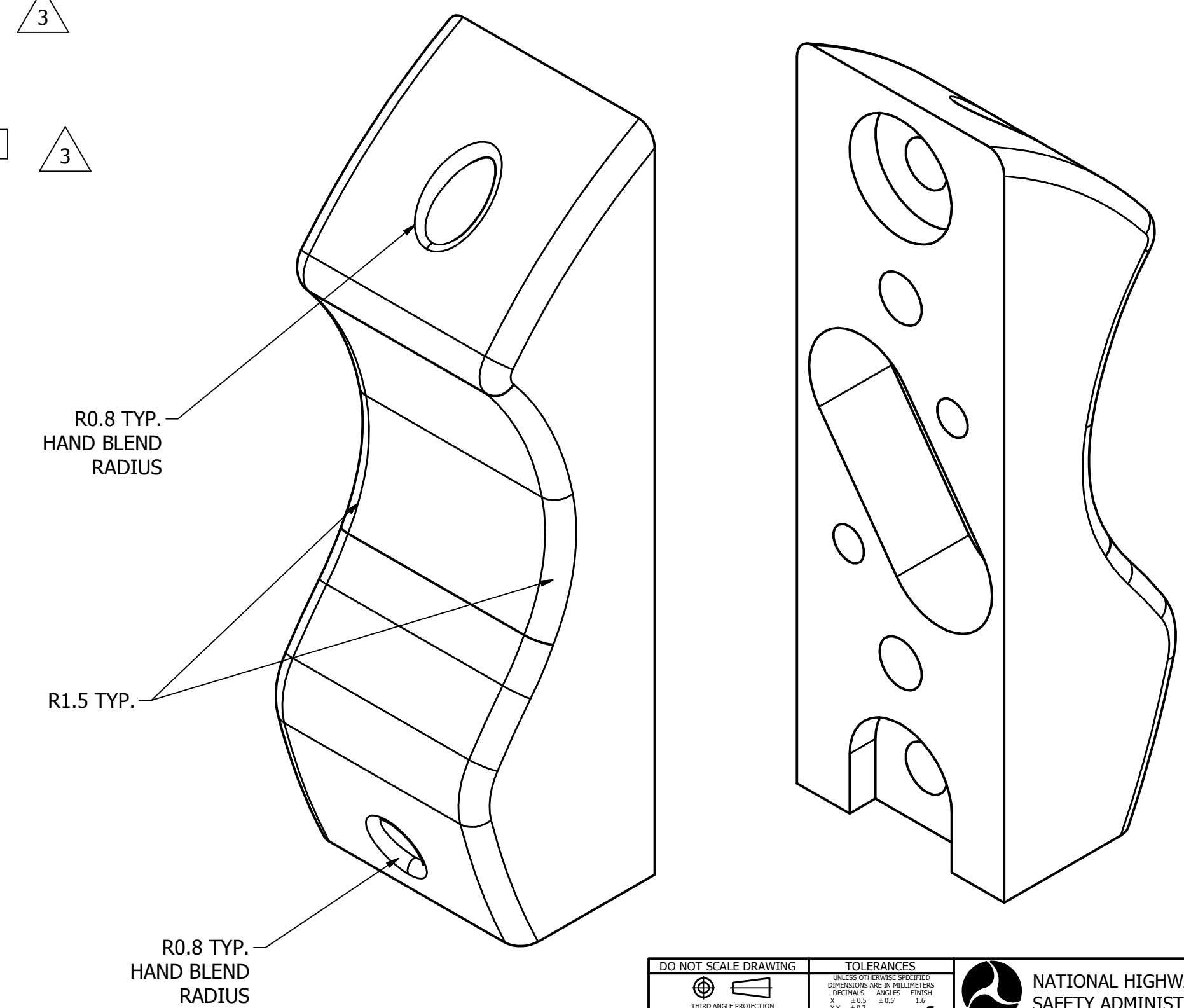
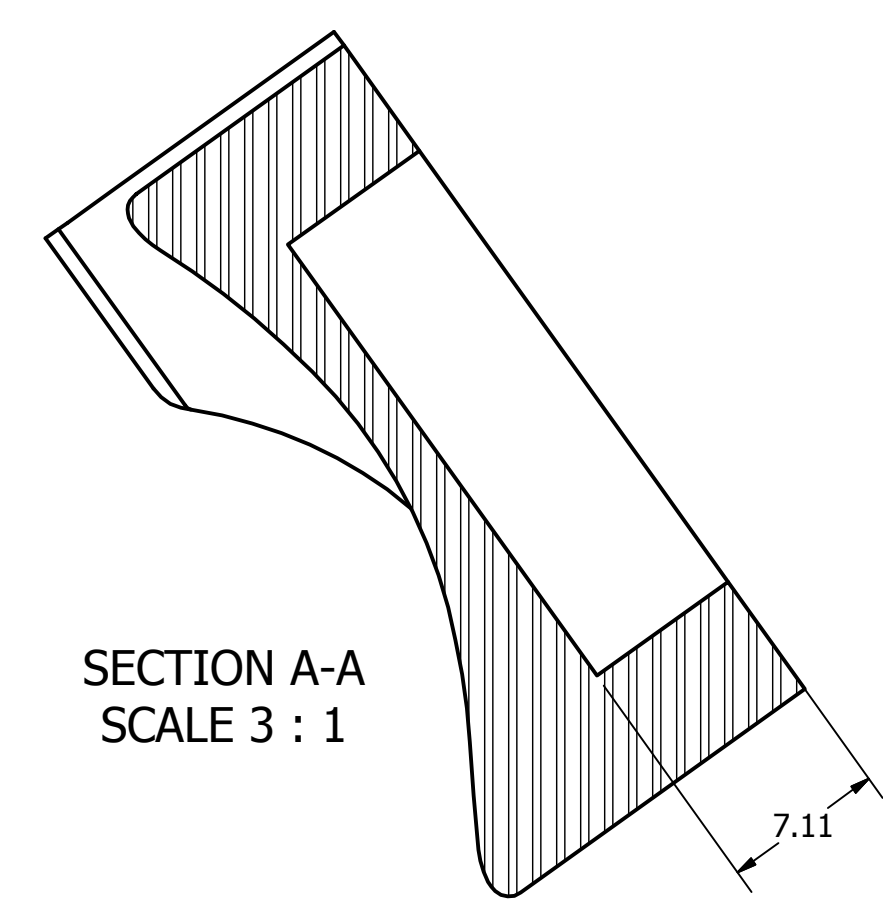
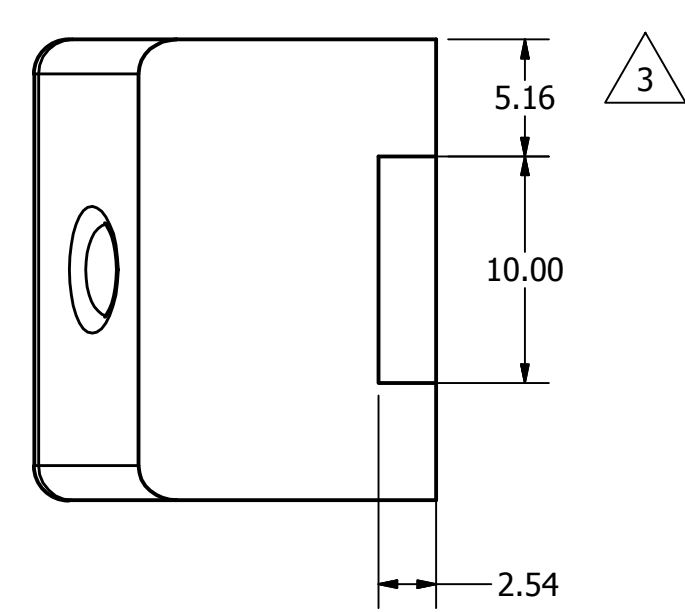
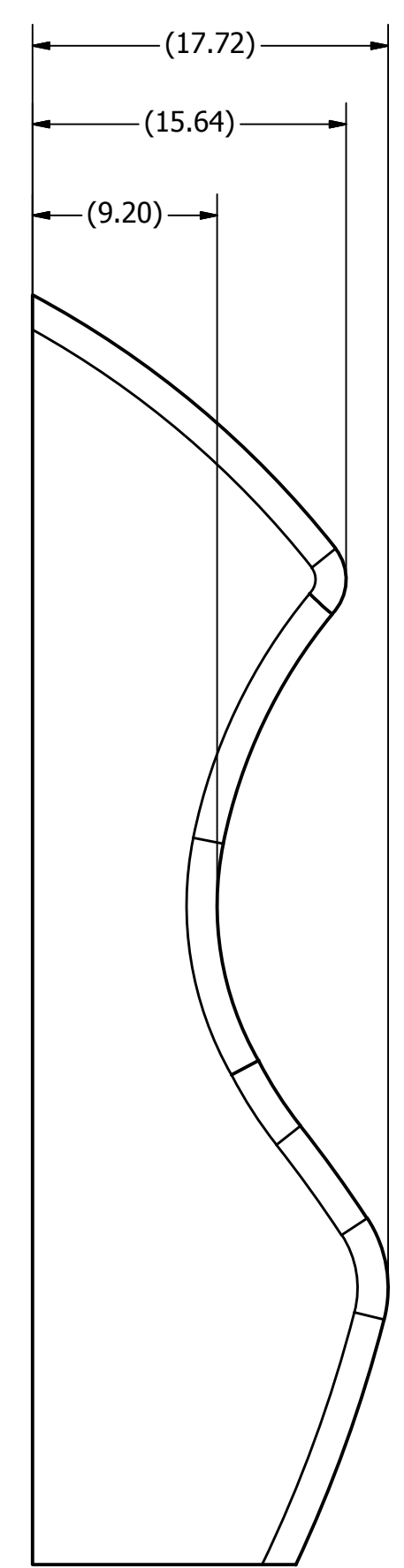
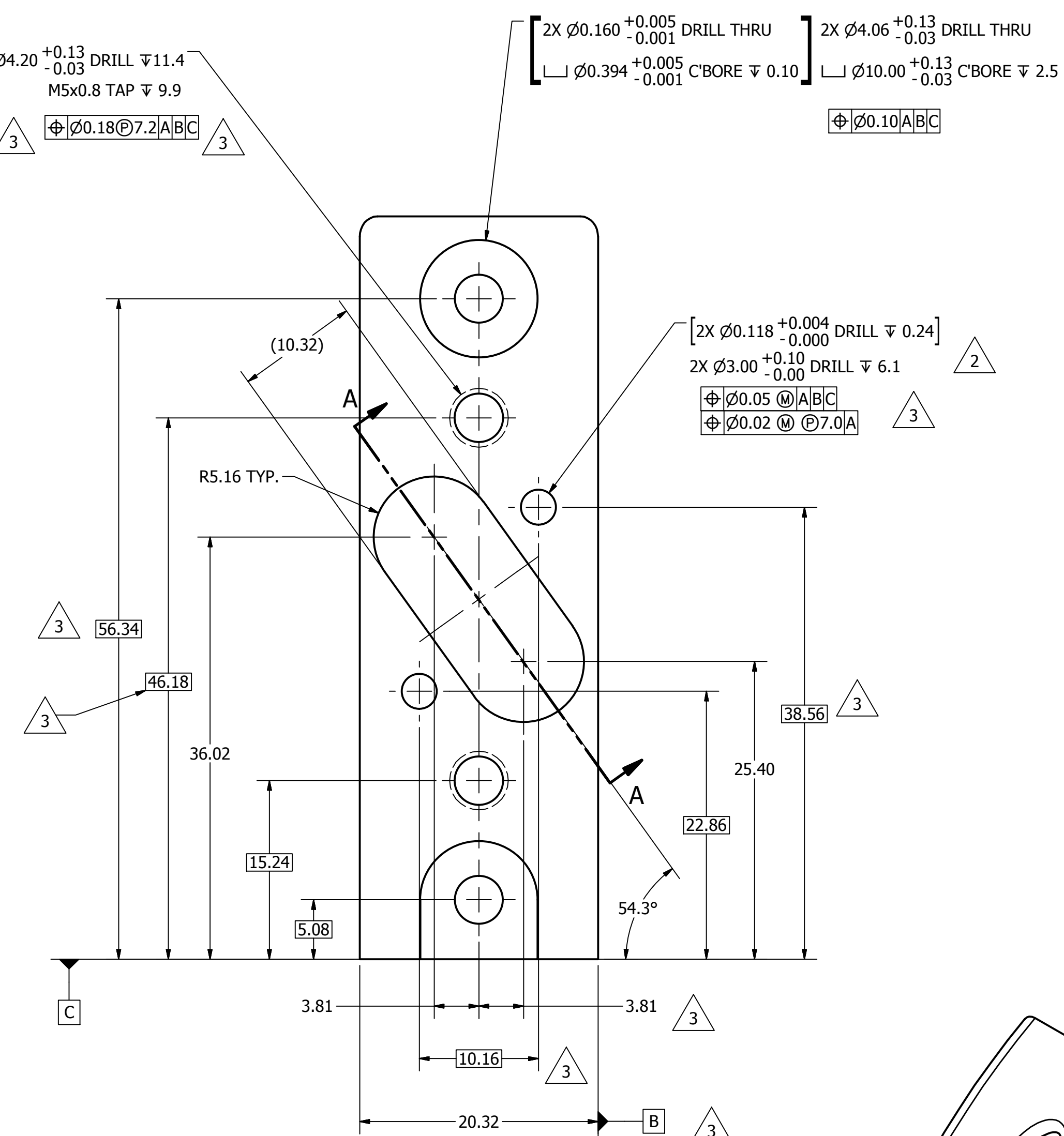
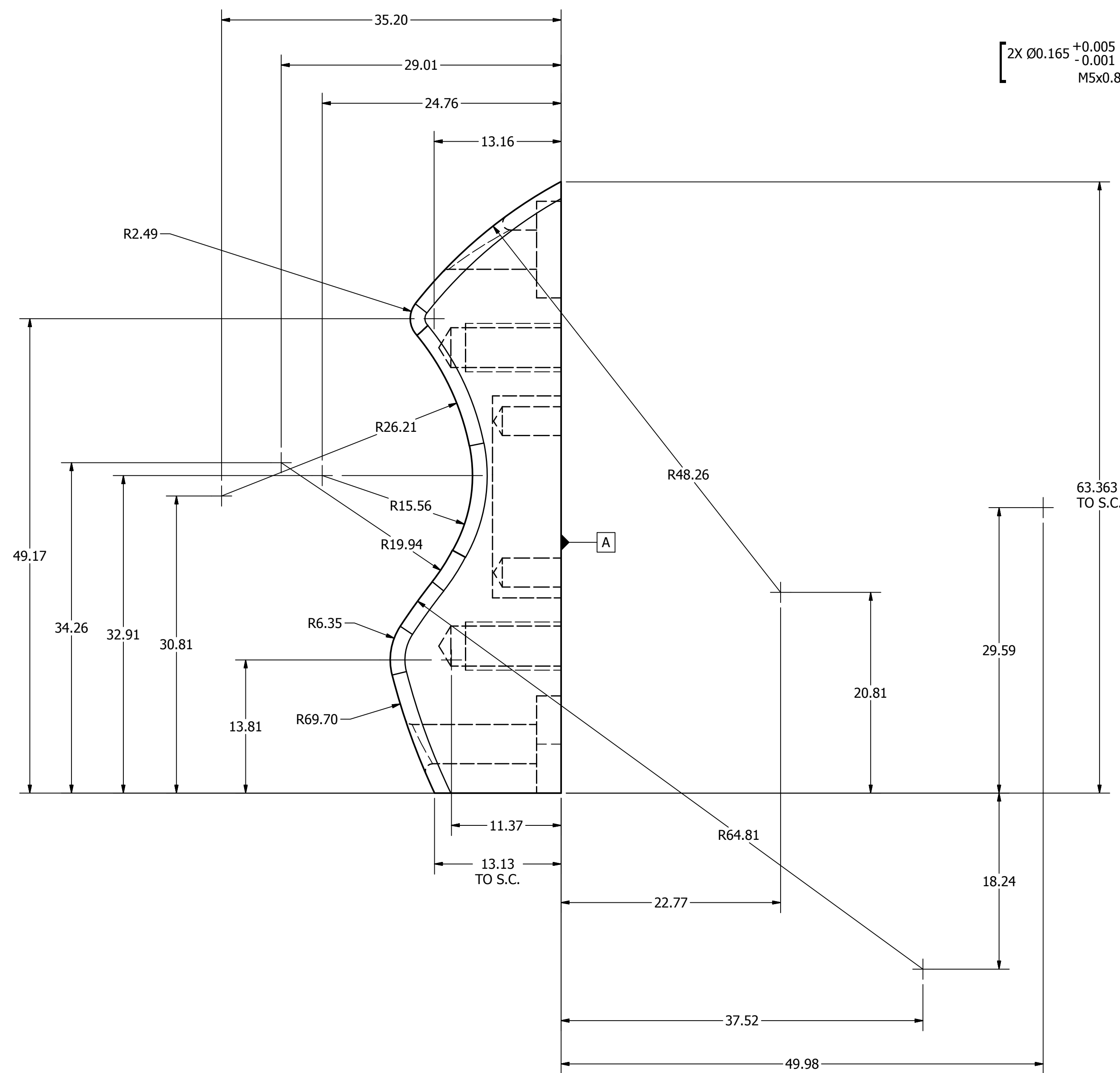
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ° ±0.5 1.6 X.X ±0.2 ° X.XX ±0.1 ° X.XXX ±0.01 ° REMOVE BURRS & BREAK SHARP EDGES DIMENSION LIMITS FIELD AFTER PLATING		
PROJECT NO.:	DATE:	DRAWN BY: jgardynik		DESCRIPTION: S.R. THOR A.S.I.S.
MATERIAL:	DATE: 10/8/2013	CHECKED BY:	DATE:	SIZE: SHEET A31 of 1
HEAT TREAT:	SCALE: 2:1	DRAWING NO.: 472-4375		REV: 1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71753	1	RELEASE TO PROTOTYPE	JGG	JGG	10/8/2013
71929	2	WAS REAMED DOWEL HOLE; UPDATE TOLERANCE	JGG	JGG	11/19/2013
71929	3	UPDATE DIMENSIONS AND DATUM B; WAS POS. TOL. 0.10 & 0.05 ON 5.40 HOLES	JGG	JGG	11/21/2013



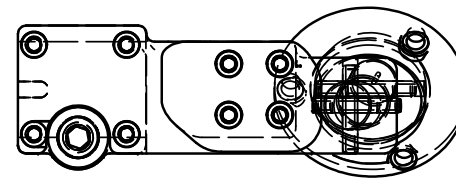
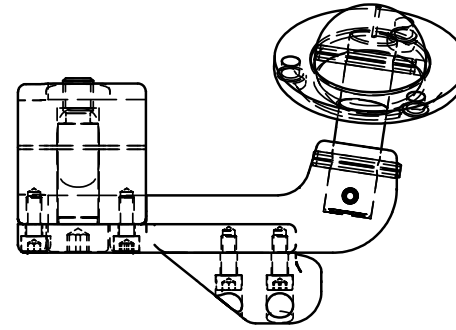
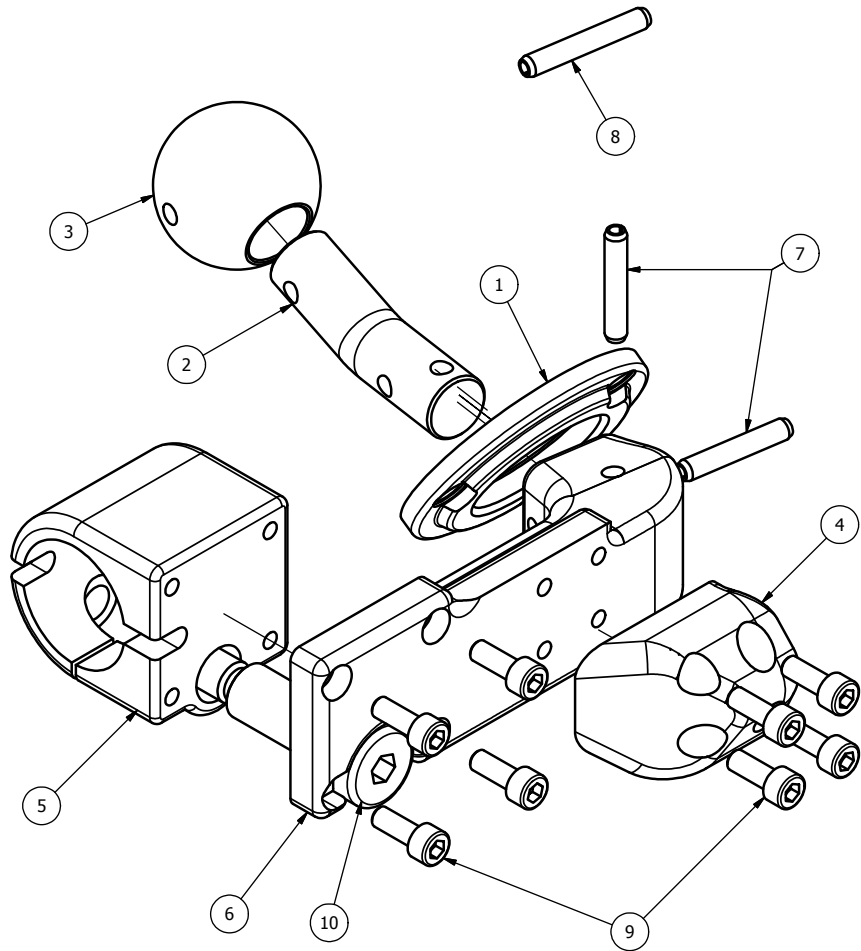
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		S.R. THOR A.S.I.S. - BACK	
PROJECT NO:		DECIMALS ANGLES FINISH		DRAWING NO:	
MATERIAL:		XX ± 0.2		SCALE:	
PART NAME:		XXX ± 0.1		472-4376	
DRAWN BY:		REMOVE BURRS & BREAK SHARP EDGES		REV:	
CHECKED BY:		CONFIRMED BY (INITIALS) DATE		3	
DATE:		0.007 ELECTROLESS NICKEL PLATE PER SIDE		C 1 OF 1	
10/8/2013		SCALE: 2:1		2:1	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71753	1	RELEASE TO PROTOTYPE	JGG	JGG	10/8/2013
71929	2	WAS REAMED DOWEL HOLE	JGG	JGG	11/19/2013
71929	3	UPDATE DIMENSIONS AND DATUM WAS POS. TOL 0.05 ON M5 HOLES	JGG	JGG	11/21/2013



DO NOT SCALE DRAWING	TOLERANCES	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION S.R. THOR A.S.I.S. - FRONT
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.05 UNLESS OTHERWISE SPECIFIED FRACTIONS ARE TO 1/32 UNLESS OTHERWISE SPECIFIED HOLE DIMENSIONS ARE TO 0.02 UNLESS OTHERWISE SPECIFIED TAP DIMENSIONS ARE TO 0.05 UNLESS OTHERWISE SPECIFIED HOLE POSITION TOLERANCES ARE TO 0.10 UNLESS OTHERWISE SPECIFIED SURFACE FINISH IS TO 3.2 UNLESS OTHERWISE SPECIFIED	PROJECT: 1018 STEEL DRAWN BY: jgardynik CHECKED BY: DATE: 10/9/2013 SHEET: 1 OF 1 PART: 472-4377 SCALE: 3:1	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM100 R2 FOR THOR-M	8/17/2011	TKN
	B	ADD 5000298	7/19/2012	BK



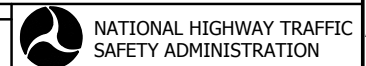
ISO VIEW
SCALE 3/4

ITEM	QTY	PART NUMBER	DESCRIPTION
10	1	5000298	M16 X 40 LG. SHSS
9	8	5000081	M6 X 1 X 16 LG. SHCS
8	1	5001118	M6 X 40mm ROLL PIN
7	2	5001119	M6 X 35mm ROLL PIN
6	1	472-4815-1	HIP ARM, LEFT
5	1	472-4814-1	HIP CYLINDER, LEFT
4	1	472-4812-1	TROCHANTER, LEFT
3	1	472-4820	FEMUR BALL
2	1	472-4819	HIP SHAFT
1	1	472-4830	FEMUR RETAINING RING

B

Parts List	
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH S.S.S ± 0.2 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01
PROJECT NO:	DATE: 8/17/2011
MATERIAL:	DESIGNED BY: Thanh
CHECKED BY:	DATE:
HEAT TREAT:	DATE: 1/23/2012
ENGINEER: J. WANG	SCALE: 1:2
REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: LEFT FEMUR BALL JOINT ASS'Y
SIZE: A3	SHEET: 1 OF 1
DRAWING NO: 472-4800-1	REV: B

472-4000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

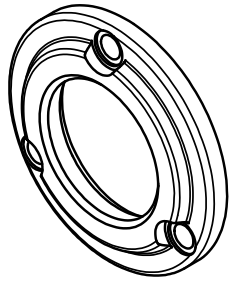


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

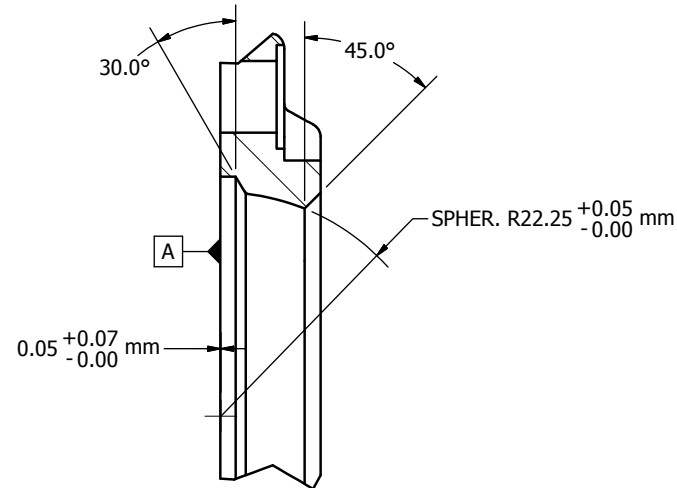
LEFT FEMUR BALL JOINT ASS'Y

472-4800-1

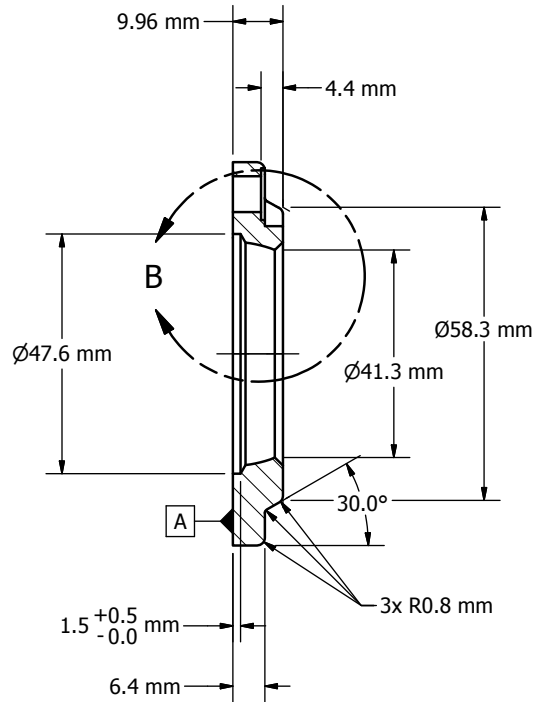
B



SCALE .750

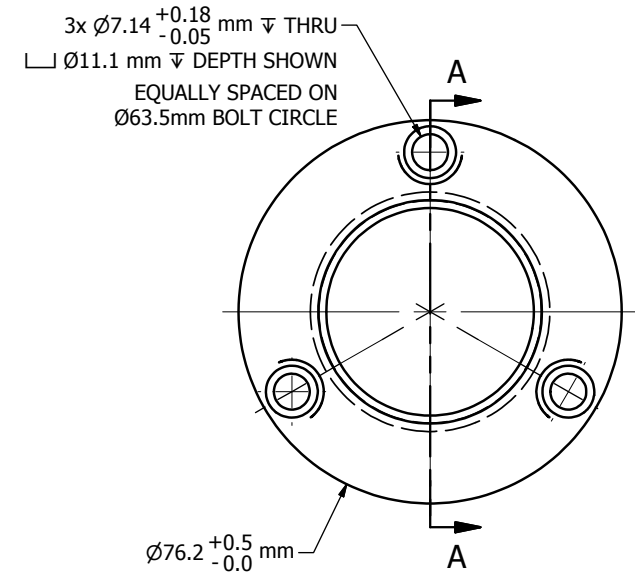


DETAIL B
SCALE 2 : 1



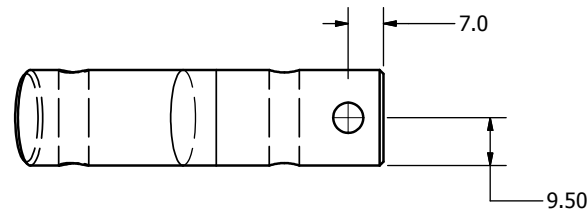
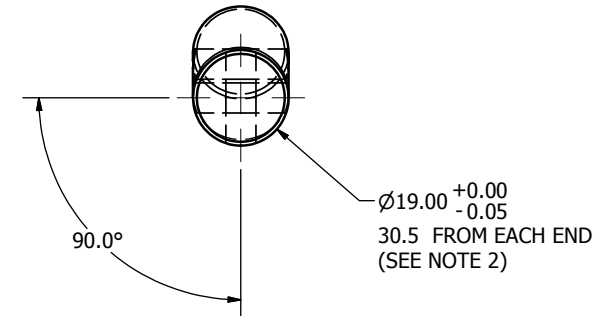
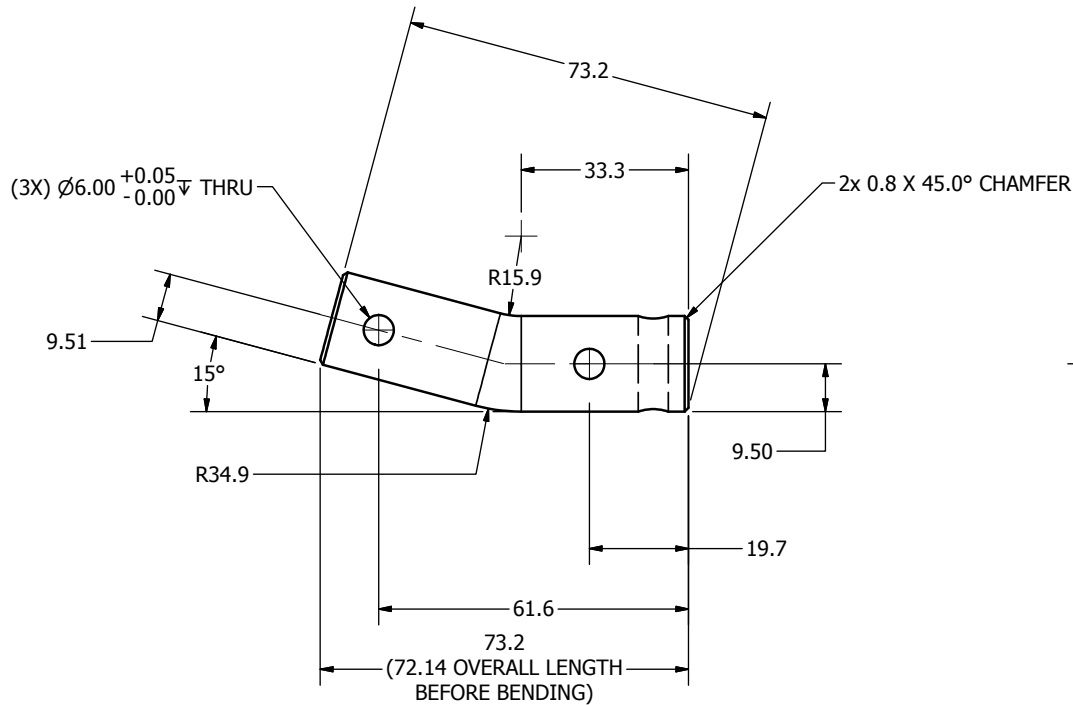
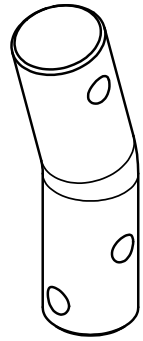
SECTION A-A
SCALE 1 : 1

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM130 R4 FOR THOR-M; REMOVE NOTES	8/22/2011	JSJ



472-4800-2		1	PROJECT NO.:	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-4800-1		1	MATERIAL: Brass, Soft Yellow	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.3 XXXX ±0.01		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY: TMV	DATE: 9/8/2011	DESCRIPTION: FEMUR RETAINING RING SIZE: A31 OF 1 SCALE: 1:1
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER: J. WANG	DATE: 1/25/2012	
			DRAWING NO.:		472-4830	REV.:

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM119 AND CONVERTED TO METRIC FOR THOR-M; MATERIAL WAS 1018 STEEL; HEAT TREAT WAS Rc 44-47; FINISH WAS ELECTROLESS NICKEL .0003 MA.X	8/18/2011	JSJ



NOTES:

- ONCE THE SHAFT IS BENT TO 15°, THE DIAMETER NEAR THE BEND WILL NEED REMACHINING.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 1.6 X.X .03 1.6 X.XX .02 1.6 X.XXX .01 1.6		DESCRIPTION: HIP SHAFT	
PROJECT NO:	472-4800-2	DATE:	8/17/2011	SIZE:	A3 1 OF 1
MATERIAL:	4130 STEEL	ENGINEER:	J. WANG	SCALE:	1:1
HEAT TREAT:	Rc 44-48	CHECKED BY:	TMV	DATE:	10/26/2011
FINISH:	ELECTROLESS NICKEL .008 MAX	DRIVEN BY:	HORCHLER	DATE:	1/25/2012
TOTAL QTY IN DUMMY:	2	QTY:	1	DRAWING NO.:	472-4819

4

1

3

4

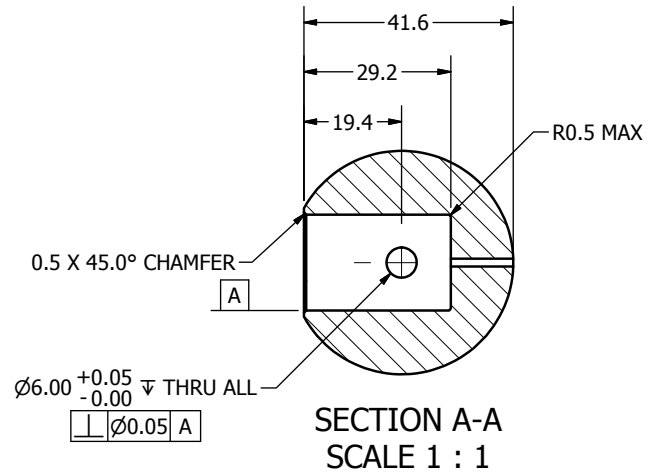
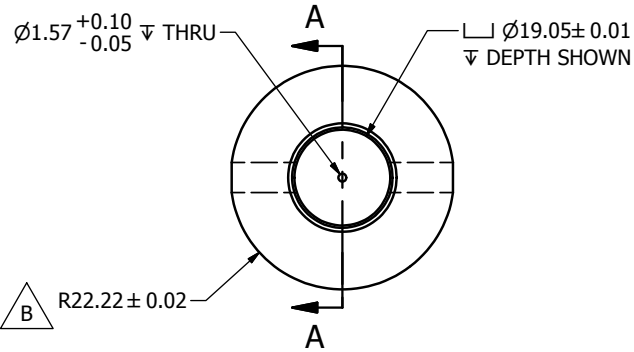
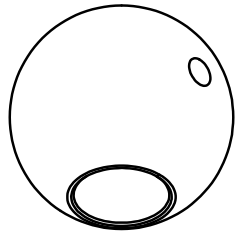
2

1

1

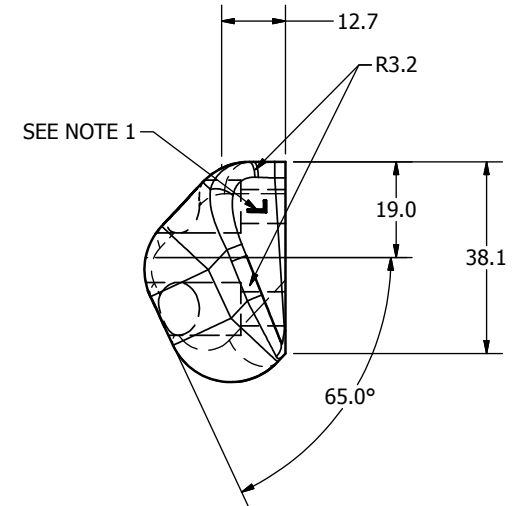
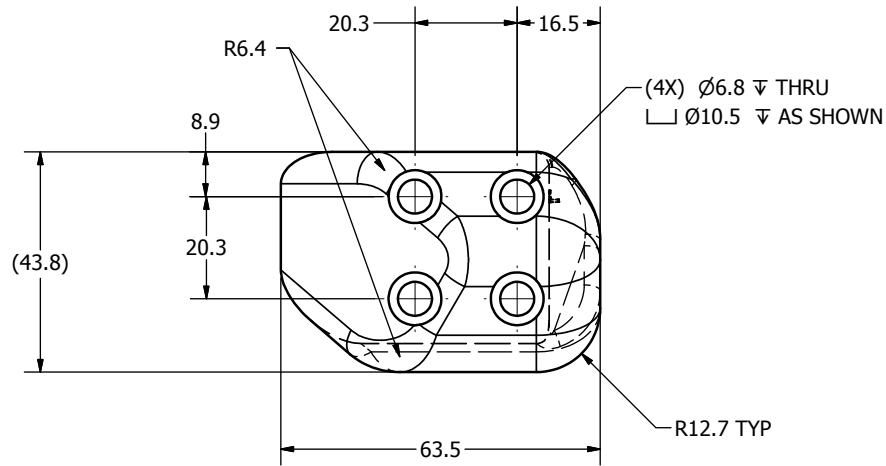
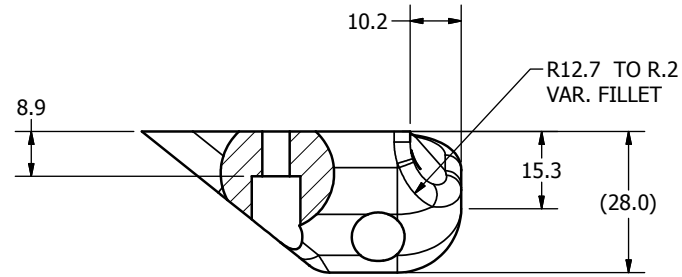
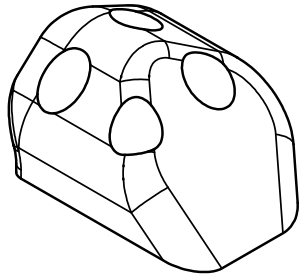
A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM120 R3 FOR THOR-M	8/18/2011	JSJ
	B	R22.22 +/- .02 WAS R22.23 +/- .02	7/13/2012	TMV



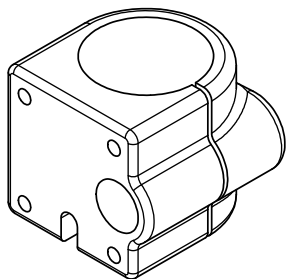
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX .02 16 XXX .01 16 XXXX 0.01		
PROJECT NO.: 472-4800-2	QTY: 1	DRAWN BY: HORCHLER	DATE: 8/17/2011	DESCRIPTION: FEMUR BALL
MATERIAL: aluminum bronze	QTY: 1	CHECKED BY: TMV	DATE: 10/27/2011	
HEAT TREAT:	QTY: 2	ENGINEER: J. WANG	DATE: 1/25/2012	
TOTAL QTY IN DUMMY: 2		FINISH:		SIZE: A3 SHEET: 1 OF 1 SCALE: 1:1
				DRAWING NO.: 472-4820

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM112 R2 THOR-M	8/18/2011	JSJ

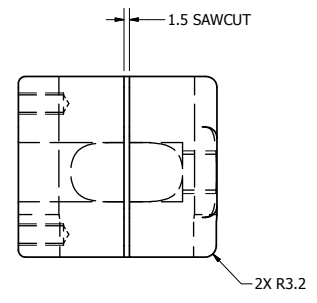
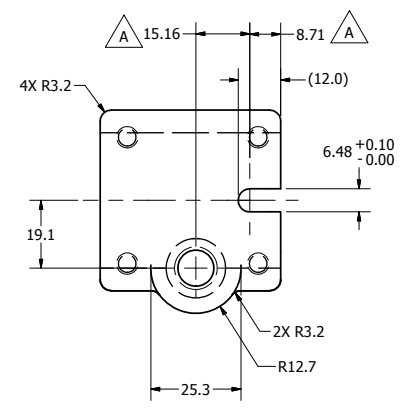
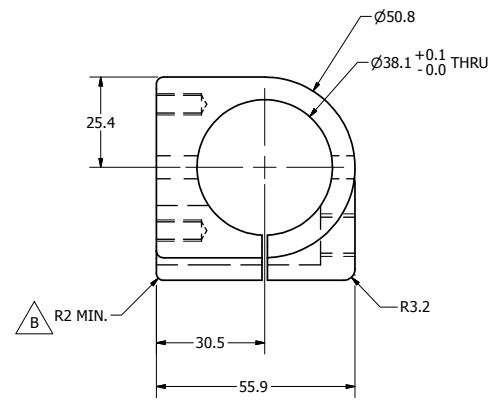
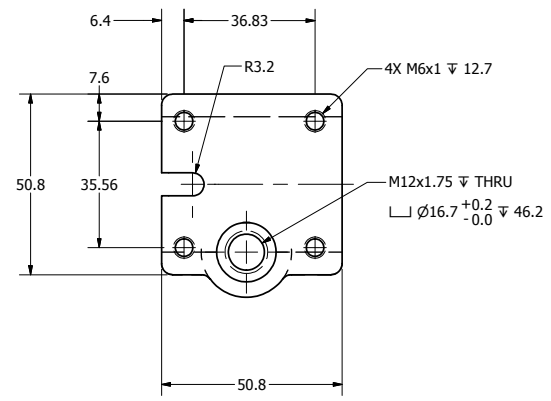


NOTES:
1. ENGRAVE THE LETTER "L"

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X 0.2 XX 0.3 XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-4800-1	MATERIAL:	Acetal Resin, White	DESCRIPTION:
DATE:	8/17/2011	DESIGNED BY:	HORCHLER	TROCHANTER, LEFT
CHECKED BY:	TMV	DATE:	10/25/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
FINISH:		DATE:	1/25/2012	SCALE: 1:1
TOTAL QTY IN DUMMY:	1	DRAWING NO.:	472-4812-1	REV.:
				A



REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM114 R4 FOR THOR-M; 15.16 WAS 15.14, 8.71 WAS 8.76	8/18/2011	JSJ
	B	ADD R2 WAS R1.6	4/24/2012	BK

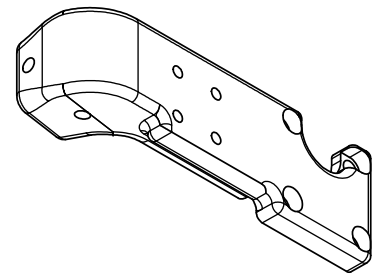
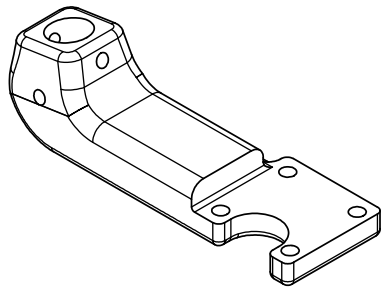


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS 0.1 0.2 0.5 1.0 2.0 3.0 4.0 5.0 6.0 8.0 10.0 1/16 1/8 1/4 1/2 3/4 1 1 1/2 2 3 4 5 6 8 10 12 15 20 25 30 40 50 60 75 100		SHOW DIMENSIONS & FEATURES ON ALL VIEWS UNLESS NOTED OTHERWISE			
472-4800-1	1	1018 STEEL	HORCHLER	8/17/2011	HIP CYLINDER, LEFT
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL 008 MAX	J. WANG	11/25/2012	

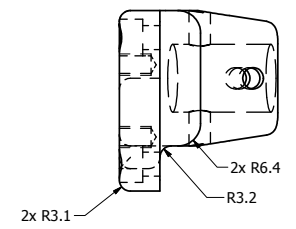
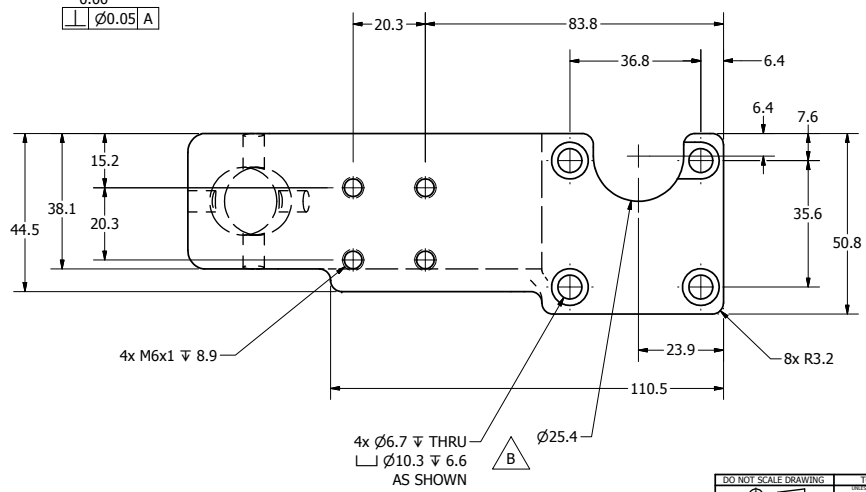
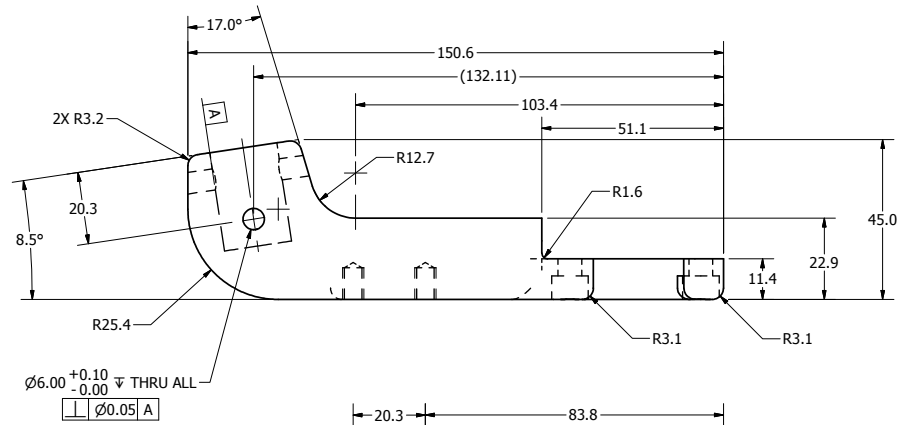
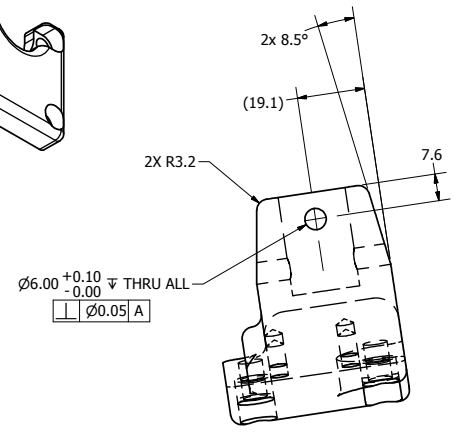
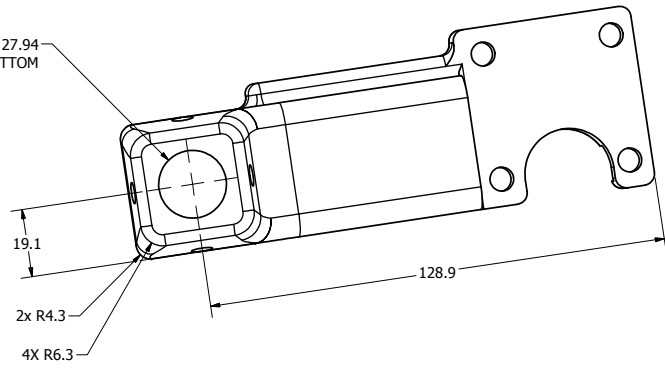
A21 of 1
PAGE 1/1

472-4814-1

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM115 R5 AND CONVERTED TO METRIC FOR THOR-M; FINISH WAS ELECTROLESS NICKEL .0003 MAX.	8/18/2011	JSJ
	B	Ø25.4 WAS Ø22.9; ADD "AS SHOWN"	7/18/2012	BK



Ø19.05±0.02 ∇ 27.94
FLAT BOTTOM

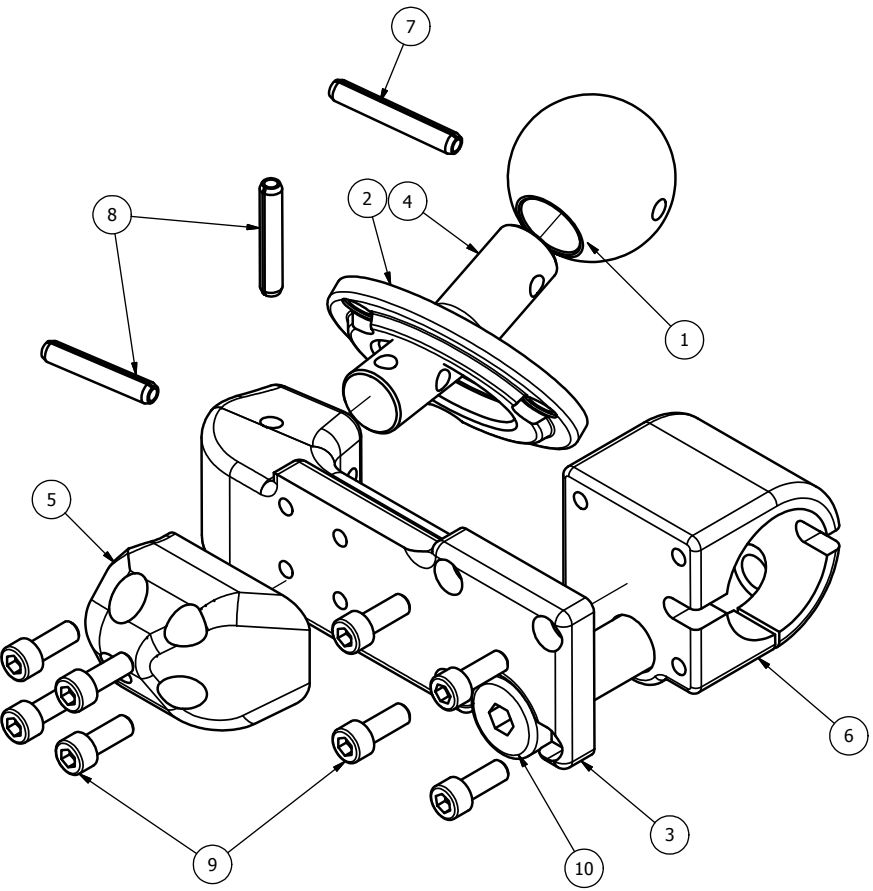


NOTES:
1. BREAK ALL SHARP EDGES.
2. PLUG Ø19.05 AND M6x1 HOLES BEFORE APPLYING SURFACE FINISH.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN HUNDRETHS FRACTIONS ARE IN THIRDS		HIP ARM, LEFT	
472-4800-1	1	1018 STEEL	HORCHLER	8/17/2011	
NEXT ASSEMBLY	QTY		PREPARED BY	DATE	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL .008 MAX	J. WANG	1/25/2012	

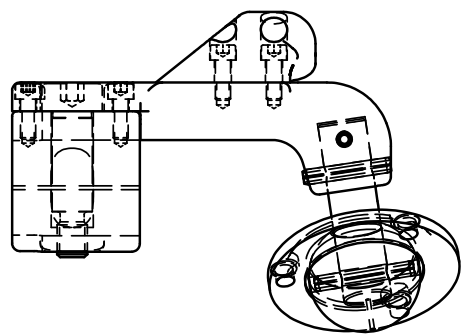
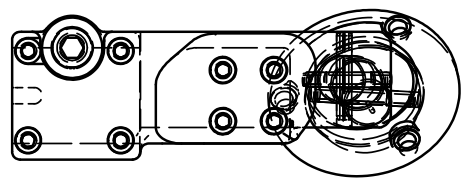
A21 of 1
11

472-4815-1



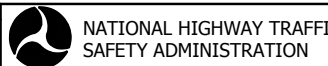
ISO VIEW
SCALE 3/4

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM101 R2 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	TKN
	B	ADD 5000298	7/19/2012	BK



ITEM	QTY	PART NUMBER	DESCRIPTION
10	1	5000298	M16 X 40 LG. SHSS
9	8	5000081	M6 X 1 X 16 LG. SHCS
8	2	5001119	M6 X 35mm ROLL PIN
7	1	5001118	M6 X 40mm ROLL PIN
6	1	472-4814-2	HIP CYLINDER, RIGHT
5	1	472-4812-2	TROCHANTER, RIGHT
4	1	472-4819	HIP SHAFT
3	1	472-4815-2	HIP ARM, RIGHT
2	1	472-4830	FEMUR RETAINING RING
1	1	472-4820	FEMUR BALL

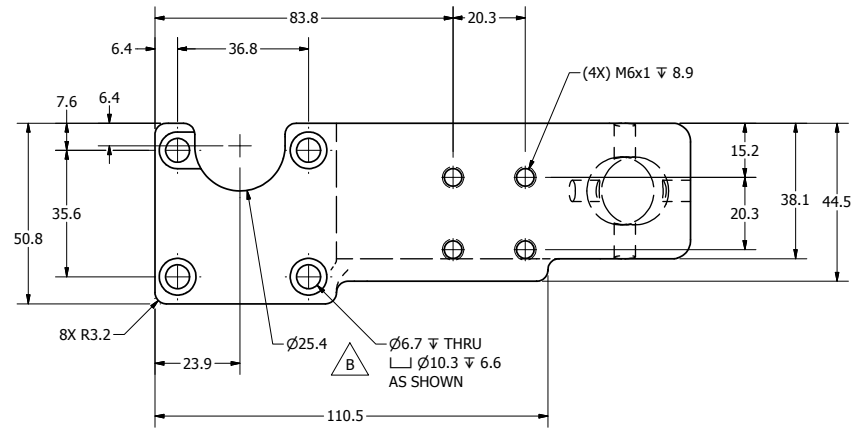
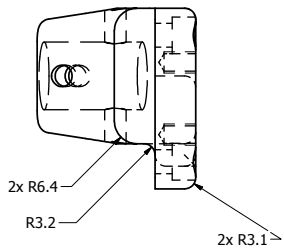
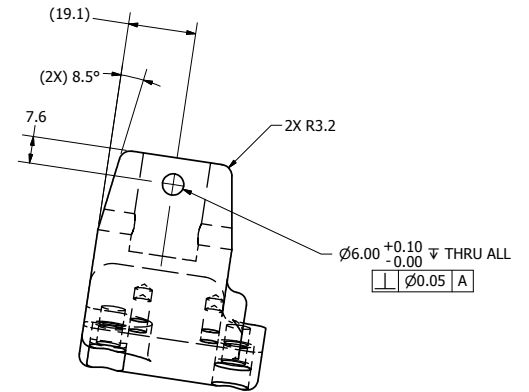
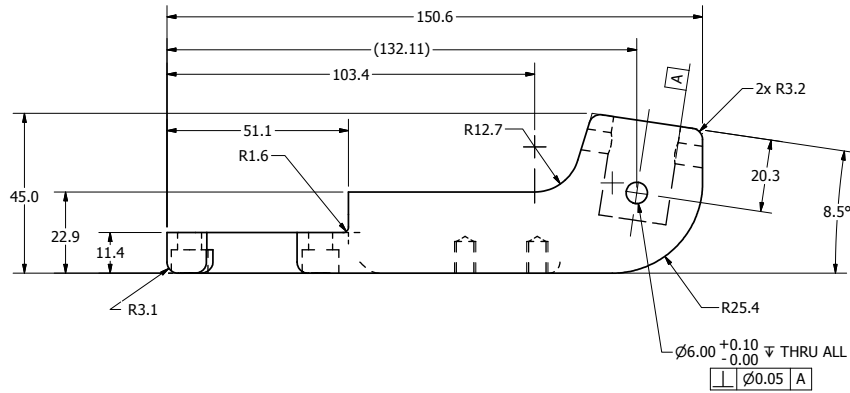
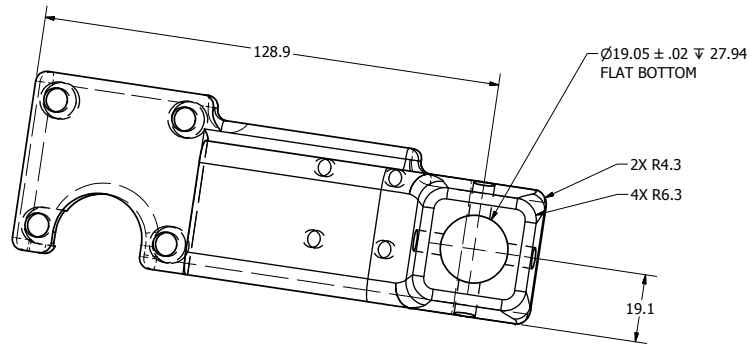
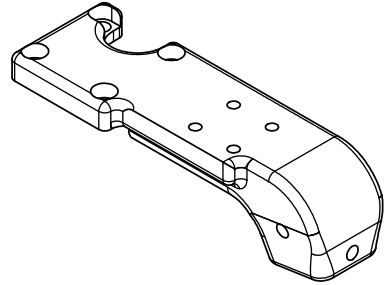
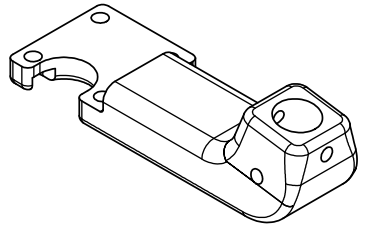
Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		0.05 16	
		X.X ±0.2	
		X.XX ±0.3	
		X.XXX ±0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.: 472-4000		DATE: 8/17/2011	
MATERIAL:		DRAWN BY: THANH	
NEXT ASSEMBLY QTY		CHECKED BY:	
TOTAL QTY IN DUMMY 1		DATE: 1/23/2012	
FINISH:		ENGINEER: J. WANG	
		SCALE: 1:2	
		SIZE: A3	
		SHEET: 1 OF 1	
		DRAWING NO.: 472-4800-2	
		REV: B	



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

RIGHT FEMUR BALL JOINT ASS'Y

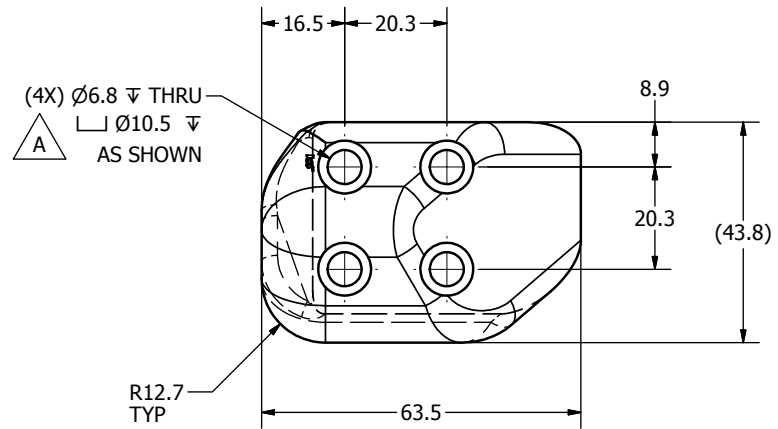
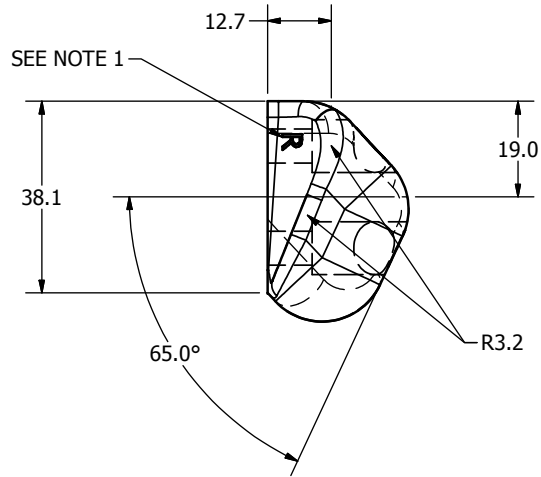
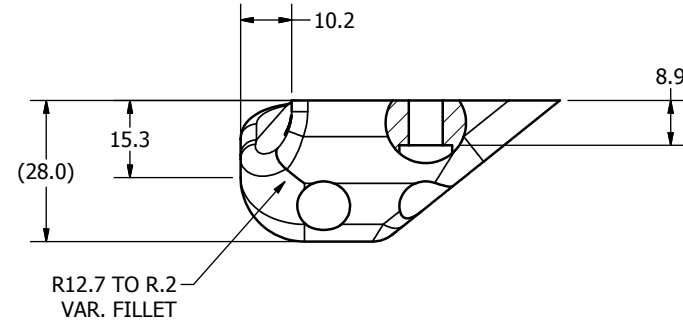
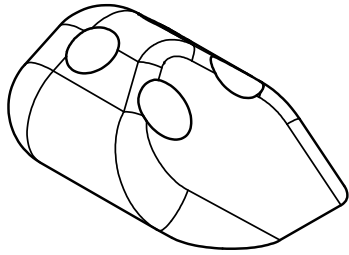
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM117 R5 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ
	B	Ø25.4 WAS Ø22.9; ADD "AS SHOWN"	7/18/2012	BK



- NOTES:
- BREAK ALL SHARP EDGES
 - PLUG Ø19.05 AND M6x1 HOLES BEFORE APPLYING SURFACE FINISH.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE 0.05 0.10 0.20 0.50 1.00 2.00 5.00 10.00 20.00 50.00 100.00		HIP ARM, RIGHT	
472-4800-2	1	1018 STEEL	HORCHLER	8/17/2011	
NEXT ASSEMBLY	QTY		PREPARED BY	DATE	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL .008 MAX	J. WANG	1/25/2012	
				A21 of 1	472-4815-2
				11	B

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM113 R2 FOR THOR-M; C'BORE Ø10.5 WAS Ø9.8	8/18/2011	JSJ



NOTES:
1. ENGRAVE THE LETTER "R"

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX 0.2 ✓ XXX 0.3 XXXX 0.01		
PROJECT NO.:	472-4800-2	MATERIAL:	Acetal Resin, White	DESCRIPTION:
DATE:	8/17/2011	DESIGNED BY:	HORCHLER	TROCHANTER, RIGHT
CHECKED BY:	TMV	DATE:	10/25/2011	SIZE: SHEET
ENGINEER:	J. WANG	DATE:	1/25/2012	A31 OF 1
FINISH:		SCALE:	1:1	DRAWING NO.:
TOTAL QTY IN DUMMY:	1			472-4812-2

4

1

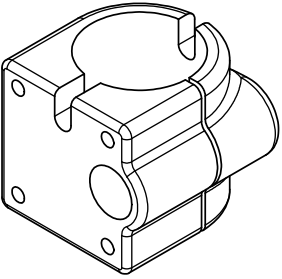
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2

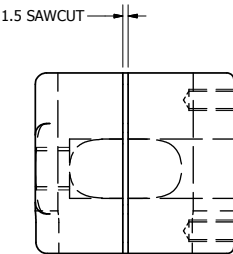
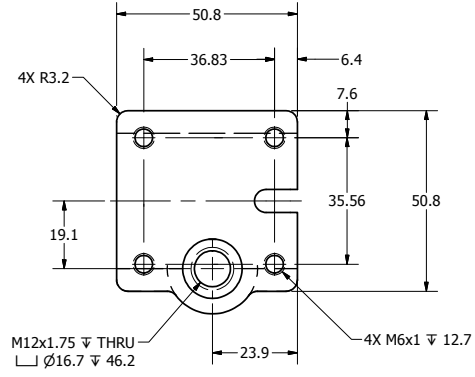
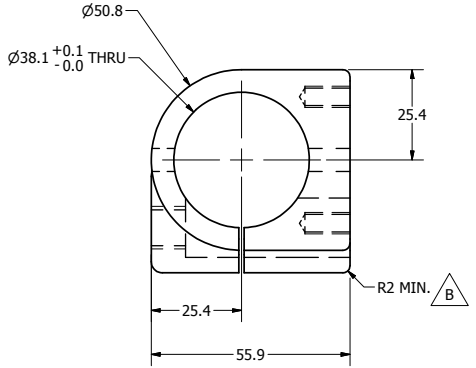
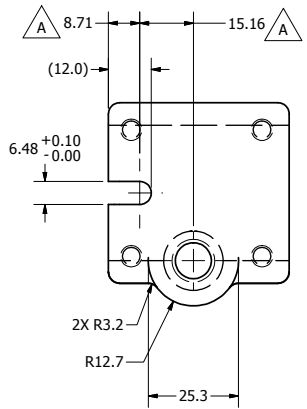
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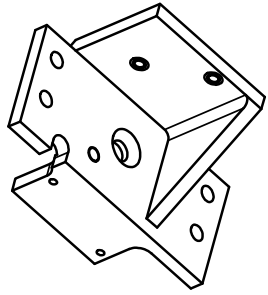
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM116 R03 FOR THOR-M; 15.16 WAS 15.14, 8.71 WAS 8.76	8/18/2011	JJS
	B	ADD R2 WAS R1.6	4/24/2012	BK



SCALE 1.000

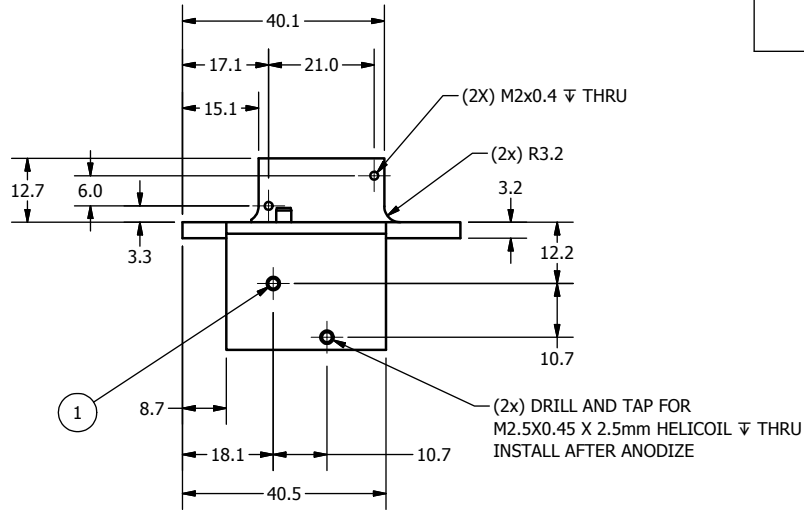
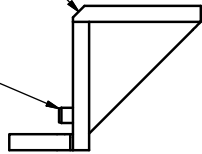


DO NOT SCALE DRAWING			TOLERANCES			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
472-4800-2	1	1018 STEEL	1018 STEEL	HORCHLER	8/17/2011	HIP CYLINDER, RIGHT		
NEXT ASSEMBLY	QTY	1	ELECTROLESS NICKEL Z08 MAN	J. WANG	1/25/2012	A21 of 1		
TOTAL QTY IN DUMMY	1	1				472-4814-2		

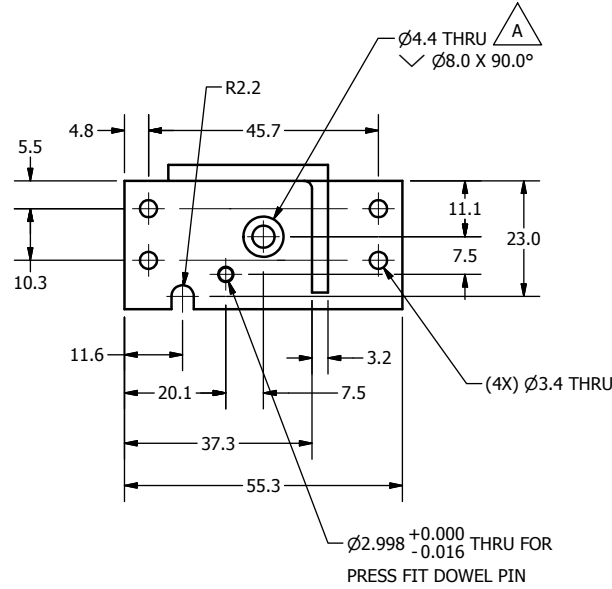


2.3 X 45.0° Chamfer

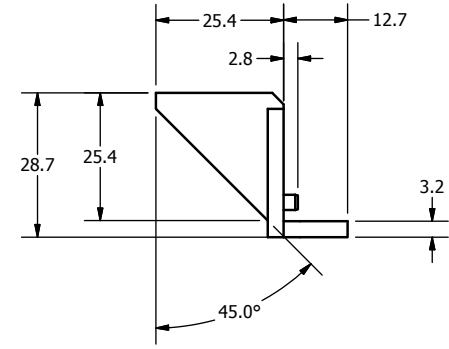
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1



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM112 R07 AND CONVERTED TO METRIC FOR THOR-M; \varnothing 4.4 WAS 2X \varnothing 4.0	8/23/2011	JSJ



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	5000385	M3 X 6 LG. DOWEL PIN
1	2	5000451	HELICOIL, M2.5x0.45 X 2.5 mm

Parts List

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 1.6
0.1 0.2
0.2 0.3
0.3 0.5
0.5 0.8



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-4000	QTY: 1	MATERIAL: 6061-T6 ALUMINUM	DATE: 8/23/2011	<p>DESCRIPTION: PELVIS TRI-PACK MOUNTING BRKT.</p>
NEXT ASSEMBLY	QTY:	HEAT TREAT:	CHECKED BY: TMV DATE: 10/26/2011	
TOTAL QTY IN DUMMY	1	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG DATE: 1/23/2012	

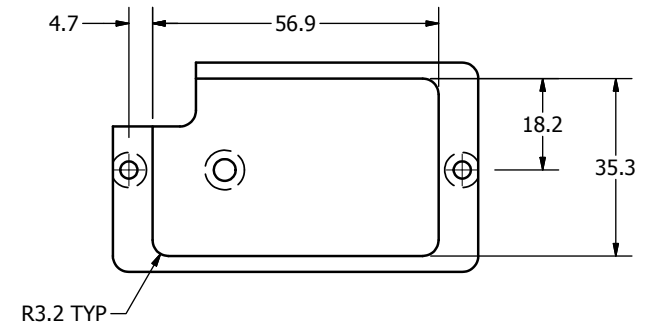
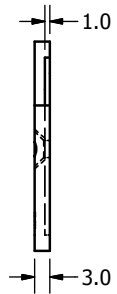
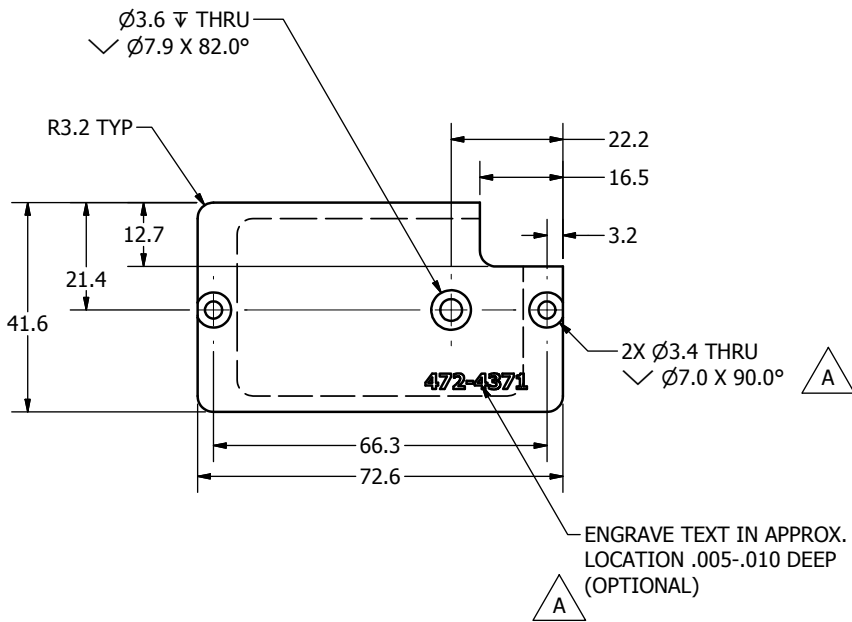
REMOVE BURRS & BREAK SHARP EDGES

SIZE: A3
SHEET: 1 OF 1
SCALE: 1:1

472-4361

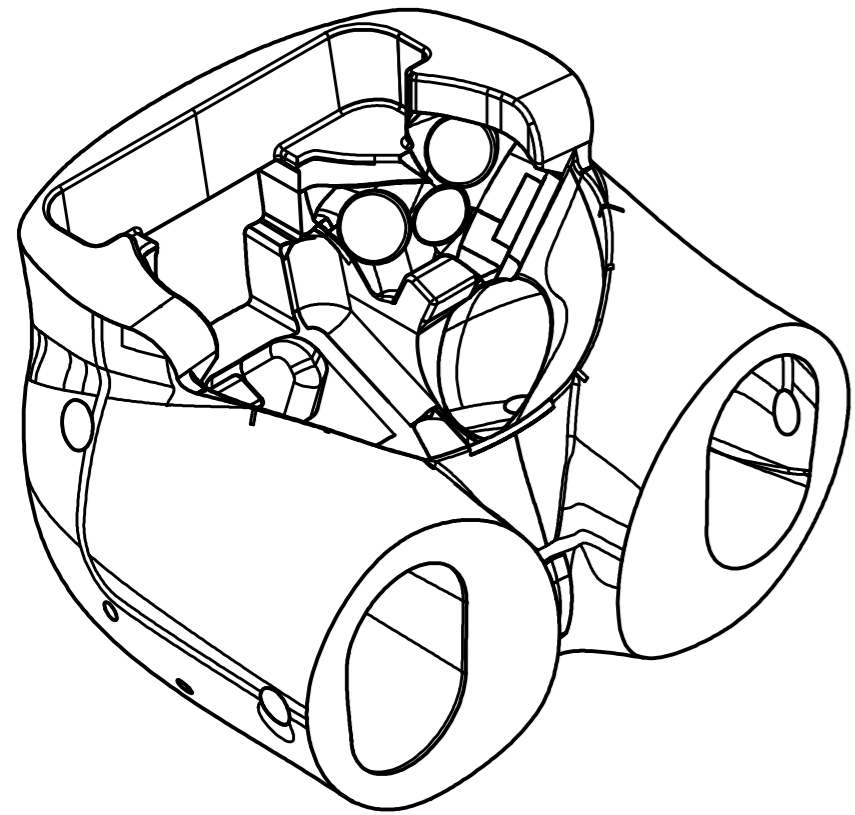
A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM111 R03 FOR THOR-M; Ø3.4 THRU C'SINK Ø7.0 X 90° WAS Ø3.0 THRU C'SINK Ø6.6 X 82°; ADD (OPTIONAL) TO NOTE	8/18/2011	JSJ

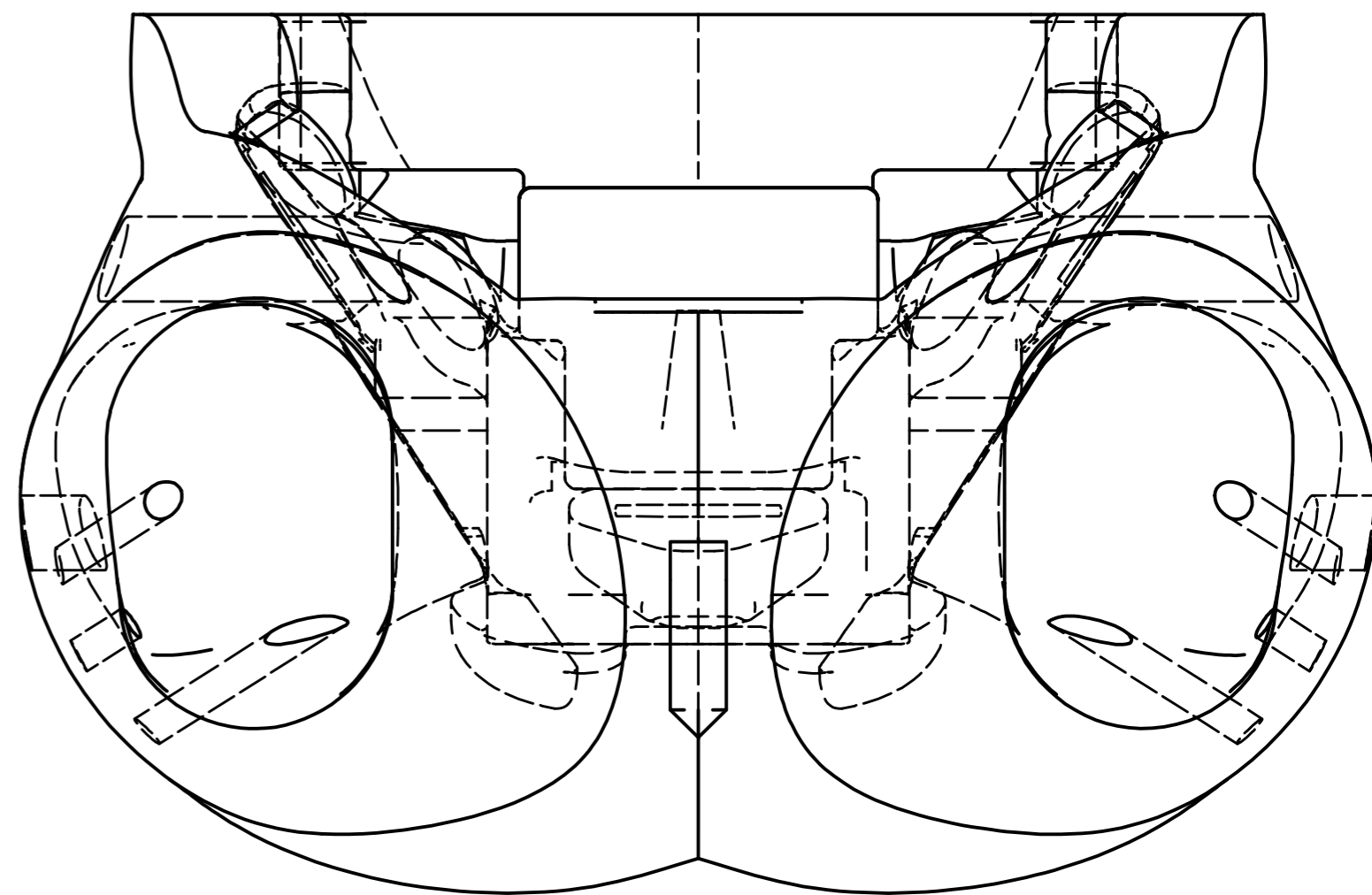
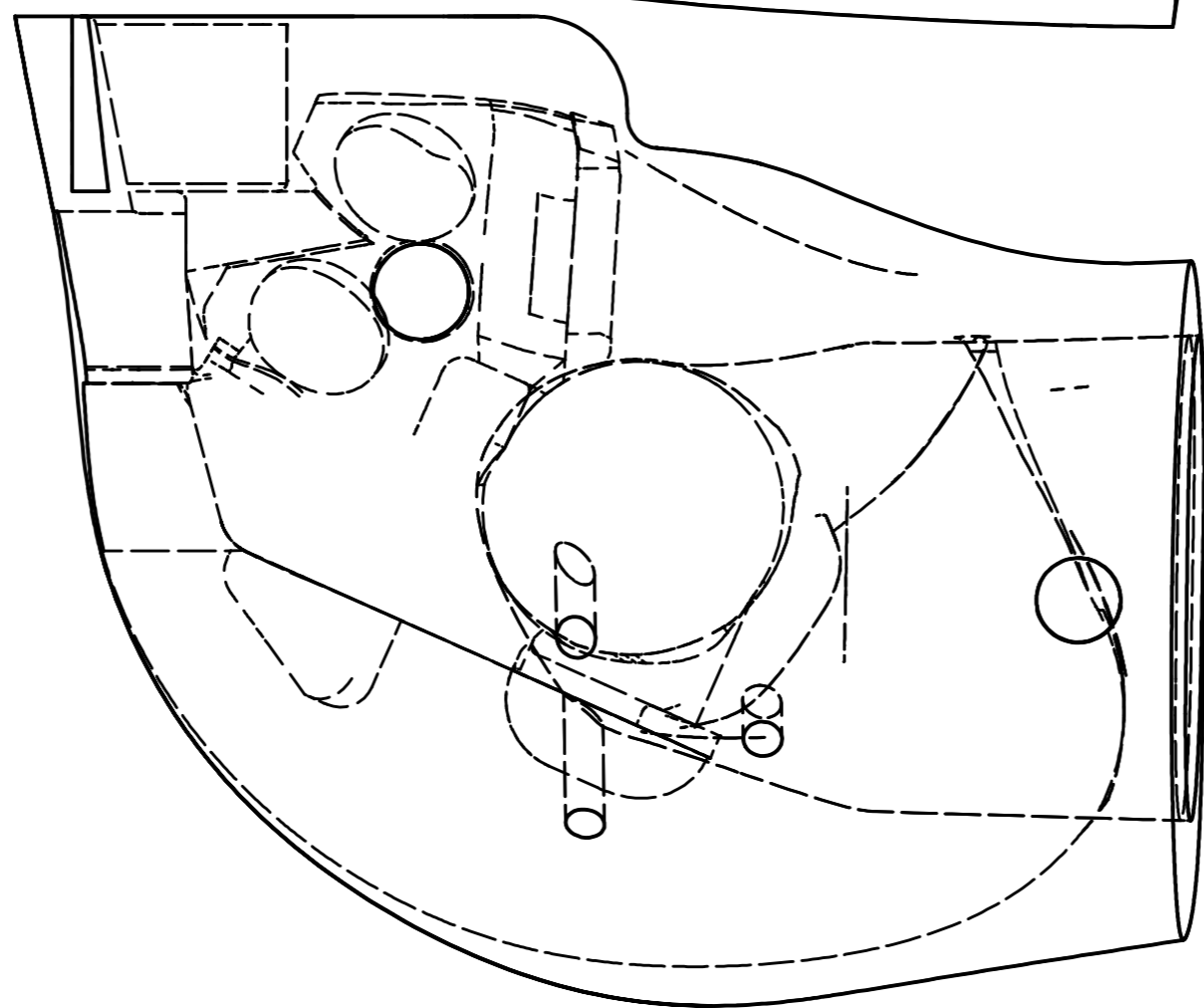
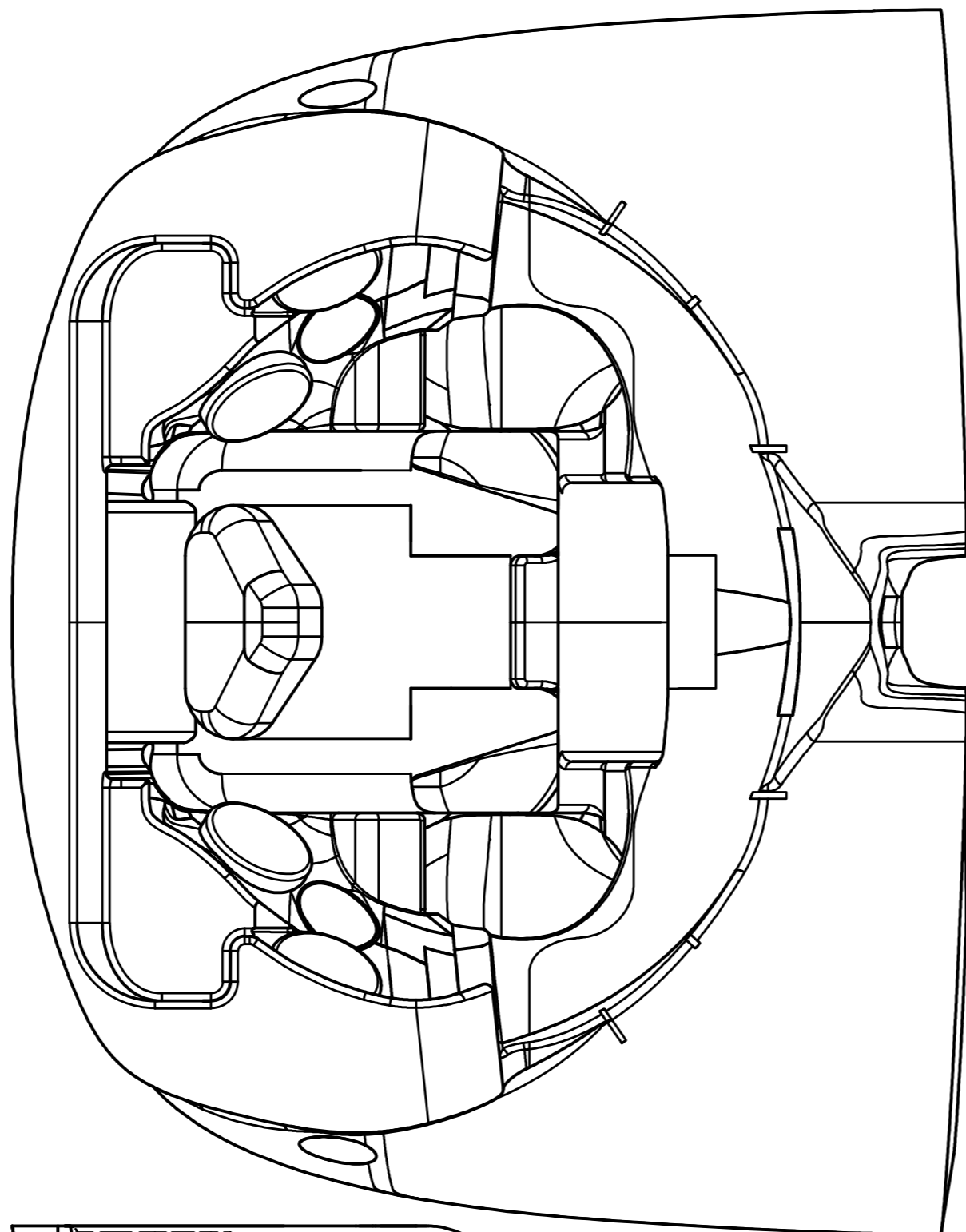


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° ✓ XX ± 0.2 1.6 XXX ± 0.3 XXXX ± 0.51		
PROJECT NO.:	472-4000	MATERIAL:	Aluminum-6061-T6	DESCRIPTION:
DRAWN BY:	KHS	DATE:	8/10/2011	REMOVE BURRS & BREAK SHARP EDGES
CHECKED BY:	TMV	DATE:	9/11/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:	CLEAR ANODIZE	DATE:	1/23/2012	SCALE: 1:1
TOTAL QTY IN DUMMY	1			A31 OF 1
				472-4371

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLS010 AND CONVERTED TO METRIC FOR THOR-M	8/15/2011	JSJ



SCALE .250

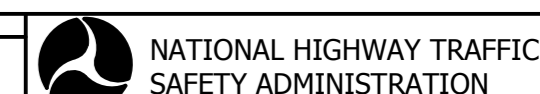


NOTE:

1. OUTER SKIN MATERIAL IS VINYL AND THE FILLER MATERIAL IS 3 LB/IN³ EXPANDABLE POLYURETHANE FOAM.
2. MOLDED PART WEIGHT IS TO BE 3.2 KG ± .15 KG

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
(UNLESS OTHERWISE SPECIFIED)
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
XX ± 0.2 ± 0.2 1.6
XXX ± 0.1 ± 0.1 1.6
XXXX ± 0.01 ± 0.01 1.6



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

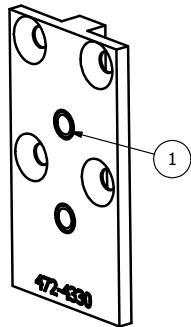
PROJECT NO.	472-4000	QTY	1	DATE	8/15/2011	SCALE	A21 OF 1	DRAWING NO.	472-4100	REV.	A
DESCRIPTION	PELVIS FLESH, MOLDED										
DESIGNED BY	S. RICE										
CHECKED BY	TMV										
DATE	9/13/2011										
ENGINEER	J. WANG										
DATE	1/18/2012										
FINISH											
REVISIONS	REMOVE BURRS & BREAK SHARP EDGES										
REVISIONS	SEE NOTES										
REVISIONS	NEXT ASSEMBLY										
REVISIONS	TOTAL QTY IN DUMMY										

4

3

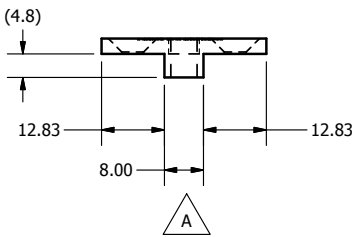
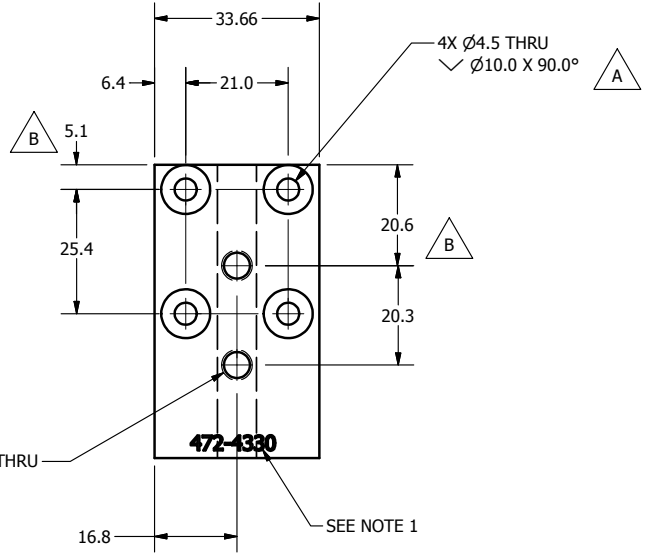
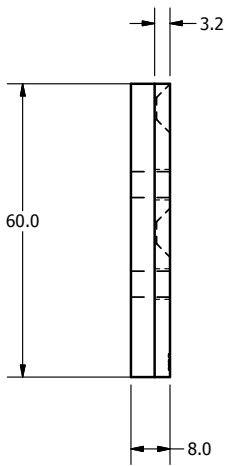
2

1



1

B



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM215 R02 AND CONVERTED TO METRIC FOR THOR-M; ADD (OPTIONAL) TO NOTE 1; ADD KEY TO BOTTOM OF PLATE; Ø4.5 THRU C'SINK Ø10.0 X 90° WAS Ø5.2 THRU C'SINK Ø10.2 X 82'	8/23/2011	JSJ
	B	60.0 WAS 63.8; 5.1 WAS 8.9; 20.6 WAS 24.5	11/9/2012	BK

- NOTES:
- ENGRAVE 472-4330 ON THE AREA SPEC'D ABOVE. (OPTIONAL) A
 - INSTALL HELICOILS AFTER ANODIZE.

1	2	5000351	HELICOIL, M5 X .8 X 5
ITEM	QTY	PART NUMBER	DESCRIPTION
Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X.X 0.0 0.0	
		X.XX 0.01 1.6	
		X.XXX 0.001	
		X.XXX 0.005	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:		DRAWN BY:	
472-4000		Jordan	
NEXT ASSEMBLY		DATE:	
QTY		8/23/2011	
TOTAL QTY IN DUMMY		CHECKED BY:	
1		TMV	
		DATE:	
		10/27/2011	
		FINISH:	
		CLEAR ANODIZE	
		ENGINEER:	
		J. WANG	
		DATE:	
		1/23/2012	
		SIZE:	
		B 1 OF 1	
		SHEET:	
		1:1	
		DRAWING NO.:	
		472-4330	
		REV:	
		B	

4

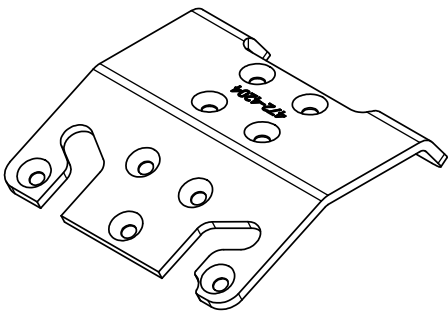
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2

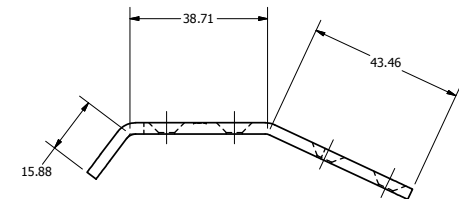
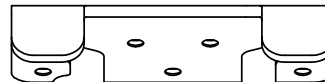
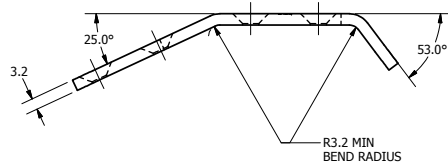
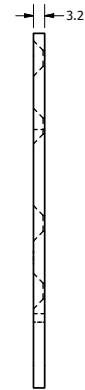
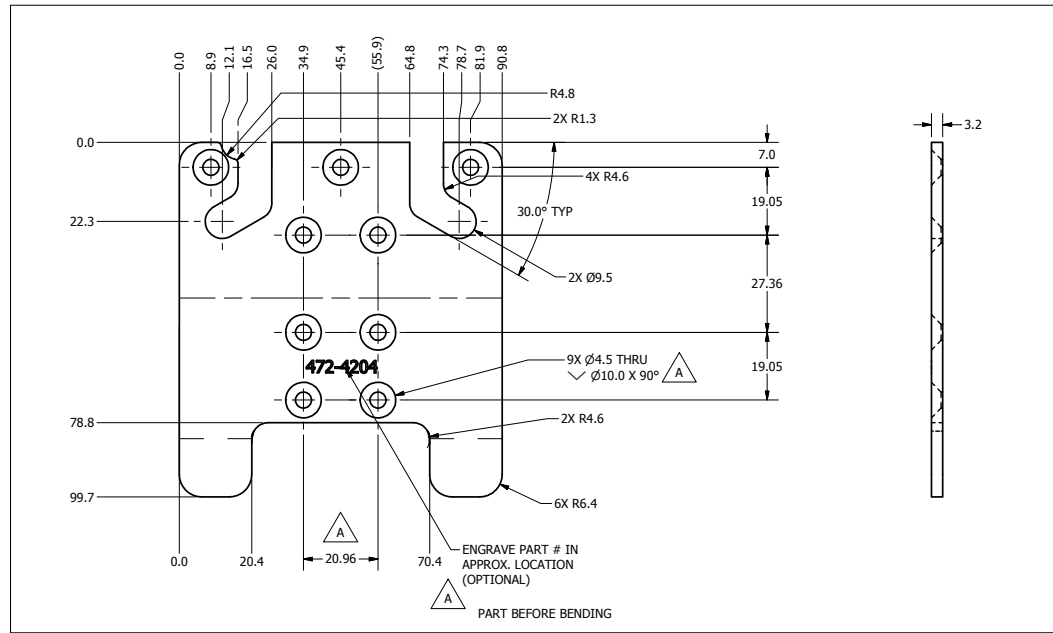
1



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM213 R05 AND CONVERTED TO METRIC FOR THOR-M; Ø4.5 THRU CSINK Ø10.0 x 90° WAS Ø5.2 THRU CSINK Ø10.2 X 82°; ADD SLOT TO BOTTOM; (OPTIONAL) TO NOTE	8/25/2011	JSJ

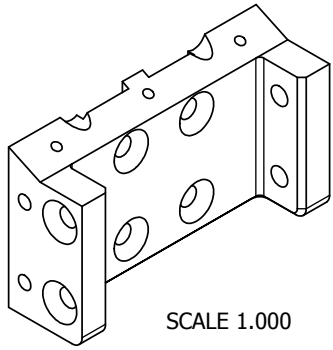


SCALE 1.000

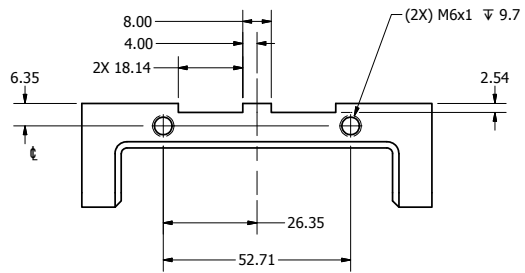
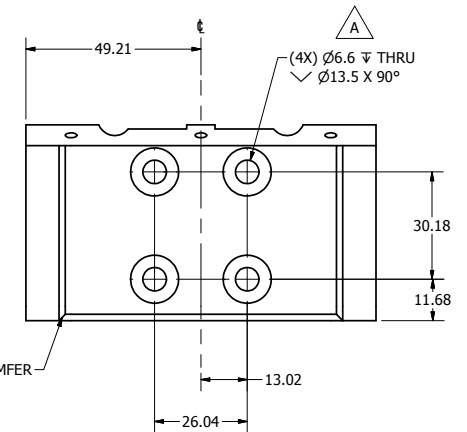
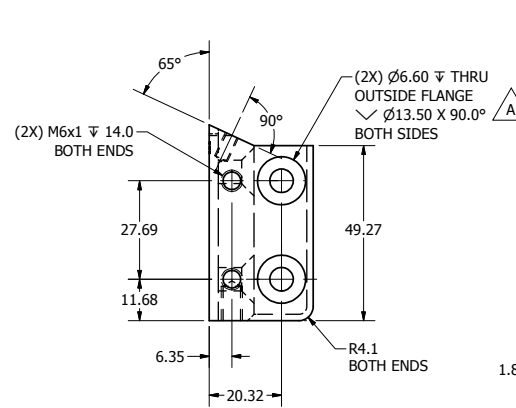
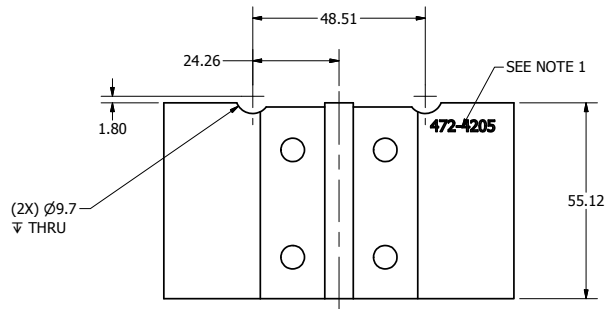
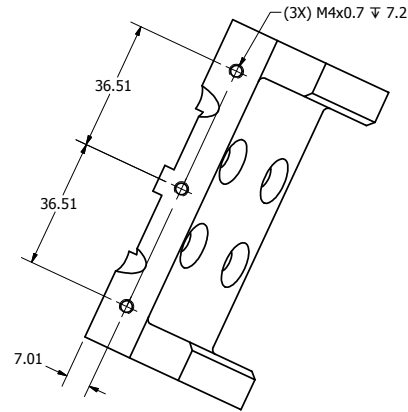
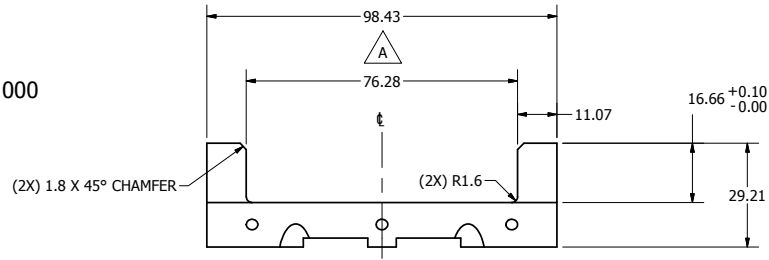


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN HUNDRETHS FRACTIONS ARE IN 16THS UNLESS OTHERWISE SPECIFIED			
472-4300	1	Aluminum-6061-T6	Jordan	8/25/2011	PELVIS TOP PLATE
NEXT ASSEMBLY	QTY		TMV	10/27/2011	
TOTAL QTY IN DUMMY	1	CLEAR ANODIZE	J. WANG	1/18/2012	

SHEET: 1 OF 1
 PART: 472-4204
 DATE: 1/18/2012
 BY: J. WANG



SCALE 1.000



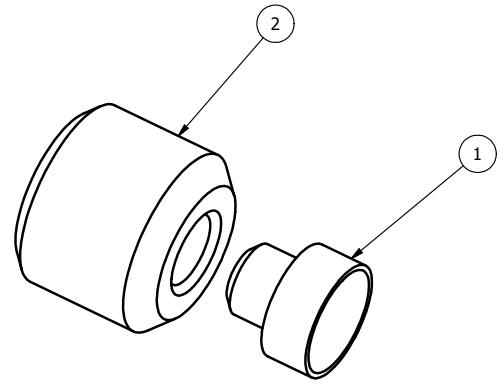
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM214 R05 AND CONVERTED TO METRIC FOR THOR-M; 98.43 WAS 98.43+0.00/-0.05; 76.28 WAS 76.28+0.05/-0.00; Ø6.60 WAS Ø6.8; C'SINK Ø13.50 X 90° WAS Ø13.5 X 82'; Ø6.6 WAS Ø6.8, C'SINK Ø13.5 X 90° WAS 12.5 X 82'; ADD (OPTIONAL) TO NOTE 1	8/24/2011	JSJ

NOTE:
1. ENGRAVE DWG. #472-4205 AT APPROXIMATE LOCATION SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIS DRAWING IS THE PROPERTY OF THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION. IT IS TO BE USED FOR THE PURPOSES SPECIFIED IN THE ORDER. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION.		SHOW DIMENSIONS & SURFACE FINISH SYMBOLS		PROJECT: PELVIS, REAR PLATE	
472-4300	1	1018 STEEL	Jordan	8/24/2011	
NEXT ASSEMBLY	QTY	DESCRIPTION	BY	DATE	APPROVED BY
	1	ELECTROLESS NICKEL PLATE .008 MM	J. WANG	11/18/2012	
TOTAL QTY IN DUMMY		1			



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM300-02 AND CONVERTED TO METRIC FOR THOR-M	8/24/2011	JSJ



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-4312	FRICTION ADJUSTMENT SET SCREW
1	1	472-4311	FRICTION ADJUSTMENT NYLON TIP

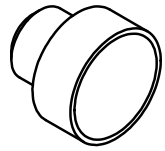
Parts List

 THIRD ANGLE PROJECTION	TOLERANCES <small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X.X ±0.2 ±0.5 ±.6 X.XX ±0.1 ±.6 X.XXX ±0.05		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	<small>REMOVE BURRS & BREAK SHARP EDGES</small>		

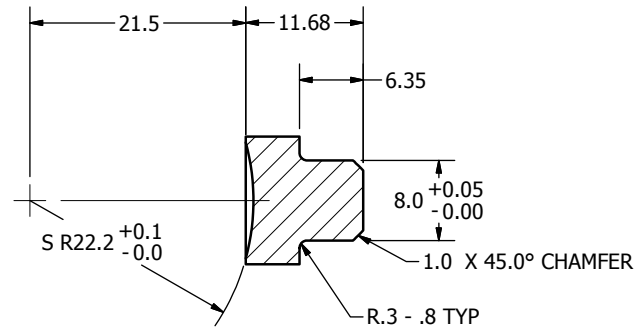
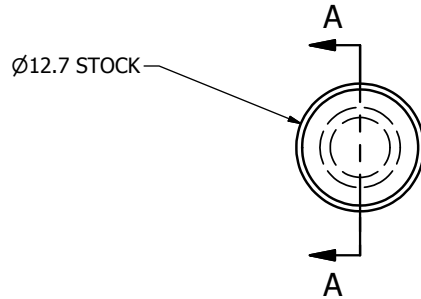
PROJECT NO.		DRAWN BY:	jordan	DATE:	8/24/2011
472-4000	2	MATERIAL:		CHECKED BY:	TMW
NEXT ASSEMBLY	QTY	HEAT TREAT:		DATE:	9/13/2011
TOTAL QTY IN DUMMY	2	FINISH:		ENGINEER:	J. WANG
				DATE:	1/20/2012

SIZE:	B	SHEET:	1 OF 1	DRAWING NO.:	472-4310	REV:	A
SCALE:	2:1						

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM311 R1 FOR THOR-M; REMOVE NOTES	8/24/2011	JSJ

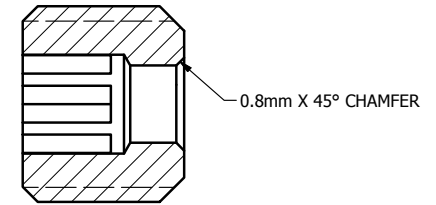
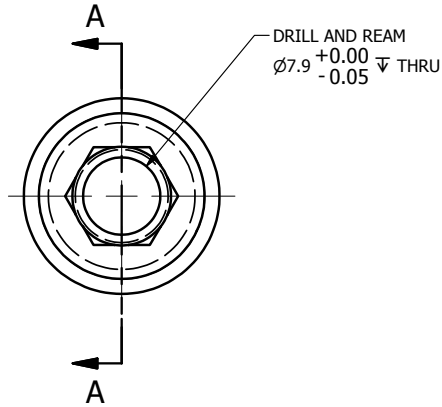
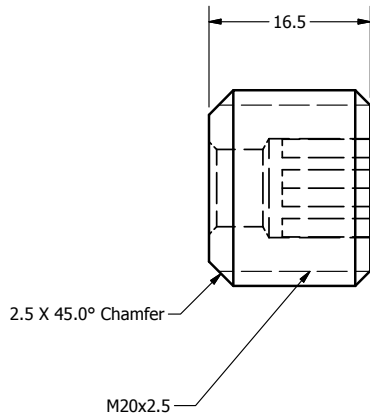
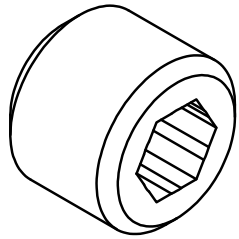


SCALE 2.000



SECTION A-A
SCALE 2.000

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO.:	472-4310	MATERIAL:	Nylon-6/6	DESCRIPTION:
DRAWN BY:	jordan	DATE:	8/24/2011	FRICITION ADJUSTMENT NYLON TIP
CHECKED BY:	TMV	DATE:	9/13/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
TOTAL QTY IN DUMMY:	2	FINISH:		SCALE: 2.000
				DRAWING NO.:
				472-4311
				REV:
				A



SECTION A-A
SCALE 2 : 1

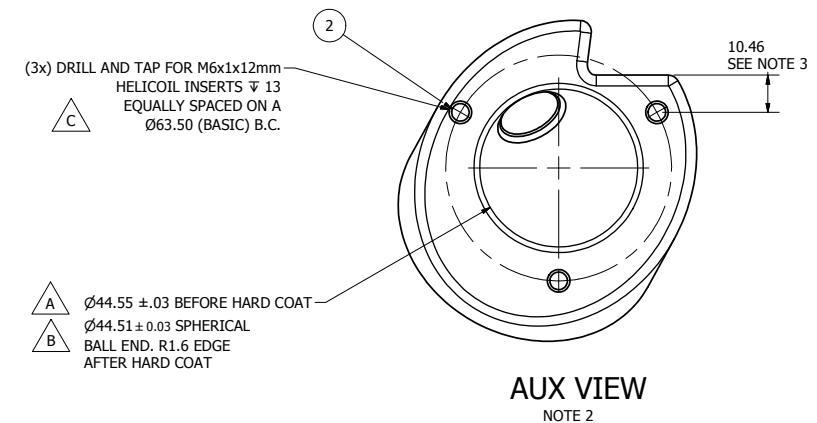
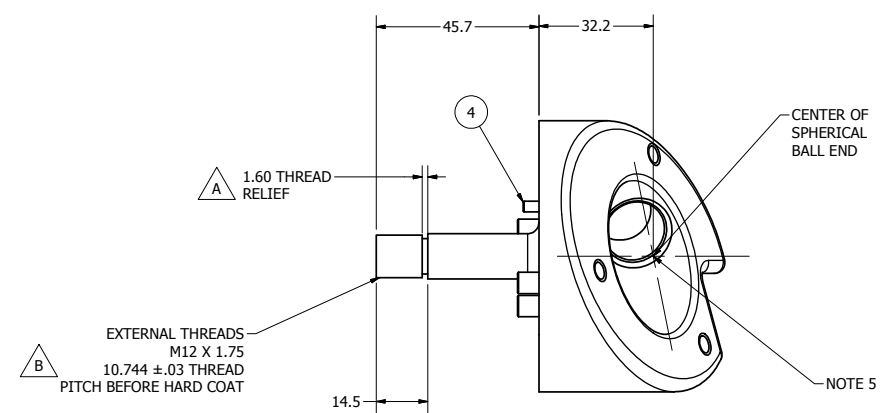
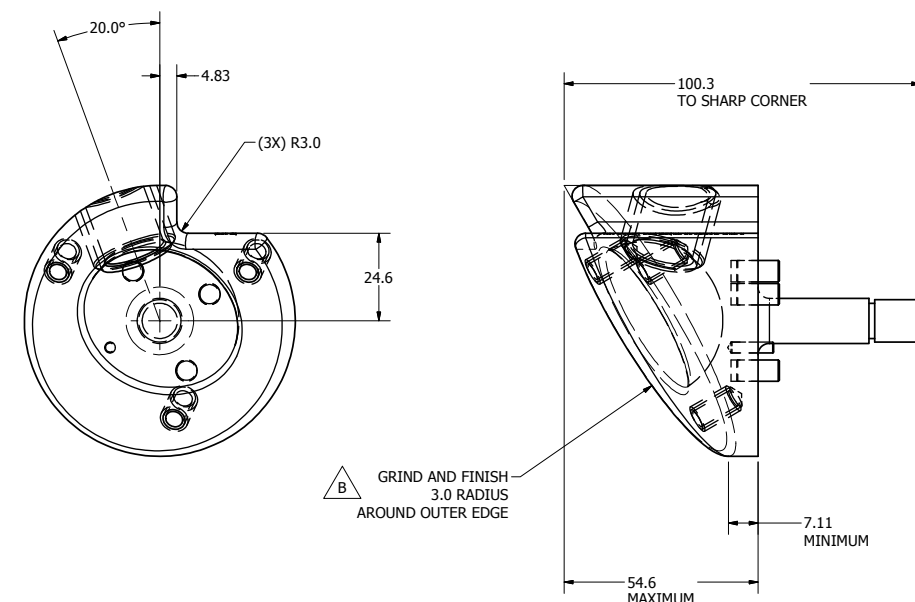
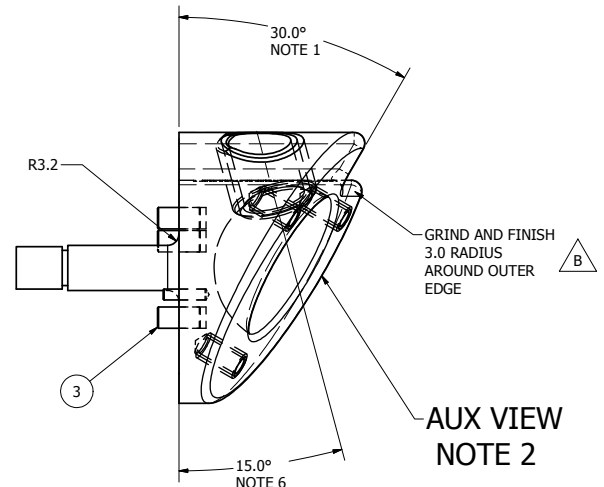
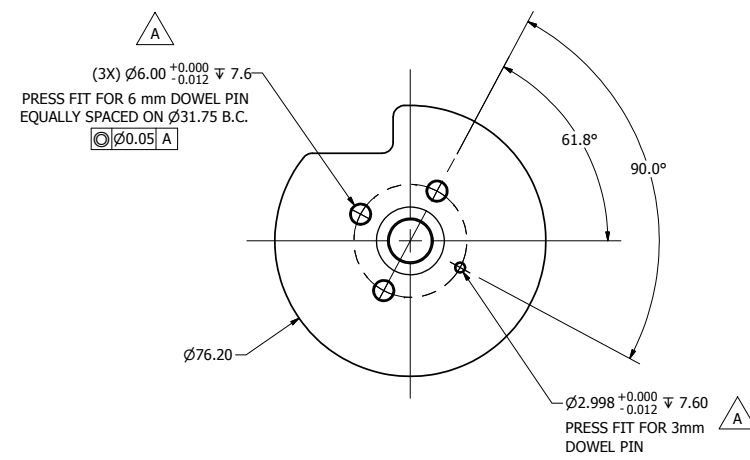
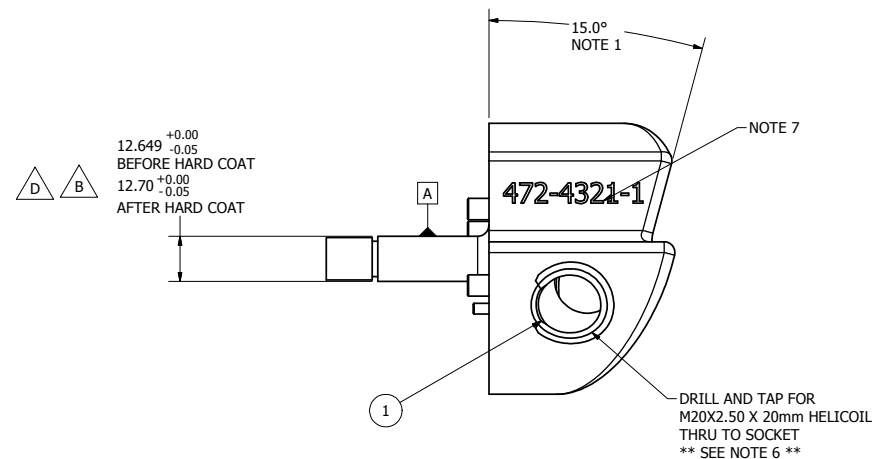
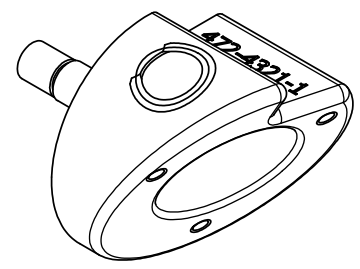
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM310-02 AND CONVERTED TO METRIC FOR THOR-M	8/24/2011	JSJ

NOTES:

1. MAKE FROM 5000508 (M20 X 2.5 X 20 CUP POINT SET SCREW), MODIFY AS SHOWN

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: FRICTION ADJUSTMENT SET SCREW	
		DECIMALS: X.X ±0.2 ANGLES: X.X ±0.5 FINISH: X.XX ±0.1 SURF: X.XX ±0.25		REMOVE BURRS & BREAK SHARP EDGES DRAWN BY: jordan DATE: 8/24/2011	
PROJECT NO:	472-4310	QTY:	1	CHECKED BY: TMV	DATE: 9/9/2011
DATE:		ENGINEER:	J. WANG	DATE:	1/23/2012
TOTAL QTY IN DUMMY			2	SIZE: B	SHEET: 1 OF 1
				DRAWING NO.: 472-4312	REV: A

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	RENUMBERED FROM T1PLM217-10 AND CONVERTED TO METRIC FOR THOR-M; Ø45.35 WAS Ø44.45; Ø6.00 +.000/-0.012 WAS Ø6.4, Ø31.75 B.C. WAS Ø31.8 B.C.; 1.6 THREAD RELIEF WAS .8; ADD 2.998+.000/-0.012 DOWEL HOLE	8/25/2011	JSJ
B	GLOBAL	INCREASE BALL SOCKET SIZE TO 44.51 FROM 44.35. REVISED AND ADDED DIMENSIONS/NOTE FOR BEFORE AND AFTER HARD COAT. ADD 3mm RADIUS TO OUTER EDGE.	5/24/2012	JSJ
C	A,3	CORRECTED TOP TWO M6 HOLE LOCATIONS TO BE PARALLEL WITH CUT OUT	7/2/2012	JSJ
D	B,3	Ø12.70 +.00/-0.05 WAS +.00/-0.01	7/12/2012	TMV



- NOTES:
- BEGIN BY MACHINING THE 15° PLANE. MACHINE 30° PLANE FROM 15° TOP VIEW PLANE
 - AUX VIEW IS PERPENDICULAR TO THE RESULTING SURFACE.
 - THE TOP TWO M6X 1.00 HOLES ARE ON A LINE PARALLEL WITH THE CUTOUT.
 - THE EXTRA LINES ARE THE REPRESENTATION OF THE COMPUTERS CURVED CONTOURS; THEY ARE NOT MACHINED.
 - THE SPHERICAL BALL IS CENTERED ON THE Ø76.2 CROSS-SECTION, AND DRILLED PERPENDICULAR TO THE 15°/30° SURFACE.
 - THE CENTER LINE OF THE M20X2.50 THREADS PASSES THROUGH THE CENTER OF THE SPHERICAL SOCKET.
 - ENGRAVE DWG # 472-4321-1 AT THE LOCATION SPECIFIED.
 - MASK PIN HOLES AND SHAFT PRIOR TO HARD COAT ANODIZING.
 - HARD COAT ANODIZE PART UPON COMPLETION - CLEAN UP AS NECESSARY AND ADD HELICOILS. HARD COAT THICKNESS IS .025mm PER SIDE ± 20%
 - DIMENSIONAL LIMITS AND THREADED HOLES APPLY AFTER FINISH

ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	5000183	PIN, DOWEL M3 X 12 mm
3	3	5000433	PIN, DOWEL M6 X 12 mm
2	3	5000422	HELICOIL, M6x1x12mm
1	1	5000430	HELICOIL M20x2.5 X 20 mm

DO NOT SCALE DRAWING

TOLERANCES

UNLESS OTHERWISE SPECIFIED

FRONT VIEW

472-4321-1

7075-T6 ALUMINUM

1

SEE NOTE 9

1

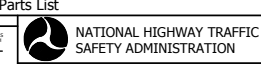
1/23/2012

J. WANG

1

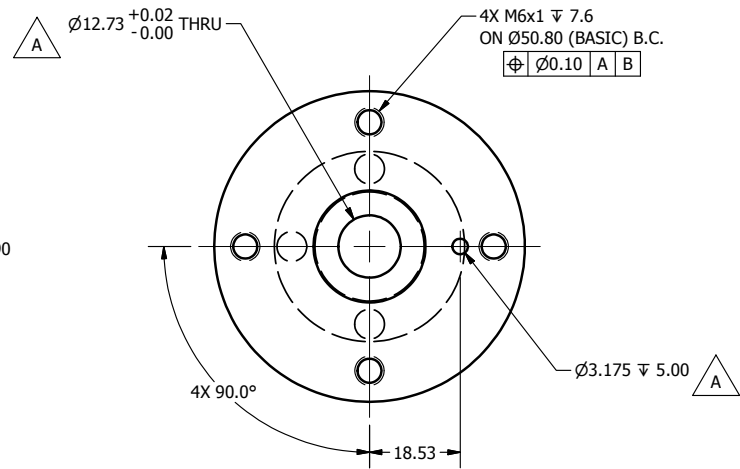
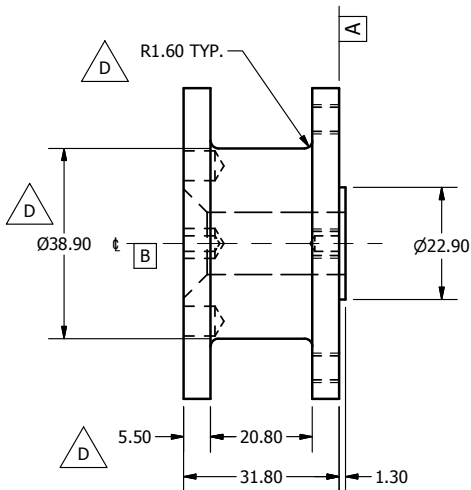
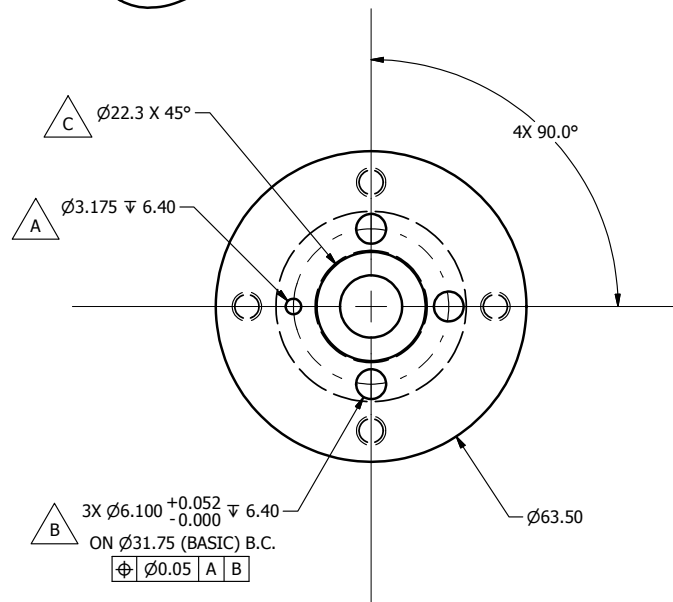
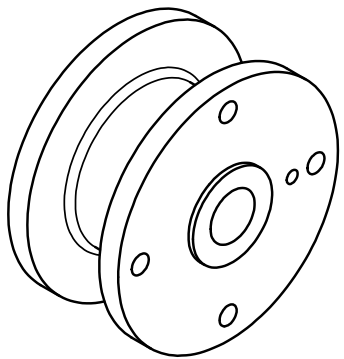
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472-4321-1



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

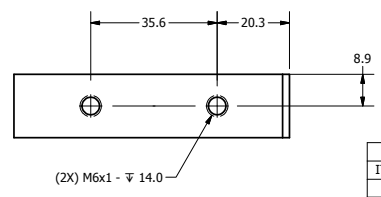
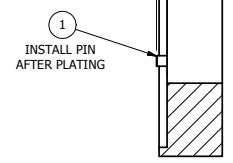
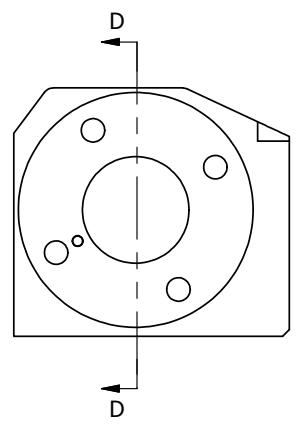
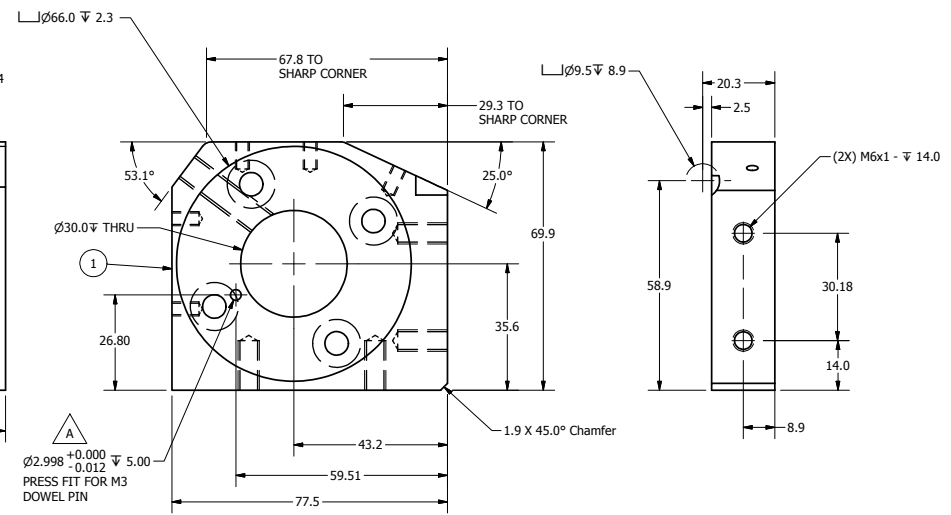
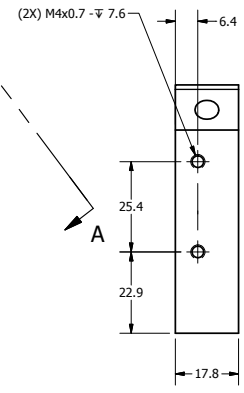
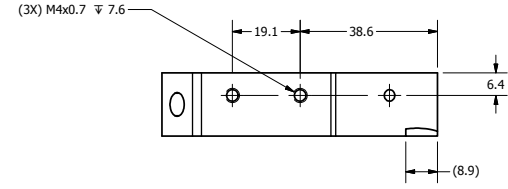
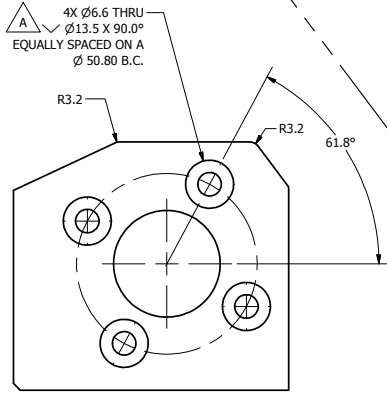
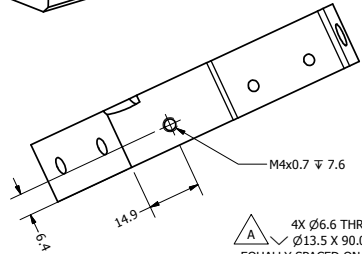
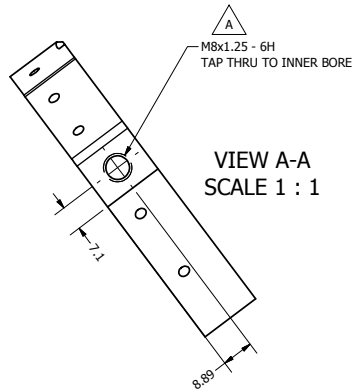
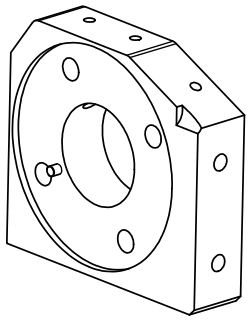
PELVIS SOCKET ADAPTOR (LEFT)



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM220 R03 AND CONVERTED TO METRIC FOR THOR-M; ADD $\varnothing 3.175 \nabla 6.40$, $\varnothing 3.175 \nabla 5.00$; $\varnothing 12.73 +.02/-0.00$ WAS $12.73 +.008/-0.000$	8/23/2011	JSJ
	B	$\varnothing 6.10 +.05/-0$ WAS $\varnothing 6.042 +.052/-0$	4/25/2012	BK
	C	ADD $\varnothing 22.3 \times 45^\circ$ CHAMFER TO HOLE	6/21/2012	BK
	D	MODIFIED PART TO ACHIEVE LOAD CELL WEIGHT	7/12/2012	JSJ

DO NOT SCALE DRAWING 		TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.0 0.0 1.6 X.XX 0.0 1.6 X.XXX 0.0 1.6 X.XXX 0.0 1.6		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION ACETABULAR LOAD CELL STRUCTURAL REPLACEMENT
PROJECT NO: 472-4000	MATERIAL: 1018 STEEL	DRAWN BY: jordan	DATE: 10/20/2011	
NEXT ASSEMBLY QTY	PART TREAT: NICKEL PLATE .008 MAX	CHECKED BY: J. WANG	DATE: 1/23/2012	
TOTAL QTY IN DUMMY 2				

SIZE: B 1 OF 1
 SCALE: 1:1
 DRAWING NO.: 472-4323
 SHEET: 1 OF 1

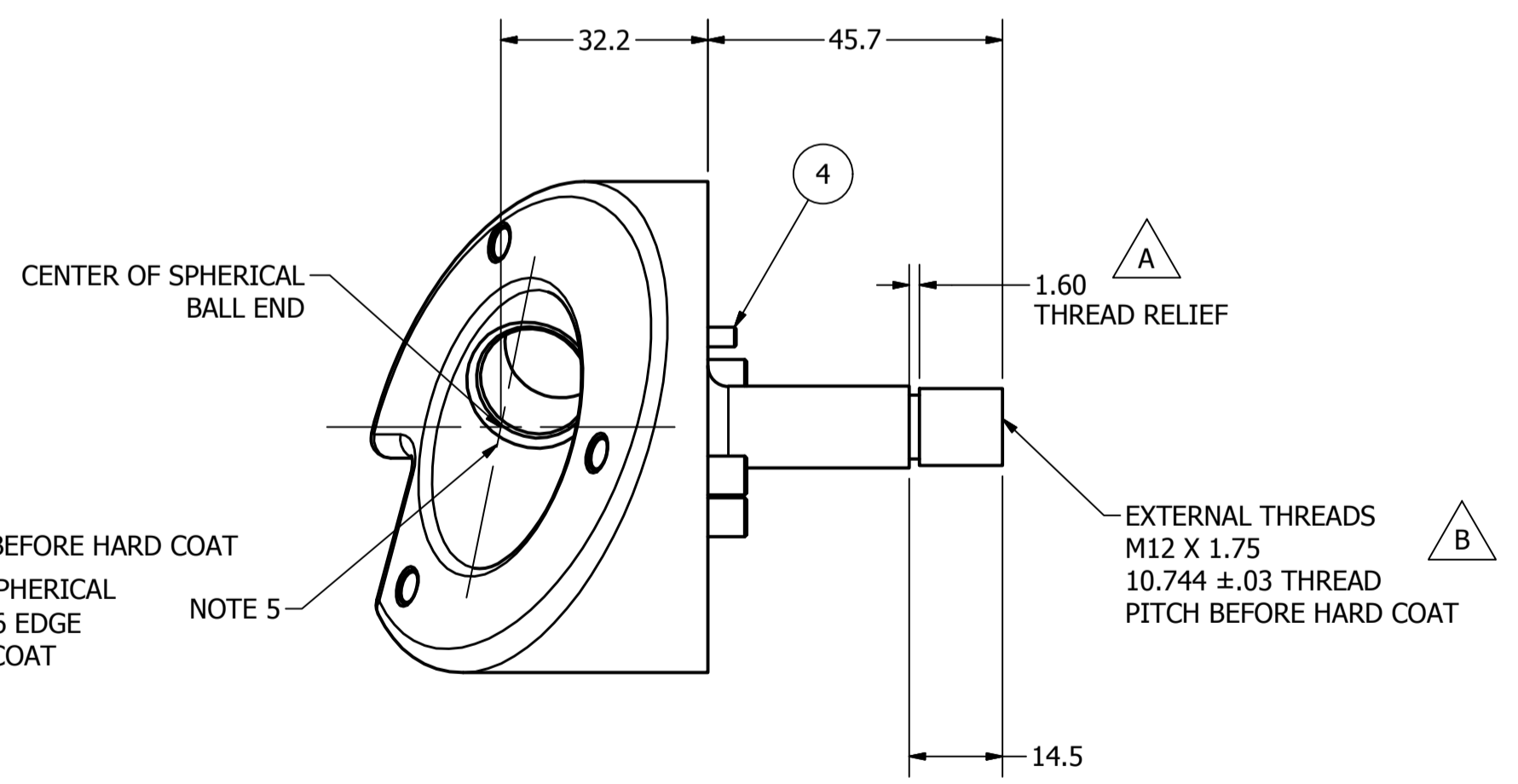
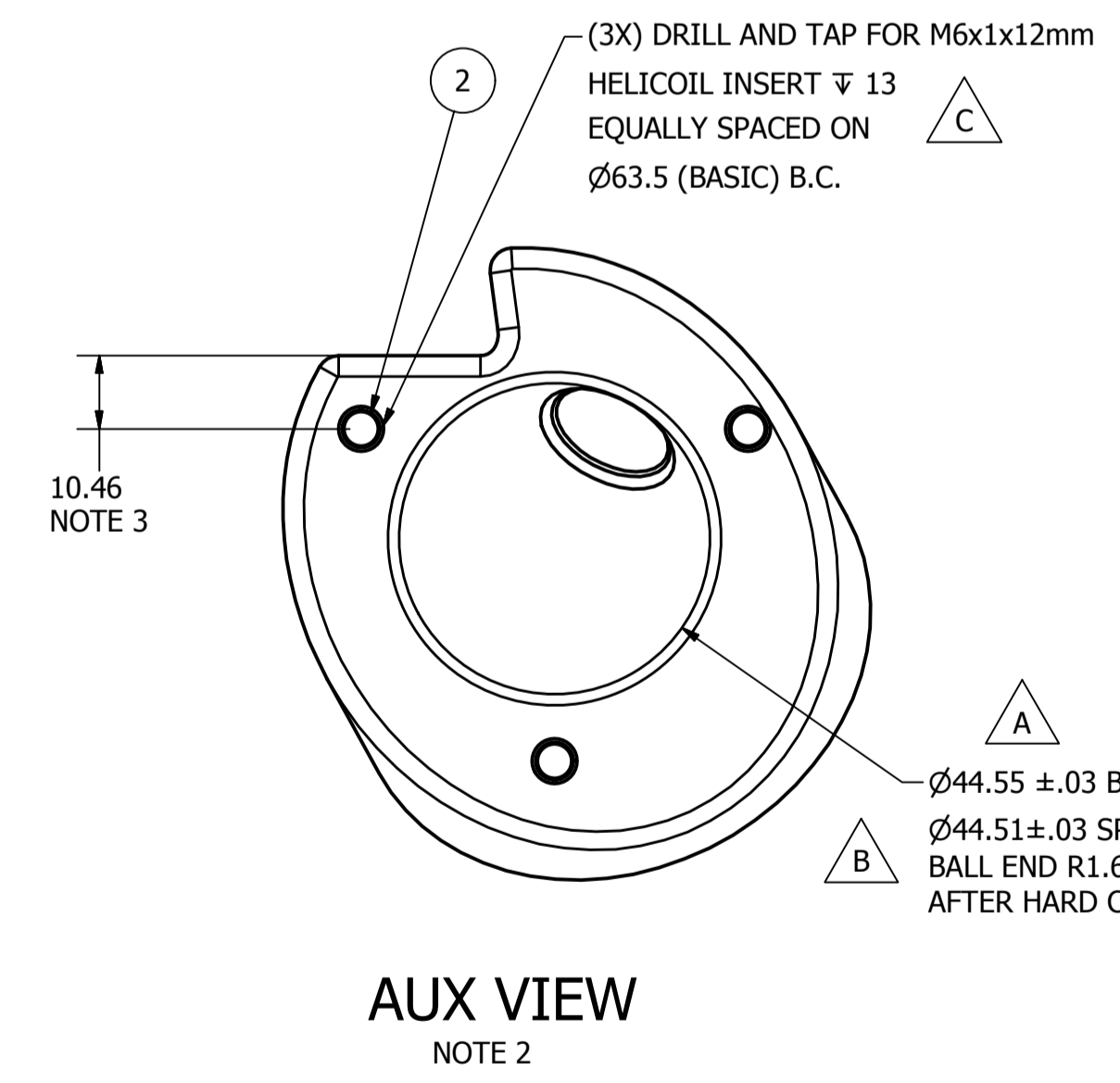
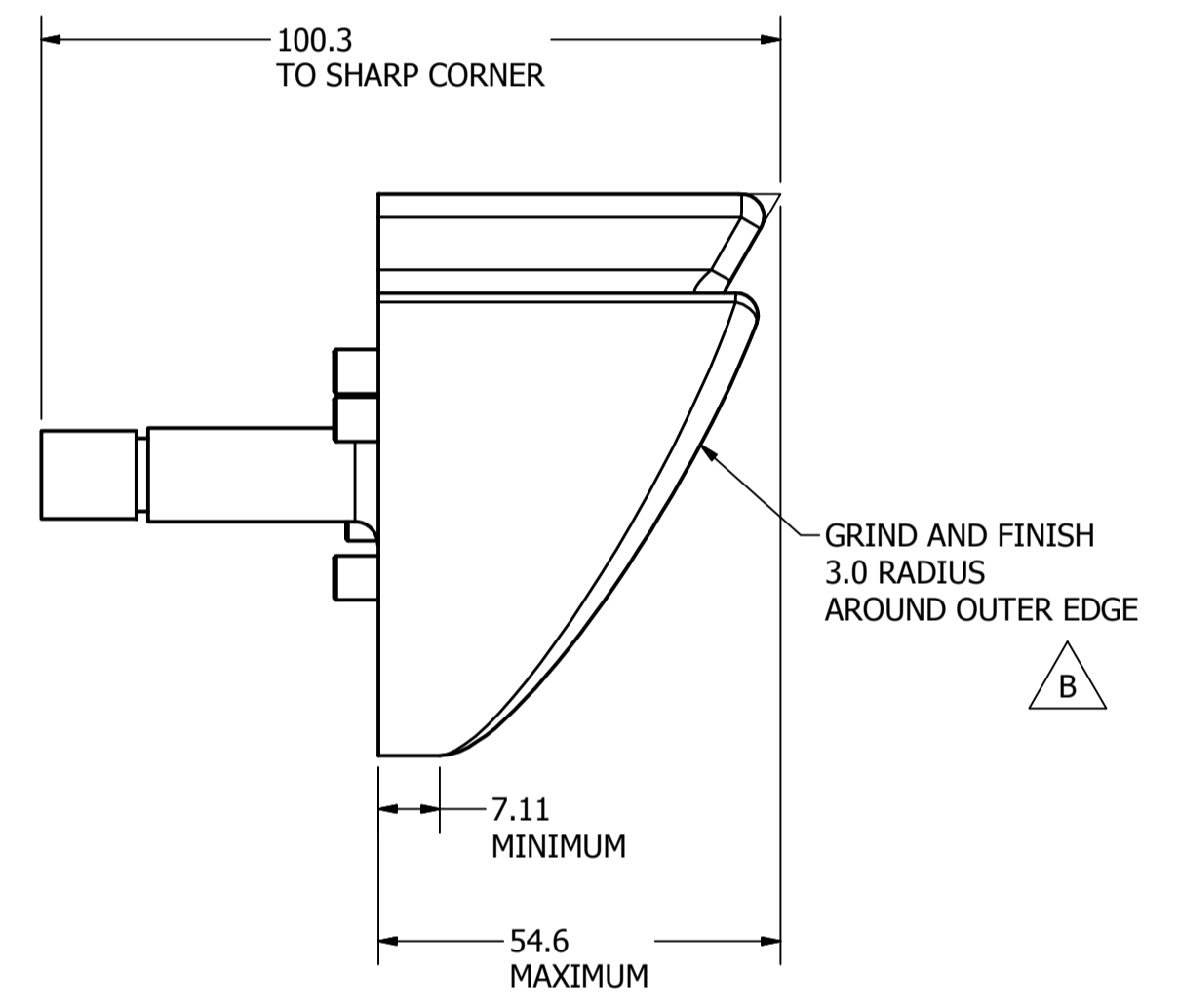
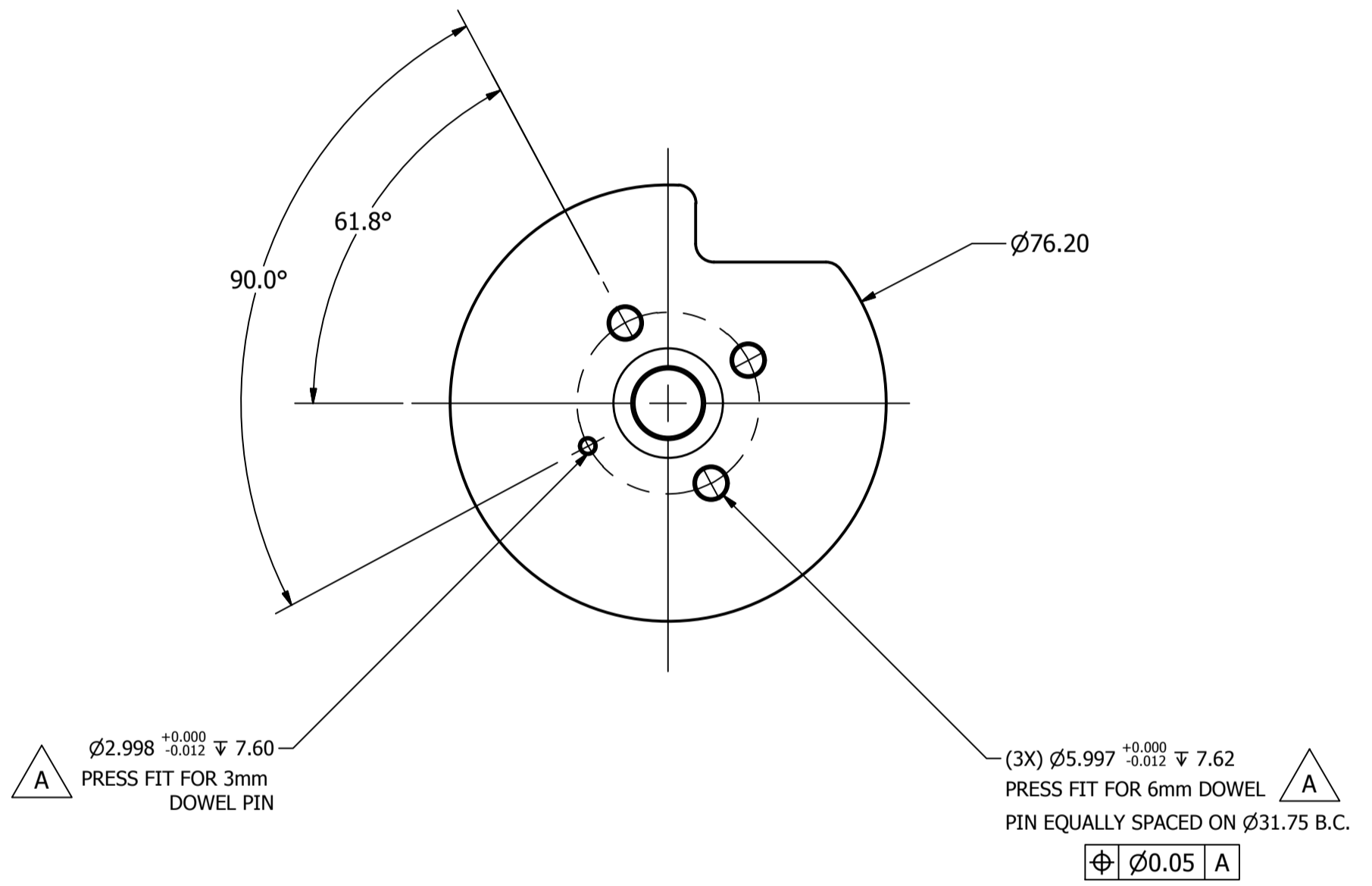
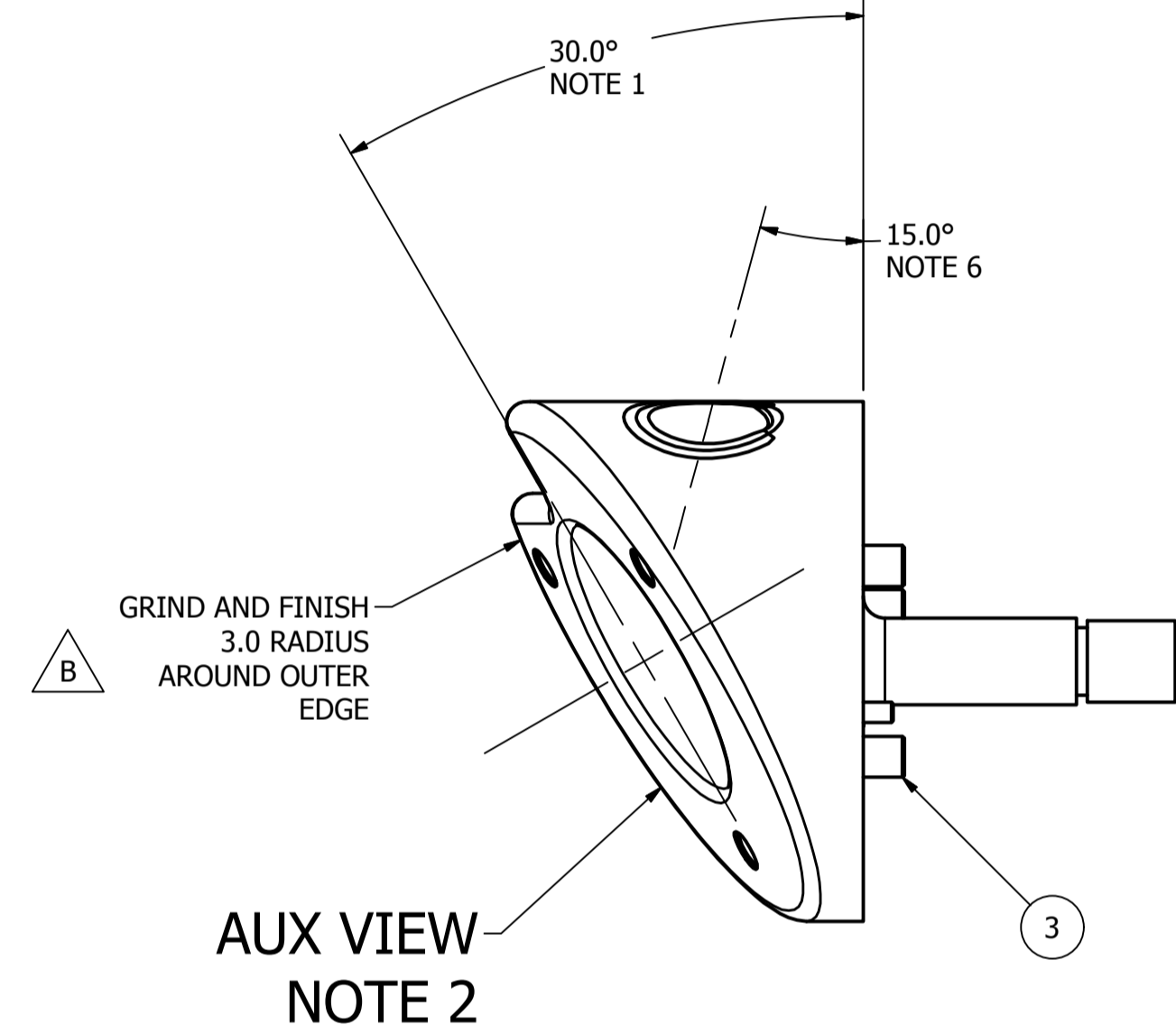
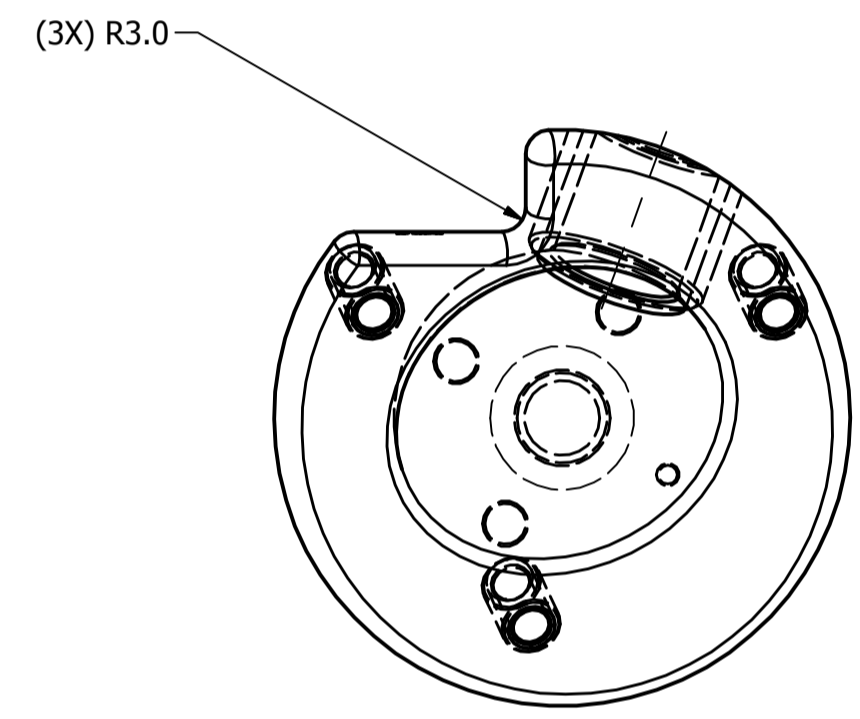
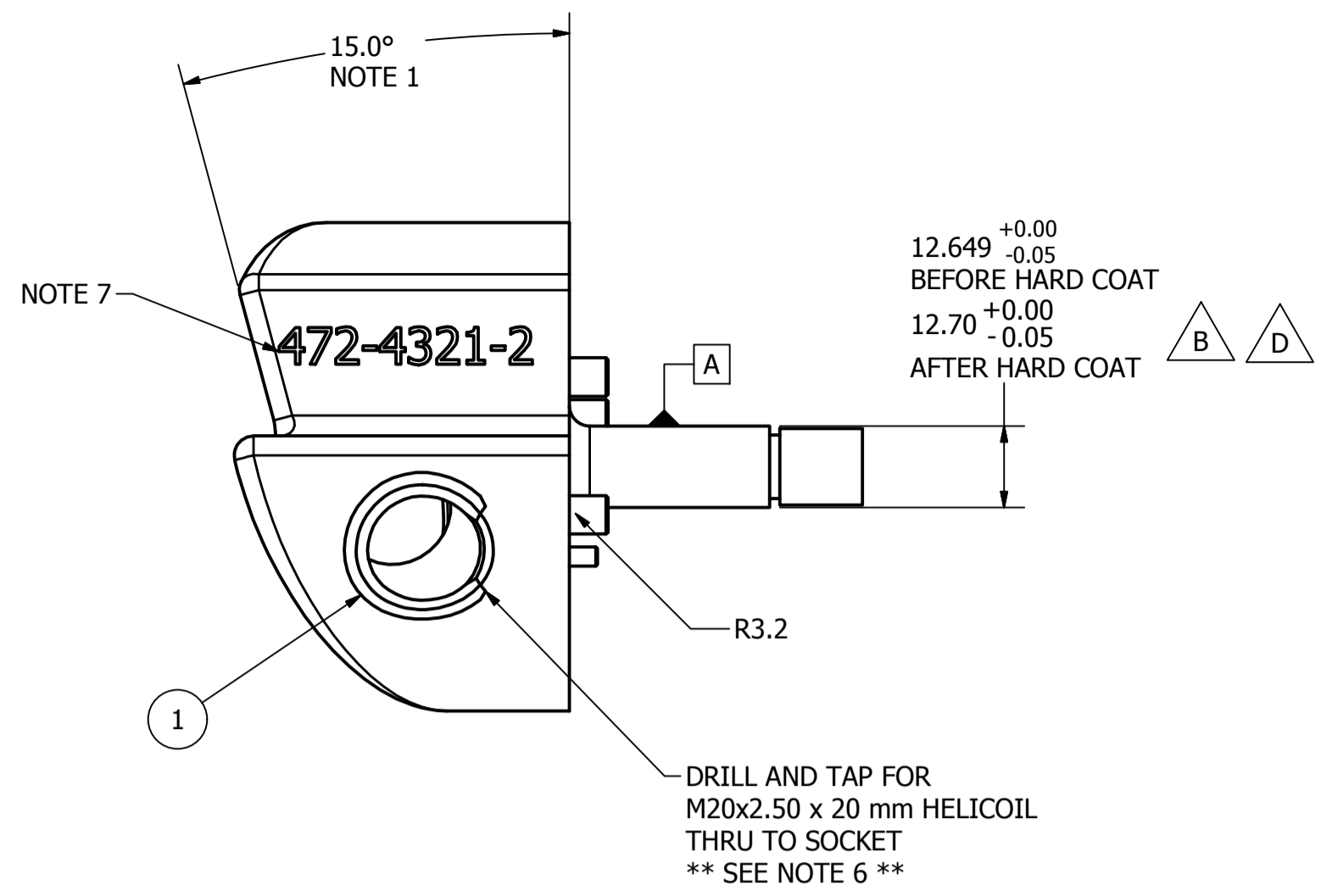
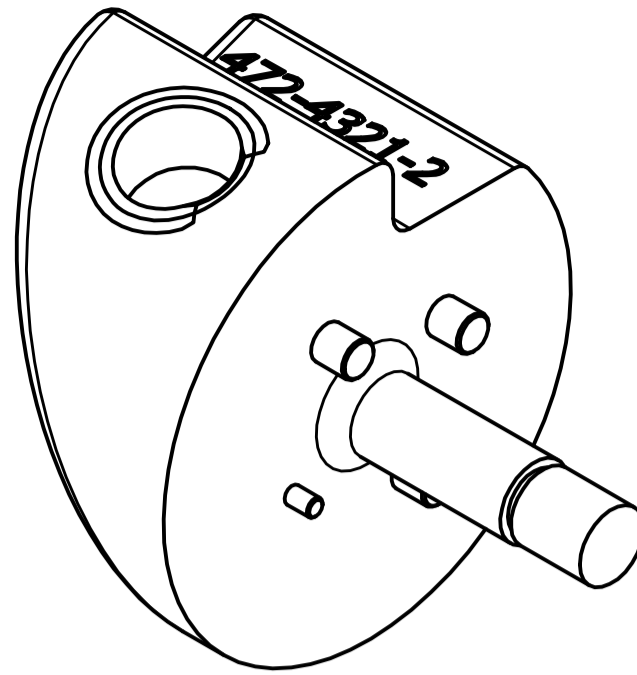


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM211-03 AND CONVERTED TO METRIC FOR THOR-M; 6.6 WAS 6.8, CSINK Ø13.5 X 90° WAS Ø13.2 X 82; ADD Ø2.998 +0.000/-0.012 I 5.0, M8x1.25 TAP HOLE	8/22/2011	JSJ
	B	NICKEL PLATE WAS TEFLON (ECO 10179)	10/17/2011	TMV

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000384	M3 x 8mm DOWEL PIN

Parts List			
472-4000	1	1018 STEEL	Jordan 8/22/2011
NEXT ASSEMBLY	QTY	PREPARED BY	DATE
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL PLATE JOB WAK	J. WANG 1/23/2012

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.0125 FRACTIONS ARE TO 1/32		SHOW HIDDEN & BREAK DIMENSIONS		
PELVIS LOAD CELL MTG PLATE LEFT			A21 of 1	472-4325-1



REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	RENUMBERED FROM T1PLM218-10 AND CONVERTED TO METRIC FOR THOR-M; Ø45.35 WAS Ø44.45; Ø6.00 +.000/-0.012 WAS Ø6.4, Ø31.75 B.C. WAS Ø31.8 B.C.; 1.6 THREAD RELIEF WAS .8; ADD 2.998+.000/-0.012 DOWEL HOLE	8/25/2011	JSJ
B	GLOBAL	INCREASE BALL SOCKET SIZE TO 44.51 FROM 44.35. REVISED AND ADDED DIMENSIONS/NOTE FOR BEFORE AND AFTER HARD COAT. ADD 3mm RADIUS TO OUTER EDGE.	5/24/2012	JSJ
C	A,4 GLOBAL	CORRECTED TOP TWO M6 HOLE LOCATIONS TO BE PARALLEL WITH CUT OUT	7/2/2012	JSJ
D	B,2	Ø12.70 +.00/-0.05 WAS +.00/-0.1	7/12/2012	TMV

- NOTES:
- BEGIN BY MACHINE THE 15° PLANE. MACHINE 30° PLANE FROM 15° TOP VIEW PLANE
 - AUX VIEW IS PERPENDICULAR TO THE RESULTING SURFACE.
 - THE TOP TWO M6x1 HOLES ARE ON A LINE PARALLEL WITH THE CUTOUT.
 - THE EXTRA LINES ARE THE REPRESENTATION OF THE COMPUTERS CURVED CONTOURS; THEY ARE NOT MACHINED
 - THE SPHERICAL BALL IS CENTERED ON THE Ø76.2 CROSS-SECTION, AND DRILLED PERPENDICULAR TO THE 15°/30° SURFACE
 - THE CENTER LINE OF THE M20x2.50 THREAD PASSES THROUGH THE CENTER OF THE SPHERICAL SOCKET.
 - ENGRAVE DWG# 472-4321-2 AT THE LOCATION SPECIFIED
 - MASK PIN HOLES AND SHAFT PRIOR TO HARD COAT ANODIZING
 - HARD COAT ANODIZE PART UPON COMPLETION - CLEAN UP AS NECESSARY AND ADD HELICOILS. HARD COAT THICKNESS IS .025mm PER SIDE ± 20%
 - DIMENSIONAL LIMITS AND THREADED HOLES APPLY AFTER FINISH.

ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	5000183	PIN, DOWEL M3 X 12 mm
3	3	5000433	PIN, DOWEL M6 X 12 mm
2	3	5000422	HELICOIL, M6 X 1 X 12
1	1	5000430	HELICOIL M20x2.5 X 20 mm

Parts List

DO NOT SCALE DRAWING

TOLERANCES UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE TO RESULTING SURFACE UNLESS OTHERWISE SPECIFIED

THREE ANGLE PROJECTION

SHOW HIDDEN & BREAK SHARP EDGES

7075-T6 ALUMINUM

1 7075-T6 ALUMINUM

QTY N/A

SEE NOTE 9

Jordan

TMV

J. WANG

8/25/2011

7/3/2012

1/23/2012

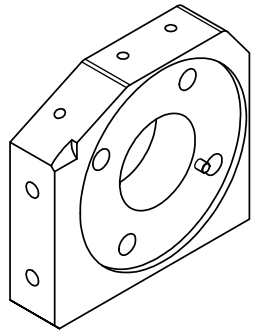
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PELVIS SOCKET ADAPTER (RIGHT)

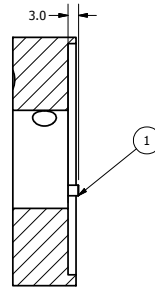
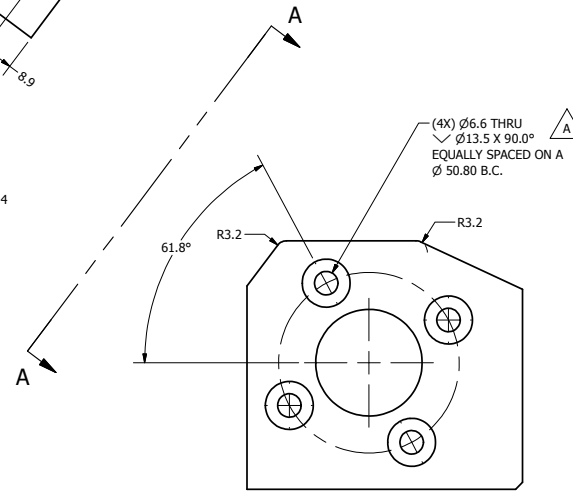
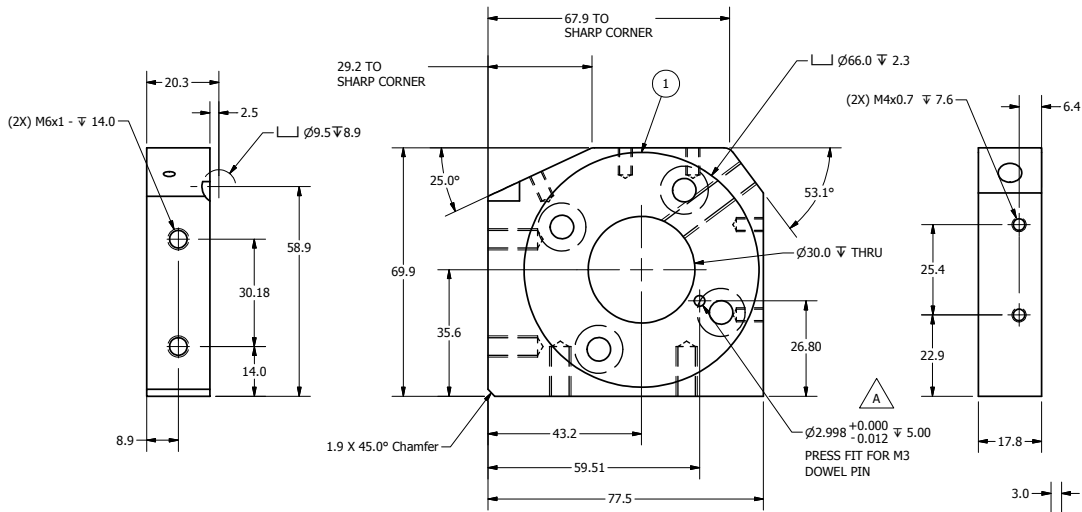
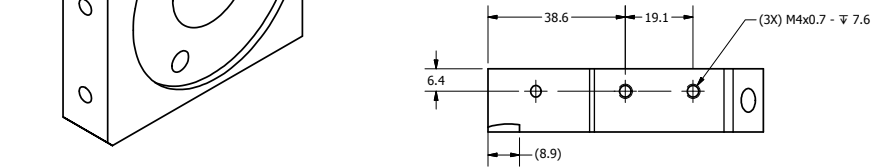
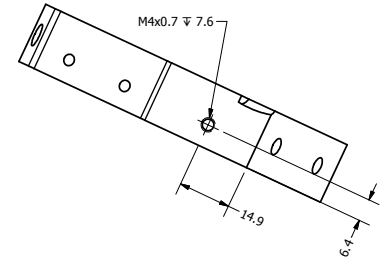
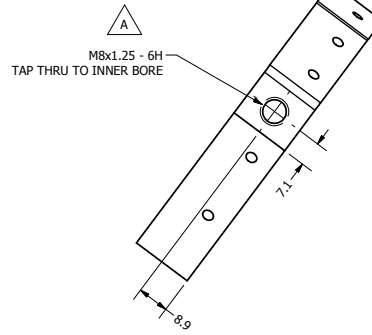
1 of 1

472-4321-2

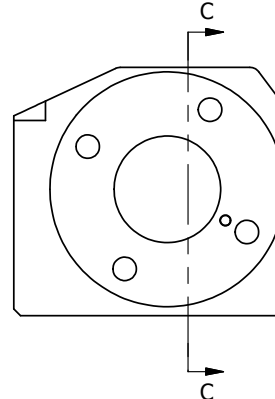
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM211-03 AND CONVERTED TO METRIC FOR THOR-M; · 6.6 WAS · 6.8, C'SINK Ø13.5 X 90° WAS Ø13.2 X 82°; ADD Ø2.998 +.000/-0.012 1.5.0, M8x1.25 TAP HOLE	8/23/2011	J5J
	B	NICKEL PLATE FINISH WAS TEFLON (ECO 10181)	10/18/2011	TMV



VIEW A-A
SCALE 1 : 1



SECTION C-C
SCALE 1 : 1



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5000384	M3 x 8mm DOWEL PIN

Parts List

DO NOT SCALE DRAWING		TOLERANCES	
DATE	DESIGNED BY	DATE	DESIGNED BY
8/23/2011	Jordan	8/23/2011	Jordan
DATE	CHECKED BY	DATE	CHECKED BY
10/31/2011	TMV	10/31/2011	TMV
DATE	APPROVED BY	DATE	APPROVED BY
11/23/2012	J. WANG	11/23/2012	J. WANG

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

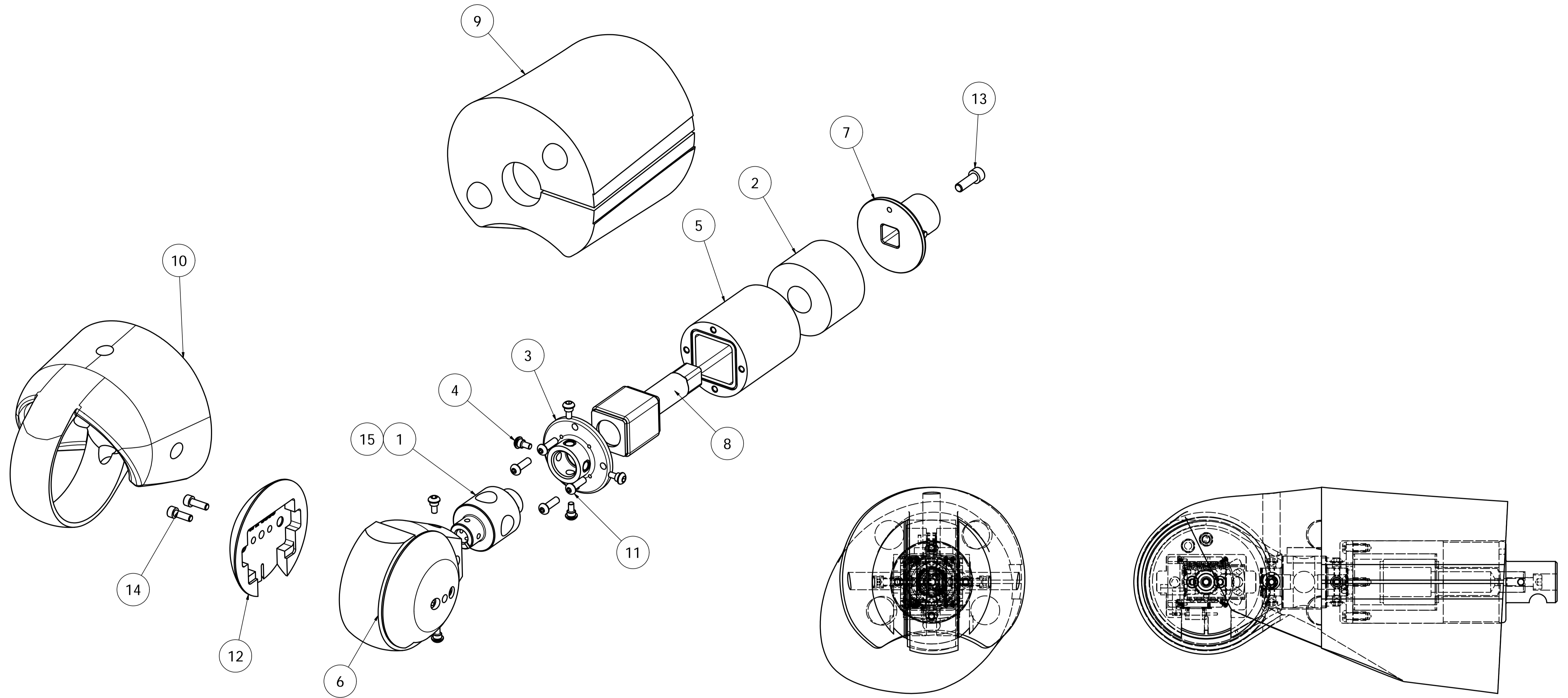
PELVIS LOAD CELL MTG. PLATE (RIGHT)

472-4325-2

472-4000	1	1018 STEEL	Jordan	8/23/2011
NEXT ASSEMBLY	QTY	BY	DATE	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL PLATE (88 PH)	J. WANG	11/23/2012

Sheet 11 of 11

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM000-04 AND CONVERTED TO METRIC FOR THOR-M: REMOVED LEFT FEMUR BALL JOINT ASSY FROM ASSY (T1FMM100-02)		TKN
	B	ADD 472-5353 AND 9005217	2/14/2012	KHS
	C	ADDED PART #SA572-S120 - FEMUR LOAD CELL (OPTIONAL)	9/3/2015	DW



ISO VIEW
SCALE 1 / 2

ITEM	QTY	PART NUMBER	DESCRIPTION
15	1	SA572-S120	FEMUR LOAD CELL (OPTIONAL)
14	4	9005217	SHCS M6 X 18 mm
13	1	5000037	SCREW, SHCS M8-1.25 X 25mm
12	2	472-5353	KNEE COVER
11	4	5000438	SCREW, BHCS M6-1 X 20mm
10	1	472-5502	KNEE FLESH LEFT/RIGHT (MODIFIED)
9	1	472-5503-1	THIGH FLESH - LEFT
8	1	472-5420	FEMUR PLUNGER ASSY.
7	1	472-5410	FEMUR BALL ATTACHMENT PLATE ASSY.
6	1	472-5300	KNEE CAP ASSY., LEFT
5	1	472-5200	FEMUR BUSHING ASSY.
4	8	W50-61042	MODIFIED BHSS M6 THREAD
3	1	472-5203	END CAP - FEMUR
2	1	472-5206	COMPRESSION ELEMENT-UPPER LEG
1	1	W50-51060	UNIVERSAL LEG L.C. STRUCTURAL REPLACEMENT

Parts List

DO NOT SCALE DRAWING

TOLERANCES

PROJECT NO. 472-5100-1

DATE: 8/29/2011

DESIGNED BY: THAMH

CHECKED BY: J. WANG

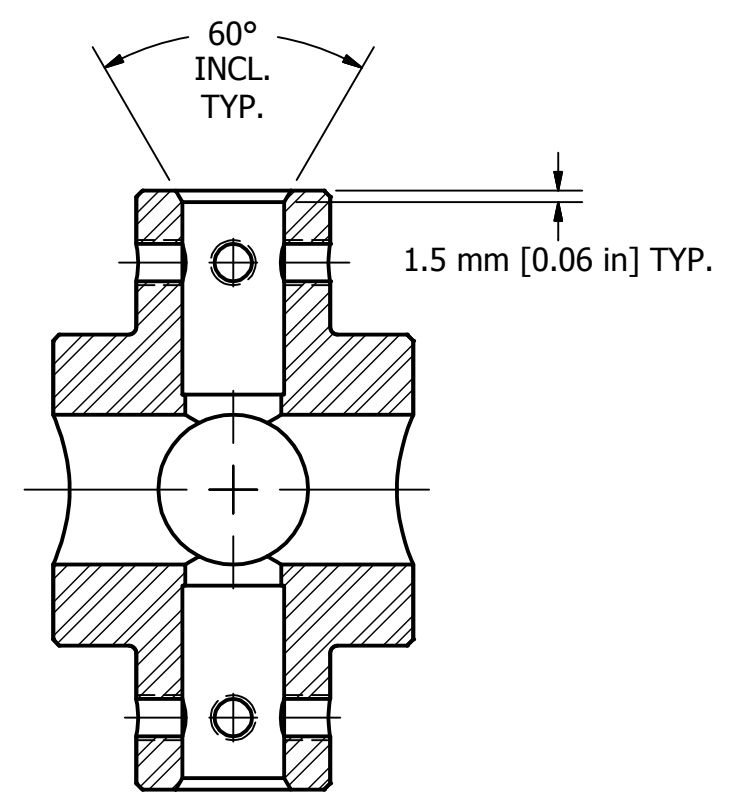
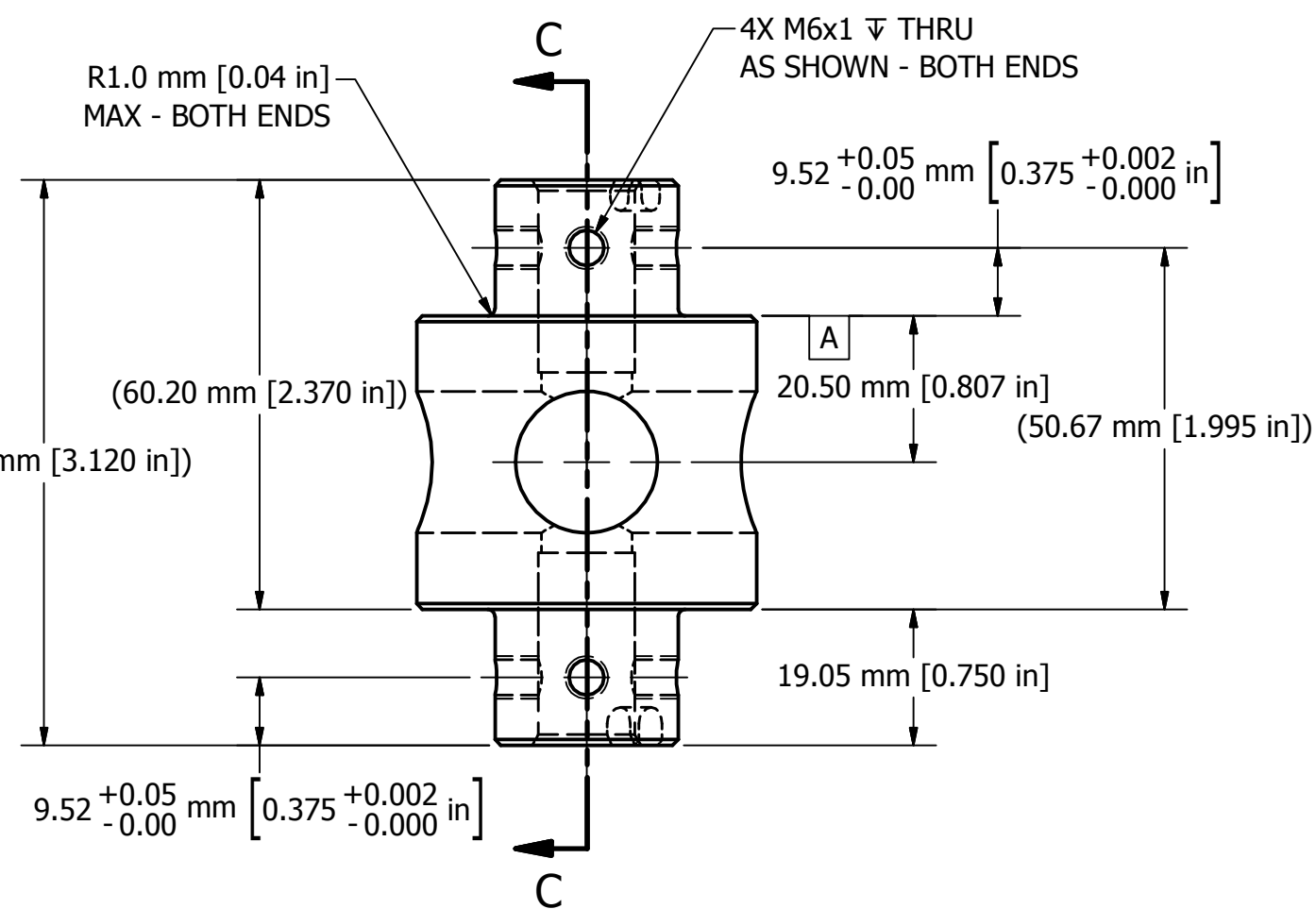
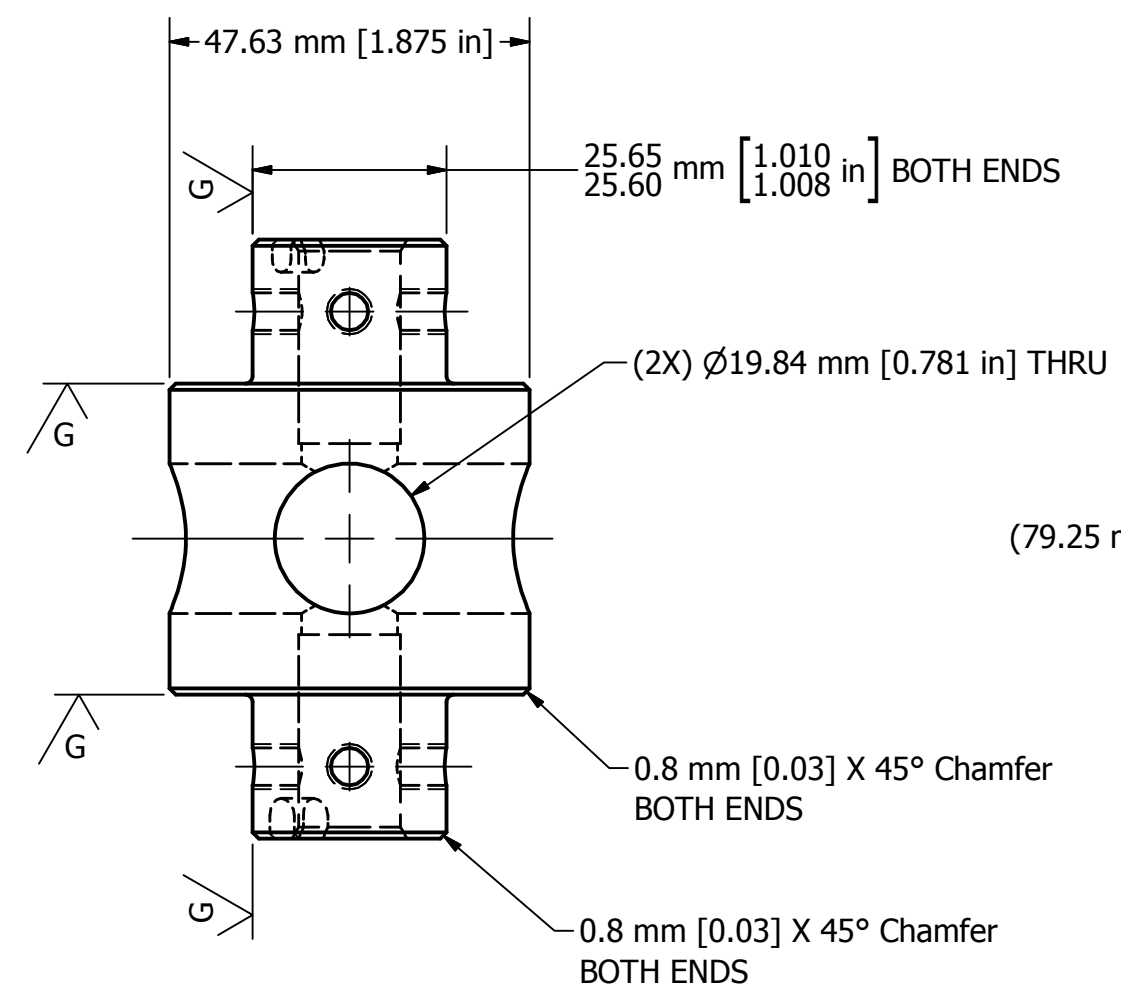
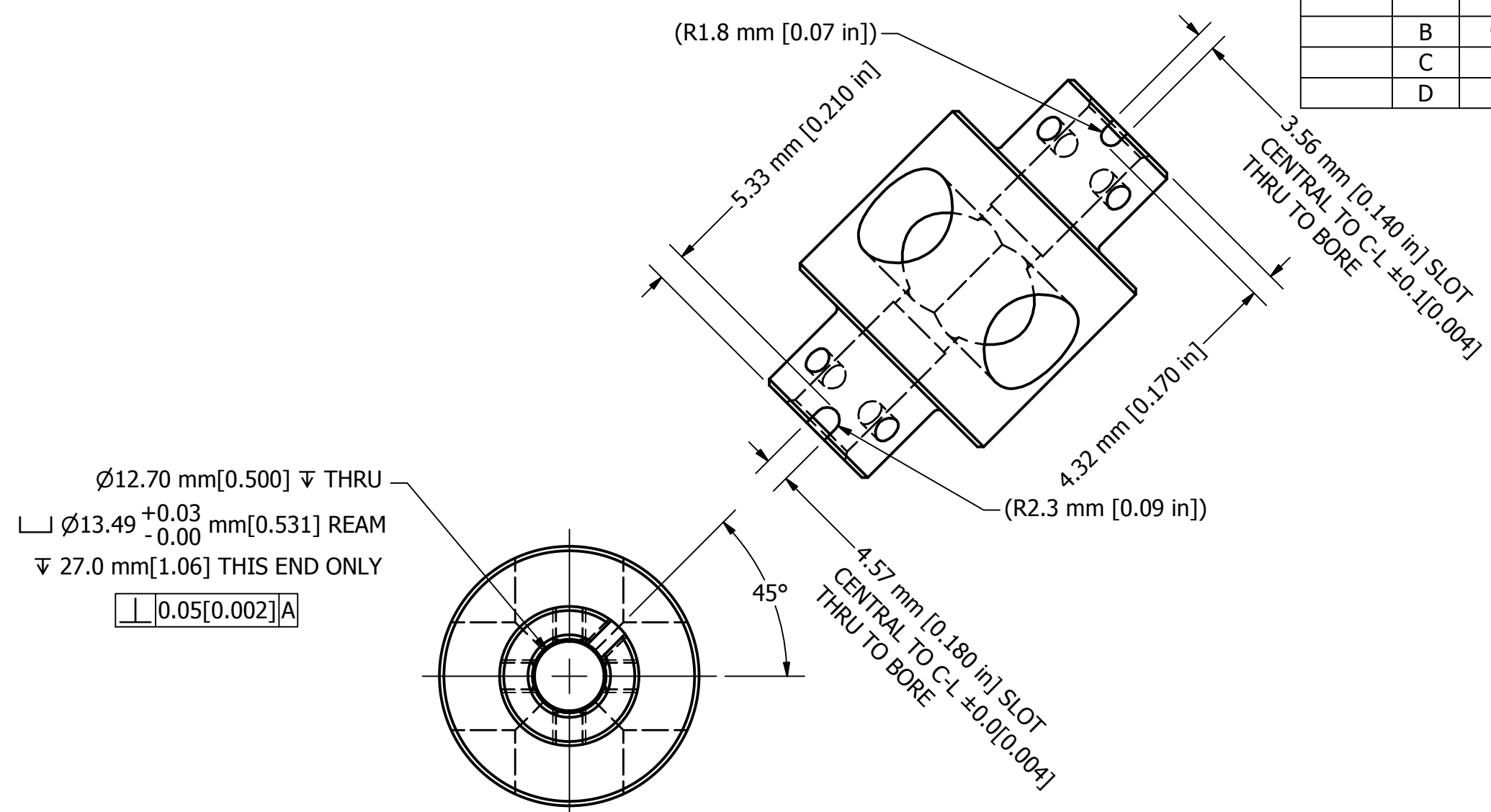
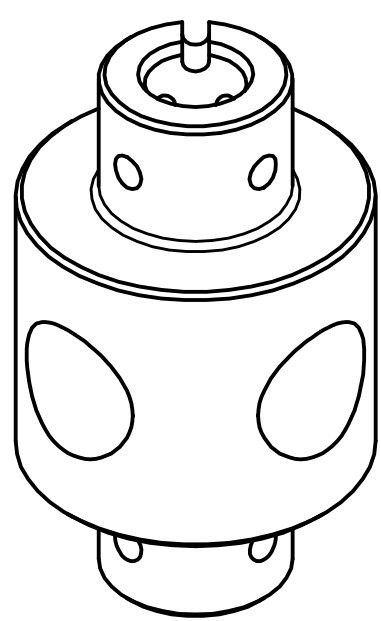
DATE: 1/28/2012

SCALE: 1:2

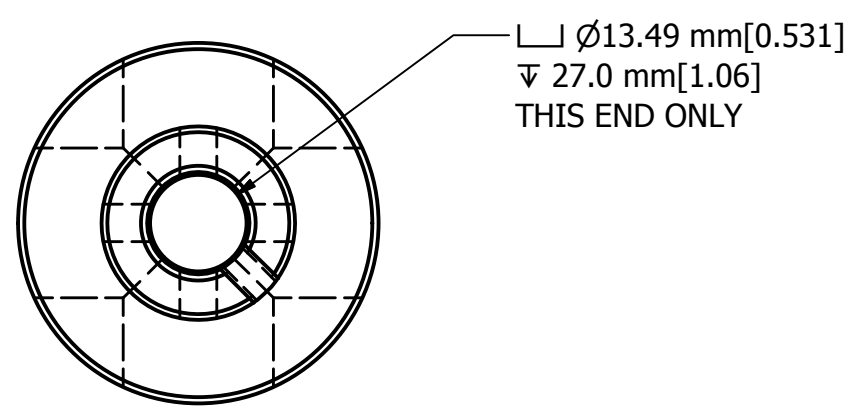
DESCRIPTION: LEFT UPPER LEG ASSY.

472-5100-1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	REM CONNECTION HOLES; CHANGE MASS; CHANGE HOLE DIAMETER	23SEP02	N/A
	B	CHANGE TO BORE, ONE END ONLY	22OCT02	N/A
	C	CENTERS ADDED	11DEC02	TORCH
	D	REDRAWN IN INVENTOR	3/22/2007	BB



SECTION C-C
SCALE 1 : 1



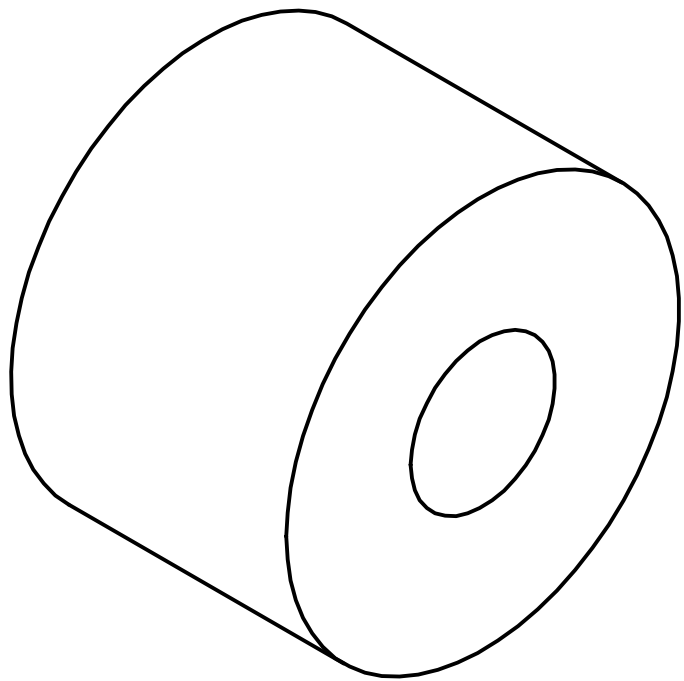
MASS: .467 Kg [1.06 lbs.]

TABLE "A"	
Metric Tolerances	Inch Tolerances
XX. ±0.50mm	XX. ±.020"
XX.X ±0.10mm	XX.X ±.004"
XX.XX ±0.05mm	XX.XX ±.002"

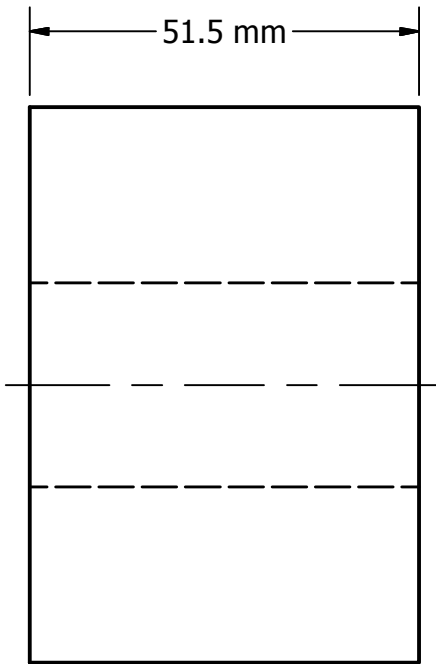
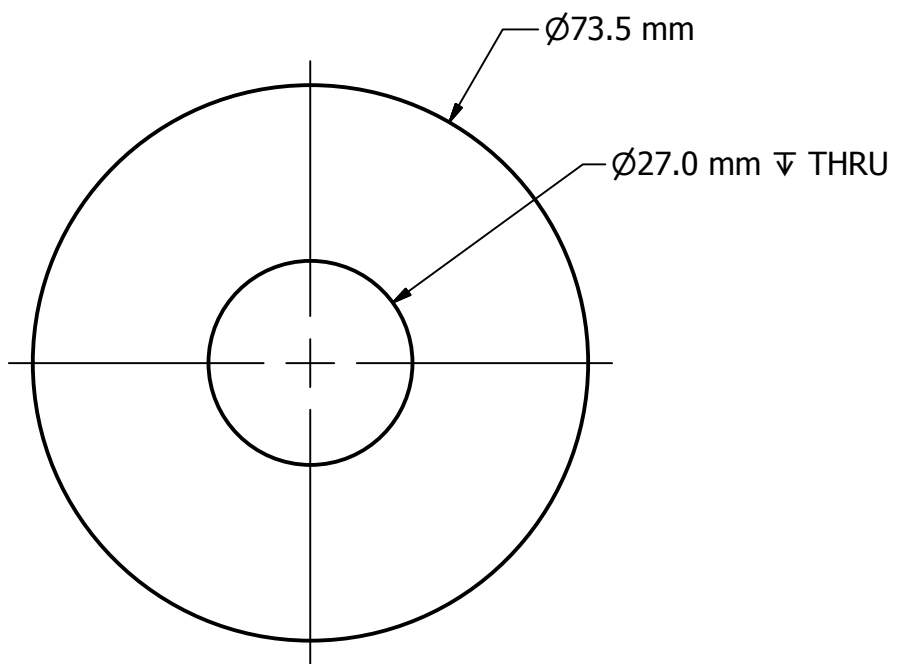
- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN INCHES.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{125}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UNIVERSAL LEG L.C. STRUCTURAL REPLACEMENT
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS ANGLES FINISH XX ± 0.1 ± 1 125 XXX ± 0.05 FRACTION 1/64		REMOVE BURRS & BREAK SHARP EDGES DATE: 1/18/2007 BY: BRYAN B		
PROJECT NO:		DATE:	3/22/2007	SCALE: 1:1
MATERIAL:	4140 STEEL	ENGINEER:	KSG	DRAWING NO.: W50-51060
FINISH:	N/A	DATE:		REV: D
FINISH:	.0003 ELECTROLESS NICKEL PLATE			

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM206 R0 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



SCALE 1.000



NOTES:

1. MATERIAL: NATURAL RUBBER, 60 ± 5 SHORE "A"
ADJUST DUROMETER TO MEET DYNAMIC PERFORMANCE
2. TOLERANCE ± 0.5 mm ALL DIMENSIONS

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

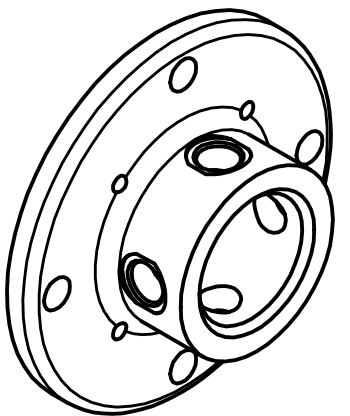
TOLERANCES		
DECIMALS	ANGLES	FINISH
X ± 0.5	± 0.5	1.6
.XX ± 0.2		
.XXX ± 0.1		
.XXXX ± 0.01		



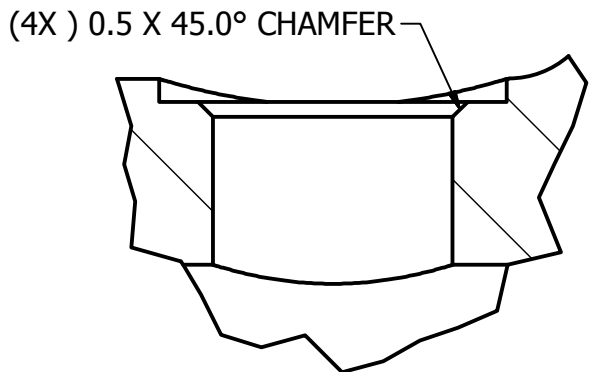
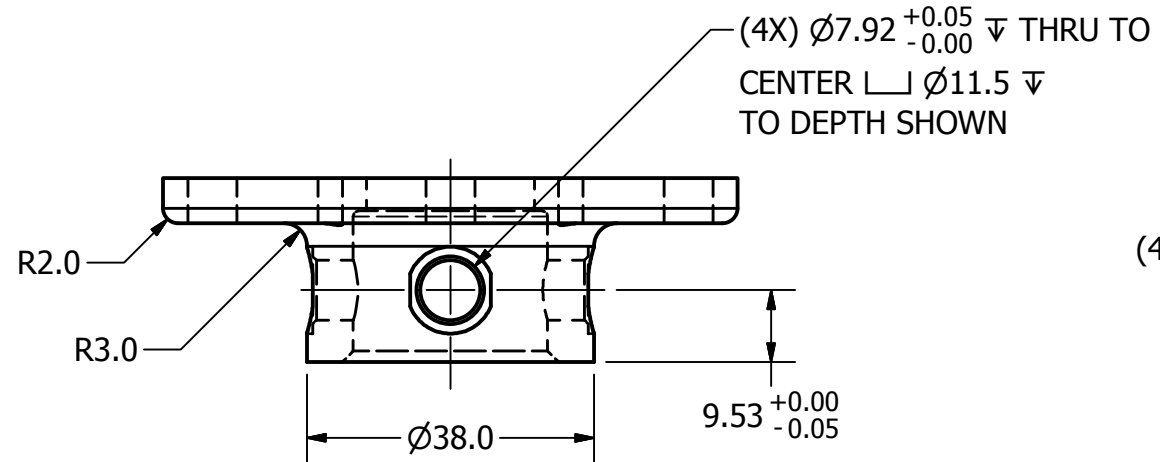
472-5100-2	1	PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	DATE:	8/17/2011
472-5100-2	1	MATERIAL: SEE NOTES	DRAWN BY:	KHS	DATE:
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	TMV	DATE:
TOTAL QTY IN DUMMY	2	FINISH:	ENGINEER:	J. WANG	DATE:

DESCRIPTION: COMPRESSION ELEMENT-UPPER LEG		SIZE: SHEET A3 1 of 1	DRAWING NO.:	472-5206	REV:	A
SCALE: 1:1						

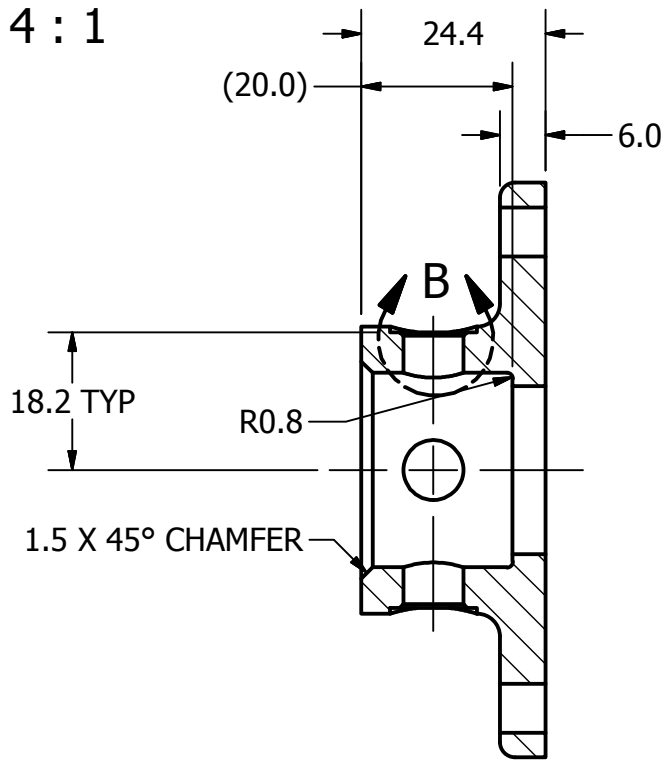
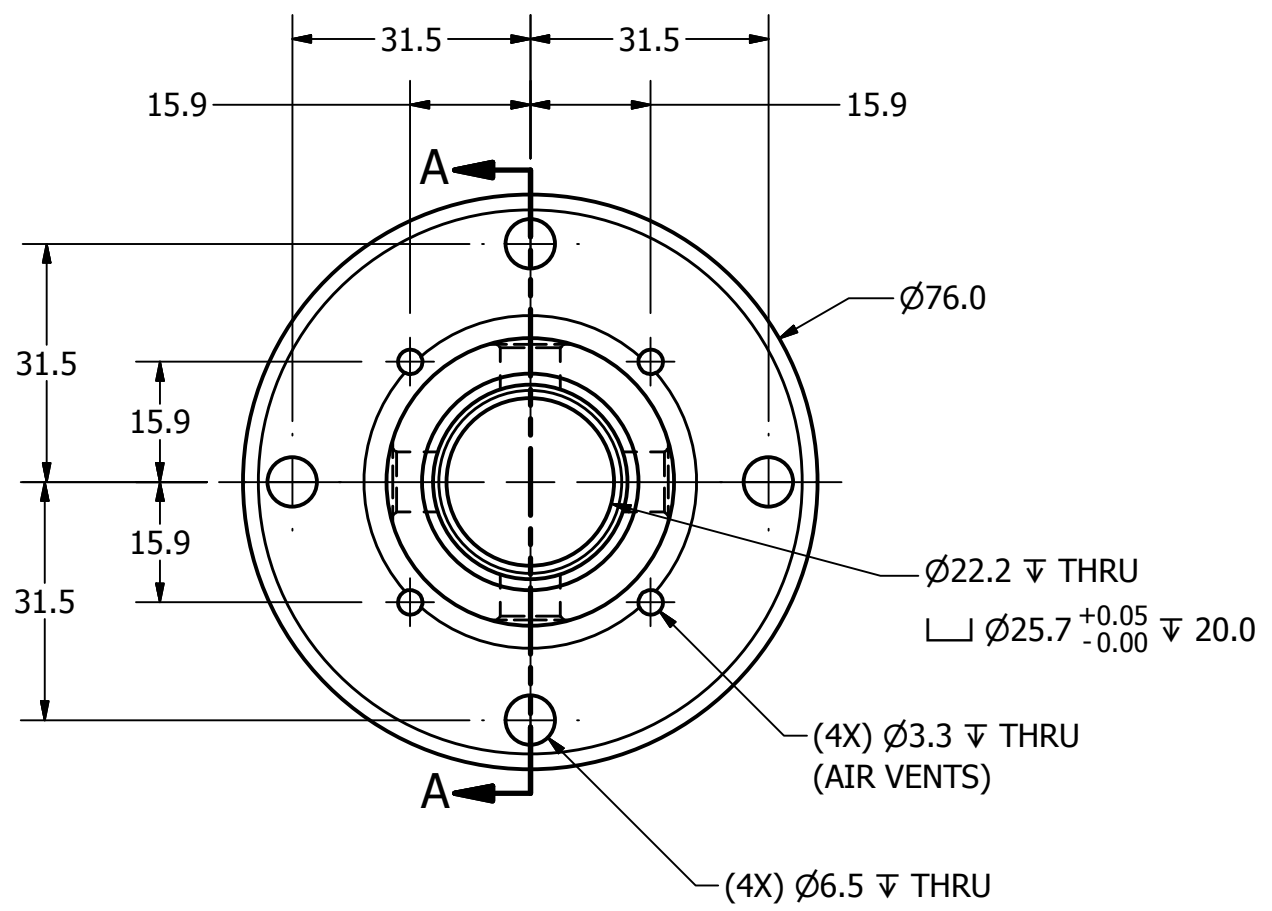
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM203 R0 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



SCALE .750



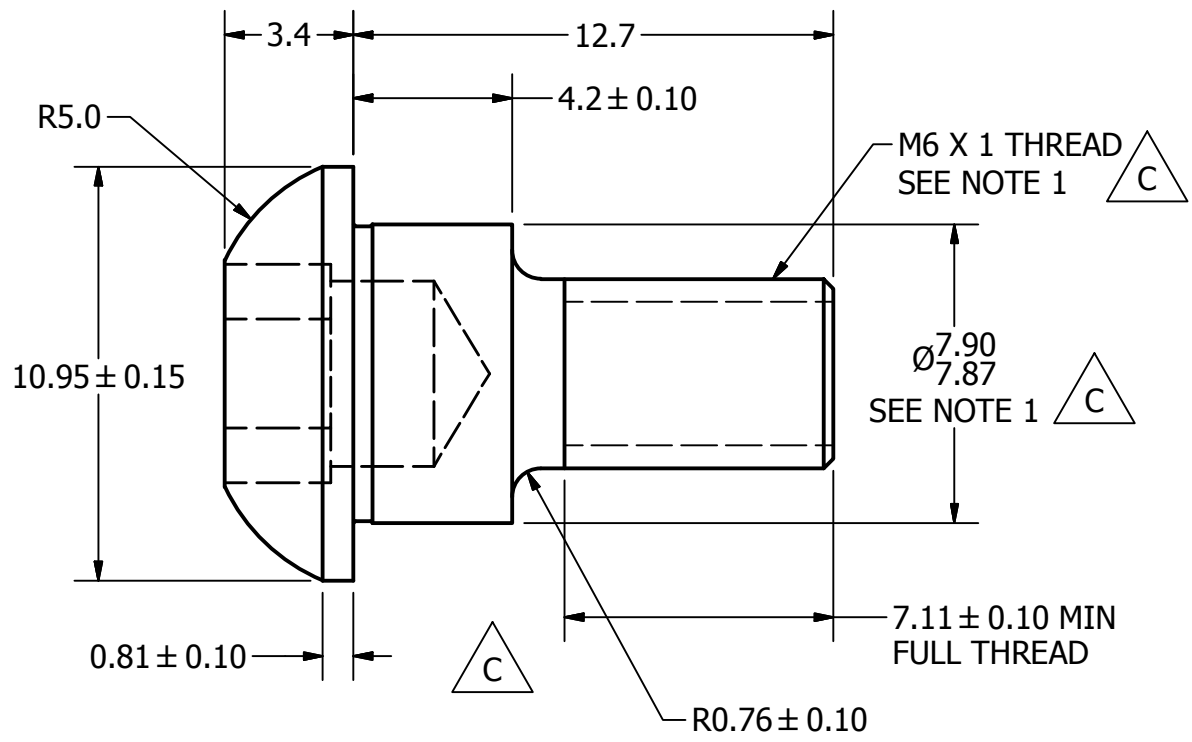
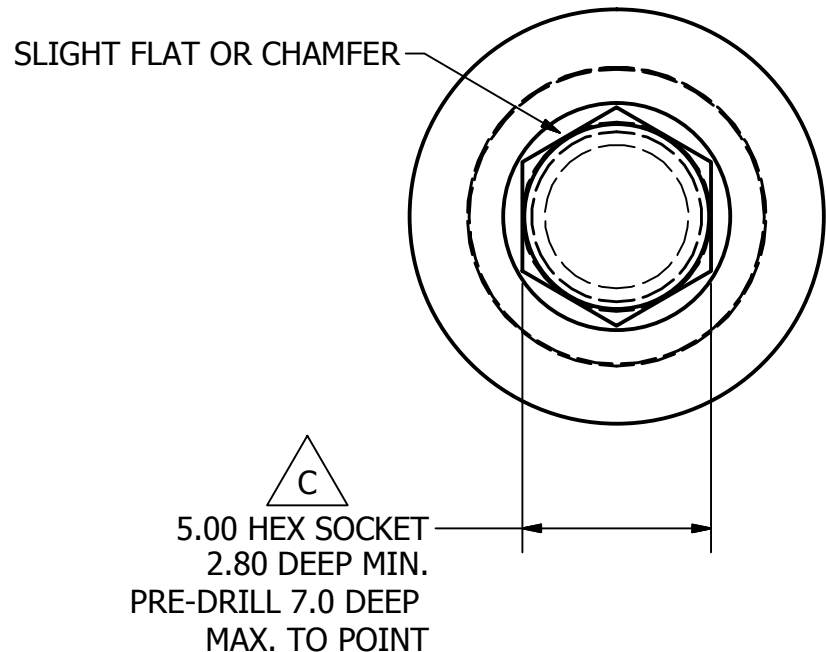
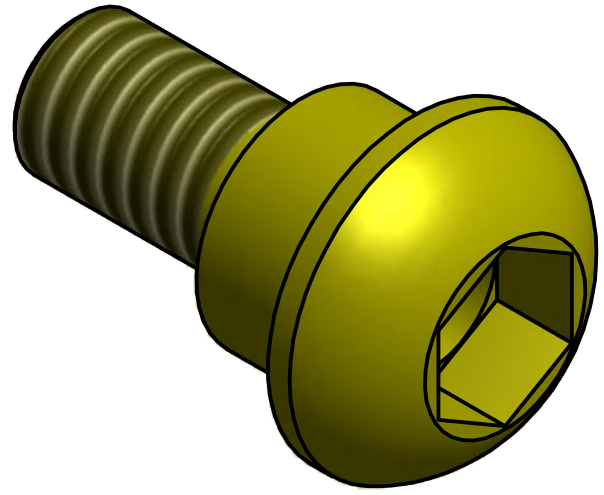
DETAIL B
SCALE 4 : 1



SECTION A-A

472-5100-2		1	PROJECT NO.	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5100-1		1	MATERIAL: Aluminum-7075-T6	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.5 XXX ± 0.1 ± 0.1 XXXX ± 0.01 ± 0.01		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY: TMV	DATE: 9/9/2011	DATE: 8/17/2011	SIZE: SHEET A31 of 1 SCALE: 1:1
TOTAL QTY IN DUMMY		2	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/26/2012	DRAWING NO.: 472-5203	

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	SP	JWANG	5/24/05
5708	B	CHANGE APPLICATION QTY FROM 16 TO 4	RN		10/31/05
70730	C	REDRAWN IN INVENTOR. .25 RADIUS WAS MIN. UNDERCUT. 2.80 DEEP MIN WAS 3.5 DEEP MIN. ADD REF TO CONCENTRICITY NOTE. REMOVE 'USED ON' TABLE, SCALE WAS 4 : 1, DISCONTINUE DN/FT TITLE BLOCK DRAWINGS, RE-RELEASE AS HUMANETICS TITLE BLOCK, NO DN/FT SUFFIX (THIS DWG WAS FT)	GMB		1/14/2013

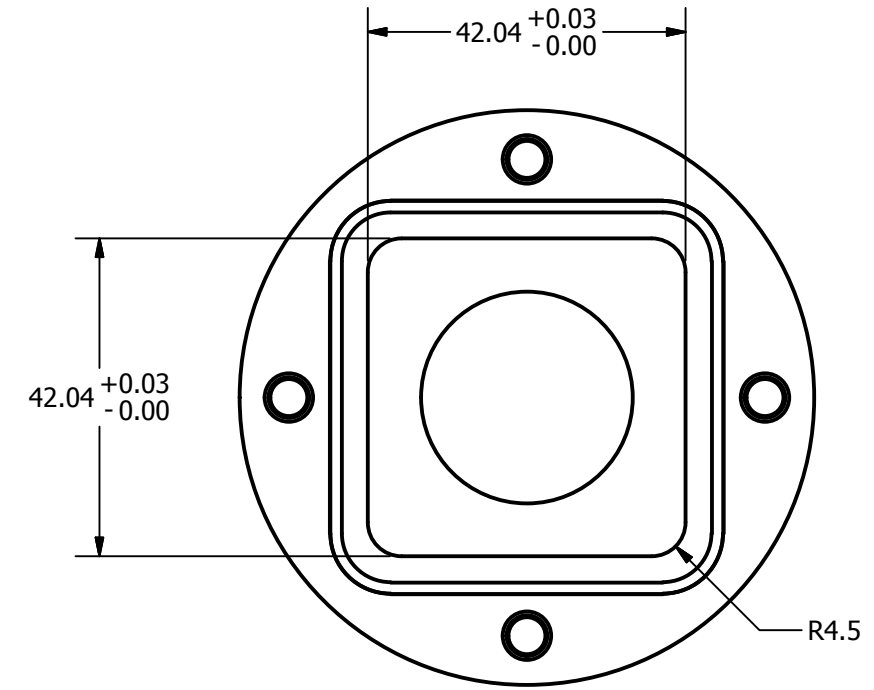
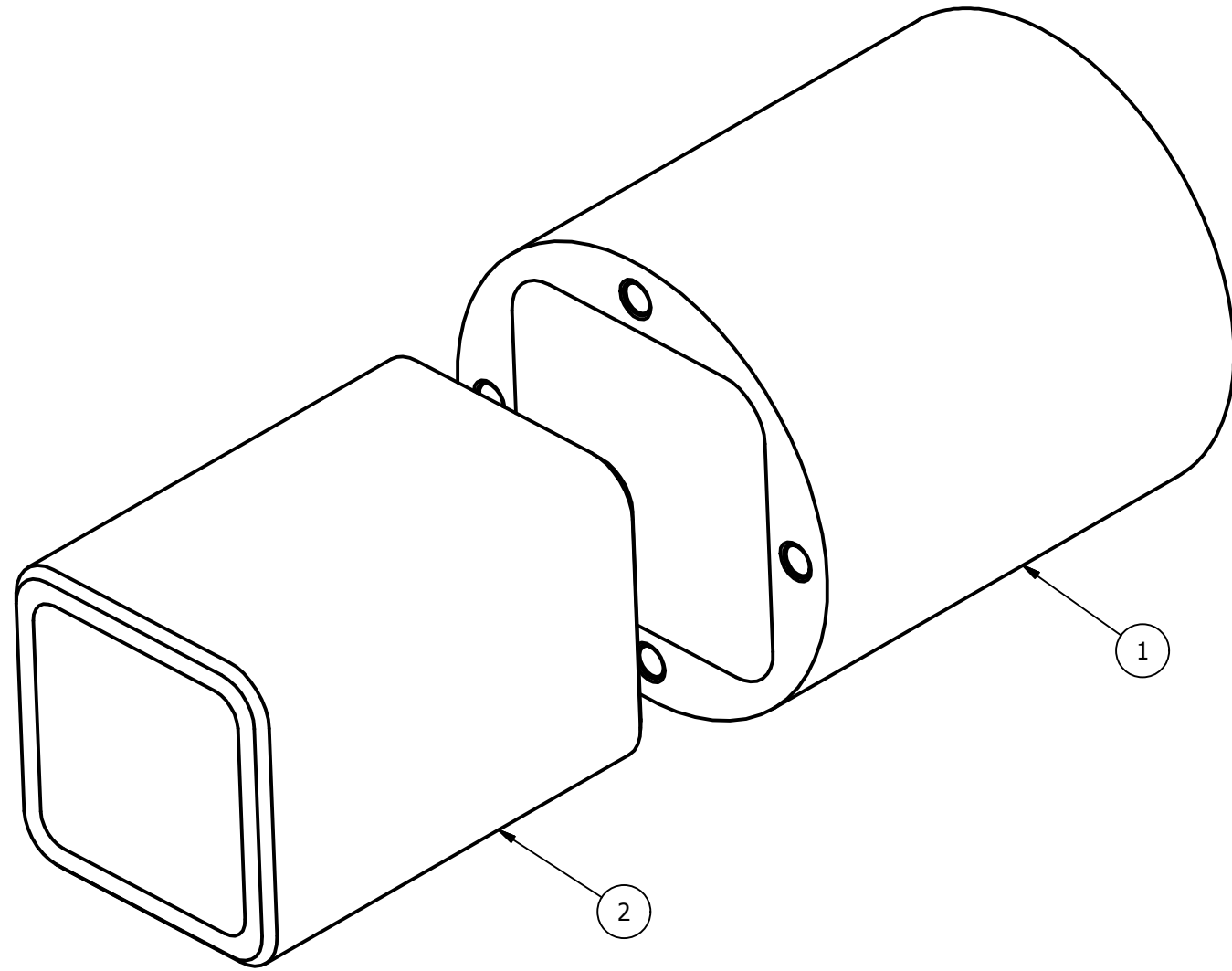


NOTES:

1. SHOULDER TO BE CONCENTRIC TO AXIS OF THREAD WITHIN .02 MM TOTAL INDICATOR READING.
2. REMOVE BURRS AND BREAK SHARP EDGES
3. FINISH: .002 - .008 ZINC PER SIDE YELLOW DICHROMATE
4. DIMENSIONAL LIMITS AND THREAD SIZES APPLY AFTER FINISH

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES</small> <small>DECIMALS ANGLES FINISH</small> <small>XX ± 0.1 ± 1 125</small> <small>X.XX ± 0.01 ± 1</small> <small>X.XXX ± 0.005 FRACTIONS ± 1/64</small>		
PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:	
MATERIAL: 4140 STEEL	DRAWN BY: gbrock	DATE: 1/14/2013	MODIFIED BHSS M6 THREAD	
HEAT TREAT: Rc 36-42	CHECKED BY:	DATE:	SIZE: SHEET	DRAWING NO.:
FINISH: SEE NOTES	ENGINEER: J. WANG	DATE: 11/9/2005	A31 of 1	W50-61042
			SCALE: 5 : 1	C

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM200 R00 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	JSJ

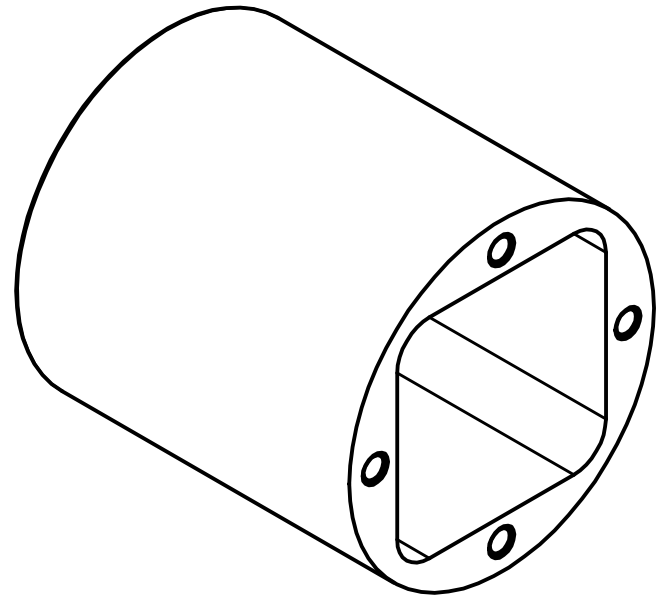


MACHINE AFTER ASSEMBLY

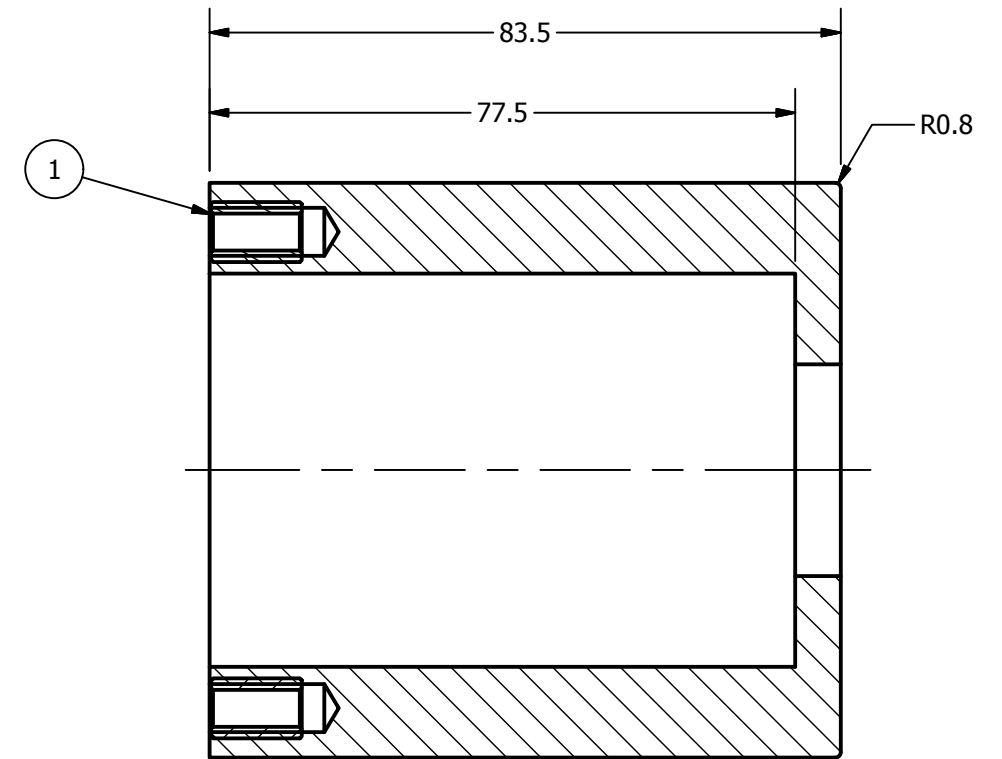
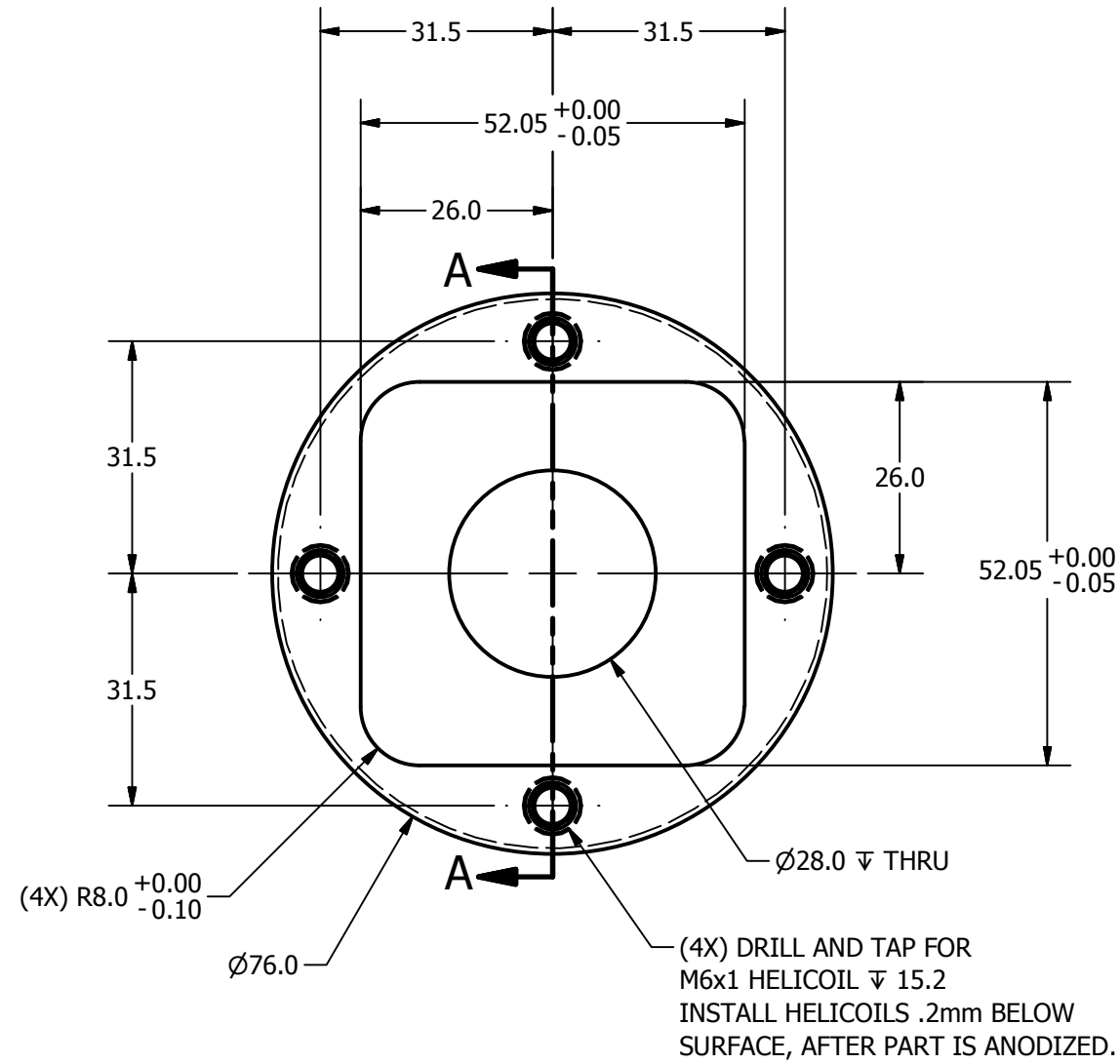
NOTES:
1. BOND ITEM 1 TO ITEM 2 BEFORE FINAL MACHINING.

2	1	472-5202	FEMUR BUSHING
1	1	472-5201	FEMUR CUP ASSY.
ITEM	QTY	PART NUMBER	DESCRIPTION
DO NOT SCALE DRAWING		TOLERANCES	
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>X ± 0.5 ± 0.5 1.6</small> <small>.XX ± 0.2 ± 0.5 1.6</small> <small>.XXX ± 0.1 ± 0.5 1.6</small> <small>X.XXX ± 0.01 ± 0.5 1.6</small>	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL:		DLW	DATE: 8/17/2011
NEXT ASSEMBLY		TMV	DATE: 9/13/2011
TOTAL QTY IN DUMMY		J. WANG	DATE: 1/26/2012
<small>SIZE: SHEET</small> A3 1 of 1			<small>DRAWING NO.:</small> 472-5200
<small>SCALE:</small> 1:1			<small>REV:</small> A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM201 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



SCALE .750



SECTION A-A

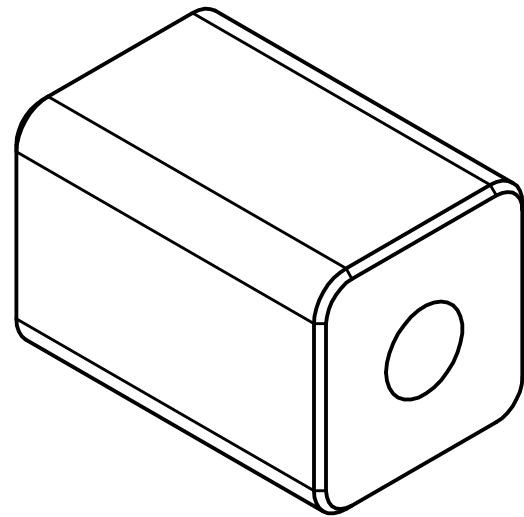
ITEM	QTY	PART NUMBER	DESCRIPTION
4	4	5000422	HELICOIL, M6 X 1 X 12

Parts List

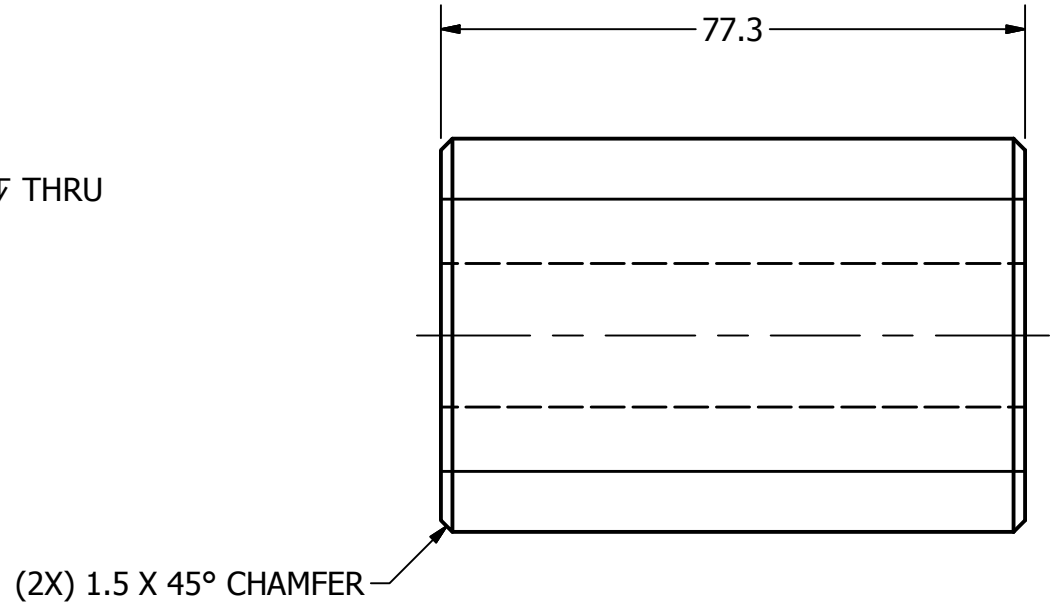
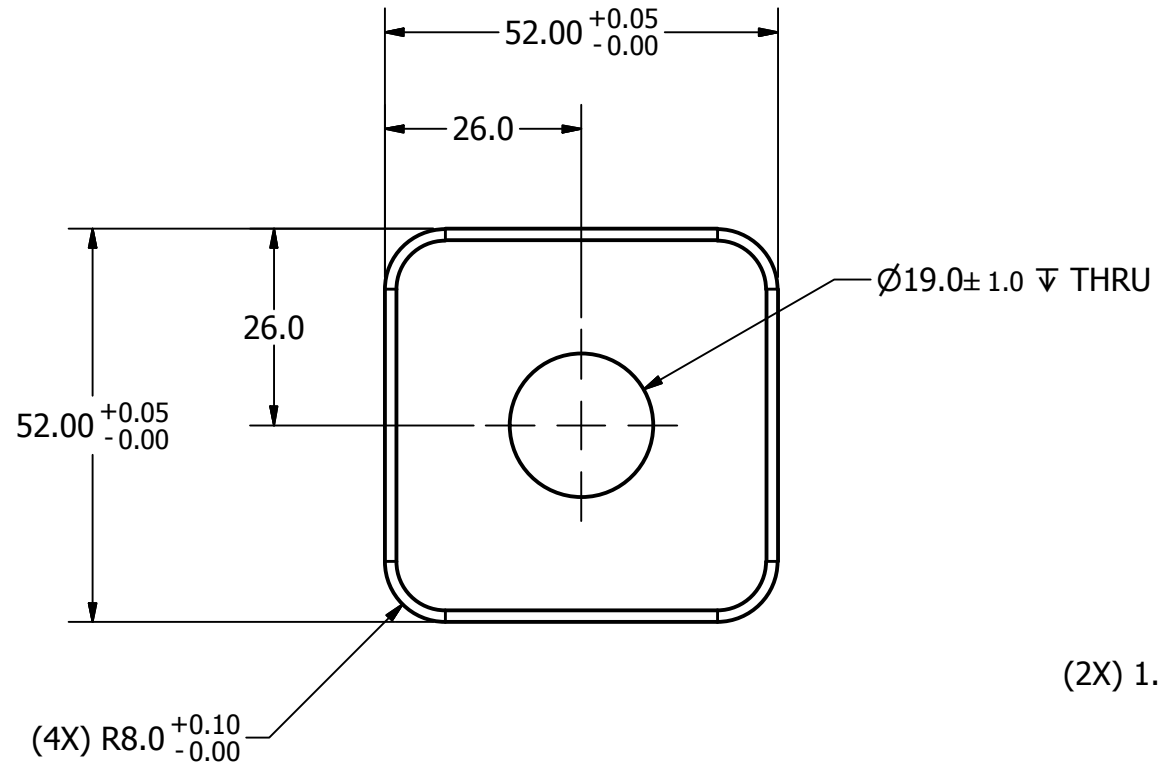
DO NOT SCALE DRAWING	TOLERANCES	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6	
PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION:
472-5200	MATERIAL: 7076-T6 ALUMINUM	FEMUR CUP ASSY.
NEXT ASSEMBLY	HEAT TREAT:	DATE: 8/17/2011
TOTAL QTY IN DUMMY	FINISH: CLEAR ANODIZE	CHECKED BY: KHS
		DATE: 9/12/2011
		ENGINEER: J. WANG
		DATE: 1/26/2012

SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-5201	REV: A
SCALE: 1:1			

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM202 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



SCALE .750



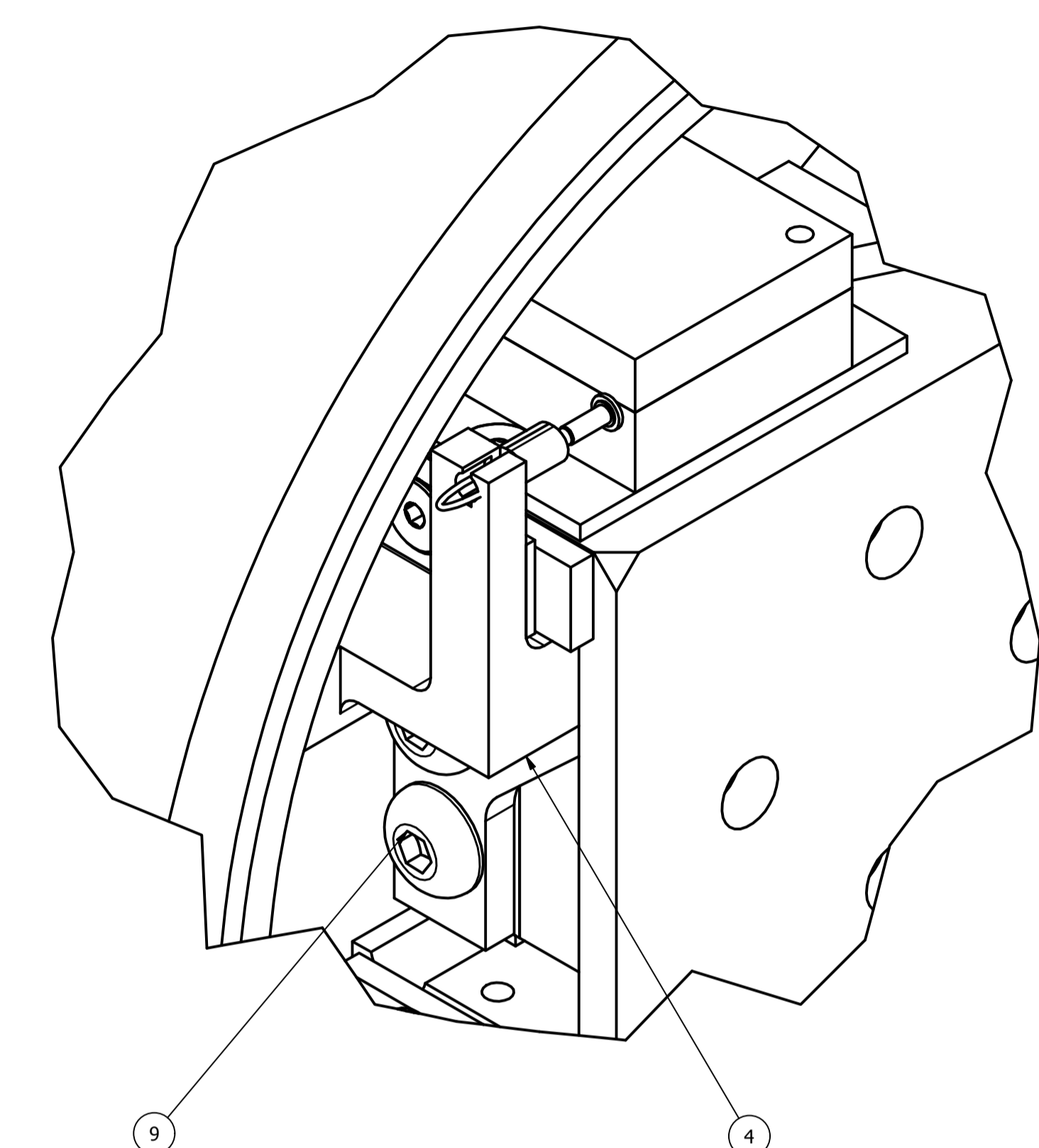
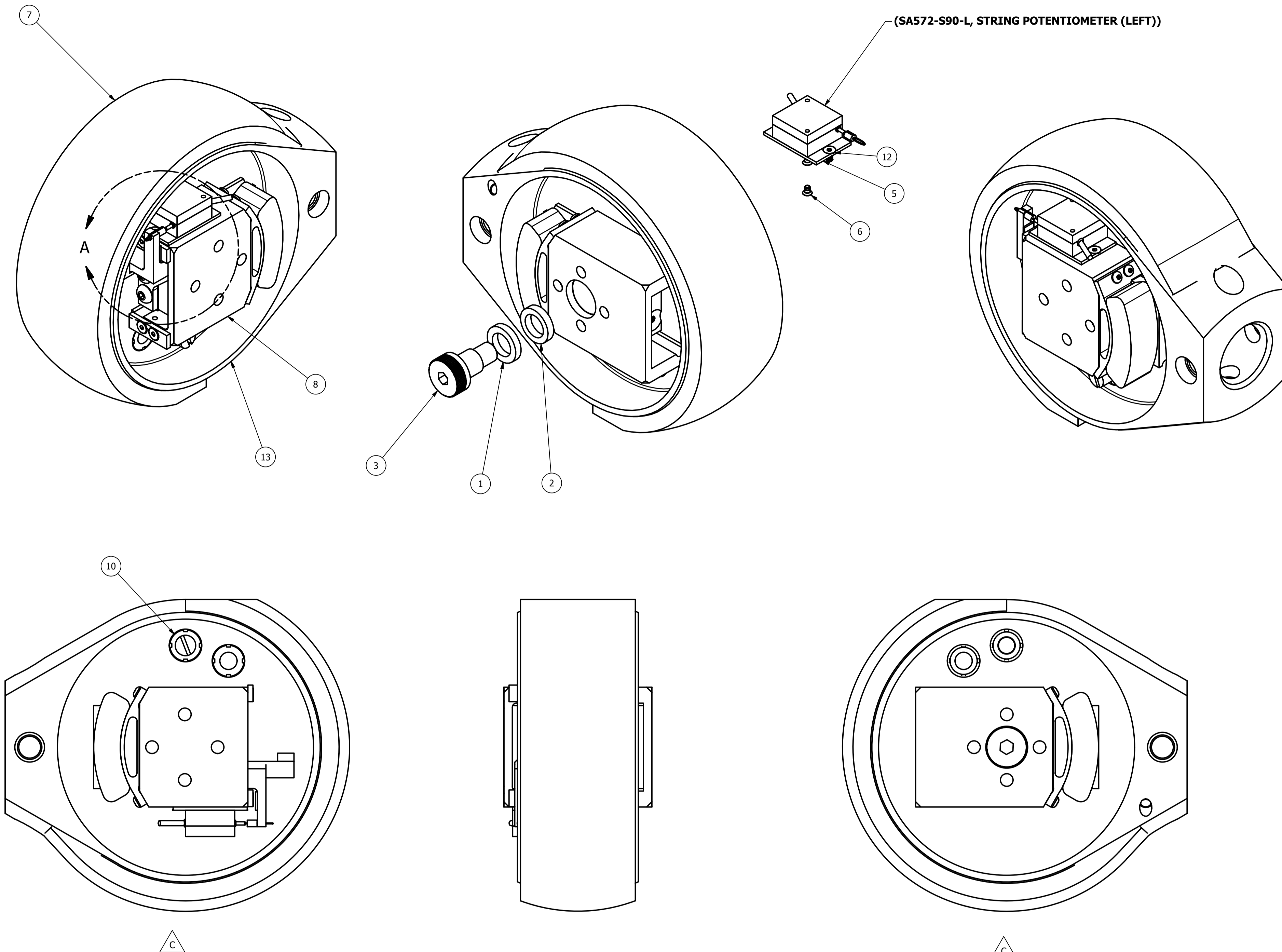
NOTES:
 1. MUST BE ACETAL HOMOPOLYMER, PTFE FILLED,
 MIN. COMPRESSIVE STRENGTH 80 Mpa. COLOR BROWN

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
PROJECT NO.:	472-5200	MATERIAL:	SEE NOTES	DESCRIPTION: FEMUR BUSHING
DRAWN BY:	KHS	CHECKED BY:	TMV	DATE: 8/17/2011
HEAT TREAT:		ENGINEER:	J. WANG	DATE: 1/26/2012
TOTAL QTY IN DUMMY	2	FINISH:		DATE: 9/9/2011

SIZE: A3	SHEET: 1 of 1	DRAWING NO.: 472-5202	REV: A
SCALE: 1:1			

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM209 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	5000723 WAS 5000595	7/19/2012	BK
	C	CORRECTED SIDE VIEWS	9/29/2015	DW

(SA572-S90-L, STRING POTENTIOMETER (LEFT))



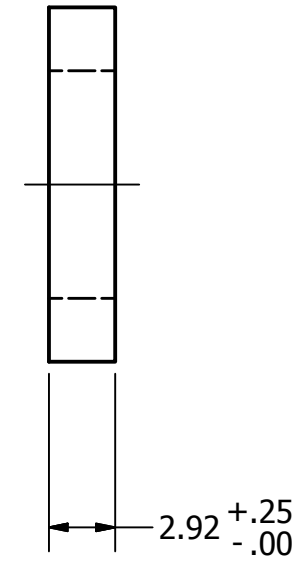
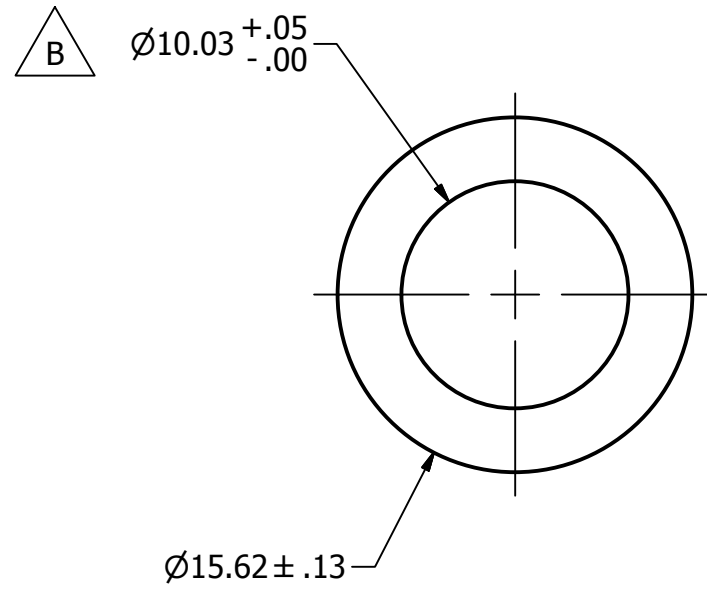
DETAIL A
SCALE 3 : 1

ITEM	QTY	PART NUMBER	DESCRIPTION
12	2	5000723	SCREW, FHCS M2.5-0.45 x 5
11	1	472-5350	KNEE CAP ASSEMBLY
10	1	472-5763	PIN, KNEE STOP
9	2	5001075	BHCS, M4 X .7 X 6
8	1	472-5310	ASSY, INBOARD/OUTBOARD SLIDER
7	1	472-5301	KNEE FLESH INSERT-MOLDED
6	2	9004003	SCREW, FHCS #2-56 X 1/8" PHILLIPS HEAD
5	1	472-5305	PLATE, MOUNT
4	1	472-5306	ASSEMBLY, POT STRING HOLDER (LEFT)
3	1	472-5302	BOLT, SHOULDER
2	1	472-5304	WASHER, COMPRESSION
1	1	472-5303	WASHER, SLIDING KNEE

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED	ALL DIMENSIONS ARE TO BE HUNDRETHS OF AN INCH UNLESS OTHERWISE SPECIFIED	±.005	±.010		
FINISHES	SHOW HIDDEN & BREAK SHARP EDGES	±.005	±.010		

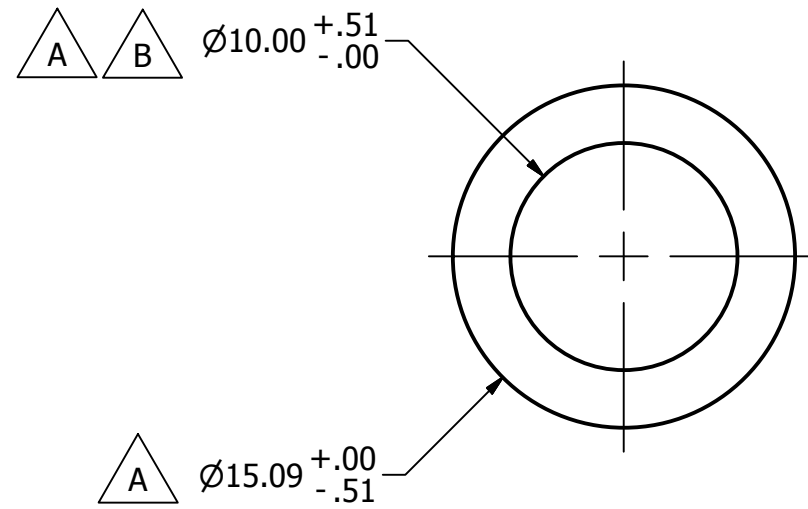
QTY	DESCRIPTION	DATE	BY
1	472-5100-1	8/17/2011	HORCHLER
1	472-5100-1	1/28/2012	J. WANG

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 78051-32 REV A AND CONVERTED TO METRIC FOR THOR-M; MATERIAL WAS 416 S.S.	8/19/2011	JSJ
	B	Ø10.03 WAS Ø9.55	7/19/2012	BK



472-5700		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5300		1	MATERIAL: 304 Stainless Steel	 THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
NEXT ASSEMBLY		QTY	HEAT TREAT:	REMOVE BURRS & BREAK SHARP EDGES	DATE: 8/17/2011	DATE:	DESCRIPTION: WASHER, SLIDING KNEE
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER: J. WAMG	DATE: 1/26/2012	DATE:	
					SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-5303
					SCALE: 3.000		REV: B

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 78051-33 REV - AND CONVERTED TO METRIC FOR THOR-MØ9.53+.51/-.00 WAS Ø10.31, 15.09+.00/-.51 WAS Ø14.28	8/19/2011	JSJ
	B	Ø10.00 WAS Ø9.53	7/19/2012	BK



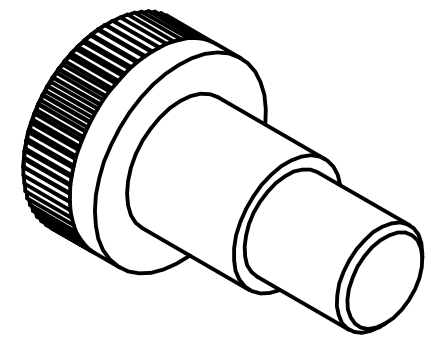
NOTE:

1. DATA SOURCE
MP950
HI-TUFF THERMOSET PRODUCTS

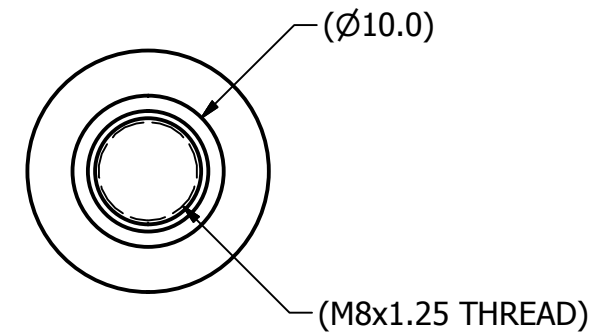
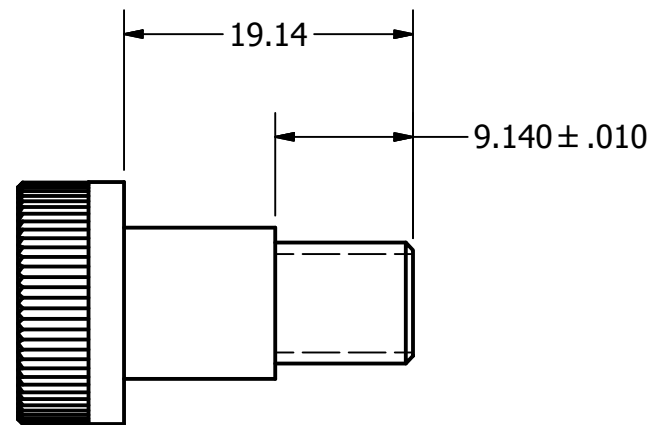
MECHANICAL PROPERTY:

DUROMETER (± 5)	95A
TENSILE PSI	6000-7000
ELONGATION %	300-350
ELONGATION SET	9
TEAR DIE B (#/IN)	550-650
TEAR DIE C (#/IN)	450-550
MODULUS #@ 300%	4500-5500
COMPSET %	1.0
BASE	ETHER

472-5700		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5300		1	MATERIAL: SEE NOTES	THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
NEXT ASSEMBLY		QTY	HEAT TREAT:	REMOVE BURRS & BREAK SHARP EDGES	DATE:	8/17/2011	DESCRIPTION: WASHER, COMPRESSION
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER:	DATE:	1/26/2012	SIZE: SHEET A3 1 of 1 SCALE: 3.000
						472-5304	B



SCALE 2.000



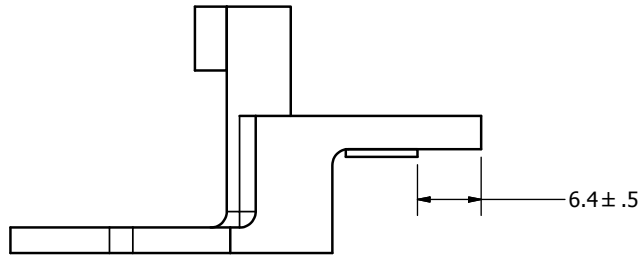
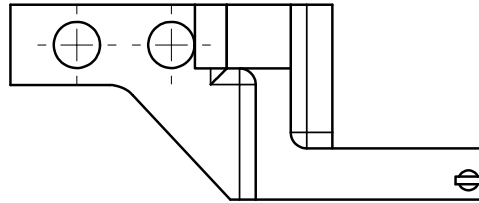
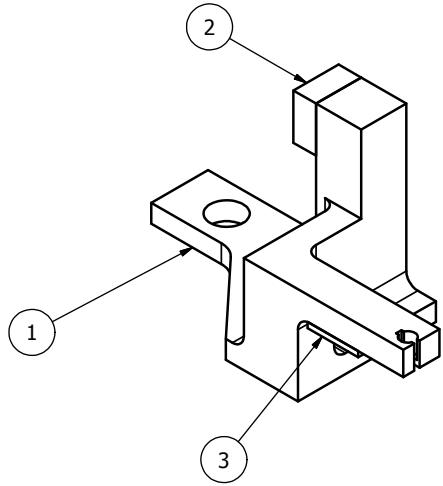
NOTE:

1. MAKE FROM 5000588, M10 X 12 (M8 THREAD) SOCKET HEAD SHOULDER SCREW, MODIFY AS SHOWN.

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 79051-30 REV -AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION 		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
PROJECT NO.:	472-5700	1	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: BOLT, SHOULDER
MATERIAL:	SEE NOTES	1	DATE: 8/17/2011	
HEAT TREAT:		QTY	CHECKED BY: TMV	DATE: 9/14/2011
FINISH:		2	ENGINEER: J. WANG	DATE: 1/26/2012
TOTAL QTY IN DUMMY		2	SCALE: 2:1	SIZE: A3 SHEET: 1 of 1 DRAWING NO.: 472-5302 REV: A

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1650-2 REV E AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

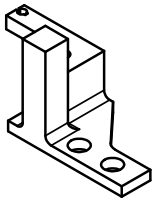


- NOTES:
 BONDING INSTRUCTIONS:
 1. SAND SURFACES TO BE BONDED.
 2. CLEAN SURFACES WITH MEK.
 3. CLEAN SURFACES WITH ALCOHOL.
 4. APPLY LOCTITE 411, OR EQUIVALENT, TO ONE SURFACE.
 5. PRESS PARTS TOGETHER AND APPLY PRESSURE FOR 30 SECONDS AFTER ADHESIVE BECOMES TACKY.

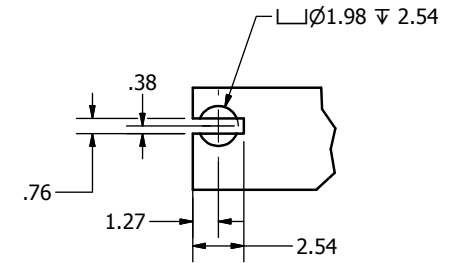
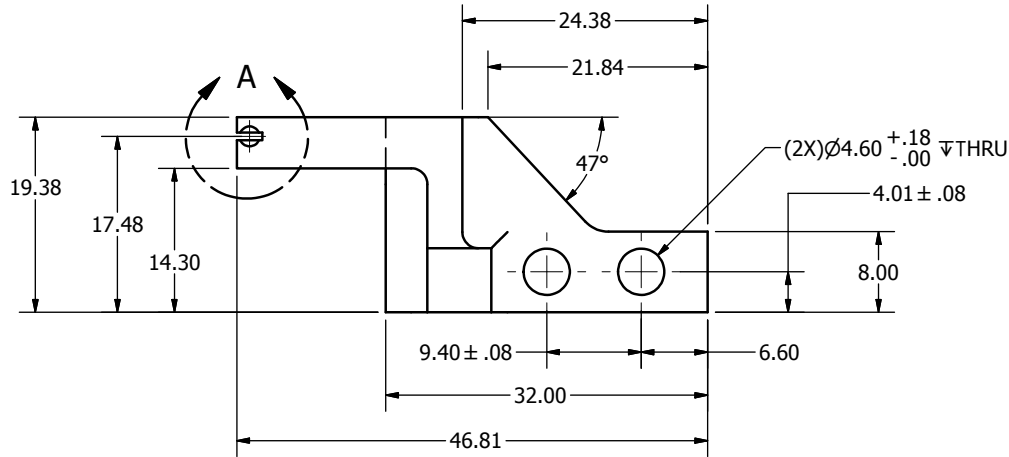
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-5736	BUMPER, RETURN STOP
2	1	472-5735	BUMPER, EXTENSION STOP
1	1	472-5737-1	HOLDER, POT STRING (LEFT)

Parts List

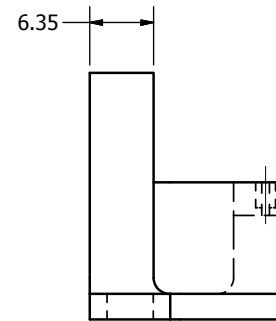
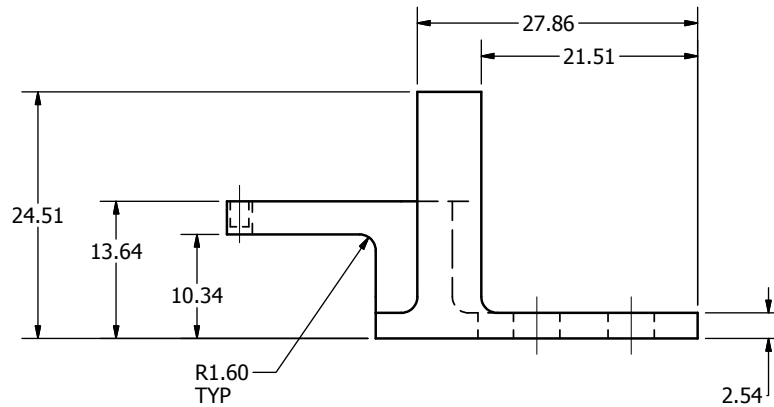
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.:	472-5300	DATE:	8/17/2011	DESCRIPTION: ASSEMBLY, POT STRING HOLDER (LEFT)	
MATERIAL:		DRAWN BY:	KSG		
HEAT TREAT:		CHECKED BY:	TMV		
FINISH:		ENGINEER:	J. WANG	DATE:	9/14/2011
TOTAL QTY IN DUMMY	1	SCALE:	2:1	SIZE:	A3 1 OF 1
			472-5306	REV:	A



SCALE 1.000

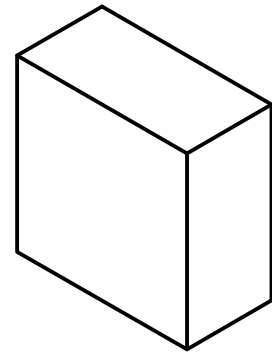


DETAIL A
SCALE 4 : 1

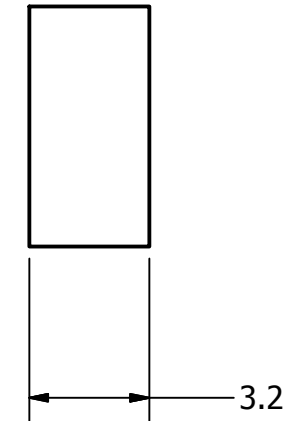
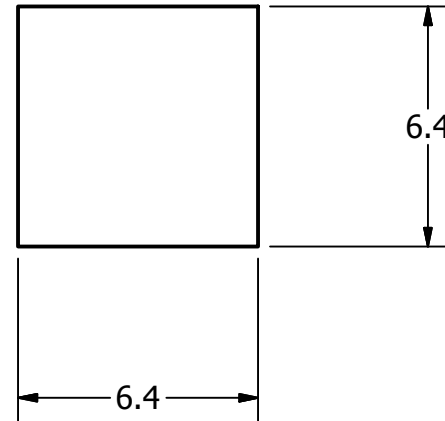


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1648-1 REV F AND CONVERTED TO METRIC FOR THOR-M; FINISH WAS ELECTROLESS NICKEL PLATE .0003 MAX.	8/19/2011	JSJ

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.05 1.6 X.X .02 X.XX .03 X.XXX .01		DESCRIPTION: HOLDER, POT STRING (LEFT)	
PROJECT NO.:	472-5306	MATERIAL:	4140 STEEL	DATE:	8/17/2011
HEAT TREAT:	Rc 42-48	CHECKED BY:	TMV	DATE:	9/12/2011
FINISH:	ELECTROLESS NICKEL PLATE .008 MAX	ENGINEER:	J. WANG	DATE:	1/278/2012
TOTAL QTY IN DUMMY	1	SCALE:	2:1	SHEET:	A31 OF 1
				DRAWING NO.:	472-5737-1
				REV:	A



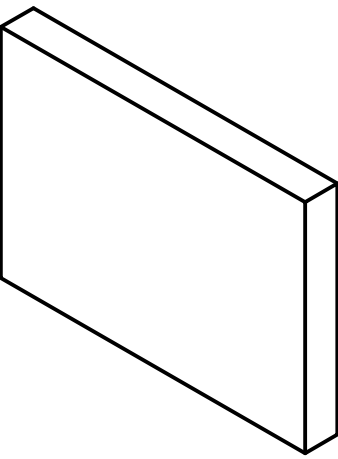
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1646 REV B AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



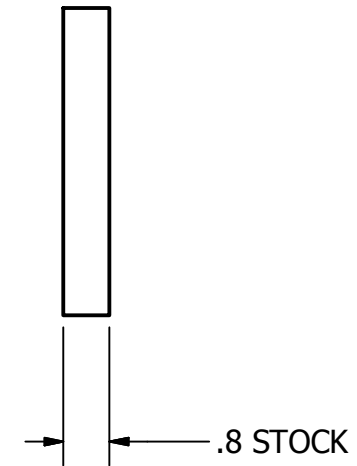
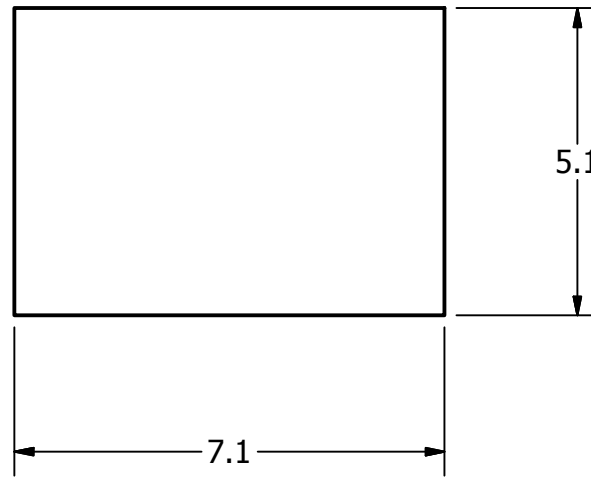
NOTES:

1. MATERIAL: NEOPRENE RUBBER SHORE A 70 ±5.
2. RUBBER DIMENSIONS ±0.5mm, UNLESS OTHERWISE NOTED.

472-5307		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5306		1	MATERIAL: SEE NOTES	THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 X.X ±0.2 ±0.5 1.6 X.XX ±0.1 ±0.5 1.6 X.XXX ±0.01 ±0.5 1.6		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY: TMV	DATE: 9/9/2011	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: BUMPER, EXTENSION STOP
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER: J. WANG	DATE: 1/27/2012	SCALE: 5.000	
SIZE: A3 1 of 1 DRAWING NO.: 472-5735							REV: A



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1647 REV D AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

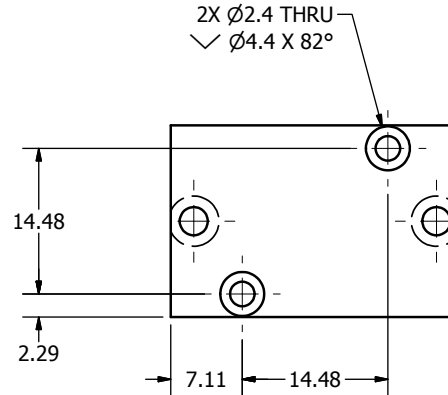
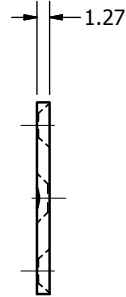
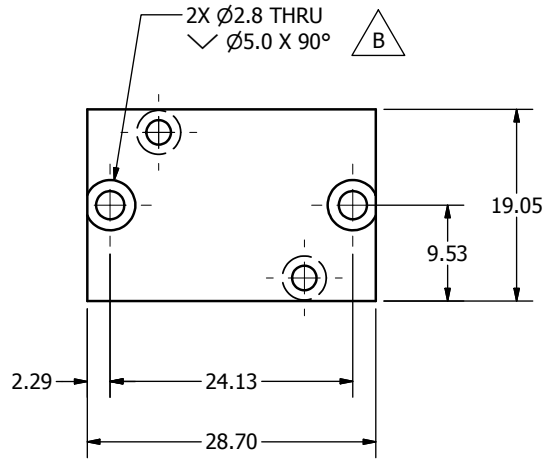
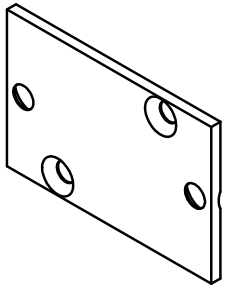


NOTES:

1. MATERIAL: NEOPRENE RUBBER SHORE A 70 ±5.
2. RUBBER DIMENSIONS ±0.5mm, UNLESS OTHERWISE NOTED.

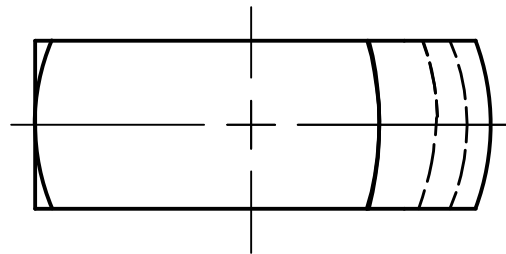
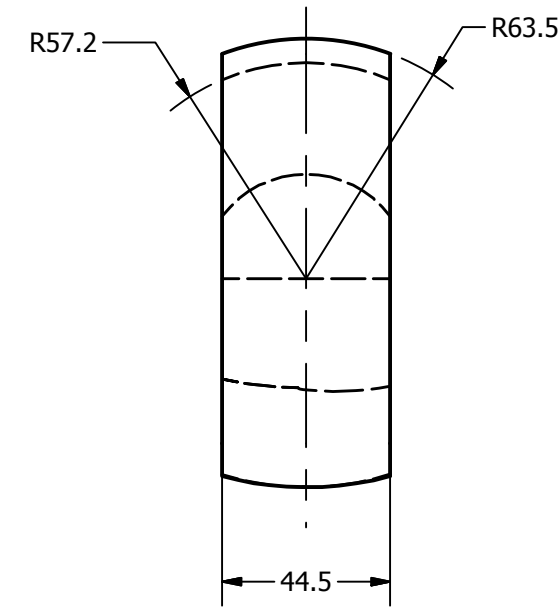
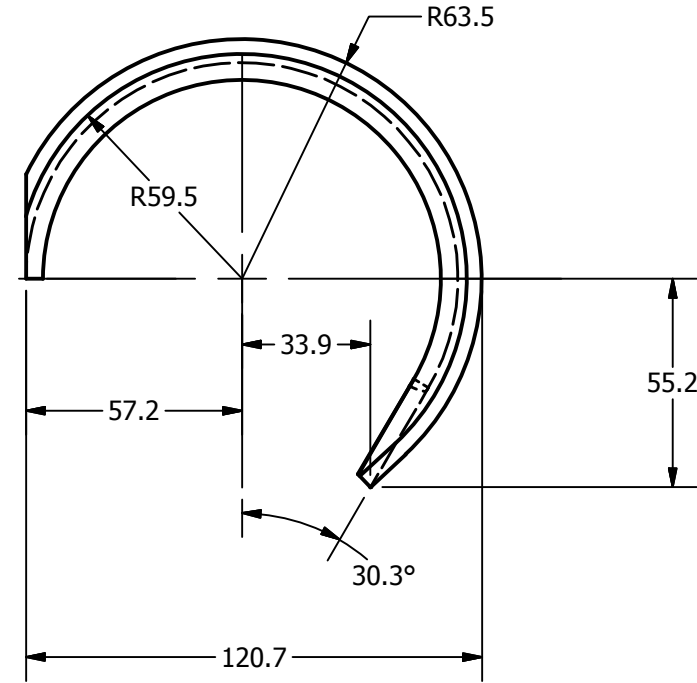
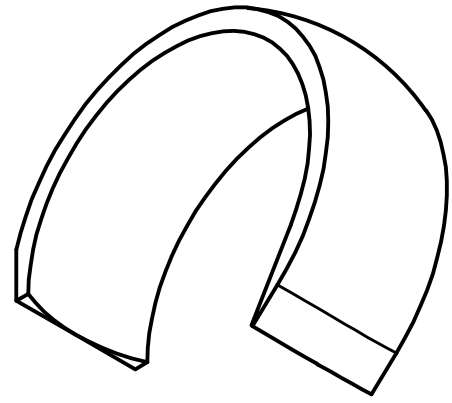
472-5307		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5306		1	MATERIAL: SEE NOTES	 THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		
NEXT ASSEMBLY		QTY	HEAT TREAT:	REMOVE BURRS & BREAK SHARP EDGES	DRAWN BY: KSG CHECKED BY: TMV ENGINEER: J. WANG	DATE: 8/17/2011 DATE: 9/9/2011 DATE: 1/27/2012	DESCRIPTION: BUMPER, RETURN STOP
TOTAL QTY IN DUMMY		2	FINISH:	SIZE: A3 SHEET: 1 OF 1 SCALE: 8:1		DRAWING NO.: 472-5736	

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1638-1 REV G AND CONVERTED TO METRIC FOR THOR-M; ADD FINISH: CLEAR ANODIZE	8/17/2011	JSJ
	B	Ø2.8 C'SINK Ø5.0 WAS Ø2.39 C'SINK Ø4.39	7/19/2012	BK



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5° ✓ XX ± 0.2 1.6 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO.:	472-5300	MATERIAL:	Aluminum-6061-T6	DESCRIPTION:
DATE:	8/17/2011	HEAT TREAT:	KSG	PLATE, MOUNT
CHECKED BY:		FINISH:	CLEAR ANODIZE	SCALE: 2:1
DATE:	1/26/2012	ENGINEER:	J. WANG	SIZE: A3
DATE:		QTY:	1	SHEET: 1 OF 1
DATE:		TOTAL QTY IN DUMMY:	1	DRAWING NO.:
				472-5305

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 78051-27 REV A AND CONVERTED TO METRIC FOR THOR-M	8/29/2011	JSJ

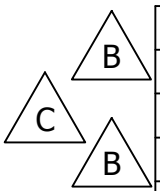
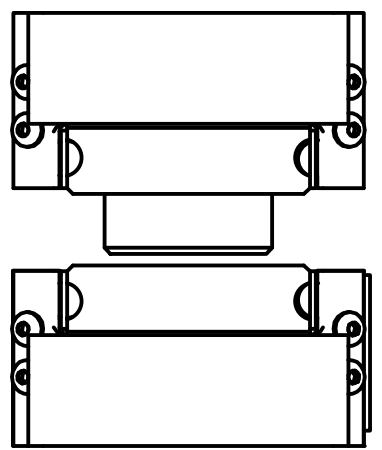
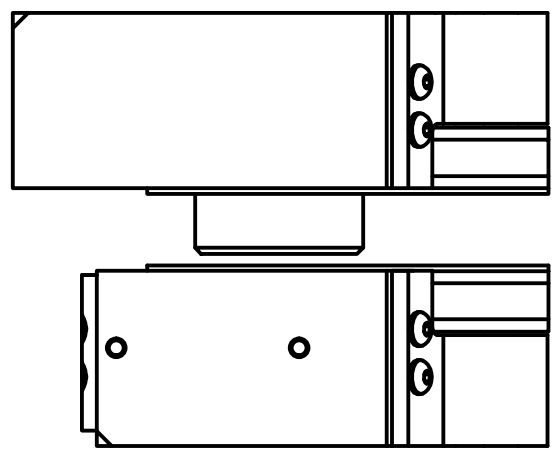
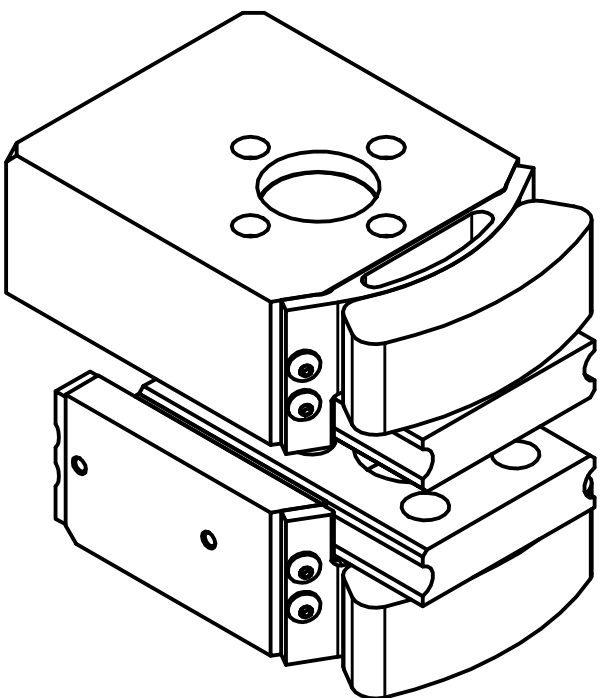
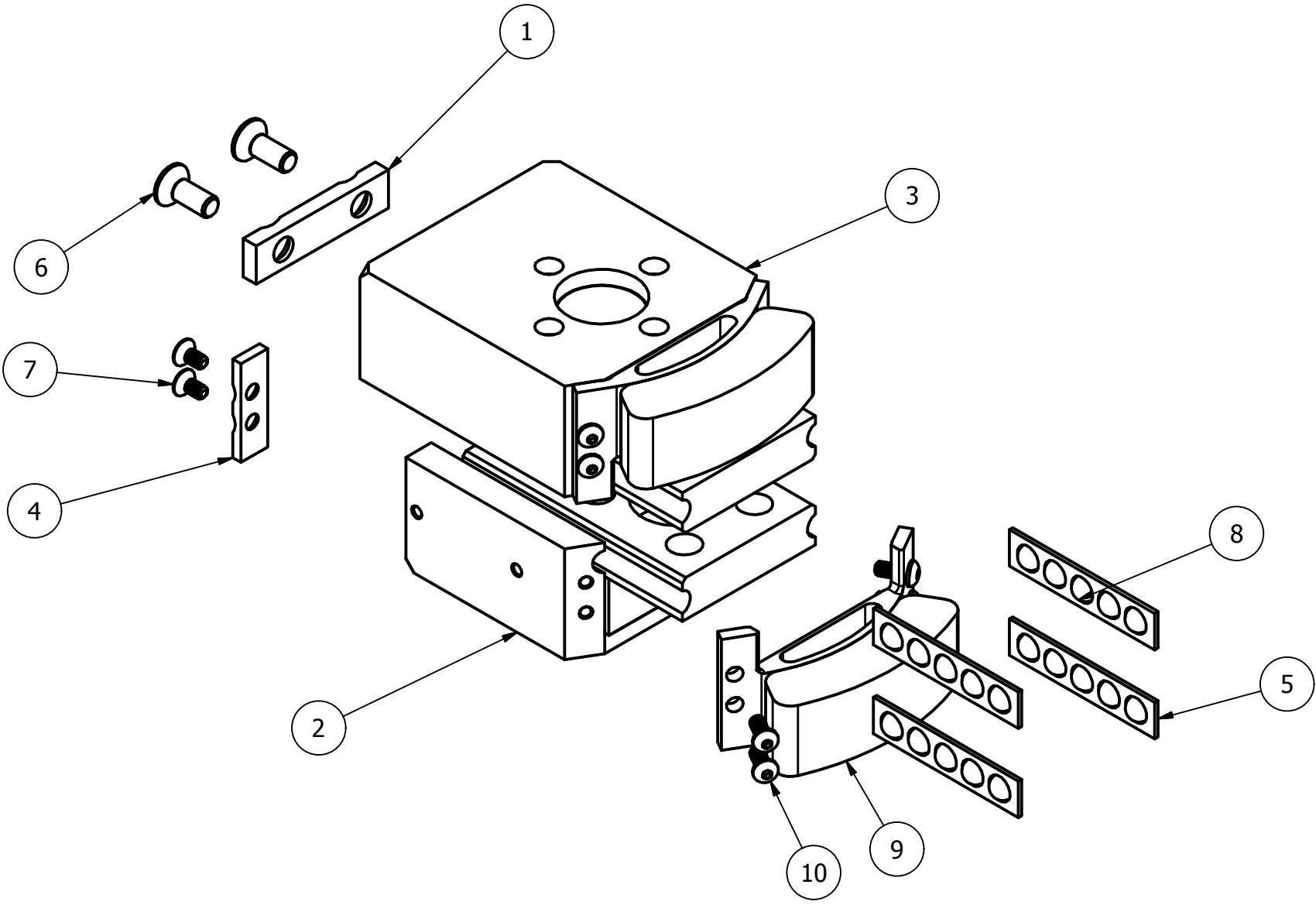


NOTE:

- MATERIAL IS PER SAE J200/ASTM D 2000
 BUTYL 45 DUR.
 4AA725A13 B13K11Z1Z2Z3
 Z1= BUTYL
 Z2= 40 TO 50 DUROMETER
 Z3= KNEE IMPACT TEST

472-5700		1	DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5300		1	THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
NEXT ASSEMBLY		QTY	PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:	
TOTAL QTY IN DUMMY		2	MATERIAL:	jjordan	8/29/2011	KNEE FLESH INSERT-MOLDED	
			HEAT TREAT:	TMV	9/9/2011	SIZE: SHEET	DRAWING NO.:
			FINISH:	J. WANG	1/26/2012	A3 1 of 1	472-5301
						SCALE: 1:2	A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM214 REV A AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	REMOVED 472-5750, 5000003, 472-5738; 5000723 QTY 4 WAS 12; ADDED 472-5358 AND 9010681	2/14/12	KHS
	C	9002186 WAS 472-5355	8/17/2011	BK

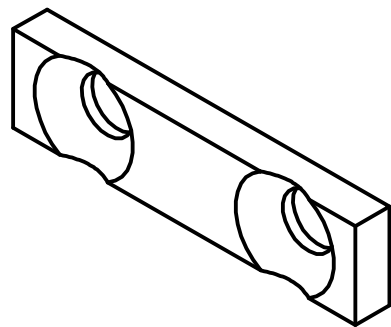


ITEM	QTY	PART NUMBER	DESCRIPTION
10	8	9010681	BHCS M2.5 x 6
9	2	472-5358	KNEE SLIDER STOP ASSY.
8	20	9002186	BALL 4.76mm DIA.
7	4	5000723	FHCS M2.5X5mm
6	2	5000023	FHCS M4X10mm
5	4	472-5733	BRONZE SEPARATOR
4	2	472-5738	STOP, BALL
3	1	472-5330	OUTBOARD SLIDER, MOLDED
2	1	472-5320	INBOARD SLIDER, MOLDED
1	1	472-5740	BALL SLIDER BALL STOP

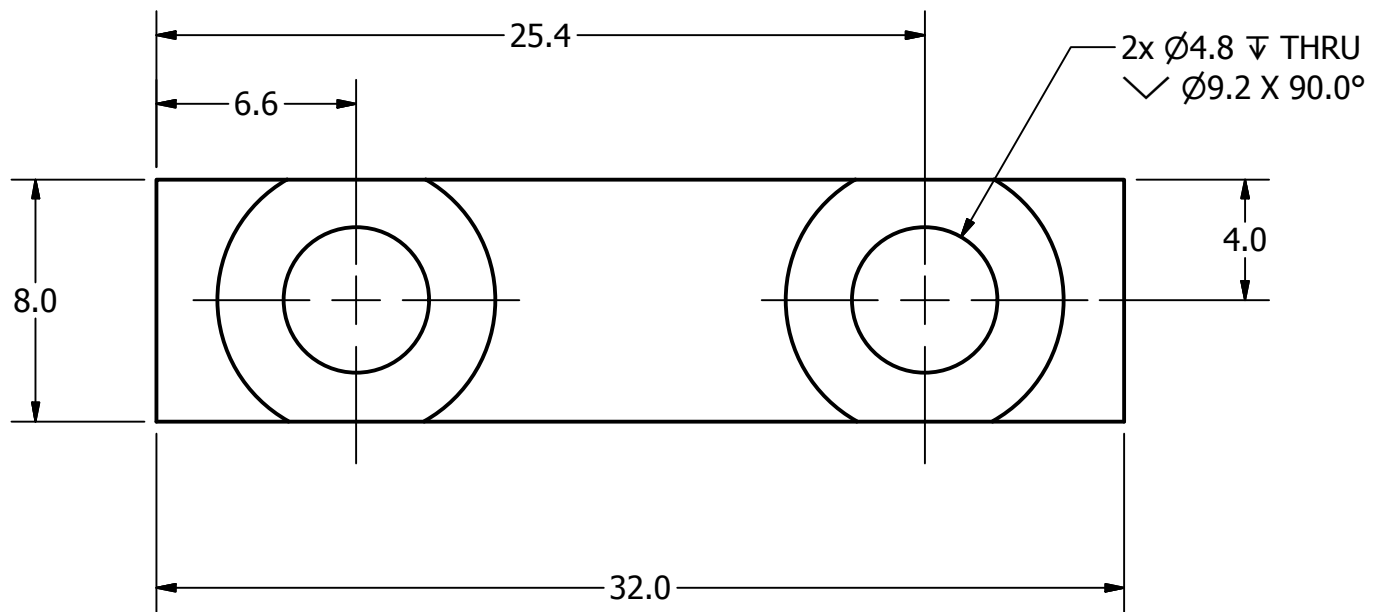
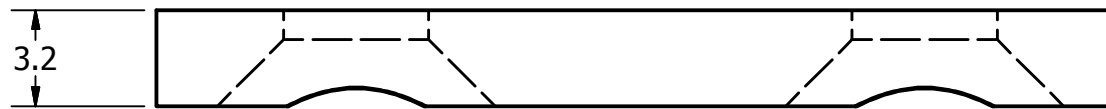
Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: ASSY, INBOARD/OUTBOARD SLIDER
MATERIAL:		DATE: 8/17/2011		
NEXT ASSEMBLY QTY		DRAWN BY: HORCHLER		SIZE: SHEET A3 1 of 1 SCALE: 1:1
TOTAL QTY IN DUMMY 2		CHECKED BY: J. WANG DATE: 1/27/2012		
		ENGINEER: J. WANG DATE: 1/27/2012		DRAWING NO.: 472-5310 REV: C

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM216 R0 AND CONVERTED TO METRIC FOR THOR-M; FINISH WAS ELECTROLESS NICKEL .0003 MAX.	8/19/2011	JSJ



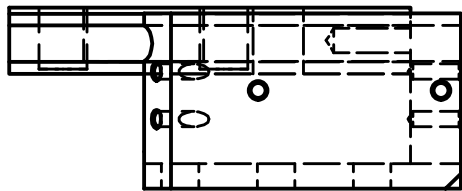
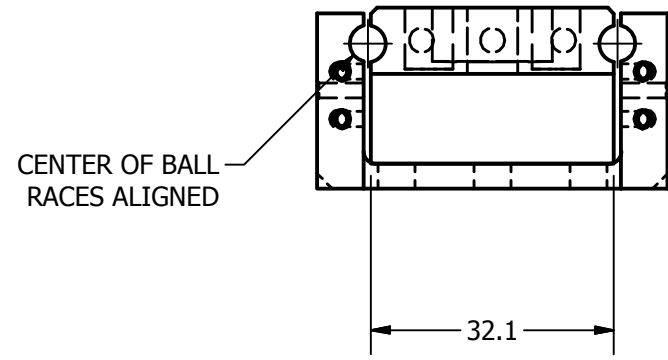
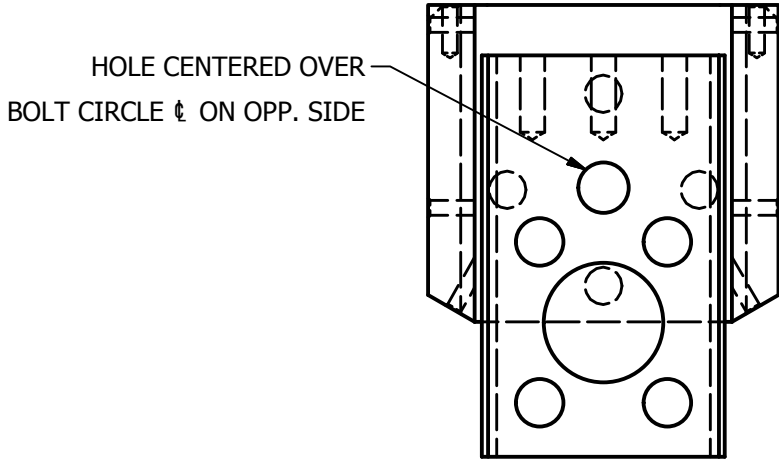
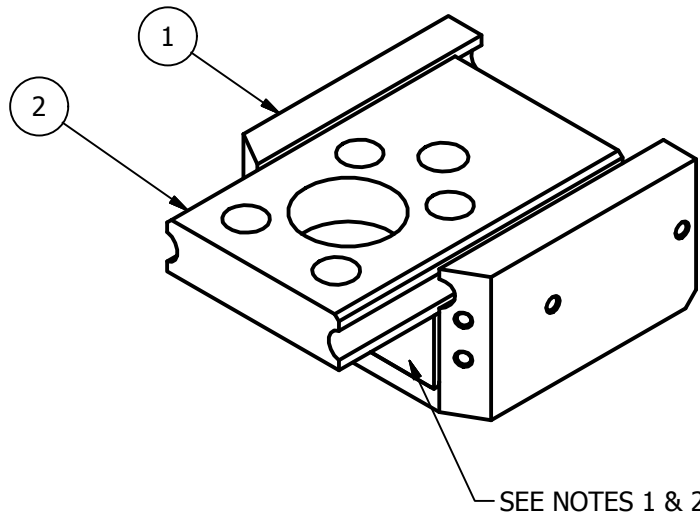
SCALE 2.000



DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:		DRAWN BY:	DATE:
472-5310	1	HORCHLER	8/17/2011
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
		TMV	4/23/2010
TOTAL QTY IN DUMMY	2	ENGINEER:	DATE:
		J. WANG	1/28/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DESCRIPTION: BALL SLIDER BALL STOP	
SIZE: A3	SHEET: 1 of 1
SCALE: 4:1	DRAWING NO.: 472-5740
	REV: A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM212 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

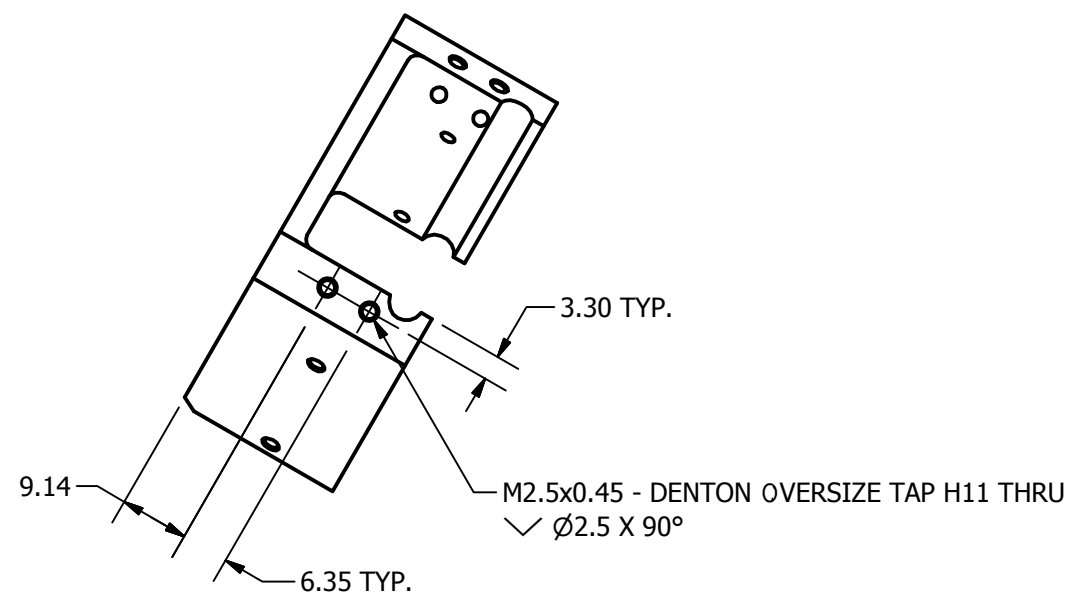
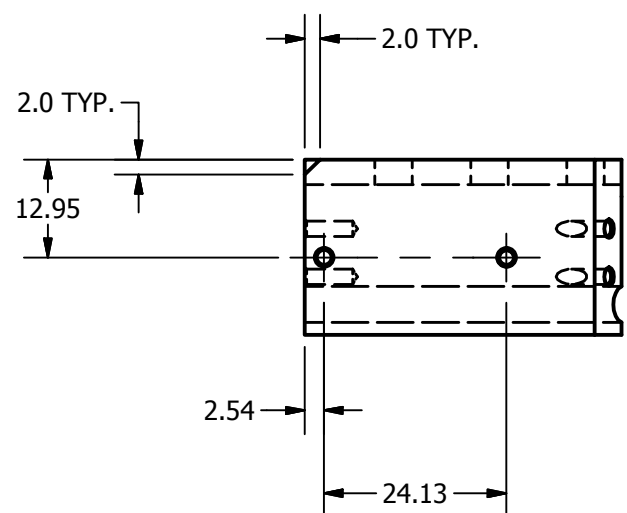
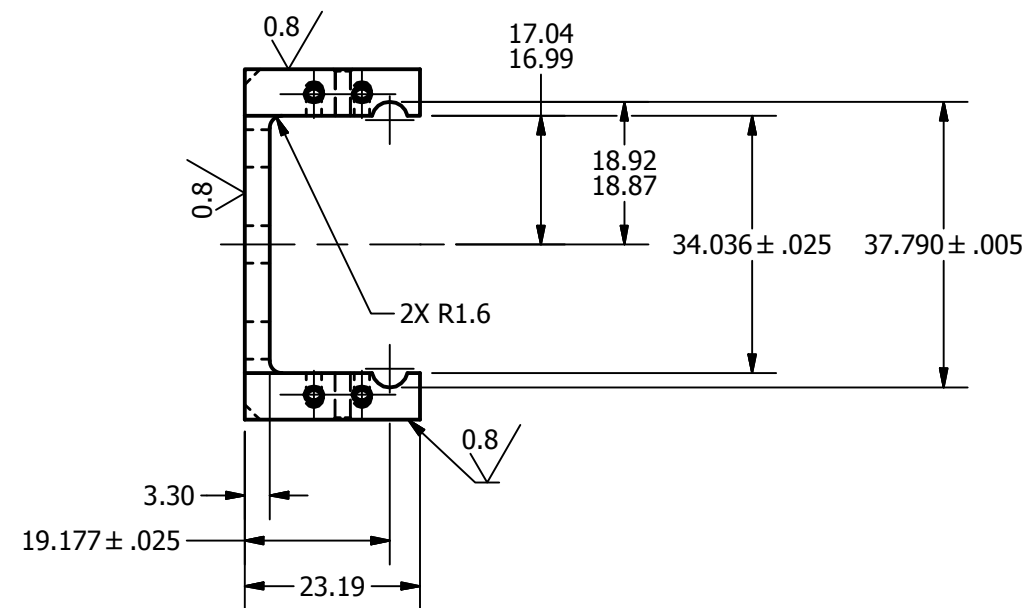
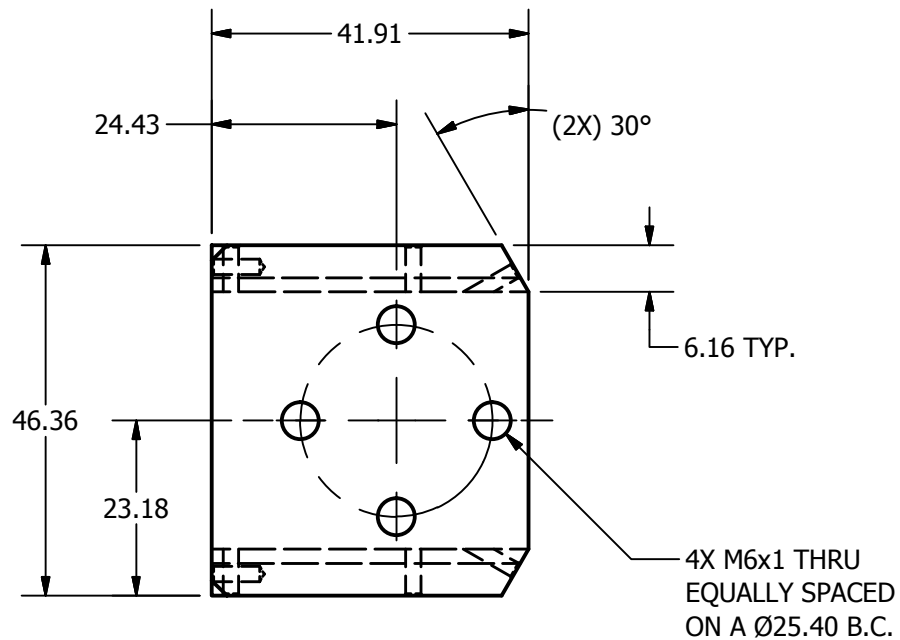
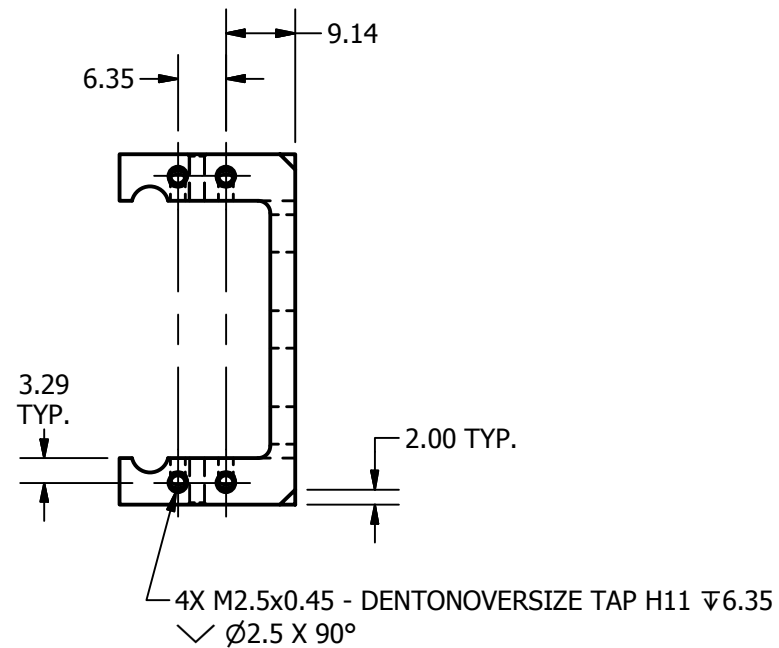
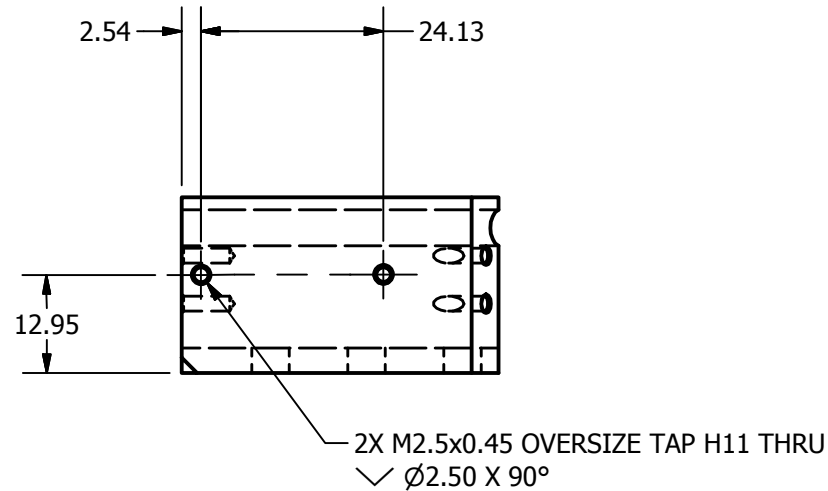
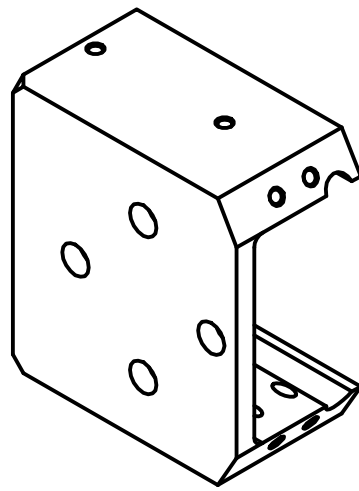


NOTES:
 1. RUBBER DUROMETER OF 30±5 SHORE "A"
 2. ADJUST DUROMETER FOR DYNAMIC PERFORMANCE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-5322	RACE, INNER
1	1	472-5321	RACE, OUTER

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01					
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION: INBOARD SLIDER, MOLDED			
MATERIAL:	472-5310	DRAWN BY:	DATE:				
HEAT TREAT:		CHECKED BY:	DATE:				
FINISH:		ENGINEER:	DATE:	SIZE: A3 SHEET: 1 of 1 SCALE: 1:1			
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	2	DRAWING NO.:	472-5320	REV:	A

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1639 REV D AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	ADD HEAT TREAT NOTE; 6.35 WAS THRU	4/12/2012	BK



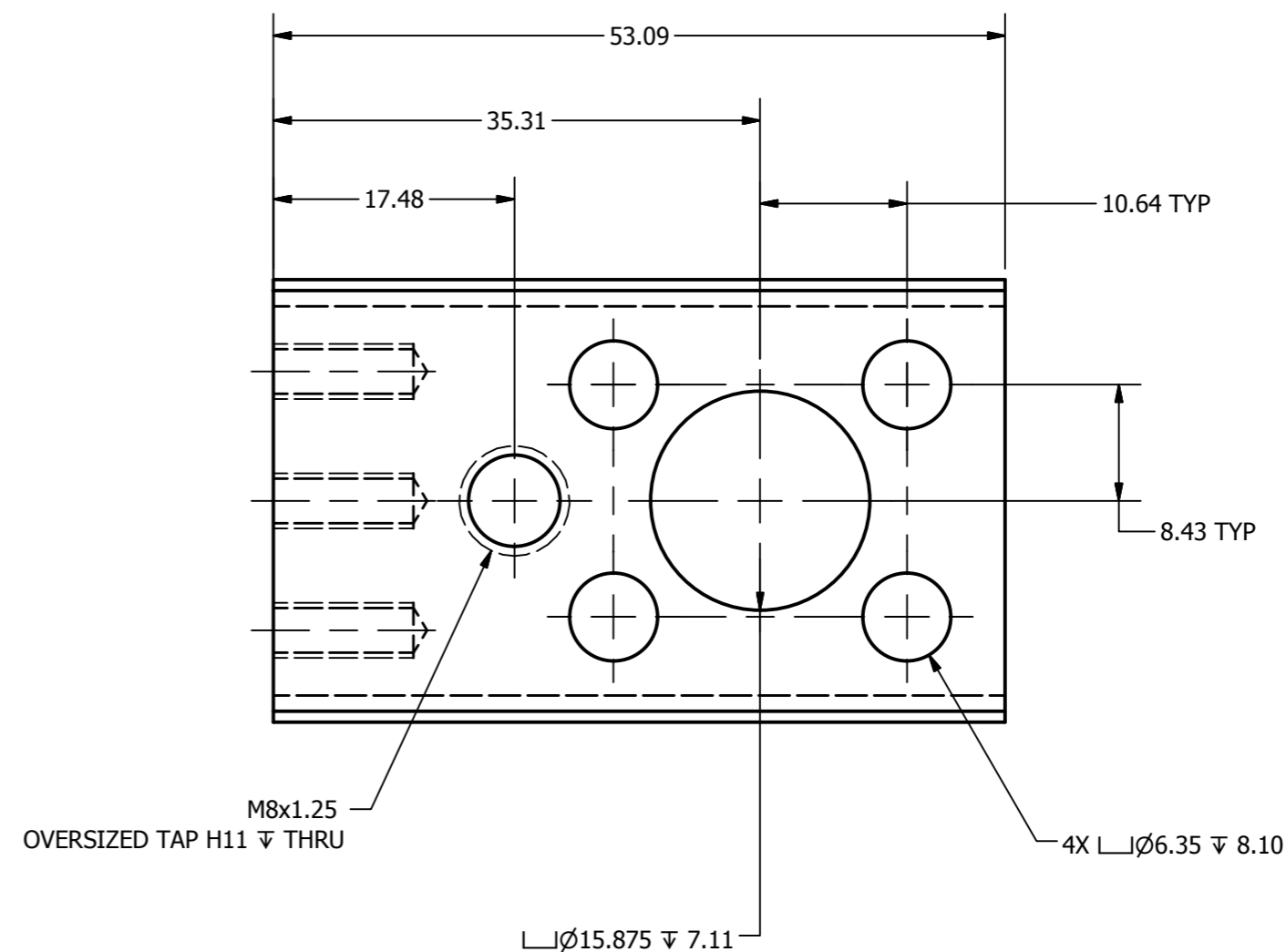
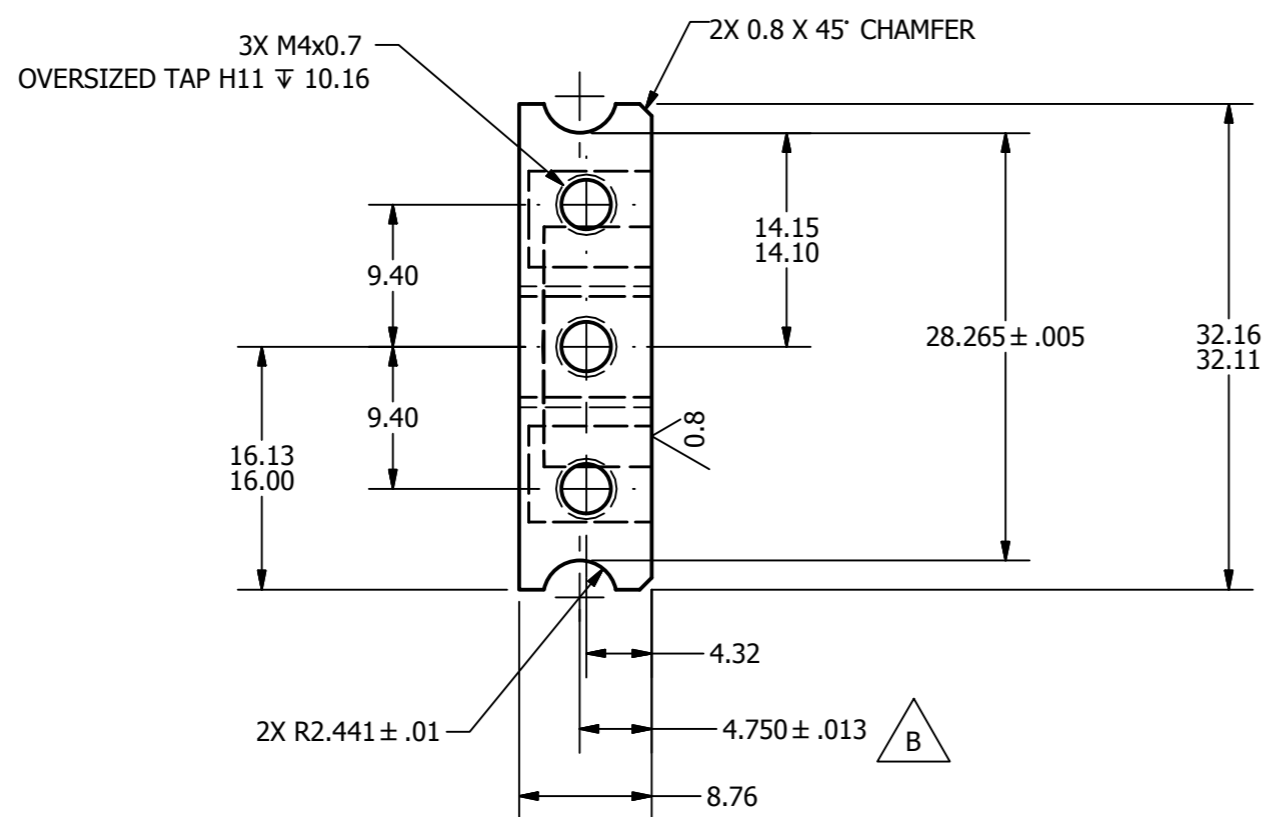
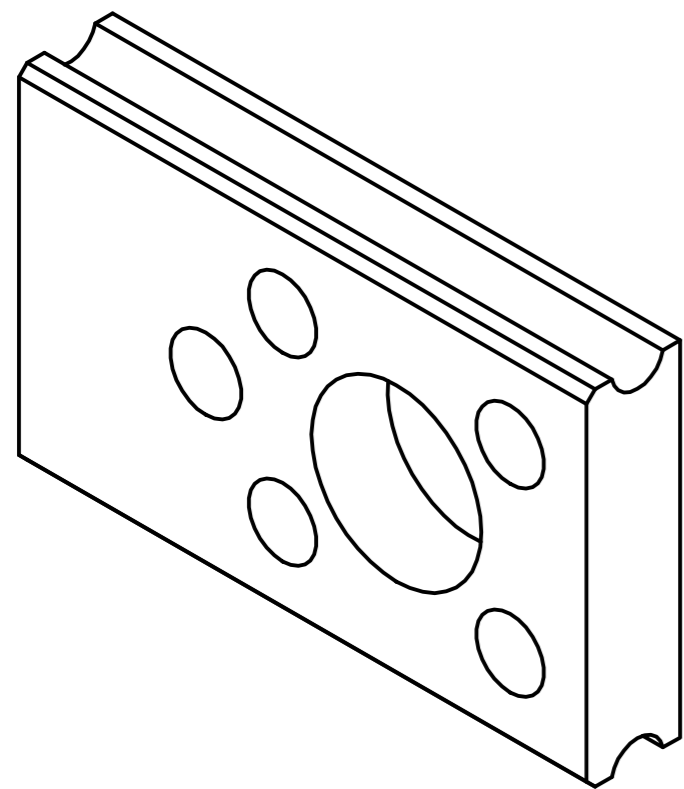
NOTES:

- HEAT TREAT:
 - MASK ENTIRE PART EXCEPT THE PATHWAYS
 - CARBURIZE PART @ 1700°F FOR 6 HOURS
 - FURNACE COOL, DO NOT QUENCH
 - REHARDEN @ 1520°F AND OIL QUENCH
 - TEMPER @ 350°F FOR 2 HOURS
 - SURFACE HARDNESS IN PATHWAYS SHOULD BE Rc 60-65



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.05 ± 0.05 1.6		
PROJECT NO:	472-5320	MATERIAL:	4140 STEEL	DESCRIPTION:
DRAWN BY:	KSG	DATE:	8/17/2011	RACE, OUTER
CHECKED BY:		FINISH:	SEE NOTES	SIZE: C 1 OF 1
ENGINEER:	J. WANG	DATE:	1/27/2012	DRAWING NO.: 472-5321
TOTAL QTY IN DUMMY:	2	SCALE:	1:1	REV: B

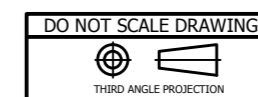
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1640 REV F AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	ADD HEAT TREAT NOTE; 4.750±.013 WAS 4.75±.03	4/12/2012	BK



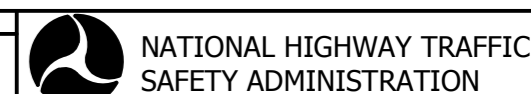
NOTES:

1. HEAT TREAT:

- MASK ENTIRE PART EXCEPT THE PATHWAYS
- CARBURIZE PART @ 1700°F FOR 6 HOURS
- FURNACE COOL, DO NOT QUENCH
- REHARDEN @ 1520°F AND OIL QUENCH
- TEMPER @ 350°F FOR 2 HOURS
- SURFACE HARDNESS IN PATHWAYS SHOULD BE Rc 60-65

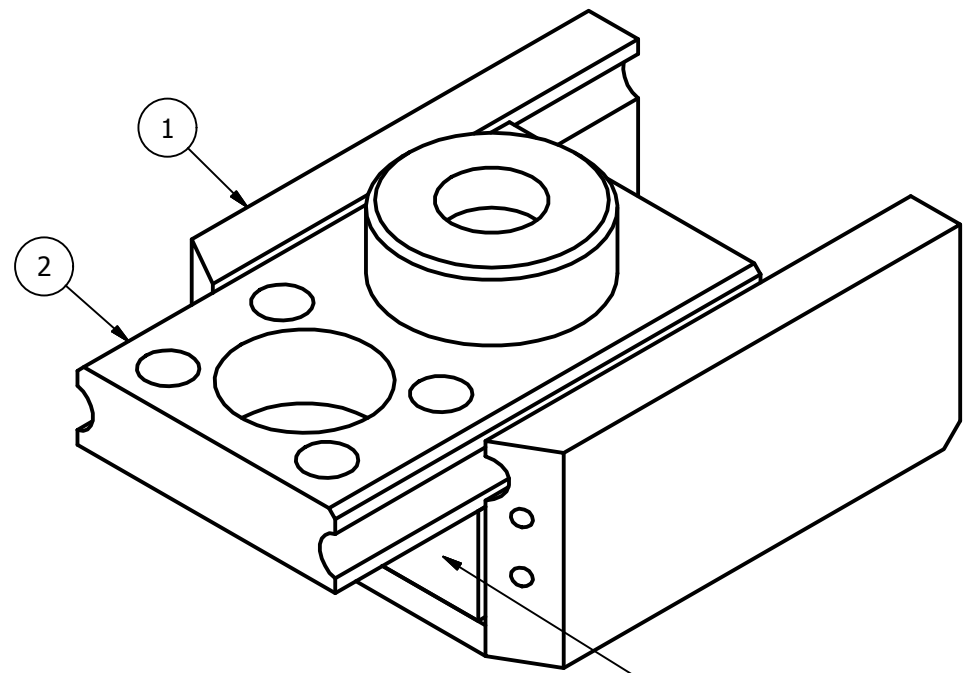


TOLERANCES	
(UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN MILLIMETERS	
DECIMALS	ANGLES FINISH
X ± 0.5	1.6
XX ± 0.2	
XXX ± 0.1	
XXXX ± 0.01	



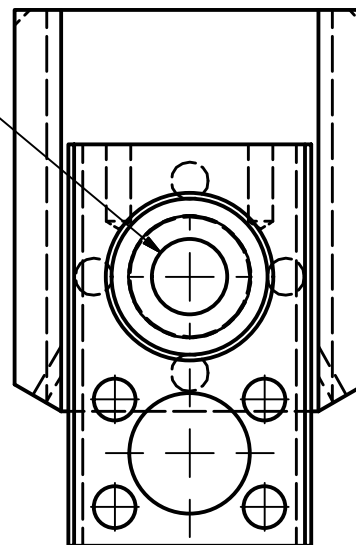
PROJECT NO:	472-5320	DATE:	8/17/2011	DESCRIPTION:	RACE, INNER
DRAWN BY:	KSG	CHECKED BY:	J. WANG	SIZE:	A2 1 OF 1
MATERIAL:	4140 STEEL	DATE:	1/27/2012	DRAWING NO:	472-5322
HEAT TREAT:	SEE NOTES	SCALE:	2:1	REV:	B
TOTAL QTY IN DUMMY:	2				

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM213 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

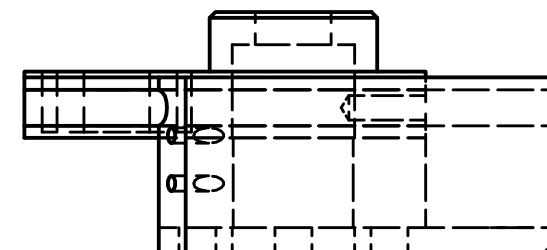
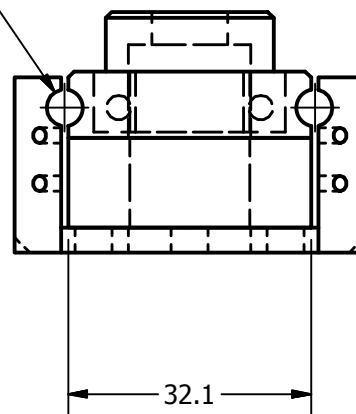


SCALE 1.500

HOLE CENTERS OF
INNER/OUTER RACES
ALIGNED




CENTER OF BALL
RACES ALIGN



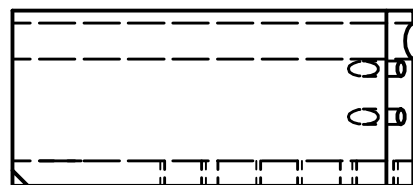
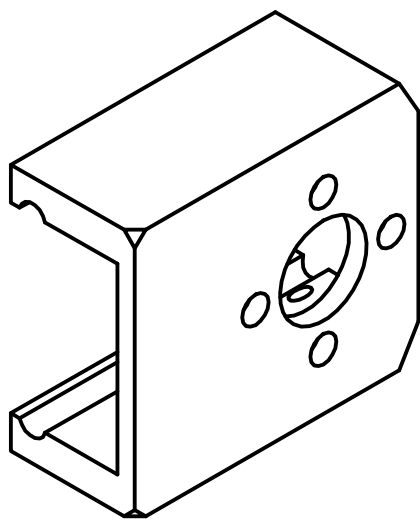
- NOTES:
 1. RUBBER DUROMETER OF 30±5 SHORE "A"
 2. ADJUST DUROMETER FOR DYNAMIC PERFORMANCE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-5332	OUTBOARD SLIDER, INNER RACE
1	1	472-5331	RACE, OUTER

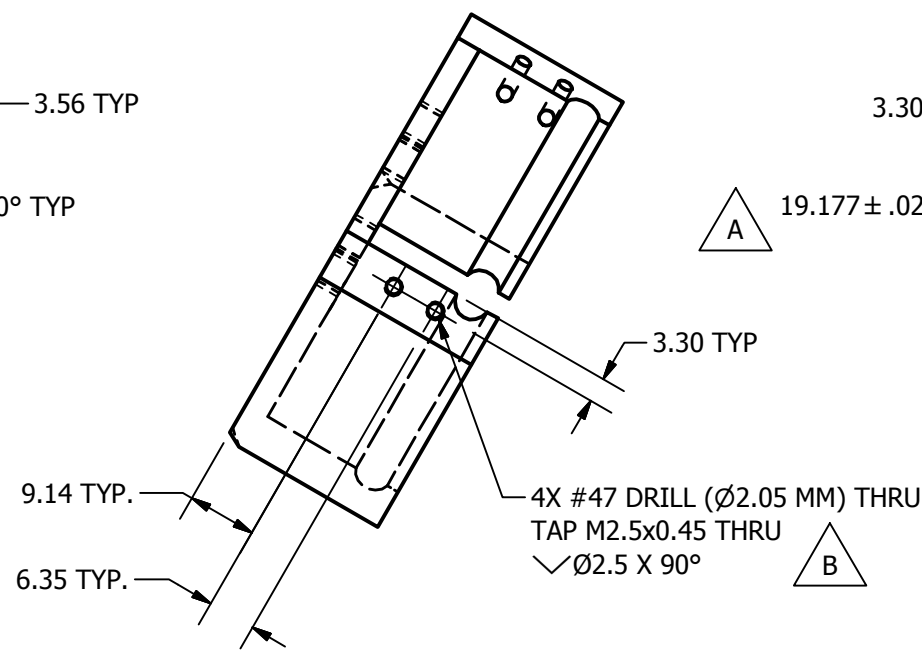
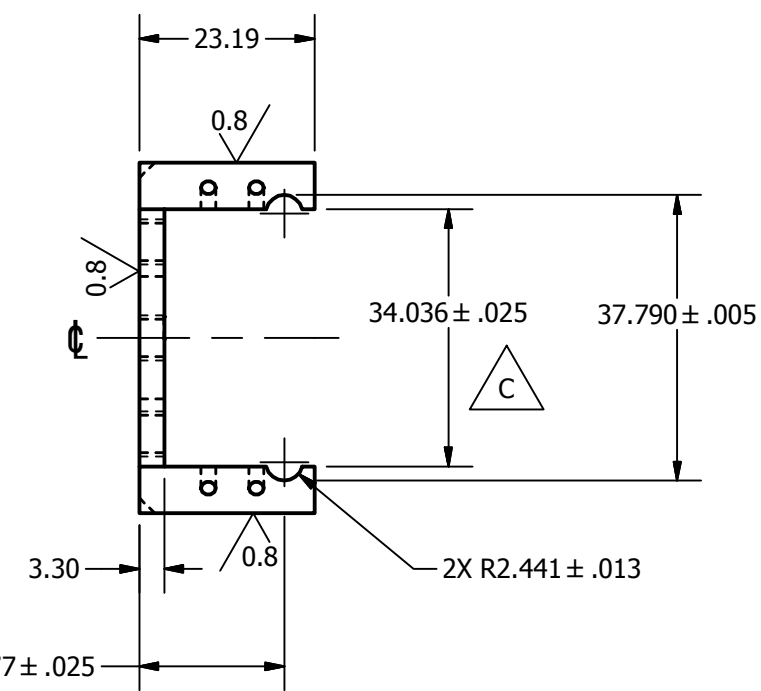
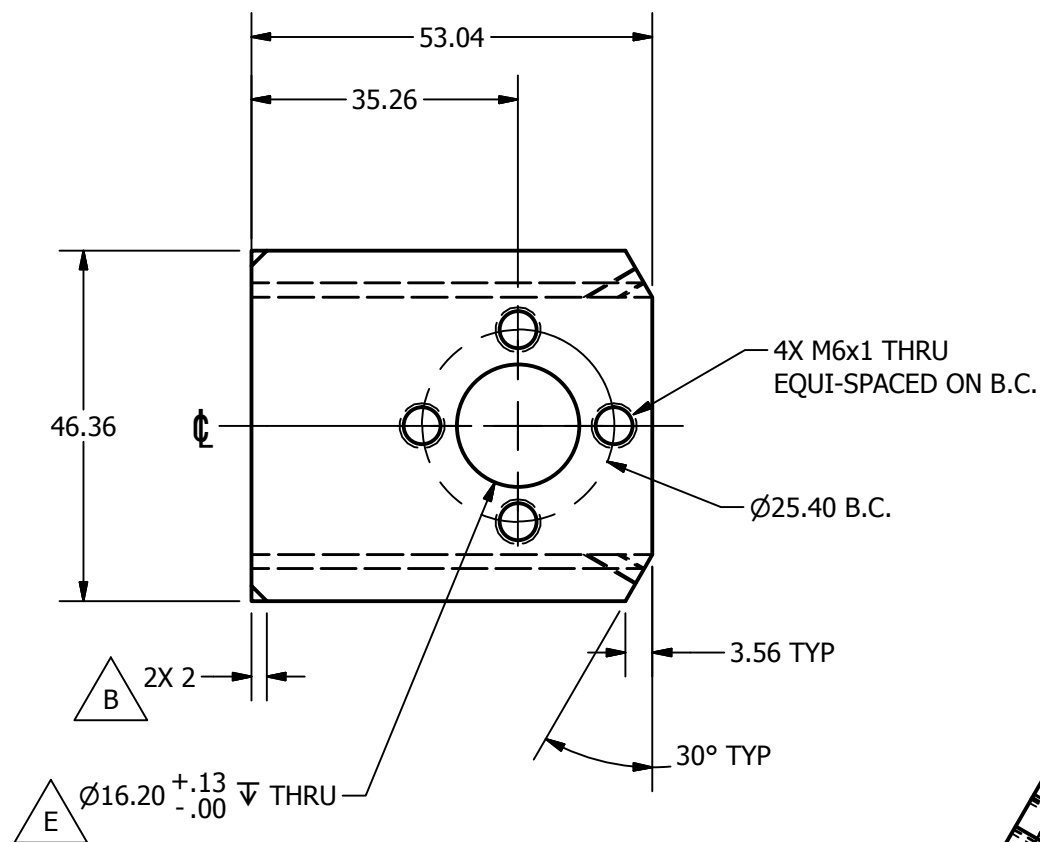
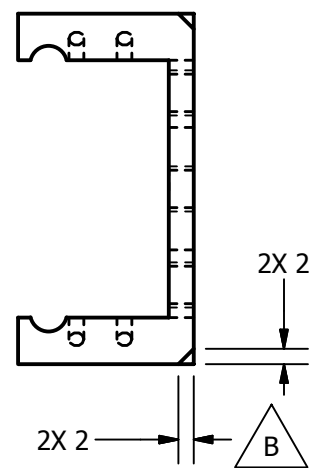
Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION:
MATERIAL:		DRAWN BY:	DATE:	OUTBOARD SLIDER, MOLDED
HEAT TREAT:		CHECKED BY:	DATE:	SIZE: SHEET
FINISH:		ENGINEER:	DATE:	A3 1 of 1
				SCALE: 1:1
				DRAWING NO.: 472-5330
				REV: A

472-5310	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1642 REV D AND CONVERTED TO METRIC FOR THOR-M; 19.177±.025 WAS 19.177	8/19/2011	JSJ
	B	CHANGE DEPTH FROM THRU TO 4.0 MM FOR M2.5X0.45, DIM 2 WAS 2.03	2/1/12	ZJW
	C	REDIMENSION PART/SLOT FEATURE ACROSS CL; REMOVE DIMENSIONS TO CL; ADD NOTE	2/22/2012	BK
	D	ADD HEAT TREAT NOTE; REMOVE Ø4.85 HOLE	4/12/2012	BK
	E	Ø16.20 WAS Ø15.88	7/23/2012	BK



- NOTES:
- C 1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 - D 2. HEAT TREAT:
 - MASK ENTIRE PART EXCEPT THE PATHWAYS
 - CARBURIZE PART @ 1700°F FOR 6 HOURS
 - FURNACE COOL, DO NOT QUENCH
 - REHARDEN @ 1520°F AND OIL QUENCH
 - TEMPER @ 350°F FOR 2 HOURS
 - SURFACE HARDNESS IN PATHWAYS SHOULD BE Rc 60-65

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		.XXX ± 0.01	
PROJECT NO.: 472-5330		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL: 4140 STEEL	HEAT TREAT: SEE NOTES	DATE: 8/17/2011	DESCRIPTION: RACE, OUTER
QTY: 1	FINISH: SEE NOTES	CHECKED BY: KSG	DATE: 2/1/2012
TOTAL QTY IN DUMMY: 2		ENGINEER: J. WANG	DATE: 2/1/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: RACE, OUTER

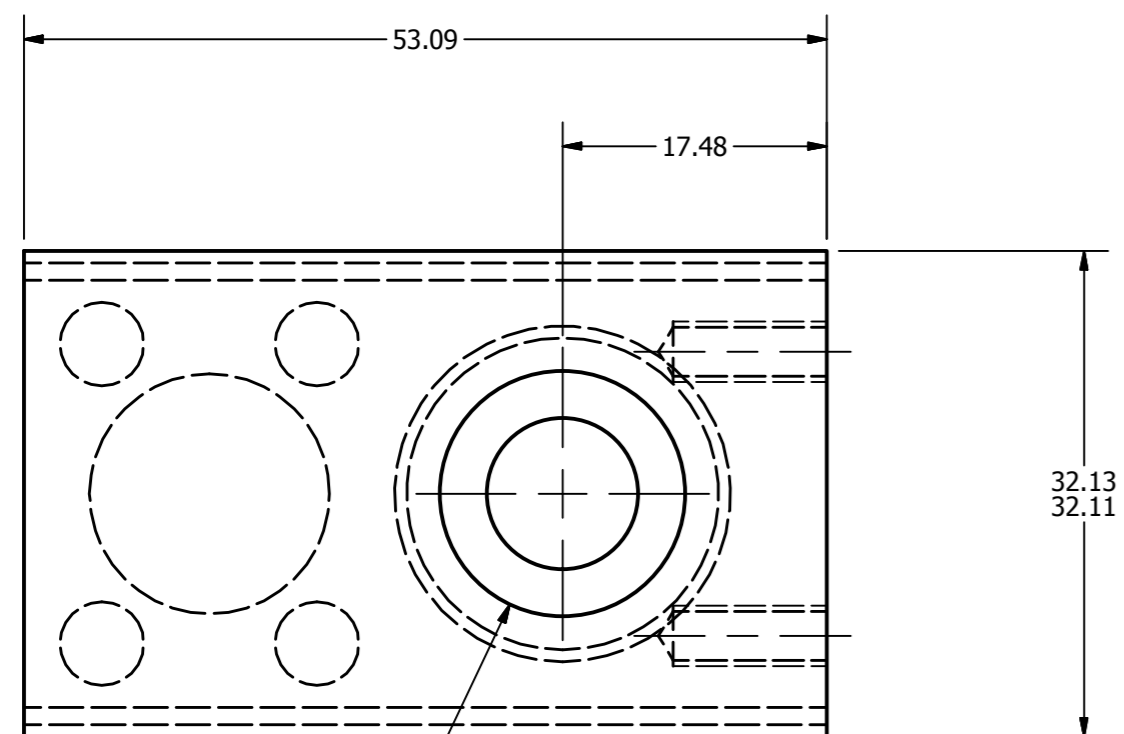
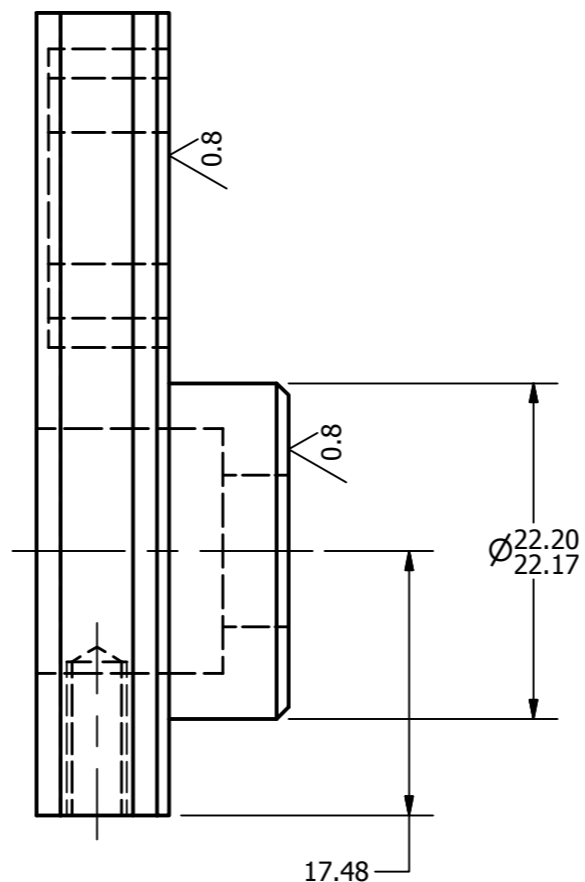
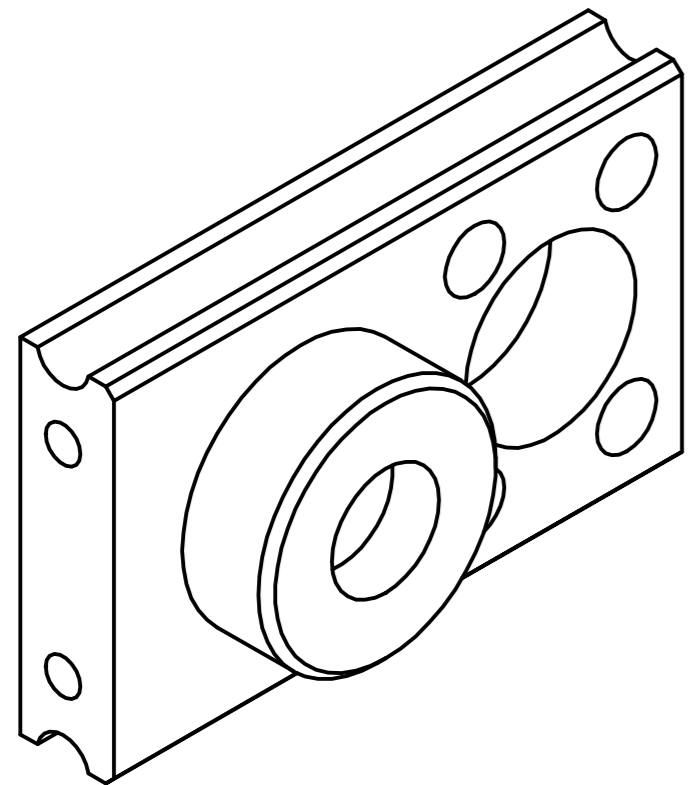
SIZE: A3 1 OF 1

SCALE: 1:1

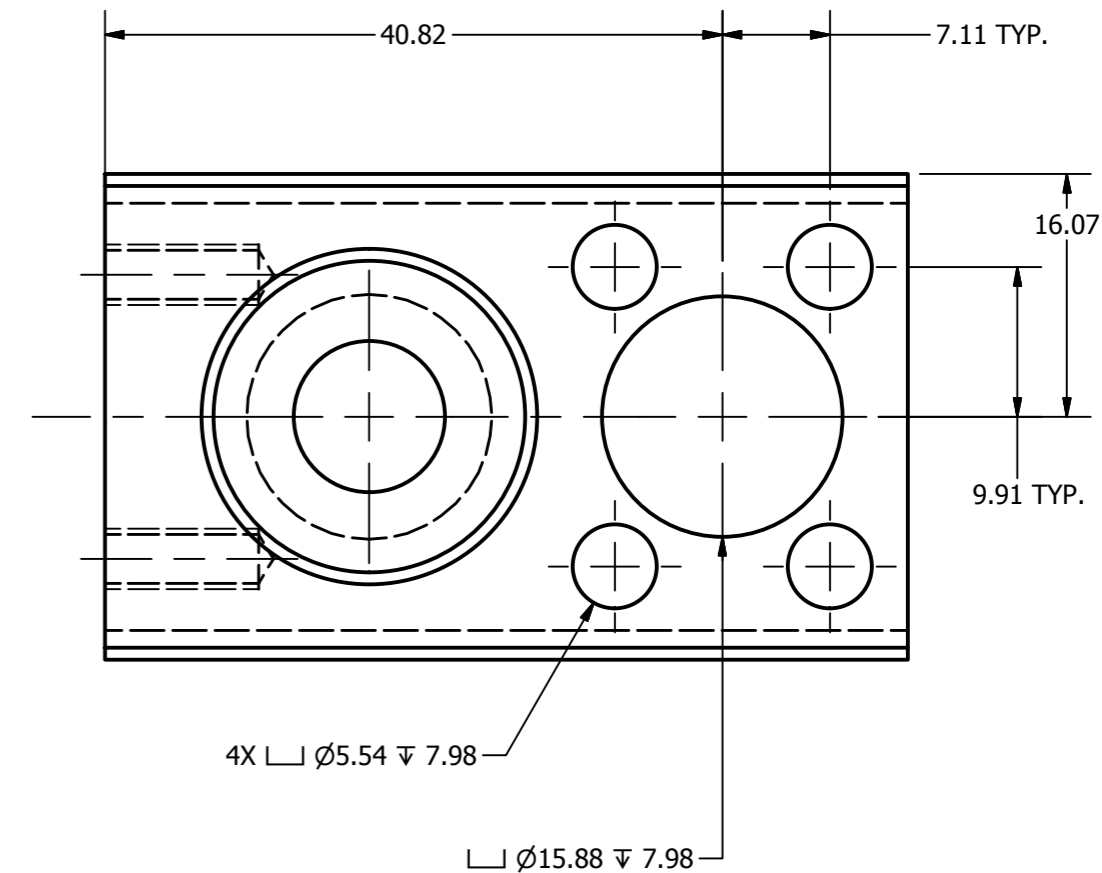
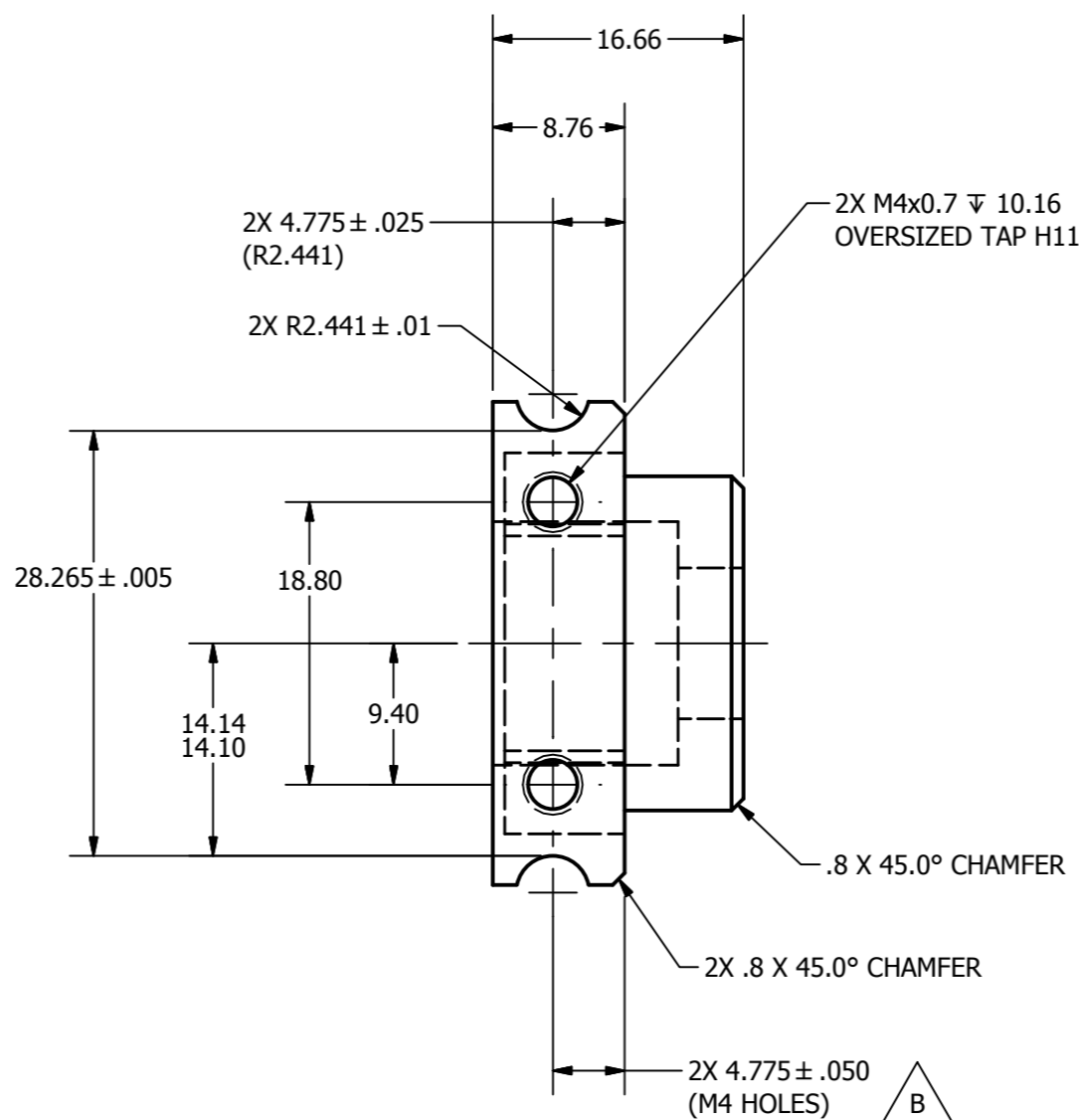
DRAWING NO.: 472-5331

REV: E

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1643 REV F AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	ADD HEAT TREAT NOTE; ADD 2X 4.775+/-0.050	4/12/2012	BK
	C	Ø10.03+0.05/-0 C'BORE Ø16.2+0.13/-0 12.32 DEEP WAS Ø9.550+0.050/-0 C'BORE Ø15.875+0.127/-0 12.319+/-0.127 DEEP	7/19/2012	BK



Ø10.03^{+0.05}/_{-.00} THRU C
 Ø16.20^{+0.13}/_{-.00} 12.32

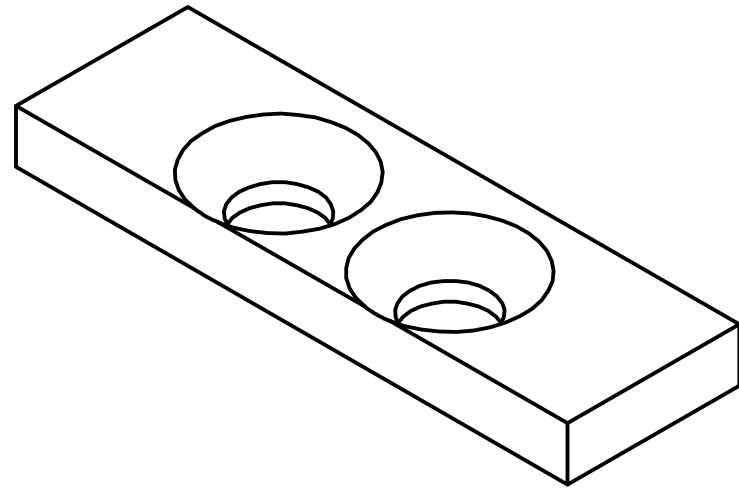


NOTES:

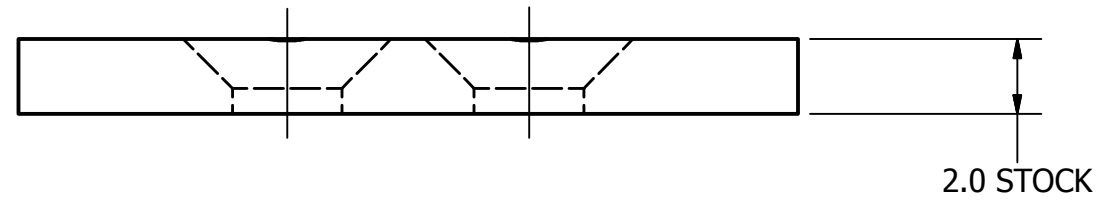
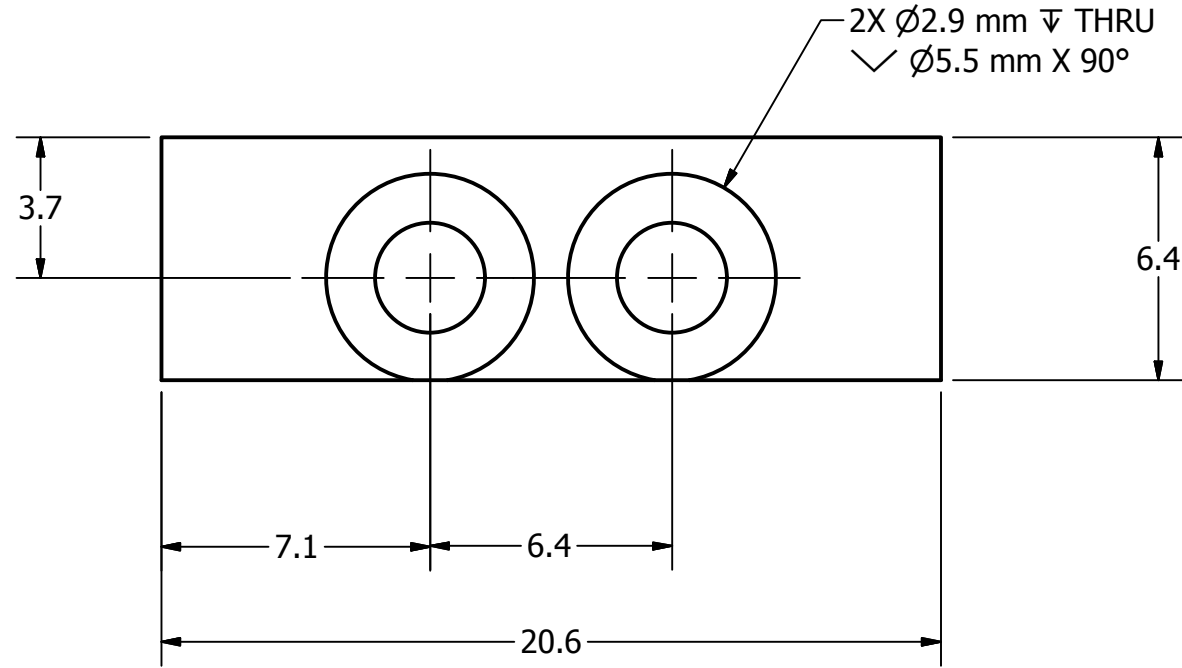
1. HEAT TREAT:

- MASK ENTIRE PART EXCEPT THE PATHWAYS
- CARBURIZE PART @ 1700°F FOR 6 HOURS
- FURNACE COOL, DO NOT QUENCH
- REHARDEN @ 1520°F AND OIL QUENCH
- TEMPER @ 350°F FOR 2 HOURS
- SURFACE HARDNESS IN PATHWAYS SHOULD BE Rc 60-65

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>(UNLESS OTHERWISE SPECIFIED)</small> DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ±0.05 1.6 XX ±0.02 XXX ±0.01 XXXX ±0.005		
PROJECT NO:	472-5330	DATE:	8/17/2011	DESCRIPTION: OUTBOARD SLIDER, INNER RACE SIZE: A2 SHEET: 1 OF 1 SCALE: 2 : 1
DRAWN BY:	KSG	CHECKED BY:		
REVISIONS:	1 4140 STEEL	DATE:		
HEAT TREAT:	SEE NOTES	DATE:		
ENGINEER:	J. WANG	DATE:	1/27/2012	DRAWING NO:
TOTAL QTY IN DUMMY:	2	FINISH:		472-5332



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1636 AND CONVERTED TO METRIC FOR THOR-M; FINISH WAS .0003 ELECTROLESS NICKEL OR EQUIVALENT	8/19/2011	JSJ



DO NOT SCALE DRAWING

 THIRD ANGLE PROJECTION

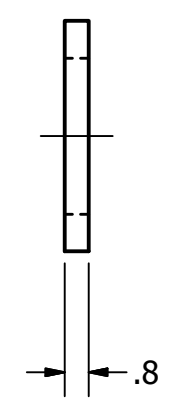
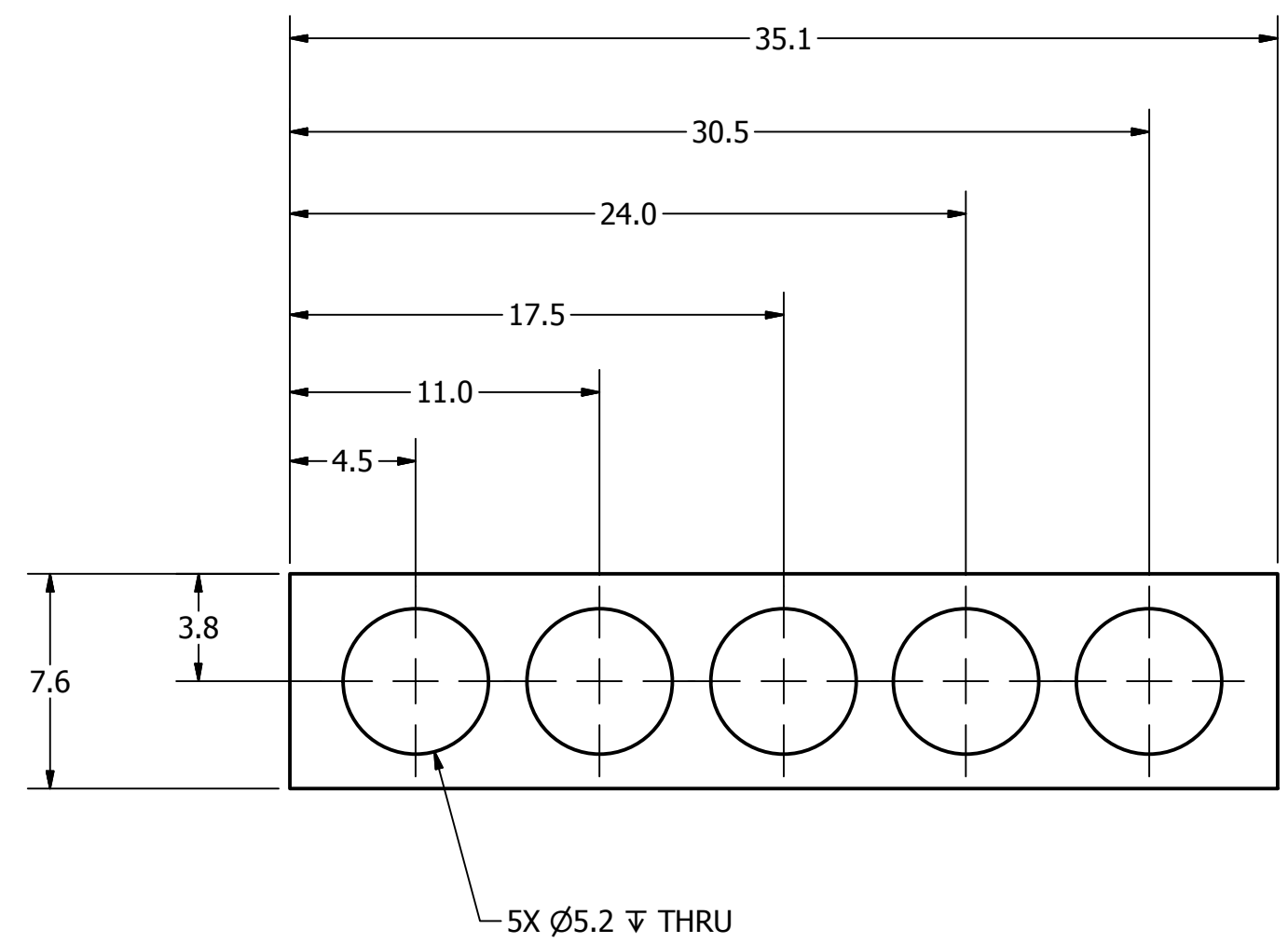
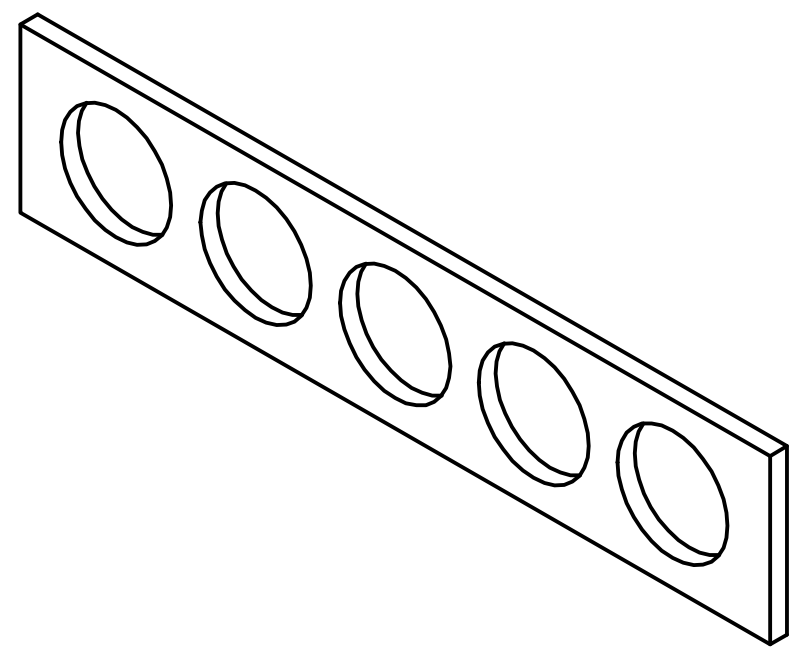
TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS

DECIMALS	ANGLES	FINISH
X ±0.5	±0.5°	1.6
XX ±0.2		
XXX ±0.1		
XXXX ±0.01		

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-5310	QTY: 6	MATERIAL: C1075 ANNEALED	DRAWN BY: KSG	DATE: 8/17/2011	DESCRIPTION: STOP, BALL	
NEXT ASSEMBLY	QTY: 12	HEAT TREAT: Rc 44-50	CHECKED BY: TMV	DATE: 9/12/2011		
TOTAL QTY IN DUMMY	12	FINISH: .008 ELECTROLESS NICKEL	ENGINEER: J. WANG	DATE: 1/28/2012		
SIZE: B				SHEET: 1 OF 1	DRAWING NO.: 472-5738	REV: A

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1635 REV C AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:	472-5310	DRAWN BY:	KSG
MATERIAL:	PHOSPHORUS BRONZE	CHECKED BY:	TMV
HEAT TREAT:		ENGINEER:	J. WANG
FINISH:		DATE:	1/27/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: **BRONZE SEPARATOR**

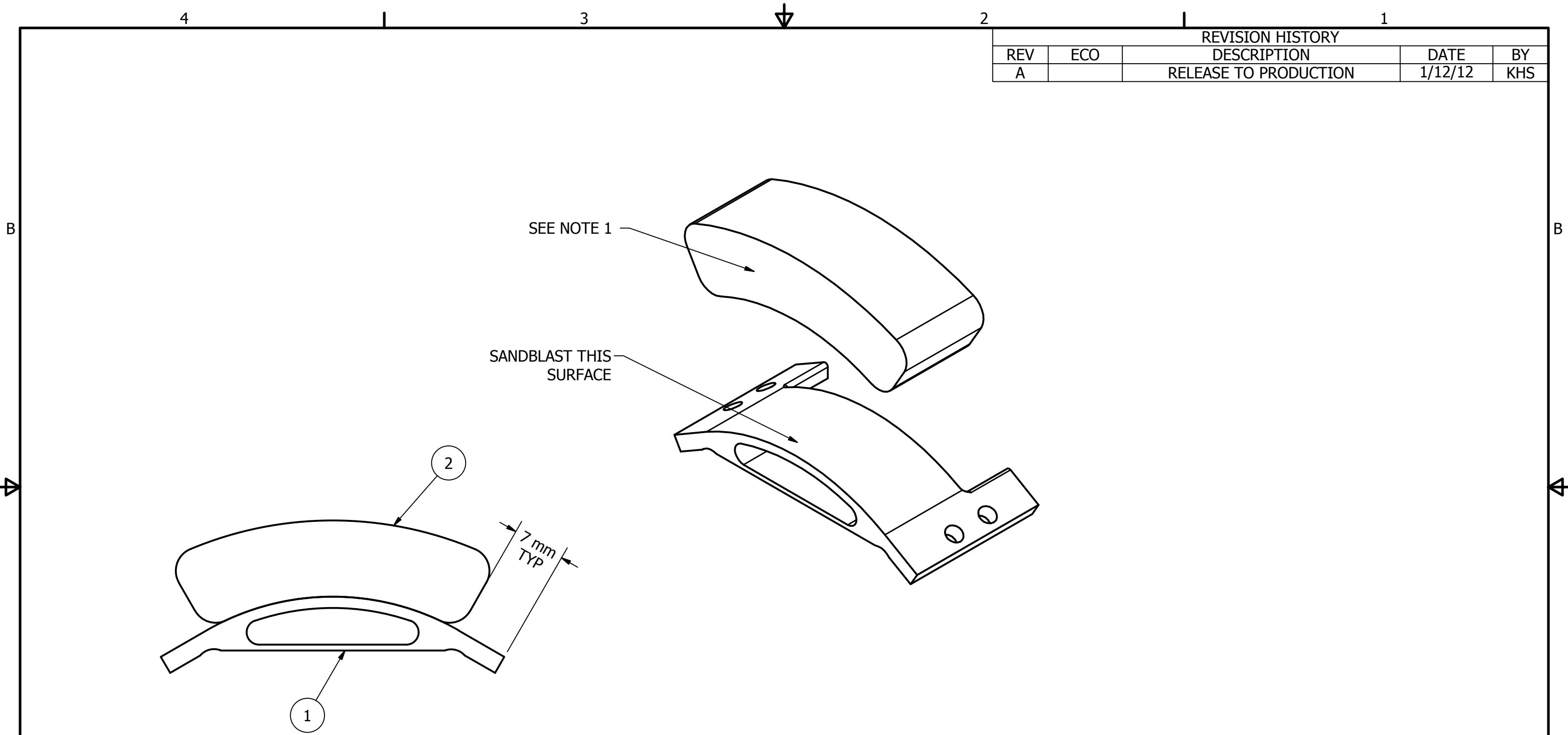
SIZE: A3 1 of 1 SHEET
SCALE: 4:1

DRAWING NO.: **472-5733**

REV: **A**

472-5310	4
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	8

REVISION HISTORY				
REV	ECO	DESCRIPTION	DATE	BY
A		RELEASE TO PRODUCTION	1/12/12	KHS



NOTES:

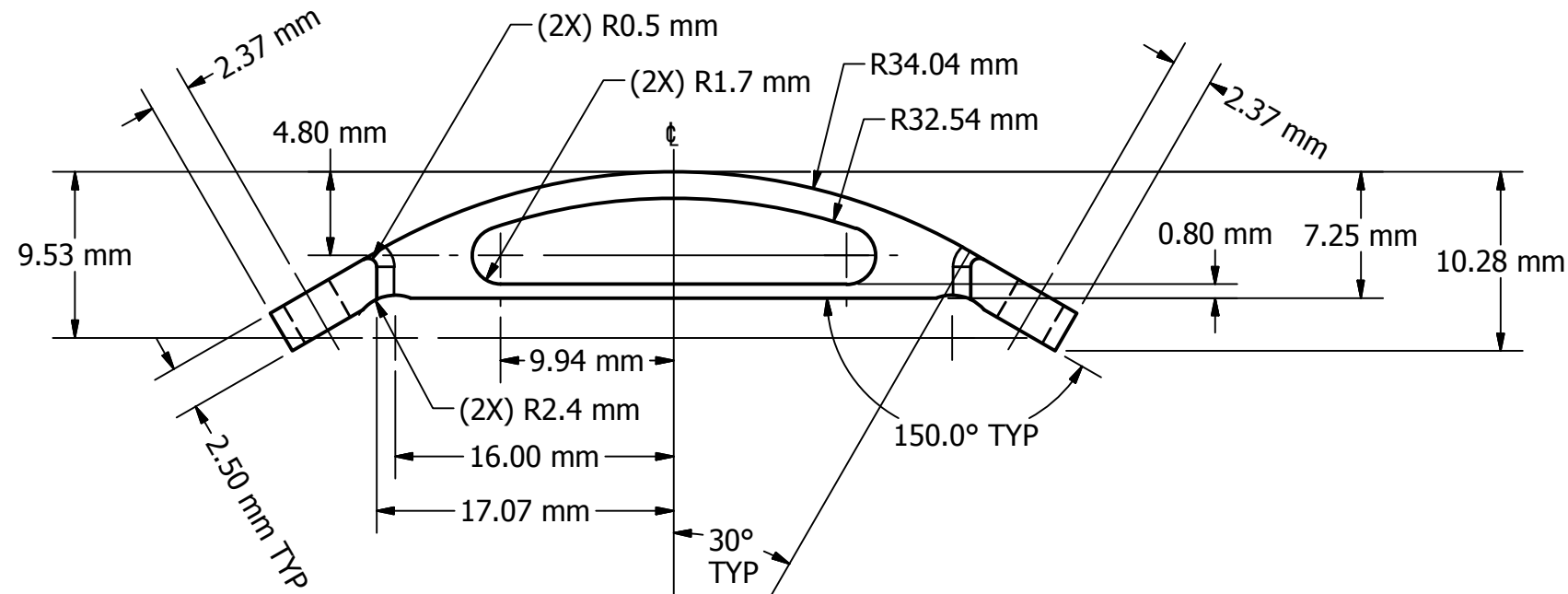
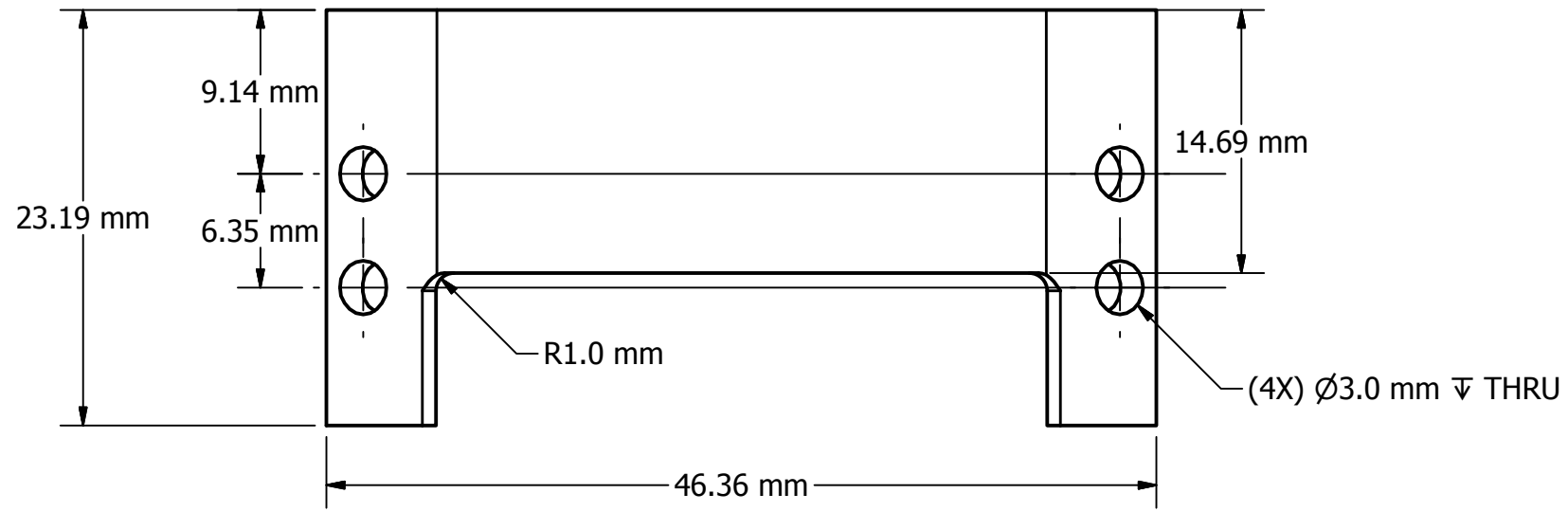
1. BOND ITEM 2 TO ITEM 1 USING CYANOACRYLATE

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-5357	BUMPER - SLIDER
1	1	472-5356	STOP - SLIDER

Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5° 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: KNEE SLIDER STOP ASS'Y.
MATERIAL:		DRAWN BY: KHS		DATE: 1/12/2012
NEXT ASSEMBLY		CHECKED BY:		DATE:
TOTAL QTY IN DUMMY		FINISH:		ENGINEER: J. WANG
		DATE: 1/23/2012		SCALE: 2:1
			SIZE: SHEET	DRAWING NO.: 472-5358
			B 1 OF 1	REV: A

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	HEAT TREAT WAS Rc 42 +/- 5	2/14/2012	KHS



DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.: 472-5358		DECIMALS ANGLES FINISH	
MATERIAL: 4140 STEEL		X ±0.5 ±0.5 1.6	
HEAT TREAT: N/A		X.X ±0.2	
FINISH: ELECTROLESS NICKEL .008 MAX.		X.XX ±0.1	
DRAWN BY: KHS		X.XXX ±0.01	
CHECKED BY: TMV		REMOVE BURRS & BREAK SHARP EDGES	
ENGINEER: J. WANG		DRAWN BY: KHS	
DATE: 1/26/2012		DATE: 1/12/2012	
DATE: 2/16/2012		DATE: 2/16/2012	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: STOP - SLIDER

SIZE: SHEET B 1 OF 1

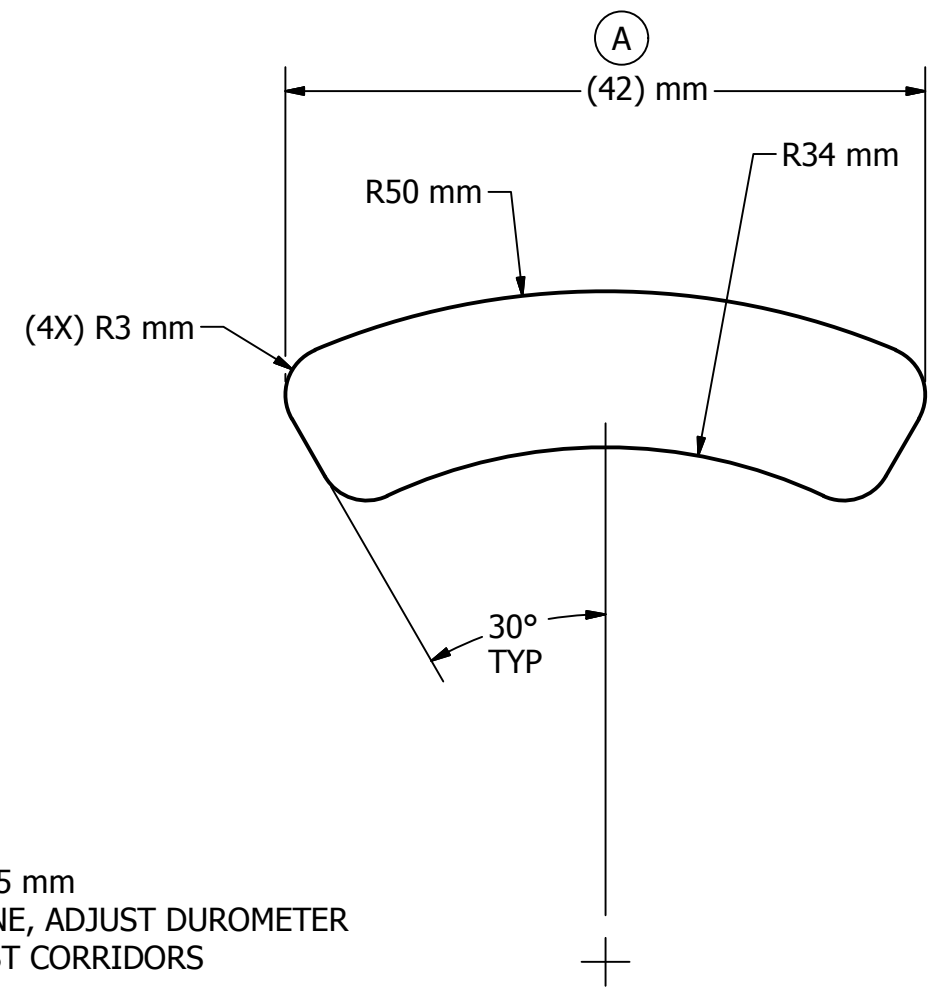
DRAWING NO.: 472-5356

SCALE: 2.5:1

REV: A

472-5358	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

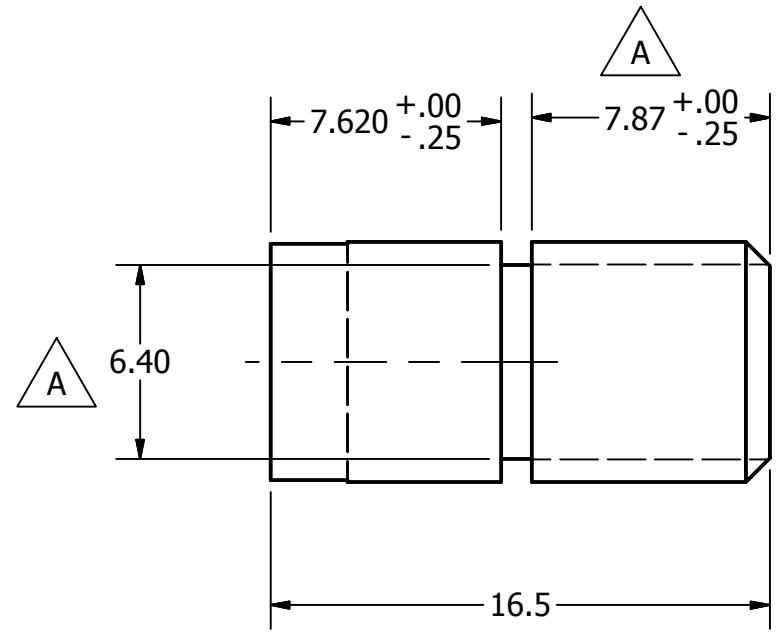
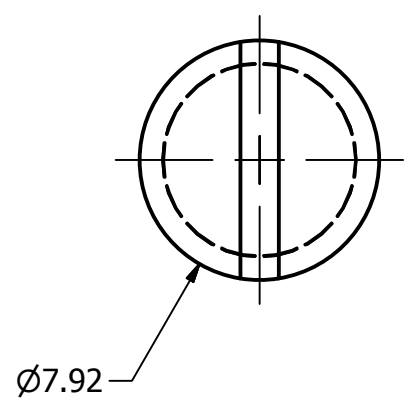
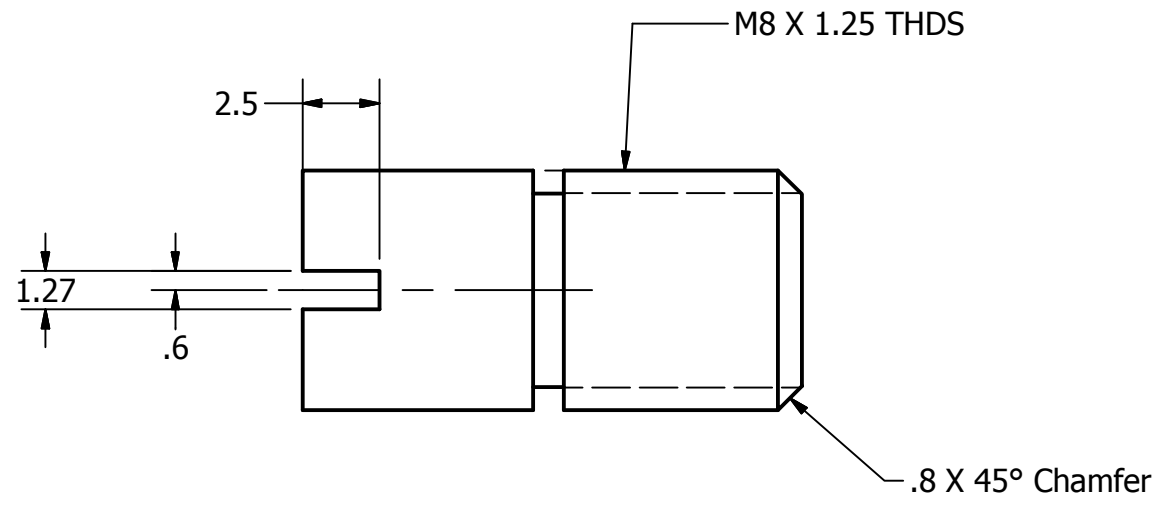
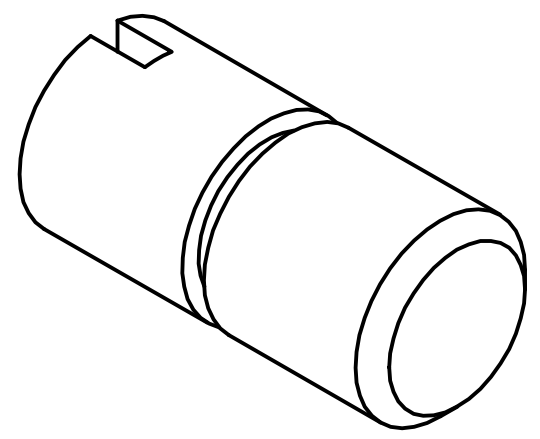
REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	ADDED NOTES; MATERIAL WAS RUBBER; (42) mm WAS (48) mm	2/14/2012	KHS



(A) TOLERANCE ALL DIMENSIONS: ± 1.5 mm
 MATERIAL: 40 SHORE "A" URETHANE, ADJUST DUROMETER
 TO MEET DYNAMIC TEST CORRIDORS
 COLOR: BLACK

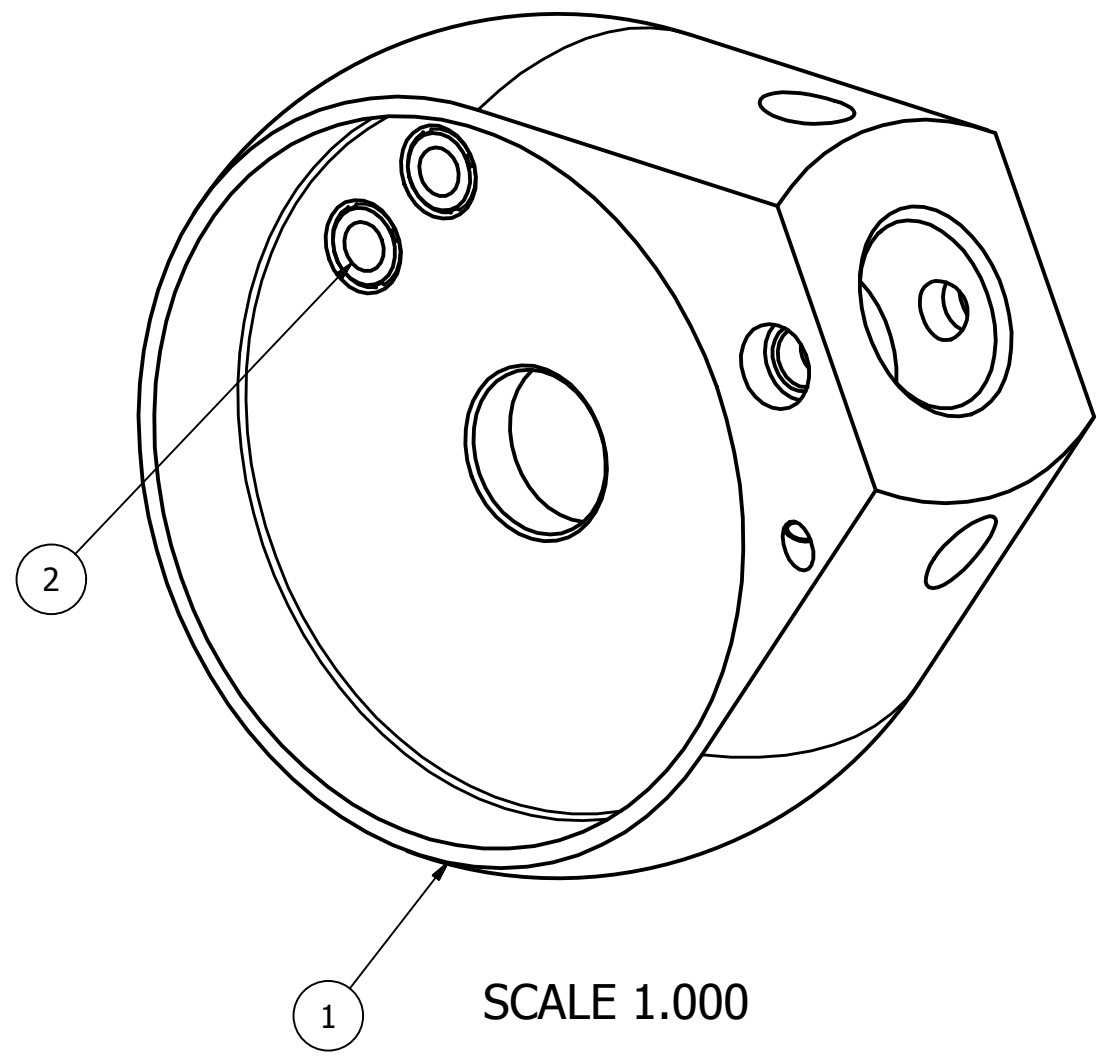
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 X.X ± 0.2 X.XX ± 0.1 X.XXX ± 0.01		
PROJECT NO.:	472-5358	MATERIAL:	SEE NOTES	DESCRIPTION: BUMPER - SLIDER
DATE:	1/12/2012	DRAWN BY:	KHS	REMOVED BURRS & BREAK SHARP EDGES
CHECKED BY:	TMV	DATE:	2/16/2012	SCALE: 2:1
ENGINEER:	J. WANG	DATE:	1/26/2012	DRAWING NO.: 472-5357
HEAT TREAT:	N/A	FINISH:	N/A	REV: A
TOTAL QTY IN DUMMY	1	QTY	1	SHEET: 1 OF 1

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM EX593-122 AND CONVERTED TO METRIC FOR THOR-M; ADD THREAD RELIEF	9/6/2011	JSJ
	B	FINISH ELECTROLESS NICKEL PLATE WAS BLACK OXIDE	1/30/2012	BK

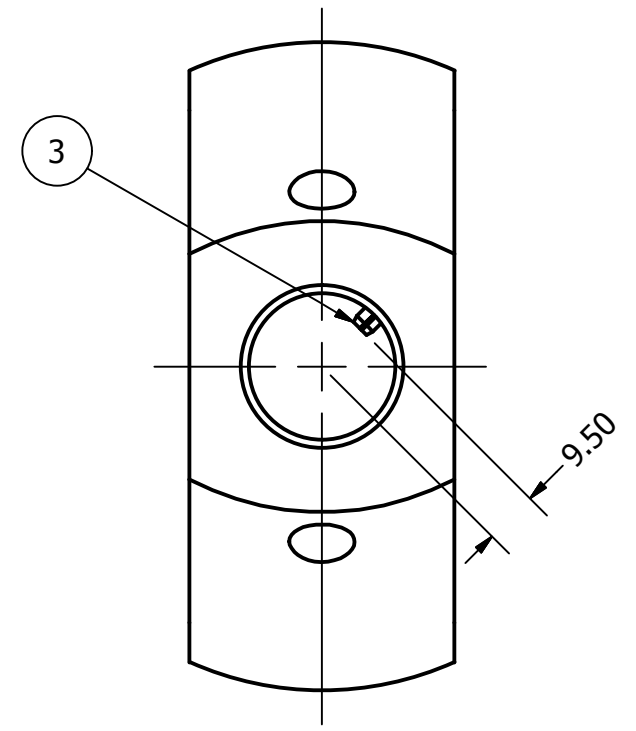
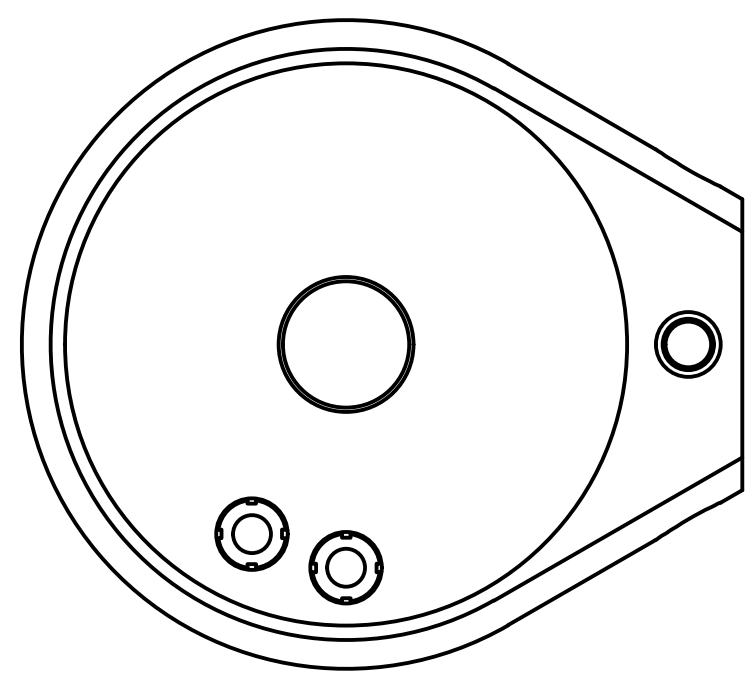


472-5700		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5300		1	MATERIAL: 4140 STEEL	THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY: TMV	DATE: 9/21/2011	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: PIN, KNEE STOP
TOTAL QTY IN DUMMY		2	FINISH: ELECTROLESS NICKEL PLATE .008 MAX.	ENGINEER: J. WANG	DATE: 1/28/2012	SCALE: 4:1	DRAWING NO.: 472-5763

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM220 R00 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	JSJ
	B	REVISED M12X1.75 TO M12X1.25 THREAD. ADDED M4X10 ROLL PIN.	5/22/2012	JSJ



SCALE 1.000



B

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	5000182	PIN, ROLL M4 X 10mm
2	2	472-5762	THREADED INSERT, MODIFIED
1	1	472-5351	KNEE CAP

Parts List

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		.XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:	472-5700	DRAWN BY:	jjordan
MATERIAL:	472-5300	DATE:	9/20/2011
HEAT TREAT:	NEXT ASSEMBLY	CHECKED BY:	TMV
FINISH:	TOTAL QTY IN DUMMY 2	DATE:	5/23/2012
		ENGINEER:	J. WANG
		DATE:	1/27/2012

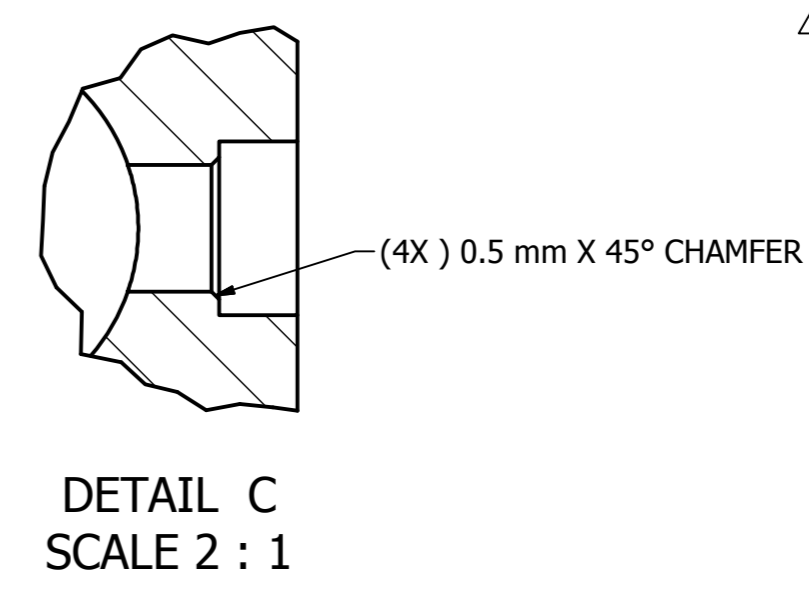
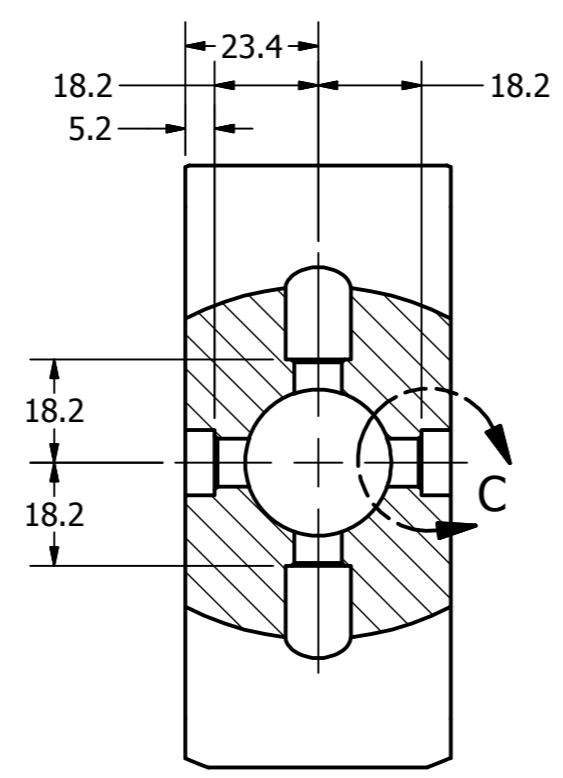
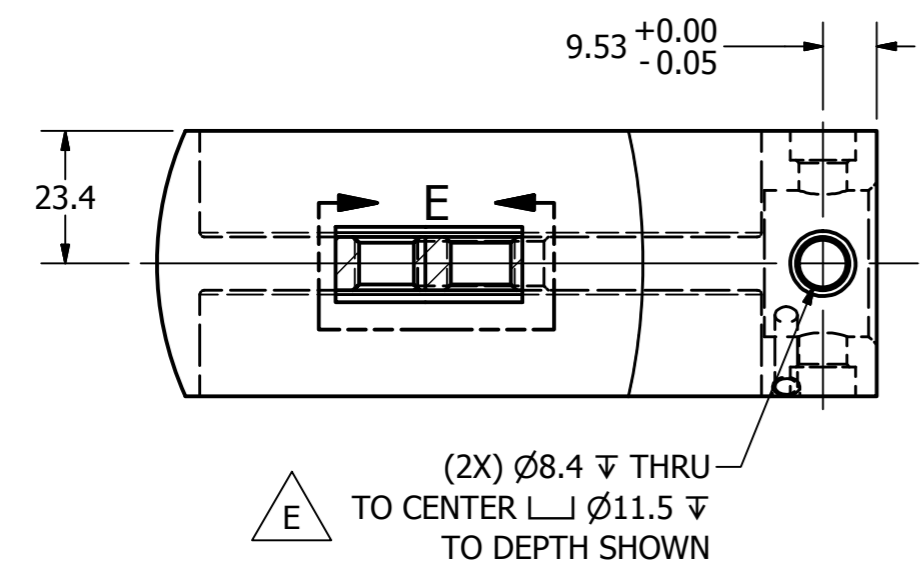
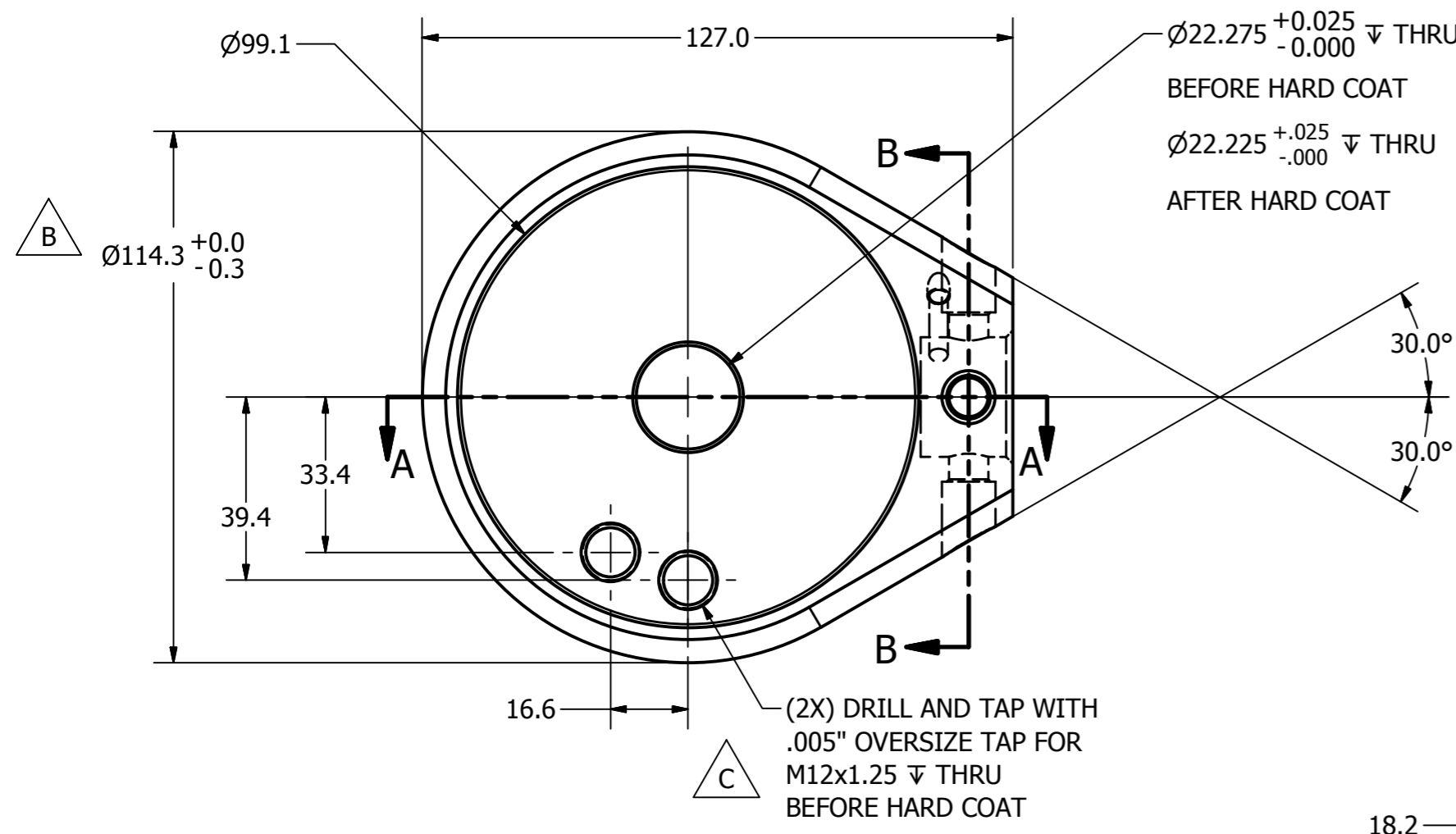
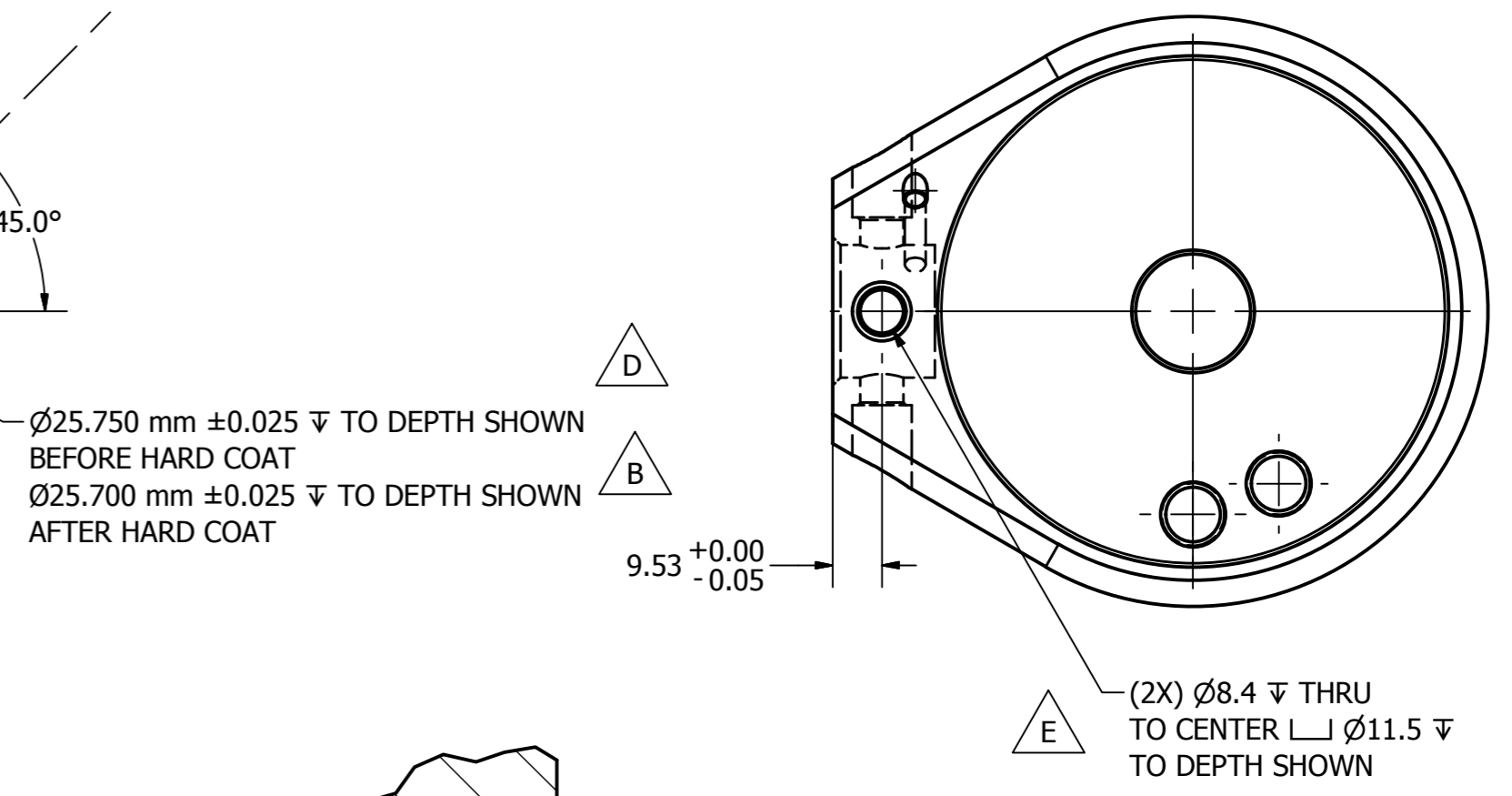
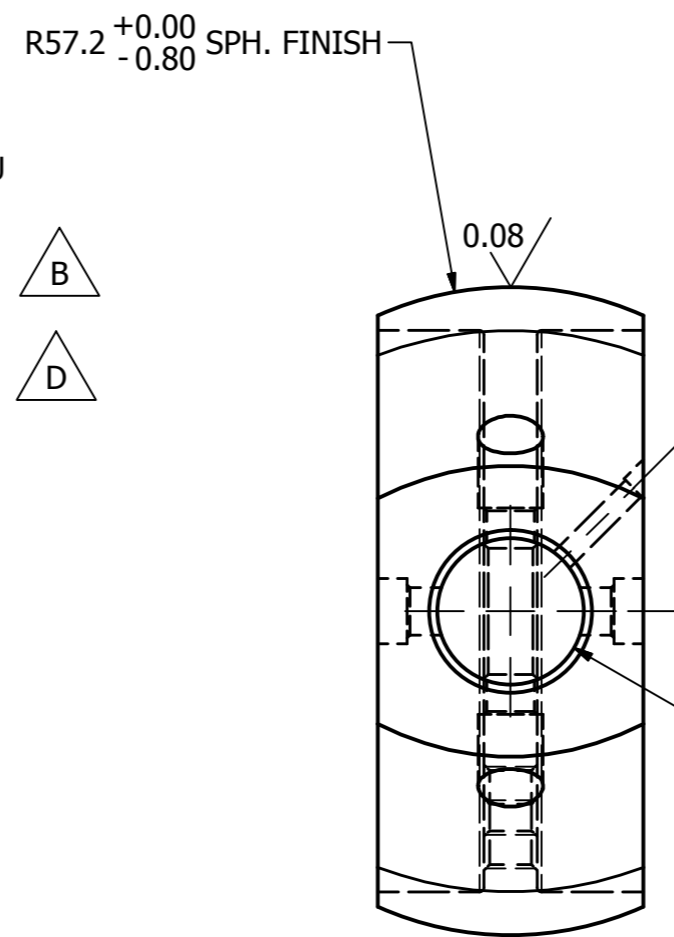
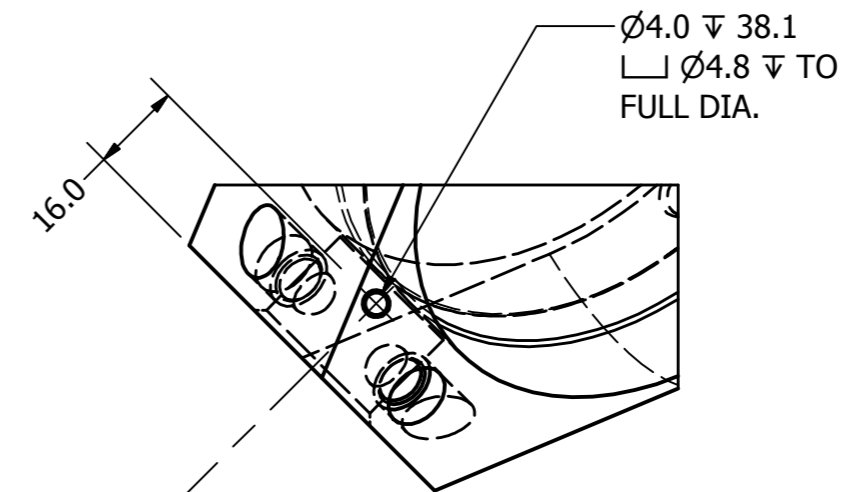
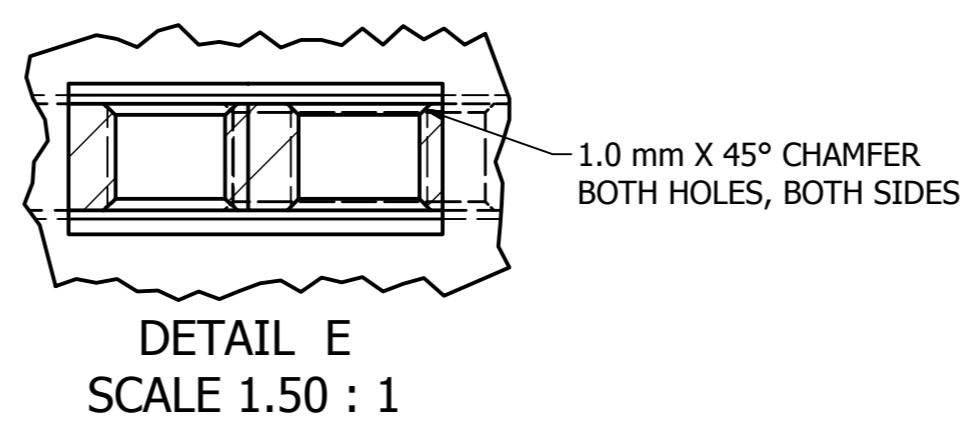
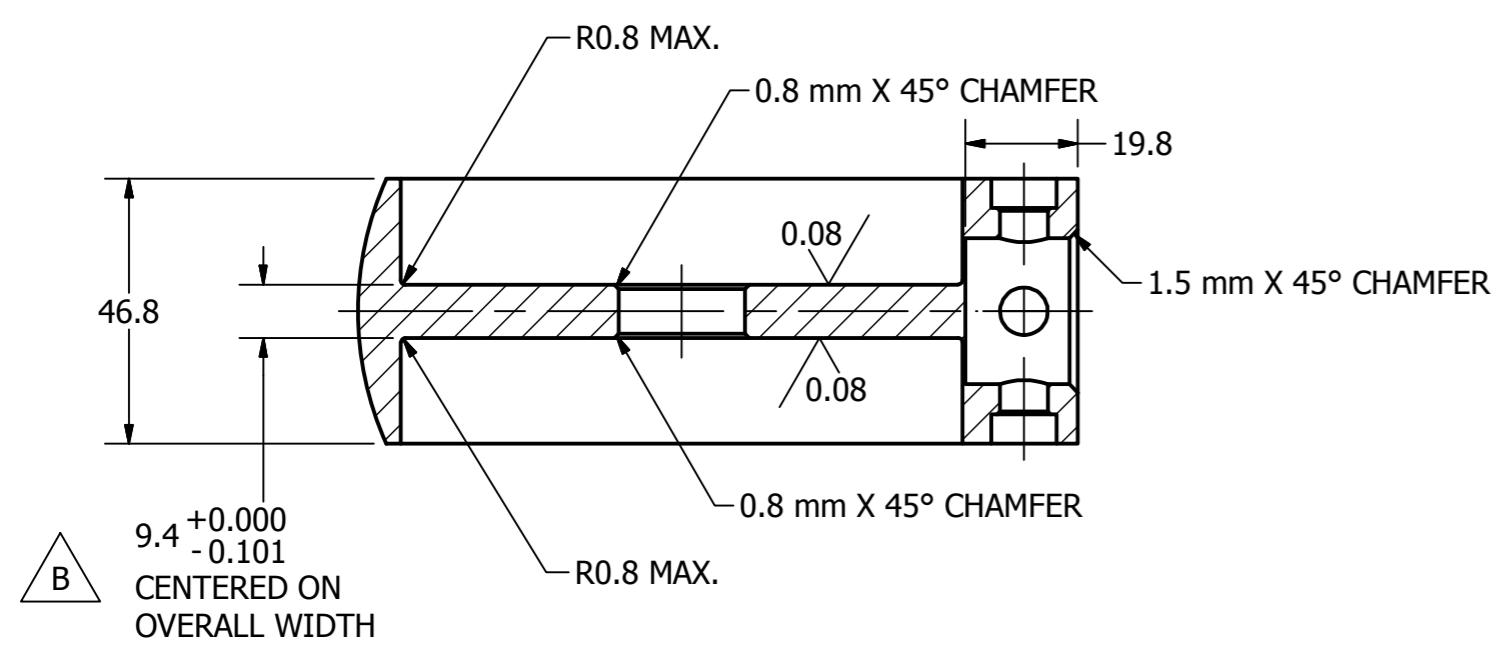
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: KNEE CAP ASS'Y.

SIZE: A3 1 of 1
SCALE: .750

DRAWING NO.: 472-5350

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
78027	A	RENUMBERED FROM T1FMM208 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
10483	B	REVISED/ADDED DIMENSIONS	5/16/2012	JSJ
10490	C	REVISED M12X1.75 TO M12X1.25 THREAD	5/22/2012	JSJ
10532	D	INCREASED PRECISION ON DIMENSIONS TO 3 PLACE	7/2/2012	JSJ
70244	E	Ø8.4 WAS Ø7.92 +0.05 / -0.00	12/18/2012	DW



SECTION B-B

DETAIL C
SCALE 2 : 1

NOTES:
1. ALL DIMENSIONS AFTER HARDCOAT EXCEPT WHERE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		
THIRD ANGLE PROJECTION		<small>(UNLESS OTHERWISE SPECIFIED)</small> DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.2 1.6 XXX ±0.1 ±0.1 1.6 XXXX ±0.0 ±0.0 1.6		
PROJECT NO:	472-5350	MATERIAL:	Aluminum-7075-T6	DESCRIPTION:
DATE:	8/16/2011	DRAWN BY:	KHS	REMOVED BURS & BREAK SHARP EDGES
CHECKED BY:	TMV	DATE:	7/10/2012	SCALE:
ENGINEER:	J. WANG	DATE:	1/27/2012	SCALE:
TOTAL QTY IN DUMMY:	2	FINISH:	HARDCOAT ANODIZE	472-5351

4

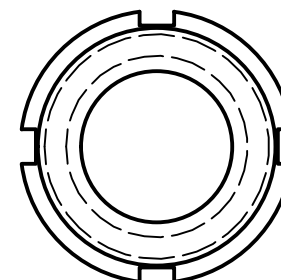
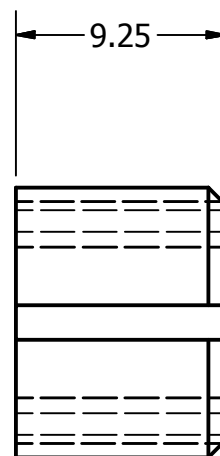
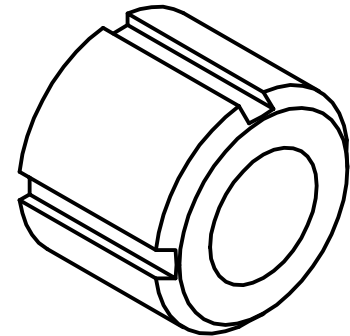
3

2

1

REVISION HISTORY

ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 79051-22-1 REV A AND CONVERTED TO METRIC FOR THOR-M	9/2/2011	JSJ

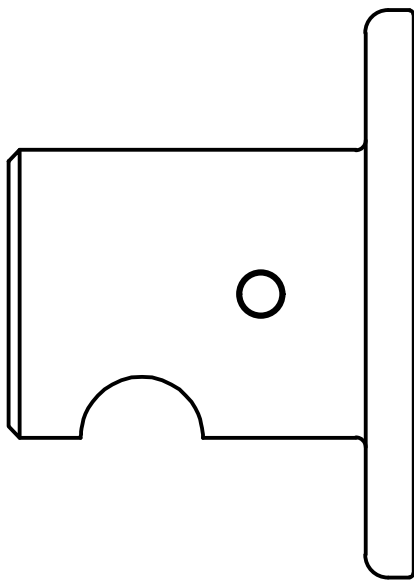
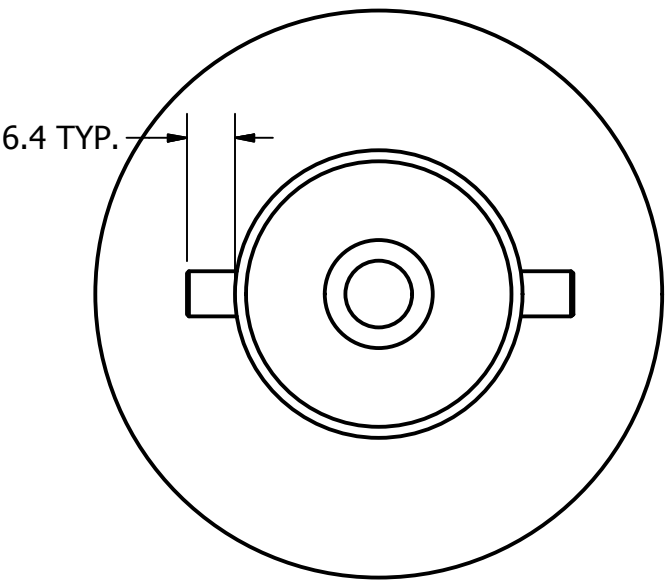
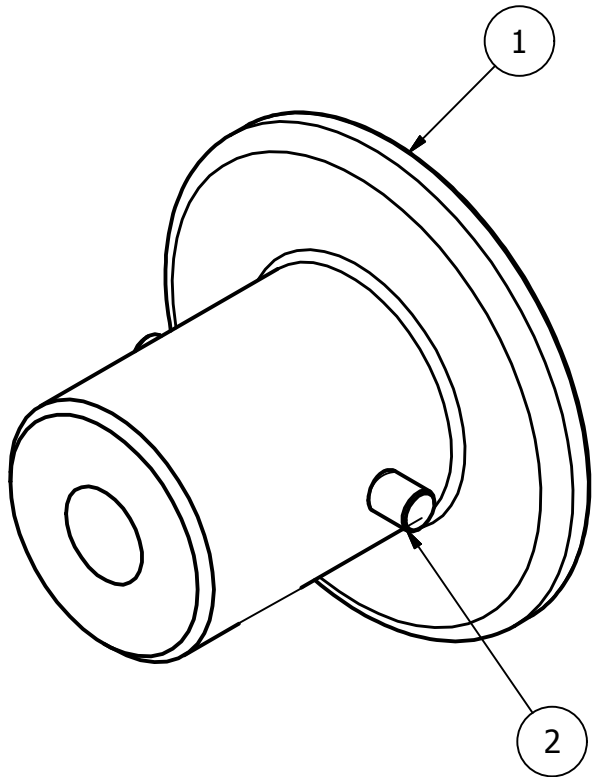


NOTE:

1. MAKE FROM M8 X 1.25 X 12 LIGHTWEIGHT KEENSERT (5000585), MODIFY AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:		MATERIAL:	DATE:	REMOVE BURRS & BREAK SHARP EDGES DESCRIPTION: THREADED INSERT, MODIFIED
472-5350	2	SEE NOTES	9/2/2011	
NEXT ASSEMBLY	QTY	HEAT TREAT:	DATE:	
TOTAL QTY IN DUMMY	4	FINISH:	DATE:	SIZE: SHEET B 1 of 1 SCALE: 3:1
		CHECKED BY: TMV	DATE: 9/14/2011	DRAWING NO.: 472-5762
		ENGINEER: J. WANG	DATE: 1/28/2012	REV: A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM211 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000433	PIN, DOWEL M6 X 12 mm
1	1	472-5411	FEMUR BALL JOINT ATTACHMENT PLATE

Parts List

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		XXX ± 0.1	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
MATERIAL:		DRAWN BY: KHS	DATE: 8/17/2011
NEXT ASSEMBLY QTY:		CHECKED BY: TMV	DATE: 9/14/2011
TOTAL QTY IN DUMMY 2		ENGINEER: J. WANG	DATE: 1/27/2012

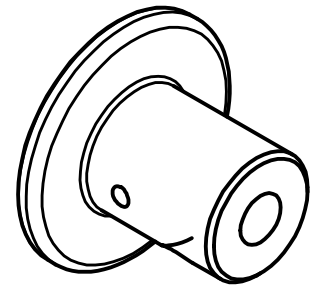
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: FEMUR BALL ATTACHMENT PLATE ASS'Y.

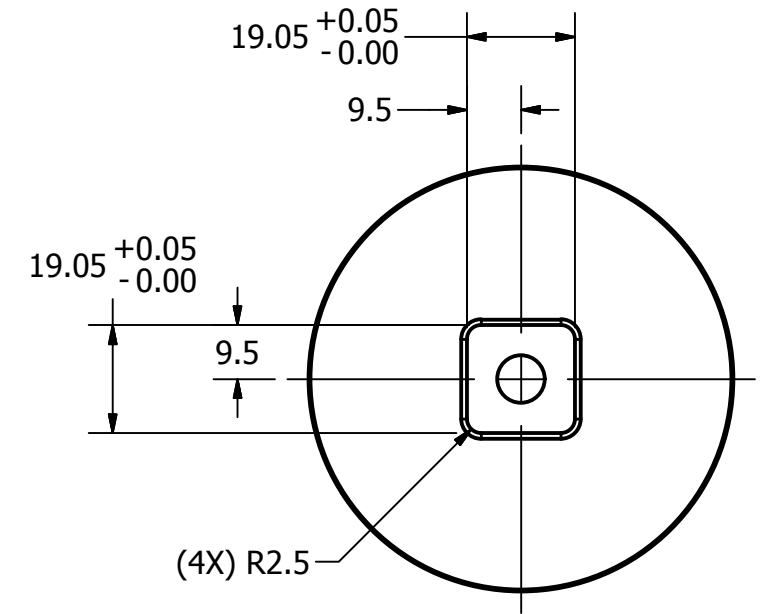
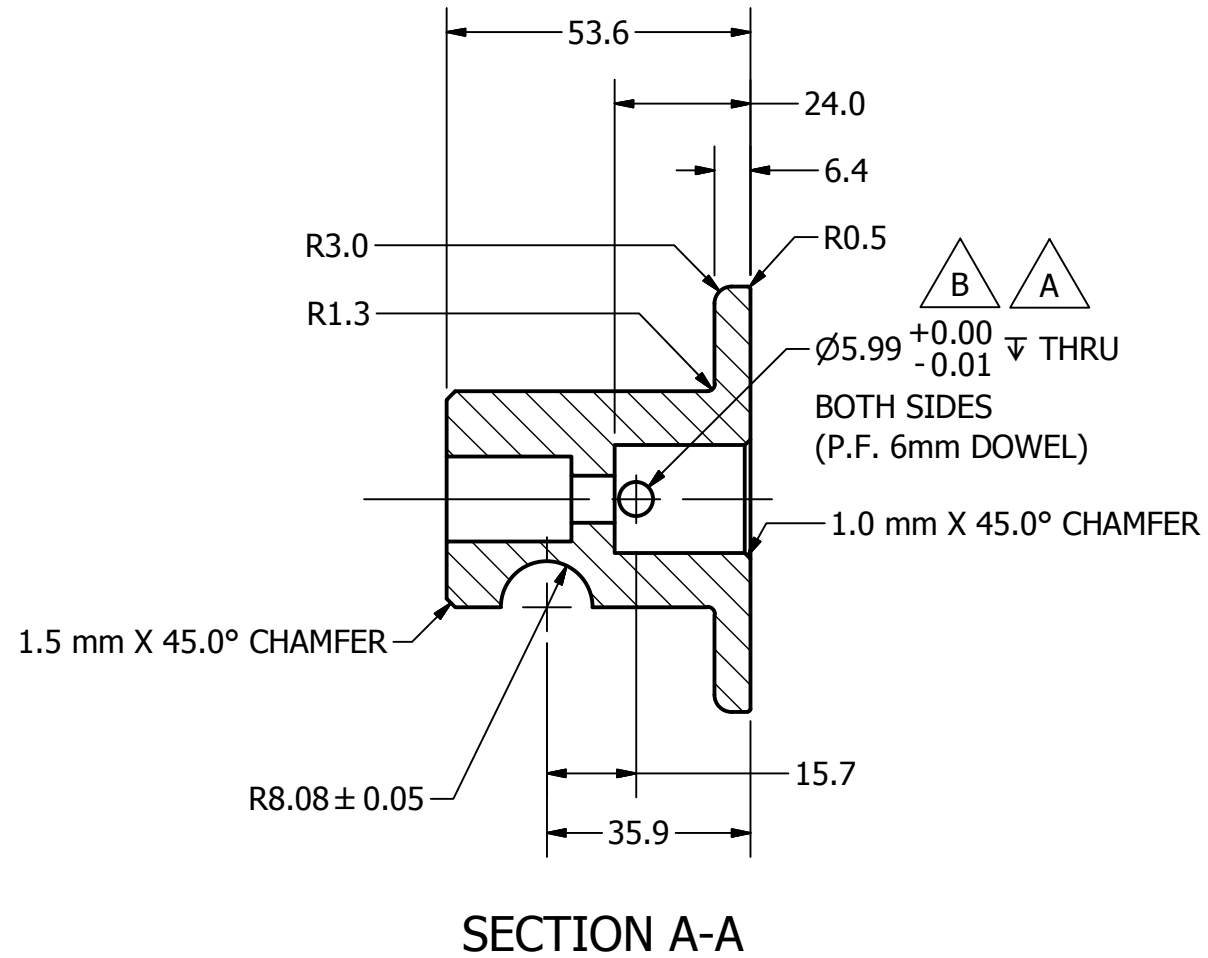
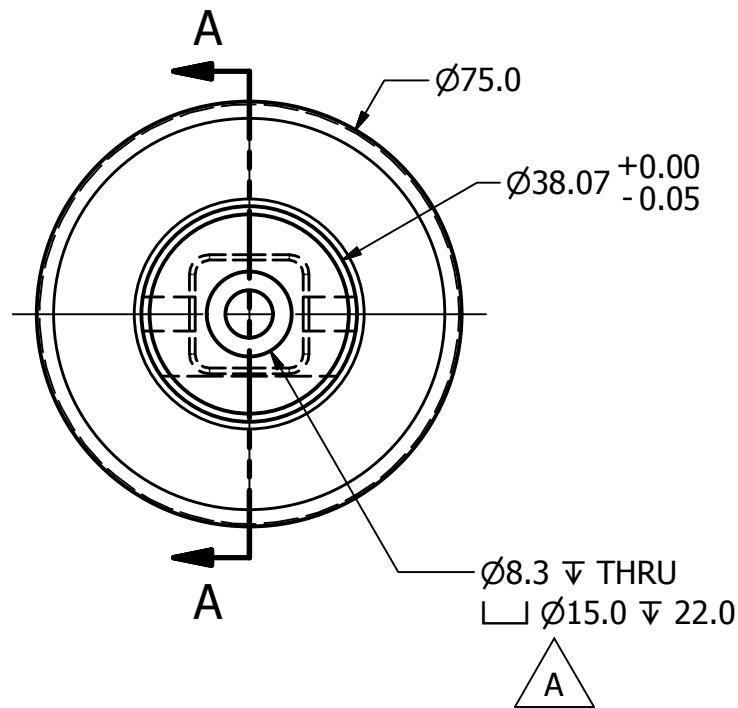
SIZE: A3 1 of 1 SHEET
SCALE: 1:1

DRAWING NO.: 472-5410 REV: A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM205 R0 AND CONVERTED TO METRIC FOR THOR-M; Ø8.3 WAS Ø8.2, C'BORE Ø15.0 WAS Ø13.0; Ø6.000 WAS Ø6.337	8/19/2011	JSJ
	B	Ø5.99+0/-0.01 WAS Ø6.000+/-0.005	5/29/2012	KHS



SCALE .500



NOTES:

1. ALL DIMENSIONS APPLY AFTER NICKEL PLATE.

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS

DECIMALS	ANGLES	FINISH
X ± 0.5	± 0.5	1.6
.XX ± 0.2	± 0.5	1.6
.XXX ± 0.1	± 0.5	1.6
.XXXX ± 0.01	± 0.5	1.6

REMOVE BURRS & BREAK SHARP EDGES

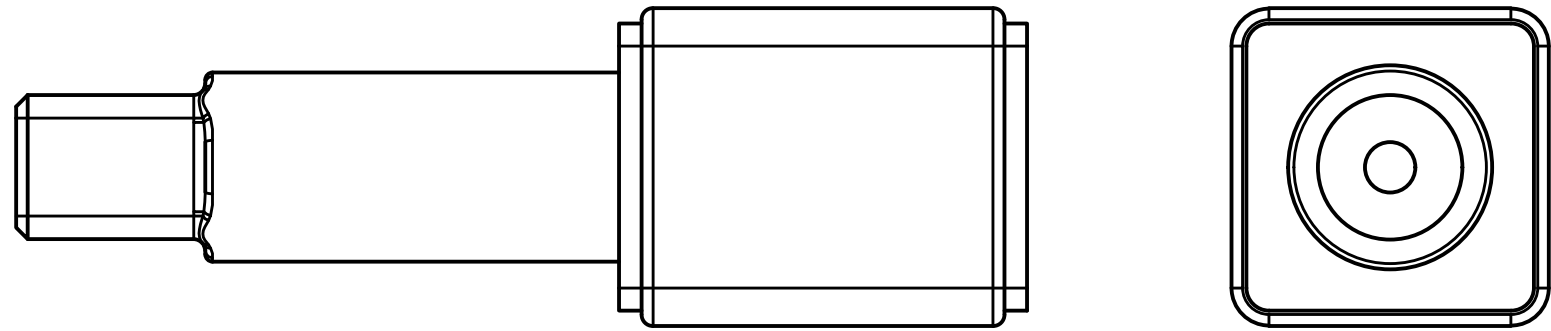
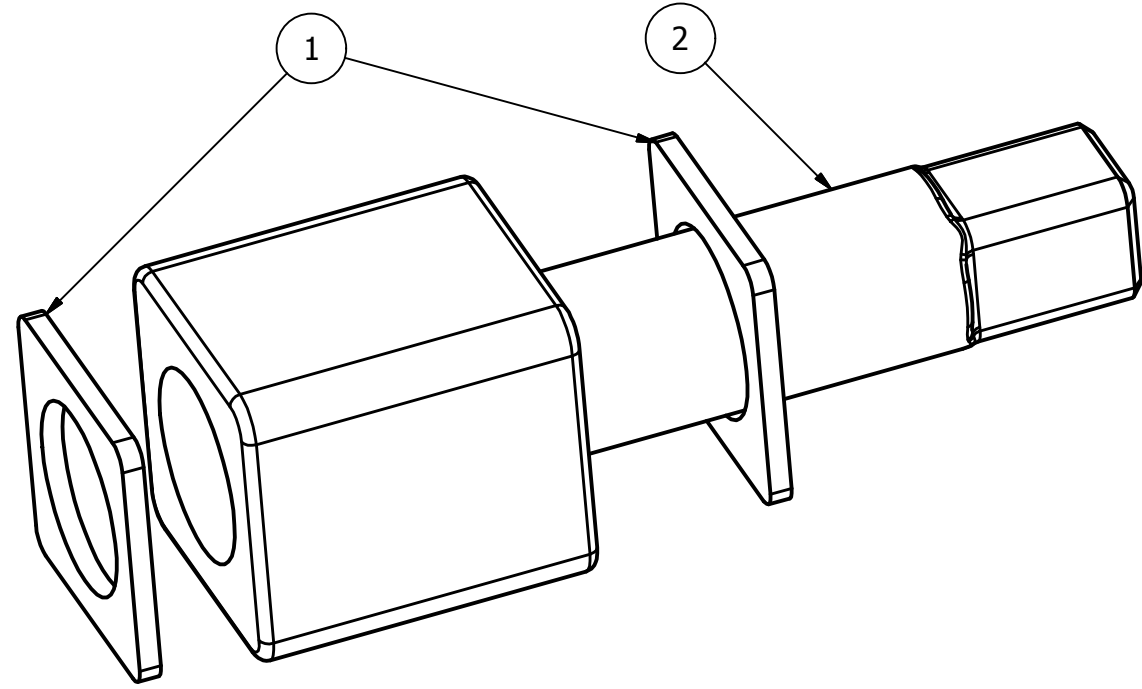


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

DESCRIPTION:
FEMUR BALL JOINT ATTACHMENT PLATE

PROJECT NO.:	472-5410	MATERIAL:	4140 STEEL	DRAWN BY:	KHS	DATE:	8/17/2011	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-5411	REV.:	B
NEXT ASSEMBLY	QTY	HEAT TREAT:		CHECKED BY:	TMV	DATE:	9/12/2011	SCALE:	1:1						
TOTAL QTY IN DUMMY	2	FINISH:	ELEC. NICKEL .008 MAX.	ENGINEER:	J. WANG	DATE:	1/27/2012								

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM210 R0 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	JSJ
	B	ADD GLUE SPEC	4/3/2012	BK



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-5422	PLUNGER - FEMUR
1	2	472-5421	END STOP

Parts List

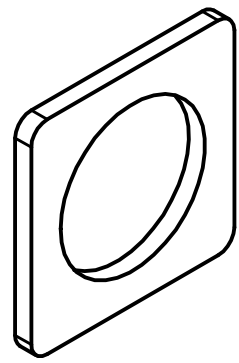
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ° ±0.5 1.6 XX ±0.2 ° ±0.5 1.6 XXX ±0.1 ° ±0.5 1.6 XXXX ±0.01 ° ±0.5 1.6		
PROJECT NO.:	472-5100-2	DATE:	8/17/2011	DESCRIPTION: FEMUR PLUNGER ASSY.
MATERIAL:	472-5100-1	DRAWN BY:	DLW	
HEAT TREAT:	NEXT ASSEMBLY	CHECKED BY:	TMV	
FINISH:	TOTAL QTY IN DUMMY	ENGINEER:	J. WANG	
		DATE:	9/14/2011	SIZE: A3 SHEET: 1 of 1 SCALE: 1:1
		DATE:	1/27/2012	DRAWING NO.: 472-5420 REV: B

NOTES:

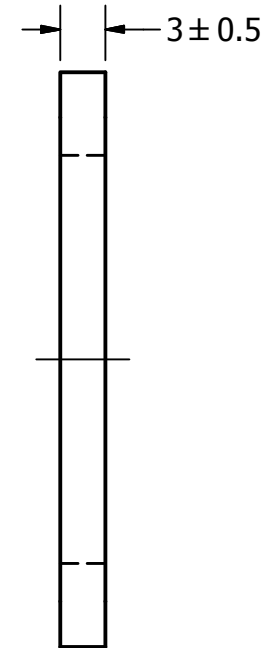
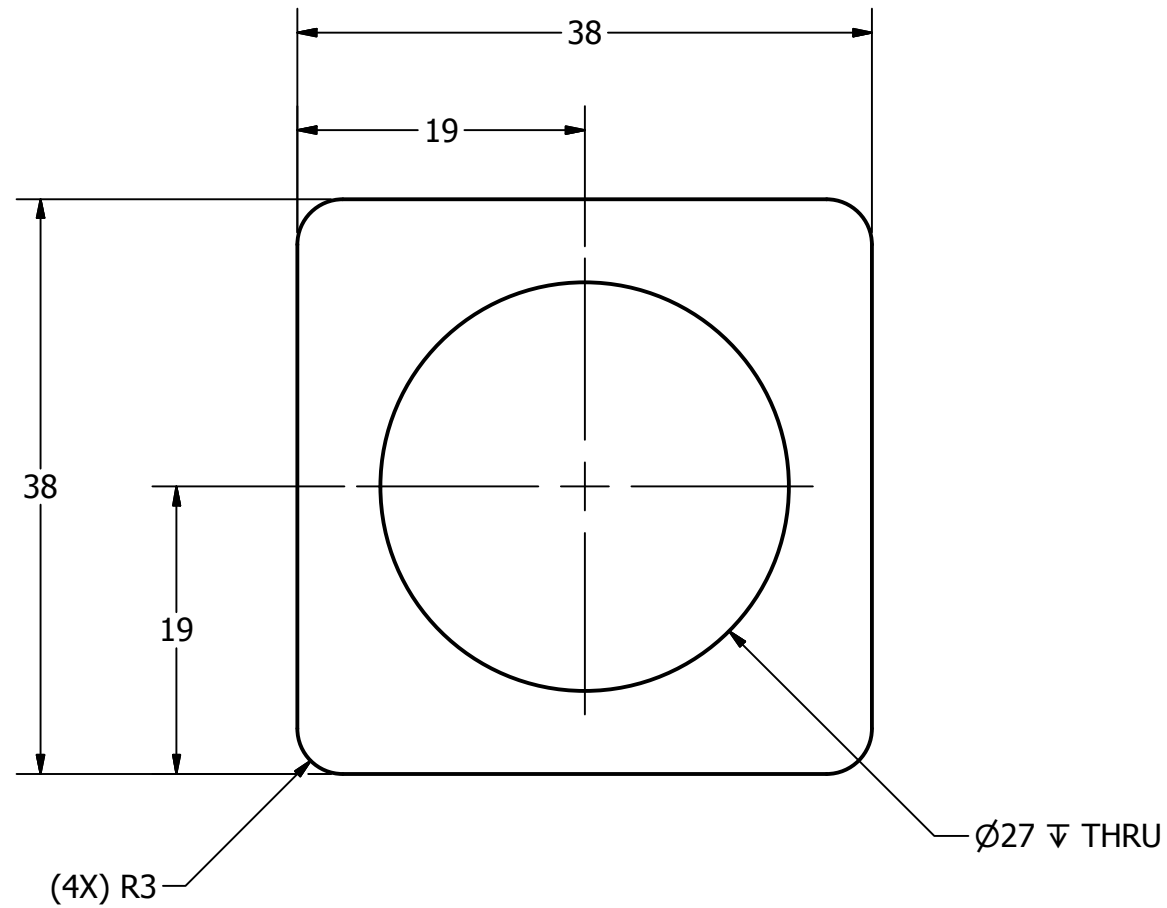


1. BOND ITEM 1 TO ITEM 2 USING LOCTITE 401 OR EQUIVALENT.

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM204 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



SCALE 1.000



MATERIAL: URETHANE, 42±5 SHORE "A"
 COLOR: BLACK

DO NOT SCALE DRAWING
 THIRD ANGLE PROJECTION

TOLERANCES		
DECIMALS	ANGLES	FINISH
X ± 0.5	± 0.5	1.6
.XX ± 0.2	± 0.5	1.6
.XX ± 0.1		
.XXX ± 0.01		

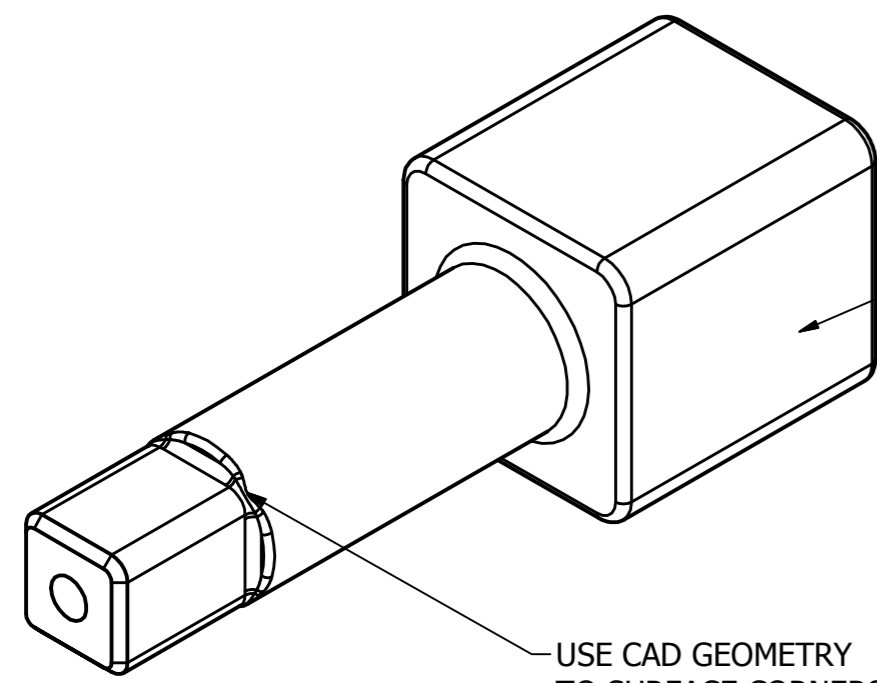


PROJECT NO.:	
MATERIAL:	BJB F-42 URETHANE
HEAT TREAT:	
FINISH:	
TOTAL QTY IN DUMMY	4

REMOVE BURRS & BREAK SHARP EDGES	DATE:	8/17/2011
DRAWN BY:	KHS	
CHECKED BY:	TMV	DATE: 9/9/2011
ENGINEER:	J. WANG	DATE: 1/27/2012

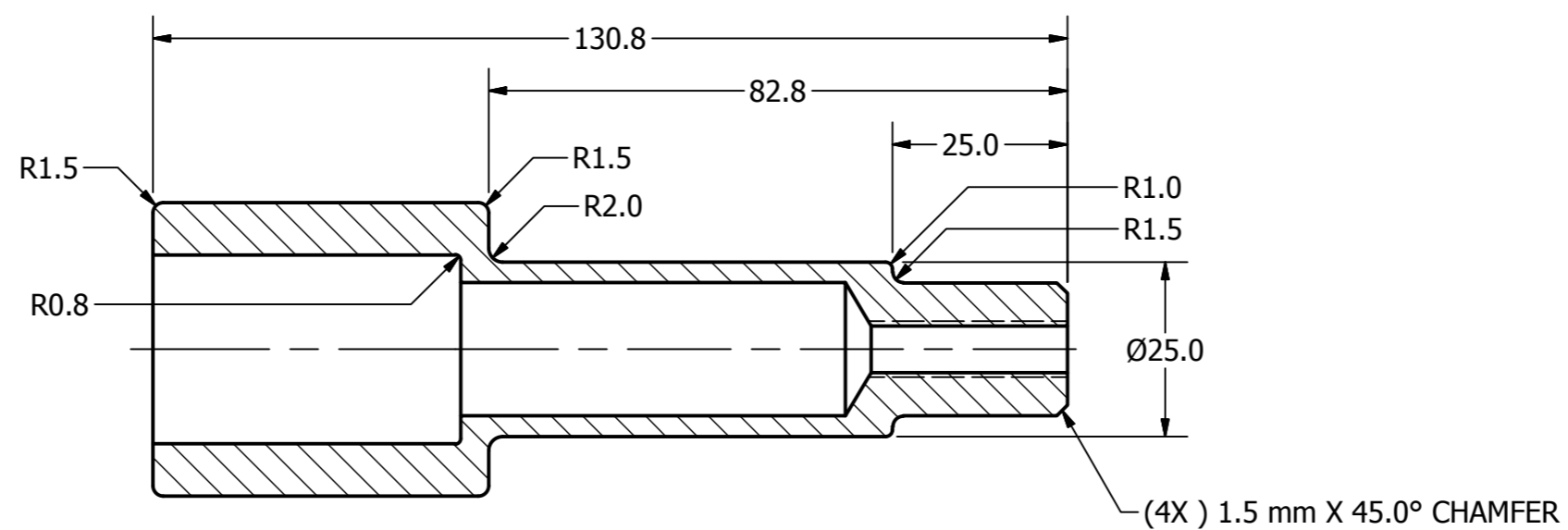
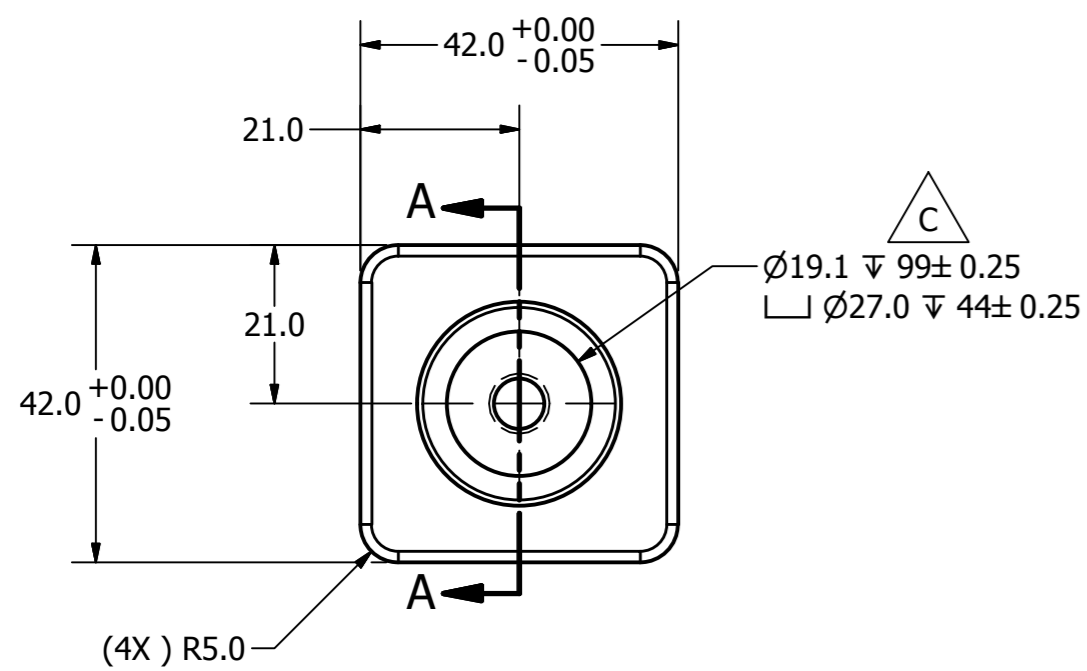
DESCRIPTION:		END STOP	
SIZE:	SHEET	DRAWING NO.:	REV:
A3	1 of 1	472-5421	A
SCALE:	2:1		

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM207 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	ADD HARDNESS CHECK NOTE	3/20/2012	SKK
	C	99 DEPTH WAS 102	11/26/2012	BK

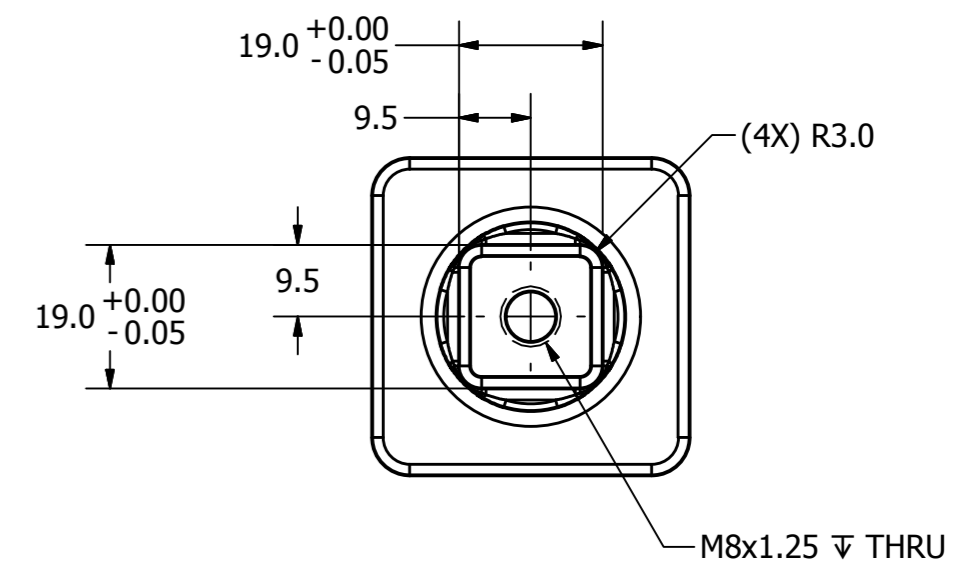


CHECK FOR HARDNESS
THIS SURFACE ONLY $\triangle B$

USE CAD GEOMETRY
TO SURFACE CORNERS
OR HAND FILE

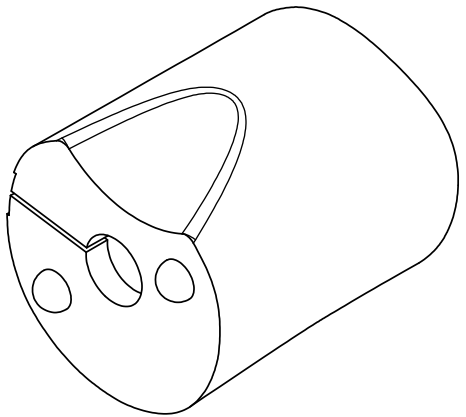


SECTION A-A

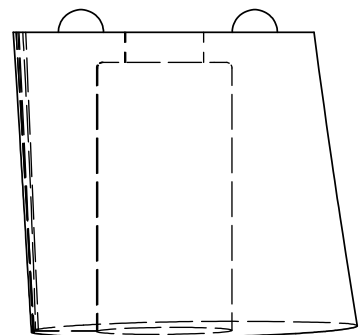
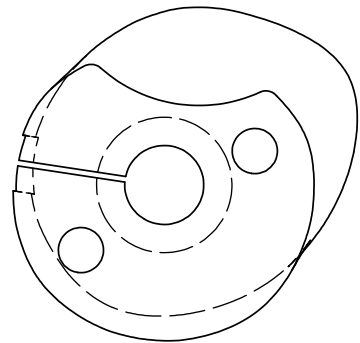
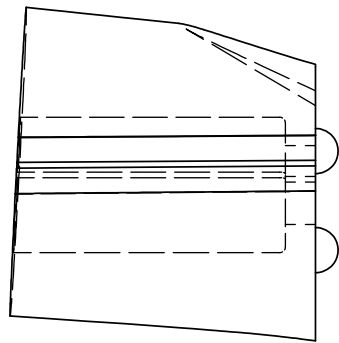


DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		X ± 0.5 1.0 XX ± 0.2 0.5 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO:	472-5420	DATE:	8/17/2011	DESCRIPTION: PLUNGER - FEMUR
MATERIAL:	Stainless Steel, 440C	DRAWN BY:	KHS	
HEAT TREAT:	Rc 57 +/- 5	CHECKED BY:	TMV	
TOTAL QTY IN DUMMY:	2	ENGINEER:	J. WANG	DATE: 1/27/2012
SCALE: 1:1			DRAWING NO: 472-5422	

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMS011 R2 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 5	8/22/2011	JSJ



← CLOSURE DIRECTION

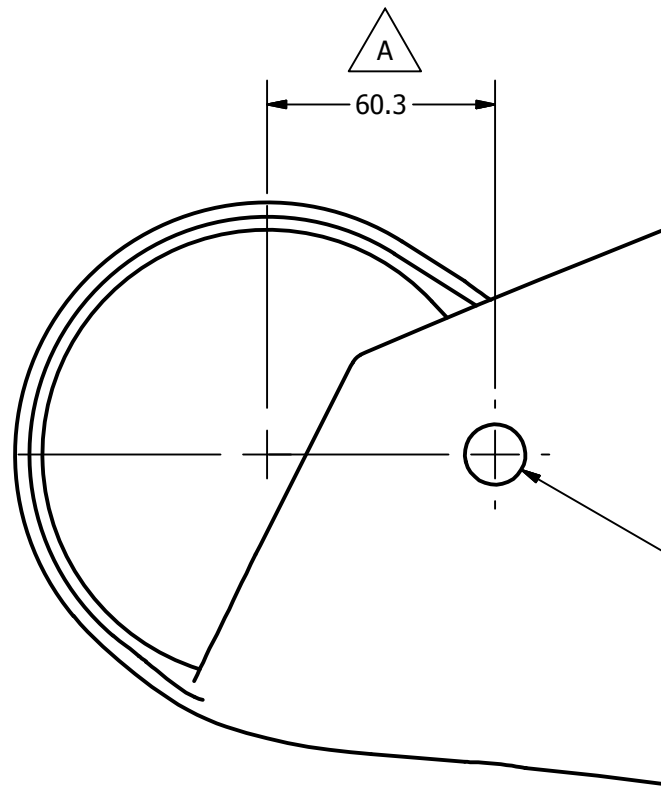
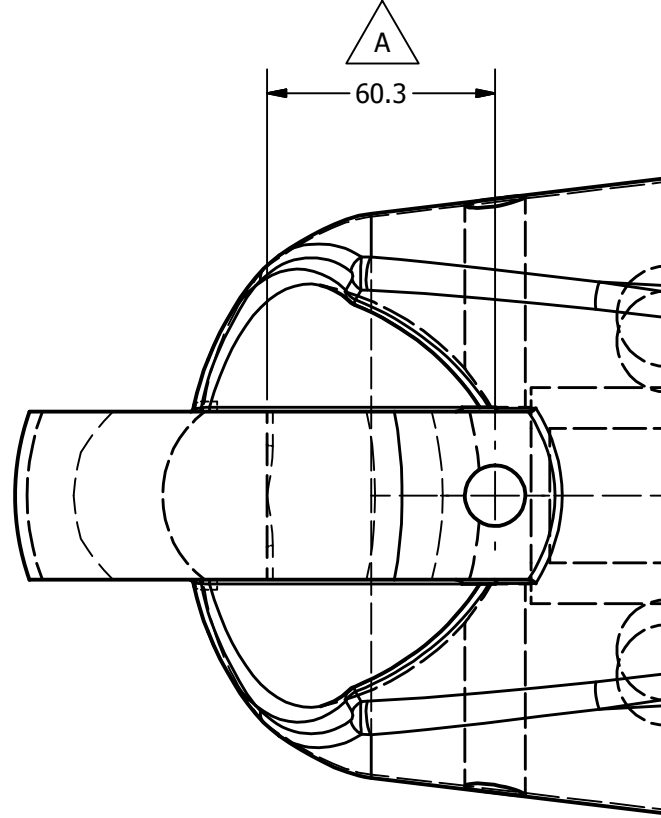
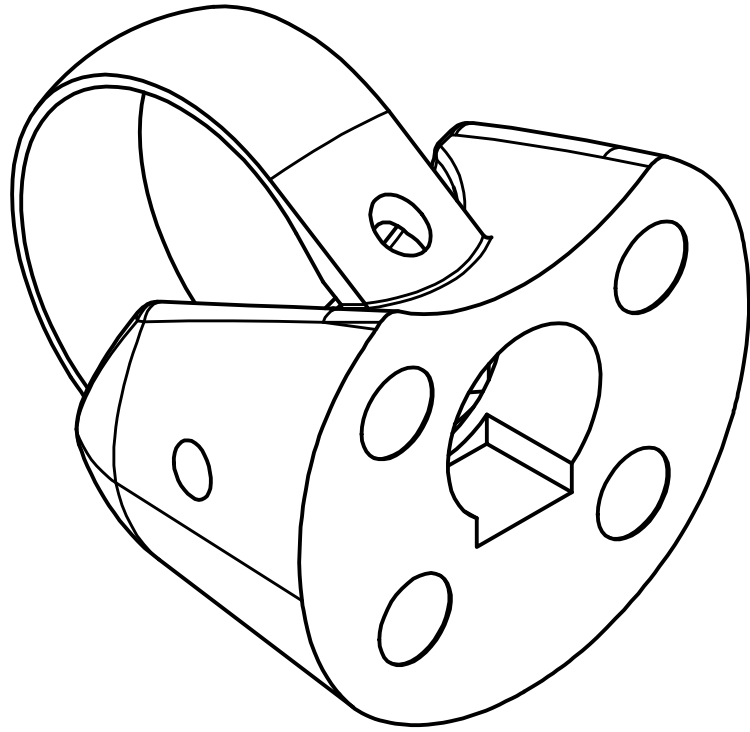


- NOTES:
1. THE OUTER SKIN IS VINYL AND FILLER MATERIAL IS A 3lb/in³ POLYURETHANE EXPANDABLE FOAM.
 2. FEMUR SKIN IS SPLIT ALONG SIDE AS SHOWN AND A BONDED ZIPPER IS APPLIED ON OUTSIDE AND IS NOT MEANT TO BE SCALED
 3. THIS DRAWING IS ONLY A REPRESENTATION OF THE SKIN AND IS NOT MEANT TO BE SCALED
 4. THE ZIPPER IS LENGTH IS 165.1 mm, BLACK POLYESTER, MESH = #9 METAL (BRASS) ZIPPER TYPE = SEPARATING STYLE, SLIDER TYPE = 30-0 (AUTO LOCK)
 5. WEIGHT: 1.00 ±0.05KG.



DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS TYPICAL 0.1 1/16 0.125 0.2 1/8 0.25 0.5 1/4 0.5 1.0 1/2 1.0 2.0 1 2.0 5.0 1 1/2 5.0 10.0 3 10.0 25.0 1 1/2 25.0 50.0 2 50.0 100.0 4 100.0 250.0 10 250.0 500.0 20 500.0 1000.0 40 1000.0		 THIGH FLESH - LEFT		DRAWING NO. 472-5100-1 REV. 1 QTY 1 TOTAL QTY IN DUMMY 1	
DESIGNED BY: S. RICE DATE: 8/17/2011		CHECKED BY: TMV DATE: 9/12/2011		DRAWING NO. 472-5503-1 REV. 1 QTY 1 TOTAL QTY IN DUMMY 1			
DESIGNED BY: J. WANG DATE: 11/27/2012		CHECKED BY: J. WANG DATE: 11/27/2012		DRAWING NO. 472-5503-1 REV. 1 QTY 1 TOTAL QTY IN DUMMY 1			

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1KNS010 R7 AND CONVERTED TO METRIC FOR THOR-M; 60.3 WAS 60	8/23/2011	JSJ

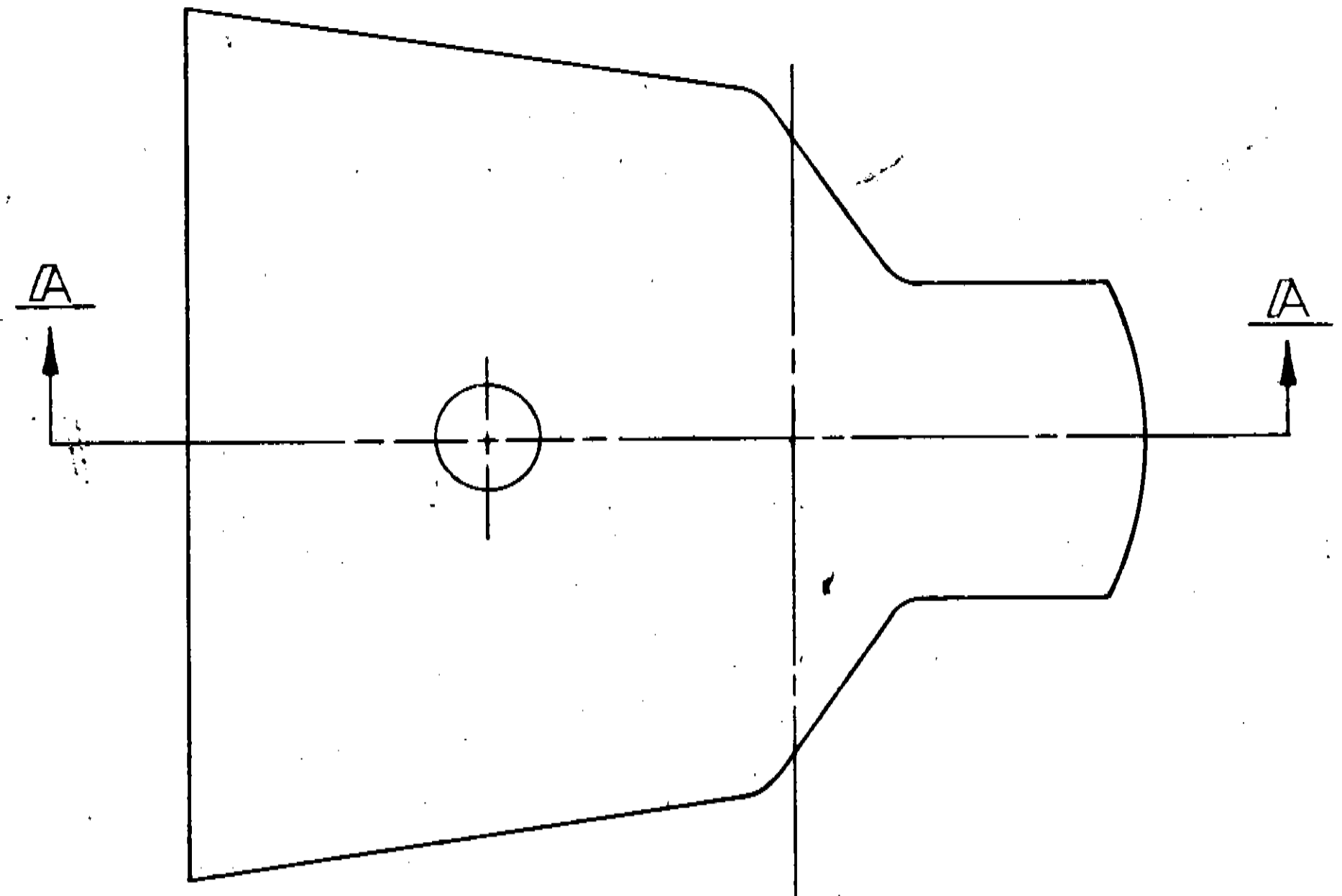


Ø16.00 ∇ THRU TYP

- NOTES:
 1. REFERENCE HYBRID III 50TH KNEE FLESH 78051-5
 2. TRIM FLAP SKIN FROM INSIDE KNEE

472-5100-2		1	DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-5100-1		1	THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ° ± 0.5 1.6 XX ± 0.2 ° ± 0.2 1.6 XXX ± 0.1 ° ± 0.1 1.6 XXXX ± 0.01 ° ± 0.01 1.6		
NEXT ASSEMBLY		QTY	PROJECT NO.:	MATERIAL:	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY		2	472-5100-1	FLESH VINYL	TMV	9/19/2011	A3 1 of 1
			HEAT TREAT:	FINISH:	ENGINEER:	DATE:	SCALE: 1:2
					J. WANG	1/27/2012	DRAWING NO.: 472-5502
							REV: A

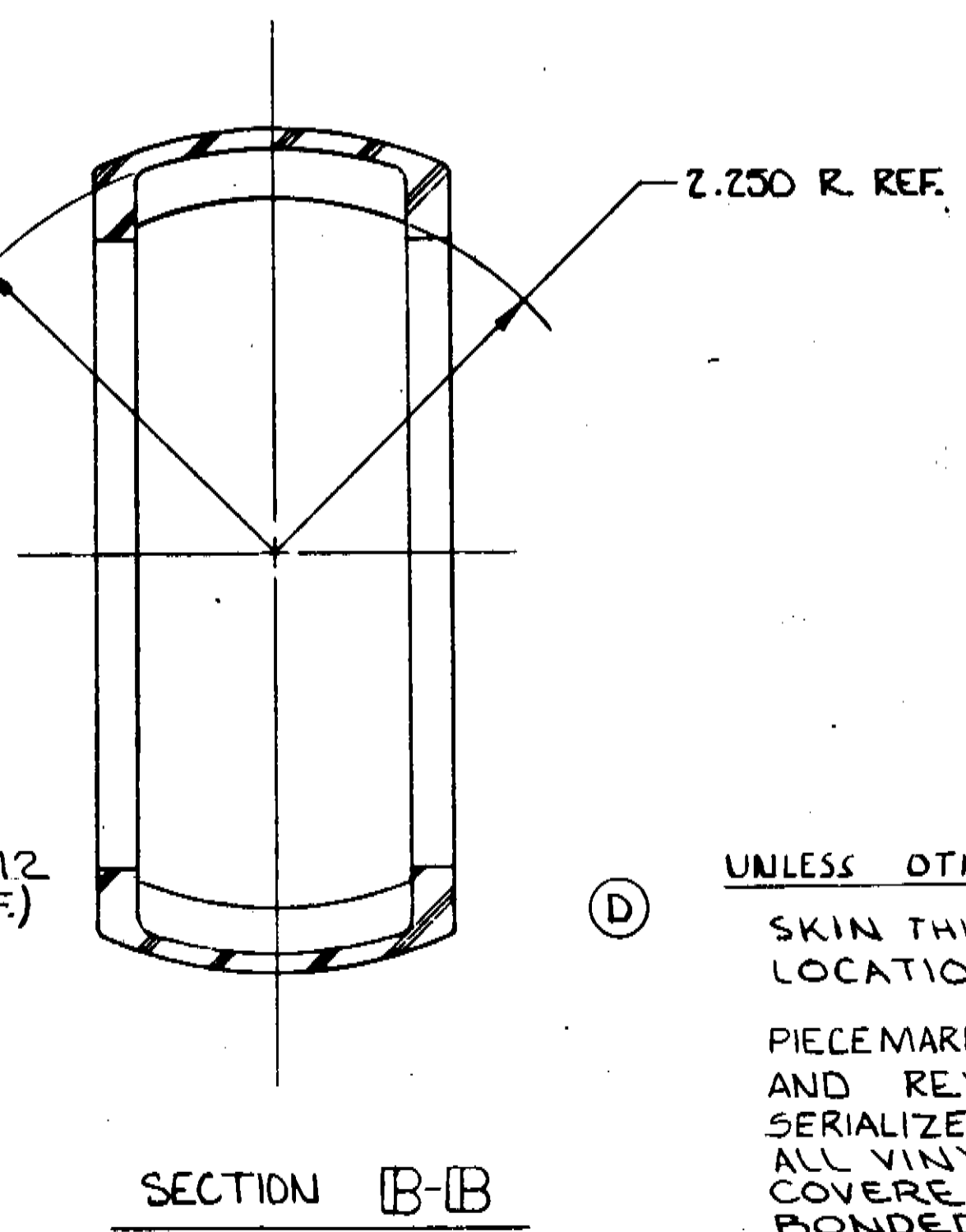
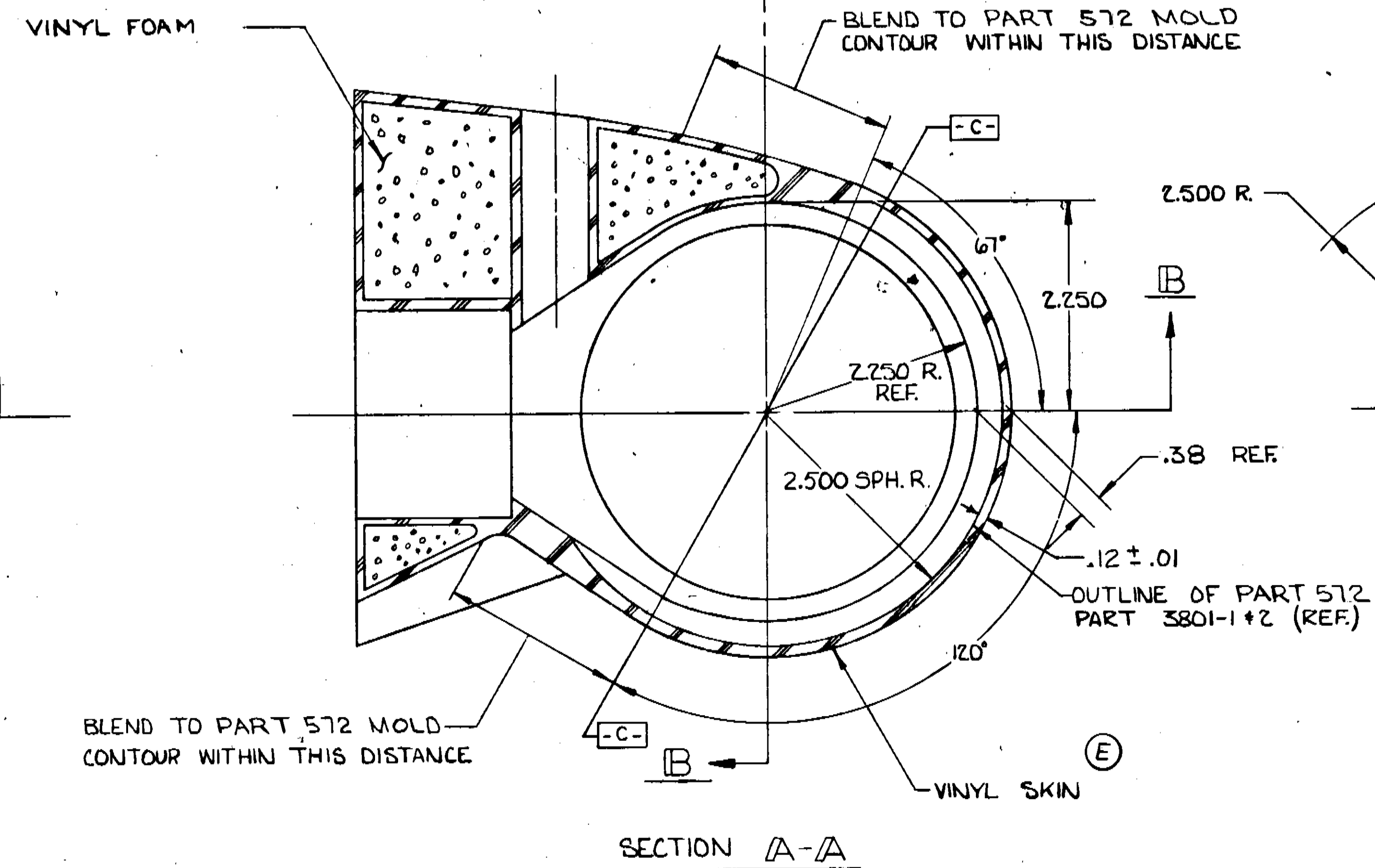
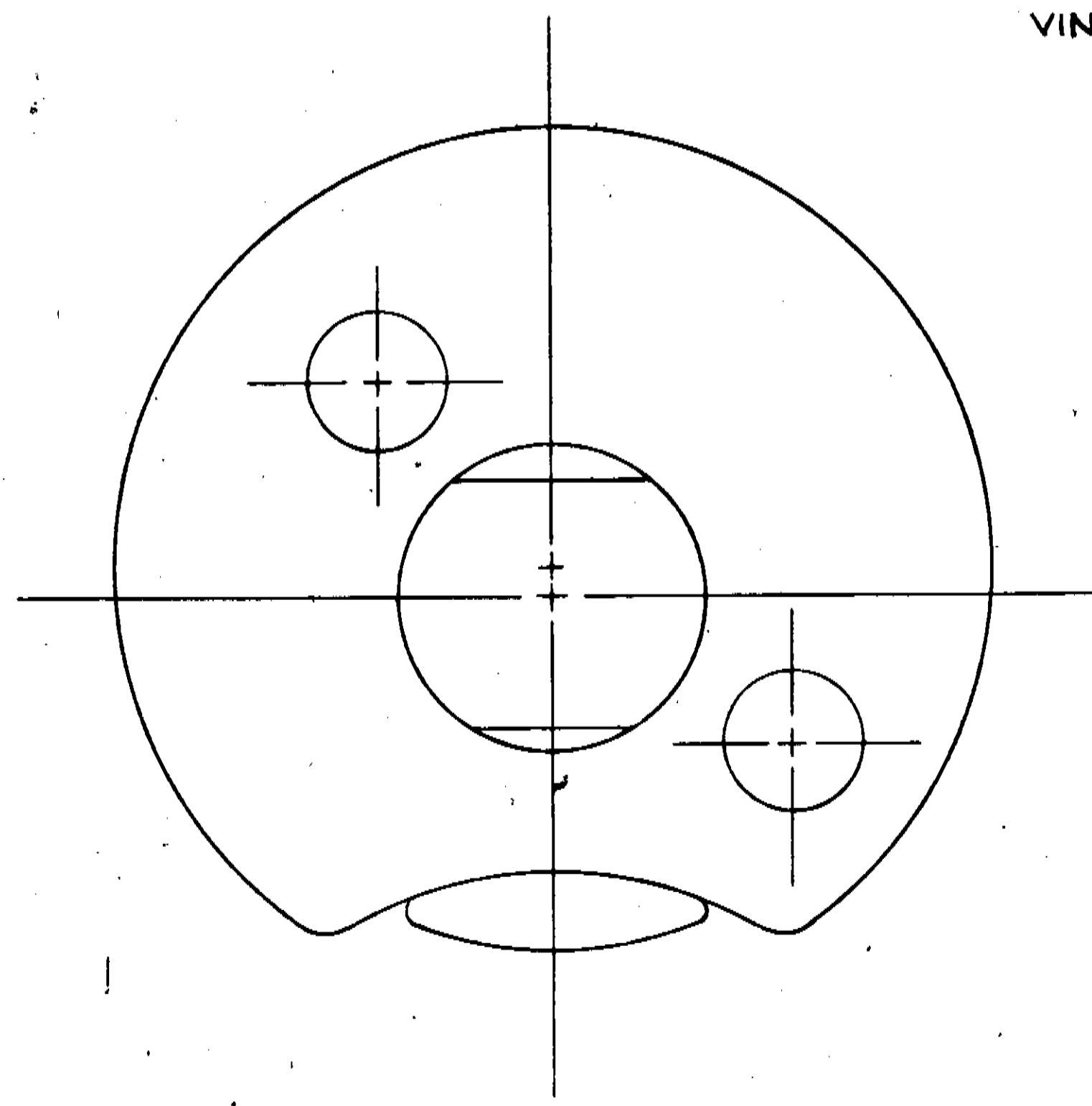
REVISION RECORD			
DATE	LET	CHANGES	BY
7-24-78	A	SKIN MATERIAL WAS-NHTSA-PT3	KLT
7-24-78	B	FOAM MATERIAL WAS-AVIP-	KLT
7-24-78	C	NOTES CHANGED	KLT
7-24-78	D	NOTES REMOVED	KLT
7-24-78	E	NHTSA-PT3 REMOVED	KLT



MOULDING PROCEDURES (REF.)			
TOTAL WT.	STRUCTURE WT	N/A	SKIN & FOAM WT.
SKIN MATERIAL - 78051-372-PT3			SKIN WT.
FOAM MATERIAL-78051-373-			FOAM WT.
SKIN CURE: MOLD TEMPERATURE			CURE TIME
FOAM PROCESSING: MOLD TEMPERATURE FOR POUR			
EXPANSION & CURE: OVEN TEMPERATURE			TIME

(A)
(B)
(C)

NOTES:
ALL MOLDED ASSEMBLY LINEAR DIMENSIONS MUST CONFORM TO MODEL 78051-5,6 WITHIN ± 0.020 INCHES. USE MODEL NO. 78051-5 (LEFT), 78051-6 (RIGHT) FOR MOLDMAKING

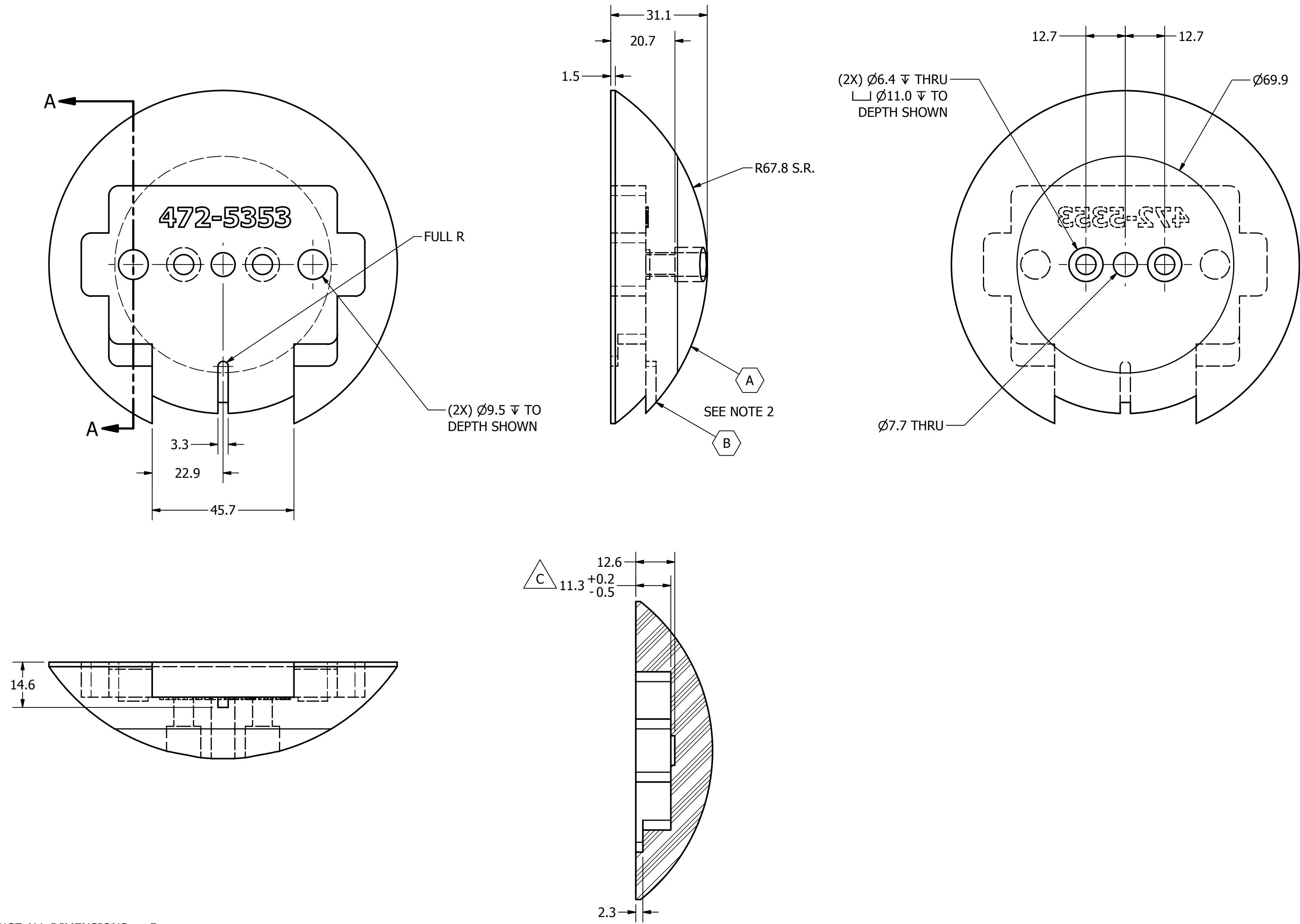


(D) UNLESS OTHERWISE SPECIFIED:
SKIN THICKNESS AT ANY LOCATION TO BE 0.06 ± 0.03 -
PIECEMARK USING PART NUMBER AND REVISION LETTER -
SERIALIZE WITH HOT IRON -
ALL VINYL FOAM TO BE COVERED BY & SECURELY BONDED TO VINYL SKIN -
ASSY WEIGHT: 1.54 ± 0.10 LBS

NOTE: READ CAREFULLY BEFORE STARTING; REPORT ALL ERRORS

DO NOT SCALE UNLESS OTHERWISE SPECIFIED. ALLOWABLE VARIATION ON ALL DIMENSIONS: DECIMALS: ± .015 FRACTIONS: ± 1/32 ANGLES: ± 5° FINISH:	DWG. BY: J. WILSON ENGR.: M. WILSON DATE: 5-20-78 PROJ. NO.: 78-185-103 MATERIAL:	GM PROVING GROUND GENERAL MOTORS CORPORATION TITLE: KNEE FLESH & SKIN ASSY-MOLDED-HYBRD III
HEAT TREAT:	SCALE: FULL SHEET	DWG. NO. 78051-5 - L.H. SHOWN 78051-6 - R.H. OPP.

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	REPLACES T1KNM011, 012, 013 AND 014 FOR THOR-M	9/7/2011	KHS
B	GLOBAL	MATERIAL A WAS 37 +/- 3; MATERIAL B WAS 75 +/- 3	4/20/12	KHS
C	70812	ADDED TOLERANCE TO 11.3 mm DIMENSION	1/22/13	KHS

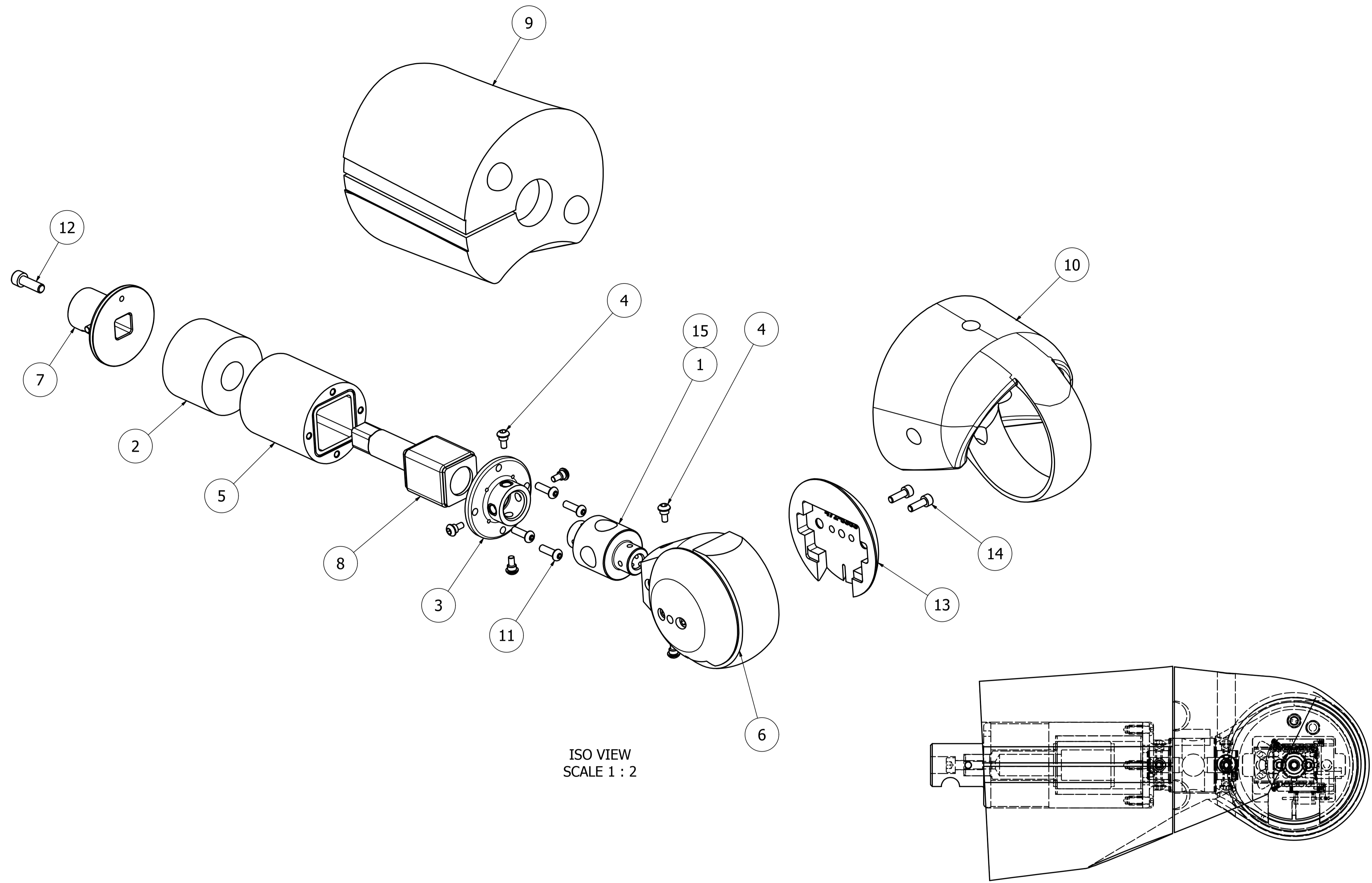


NOTE:
 1. TOLERANCE ALL DIMENSIONS: $\pm .5$ mm
 2. MATERIAL A: URETHANE 37 \pm 5 SHORE A
 MATERIAL B: URETHANE 65 \pm 5 SHORE D

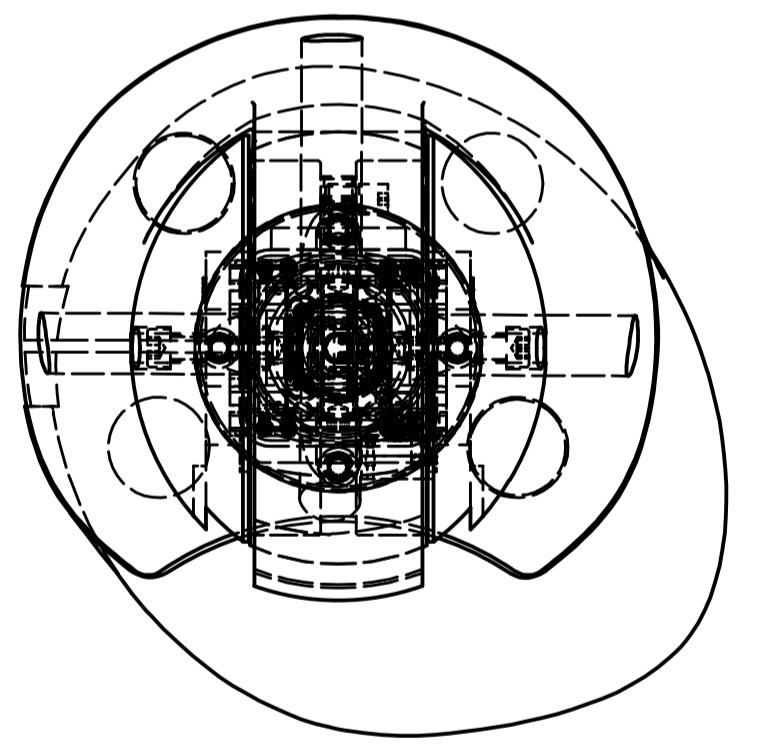
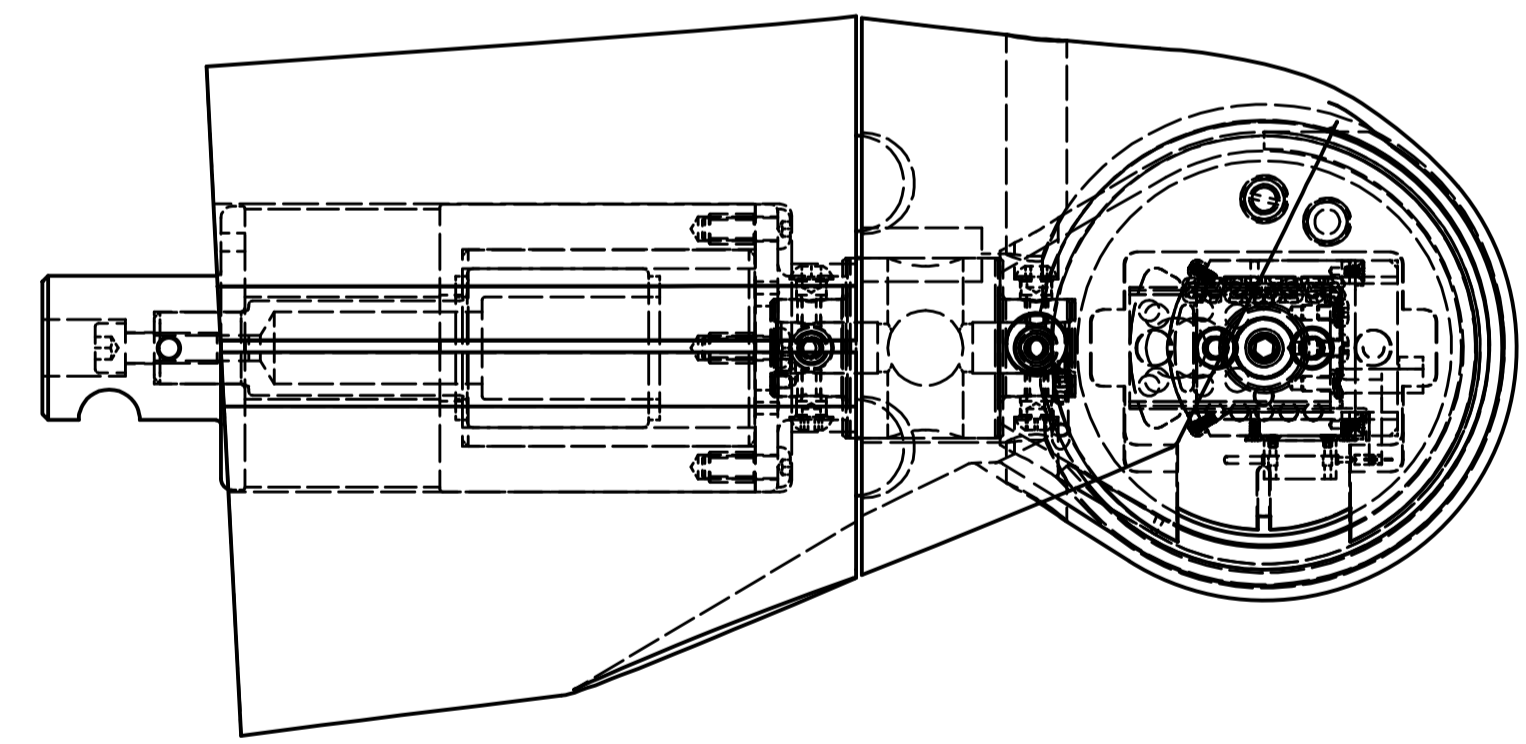
SECTION A-A

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: KNEE COVER	
PROJECT NO: 472-5600		MATERIAL: SEE NOTES		DRAWN BY: KHS	
QTY: 2		DATE: 9/7/2011		CHECKED BY:	
NEXT ASSEMBLY		ENGINEER: J. WANG		DATE: 1/26/2012	
TOTAL QTY IN DUMMY: 4		FINISH:		SCALE: 1:1	
SIZE: C 1 OF 1				DRAWING NO: 472-5353	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM001 R0 FOR THOR-M; ADD THIGH FLESH 472-5503-2) AND KNEE FLESH (472-5502); REMOVED FEMUR BALL JOINT ASSY (472-4800-2)	8/29/2011	TKN
	B	ADD 472-5353 AND 9005217	2/14/2012	KHS
	C	ADDED PART #SA572-S120 - FEMUR LOAD CELL (OPTIONAL)	9/3/2015	DW



ISO VIEW
SCALE 1 : 2

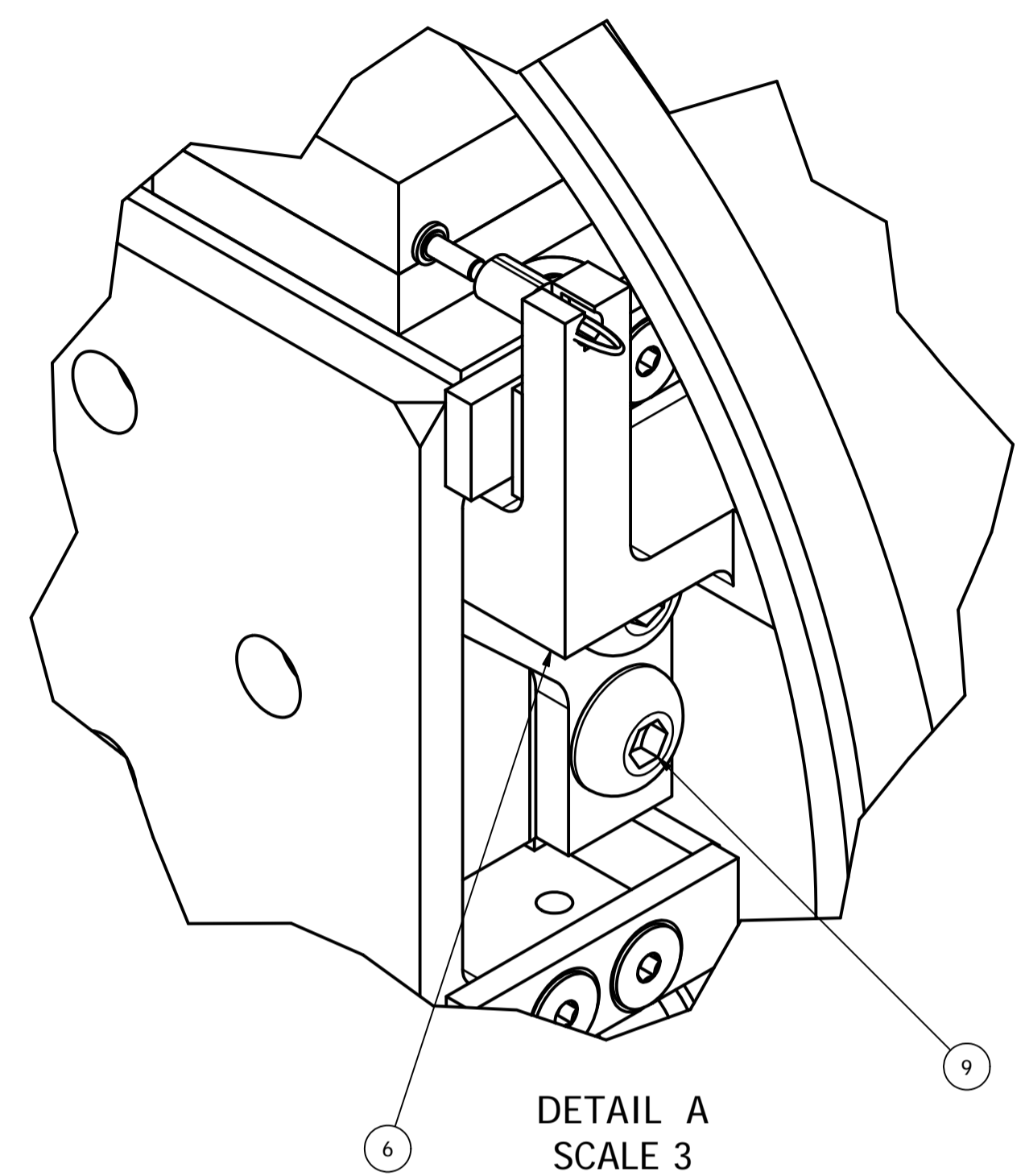
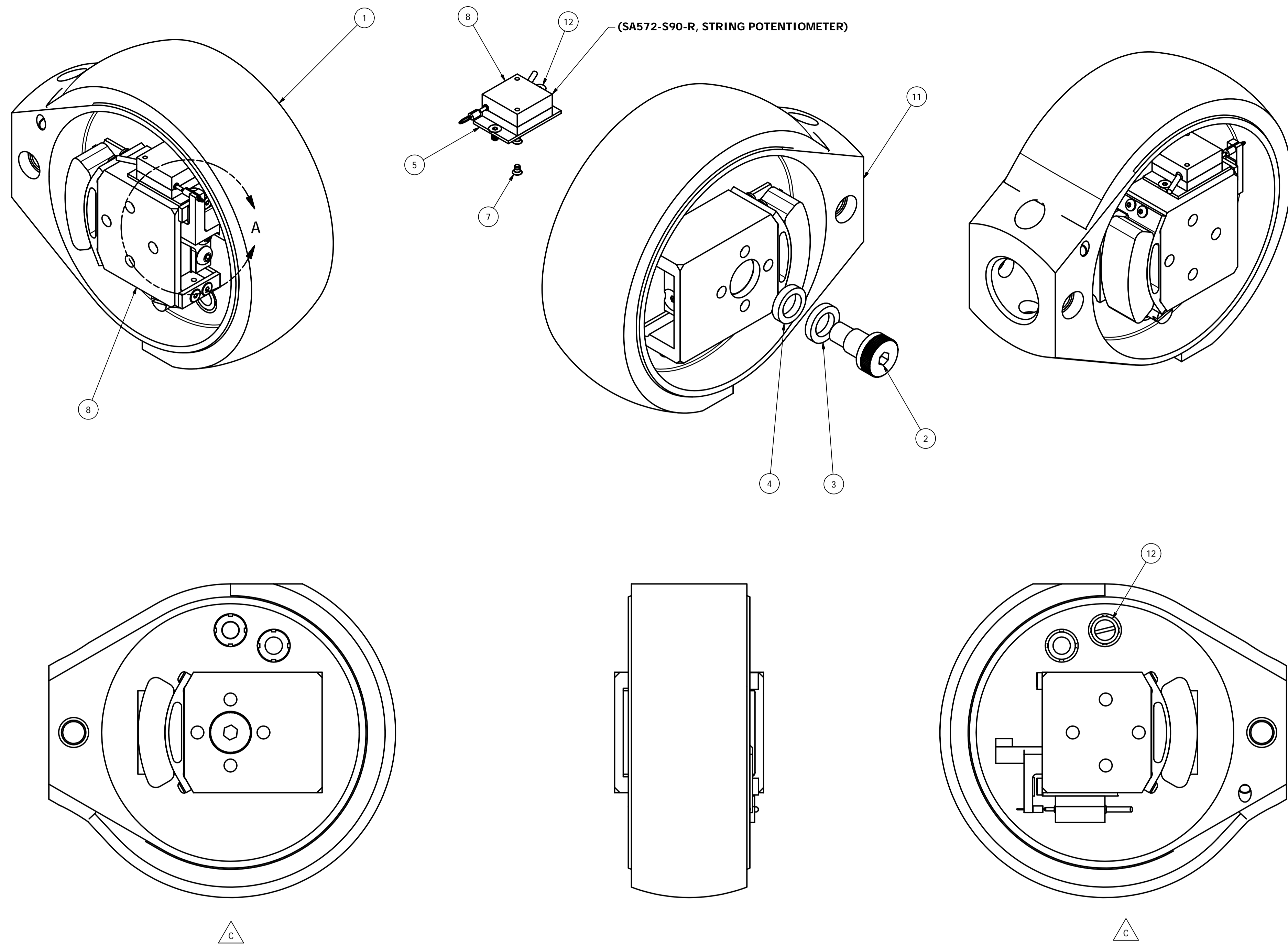


ITEM	QTY	PART NUMBER	DESCRIPTION
15	1	SA572-S120	FEMUR LOAD CELL (OPTIONAL)
14	4	9005217	SHCS M6 X 18 mm
13	2	472-5353	KNEE COVER
12	1	5000037	M8 X 1.25 X 25 LG. SHCS
11	4	5000438	SCREW, BHCS M6-1 X 20mm
10	1	472-5502	KNEE FLESH LEFT/RIGHT (MODIFIED)
9	1	472-5503-2	THIGH FLESH - RIGHT
8	1	472-5420	FEMUR PLUNGER ASSY.
7	1	472-5410	FEMUR BALL ATTACHMENT PLATE ASSY.
6	1	472-5700	KNEE CAP ASSY.,RIGHT
5	1	472-5200	FEMUR BUSHING ASSY.
4	8	W50-61042	MODIFIED BHSS M6 THREAD
3	1	472-5203	END CAP - FEMUR
2	1	472-5206	COMPRESSION ELEMENT-UPPER LEG
1	1	W50-51060	UNIVERSAL LEG L.C. STRUCTURAL REPLACEMENT

Parts List
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

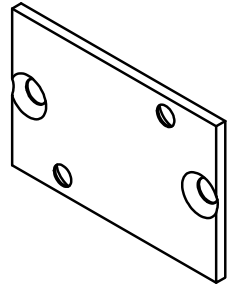
472-5000-2	1	THNAH	8/29/2011	RIGHT UPPER LEG ASSY.
NEXT ASSEMBLY	QTY	DESIGNED BY	DATE	DESCRIPTION
TOTAL QTY IN DUMMY	1	DESIGNED BY	DATE	DESCRIPTION
		J. WANG	1/28/2012	472-5100-2

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM215 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	5000723 WAS 5000595	7/19/2012	BK
	C	CORRECTED SIDE VIEWS	9/29/2015	DW

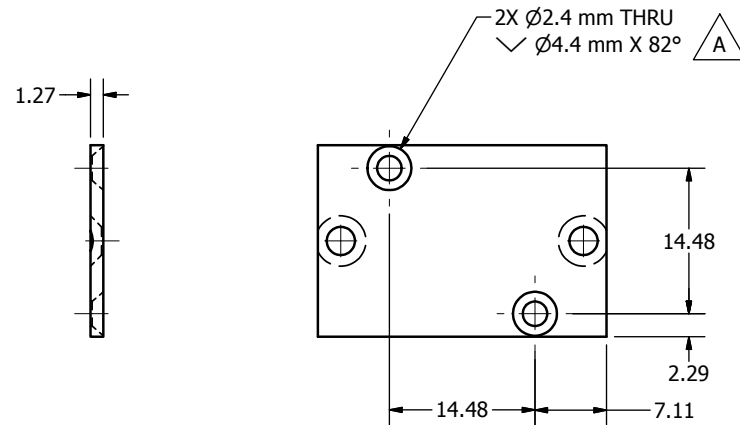
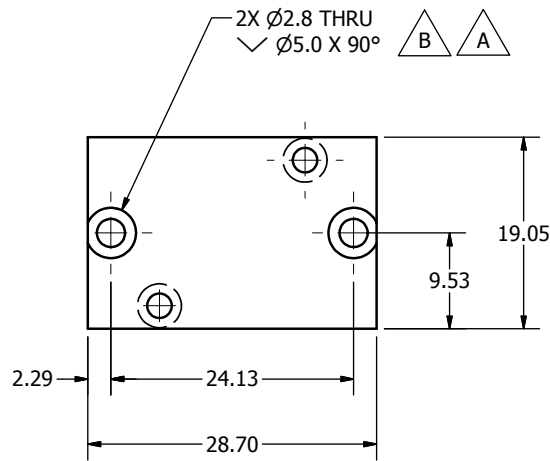


ITEM	QTY	PART NUMBER	DESCRIPTION
12	2	5000723	SCREW, FNCS M2.5-0.45 x 5
11	1	472-5350	KNEE CAP ASSY
10	1	472-5763	PIN, KNEE STOP
9	2	5001075	BHCS, M4 X .7 X 6
8	1	472-5310	ASSY, INBOARD/OUTBOARD SLIDER
7	2	9004003	SCREW, FNCS #2-56 X 1/8" PHILLIPS HEAD
6	1	472-5307	ASSEMBLY, POT STRING HOLDER (RIGHT)
5	1	472-5308	PLATE, MOUNT
4	1	472-5304	WASHER, COMPRESSION
3	1	472-5303	WASHER, SLIDING KNEE
2	1	472-5302	BOLT, SHOULDER
1	1	472-5301	KNEE FLESH INSERT-MOLDED

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
PROJECT NO.	472-5100-2	DESIGNED BY	HORCHLER	DATE	8/17/2011
REV. NO.	1	CHECKED BY	J. WANG	DATE	1/22/2012
DESCRIPTION	KNEE CAP ASSY., RIGHT				
QUANTITY	1	SCALE	A11 OF 1		
TOTAL QTY IN DUMMY	1	DATE	472-5700		



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1638-2 REV F AND CONVERTED TO METRIC FOR THOR-M; DIMENSION Ø2.39 THRU C'SINK Ø4.39 X 90° WAS Ø2.26 ↓ THRU C'SINK Ø4.06 X 82°; Ø2.4 THRU C'SINK Ø4.4 X 82° WAS Ø2.26 ↓ THRU C'SINK Ø4.06 X 82°; FINISH WAS BLUE ANNOIDIZED (OPTIONAL)	8/19/2011	JSJ
	B	Ø2.8 C'SINK Ø5.0 WAS Ø2.39 C'SINK Ø4.39	7/19/2012	BK



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-5700	MATERIAL:	Aluminum-6061-T6	DESCRIPTION:
DRAWN BY:	KSG	DATE:	8/17/2011	PLATE, MOUNT
CHECKED BY:		ENGINEER:	J. WANG	DATE:
HEAT TREAT:		FINISH:	CLEAR ANODIZE	DATE:
TOTAL QTY IN DUMMY	1	FINISH:	CLEAR ANODIZE	DATE:



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

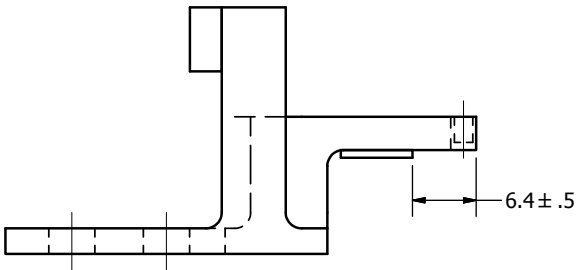
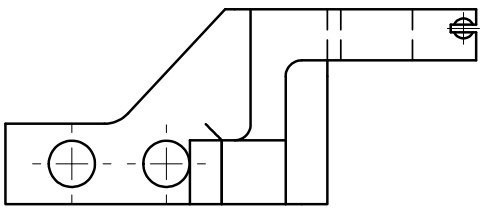
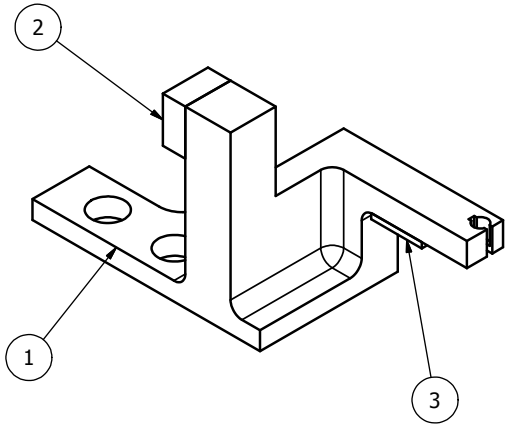
PLATE, MOUNT

SIZE: A3
 SHEET: 1 OF 1
 SCALE: 2:1

DRAWING NO.: 472-5308

REV: B

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1650-1 REV G AND CONVERTED TO METRIC FOR THOR-M; ADD NOTES 1, 2, 3, 5; ADDOR EQUIVALENT TO NOTE 4	8/19/2011	JSJ



NOTES:
 BONDING INSTRUCTIONS:
 1. SAND SURFACES TO BE BONDED.
 2. CLEAN SURFACES WITH MEK.
 3. CLEAN SURFACES WITH ALCOHOL.
 4. APPLY LOCTITE 411, OR EQUIVALENT, TO ONE SURFACE.
 5. PRESS PARTS TOGETHER AND APPLY PRESSURE FOR 30 SECONDS AFTER ADHESIVE BECOMES TACKY.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-5736	BUMPER, RETURN STOP
2	1	472-5735	BUMPER, EXTENSION STOP
1	1	472-5737-2	HOLDER, POT STRING (RIGHT)

Parts List

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

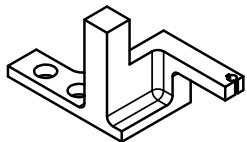
TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DECIMALS ANGLES FINISH
 0.05 ± 0.05 16°
 X.X ± 0.2
 X.XX ± 0.3
 X.XXX ± 0.01

REMOVE BURRS & BREAK SHARP EDGES

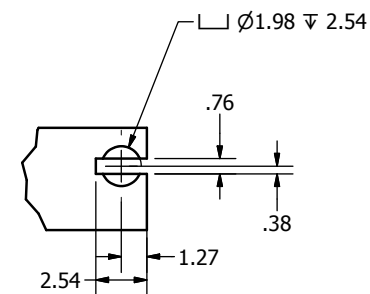
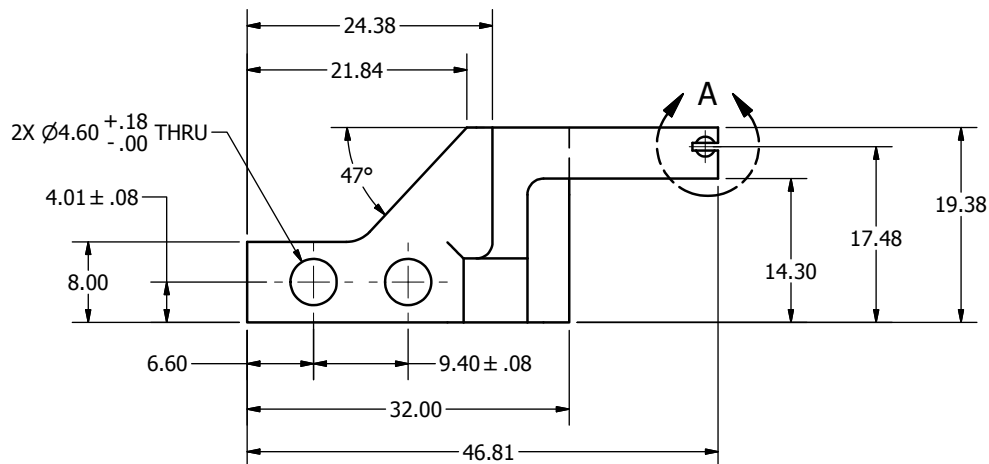
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: ASSEMBLY, POT STRING HOLDER (RIGHT)

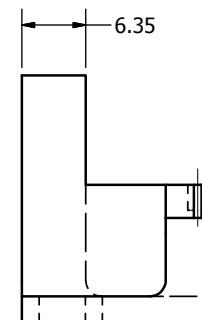
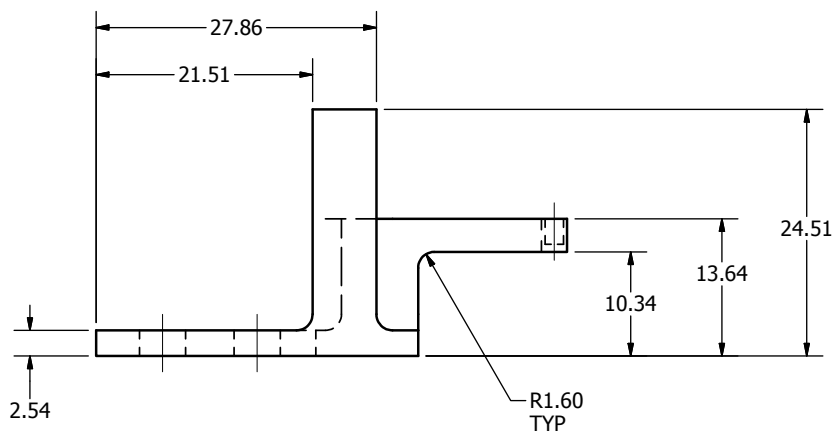
PROJECT NO:	472-5700	QTY	1	CHECKED BY:	TMV	DATE:	9/18/2011	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-5307	REV:	A
MATERIAL:		HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/27/2012	SCALE:	2:1						
TOTAL QTY IN DUMMY	1														



SCALE 1.000



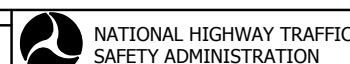
DETAIL A
SCALE 4 : 1



REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1648-2 REV G AND CONVERTED TO METRIC FOR THOR-M; FINISH WAS ELECTROLESS NICKEL PLATE .0003 MAX.	8/19/2011	JSJ

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

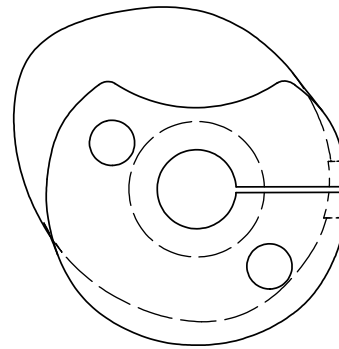
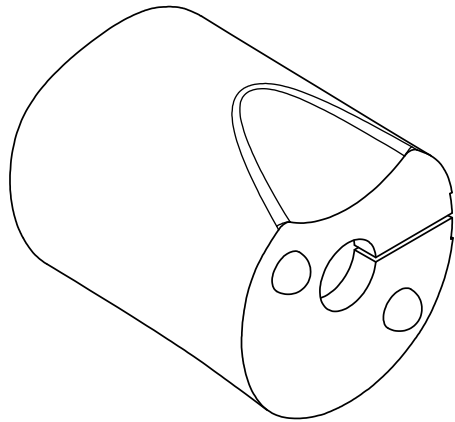
TOLERANCES			
DECIMALS	ANGLES	FINISH	
0.05	1.0°	1.6	
0.1	0.5°	1.6	✓
0.2			
0.3			
0.01			



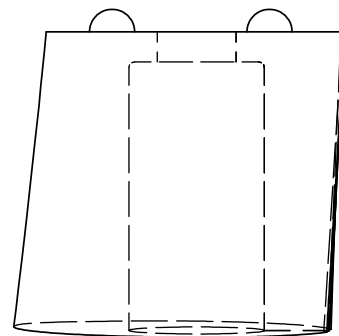
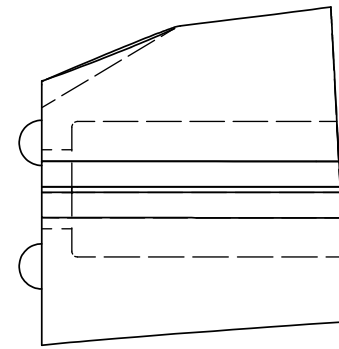
DESCRIPTION: HOLDER, POT STRING (RIGHT)

PROJECT NO:	472-5307	1	MATERIAL:	4140 STEEL	CHECKED BY:	KSG	DATE:	8/17/2011	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-5737-2	REV.:	A
HEAT TREAT:	RC 42-48	QTY:	1	FINISH:	ELECTROLESS NICKEL PLATE .008 MAX	ENGINEER:	J. WANG	DATE:	1/28/2012	SCALE:	2:1					
REMOVE BURRS & BREAK SHARP EDGES																

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIFMS010 R2 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	JSJ



CLOSURE DIRECTION →

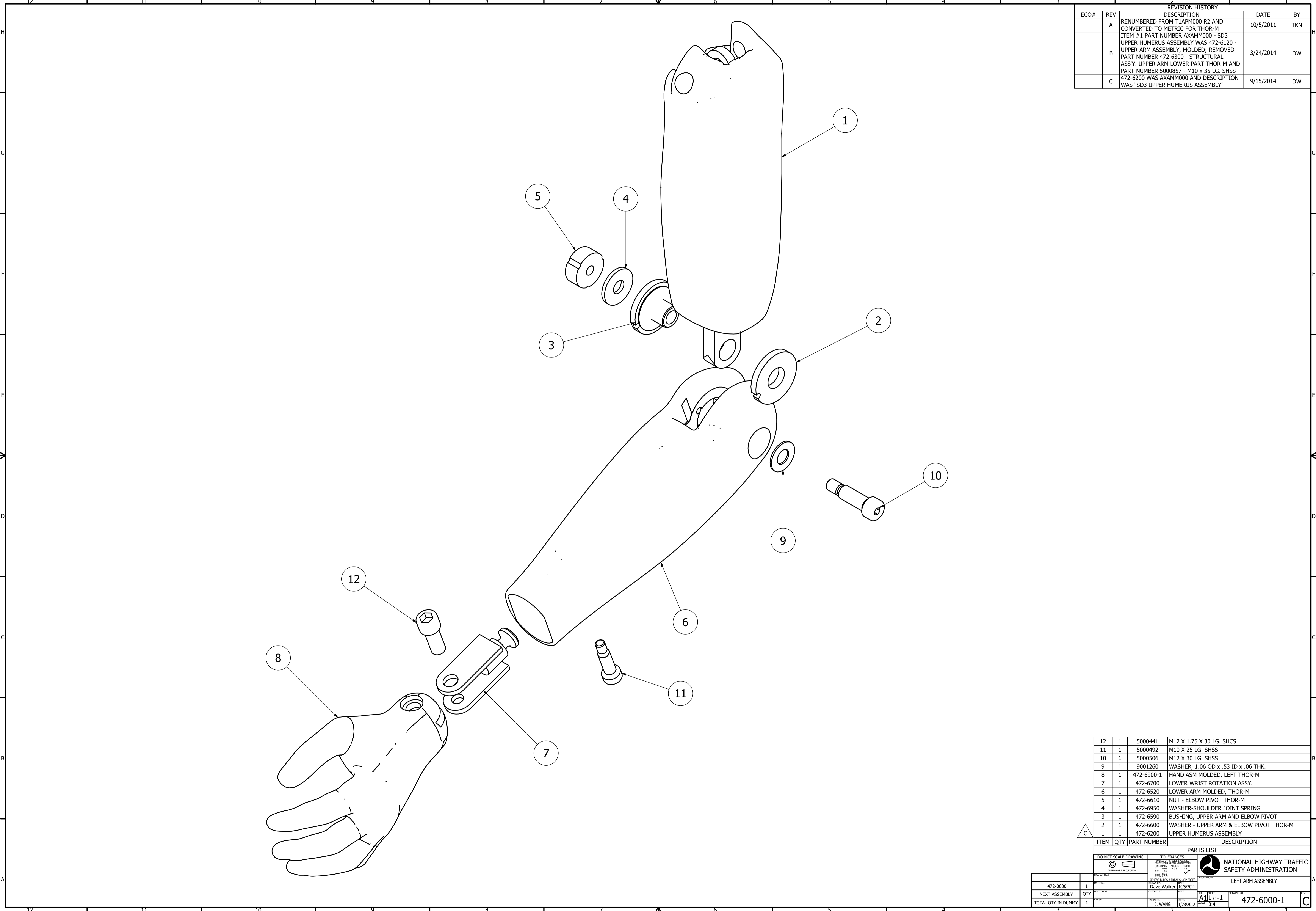


NOTES:

1. THE OUTER SKIN IS VINYL AND FILLER MATERIAL IS A 3lb/in³ POLYURETHANE EXPANDABLE FOAM.
2. FEMUR SKIN IS SPLIT ALONG SIDE AS SHOWN AND A BONDED ZIPPER IS APPLIED ON OUTSIDE
3. THIS DRAWING IS ONLY A REPRESENTATION OF THE SKIN AND IS NOT MEANT TO BE SCALED
4. THE ZIPPER IS LENGTH IS 165.1 mm, BLACK POLYESTER, MESH = #9 METAL (BRASS) ZIPPER TYPE = SEPARATING STYLE, SLIDER TYPE = 30-0 (AUTO LOCK)
5. WEIGHT: 1.00±0.05KG.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		DECIMAL FRACTIONS: FRACTIONS DIMENSIONS ARE IN MILLIMETERS DECIMALS: .1 .2 .5 .6 .8 1.0 1.5 2.0 FRACTIONS: 1/8 1/4 3/8 1/2 5/8 3/4 7/8 1		
472-5100-2	1	SEE NOTES	S. RICE	8/17/2011
NEXT ASSEMBLY	QTY	PREPARED BY	TMV	9/12/2011
TOTAL QTY IN DUMMY	2	DATE	J. WANG	11/27/2012
			THIGH FLESH - RIGHT	
			A21 of 1	
			472-5503-2	

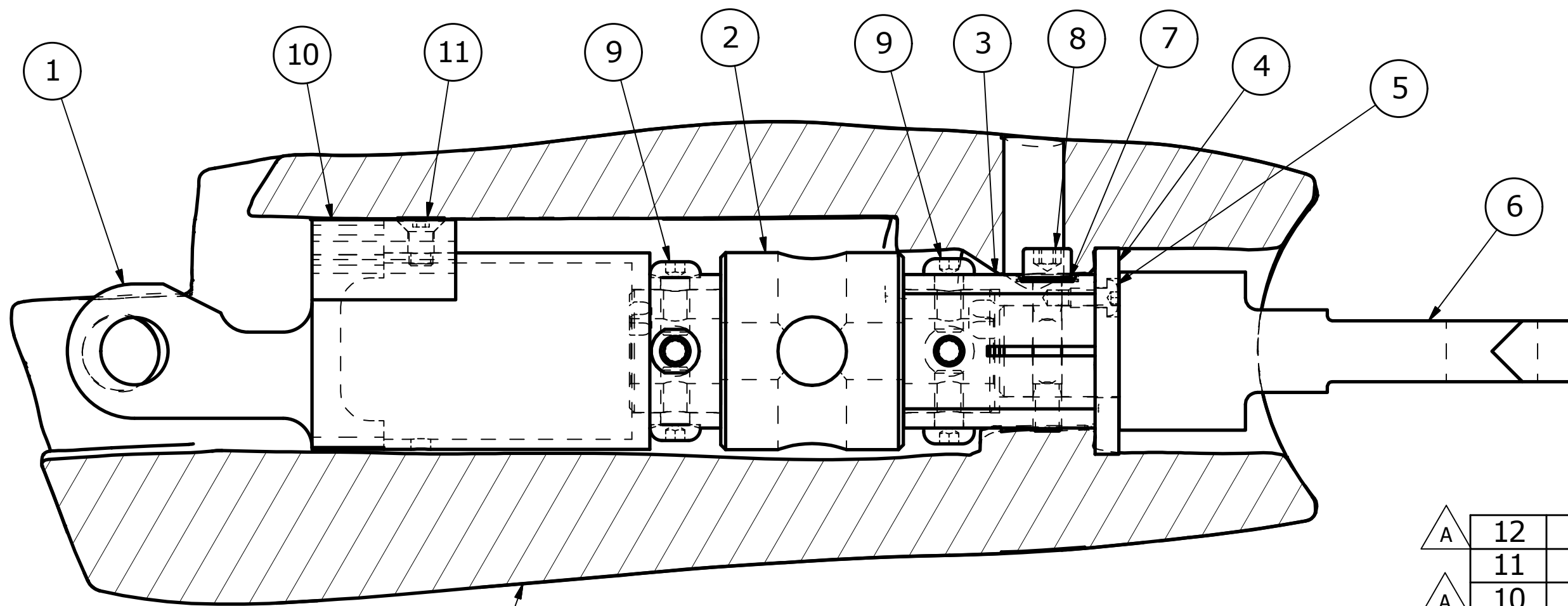
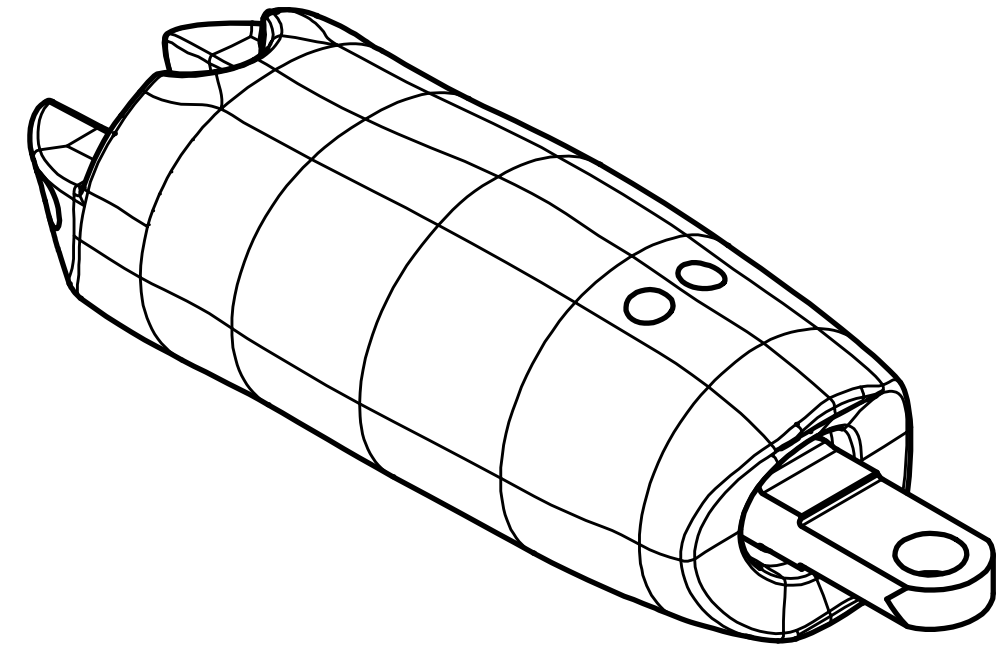
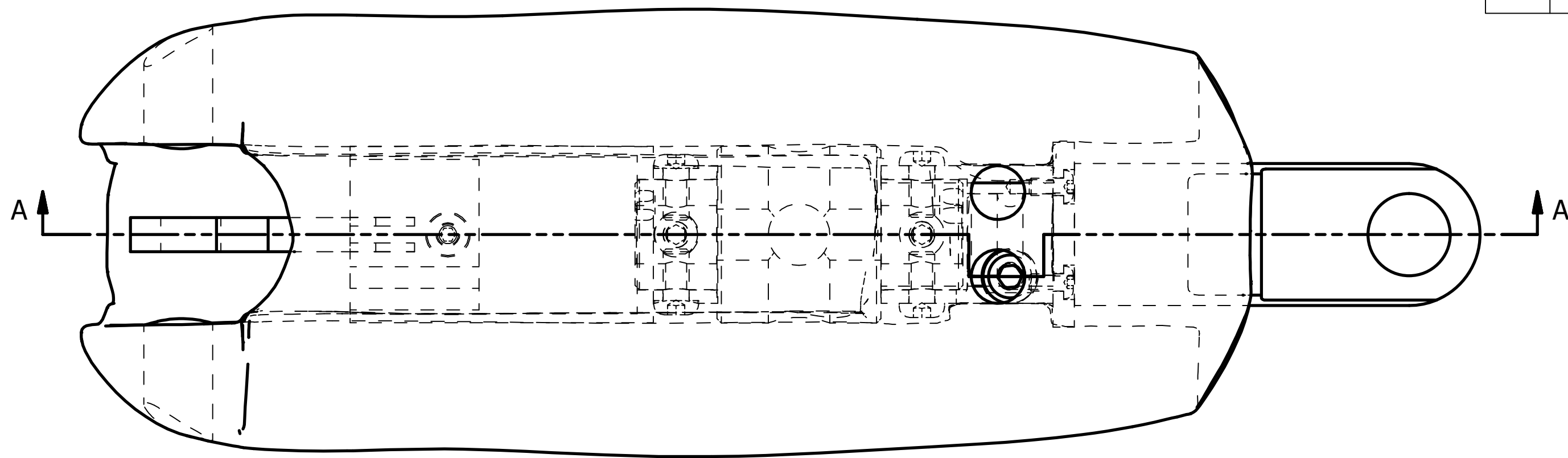
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1APM000 R2 AND CONVERTED TO METRIC FOR THOR-M	10/5/2011	TKN
	B	ITEM #1 PART NUMBER AXAMM000 - SD3 UPPER HUMERUS ASSEMBLY WAS 472-6120 - UPPER ARM ASSEMBLY, MOLDED; REMOVED PART NUMBER 472-6300 - STRUCTURAL ASSY. UPPER ARM LOWER PART THOR-M AND PART NUMBER 5000857 - M10 x 35 LG. SHSS 472-6200 WAS AXAMM000 AND DESCRIPTION WAS "SD3 UPPER HUMERUS ASSEMBLY"	3/24/2014	DW
	C		9/15/2014	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
12	1	5000441	M12 X 1.75 X 30 LG. SHCS
11	1	5000492	M10 X 25 LG. SHSS
10	1	5000506	M12 X 30 LG. SHSS
9	1	9001260	WASHER, 1.06 OD x .53 ID x .06 THK.
8	1	472-6900-1	HAND ASM MOLDED, LEFT THOR-M
7	1	472-6700	LOWER WRIST ROTATION ASSY.
6	1	472-6520	LOWER ARM MOLDED, THOR-M
5	1	472-6610	NUT - ELBOW PIVOT THOR-M
4	1	472-6950	WASHER-SHOULDER JOINT SPRING
3	1	472-6590	BUSHING, UPPER ARM AND ELBOW PIVOT
2	1	472-6600	WASHER - UPPER ARM & ELBOW PIVOT THOR-M
1	1	472-6200	UPPER HUMERUS ASSEMBLY

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 LEFT ARM ASSEMBLY
 DATE: 10/5/2011
 DRAWN BY: Dave Walker
 CHECKED BY: J. WANG
 DATE: 1/28/2012
 SHEET: 11 OF 1
 PART: 472-6000-1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM000, TITLE WAS "SD3 UPPER HUMERUS ASSEMBLY", IN PARTS LIST 472-6210 WAS AXAMM010, 472-6220 WAS AXAMM001, 472-6230 WAS AXAMM002, 472-6240 WAS AXAMM003, 472-6250 WAS AXAMM014, 472-6260 & 472-6270 WAS AXAMM004	9/15/2014	DW



SECTION A-A
SCALE 1 : 1

△ A	12	1	472-6270	UPPER ARM FLESH
△ A	11	1	5000084	SCREW, FHCS M5 x 0.8 x 10
△ A	10	1	472-6260	ARM FLESH SPACER
△ A	9	8	5000356	SCREW, BHCS M6 x 1 x 12
△ A	8	1	472-6250	SCREW, SHCS, M6 (MODIFIED)
△ A	7	1	5001176V	SPRING DISC WASHER, 12.5 x 6.2 x .5
△ A	6	1	472-6240	UPPER ARM, LOWER SECTION
△ A	5	2	5000103	SCREW, BHCS M4 x 0.7 x 8
△ A	4	1	472-6230	ARM END PLATE
△ A	3	1	472-6220	LOWER LOADCELL INTERFACE
△ A	2	1	W50-61041	STRUCTURAL REPLACEMENT
△ A	1	1	472-6210	UPPER HUMERUS WELDMENT

ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	
APPROVALS		DATE	
DRAWN JIM CLEVENGER		8/12/2013	
CHECKED			
MATERIAL		ENG	
HEAT TREAT		APPROVED	
FINISH			
SIZE C		DRAWING NUMBER 472-6200	
SCALE: 1:1		REV A	
		SHEET 1 OF 1	

4

3

2

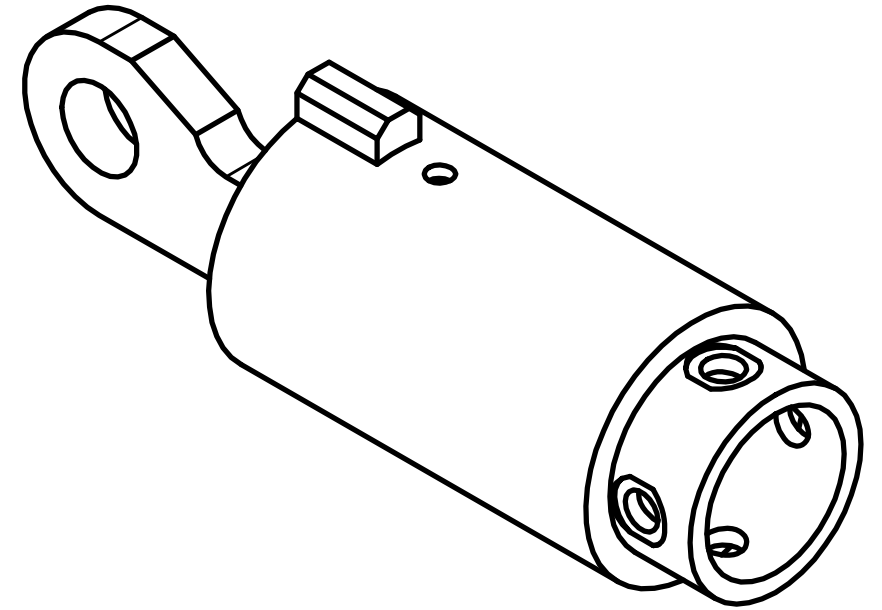
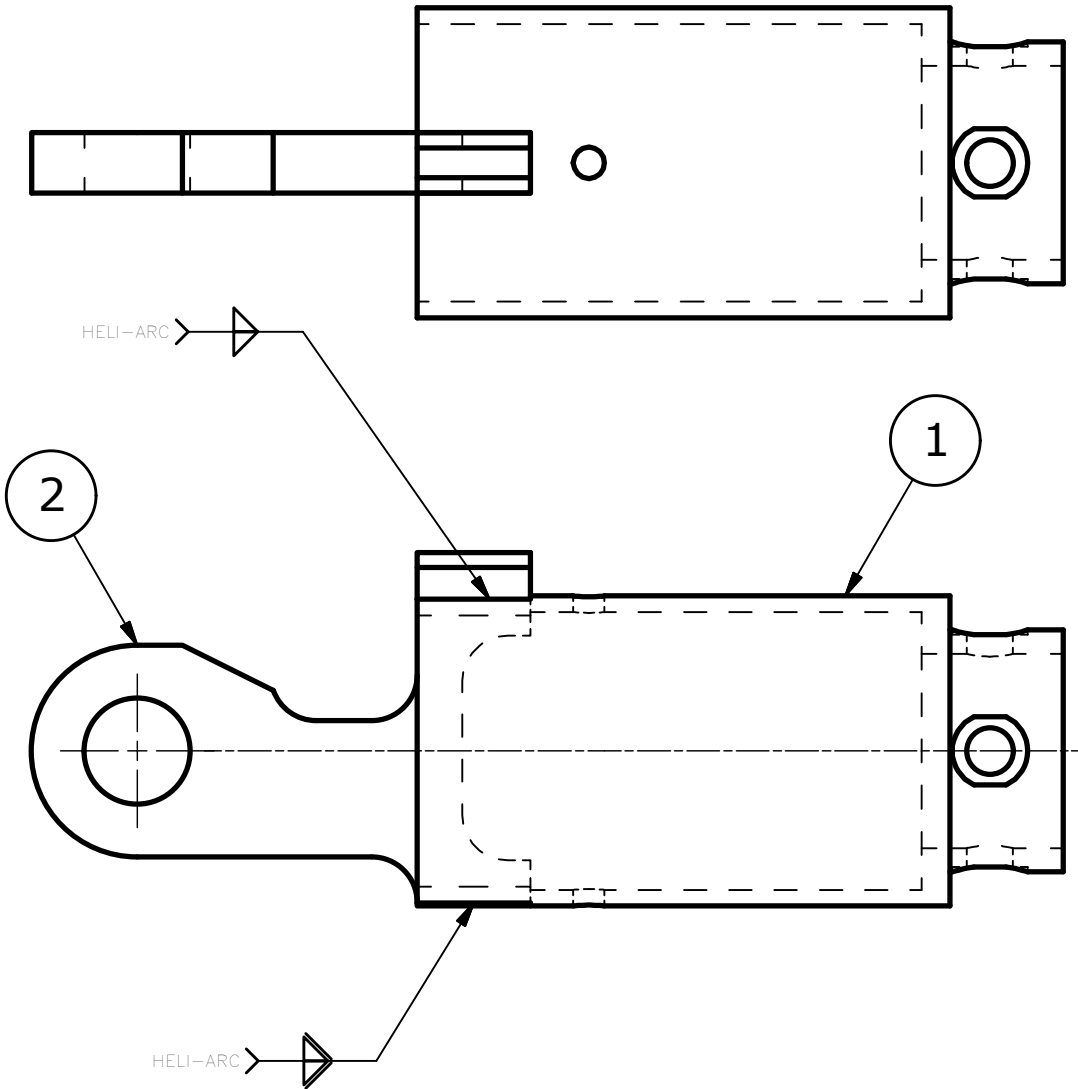
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM010, IN PARTS LIST 472-6211 WAS AXAMM012, 472-6212 WAS AXAMM011	9/15/2014	DW

B

A

A



B

A

A

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-6212	UPPER ARM MOUNT
1	1	472-6211	UPPER ARM TUBE

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
MATERIAL	Steel, Mild, Welded	ENG	UPPER HUMERUS WELDMENT
HEAT TREAT		APPROVED	
FINISH			SIZE: B DRAWING NUMBER: 472-6210 SCALE: 1:1 SHEET: 1 OF 1

4

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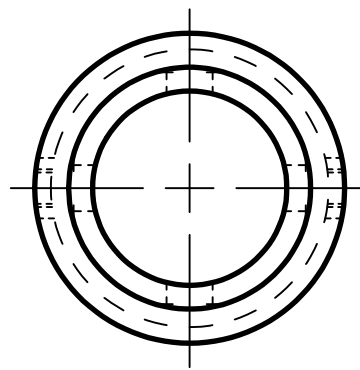
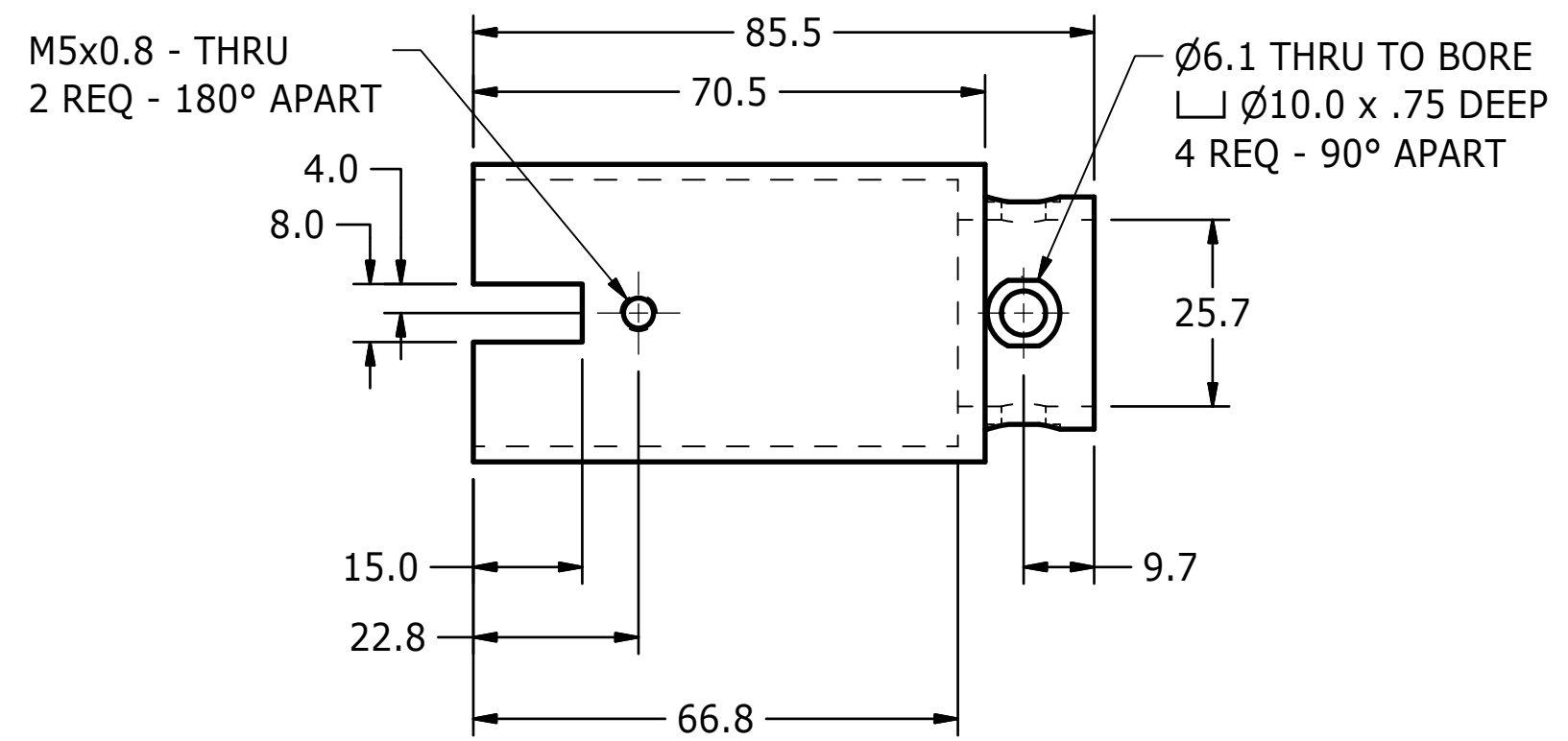
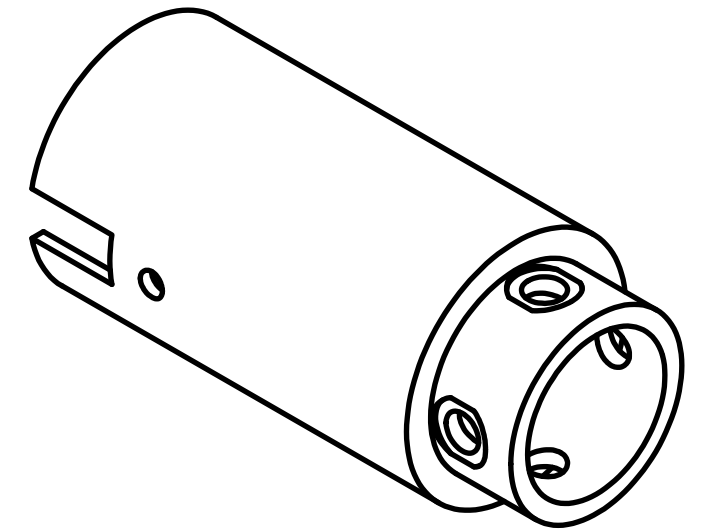
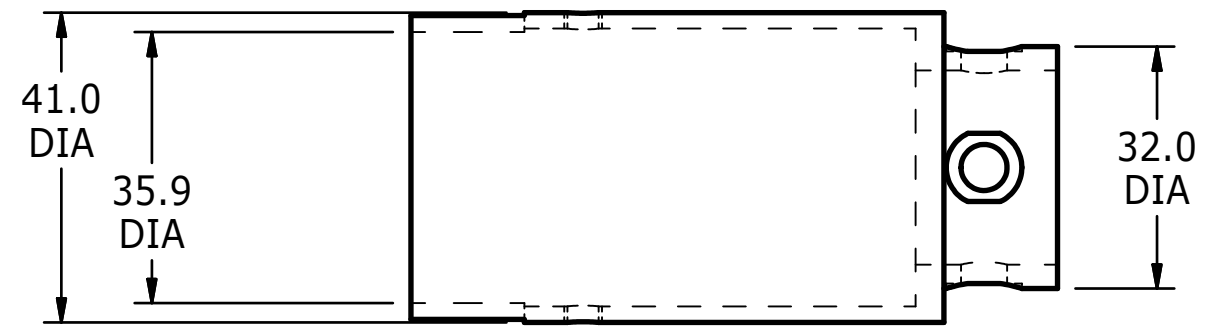
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXAMM012	9/15/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UPPER ARM TUBE	
	APPROVALS	DATE		
	DRAWN JIM CLEVINGER	8/20/2013		
	CHECKED			
MATERIAL 1018 STEEL	ENG		SIZE B	
HEAT TREAT	APPROVED			DRAWING NUMBER 472-6211
FINISH			SCALE: 1:1	SHEET 1 OF 1

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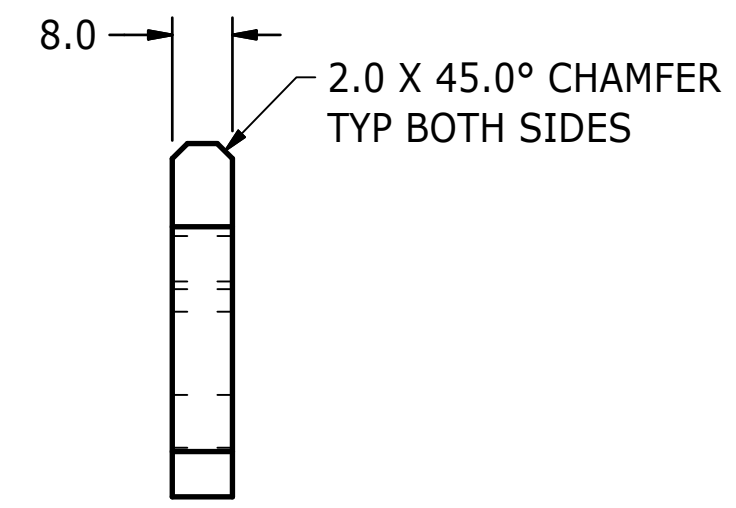
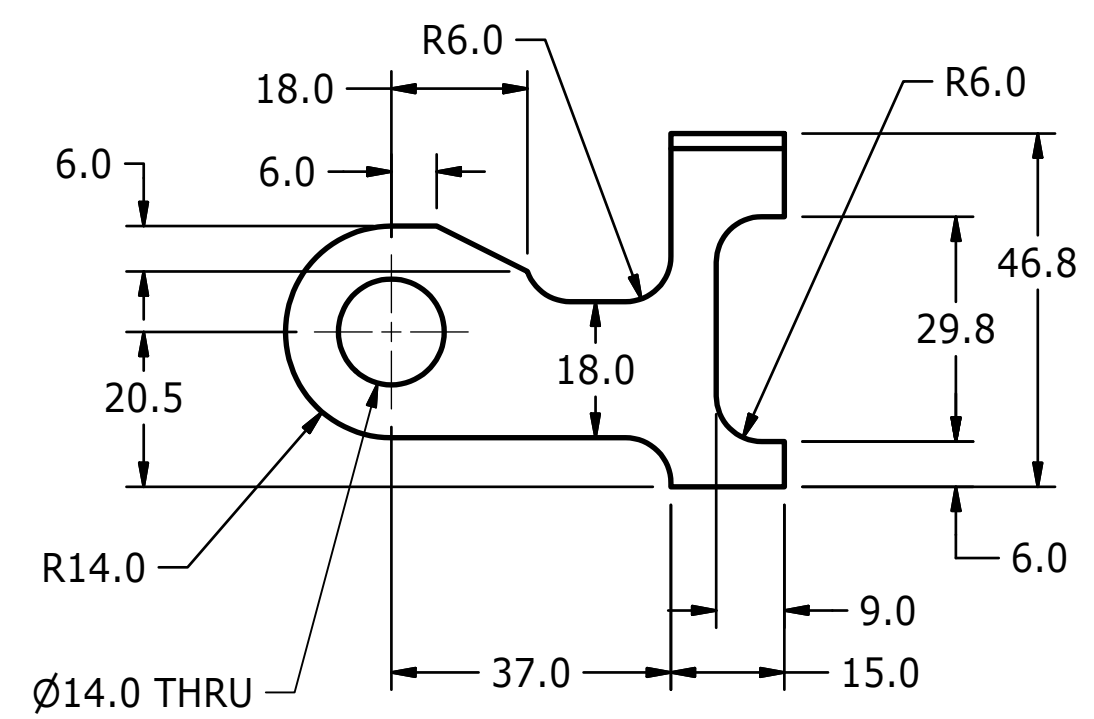
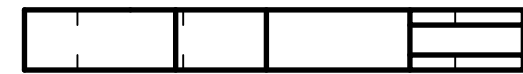
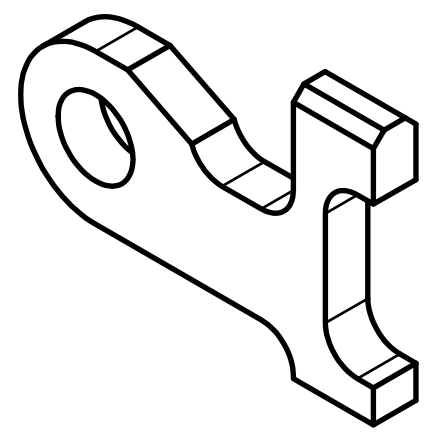
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM011	9/15/2014	DW




B

B

A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UPPER ARM MOUNT
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL 1018 STEEL	ENG		SIZE: B DRAWING NUMBER: 472-6212 REV: A
HEAT TREAT	APPROVED		
FINISH			SCALE: 1:1 SHEET: 1 OF 1

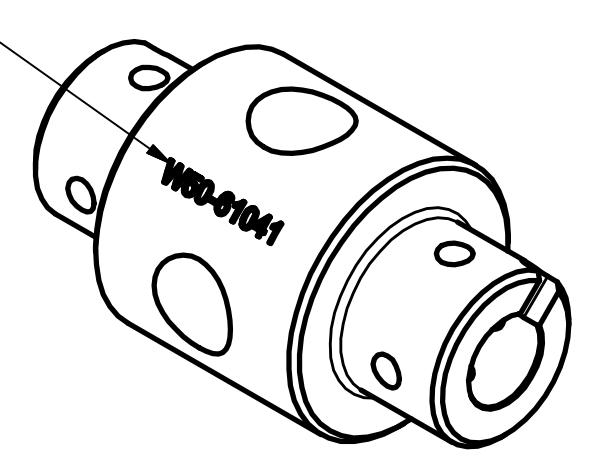
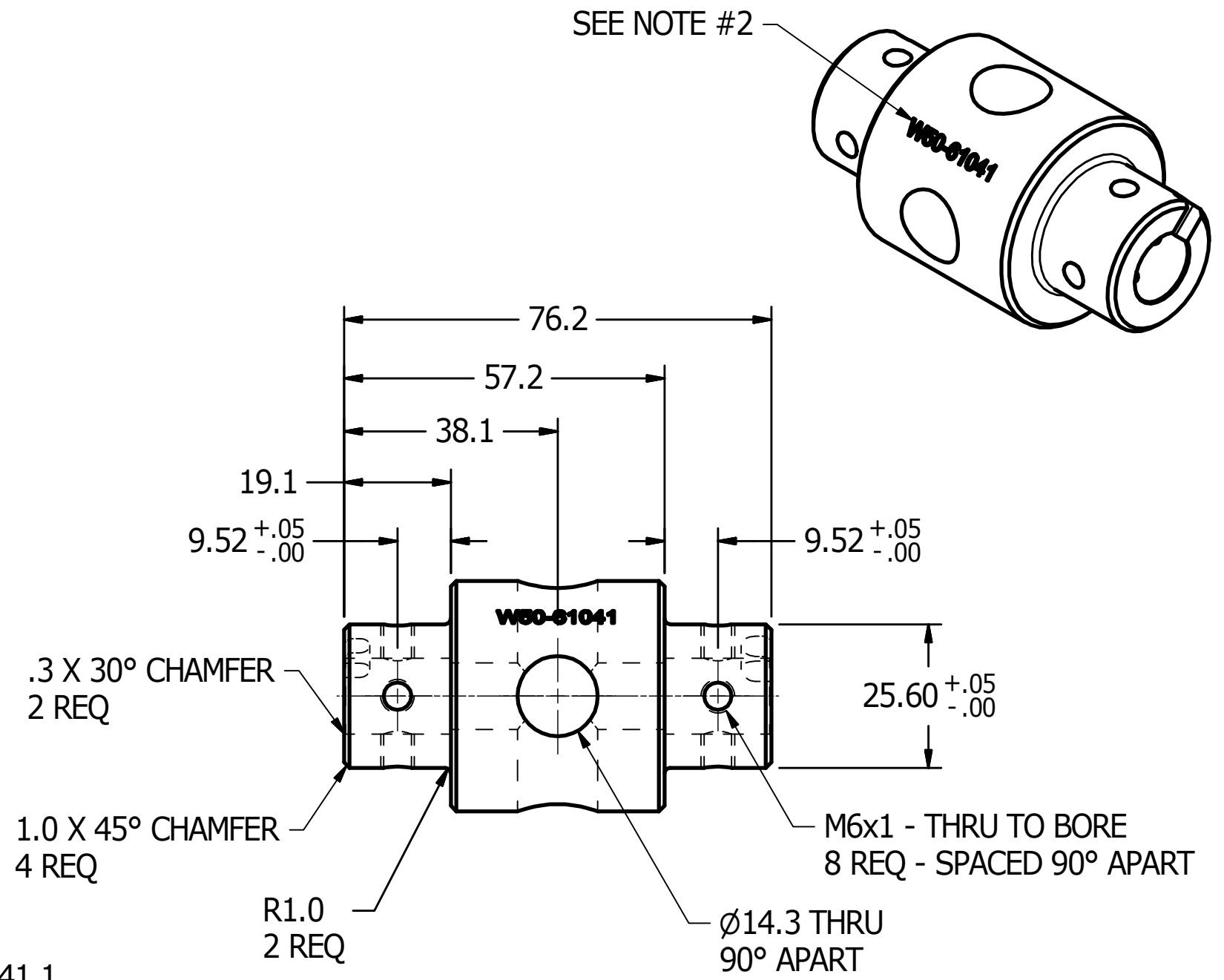
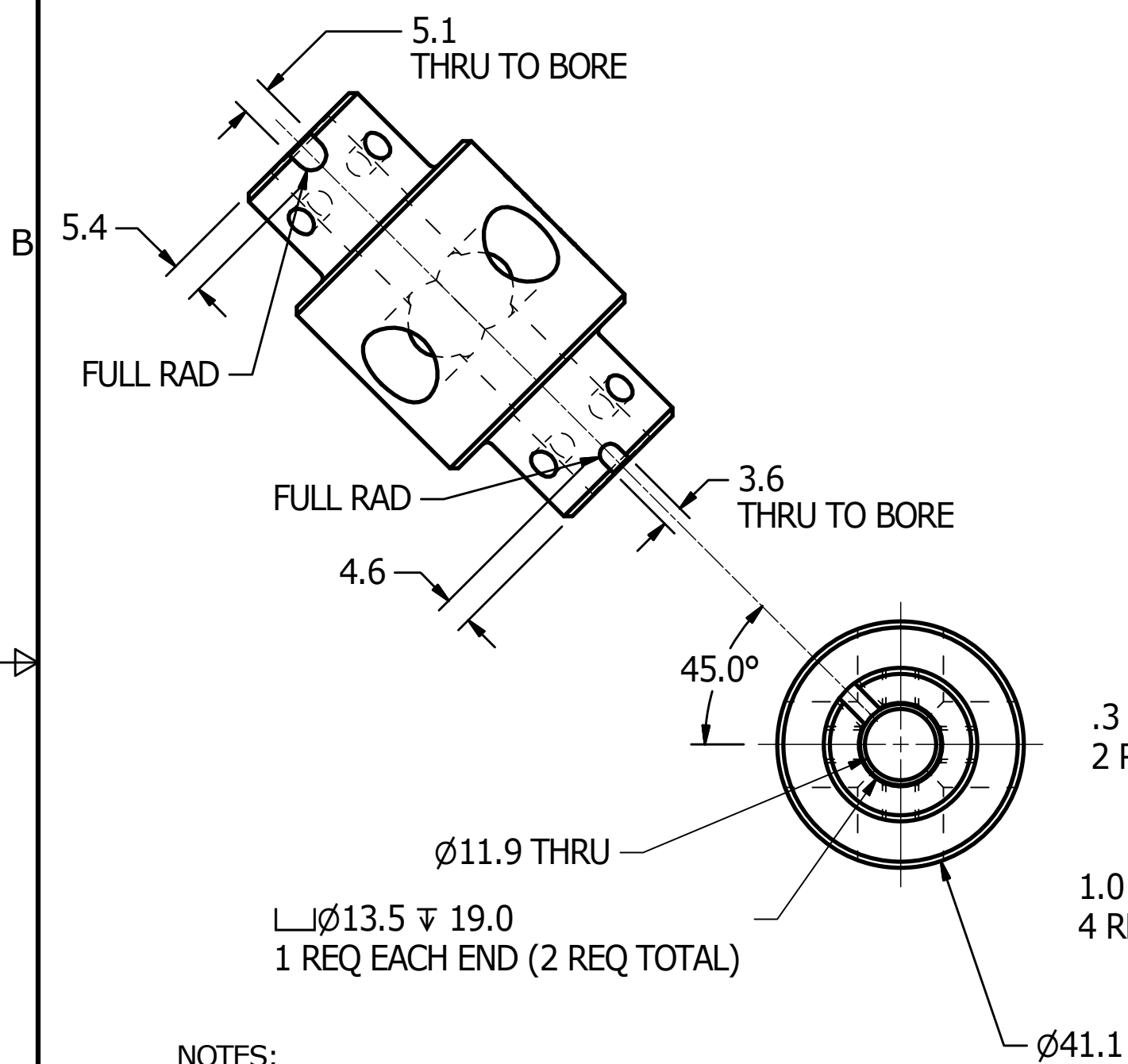
4

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4 | 3 | 2 | 1



SEE NOTE #2

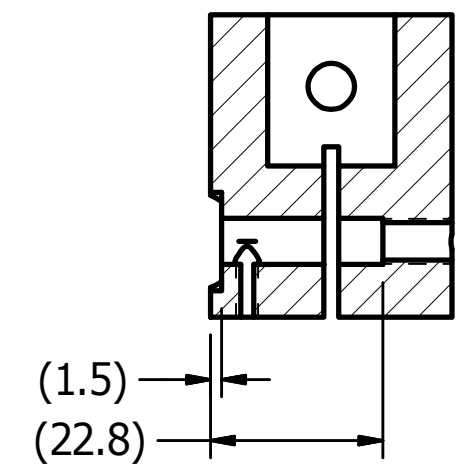
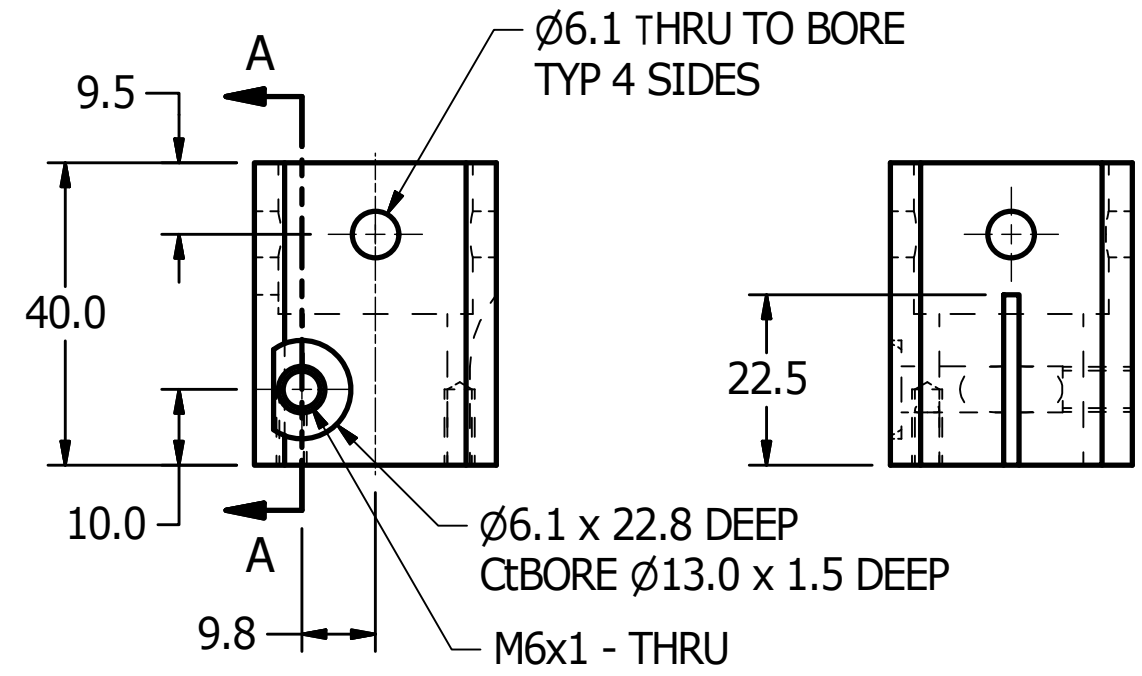
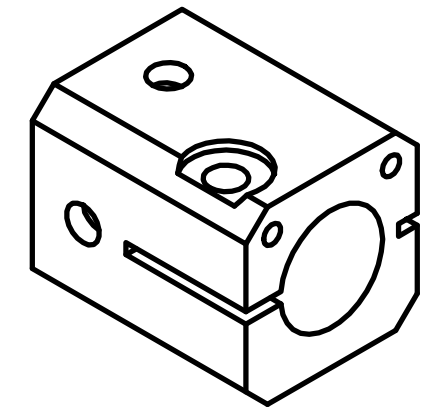
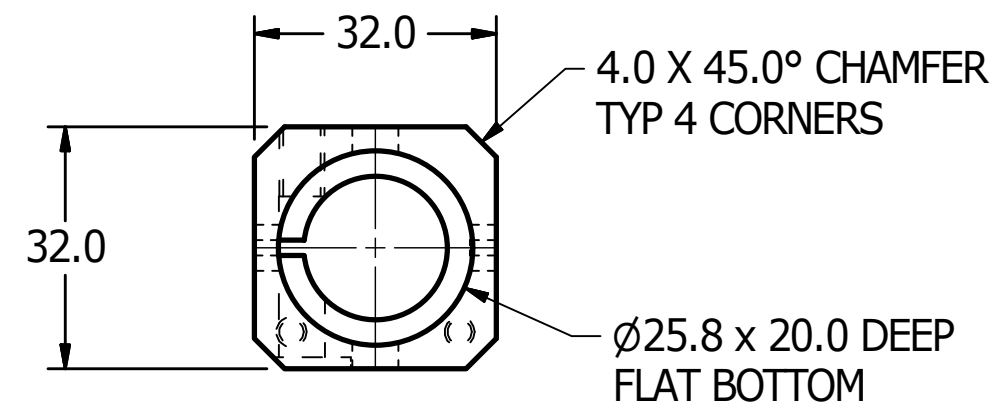
NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES
2. STAMP OR ETCH PART NUMBER AS SHOWN
3. NICKEL PLATE .012 MAX. AFTER MACHINING
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH

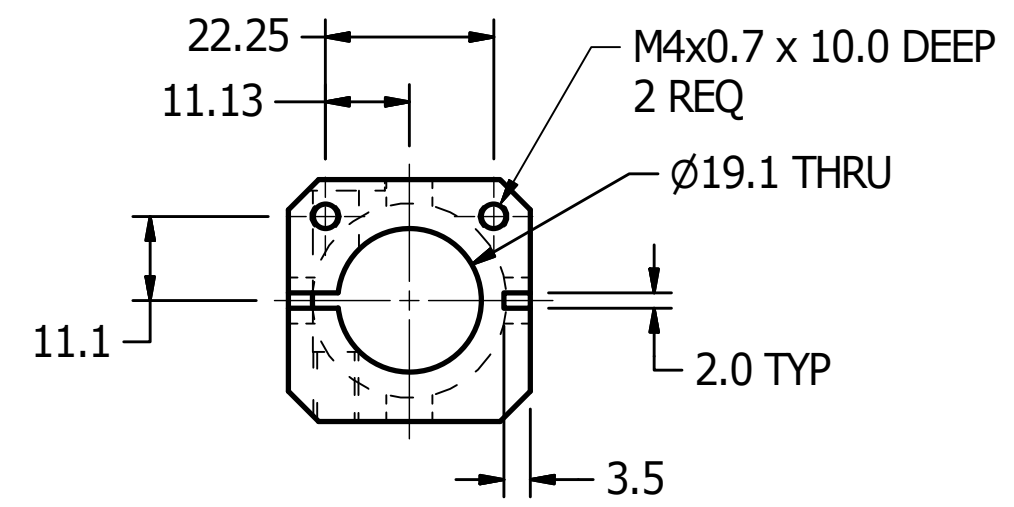
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		
	DRAWN JIM CLEVINGER	12/4/2013	STRUCTURAL REPLACEMENT LEG LOAD CELL	
	CHECKED			
MATERIAL Steel	ENG	SIZE B	DRAWING NUMBER W50-61041	REV
HEAT TREAT	APPROVED	SCALE:	SHEET 1 OF 1	
FINISH NICKEL PLATE				

4 | 3 | 2 | 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM001	9/15/2014	DW



SECTION A-A
SCALE 1 : 1



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

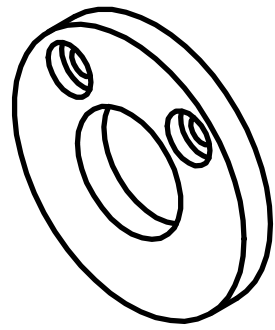
DECIMAL: X ±.5 ANGLES: ±.5 MACHINED: X.X ±.2 X.XX ±.1

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

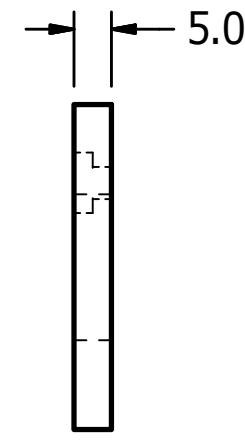
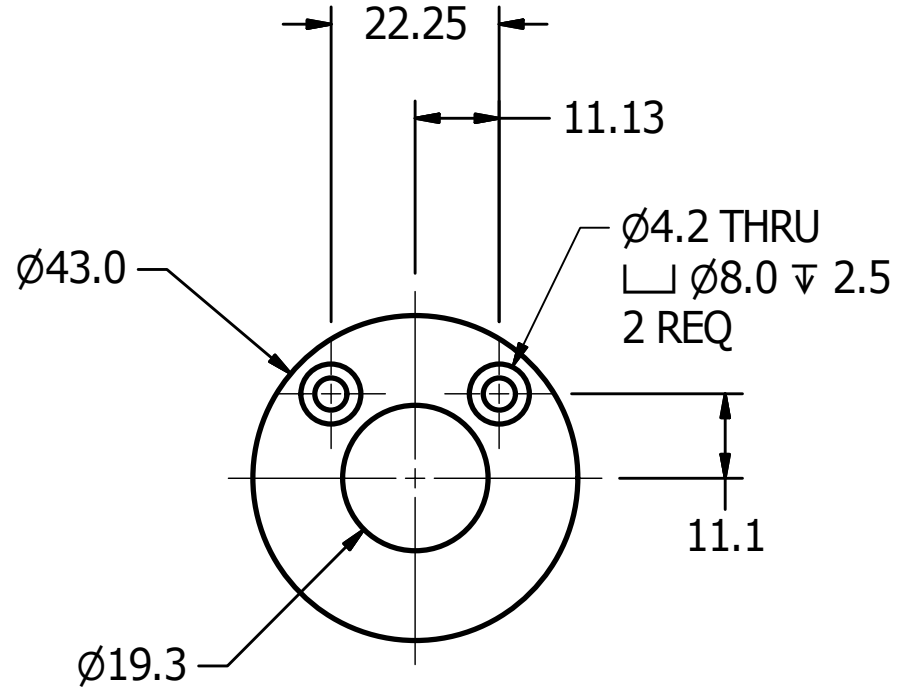
MATERIAL	Aluminum 6061
HEAT TREAT	
FINISH	ANODIZE


VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/20/2013
CHECKED	
ENG	
APPROVED	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
LOWER LOADCELL INTERFACE	
SIZE B	DRAWING NUMBER 472-6220
SCALE: 1:1	REV A
SHEET 1 OF 1	



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM002	9/15/2014	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 $\sqrt{}$ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Aluminum 6061	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-6230
FINISH ANODIZE			SCALE: 1:1
			REV A
			SHEET 1 OF 1

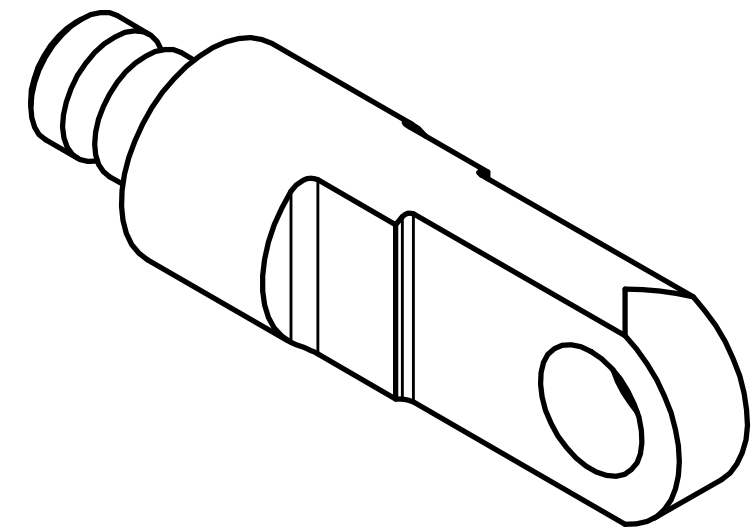
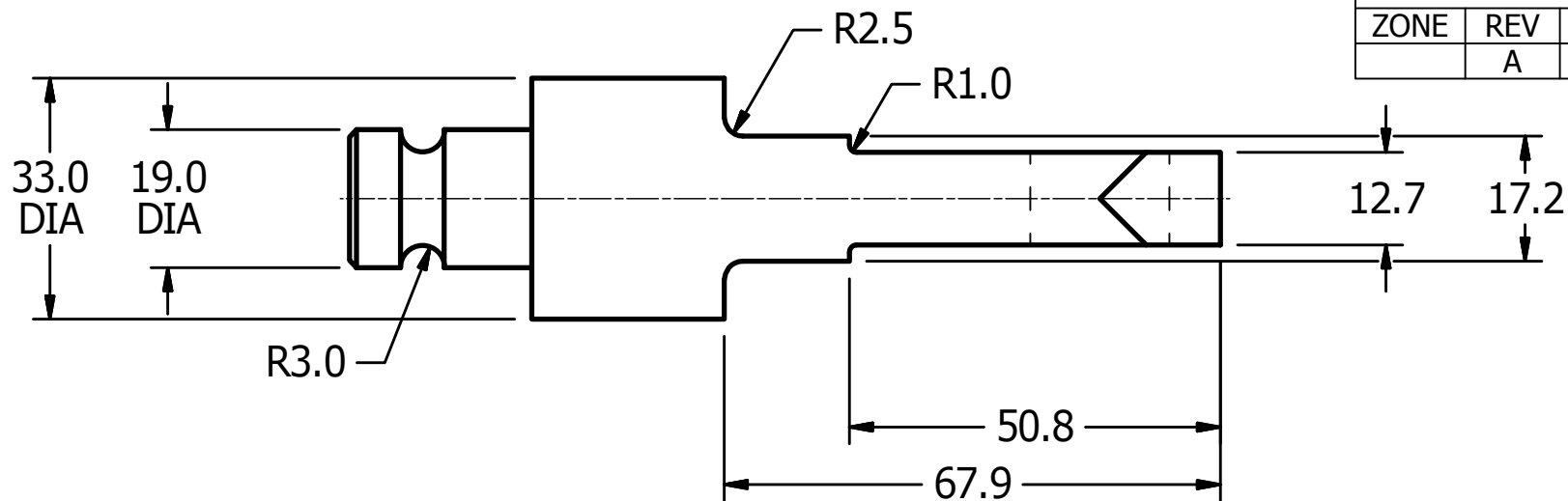
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM003	9/15/2014	DW



B

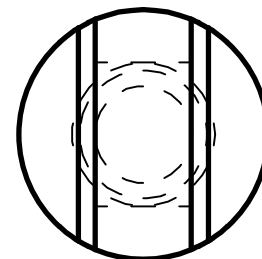
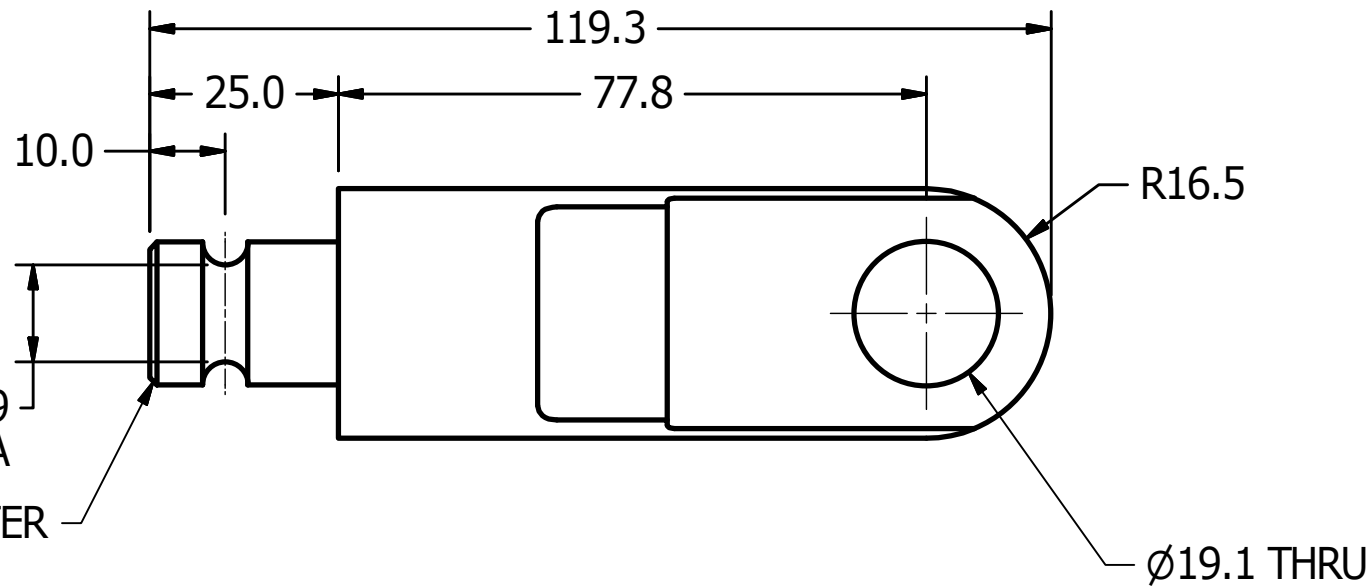
B

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1.0 X 45.0° CHAMFER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 ANGLES: ±.5 MACHINED: 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		
	DRAWN JIM CLEVINGER	8/20/2013	SIZE B	DRAWING NUMBER 472-6240
	MATERIAL Aluminum 6061	ENG	HEAT TREAT ANODIZE	APPROVED
		SCALE: 1:1	SHEET 1 OF 1	

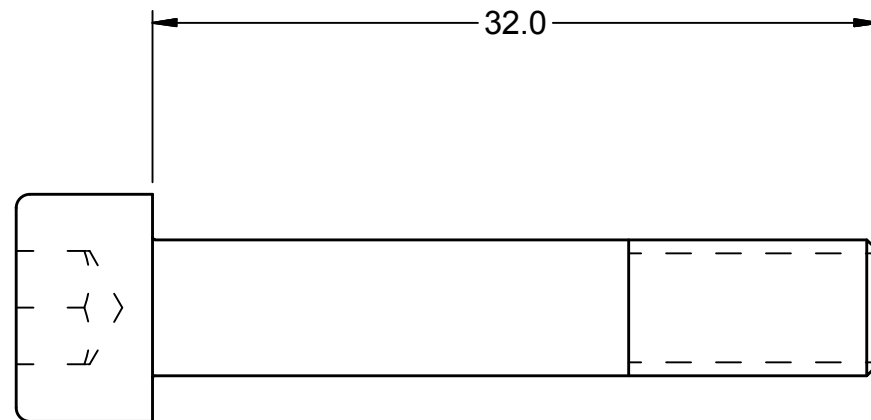
4

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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM014	9/15/2014	DW



NOTE:

1. MAKE FROM PART # 5000016V SCREW, SHCS M6-1 x 45 mm.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5° ✓ X.X ±.2 X.XX ±.1 X.XXX ±.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		SCREW, SHCS, M6 (MODIFIED)	
DRAWN Dave Walker		3/24/2014		DRAWING NUMBER	
CHECKED				472-6250	
MATERIAL Steel, Mild		ENG		SIZE A3	REV A
HEAT TREAT		APPROVED		SCALE: 3:1	SHEET 1 OF 1
FINISH					

4

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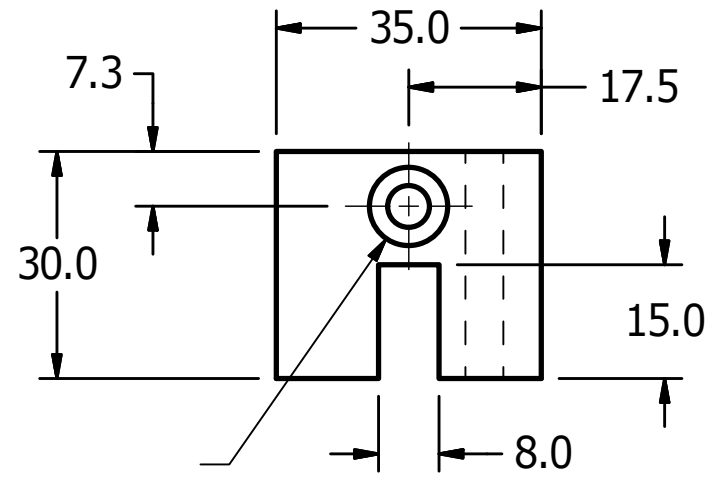
2

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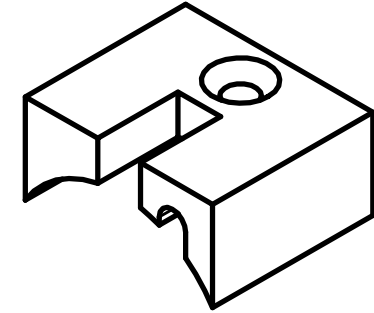
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM005	9/15/2014	DW

B

B

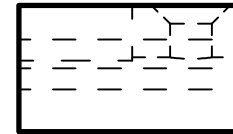
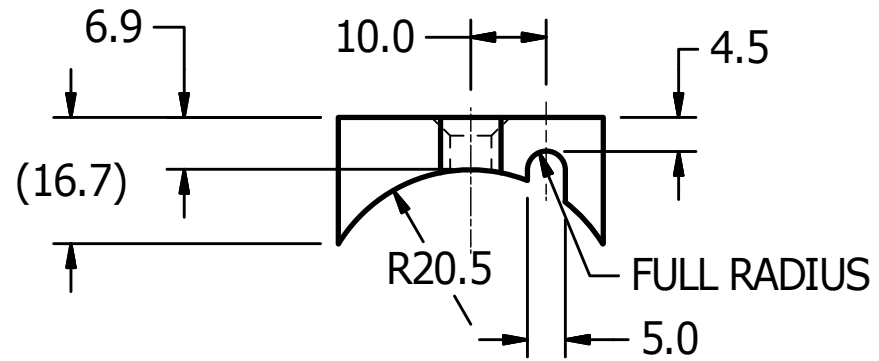


Ø5.5 THRU
C tSINK Ø10.4 X 90.0°




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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-6260
FINISH			SCALE: 1:1
			REV A
			SHEET 1 OF 1

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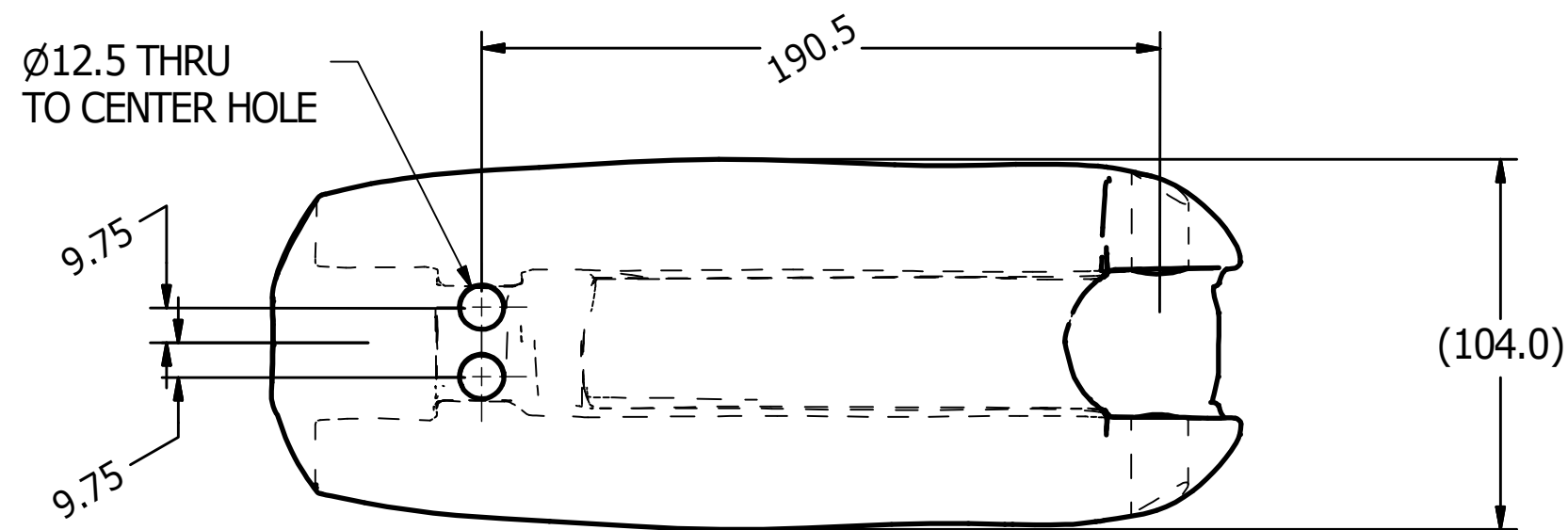
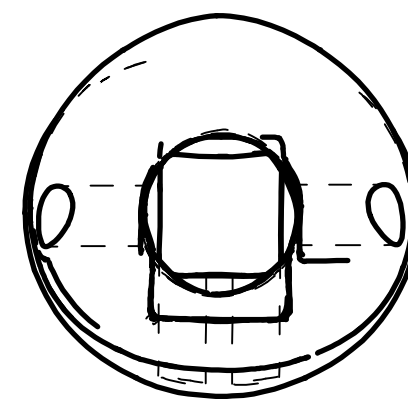
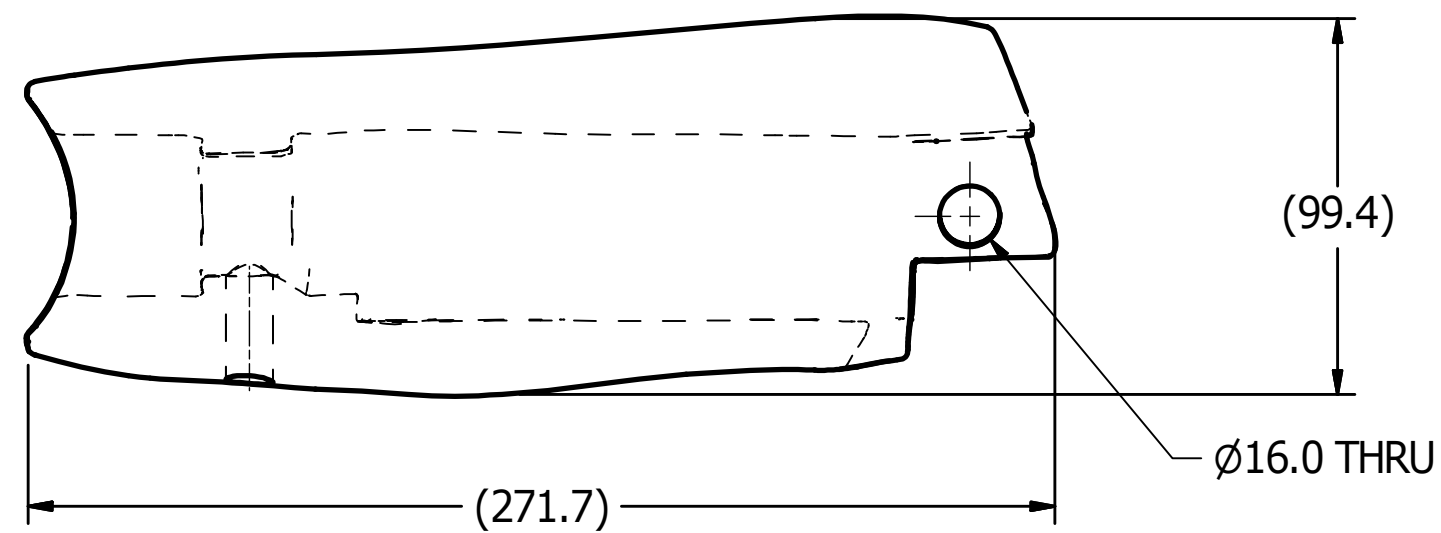
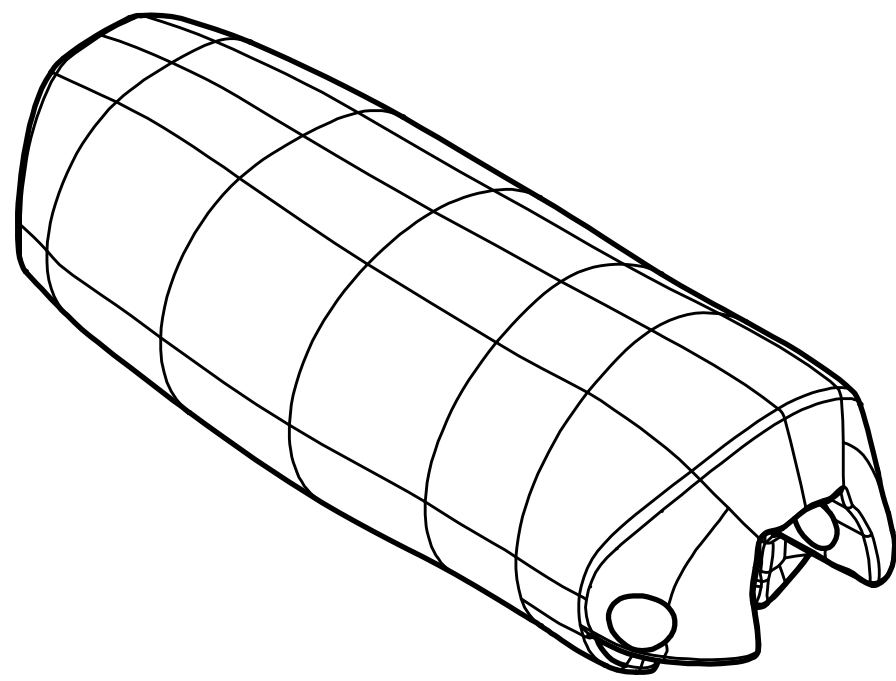
4

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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM004	9/15/2014	DW



NOTE:

A 3-D FILE IS AVAILABLE FOR REFERENCE FROM NHTSA

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		DRAWING NUMBER	
DRAWN JIM CLEVINGER		10/29/2013		472-6270	
CHECKED				REV A	
MATERIAL Polystyrene		ENG		SCALE: 1/2	
HEAT TREAT		APPROVED		SHEET 1 OF 1	
FINISH				1	

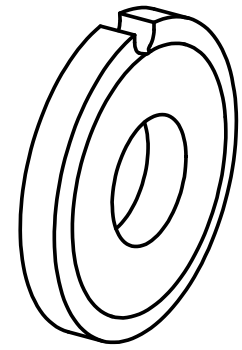
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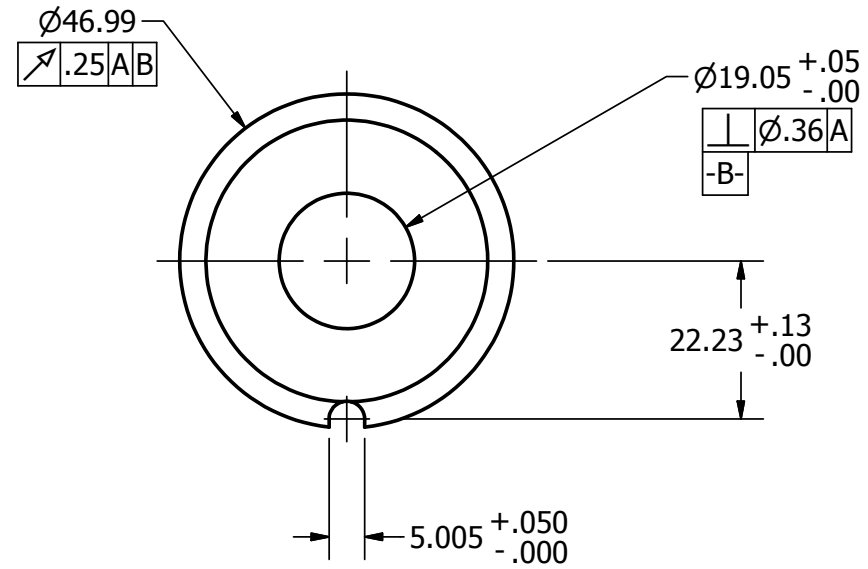
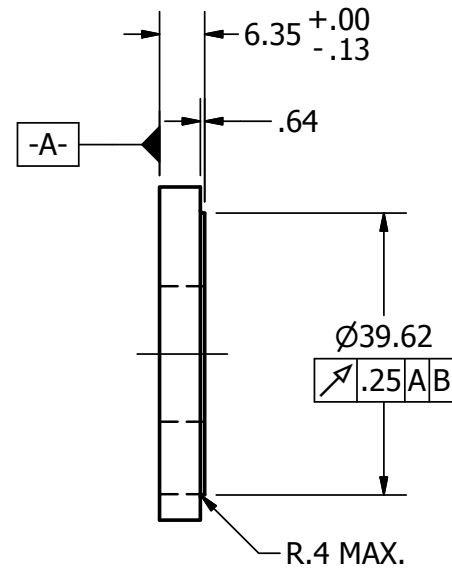
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1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #7805-200 AND CONVERTED TO METRIC FOR THOR-M	9/30/2011	TKN



ISO VIEW
SCALE 1 : 1



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
X.X ±0.2
X.XX ±0.1
X.XXX ±0.01



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

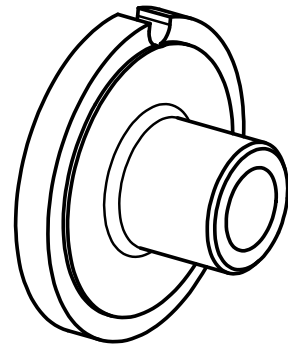
472-6000-2	1	PROJECT NO.:	DRAWN BY:	DATE:
472-6000-1	1	MATERIAL:	Thanh	9/30/2011
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	2	FINISH:	J. WANG	1/30/2012

REMOVE BURRS & BREAK SHARP EDGES
DESCRIPTION:
WASHER, ELBOW PIVOT THOR-M

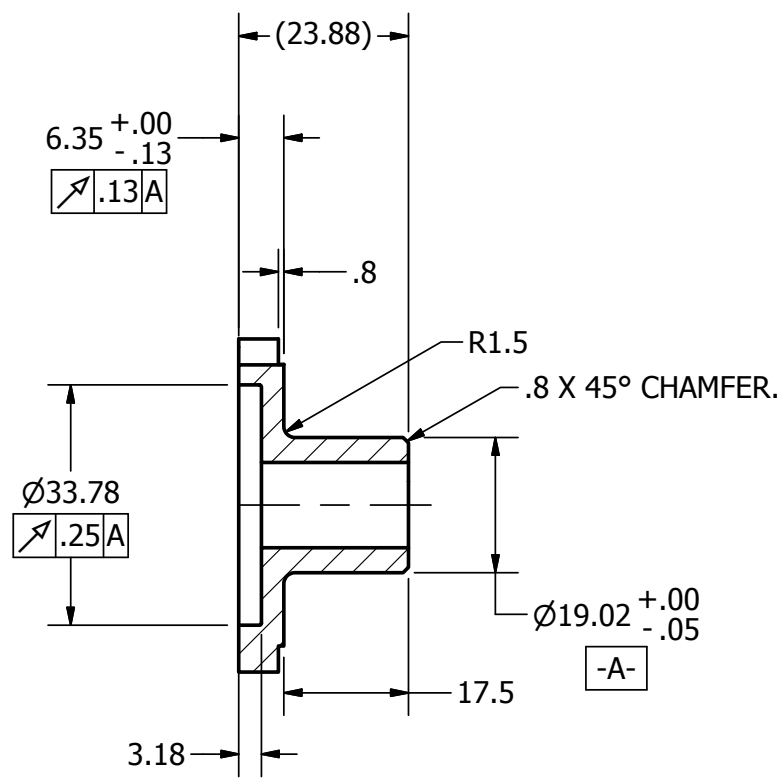
SIZE: A3
SHEET: 1 OF 1
SCALE: FULL

DRAWING NO.: 472-6600
REV: A

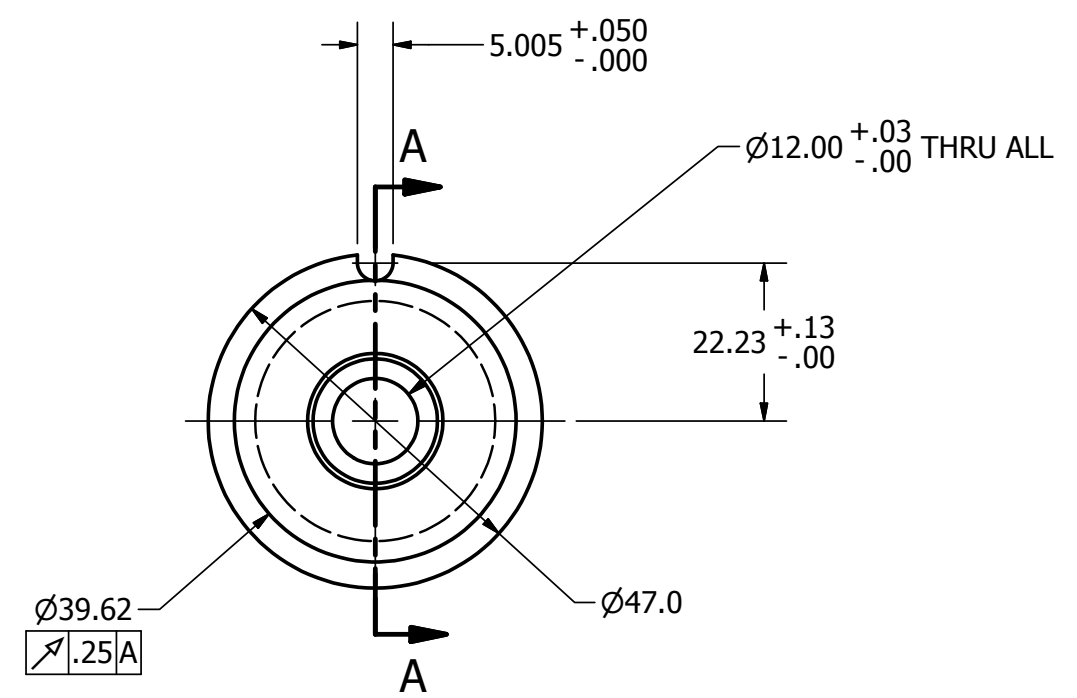
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-199 AND CONVERTED TO METRIC FOR THOR-M	9/30/2011	TKN



ISO VIEW
SCALE 1 : 1



SECTION A-A
SCALE 1 : 1

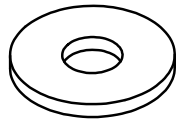


NOTES:

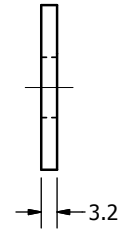
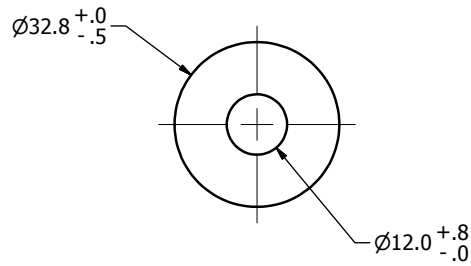
- MATERIAL: DELRIN 500 ACETAL RESIN ® DUPONT


472-6000-2		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-6000-1		1	MATERIAL:	THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
NEXT ASSEMBLY		QTY	SEE NOTES	DRAWN BY:	DATE:	REMOVE BURRS & BREAK SHARP EDGES Thanh 9/30/2011	
TOTAL QTY IN DUMMY		2		CHECKED BY:	DATE:	DESCRIPTION: BUSHING, ELBOW PIVOT	
				ENGINEER:	DATE:	SIZE: SHEET A31 OF 1 SCALE: FULL	DRAWING NO.: 472-6590
				J. WANG	1/30/2012	REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-249 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

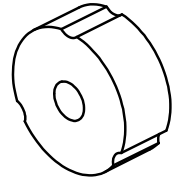


ISO VIEW
SCALE 1 : 1

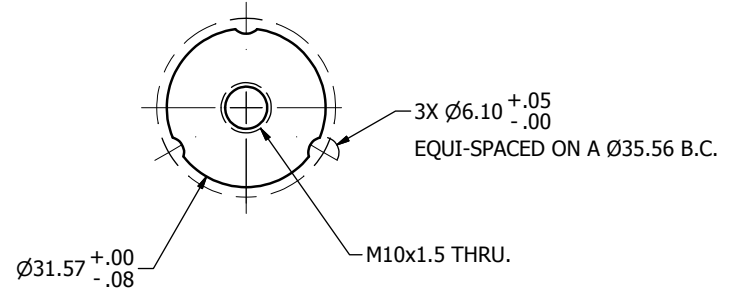
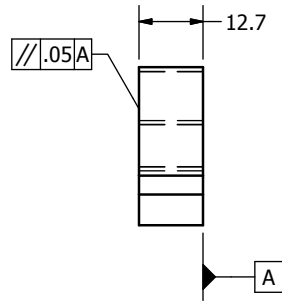


472-6000-2		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-6000-1		1	MATERIAL:	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY:	DATE:	SIZE: SHEET	DRAWING NO.:
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER:	DATE:	A3 1 OF 1	472-6950
				J. WANG	1/30/2012	SCALE: FULL	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-202 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

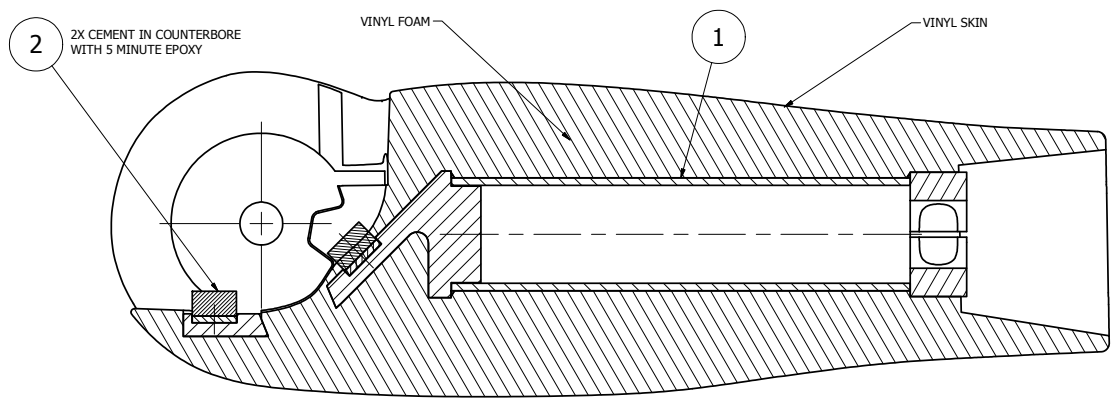
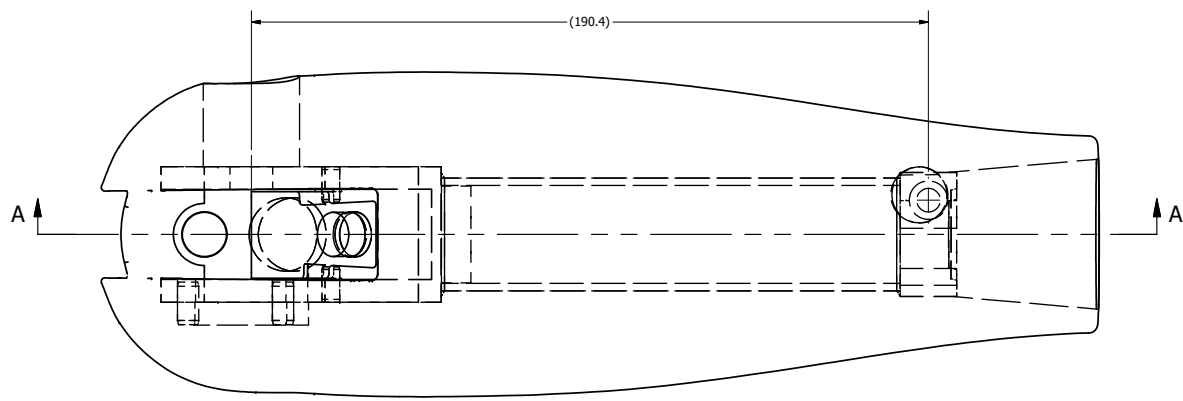


ISO VIEW
SCALE 1 : 1



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.57 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
472-6000-2	1	PROJECT NO.:	DATE:	DESCRIPTION: NUT - ELBOW PIVOT THOR-M
472-6000-1	1	MATERIAL: 303 STAINLESS STEEL	10/4/2011	
NEXT ASSEMBLY	QTY	CHECKED BY: Thanh	SCALE: FULL	
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/30/2012	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-6610
		ENGINEER: J. WANG	DATE: 1/30/2012	REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-194 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN



SECTION A-A
SCALE 1 : 1

NOTES:
1. PART WEIGHT: 1.29 Kg ± .05 Kg (2.85 LBS ± .10 LBS)

ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-6570	STOP ASM-LOWER ARM THOR-M
1	1	472-6530	STRUCTURAL ASSY. LOWER ARM - UPPER PART

PARTS LIST

<p>DO NOT SCALE DRAWING</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES DEGREES</p> <p>FRACTIONS ANGLES DEGREES</p> <p>FRACTIONS ANGLES DEGREES</p> <p>FRACTIONS ANGLES DEGREES</p> <p>FRACTIONS ANGLES DEGREES</p> <p>FRACTIONS ANGLES DEGREES</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
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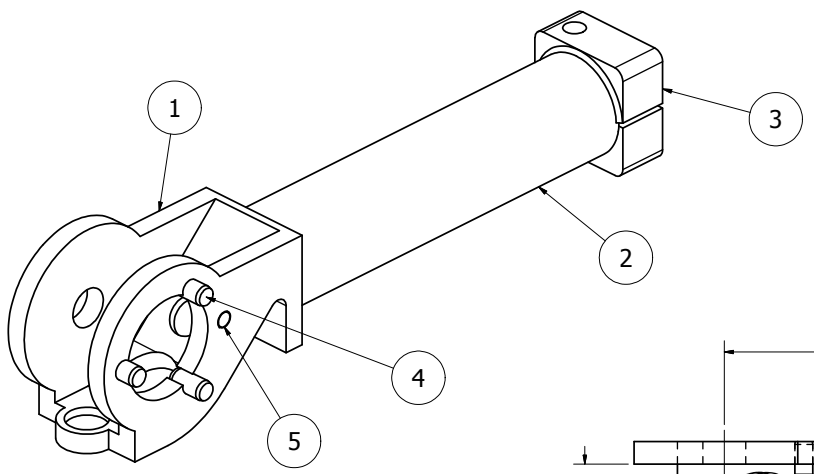
472-6000-2	1	REVISED BY:	DATE:	APPROVED BY:	DATE:	SCALE:	FIGURE NO.:
472-6000-1	1	DESIGNED BY:	DATE:	THANH	10/3/2011		
NEXT ASSEMBLY	QTY	BY:	DATE:				
TOTAL QTY IN DUMMY	2	BY:	DATE:	J. WANG	11/30/2012		

LOWER ARM MOLDED, THOR-M

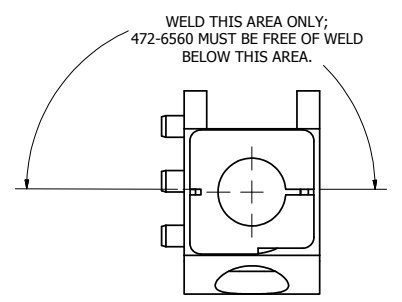
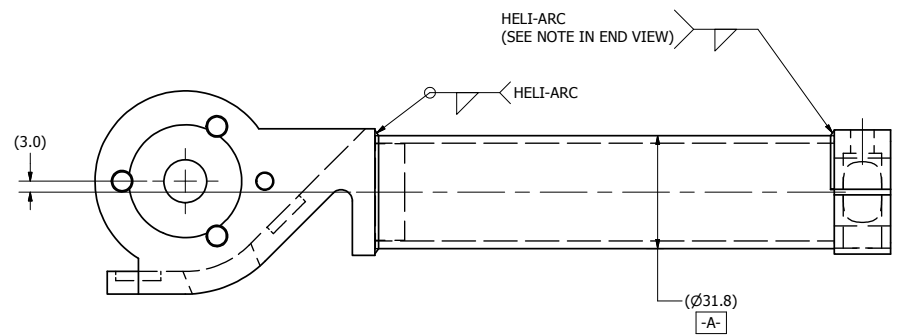
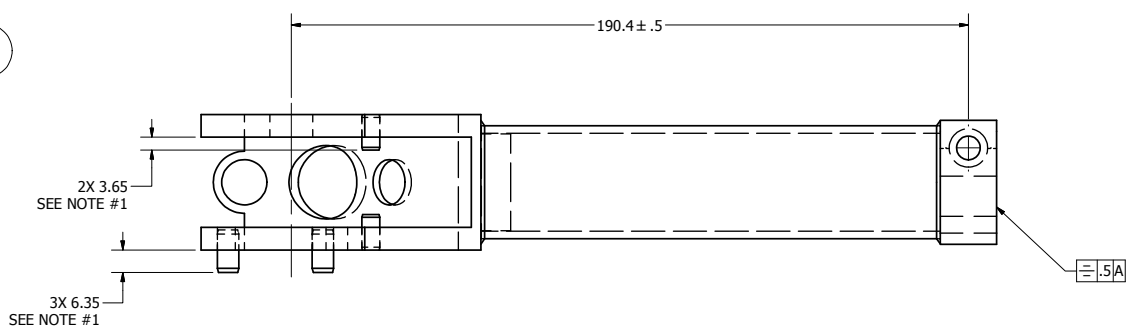
A21 of 1

472-6520

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-195 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN



ISO VIEW
SCALE 1 : 1



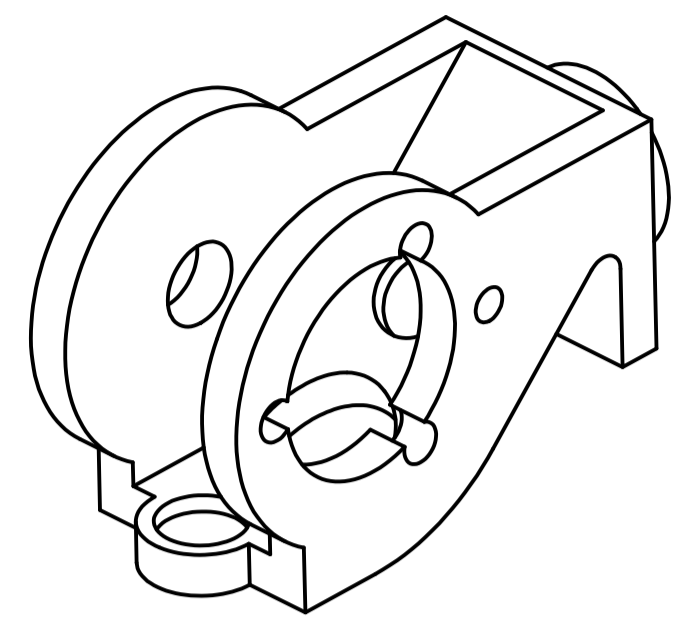
NOTES:
1. INSTALL DOWEL PINS AFTER NICKEL PLATE.

ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000280	M5 X 10 LG. DOWEL PIN
4	3	5000433	M6 X 12 LG. DOWEL PIN
3	1	472-6560	CLAMP - WRIST ROTATION
2	1	472-6550	TUBE - LOWER ARM
1	1	472-6540	ELBOW YOKE

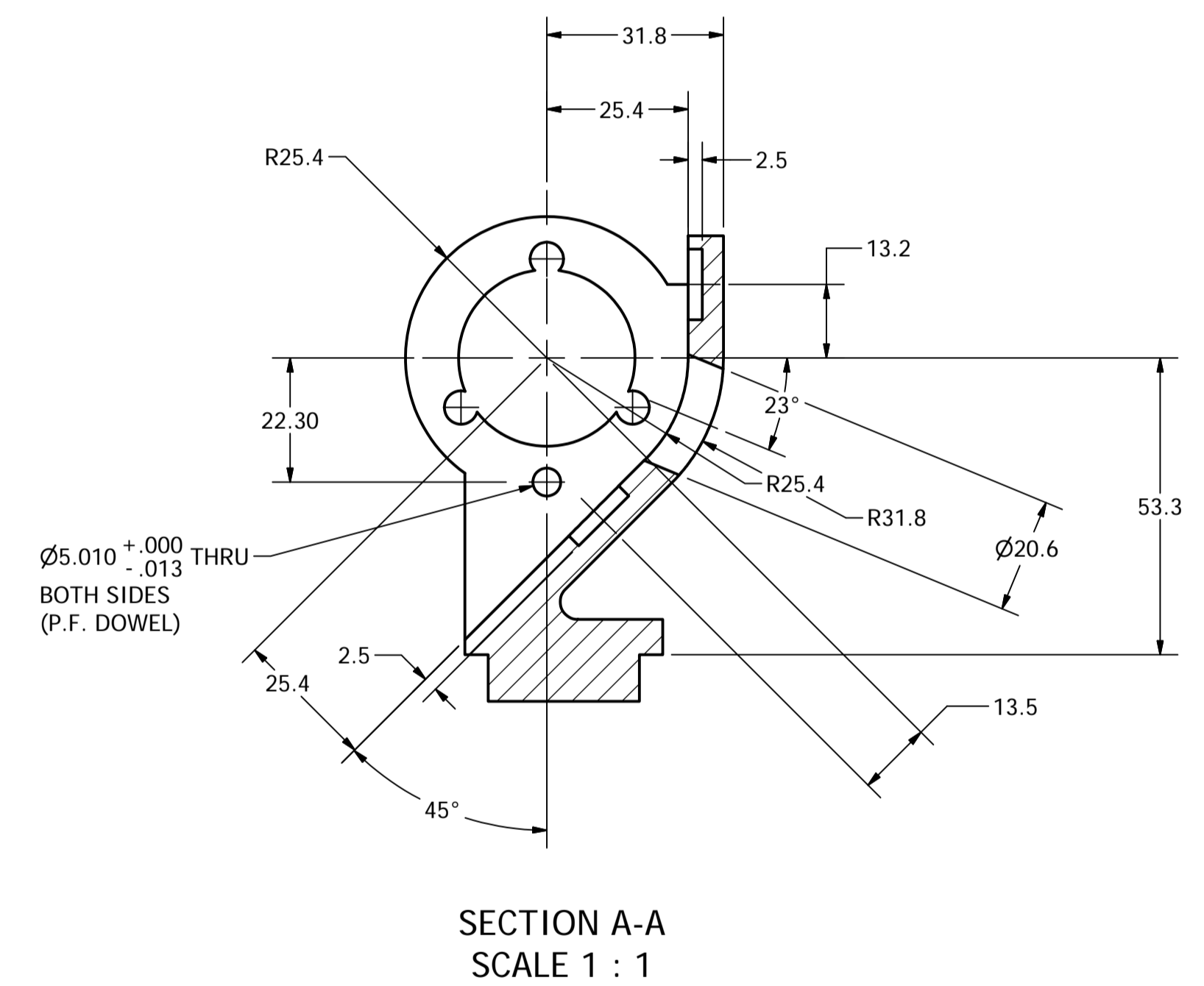
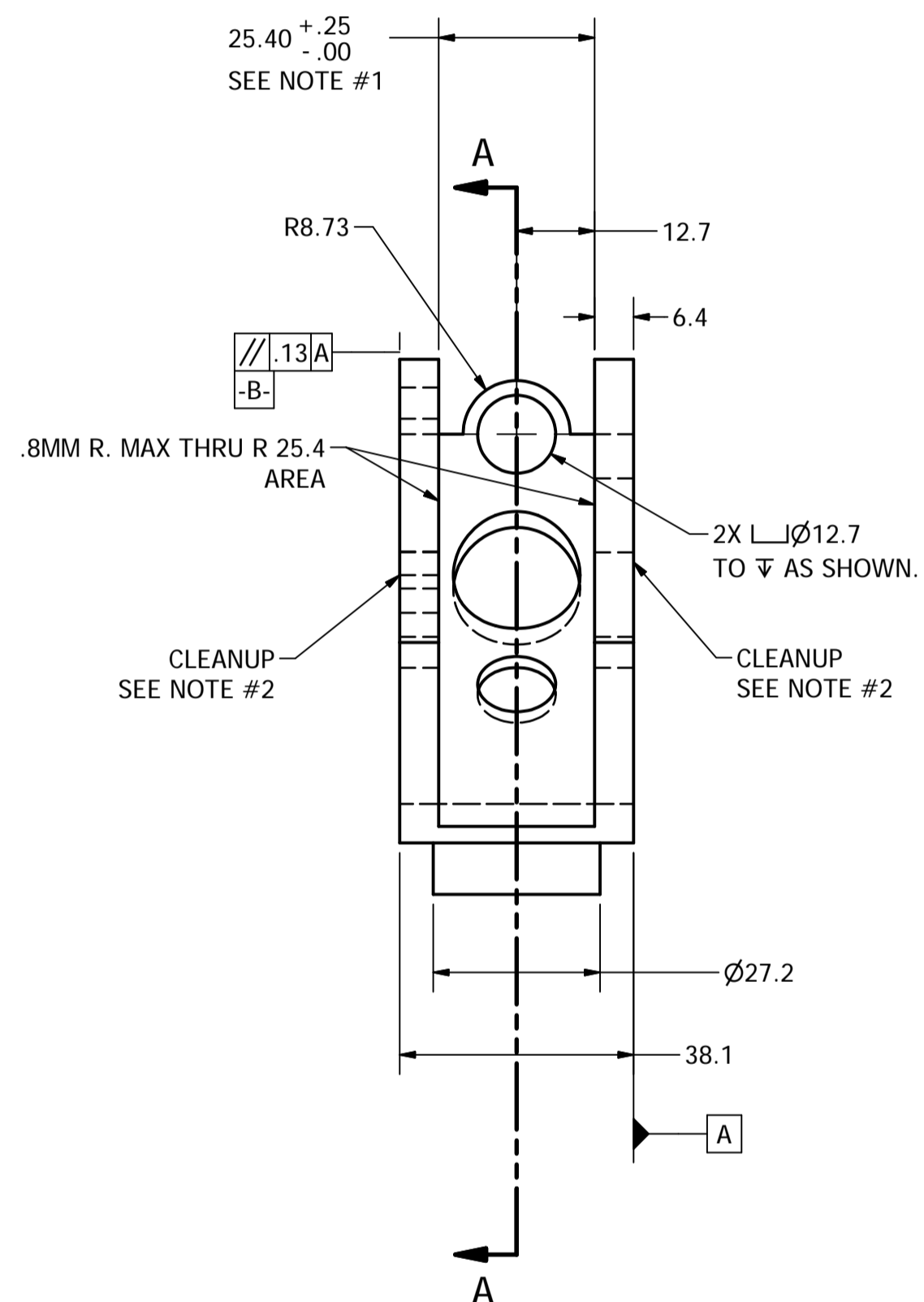
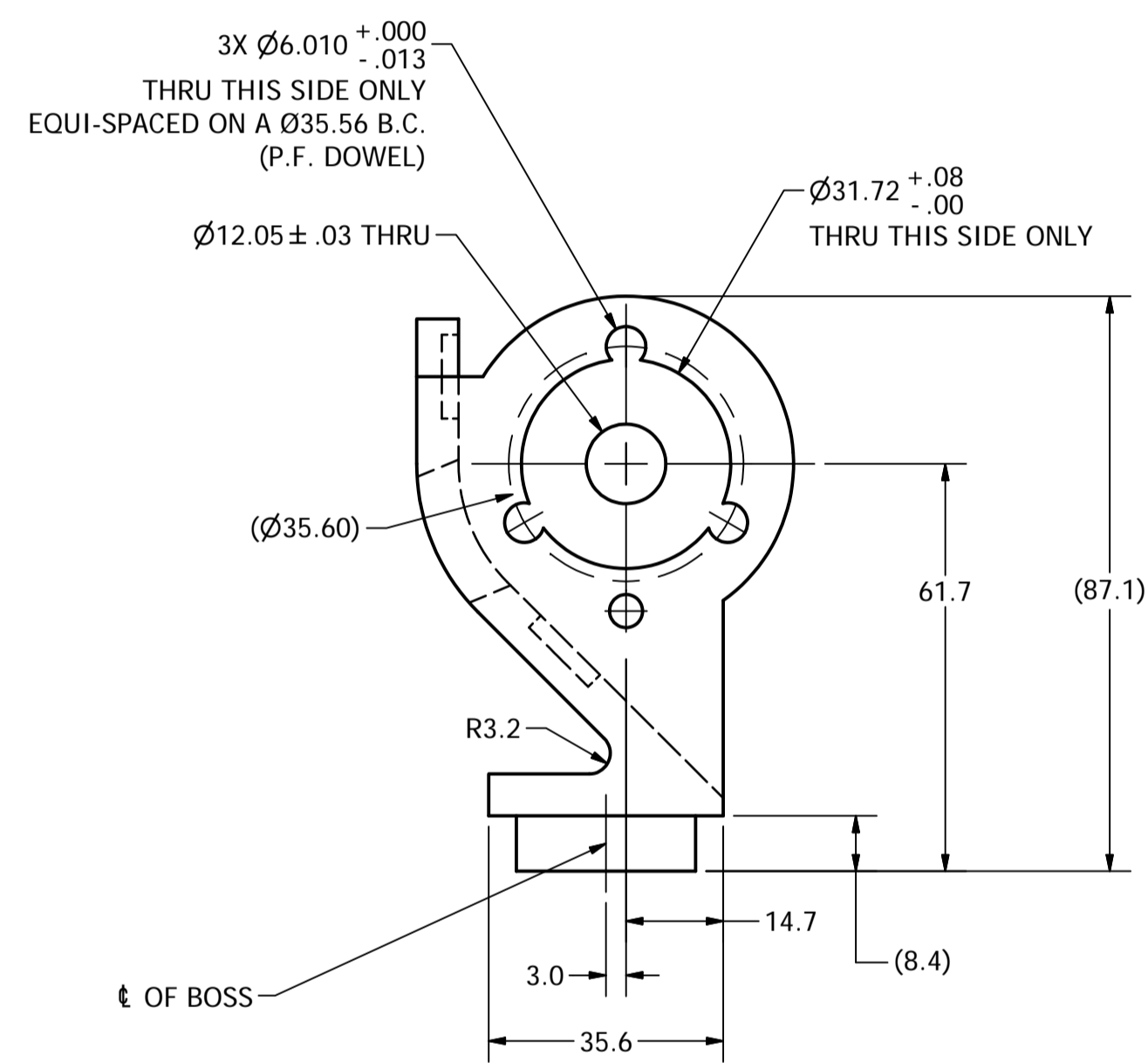
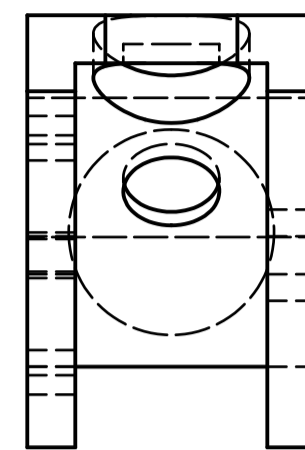
PARTS LIST
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION STRUCTURAL ASSY. LOWER ARM - UPPER PART
472-6520 NEXT ASSEMBLY TOTAL QTY IN DUMMY	1 QTY	Thanh DATE: 10/3/2011	J. WANG DATE: 11/30/2012	
		A21 of 1 FULL		472-6530

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG# 78051-138 AND CONVERTED TO METRIC FOR THOR-M	9/30/2011	TKN



ISO VIEW
SCALE 1 : 1

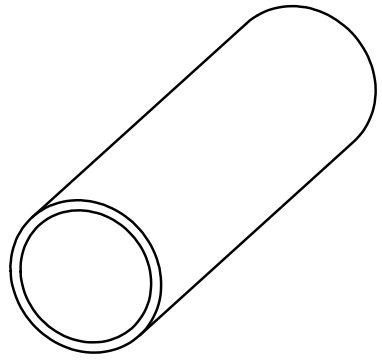


NOTES:

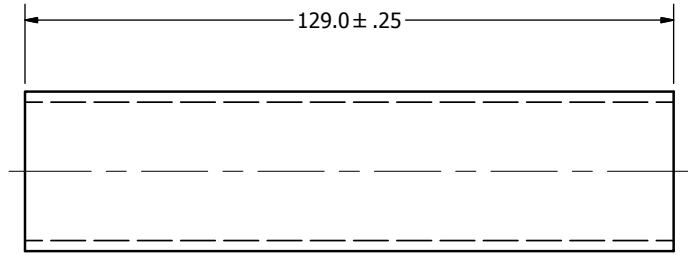
- PART MAY REQUIRE STRAIGHTENING TO MEET 25.4 $^{+.25}_{-.00}$ DIM BEFORE MACHINING.
- FIRST MACHINE OPERATION.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
PROJECT NO.	472-6530	DESIGNED BY	Thanh	DATE	9/30/2011
REV	1	DRAWN BY	J. WANG	DATE	1/30/2012
NEXT ASSEMBLY	QTY	PART NAME		SCALE	DESCRIPTION
TOTAL QTY IN DUMMY	2	472-6540		A11 OF 1	ELBOW YOKE

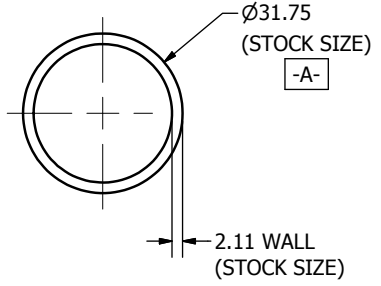
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG# 78051-196 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN



ISO VIEW
SCALE 1 : 1



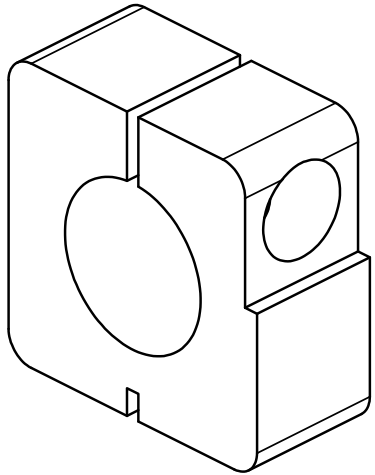
$\pm .25$
BOTH SIDES



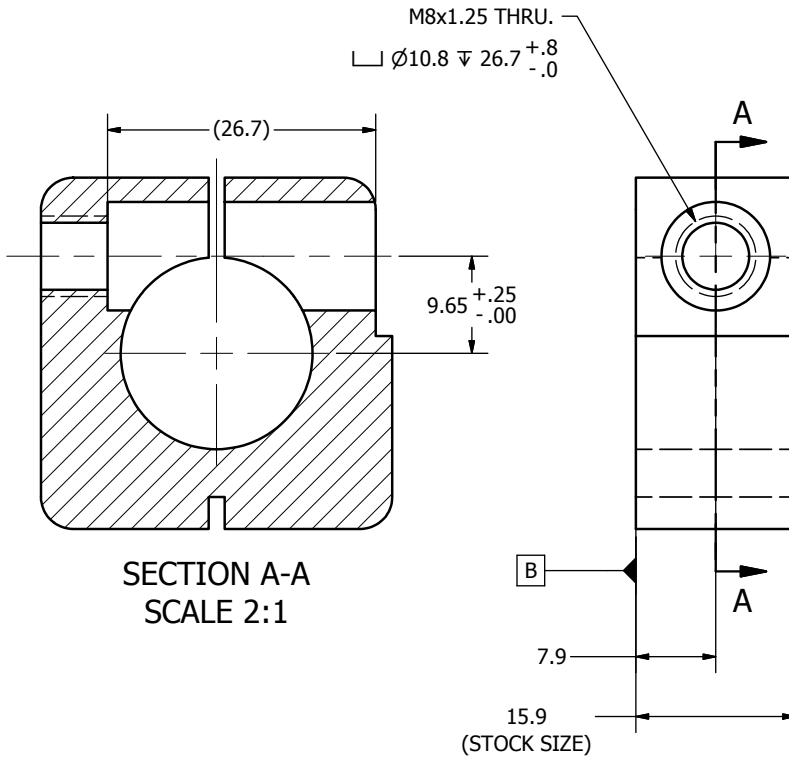
NOTES:

- MATERIAL: SEAMLESS STEEL MECHANICAL TUBING SAE 1018.
(Ø1¼" 14 ga. WALL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.57 16 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO:	472-6530	MATERIAL:	SEE NOTE	DESCRIPTION:
DRAWN BY:	1	CHECKED BY:	Thanh	TUBE - LOWER ARM
DATE:	10/3/2011	DATE:	10/3/2011	SIZE: A3
HEAT TREAT:		ENGINEER:	J. WANG	SHEET: 1 OF 1
FINISH:	2	DATE:	1/30/2012	DRAWING NO: 472-6550
TOTAL QTY IN DUMMY:	2	SCALE:	FULL	REV: A

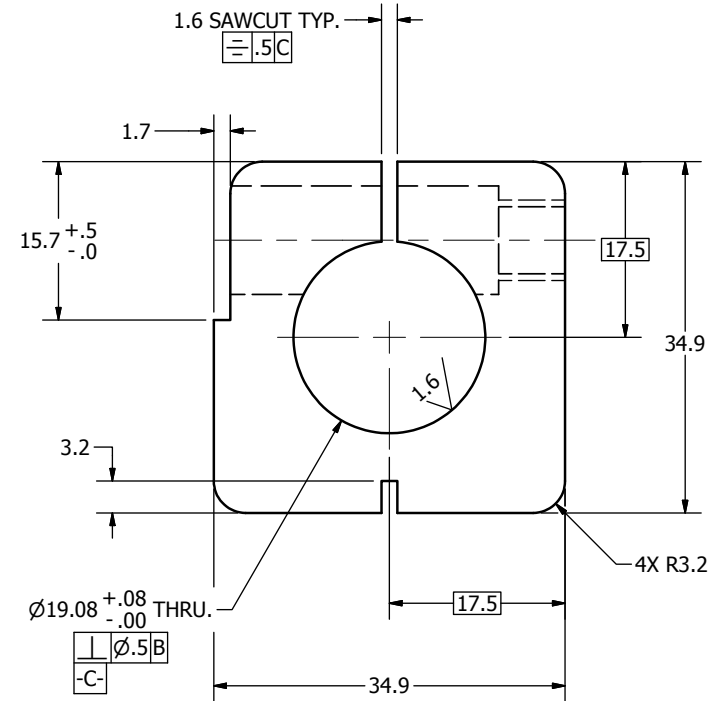


ISO VIEW
SCALE 2:1



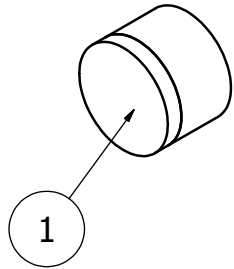
SECTION A-A
SCALE 2:1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-197 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN

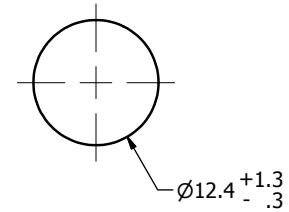
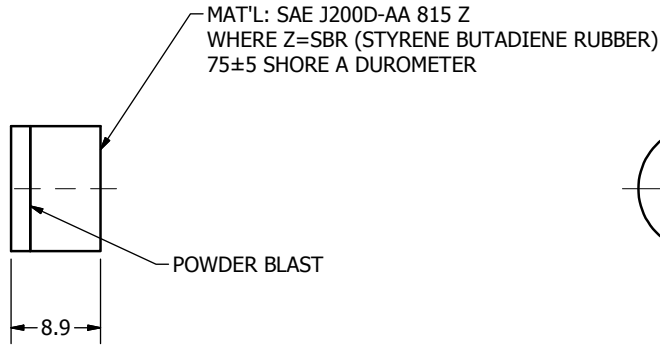


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 X .05 1.6 X.X X .02 X X.XX X .01 X X.XXX X .001			
PROJECT NO.:	472-6530	MATERIAL:	1018 STEEL	DESCRIPTION: CLAMP - WRIST ROTATION	
DRAWN BY:	Thanh	DATE:	10/3/2011		
CHECKED BY:		ENGINEER:	J. WANG		
DATE:	1/30/2012	SCALE:	2:1		
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-6560
TOTAL QTY IN DUMMY		QTY:	2	REV:	A


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-198 AND CONVERTED TO METRIC FOR THOR-M	10/5/2011	TKN



ISO VIEW
SCALE 2:1



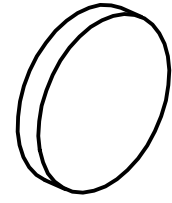
1	1	472-6580	STOP, BACKING, LOWER ARM
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X 0.0 0.05 1.6	
		XX 0.2	
		XXX 0.3	
		XXX 0.01	
		REMOVE BLURS & BREAK SHARP EDGES	
PROJECT NO.: 472-6520		DATE: 10/5/2011	
MATERIAL:		DRAWN BY: Thanh	
NEXT ASSEMBLY QTY		CHECKED BY:	
TOTAL QTY IN DUMMY 4		DATE: 1/30/2012	
FINISH:		ENGINEER: J. WANG	
		DATE: 1/30/2012	
		SCALE: 2:1	
		SIZE: A3	
		SHEET: 1 OF 1	
		DRAWING NO.: 472-6570	
		REV: A	

 NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

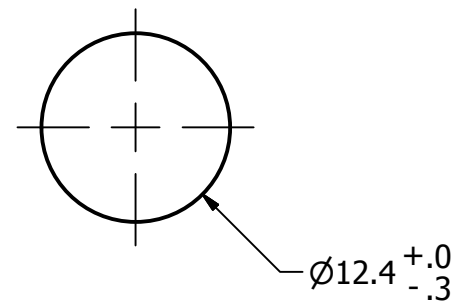
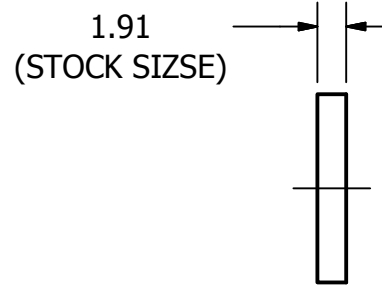
DESCRIPTION: STOP ASM-LOWER ARM THOR-M

REVISION HISTORY

ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-321 AND CONVERTED TO METRIC FOR THOR-M	10/5/2011	TKN
70563	B	ADD PLATE FINISH TO SATIN FLASH CHROME .008mm MAX THICKNESS.	01/29/2013	AB



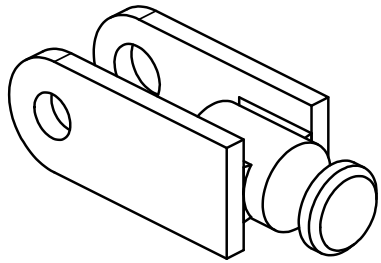
ISO VIEW
SCALE 2:1



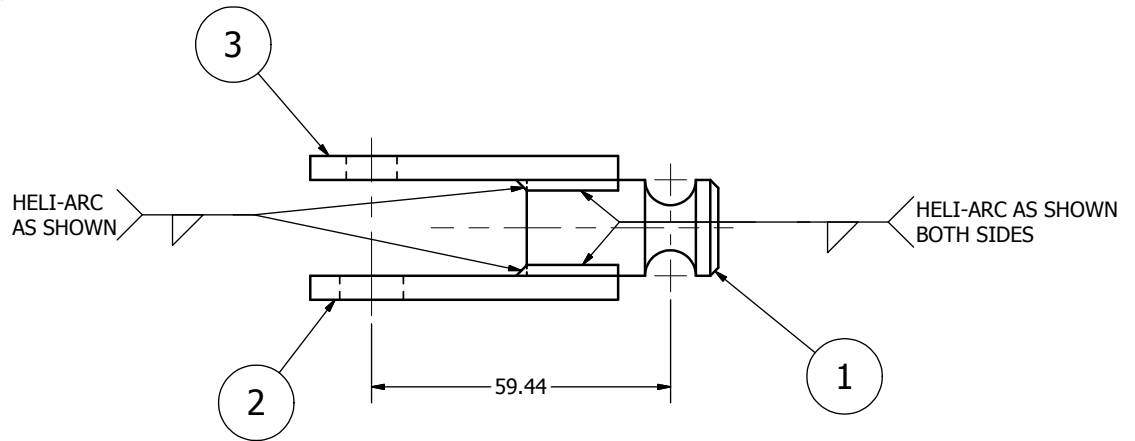
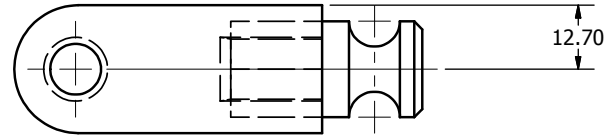
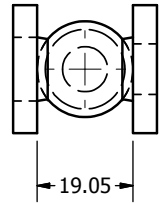
NOTE:
1. SATIN FLASH CHROME .008mm MAX AFTER MACHINING.

DO NOT SCALE DRAWING		TOLERANCES		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.5 1.6 XXX ± 0.1 ± 0.5 1.6 XXXX ± 0.01 ± 0.5 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION: STOP, BACKING, LOWER ARM
472-6570	1	1018 STEEL	10/5/2011	
NEXT ASSEMBLY	QTY	HEAT TREAT:	DATE:	
TOTAL QTY IN DUMMY	4	FINISH: SEE NOTES	DATE:	SIZE: A3 SHEET: 1 of 1 SCALE: 2:1
		CHECKED BY: J. WANG	DATE: 1/30/2012	DRAWING NO.: 472-6580

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-204 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN



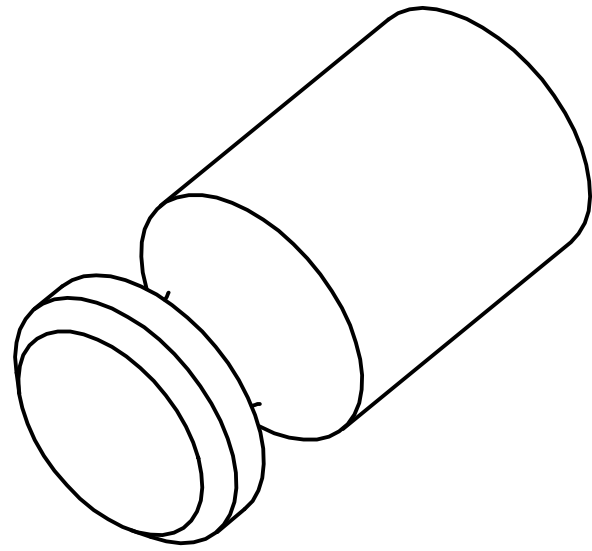
ISO VIEW
SCALE 1 : 1



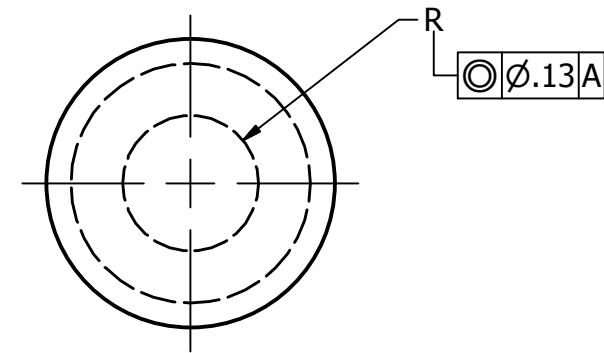
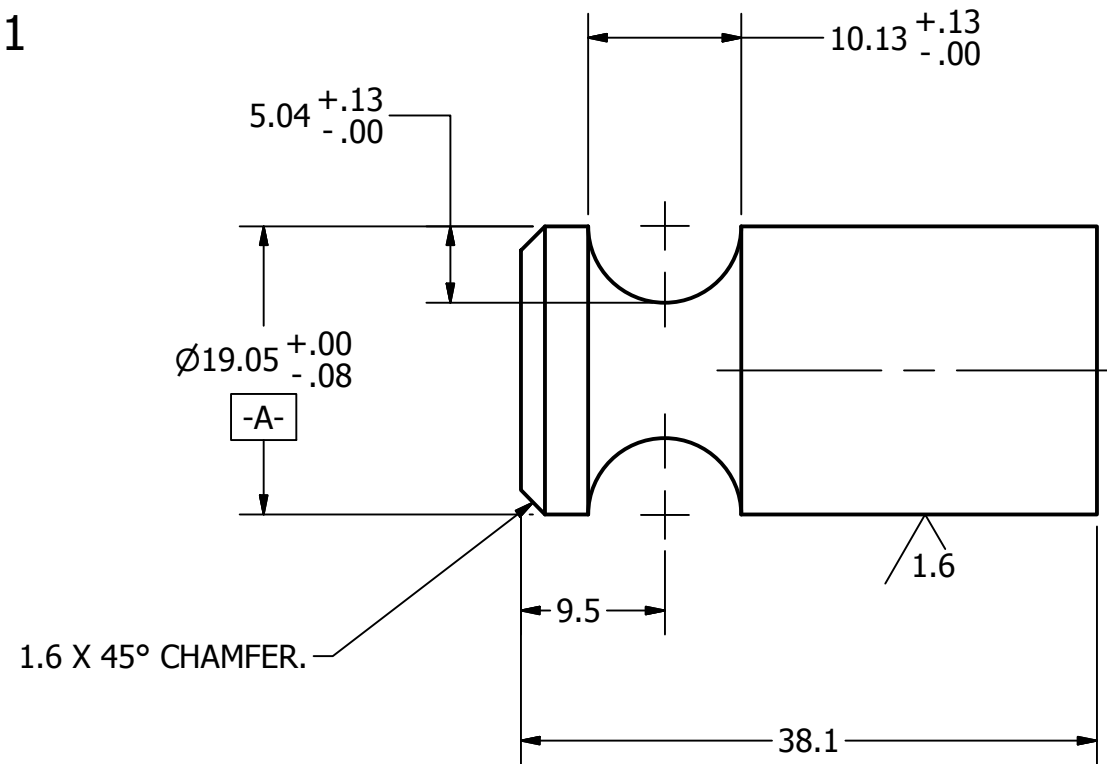
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-6720	LUG - WRIST, LOWER
2	1	472-6710	LUG - WRIST, UPPER
1	1	472-6730	SHAFT - WRIST ROTATION

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-6000-2	QTY:	1	DESCRIPTION: LOWER WRIST ROTATION ASSY.
MATERIAL:	472-6000-1	DRAWN BY:	Thanh	
HEAT TREAT:		CHECKED BY:	Thanh	
FINISH:	ELECTROLESS NICKEL PLATE .008 MAX.	DATE:	10/4/2011	
ENGINEER:	J. WANG	DATE:	1/30/2012	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-6700
TOTAL QTY IN DUMMY	2	SCALE:		REV: A

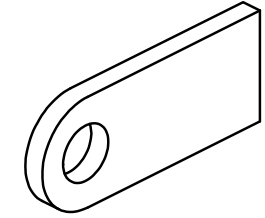


ISO VIEW
SCALE 2:1

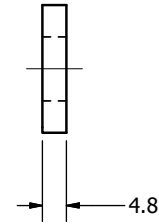
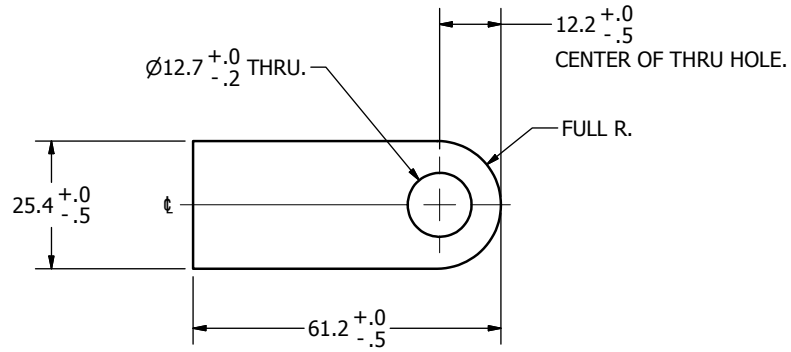


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-207 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
PROJECT NO.:	472-6700	MATERIAL:	1018 STEEL	DESCRIPTION: SHAFT - WRIST ROTATION
DRAWN BY:	Thanh	DATE:	10/3/2011	
CHECKED BY:	J. WANG	DATE:	1/30/2012	SIZE: A3 SHEET: 1 of 1 SCALE: 2:1
HEAT TREAT:		ENGINEER:	J. WANG	DRAWING NO.:
FINISH:		DATE:	1/30/2012	472-6730
TOTAL QTY IN DUMMY	2			REV:
				A

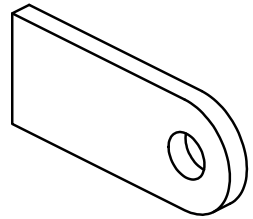


ISO VIEW
SCALE 1 : 1

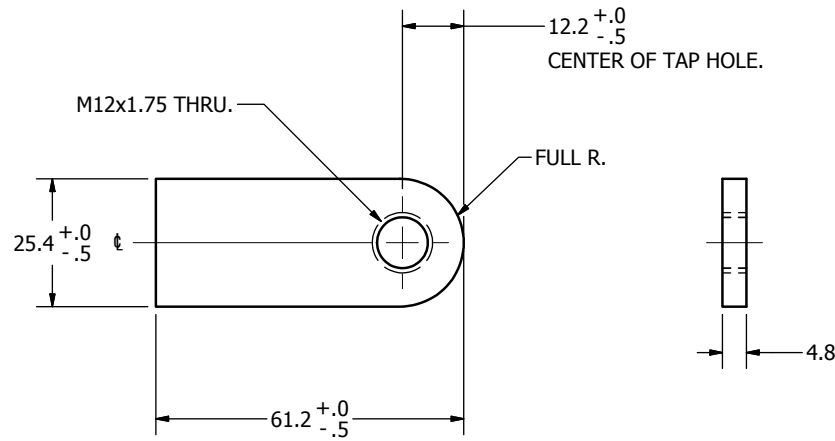


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-205 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01					
PROJECT NO:	472-6700	MATERIAL:	1018 STEEL	DESCRIPTION: LUG - WRIST, UPPER			
DRAWN BY:	Thanh	DATE:	10/4/2011				
CHECKED BY:		ENGINEER:	J. WANG	SIZE: SHEET A3 1 OF 1 SCALE: FULL			
HEAT TREAT:		DATE:	1/30/2012				
TOTAL QTY IN DUMMY	2	FINISH:		DRAWING NO:	472-6710	REV:	A



ISO VIEW
SCALE 1 : 1



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-206 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.57 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO.:	472-6700	MATERIAL:	1018 STEEL	REMOVE BURRS & BREAK SHARP EDGES DESCRIPTION: LUG - WRIST, LOWER
DRAWN BY:	Thanh	DATE:	10/4/2011	
CHECKED BY:		ENGINEER:	J. WANG	DATE:
DATE:		SCALE:	FULL	SIZE: SHEET
DATE:	1/30/2012	SCALE:	FULL	A31 OF 1
TOTAL QTY IN DUMMY	2	FINISH:		DRAWING NO. 472-6720



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

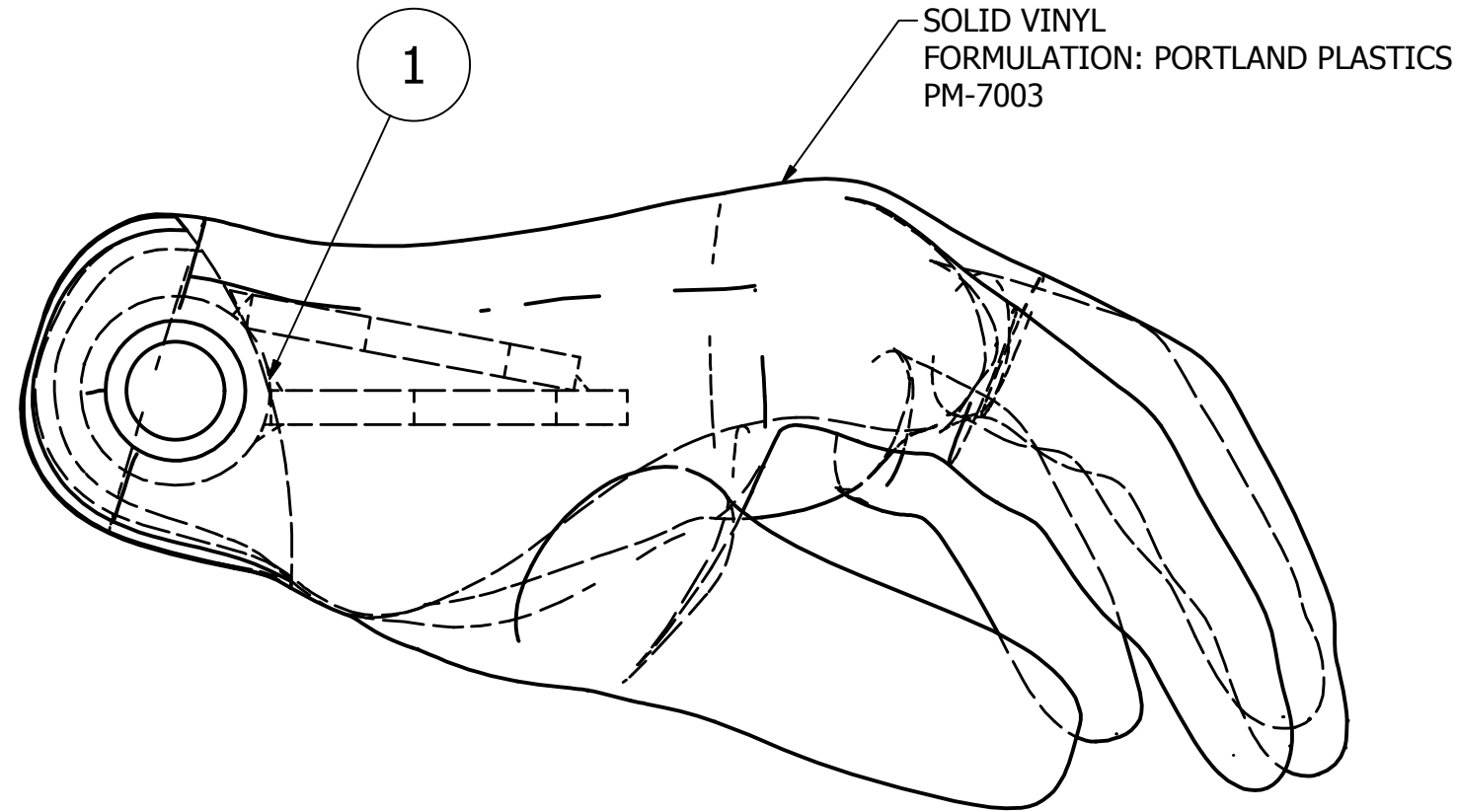
DESCRIPTION: LUG - WRIST, LOWER

A31 OF 1

DRAWING NO. 472-6720

REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-208 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
PIECEMARK USING PART NUMBER AND
REVISION LETTER. SERIALIZE
2. PART WEIGHT .57 Kg ± .05 Kg (1.25 LBS ± .10 LBS).

1	1	472-6910	STRUCTURAL ASS'Y-HAND THOR-M
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ± 0.5	± 0.5 1.6
		.XX ± 0.2	
		.XXX ± 0.1	
		.XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:	DRAWN BY:	DATE:	
	Thanh	10/4/2011	
MATERIAL:	CHECKED BY:	DATE:	
	J. WANG	1/30/2012	
HEAT TREAT:	ENGINEER:	DATE:	
FINISH:			

472-6000-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

**NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION**

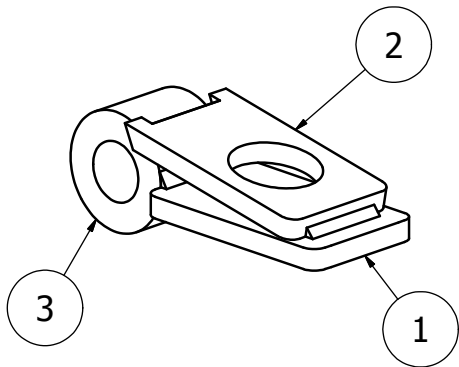
DESCRIPTION:
HAND ASM MOLDED, LEFT THOR-M

SIZE: A3
SHEET: 1 of 1
SCALE: FULL

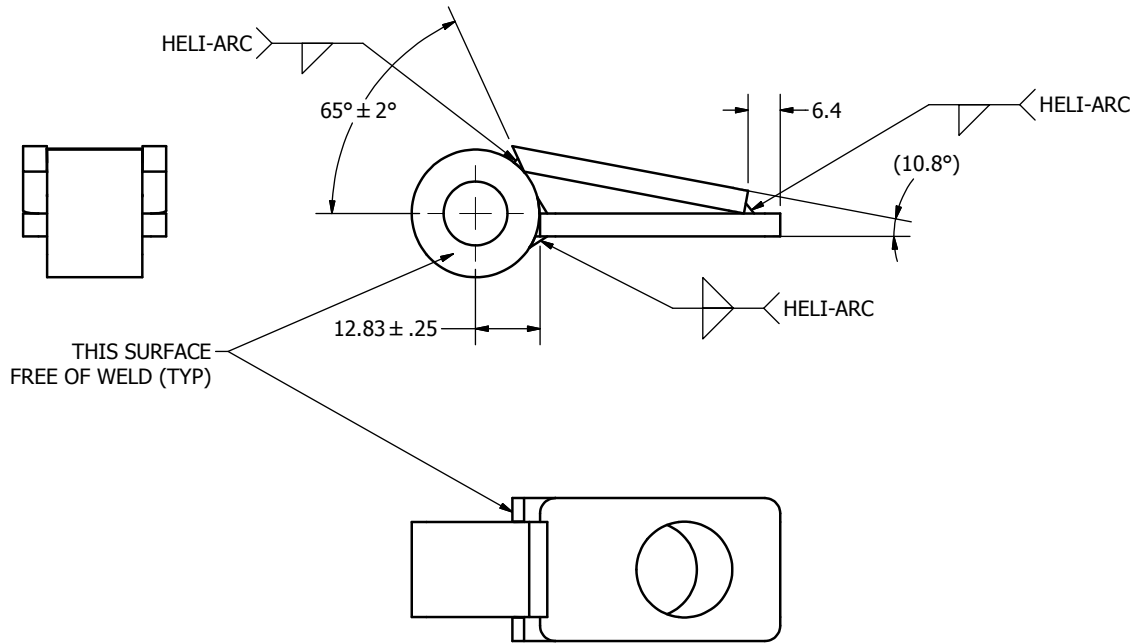
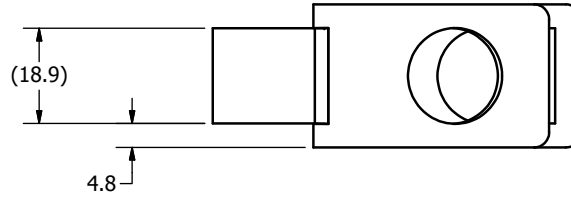
DRAWING NO.: 472-6900-1

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-210 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN



ISO VIEW
SCALE 1 : 1



ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-6920	HUB, HAND
2	1	472-6930	PLATE - HAND, INNER
1	1	472-6940	HAND PLATE - OUTER

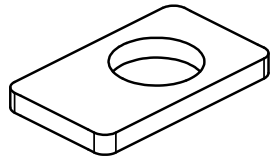
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.5° 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	DATE:	DESIGNER:	DATE:	DESCRIPTION:
472-6900-2	10/4/2011	J. WANG	1/30/2012	STRUCTURAL ASS'Y-HAND THOR-M
MATERIAL:	CHECKED BY:	SCALE:	SIZE:	SHEET:
472-6900-1	Thanh	A3	1 OF 1	472-6910
NEXT ASSEMBLY:	DATE:	SCALE:	FULL	
QTY	DATE:	SCALE:	FULL	
TOTAL QTY IN DUMMY	DATE:	SCALE:	FULL	
2	1/30/2012	SCALE:	FULL	

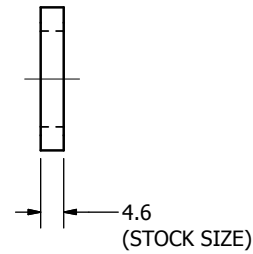
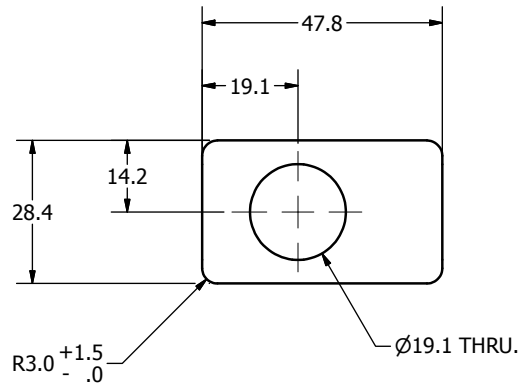
PROJECT NO:	DATE:	DESIGNER:	DATE:	DESCRIPTION:
472-6900-2	10/4/2011	J. WANG	1/30/2012	STRUCTURAL ASS'Y-HAND THOR-M
MATERIAL:	CHECKED BY:	SCALE:	SIZE:	SHEET:
472-6900-1	Thanh	A3	1 OF 1	472-6910
NEXT ASSEMBLY:	DATE:	SCALE:	FULL	
QTY	DATE:	SCALE:	FULL	
TOTAL QTY IN DUMMY	DATE:	SCALE:	FULL	
2	1/30/2012	SCALE:	FULL	

REVISION HISTORY

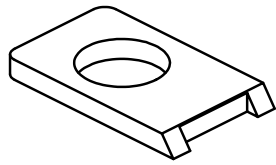
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-213 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN



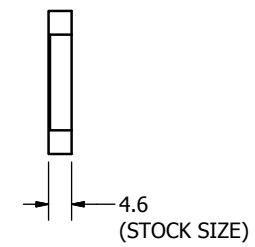
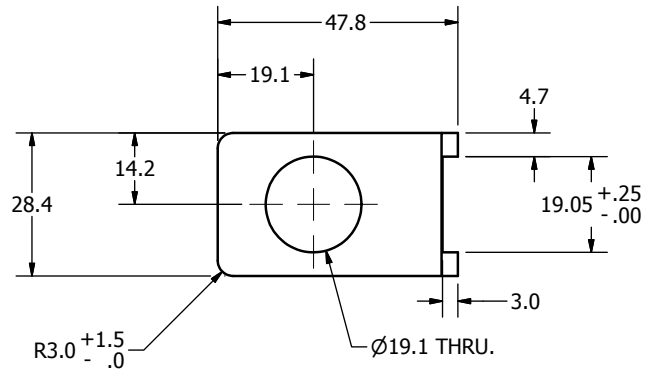
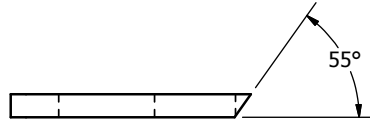
ISO VIEW
SCALE 1 : 1



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX 0.2 XXX 0.3 XXXX 0.01					
PROJECT NO:	472-6910	MATERIAL:	1018 STEEL	DESCRIPTION: HAND PLATE - OUTER			
DRAWN BY:	Thanh	DATE:	10/4/2011				
CHECKED BY:		ENGINEER:	J. WANG	SCALE: FULL SIZE: SHEET A3 1 OF 1			
HEAT TREAT:		DATE:	1/30/2012				
TOTAL QTY IN DUMMY	2	FINISH:		DRAWING NO.:	472-6940	REV:	A



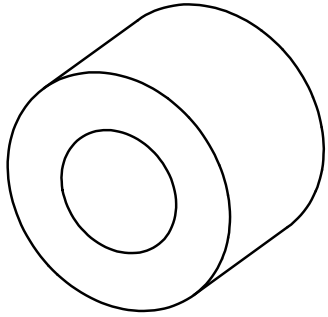
ISO VIEW
SCALE 1 : 1



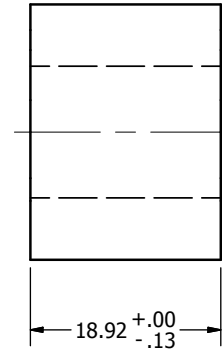
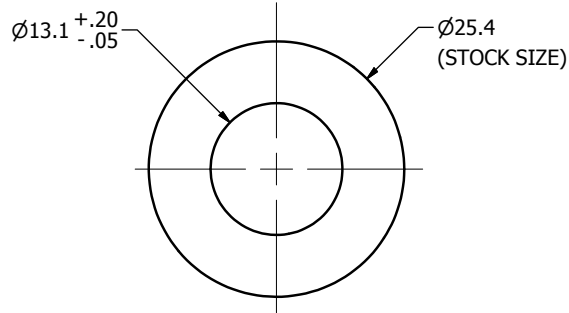
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-212 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X 0.2 XX 0.3 XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-6910	MATERIAL:	1018 STEEL	DESCRIPTION: PLATE - HAND, INNER
DRAWN BY:	Thanh	DATE:	10/4/2011	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 SCALE: FULL
TOTAL QTY IN DUMMY:	2	DATE:	1/30/2012	DRAWING NO.: 472-6930 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-211 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN
	B	CHANGED Ø13.1 +.0/-0.2 TO Ø13-1 +.20/-0.05	10/4/2011	JSJ

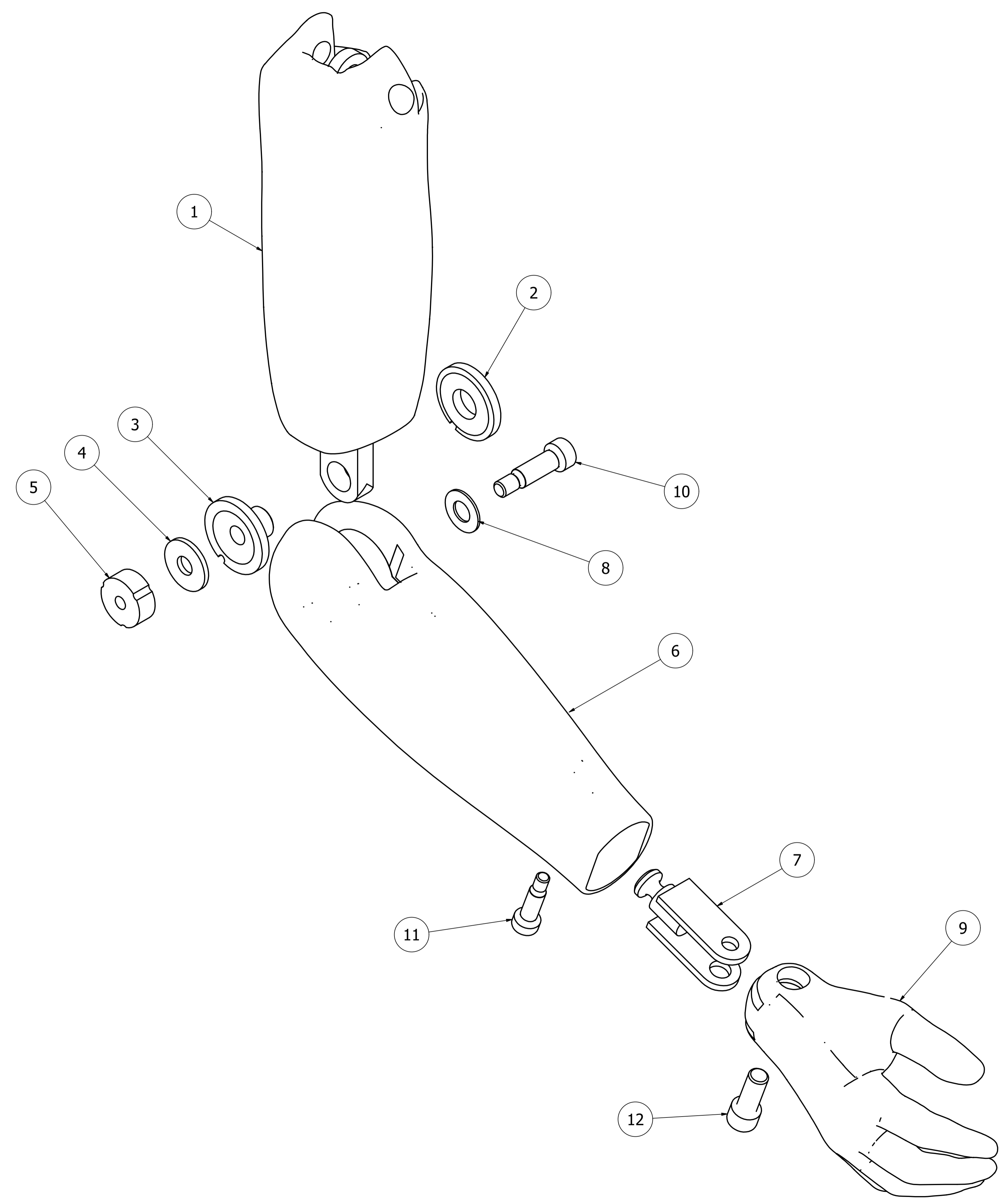


ISO VIEW
SCALE 2:1



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-6910	MATERIAL:	1018 STEEL	DESCRIPTION:
DRAWN BY:	1	CHECKED BY:	Thanh	HUB, HAND
DATE:	10/4/2011	DATE:	1/30/2012	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
FINISH:		DATE:	1/30/2012	SCALE: 2:1
DESCRIPTION:	HUB, HAND			DRAWING NO.:
	TOTAL QTY IN DUMMY 2			472-6920

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1APM000 AND CONVERTED TO METRIC FOR THOR-M	10/5/2011	TKN
	B	ITEM NUMBER 1 - PART #AXAMM000 - SD3 UPPER HUMERUS ASSEMBLY WAS PART #472-6120 - UPPER ARM ASSEMBLY, MOLDED; REMOVED PARTS #472-6300 - STRUCTURAL ASSY. UPPER ARM LOWER PART THOR-M AND PART #5000857 - M10 x 35 LG. SHSS	3/27/2014	DW
	C	ITEM NUMBER 1 - PART #472-6200 - UPPER HUMERUS ASSEMBLY WAS PART #AXAMM000 - SD3 UPPER HUMERUS ASSEMBLY	9/15/2014	DW

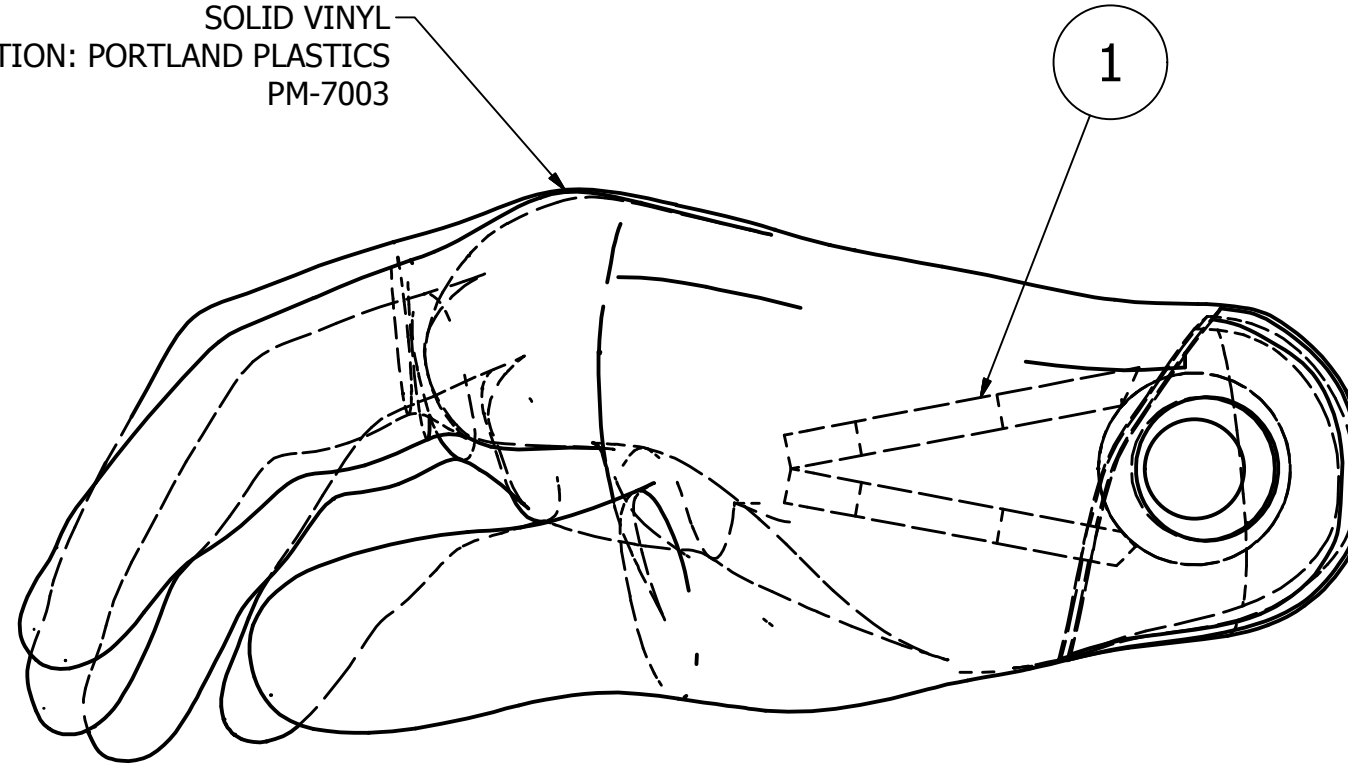


ITEM	QTY	PART NUMBER	DESCRIPTION
12	1	5000441	M12 X 1.75 X 30 LG. SHCS
11	1	5000492	M10 X 25 LG. SHSS
10	1	5000506	M12 X 30 LG. SHSS
9	1	472-6900-2	HAND ASM MOLDED, RIGHT THOR-M
8	1	9001260	WASHER, 1.06 OD x .53 ID x .06 THK.
7	1	472-6700	LOWER WRIST ROTATION ASSY.
6	1	472-6520	LOWER ARM MOLDED, THOR-M
5	1	472-6610	NUT - ELBOW PIVOT THOR-M
4	1	472-6950	WASHER-SHOULDER JOINT SPRING
3	1	472-6590	BUSHING, UPPER ARM AND ELBOW PIVOT
2	1	472-6600	WASHER - UPPER ARM & ELBOW PIVOT THOR-M
1	1	472-6200	UPPER HUMERUS ASSEMBLY

DO NOT SCALE DRAWING
 TOLERANCES: .0005 FRACTIONAL, .0005 DECIMAL, .0005 ANGLES, .0005 RADIUS, .0005 CHAMFER, .0005 HOLE POSITION, .0005 SURFACE PROFILE, .0005 TYPICAL
 SHOW HIDDEN & BREAK SHARP EDGES
 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 RIGHT ARM ASSEMBLY
 472-0000 QTY 1
 NEXT ASSEMBLY QTY 1
 TOTAL QTY IN DUMMY 1
 DRAWN BY: Thanh
 DATE: 10/5/2011
 CHECKED BY: J. WANG
 DATE: 1/28/2012
 SHEET: 1 of 1
 PART NUMBER: 472-6000-2

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-209 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN



SOLID VINYL
FORMULATION: PORTLAND PLASTICS
PM-7003



NOTES:

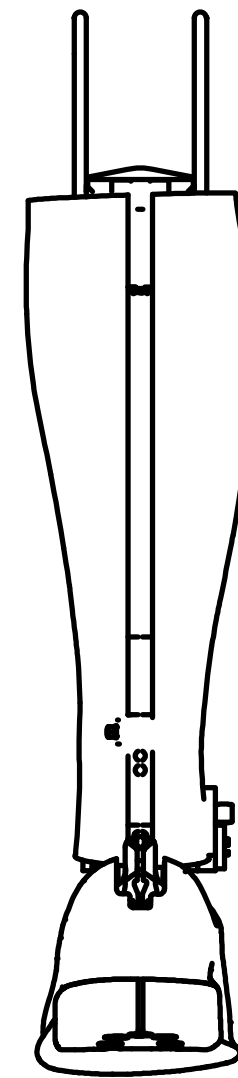
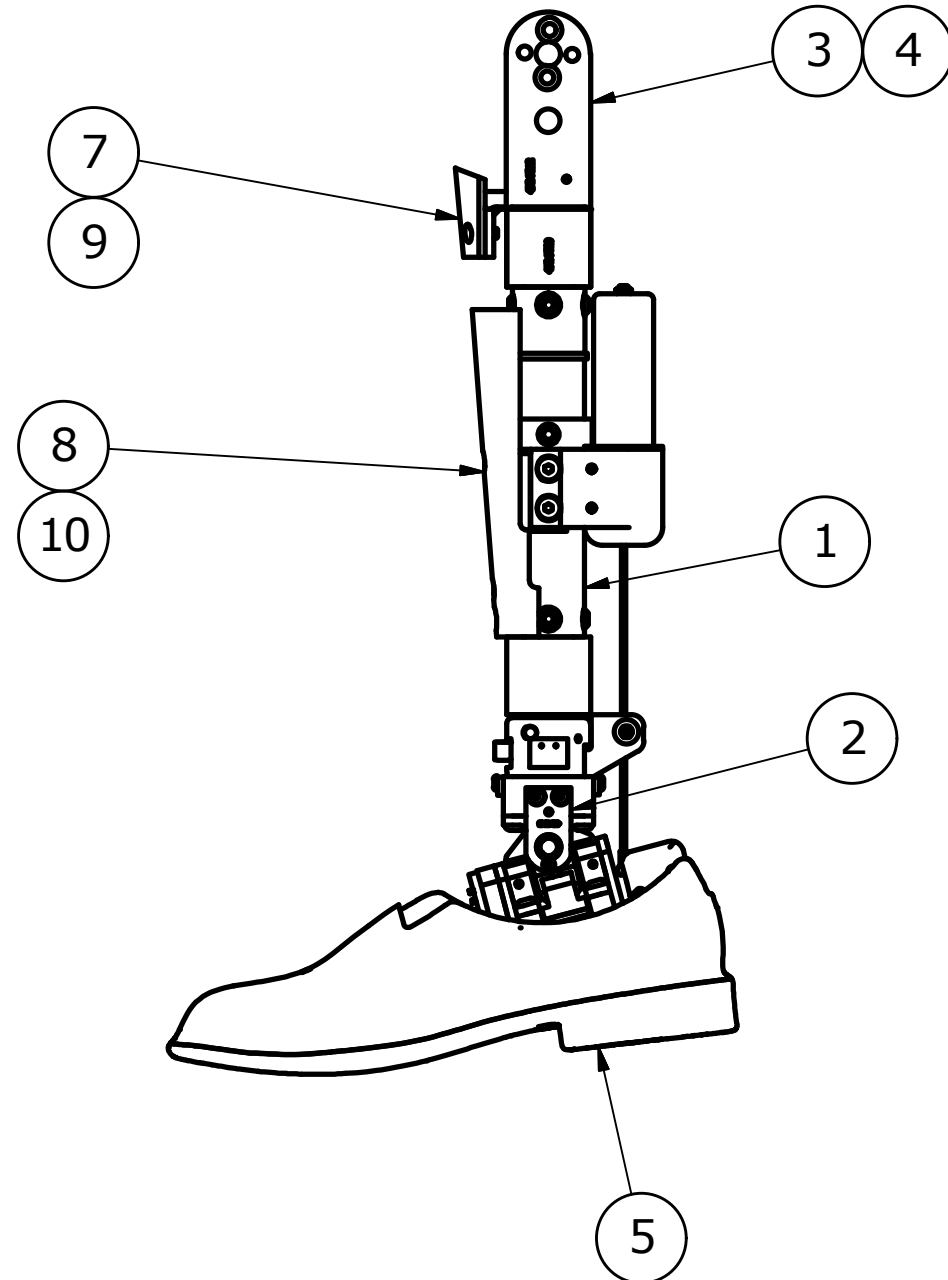
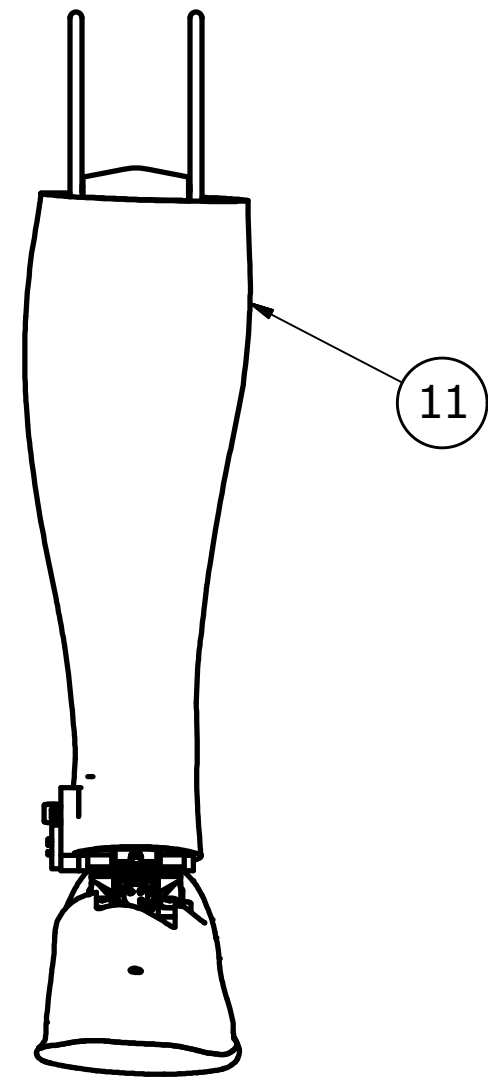
1. UNLESS OTHERWISE SPECIFIED:
PIECEMARK USING PART NUMBER AND
REVISION LETTER. SERIALIZE
2. PART WEIGHT .57 Kg ± .05 Kg (1.25 LBS ± .10 LBS).

1	1	472-6910	STRUCTURAL ASS'Y-HAND THOR-M
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION:
DRAWN BY:		DATE:		HAND ASM MOLDED, RIGHT THOR-M
MATERIAL:		CHECKED BY:		SIZE: SHEET
HEAT TREAT:		DATE:		A3 1 of 1
FINISH:		ENGINEER:		SCALE: FULL
TOTAL QTY IN DUMMY		DATE:		DRAWING NO.:
1		J. WANG		472-6900-2
		1/30/2012		A

472-6000-2	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANGED TO METRIC DIMENSIONS	12/5/2008	BLW
	B	ADDED ITEM #11	7/14/2015	DW
	C	472-7800-1 MOLDED SHOE ASS'Y. - LEFT WAS 472-7700-1 FOOT ASS'Y. - LEFT	8/8/2016	DW

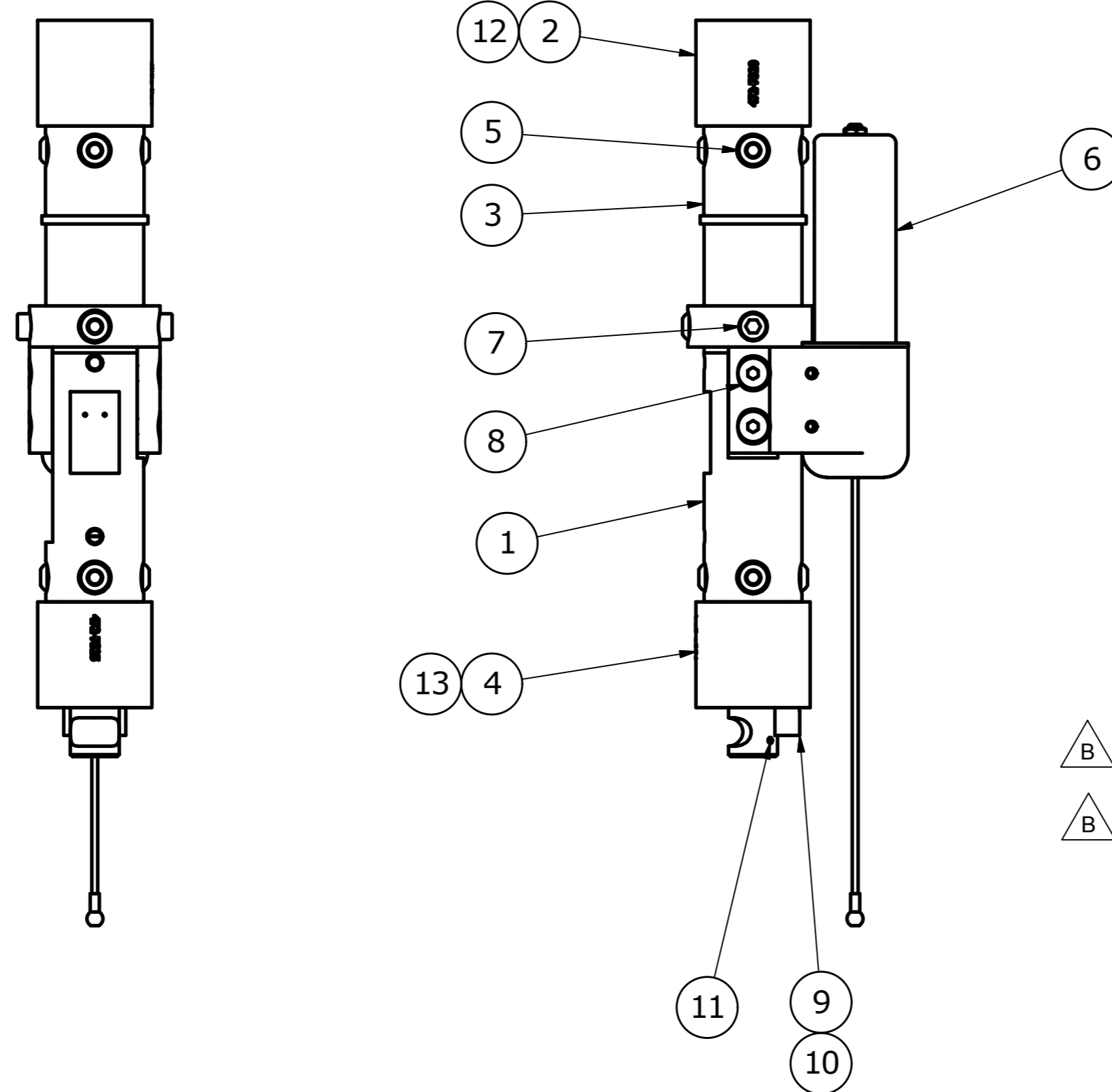


B	11	1	472-7370-1	LOWER LEG FLESH, LEFT
	10	2	9010453	SCREW, BHCS M6-1.0 x 16
	9	2	9003042	SCREW, BHCS M5 x 10
	8	1	472-7115	TIBIA GUARD
	7	1	472-7110	KNEE BUMPER, MOLDED
C	6	4	9000826	SCREW, FHCS M6 x 1.0 x 16mm
	5	1	472-7800-1	MOLDED SHOE ASSY. - LEFT
	4	4	9000852	SCREW, SHCS M6 x 1.0 X 16mm LONG
	3	1	472-7200	KNEE CLEVIS WELDMENT
	2	1	472-7500-1	ANKLE ASSEMBLY, LEFT
	1	1	472-7300	LOWER LEG MECHANICAL ASSEMBLY
ITEM	QTY	PART NUMBER	DESCRIPTION	

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	LOWER LEG ASSEMBLY, COMPLETE - LEFT THOR M	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN B. WADE	12/5/2008		
MATERIAL	CHECKED			THIRD ANGLE PROJECTION	SIZE C
HEAT TREAT	ENG				DRAWING NUMBER 472-7000-1
FINISH	APPROVED				REV C
				SCALE:	SHEET 1 OF 1

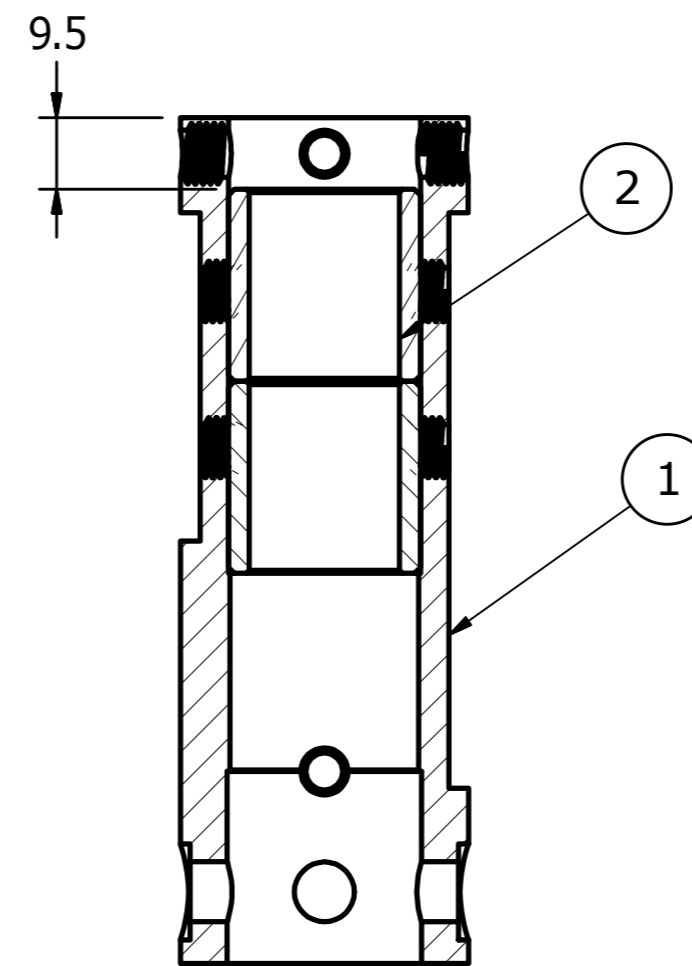
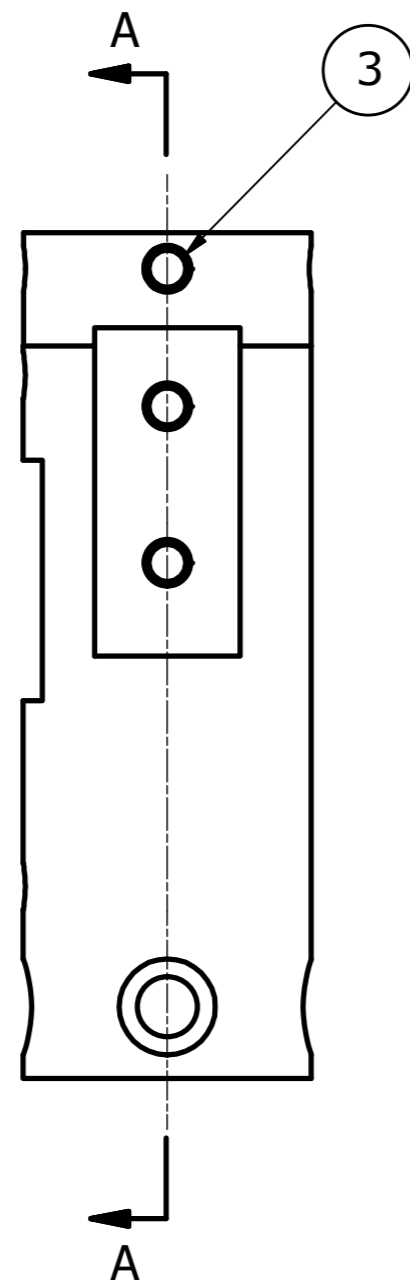
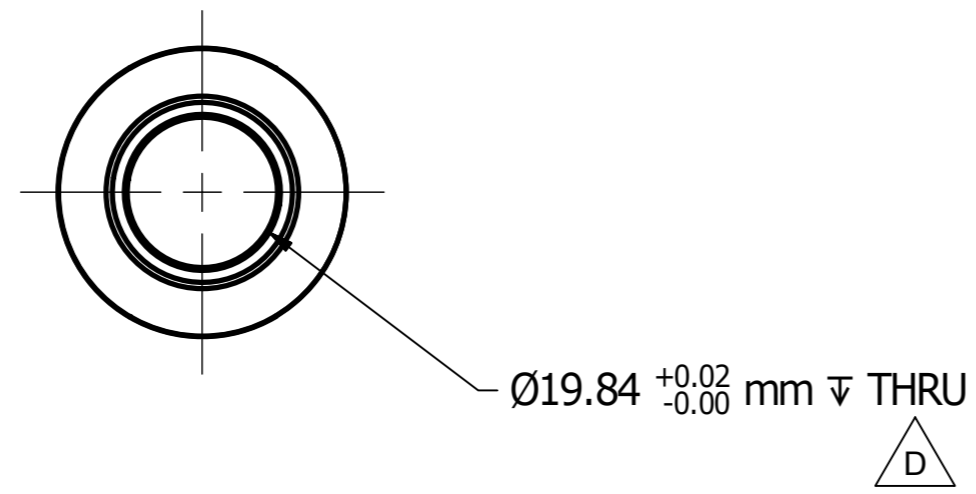
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW
	B	DRAWING NO. WAS 472-7300-1; REMOVED LOWER LEG FLESH, LEFT 472-7370-1; ADDED PART #SA572-S32 - FIVE CHANNEL UPPER TIBIA LOAD CELL (OPTIONAL), & #SA572-S33 - FIVE CHANNEL LOWER TIBIA LOAD CELL (OPTIONAL)	9/3/2005	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
13	1	SA572-S33	FIVE CHANNEL LOWER TIBIA LOAD CELL (OPTIONAL)
12	1	SA572-S32	FIVE CHANNEL UPPER TIBIA LOAD CELL (OPTIONAL)
11	1	9010447	SCREW, SHSS, M3X0.5 X 3
10	1	9000058	SCREW, SHCS M3-0.5 x 12
9	1	472-7330	Z ROTATION WEDGE ASSY
8	5	9001445	SCREW, FHCS M6-1 x 12
7	2	472-7335	PLUNGER RETAINING BOLT
6	1	472-7350	ACHILLES SPRING TUBE MECHANICAL ASS'Y.
5	9	W50-61042	MODIFIED BHSS M6 THREAD
4	1	472-7325	LOWER TIBIA LOAD CELL BLANK
3	1	472-7315	TIBIA COMPLIANT BUSHING
2	1	472-7320	UPPER TIBIA LOAD CELL BLANK
1	1	472-7310	LOWER TIBIA TUBE ASSY

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION THOR M 472-7300 B 1 OF 1	
MATERIAL	CHECKED	APPROVALS	DATE
HEAT TREAT	ENG	DRAWN	12/5/2008
FINISH	APPROVED	CHECKED	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	REMOVED NOTES 4, 5, & 6; REMOVED DIMENSION; .38 WAS .375; ADD MACHINING ASSEMBLY NOTES	7/30/2008	KHS
	B	CHANGE TO METRIC HELICOILS	10/14/2008	BLW
	C	CHANGE TO METRIC DIMENSIONING	11/16/2008	BLW
	D	THRU HOLE WAS 76mm DEEP	11/19/2008	DW



SECTION A-A
SCALE 1 : 1

MACHINING/ASSEMBLY NOTES:

1. FOR HELICOILS INSTALLED INTO FLATS ON PART, REMOVE 2 3/4 TREADS PRIOR TO INSTALLATION.
2. FOR HELICOILS INSTALLED INTO ROUNDS OF PART, REMOVE 5/8 OF A THREAD PRIOR TO INSTALLATION.
3. HELICOILS MUST NOT PROTRUDE INTO 25.4mm HOLE IN TOP CENTER OF PART.
4. INSTALL BEARING AFTER INSTALLATION OF HELICOILS.
5. REAM CENTER OF BEARING TO SPECIFIED DIMENSION.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	10	9010437	HELICOIL, M6 x 1 x 6
2	2	9010423	IGUS IGLIDE J BEARING, 1" OD x 3/4" ID x 1" LG (PART #JSI-1216-16)
1	1	472-7311	LOWER TIBIA TUBE

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED	DATE 11/19/2008	
MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED	SCALE: A2	DRAWING NUMBER 472-7310 SHEET 1 OF 1

4

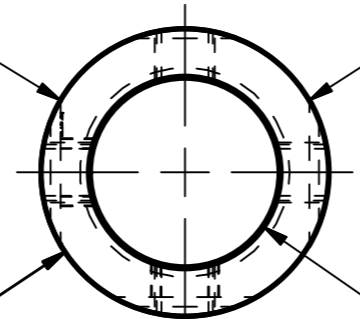
3

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1

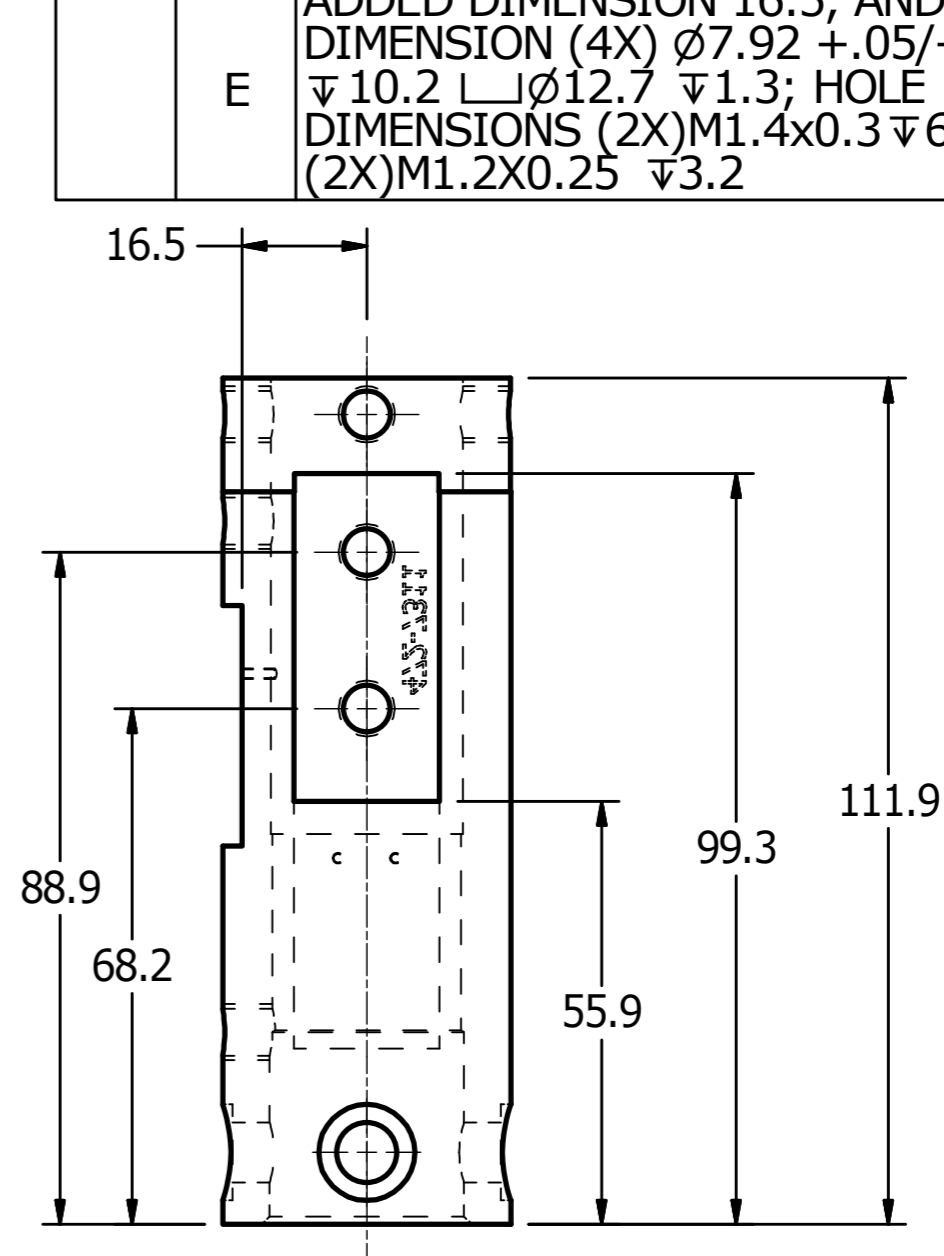
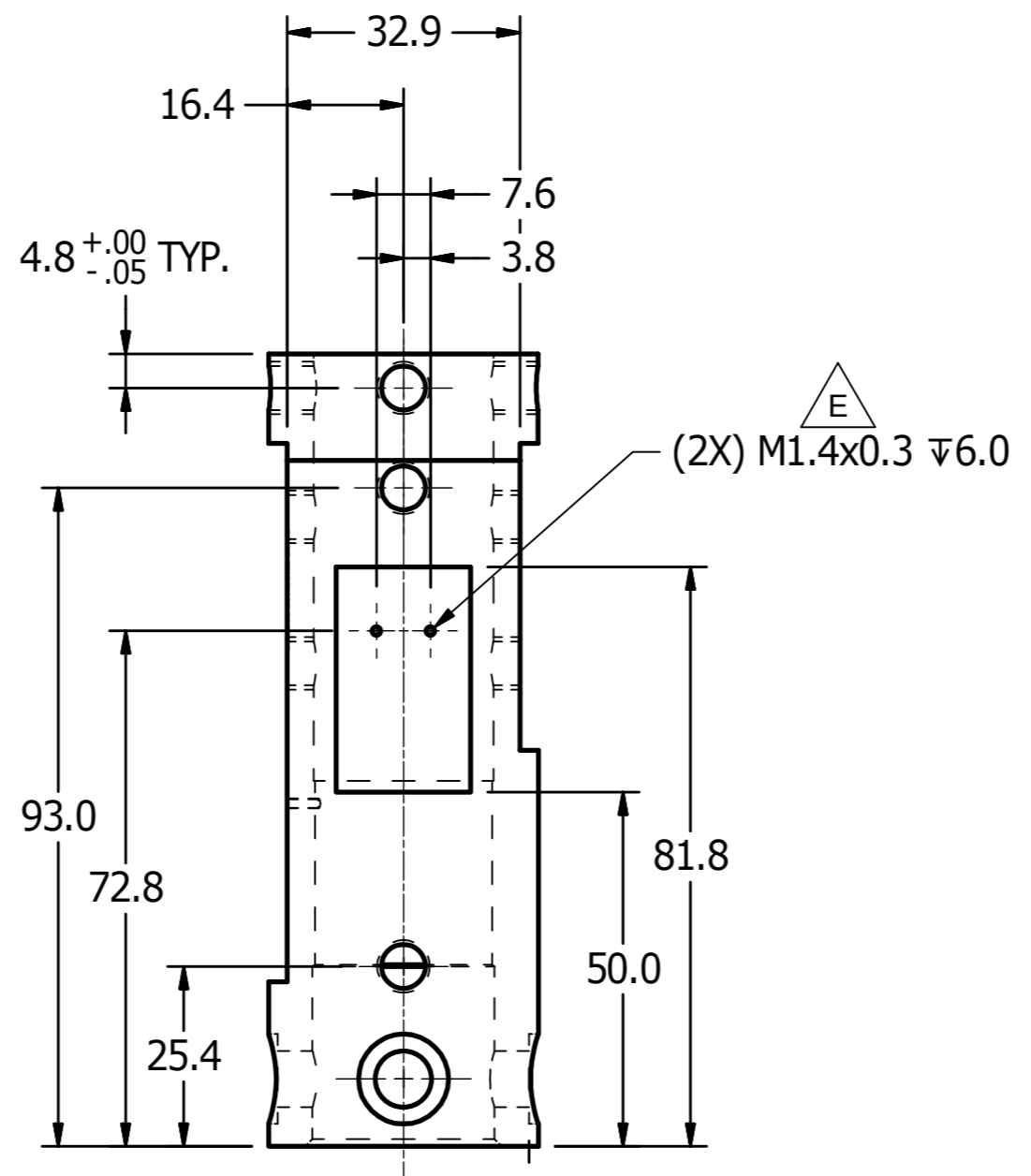
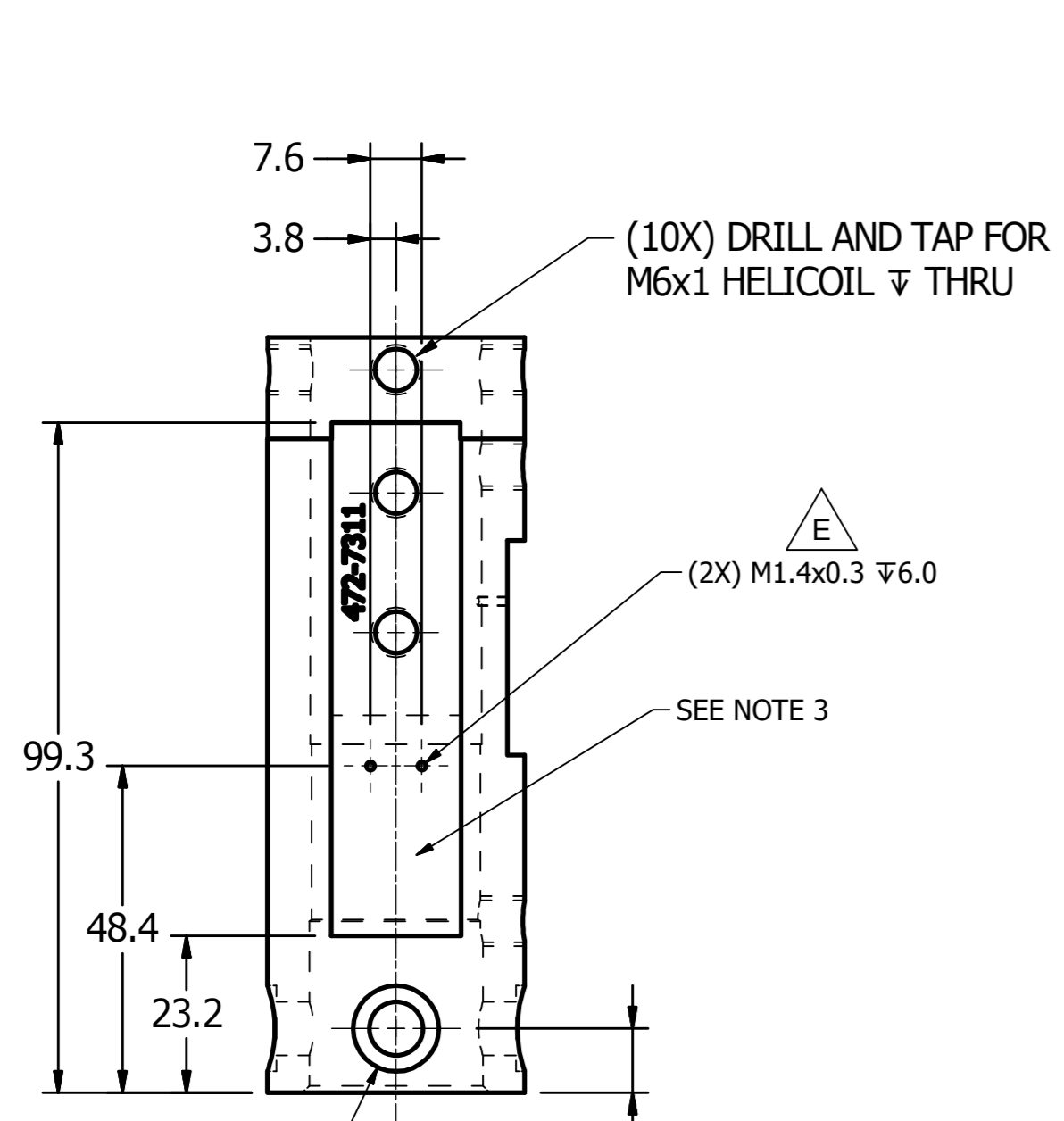
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	HOLE WAS .984 THRU; 1.500 +.005/- .000 WAS 1.500	7/29/2008	KHS
	B	.373-.000/ -.001 TYP WAS .375 TYP; ADDED VIEW SECTION A-A, DETAIL B AND SECTION C-C; ADDED CHAMFER; .188+.000/ -.002 TYP WAS .188 TYP; HOLES WERE .257 THRU C.B. .313 DOWN .220 C.B. .500 DOWN .050	8/28/2008	KHS
	C	CHANGE TO METRIC HARDWARE	10/14/2008	BLW
	D	CHANGE TO METRIC DIMENSIONING, REMOVE .06 X 23 CHAMFER, SECTION A-A, DETAIL B	11/20/2008	BLW
	E	ADDED DIMENSION 16.5, AND HOLE DIMENSION (4X) $\varnothing 7.92 +.05/- .00$ $\varnothing 10.2$ $\varnothing 12.7 \pm 1.3$; HOLE DIMENSIONS (2X) M1.4x0.3 ± 6.0 WAS (2X) M1.2x0.25 ± 3.2	7/14/2015	DW

SEE NOTE 2



$\varnothing 38.0 \pm 15$ FROM THIS END

$\varnothing 25.0 \pm$ THRU
 $\varnothing 25.4 \pm 60.3$



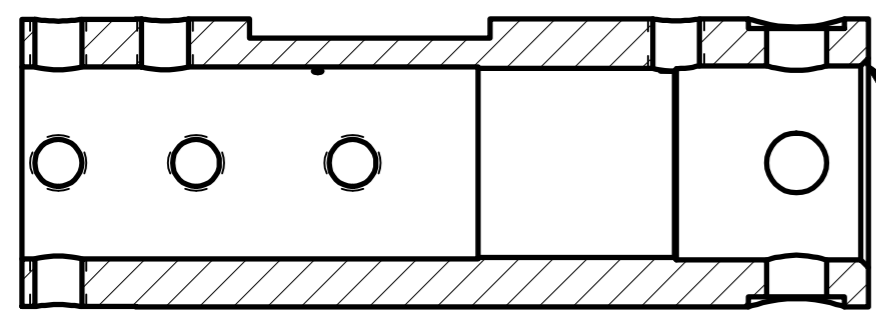
(10X) DRILL AND TAP FOR M6x1 HELICOIL \pm THRU

(2X) M1.4x0.3 ± 6.0

SEE NOTE 3

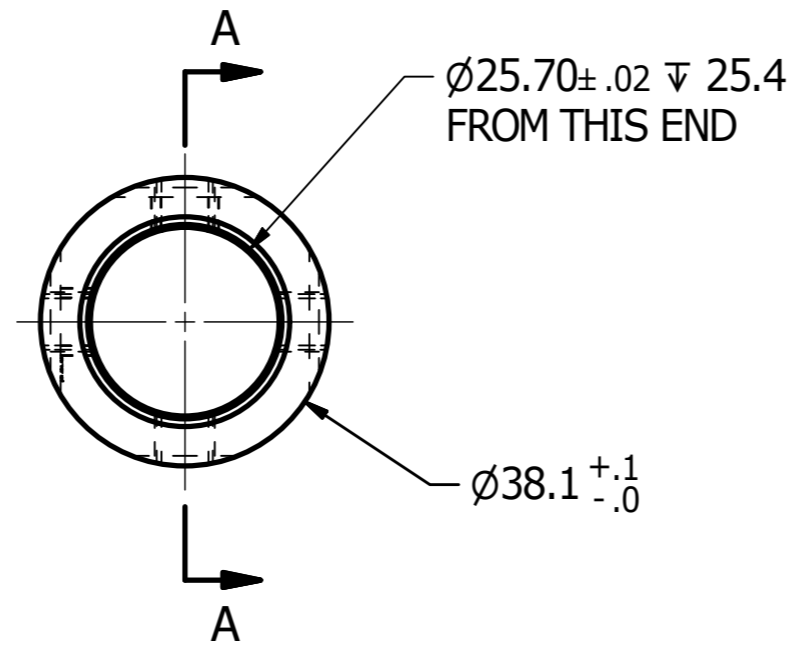
(4X) $\varnothing 7.92 +.05/- .00$ $\varnothing 10.2$
 $\varnothing 12.7 \pm 1.3$

9.47 $+ .00/- .05$ TYP.



SECTION A-A
 SCALE □ □ □

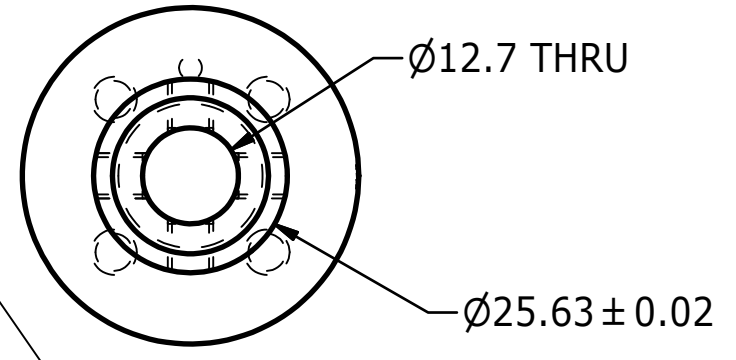
1.0 X 45° CHAMFER



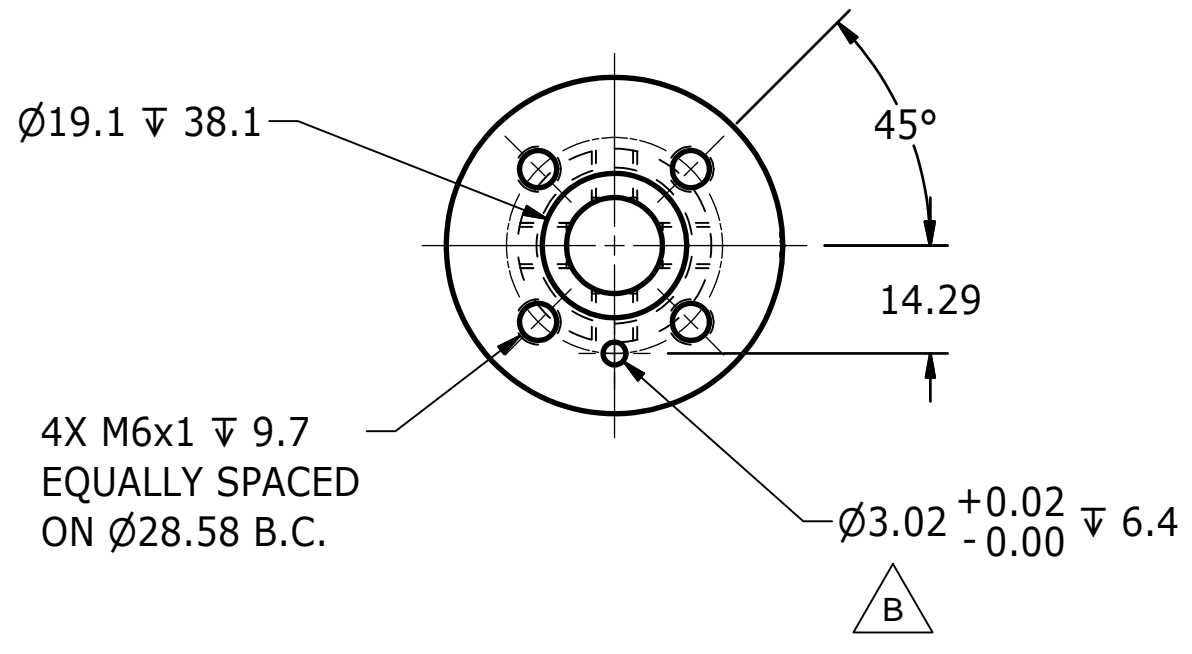
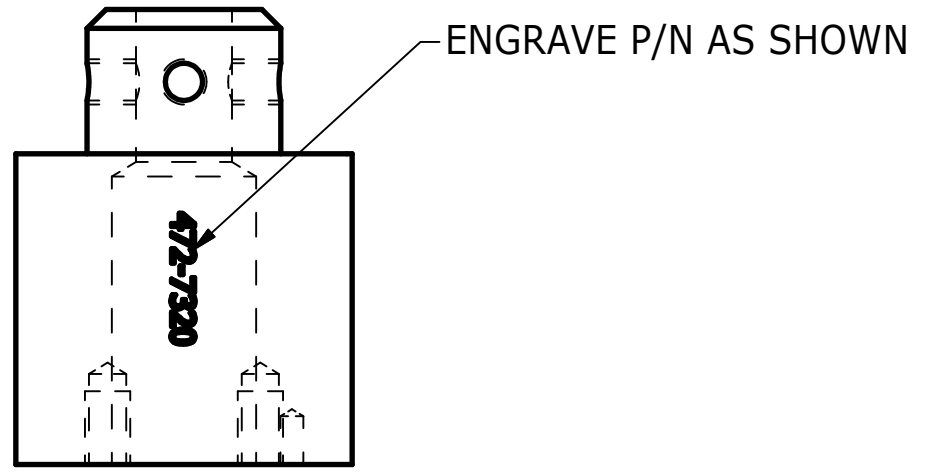
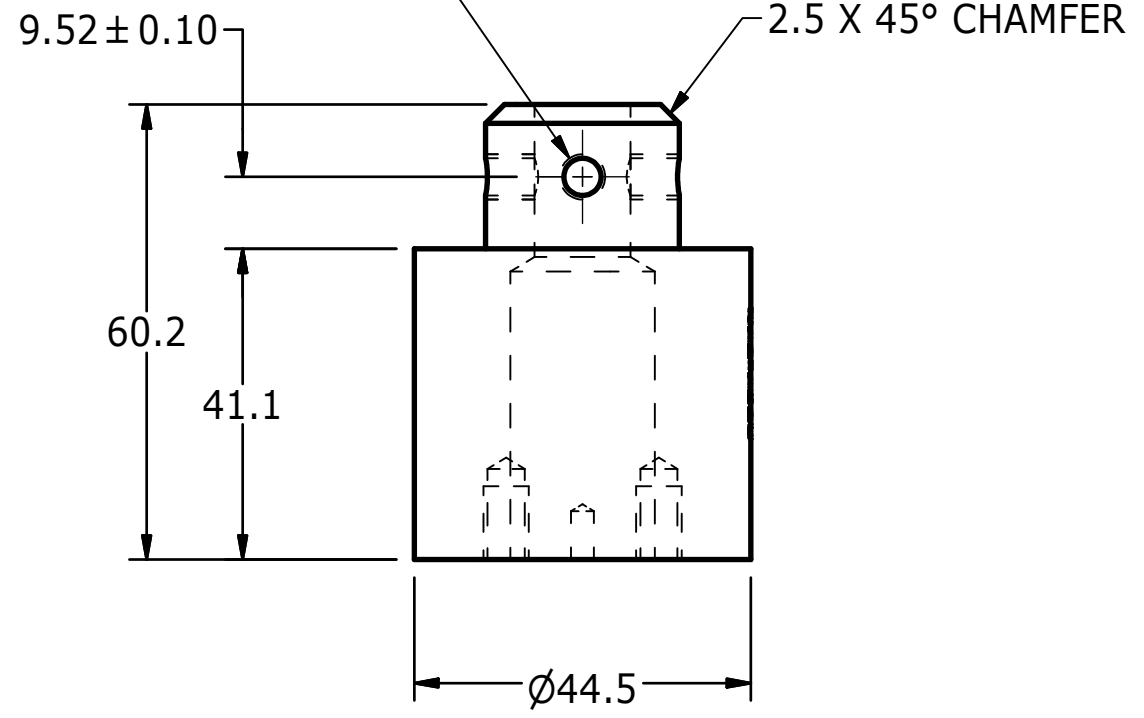
- UNLESS OTHERWISE NOTED:
- BREAK ALL SHARP EDGES
 - BREAK EDGES OF MILLED FLAT AREA TO BLEND WITH TUBE
 - INDICATED SURFACES MUST BE FLAT AND DEBURRED FOR INSTRUMENTATION MOUNTING.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X $\pm .5$ XX $\pm .2$ XXX $\pm .1$ MACHINED ANGLES $\pm .5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 11/20/2008		LOWER TIBIA TUBE THOR M	
MATERIAL Aluminum-7075-T6 HEAT TREAT ENG	APPROVED		SIZE A2 SCALE:	DRAWING NUMBER 472-7311 SHEET 1 OF 1	REV E

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANFGE TO METRIC DIMENSIONING	11/11/2008	BLW
	B	ADDED 3.02 DIA PIN HOLE	7/29/2015	JHC



4X M6x1 ∇ THRU TO BORE
EQUALLY SPACED AS SHOWN



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ∇ 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B.WADE CHECKED ENG APPROVED	DATE 11/20/2008		UPPER TIBIA LOAD CELL BLANK THOR M	
MATERIAL: 1018 STEEL HEAT TREAT: FINISH: .0003 ELECTROLESS NICKEL	THIRD ANGLE PROJECTION		SIZE: B SCALE: 1:1	DRAWING NUMBER: 472-7320 SHEET: 1 OF 1	REV: B

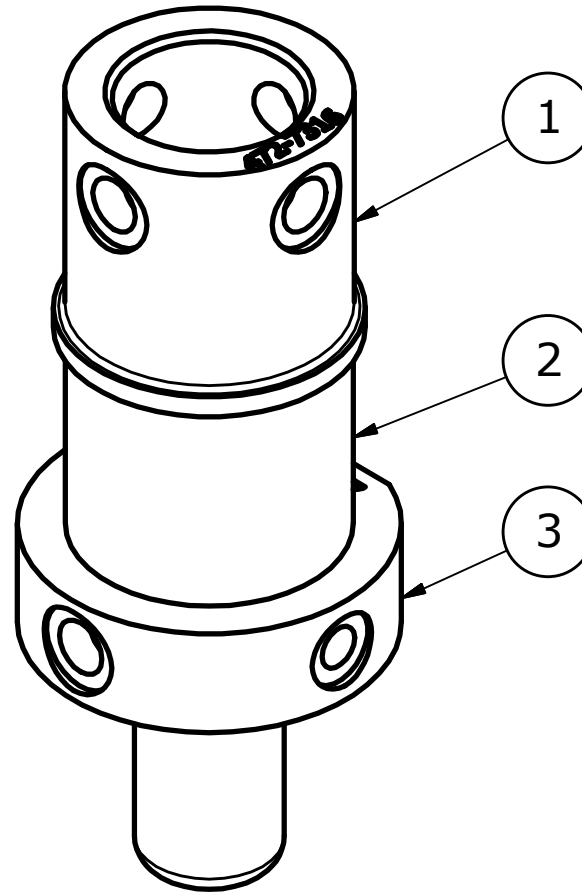
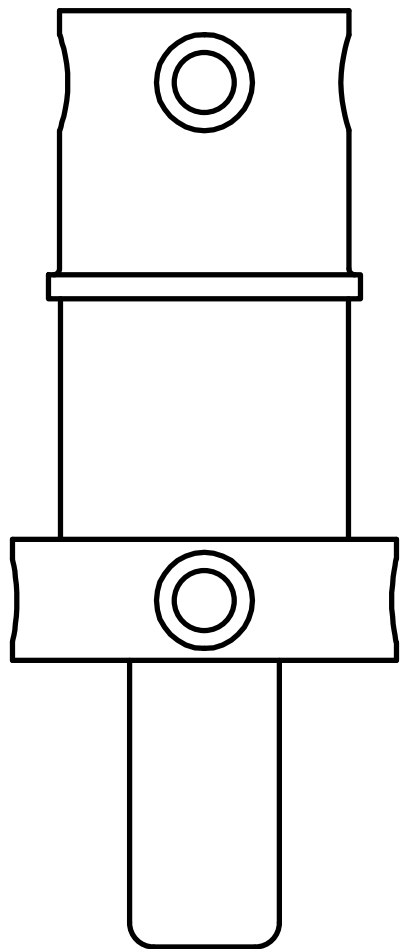
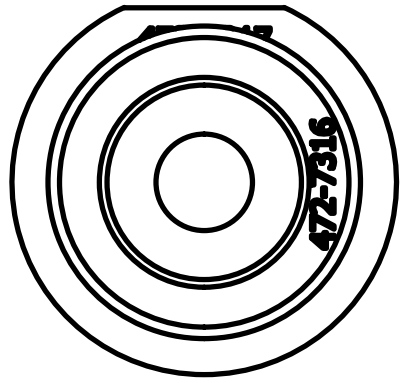
4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW



ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-7317	LOWER FLANGE
2	1	472-7318	BUSHING, COMPLIANT
1	1	472-7316	PLUNGER- COMPLIANT BUSHING

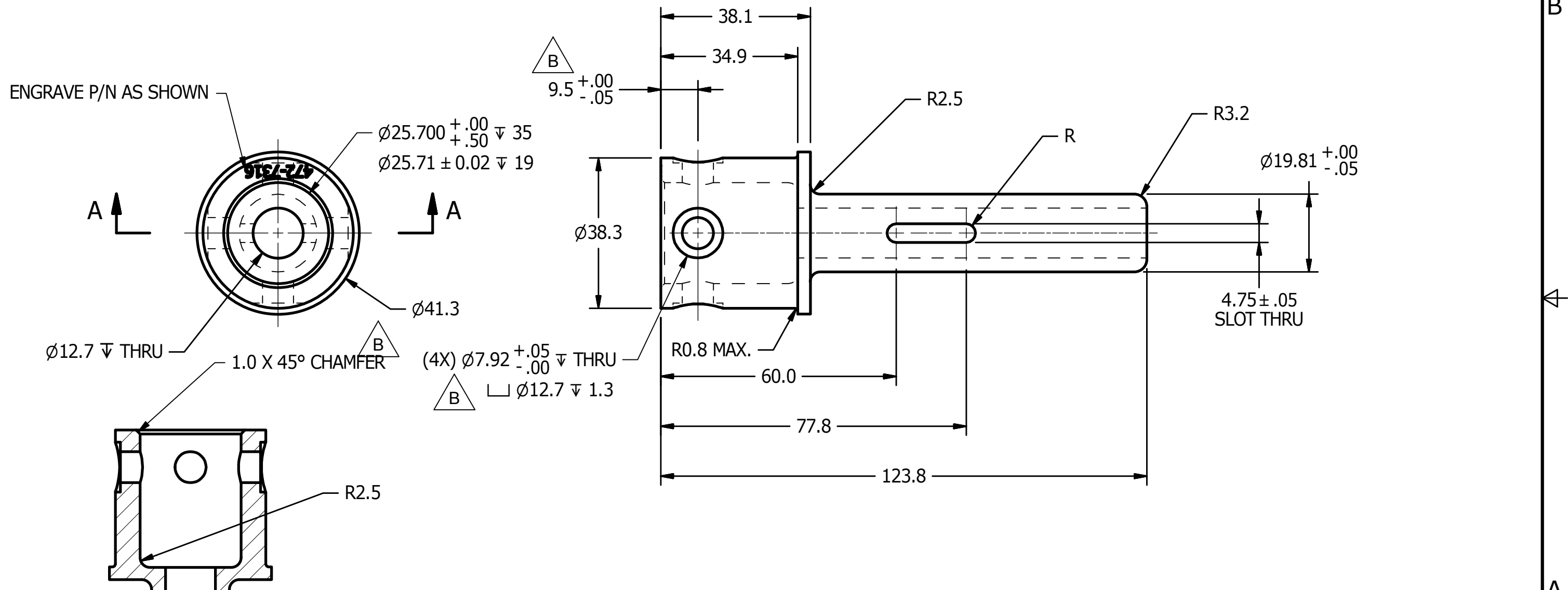
PARTS LIST

UNLESS OTHERWISE SPECIFIED:

1. BREAK ALL SHARP EDGES.
2. BOND ASSEMBLY WITH LORD 305 ADHESIVE, HOLE IN ITEM 1 MUST HAVE SAME ANGULAR ORIENTATION ABOVE CENTER AXIS HOLES IN ITEM 3.
3. METAL AND RUBBER SURFCES MUST BE SANDBLASTED & CLEANED WITH SOLVENT PRIOR TO BONDING
4. CYCLE ASSEMBLY THROUGH TEN 50% COMPRESSION LOADING CYCLES PRIOR TO ASSEMBLY TO LEG.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 11/20/2008 12/12/2008	
MATERIAL HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1	DRAWING NUMBER 472-7315 SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	.188 +/- .002 WAS .188 SLOT	7/25/2008	BLW
E00609	B	.373 +.000/-.002 WAS .375; HOLES WERE .257 THRU C.B. .313 DOWN .220 C.B. .500 DOWN .050; ADDED CHAMFER	8/29/2008	KHS
E00609	C	CHANGED TO METRIC DIMENSIONING	11/20/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED: $\frac{1}{16}$ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 11/20/2008	PLUNGER- COMPLIANT BUSHING THOR M	
MATERIAL: Stainless Steel, 440C HEAT TREAT: Rc 57 +/-5 FINISH: N/A	THIRD ANGLE PROJECTION	SIZE: A3 SCALE: 1:1	DRAWING NUMBER: 472-7316 SHEET: 1 OF 1	REV: C

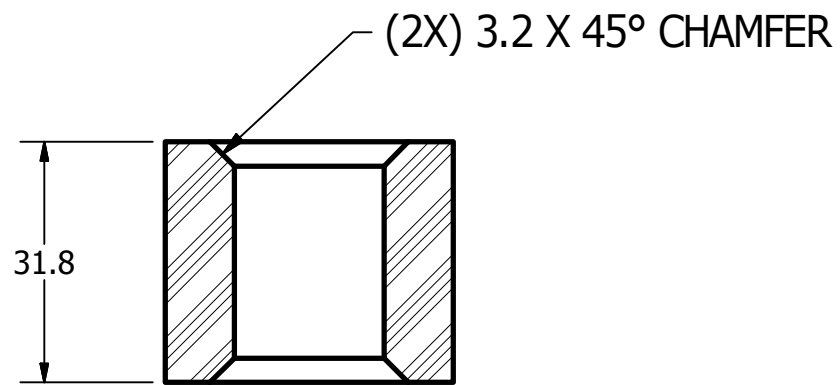
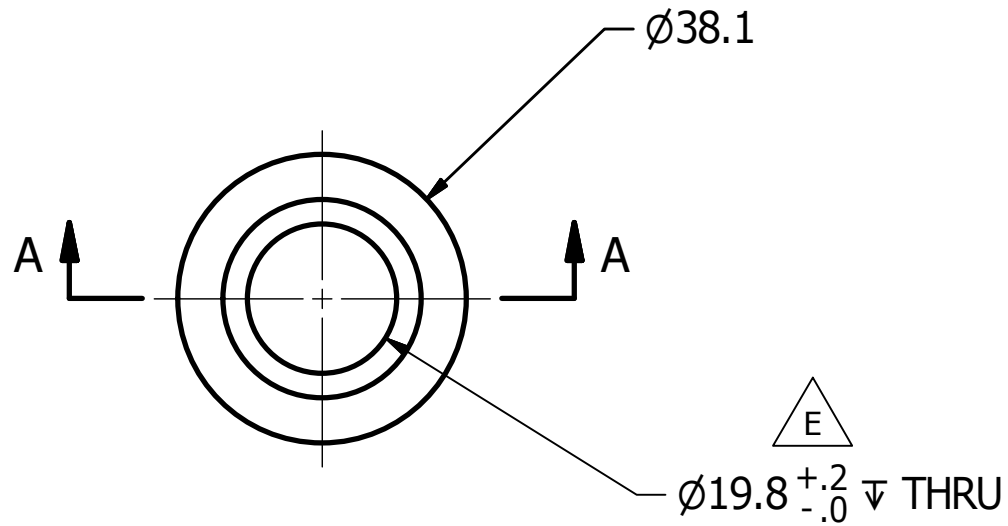
4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	C	REDRAWN IN INVENTOR	7/19/2007	KSG
	D	CHANGED TO METRIC DIMENSIONING	11/20/2008	BLW
	E	DIMENSION WAS Ø19.1 ∇ THRU; REVISED NOTES	7/14/2015	DW



SECTION A-A
SCALE 1 : 1

STATIC COMPRESSION ON TEST RESULTS (0.5 mm/sec)

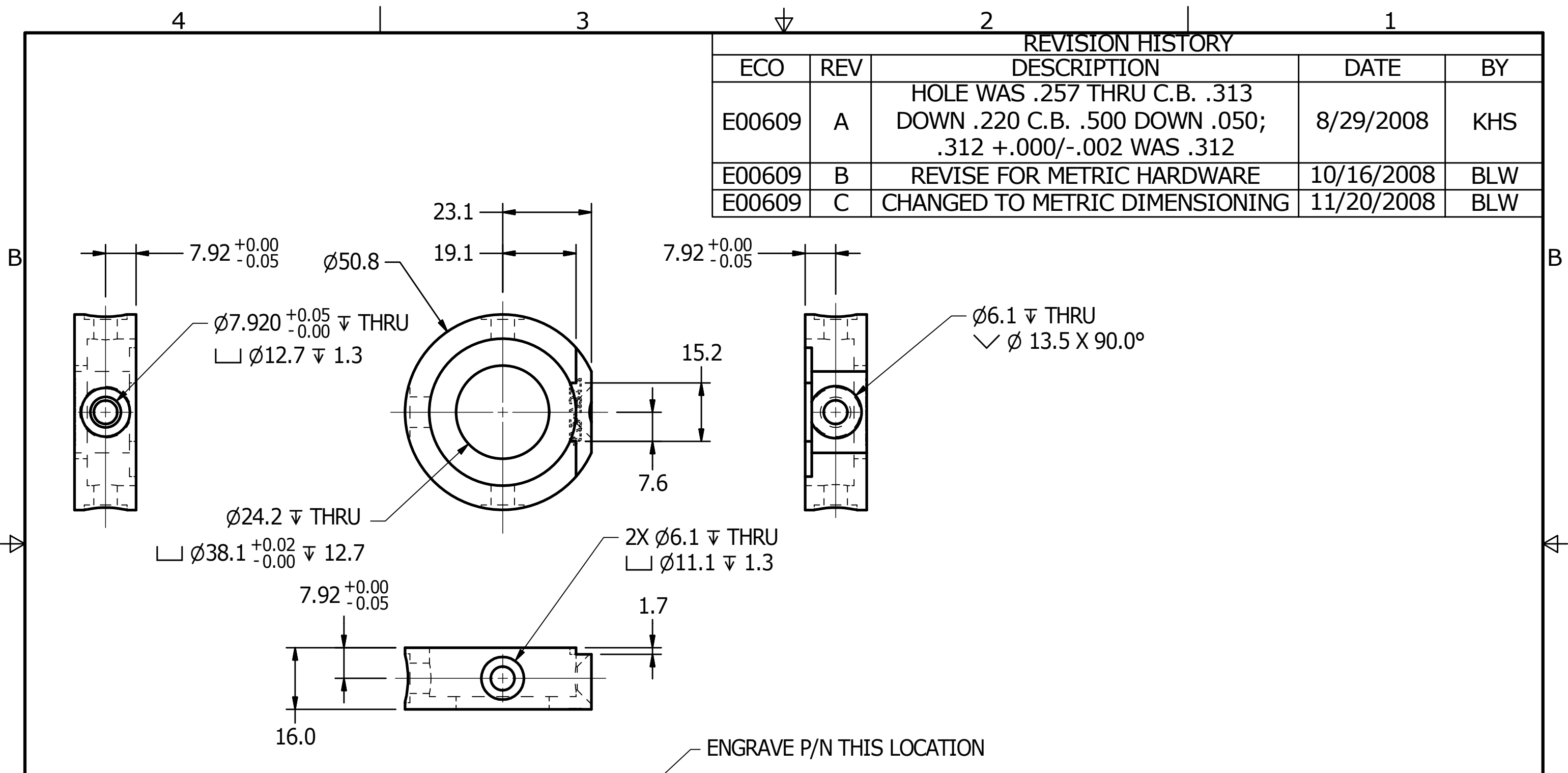
COMPRESSION (mm)	FORCE RANGE (N)
7.9 (25%)	1270-1550
15.9 (50%)	2750-3370

PREFORM (3) BREAK IN TESTS AT 50% COMPRESSION
 FLAT RIGID SURFACES ON BOTH SIDES. ALL TESTING IS 50% COMPRESSION.
 DATA FOR 25% COMPRESSION IS TO BE TAKEN FROM GRAPH OF 50% TESTING.
 A MINIMUM RECOVERY TIME OF 1 HOUR MUST BE ALLOWED BETWEEN TESTS.

- ∇** UNLESS OTHERWISE SPECIFIED:
- BREAK ALL SHARP EDGES
 - MATERIAL: NEOPRENE RUBBER 65 ±3 SHORE A (MEASURED ON CUT END OF CYLINDER)
 - DUROMETER CAN BE SUPERCEDED BY STATIC OR DYNAMIC TEST RESULTS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED ENG APPROVED	DATE 7/14/2015	
MATERIAL SEE NOTE 2 HEAT TREAT FINISH	SIZE A3 SCALE:	DRAWING NUMBER 472-7318 SHEET 1 OF 1	REV E

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	HOLE WAS .257 THRU C.B. .313 DOWN .220 C.B. .500 DOWN .050; .312 +.000/-.002 WAS .312	8/29/2008	KHS
E00609	B	REVISE FOR METRIC HARDWARE	10/16/2008	BLW
E00609	C	CHANGED TO METRIC DIMENSIONING	11/20/2008	BLW



ENGRAVE P/N THIS LOCATION

UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X $\pm .5$ X.X $\pm .2$ X.XX $\pm .1$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 11/20/2008 12/10/2008	LOWER FLANGE THOR M	
MATERIAL Aluminum 6061-T6 HEAT TREAT N/A FINISH BLUE ANODIZE	THIRD ANGLE PROJECTION		SIZE A3 SCALE: 1:1	DRAWING NUMBER 472-7317 SHEET 1 OF 1

4

3

2

1

REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW
8918	B	14.7 WAS 15.2	4/30/2009	BLW
E00609	C	ADD C'BORE, INCREASE HOLE DEPTH	5/1/2009	BLW
9096	D	ADDED CHAMFER	9/21/2009	BLW

Ø12.7 ± 0.02

Ø25.63 ± 0.02

(4X) M6x1 ± THRU TO Ø12.7 BORE EQUALLY SPACED AS SHOWN

2.5 X 45° CHAMFER

ENGRAVE P/N AS SHOWN

9.52 ± 0.10

19.1

41.1

19.1

9.53 ^{+0.00} _{-0.02}

R5.56 ^{+0.07} _{-0.00} THRU AT ANGLE SHOWN IN SECTION A-A

0.8 X 45° CHAMFER

9.5

Ø3.230 ^{+0.02} _{-0.00} ± 14.7
□ Ø6.7 ± 4.6

Ø42.4

Ø19.02 ± 0.02

14.7

45°

(2X) □ Ø4.030 ^{+0.02} _{-0.00} ± 4.7
EQUALLY SPACED ON 30.48 B.C.

(2X) 30°

M3x0.5 ± 5.0

6.3

M3x0.5 ± 9.7

140°

SECTION A-A
SCALE 1:1

UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ↓ ANGLES ±.5°
--	---------------------------------

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL 1018 STEEL	CHECKED TMV	DATE 9/22/2009
HEAT TREAT N/A	ENG	
FINISH .0003 ELECTROLESS NICKEL	APPROVED	

VEHICLE RESEARCH
and TEST CENTER

APPROVALS DATE
DRAWN B. WADE 11/20/2008

CHECKED
ENG

APPROVED



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

LOWER TIBIA LOAD CELL BLANK
THOR M

SIZE DRAWING NUMBER REV
A2 472-7325 D

SCALE: 1:1 SHEET 1 OF 1

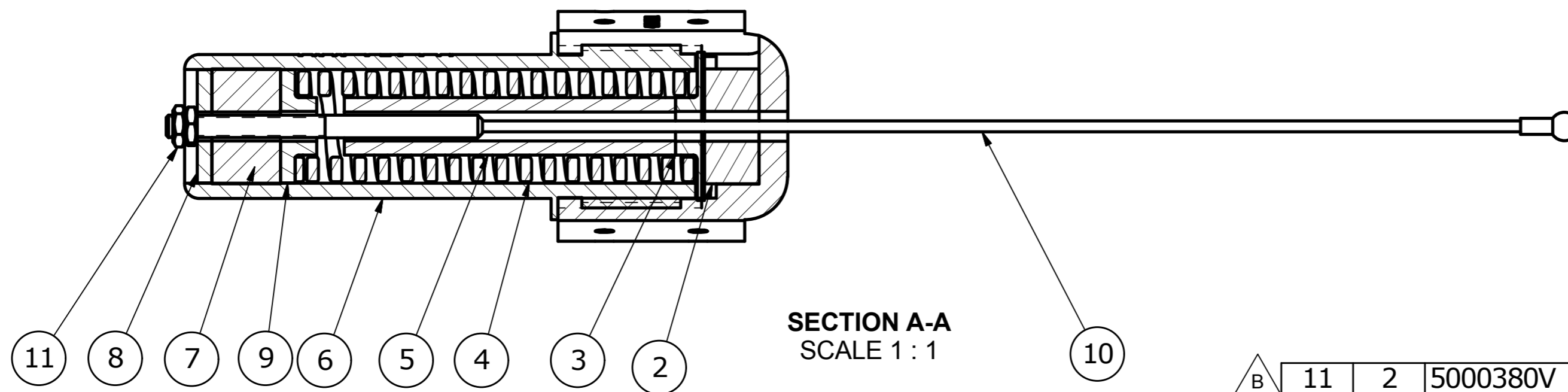
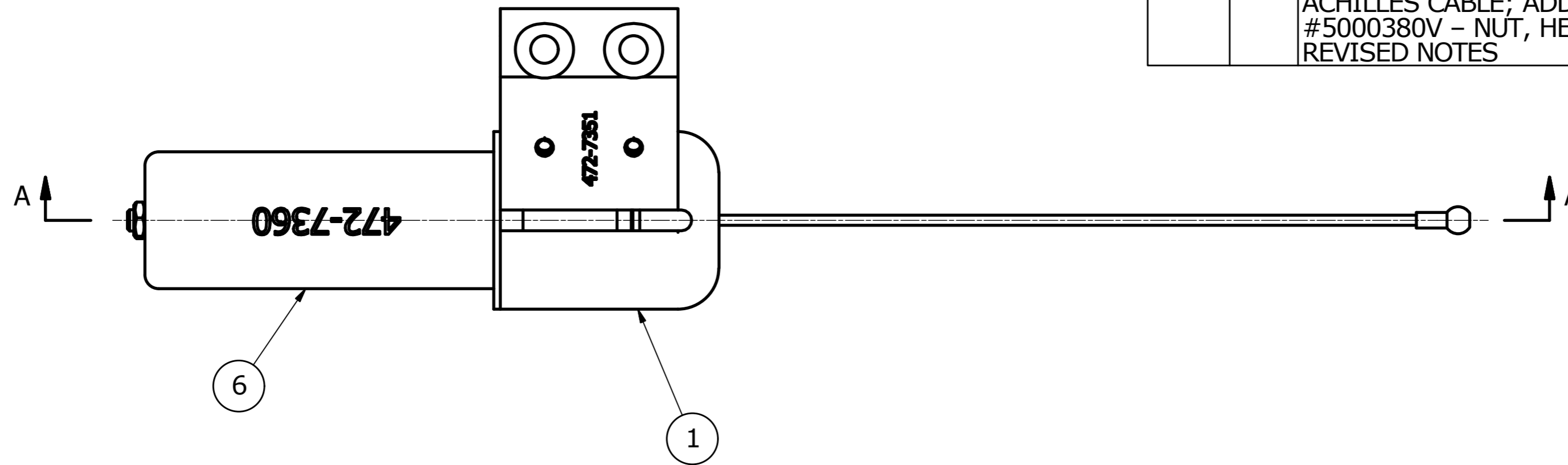
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANGED TO METRIC DIMENSIONING	11/21/2008	BLW
	B	REMOVED PART #9010447 - SCREW, SET M3 X 0.5 X 3, AND PART #472-7353 - RETAINING NUT, ACHILLES CABLE; ADDED PART #5000380V - NUT, HEX JAM M5; REVISED NOTES	7/14/2015	DW



SECTION A-A
SCALE 1:1

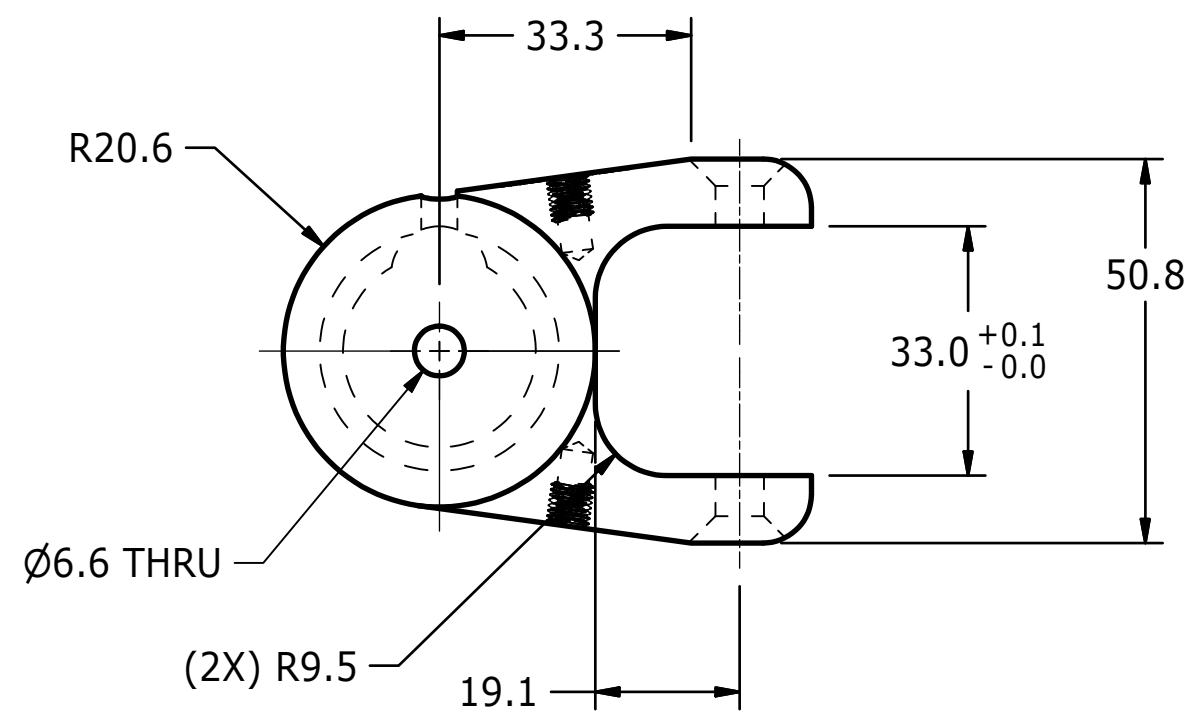
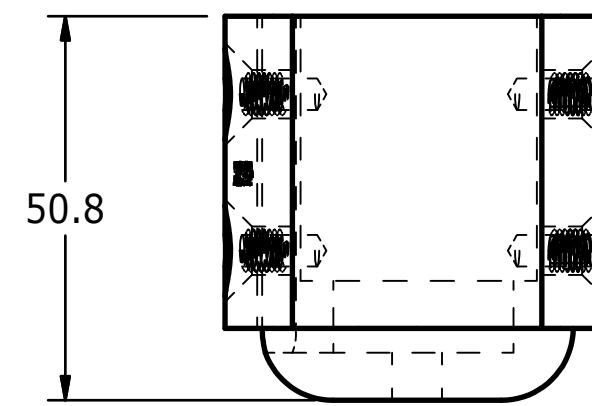
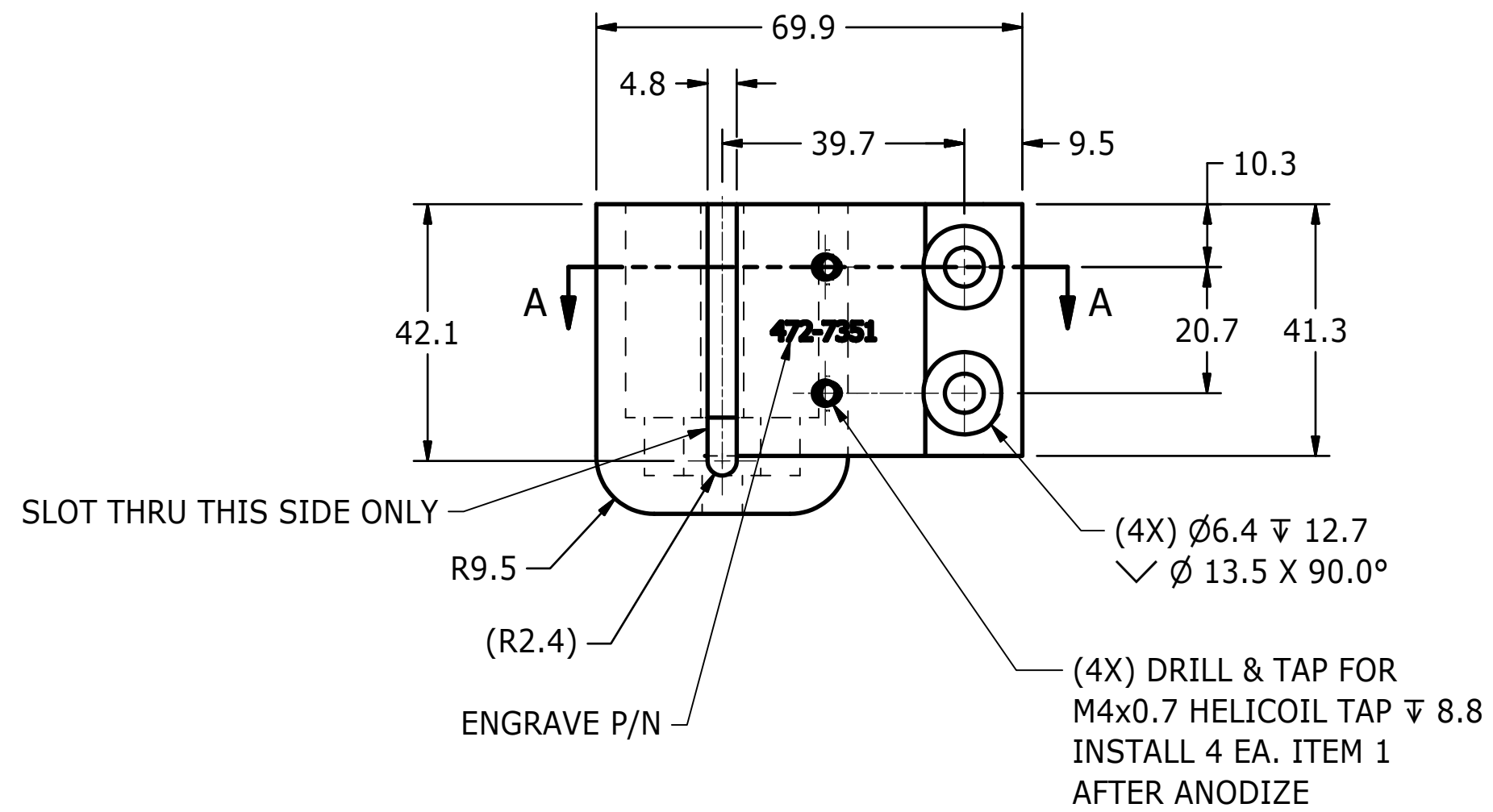
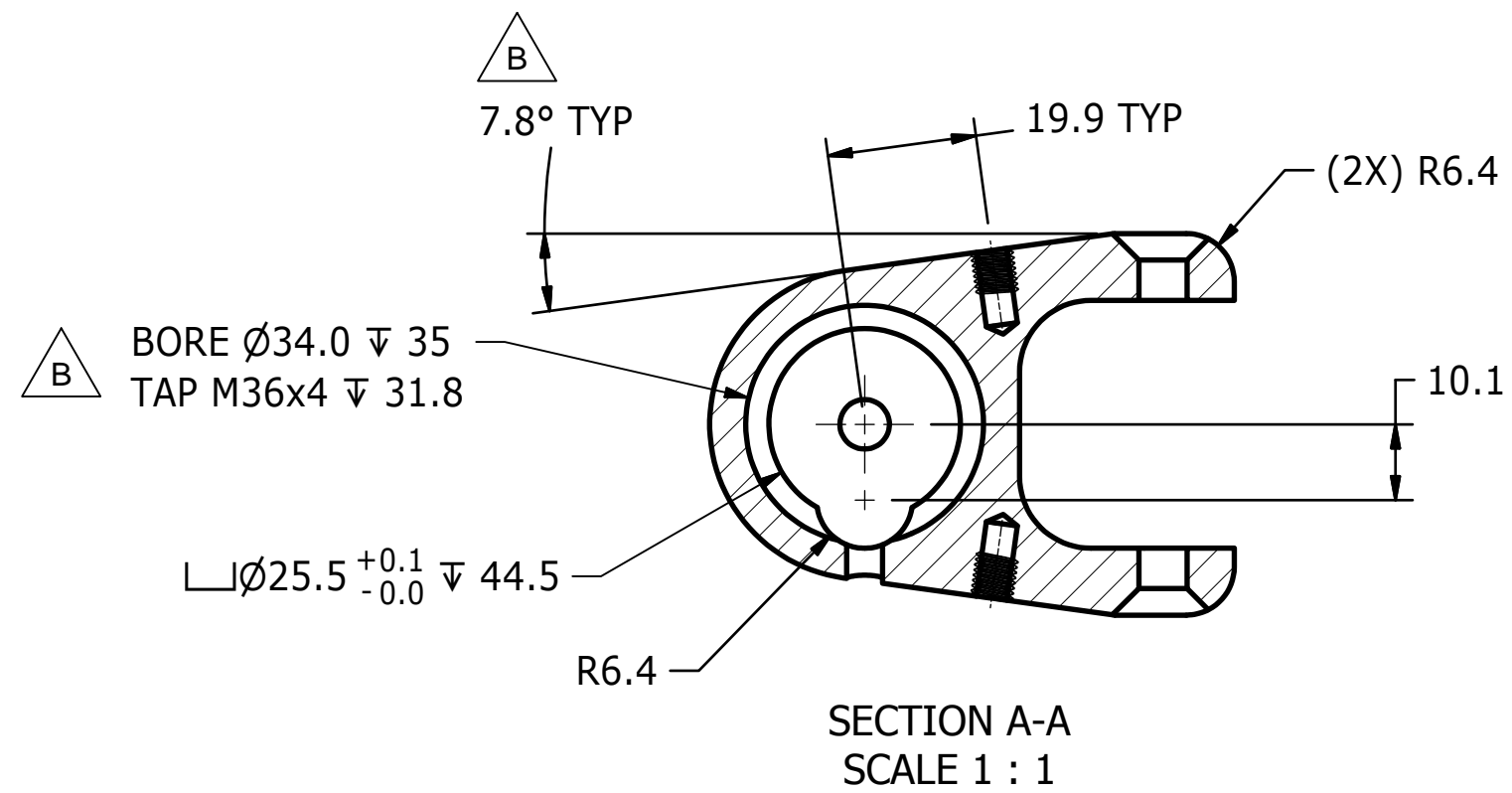
ITEM	QTY	PART NUMBER	DESCRIPTION
11	2	5000380V	NUT, HEX JAM M5
10	1	472-7352	ACHILLES CABLE ASSEMBLY
9	1	472-7355	SPRING CAP, ACHILLES
8	1	472-7354	WASHER, ACHILLES PRIMARY
7	1	472-7358	FOAM COMPRESSION ELEMENT
6	1	472-7360	TUBE, ACHILLES SPRING
5	1	472-7357	ELASTOMERIC SPRING ELEMENT
4	1	9000540	COMPRESSION SPRING
3	1	472-7356	SPRING BASE CAP, ACHILLES
2	1	472-7359	ACHILLES LOAD CELL BLANK
1	1	472-7351	TUBE BASE, ACHILLES SPRING

PARTS LIST

- UNLESS OTHERWISE SPECIFIED:**
- ADJUST NUT AS DESCRIBED IN THOR-LX/HYBRID III VERSION 2.0 USER'S MANUAL
 - SPRING RATE LISTED AT NOMINAL 24 N/mm
NOMINAL SPRING RATE IS SUPERCEDED BY STATIC TESTING REQUIERMENTS:
SPRING RATE: 25.0 ±1.3 N/mm
MAX DEFLECTION TO SOLID HEIGHT MUST EXCEED 46 mm.

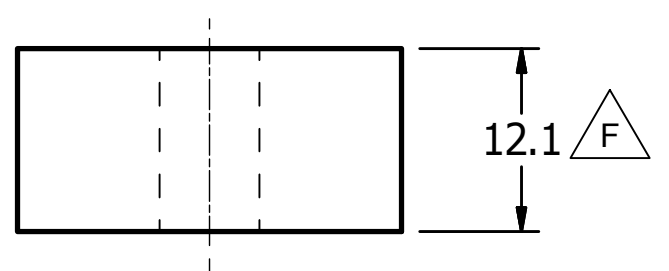
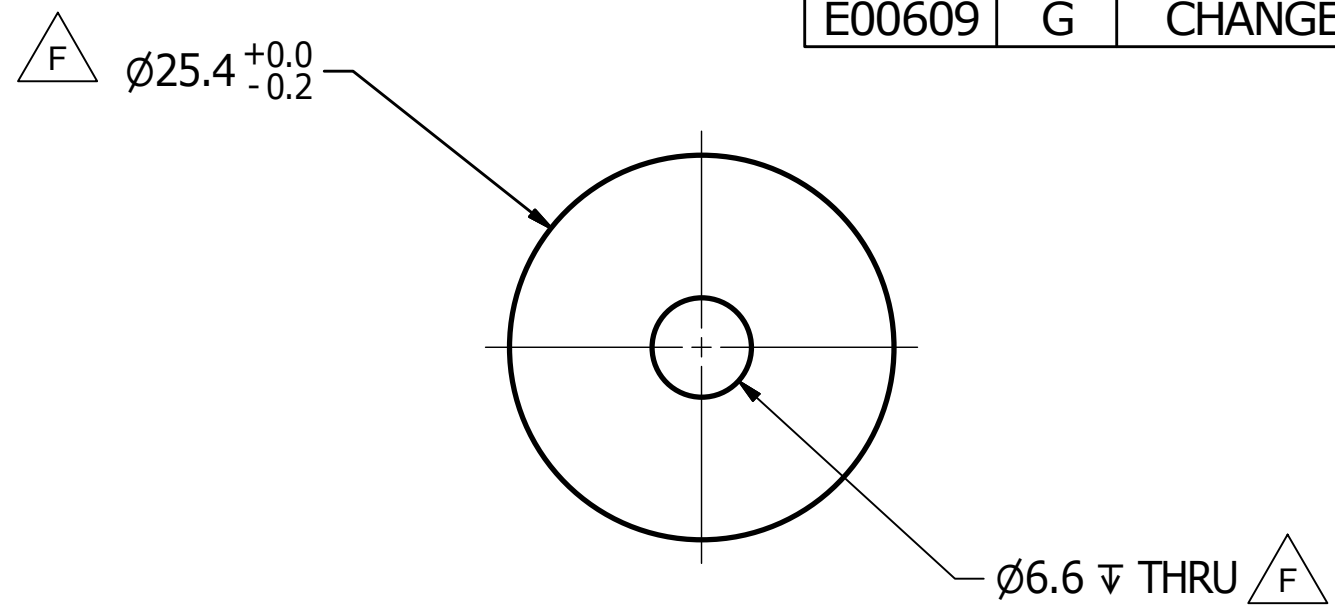
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5 .XX ±.2 X.XX ±.1 <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED	DATE 11/21/2008	
MATERIAL HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A2 SCALE:
		DRAWING NUMBER 472-7350	REV B
		SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC DIMENSIONING	11/21/2008	BLW
	B	M36X2 WAS M36X4, CORRECTED ANGLE DIM WAS 8.1°	7/20/2015	JHC



ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	9009073	M4 x .7 x 6mm HELICOIL
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
MATERIAL: 7075-T6 ALUMINUM HEAT TREAT:		APPROVALS: DRAWN: B WADE CHECKED:	DATE: 11/21/2008
FINISH: BLUE ANODIZE		APPROVED:	
THIRD ANGLE PROJECTION		SIZE: C SCALE: FULL	DRAWING NUMBER: 472-7351 REV: B
		SHEET: 1	OF 1

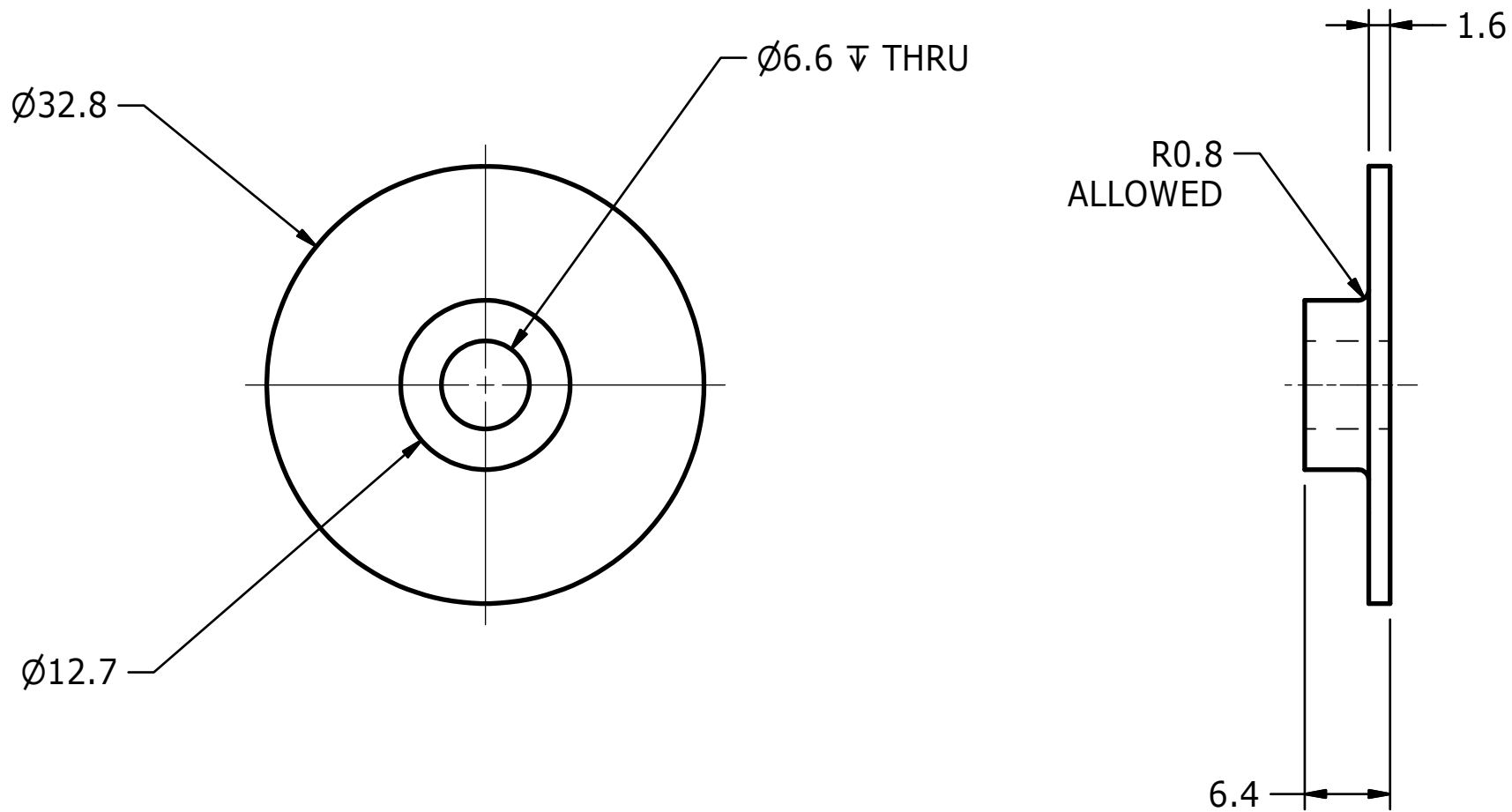
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	E	REDRAWN IN INVENTOR	7/19/2007	KSG
8288	F	1.000 WAS .850, .261 WAS .25, .475 WAS .350	6/26/2008	TF
E00609	G	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW




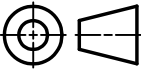
UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED		DATE 12/1/2008 12/10/2008	
MATERIAL Aluminum 6061-T6 HEAT TREAT N/A FINISH BLUE ANODIZE	ACHILLES LOAD CELL BLANK THOR M		SIZE A3	DRAWING NUMBER 472-7359 SHEET 1 OF 1
THIRD ANGLE PROJECTION			REV G	REV G

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/19/2007	KSG
8292	C	.261 WAS .250	6/17/2008	TF
E00609	D	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 10/19/2007 12/10/2008	SPRING BASE CAP, ACHILLES THOR M	
MATERIAL Stainless Steel, 440C HEAT TREAT 57 +/- Rc FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7356	REV D
		SCALE: 2:1	SHEET 1 OF 1	

4

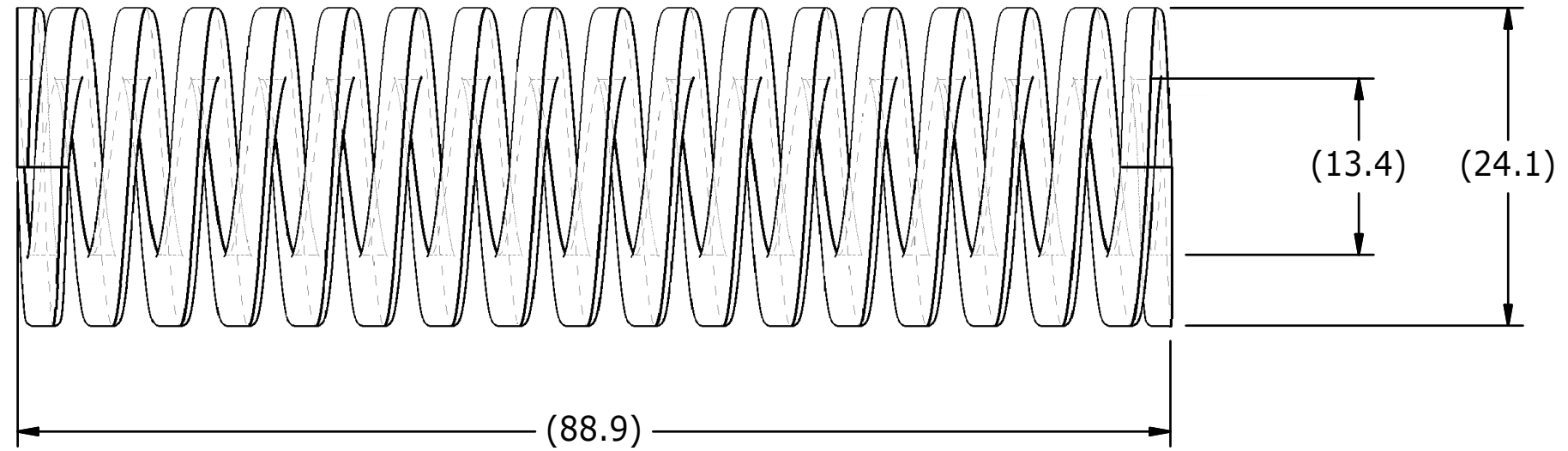
3

2

1

B

B



SPRING RATE: 24 N/mm

UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	1.6
X.X ±.2	ANGLES
X.XX ±.1	±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL	Steel
HEAT TREAT	N/A
FINISH	N/A

VEHICLE RESEARCH
and TEST CENTER

APPROVALS

DATE

DRAWN

B. WADE

1/9/2009

CHECKED

ENG

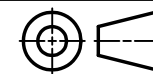
APPROVED



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

COMPRESSION SPRING

THOR-M



THIRD ANGLE
PROJECTION

SIZE
A3

DRAWING NUMBER

9000540

REV

SCALE:

SHEET

1 OF 1

4

3

2

1

A

A

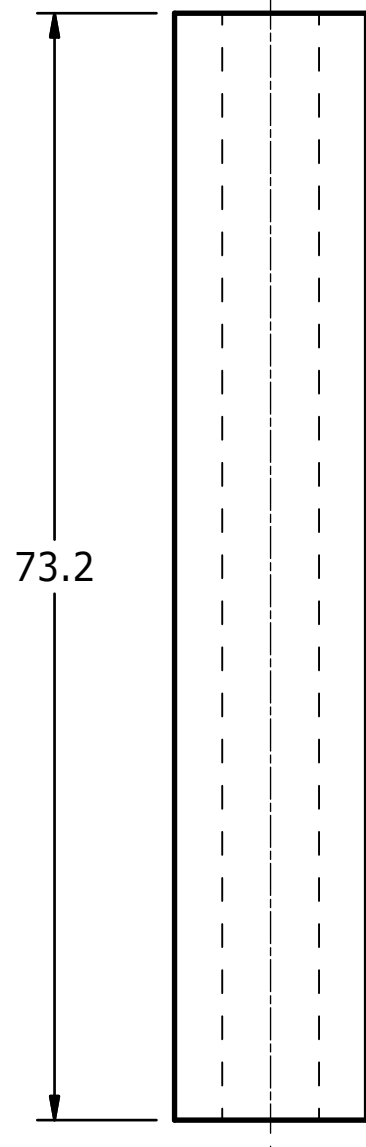
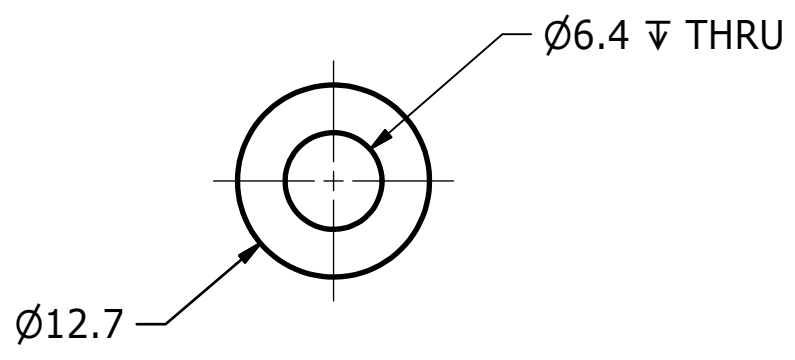
4

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2



1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/19/2007	KSG
E00609	C	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EGES.

MATERIAL: BUNA-N/SBR RUBBER HOSE (1/2" OD X 1/4" ID)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
DRAWN B. WADE	12/1/2008	 THIRD ANGLE PROJECTION	
CHECKED TMV	12/10/2008		SIZE: A3 SCALE: 2:1
MATERIAL SEE ABOVE	HEAT TREAT N/A	FINISH N/A	DRAWING NUMBER: 472-7357 SHEET: 1 OF 1 REV: C

B

B

A

A

4

3

2

1

4

3

2

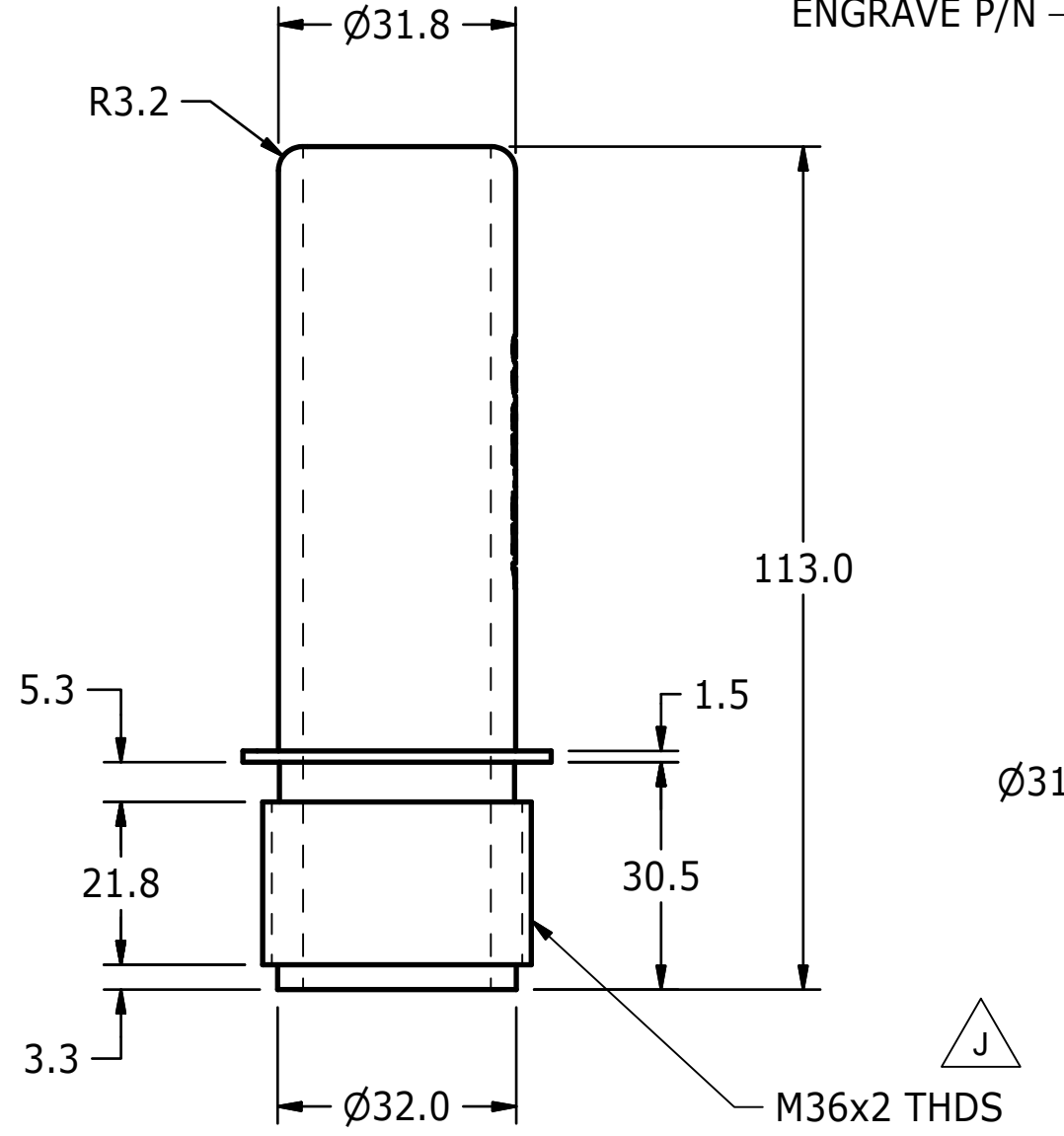
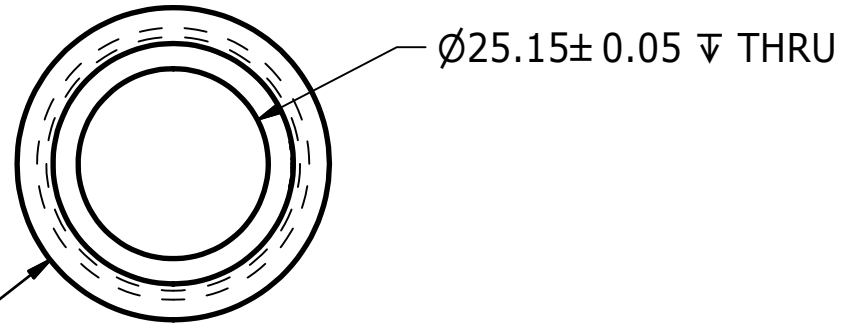
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B

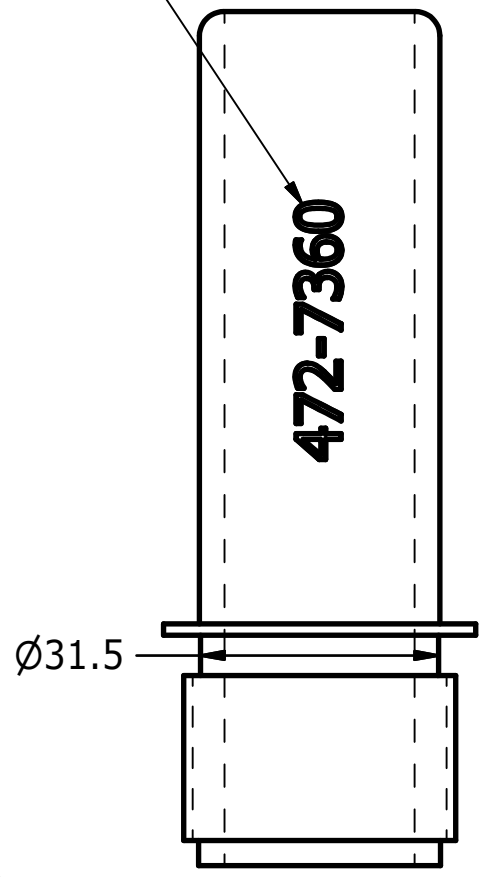
B

A

A



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	F	REDRAWN IN INVENTOR	7/19/2007	KSG
	G	REDRAWN TO PREVIOUS NHTSA REVISION	6/16/2008	TF
	H	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW
	J	M36x2 WAS M36 X 4	7/20/2015	JHC



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED: 1.6, ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
DRAWN B. WADE	12/1/2009	SIZE: B	
CHECKED		DRAWING NUMBER: 472-7360	
MATERIAL Aluminum 6061-T6	ENG		REV: J
HEAT TREAT	APPROVED		SCALE: FULL
FINISH BLUE ANODIZE			SHEET: 1 OF 1

4

3

2

1

4

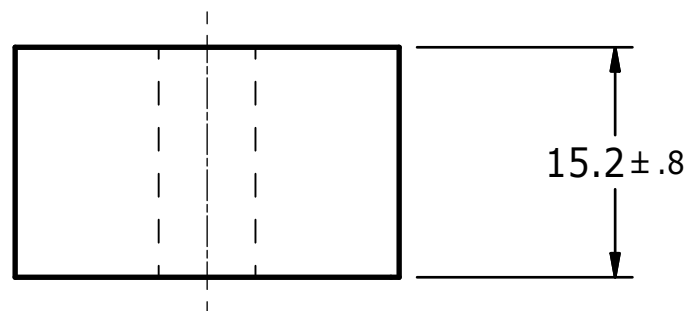
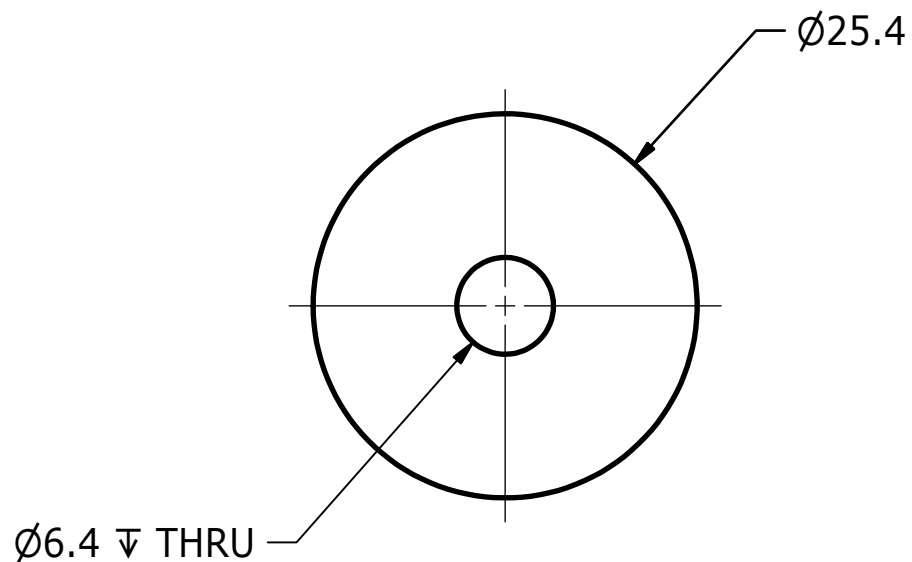
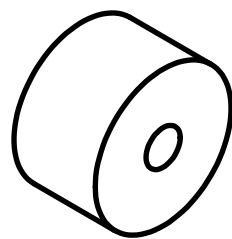
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2

1

REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00690	C	REDRAWN IN INVENTOR	7/9/2007	KSG
8290	D	ADDED +/- .03	6/7/2008	TF
E06009	E	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	±.5
X.X ±.2	±.2
X.XX ±.1	±.1
	ANGLES
	±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL	POLYURETHANE FOAM
HEAT TREAT	N/A
FINISH	N/A

VEHICLE RESEARCH
and TEST CENTER

APPROVALS

DATE

DRAWN

B. WADE

12/1/2008

CHECKED

TMV

12/10/2008

ENG

APPROVED



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

FOAM COMPRESSION ELEMENT

THOR M



THIRD ANGLE
PROJECTION

SIZE
A3

SCALE:
2:1

DRAWING NUMBER

472-7358

REV

E

SHEET

1 OF 1

4

3

2

1

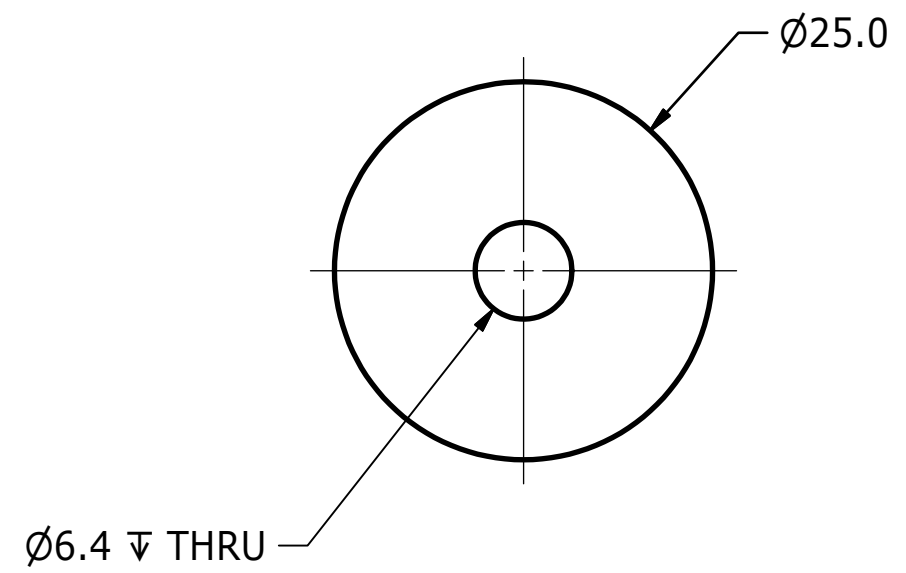
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/19/2007	KSG
E00609	B	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW

B

B

A

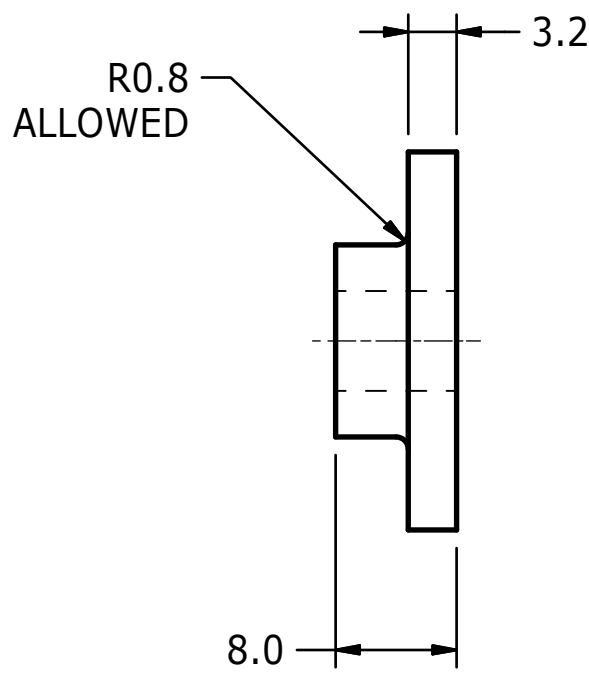
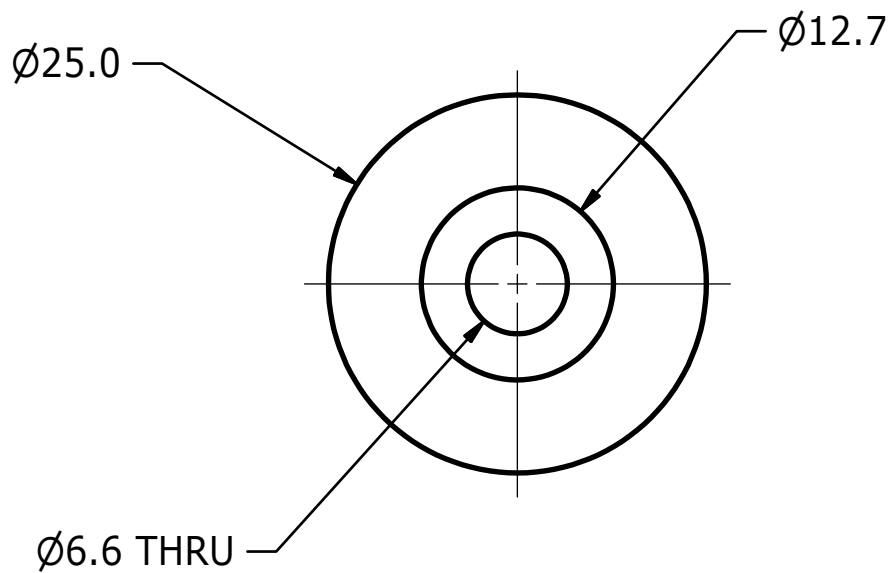
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UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 12/1/2008		WASHER, ACHILLES PRIMARY THOR M	
MATERIAL Delrin, White HEAT TREAT N/A FINISH N/A	ENG APPROVED		SIZE A3		
			THIRD ANGLE PROJECTION	SCALE: 2:1	SHEET 1 OF 1

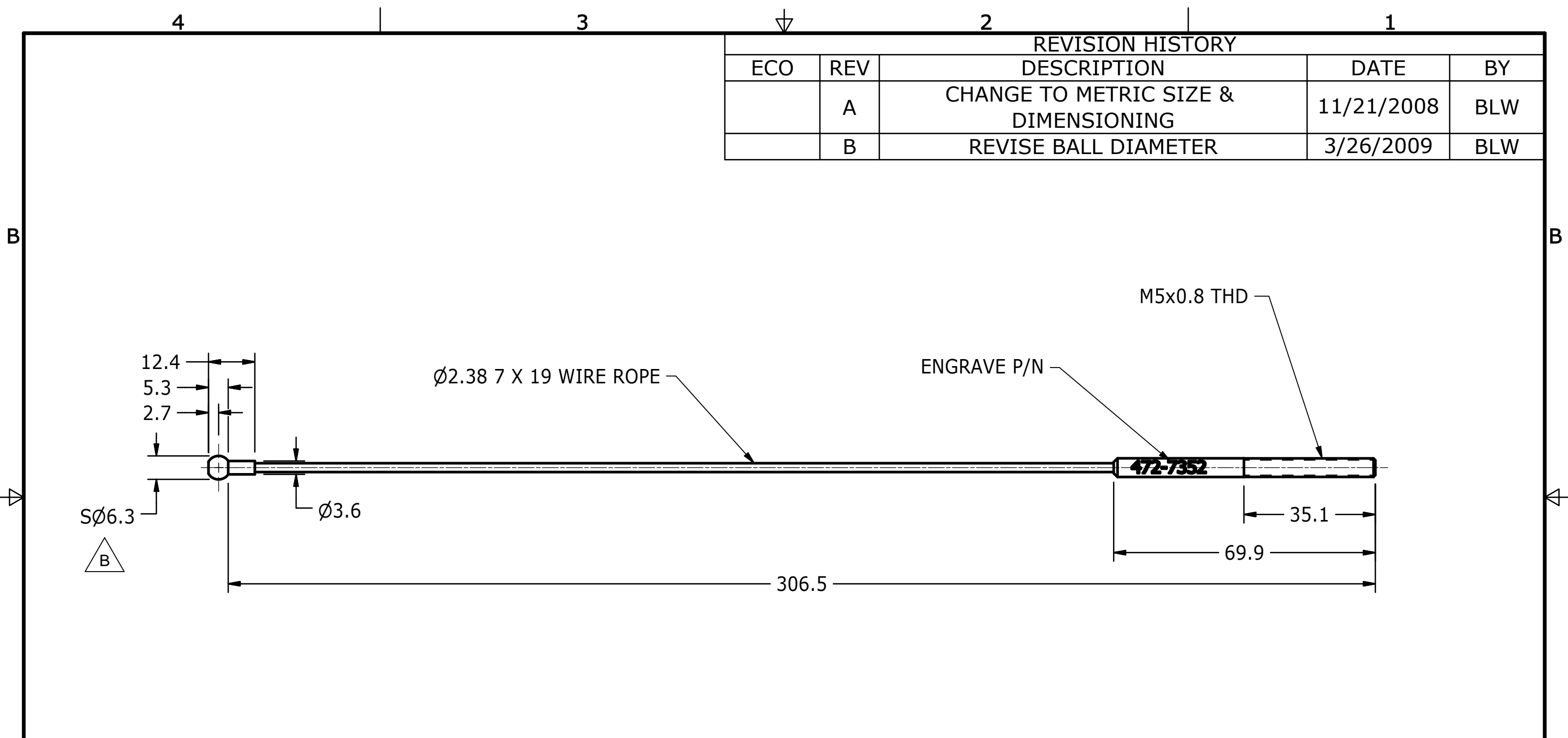
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/19/2007	KSG
E00609	B	CHANGE TO METRIC DIMENSIONS	12/1/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

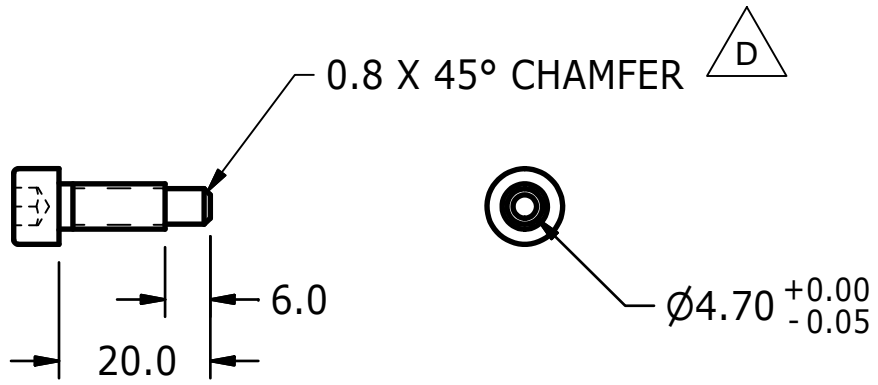
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/1/2008 12/11/2008	SPRING CAP, ACHILLES THOR M	
MATERIAL Delrin, White HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7355	REV B
		SCALE: 2:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC SIZE & DIMENSIONING	11/21/2008	BLW
	B	REVISE BALL DIAMETER	3/26/2009	BLW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			
	APPROVALS		DATE	
	DRAWN B. WADE		11/21/2008	
	CHECKED			
MATERIAL	ENG	ACHILLES CABLE ASSEMBLY THOR M		
HEAT TREAT	APPROVED			
FINISH	APPROVED		SIZE: B	DRAWING NUMBER: 472-7352
		SCALE:	SHEET	REV: B 1 OF 1

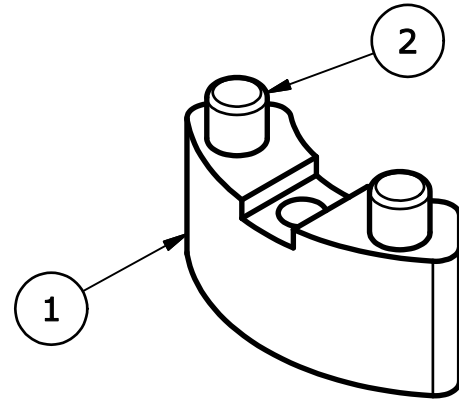
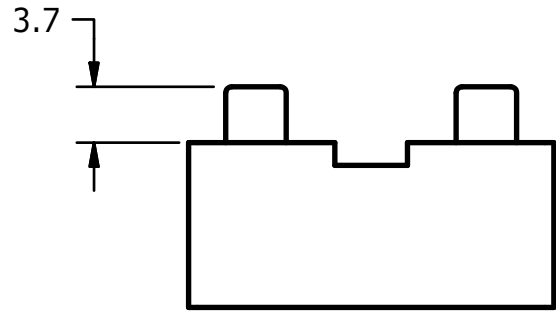
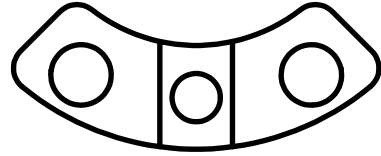
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	.185 +.000/-.002 WAS .186	7/25/2008	KHS
	B	CHANGE TO METRIC HARDWARE	10/10/2008	BLW
	C	CHANGE TO METRIC DIMENSIONING	11/21/2008	BLW
	D	ADD MISSING DIMENSION	7/21/2015	JHC



NOTE: MAKE FROM M6X1.0 X 20mm SHCS

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5, X.X ±.2, X.XX ±.1</p> <p>MACHINED ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>		
	APPROVALS	DATE	<p>PLUNGER RETAINING BOLT</p> <p>THOR M</p>		
	DRAWN B. WADE	11/21/2008			
	CHECKED		<p>THIRD ANGLE PROJECTION</p>	SIZE A	DRAWING NUMBER 472-7335
HEAT TREAT	ENG	SCALE:		SHEET 1 OF 1	
FINISH	APPROVED				

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW
	B	PIN LENGTH DESCRIPTION WAS 18mm	7/21/2015	JHC

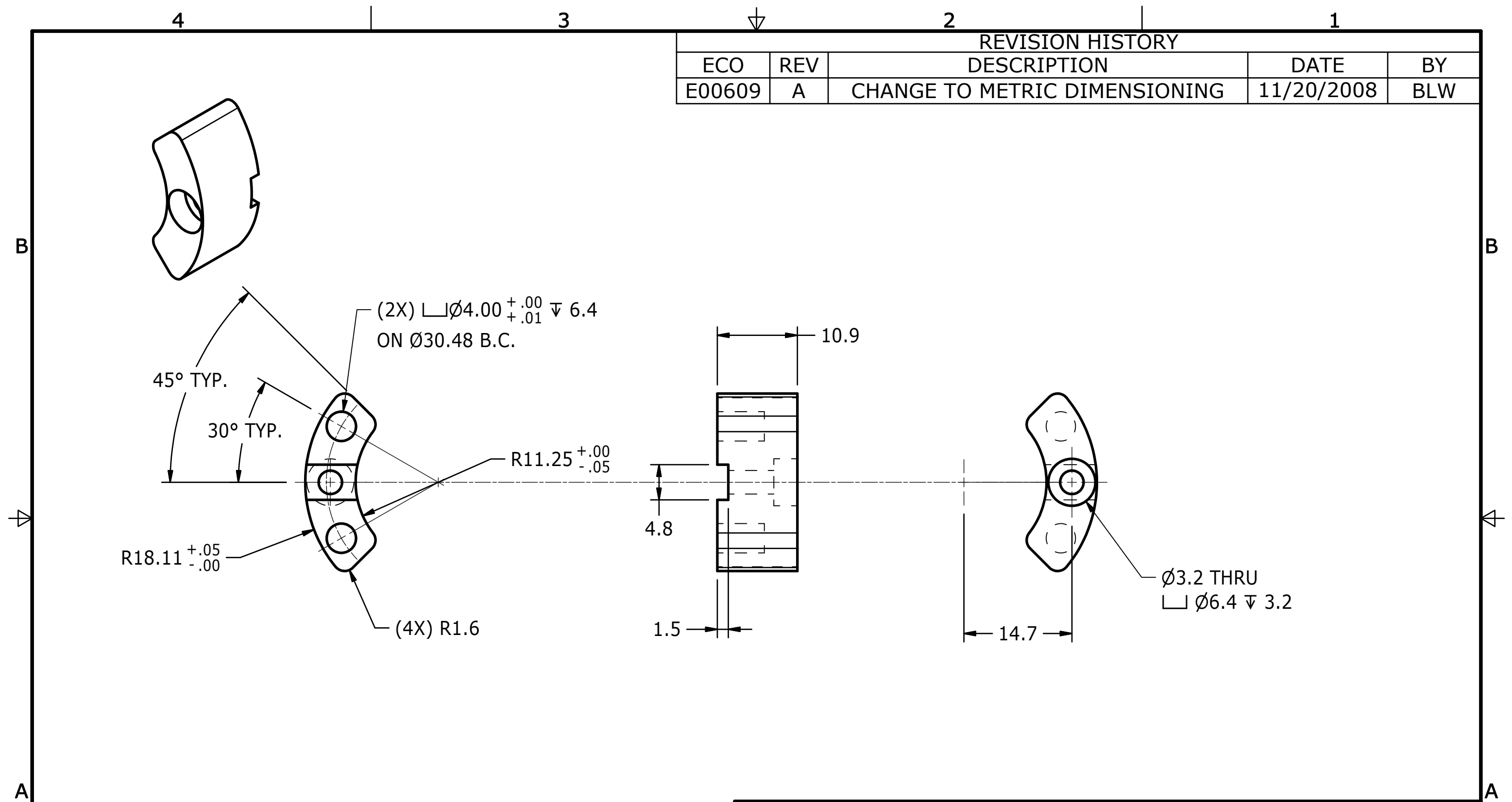


ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	9010459	DOWEL PIN, 4mm X 10mm
1	1	472-7331	Z ROTATION WEDGE



PARTS LIST

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5 X.X ±.2 X.XX ±.1</p> <p>MACHINED 1.6- ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
	APPROVALS	DATE	<p>Z ROTATION WEDGE ASSY</p> <p>THOR M</p>	
	DRAWN B. WADE	11/20/2008		
	CHECKED			
MATERIAL	ENG	<p>THIRD ANGLE PROJECTION</p>	<p>SIZE: A</p>	<p>DRAWING NUMBER: 472-7330</p>
HEAT TREAT	APPROVED		<p>SCALE: 2:1</p>	<p>REV: B</p>
FINISH			<p>SHEET 1 OF 1</p>	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 11/20/2008 12/11/2008	Z ROTATION WEDGE THOR M  THIRD ANGLE PROJECTION	
MATERIAL Alum. Bronze HEAT TREAT FINISH	SIZE A3 SCALE:	DRAWING NUMBER 472-7331 SHEET		

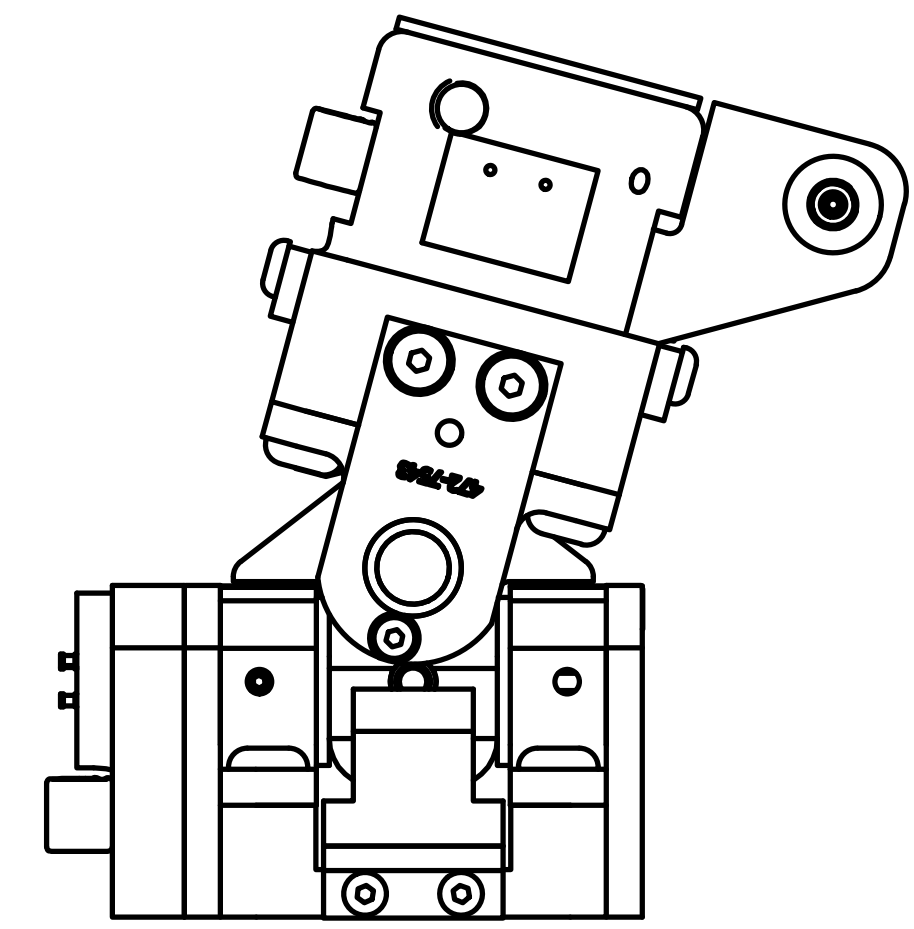
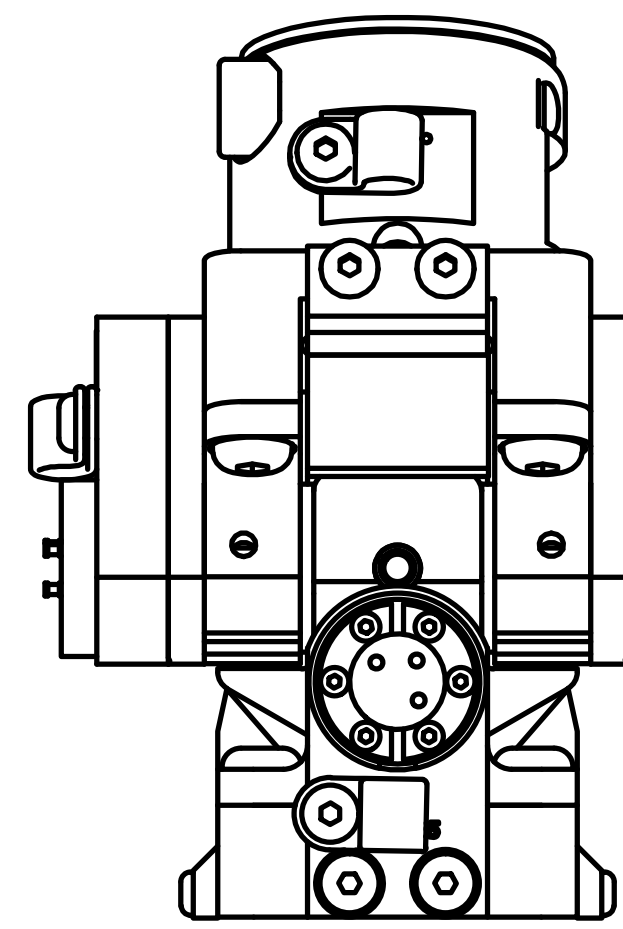
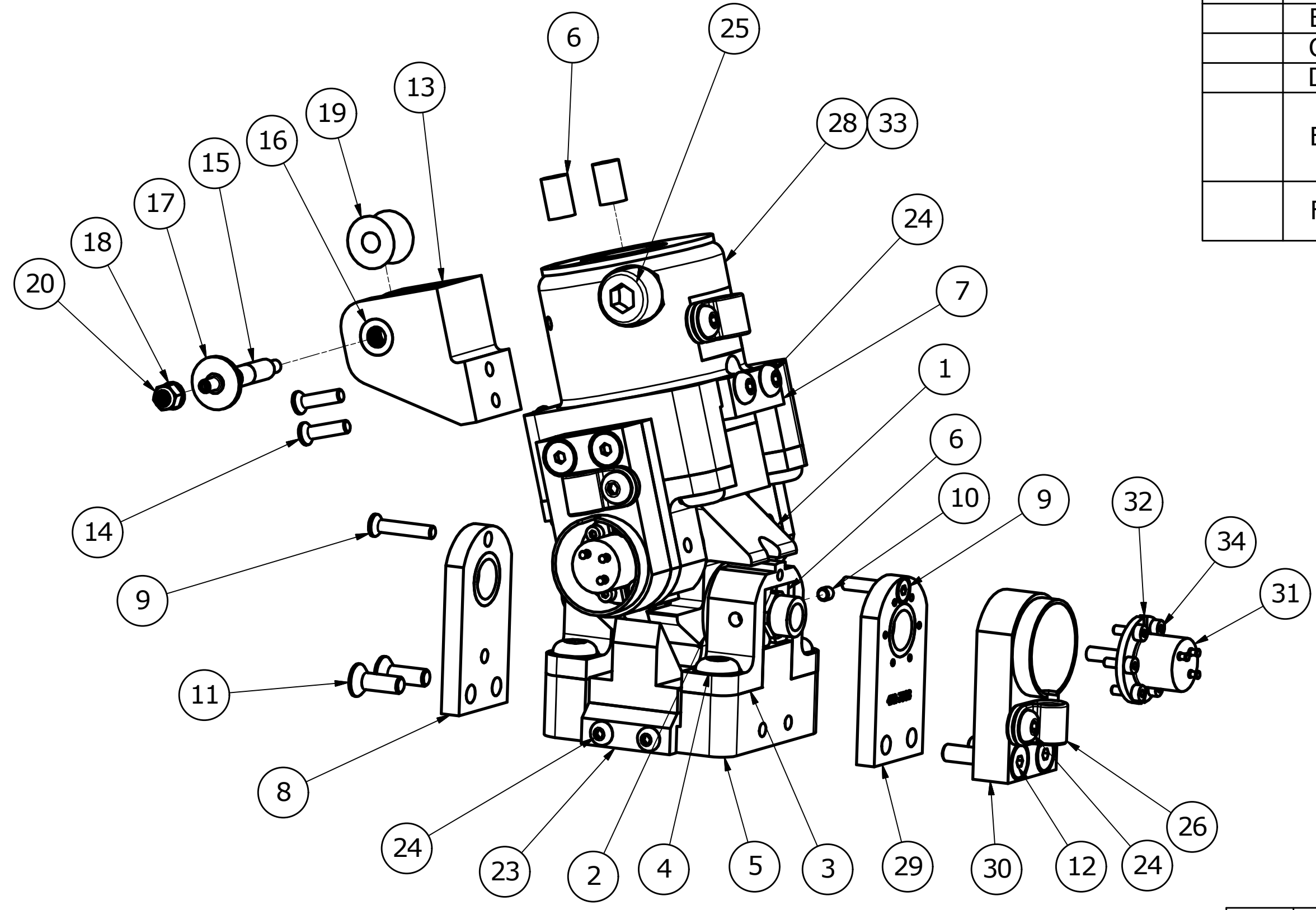
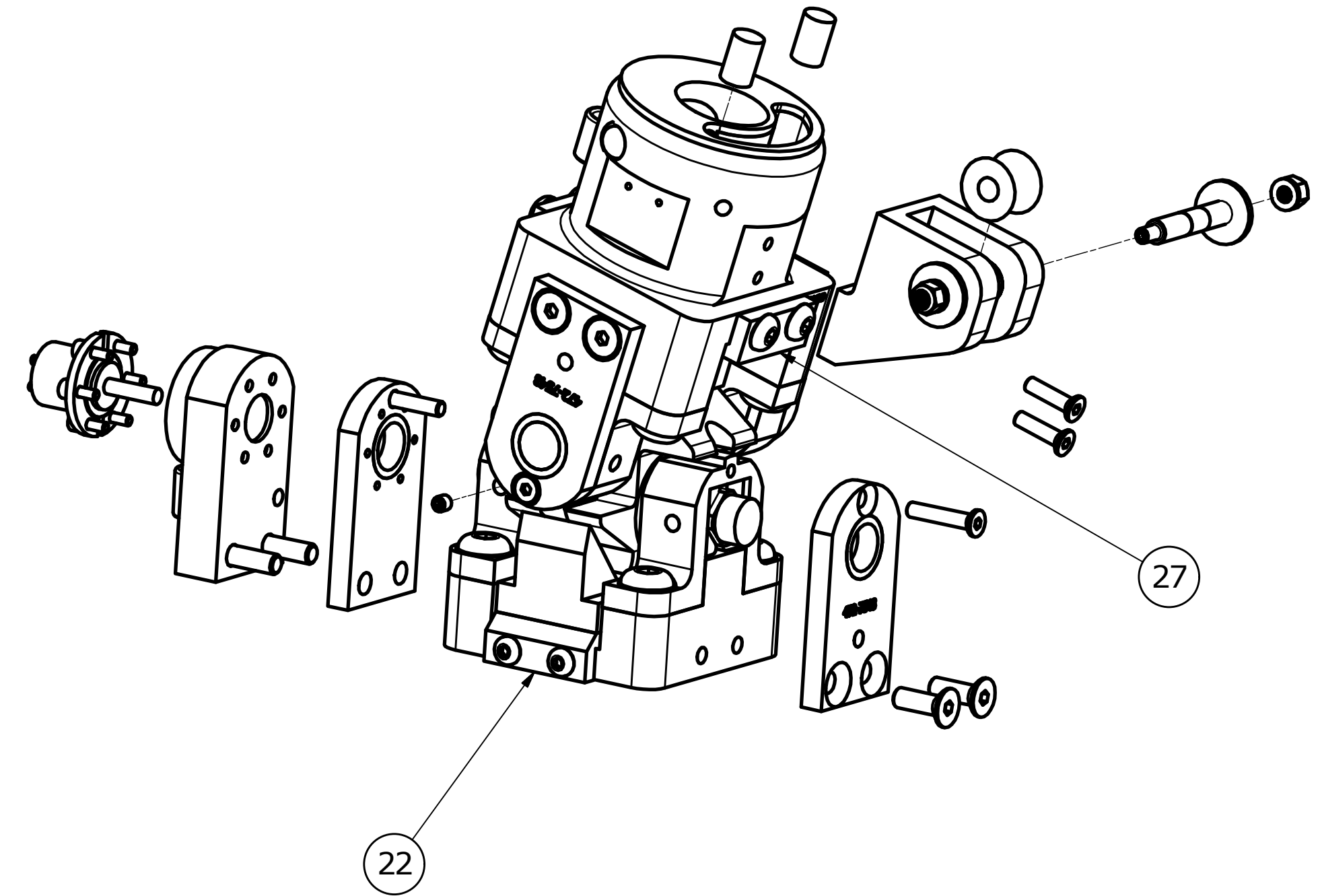
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	B	REDRAWN IN INVENTOR	7/25/2007	KSG
	C	CHANGE TO METRIC HARDWARE	10/14/08	BLW
	D	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW
	E	QTY OF ITEM 7 WAS 2, ADD ITEM 27, REDESIGN POT MOUNTING, POT PART NUMBER WAS 472-7550	7/27/2015	JHC
	F	DESCRIPTION OF ITEM 27 WAS STOP ASSEMBLY, REAR DORSI	3/22/2016	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
34	12	9010560	SCREW, SHCS M2X0.4 X 6
33	6	9010559	SCREW, SHCS M2X0.2 X 4
32	3	472-7581	POTENTIOMETER CLAMP
31	3	SA572-S114	POTENTIOMETER
30	2	472-7585	RETAINER, POTENTIOMETER
29	2	472-7582	ANKLE BUSHING PLATE ASSEMBLY - POT END
28	1	472-7580	BASE, TORQUE - ANKLE TOP
27	1	472-7527	STOP ASSEMBLY, PLANTAR
26	3	9005135	CLAMP, NYLON LOOP
25	1	472-7563	BOLT & SLEEVE ASSEMBLY, ANKLE
24	11	5000103	*Varies*
23	1	472-7534	STOP ASSEMBLY - INVERSION
22	1	472-7533	STOP ASSEMBLY - EVERSION
20	2	9010450	NUT, NYLOCK M3X0.5
19	1	472-7562	PULLEY, ACHILLES CABLE
18	2	9000510	FLATWASHER, #4 TYPE B NARROW
17	2	9000508	ACHILLES WASHER
16	2	9000509	NEEDLE ROLLER BEARING
15	1	472-7561	SHAFT, ACHILLES CABLE PULLEY
14	2	9010449	SCREW, FHCS M3 x 12
13	1	472-7560	BRACKET, ACHILLES PULLEY
12	4	9010448	SCREW, FHCS M4X0.7 X 20
11	4	9000873	SCREW, FHCS M4-0.7 x 12
10	2	9010447	SCREW, SHSS, M3X0.5 X 3
9	4	9010446	SCREW, FHCS M3X0.5 X 16
8	2	472-7540	ANKLE BUSHING PLATE ASSEMBLY - FREE END
7	1	472-7530	STOP ASSEMBLY - DORSI
6	18	472-7524	TORQUE CYLINDER
5	1	472-7523	BASE, TORQUE - BOTTOM
4	8	9010445	SCREW, BHCS M6 x 1 x 12
3	4	472-7522	CAP, BASE TORQUE
2	4	472-7515	RETAINING WASHER
1	1	472-7510	ANKLE CENTER BLOCK ASS'Y.

ASSEMBLY INSTRUCTIONS
 1. SAND 4 EA OF ITEM 2 TO ACHIEVE SNUG ASSEMBLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ANKLE ASSEMBLY, LEFT	
DRAWN: B. WADE		12/8/2008		THOR M	
MATERIAL		CHECKED:		DRAWING NUMBER	
HEAT TREAT		ENG		472-7500-1 F	
FINISH		APPROVED		SCALE: 1:1	
				SHEET 1 OF 1	

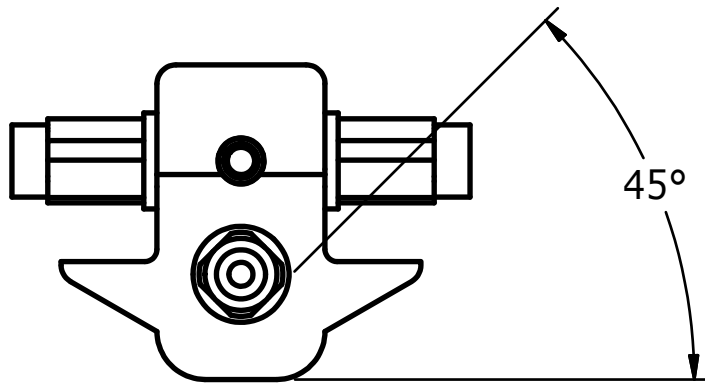
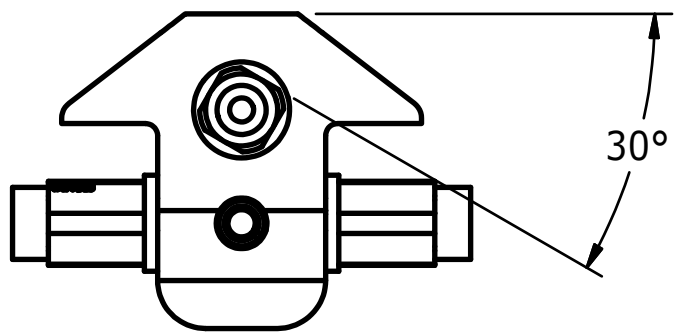
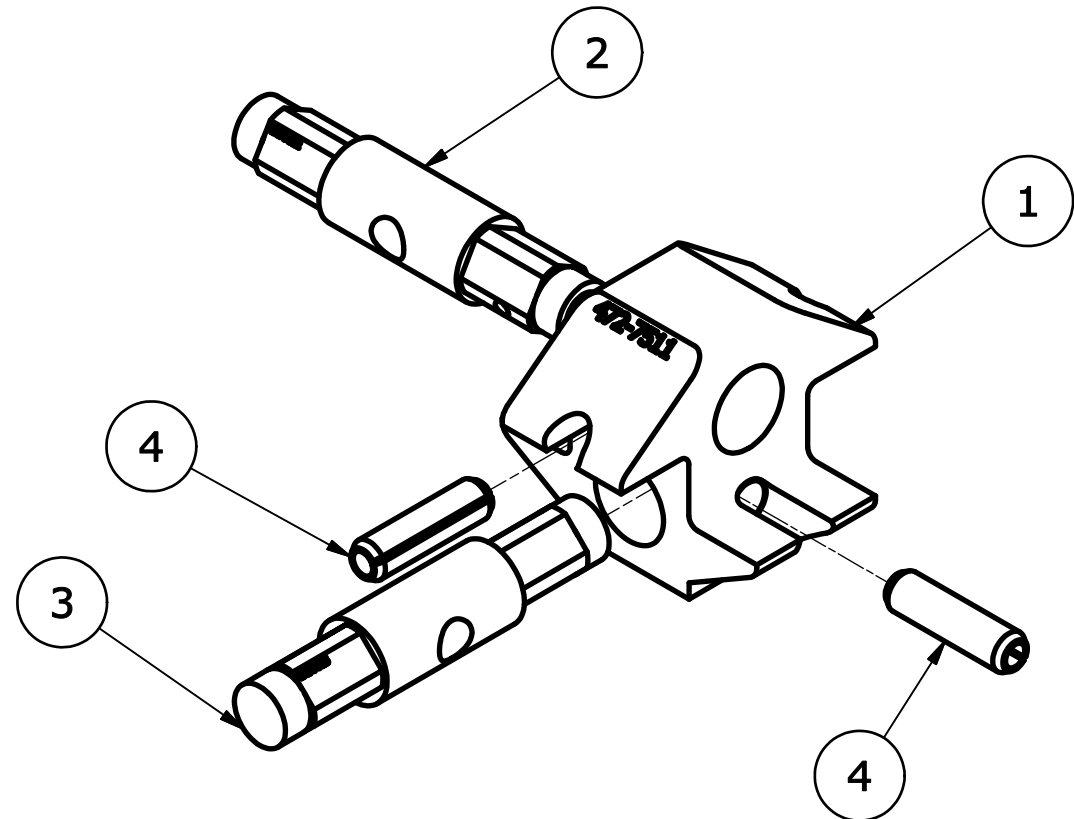
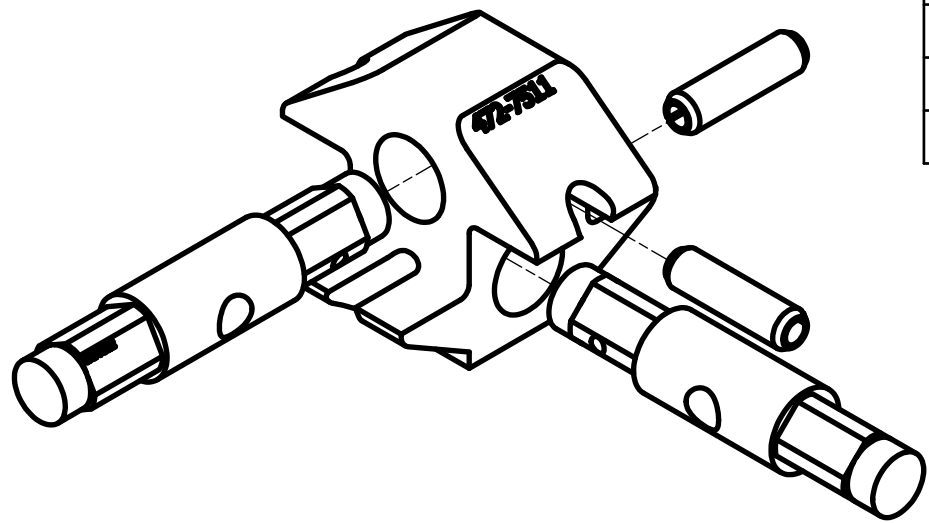
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3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	INCORPORATED METRIC HARDWARE	10/6/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW
8894	E	CREATE EXPLODED VIEWS	4/30/2009	BLW



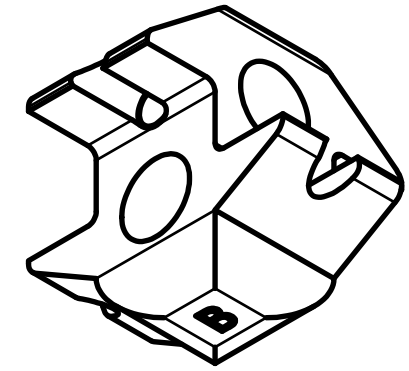
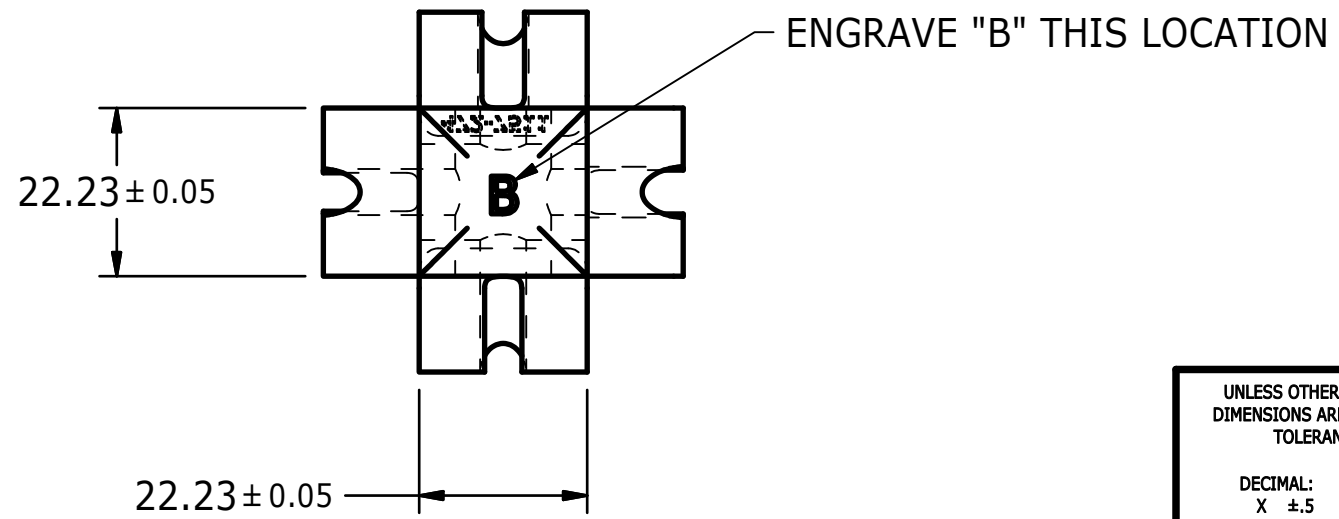
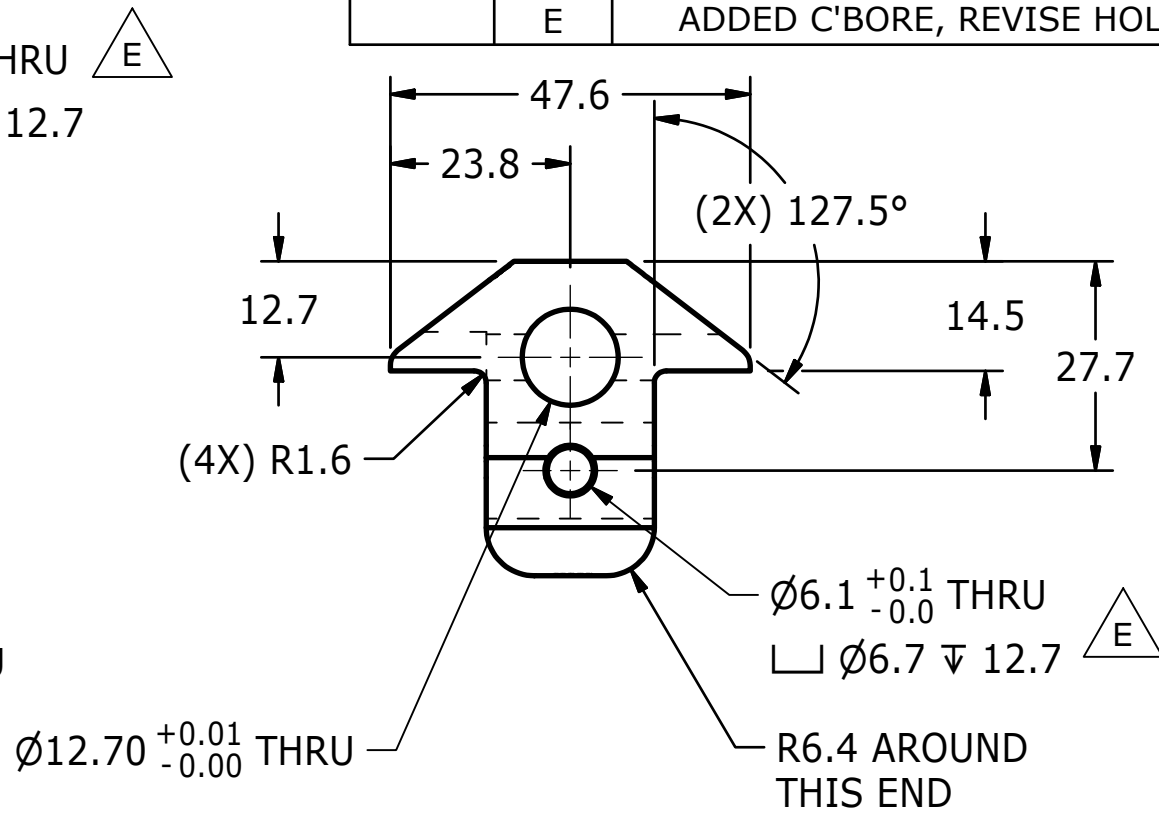
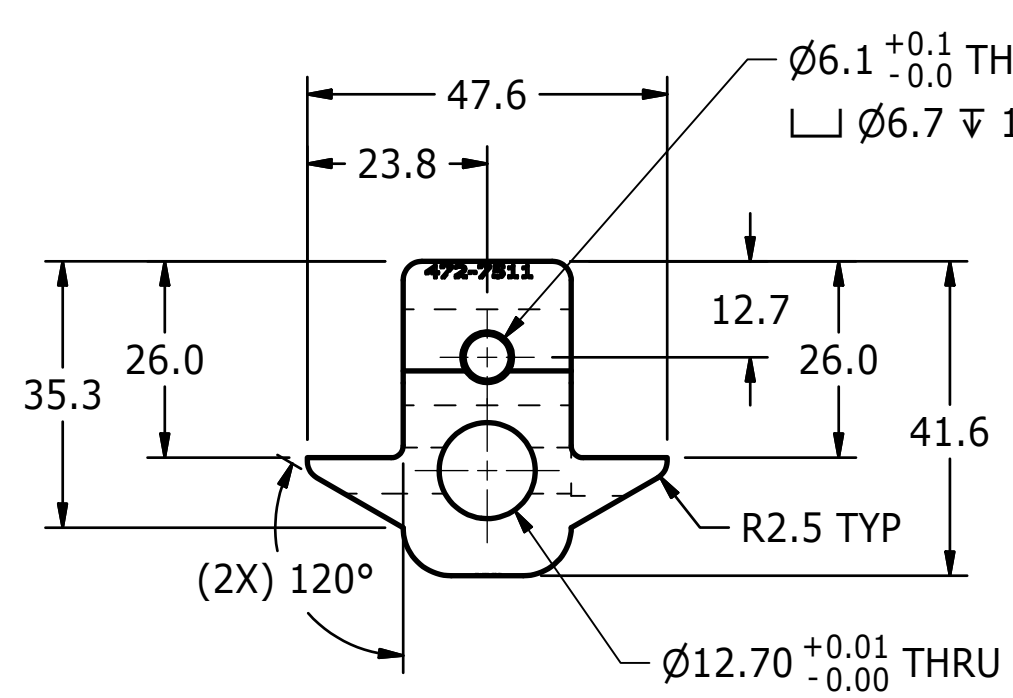
4	2	9010444	PIN, SPRING 6mm x 20mm
3	1	472-7513	TORQUE SHAFT, LOWER
2	1	472-7512	TORQUE SHAFT, UPPER
1	1	472-7511	CENTER BLOCK, ANKLE
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

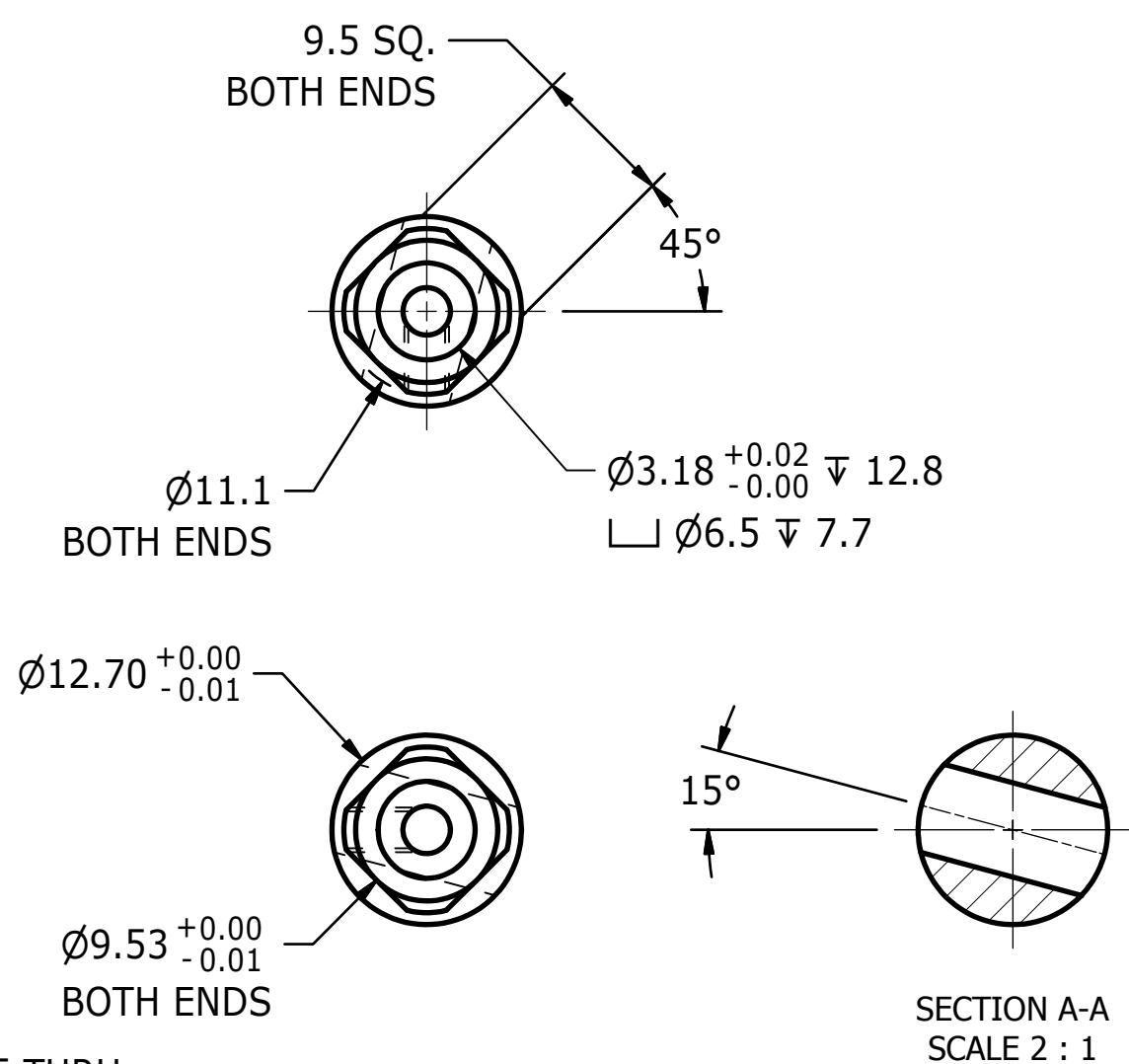
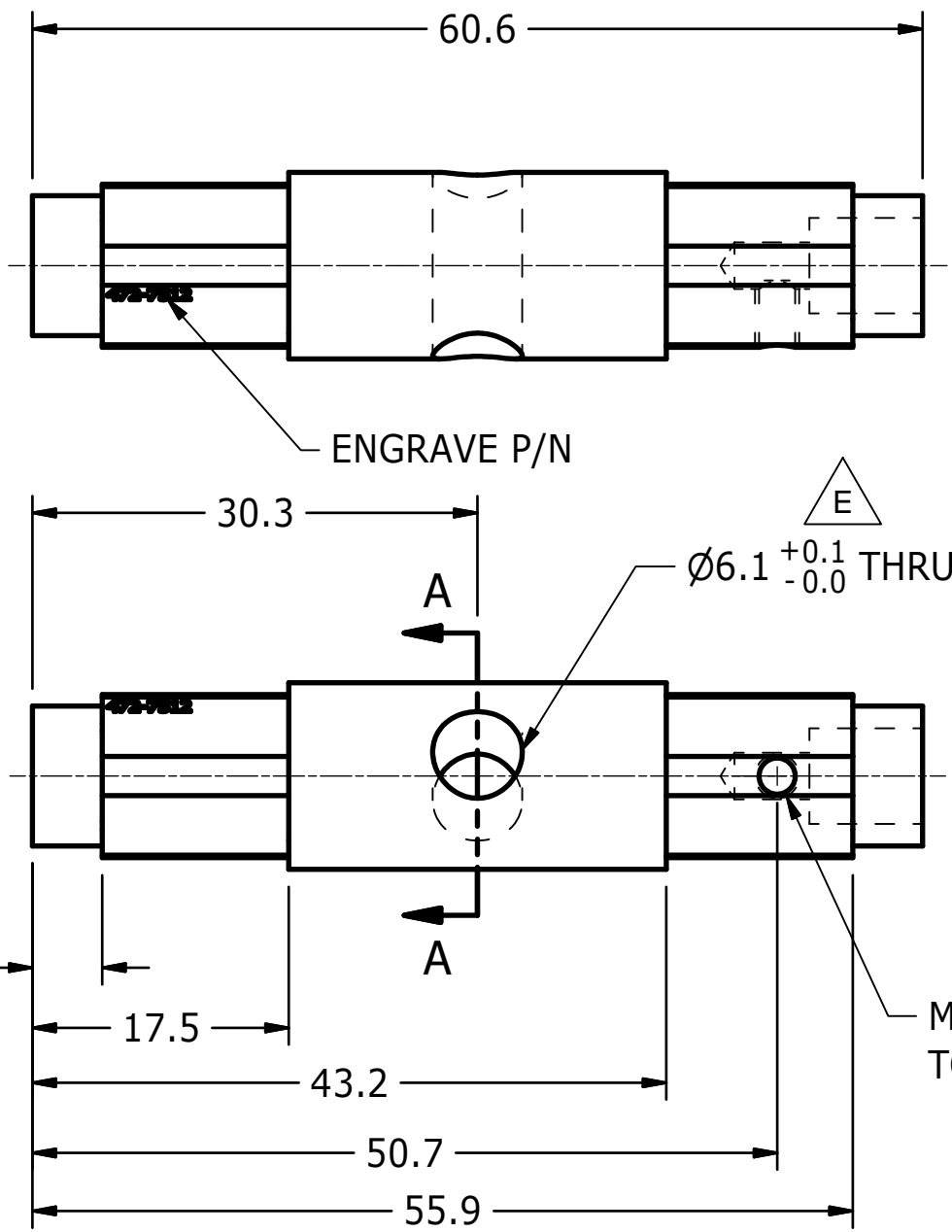
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS: DRAWN B. WADE, CHECKED TMV, ENG, APPROVED DATE: 12/1/2008, 4/30/2009		
MATERIAL: HEAT TREAT N/A, FINISH N/A	 THIRD ANGLE PROJECTION	SIZE: A3 SCALE: 1:1	DRAWING NUMBER: 472-7510 REV: E SHEET: 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	B	REDRAWN IN INVENTOR	7/23/2007	KSG
	C	REDIM FOR METRIC HARDWARE	10/2/2008	BLW
	D	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW
	E	ADDED C'BORE, REVISE HOLE DIA	7/22/2015	JHC



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ±.6 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED ENG APPROVED	DATE 12/1/2008	
MATERIAL Aluminum 6061 HEAT TREAT FINISH BLUE ANODIZE	SIZE B	DRAWING NUMBER 472-7511	REV E
SCALE: 1:1		SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	B	REDRAWN IN INVENTOR	7/23/2007	KSG
	C	REDIM FOR METRIC HARDWARE	10/6/2008	BLW
	D	CHANGE TO METRIC DIMENSIONING	12/2/2008	BLW
	E	6.1 WAS 6.0	7/22/2015	JHC

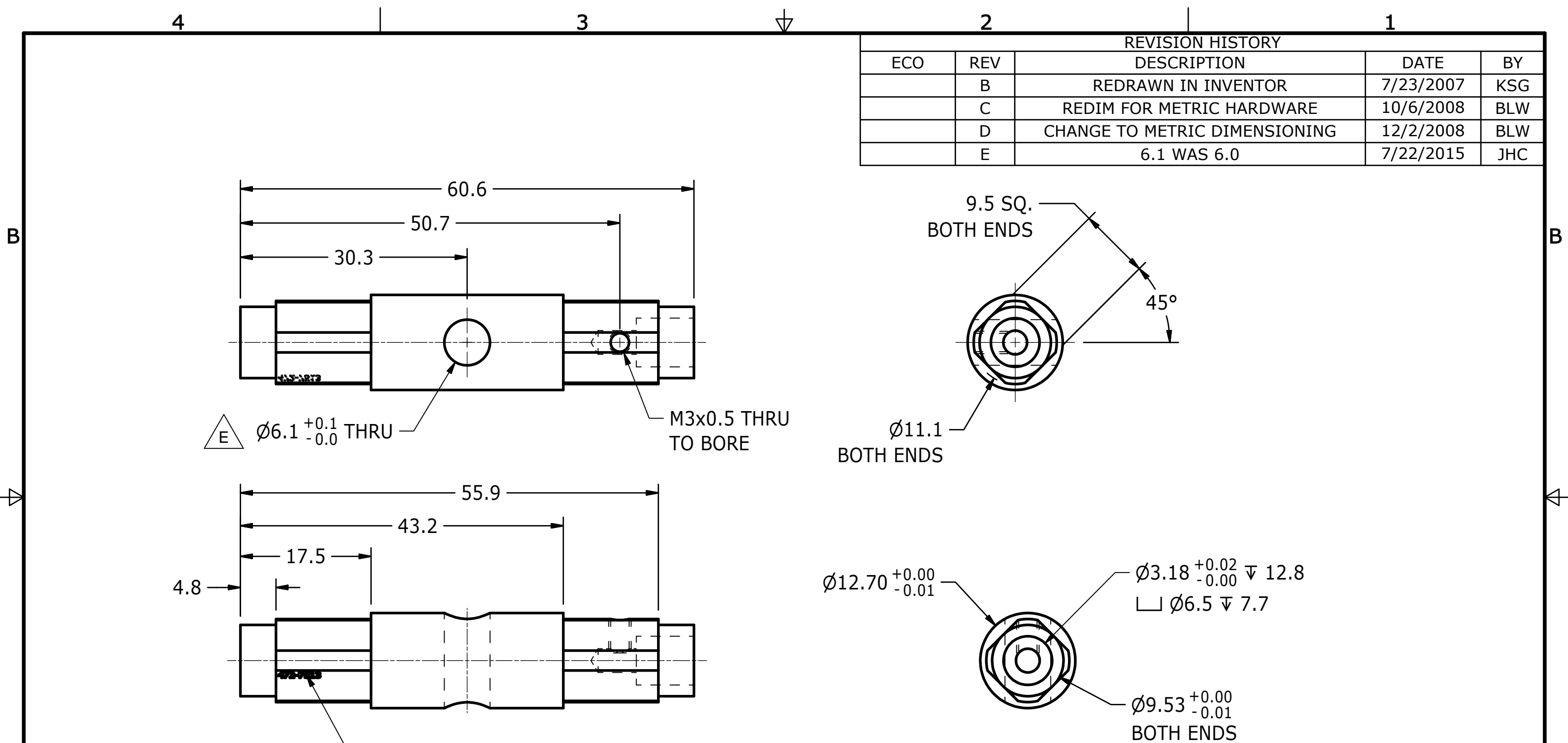




SECTION A-A
SCALE 2 : 1

M3x0.5 THRU
TO BORE

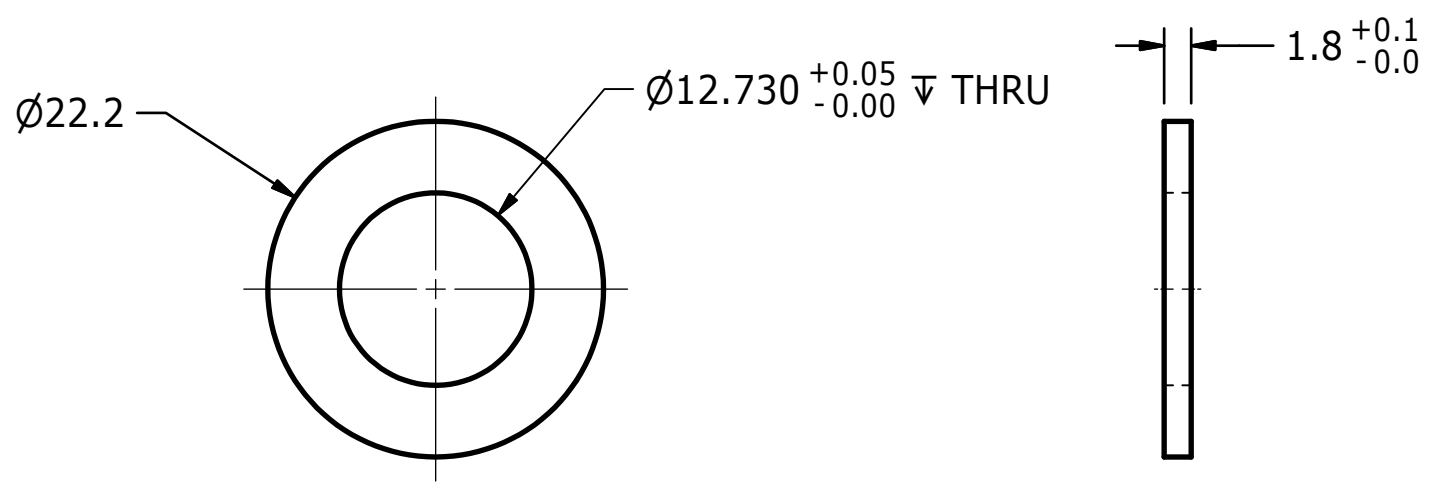
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		TORQUE SHAFT, UPPER THOR M		
	DRAWN B. WADE	12/2/2008				SIZE: B
	MATERIAL Stainless Steel, 440C	CHECKED		SCALE: 2:1	SHEET: 1	OF 1
HEAT TREAT 57-61 Rc	ENG					
FINISH	APPROVED					

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	B	REDRAWN IN INVENTOR	7/23/2007	KSG
	C	REDIM FOR METRIC HARDWARE	10/6/2008	BLW
	D	CHANGE TO METRIC DIMENSIONING	12/2/2008	BLW
	E	6.1 WAS 6.0	7/22/2015	JHC



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 12/2/2008	TORQUE SHAFT, LOWER THOR M	
MATERIAL Stainless Steel, 440C HEAT TREAT 57-61 Rc FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION		
		SCALE: 2:1	SHEET 1 OF 1	REV E

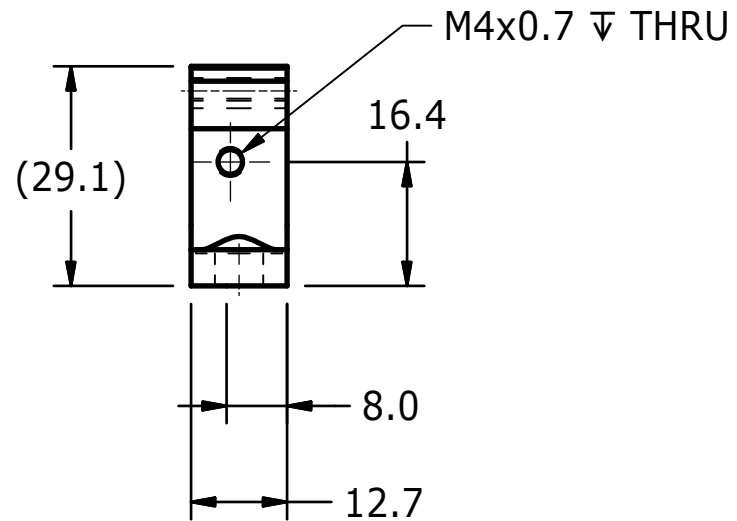
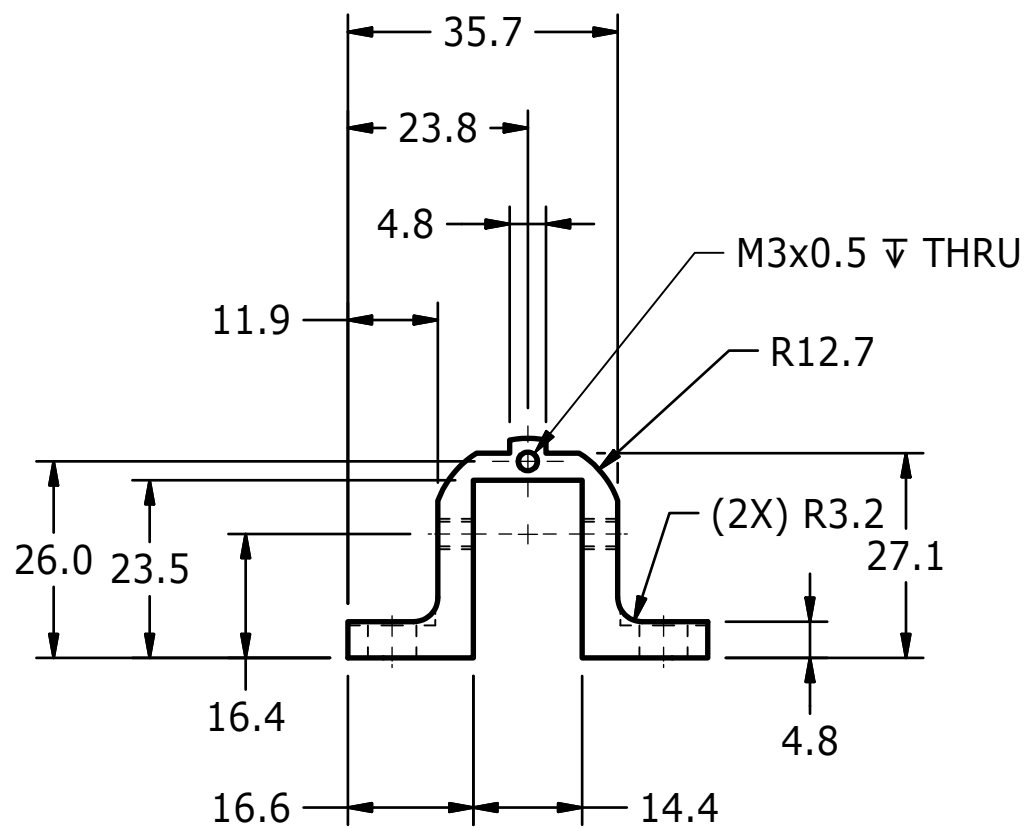
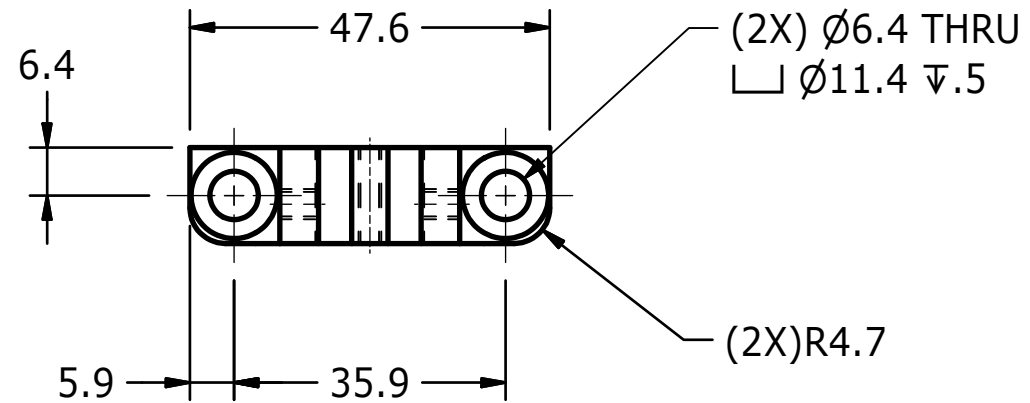
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	B	REVISE THICKNESS	10/6/2008	BLW
E00609	C	CHNAGE TO METRIC DIMENSIONING	12/2/2008	BLW





UNLESS OTHERWISE SPECIFIED:
1 BBREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/2/2008 12/11/2008		RETAINING WASHER THOR M	
MATERIAL Delrin, White HEAT TREAT N/A FINISH N/A		SIZE A3	DRAWING NUMBER 472-7515	REV C	SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REDIM FOR METRIC HARDWARE	10/2/2008	BLW
E00609	D	CHNAGE TO METRIC DIMENSIONING	12/3/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/3/2008 12/11/2008	CAP, BASE TORQUE THOR M	
MATERIAL Aluminum 6061-T6 HEAT TREAT N/A FINISH BLUE ANODIZE	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7522	REV D SHEET 1 OF 1

4

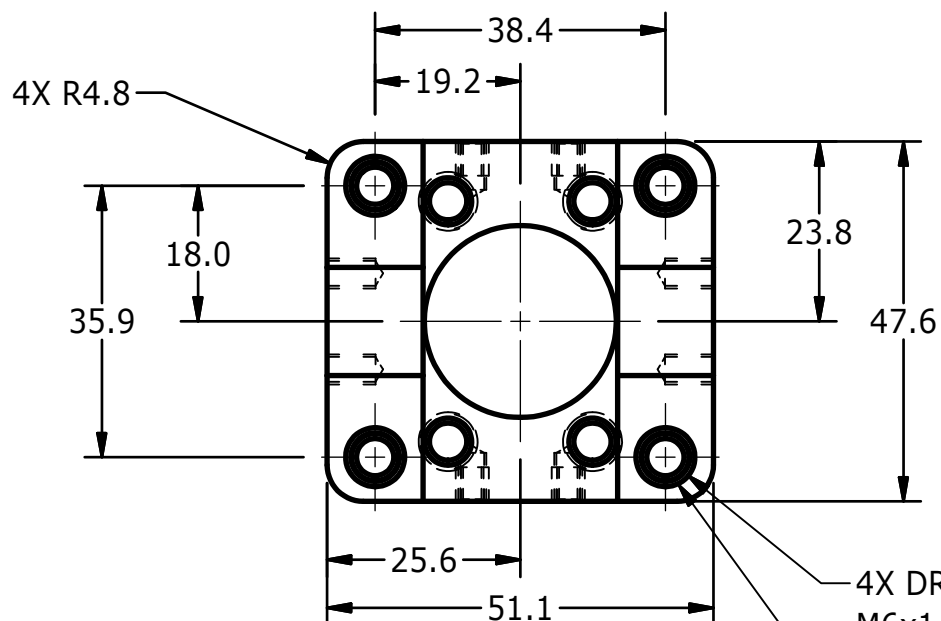
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2

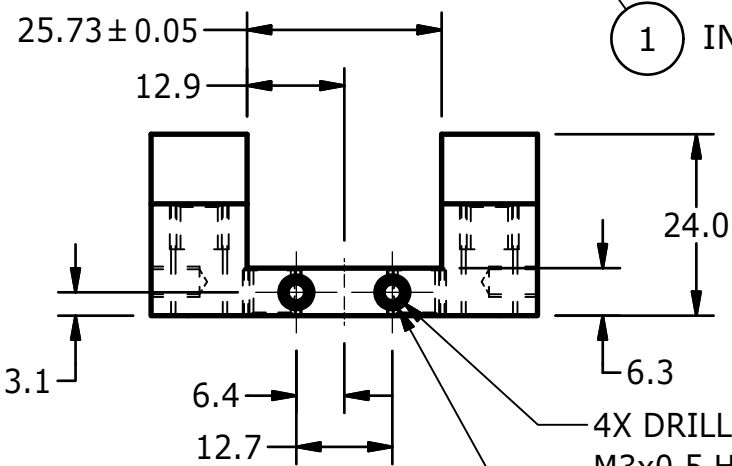
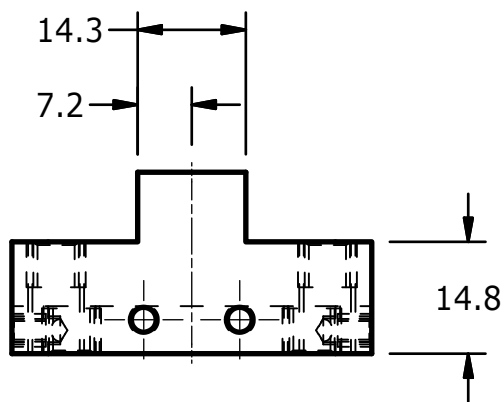
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REVISION HISTORY

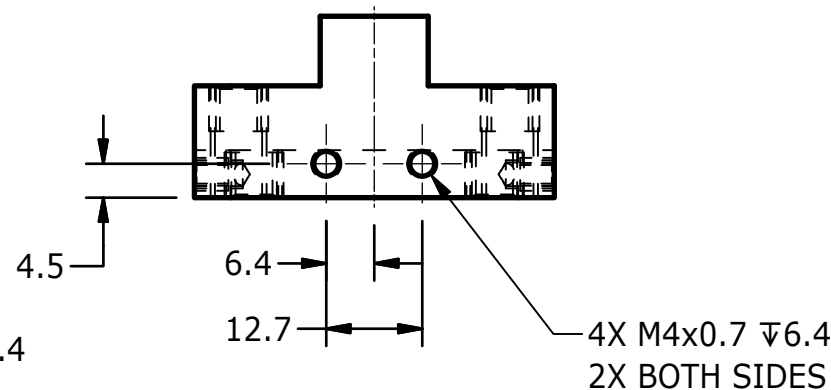
ECO	REV	DESCRIPTION	DATE	BY
	C	REDRAWN IN INVENTOR; DRILL & TAP FOR 6-32 HELICOIL WAS 6.32 TAP	7/23/2007	KSG
	D	CHANGE TO METRIC HARDWARE, REV DIM	9/30/2008	BLW
	E	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW
	F	CHANGE TO 4.5MM LG HELICOIL	3/27/2009	JHC



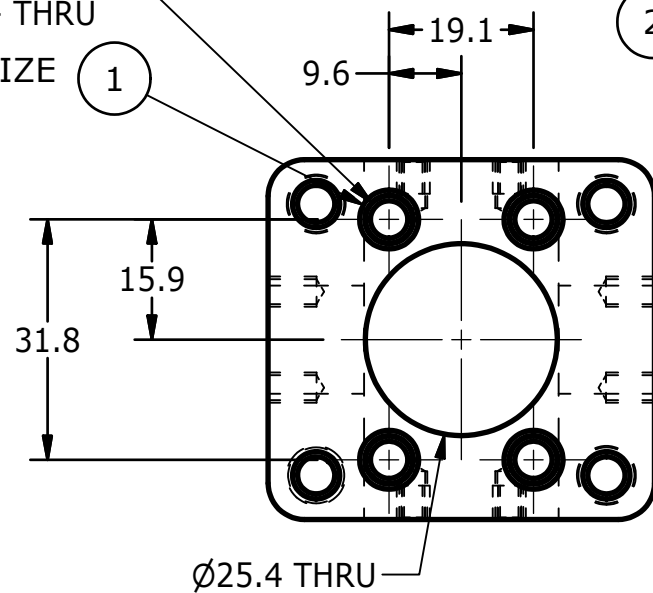
4X DRILL & TAP
M6x1 HELICOIL TAP - THRU
1 INSTALL AFTER ANODIZE



4X DRILL & TAP
M3x0.5 HELICOIL TAP ∇ 6.4
2X BOTH SIDES
2 INSTALL AFTER ANODIZE



4X DRILL & TAP
M6x1 HELICOIL TAP - THRU
INSTALL AFTER ANODIZE
1



ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	9010508	M3X0.5 X 4.5mm Helicoil
1	8	9010437	M6X1 X 6mm Helicoil

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED 1.6, ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		
	DRAWN B. WADE	12/3/2008	BASE, TORQUE - BOTTOM THOR M	
	CHECKED			
MATERIAL ALUMINUM 6061-T6	ENG	THIRD ANGLE PROJECTION	SIZE: B DRAWING NUMBER: 472-7523 REV: F	
HEAT TREAT	APPROVED	SCALE: 1:1	SHEET 1 OF 1	

4

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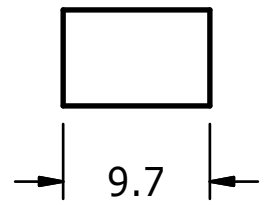
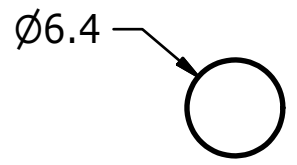
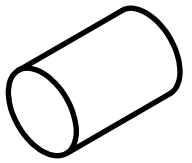
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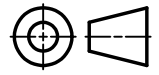
REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
	B	REDRAWN IN INVENTOR	7/23/2007	KSG
	C	CHANGED TO METRIC DIMENSIONING	12/3/2008	BLW
	D	MADE DUROMETER REFERENCE, ADDED TEST REQUIREMENT NOTE	7/22/2015	JHC



MATERIAL:

NATURAL RUBBER (70 ±5 SHORE A)
 DUROMETER MAY BE SUPERCEDED BY
 DYNAMIC TEST REQUIREMENTS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		TORQUE CYLINDER THOR M
	MATERIAL SEE ABOVE	DRAWN B. WADE	12/3/2008	 THIRD ANGLE PROJECTION
	HEAT TREAT	CHECKED		
FINISH	ENG		SIZE A DRAWING NUMBER 472-7524 REV D	
	APPROVED		SCALE: 2:1 SHEET 1 OF 1	

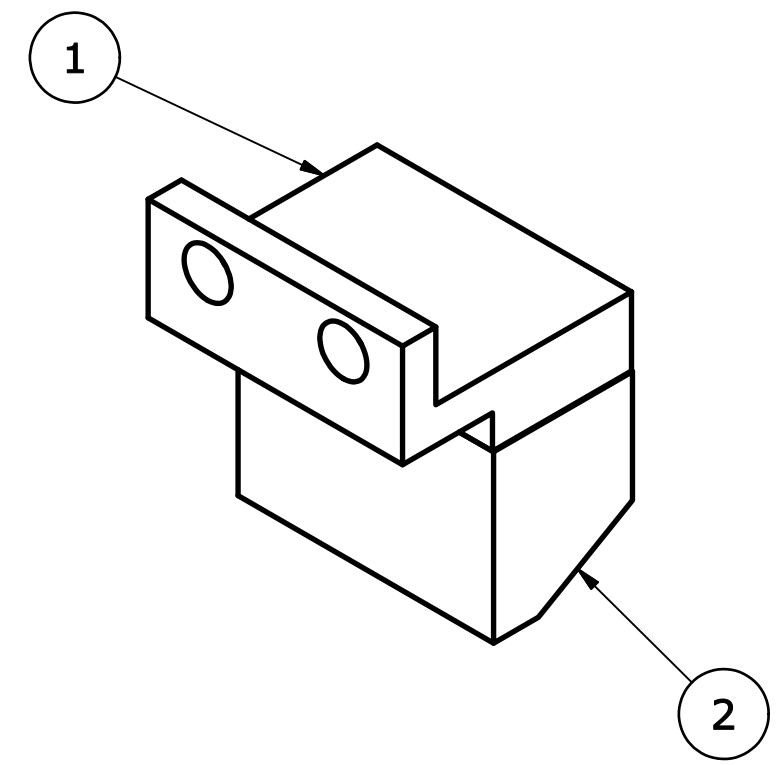
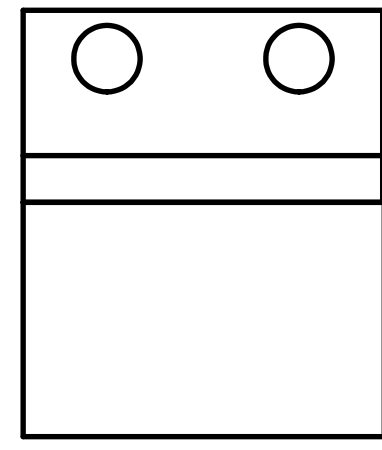
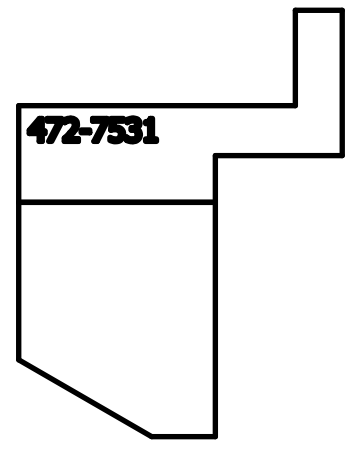
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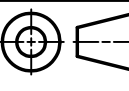
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



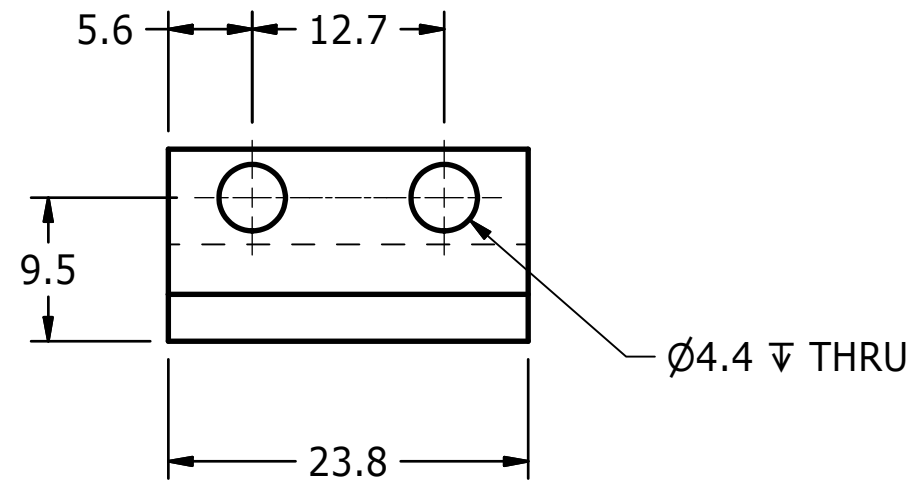
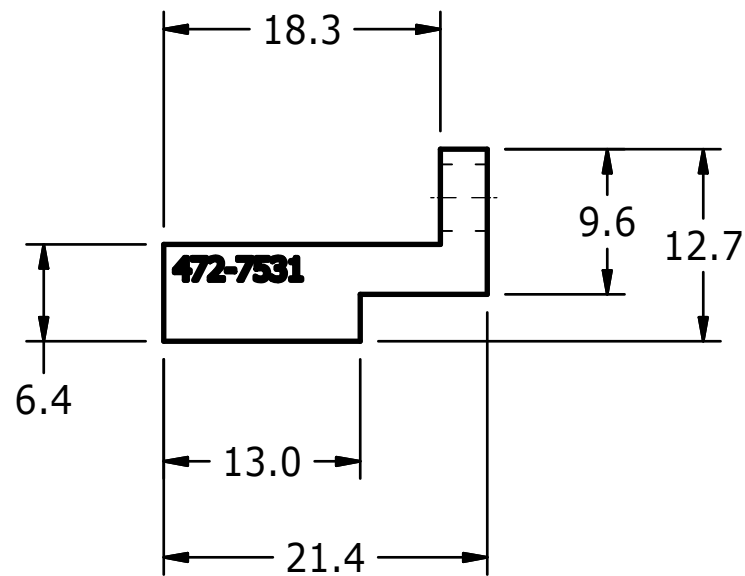
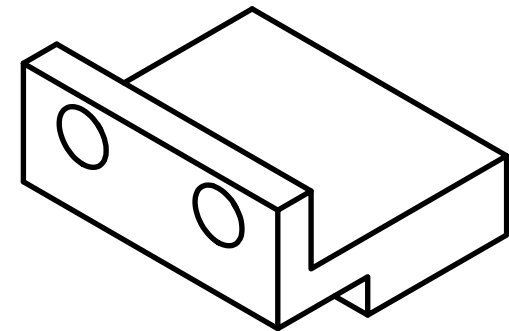
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7532	FRONT STOP, SOFT-DORSI/PLANTAR
1	1	472-7531	BRACKET, FRONT STOP-DORSI/PLANTAR

PARTS LIST


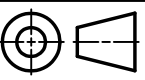
- UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.
 2. SANDBLAST ITEM 1 & CLEAN WITH MEK.
 3. ABRABE ITEM 2 WITH SANDPAPER & CLEAN WITH MEK & ALCOHOL.
 4. BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/3/2008 12/12/2008	STOP ASSEMBLY - DORSI THOR M	
MATERIAL HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7530	REV A
		SCALE: 2:1	SHEET 1 OF 1	

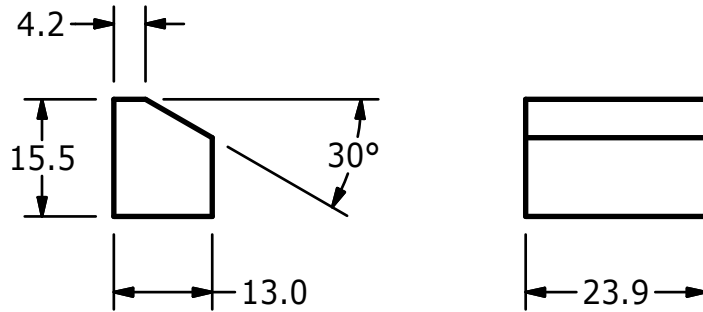
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDIM FOR METRIC HARDWARE	10/2/2008	BLW
E00609	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/3/2008 12/10/2008	BRACKET, FRONT STOP-DORSI/PLANTAR THOR-M	
MATERIAL Aluminum 6061-T6 HEAT TREAT N/A FINISH BLUE ANODIZED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7531	REV B
		SCALE: 2:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW
	B	MADE DUROMETER REFERENCE, ADDED TEST REQUIREMENT NOTE	7/22/2015	JHC

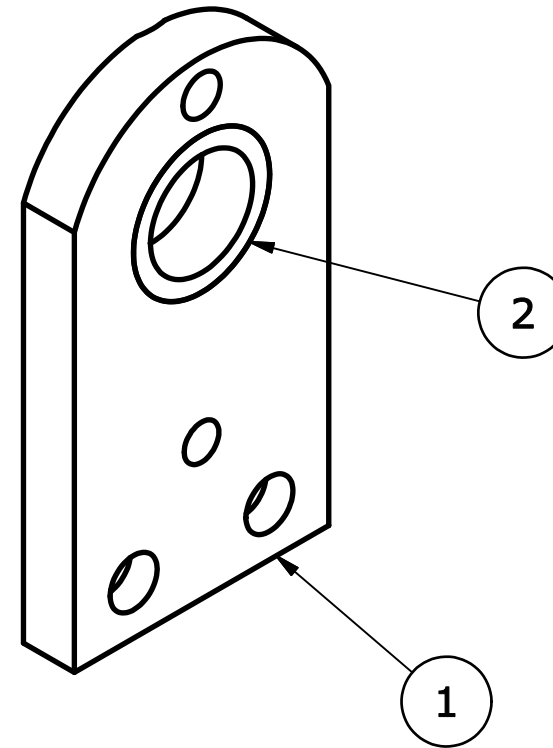
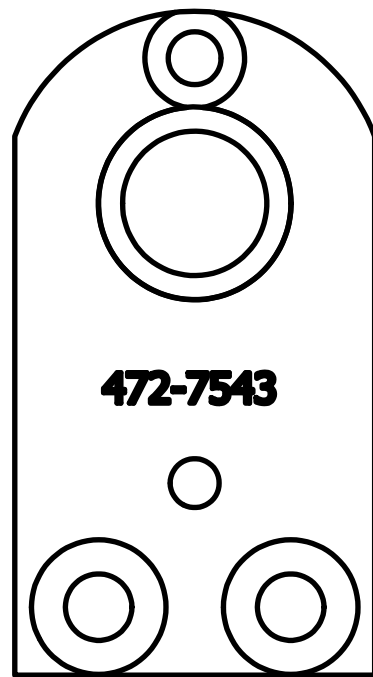


MATERIAL: NEOPRENE (84 ± SHORE A)

DUROMETER MAY BE SUPERCEDED BY DYNAMIC TEST REQUIREMENTS.

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5, X.X ±.2, X.XX ±.1</p> <p>MACHINED: 1.6, ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>		
	APPROVALS	DATE	<p>STOP, DORSI/PLANTAR</p> <p>THOR M</p>		
	DRAWN B. WADE	12/3/2008			
	CHECKED		<p>THIRD ANGLE PROJECTION</p>	SIZE A	DRAWING NUMBER 472-7532
HEAT TREAT ENG		SCALE:		SHEET 1 OF 1	
FINISH APPROVED					



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/23/2008	KSG
E00609	B	CHANGED TO METRIC DIMENSIONING	12/3/2008	BLW



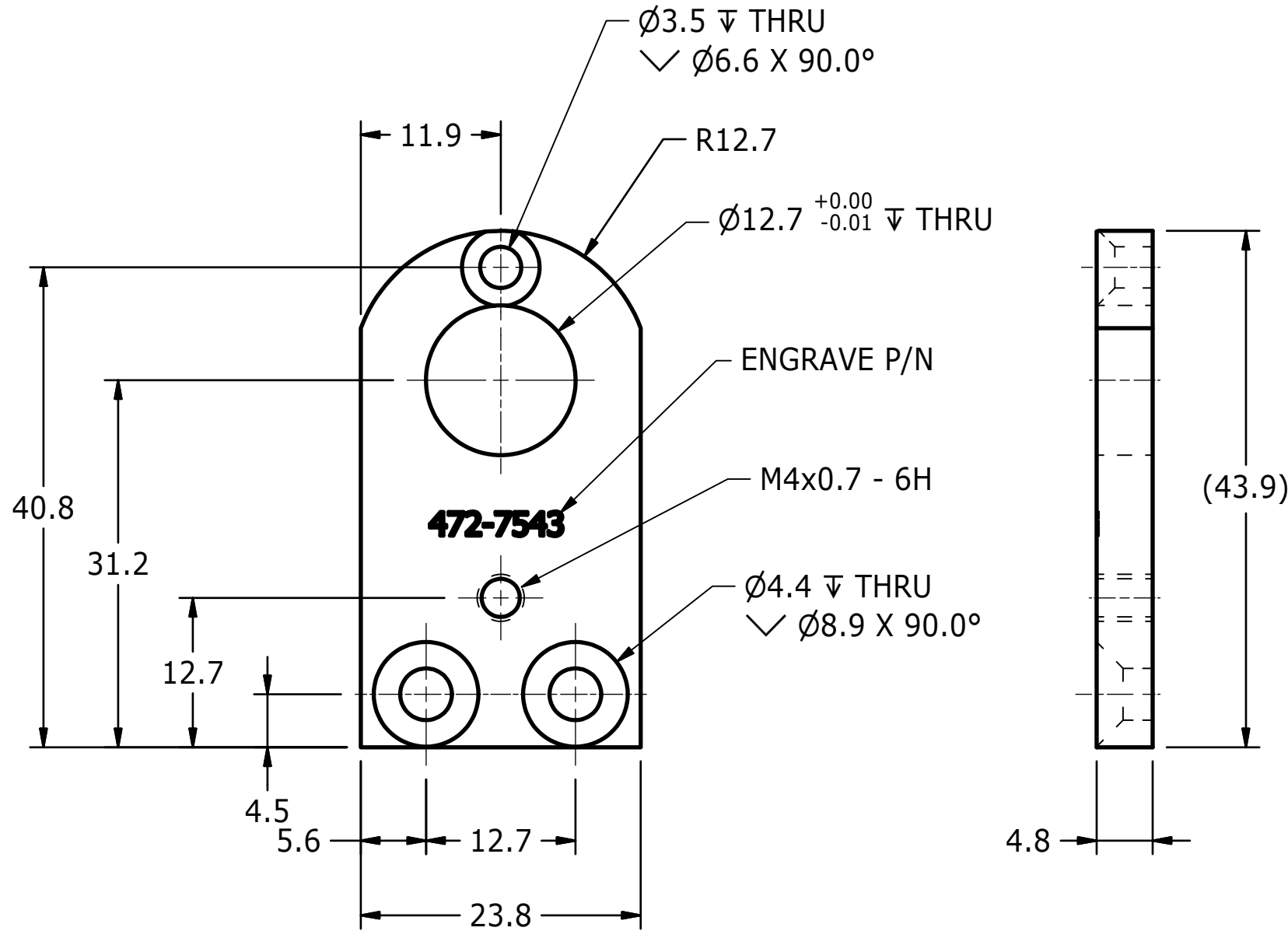
2	1	472-7542	BUSHING, ANKLE
1	1	472-7543	BUSHING PLATE, FREE END
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.5 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG HEAT TREAT N/A FINISH N/A	DATE 12/3/2008 12/12/2008	ANKLE BUSHING PLATE ASSEMBLY - FREE END THOR M	
	APPROVED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7540
			SCALE: 2:1	REV B SHEET 1 OF 1

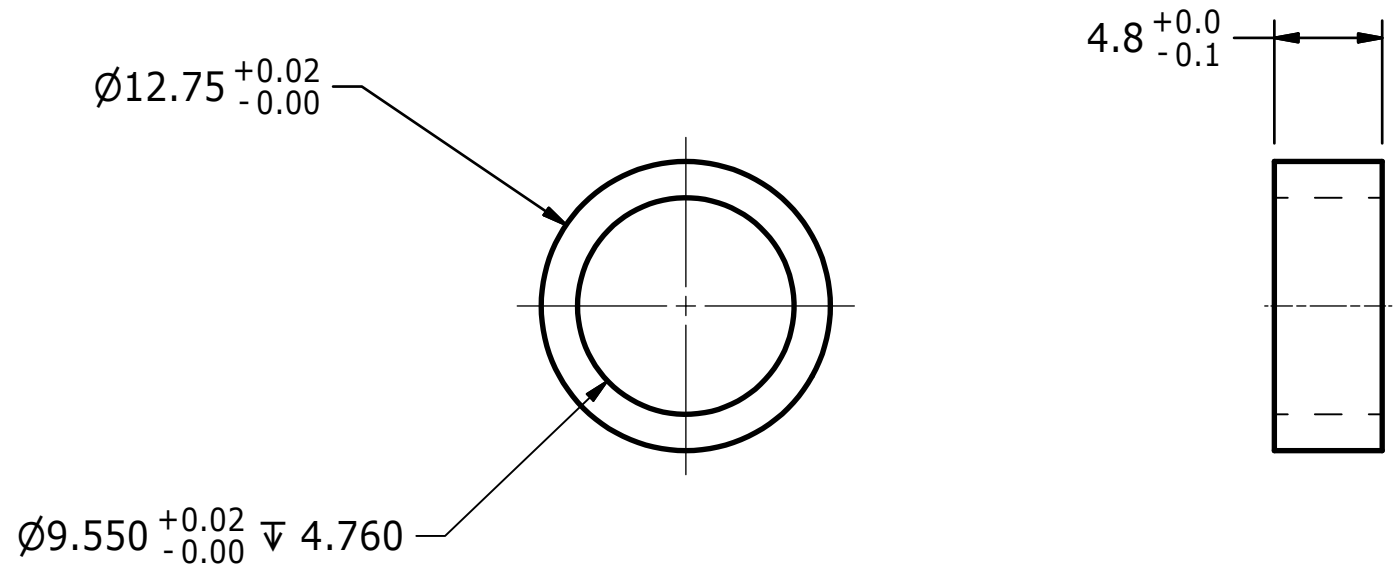
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRWN IN INVENTOR	7/23/208	KSG
E00609	C	REDIM FOR METRIC HRDWARE	10/1/2008	BLW
E00609	D	CHANGED TO METRIC DIMENSIONING	12/4/2008	BLW




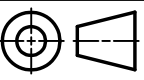
UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/4/2008 12/10/2008	BUSHING PLATE, FREE END THOR M	
MATERIAL Aluminum 6061 HEAT TREAT N/A FINISH BLUE ANODIZED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1		

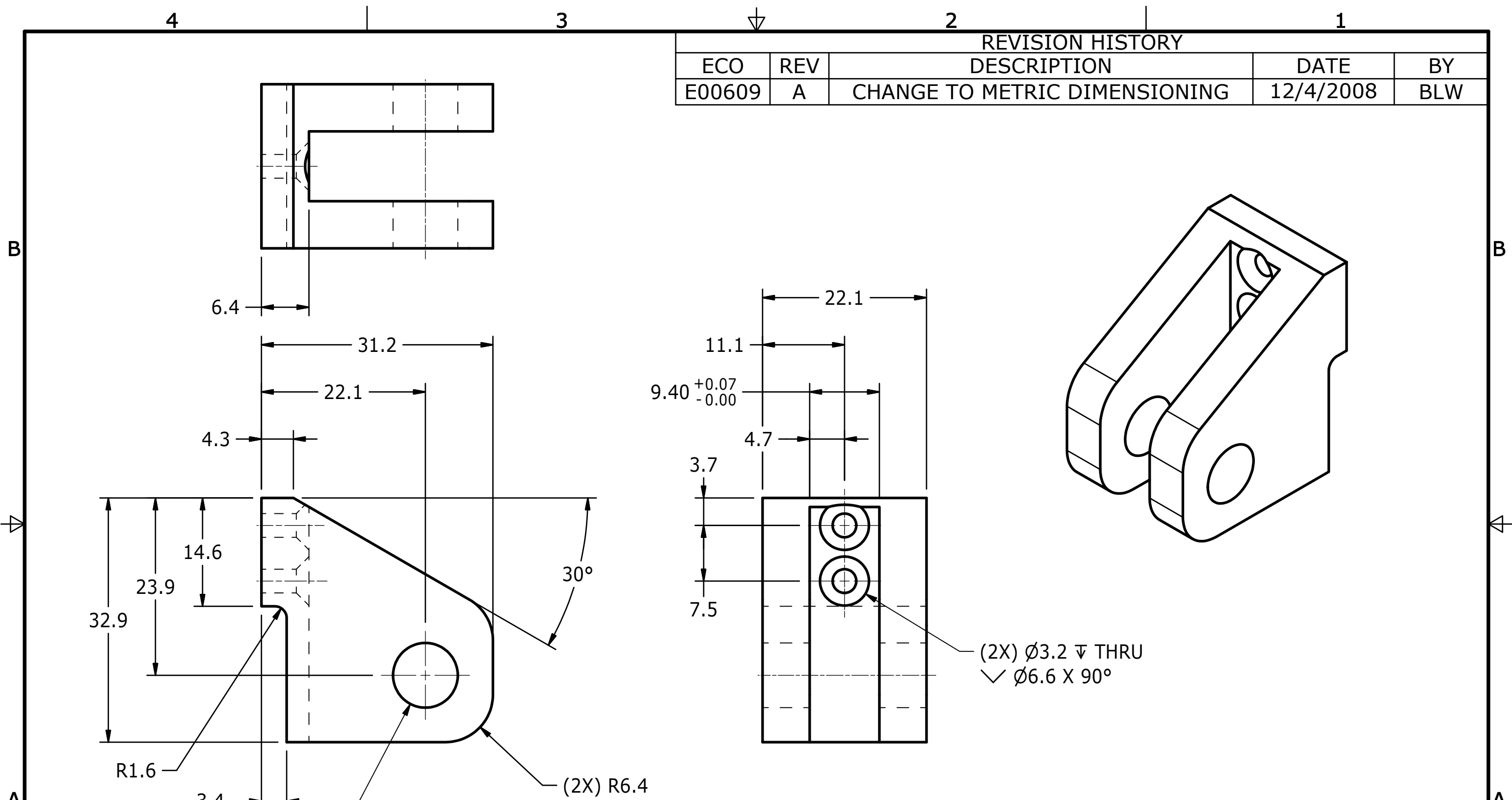
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REV DIMS TO MATCH RAW MATERIAL	10/2/2008	BLW
E00609	D	CHANGED TO METRIC DIMENSIONING	12/3/2008	BLW





UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHAR EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/3/2008 12/11/2008	
MATERIAL 841 BRONZE HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 3:1	DRAWING NUMBER 472-7542 SHEET 1 OF 1

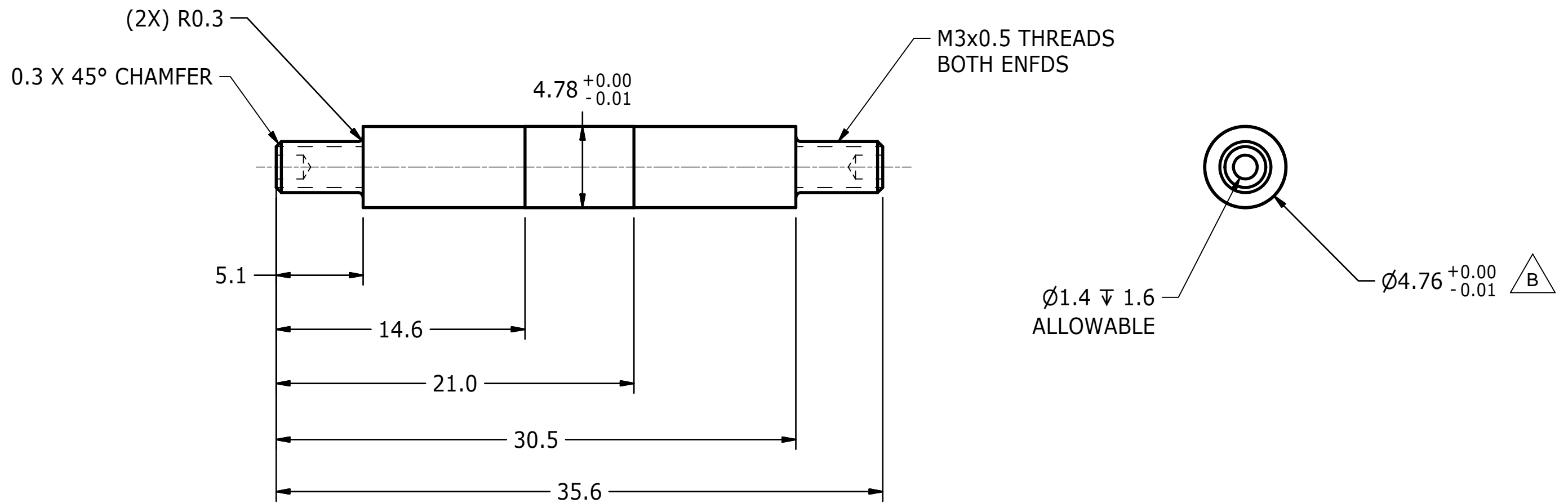
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/4/2008 12/18/2008	BRACKET, ACHILLES PULLEY THOR M	
MATERIAL Aluminum-7075-T6 HEAT TREAT N/A FINISH BLUE ANODIZED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7560	REV A
		SCALE: 2:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGED TO METRIC DIMENSIONING	12/4/2008	BLW
	B	DIMENSION 4.76 +0.00/-0.01 WAS 4.79 +0.00/-0.01	9/28/2015	DW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 12/4/2008	SHAFT, ACHILLES CABLE PULLEY THOR-M	
MATERIAL ETD 150 Steel HEAT TREAT N/A FINISH N/A	ENG APPROVED	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 4:1	DRAWING NUMBER 472-7561 SHEET 1 OF 1
				REV B

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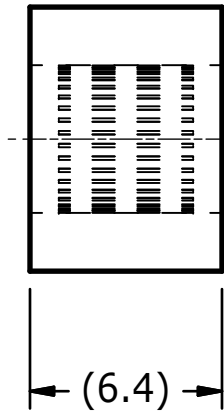
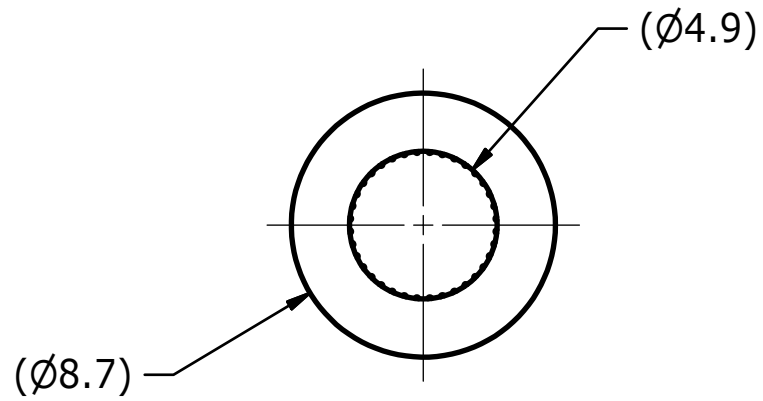
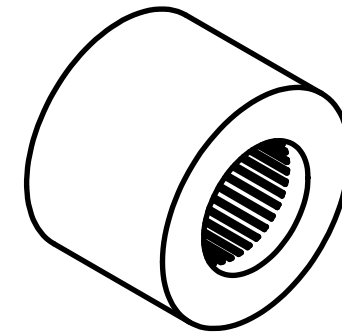
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UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 1/9/2009	NEEDLE ROLLER BEARING THOR-M	
MATERIAL Steel, Alloy HEAT TREAT N/A FINISH N/A	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE:	DRAWING NUMBER 9000509 SHEET 1 OF 1

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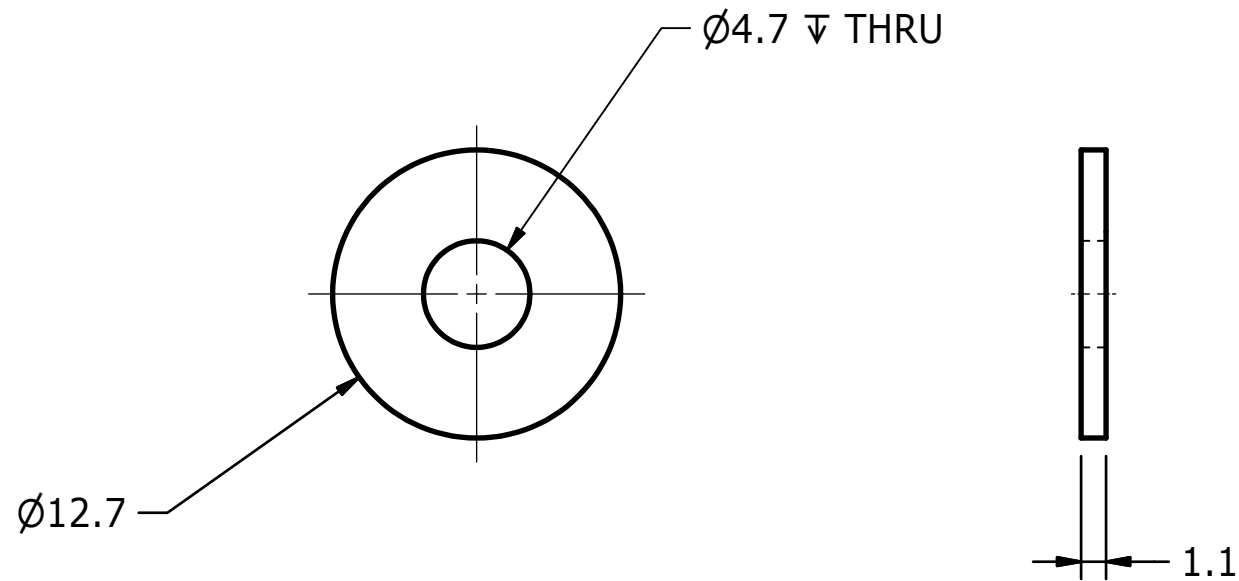
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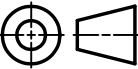
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B

B



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 9/28/2015	ACHILLES WASHER FLX LEG	
MATERIAL PTFE TEFLON HEAT TREAT N/A FINISH N/A	ENG APPROVED	 THIRD ANGLE PROJECTION		
			SCALE: 3:1	SHEET 1 OF 1

4

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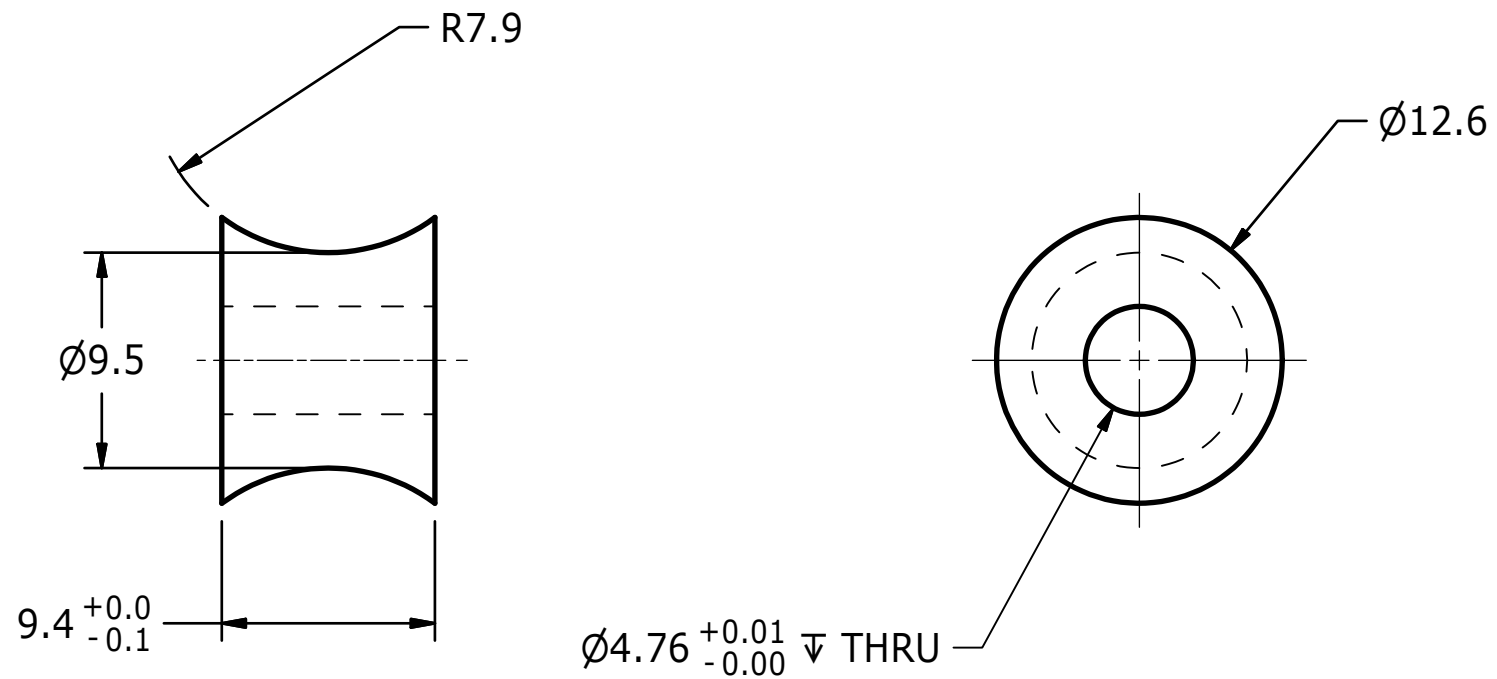
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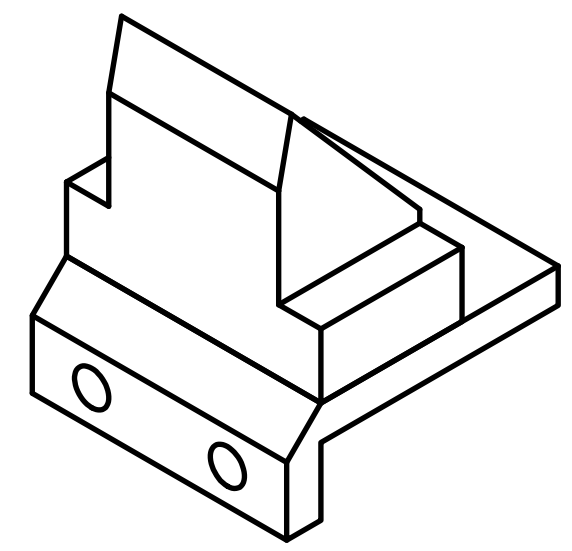
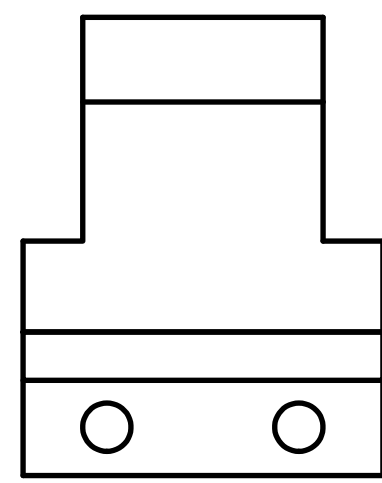
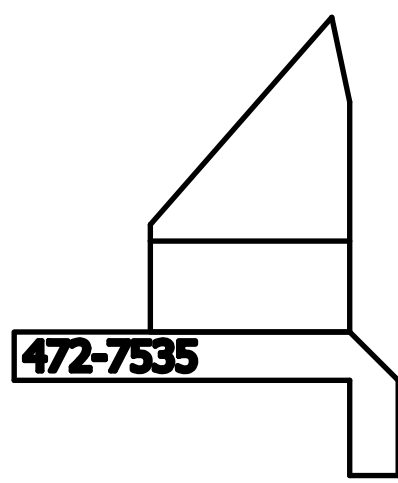
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/10/2007	KSG
E00609	C	CHANGED TO METRIC DIMENSIONING	12/4/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 12/4/2008	PULLEY, ACHILLES CABLE THOR M	
MATERIAL Bronze, Cast HEAT TREAT N/A FINISH N/A	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 3:1	DRAWING NUMBER 472-7562 SHEET 1 OF 1


REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



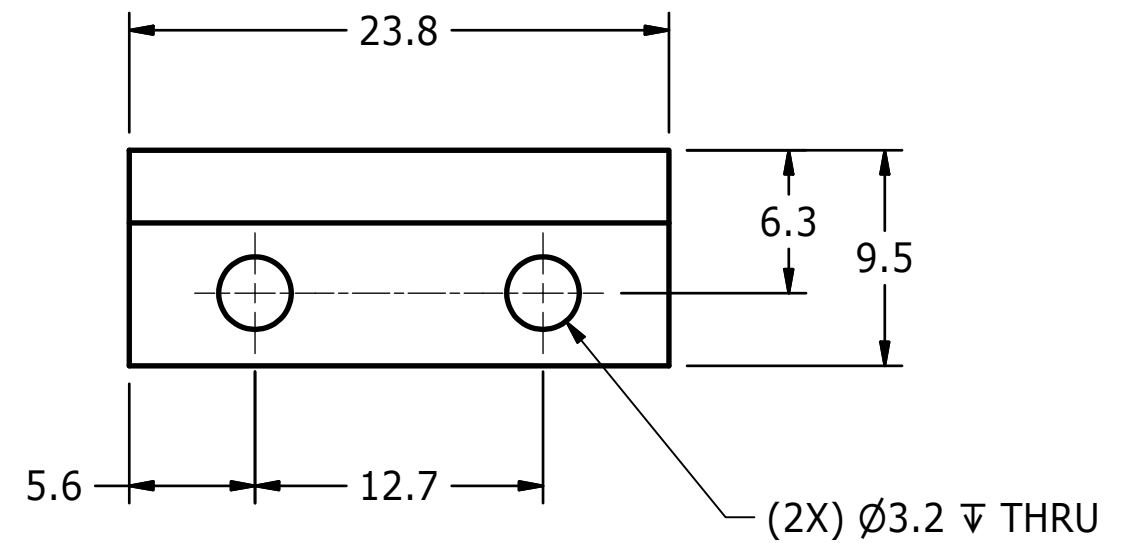
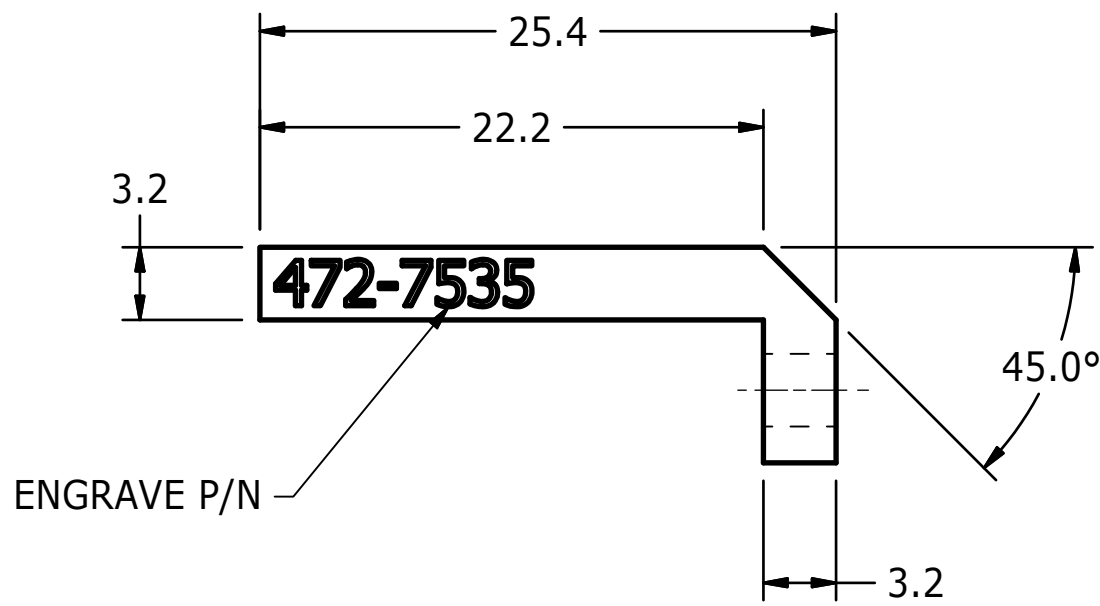
- UNLESS OTHERWISE SPECIFIED:
- BREAK ALL SHARP EDGES.
 - SANDBLAST ITEM 1 & CLEAN WITH MEK.
 - ABRADE ITEM 2 WITH SANDPAPER & CLEAN WITH MEK & ALCOHOL.
 - BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7536	STOP, EVERSION
1	1	472-7535	BRACKET, SOFT STOP - LOWER



PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV HEAT TREAT N/A FINISH N/A	DATE 12/3/2008	STOP ASSEMBLY - EVERSION THOR M	
THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7533	REV A	SHEET 1 OF 1

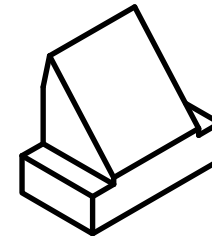
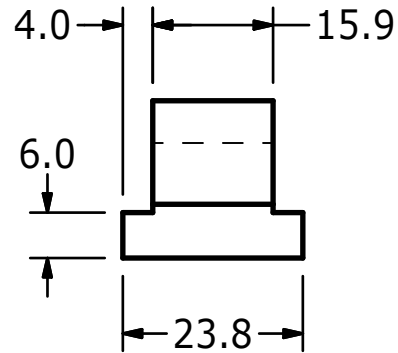
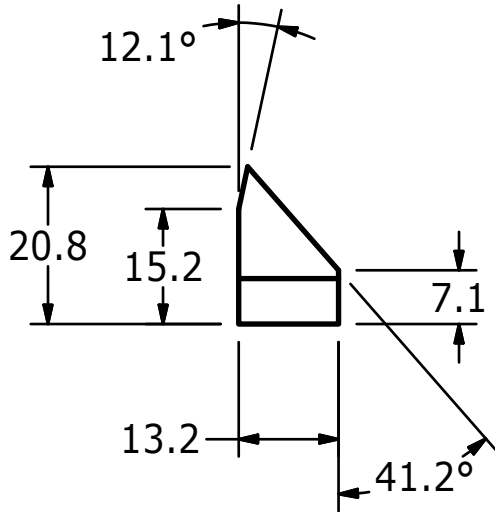
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDIM FOR METRIC HARDWARE	10/2/2008	BLW
E00609	B	CHANGED TO METRIC DIMENSIONING	12/3/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/3/2008 12/10/2008	BRACKET, SOFT STOP - LOWER THOR-M	
MATERIAL Aluminum 6061-T6 HEAT TREAT N/A FINISH BLUE ANODIZED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7535	REV B
		SCALE: 3:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	ADDED DUROMETER SPEC	10/8/2008	BLW
	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW
	C	ADDED DYNAMIC TEST NOTE	7/23/2015	JHC

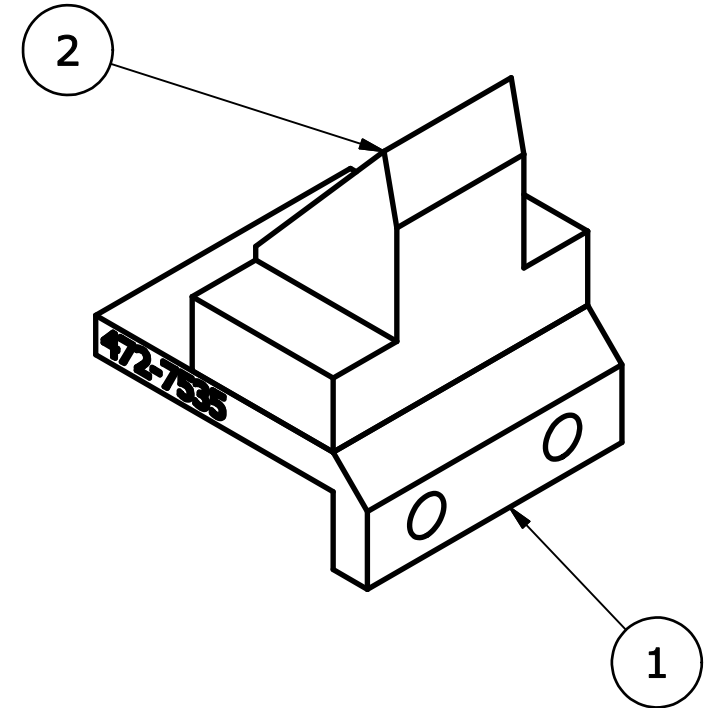
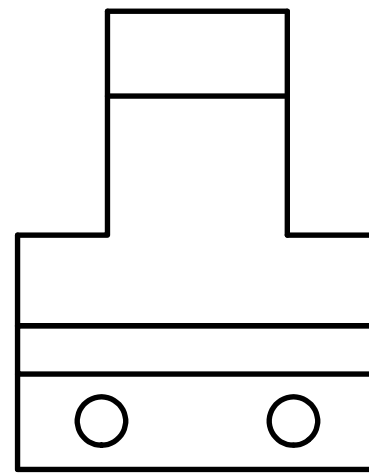
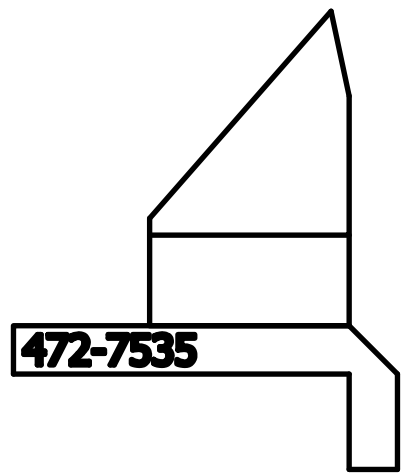


MATERIAL: NEOPRENE (75-85 SHORE A)

DUROMETER MAY BE SUPERCEDED BY DYNAMIC TEST REQUIREMENTS.

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5, X.X ±.2, X.XX ±.1</p> <p>MACHINED: 1.6, ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p> <p>MATERIAL: SEE ABOVE</p> <p>HEAT TREAT:</p> <p>FINISH:</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
	APPROVALS	DATE	
	DRAWN B. WADE	12/3/2008	
	CHECKED		
	ENG		<p>THIRD ANGLE PROJECTION</p>
	APPROVED		<p>SIZE: A</p> <p>DRAWING NUMBER: 472-7536</p> <p>REV: C</p>
			<p>SCALE:</p> <p>SHEET: 1 OF 1</p>

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGED TO METRIC DIMENSIONING	12/3/2008	BLW



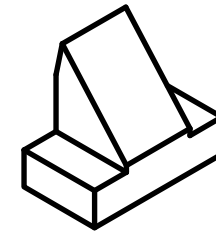
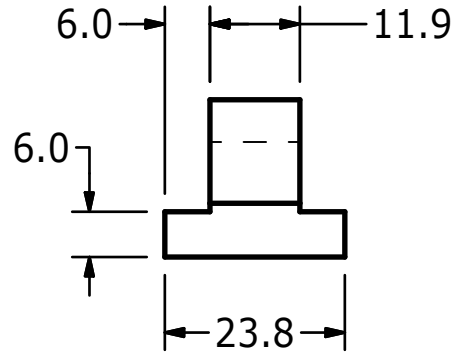
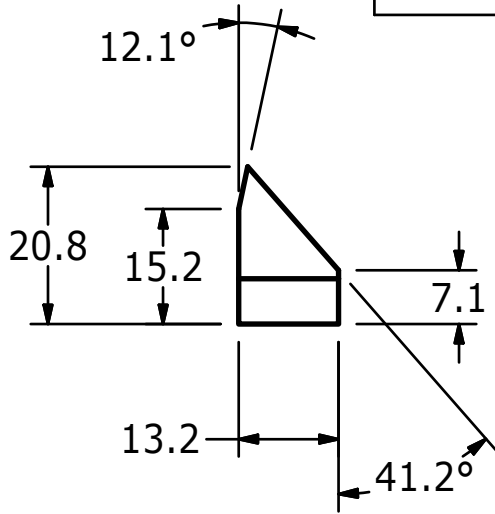
- UNLESS OTHERWISE SPECIFIED:
- BREAK ALL SHARP EDGES.
 - SANDBLAST ITEM 1 & CLEAN WITH MEK.
 - ABRADE ITEM 2 WITH SANFDPAPER & CLEAN WITH MEK & ALCOHOL.
 - BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7537	STOP, INVERSION
1	1	472-7535	BRACKET, SOFT STOP - LOWER

PARTS LIST


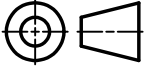
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED 1.5 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/3/2008 12/12/2008	STOP ASSEMBLY - INVERSION THOR M	
MATERIAL HEAT TREAT N/A FINISH N/A	SIZE A3 SCALE: 2:1	DRAWING NUMBER 472-7534	REV A	SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	ADDED DUROMETER SPEC	10/8/2008	BLW
	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW
	C	MADE DUROMETER REFERENCE, ADD TEST REQUIREMENT NOTE	7/23/2015	JHC

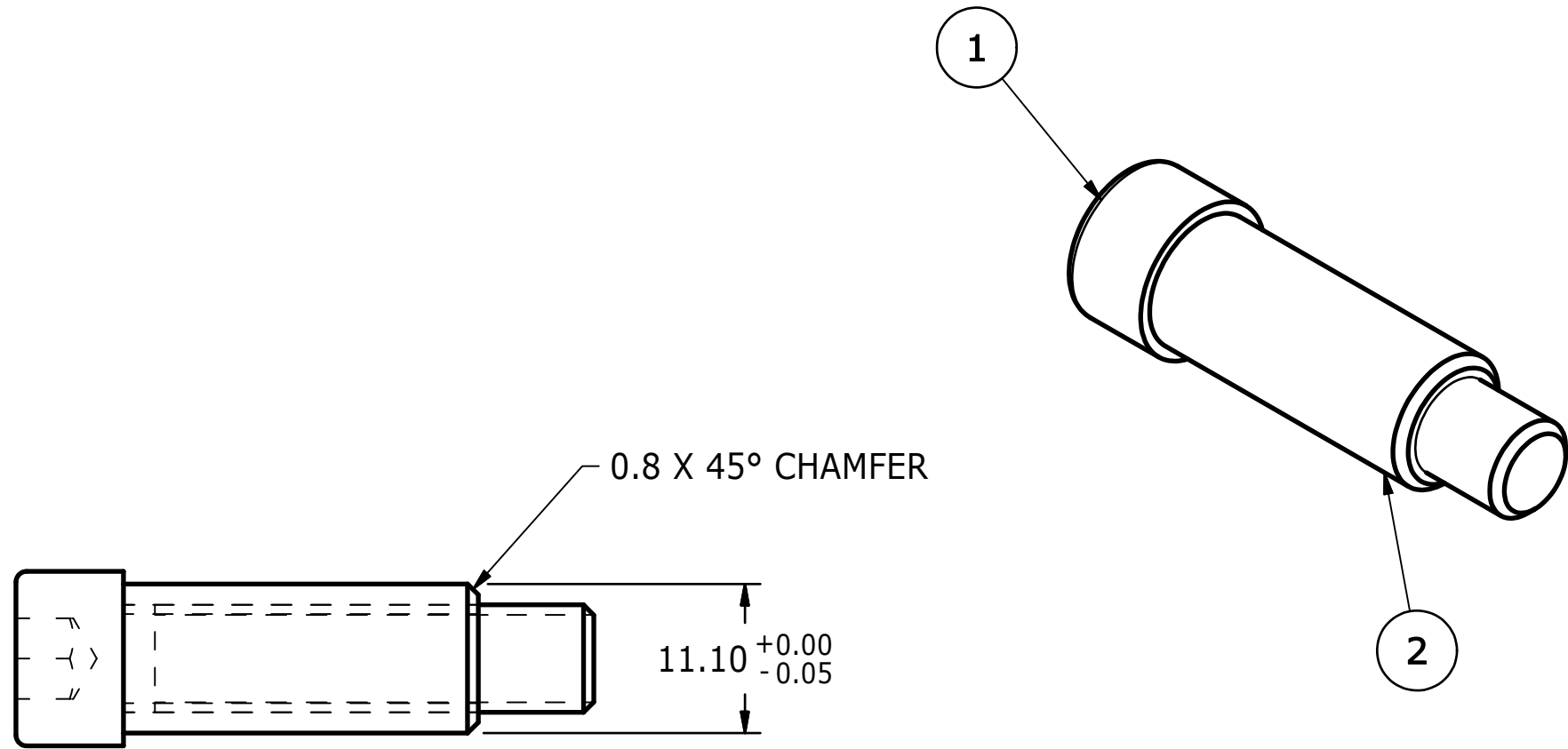


MATERIAL: NEOPRENE (65-75 SHORE A)

DUROMETER MAY BE SUPERCEDED BY DYNAMIC TEST REQUIREMENTS.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6- ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		STOP, INVERSION THOR M	
DRAWN B. WADE	12/3/2008				
CHECKED					SIZE
MATERIAL SEE ABOVE	ENG	A	472-7537	C	
HEAT TREAT	APPROVED	SCALE:	SHEET	1 OF 1	
FINISH					



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	CHANGE TO METRIC SCREW	10/6/2008	BLW
E00609	D	CHANGED TO METRIC DIMENSIONING	12/4/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.
 2. REMOVE OIL FROM ITEM 2 WITH SOLVENT.
 3. APPLY LOCTITE 262 TO THREADS AND ASSEMBLY ITEMS 1 & 2.
 4. MACHINE OD AND CHAMFER AS NOTED.

2	1	472-7564	SLEEVE, BOLT - ANKLE
1	1	9010164	SCREW, SHCS M8-1.25 x 35
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN B. WADE CHECKED	DATE 12/4/2008		BOLT & SLEEVE ASSEMBLY, ANKLE THOR M	
MATERIAL HEAT TREAT N/A FINISH N/A	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1		DRAWING NUMBER 472-7563 SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REDIM FOR METRIC HARDWARE	10/6/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW

B

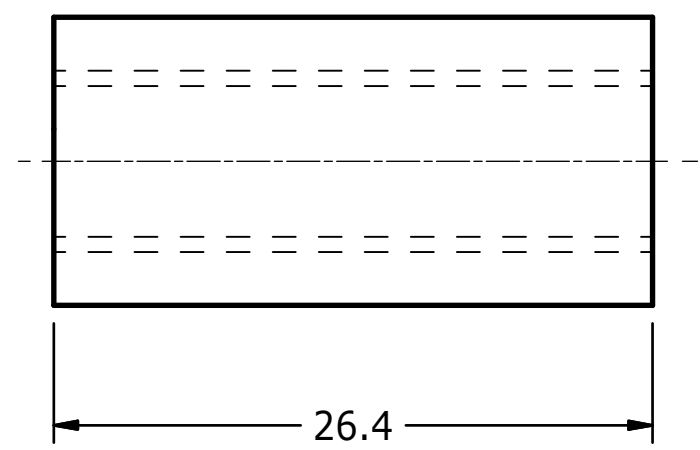
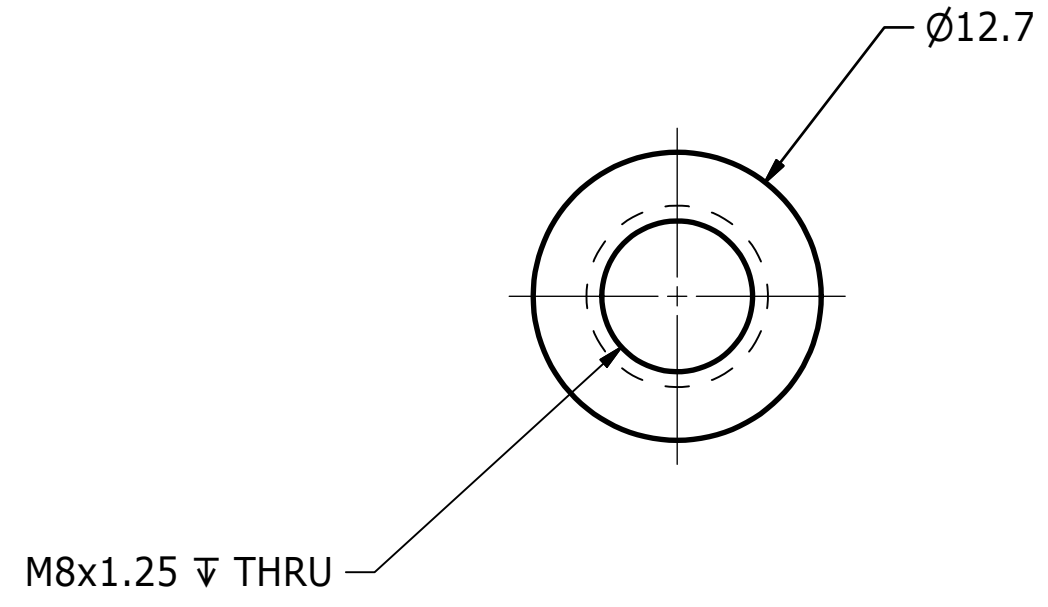
B

▽


▽

A

A

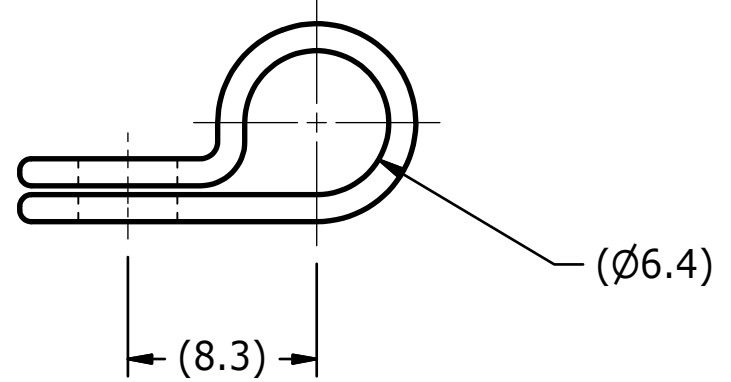
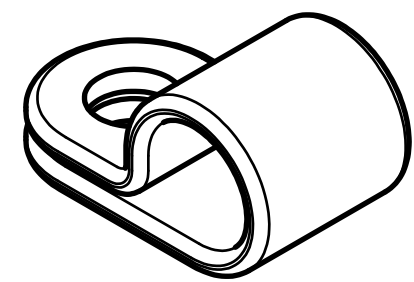
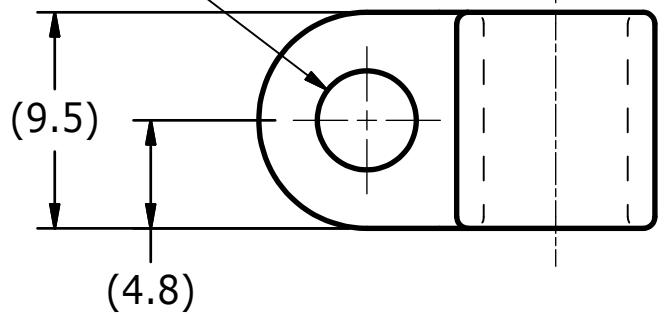


UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

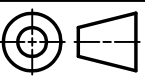
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 1.5 X.XX ±.1 ANGLE ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED ENG APPROVED	DATE 12/4/2008	SLEEVE, BOLT - ANKLE THOR-M	
MATERIAL Delrin, White HEAT TREAT N/A FINISH N/A	THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7564	REV D
		SCALE: 3:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	REMOVED MCMASTER P/N AND ADDED DIMENSIONS	9/29/2015	DW

(Ø4.4) ∇ THRU



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED ENG APPROVED	DATE 1/12/2009	CLAMP, NYLON LOOP THOR-M	
MATERIAL Nylon 6/6 HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 3:1	DRAWING NUMBER 9005135	REV A SHEET 1 OF 1

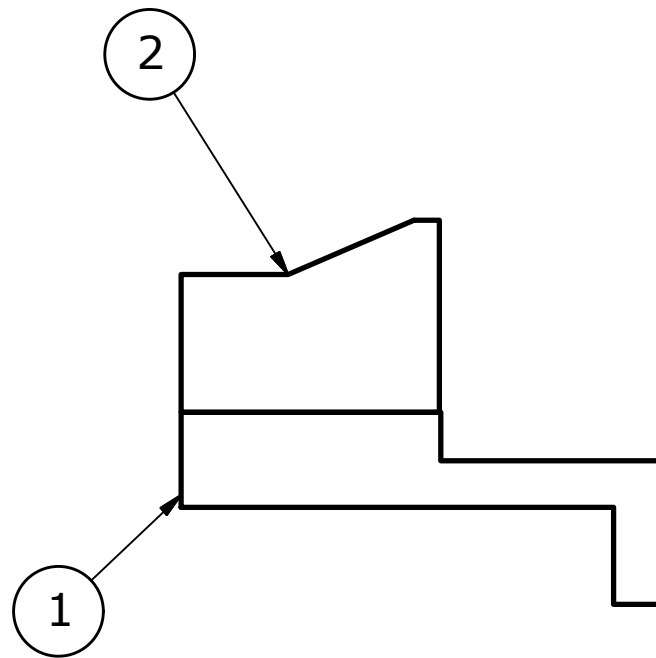
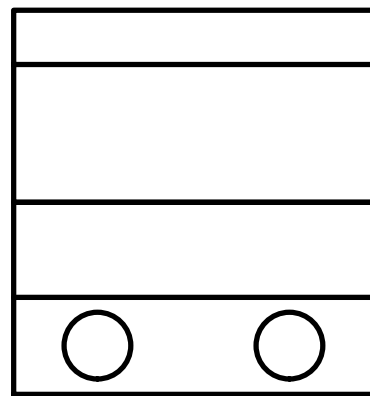
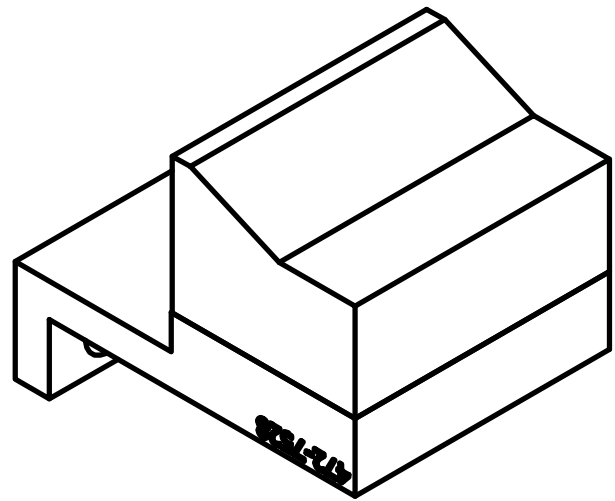
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING TITLE WAS STOP ASSEMBLY, REAR DORSI	3/22/2016	DW

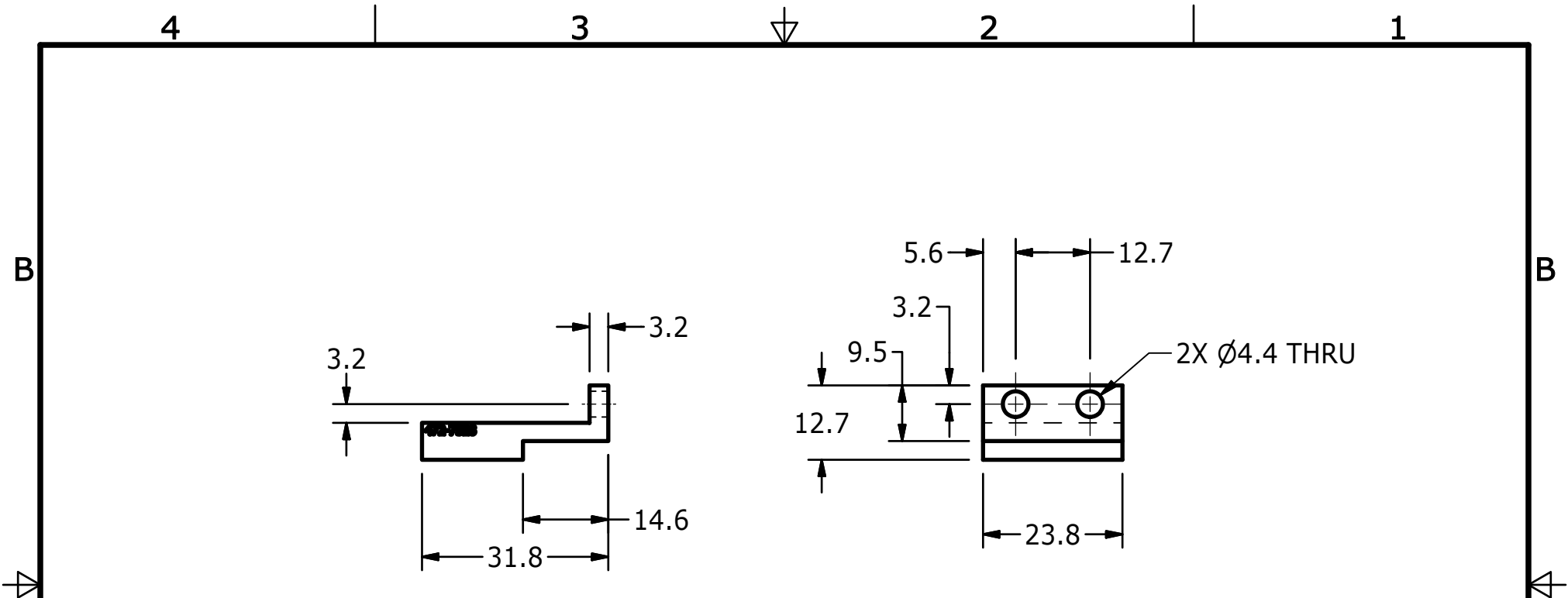



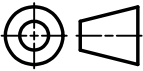
- UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.
 2. SANDBLAST ITEM 1 & CLEAN WITH MEK.
 3. ABRABE ITEM 2 WITH SANDPAPER & CLEAN WITH MEK & ALCOHOL.
 4. BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

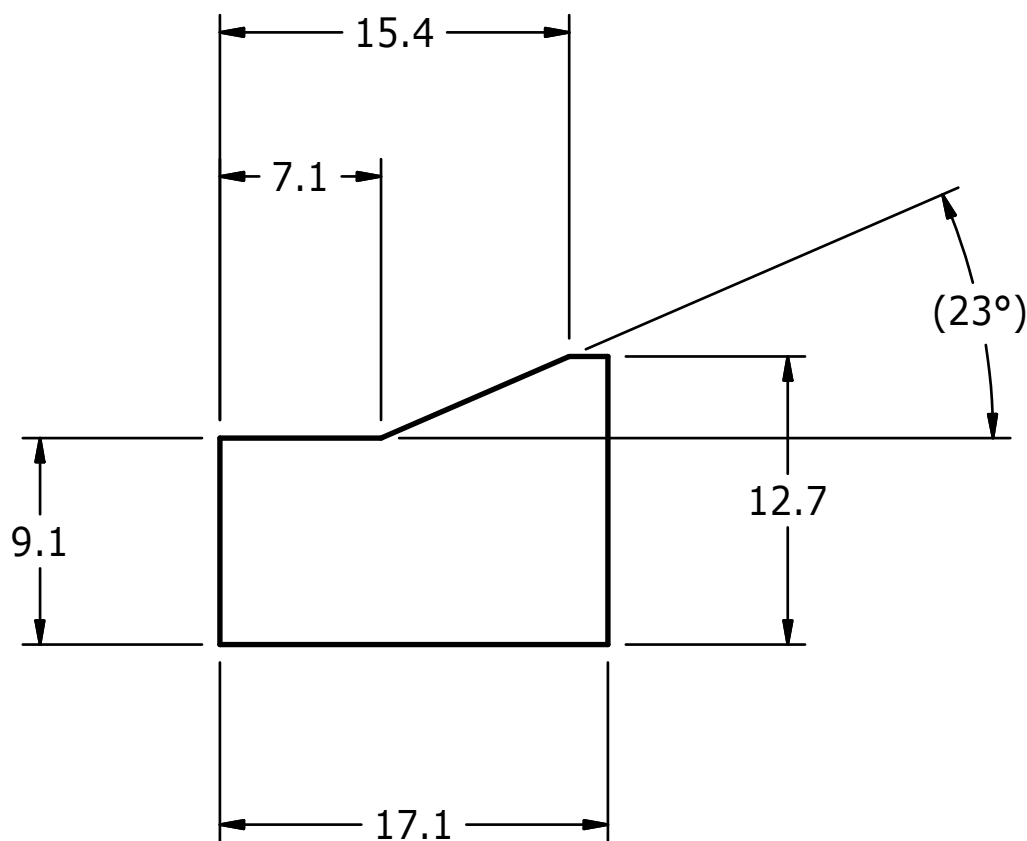
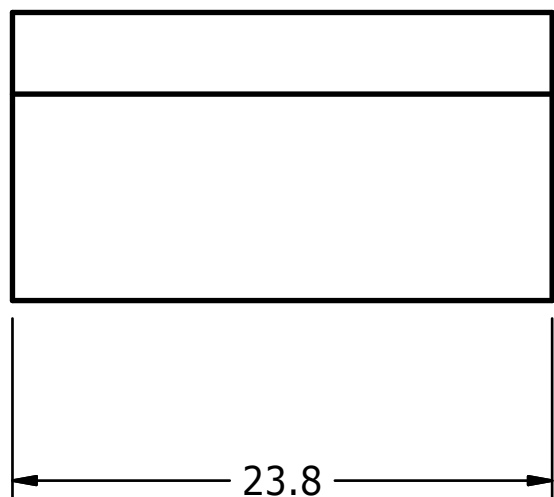
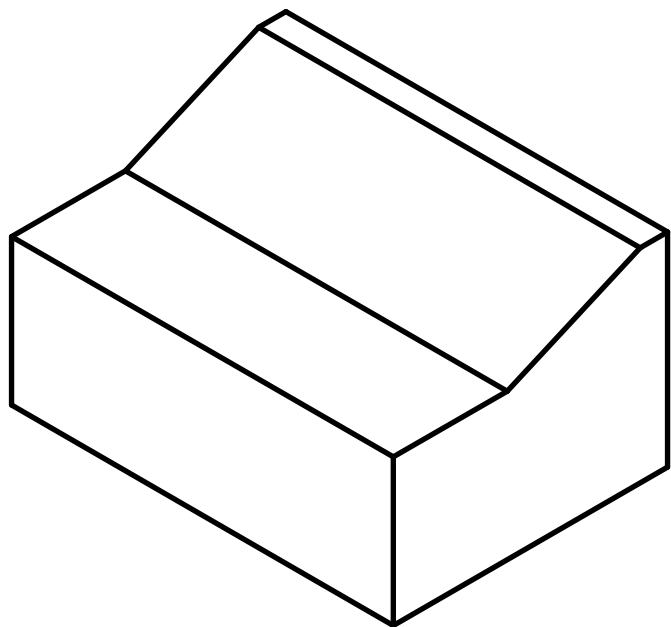
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7529	DORSI/PLANTAR SOFT STOP
1	1	472-7528	STOP BRACKET, REAR DORSI/PLANTAR

PARTS LIST



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED ENG APPROVED	DATE 5/11/2009	STOP ASSEMBLY, PLANTAR THOR M	
MATERIAL HEAT TREAT N/A FINISH N/A	THIRD ANGLE PROJECTION		SIZE A3	DRAWING NUMBER 472-7527
			SCALE: 2:1	SHEET 1 OF 1

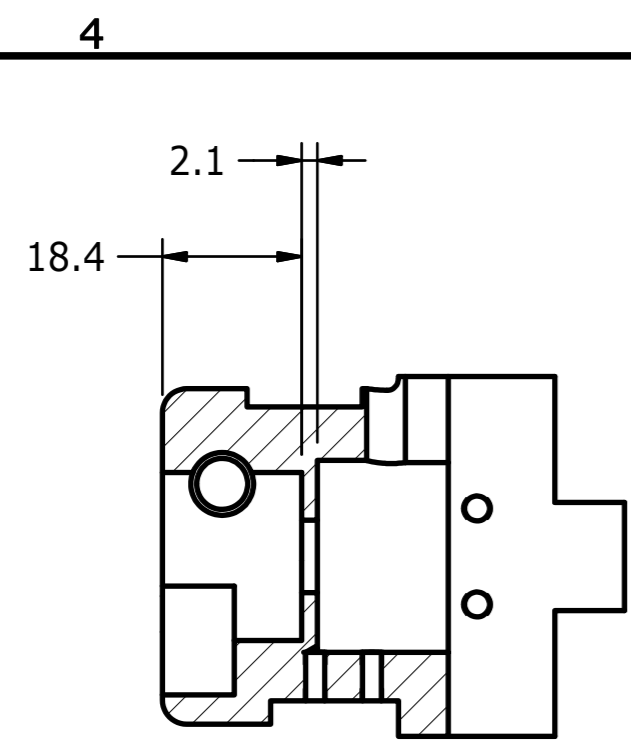


<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE	STOP BRACKET, REAR DORSI/PLANTAR THOR M		
	DRAWN JIM CLEVENGER	7/30/2015			
	CHECKED		 THIRD ANGLE PROJECTION	SIZE A	DRAWING NUMBER 472-7528
MATERIAL Aluminum 6061	ENG	SCALE: 1:1		SHEET 1 OF 1	
HEAT TREAT	APPROVED				
FINISH BLUE ANODIZE					

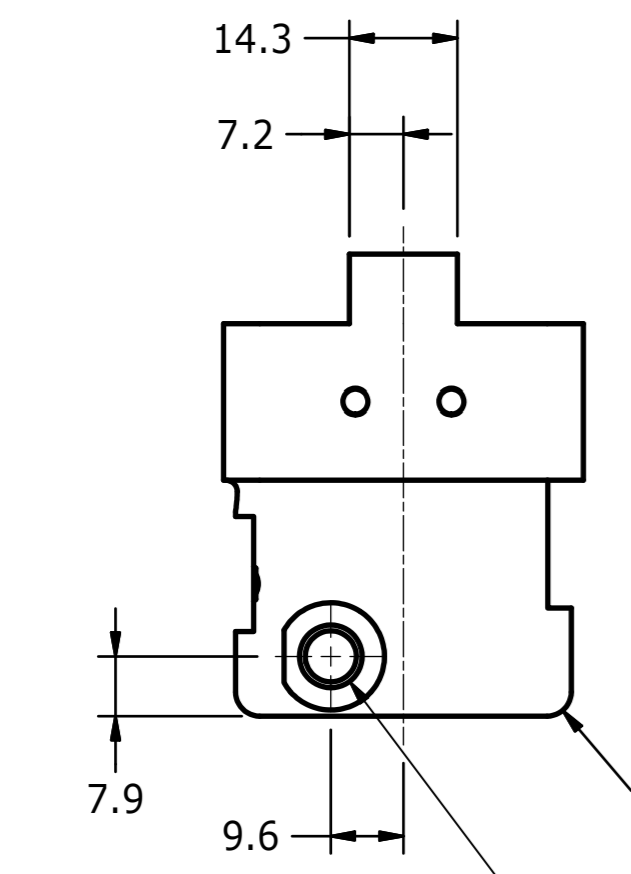
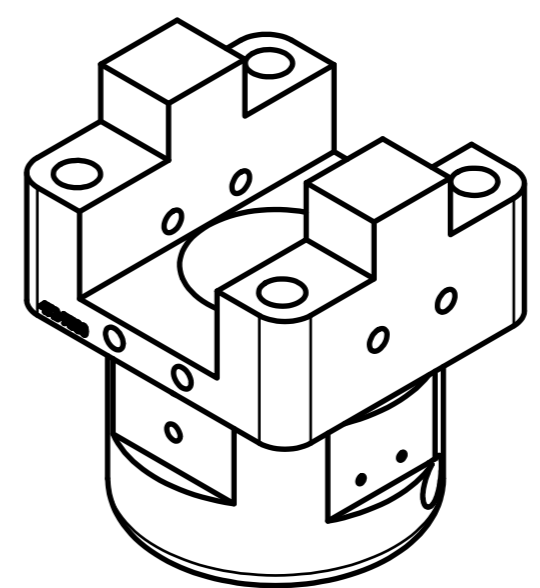
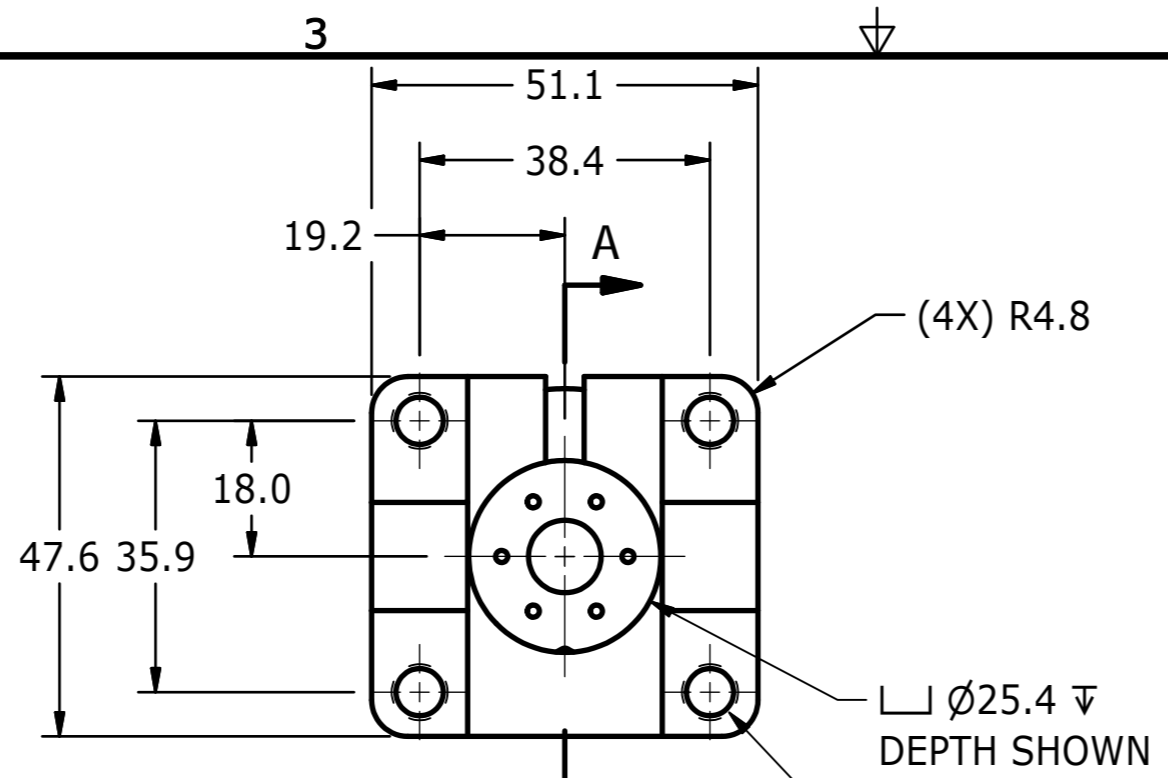


UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

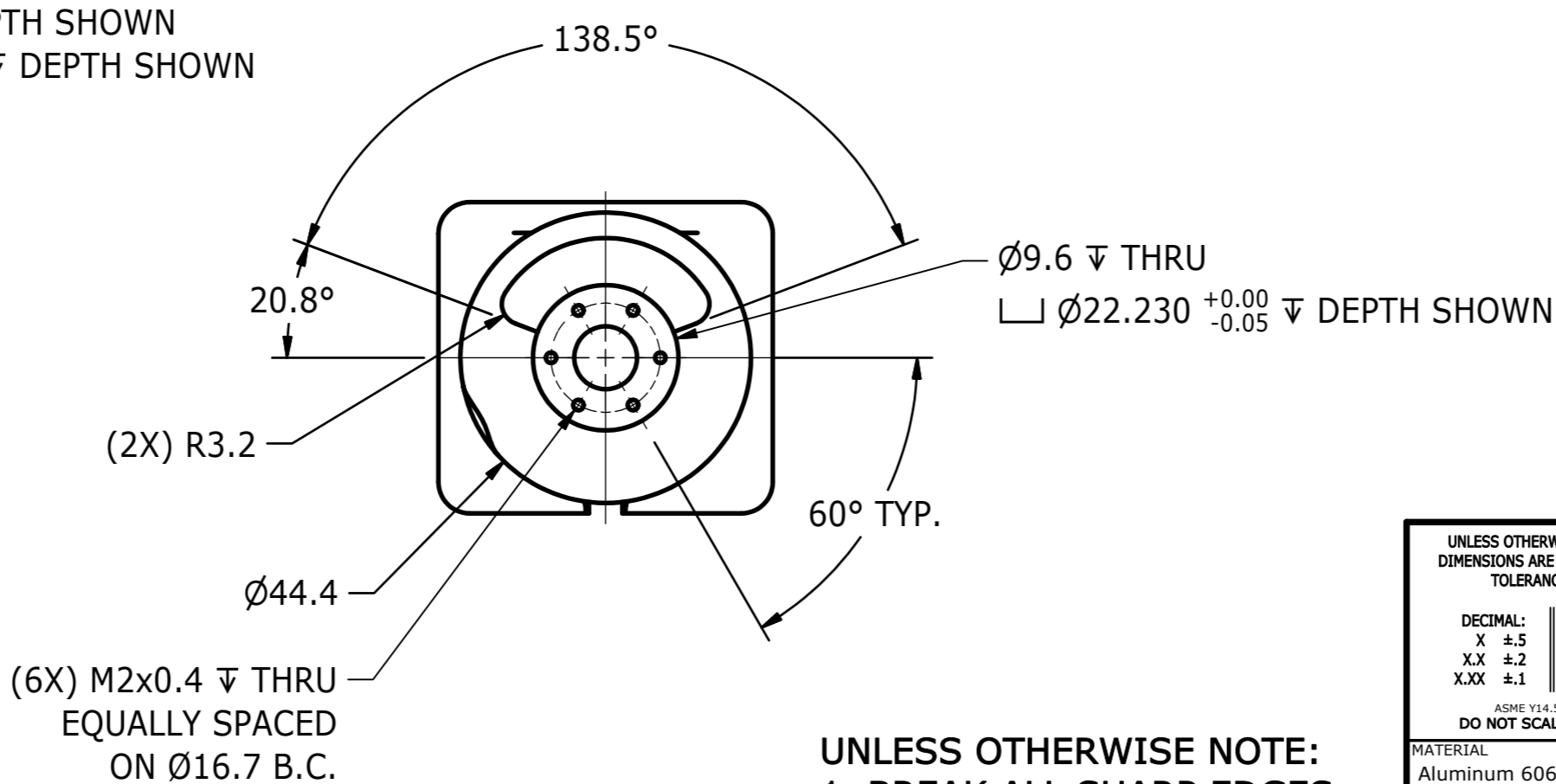
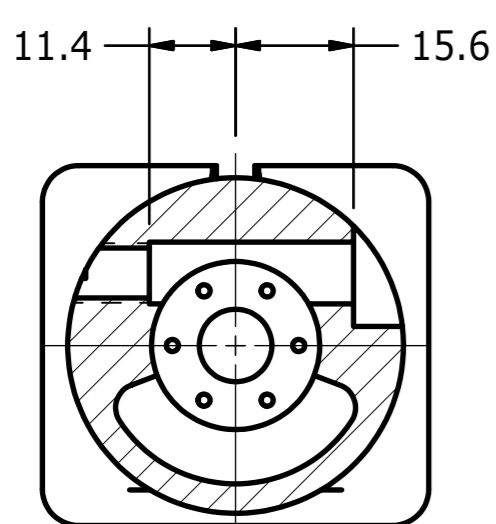
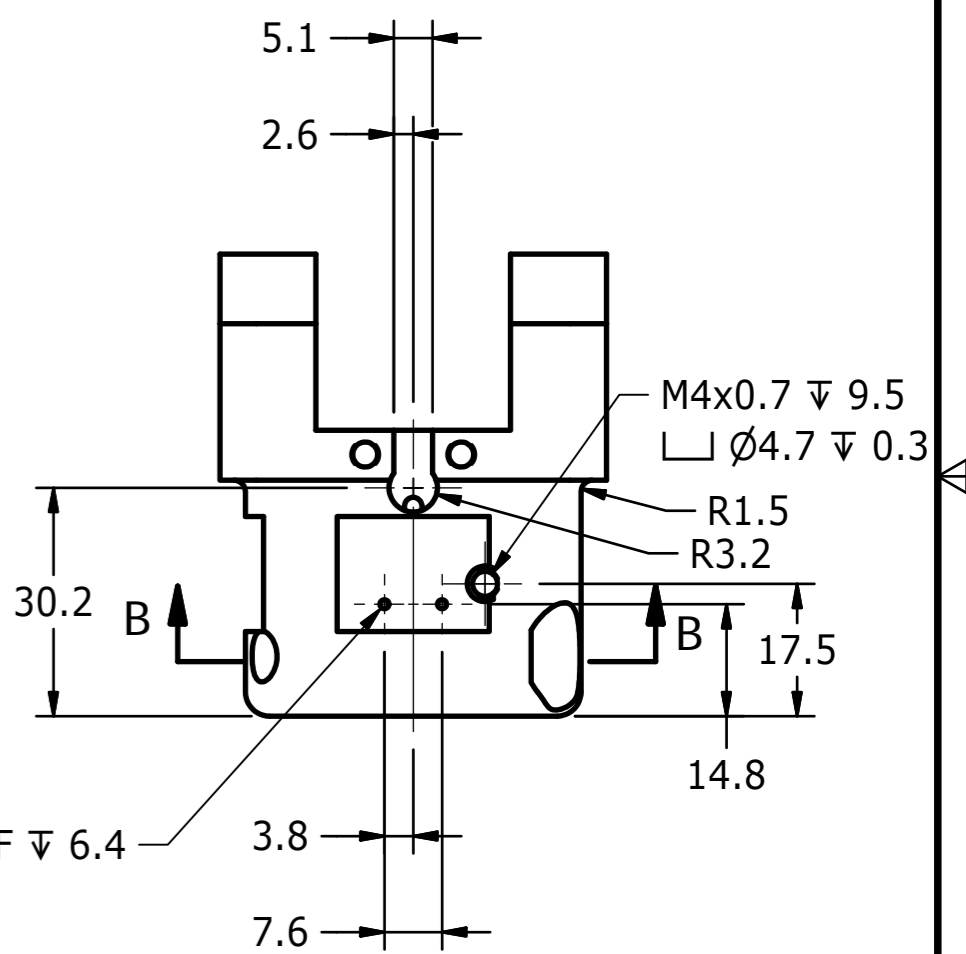
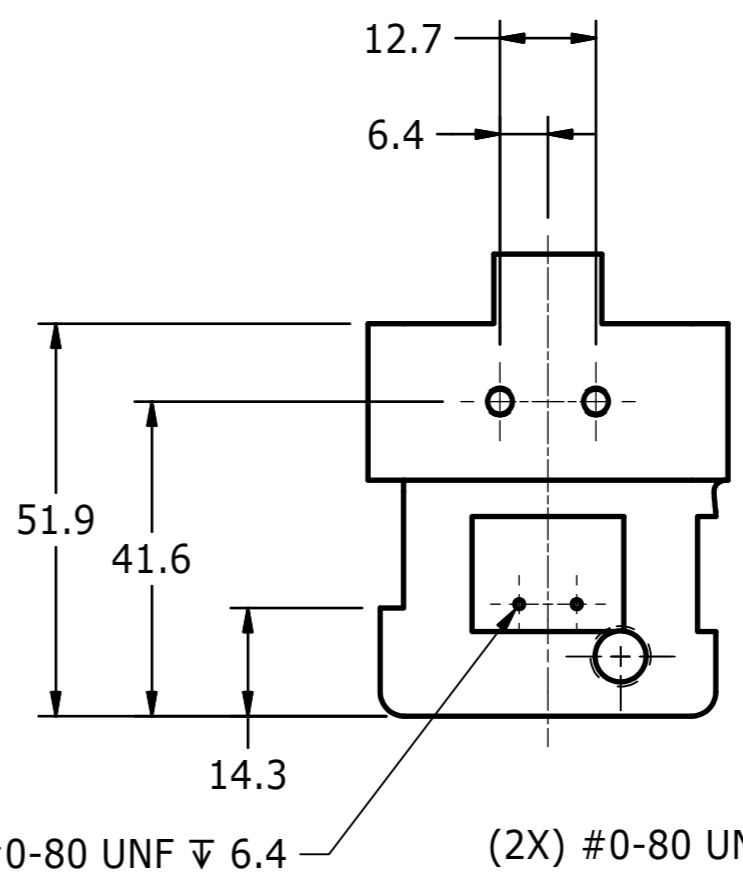
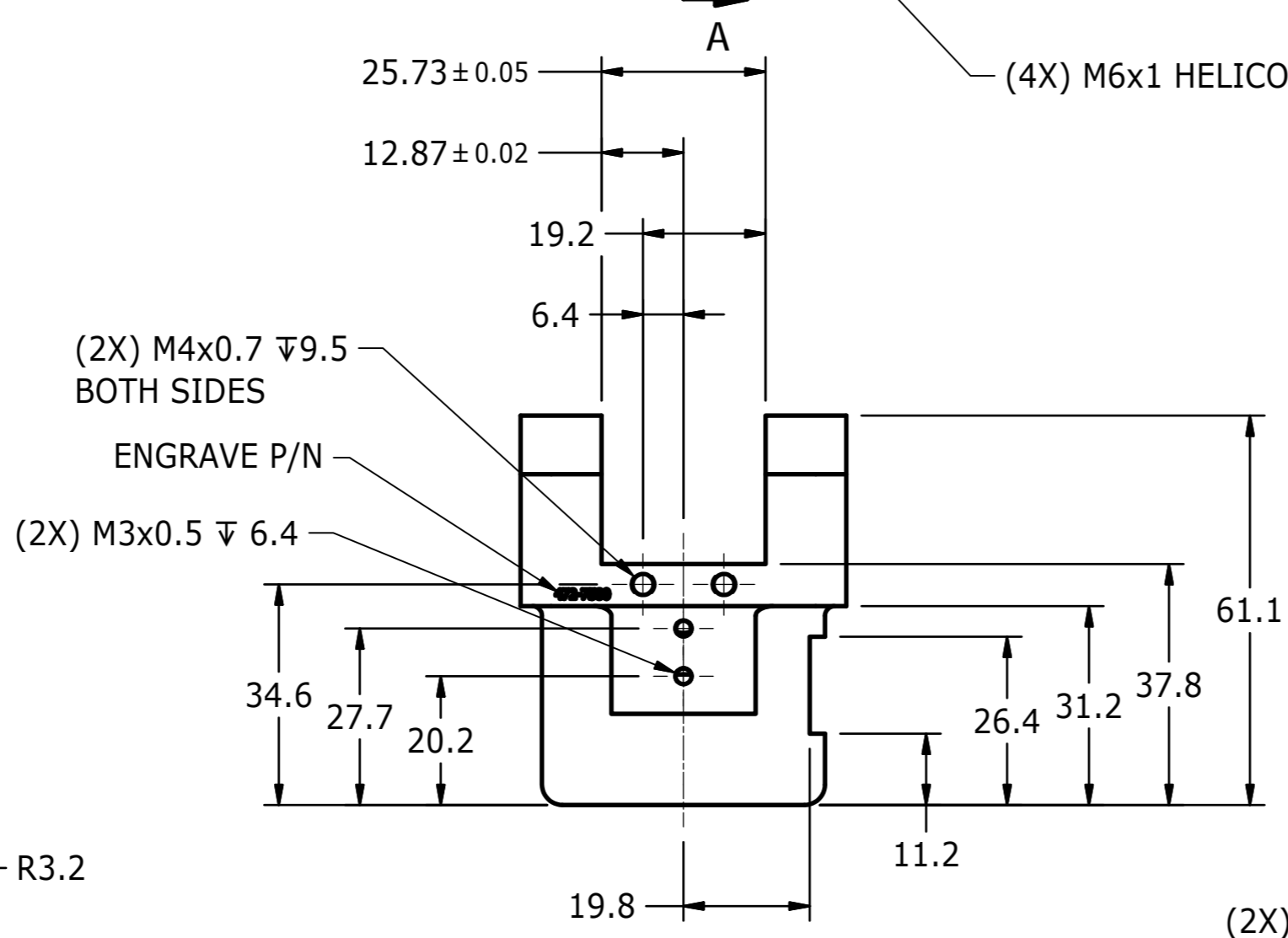
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	DORSI/PLANTAR SOFT STOP THOR-M	
DRAWN B. WADE	5/11/2009	 THIRD ANGLE PROJECTION		
MATERIAL NEOPRENE 78 ±5 SHORE A	CHECKED	SIZE A3	DRAWING NUMBER 472-7529	REV
HEAT TREAT N/A	ENG	SCALE: 3:1	SHEET 1	OF 1
FINISH N/A	APPROVED			



SECTION A-A
SCALE 1 : 1

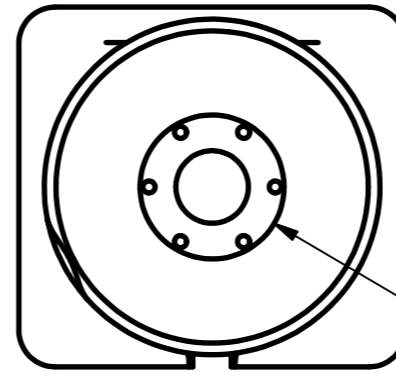
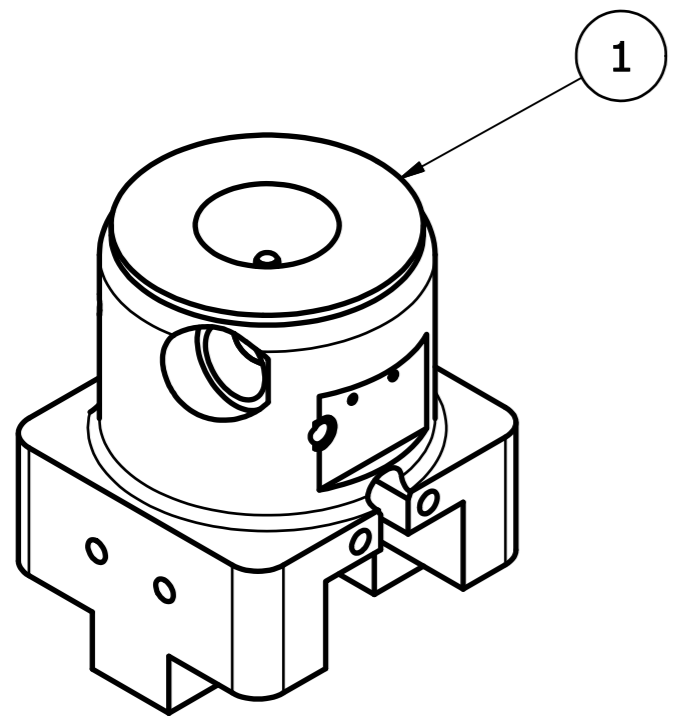


SECTION B-B
SCALE 1 : 1

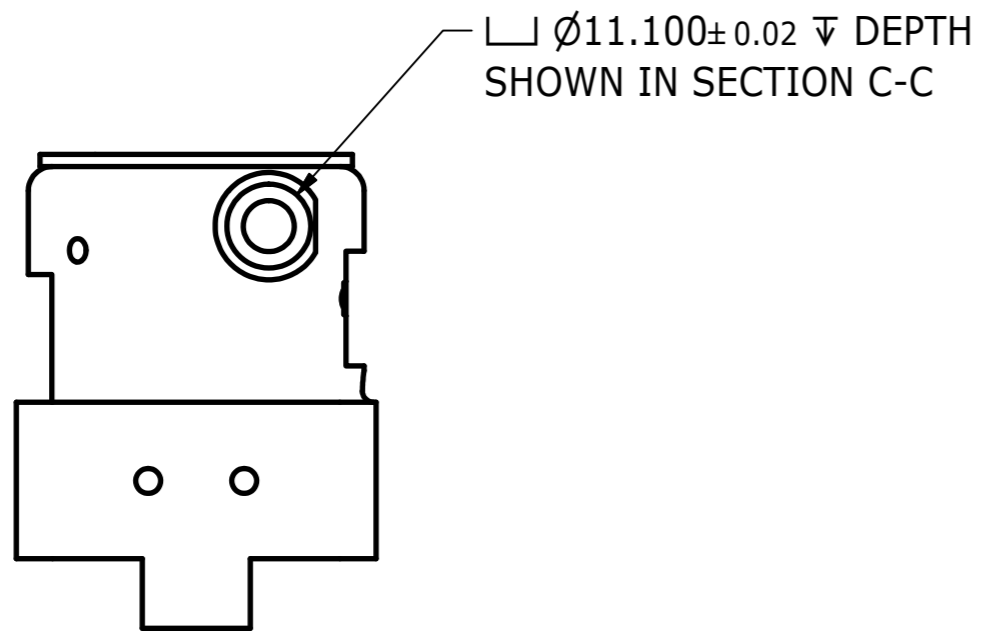


UNLESS OTHERWISE NOTE:
1. BREAK ALL SHARP EDGES.

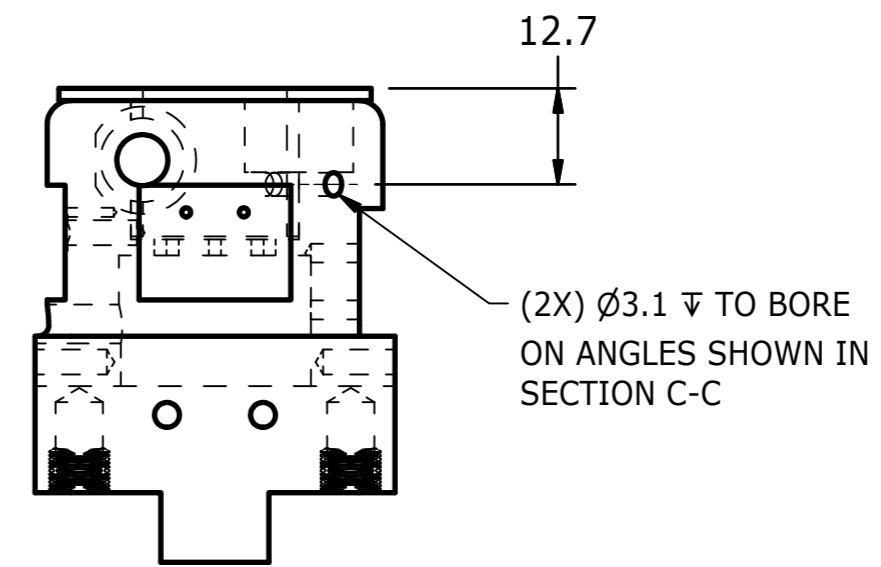
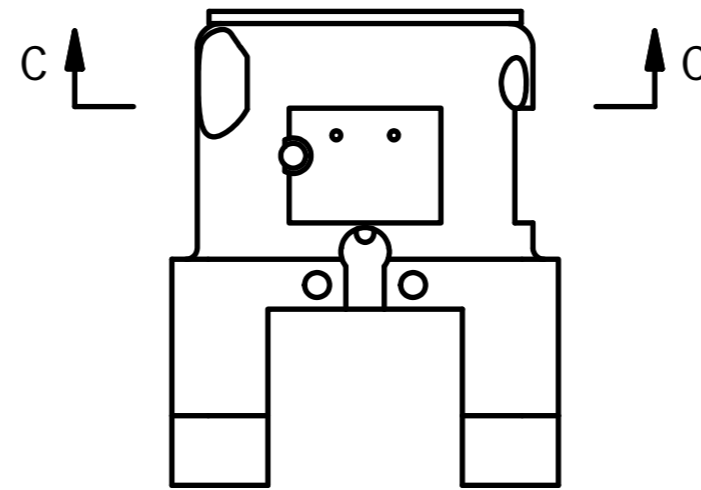
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		BASE, TORQUE - ANKLE TOP	
DRAWN B. WADE		12/16/2009		THOR-M	
CHECKED TMV		2/2/2010		SIZE A2	
MATERIAL Aluminum 6061		ENG		DRAWING NUMBER 472-7580	
HEAT TREAT N/A		APPROVED		SCALE: 1:1	
FINISH BLUE ANODIZE		THIRD ANGLE PROJECTION		SHEET 1 OF 2	



□ $\varnothing 19.050 \pm 0.01 \nabla 19.700$

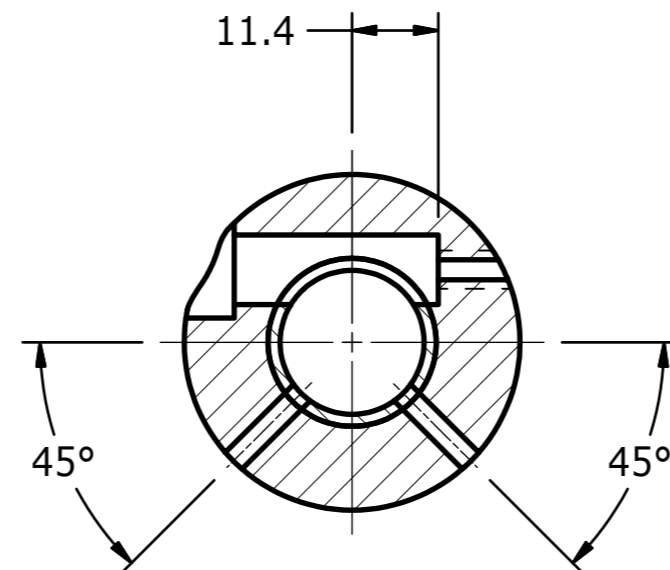
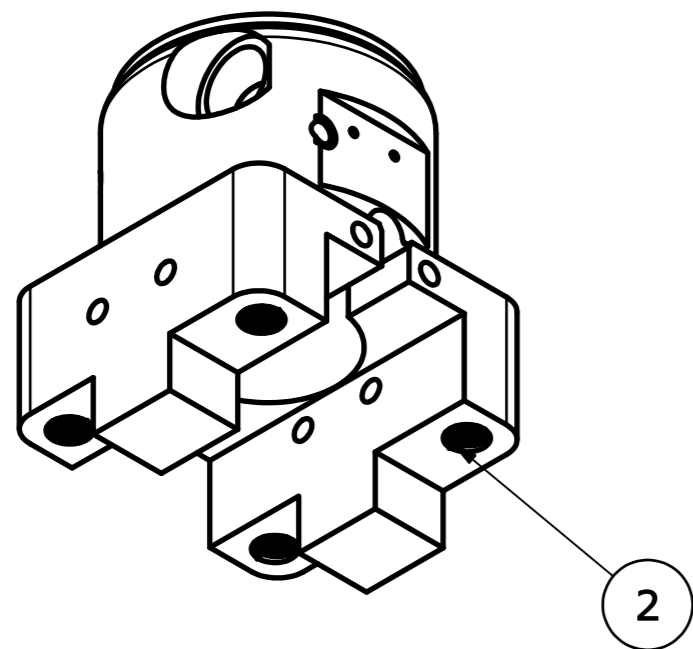


□ $\varnothing 11.100 \pm 0.02 \nabla$ DEPTH SHOWN IN SECTION C-C



12.7

(2X) $\varnothing 3.1 \nabla$ TO BORE ON ANGLES SHOWN IN SECTION C-C



SECTION C-C
SCALE 1 : 1

NOTES:
1. AFTER ANODIZE, INSTALL ITEM 1 WITH LOCTITE 262, AND ITEM 2.
2. MACHINE HOLES AS INDICATED.

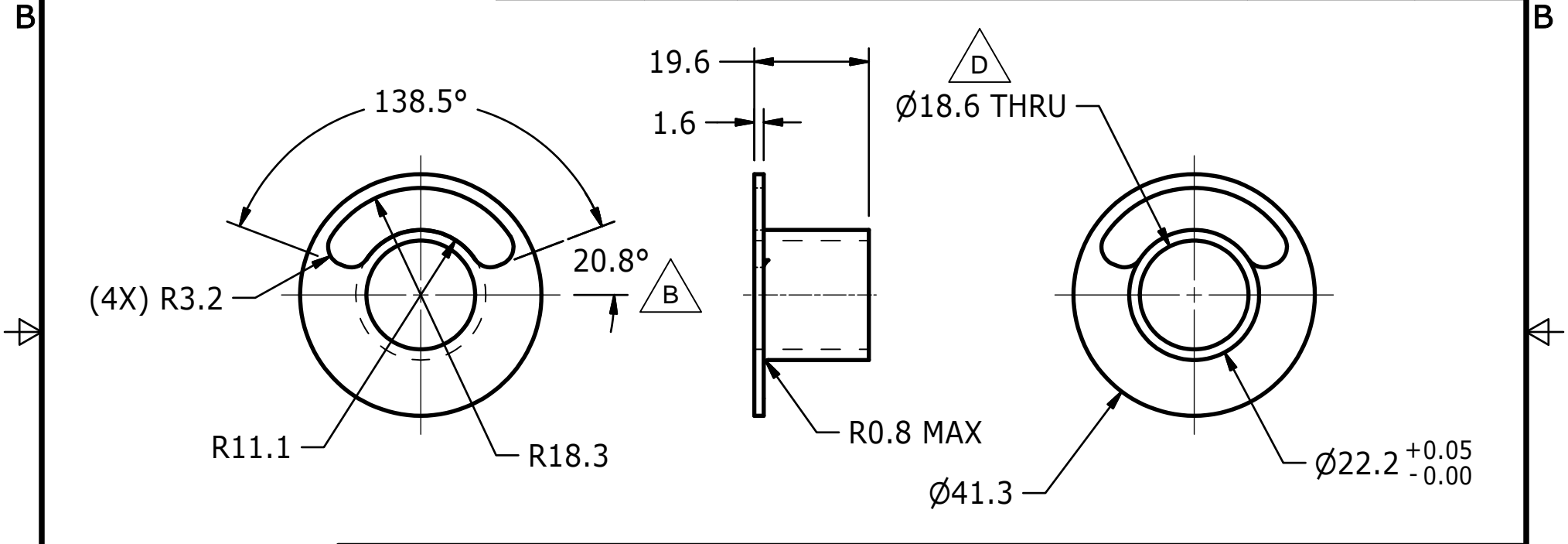
UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	9010437	HELICOIL, M6 x 1 x 6
1	1	472-7521	THRUST BUSHING

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		MACHINED ↓ ANGLES ±.5°		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		BASE, TORQUE - ANKLE TOP			
DRAWN B. WADE		12/16/2009		THOR M			
CHECKED TMV		2/2/2010		SIZE A2		DRAWING NUMBER 472-7580	
HEAT TREAT N/A		ENG		SCALE: 1:1		SHEET 2 OF 2	
FINISH BLUE ANODIZE		APPROVED		THIRD ANGLE PROJECTION			

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	REDRAWN IN INVENTOR	7/23/2007	KSG
	B	ADDED SLOT	10/3/2008	BLW
	C	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW
	D	REVISE ID, WAS 19.1 +.02/-.00	7/22/2015	JHC



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED ENG APPROVED	DATE 12/3/2008		THRUST BUSHING THOR M	
MATERIAL Delrin, White HEAT TREAT FINISH	THIRD ANGLE PROJECTION		SIZE A	DRAWING NUMBER 472-7521	REV D
			SCALE:	SHEET 1 OF 1	

4

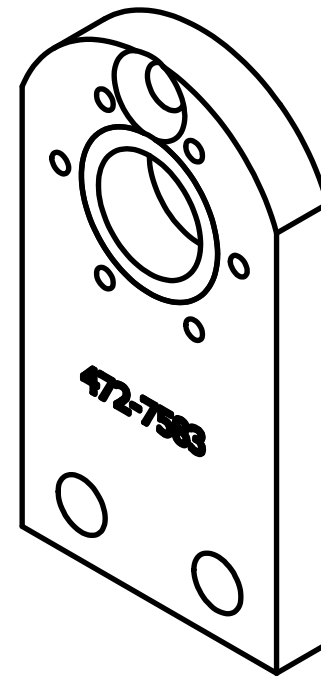
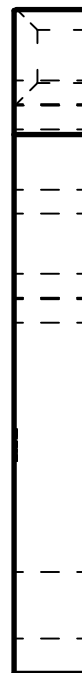
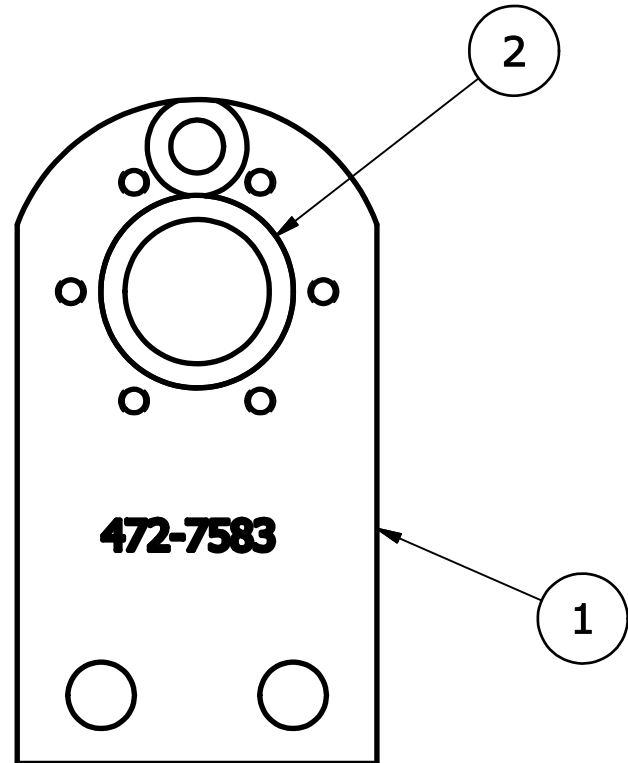
3

2

1

B

B



A

A

A

A

2	1	472-7542	BUSHING, ANKLE
1	1	472-7583	BUSHING PLATE, POT END
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5, X.X ±.2, X.XX ±.1</p> <p>MACHINED ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	7/22/2015	
	CHECKED		
MATERIAL	ENG		<p>THIRD ANGLE PROJECTION</p>
HEAT TREAT	APPROVED		
FINISH			<p>SIZE B</p> <p>DRAWING NUMBER 472-7582</p> <p>SCALE: SHEET 1 OF 1</p>

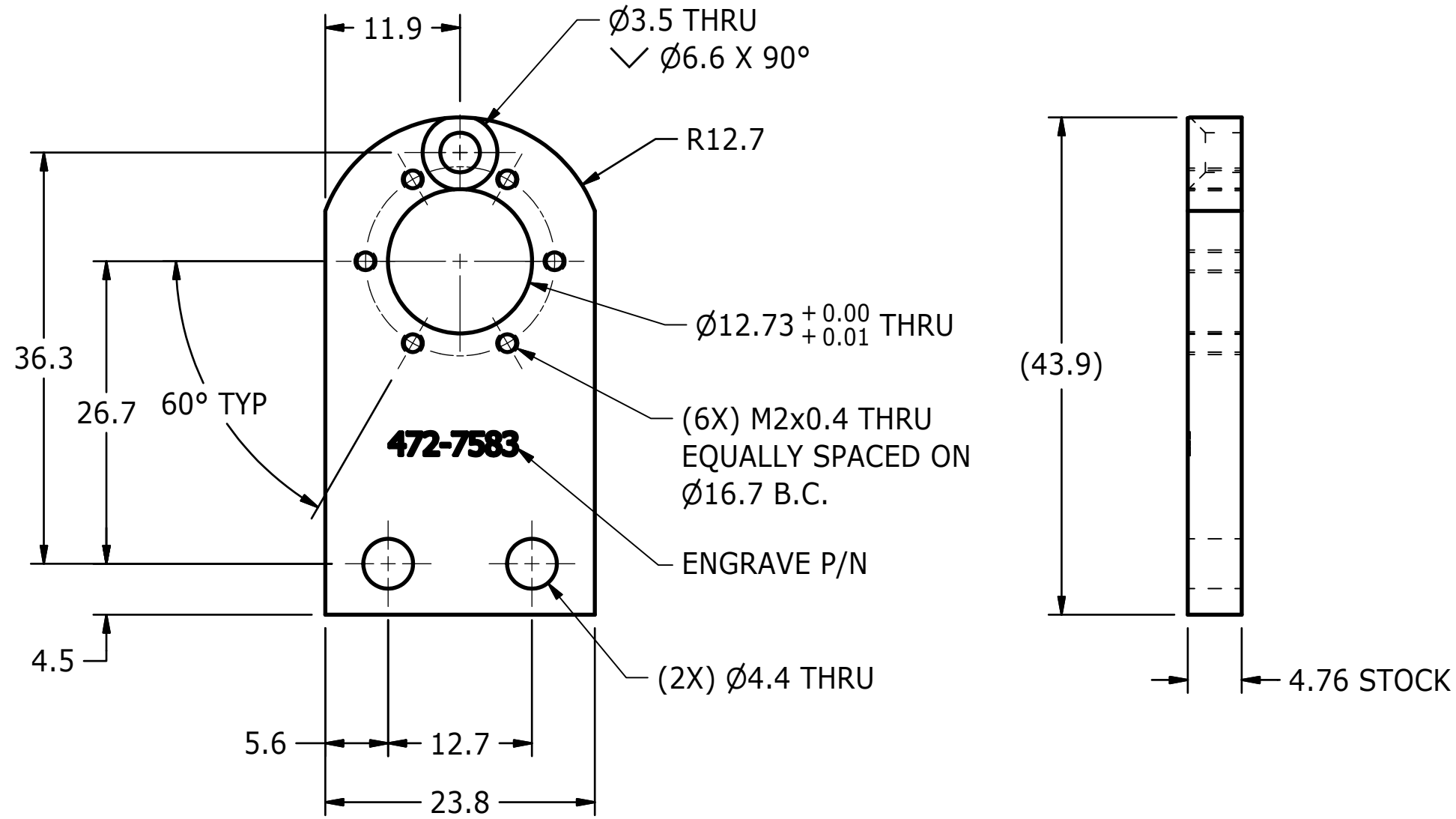
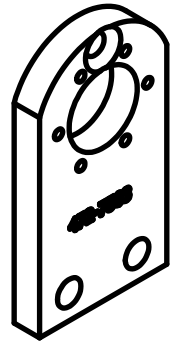
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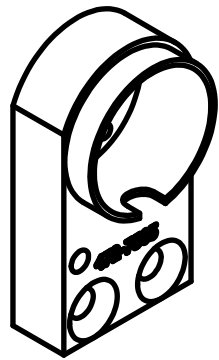
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1

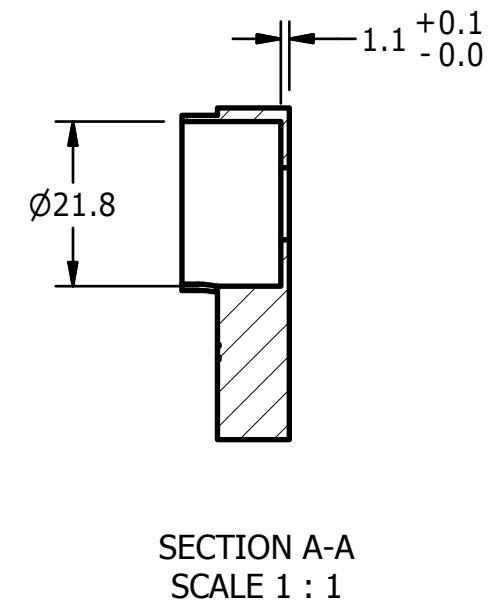
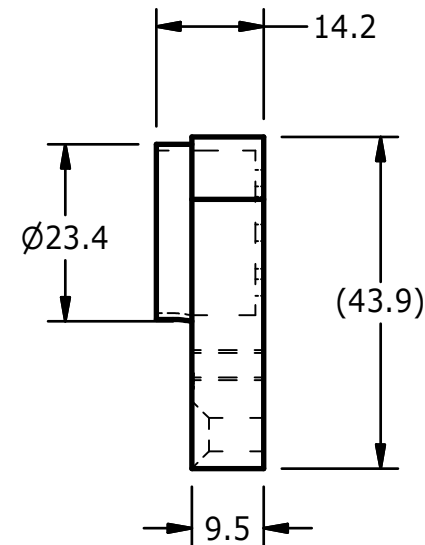
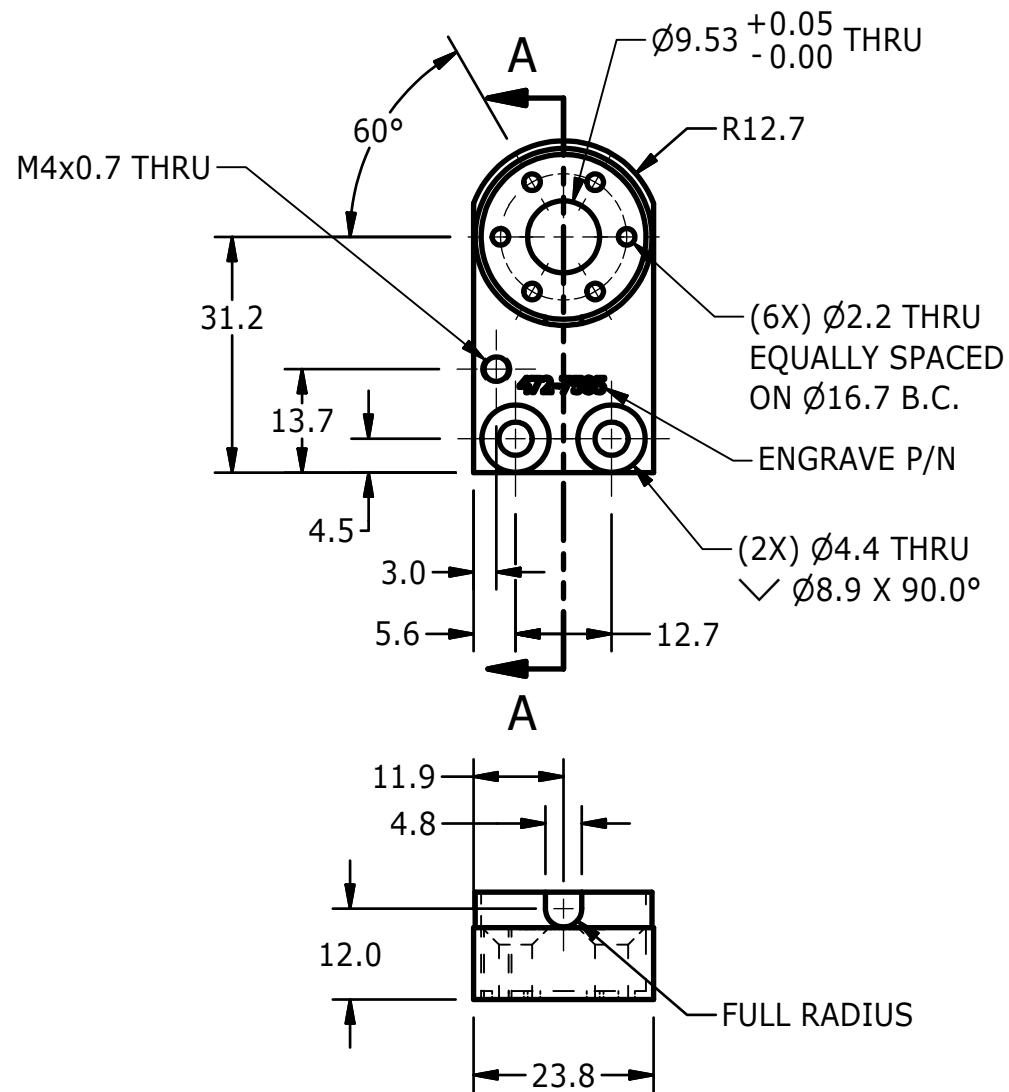
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGED TITLE BLOCK	8/3/2015	JHC




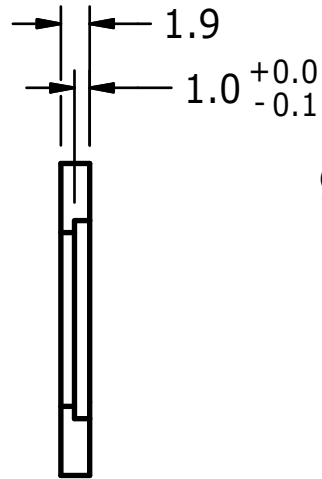
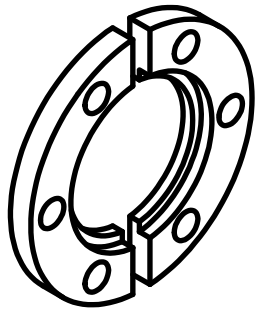
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: X ±.5, X.X ±.2, X.XX ±.1</p> <p>MACHINED 1.6, ANGLES ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p> <p>MATERIAL: Aluminum 6061</p> <p>HEAT TREAT:</p> <p>FINISH: BLUE ANODIZE</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
	APPROVALS	DATE	<p>PLATE, ANKLE BUSHING</p> <p>THOR M</p>	
	DRAWN: B. WADE	12/16/2009		
	CHECKED:		<p>THIRD ANGLE PROJECTION</p>	<p>SIZE: B</p>
APPROVED:		<p>SCALE: 2:1</p>	<p>SHEET: 1 OF 1</p>	<p>REV: A</p>



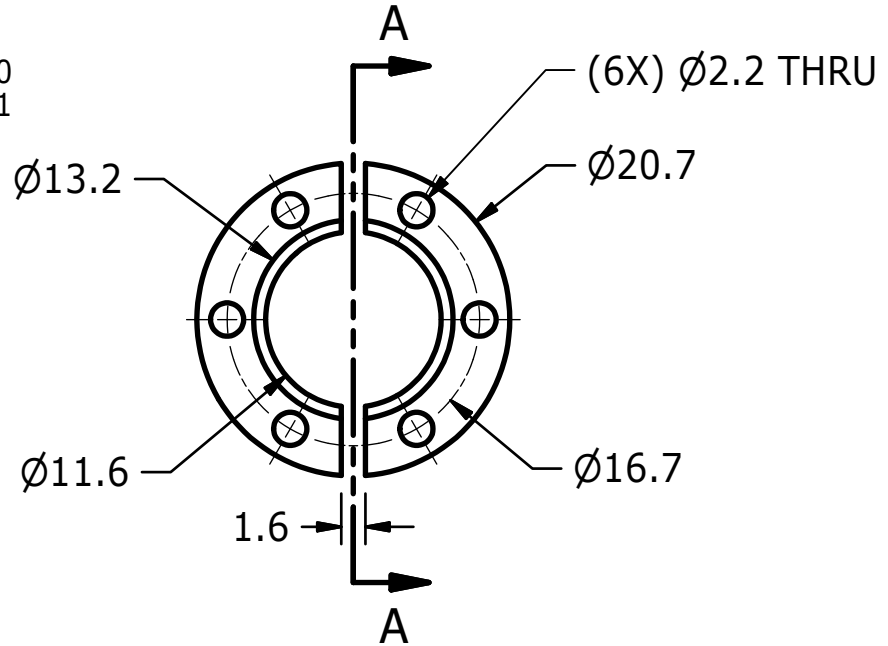
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ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANGED TITLE BLOCK	8/3/2015	JHC




UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED ± 0.1 ANGLES $\pm 0.5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	RETAINER, POTENTIOMETER THOR M	
	DRAWN B. WADE	12/16/2009		
	CHECKED			
MATERIAL Delrin, White	ENG			
HEAT TREAT	APPROVED			
FINISH				

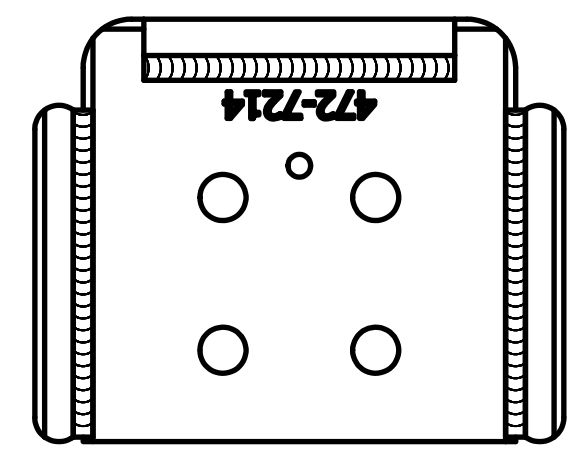
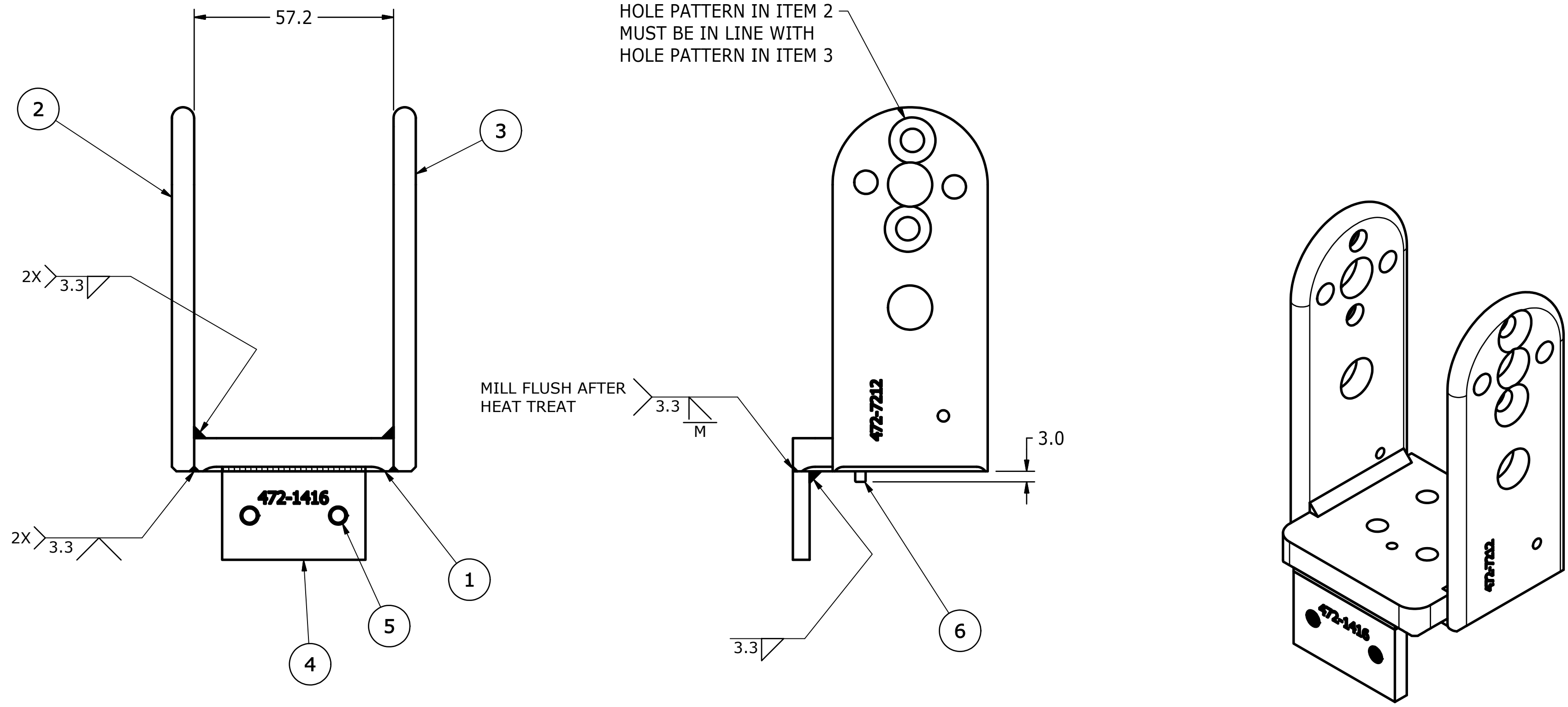


SECTION A-A
SCALE 2 : 1



<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: MACHINED</p> <p>X ±.5 1.6</p> <p>X.X ±.2 ANGLS</p> <p>X.XX ±.1 ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		 <p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
	APPROVALS	DATE	<p>POTENTIOMETER CLAMP</p>	
	DRAWN JIM CLEVENGER	7/22/2015	<p>THOR M</p>	
	CHECKED		<p>SIZE DRAWING NUMBER REV</p>	
MATERIAL Aluminum 6061	ENG	<p>A 472-7581</p>		
HEAT TREAT	APPROVED	<p>SCALE: SHEET</p> <p>2:1 1 OF 1</p>		
FINISH BLUE ANODIZE		<p>THIRD ANGLE PROJECTION</p>		

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW
	B	ADDED ITEM 6 DOWEL PIN	7/29/2015	JHC

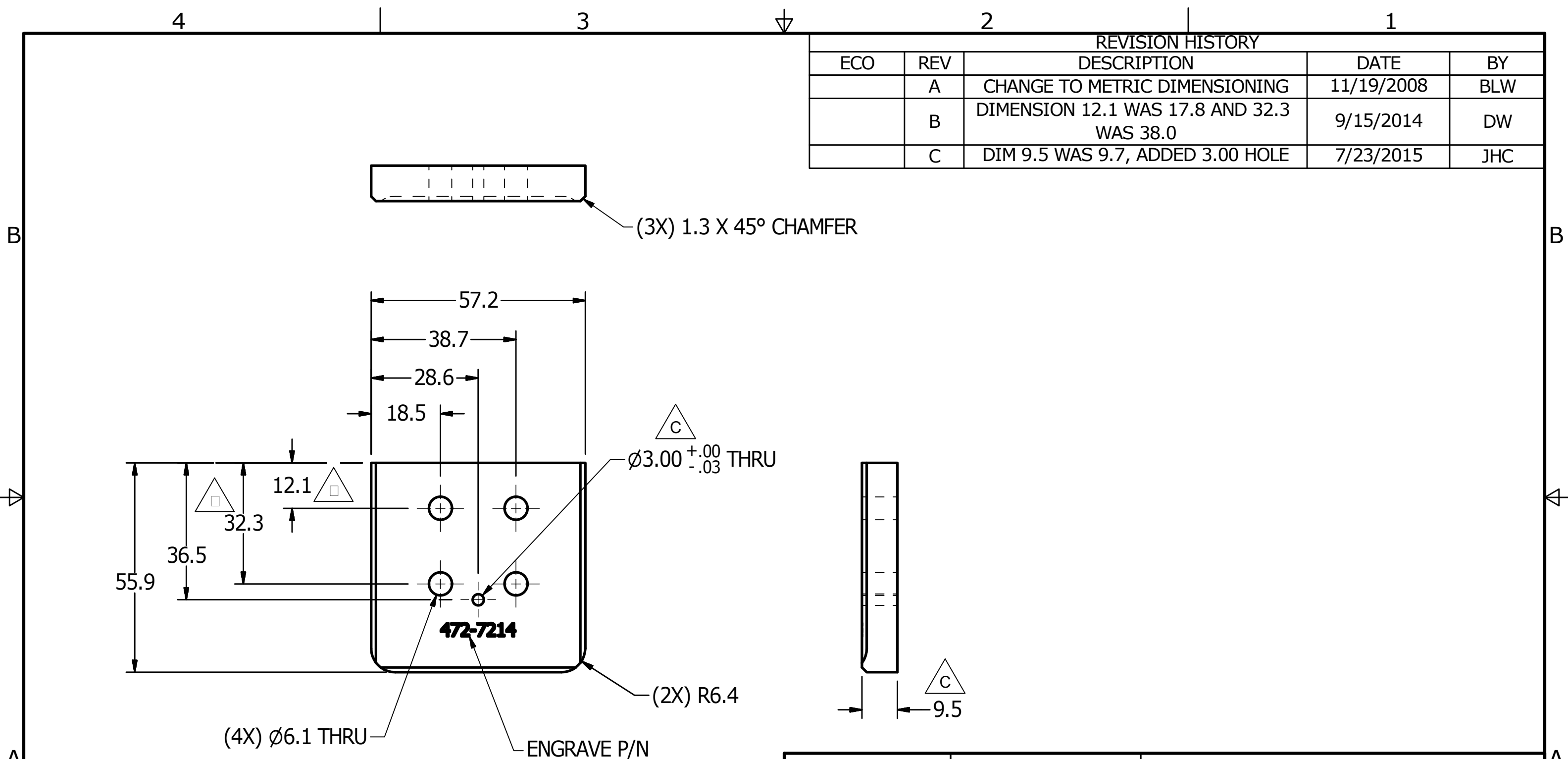



- NOTES**
- HEAT TREAT AFTER WELDING
 - ANODIZE AFTER HEAT TREAT
 - INSTALL ITEM 5 & 6 AFTER ANODIZE

ITEM	QTY	PART NUMBER	DESCRIPTION
6	1	9010688	PIN, DOWEL M3 X 8
5	2	9010040	M5 x .8 x 5mm HELICOIL
4	1	472-7216	STIFFENER, KNEE BUMPER
3	1	472-7212	CLEVIS, KNEE - LEFT
2	1	472-7210	CLEVIS, KNEE - RIGHT
1	1	472-7214	BOTTOM PLATE, KNEE CLEVIS

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ↓ ANGLES ±.5°	APPROVALS	DATE
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN B. WADE	11/19/2008
MATERIAL	CHECKED	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
HEAT TREAT T6	ENG	KNEE CLEVIS WELDMENT	
FINISH HARDCOAT ANODIZE	APPROVED	THOR-M	
		SIZE C	DRAWING NUMBER 472-7200
		THIRD ANGLE PROJECTION	REV B
		SCALE: 1:1	SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW
	B	DIMENSION 12.1 WAS 17.8 AND 32.3 WAS 38.0	9/15/2014	DW
	C	DIM 9.5 WAS 9.7, ADDED 3.00 HOLE	7/23/2015	JHC



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGL X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN B. WADE	11/19/2008	
	CHECKED		
MATERIAL Aluminum-6061-T6	ENG		SIZE: B SCALE: 1:1
HEAT TREAT	APPROVED		DRAWING NUMBER: 472-7214 SHEET: 1 OF 1
FINISH			REV: C

4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	C	REDRAWN IN INVENTOR	7/18/2007	BLW
	D	ADDED TOLERANCE TO .500 HOLES, ADDED 1.390 DIMENSION WITH TOLERANCE.	9/3/2008	TF
	E	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW
	F	CTSINK WAS 82°, B.C. WAS 1.000	7/23/2015	JHC

B

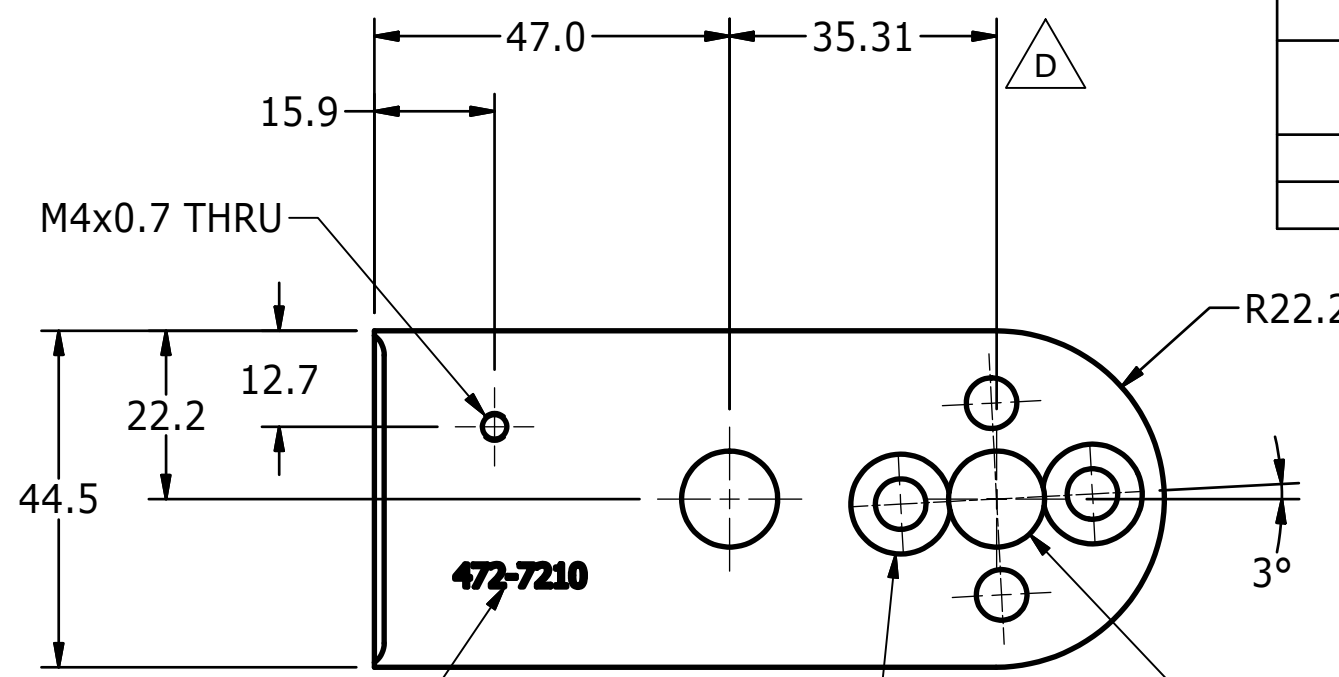
B

A

A

A

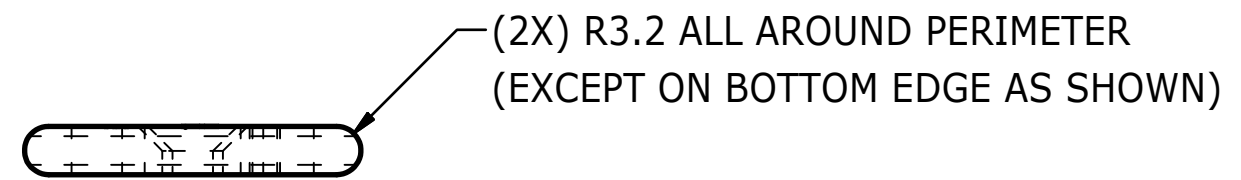
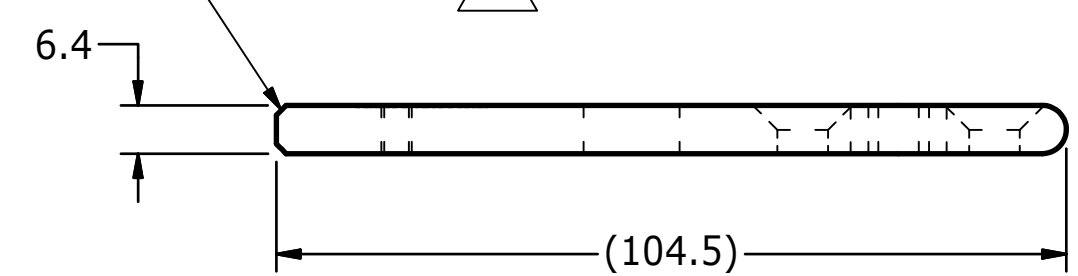
A



ENGRAVE P/N AT THIS LOCATION

(4X) $\varnothing 6.7$ THRU
 (2X) $\sphericalangle \varnothing 13.2 \times 90^\circ$
 EQUALLY SPACED ON $\varnothing 25.4$ B.C.

(2X) 1.3 X 45° CHAMFER
 ALONG BOTTOM EDGE



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X $\pm .5$ X.X $\pm .2$ X.XX $\pm .1$ MACHINED \sphericalangle 1.6 ANGLES $\pm .5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED	DATE 11/19/2008		CLEVIS, KNEE - RIGHT THOR M	
	MATERIAL Aluminum-6061-T6 HEAT TREAT FINISH	ENG APPROVED	SIZE B	DRAWING NUMBER 472-7210	REV F
			SCALE: 1:1	SHEET 1 OF 1	

4

3

2

1

4

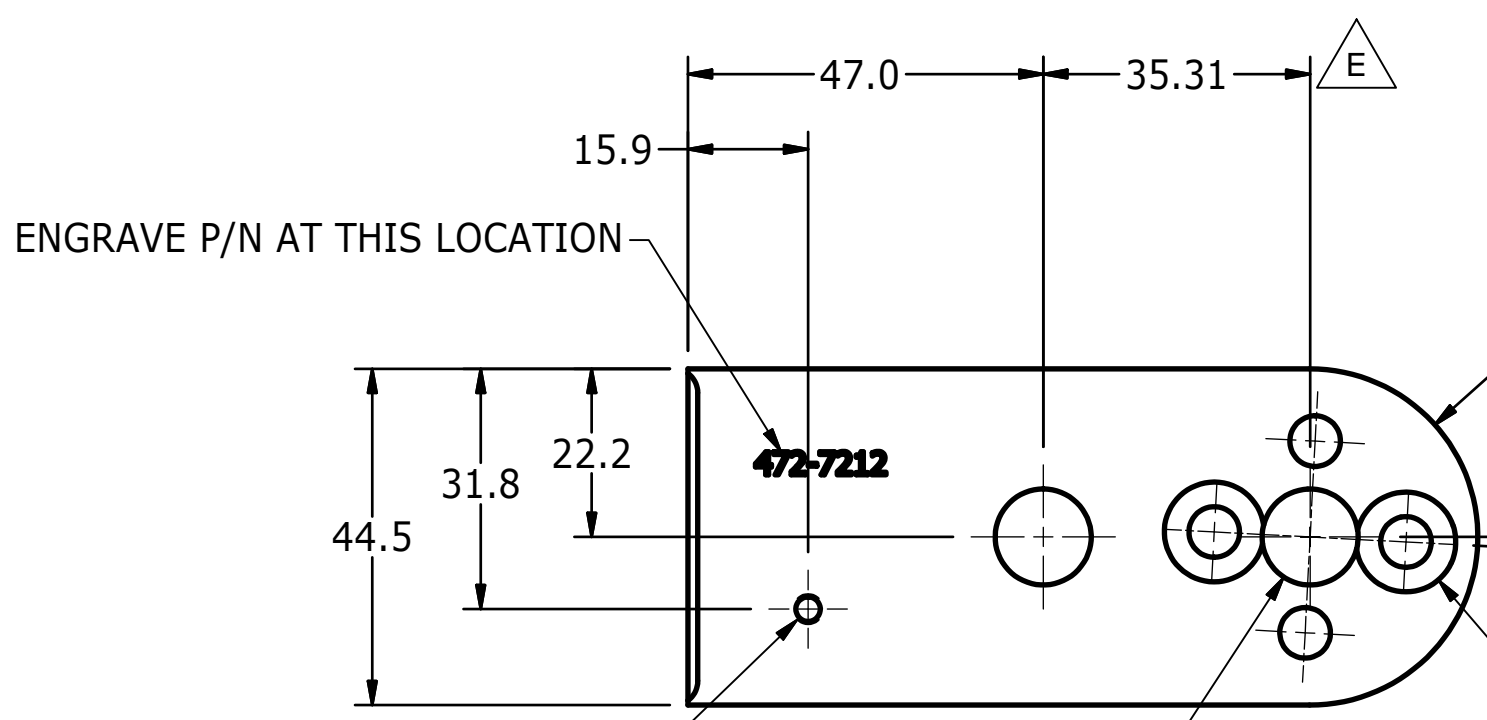
3

2

1

REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
	C	REDRAWN IN INVENTOR	7/18/2007	KSG
	D	ADDED CHAMFER TO BOTTOM, R.125 AROUND PERIMETER, .520 HOLE WAS .438	6/11/2008	TF
	E	ADDED TOLERANCE TO .500 HOLES, ADDED 1.390 DIMENSION WITH TOLERANCE.	9/3/2008	TF
	F	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW
	G	CTSINK WAS 82°, B.C. WAS 1.000	7/23/2015	JHC



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED $\frac{1.6}{\text{---}}$ ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		CLEVIS, KNEE - LEFT		
	MATERIAL Aluminum-6061-T6	DRAWN B. WADE	CHECKED	11/19/2008	THOR M	
	HEAT TREAT	ENG	APPROVED			SIZE: B SCALE: 1:1
FINISH				DRAWING NUMBER: 472-7212 SHEET: 1 OF 1	REV: G	

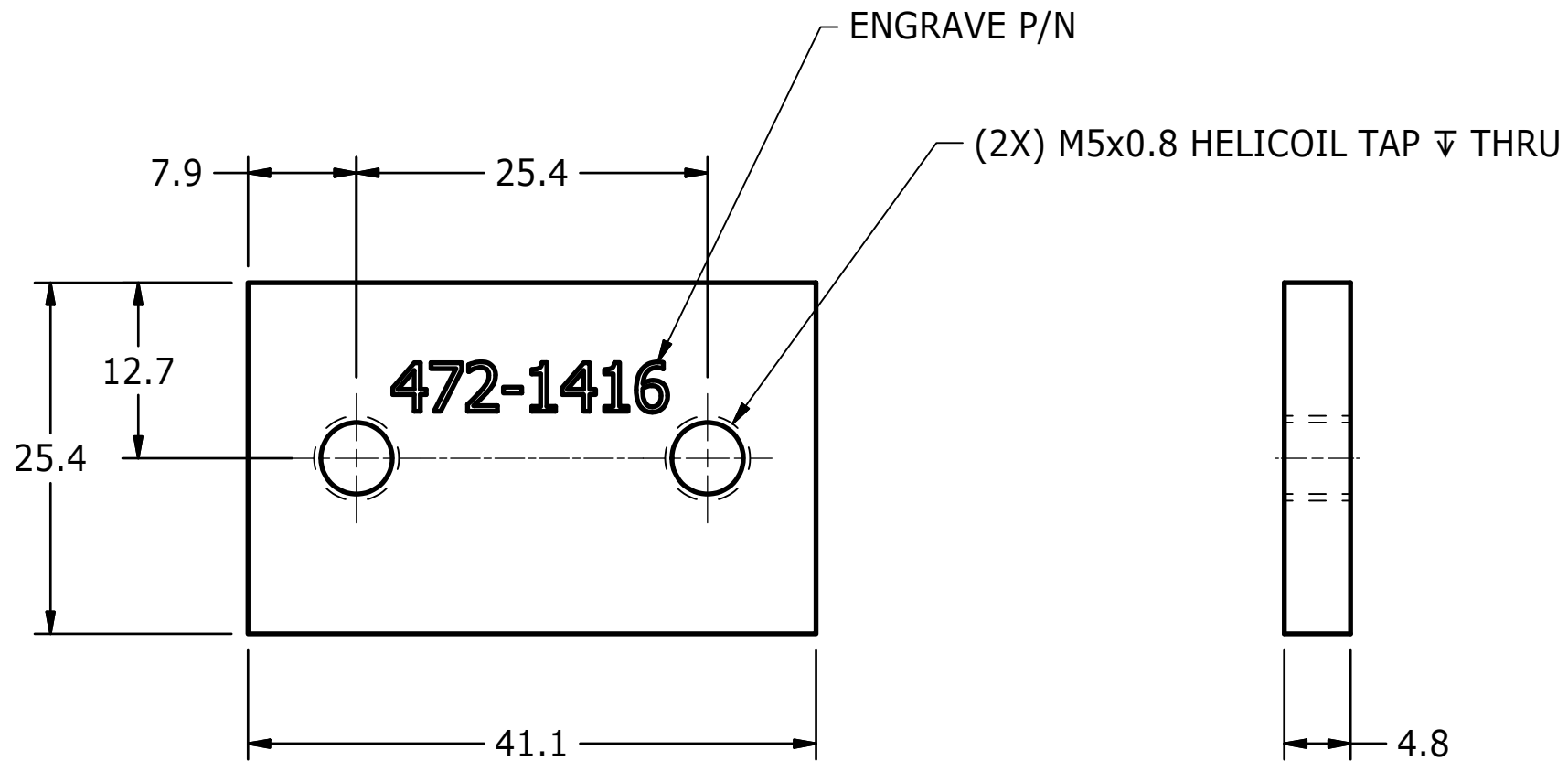
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3


2

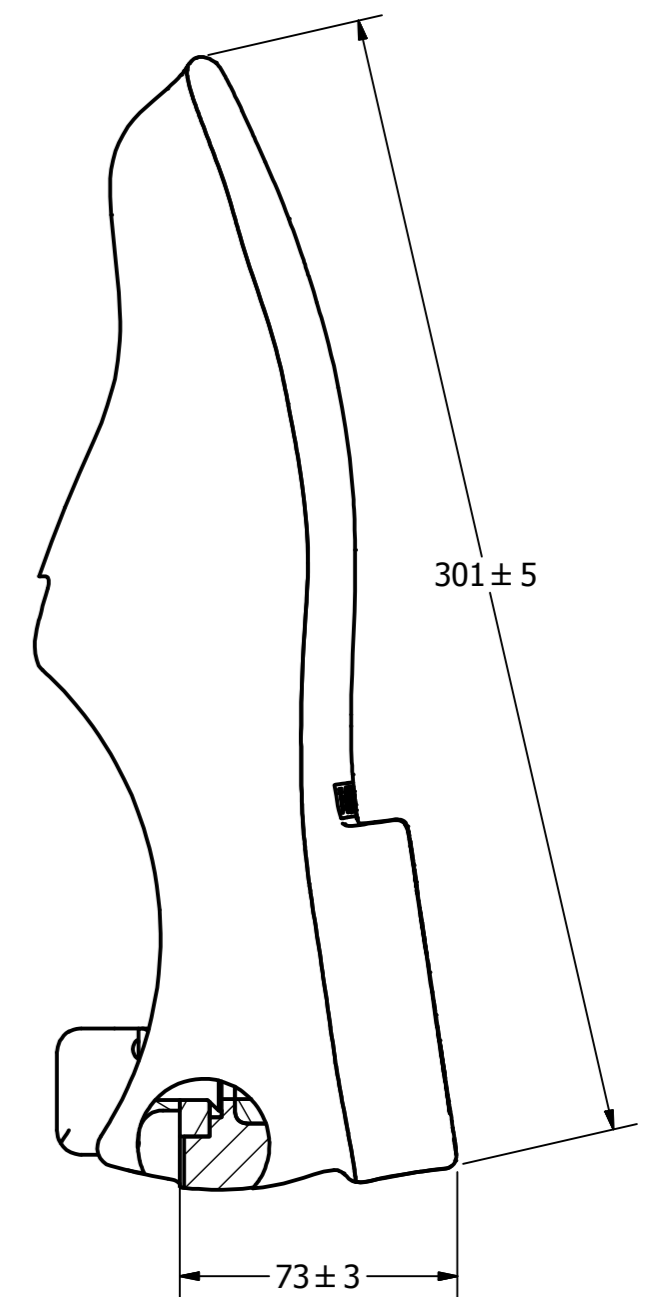
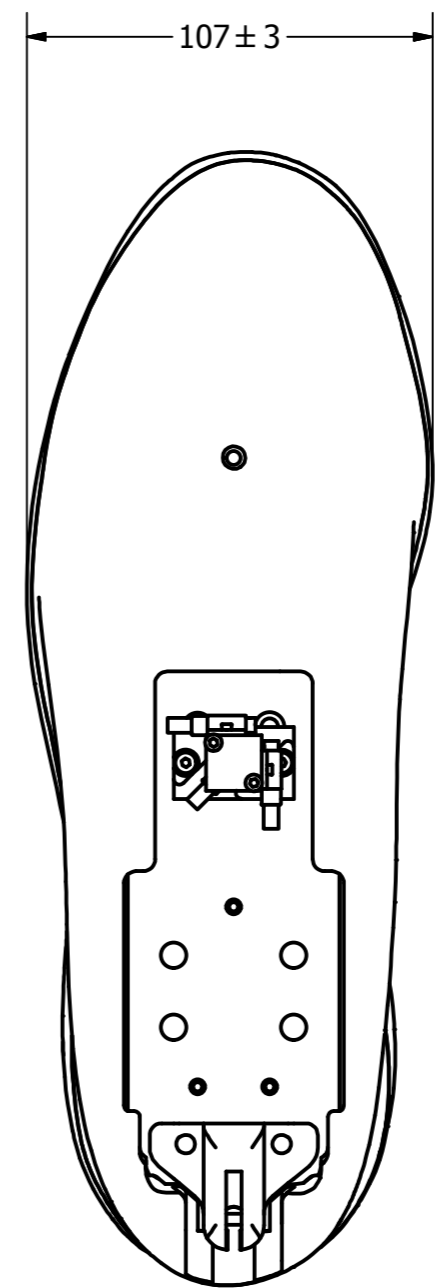
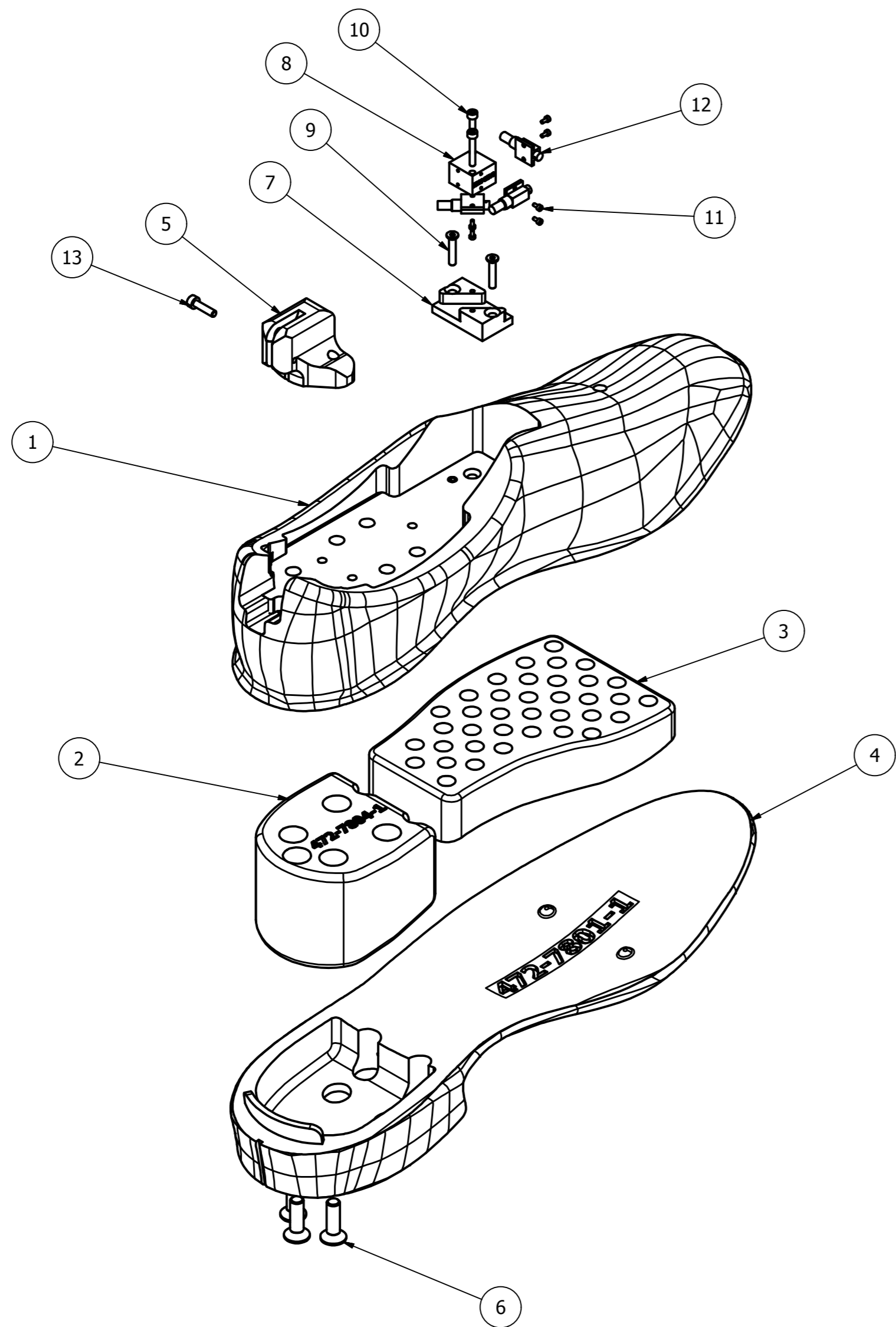
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGED TO METRIC DIMENSIONING	11/19/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES

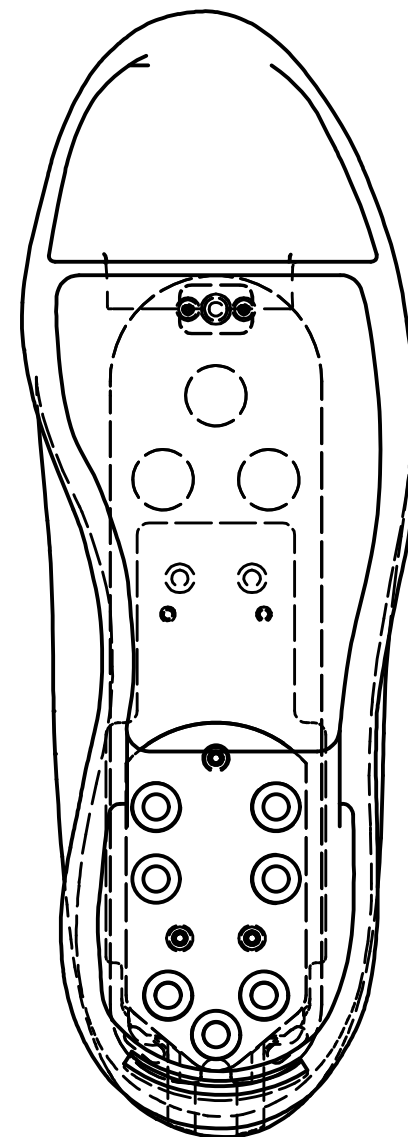
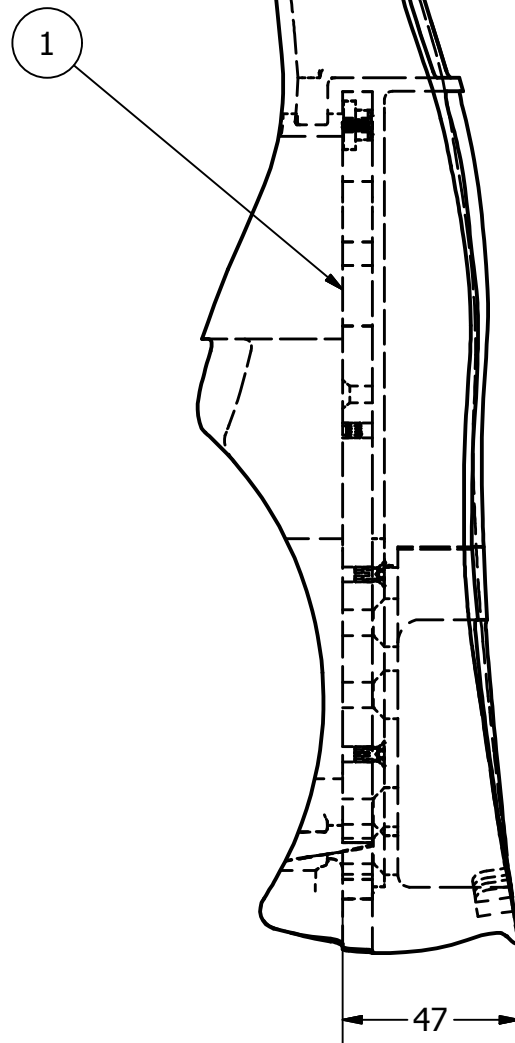
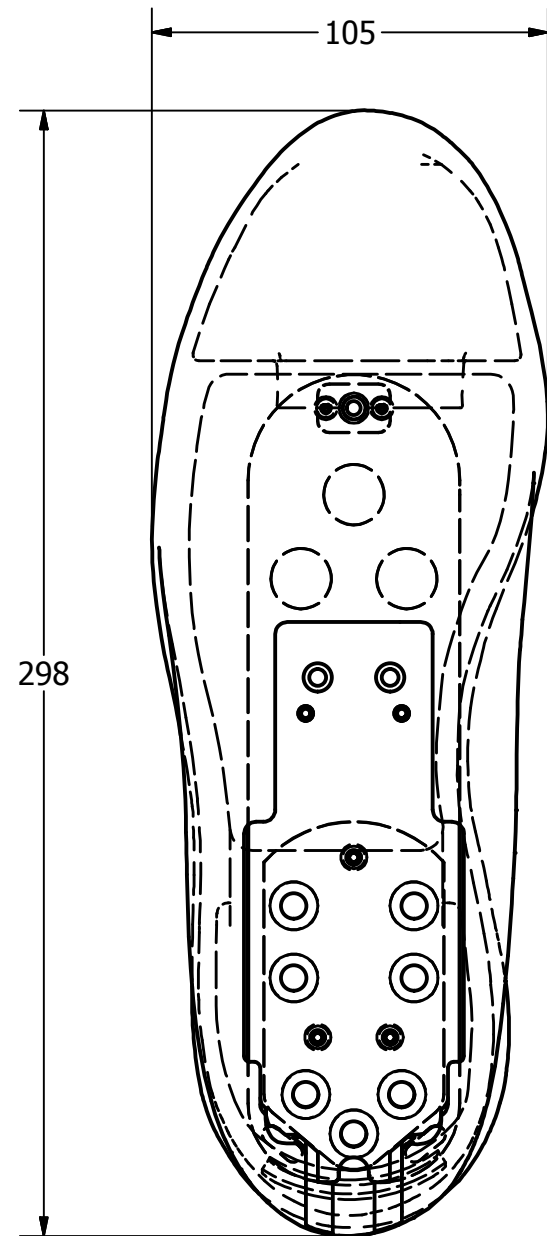
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE: ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: B. WADE CHECKED: TMV ENG: [] APPROVED: []		DATE 11/19/2008 12/11/2008	
MATERIAL: Aluminum-6061-T6 HEAT TREAT: N/A FINISH: N/A		STIFFENER, KNEE BUMPER THOR M		SIZE: A3 SCALE: 2:1
		DRAWING NUMBER: 472-7216 SHEET: 1 OF 1		REV: A





NOTES:
 1. BOND ITEMS 1, 2, 3, AND 4.
 2. MASS OF ALL PARTS SHOWN IN PARTS LIST 1.26kg ± 0.05kg

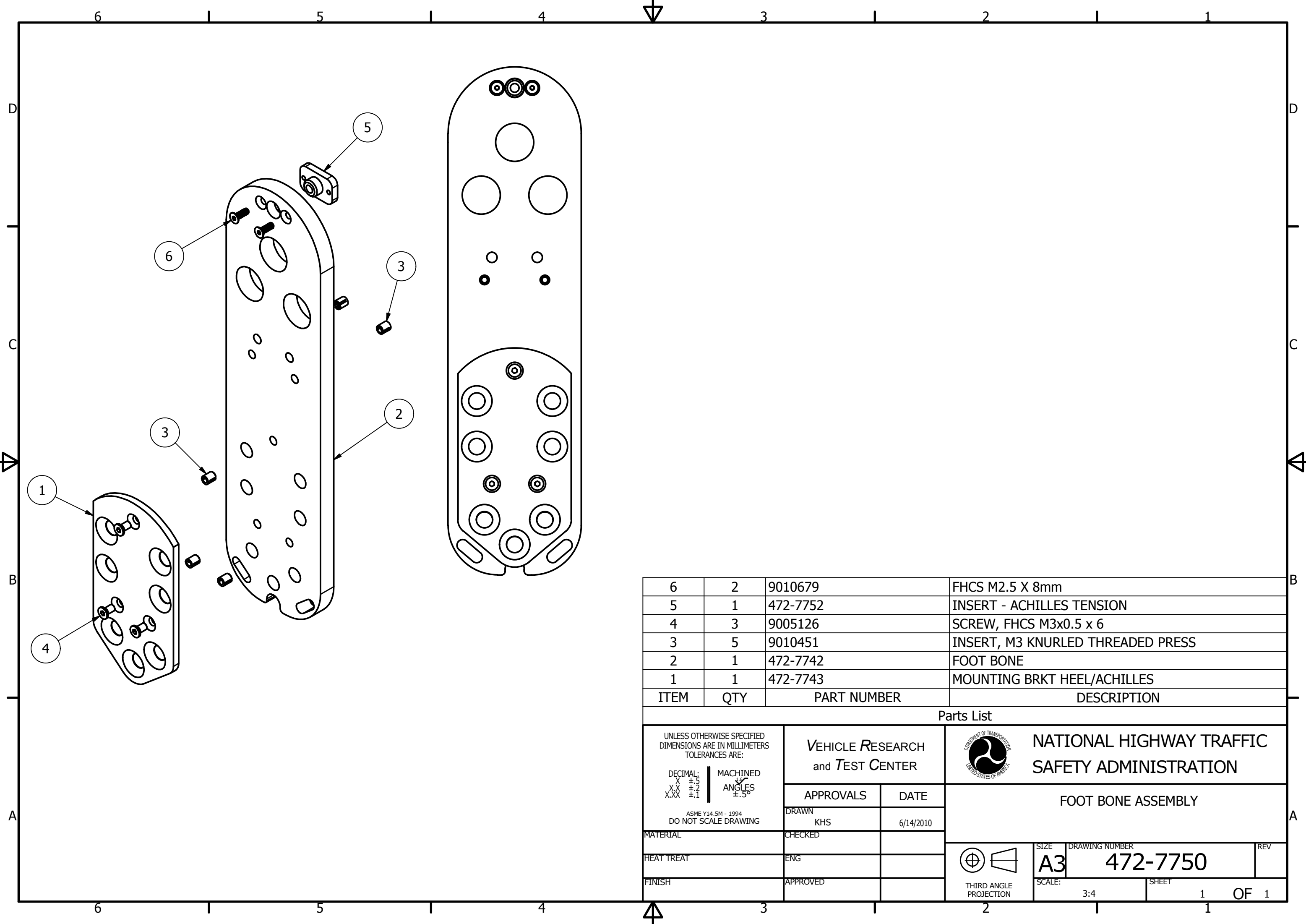
ITEM	QTY	PART NUMBER	DESCRIPTION
13	1	9000058	SCREW, SHCS M3-0.5 x 12
12	3	SA572-S4	UNIAXIAL PIEZORESISTIVE ACCELEROMETER
11	6	9010407	SCREW, SHCS M1.4 x 0.3 x 3 LG.
10	2	9000863	SCREW, SHCS M2.5X0.45 X 16
9	2	9010446	SCREW, FHCS M3X0.5 X 16
8	1	SA572-S80M	TRI-PACK BLOCK
7	1	472-7710	PLATE MOUNTING, TRI PACK ACCEL
6	3	5001089	SCREW, FHCS M6X1 X 20
5	1	472-7744	MOUNTING POST, LOWER ACHILLES
4	1	472-7801-1	SHOE SOLE - LEFT
3	1	472-7803-1	BALL OF FOOT PAD MOLDED - LEFT
2	1	472-7804-1	HEEL PAD MOLDED - LEFT
1	1	472-7802-1	SHOE UPPER - LEFT

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL - X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: KHS DATE: 5/5/2014 CHECKED: _____ ENG: _____ APPROVED: _____	
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MOLDED SHOE ASSY. - LEFT		DRAWING NUMBER: A2 472-7800-1 SCALE: 1:2 SHEET 1 OF 1	




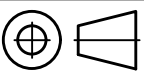
- NOTES:
1. COLOR: BLACK
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE THERMOPLASTIC MOLDING

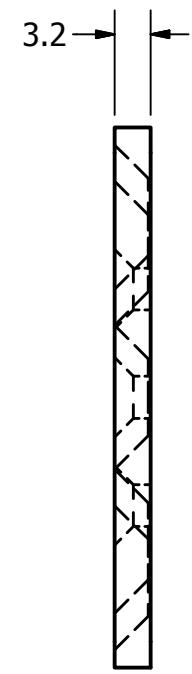
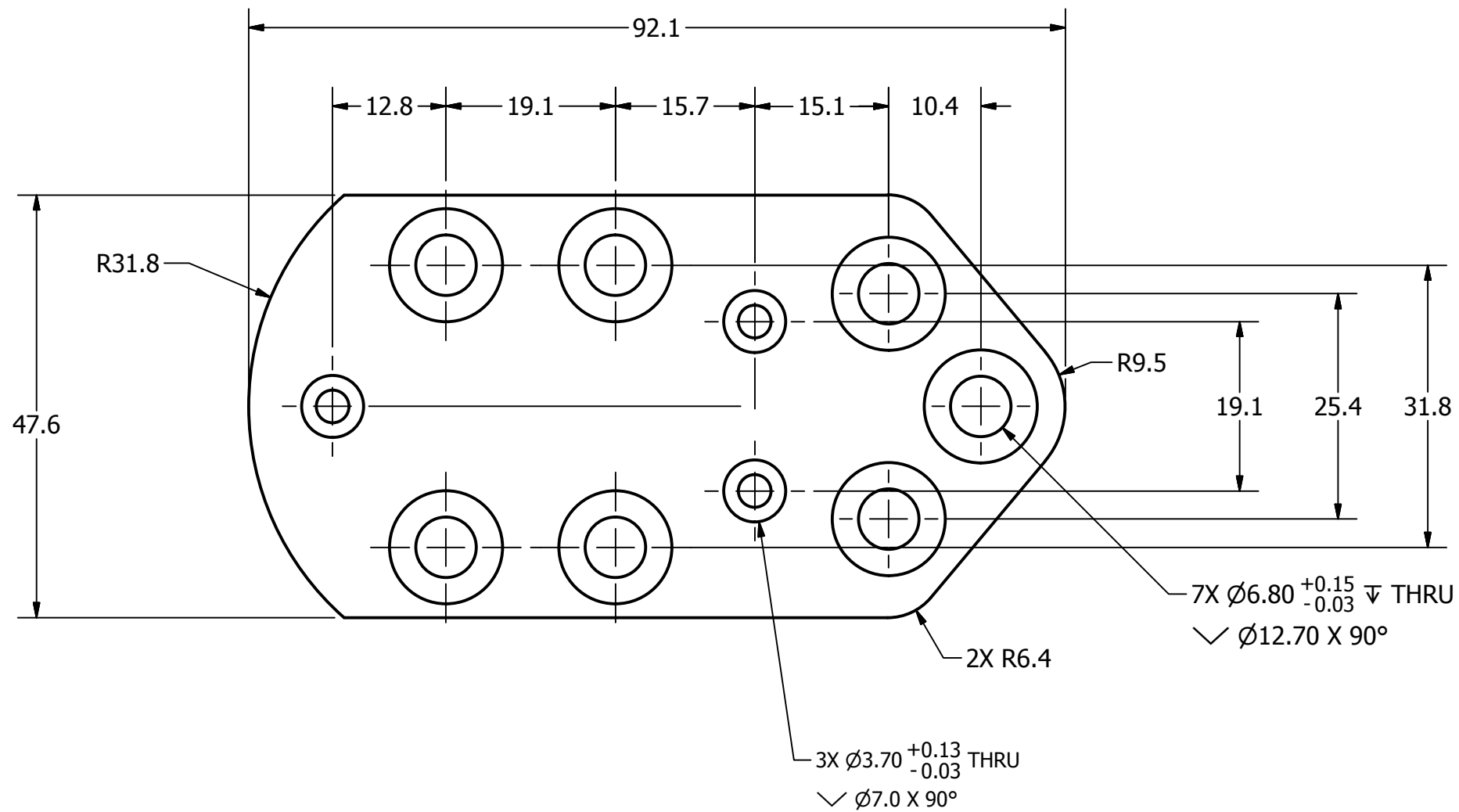
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	472-7750	FOOT BONE ASSEMBLY
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: _____ DRAWN: KHS DATE: 5/5/2014 CHECKED: _____ ENG: _____ APPROVED: _____	
MATERIAL: Thermoplastic Resin HEAT TREAT: N/A FINISH: N/A		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SHOE UPPER - LEFT  THIRD ANGLE PROJECTION	
		SIZE: A3 SCALE: 1:2	DRAWING NUMBER: 472-7802-1 SHEET: 1 OF 1


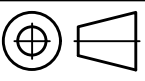


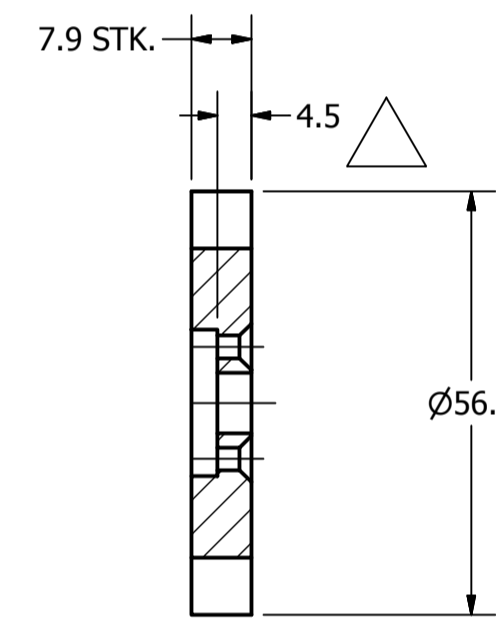
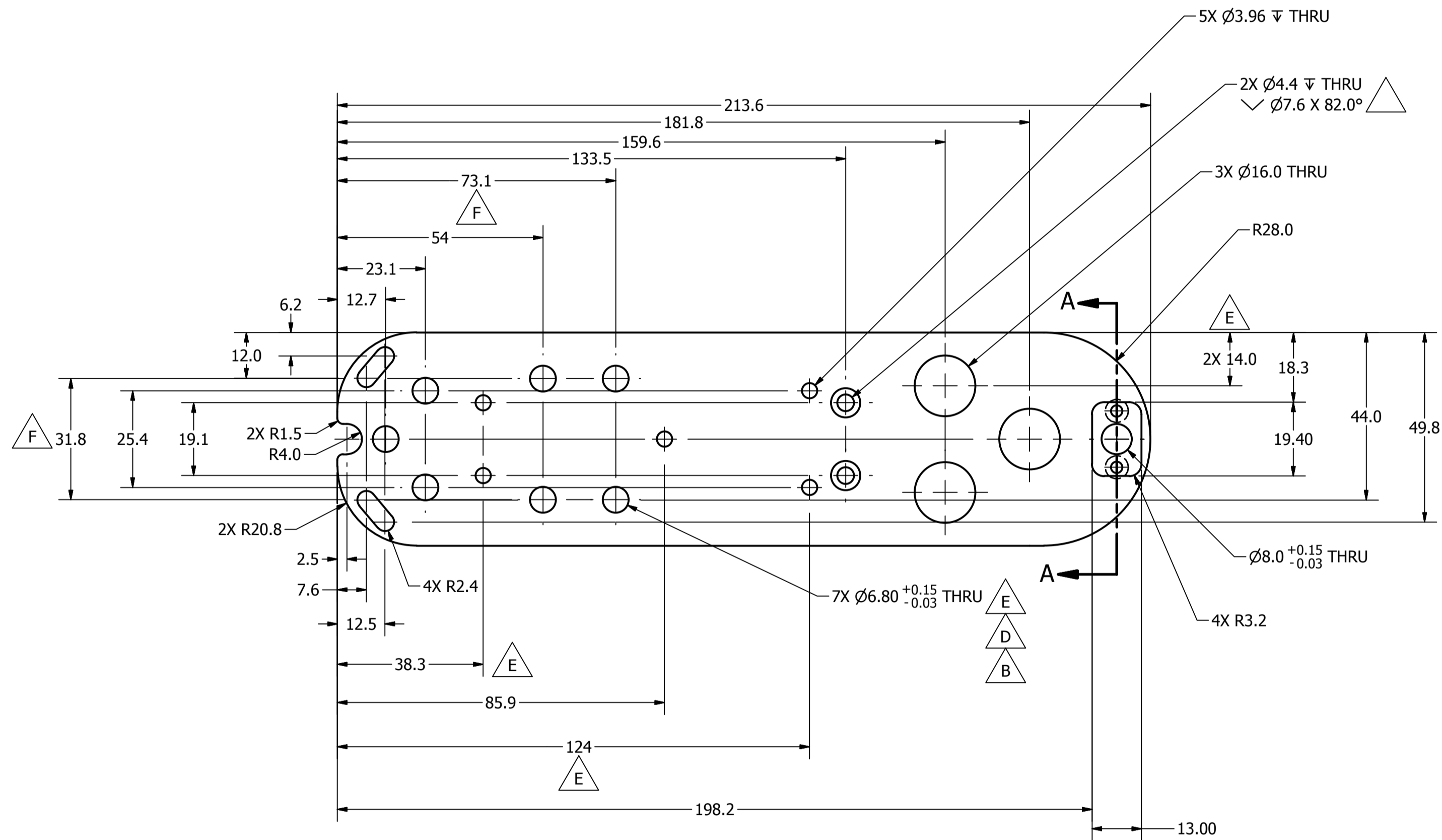
ITEM	QTY	PART NUMBER	DESCRIPTION
6	2	9010679	FHCS M2.5 X 8mm
5	1	472-7752	INSERT - ACHILLES TENSION
4	3	9005126	SCREW, FHCS M3x0.5 x 6
3	5	9010451	INSERT, M3 KNURLED THREADED PRESS
2	1	472-7742	FOOT BONE
1	1	472-7743	MOUNTING BRKT HEEL/ACHILLES

Parts List

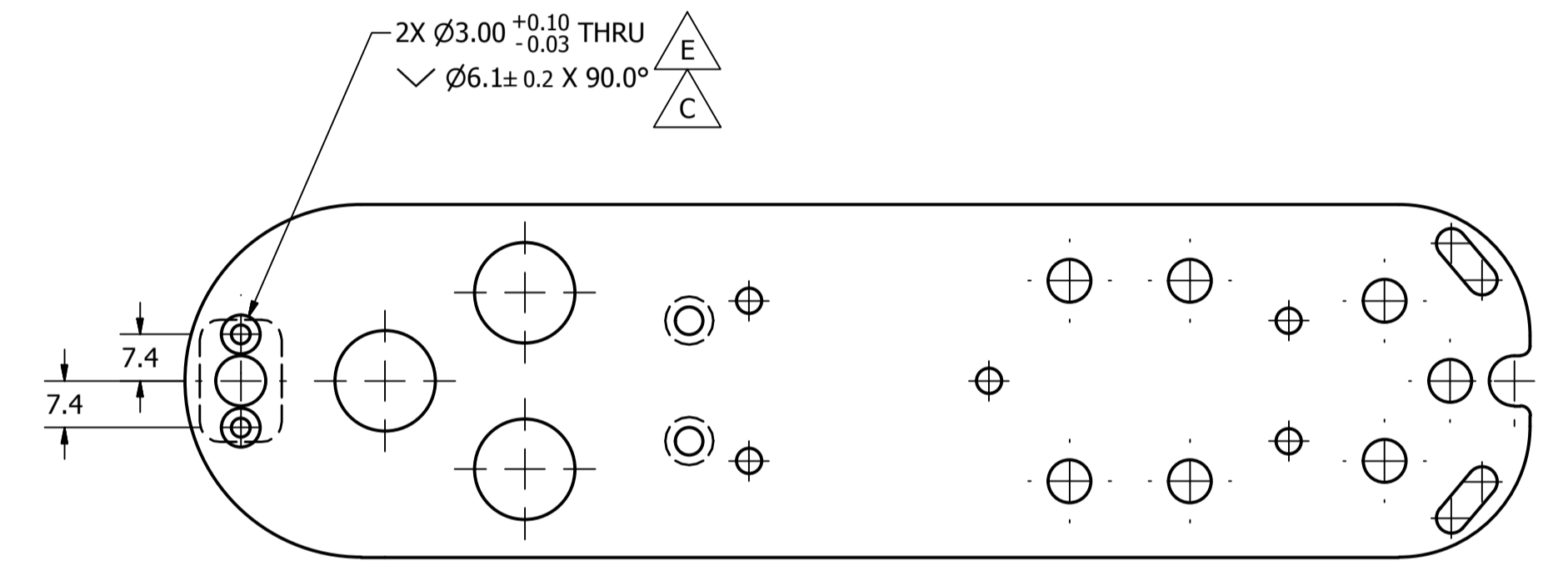
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN KHS	DATE 6/14/2010	
MATERIAL	CHECKED		 THIRD ANGLE PROJECTION
HEAT TREAT	ENG		
FINISH	APPROVED		SIZE: A3 SCALE: 3:4
		DRAWING NUMBER: 472-7750	SHEET: 1 OF 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ ANGLES XX ±.2 ✓ ±.5° X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN KHS CHECKED ENG APPROVED	DATE 8/24/2009	
MATERIAL Aluminum-6061-T6 HEAT TREAT N/A FINISH CLEAR ANODIZE	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-7743
	SCALE: 3 : 2	SHEET 1 OF 1	REV



SECTION A-A
 SCALE 1 : 1

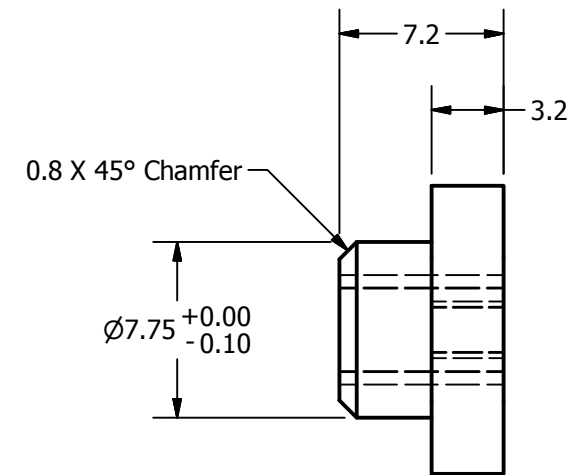
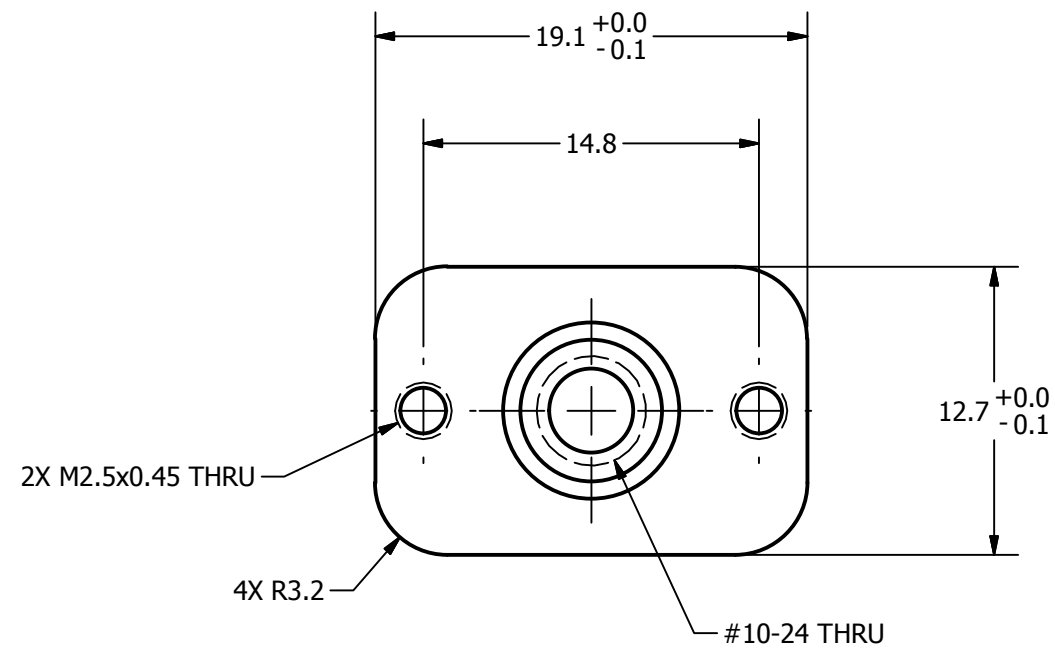



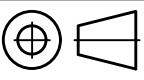
NOTE: STOCK HAS BEVELED CORNERS THAT MUST BE CUT OFF, THEN CUT STOCK TO SIZE PLUS MATERIAL FOR CLEANUP.

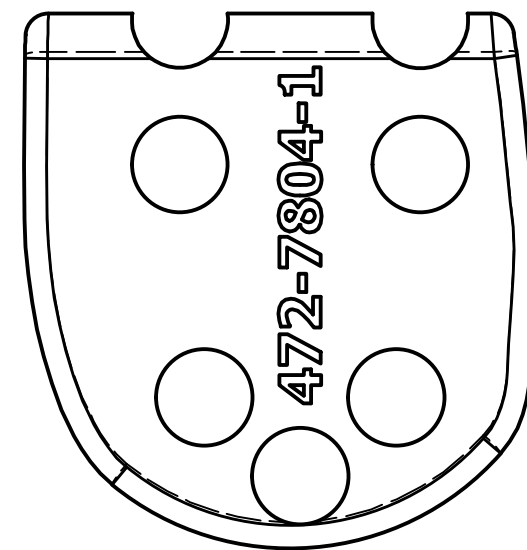
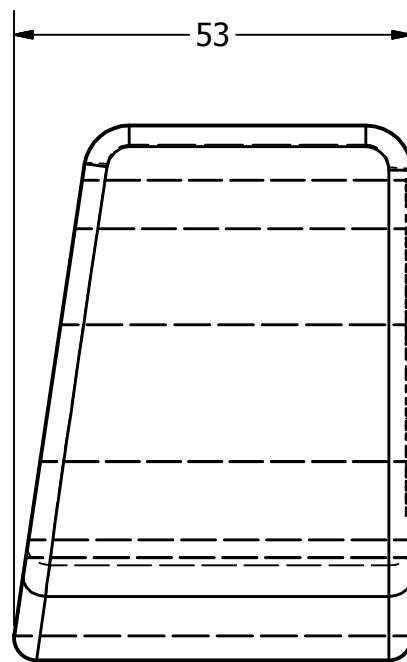
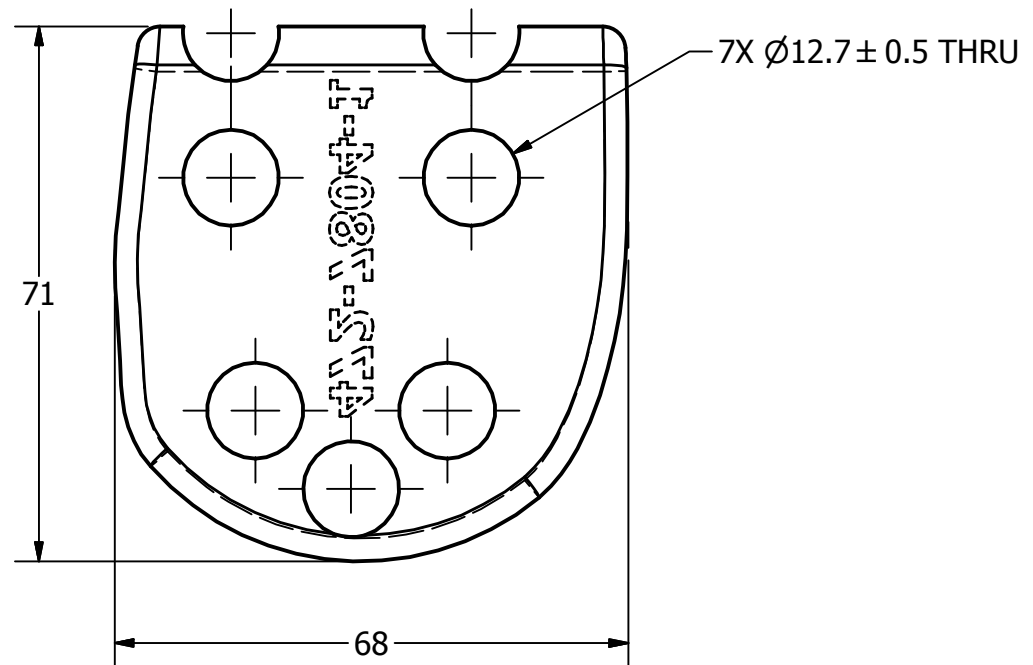
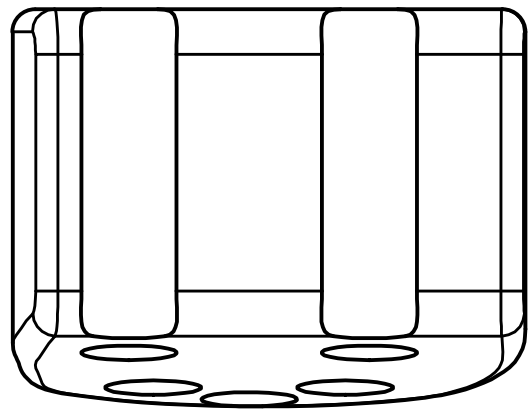
NOTES:

- MATERIAL: CARBON FIBER SHEET 7.9 mm THICK.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X.X ±0.2 X.XX ±0.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: KHS CHECKED:	DATE 8/24/2009	
MATERIAL: SEE NOTE HEAT TREAT: N/A FINISH: N/A	ENG:	APPROVED:	SIZE: A1 DRAWING NUMBER: 472-7742 SCALE: 1:1 SHEET: 1 OF 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ XX ±.2 ✓ X.XX ±.1 ✓ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN KHS CHECKED	DATE 12/5/2011	
MATERIAL 1018 STEEL	HEAT TREAT N/A	FINISH .008mm MAX. ELECTROLESS NICKEL PLATE PER SIDE	 THIRD ANGLE PROJECTION
SIZE A3		DRAWING NUMBER 472-7752	REV
SCALE: 3:1		SHEET 1 OF 1	



NOTES:

1. COLOR: BLACK
2. REMOVE ALL MOLD FLASHING
3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE URETHANE MOLDING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	ANGLES
XX ±.2	±.5°
X.XX ±.1	

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS	DATE
DRAWN KHS	5/5/2014
CHECKED	
ENG	
APPROVED	

HEEL PAD MOLDED - LEFT

MATERIAL
POLYURETHANE

HEAT TREAT
N/A

FINISH
N/A

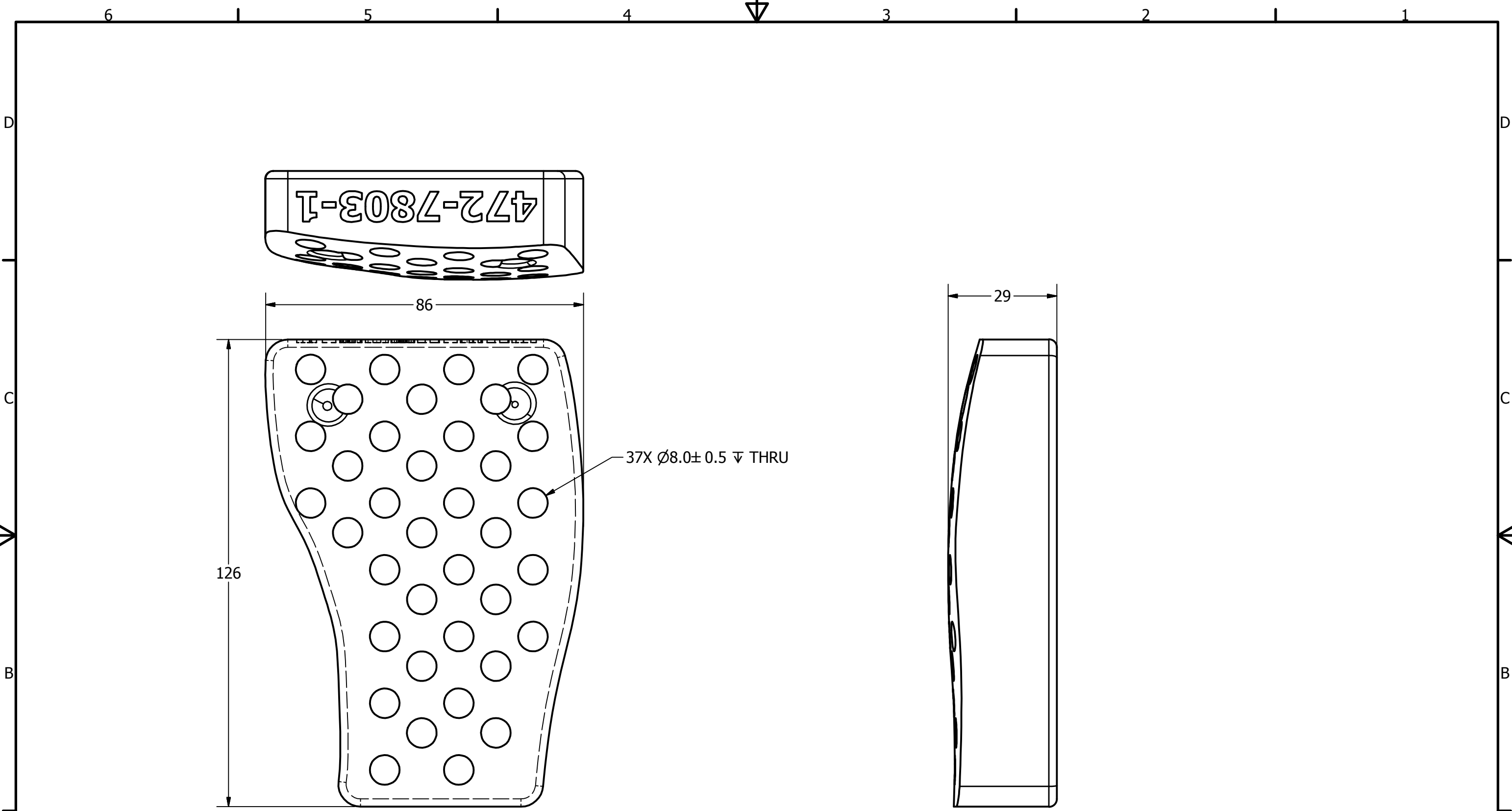


THIRD ANGLE
PROJECTION


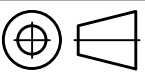
SIZE	DRAWING NUMBER	REV
A3	472-7804-1	

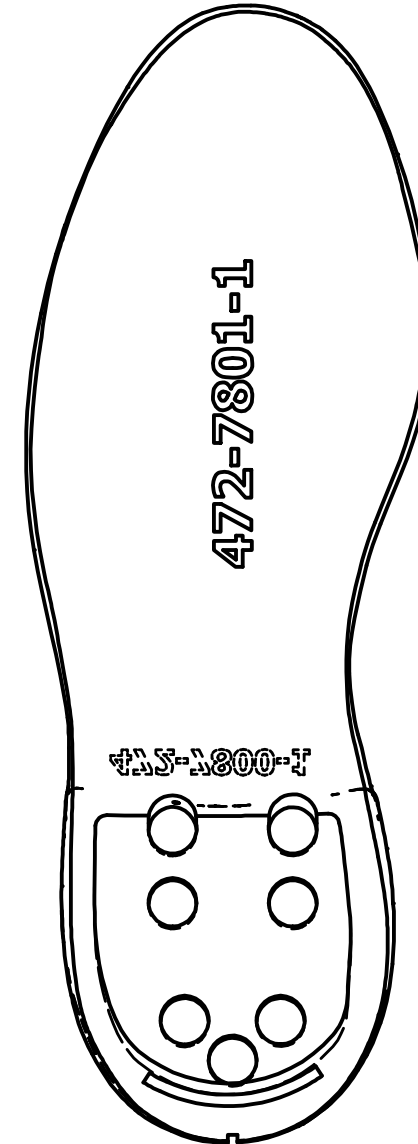
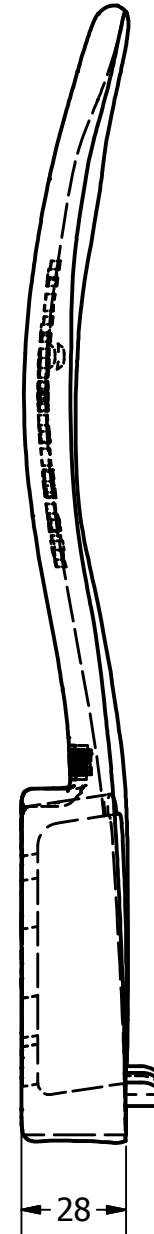
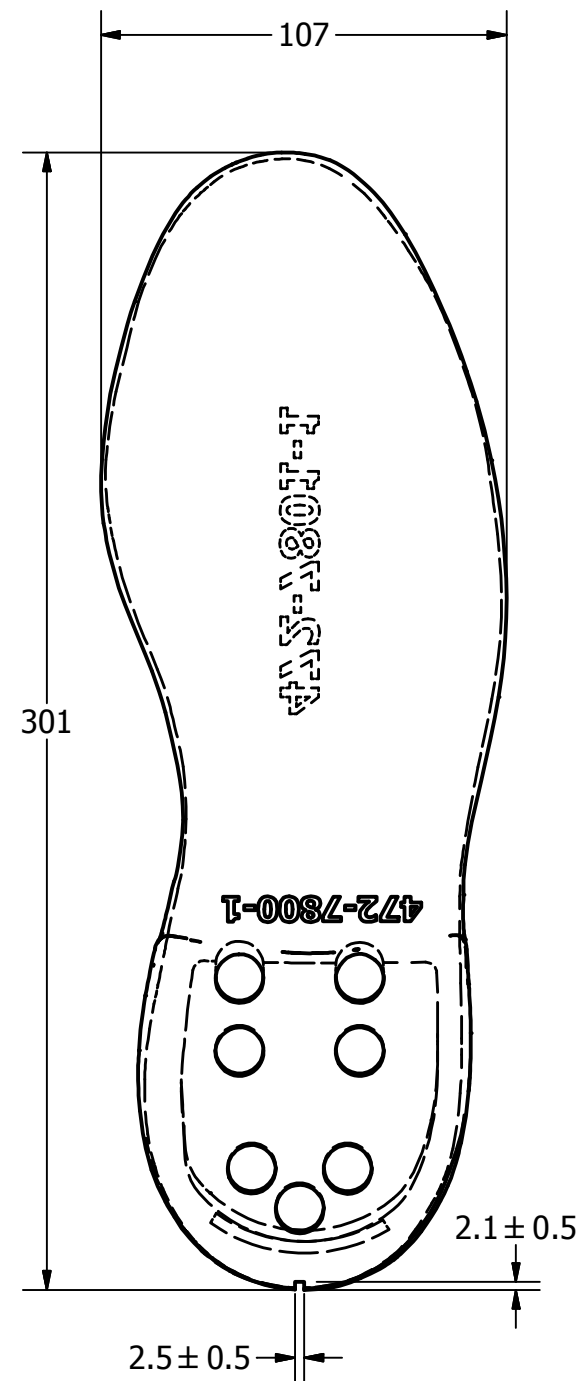
SCALE: 1:1

SHEET 1 OF 1



- NOTES:
1. COLOR: AMBER
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE URETHANE MOLDING

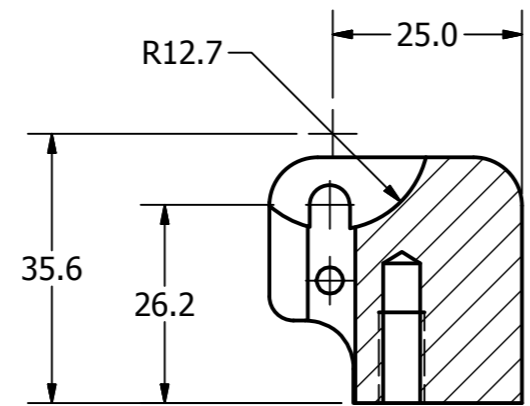
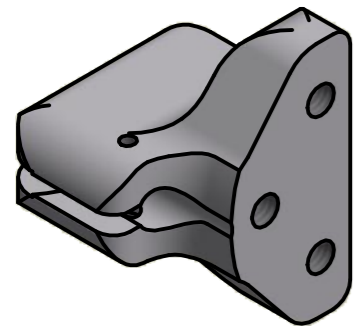
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ANGLE: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN KHS CHECKED ENG APPROVED	DATE 5/5/2014	
MATERIAL POLYURETHANE HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1	DRAWING NUMBER 472-7803-1 SHEET 1 OF 1



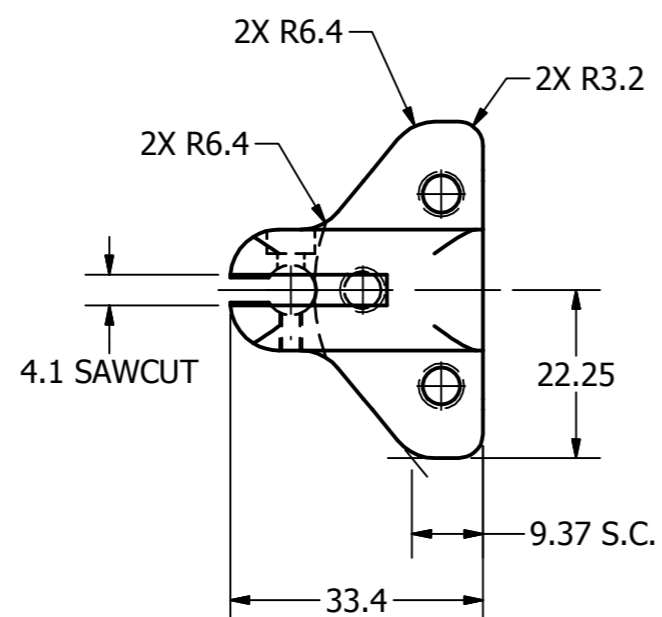
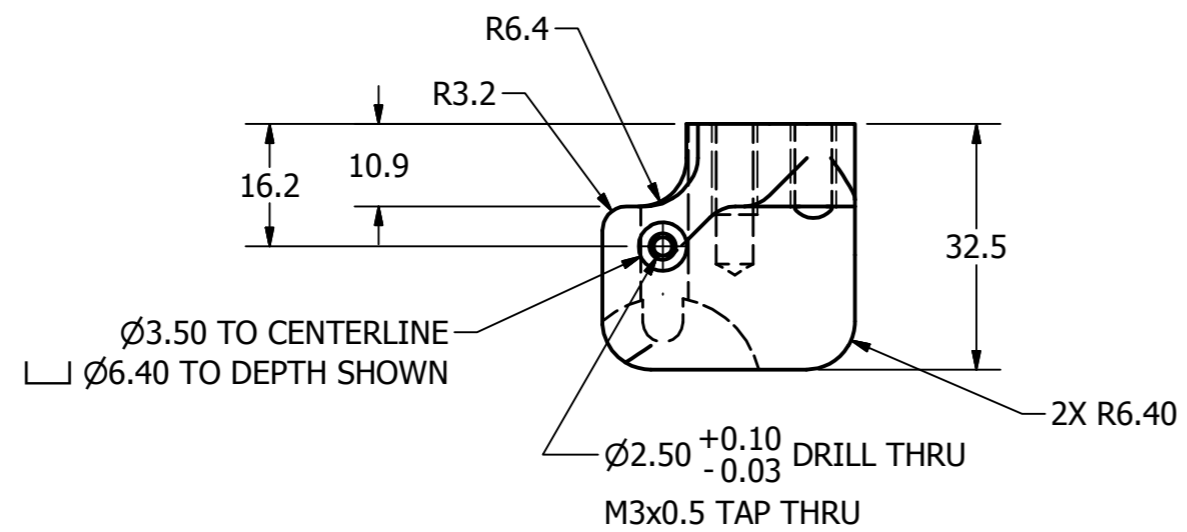
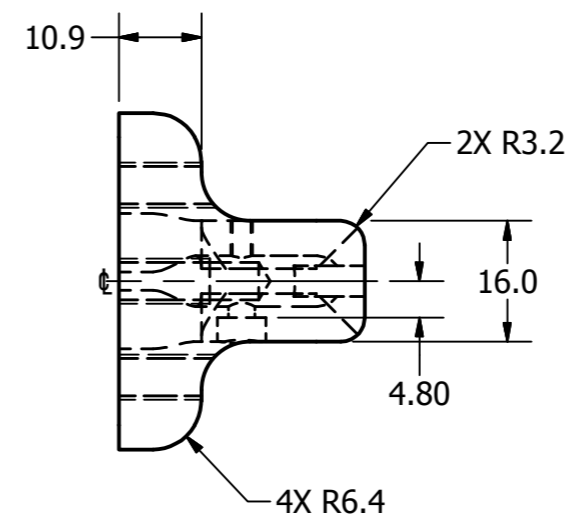
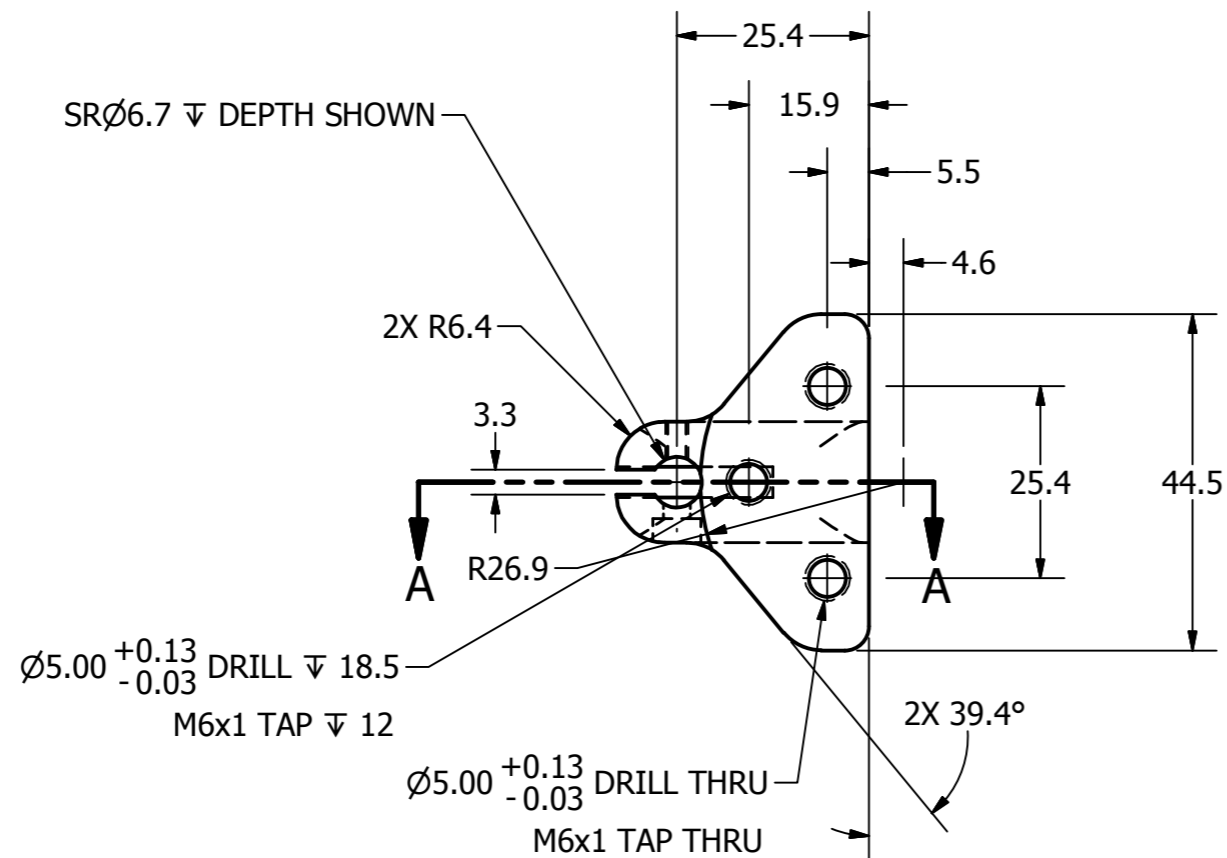
NOTES:


1. COLOR: BLACK
2. REMOVE ALL MOLD FLASHING
3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE THERMOPLASTIC MOLDING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS	DATE	SHOE SOLE - LEFT			
MATERIAL: Thermoplastic Resin		DRAWN: KHS	7/15/2016	THIRD ANGLE PROJECTION			
HEAT TREAT: N/A		CHECKED: ENG				SIZE: A3	DRAWING NUMBER: 472-7801-1
FINISH: N/A		APPROVED:				SCALE: 1:2	SHEET 1 OF 1



SECTION A-A
SCALE 1 : 1



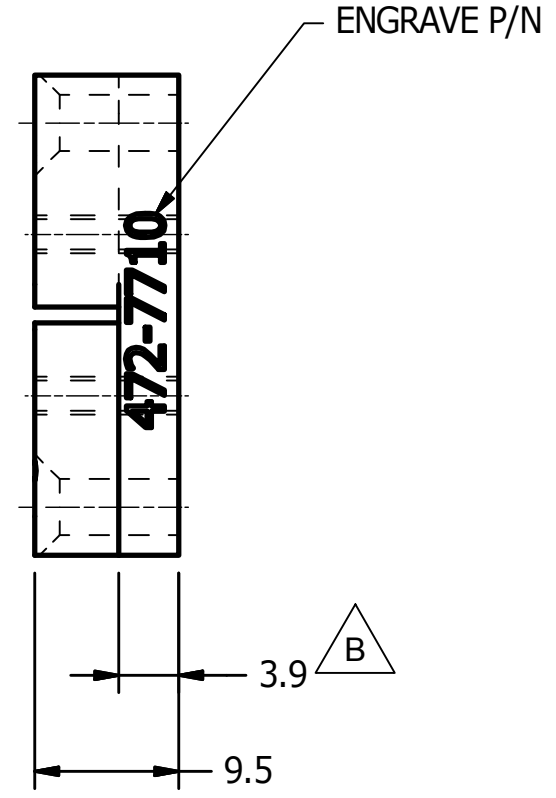
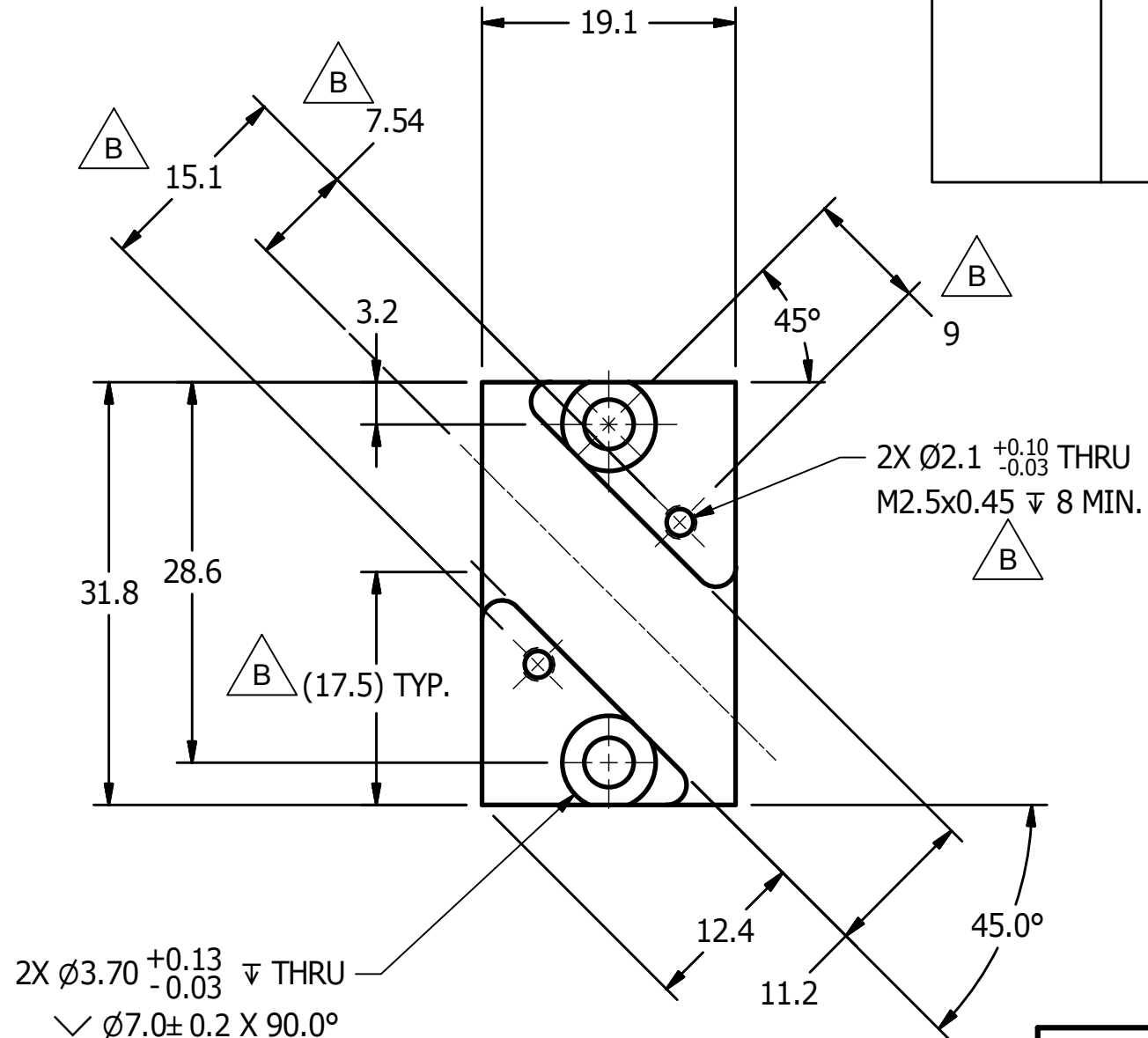
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED: X ±.2 ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: tvara CHECKED:	DATE 8/19/2011	
MATERIAL: Aluminum-6061-T6 HEAT TREAT: N/A FINISH: CLEAR ANODIZE	ENG:	APPROVED:	SIZE: A2 DRAWING NUMBER: 472-7744 SCALE: 1:1 SHEET: 1 OF 1

4 3 2 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGED TO METRIC DIMENSIONING	12/4/2008	BLW
	B	2X $\varnothing 3.70^{+0.13}_{-0.03}$ THRU M2.5x0.45 TAP ∇ 8 MIN. WAS (2X) M2.5x0.45 ∇ THRU, & 3.9 WAS 4.4; 2X $\varnothing 3.70$ ∇ THRU $\varnothing 7.0 \pm 0.2 \times 90^\circ$ WAS (2X) $\varnothing 3.5$ THRU $\nabla \varnothing 6.4 \times 90.0^\circ$; REMOVED 9.5, 4.2, 10.5, 21.2, & 14.9; ADDED (17.5) TYP., 45, 9, 7.54, & 15.1; CLEAR ANODIZED WAS BLUE ANODIZED	8/8/2016	DW

B

B



A

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 12/4/2008 12/10/2008	PLATE MOUNTING, TRI PACK ACCEL THOR-M	
MATERIAL Aluminum 6061-T6 HEAT TREAT N/A FINISH CLEAR ANODIZED	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1	DRAWING NUMBER 472-7710	REV B SHEET 1 OF 1

4 3 2 1

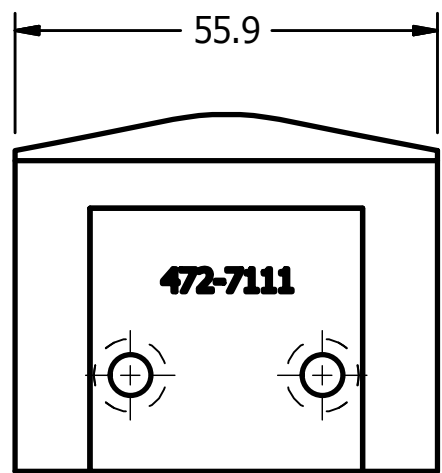
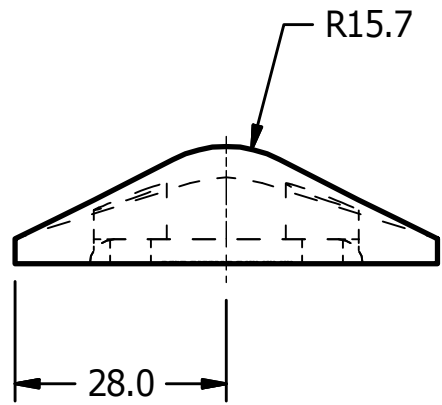
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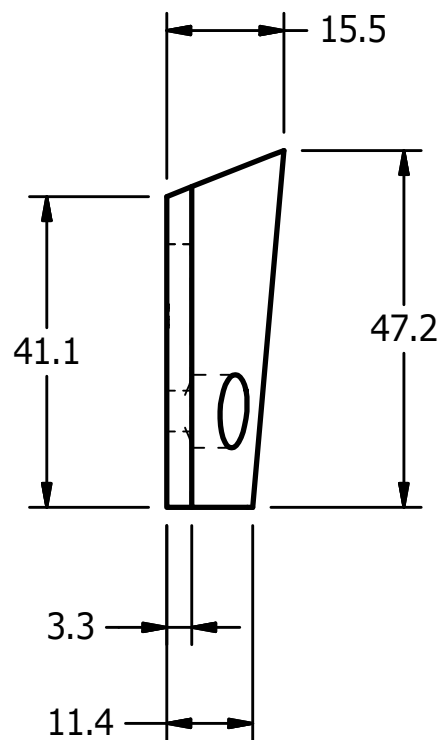
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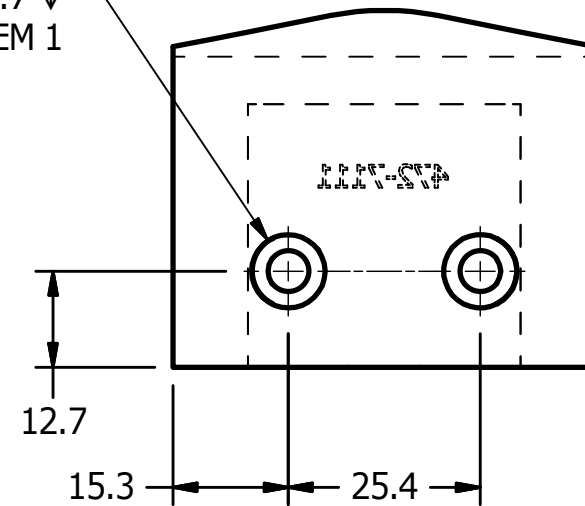
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGED TO METRIC DIMENSIONING	11/19/2008	BLW
	B	ADDED PARTS LIST	8/9/2016	DW



1



(2X) .0 Ø9.7 ∇ TO ITEM 1



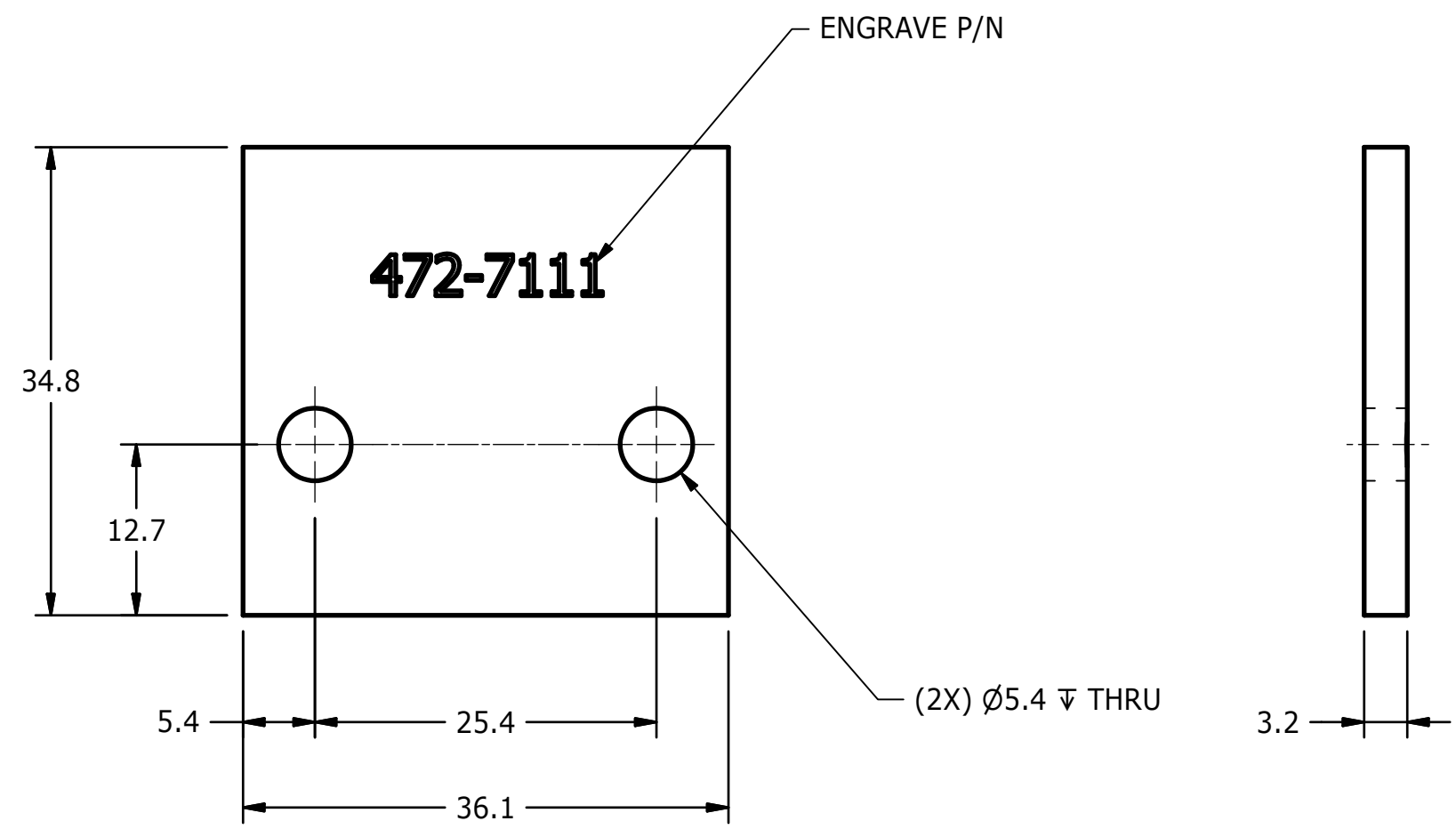
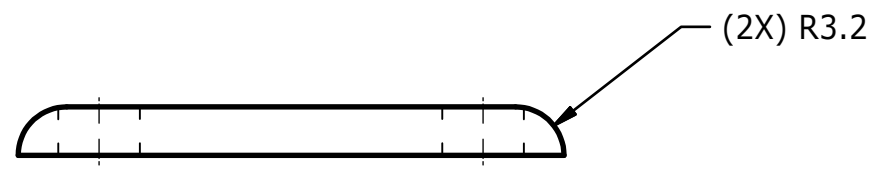
- UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.
 2. MATERIAL: URETHANE 37 ±5 SHORE A.
 3. SANDBLAST AND CLEAN WITH SOLVENT SIDE OF ITEM 1 TO BE BONDED TO URETHANE.

1	1	472-7111	BACK PLATE, MOLDED BUMPER
ITEM	QTY	PART NUMBER	DESCRIPTION


PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 11/19/2008 12/12/2008	
MATERIAL SEE NOTE 2 HEAT TREAT N/A FINISH N/A	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1	DRAWING NUMBER 472-7110 SHEET 1 OF 1

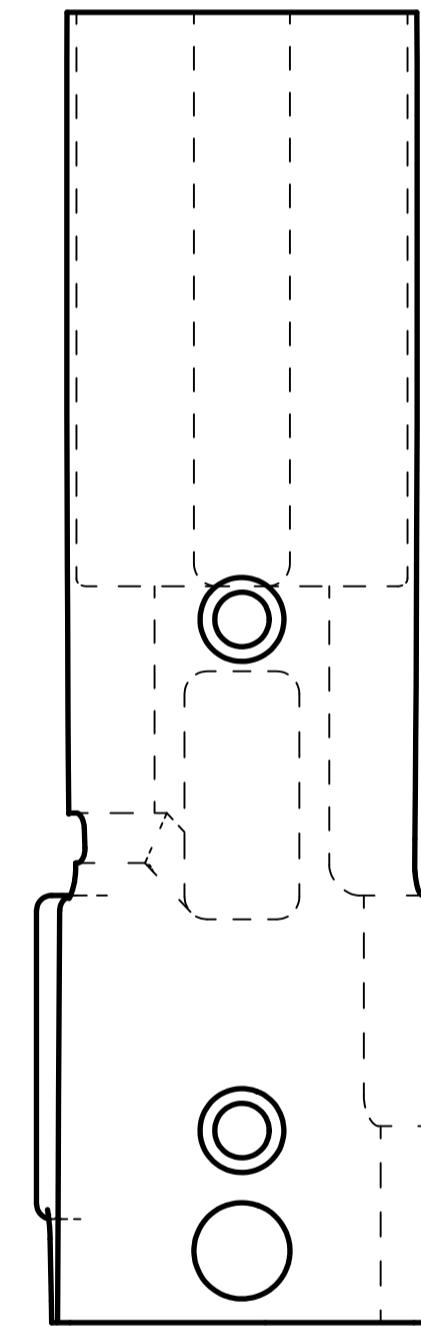
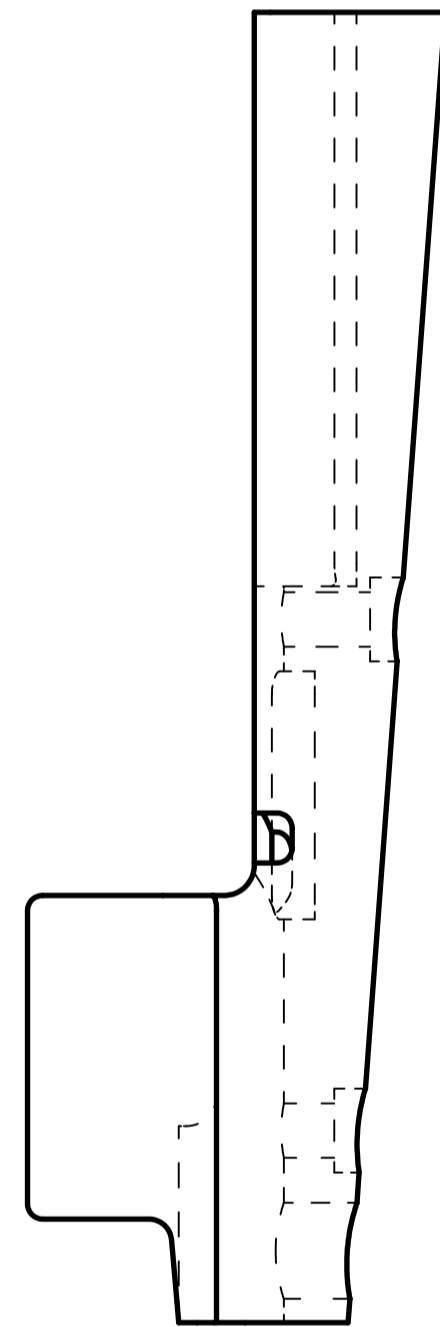
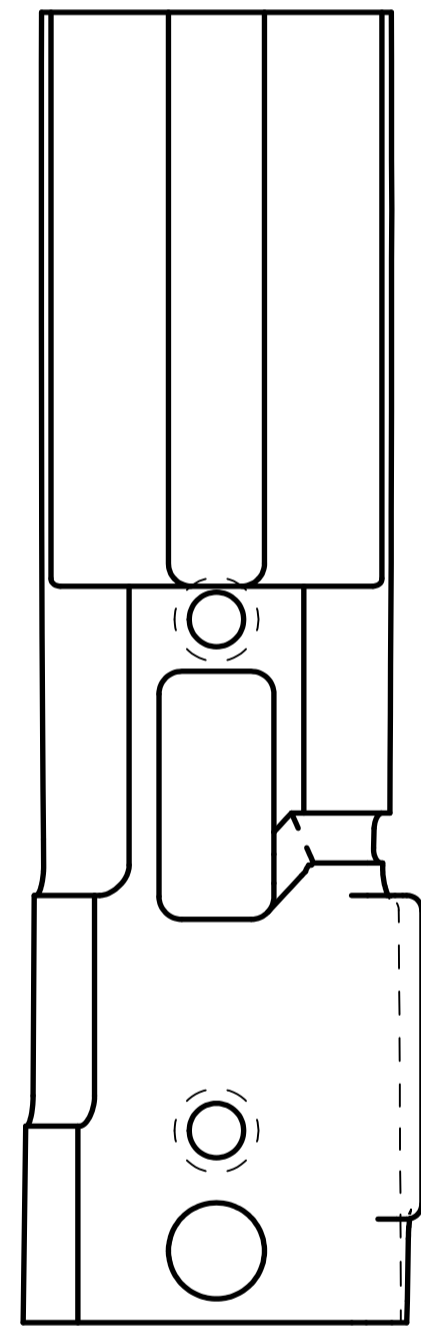
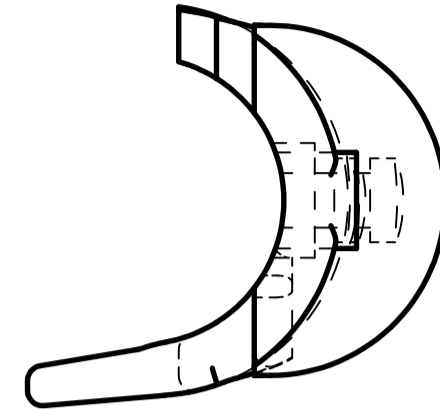
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGED TO METRIC DIMENSIONING	11/19/2008	BLW



UNLESS OTHERWISE SPECIFIED:
1. BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. WADE CHECKED TMV ENG APPROVED	DATE 11/19/2008 12/11/2008	BACK PLATE, MOLDED BUMPER THOR M	
MATERIAL 1018 STEEL HEAT TREAT N/A FINISH N/A	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1		

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHNGED TO METRIC DIMENSIONING	12/5/2008	BLW



UNLESS OTHERWISE SPECIFIED:
 1. BREAK ALL SHARP EDGES.
 2. MATERIAL: URETHANE 85 ±5 SHORE A.
 3. GEOMETRY SPECIFIED BY 3-D MODEL NO. 472-7115.

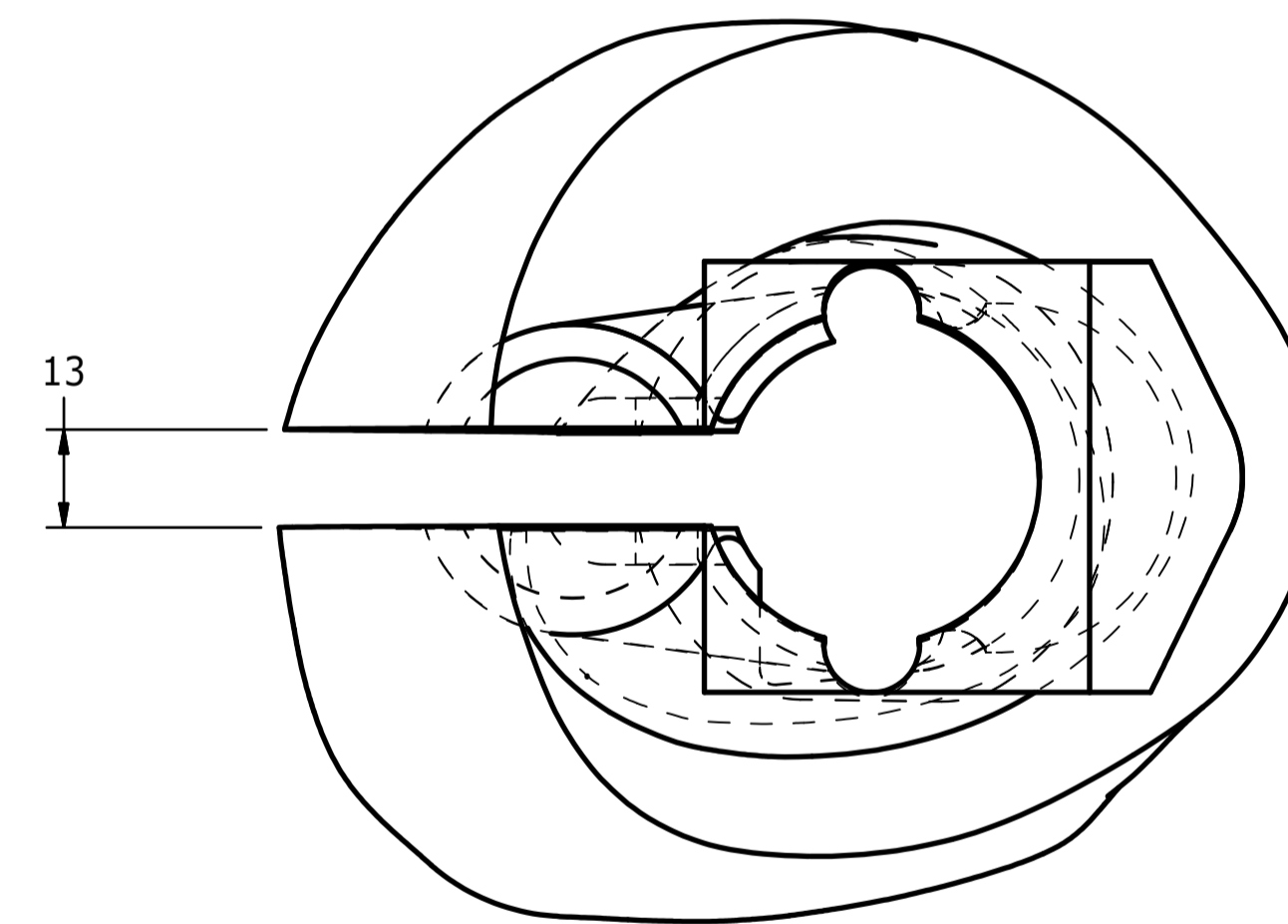
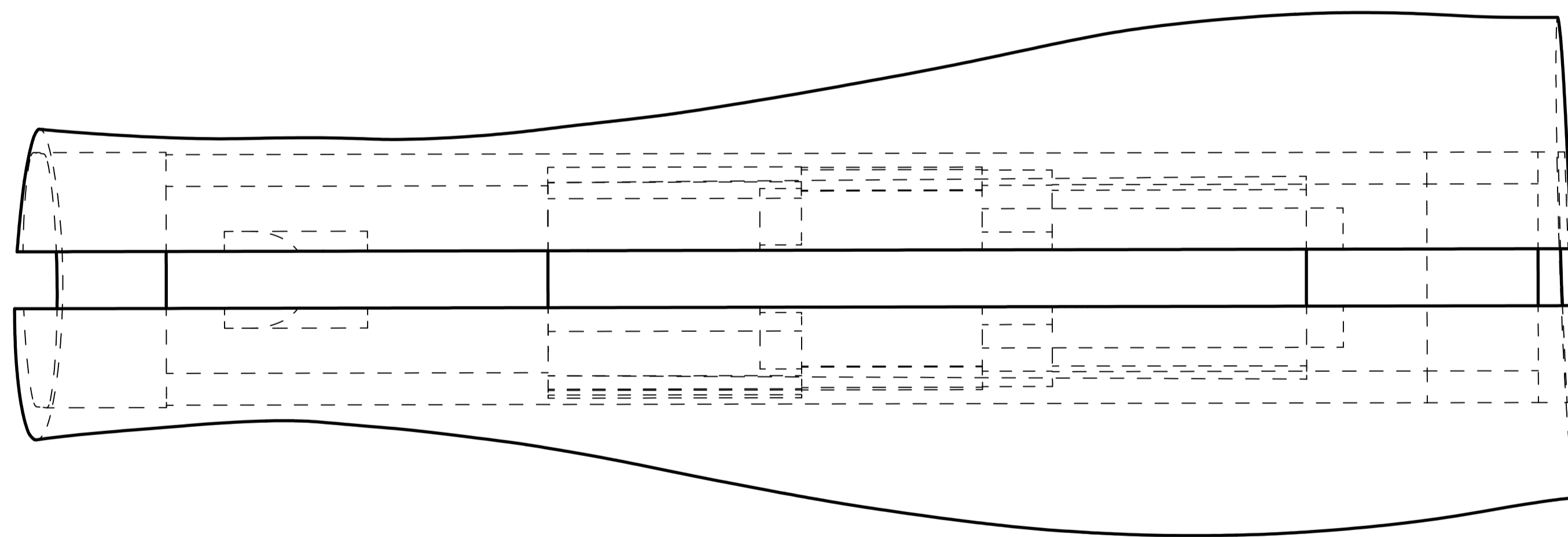
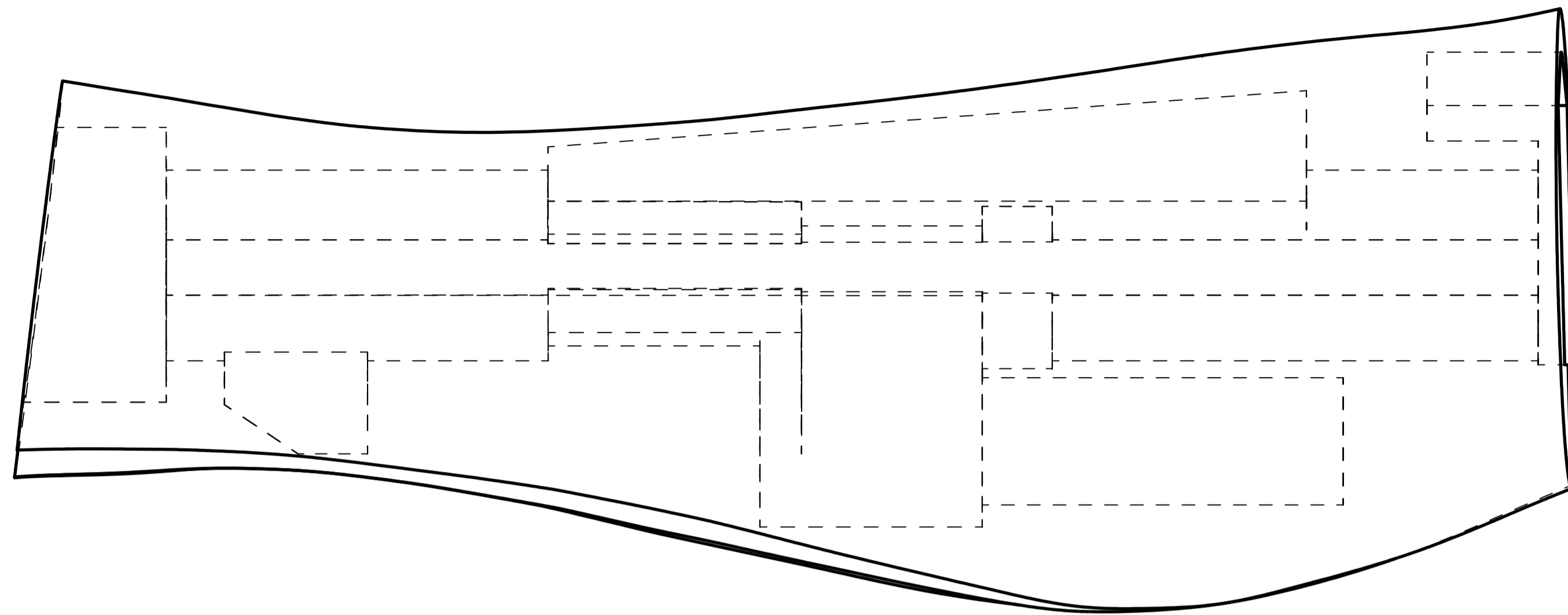
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ±.1	APPROVALS	DATE	TIBIA GUARD	
DO NOT SCALE DRAWING		B. WADE	12/5/2008	THOR-M	
MATERIAL: RP 6442 URETHANE	FINISH: N/A	CHECKED: TMV	12/10/2008	DRAWING NUMBER 472-7115	
HEAT TREAT: N/A	APPROVED:	THIRD ANGLE PROJECTION		SCALE: 1:1	REV A
				SHEET	1 OF 1

4

3

2

1



- UNLESS OTHERWISE SPECIFIED:
 1. BREAK ALL SHARP EDGES.
 2. PART TO BE MOLDED VINYL AND URETHANE FOAM.
 3. TOTAL MASS: .63 ± .05 KG.
 4. ATTACH ZIPPER TO CLOSE FLESH AT BACK.
 5. EXTERNAL SHAPE DEFINED BY UNTRI 50TH PERCENTILE LOWER LEG.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ±.1 ANGLES ±.5°	APPROVALS	DATE	LOWER LEG FLESH, LEFT	
DO NOT SCALE DRAWING		DRAWN B. WADE	10/1/2015	THOR M	
MATERIAL	ENG	CHECKED		SIZE A1	DRAWING NUMBER 472-7370-1
HEAT TREAT N/A	APPROVED			SCALE: 1:1	SHEET 1 OF 1
FINISH N/A				THIRD ANGLE PROJECTION	

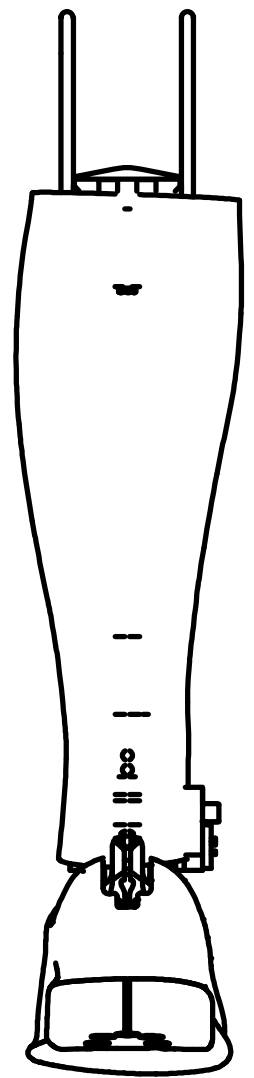
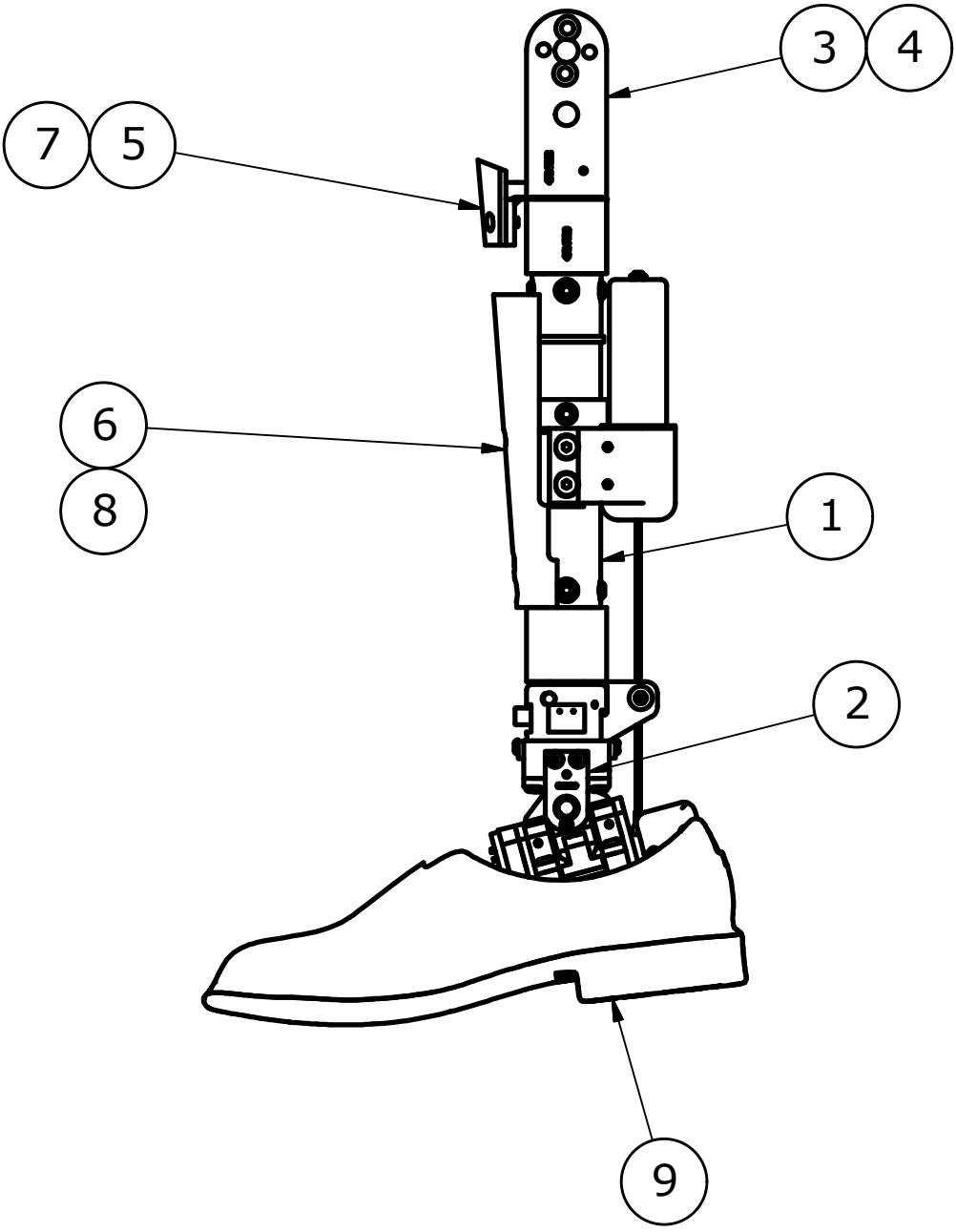
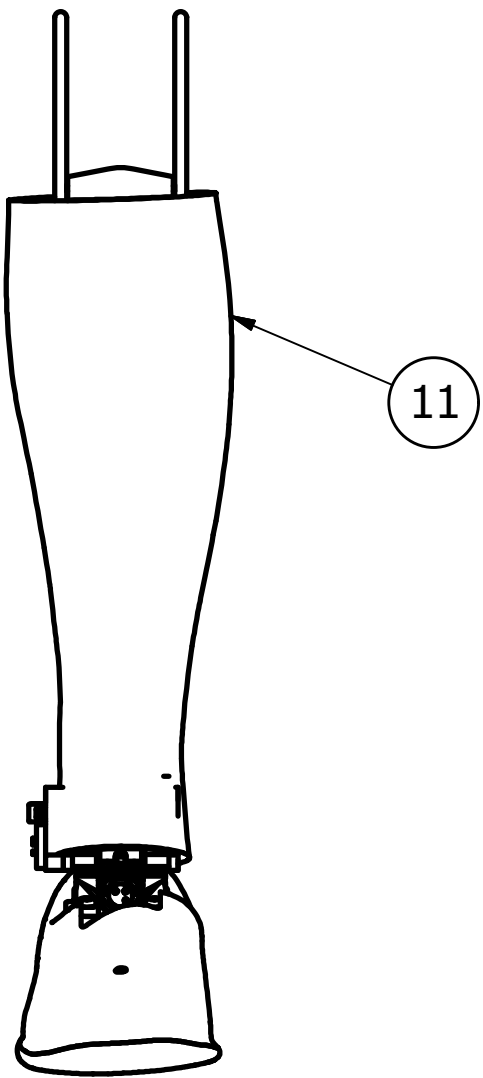
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3

2

1

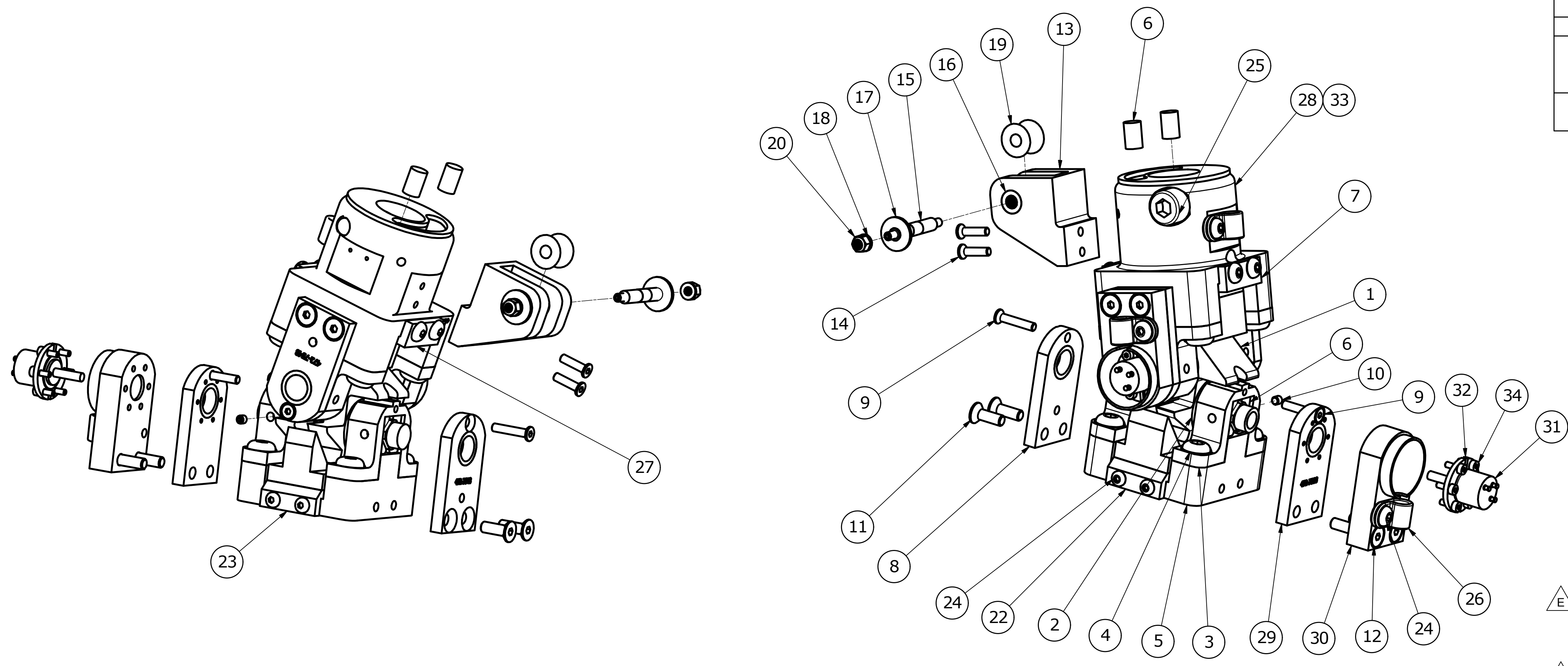
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CHANGED TO METRIC DIMENSIONS	12/5/2008	BLW
	B	ADDED ITEM #11	7/14/2015	DW
	C	472-7800-2 MOLDED SHOE ASS'Y. - RIGHT WAS 472-7700-2 FOOT ASS'Y. - RIGHT	12/5/2008	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
B 11	1	472-7370-2	LOWER LEG FLESH, RIGHT
10	4	9000826	SCREW, FHCS M6 x 1.0 x 16mm
C 9	1	472-7800-2	MOLDED SHOE ASS'Y. - RIGHT
8	2	9010453	SCREW, BHCS M6-1.0 x 16
7	2	9003042	SCREW, BHCS M5 x 10
6	1	472-7115	TIBIA GUARD
5	1	472-7110	KNEE BUMPER, MOLDED
4	4	9000852	SCREW, SHCS M6 x 1.0 X 16mm LONG
3	1	472-7200	KNEE CLEVIS WELDMENT
2	1	472-7500-2	ANKLE ASSEMBLY, RIGHT
1	1	472-7300	LOWER LEG MECHANICAL ASSEMBLY

PARTS LIST			
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>		VEHICLE RESEARCH and TEST CENTER APPROVALS: B. WADE DATE: 12/5/2008	
<small>THIRD ANGLE PROJECTION</small>		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LOWER LEG ASSEMBLY, COMPLETE - RIGHT THOR M	
SIZE: C	DRAWING NUMBER: 472-7000-2	REV: C	SHEET: 1 OF 1

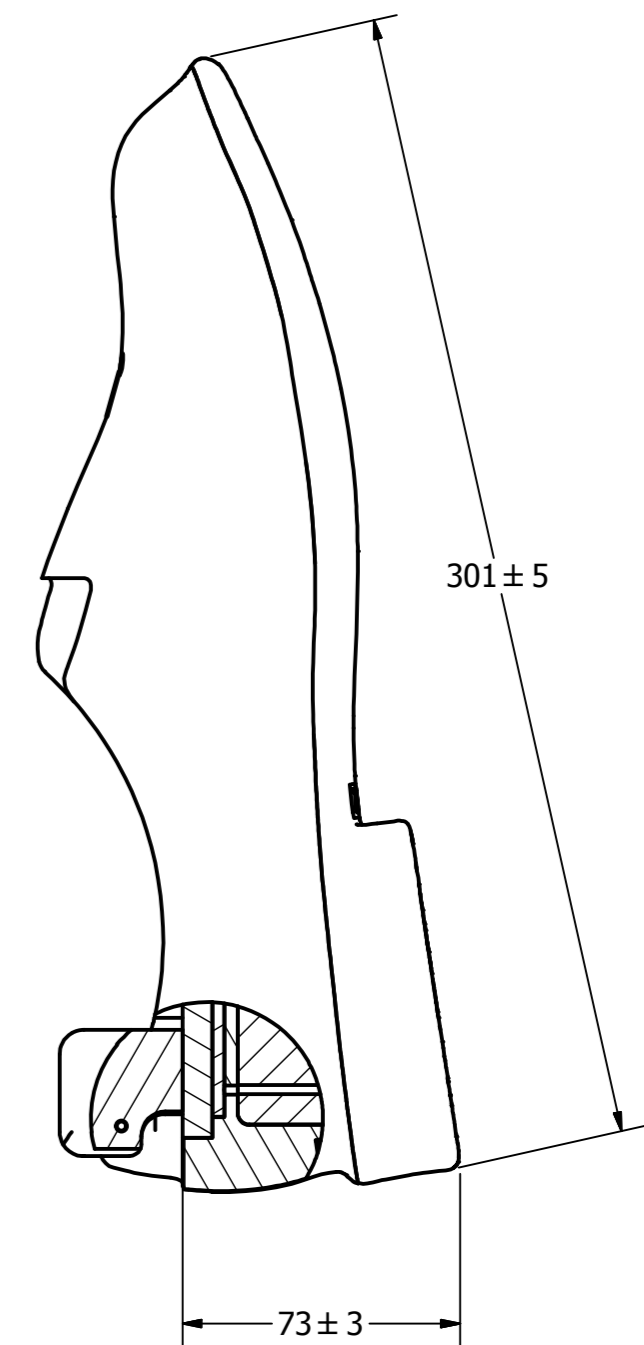
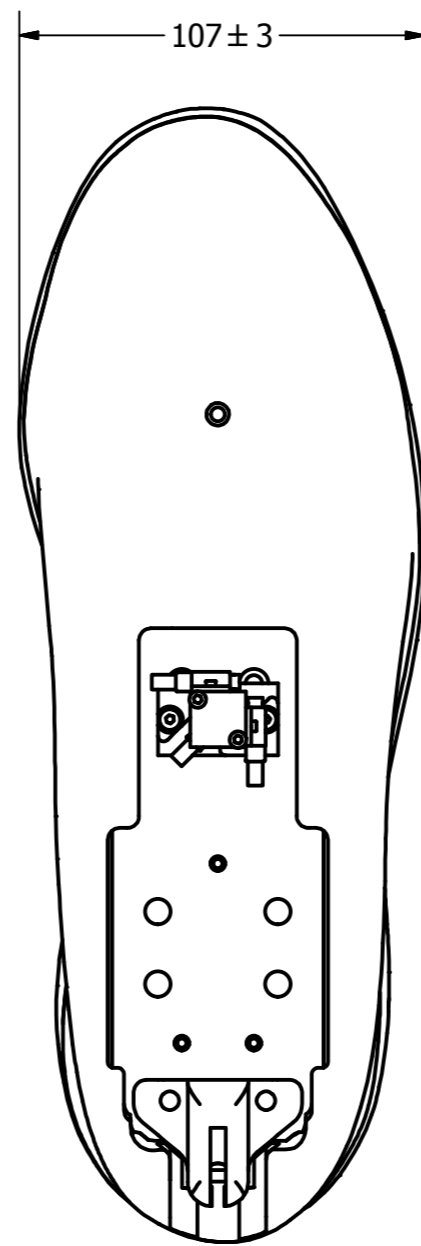
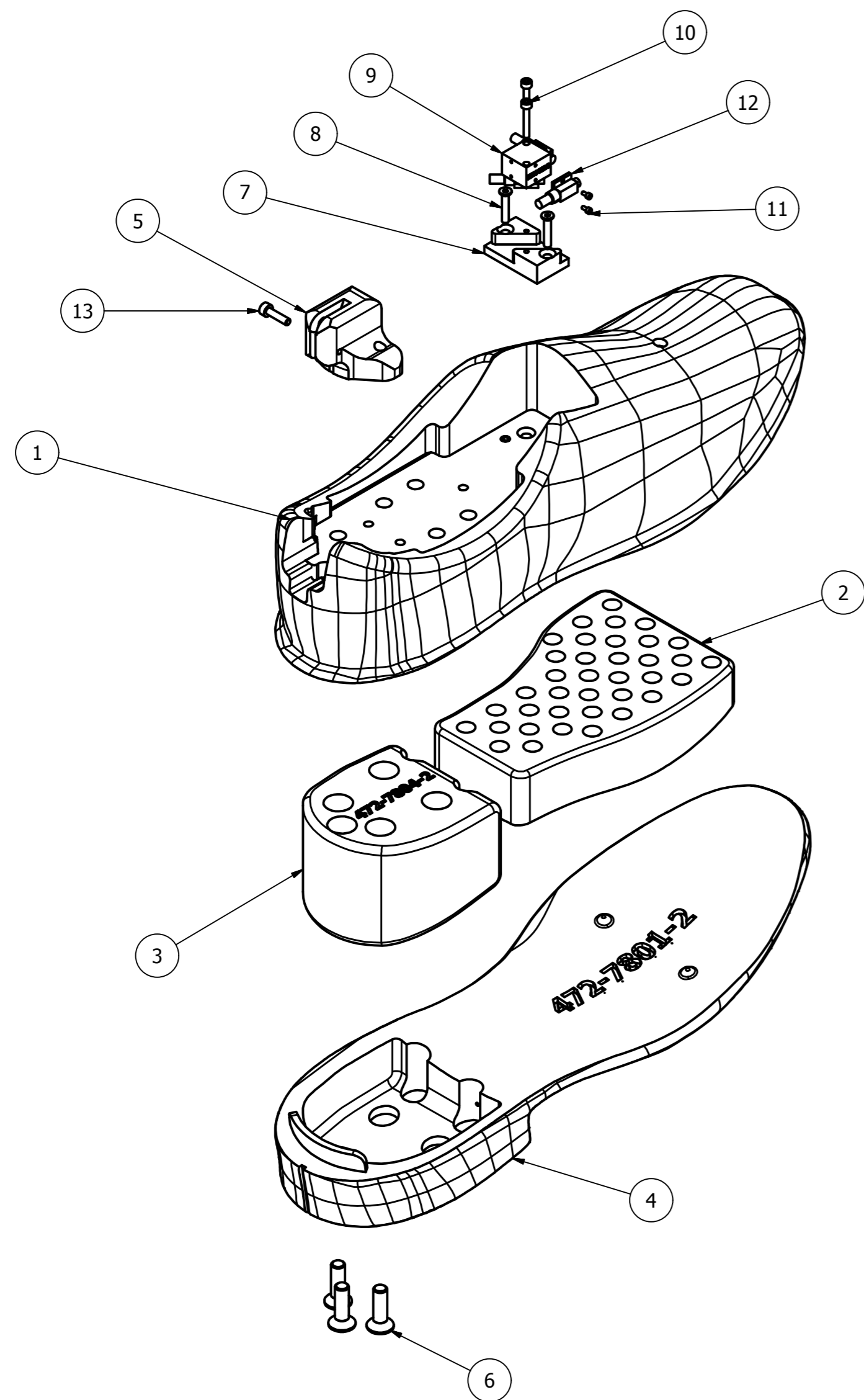
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	B	REDRAWN IN INVENTOR	7/25/2007	KSG
	C	CHANGE TO METRIC HARDWARE	10/14/08	BLW
	D	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW
	E	QTY OF ITEM 7 WAS 2, ADD ITEM 27, REDESIGN POT MOUNTING, POT PART NUMBER WAS 472-7550	7/28/2015	JHC
	F	DESCRIPTION OF ITEM 27 WAS STOP ASSEMBLY, REAR DORSI	3/22/2016	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
34	12	9010560	SCREW, SHCS M2X0.4 X 6
33	6	9010559	SCREW, SHCS M2X0.2 X 4
32	3	472-7581	POTENTIOMETER CLAMP
31	3	SA572-S114	POTENTIOMETER
30	2	472-7585	RETAINER, POTENTIOMETER
29	2	472-7582	ANKLE BUSHING PLATE ASSEMBLY - POT END
28	1	472-7580	BASE, TORQUE - ANKLE TOP
27	1	472-7527	STOP ASSEMBLY, PLANTAR
26	3	9005135	CLAMP, NYLON LOOP
25	1	472-7563	BOLT & SLEEVE ASSEMBLY, ANKLE
24	11	5000103	*Varies*
23	1	472-7534	STOP ASSEMBLY - INVERSION
22	1	472-7533	STOP ASSEMBLY - EVERSION
20	2	9010450	NUT, NYLOCK M3X0.5
19	1	472-7562	PULLEY, ACHILLES CABLE
18	2	9000510	FLATWASHER, #4 TYPE B NARROW
17	2	9000508	ACHILLES WASHER
16	2	9000509	NEEDLE ROLLER BEARING
15	1	472-7561	SHAFT, ACHILLES CABLE PULLEY
14	2	9010449	SCREW, FHCS M3 x 12
13	1	472-7560	BRACKET, ACHILLES PULLEY
12	4	9010448	SCREW, FHCS M4X0.7 X 20
11	4	9000873	SCREW, FHCS M4-0.7 x 12
10	2	9010447	SCREW, SHSS, M3X0.5 X 3
9	4	9010446	SCREW, FHCS M3X0.5 X 16
8	2	472-7540	ANKLE BUSHING PLATE ASSEMBLY - FREE END
7	1	472-7530	STOP ASSEMBLY - DORSI
6	18	472-7524	TORQUE CYLINDER
5	1	472-7523	BASE, TORQUE - BOTTOM
4	8	9010445	SCREW, BHCS M6 x 1 x 12
3	4	472-7522	CAP, BASE TORQUE
2	4	472-7515	RETAINING WASHER
1	1	472-7510	ANKLE CENTER BLOCK ASS'Y.

ASSEMBLY INSTRUCTIONS
1. SAND 4 EA OF ITEM 2 TO ACHIEVE SNUG ASSEMBLY



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ANKLE ASSEMBLY, RIGHT	
DRAWN B. WADE		12/8/2008		THOR M	
MATERIAL		CHECKED		DRAWING NUMBER	
HEAT TREAT		ENG		D 472-7500-2	
FINISH		APPROVED		REV F	
				SCALE: 1 OF 1	

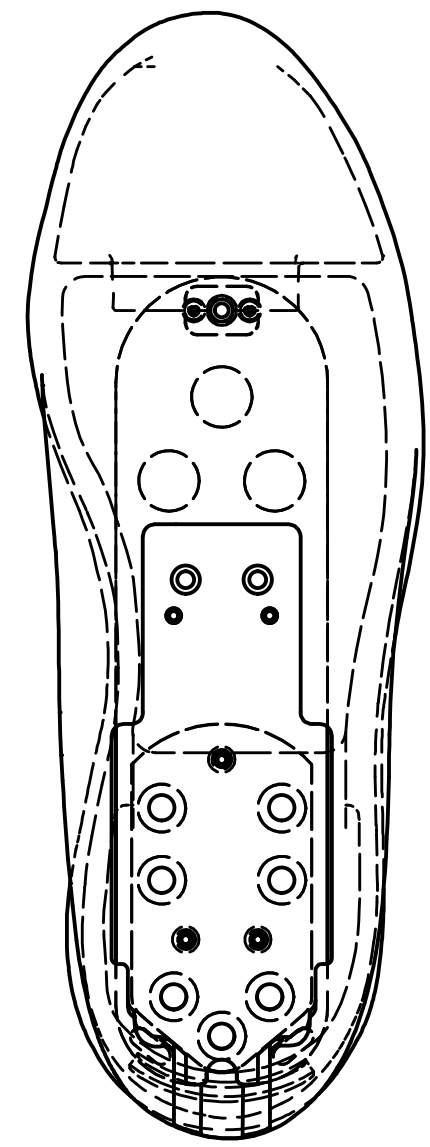
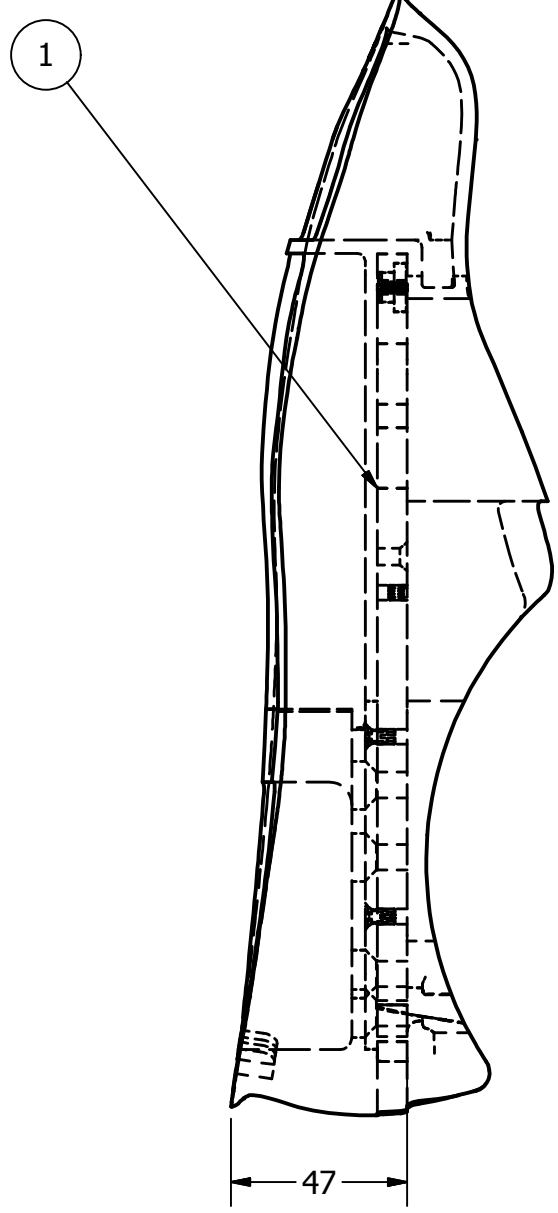
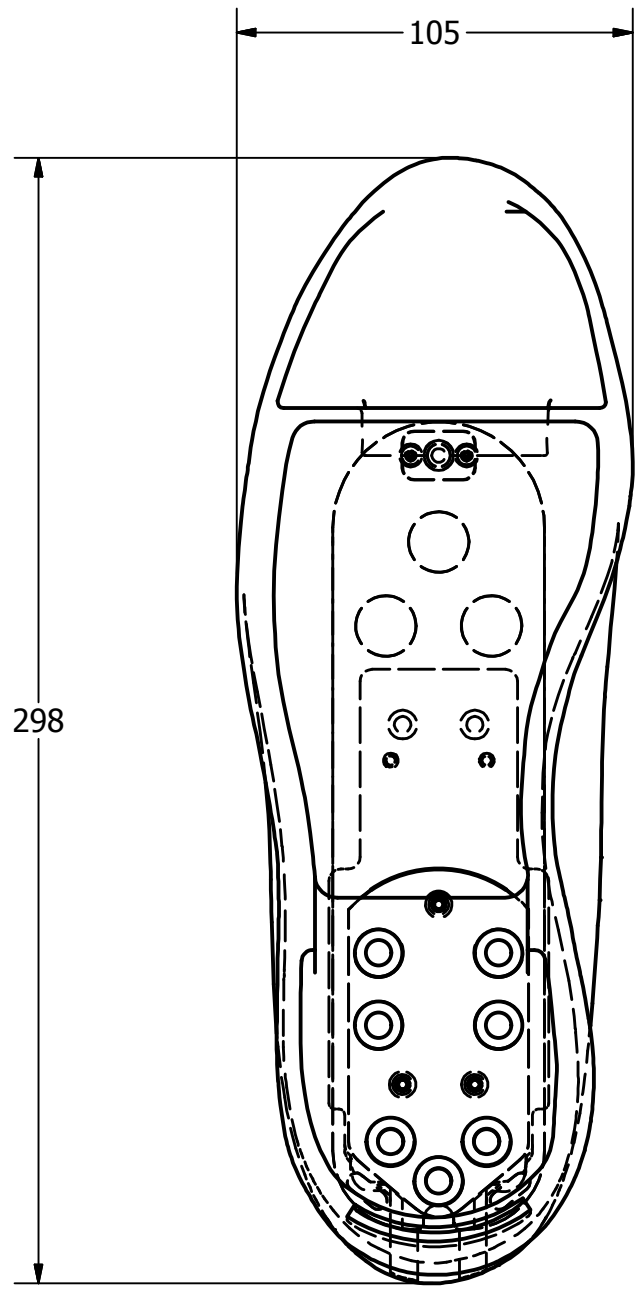


NOTES:


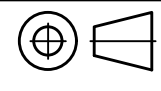
1. BOND ITEMS 1, 2, 3, AND 4.
2. MASS OF ALL PARTS SHOWN IN PARTS LIST 1.26kg ± 0.05kg

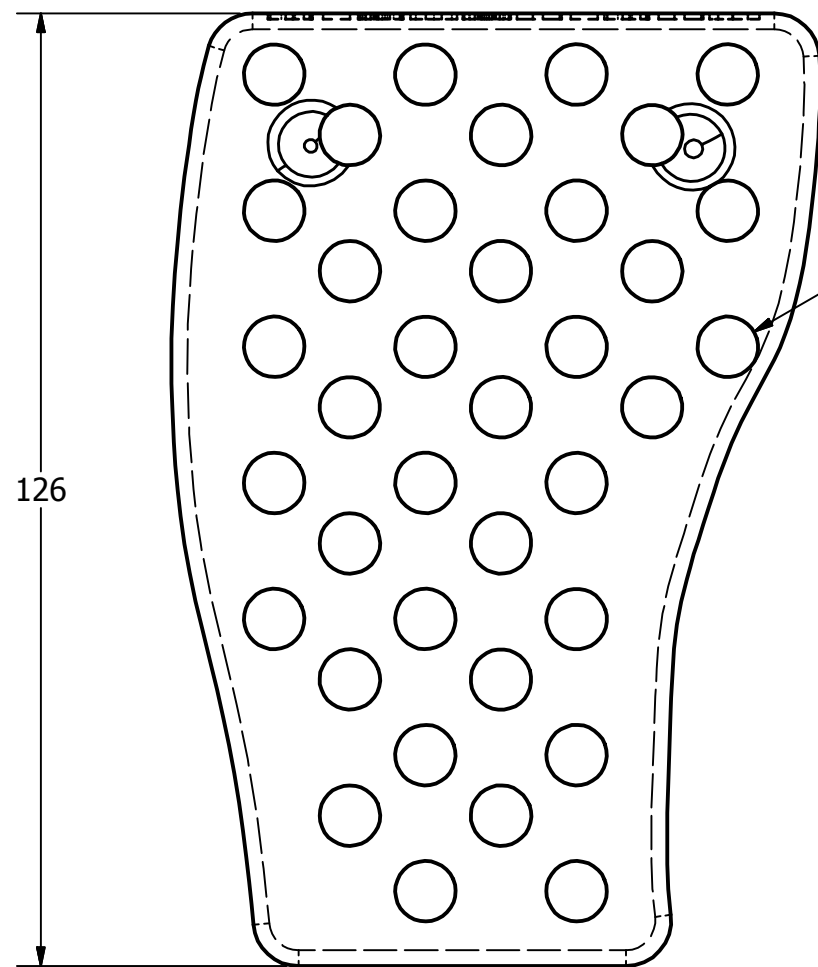
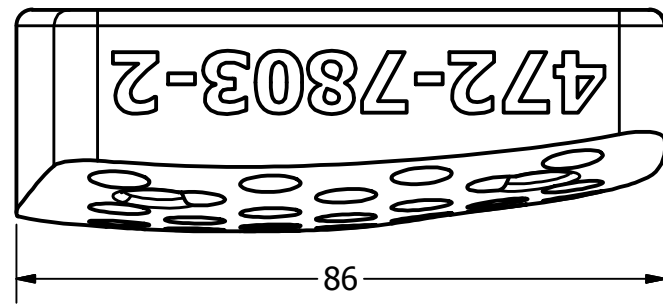
ITEM	QTY	PART NUMBER	DESCRIPTION
13	1	9000058	SCREW, SHCS M3-0.5 x 12
12	3	SA572-S4	UNIAXIAL PIEZORESISTIVE ACCELEROMETER
11	6	9010407	SCREW, SHCS M1.4 x 0.3 x 3 LG.
10	2	9000863	SCREW, SHCS M2.5X0.45 X 16
9	1	SA572-S80M	TRI-PACK BLOCK
8	2	9010446	SCREW, FHCS M3X0.5 X 16
7	1	472-7710	PLATE MOUNTING, TRI PACK ACCEL
6	3	5001089	SCREW, FHCS M6X1 X 20
5	1	472-7744	MOUNTING POST, LOWER ACHILLES
4	1	472-7801-2	SHOE - SOLE
3	1	472-7804-2	HEEL PAD MOLDED - RIGHT
2	1	472-7803-2	BALL OF FOOT PAD MOLDED- RIGHT
1	1	472-7802-2	SHOE UPPER - RIGHT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL - X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		MOLDED SHOE ASS'Y. - RIGHT	
DRAWN B. HARRIS		5/14/2015			
MATERIAL SEE PARTS LIST		CHECKED			
HEAT TREAT N/A		ENG			
FINISH N/A		APPROVED			
 THIRD ANGLE PROJECTION		SIZE A2		DRAWING NUMBER 472-7800-2	
		SCALE: 1 : 2		SHEET 1 OF 1	

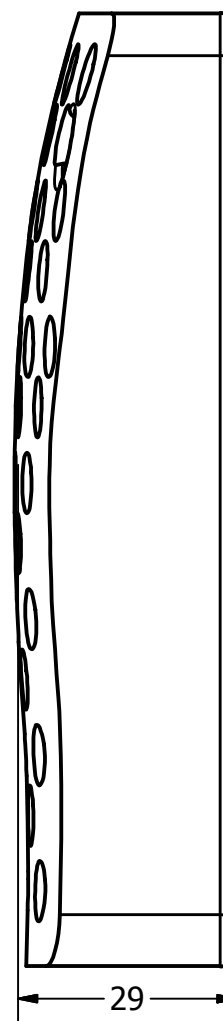


- NOTES:
1. COLOR: BLACK
 2. REMOVE ALL MOLD FLASHING
 3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
 4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE THERMOPLASTIC MOLDING

1	1	472-7750	FOOT BONE ASSEMBLY	
ITEM	QTY	PART NUMBER	DESCRIPTION	
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER  NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		SHOE UPPER - RIGHT
DECIMAL: X ±.5 XX ±.2 X.XX ±.1	MACHINED ANGLES ±.5°			
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS	DATE	
MATERIAL Thermoplastic Resin		DRAWN B. HARRIS	5/13/2015	
HEAT TREAT N/A		CHECKED		
FINISH N/A		ENG		
		APPROVED		
		 THIRD ANGLE PROJECTION		SIZE: A3 SCALE: 1:2
		DRAWING NUMBER: 472-7802-2		SHEET: 1 OF 1



37X $\varnothing 8.0 \pm 0.5$ ∇ THRU



NOTES:

1. COLOR: AMBER
2. REMOVE ALL MOLD FLASHING
3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE URETHANE MOLDING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	✓ ANGLES
XX ±.2	±.5°
X.XX ±.1	

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH
and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

APPROVALS

DATE

BALL OF FOOT PAD MOLDED- RIGHT

DRAWN
B. HARRIS

7/15/2016

MATERIAL
POLYURETHANE

CHECKED

HEAT TREAT
N/A

ENG

FINISH
N/A

APPROVED



THIRD ANGLE
PROJECTION

SIZE
A3

DRAWING NUMBER
472-7803-2

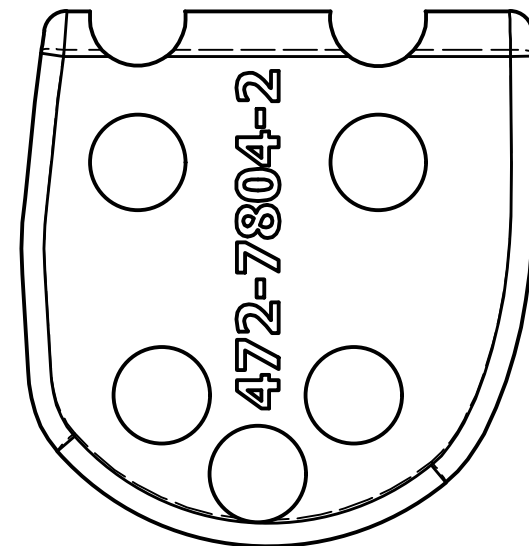
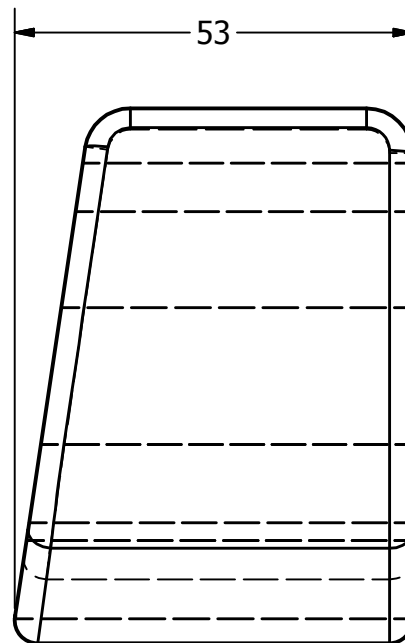
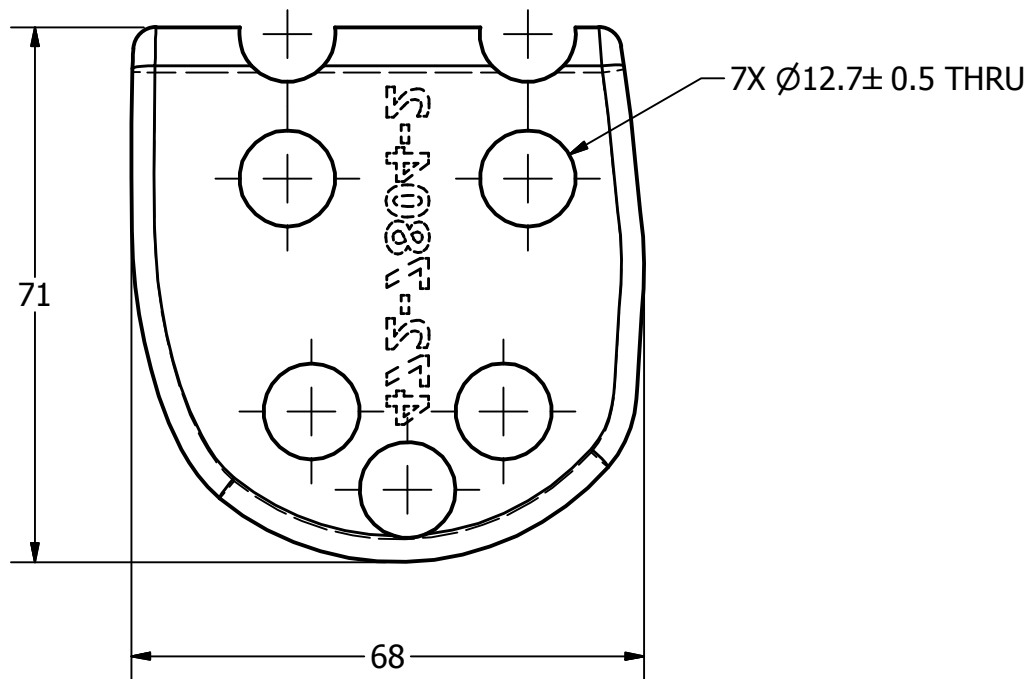
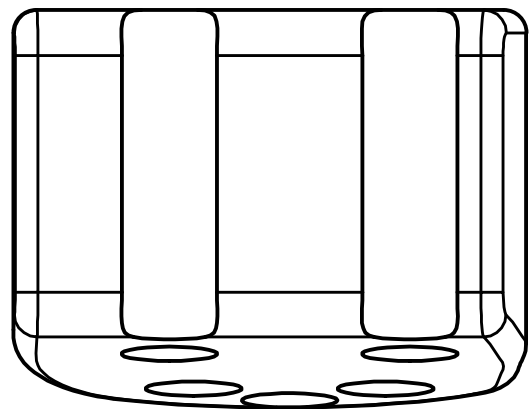
REV

SCALE:

1 : 1

SHEET

1 OF 1




NOTES:

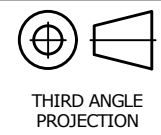
1. COLOR: BLACK
2. REMOVE ALL MOLD FLASHING
3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE URETHANE MOLDING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

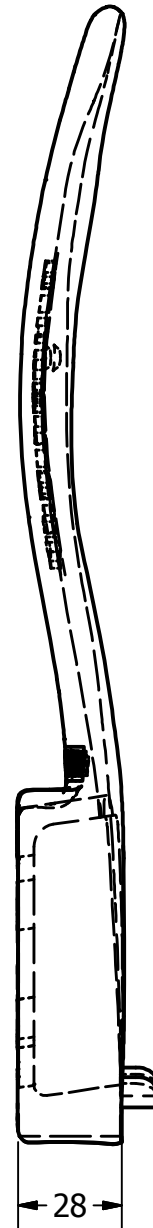
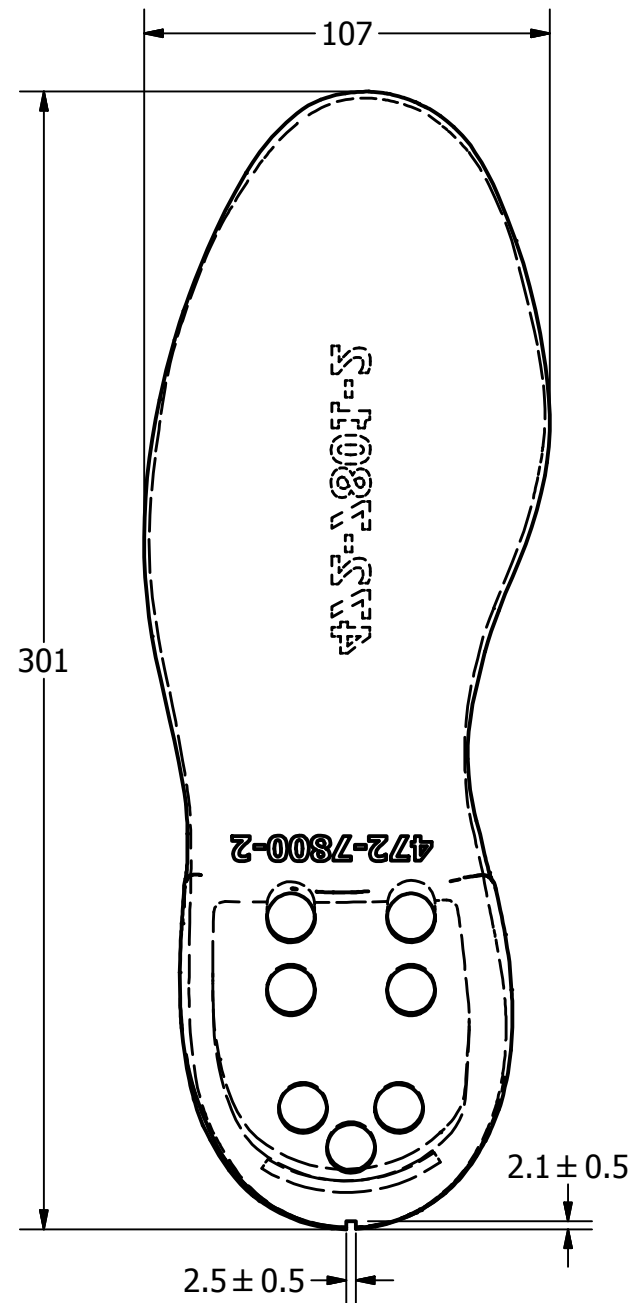
DECIMAL:	MACHINED
X ±.5	✓ ANGLES
XX ±.2	±.5°
X.XX ±.1	

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ✓ ANGLES XX ±.2 ±.5° X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
MATERIAL POLYURETHANE		APPROVALS DRAWN B. HARRIS		DATE 5/13/2015	
HEAT TREAT N/A		CHECKED ENG		HEEL PAD MOLDED - RIGHT	
FINISH N/A		APPROVED		SIZE A3	
				DRAWING NUMBER 472-7804-2	
				SCALE: 1:1	
				SHEET 1 OF 1	



THIRD ANGLE
PROJECTION




NOTES:

1. COLOR: BLACK
2. REMOVE ALL MOLD FLASHING
3. ALL MOLD DIMENSION TOLERANCE +1%/-2% BUT NO SMALLER THAN 0.5mm
4. NO SPLIT OR DEFECTS ARE ALLOWED IN THE THERMOPLASTIC MOLDING

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	✓ ANGLES
XX ±.2	±.5°
X.XX ±.1	

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE	
DRAWN B. HARRIS		5/13/2015	
CHECKED		SHOE SOLE - RIGHT	
MATERIAL THERMOPLASTIC RESIN		SIZE A3	
HEAT TREAT N/A		DRAWING NUMBER 472-7801-2	
FINISH N/A		SCALE: 1:2	
APPROVED		SHEET 1 OF 1	



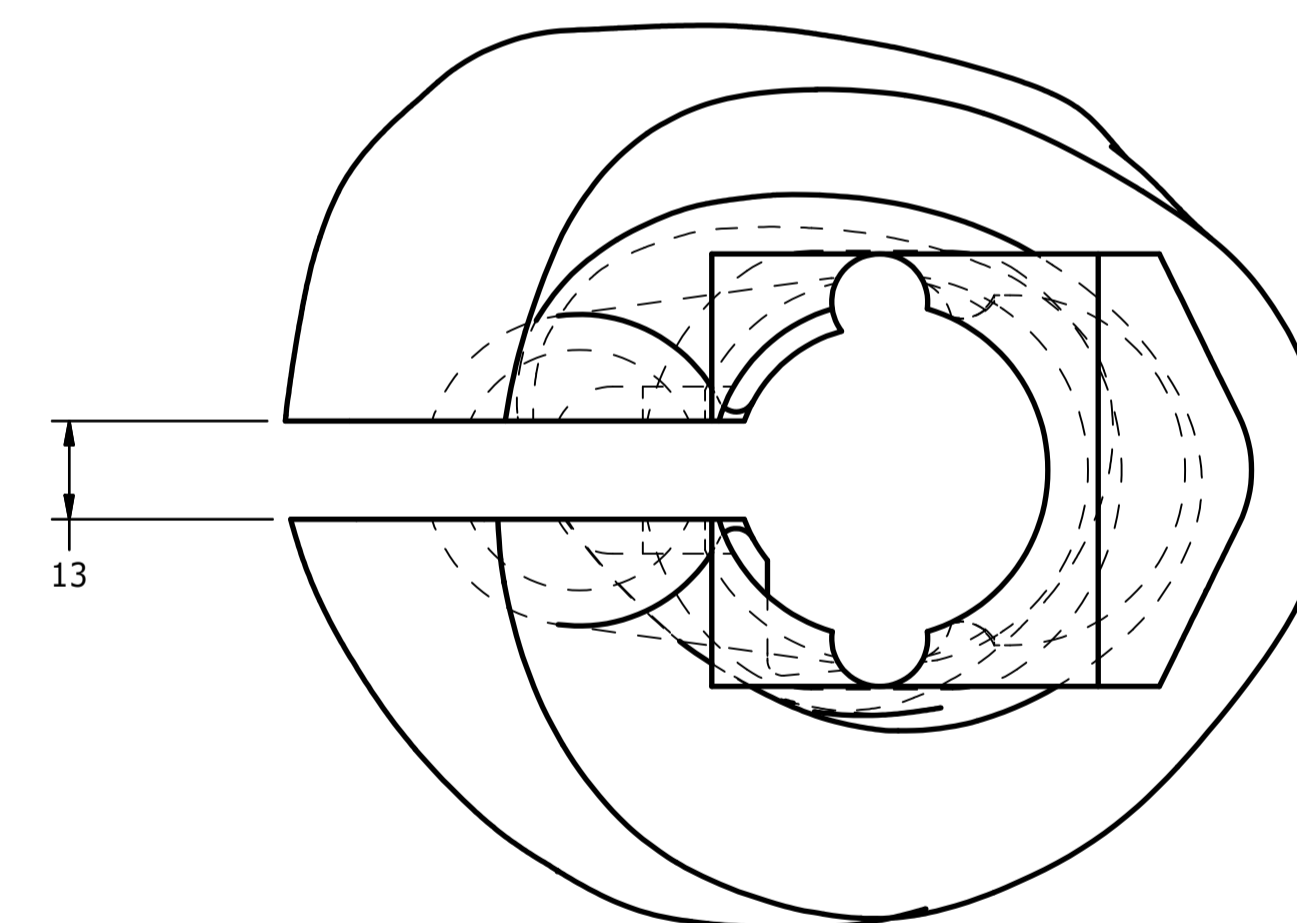
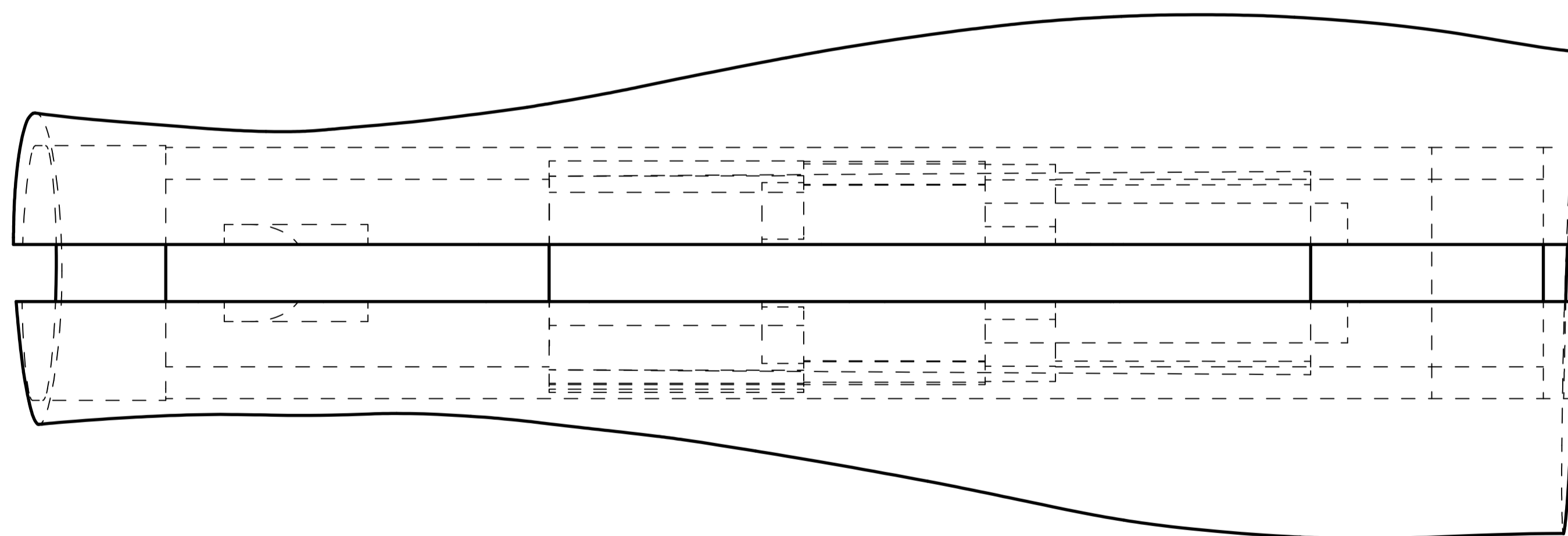
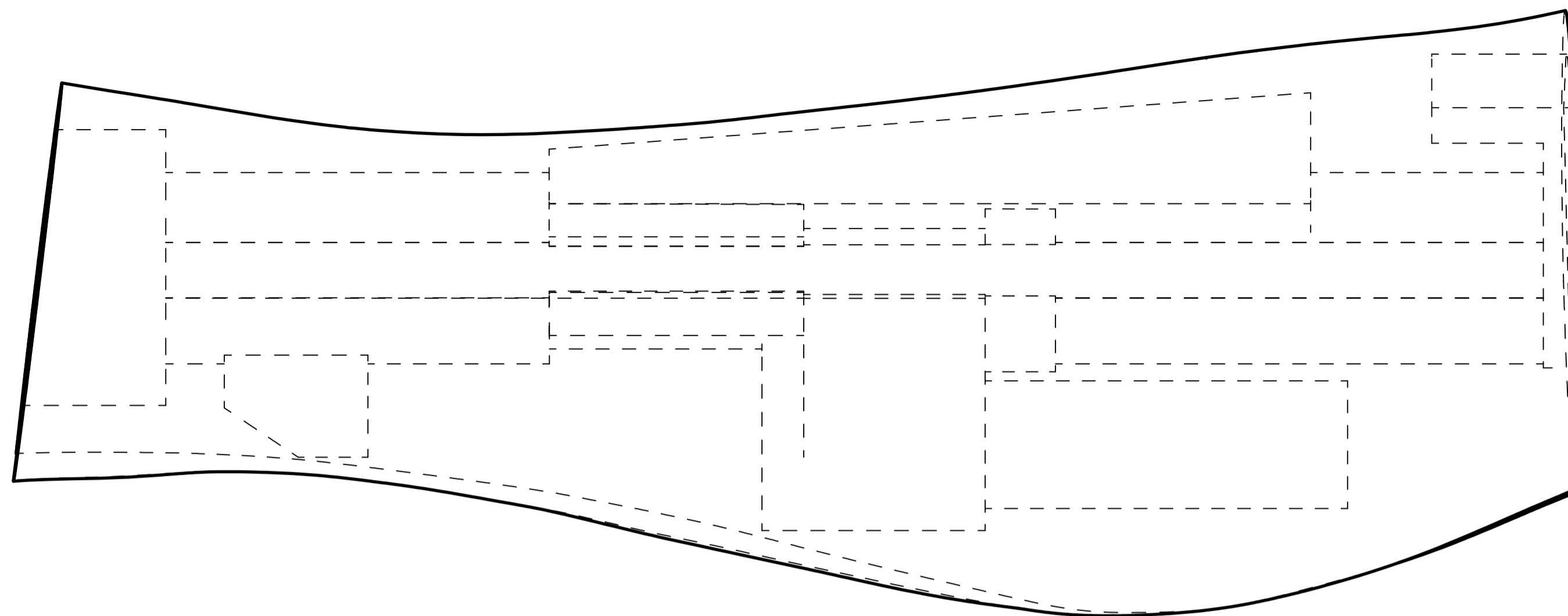
THIRD ANGLE
PROJECTION

4

3

2

1



- UNLESS OTHERWISE SPECIFIED:
 1. BREAK ALL SHARP EDGES.
 2. PART TO BE MOLDED VINYL AND URETHANE FOAM.
 3. TOTAL MASS: .63 ± .05 KG.
 4. ATTACH ZIPPER TO CLOSE FLESH AT BACK.
 5. EXTERNAL SHAPE DEFINED BY UMTRI 50TH PERCENTILE LOWER LEG.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	LOWER LEG FLESH, RIGHT	
DO NOT SCALE DRAWING		DRAWN B. WADE	1/19/2009	THOR-M	
MATERIAL	HEAT TREAT N/A	ENG	APPROVED	SIZE A1	DRAWING NUMBER 472-7370-2
FINISH N/A				SCALE: 1:1	SHEET 1 OF 1

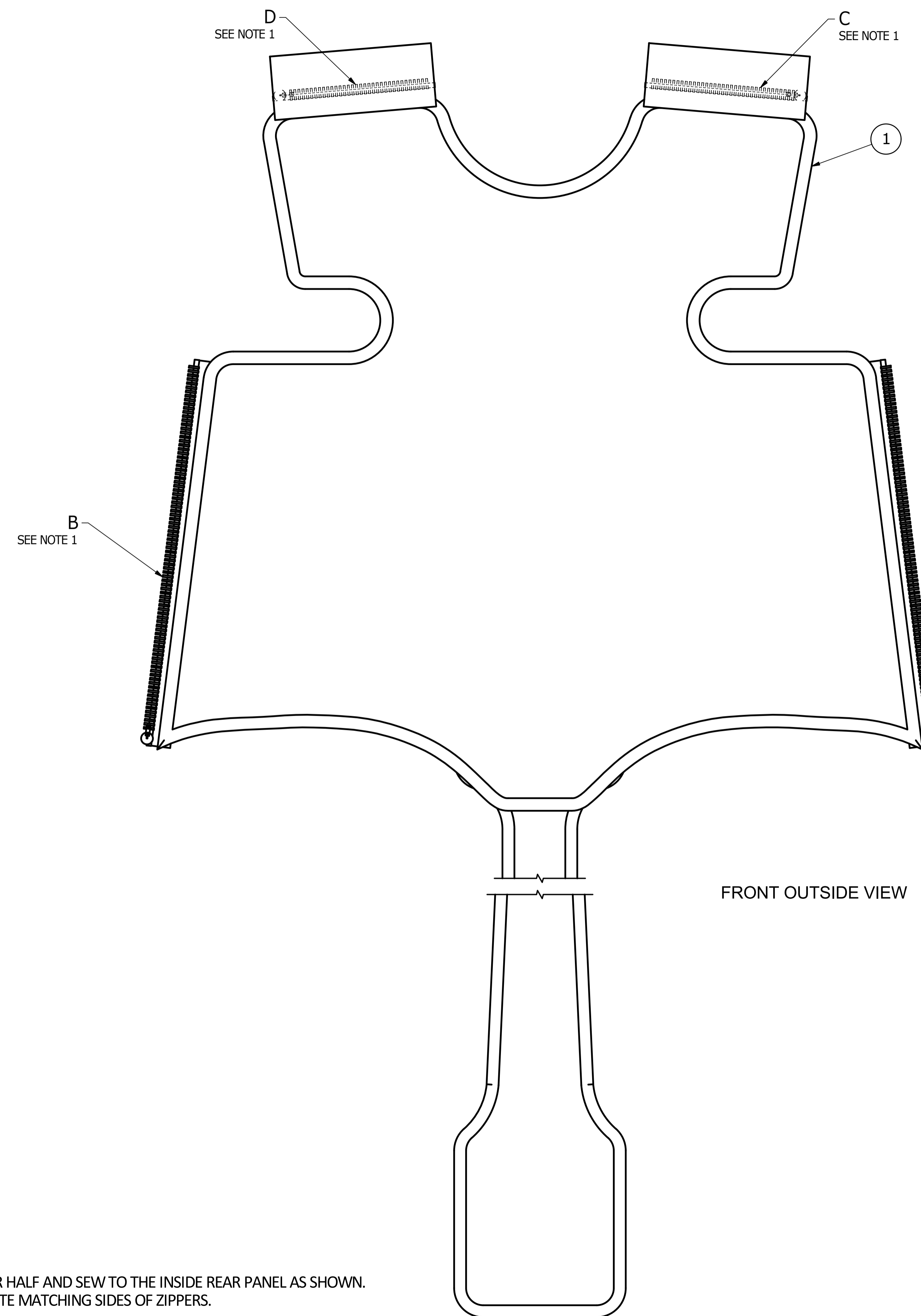
4

3

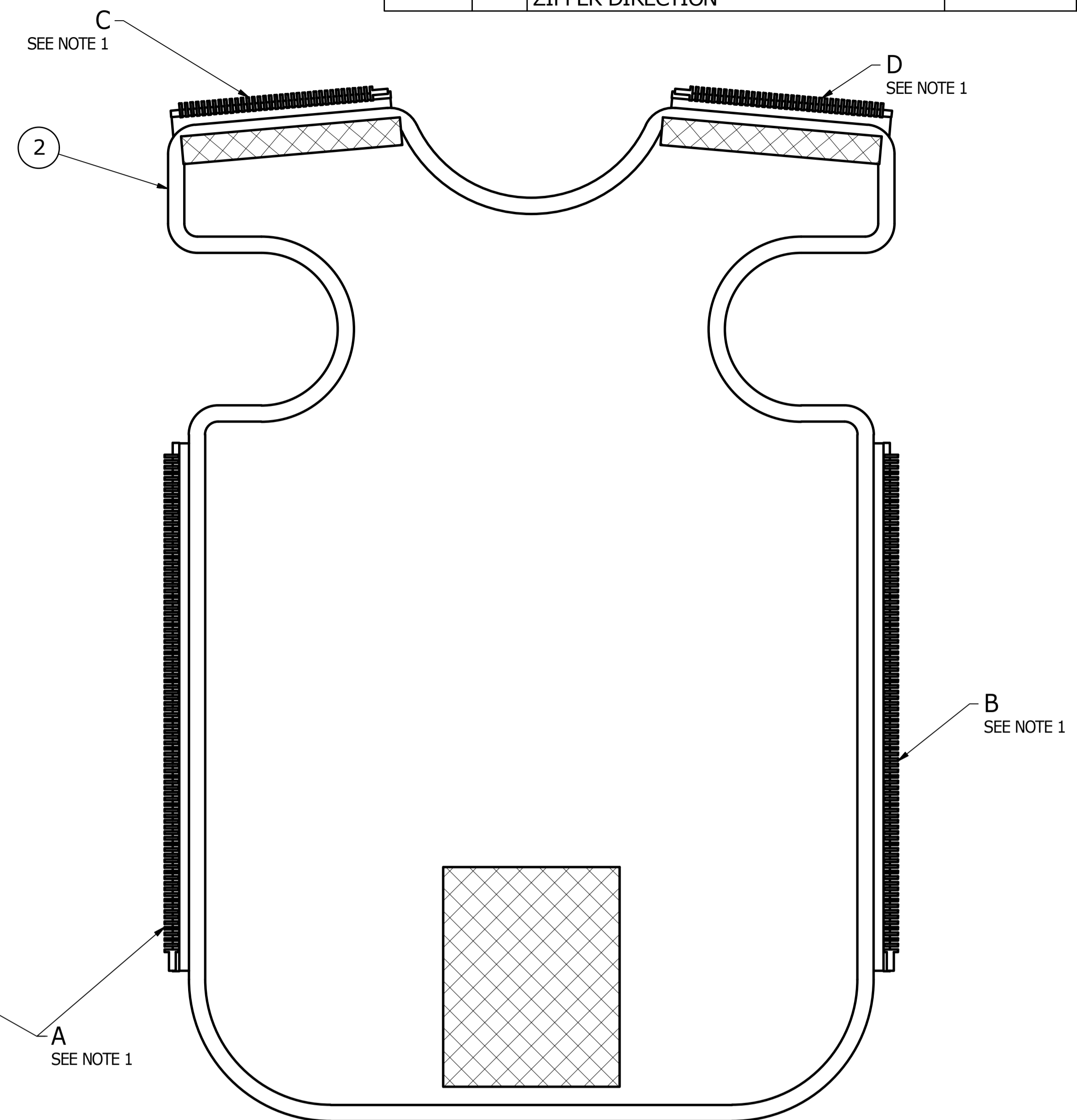
2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF000 RB 1 AND CONVERTED TO METRIC FOR THOR-M	12/13/2011	BK
	B	UPDATED VIEWS TO SHOW CORRECTED ZIPPER DIRECTION	6/21/2012	BK



FRONT OUTSIDE VIEW



REAR OUTSIDE VIEW

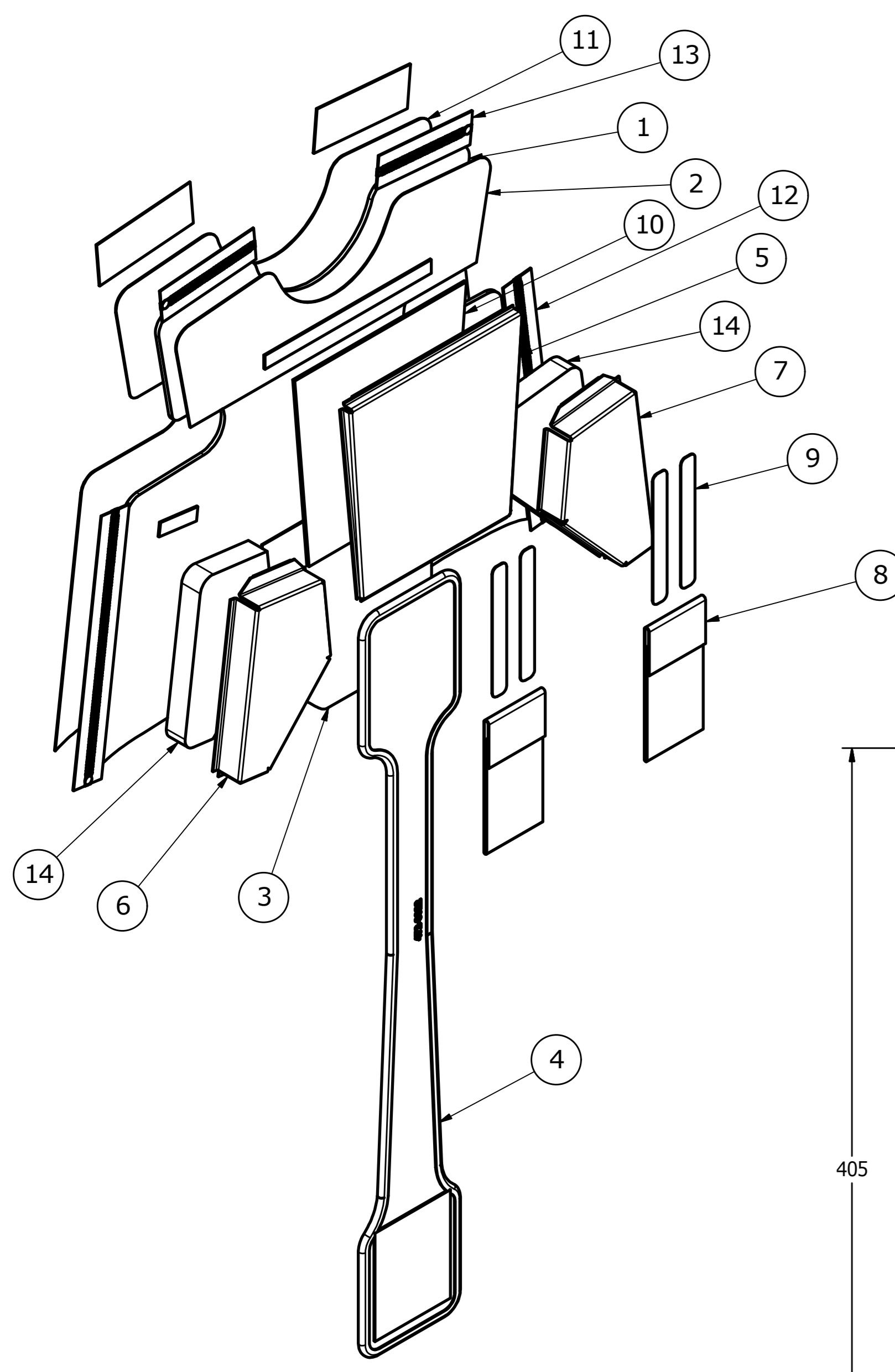
NOTES:
 1. REMOVE ZIPPER HALF AND SEW TO THE INSIDE REAR PANEL AS SHOWN.
 LETTERS INDICATE MATCHING SIDES OF ZIPPERS.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3951	REAR PANEL ASSEMBLY, JACKET
1	1	472-3910	FRONT PANEL ASSEMBLY, JACKET

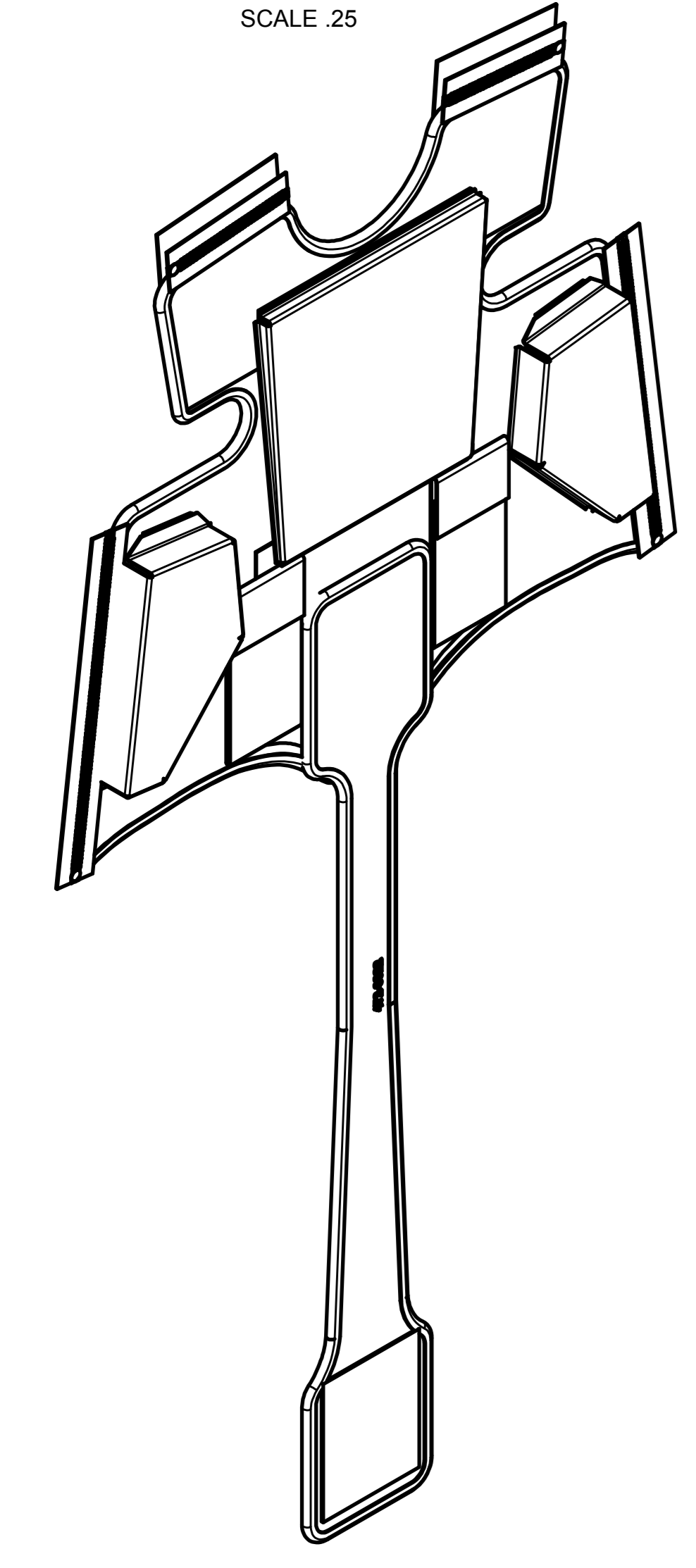
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER	
DECIMAL: X ±.5	MACHINED X.X ±.2	APPROVALS	DATE
X.XX ±.1	ANGLES ±.5°	DRAWN Dave Walker	12/13/2011
DO NOT SCALE DRAWING		CHECKED	
MATERIAL	ENG J. WANG	APPROVED	1/11/2012
FINISH	APPROVED		

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		FRONT/REAR PANEL ASSEMBLY, JACKET	
SIZE A1	DRAWING NUMBER 472-3900	REV B	
SCALE: .50	SHEET 1	OF 1	

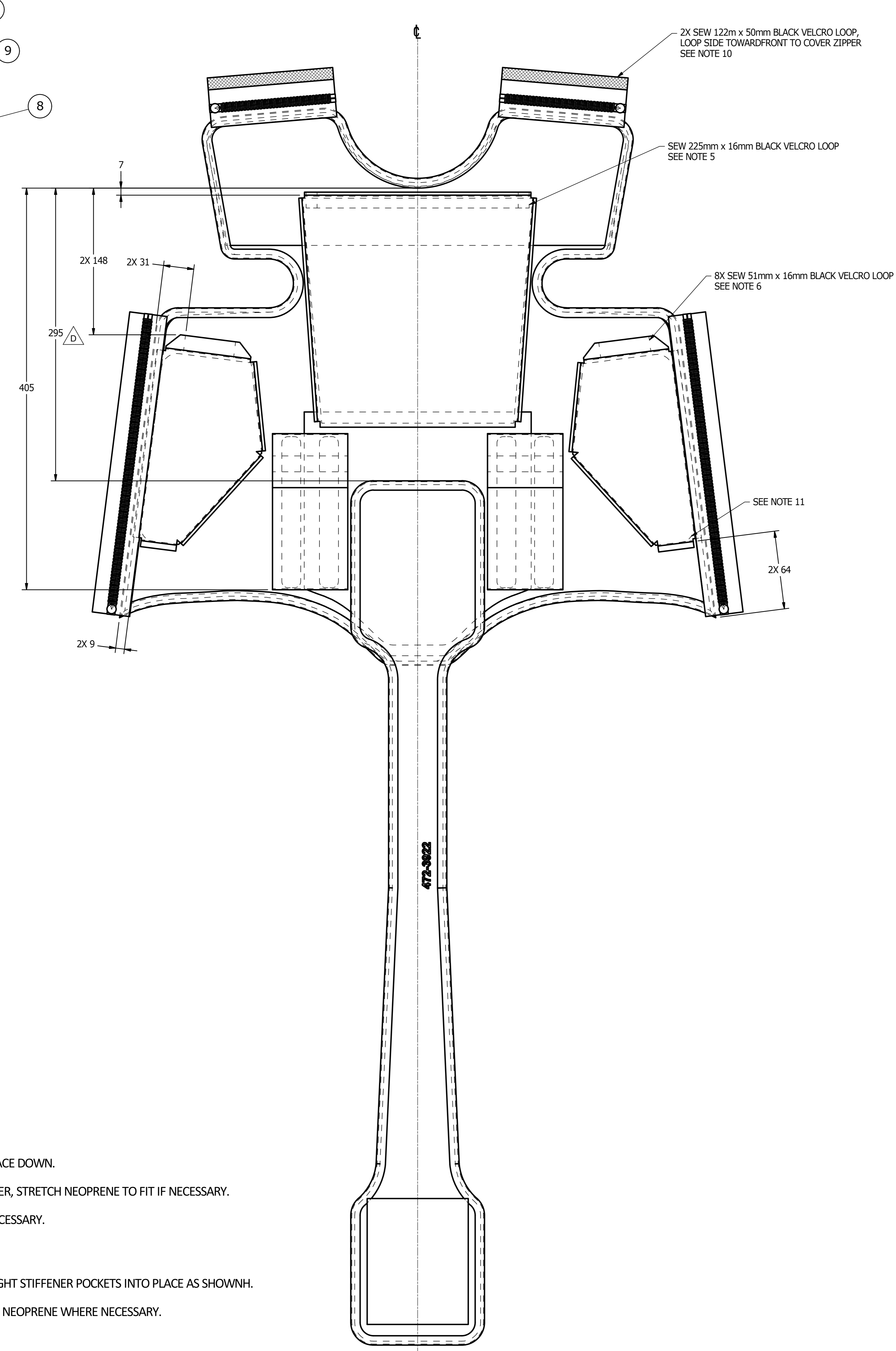
1 REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF100 RB1 AND CONVERTED TO METRIC FOR THOR-M	12/12/2011	BK
	B	REMOVED 472-3919-1/-2 ADD 472-3919, QTY 2	2/8/2012	BK
	C	SHOW SIDE ZIPPERS DIRECTION ZIPPING TO DOWNWARD DIRECTION	6/15/2012	BK
	D	REVISED 472-3911, 472-393922, & 472-3912; DIMENSION 295 WAS 305	1/28/2016	DW



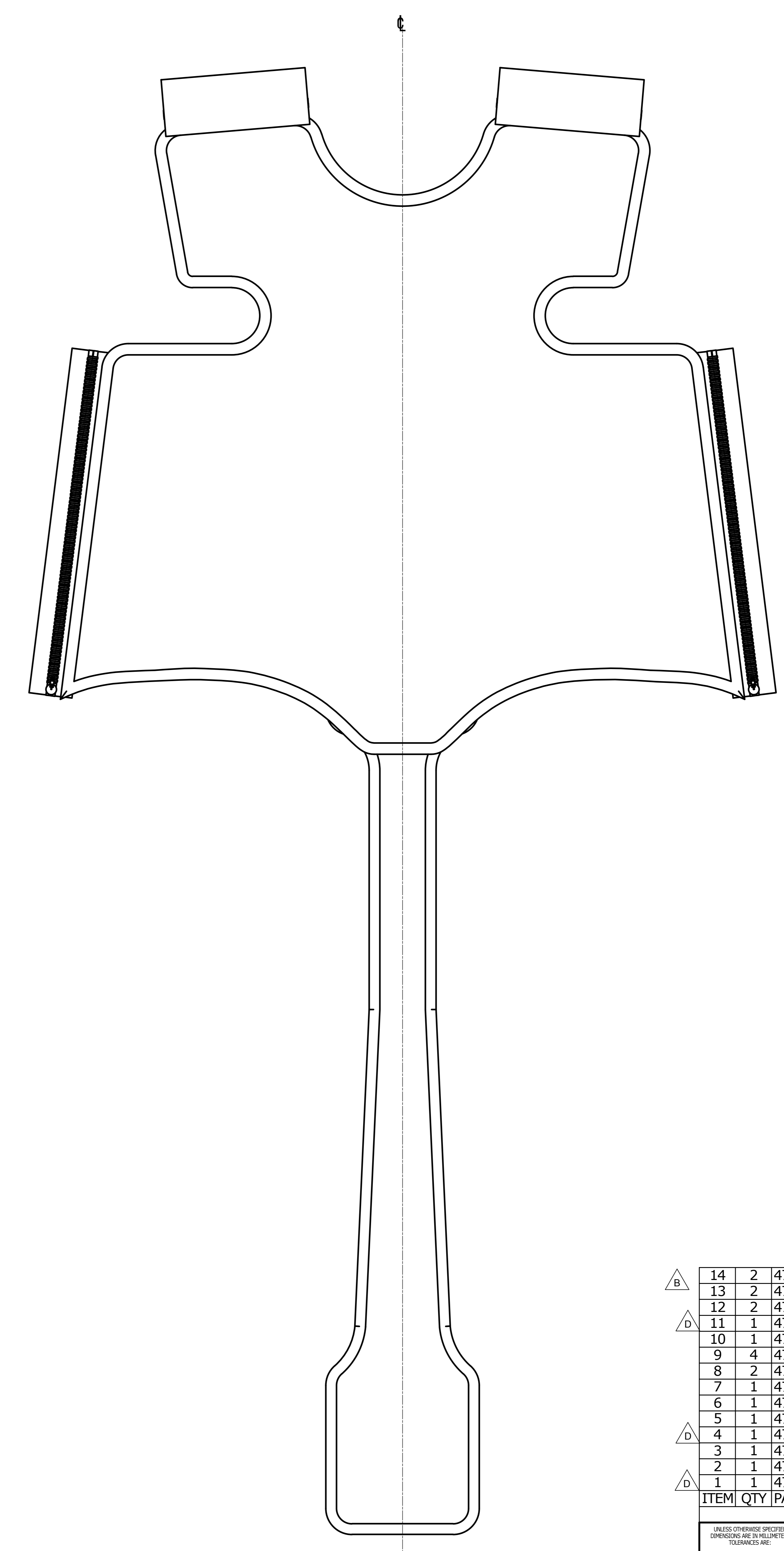
SCALE .25



SCALE .25



REAR VIEW



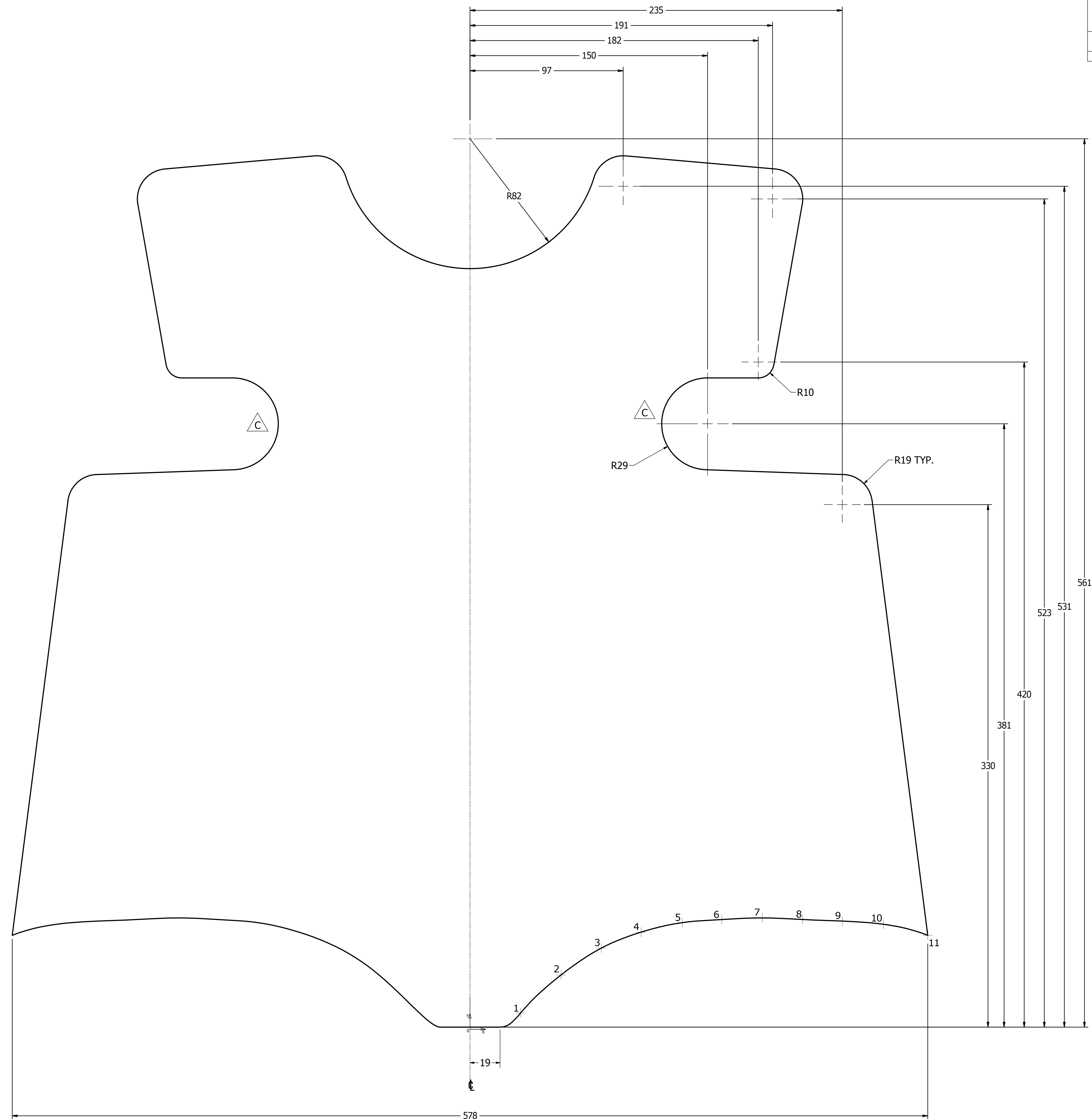
FRONT VIEW

- NOTES:
1. SEW COMPONENTS TO NEOPRENE WIT THE BLACK SIDE UP.
 2. CORDURA COMPONENTS ARE SEWN WITH THE LAMINATED SIDE FACE DOWN.
 3. SEW ABDOMENIN PLACE ALIGNED WITH BOTTOM EDGE AND CENTER, STRETCH NEOPRENE TO FIT IF NECESSARY.
 4. SEW SHOULDER PATCH IN PLACE; STRETCH NEOPRENE TO FIT IF NECESSARY.
 5. SEW VELCRO INTO PLACE AS NOTED; CENTERED ACROSS ϵ .
 6. SEW CHEST POCKET, LEFT & RIGHT FOAM POCKETS, AND LEFT & RIGHT STIFFENER POCKETS INTO PLACE AS SHOWNH.
 7. SEW ASSEMBLED NEOPRENE TO FRONT CORDURA PANEL, STRETCH NEOPRENE WHERE NECESSARY.
 8. TRIM EDGES WITH BIAS TAPE.
 9. SEW ZIPPERS THRU ENTIRE ASSEMBLY MAKING SUREZIPPER CLOSURE DIRECTION IS DOWNWARD.
 10. SEW VELCRO FLAPS AS NOTED.
 11. INSERT SIDE FOAM, STEEL STIFFENERS, AND WEIGHTED BIB.

ITEM	QTY	PART NUMBER	DESCRIPTION
14	2	472-3919	UPPER SIDE FOAM
13	2	472-3917	FRONT PANEL SHOULDER ZIPPER, JACKET
12	2	472-3918	FRONT PANEL ZIPPER, JACKET
11	1	472-3912	FRONT OUTSIDE PANEL PATTERN (CORDURA)
10	1	472-3920	WEIGHTED BIB, JACKET
9	4	472-3926	STEEL STIFFENER, JACKET
8	2	472-3913	STIFFENER POCKET, JACKET
7	1	472-3915-2	UPPER RIGHT FOAM POCKET
6	1	472-3915-1	UPPER LEFT FOAM POCKET
5	1	472-3914	CHEST FOAM POCKET
4	1	472-3922	CROTCH STRAP ASSEMBLY, JACKET
3	1	472-3921	FRONT INTERIOR ABDOMEN PATCH, JACKET
2	1	472-3927	FRONT INTERIOR SHOULDER PATCH
1	1	472-3911	FRONT INSIDE PANEL PATTERN (NEOPRENE)

PARTS LIST		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	APPROVALS		DATE	
B. KIMES	12/12/2011	APPROVALS		DATE	
CHECKED		APPROVALS		DATE	
PREPARED		APPROVALS		DATE	
REVISED		APPROVALS		DATE	
DATE	12/12/2011	APPROVALS		DATE	
BY	J. WANG	APPROVALS		DATE	
SCALE	1:1	APPROVALS		DATE	
PROJECT	472-3910	APPROVALS		DATE	
1 OF 1		APPROVALS		DATE	

REVISION HISTORY			DATE	BY
ECO	REV	DESCRIPTION		
	A	RENUMBERED FROM T1JKF111 RB11 AND CONVERTED TO METRIC FOR THOR-M; ADD TOLERANCE AND SYMETRIC NOTE; MODIFIED 3mm SMALLER CORDURA PANEL, SIDE 6mm SMALLER	12/9/2011	BK
	B	BLACK WAS WINE, REMOVED, REMOVED COLOR NUMBER IN NEOPRENE MATERIALS	6/28/2012	BK
	C	REVISED SIDE SLOTS	1/20/2015	DW

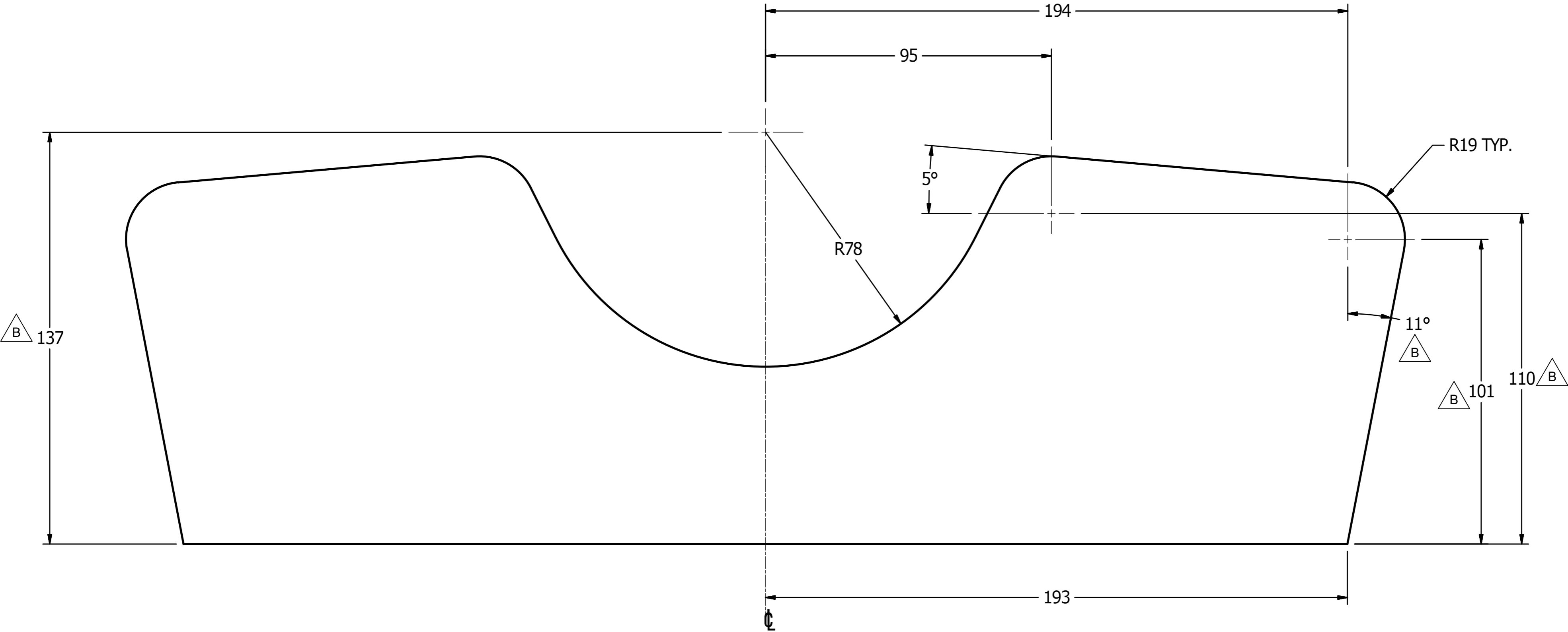


POINT	X (+/-0.5mm)	Y (+/-0.5mm)
1	32	9
2	57.5	33
3	83	50
4	108	60
5	134	66
6	159	68
7	184.5	69
8	210	68
9	235	67
10	261	65
11	289	58

- NOTES:
- 1. MATERIAL: NEOPRENE G-231-N 3/16" (4.8mm) THICK WITH SIDE OF NYLON (N-2-5). COLORE BLACK AND RED
 - 2. PATTERN IS SYMETRIC ABOUT.
 - 3. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.
 - 4. CUT THIS PATTERN WITH THE RED COLOR SURFACE FACING UPWARDS.
 - 5. MARK PART NUMBER WITH PERMANENT MARKER ON RED COLOR SIDE.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL	FRACTION	APPROVALS	DATE	FRONT INSIDE PANEL PATTERN (NEOPRENE)	
0.1	1/16	B. KIMES	12/9/2011	SCALE	472-3911 C
0.2	1/8	CHECKED		THIRD ANGLE PROJECTION	1 OF 1
0.5	1/4	DATE	11/1/2012		
1.0	1/2	APPROVED			
2.0	1				

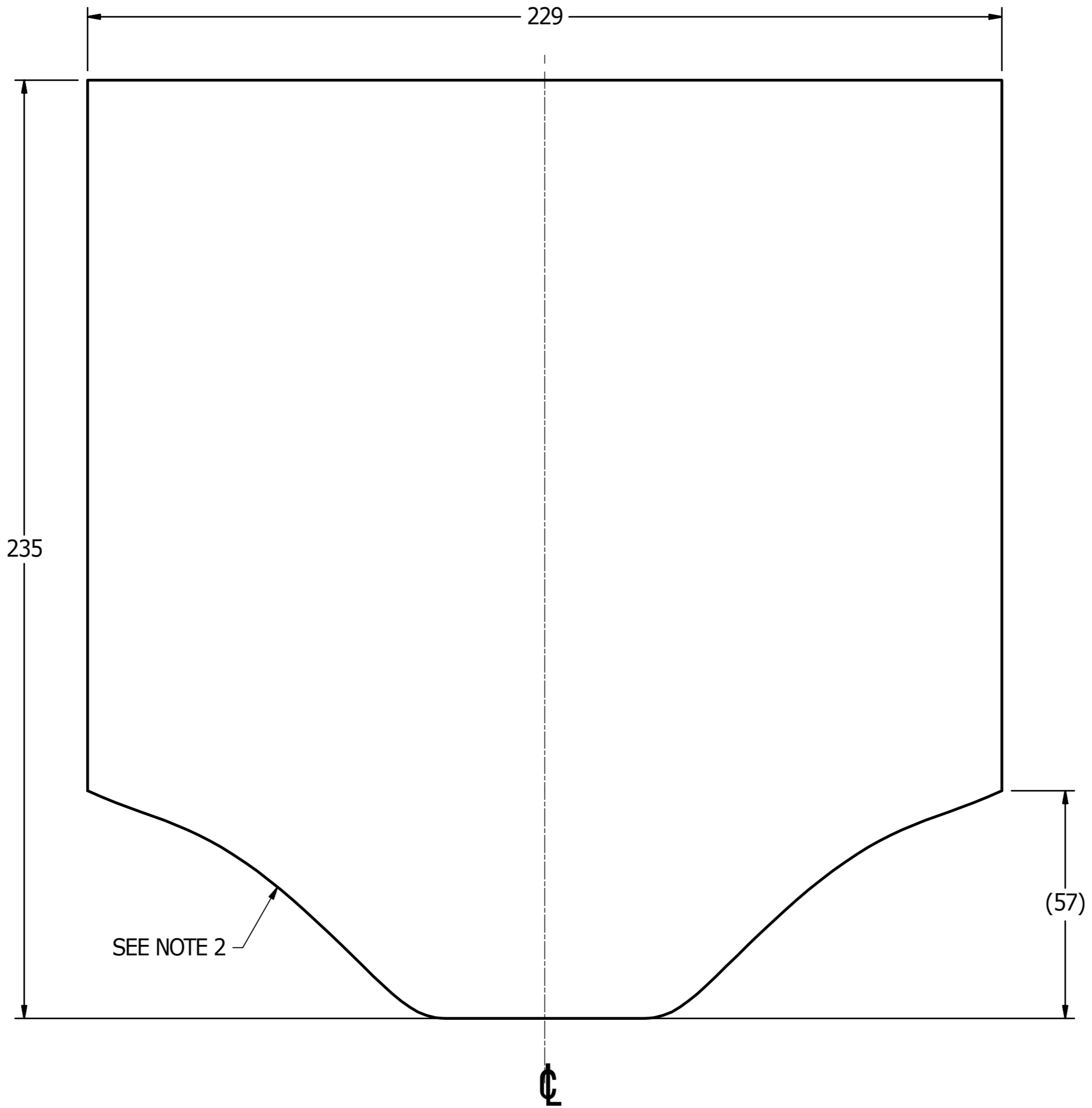
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RELEASED FOR PRODUCTION	12/9/2011	BK
	B	DIMENSION 137 WAS 153, 110 WAS 126, 11° WAS 10°, AND 101 WAS 0°	1/21/2016	DW



- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED .
 2. PATTERN IS SYMETRIC ABOUT ϕ .
 3. TOLERANCE ± 3 mm, UNLESS OTHERWISE NOTED.
 4. CUT THIS PATTERN WITH THE RED COLOR SURFACE FACING UPWARDS.


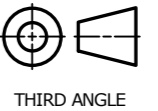
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X $\pm .5$, XX $\pm .2$, XXX $\pm .1$ MACHINED ANGLES $\pm .5^\circ$ <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B. KIMES CHECKED:	DATE 12/9/2011	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:	ENG: J. WANG APPROVED:	DATE: 1/11/2012	SIZE: A2 SCALE: 1:1
DRAWING NUMBER: 472-3927			REV: B SHEET: 1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF120 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 3	11/30/2011	BK

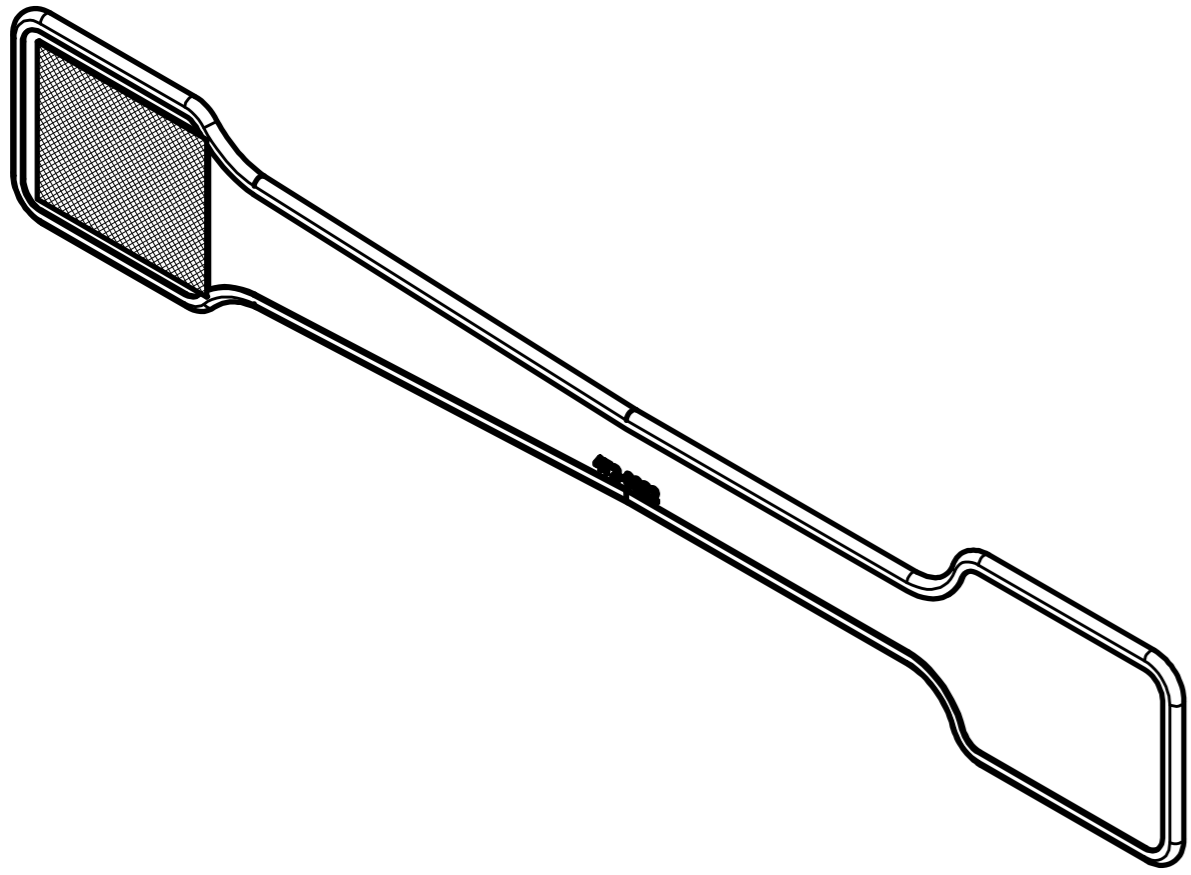


- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED LAMINATED ON ONE SIDE.
 2. SEE DRAWING 472-3912, TABLE 1, FOR RADIUS OF CURVATURE.
 3. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.

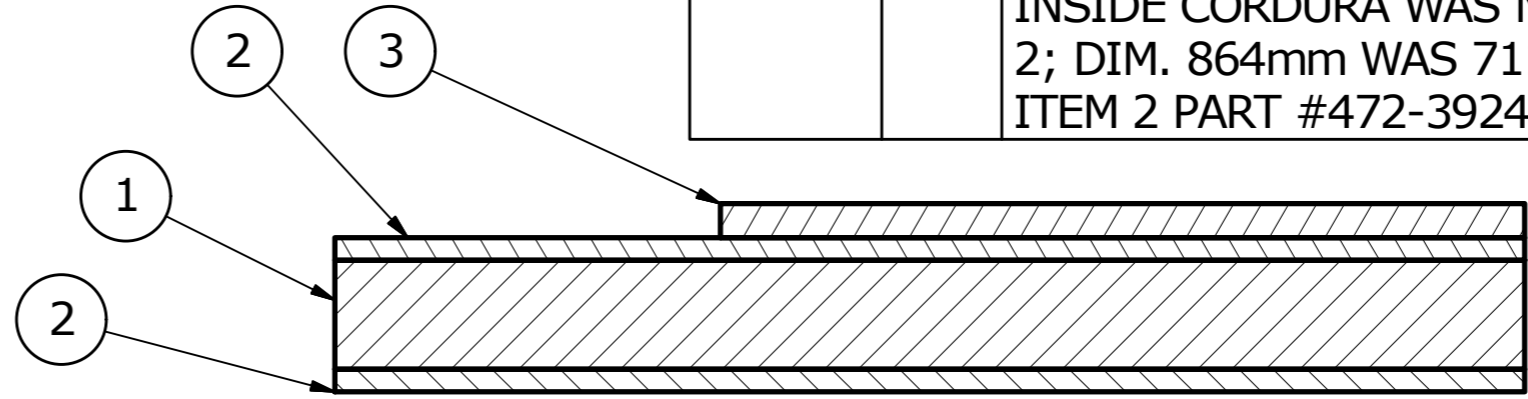


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED ANGLES $\pm 0.5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/30/2011	
MATERIAL SEE NOTES HEAT TREAT FINISH	ENG J. WANG APPROVED	DATE 1/11/2012	 SIZE A2 SCALE: 1 : 1
		DRAWING NUMBER 472-3921	REV A
		SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF130 RB1 AND CONVERTED TO METRIC FOR THOR-M; REMOVE NOTE 4, 5 AND RENUMBER	11/29/2011	BK
	B	MOVED VELCRO TO OPPOSITE END AND LENGTHED STRAP; BLACK BIAS TAPE WAS RED BIAS TAPE IN NOTE 3; REMOVED "NEOPRENE IS TO BE STRETCHED TO 711mm DURING SEWING" FROM NOTE 3; (CORDURA) WAS (NEOPRENE) IN NOTE 1; INSIDE CORDURA WAS NEOPRENE IN NOTE 2; DIM. 864mm WAS 711mm; QTY. OF ITEM 2 PART #472-3924 WAS 1.	1/16/2016	DW

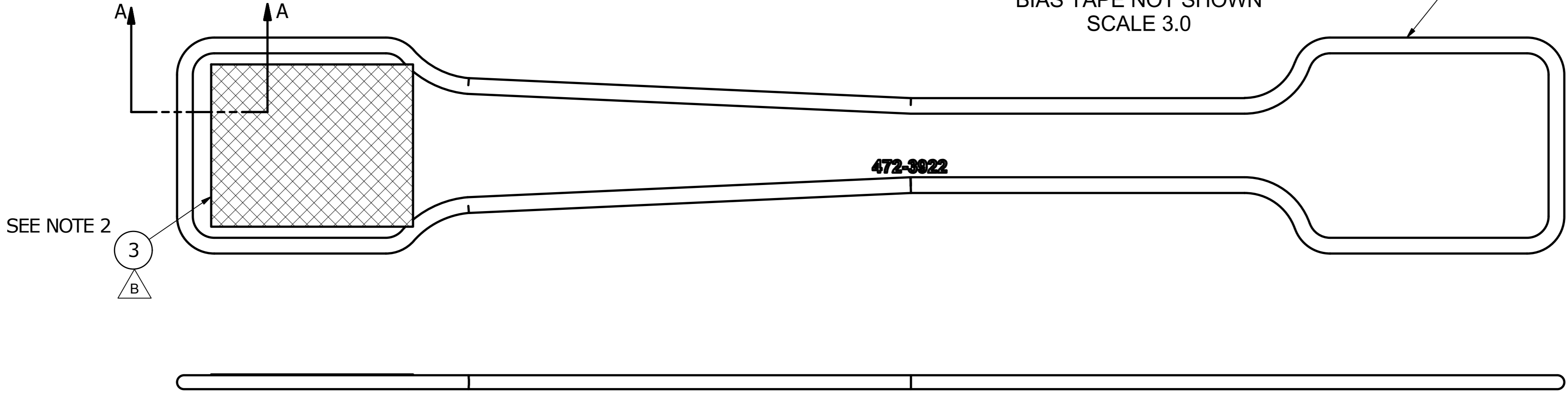


SCALE .250



SECTION A-A
BIAS TAPE NOT SHOWN
SCALE 3.0

SEE NOTE 3



SEE NOTE 2

472-3922

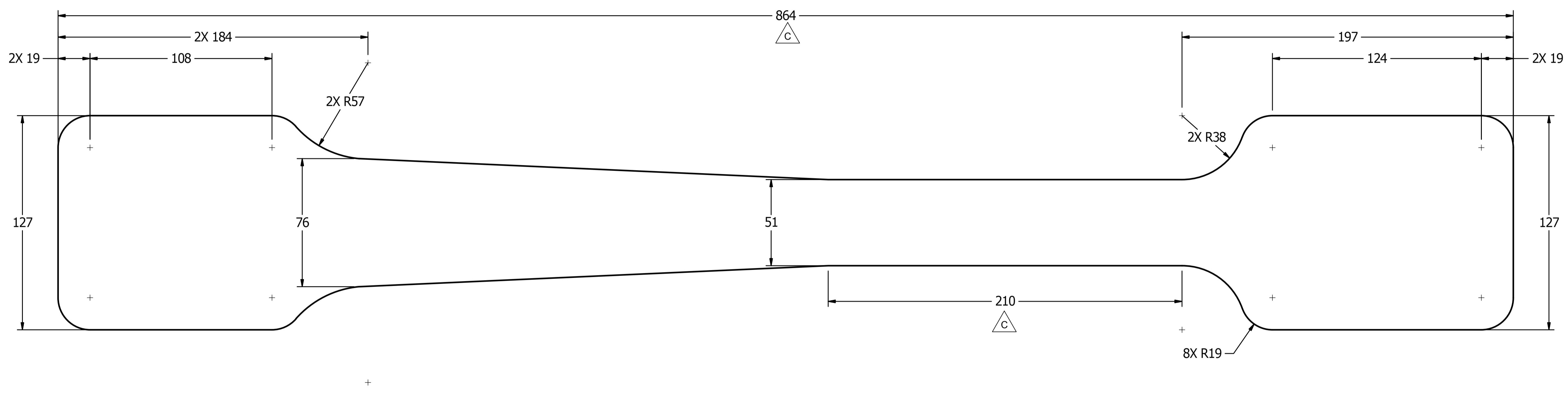
- NOTES:
1. PATTERN IS SHOWN WITH INSIDE (CORDURA) UP.
 2. SEW VELCRO LOOP, CENTERED AT AREA SHOWN, DIRECTLY TO INSIDE CORDURA ONLY.
 3. CORDURA AND NEOPRENE LAYERS ARE SEWN TOGETHER AND LINED WITH BLACK BIAS TAPE.
 4. MARK PART NUMBER (6.4mm CHARACTERS MIN.) WITH PERMANENT MARKER, WHERE SHOWN.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-3925	REAR CROTCH STRAP HOOK VELCRO
2	2	472-3924	OUTER CROTCH STRAP PATTERN, JACKET
1	1	472-3923	INNER CROTCH STRAP PATTERN, JACKET

PARTS LIST

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/29/2011		CROTCH STRAP ASSEMBLY, JACKET	
MATERIAL HEAT TREAT FINISH	ENG J. WANG APPROVED	DATE 1/11/2012	SIZE A2	DRAWING NUMBER 472-3922	REV B
THIRD ANGLE PROJECTION			SCALE: .5 : 1	SHEET 1 OF 1	

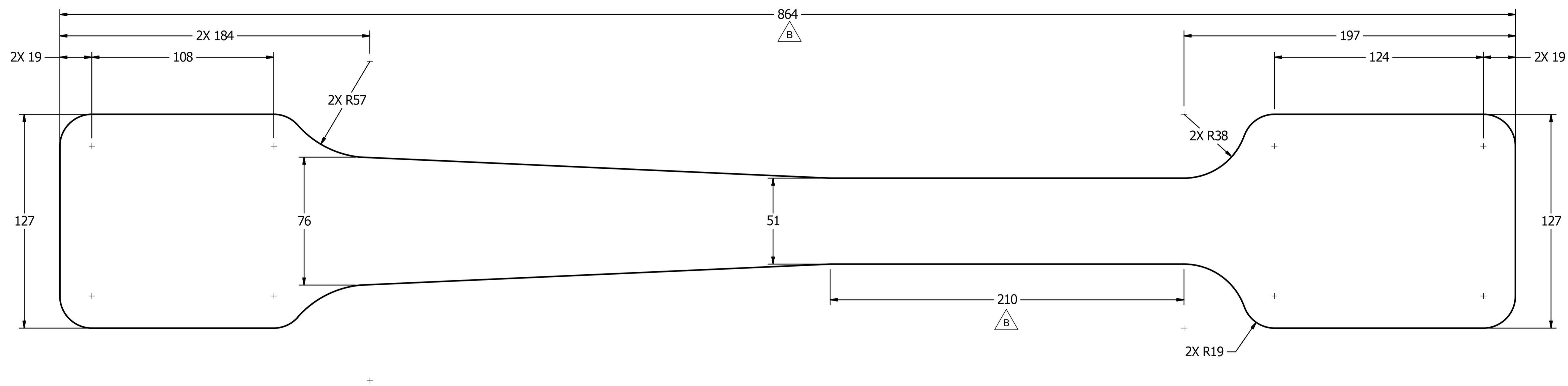
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF131 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/29/2011	BK
	B	BLACK WAS WINE, REMOVE COLOR NUMBER IN NEOPRENE MATERIALS	6/12/2012	BK
	C	DIMENSION 864 WAS 762 AND 210 WAS 108; REMOVED "WITH 2 SIDES OF NYLON (N-2-S) COLORS BLACK AND RED" FROM NOTE 1	3/16/2016	DW



- NOTES:
- MATERIAL: NEOPRENE G-23-N 3/16" (4.8mm) THICKNESS.
 - TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	INNER CROTCH STRAP PATTERN, JACKET	
DO NOT SCALE DRAWING		B. KIMES	11/29/2011	DRAWN	
MATERIAL: SEE NOTES		J. WANG	1/11/2012	CHECKED	
FINISH		APPROVED		SIZE: A1	DRAWING NUMBER: 472-3923
				SCALE: .75 : 1	REV: C
				SHEET: 1 OF 1	

1				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF132 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/29/2011	BK
	B	DIMENSION 864 WAS 762 AND 210 WAS 108	1/21/2016	DW



NOTES:

1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.

A 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	OUTER CROTCH STRAP PATTERN, JACKET	
DO NOT SCALE DRAWING		B. KIMES	11/29/2011	DRAWN	
MATERIAL SEE NOTES		J. WANG	1/11/2012	CHECKED	
FINISH		APPROVED		THIRD ANGLE PROJECTION	
SIZE A1		DRAWING NUMBER 472-3924		REV B	
SCALE .75 : 1		SHEET 1 OF 1		1	

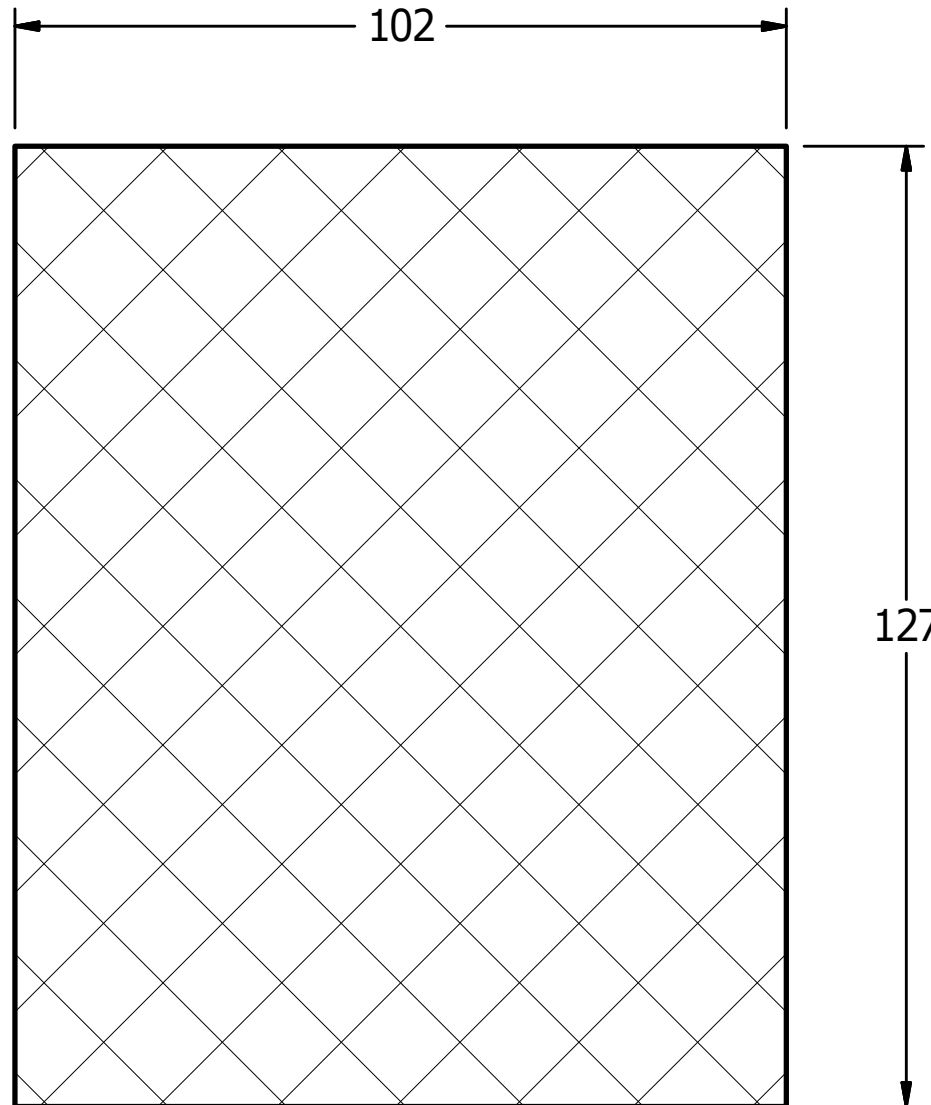
4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF133 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/29/2011	BK



B

B

A

A

NOTES:

- 1. MATERIAL: BLACK NYLON LOOP VELCRO, SHEAR STRENGTH 17 PSI.
- 2. TOLERANCE 3mm, UNLESS OTHERWISE NOTED.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/29/2011		REAR CROTCH STRAP HOOK VELCRO	
MATERIAL SEE NOTES HEAT TREAT FINISH	ENG J. WANG APPROVED	DATE 1/11/2012		SIZE A3	DRAWING NUMBER 472-3925
			SCALE: 1 : 1	SHEET 1 OF 1	REV A

4

3

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1

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2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF113 RB1 AND CONVERTED TO METRIC FOR THOR-M; REMOVED 2X VELCRO PATCH; 251 WAS 270 (TO MATCH ACTUAL PART)	11/30/2011	BK

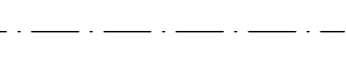
SEW 203mm x 16mm BLACK HOOK VELCRO (ON LAMINATED SIDE)

2X 16

232

13

251

FOLD LINE 

2X 6

2X 6

200

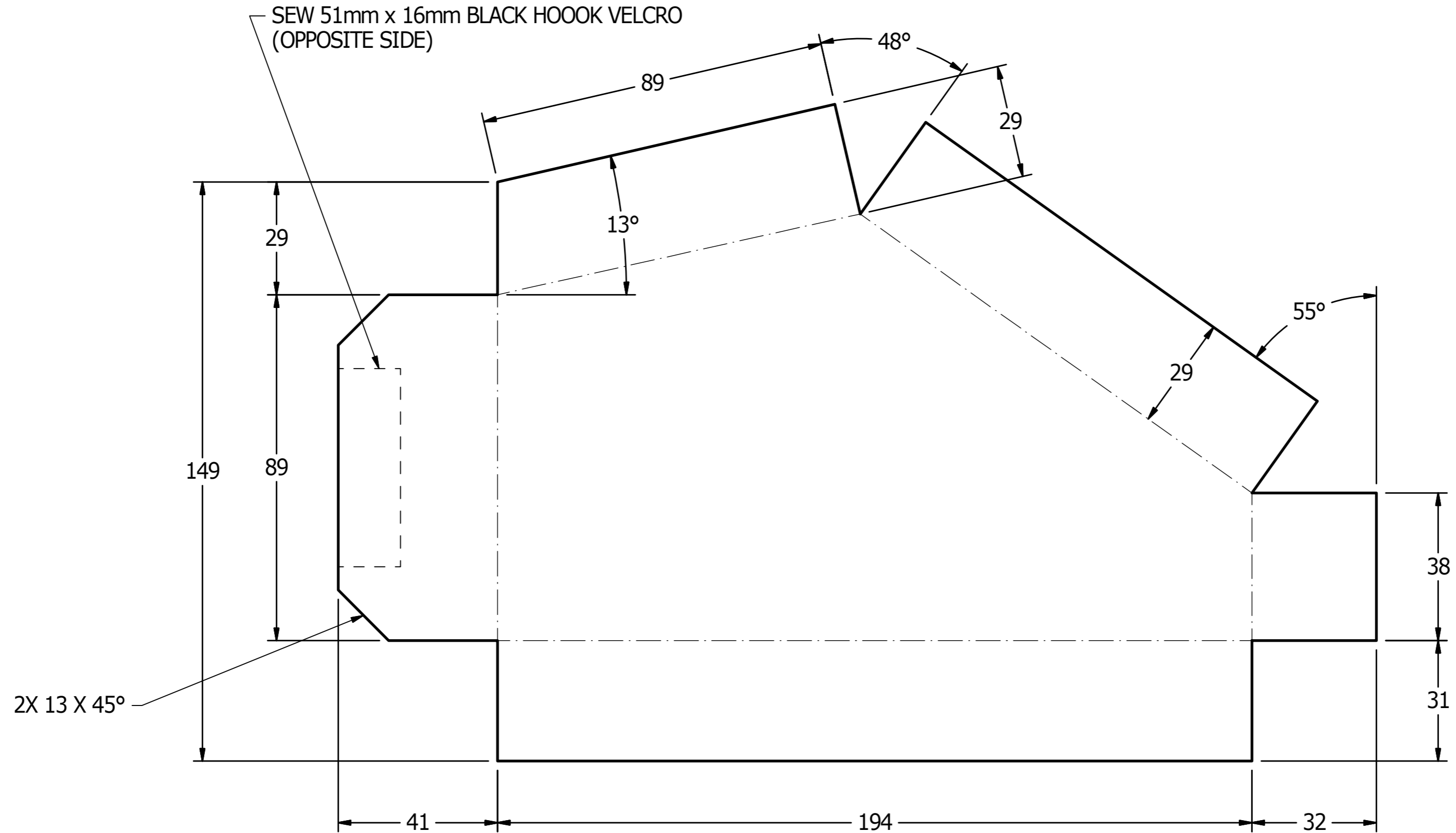
NOTES:

1. MATERIAL: CORDURA (1000 DENIER) NYLON, LAMINATED ON ONE SIDE.

2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED: ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B. KIMES CHECKED:	DATE 11/30/2011	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:	ENG: J. WANG APPROVED:	DATE: 1/11/2012	 SIZE: A2 SCALE: 1:1 DRAWING NUMBER: 472-3914 REV: A SHEET: 1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF115 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 3	11/30/2011	BK
	B	DIMENSION 48° WAS 46°	1/21/2016	DW



NOTES:

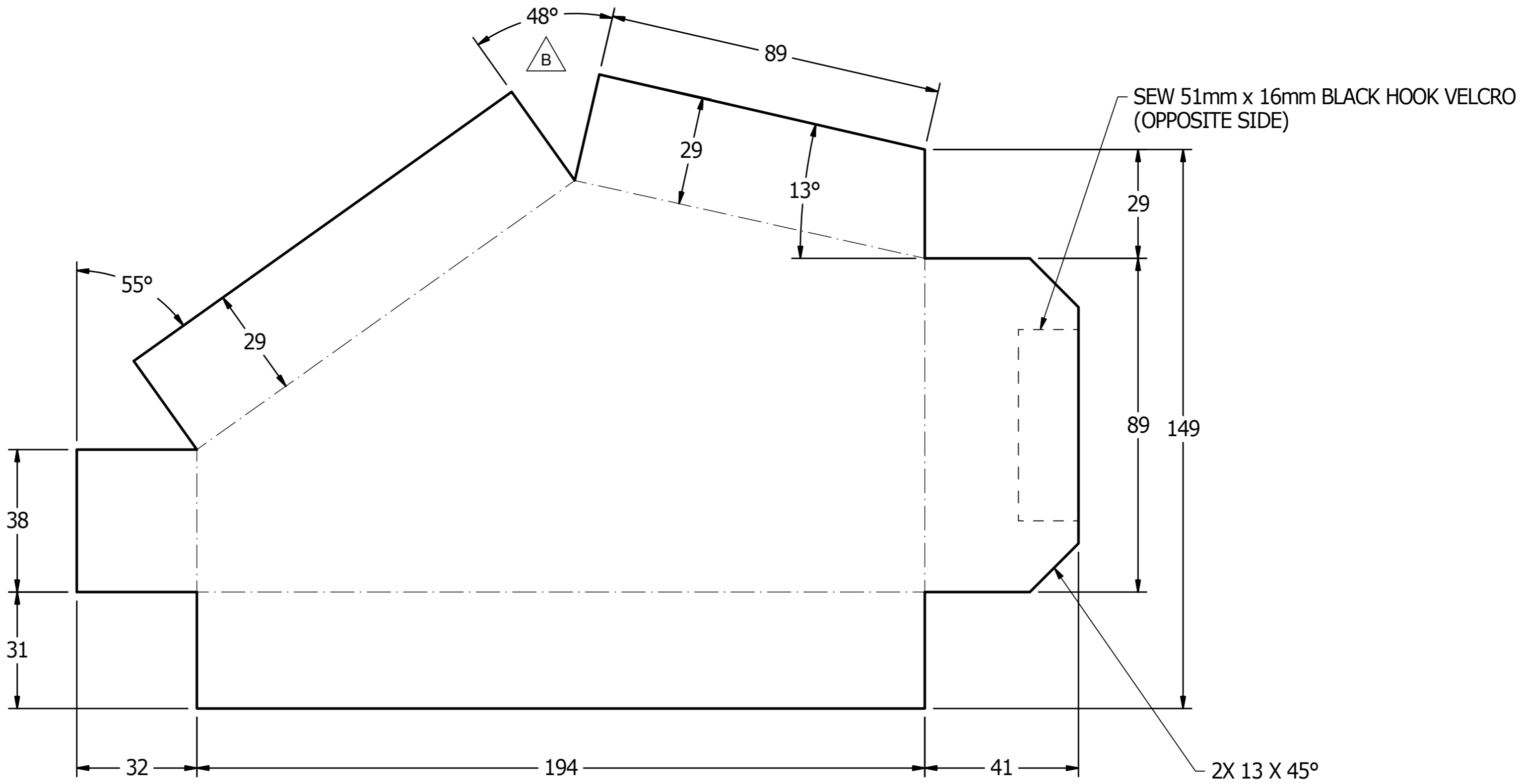
1. MATERIAL: CORDURA (1000 DENIER) NYLON, LAMINATED ON ONE SIDE.

2. CUT WITH LAMINATED SIDE DOWNWARD.

3. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B. KIMES CHECKED:	DATE 11/30/2011	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:	APPROVED: J. WANG DATE: 1/11/2012	SIZE: A2 SCALE: 1:1	DRAWING NUMBER: 4172-3915-1 REV: B SHEET: 1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF114 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK
	B	DIMENSION 48° WAS 46°	1/21/2016	DW



FOLD LINE - - - - -

- NOTES:
- MATERIAL: CORDURA (1000 DENIER) NYLON, LAMINATED ON ONE SIDE.
 - CUT WIRTH LAMINATED SIDE DOWNWARD.
 - TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.



<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ± 0.5 , XX ± 0.2 , XXX ± 0.1 MACHINED ANGLES $\pm 0.5^\circ$ <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: B. KIMES CHECKED:	DATE 11/30/2011		UPPER RIGHT FOAM POCKET	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:	ENG: J. WANG APPROVED:	1/11/2012		SIZE: A2 SCALE: 1:1	DRAWING NUMBER: 4172-3915-2 SHEET: 1 OF 1

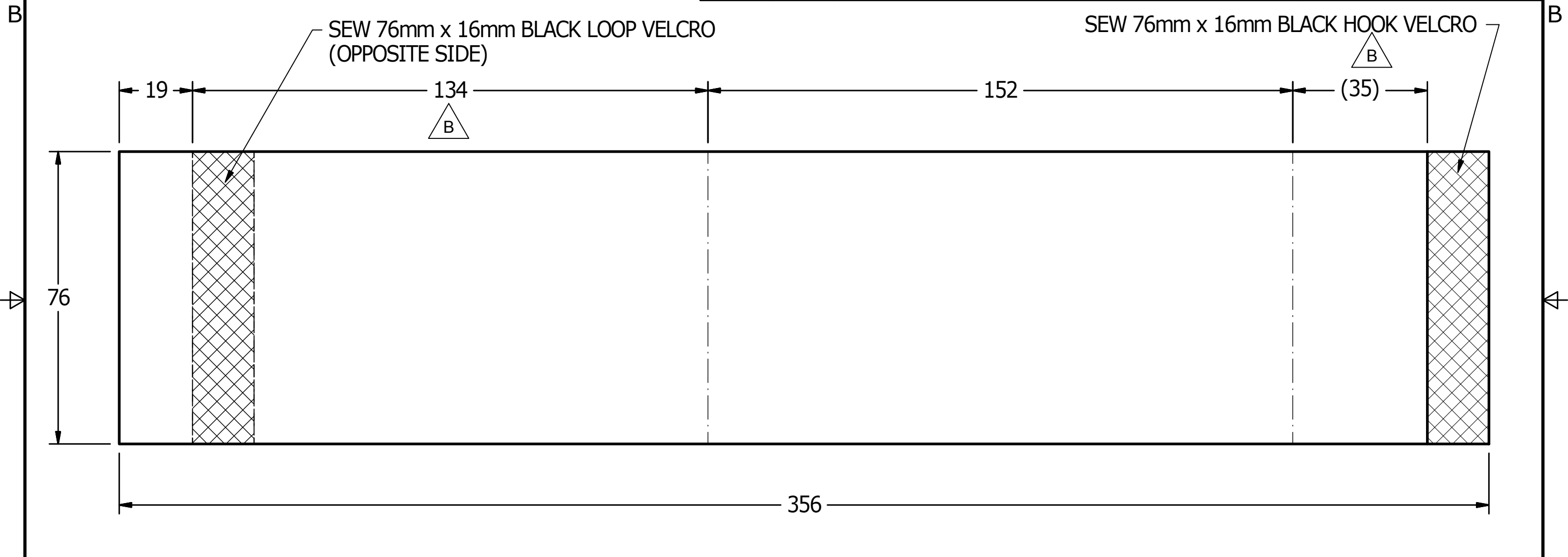
4

3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF112 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADDED NOTES 2	11/30/2011	BK
	B	NOTE: SEW 76mm x 16mm x BLACK HOOK VELCRO WAS SEW 76mm x 16mm BLACK LOOP VELCRO, DIM. 134 WAS 133	1/21/2016	DW



FOLD LINE

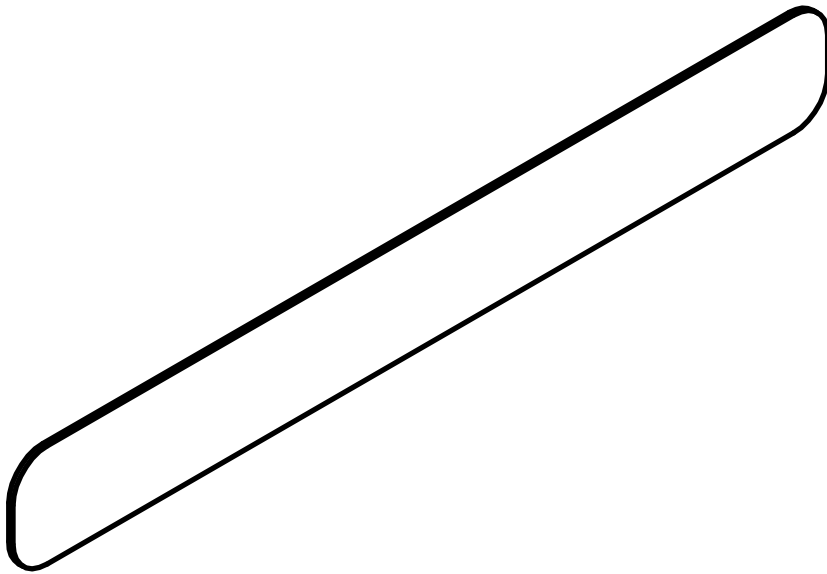
NOTES:

- MATERIAL: CORDURA (1000 DENIER) NYLON, LAMINATED ON ONE SIDE.
- TOLERANCE ± 3 mm, UNLESS OTHERWISE NOTED.

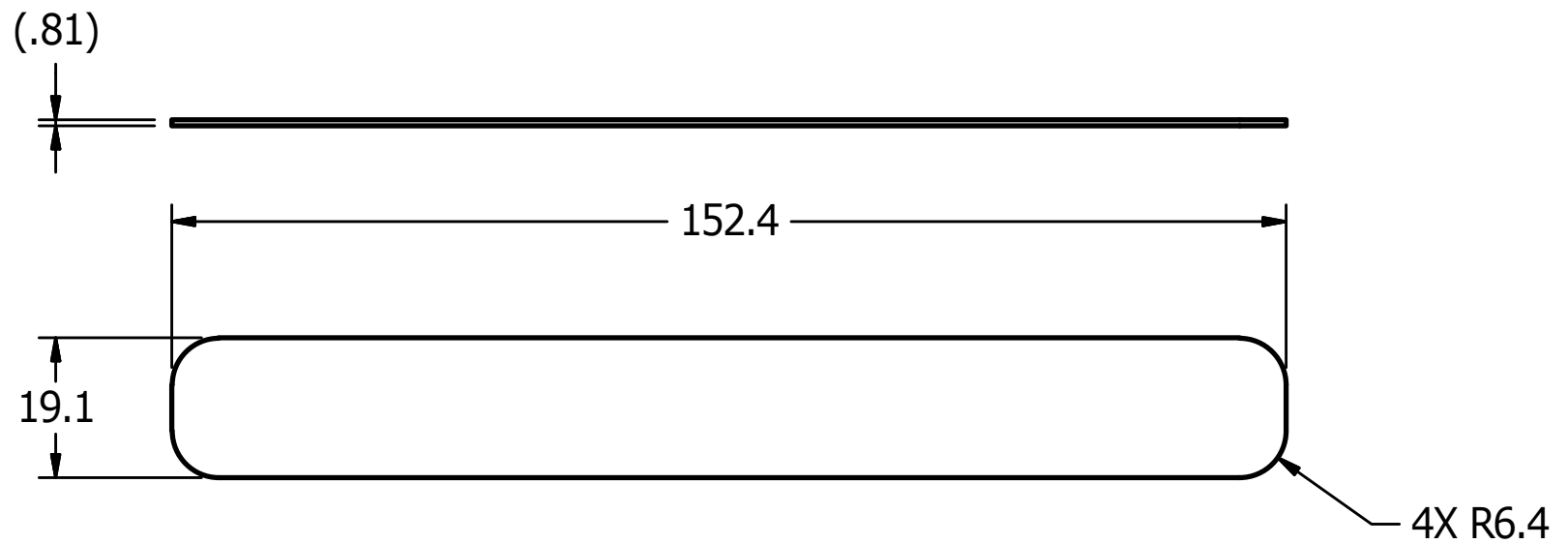


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED $\frac{1}{16}$ ANGLES $\pm 0.5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED ENG B. KIMES APPROVED	DATE 11/30/2011 1/11/2012	
MATERIAL SEE NOTES HEAT TREAT FINISH	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1 : 1	DRAWING NUMBER 472-3913 SHEET 1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF110 R2 AND CONVERTED TO METRIC FOR THOR-M; REMOVED NOTES 2, 3 AND RENUMBERED	11/29/2011	BK



SCALE 1.00

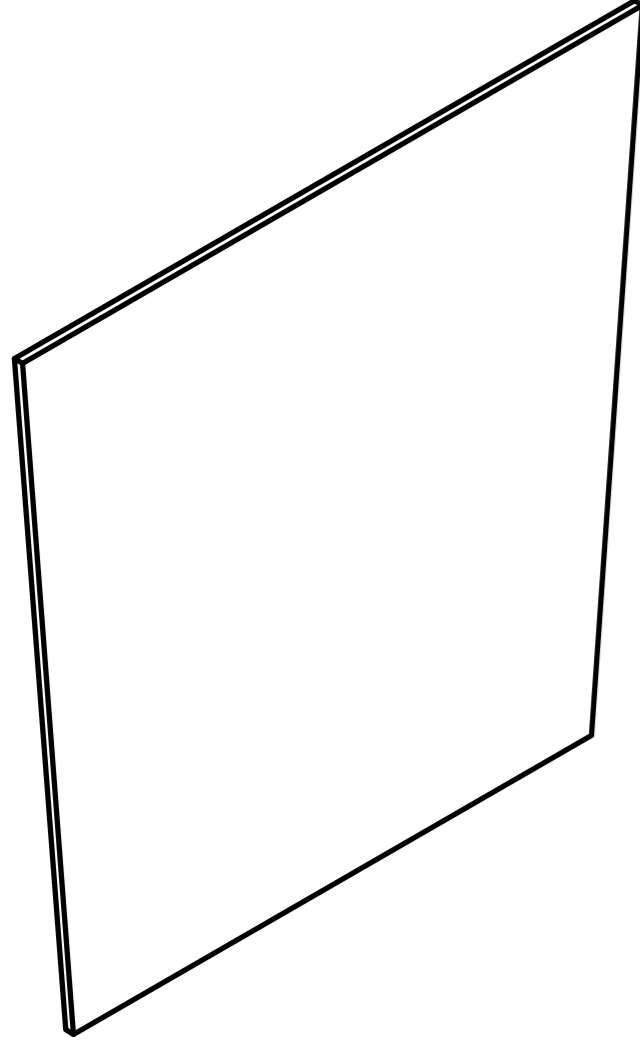


- NOTES:
- MATERIAL: BLUE TEMPERED SPRING STEEL SHIM STOCK (GRADE 1095 Rc 48-51).
 - APPLY POLYOLEFIN THIN WALLED TUBING (SHRINK WRAP) AROUND SHIM. (I.D. 12.7mm)

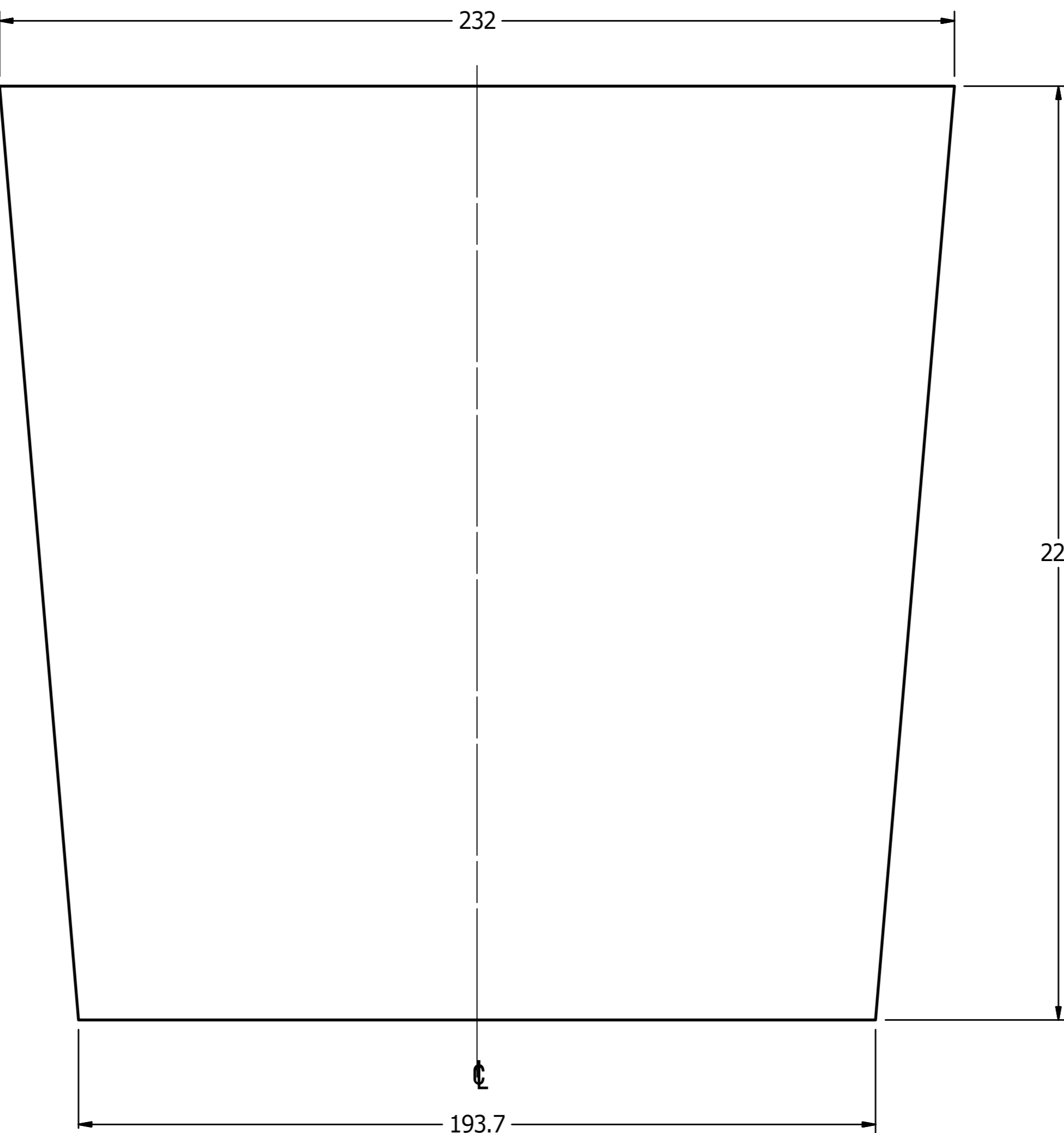


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/29/2011		STEEL STIFFENER, JACKET		
MATERIAL SEE NOTES HEAT TREAT FINISH	ENG J. WANG APPROVED	DATE 1/11/2012				
			THIRD ANGLE PROJECTION	SCALE: 1 : 1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF119 RB2 AND CONVERTED TO METRIC FOR THOR-M; 227 WAS 231 (TO MATCH ACTUAL PART); ADD NOTE 3	11/29/2011	BK



SCALE .50



NOTES:

- MATERIAL: WEIGHTED ACOUSTICAL SOUND CONTROL MATTING.
3.2 ± .5mm (1/8") THICK WITH 6.4mm THICK OPEN CELL FOAM BACKING.
- REMOVE AND DISCARD 6.4mm FOAM BACKING FROM MATTING.
- TOLERANCE IS 3mm, UNLESS OTHERWISE NOTED.


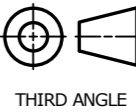
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL: X ±.5
X.X ±.2
X.XX ±.1

MACHINED
ANGLES
±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER	
APPROVALS	DATE
DRAWN B. KIMES	11/29/2011
CHECKED	
ENG J. WANG	1/11/2012
APPROVED	

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
WEIGHTED BIB, JACKET	
 THIRD ANGLE PROJECTION	SIZE: A2 SCALE: 1:1
DRAWING NUMBER 472-3920	REV A
SHEET 1 OF 1	

REVISION HISTORY				
ECO	RE	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF111 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD TOLERANCE AND SYMTRY NOTE	11/30/2011	BK
	B	REVISED SIDE SLOTS	1/21/2016	DW

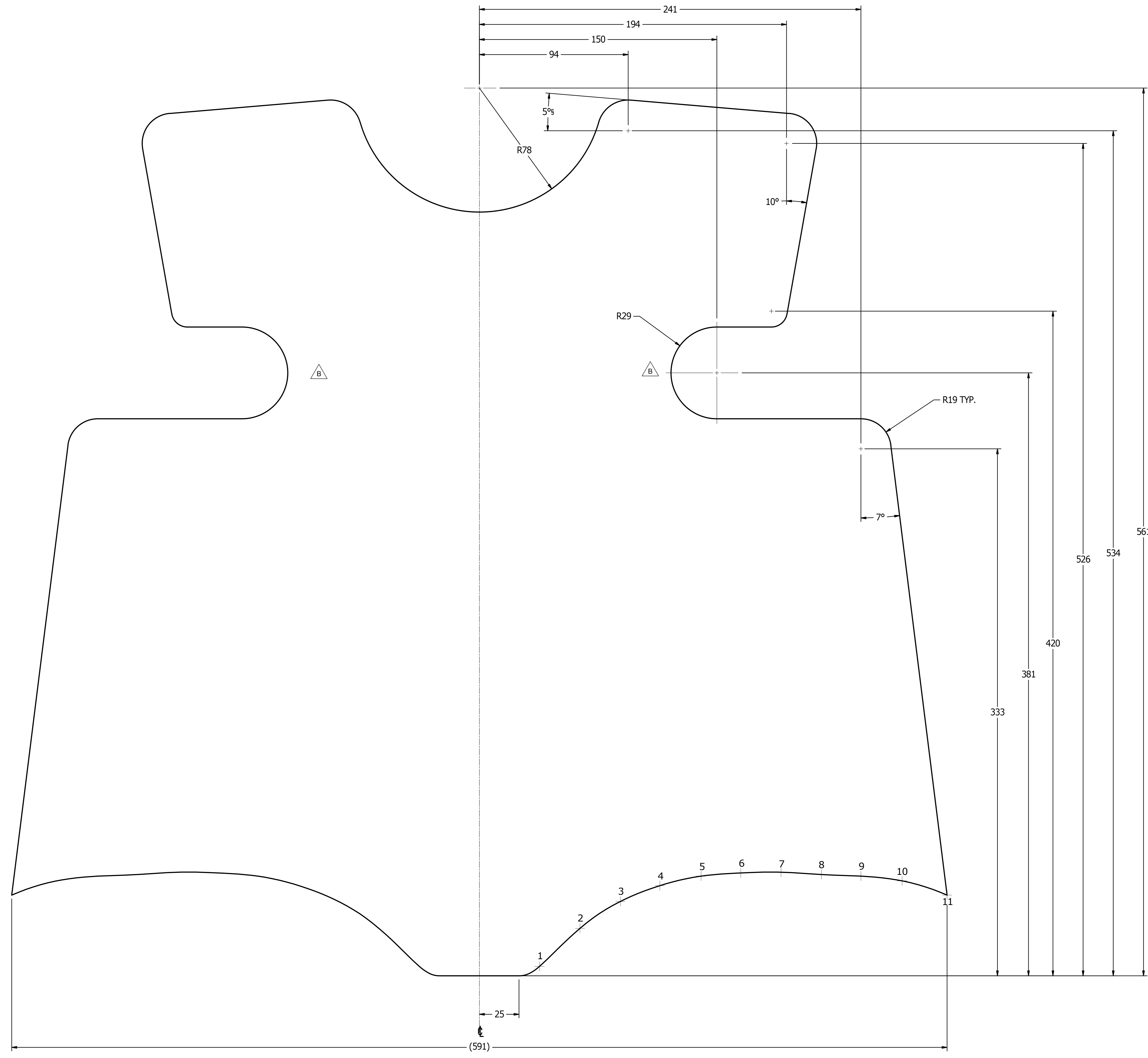


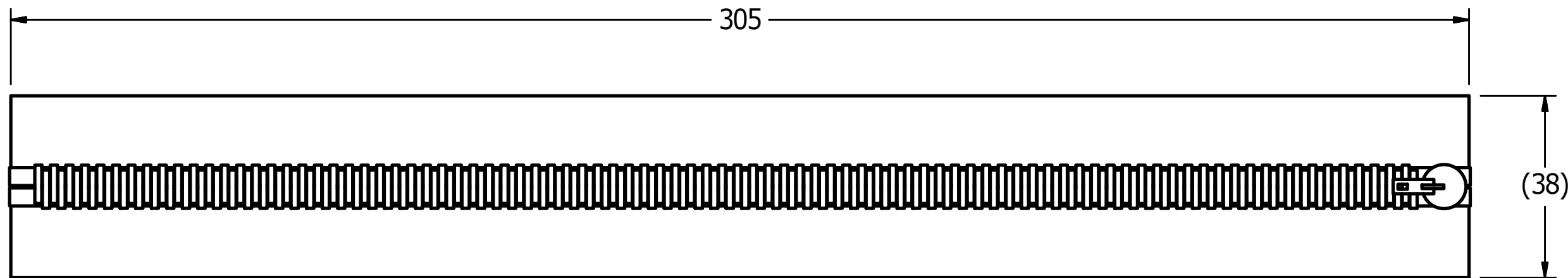
TABLE 1

POINT	X (+/-0.5mm)	Y (+/-0.5mm)
1	38	6
2	63.5	30
3	89	47
4	114	57
5	140	63
6	165	65
7	190.5	65.5
8	216	64
9	241	63
10	267	60
11	295	51

- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. PATTERN IS SYMETRIC ABOUT \perp .
 - \triangle 3. TOLERANCE IS ± 3 mm, UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL	MACHINED	APPROVALS	DATE	FRONT OUTSIDE PANEL PATTERN (CORDURA)	
0.1	±0.15	B. KIMES	11/30/2011	DRAWING NUMBER: 472-3912 B	
0.25	±0.25	DATE		SCALE: 1:1	
0.5	±0.5	APPROVED	11/11/2012	SHEET: 1 OF 1	
1.0	±1.0				



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF117 RB2 AND CONVERTED TP METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK



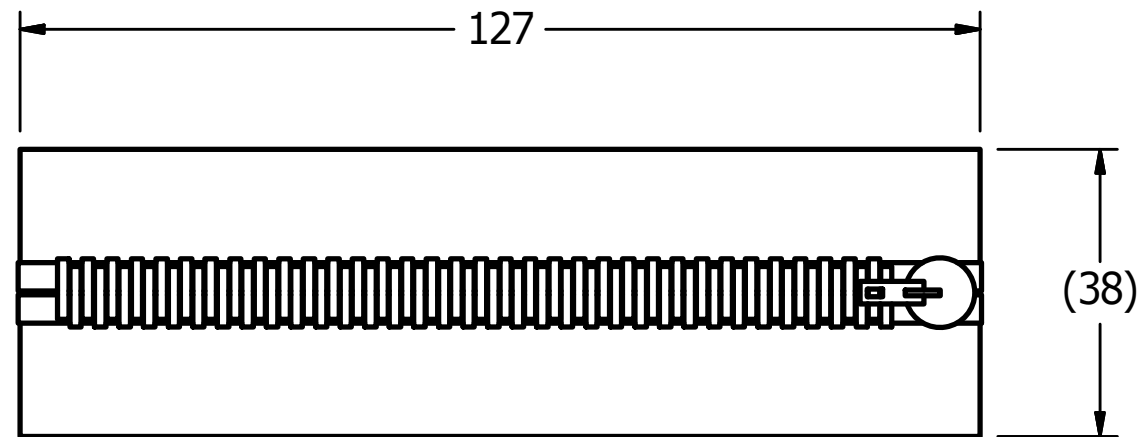
NOTES:

1. 304.0 (5"), BLACK, BRASS ZIPPER
YKK, MODEL #MGM0L-106 DA G 3/4 OR EQUIVALENT.

 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/30/2011	
MATERIAL SEE NOTES HEAT TREAT FINISH	ENG J. WANG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1 : 1
		DRAWING NUMBER 472-3918	REV A SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF116 RB2 AND CONVERTED TP METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK



NOTES:

1. 127.0 (5"), BLACK, BRASS ZIPPER
YKK, MODEL #MGM0L-106 DA G 3/4 OR EQUIVALENT.

△ 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/30/2011	
MATERIAL SEE NOTES HEAT TREAT	ENG J. WANG APPROVED	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1 : 1
FINISH	DRAWING NUMBER 472-3917	SHEET 1 OF 1	REV A

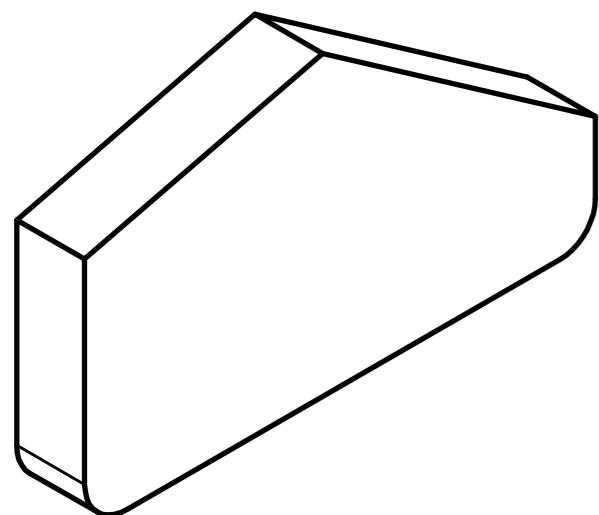
4

3

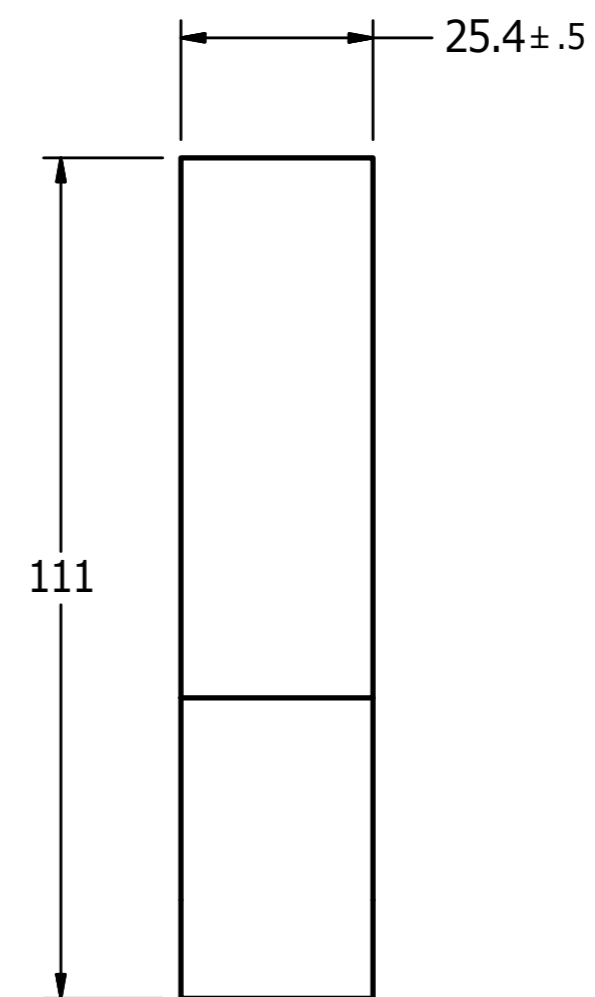
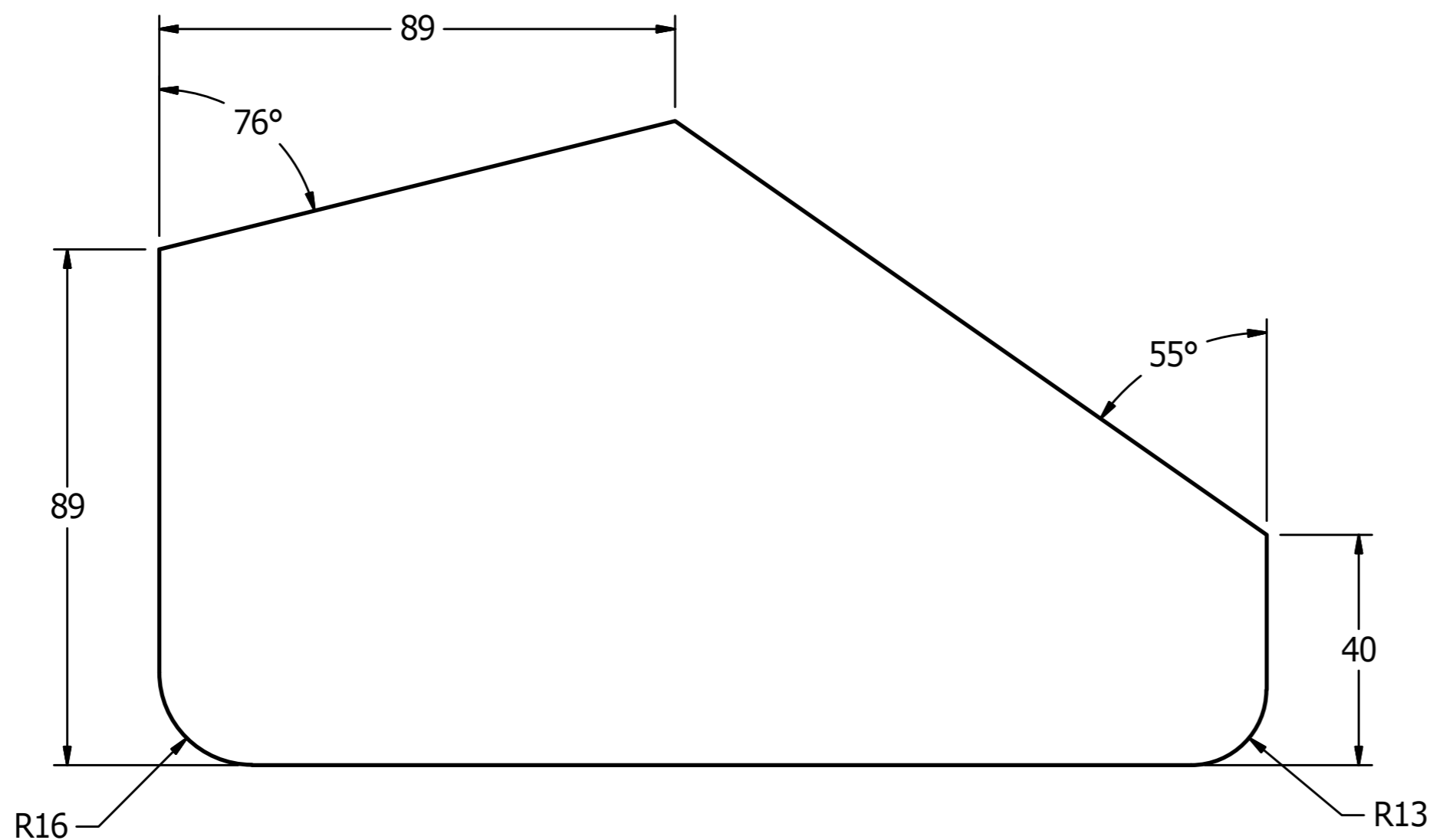
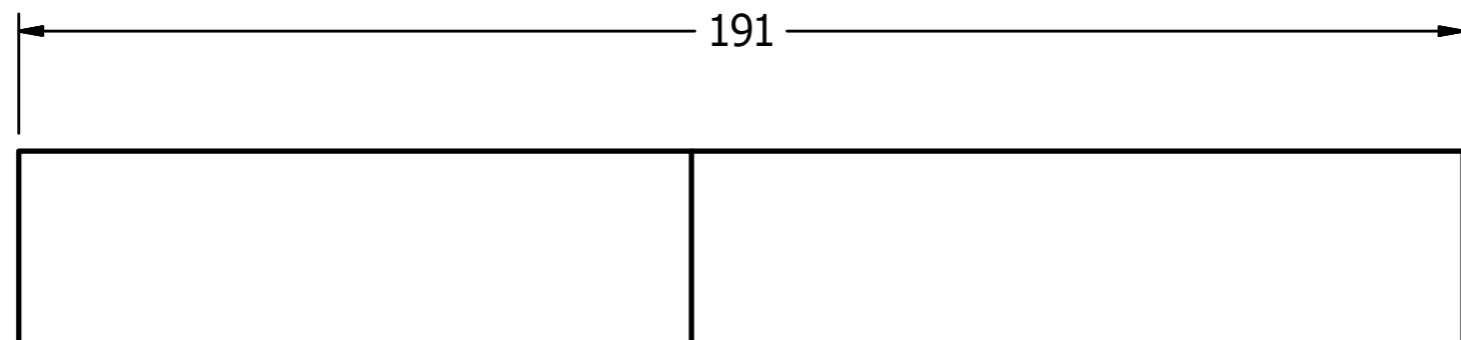
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FOM T1JKF118 RB2 AND CONVERTED TO METRIC FOR THOR-M; REMOVED RADIUS AND OBSOLETE - 1 1/2 VERSION; ADD NOTE 2	2/8/2012	BJ



SCALE .50



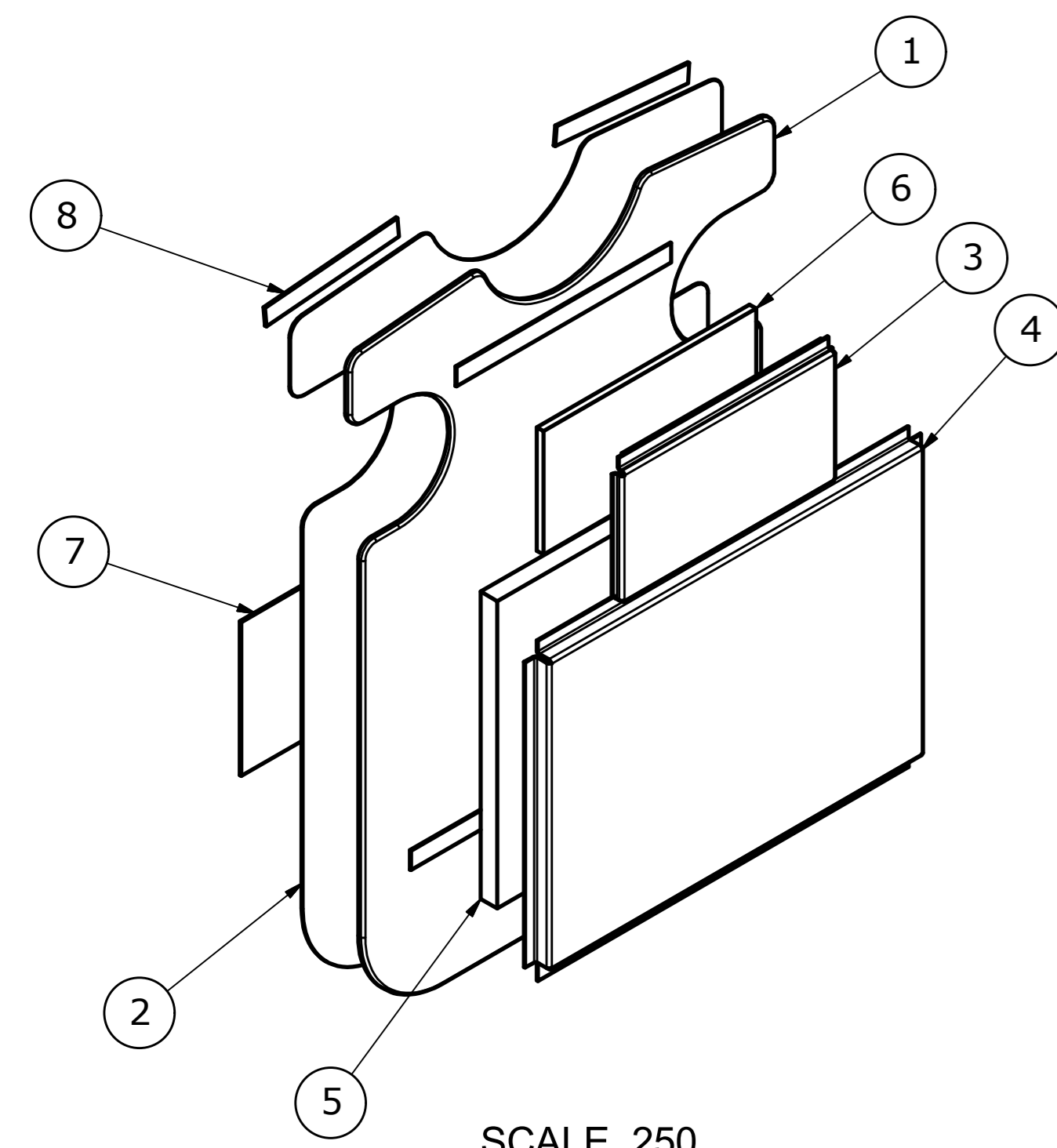
NOTES:

1. MATERIAL: #6 CHARCOAL POLYESTER FOAM OR EQUIVALENT.

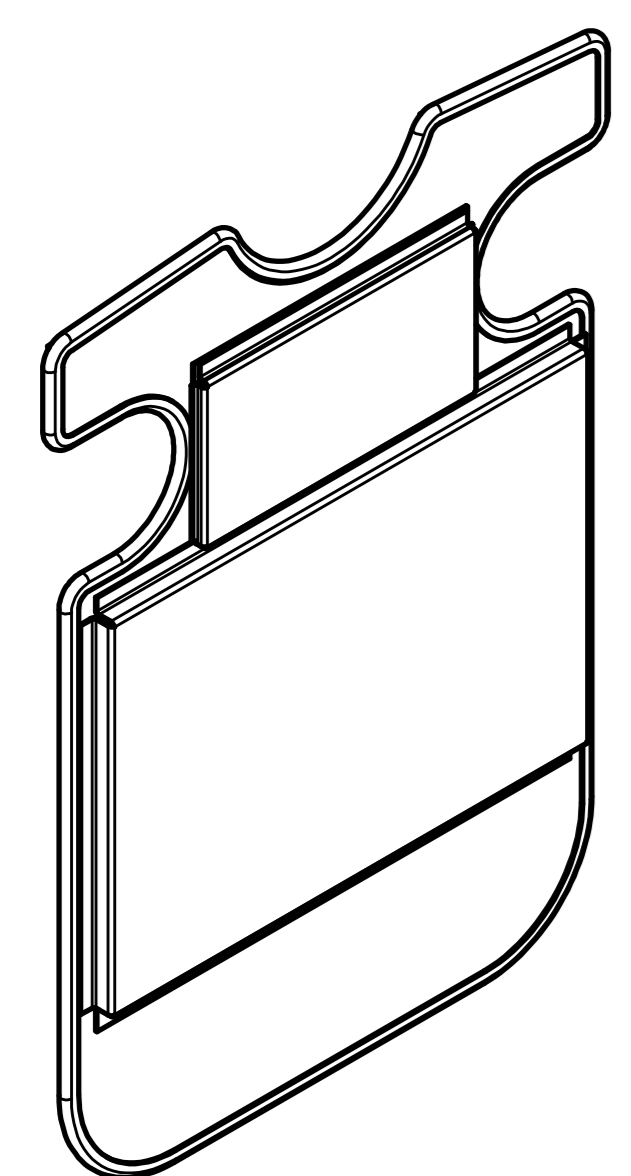
2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: B. JIMES CHECKED:	DATE 2/8/2012	
MATERIAL: SEE NOTES HEAT TREAT: FINISH:	ENG: J. WANG APPROVED:	DATE: 1/11/2011	SIZE: A2 SCALE: 1:1 DRAWING NUMBER: 472-3919 REV: A SHEET: 1 OF 1

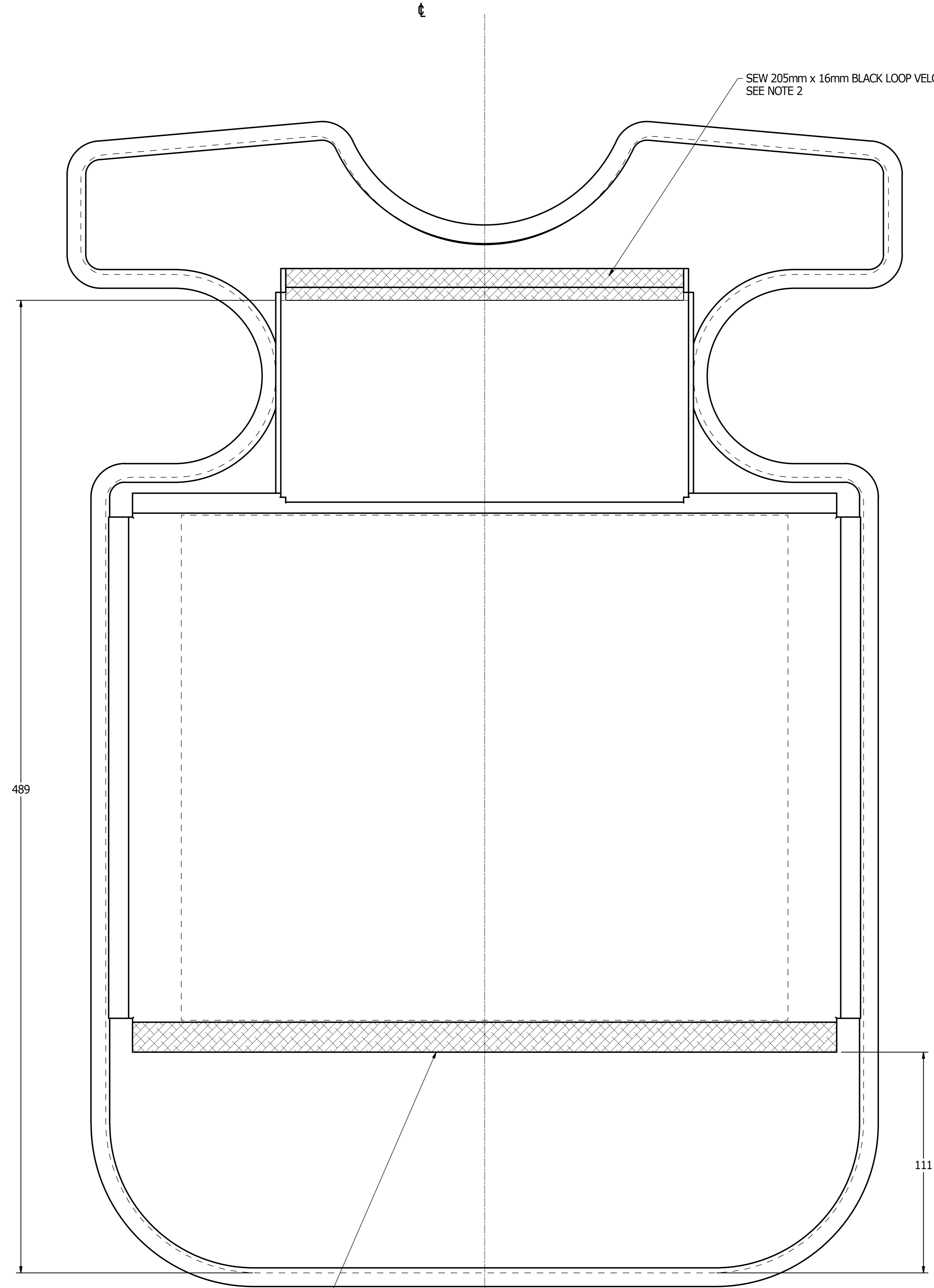
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF201 RB3 AND CONVERTED TO METRIC FOR THOR-M	12/5/2011	BK



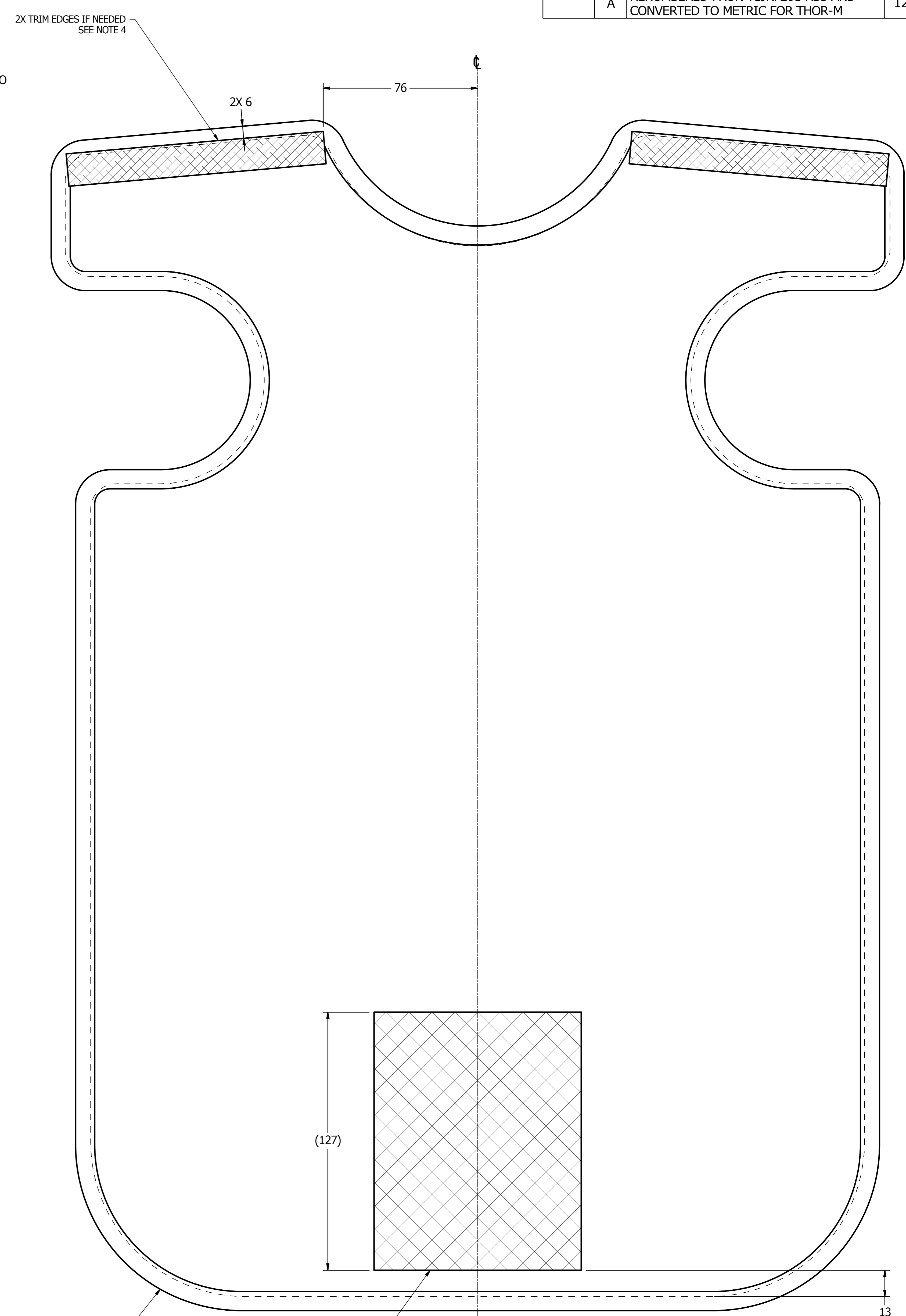
SCALE .250



SCALE .250



REAR VIEW



FRONT VIEW

- NOTES:
- JACKET PATTERNS SHOWN WITH INSIDE (DARK SIDE) FACING UP.
 - SEW INSIDE VELCRO STRIPS AS NOTED.
 - SEW POCKETS AS SHOWN, WITH LAMINATED SIDE FACING DOWN.
 - SEW VELCRO TO FRONT CORDURA PANEL BEFORE SEWING PANEL TO NEOPRENE.
 - AFTER SEWING VELCRO AND POCKETS, ASSEMBLE OUTSIDE CORDURA PANEL ON THE OUTER SURFACE (BRIGHT RED) OF THE NEOPRENE WITH LAMINATED SIDE DOWN, STRETCH NEOPRENE TO CORDURA PROFILE, AND SEW ALONG EDGE WITH RED BIAS TAPE.
 - DIMENSIONS ARE BEFORE BIAS TAPE IS SEWN IN, FROM NEOPRENE PANEL.
 - AFTER SEWING, INSERT FOAM PANELS INTO POCKETS.

SEW 305mm x 16mm BLACK LOOP VELCRO
SEE NOTE 2

SEW 205mm x 16mm BLACK LOOP VELCRO
SEE NOTE 2

2X TRIM EDGES IF NEEDED
SEE NOTE 4

2X 6

76

(127)

111

13

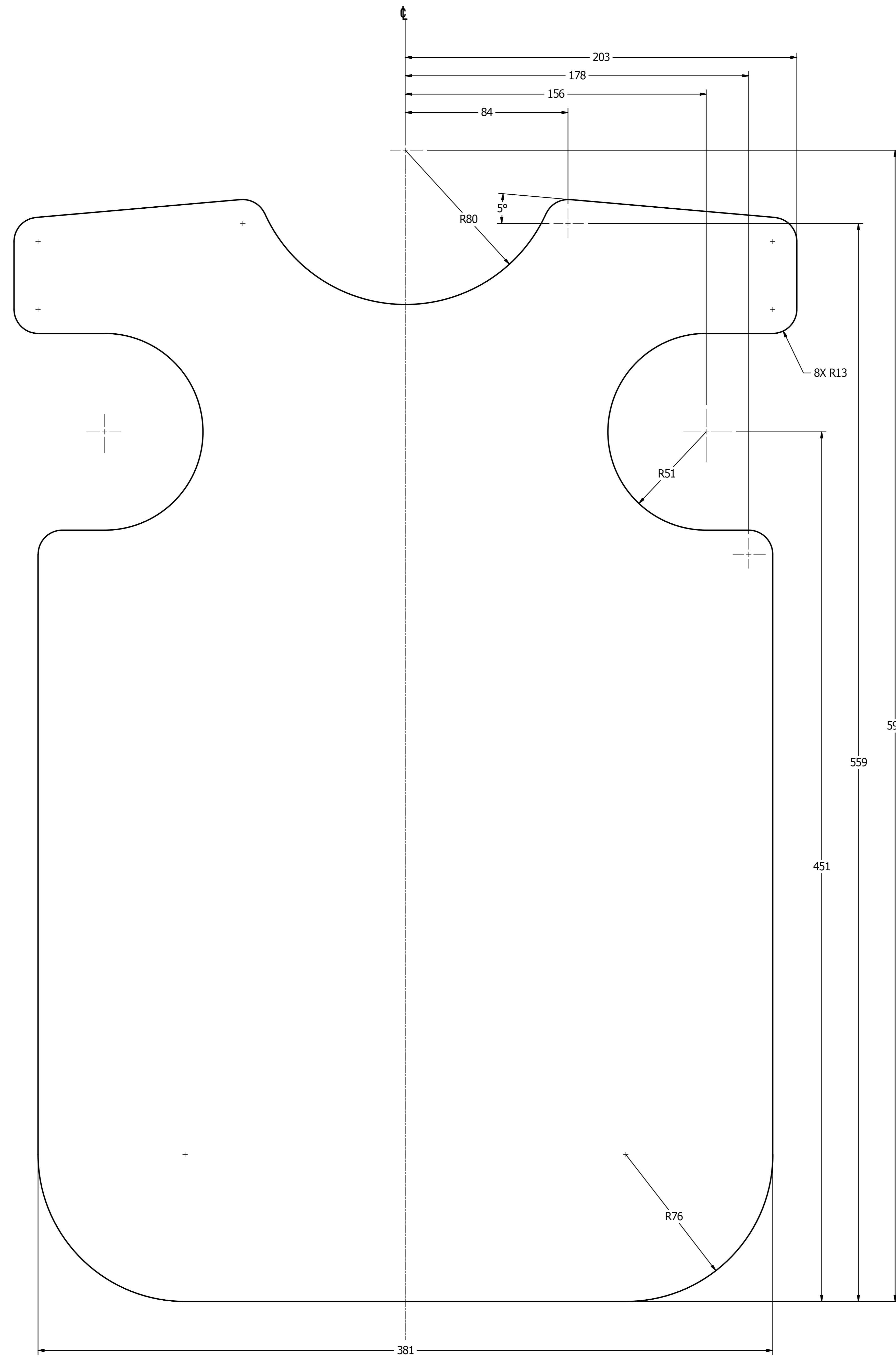
SEE NOTE 5

CENTERED ACROSS t
SEE NOTE 4

ITEM	QTY	PART NUMBER	DESCRIPTION
8	2	472-3959	REAR PANEL SHOULDER HOOK VELCRO
7	1	472-3958	REAR PANEL LOOP VELCRO
6	1	472-3956	UPPER BACK FOAM
5	1	472-3957	MID BACK FOAM
4	1	472-3955	MID BACK FOAM POCKET
3	1	472-3954	UPPER BACK FOAM POCKET
2	1	472-3953	OUTSIDE REAR PANEL PATTERN
1	1	472-3952	INSIDE REAR PANEL PATTERN

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS.		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMALS X.X X.XX X.XXX	FRACTIONS X/8 X/16 X/32	ANGLES X.X° X.XX° X.XXX°	APPROVALS BY: B. KIMES DATE: 12/5/2011	REAR PANEL ASSEMBLY, JACKET	
MATERIAL	CHECKED	DATE	SCALE	DRAWING NUMBER	
REAR TREAT	INCH	12/11/2012	A0	472-3951 A	
FINISH	APPROVED		SCALE	SHEET	
			1:1	1 OF 1	

1				
		REVISION HISTORY		
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF210 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD TOLERANCE AND SYMETRY NOTE	11/30/2011	BK
	B	BLACK WAS WINE, REMOVED COLOR NUMBER IN NEOPRENE MATERIALS	6/12/2012	BK
	C	REMOVED "WITH 2 SIDES OF NYLON (N-2-S). COLORS BLACK AND RED" FROM MATERIAL NOTE; REMOVED NOTE 4 AND RENUMBERED.	1/16/2016	DW

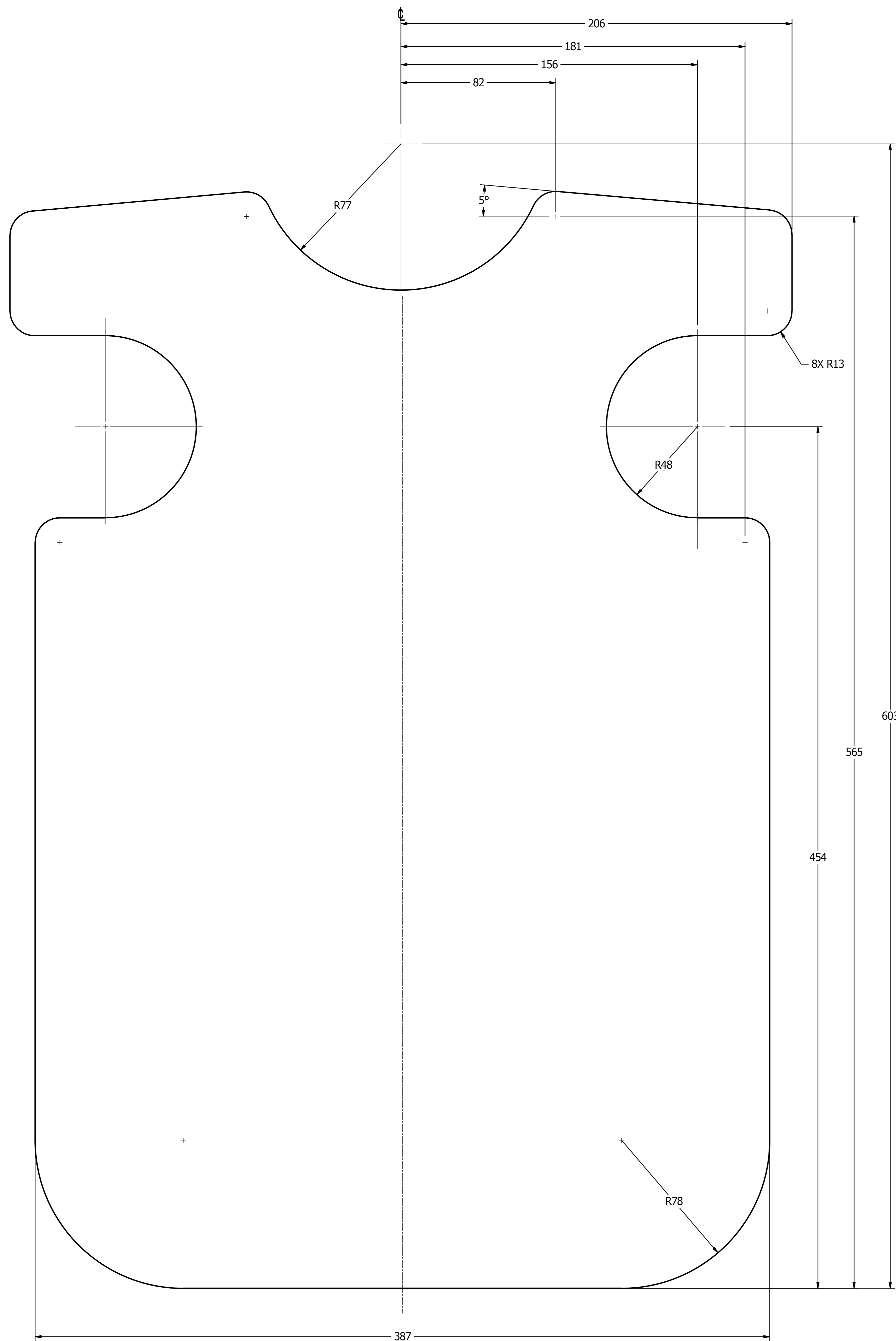


NOTES:

- 1. MATERIAL: NEOPRENE G-23-N 4.8mm THICK.
- 2. PATTERN IS CYMETRIC ABOUT ⌀.
- 3. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.
- 4. MARK PART NUMBER WITH PERMANENT MARKER, ON LAMINATED SIDE.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL	ANGLES	APPROVALS	DATE	INSIDE REAR PANEL PATTERN	
0.1	0.5°	DRW	11/30/2011	DRAWING NUMBER	
0.2	0.5°	CHK		472-3952 C	
0.5	0.5°	APP	11/11/2012	SCALE	
1.0	0.5°	FIN		1 : 1	
SEE NOTES			THIRD ANGLE PROJECTION	SHEET 1 OF 1	

ECO		REV		REVISION HISTORY	DATE	BY
				DESCRIPTION		
A				RENUMBERED FROM T1JKF211 RB1 AND CONVERTED TO METRIC FOR THOR; ADD TOLERANCE AND SYMETRIC NOTE; CORRECTED MATERIAL & DIMENSIONS-M	12/6/2011	BK

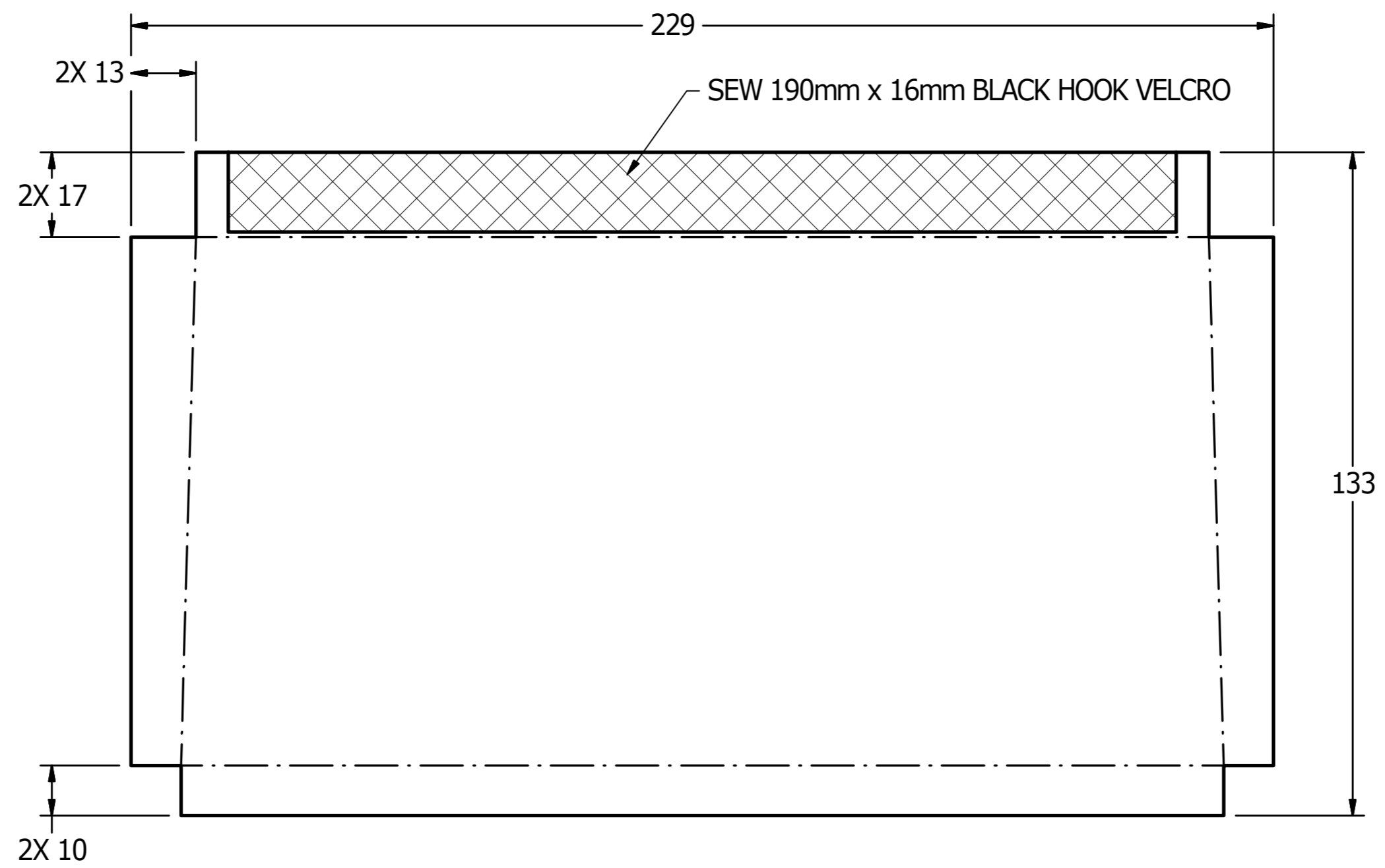


NOTES:

1. MATERIAL: CORDURA (1000 DENIER) NYLON RED, LAMINATED ON ONE SIDE.
2. PATTERN IS CYMETRIC ABOUT t .
3. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.
4. MARK PART NUMBER WITH PERMANENT MARKER, ON LAMINATED SIDE.

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS. TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL	FRACTION	APPROVALS	DATE	OUTSIDE REAR PANEL PATTERN	
0.1	1/16	DRIVER	12/6/2011	DRAWING NUMBER	
0.2	1/8	B. KIMES		472-3953 A	
0.5	1/4	CHECKED		SCALE	
1.0	1/2	DATE	11/11/2012	1 : 1	
FINISH		APPROVED		SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF212 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK



FOLD LINES - - - - -

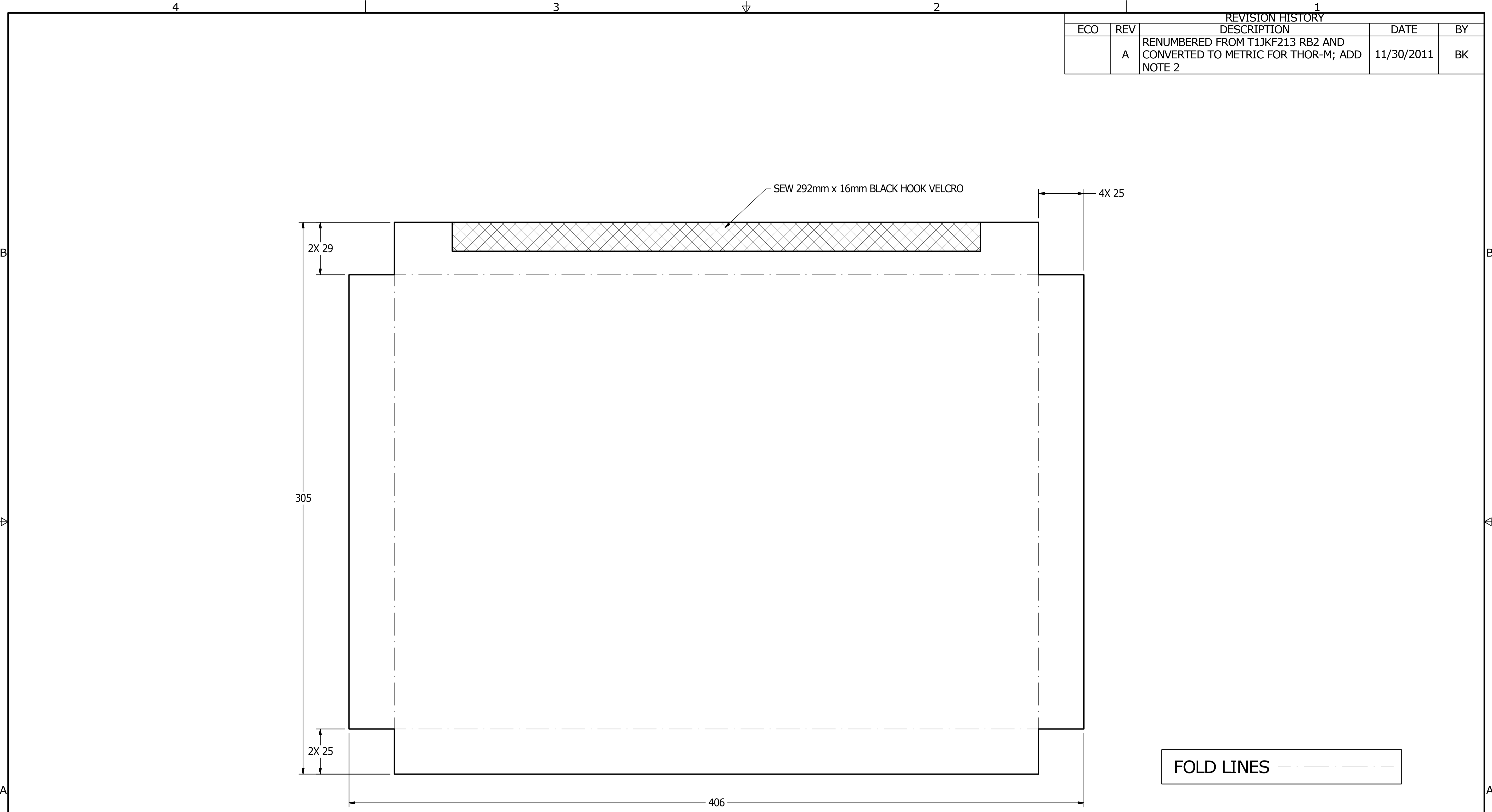
NOTES:

- MATERIAL: CORDURA (1000 DENIER) NYLON RED, LAMINATED ON ONE SIDE.
- TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.
- MARK PART NUMBER WITH PERMANENT MARKER, ON LAMINATED SIDE.



<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. KIMES CHECKED	DATE 11/30/2011	
MATERIAL SEE NOTES HEAT TREAT FINISH	APPROVED ENG J. WANG	DATE 1/11/2012	 <small>THIRD ANGLE PROJECTION</small>
		SIZE A2	DRAWING NUMBER 472-3954
		SCALE: 1 : 1	REV A
		SHEET 1 OF 1	

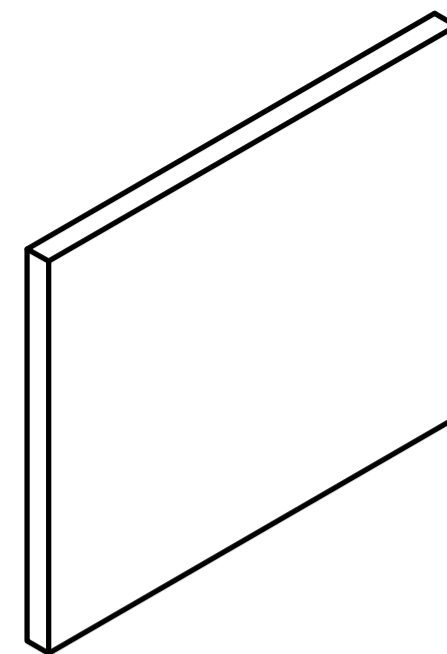
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF213 RB2 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK



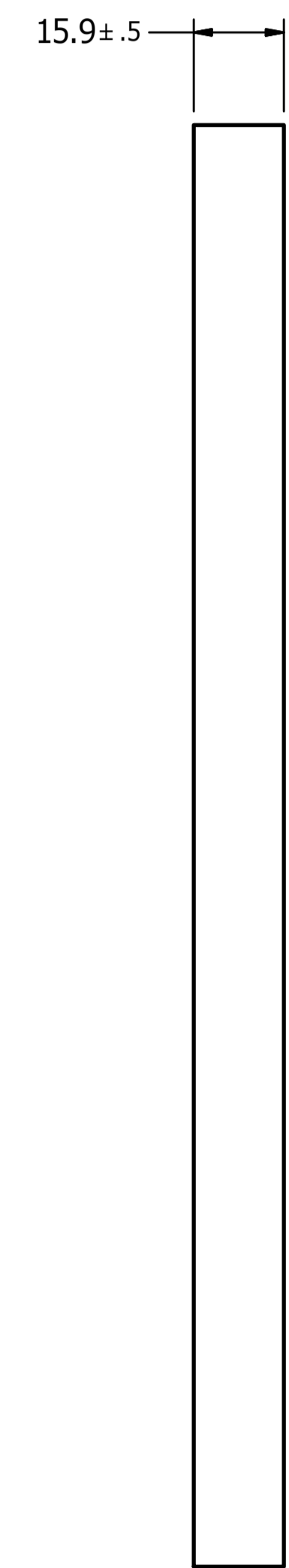
- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON RED, LAMINATED ON ONE SIDE.
 2. TOLERANCE ± 3 mm, UNLESS OTHERWISE NOTED.
 3. CUT PATTERN WITH LAMINATED SURFACE FACING DOWN.
 4. MARK PART NUMBER WITH PERMANENT MARKER, ON LAMINATED SIDE.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL:	MACHINED	APPROVALS	DATE	MID BACK FOAM POCKET	
X ±.5	±.1	B. KIMES	11/30/2011	DRAWN	
X.X ±.2	±.1	CHECKED		J. WANG	
X.XX ±.1	±.5°	APPROVED		1/11/2012	
DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION		SIZE	DRAWING NUMBER
ASME Y14.2M - 1994		THIRD ANGLE PROJECTION		A1	472-3955
MATERIAL: SEE NOTES		SCALE: 1:1		SHEET 1 OF 1	
HEAT TREAT		APPROVED		REV A	
FINISH		APPROVED		REV A	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF215 RB2 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/29/2011	BK
	B	REMOVED R13 TYP.	3/15/2012	BK



SCALE .25

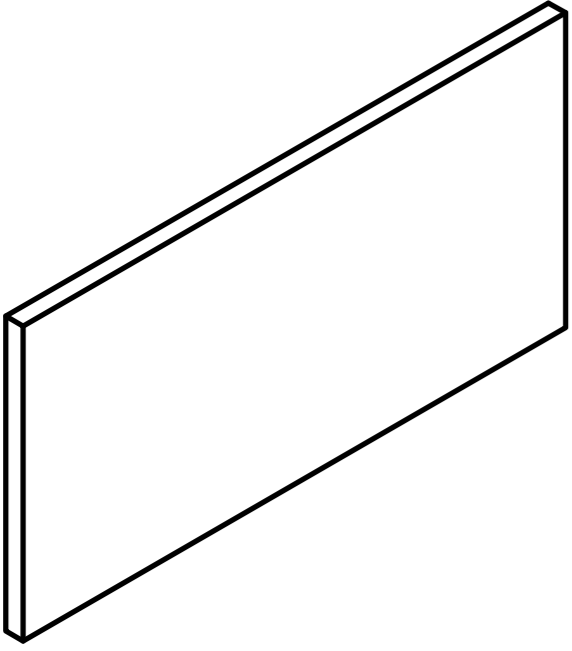


- 1. MATERIAL: #6 CHARCOAL POLYESTER FOAM.
- 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

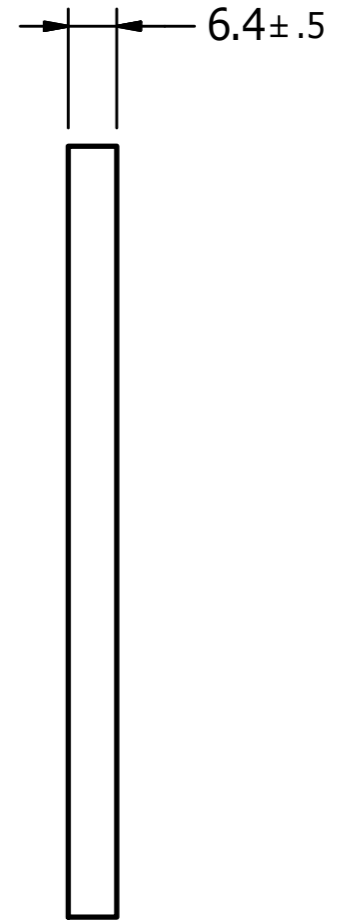


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ±.05 ANGLES ±.5°	APPROVALS	DATE	MID BACK FOAM	
DO NOT SCALE DRAWING		DRAWN B. KIMES	11/29/2011	DRAWINGS NUMBER	
MATERIAL SEE NOTES		CHECKED		SIZE A1	472-3957
TREAT TREAT		ENG J. WANG	1/11/2011	SCALE: 1 : 1	REV B
FINISH		APPROVED		THIRD ANGLE PROJECTION	SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF214 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/29/2011	BK



SCALE .50



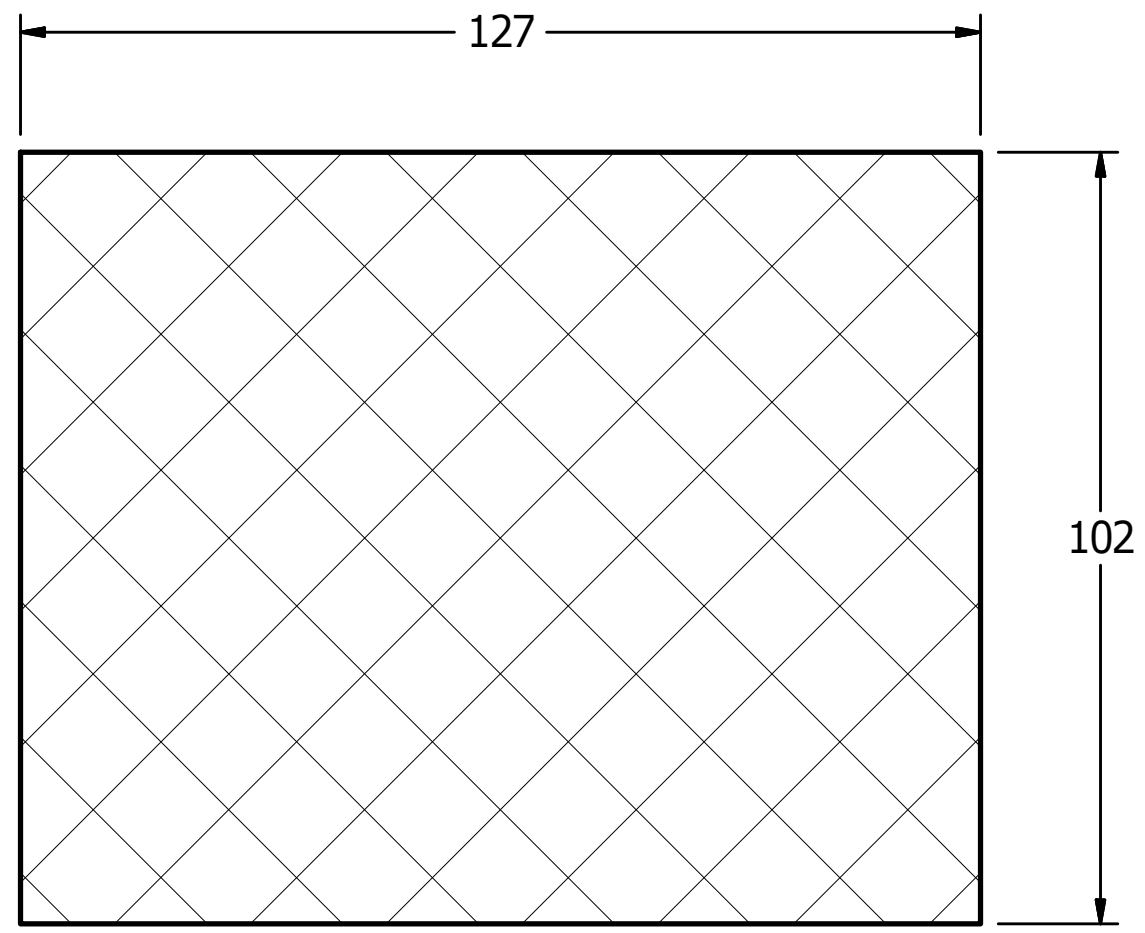
NOTES:

- 1. MATERIAL: #6 CHARCOAL POLYESTER FOAM.
- 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		UPPER BACK FOAM	
DRAWN B. KIMES		11/29/2011		SIZE A2	
CHECKED				DRAWING NUMBER 472-3956	
MATERIAL SEE NOTES		ENG J. WANG		REV A	
HEAT TREAT		1/11/2012		SCALE: 1:1	
FINISH		APPROVED		SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF216 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	12/2/2011	BK



NOTES:

1. MATERIAL: BLACK POLYPROPYLENE HOOK VELCRO, SHEAR STRENGTH 17 PSI.
2. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED $\frac{1}{16}$ ANGLES $\pm 0.5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN B KIMES CHECKED	DATE 12/2/2011		REAR PANEL LOOP VELCRO		
MATERIAL SEE NOTES HEAT TREAT FINISH	ENG J. WANG APPROVED	DATE 1/11/2012				
			THIRD ANGLE PROJECTION	SCALE: 1 : 1	SHEET 1 OF 1	

4

3

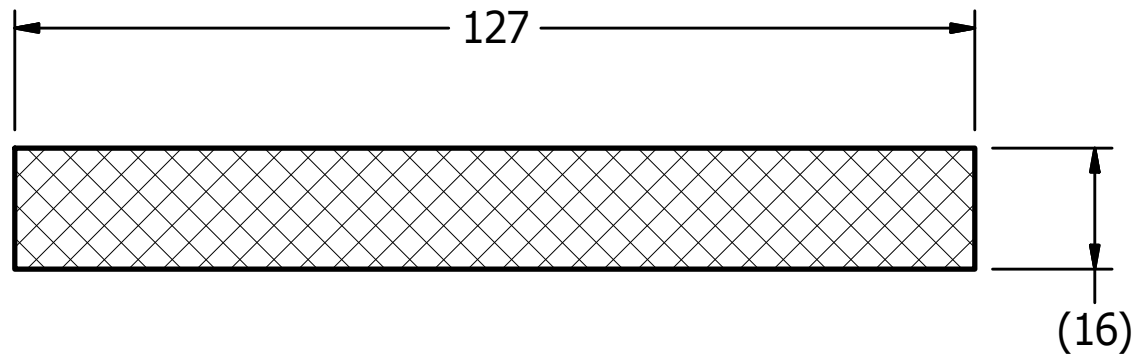
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF217 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	12/2/2011	BK

B

B



A

A

NOTES:

- 1. MATERIAL: 16mm, BLACK POLYPROPYLENE HOOK VELCRO, SHEAR STRENGTH 17PSI.
- 2. TOLERANCE ± 3 mm, UNLESS OTHERWISE NOTED.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED $\frac{1.6}{\sqrt{}} \pm 0.5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. KIMES CHECKED	DATE 12/2/2011		REAR PANEL SHOULDER HOOK VELCRO	
MATERIAL SEE NOTES HEAT TREAT FINISH	ENG J. WANG APPROVED	1/11/2012		SIZE A3	DRAWING NUMBER 472-3959
			SCALE: 1 : 1	SHEET 1 OF 1	REV A

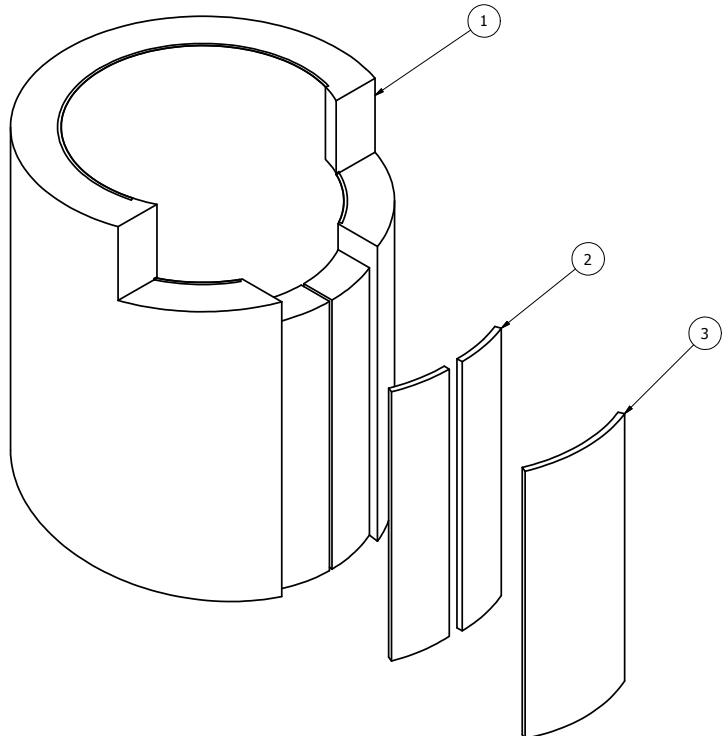
4

3

2

1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM TINKS100 FOR THOR M	7/6/2012	BK
	C	UPDATE VIEWS TO SHOW REPOSITIONED MESH: REMOVE SEWING NOTES AND VIEW; ADD NOTE 3	10/3/2012	BK



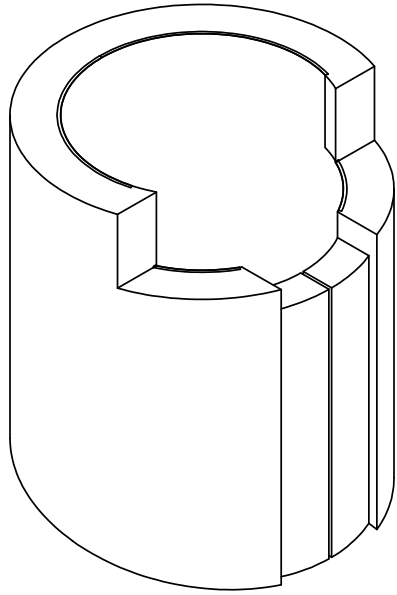
NOTES:

- 1. THE VELCRO HOOK PIECES (472-2913) ARE GLUED TO THE OUTER FRONT EDGES OF THE FOAM SKIN USING A HIGH STRENGTH CONTACT CEMENT.
- 2. THE VELCRO LOOP (472-2914) IS USED TO SECURE THE NECK TOGETHER AFTER BEING PLACED AROUND THE NECK ASSEMBLY.
- 3. REVISION "B" SKIPPED.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-2914	VELCRO LOOP, NECK SKIN
2	2	472-2913	VELCRO HOOK, NECK SKIN
1	1	472-2910	NECK FOAM

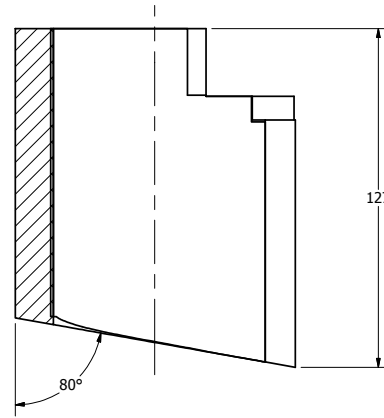
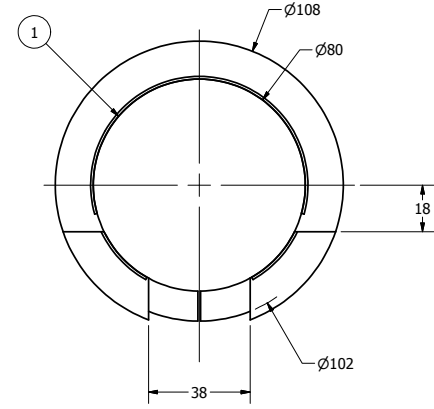
PARTS LIST

<p>DO NOT SCALE DRAWING</p>		<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS ARE TO 3 PLACES FRACTIONS ARE TO 16THS HOLE SIZE</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
<p>472-0000</p>		<p>DESIGNED BY: B. Kimes</p>		<p>DATE: 7/6/2012</p>	
<p>NEXT ASSEMBLY</p>		<p>DESIGNED BY: J. WANG</p>		<p>DATE: 10/3/2012</p>	
<p>TOTAL QTY IN DUMMY</p>		<p>DATE: 10/3/2012</p>		<p>1 of 1</p>	
				<p>472-2900</p>	

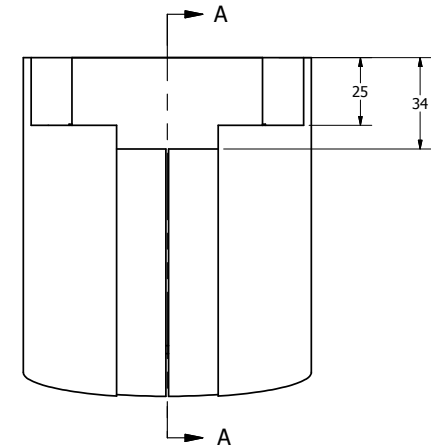


SCALE 1.000

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TINKS110 FOR THOR M	7/9/2012	BK
	C	REPOSITION REINFORCEMENT MESH PER MANUFACTURING PROCESS; 75g WAS 70 g; CHANGE DIMENSION DECIMAL PLACE TO 0; ADD NOTE 5	10/3/2012	BK



SECTION A-A
SCALE .750



NOTES:

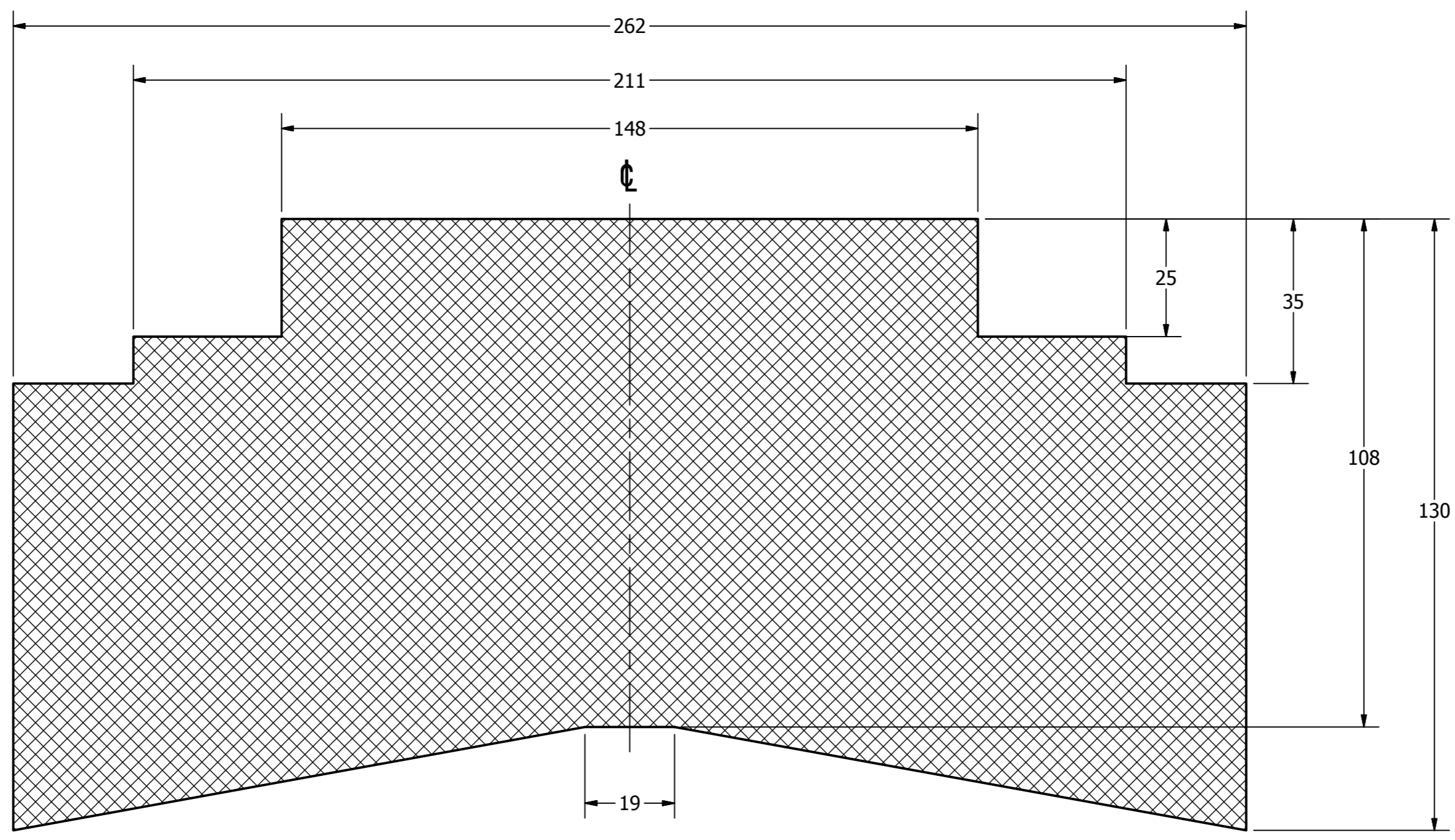
1. MATERIAL: 5lb/CU FT POLYURETHANE FOAM.
2. REINFORCEMENT MESH IS CAST INTO URETHANE FOAM.
3. PART WEIGHT: 75g ±10g
4. FOAM TOLERANCE: ±2mm.
5. REVISION "B" SKIPPED.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	472-2912	FOAM REINFORCEMENT MESH

PARTS LIST			
472-2900	1	NECK FOAM	
TOTAL QTY IN DUMMY	1		

<p>DO NOT SCALE DRAWING</p> <p>THIS ANGLE PROJECTION</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED</p> <p>DIMENSIONS ARE IN MILLIMETERS</p> <p>FRACTIONS DECIMALS</p> <p>F 1/16 1/32 1/64 3/32 1/8 5/16 3/8 1/2 5/8 3/4 7/8 1</p> <p>M 0.05 0.025 0.0125 0.05 0.1 0.15 0.2 0.3 0.4 0.5 0.6 0.8 1</p> <p>ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p> <p>NECK FOAM</p>
<p>472-2900</p> <p>NEXT ASSEMBLY</p> <p>TOTAL QTY IN DUMMY</p>	<p>QTY</p> <p>1</p> <p>1</p>	<p>DATE</p> <p>7/9/2012</p> <p>DATE</p> <p>10/3/2012</p> <p>DATE</p> <p>10/3/2012</p>
		<p>APPROVED BY</p> <p>B. Kimes</p> <p>DATE</p> <p>7/9/2012</p>
		<p>APPROVED BY</p> <p>J. WANG</p> <p>DATE</p> <p>10/3/2012</p>
		<p>SCALE</p> <p>.750</p>
		<p>PAGE</p> <p>1 of 1</p>
		<p>PART NUMBER</p> <p>472-2910</p>

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKS112 FOR THOR M	7/9/2012	BK
	B	REDESIGNED PART; DIMENSION DECIMAL PLACES TO 0	11/8/12	KHS



- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. TOLERANCE $\pm 2\text{mm}$.

DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO:	472-2910	DATE:	7/9/2012	DESCRIPTION: FOAM REINFORCEMENT MESH
WYCODE:	COTTON MESH	DRAWN BY:	B. Kimes	
NEXT ASSEMBLY	QTY	CHECKED BY:		SIZE: SHEET: DRAWING NO:
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	A21 OF 1 SCALE: 1.000
		DATE:	7/25/2012	472-2912

4

3

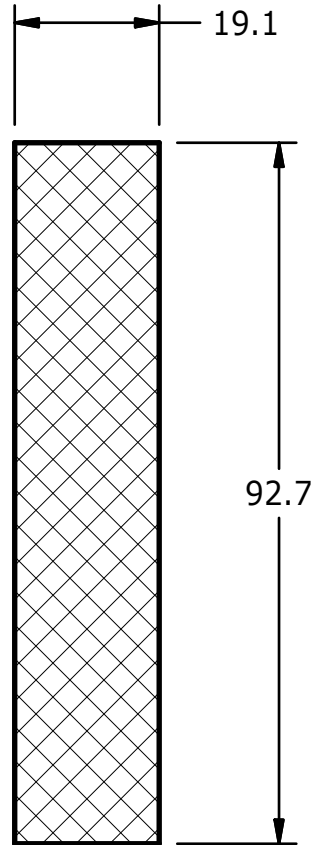
2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKS113 FOR THOR M; ADD NOTES	7/9/2012	BK

B

B




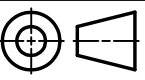
A

A

NOTES:



- 1. MAKE FROM BLACK HOOK VELCRO AND CUT AS SHOWN.
- 2. TOLERANCE ± 2 mm.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED ± 0.1 ANGLES $\pm 0.5^\circ$ <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN B. Kimes	DATE 7/9/2012	
MATERIAL SEE NOTES HEAT TREAT FINISH	CHECKED ENG J. WANG	DATE 7/25/2012	 THIRD ANGLE PROJECTION
		SIZE A3	DRAWING NUMBER 472-2913
		SHEET 1 OF 1	REV A

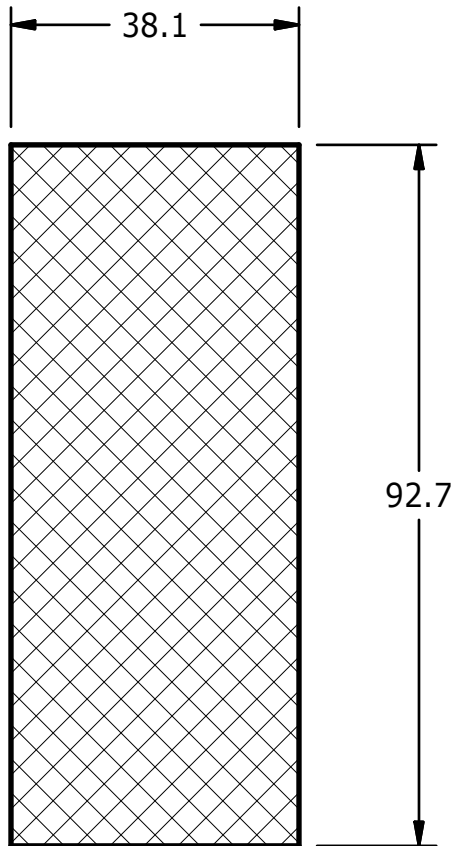
4

3

2

1



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKS114 FOR THOR M; ADD NOTES	7/9/2012	BK



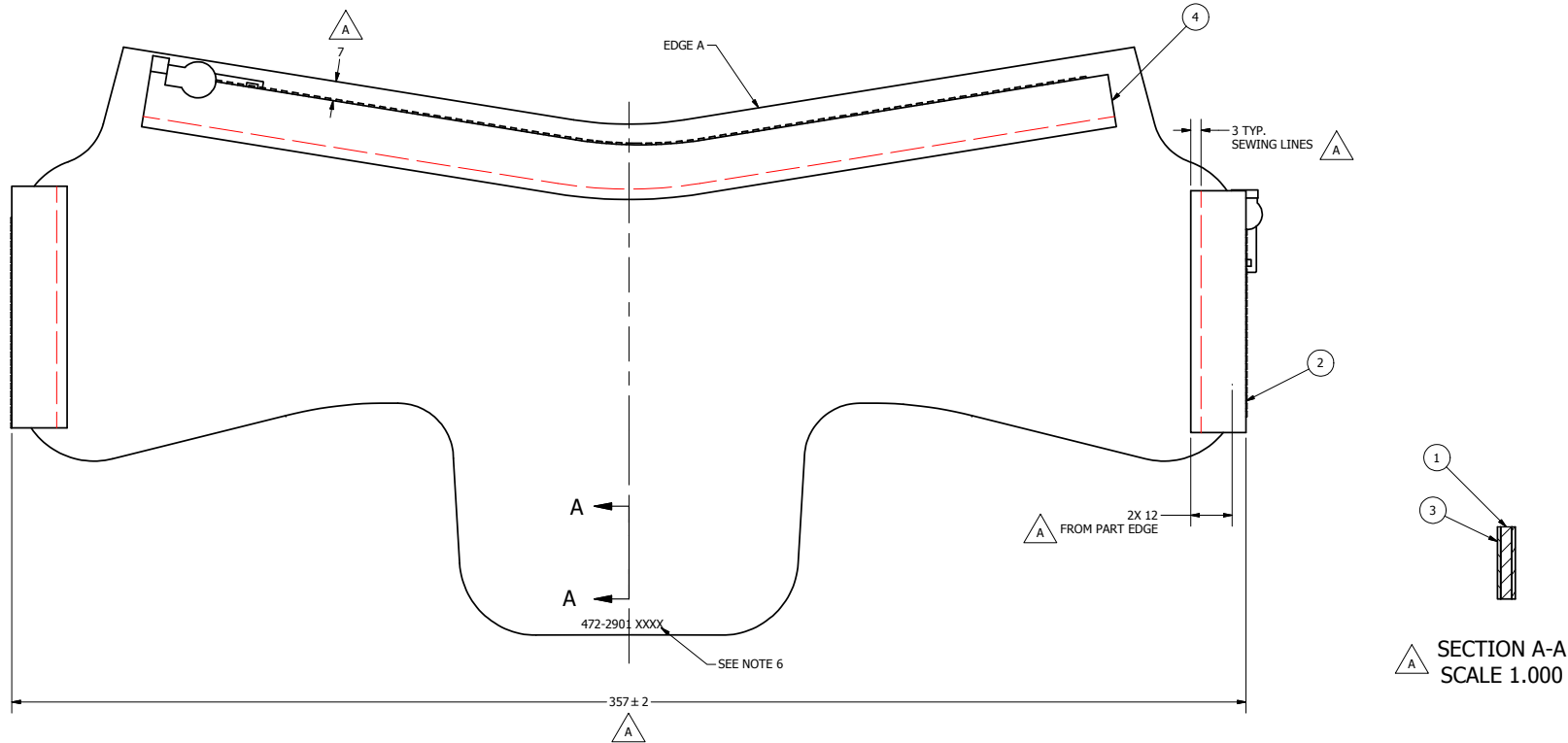
NOTES:



1. MAKE FROM BLACK LOOP VELCRO AND CUT AS SHOWN
2. TOLERANCE 2mm.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLE ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
MATERIAL SEE NOTES	DRAWN B. Kimes	7/9/2012	 THIRD ANGLE PROJECTION
HEAT TREAT	CHECKED		
FINISH	ENG J. WANG	7/25/2012	DRAWING NUMBER 472-2914
	APPROVED		SCALE: SHEET 1 OF 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1NKS200 AND CONVERT TO METRIC FOR THOR M; ADD 3 TYP., 2X 12, 7, 357±2; REVISE NOTES; ADD NOTE 5, 6, 8, SEC A-A	7/27/2012	BK



INSIDE FACE VIEW
SCALE 1.000

NOTES:

1. TRACE SEWING LINES 3mm OUTSIDE THE PROFILE OF THE NEOPRENE PATTERN ON THE INSIDE FACE OF THE CORDURA SKINS.
2. LAYER THE CORDURA SHEETS SO THE INNER FACES ARE FACING OUTWARD.
3. USING KEVLAR THREAD, SEW THE LAYERS TOGETHER ALONG THE TRACED SEWING LINE WITH THE EXCEPTION OF EDGE A.
4. TRIM THE EXCESS CORDURA LEAVING 3mm MATERIAL ALONG THE STITCHED LINE.
5. TURN THE LAYERS INSIDE OUT, INSERT THE NEOPRENE (472-2923), AND FOLD THE INNER AND OUTER CORDURA LAYER INSIDE, THEN SEW ALONG EDGE A.
6. MARK PART NUMBER AND SERIAL NUMBER AS SHOWN. (THIS WILL BECOME THE INNER FACE)
7. SEW THE ZIPPERS AS SHOWN WITH THE INSIDE FACE (WITH PART MARK) FACING UP.
8. TOLERANCE: ±2mm.

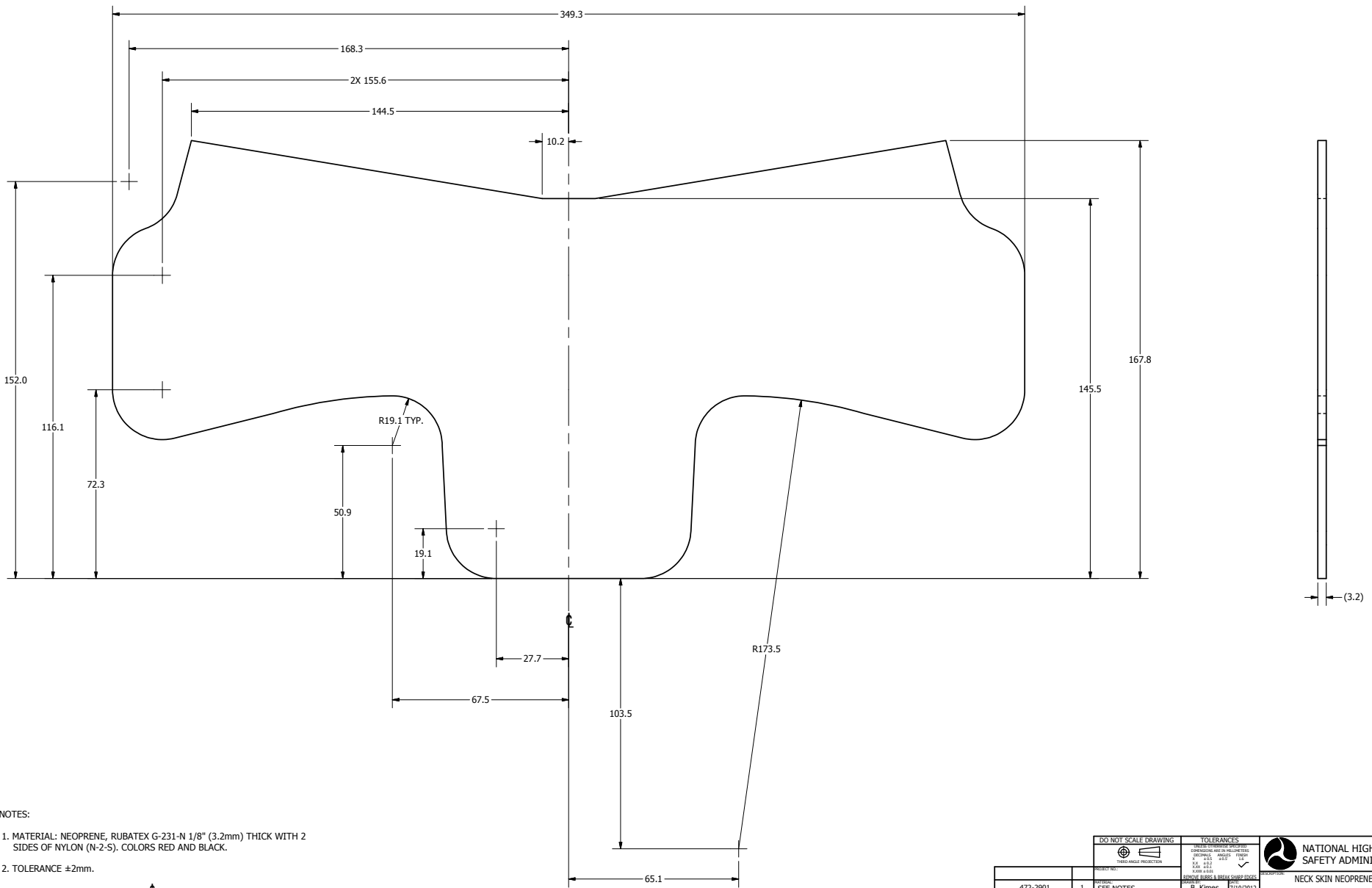
SECTION A-A
SCALE 1.000

ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-2920	NECK/HEAD SKIN ZIPPER
3	1	472-2922	NECK SKIN CORDURA PATTERN (OUTER/INNER)
2	1	472-2921	REAR ZIPPER, NECK
1	1	472-2923	NECK SKIN NEOPRENE PATTERN

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO BE USED UNLESS OTHERWISE SPECIFIED FRACTIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED		NECK SKIN ASSEMBLY	
472-0000	1	DESIGNED BY	B. Kimes	DATE	7/27/2012
NEXT ASSEMBLY	QTY	DESIGNED BY	J. WANG	DATE	7/25/2012
TOTAL QTY IN DUMMY	1	DRAWN BY		DATE	7/25/2012
				SCALE	A2 1 OF 1
				SCALE	1.000
				PART NUMBER	472-2901

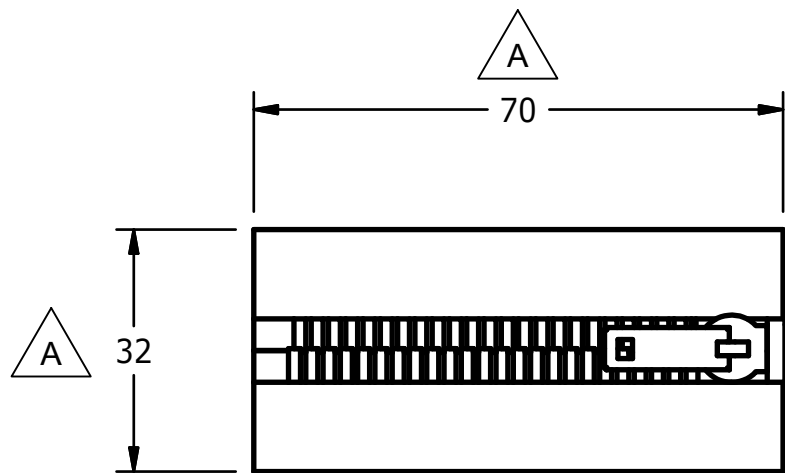
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED AND REDESIGNED FROM T1NKS214 FOR THOR M; ADD NOTES 2, 3; REMOVE PATTERN CUT NOTE	7/10/2012	BK



- NOTES:
- MATERIAL: NEOPRENE, RUBATEX G-231-N 1/8" (3.2mm) THICK WITH 2 SIDES OF NYLON (N-2-S). COLORS RED AND BLACK.
 - TOLERANCE ±2mm.
 - PATTERN IS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-2901 1 SEE NOTES NEXT ASSEMBLY QTY 1 TOTAL QTY IN DUMMY 1		B. Kimes 7/10/2012 J. WANG 7/25/2012		
A21 of 1			472-2923	A

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1NKS211 AND CONVERT TO METRIC FOR THOR M; 70 WAS 63.5; 32 WAS 38.1; ADD NOTE 2	7/10/2012	BK



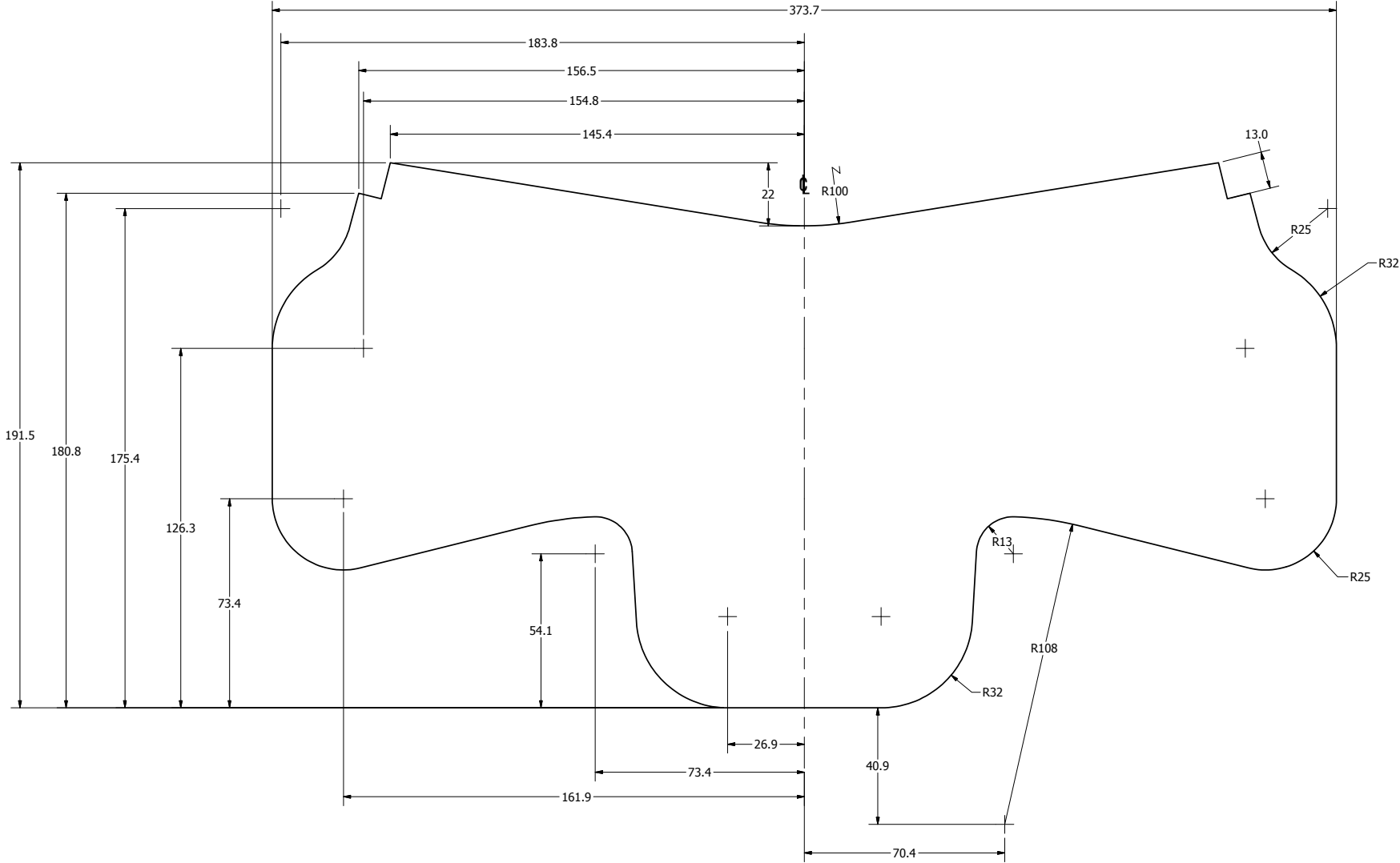
NOTES:

- #5 BLACK OXIDE BRASS ZIPPER STANDARD AUTOLOCK SLIDER TOP AND BOTTOM SEPERATING COLOR: BLACK (LENZIP)
- TOLERANCE +/- 2mm.



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLE ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN B. Kimes CHECKED ENG J. WANG APPROVED	DATE 7/10/2012 7/25/2012	NECK SKIN REAR ZIPPER THOR-M	
MATERIAL SEE NOTES HEAT TREAT FINISH	 THIRD ANGLE PROJECTION	SIZE A3 SCALE:	DRAWING NUMBER 472-2921 SHEET 1 OF 1	REV A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	7/27/2012	BK

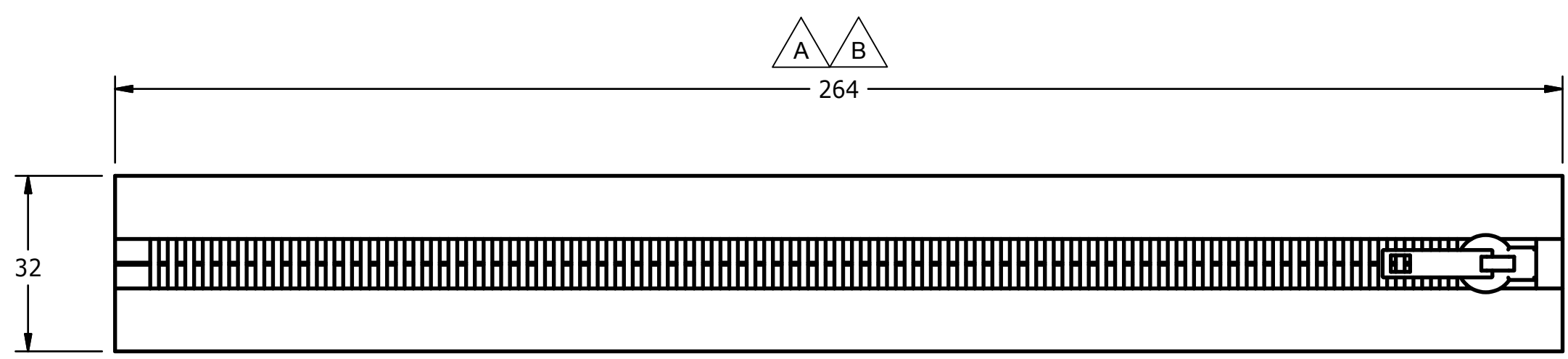


- NOTES:
- PATTERN IS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
 - TOLERANCE: $\pm 2\text{mm}$.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
<small> DIMENSIONS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO THE NEAREST 0.1 FRACTIONS ARE TO THE NEAREST 1/16" UNLESS OTHERWISE SPECIFIED </small>		<small> SHOW HIDDEN & BREAK DIMENSIONS SHOW HIDDEN & BREAK DIMENSIONS SHOW HIDDEN & BREAK DIMENSIONS </small>		
ECO#	REV	DESCRIPTION	DATE	BY
472-2901	2	RED CORDURA	7/27/2012	B. Kimes
NEXT ASSEMBLY	QTY	BY	DATE	DATE
TOTAL QTY IN DUMMY	2	J. WANG	7/25/2012	7/25/2012

NECK SKIN CORDURA PATTERN (OUTER/INNER)
 A21 of 1
 472-2922

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1NKS210 AND CONVERT TO METRIC FOR THOR M; 279 WAS 279.4; 32 WAS 31.8; ADD NOTE 2	7/10/2012	BK
	B	764 WAS 279	1/31/2013	BK



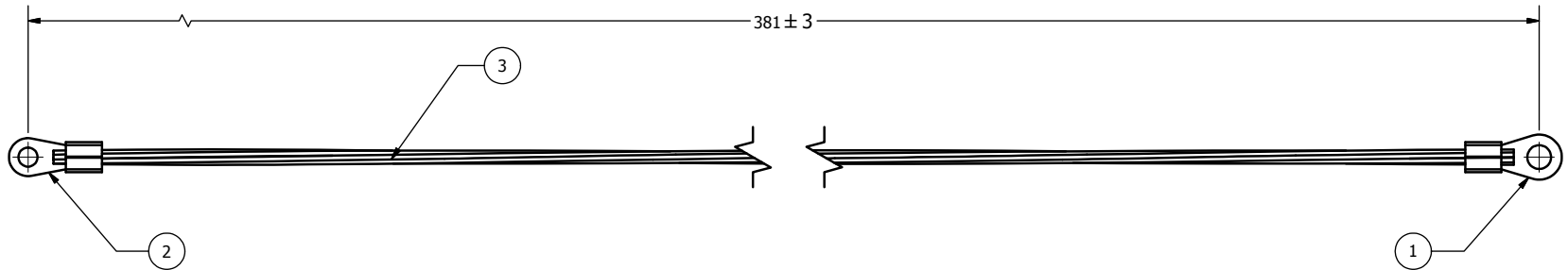
NOTES:

- #5 BLACK OXIDE BRASS ZIPPER STANDARD AUTOLOCK SLIDER TOP AND BOTTOM SEPERATING COLOR: BLACK (LENZIP)
- TOLERANCE: ± 2 mm.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 , XX ± 0.2 , XXX ± 0.1 MACHINED ANGLES $\pm 0.5^\circ$ <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		NECK/HEAD SKIN ZIPPER THOR-M	
DRAWN B. Kimes	7/10/2012	SIZE A3	DRAWING NUMBER 472-2920		REV B
MATERIAL SEE NOTES	CHECKED	THIRD ANGLE PROJECTION	SCALE:		SHEET
HEAT TREAT	ENG J. WANG		7/25/2012		1
FINISH	APPROVED				

GROUNDING STRAPS

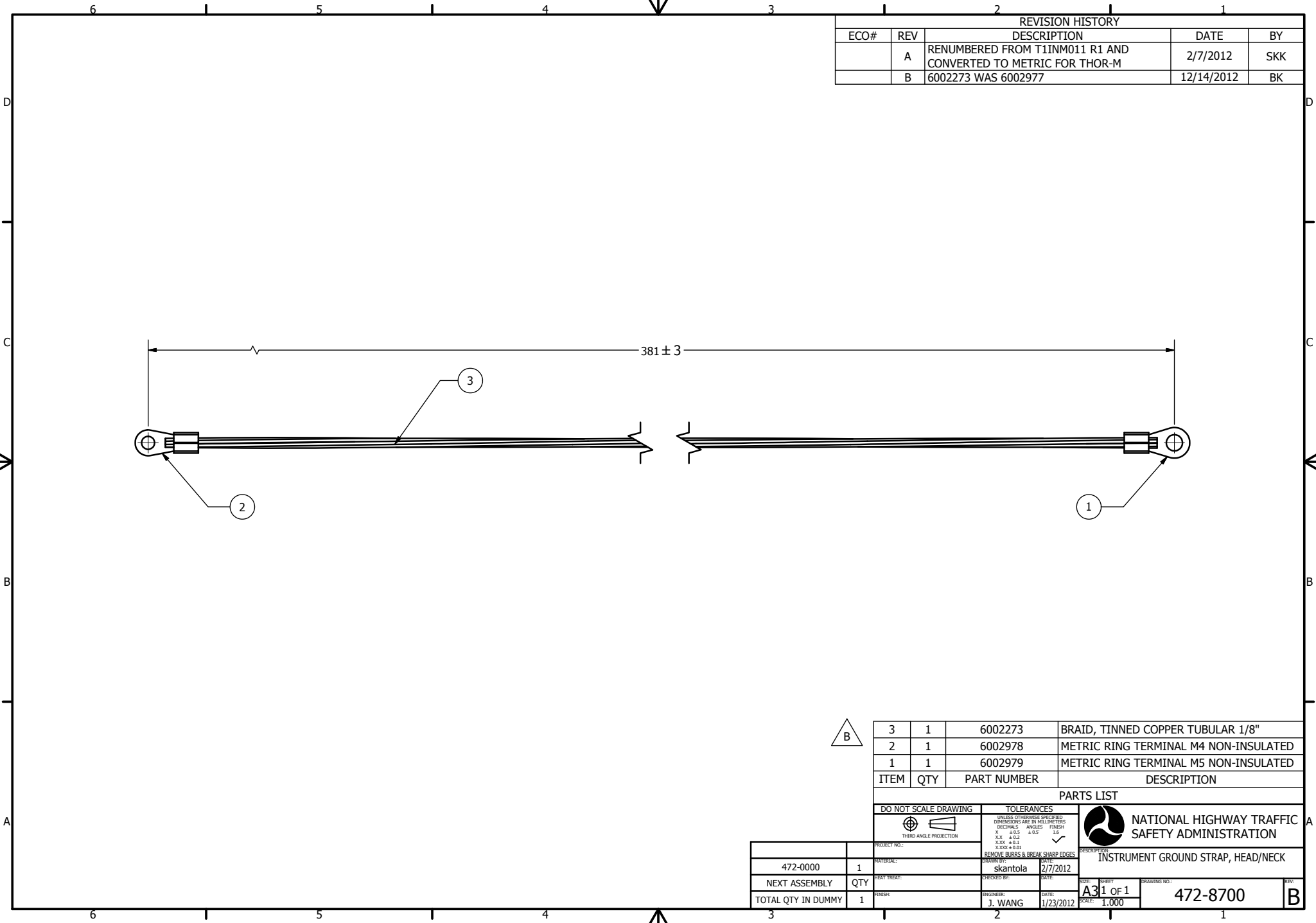
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM011 R1 AND CONVERTED TO METRIC FOR THOR-M	2/7/2012	SKK
	B	6002273 WAS 6002977	12/14/2012	BK



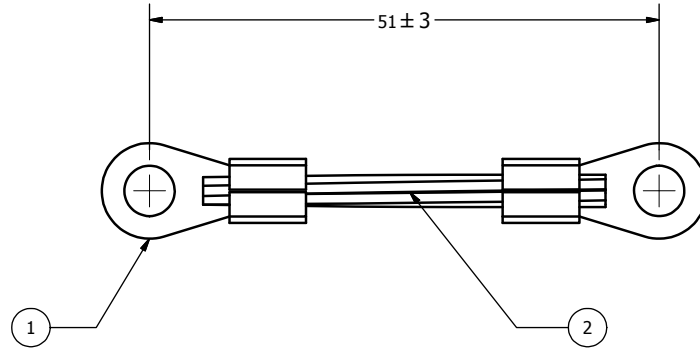
3	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
2	1	6002978	METRIC RING TERMINAL M4 NON-INSULATED
1	1	6002979	METRIC RING TERMINAL M5 NON-INSULATED
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .05 ± 0.07 1.6	
		XX ± 0.2	
		XXX ± 0.3	
		XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	DATE:	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-0000	2/7/2012	INSTRUMENT GROUND STRAP, HEAD/NECK	
MATERIAL:	DESIGNED BY:	SIZE:	SHEET
	skantola	A3	1 OF 1
CHECKED BY:	DATE:	SCALE:	DRAWING NO.
	1/23/2012	1:000	472-8700
HEAT TREAT:	ENGINEER:	REV:	
	J. WANG	B	
TOTAL QTY IN DUMMY	1		



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INMO12 R1 AND CONVERTED TO METRIC FOR THOR-M	2/7/2012	SKK
	B	6002273 WAS 6002977	12/14/2012	BK



2	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
1	2	6002979	METRIC RING TERMINAL M5 NON-INSULATED
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

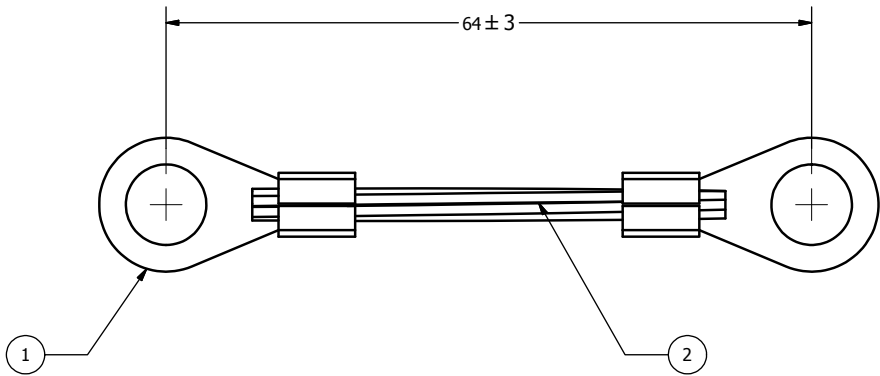
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X 0.05 ± 0.05 1.6
X.X ± 0.2
X.XX ± 0.3
X.XXX ± 0.01
REMOVE BLURS & BREAK SHARP EDGES



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.:	472-0000	QTY	1	DATE:	2/7/2012	SIZE	A3	SHEET	1 OF 1	DRAWING NO.:	472-8701	REV.	B
MATERIAL:		CHECKED BY:	skantola	DATE:		SCALE:	2.000	DESCRIPTION:		INSTRUMENT GROUND STRAP, MID STERNUM MID STERNUM			
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/23/2012								
TOTAL QTY IN DUMMY	1												

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM013 R1 AND CONVERTED TO METRIC FOR THOR-M	2/7/2012	SKK
	B	6002273 WAS 6002977	12/17/2012	BK



2	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
1	2	6002981	METRIC RING TERMINAL M8 NON INSULATED
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	DESCRIPTION	
PROJECT NO.:		DIMENSIONS ARE IN MILLIMETERS	INSTRUMENT GROUND STRAP, THORACIC SPINE	
DRAWN BY:	skantola	DECIMALS ANGLES FINISH	THORACIC SPINE	
CHECKED BY:		0.05 ± 0.5° 1.6		
DATE:	2/7/2012	0.1 ± 0.2		
DATE:	1/23/2012	0.2 ± 0.3		
ENGINEER:	J. WANG	0.3 ± 0.3		
DATE:		0.01 ± 0.01		
FINISH:		REMOVE BURRS & BREAK SHARP EDGES		
SCALE:	2.000			

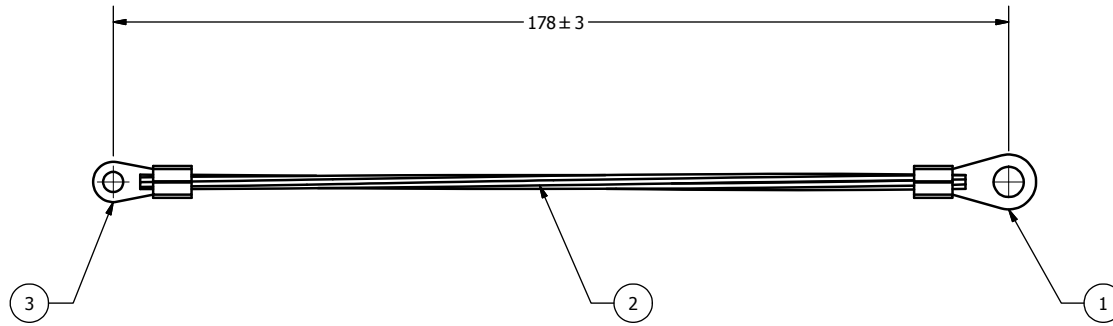
472-0000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

SIZE: A3
SHEET: 1 OF 1
SCALE: 2.000

DRAWING NO.: 472-8702

REV: B

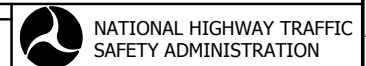
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM014 R 1 AND CONVERTED TO METRIC FOR THOR-M	2/7/2012	SKK
	B	6002273 WAS 6002977	12/17/2012	BK



ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	6002978	METRIC RING TERMINAL M4 NON-INSULATED
2	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
1	1	6002980	METRIC RING TERMINAL M6 NON INSULATED



PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X ± 0.5 ± 0.5 1.6	
		XX ± 0.2 ± 0.5 1.6	
		XXX ± 0.3 ± 0.5 1.6	
		XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	472-0000	DATE:	2/7/2012
MATERIAL:		DESIGNED BY:	skantola
CHECKED BY:		DATE:	
HEAT TREAT:		ENGINEER:	J. WANG
TOTAL QTY IN DUMMY:	1	DATE:	1/23/2012
		FINISH:	
		SCALE:	1:000

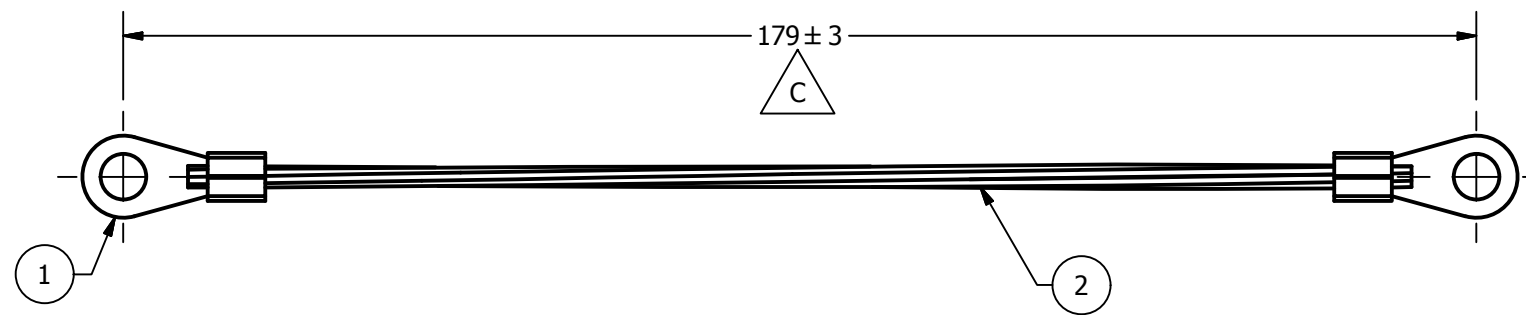


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

INSTRUMENT GROUND STRAP, LUMBAR SPINE
LUMBAR SPINE

SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-8703 REV: B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM015 R2 AND CONVERTED TO METRIC FOR THOR-M	2/7/2012	SKK
	B	6002273 WAS 6002977	12/17/2012	BK
	C	ITEM #1 PART #6002980 - METRIC RING TERMAL M6 NON INSULATED WAS PART #6002978 - METRIC RING TERMAL M4 NON INSULATED; DIM. 179 ±3 WAS 76 ±3	7/1/2015	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
1	2	6002980	METRIC RING TERMINAL M6 NON INSULATED

PARTS LIST	
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
	DECIMALS ANGLES FINISH
	X ± 0.5 ± 0.5 1.6
	.XX ± 0.2 ± 0.5 1.6
	.XXX ± 0.1 ± 0.5 1.6
	.XXX ± 0.01 ± 0.5 1.6
	REMOVE BURRS & BREAK SHARP EDGES
PROJECT NO.:	DATE:
MATERIAL:	DRAWN BY: skantola
HEAT TREAT:	CHECKED BY:
FINISH:	ENGINEER: J. WANG
	DATE: 1/23/2012

472-0000	2
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

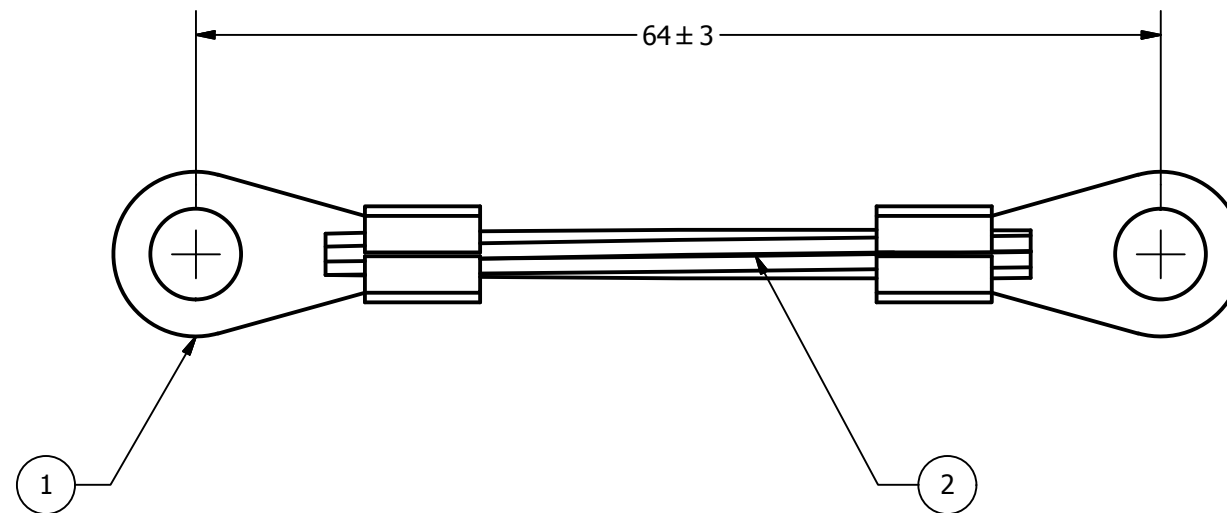
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: INSTRUMENT GROUND STRAP, FEMUR

SIZE: A3 1 OF 1 SHEET
SCALE: 1.000

DRAWING NO.: 472-8704

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM016 R1 AND CONVERTED TO METRIC FOR THOR-M	2/7/2012	SKK
	B	6002273 WAS 6002977	12/17/2012	BK

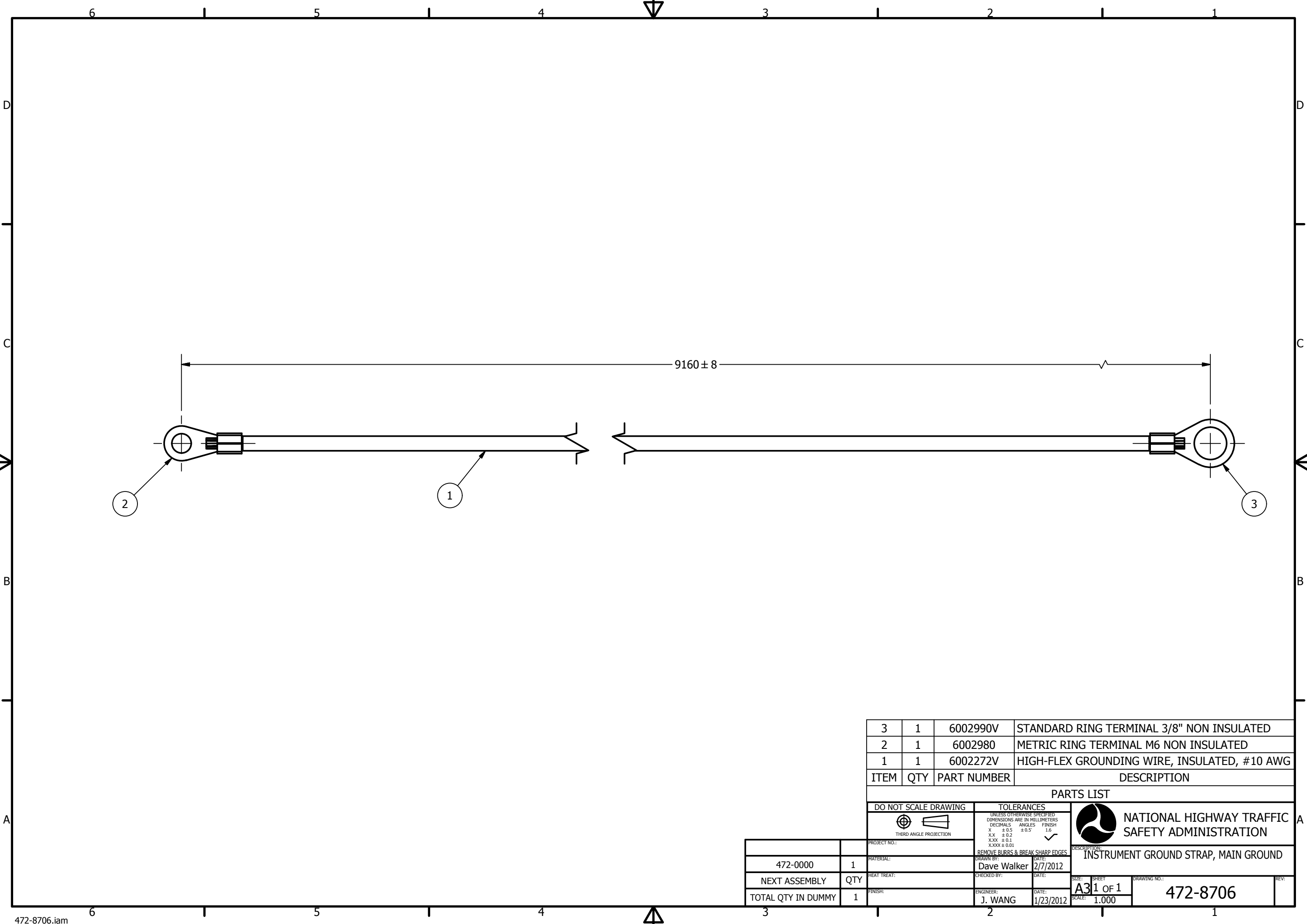


ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
1	2	6002980	METRIC RING TERMINAL M6 NON INSULATED

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>X ± 0.5 ± 0.5 1.6</small> <small>.XX ± 0.2 ± 0.5 1.6</small> <small>.XXX ± 0.1 ± 0.5 1.6</small> <small>XXX ± 0.01 ± 0.5 1.6</small>	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
DRAWN BY: skantola		DATE: 2/7/2012	
MATERIAL:		HEAT TREAT:	
CHECKED BY:		DATE:	
ENGINEER: J. WANG		DATE: 1/23/2012	

472-0000		2	NEXT ASSEMBLY		QTY	TOTAL QTY IN DUMMY		2
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 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		<small>DESCRIPTION:</small> INSTRUMENT GROUND STRAP, TIBIA TIBIA	
<small>SIZE:</small> A3	<small>SHEET</small> 1 OF 1	<small>DRAWING NO.:</small> 472-8705	<small>REV:</small> B



ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	6002990V	STANDARD RING TERMINAL 3/8" NON INSULATED
2	1	6002980	METRIC RING TERMINAL M6 NON INSULATED
1	1	6002272V	HIGH-FLEX GROUNDING WIRE, INSULATED, #10 AWG

PARTS LIST

DO NOT SCALE DRAWING
 THIRD ANGLE PROJECTION

TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X ± 0.5 ± 0.5 1.6
 X.X ± 0.2 ± 0.5 1.6
 X.XX ± 0.1 ± 0.5 1.6
 X.XXX ± 0.01 ± 0.5 1.6



472-0000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

PROJECT NO.:
 MATERIAL:
 HEAT TREAT:
 FINISH:
 REMOVE BURRS & BREAK SHARP EDGES
 DRAWN BY: Dave Walker
 CHECKED BY: J. WANG
 DATE: 2/7/2012
 DATE: 1/23/2012

DESCRIPTION:
 INSTRUMENT GROUND STRAP, MAIN GROUND
 SIZE: A3
 SHEET: 1 OF 1
 SCALE: 1.000
 DRAWING NO.: 472-8706



INSTRUMENTATION

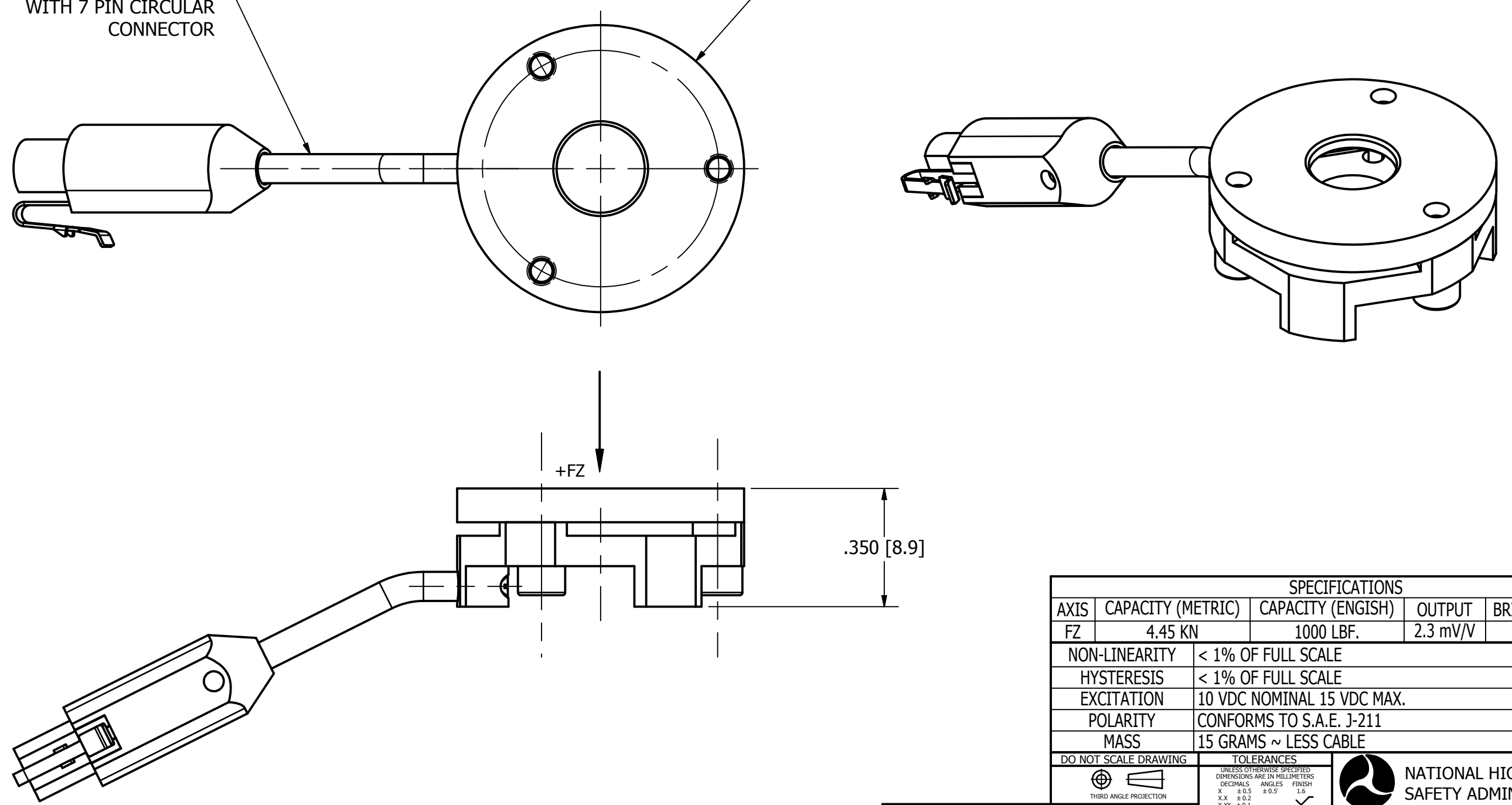
380MM LG. CABLE
WITH 7 PIN CIRCULAR
CONNECTOR

Ø.850 [21.6]

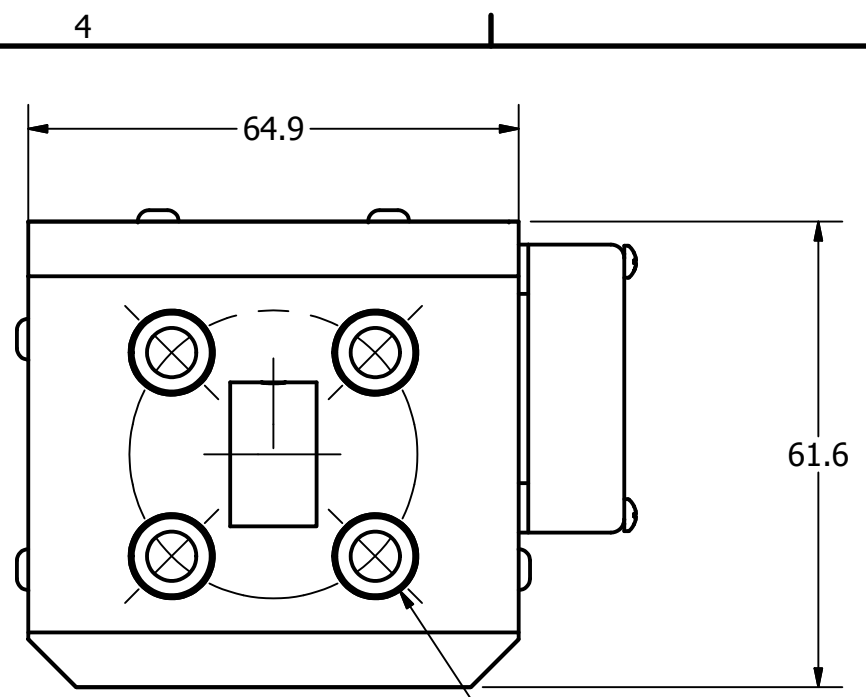
.350 [8.9]

+FZ

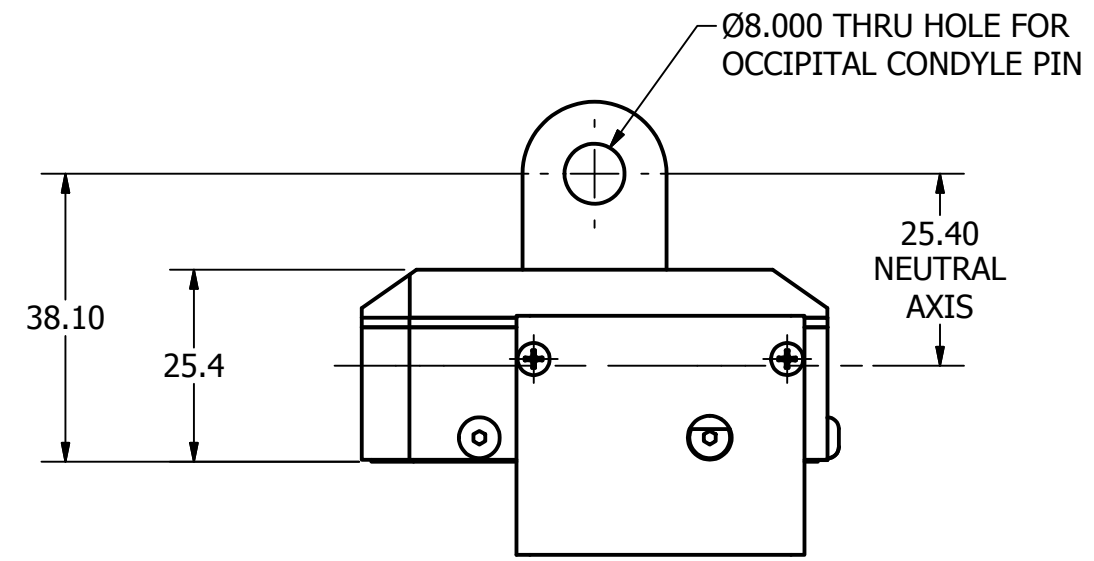
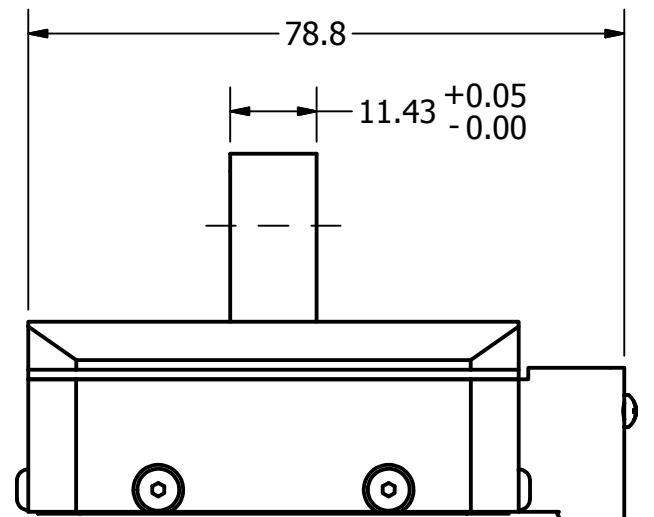
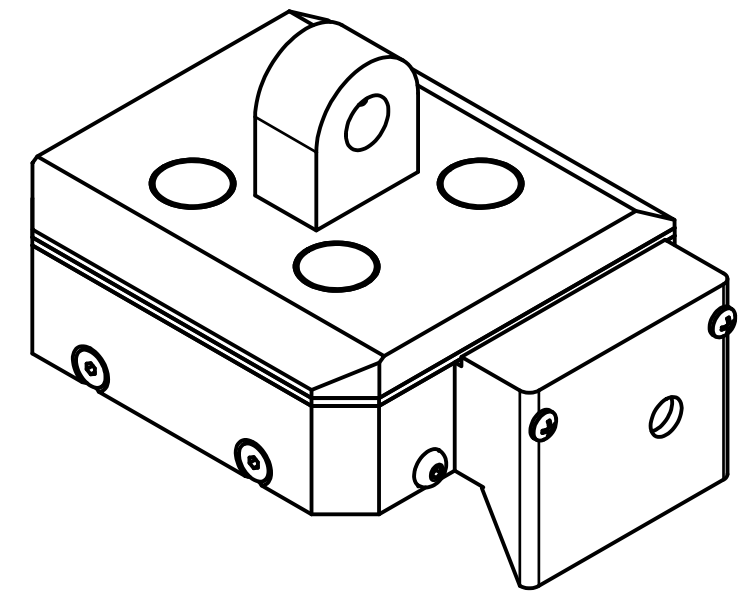
SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FZ	4.45 KN	1000 LBF.	2.3 mV/V	1050 OHM
NON-LINEARITY	< 1% OF FULL SCALE			
HYSTERESIS	< 1% OF FULL SCALE			
EXCITATION	10 VDC NOMINAL 15 VDC MAX.			
POLARITY	CONFORMS TO S.A.E. J-211			
MASS	15 GRAMS ~ LESS CABLE			
DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: Ø .850 SKULL SPRING LOAD CELL THOR (METRIC)	
 THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 X.X ±0.2 X.XX ±0.1 X.XXX ±0.01			
PROJECT NO.:	MATERIAL:	HEAT TREAT:	FINISH:	REMOVE BURRS & BREAK SHARP EDGES DRAWN BY: M.FINK DATE: 8/11/2011 CHECKED BY: CJT DATE: 7/3/2012 ENGINEER: M.FINK DATE: 7/3/12
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY		SCALE: 3:1 SHEET: 1 OF 1 DRAWING NO.: SA572-S112 REV: A



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE FOR PRODUCTION	9/16/11	TORCH

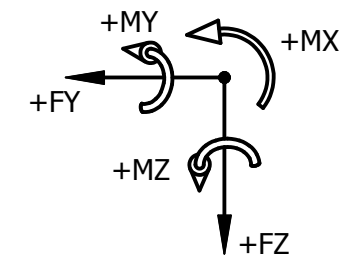


C'BORE HOLE FOR
M6x1 X 14 LG. SHCS
(4) HOLES ON A Ø38.10 B.C.



Ø8.000 THRU HOLE FOR
OCCIPITAL CONDYLE PIN

25.40
NEUTRAL
AXIS



COVER FOR A 31 SOCKET
MICRO-D CONNECTOR

SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	8.9 kN	2000 LBF.	2.0 mV/V	350
FY	8.9 kN	2000 LBF.	2.0 mV/V	350
FZ	13.3 kN	3000 LBF.	1.2 mV/V	700
MX	282.4 Nm	2500 IN-LBF.	1.7 mV/V	350
MY	282.4 Nm	2500 IN-LBF.	1.7 mV/V	350
MZ	282.4 Nm	2500 IN-LBF.	2.7 mV/V	700

NON-LINEARITY	< 1% OF FULL SCALE
HYSTERESIS	< 1% OF FULL SCALE
CROSSTALK	< 5% OF FULL SCALE
EXCITATION	10 VDC NOMINAL 15 VDC MAX.
POLARITY	CONFORMS TO S.A.E. J-211
MASS	426 g (.94 LBS) LESS CABLE

DO NOT SCALE DRAWING		TOLERANCES	
	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ±0.5	±0.5 1.6
		X.X ±0.2	
		X.XX ±0.1	
		X.XXX ±0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:		DRAWN BY:	M.FINK
MATERIAL:		DATE:	8/22/2011
CHECKED BY:	C TORCHALA	DATE:	9/16/2011
HEAT TREAT:		ENGINEER:	M.FINK
FINISH:		DATE:	7/3/12

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: UPPER NECK LOAD CELL THOR (METRIC)

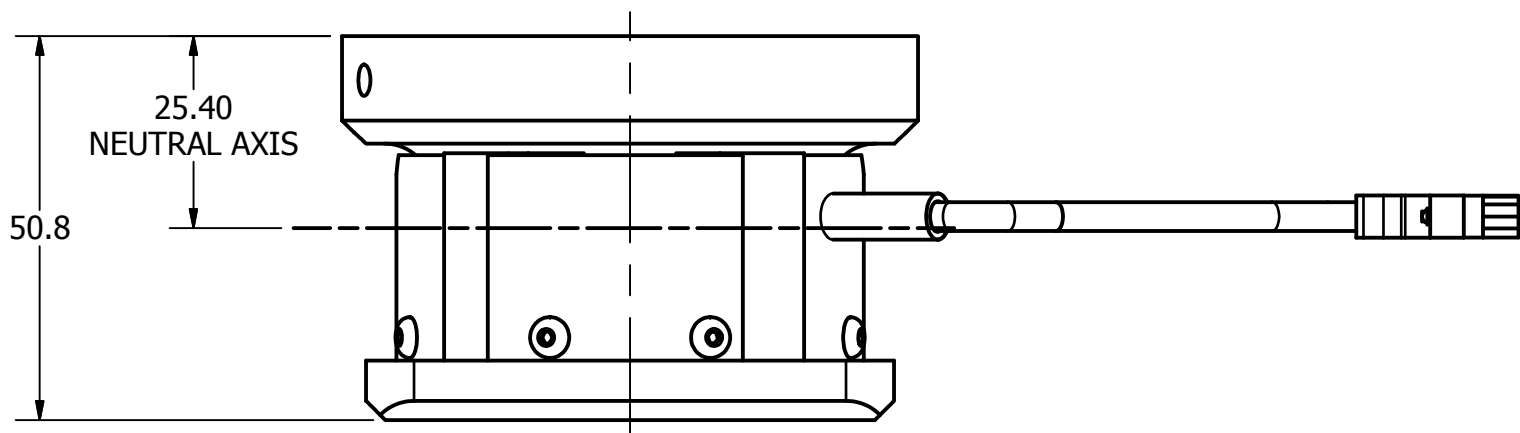
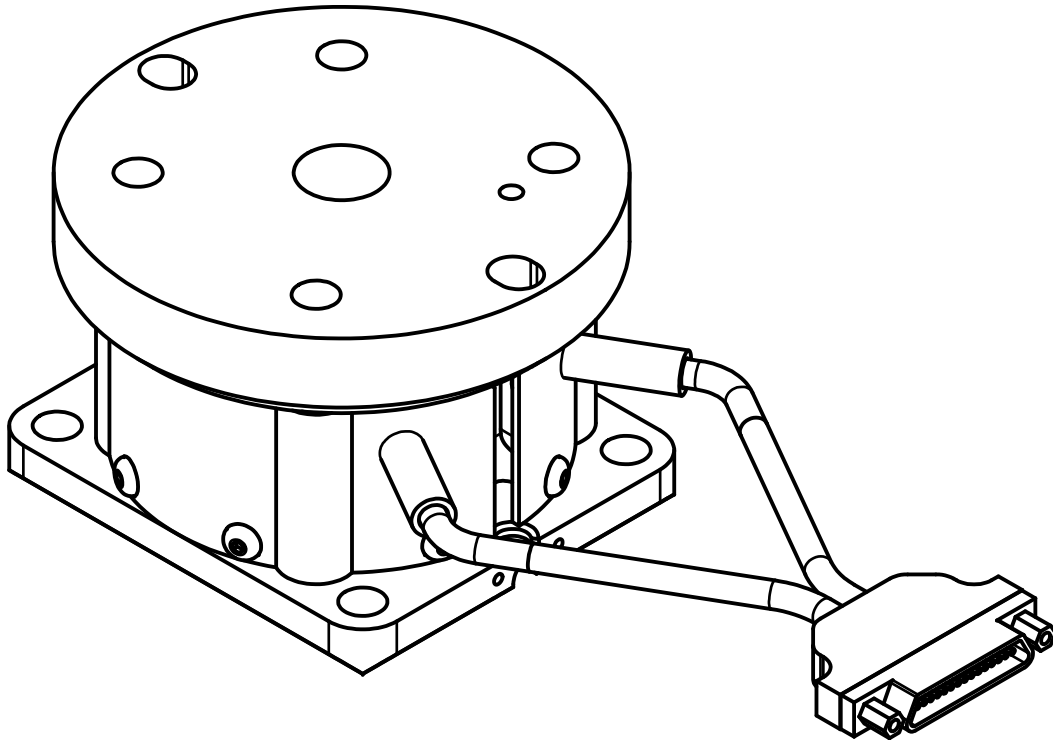
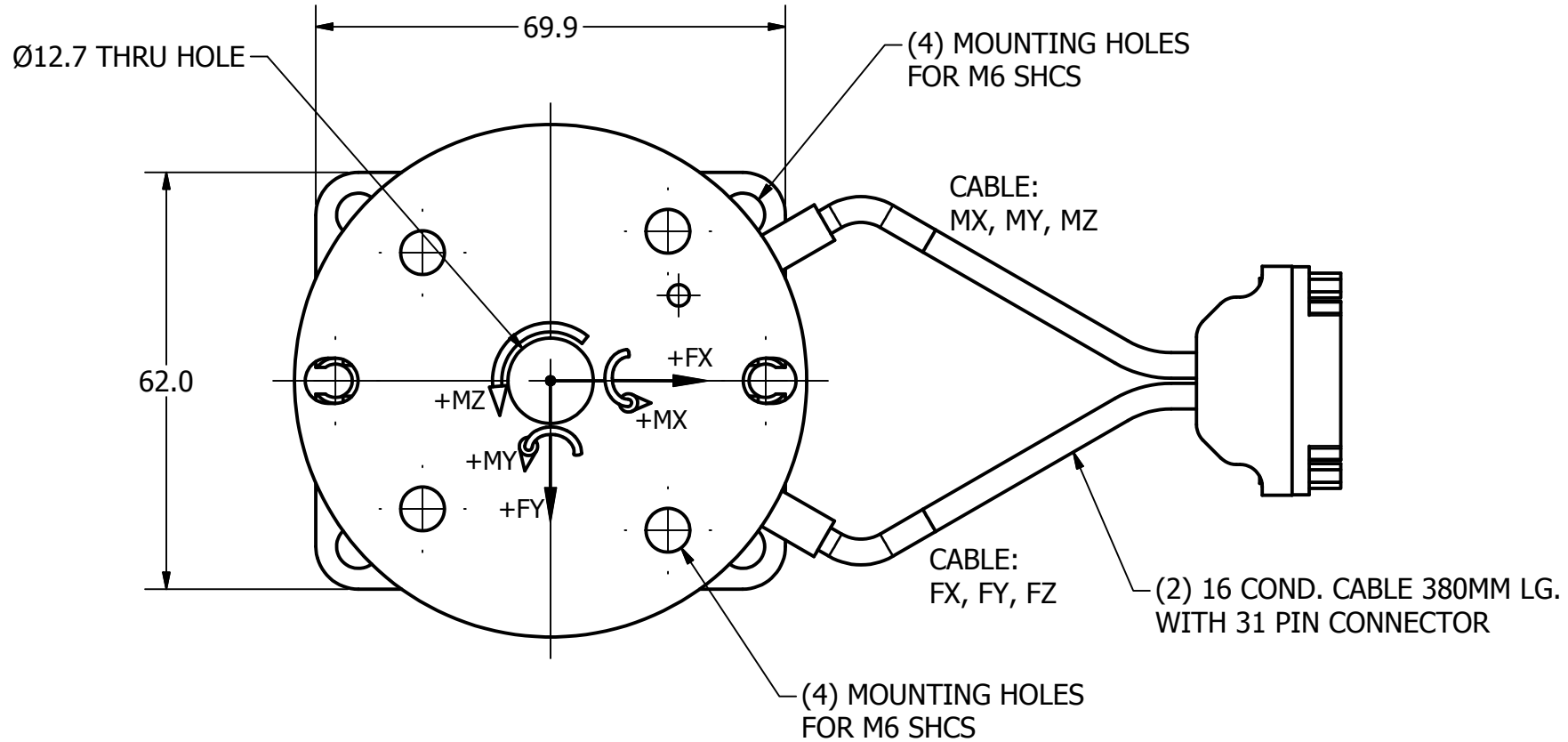
SIZE: SHEET B 1 OF 1

DRAWING NO.: SA572-S110

REV: A

NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE FOR PRODUCTION	9/9/2011	TORCH



SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	13.3 kN	3000 LBF.	2.3 mV/V	350
FY	13.3 kN	3000 LBF.	2.3 mV/V	350
FZ	13.3 kN	3000 LBF.	1.0 mV/V	700
MX	452.0 Nm	4000 IN-LBF.	1.8 mV/V	350
MY	452.0 Nm	4000 IN-LBF.	1.8 mV/V	350
MZ	226.0 Nm	2000 IN-LBF.	1.5 mV/V	700

NON-LINEARITY	< 1% OF FULL SCALE
HYSTERESIS	< 1% OF FULL SCALE
CROSSTALK	< 5% OF FULL SCALE
EXCITATION	10 VDC NOMINAL 15 VDC MAX.
POLARITY	CONFORMS TO S.A.E. J-211
MASS	800 GRAMS (1.76 LBS.)

DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
	DECIMALS ANGLES FINISH
	X ±0.5 ±0.5 1.6
	X.X ±0.2
	X.XX ±0.1
	X.XXX ±0.01
	REMOVE BURRS & BREAK SHARP EDGES
PROJECT NO.:	DRAWN BY: M.FINK
MATERIAL:	DATE: 8/24/2011
HEAT TREAT:	CHECKED BY: C TORCHALA
FINISH:	DATE: 9/9/2011
	ENGINEER: M.FINK
	DATE: 7/3/12

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: LOWER NECK LOAD CELL THOR (METRIC)

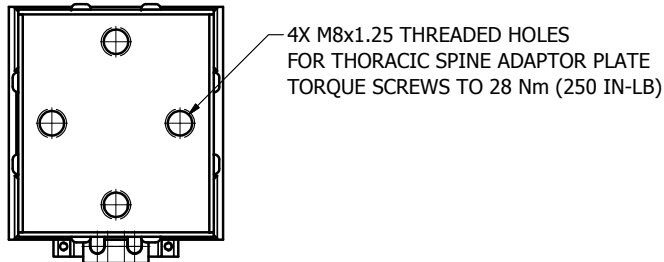
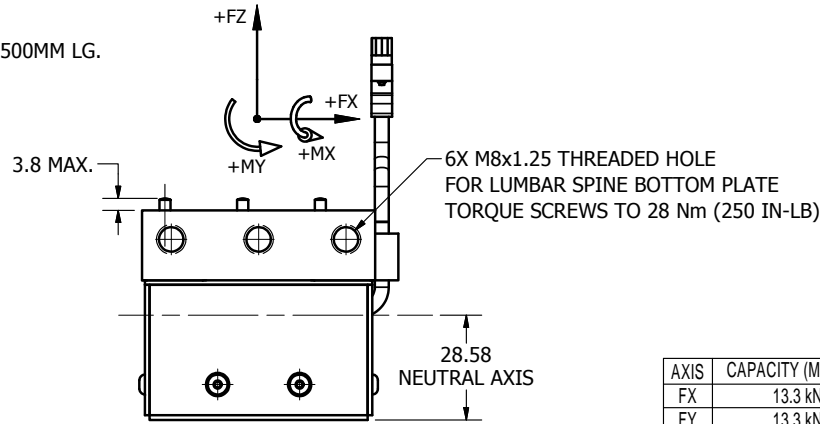
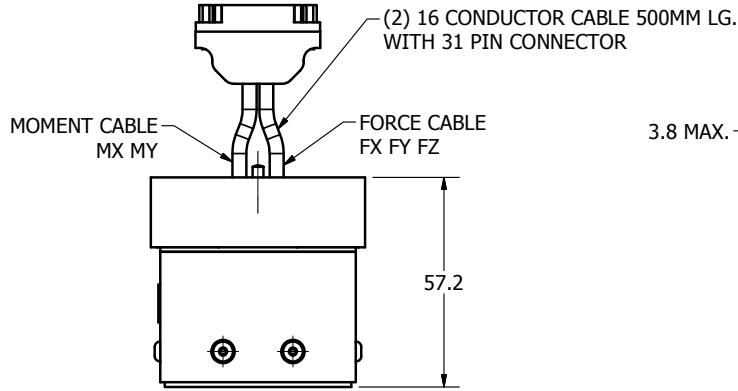
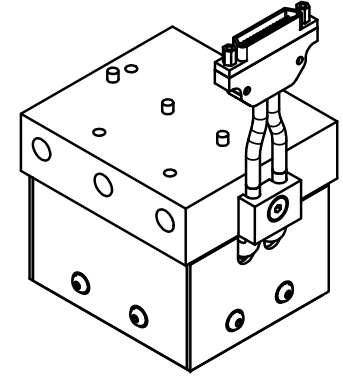
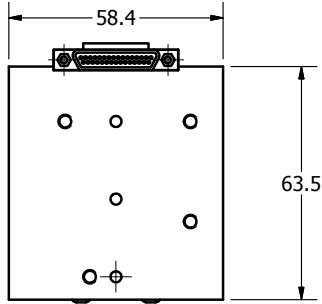
SIZE: SHEET B 1 OF 1

DRAWING NO.: SA572-S111

SCALE: 1:1

NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE FOR PRODUCTION	9/13/11	TORCH



AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	13.3 kN	3000 LBF.	1.9 mV/V	350
FY	13.3 kN	3000 LBF.	1.9 mV/V	350
FZ	17.8 kN	4000 LBF.	1.0 mV/V	700
MX	677.9 Nm	6000 IN-LBF.	1.4 mV/V	700
MY	903.9 Nm	8000 IN-LBF.	1.6 mV/V	700

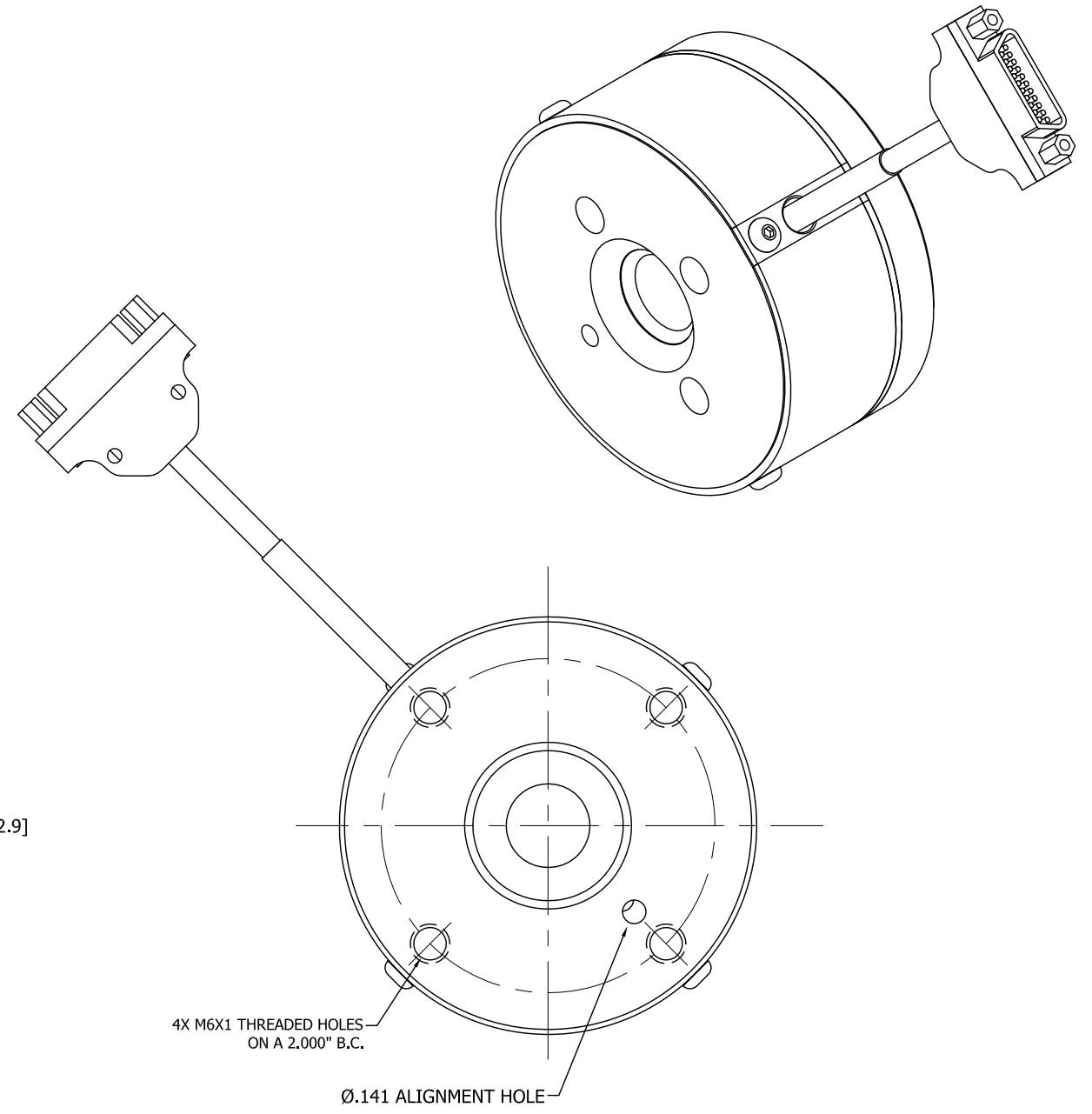
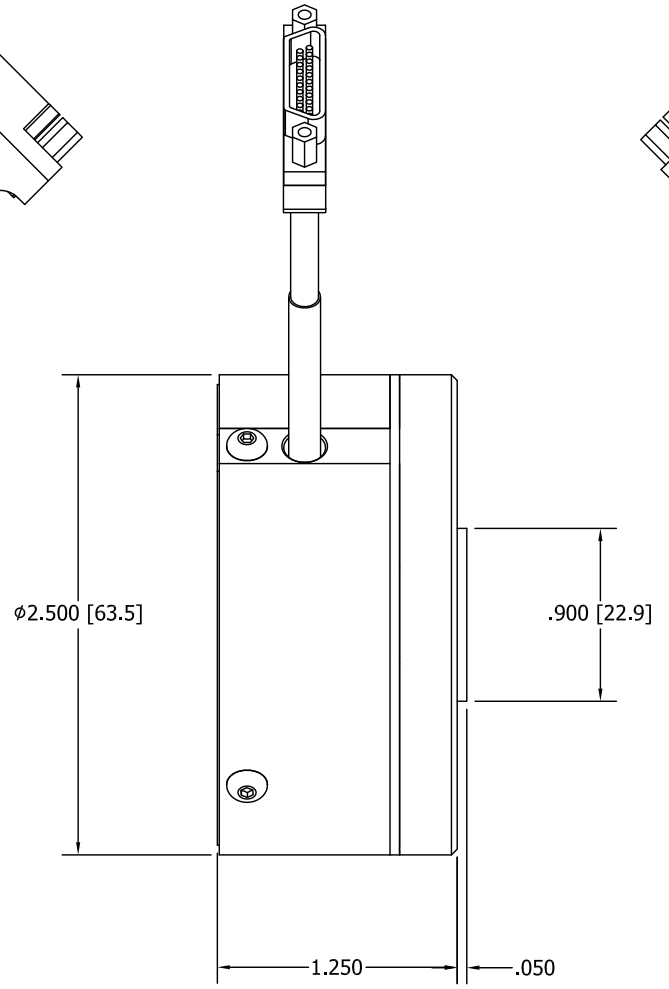
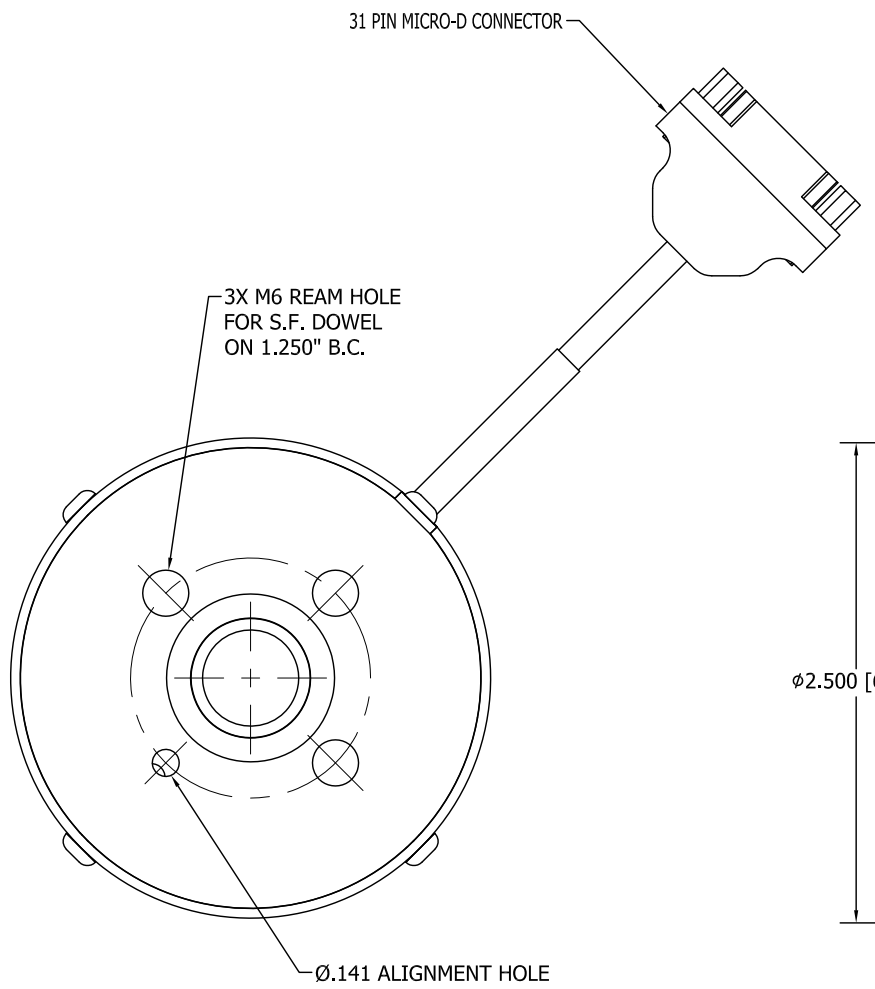
NON-LINEARITY	< 1% OF FULL SCALE
HYSTERESIS	< 1% OF FULL SCALE
CROSSTALK	< 5% OF FULL SCALE
EXCITATION	10 VDC NOMINAL 15 VDC MAX.
POLARITY	CONFORMS TO S.A.E. J-211
MASS	1.03 kg (2.27 LBS) ~ LESS CABLES & CONNECTOR

<p>DO NOT SCALE DRAWING</p> <p>THIRD ANGLE PROJECTION</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</p> <p>DIMENSIONAL ANGLES FINISH</p> <p>X.X ±0.2 0.5 1.6</p> <p>X.XX ±0.1 0.25 0.5</p> <p>REMOVE BURRS & BREAK SHARP EDGES</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p> <p>DESCRIPTION: THORACIC SPINE LOAD CELL THOR (METRIC)</p>
<p>PROJECT NO.</p> <p>MATERIAL:</p> <p>HEAT TREAT:</p> <p>FINISH:</p>	<p>DRAWN BY: M.FINK</p> <p>CHECKED BY: C TORCHALA</p> <p>ENGINEER: M.FINK</p> <p>DATE: 9/15/2011</p> <p>DATE: 7/3/12</p>	<p>SIZE: B</p> <p>SHEET: 1 OF 1</p> <p>SCALE: NONE</p> <p>DRAWING NO.: SA572-S127</p> <p>REV: A</p>

NOTE: MOUNT LOAD CELL WITH CABLES TO REAR OF SPINE

NEXT ASSEMBLY	QTY	REMARKS
TOTAL QTY IN DUMMY	1	

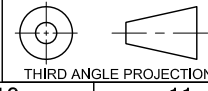
REVISION HISTORY				
REV.	ZONE	DESCRIPTION	DATE	BY

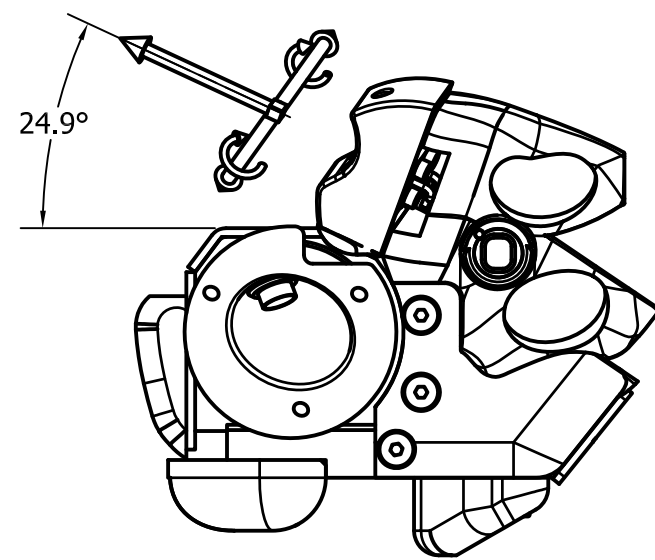
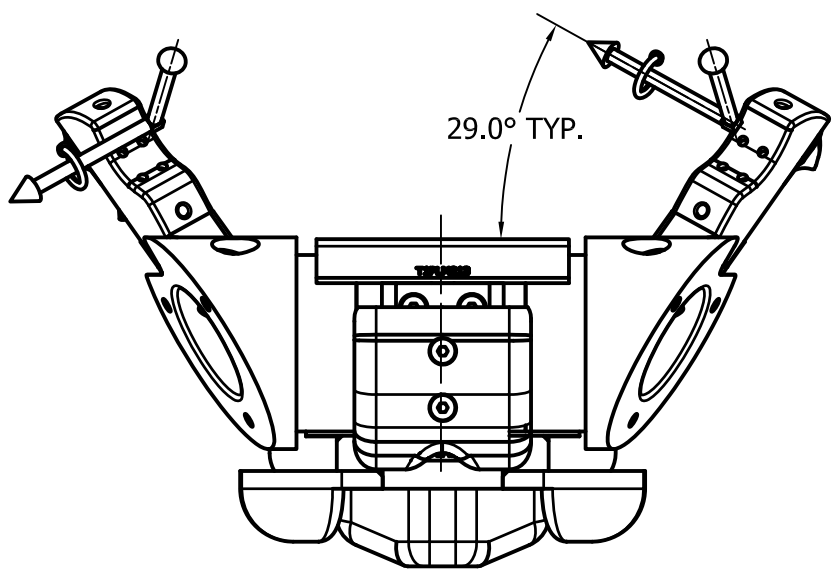
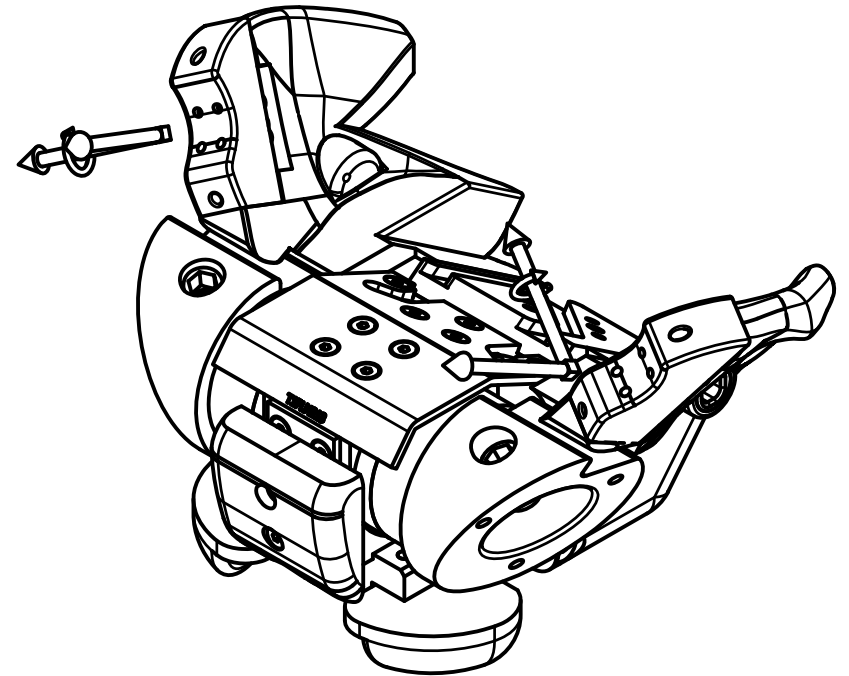
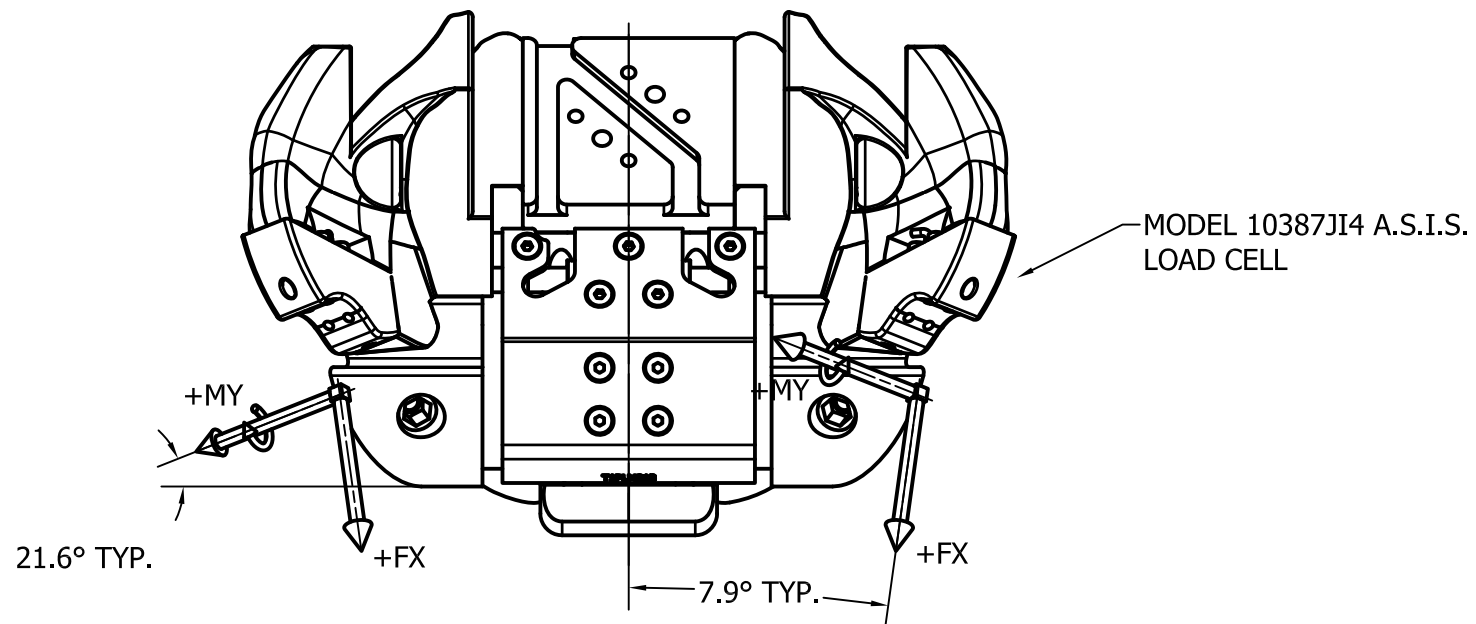


SPECIFICATIONS				
CH.	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTA
FX	22.24 kN	5000 LBF.	2.4 mV/V	350
FY	13.34 kN	3000 LBF.	0.8 mV/V	700
FZ	13.34 kN	3000 LBF.	2.0 mV/V	350
NON-LINEARITY		< 1% OF FULL SCALE		
HYSTERESIS		< 1% OF FULL SCALE		
CROSSTALK		< 5% OF FULL SCALE		
EXCITATION		10 VDC NOMINAL 15 VDC MAX.		
POLARITY		CONFORMS TO S.A.E. J-211 (RIGHT SIDE ONLY)		
MASS		0.94 LBS (426.3 g) LESS CABLE		

PARTS LIST				
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES	ENGINEERED: L.BENFANT	DATE: 10/18/2011	MATERIAL:	DEPARTMENT OF TRANSPORTATION
ANGLES ±.5° DECIMALS X ±1 mm X.X ±0.1 mm *DO NOT SCALE DRAWING*	DRAWN: L.BENFANT	DATE: 10/18/11	FINISH:	
	CHECKED: M.FINK	DATE: 10/18/11	HEAT TREAT:	
	DEBUR AND BREAK ALL SHARP EDGES		QTY./ASSEMBLY:	DRAWING TITLE:
	SCALE:	SIZE:	REVISION:	QTY./DUMMY:
		A3		1
				DRAWING NUMBER: SA572-S128
				Page: 1 of 1

UNLESS OTHERWISE SPECIFIED:
ALL MACHINED SURFACES 1.60 OR BETTER.







THE MODEL 10387JI4 A.S.I.S. LOAD CELL IS DESIGNED TO PROVIDE A MEASUREMENT OF THE FORCE OF A LAP BELT AGAINST THE ILIAC SPINE OF THE PELVIS. THIS FORCE IS MEASURED AS FX AND IS INSENSITIVE TO THE POSITION OF THE BELT ON THE ILIAC. THE CHANNEL MY IS DESIGNED TO PROVIDE AN INDICATION OF THE POSITION OF THE BELT ON THE ILIAC. A READING OF ZERO OUTPUT WOULD OCCUR IF THE CENTER OF PRESSURE OF THE BELT IS ON THE LOAD CELL NEUTRAL AXIS. IF THE BELT IS ABOVE THE NEUTRAL AXIS A POSITIVE MOMENT READING WOULD OCCUR, AND A BELT POSITIONED BELOW THE NEUTRAL AXIS WOULD PRODUCE A NEGATIVE BENDING MOMENT OUTPUT.

SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	13.0 KN	2922.5 LBF.	0.9 mV/V	350
MY	325.0 NM	2876.5 IN-LBF.	1.3 mV/V	700

NON-LINEARITY	< 2.0% OF FULL SCALE
HYSTERESIS	< 2.5% OF FULL SCALE
CROSSTALK	< 5.0% OF FULL SCALE
EXCITATION	10 VDC NOMINAL, 15 VDC MAXIMUM
POLARITY	CONFORMS TO S.A.E. J-211
MASS	211 GRAMS ~ LESS CABLES

DO NOT SCALE DRAWING	TOLERANCES	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION														
 <small>THIRD ANGLE PROJECTION</small>	<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 XXX ±0.1 ±0.5 XXXX ±0.01 ±0.5															
PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: A.S.I.S. LOAD CELL														
MATERIAL:	DRAWN BY: M.FINK	DATE: 8/5/2011														
HEAT TREAT:	CHECKED BY: CRM	DATE: 8/18/2011														
FINISH:	ENGINEER:	DATE:														
<table border="1"> <tr> <td>NEXT ASSEMBLY</td> <td>QTY</td> </tr> <tr> <td>TOTAL QTY IN DUMMY</td> <td></td> </tr> </table>	NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY		<table border="1"> <tr> <td>SIZE: B</td> <td>SHEET: 1</td> <td>OF: 1</td> </tr> <tr> <td>SCALE:</td> <td></td> <td></td> </tr> </table>	SIZE: B	SHEET: 1	OF: 1	SCALE:			<table border="1"> <tr> <td>DRAWING NO.:</td> <td>REV:</td> </tr> <tr> <td>SA572-S119</td> <td>C</td> </tr> </table>	DRAWING NO.:	REV:	SA572-S119	C
NEXT ASSEMBLY	QTY															
TOTAL QTY IN DUMMY																
SIZE: B	SHEET: 1	OF: 1														
SCALE:																
DRAWING NO.:	REV:															
SA572-S119	C															

4

3

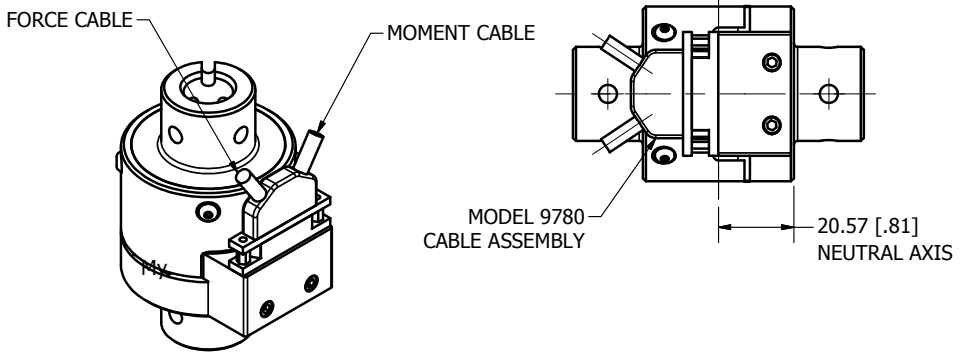
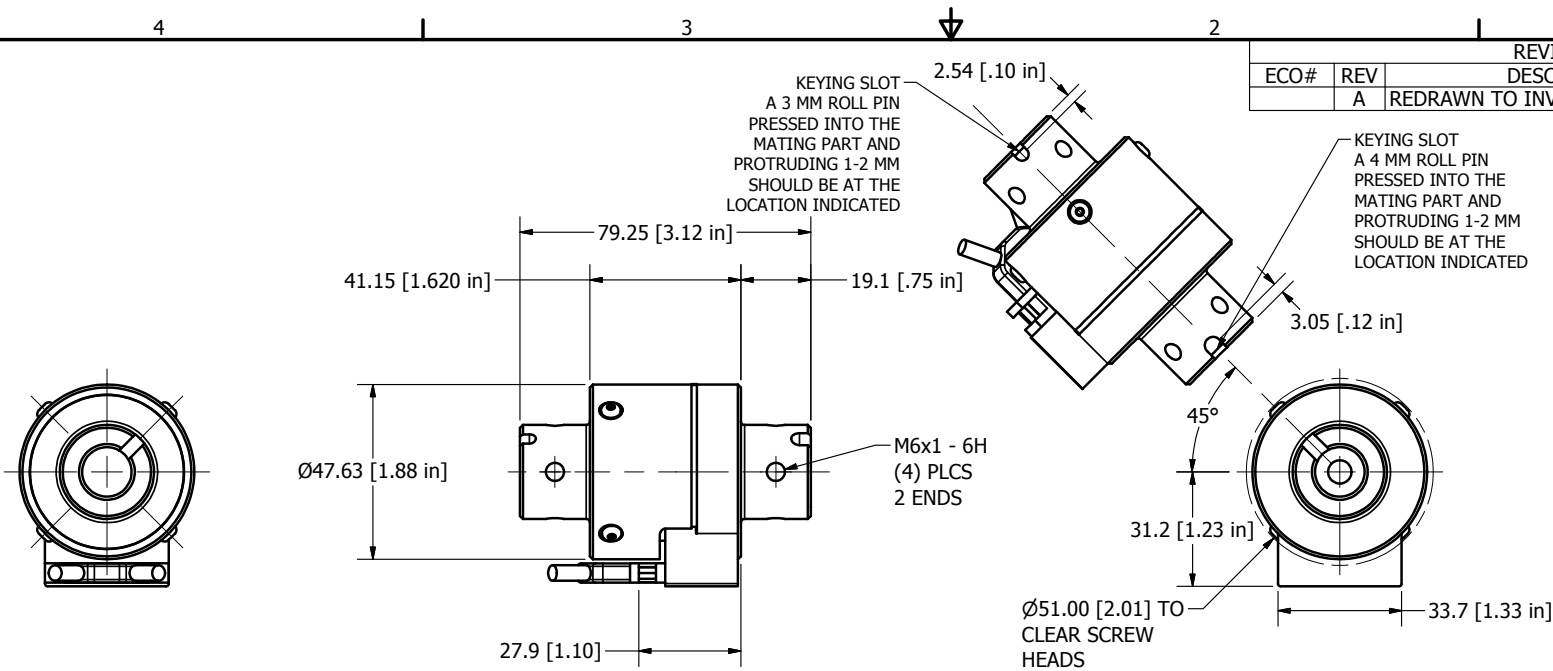
2

1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REDRAWN TO INVENTOR	7/12/2011	MCO

KEYING SLOT
A 3 MM ROLL PIN
PRESSED INTO THE
MATING PART AND
PROTRUDING 1-2 MM
SHOULD BE AT THE
LOCATION INDICATED

KEYING SLOT
A 4 MM ROLL PIN
PRESSED INTO THE
MATING PART AND
PROTRUDING 1-2 MM
SHOULD BE AT THE
LOCATION INDICATED



SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	15 KN	3400 LBF.	2.1 mV/V	350
FY	15 KN	3400 LBF.	2.1 mV/V	350
FZ	15 KN	3400 LBF.	1.0 mV/V	700
MX	350 NM	3100 IN-LBF.	2.3 mV/V	350
MY	350 NM	3100 IN-LBF.	2.3 mV/V	350
MZ	300NM	2700 IN-LBF.	2.7 mV/V	700
NON-LINEARITY		< 1% OF FULL SCALE		
HYSTERESIS		< 1% OF FULL SCALE		
CROSSTALK		< 5% OF FULL SCALE		
EXCITATION		10 VDC NOMINAL 15 VDC MAX.		
POLARITY		CONFORMS TO S.A.E. J-211		
MASS		470g		

DO NOT SCALE DRAWING	TOLERANCES
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
	DIMENSIONAL ANGLES FINISH
	X.X ±0.2 0.5 1.6
	X.XX ±0.1 0.25
	X.XXX ±0.05
	REMOVE BURRS & BREAK SHARP EDGES
MATERIAL:	DRAWN BY: mconnor
HEAT TREAT:	CHECKED BY:
FINISH:	ENGINEER:
	DATE: 7/12/2011

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

THOR FEMUR LOAD CELL

SIZE: B 1 OF 1
SCALE: .75 : 1

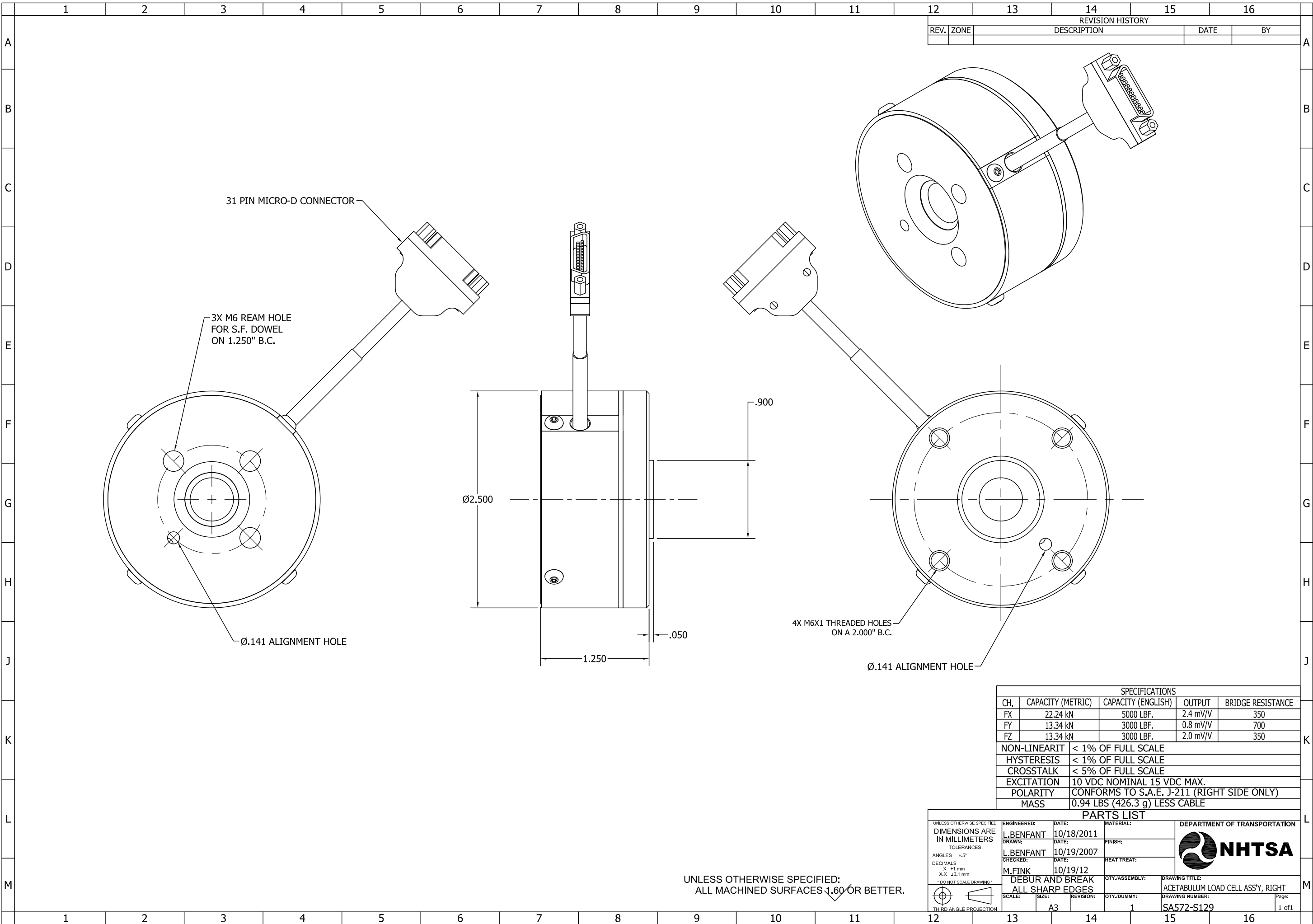
DRAWING NO.: SA572-S120

4

3

2

1



REVISION HISTORY			
REV.	ZONE	DESCRIPTION	DATE

SPECIFICATIONS				
CH.	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	22.24 kN	5000 LBF.	2.4 mV/V	350
FY	13.34 kN	3000 LBF.	0.8 mV/V	700
FZ	13.34 kN	3000 LBF.	2.0 mV/V	350
NON-LINEARITY		< 1% OF FULL SCALE		
HYSTERESIS		< 1% OF FULL SCALE		
CROSSTALK		< 5% OF FULL SCALE		
EXCITATION		10 VDC NOMINAL 15 VDC MAX.		
POLARITY		CONFORMS TO S.A.E. J-211 (RIGHT SIDE ONLY)		
MASS		0.94 LBS (426.3 g) LESS CABLE		

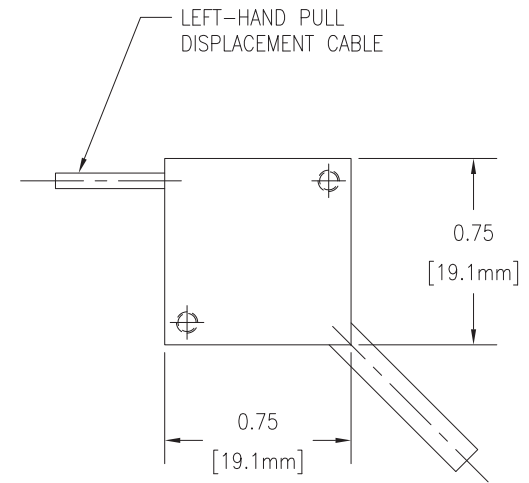
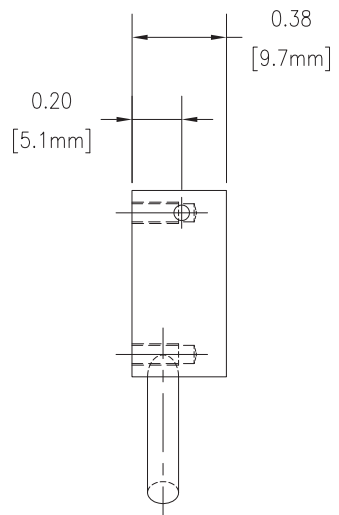
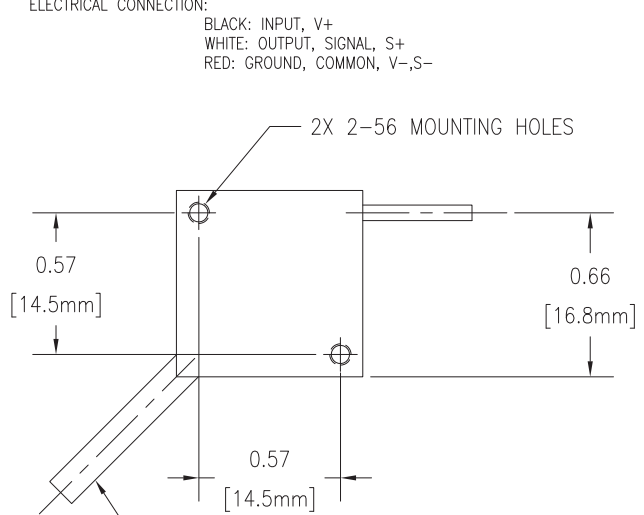
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	ENGINEERED: L.BENFANT	DATE: 10/18/2011	MATERIAL:	DEPARTMENT OF TRANSPORTATION
TOLERANCES	DRAWN: L.BENFANT	DATE: 10/19/2007	FINISH:	
ANGLES ±.5°	CHECKED: M.FINK	DATE: 10/19/12	HEAT TREAT:	
DECIMALS X ±1 mm XX ±0.1 mm * DO NOT SCALE DRAWING *	DEBUR AND BREAK ALL SHARP EDGES		QTY./ASSEMBLY: 1	DRAWING TITLE: ACETABULUM LOAD CELL ASSY, RIGHT
THIRD ANGLE PROJECTION	SCALE: A3	REVISION: 1	QTY./DUMMY: 1	DRAWING NUMBER: SA572-S129

UNLESS OTHERWISE SPECIFIED:
ALL MACHINED SURFACES 1.60 OR BETTER.



POTENTIOMETER TYPE 1-TURN, PRECISION, CONDUCTIVE PLASTIC
 RESISTANCE: 5K ohms ±10%
 OUTPUT SIGNAL: ANALOG SIGNAL FROM 0 TO SUPPLY VOLTAGE (VOLTAGE DIVIDER CIRCUIT)
 INDEPENDENT LINEARITY ERROR: ±1.0% MAX. PER VRCI-P-100A
 OUTPUT SMOOTHNESS: 0.1% MAX.
 NORMAL MASS: 0.5 oz. (15.0g)
 CABLE TRAVEL: 1.5" (38mm) MAXIMUM TRAVEL
 ELECTRICAL CONNECTION:

BLACK: INPUT, V+
 WHITE: OUTPUT, SIGNAL, S+
 RED: GROUND, COMMON, V-,S-



ELECTRICAL CABLE
 3-CONDCT FLYING LEAD
 30 GAUGE MIN
 18" (457MM) MIN. LENGTH

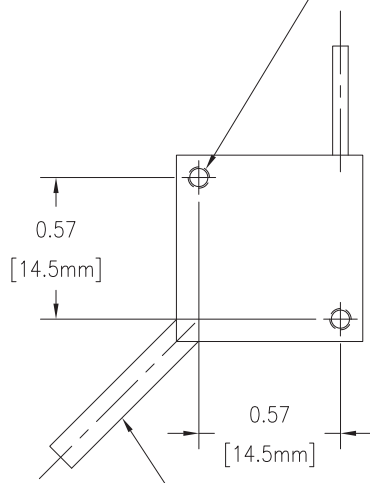
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY

ITEM	QTY	PART NO.	DESCRIPTION	MATERIAL
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±1/64 DECIMALS: .X ±.1 ANGLES: MACHINED: ±.5°			 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION STRING POT,MINI (LEFT)	
APPROVALS		DATE		
DRAWN D. Walker		12/14/2010		
CHECKED				
MATERIAL		ENGINEER	SIZE	DWG. NO.
HEAT TREAT		APPROVED	B	SA572-S90-L
FINISH			SCALE 2:1	SHEET 1 OF 1

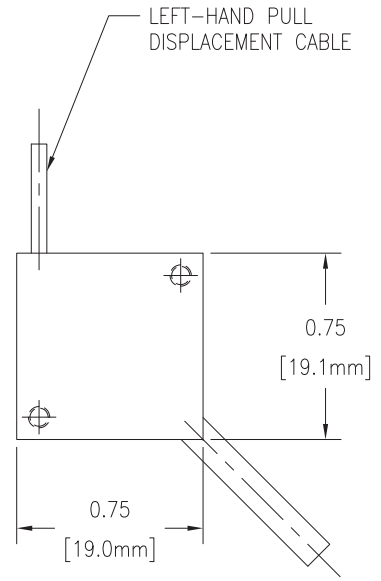
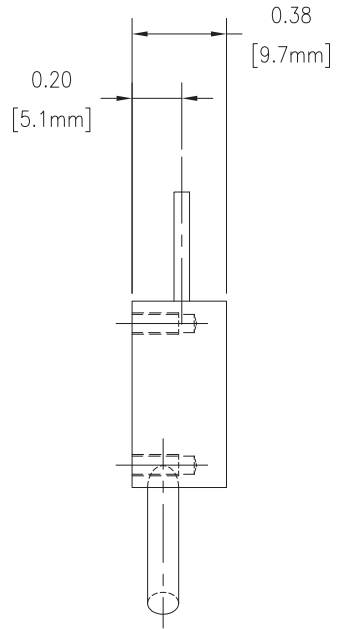
POTENTIOMETER TYPE 1-TURN, PRECISION, CONDUCTIVE PLASTIC
 RESISTANCE: 5K ohms ±10%
 OUTPUT SIGNAL: ANALOG SIGNAL FROM 0 TO SUPPLY VOLTAGE (VOLTAGE DIVIDER CIRCUIT)
 INDEPENDENT LINEARITY ERROR: ±1.0% MAX. PER VRCI-P-100A
 OUTPUT SMOOTHNESS: 0.1% MAX.
 NORMAL MASS: 0.5 oz. (15.0g)
 CABLE TRAVEL: 1.5" (38mm) MAXIMUM TRAVEL
 ELECTRICAL CONNECTION:

BLACK: INPUT, V+
 WHITE: OUTPUT, SIGNAL, S+
 RED: GROUND, COMMON, V-, S-

2X 2-56 MOUNTING HOLES



ELECTRICAL CABLE
 3-CONDCT FLYING LEAD
 30 GAUGE MIN
 18" (457MM) MIN. LENGTH



LEFT-HAND PULL
 DISPLACEMENT CABLE

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY

ITEM	QTY	PART NO.	DESCRIPTION	MATERIAL
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS: ±1/64 DECIMALS: .X ±.1 ANGLES: MACHINED: ±.5°			 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION STRING POT, MINI (RIGHT)	
APPROVALS		DATE		
DRAWN D. Walker		12/14/2010		
CHECKED				
ENGINEER				
MATERIAL	APPROVED		SIZE B	DWG. NO. SA572-S90-R
HEAT TREAT	FINISH		SCALE 2:1	REV.
			SHEET	1 OF 1

4

3

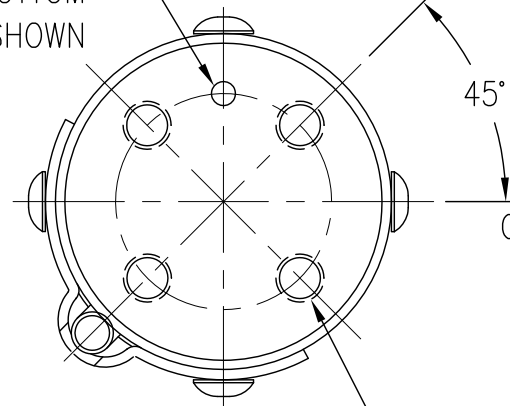
2

1

REVISION HISTORY

ZONE	REV	DESCRIPTION	DATE	BY
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ϕ .125 [3.175] x .07 [1.78] DEEP
FLAT BOTTOM
1.125 [28.575] B.C. AS SHOWN



NEUTRAL
AXIS

0.800 [20.32]

2.370 [60.20] MAX.

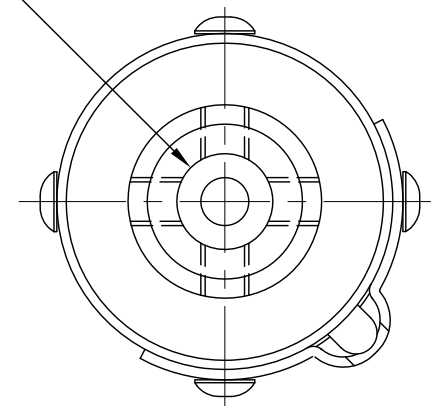
1.620 [41.15]

1/2" ϕ HOLE

1.009 [25.62]

1.008 [25.60]

1.750 [44.45]



TAP 1/4-28 UNF
(4) PLACES EQUALLY
SPACED FULL THREADS.
.38 [9.65] DEEP ON 1.125 [28.58] B.C.
AS SHOWN.

1/4-28 UNF TAP THRU
(4) PLACES 90° APART.

0.375 [9.53]

SPECIFICATIONS

AXIS	CAPACITY	
	LBF.	N
FX	2500	11120.5
FY	2500	11120.5
FZ	2500	11120.5
	IN-LBF	Nm
MX	3500	395.5
MY	3500	395.5

OUTPUT AT CAPACITY: 1MV/V MINIMUM
NONLINEARITY < 1% OF FULL SCALE
CROSSTALK < 5% OF FULL SCALE
WEIGHT < 1.105LBS/.501 kg (CABLES NOT INCLUDED)


SIGNAL OUTPUT MUST BE COMPATIBLE WITH AND
RECORDABLE IN A DATA CHANNEL AS DEFINED BY
SAE J211.

FREE AIR RESONANT FREQUENCY: 5000 Hz FORCES MIN.
3000 Hz MOMENTS MIN.

OPERATING TEMPERATURE: 0° TO 200° F.
THERMAL SENSITIVITY: (60° TO 80°F) \pm .03% OF READING /F°

MATERIAL: THE LOAD BEARING STRUCTURE OF THE LOAD CELL,
INCLUDING PROVISIONS FOR THE LOAD CELL MOUNTING, ARE
OF METAL OR METAL ALLOYS. NON-LOAD BEARING PARTS
OF THE LOAD CELL, INTERNALLY AND/OR EXTERNALLY,
INCLUDING WIRES AND THEIR ATTACHMENTS, MAY BE MADE
OF ANY MATERIAL PROVIDING THEY DO NOT INTERFERE WITH
THE PERFORMANCE OF THE LOAD CELL OR THE
TRANSMISSION OF THE LOAD CELL SIGNALS.

AXIS SHOW ILLUSTRATE THEIR ORIENTATION WITH RESPECT TO THE INSTRUMENTATION; THEY ARE NOT MEANT TO INDICATE DIRECTION OF POSITIVE POLARITY.

ITEM	QTY	PART NO.	DESCRIPTION	MATERIAL
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:			 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
FRACTIONS: $\pm 1/64$	DECIMALS: .X \pm .1 .XX \pm .01 .XXX \pm .005	ANGLES: MACHINED: \pm .5°		
ASME Y14.5M - 1994 DO NOT SCALE DRAWING			DRAWN D. WALKER CHECKED	1/10/2002
MATERIAL	SEE NOTES	ENGINEER H. Pritz APPROVED	FIVE CHANNEL UPPER TIBIA LOAD CELL THOR-M	
HEAT TREAT			SIZE B	DWG. NO. SA572-S32
FINISH			SCALE 1:1	REV. SHEET 1 OF 1

4

3

2

1

4

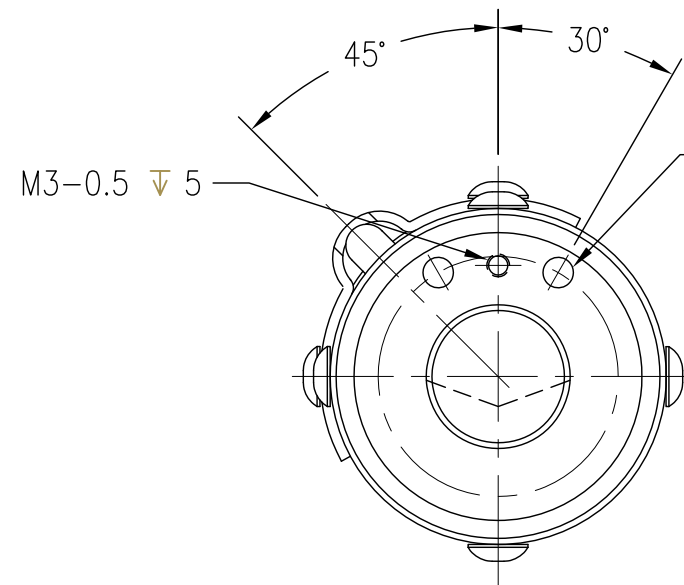
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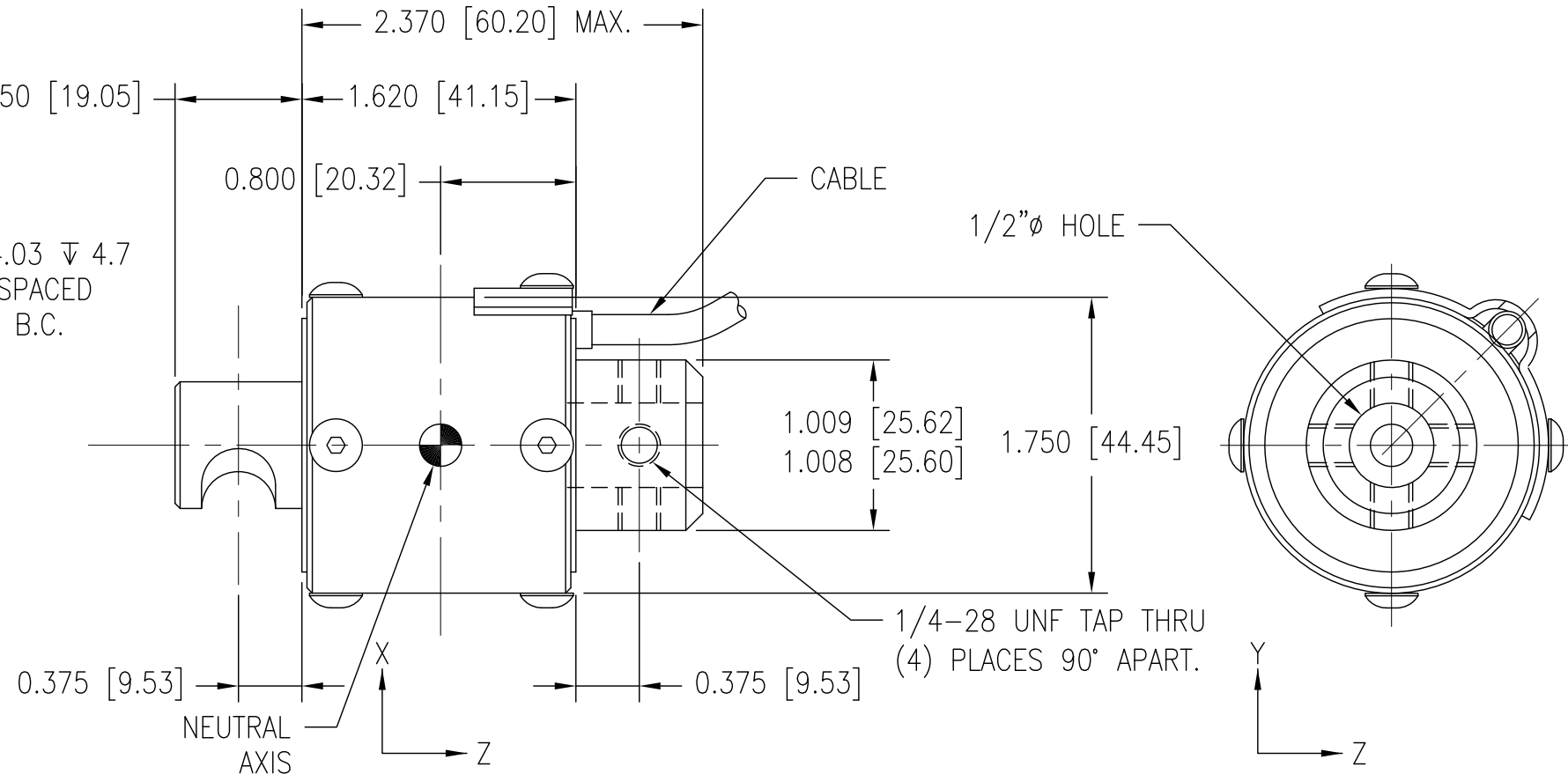
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REVISION HISTORY

ZONE	REV	DESCRIPTION	DATE	BY
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(2) \square ϕ 4.03 ∇ 4.7
EQUALLY SPACED
ON 30.48 B.C.



SPECIFICATIONS

AXIS	CAPACITY	
	LBF.	N
FX	2500	11120.5
FY	2500	11120.5
FZ	2500	11120.5
	IN-LBF	Nm
MX	3500	395.5
MY	3500	395.5

OUTPUT AT CAPACITY: 1MV/V MINIMUM
NONLINEARITY < 1% OF FULL SCALE
CROSSTALK < 5% OF FULL SCALE
WEIGHT < 1.105LBS/.501 kg (CABLES NOT INCLUDED)

SIGNAL OUTPUT MUST BE COMPATIBLE WITH AND RECORDABLE IN A DATA CHANNEL AS DEFINED BY SAE J211.

FREE AIR RESONANT FREQUENCY: 5000 Hz FORCES MIN.
3000 Hz MOMENTS MIN.

OPERATING TEMPERATURE: 0° TO 200° F.
THERMAL SENSITIVITY: (60° TO 80° F) \pm .03% OF READING /F°

MATERIAL: THE LOAD BEARING STRUCTURE OF THE LOAD CELL, INCLUDING PROVISIONS FOR THE LOAD CELL MOUNTING, ARE OF METAL OR METAL ALLOYS. NON-LOAD BEARING PARTS OF THE LOAD CELL, INTERNALLY AND/OR EXTERNALLY, INCLUDING WIRES AND THEIR ATTACHMENTS, MAY BE MADE OF ANY MATERIAL PROVIDING THEY DO NOT INTERFERE WITH THE PERFORMANCE OF THE LOAD CELL OR THE TRANSMISSION OF THE LOAD CELL SIGNALS.

AXIS SHOW ILLUSTRATE THEIR ORIENTATION WITH RESPECT TO THE INSTRUMENTATION; THEY ARE NOT MEANT TO INDICATE DIRECTION OF POSITIVE POLARITY.

ITEM	QTY	PART NO.	DESCRIPTION	MATERIAL
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
FRACTIONS: $\pm 1/64$	DECIMALS: .X \pm .1 .XX \pm .01 .XXX \pm .005	ANGLES: \pm .5° MACHINED: \pm .125°		
APPROVALS		DATE	FIVE CHANNEL LOWER TIBIA LOAD CELL THOR-M	
DRAWN D. WALKER CHECKED		1/14/2002		
MATERIAL SEE NOTES		ENGINEER H. Pritz APPROVED	SIZE B	DWG. NO. SA572-S33
HEAT TREAT			SCALE 1:1	REV. SHEET 1 OF 1
FINISH				

4

3

2

1

4

3

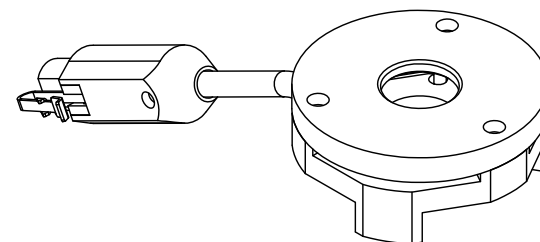
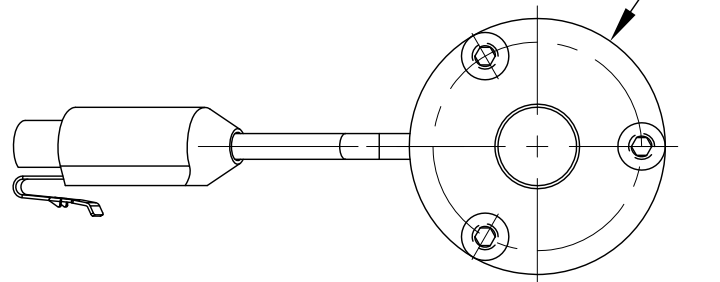
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REVISION HISTORY

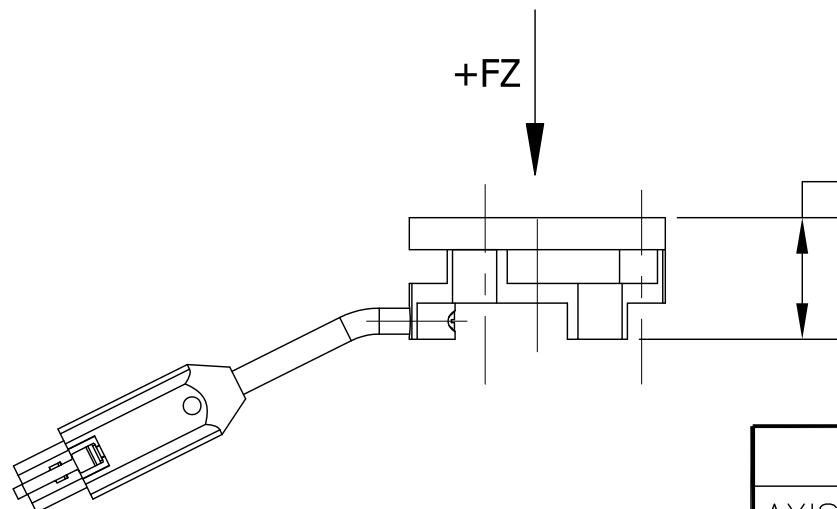
ZONE	REV	DESCRIPTION	DATE	BY
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∅1.000
[∅25.4]



+FZ

0.475
[12.1]



SPECIFICATIONS

AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FZ	4.45 KN	1000 LBF.	1.0 mV/V	360 OHM

NON-LINEARITY	<1% OF FULL SCALE
HYSTERESIS	<1% OF FULL SCALE
POLARITY	CONFORMS TO S.A.E. J-211

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:	
FRACTIONS: ±1/64	DECIMALS: .X ±.1 .XX ±.01 XXX ±.005
ANGLES: 125° ±.5°	
ASME Y14.5M - 1994	
DO NOT SCALE DRAWING	
MATERIAL	ENGINEER
HEAT TREAT	APPROVED
FINISH	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

∅1.0 ACHILLES LOAD CELL
THOR-M

APPROVALS	DATE	SIZE	DWG. NO.	REV.
DRAWN D. WALKER	3/23/2016	B	SA572-S126	
CHECKED		SCALE	SHEET	
		.75:1	1 OF 1	

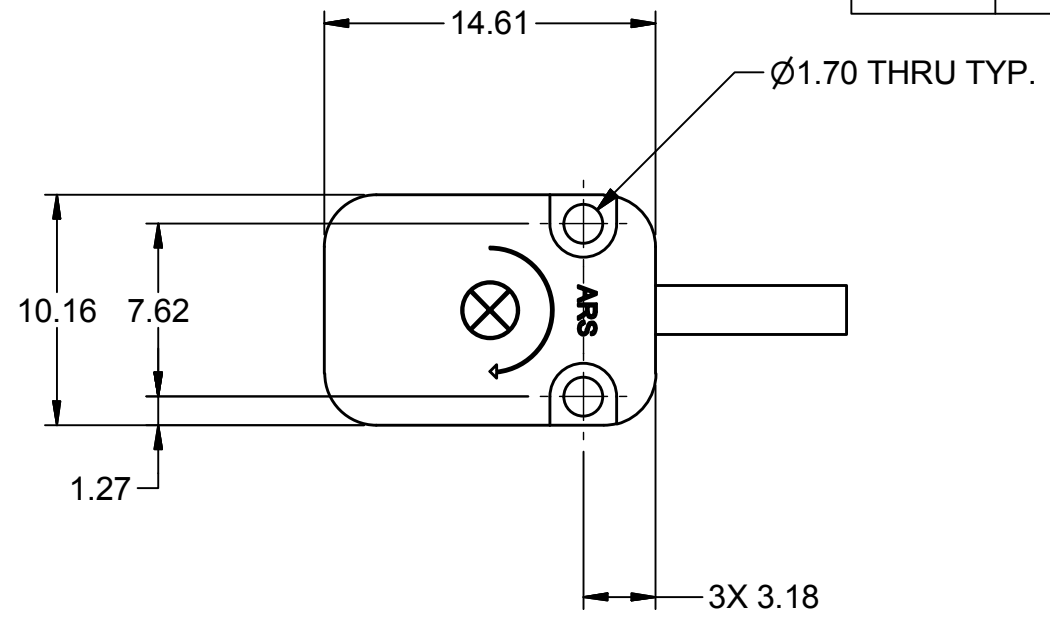
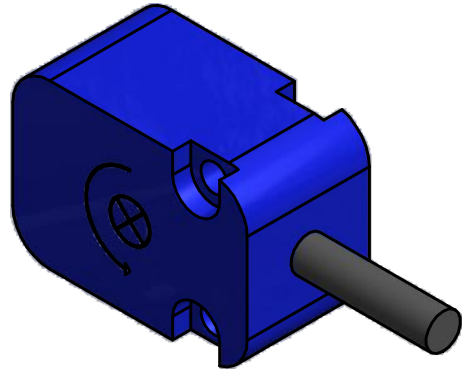
4

3

2

1

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/20/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-300 Hz OR 0-600 Hz (DC RESPONSE); CURRENT WAS 6mA NOMINAL; NOISE WAS 0.15% (RMS FULL SCALE) ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016

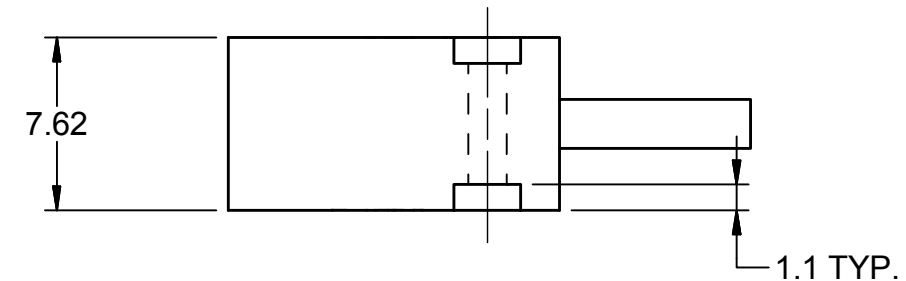


Test Procedure:


- 1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.
- 2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.
- 3) Record ARS output and filter at SAE Class 180.

Performance requirements:


ARS output should be within ± 100 deg/second.




SPECIFICATIONS:

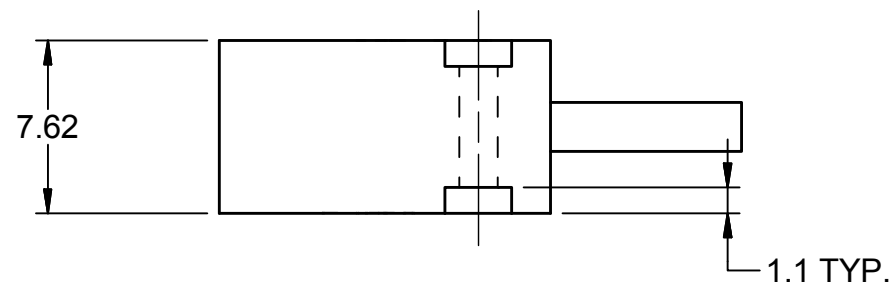
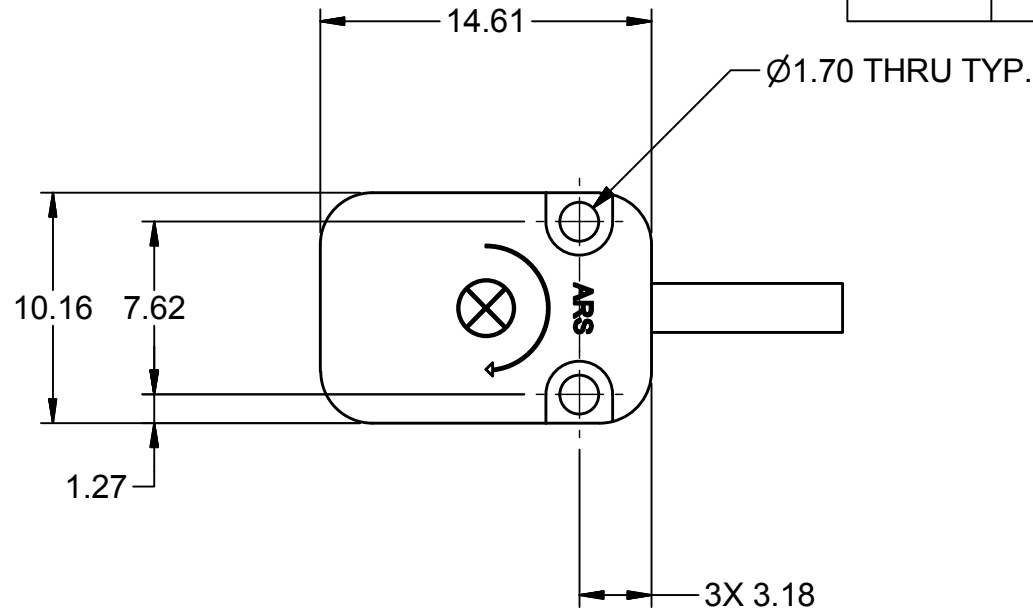
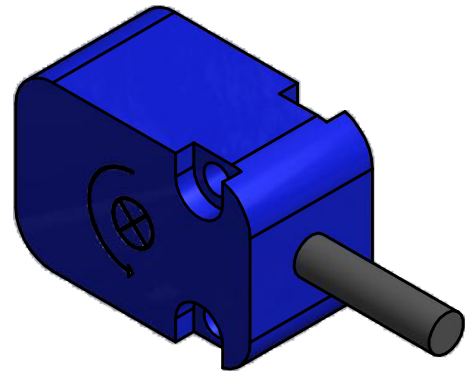
	MASS: 2.2g RANGE: ± 8000 DEG/SEC BANDWIDTH: 0-2000 Hz (DC RESPONSE) NOISE: <0.30% (RMS FULL SCALE) EXCITATION: 4.9-14.0 VDC CURRENT: 4mA NOMINAL ZERO OUTPUT: ± 200 mV FULL SCALE OUTPUT: ± 2 V NOMINAL
---	--

PERFORMANCE:

	CROSS AXIS SENSITIVITY: <1.0% NON-LINEARITY: <0.5% FULL SCALE INFLUENCE OF LINEAR ACCELERATION: <0.1 DEG/SEC/G TYPICAL THERMAL DRIFT: -40 TP +80C ZERO: ± 1 DEG/SEC SENSITIVITY: $\pm 5\%$
---	---

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X $\pm .5$ $\pm .5^\circ$ ✓ X.X $\pm .2$ X.XX $\pm .1$ X.XXX $\pm .01$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS	DATE	ANGULAR RATE SENSOR-8K			
DRAWN: abarchock	5/1/2013	INSTRUMENTATION			
CHECKED:		SIZE: A3	DRAWING NUMBER: SA572-S56	REV: C	
MATERIAL:	ENG:	SCALE: 3:1	SHEET: 1 OF 1		
HEAT TREAT:	APPROVED:				
FINISH:					

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/21/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-16500 Hz (DC RESPONSE); CURRENT WAS 6mA NOMINAL; ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016



Test Procedure:

1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.

2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.

3) Record ARS output and filter at SAE Class 180.

Performance requirements:

ARS output should be within ± 100 deg/second.

SPECIFICATIONS:

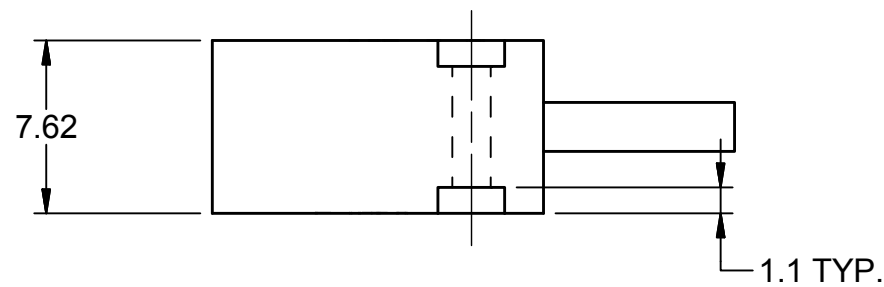
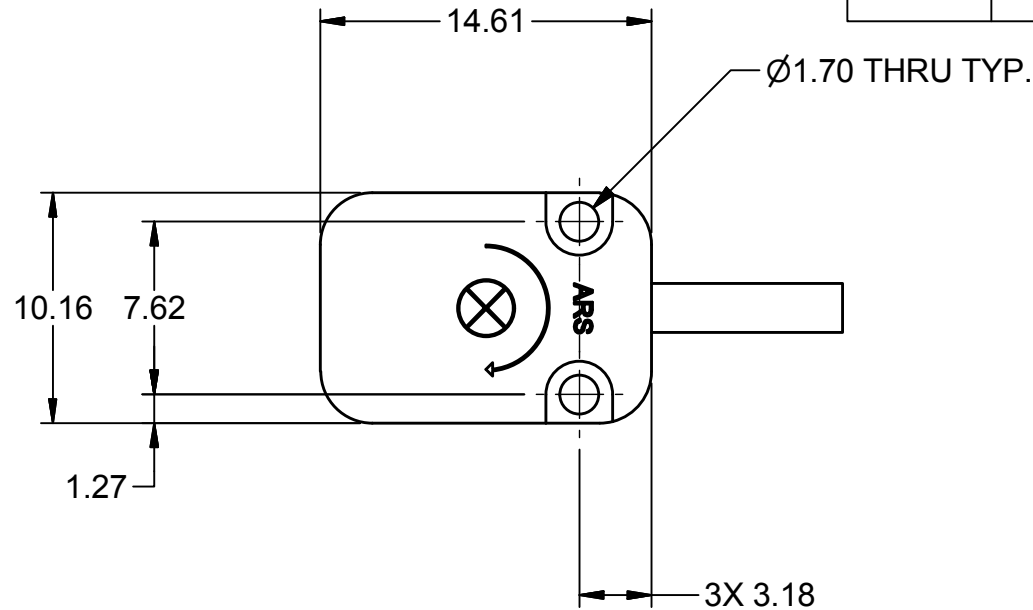
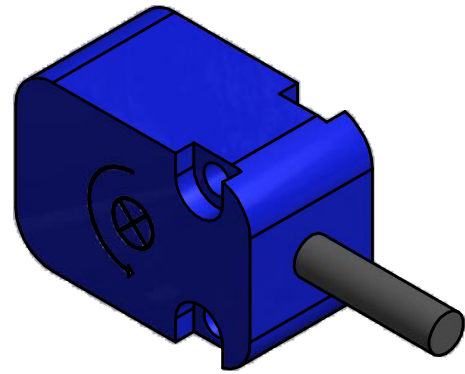
C	MASS:	2.2g
	RANGE:	± 12000 DEG/SEC
	BANDWIDTH:	0-2000 Hz (DC RESPONSE)
	NOISE:	<0.25% (RMS FULL SCALE)
	EXCITATION:	4.9-14.0 VDC
	CURRENT:	4mA NOMINAL
	ZERO OUTPUT:	± 200 mV
	FULL SCALE OUTPUT:	± 2 V NOMINAL

PERFORMANCE:

C	CROSS AXIS SENSITIVITY:	<1.0%
	NON-LINEARITY:	<0.5% FULL SCALE
	INFLUENCE OF LINEAR ACCELERATION:	<0.1 DEG/SEC/G TYPICAL
	THERMAL DRIFT:	-40 TP +80C
	ZERO:	± 1 DEG/SEC
	SENSITIVITY:	$\pm 2\%$

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ± 0.5 $\pm 0.5^\circ$ ✓ X.X ± 0.2 X.XX ± 0.1 X.XXX ± 0.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ANGULAR RATE SENSOR-12K	
DRAWN: abarchock		5/1/2013		INSTRUMENTATION	
CHECKED:				DRAWING NUMBER	
MATERIAL:		ENG:		SA572-S57	
HEAT TREAT:		APPROVED:		REV C	
FINISH:				SHEET 1 OF 1	
		SCALE: 3:1			

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/21/2014
	C	MASS WAS 3g; BANDWIDTH WAS 0-300 Hz OR 0-2000 Hz (DC RESPONSE); NOISE WAS <1.5% DEG/SEC $\sqrt{\text{Hz}}$; CURRENT WAS 6mA NOMINAL; ADDED PERFORMANCE SPECIFICATIONS	DW		3/31/2016



Test Procedure:

1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.

2) Subject ARS to linear acceleration haversine pulse with peak between 500g and 550g and a pulse width less than 3.5ms, measured at 10% of peak acceleration, when filtered at SAE Class 1000.

3) Record ARS output and filter at SAE Class 180.

Performance requirements:

ARS output should be within ± 100 deg/second.

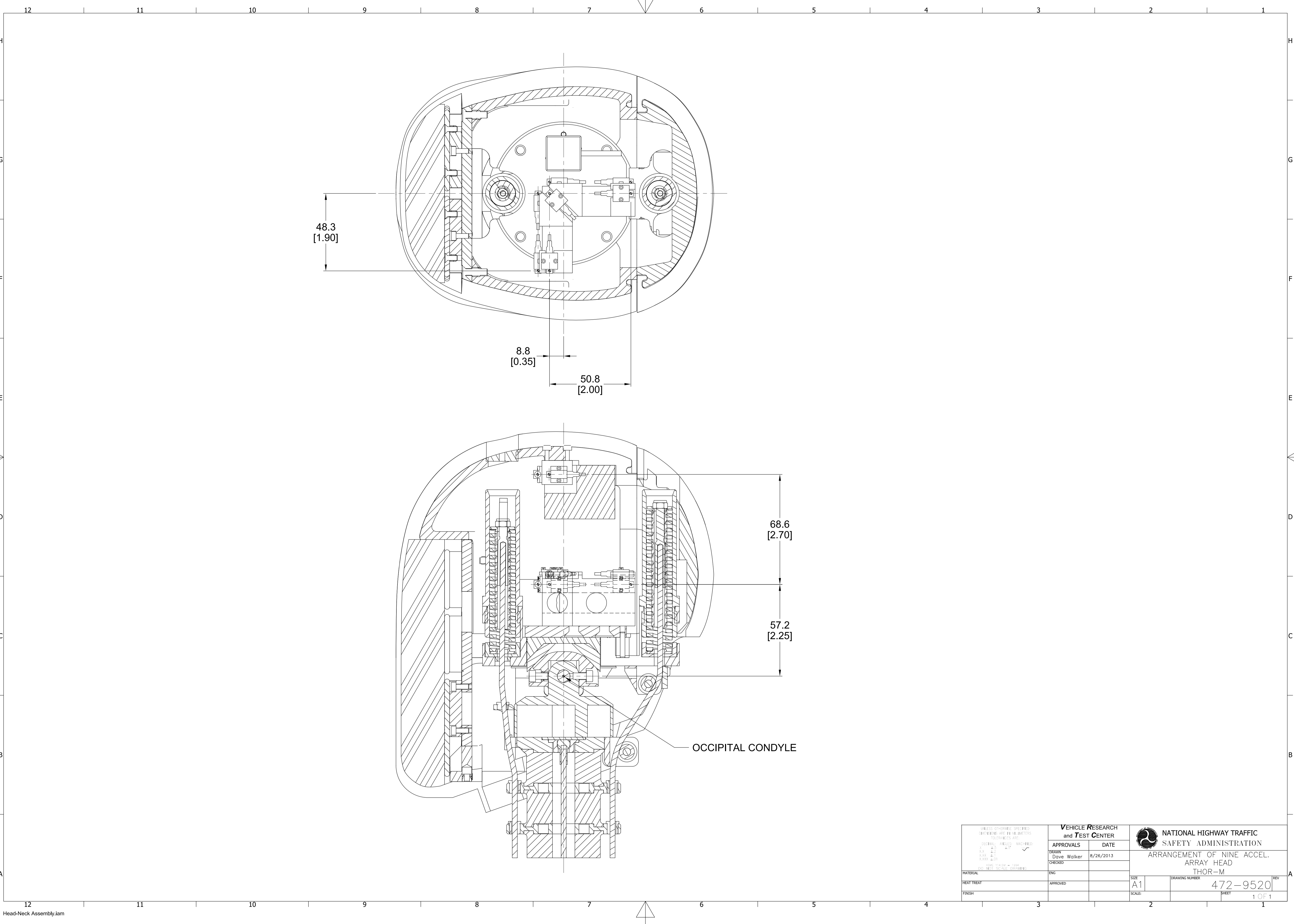
SPECIFICATIONS:

C	MASS:	2.2g
	RANGE:	± 18000 DEG/SEC
	BANDWIDTH:	0-2000 Hz (DC RESPONSE)
	NOISE:	<0.35% (RMS FULL SCALE)
	EXCITATION:	4.9-14.0 VDC
	CURRENT:	4mA NOMINAL
	ZERO OUTPUT:	± 200 mV
	FULL SCALE OUTPUT:	± 2 V NOMINAL

PERFORMANCE:

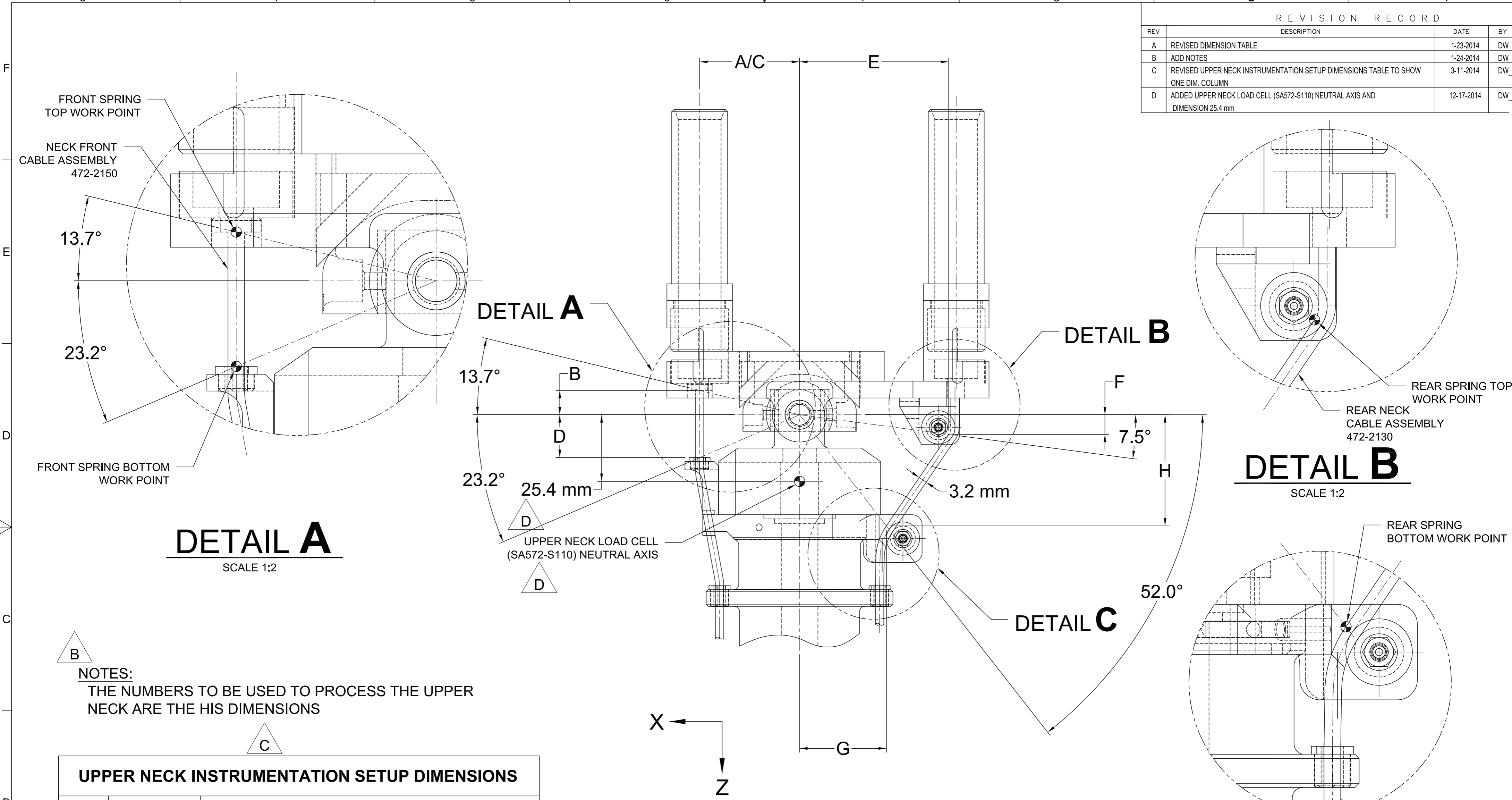
C	CROSS AXIS SENSITIVITY:	<1.0%
	NON-LINEARITY:	<0.5% FULL SCALE
	INFLUENCE OF LINEAR ACCELERATION:	<0.1 DEG/SEC/G TYPICAL
	THERMAL DRIFT:	-40 TP +80C
	ZERO:	± 5 DEG/SEC
	SENSITIVITY:	$\pm 2\%$

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ± 0.5 $\pm 5'$ $\sqrt{\text{M}}$ X.X ± 0.2 X.XX ± 0.1 X.XXX ± 0.01 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ANGULAR RATE SENSOR-18K	
DRAWN: abarchock		5/1/2013		INSTRUMENTATION	
CHECKED:				DRAWING NUMBER: SA572-S58	
MATERIAL:		ENG:		REV: C	
HEAT TREAT:		APPROVED:		SCALE: 3:1	
FINISH:				SHEET 1 OF 1	



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL - ANGLES - MICHES: X.X ±.1 X.XX ±.05 X.XXX ±.01 XXX ±.01		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		ARRANGEMENT OF NINE ACCEL. ARRAY HEAD	
DRAWN Dave Walker		8/26/2013		THOR-M	
CHECKED				DRAWING NUMBER	
MATERIAL		ENG		SIZE	
HEAT TREAT		APPROVED		A1	
FINISH				SCALE	
				472-9520	
				1 OF 1	

REVISION RECORD			
REV	DESCRIPTION	DATE	BY
A	REVISED DIMENSION TABLE	1-23-2014	DW
B	ADD NOTES	1-24-2014	DW
C	REVISED UPPER NECK INSTRUMENTATION SETUP DIMENSIONS TABLE TO SHOW ONE DIM. COLUMN	3-11-2014	DW
D	ADDED UPPER NECK LOAD CELL (SA572-S110) NEUTRAL AXIS AND DIMENSION 25.4 mm	12-17-2014	DW



DETAIL A
SCALE 1:2

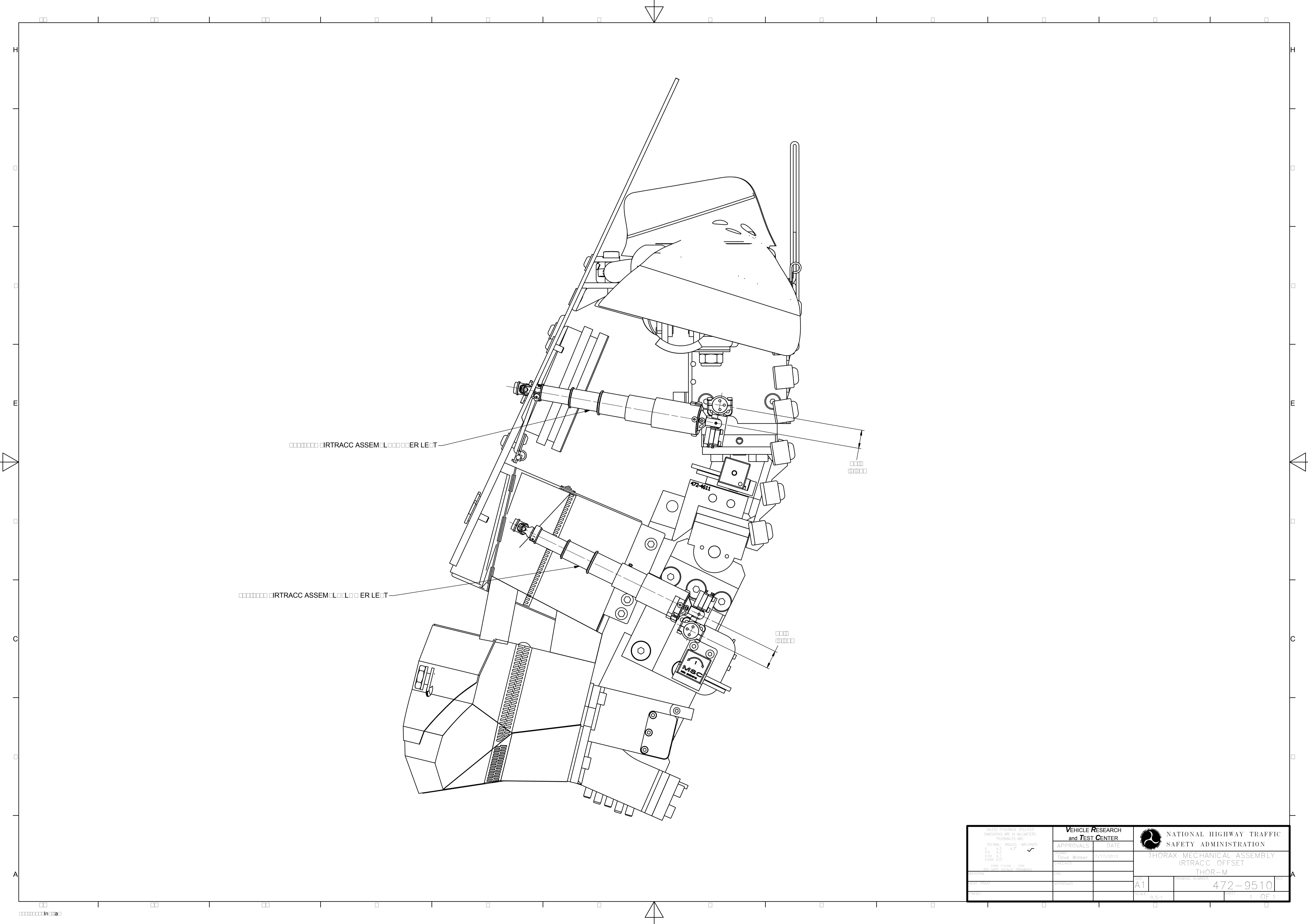
DETAIL B
SCALE 1:2

DETAIL C
SCALE 1:2

NOTES:
THE NUMBERS TO BE USED TO PROCESS THE UPPER NECK ARE THE HIS DIMENSIONS

UPPER NECK INSTRUMENTATION SETUP DIMENSIONS		
	DIM.	DESCRIPTION
A	38.1mm	FRONT SPRING TOP X
B	-9.3mm	FRONT SPRING TOP Z
C	38.0mm	FRONT SPRING BOTTOM X
D	16.3mm	FRONT SPRING BOTTOM Z
E	-56.9mm	REAR SPRING TOP X
F	7.5mm	REAR SPRING TOP Z
G	-33.1mm	REAR SPRING BOTTOM X
H	42.4mm	REAR SPRING BOTTOM Z

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: .5 ANGLES: ±.5° MACHINED: ✓ X ±.2 XX ±.1 XXX ±.1 XXXX ±.01 <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: Dave Walker CHECKED:	DATE 8/21/2013		UPPER NECK ASSEMBLY - SETUP DIMENSIONS THOR-M	
MATERIAL	ENG	SIZE A2	DRAWING NUMBER 472-9500	REV D	
HEAT TREAT	APPROVED	SCALE:	SHEET	1 OF 1	



IRTRACC ASSEMBLY LEFT

IRTRACC ASSEMBLY LEFT

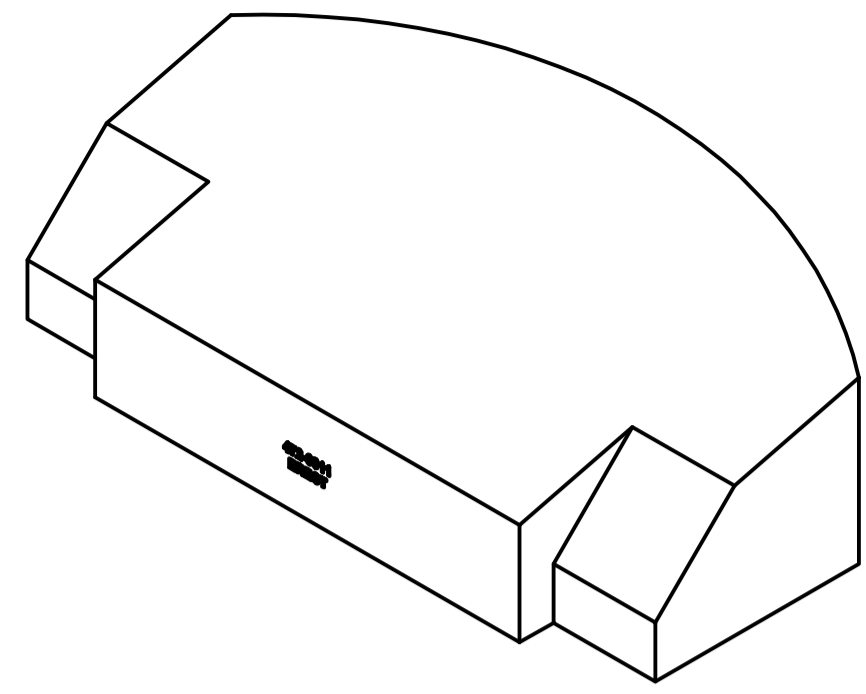
472-4611

MSC
1/16" 304

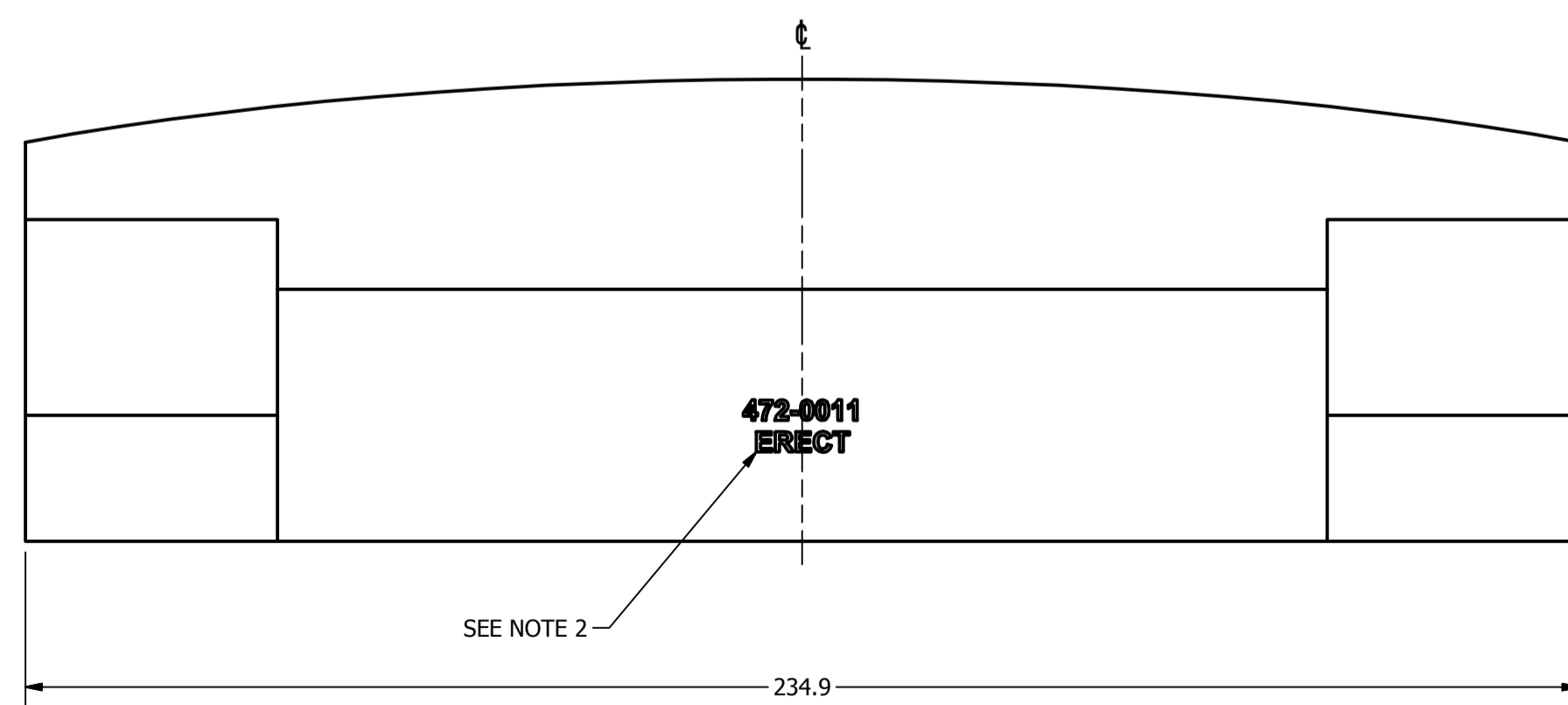
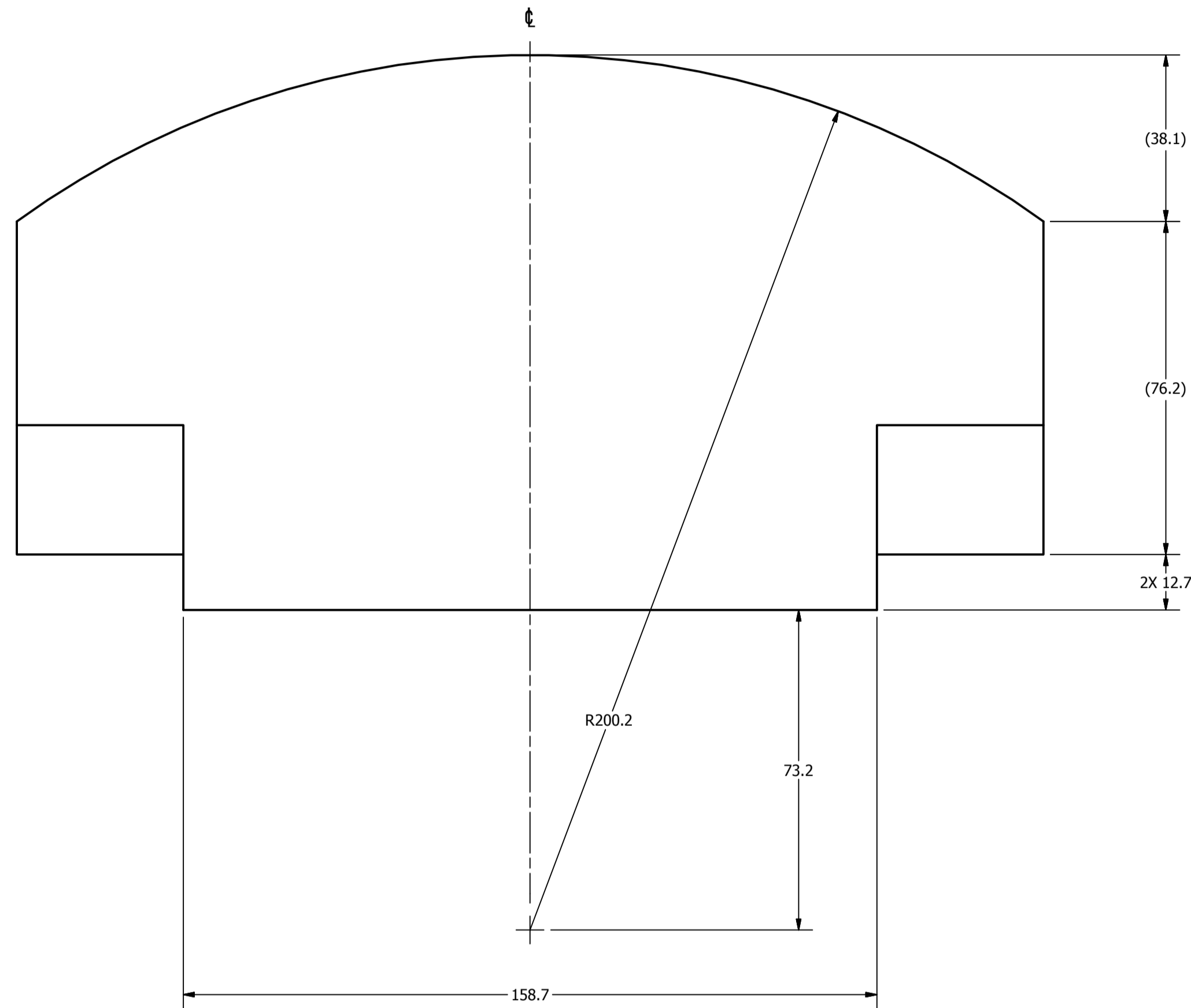
<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL ANGLES MACHINED X.X ±.2 9.5° ✓ X.XX ±.1 X.XXX ±.01 XXX ±.01</small>	VEHICLE RESEARCH and TEST CENTER		<small>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</small>	
<small>APPROVED</small> <small>CHECKED</small> <small>DATE</small>	<small>APPROVALS</small> <small>DATE</small>	<small>THORAX MECHANICAL ASSEMBLY IRTRACC OFFSET THOR-M</small>		
<small>DESIGNER</small> <small>CHECKED</small>	<small>DATE</small>	<small>DRAWING NUMBER</small> 472-9510	<small>SHEET</small> 1 OF 1	<small>SCALE</small> 1:1

POSTURE FOAMS

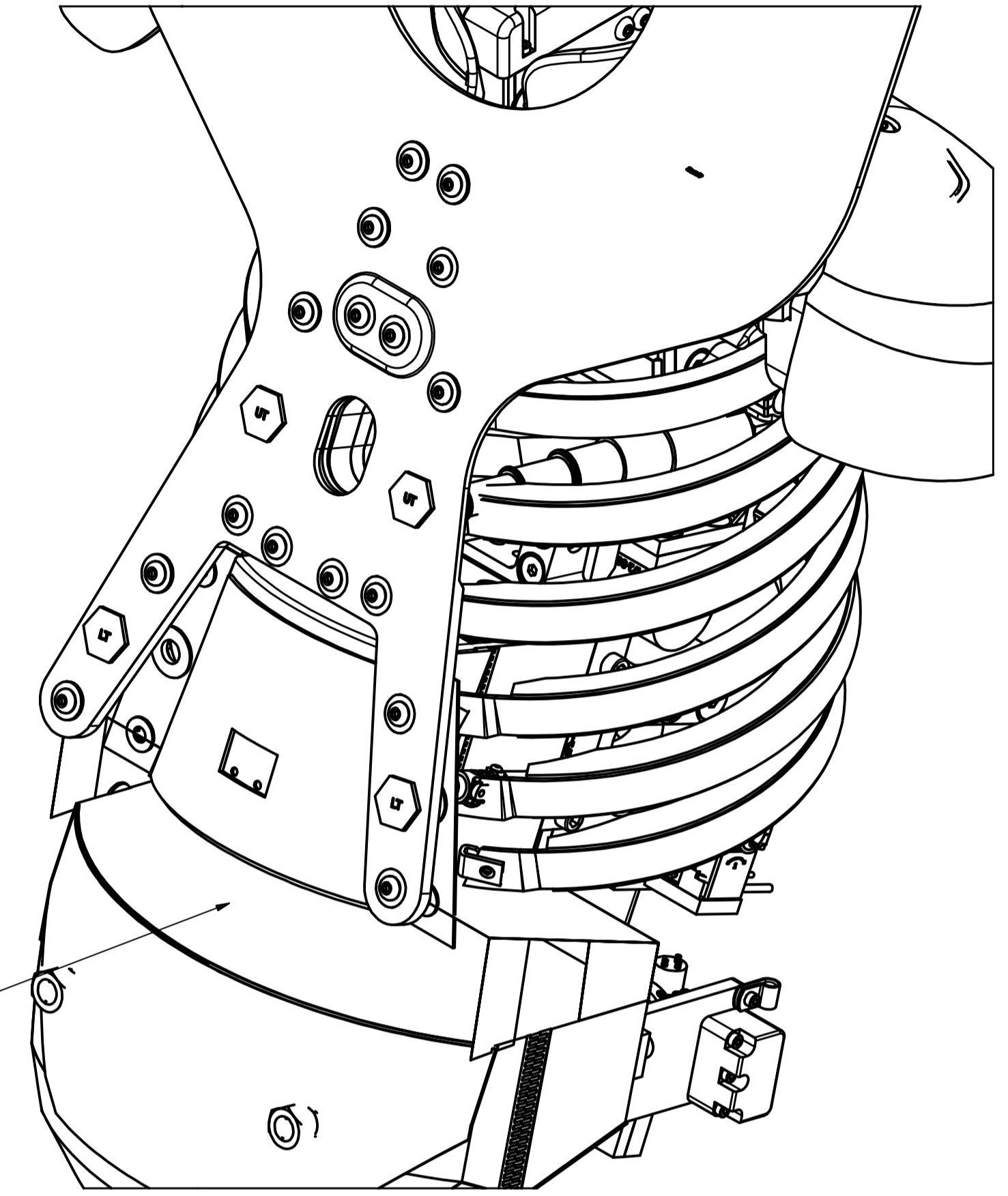
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
70717	A	RENUMBERED FROM T1FDM011 AND CONVERTED TO METRIC FOR THOR M; ADD NOTE 3; REMOVE VENDOR DATA FROM NOTE 1; REDIMENSION ACROSS CL; ADD REFERENCE VIEW	BK	JW	1/28/2013



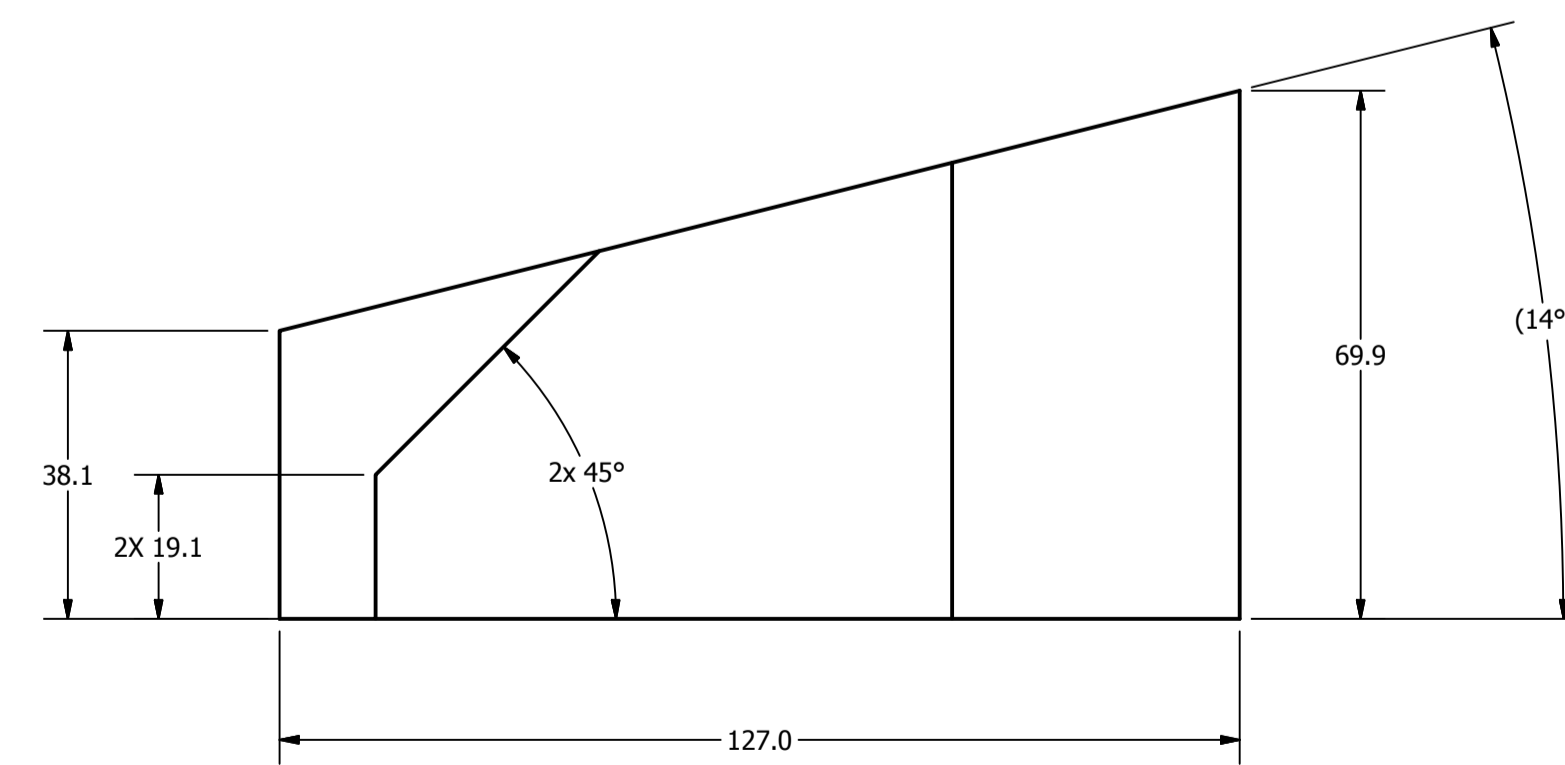
SCALE 1 / 2



472-0011 SLIDES INTO LOWER ABDOMEN POCKET (BETWEEN UPPER AND LOWER ABDOMEN) FOR DUMMY AT ERECT POSITION



A FOAM LOCATION REFERENCE VIEW SCALE 1 / 2

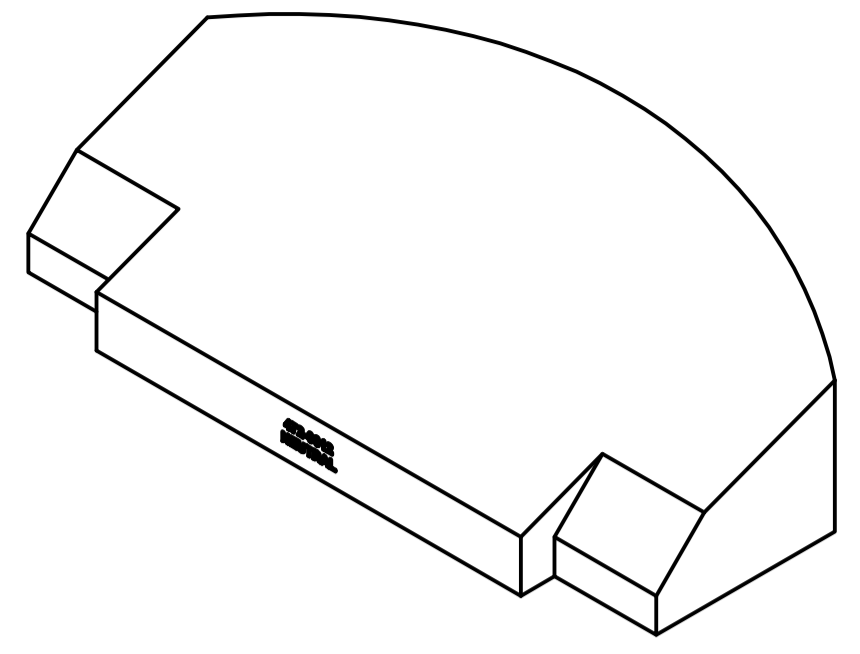


NOTES:

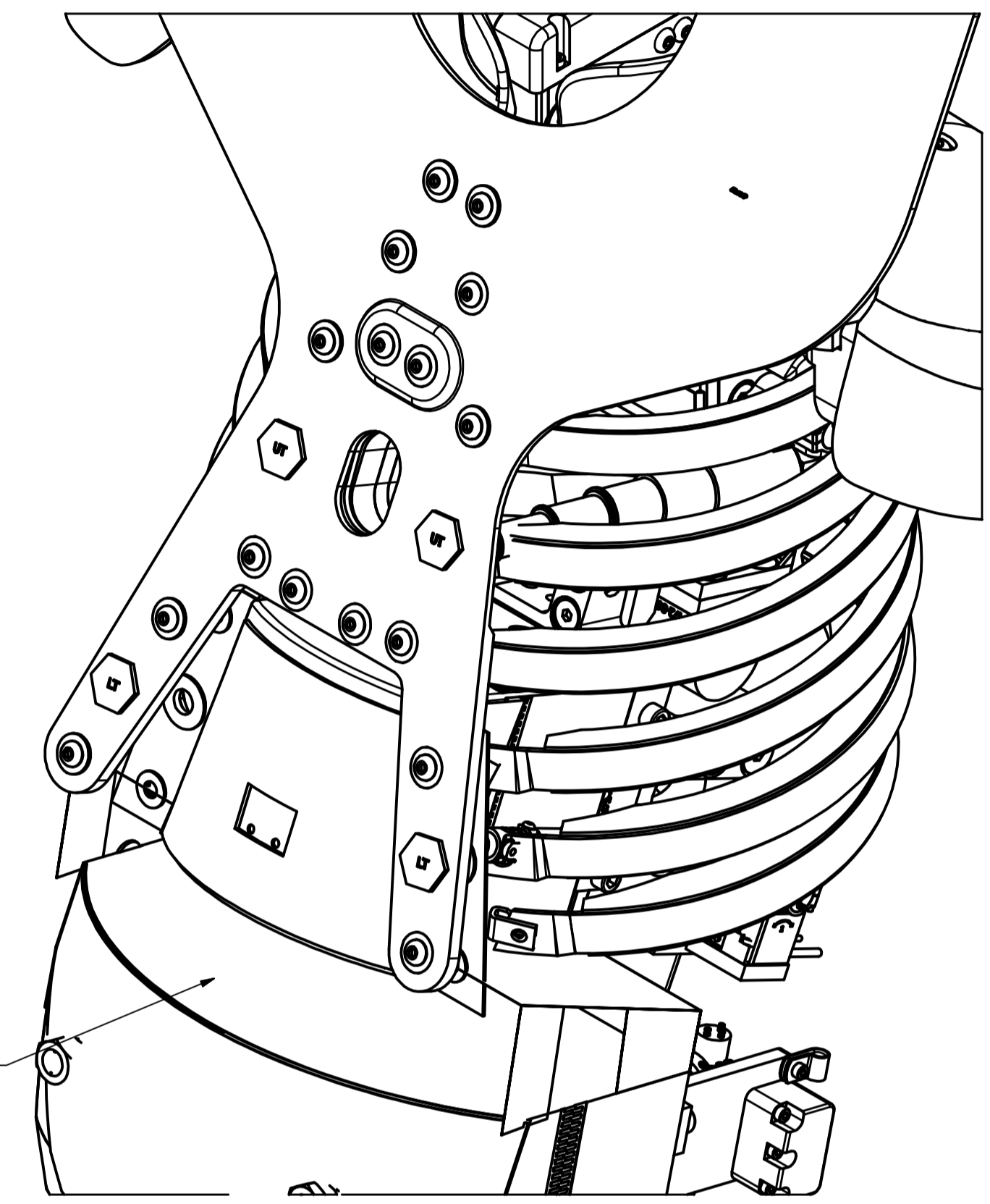
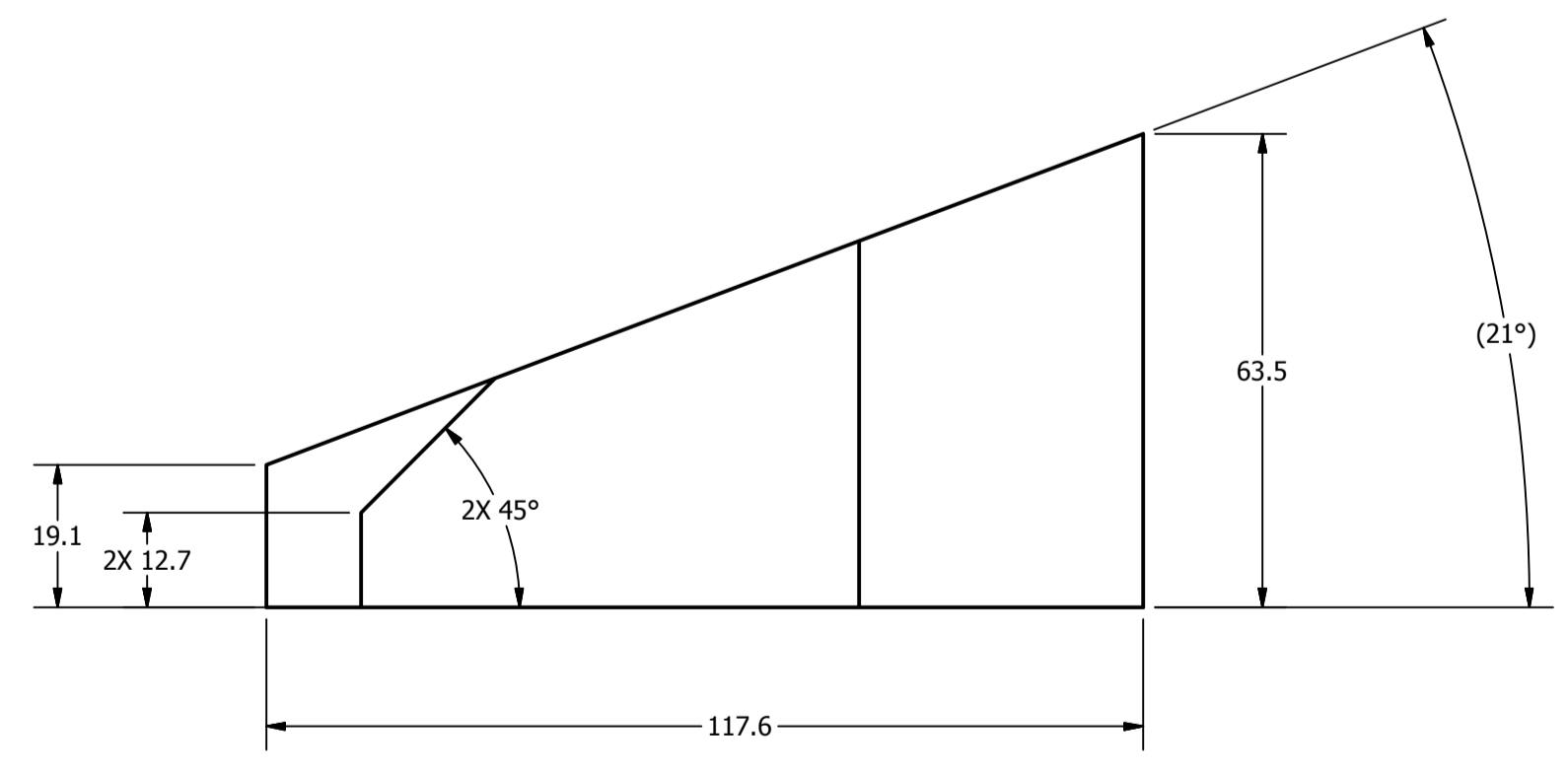
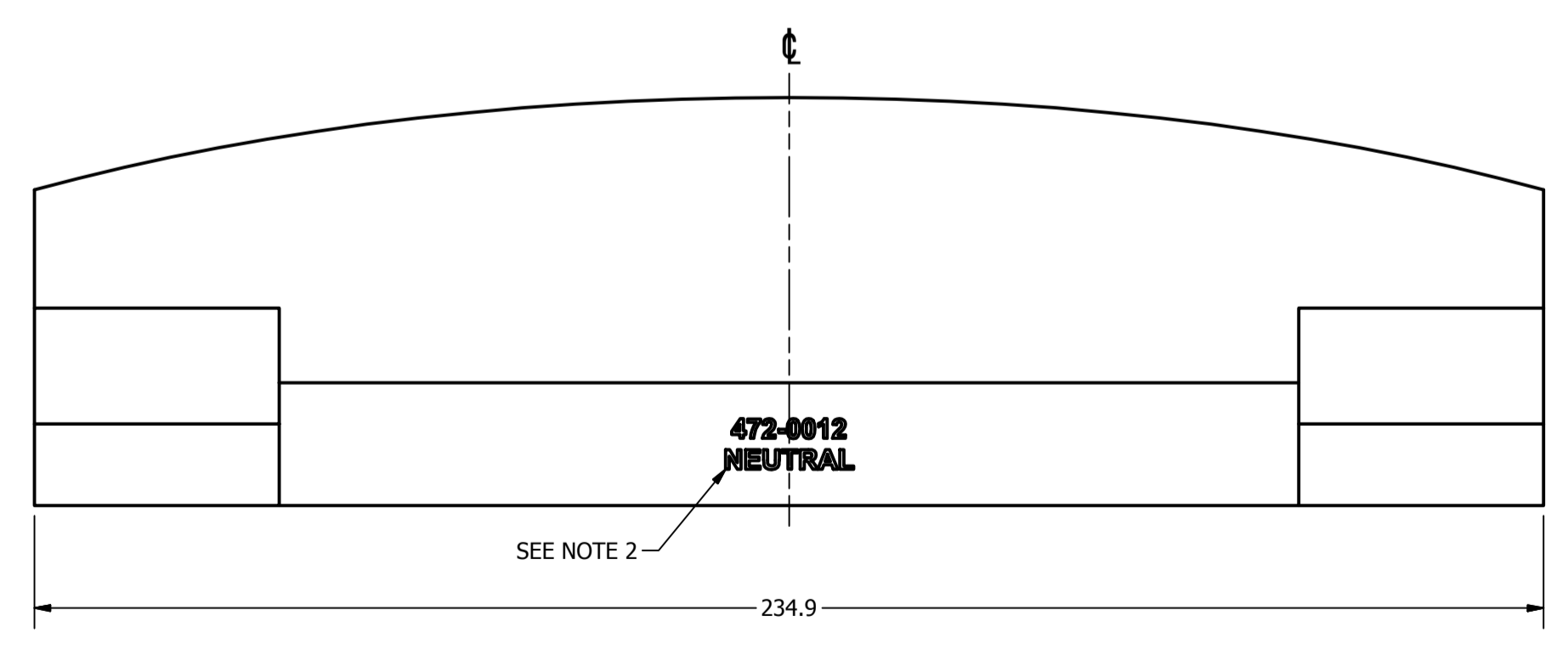
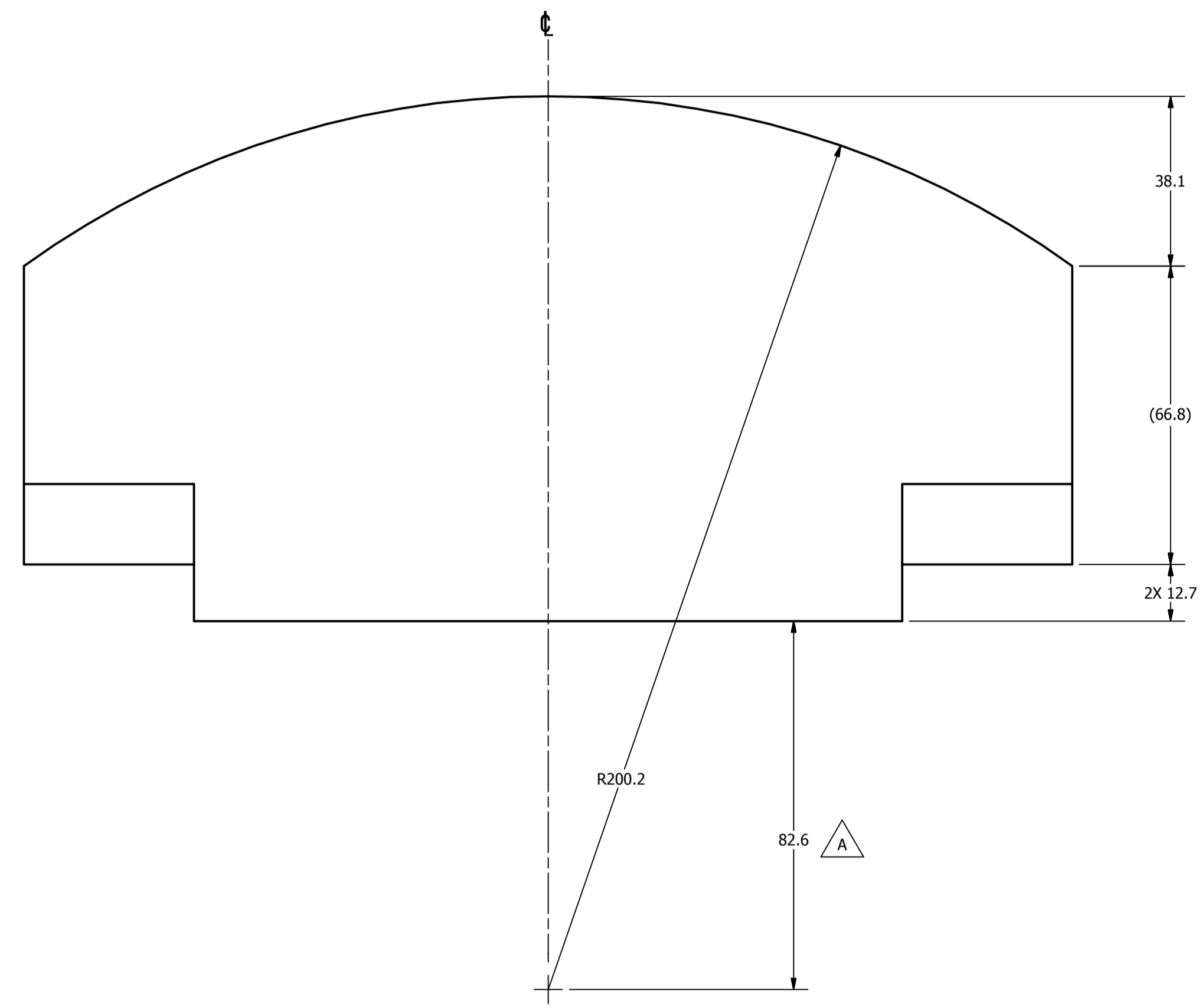
- A** 1. MATERIAL: 6 LB. CHARCOAL ESTER FOAM.
- 2. MARK PART NUMBER AND "ERECT" WHERE SHOWN.
- A** 3. FOAM TOLERANCE: ±1mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
SEE NOTES		B. Kimes 1/28/2013		LOWER ABDOMEN ERECT POSITION FOAM	
NEXT ASSEMBLY	QTY	DATE	BY	DATE	BY
TOTAL QTY IN DUMMY	1	2/4/2013	J. WANG	2/4/2013	J. WANG

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
70717	A	RENUMBERED FROM T1FDM012 AND CONVERTED TO METRIC FOR THOR M; ADD NOTE 3; REMOVE VENDOR DATA FROM NOTE 1; REDIMENSION ACROSS CL; ADD REFERENCE VIEW; 82.6 WAS 82.8	BK	JW	1/28/2013



SCALE 1 / 2



472-0012 SLIDES INTO LOWER ABDOMEN POCKET (BETWEEN UPPER AND LOWER ABDOMEN) FOR DUMMY AT NEUTRAL POSITION

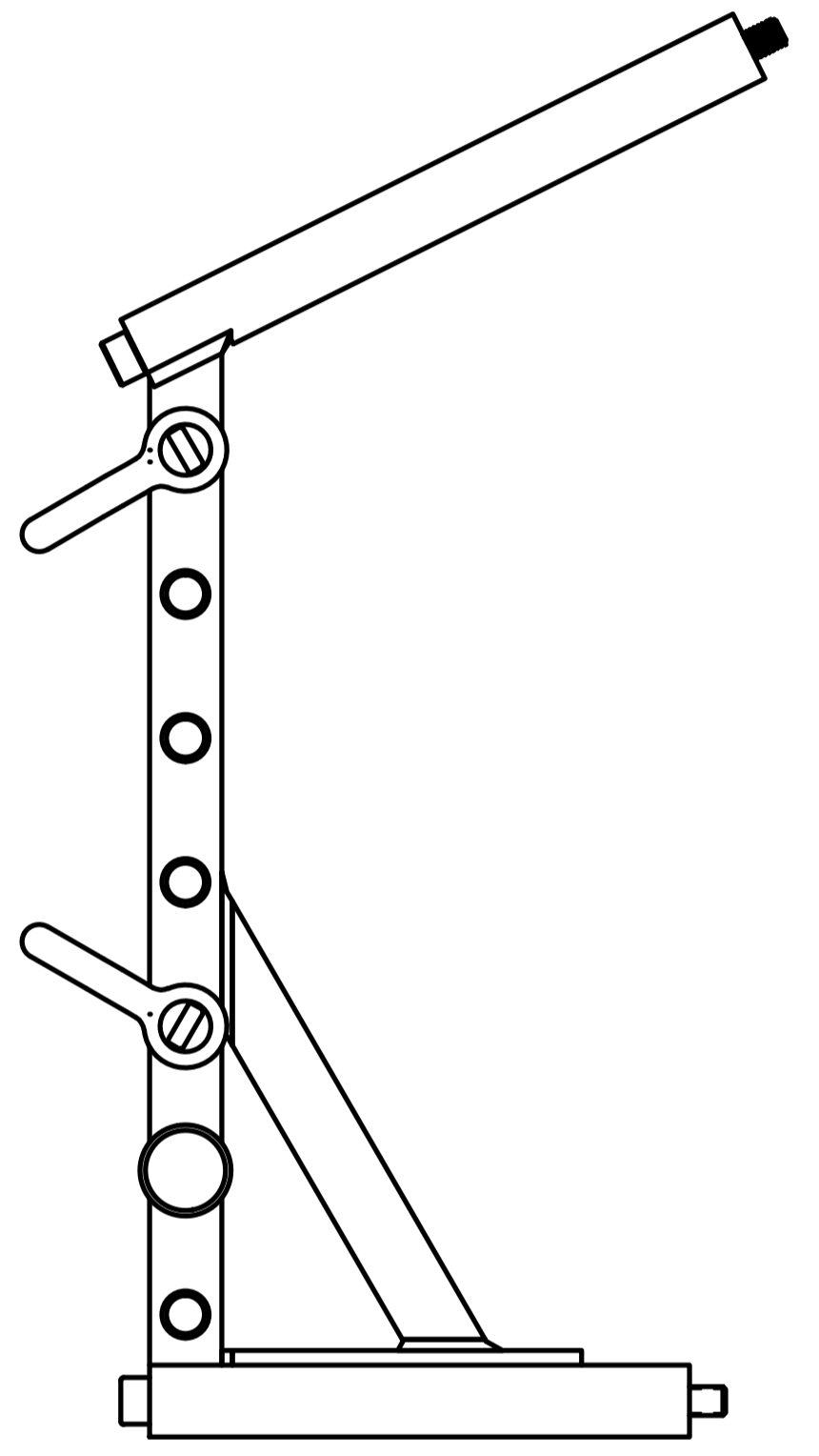
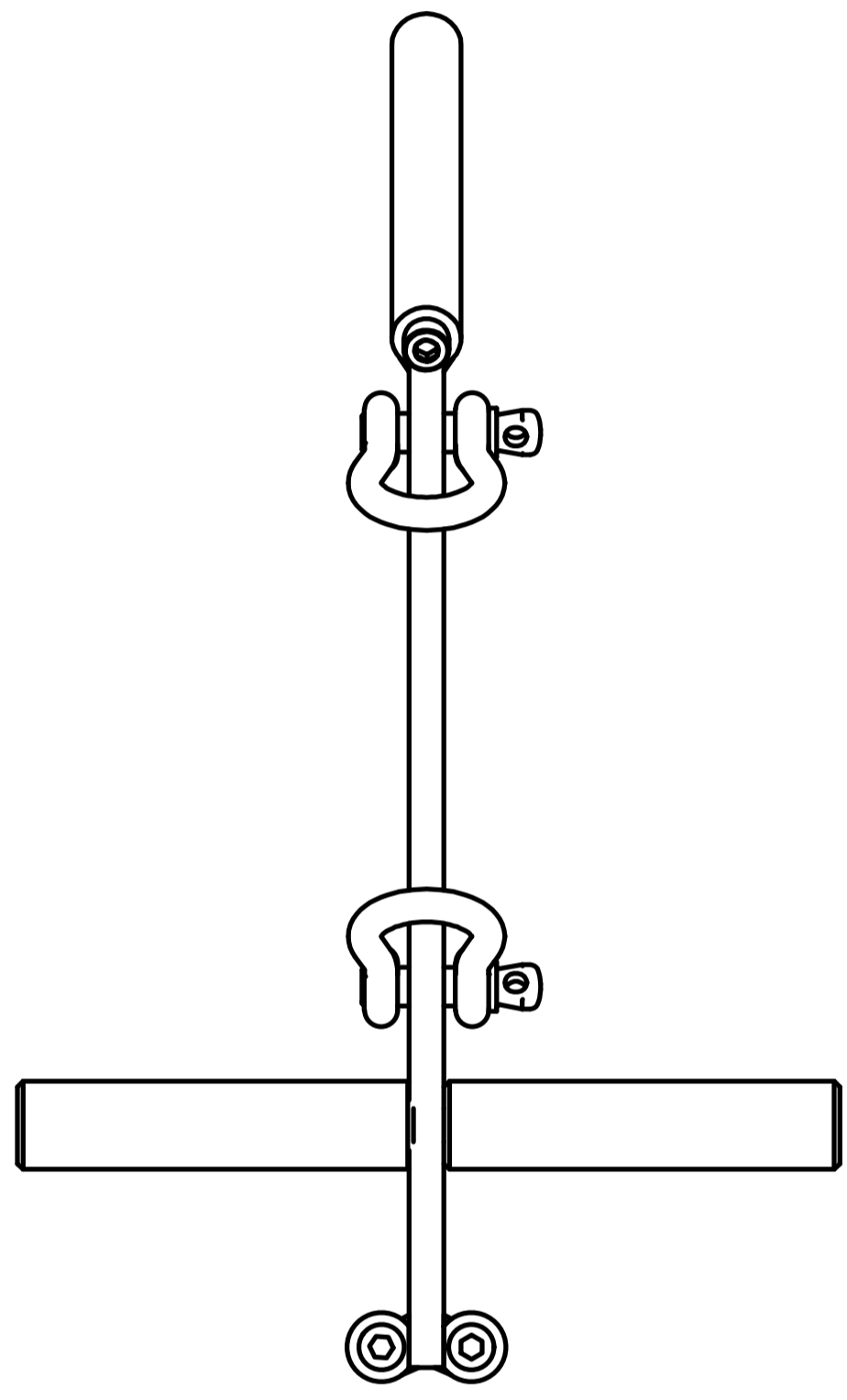
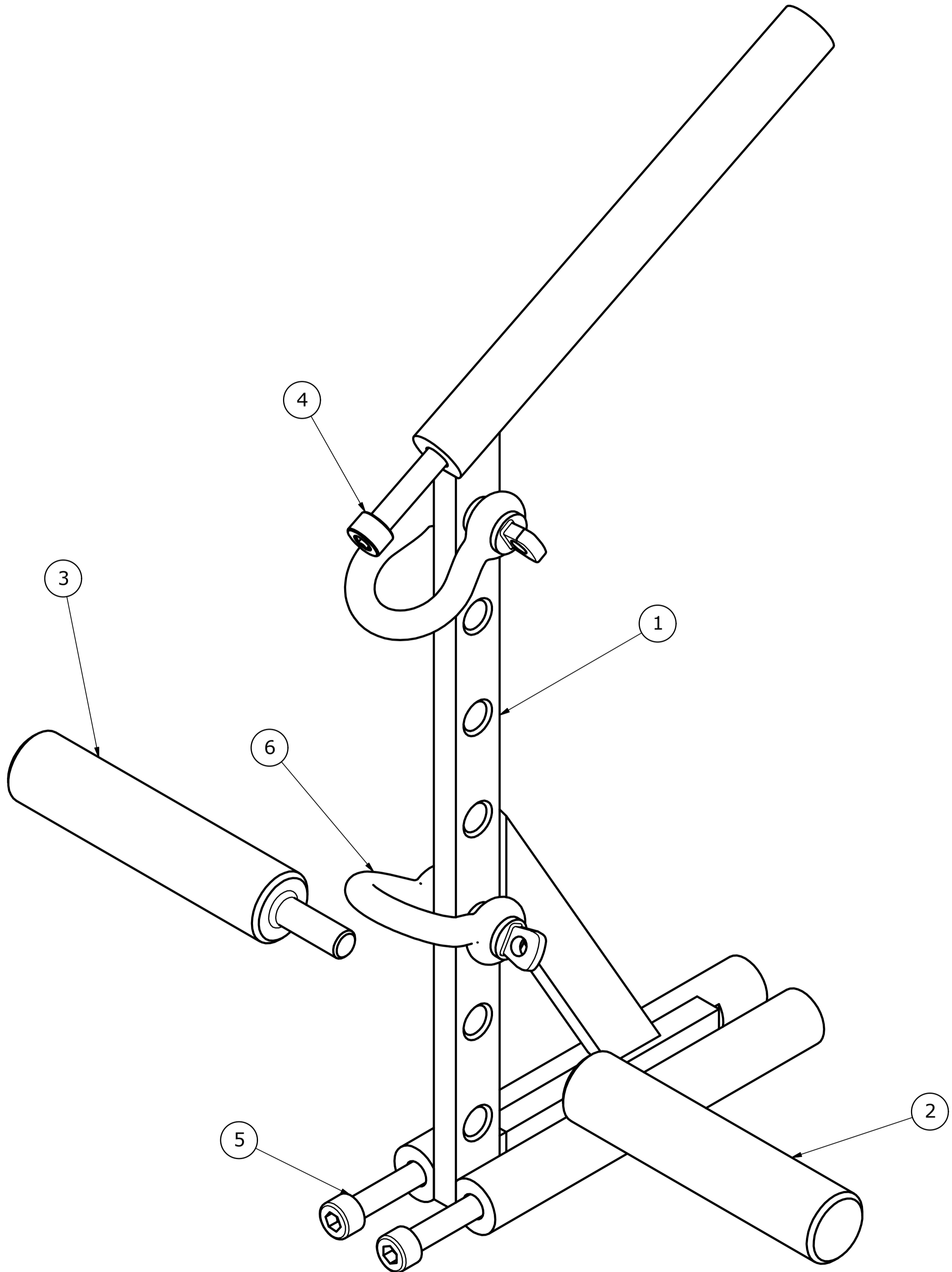
FOAM LOCATION REFERENCE VIEW SCALE 1 / 2

- NOTES:
- 1. MATERIAL: 6 LB. CHARCOAL ESTER FOAM.
 - 2. MARK PART NUMBER AND "NEUTRAL" WHERE SHOWN.
 - 3. FOAM TOLERANCE: ±1mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
NHTSA/VRTC		B. Kimes 1/28/2013		LOWER ABDOMEN NEUTRAL POSITION FOAM	
NEXT ASSEMBLY	QTY	DATE	BY	DATE	BY
TOTAL QTY IN DUMMY	1	2/4/2013	J. WANG	2/4/2013	1

TOOLS

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RELEASED TO PRODUCTION	11/2/2011	DW
	B	MOVED HANDLE POSITION	12/16/2011	DW
	C	TITLE WAS LIFTING BRACKET ASSEMBLY; ITEM 1 DESCRIPTION WAS LIFTING BRACKET WELDMENT	3/7/2016	DW

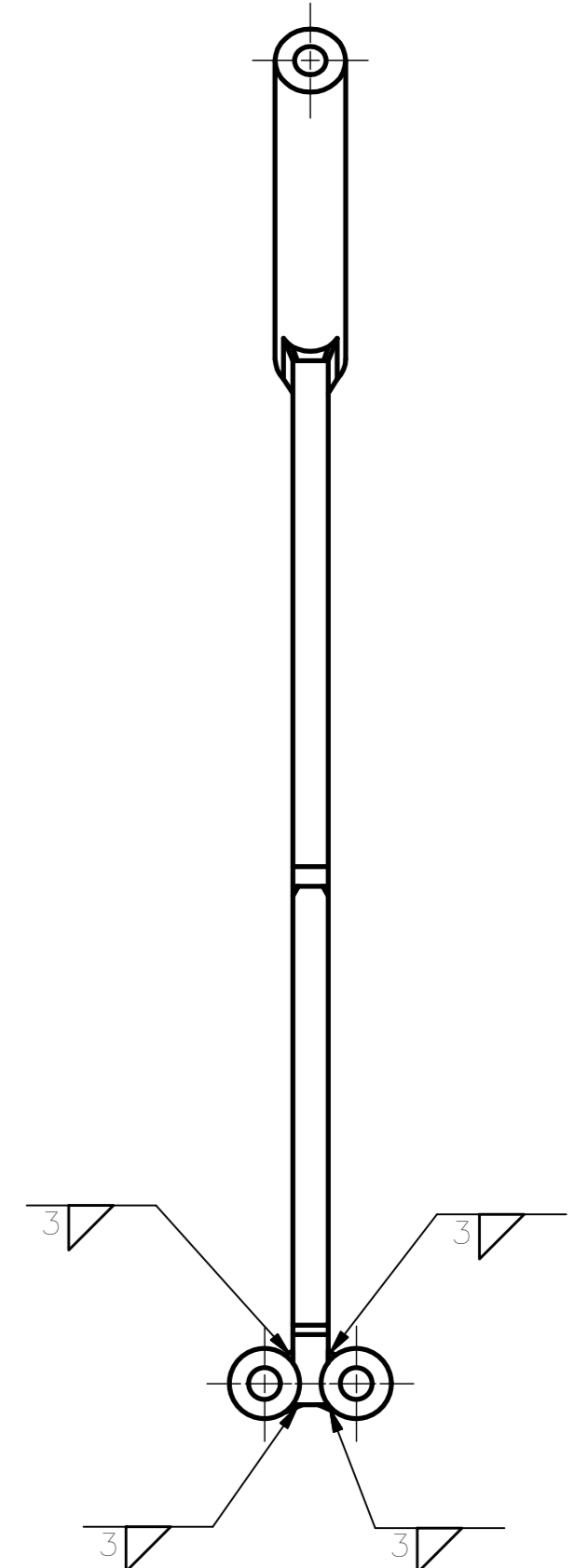
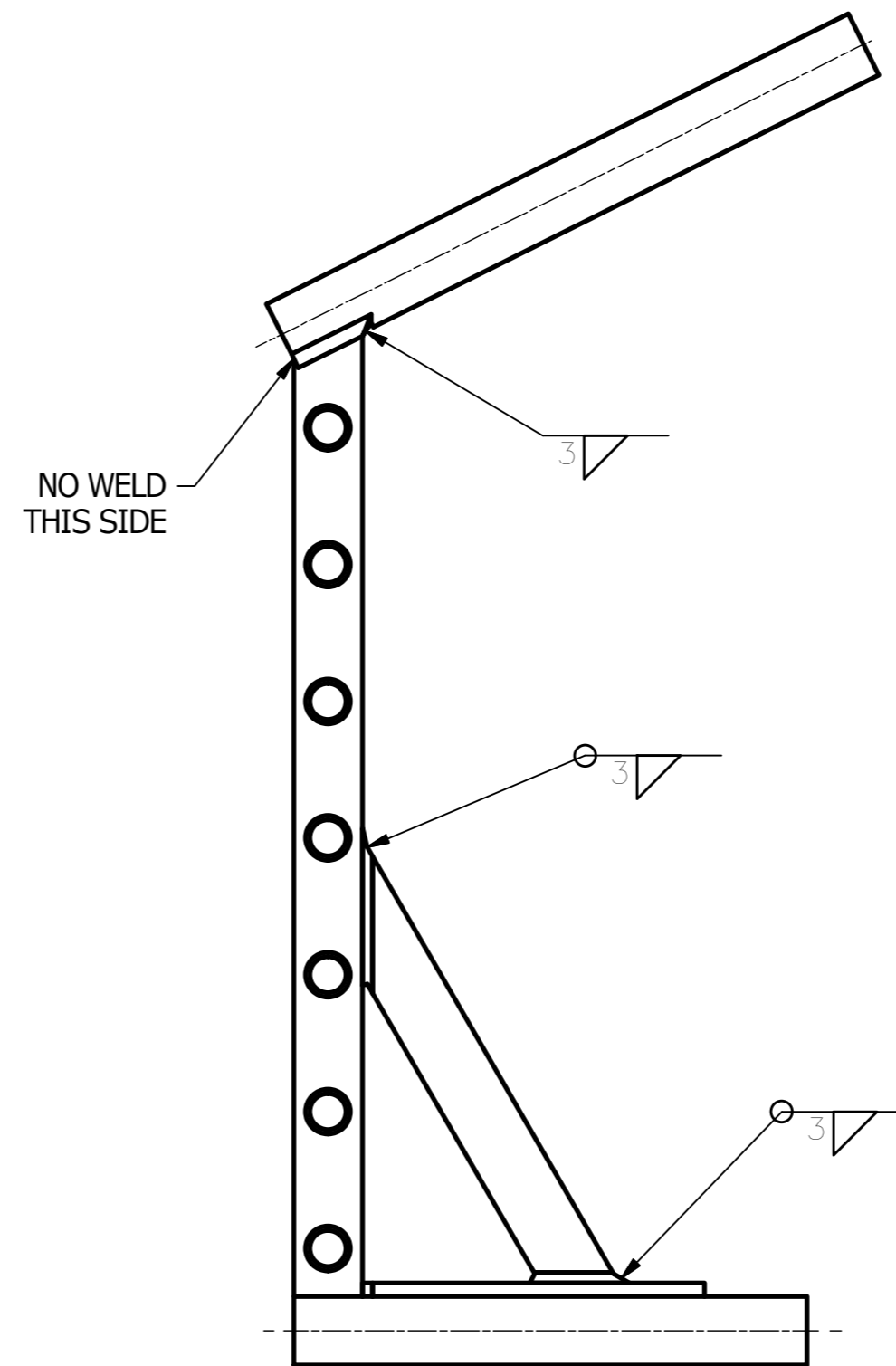
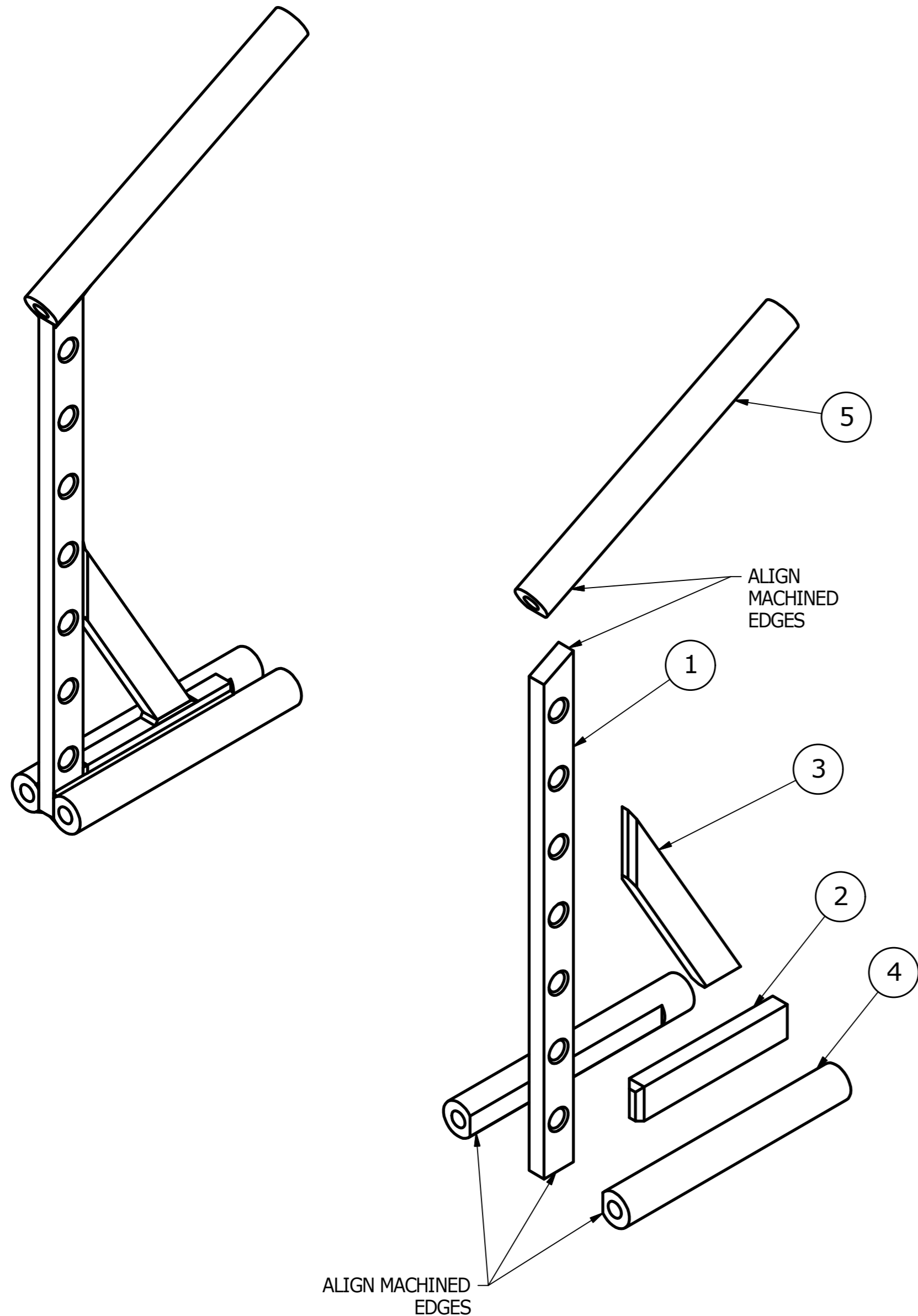


SCALE 1 : 1

ITEM	QTY	PART NUMBER	DESCRIPTION
6	2	9002905	SHACKLE, w/ SCREW PIN 3/8"
5	2	5001120	SCREW, SHCS M8-1.25 x 160
4	1	5001121	SCREW, SHCS M8-1.25 x 200 LG.
3	1	W50-84106	HANDLE, THREADED ROD
2	1	W50-84104	HANDLE, THREADED HOLE
1	1	472-8101	STORAGE BRACKET WELDMENT

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 X.X ±.2 X.XX ±.1	MACHINED ANGLES ±.5°	VEHICLE RESEARCH and TEST CENTER APPROVALS: D. WASHENKO DATE: 2/3/2012	STORAGE BRACKET ASSEMBLY THOR-M
MATERIAL: BJS	HEAT TREAT: EN8	DRAWN: D. WASHENKO CHECKED: D. WASHENKO DATE: 2/10/2012	SIZE: A1 SCALE: 0.5:1 DRAWINGS NUMBER: 472-8100 REV: C
FINISH: APPROVED		THIRD ANGLE PROJECTION	SHEET: 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RELEASED TO PRODUCTION	11/2/2011	DW
	B	TITLE WAS LIFTING BRACKET WELDMENT	3/7/2016	DW



NOTES:

1. WELD ITEMS 1, 2, #3 TOGETHER FIRST, GRIND WELDS FLUSH.
2. WELD ITEMS 4 & 5 SECOND.
3. WELDS ARE "ALL AROUND" WITH EXCEPTION TO THE LOCATIONS NOTED.
4. FINISH: ELECTROLESS NICKEL .008 mm MAXIMUM PER SIDE.

ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	472-8106	UPPER ROD
4	2	472-8105	LOWER ROD
3	1	472-8104	SUPPORT BAR
2	1	472-8103	LOWER BAR
1	1	472-8102	MAIN BAR

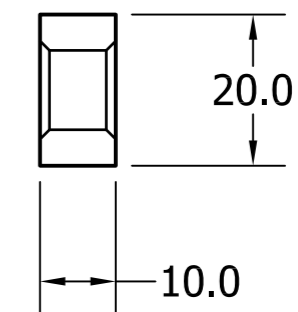
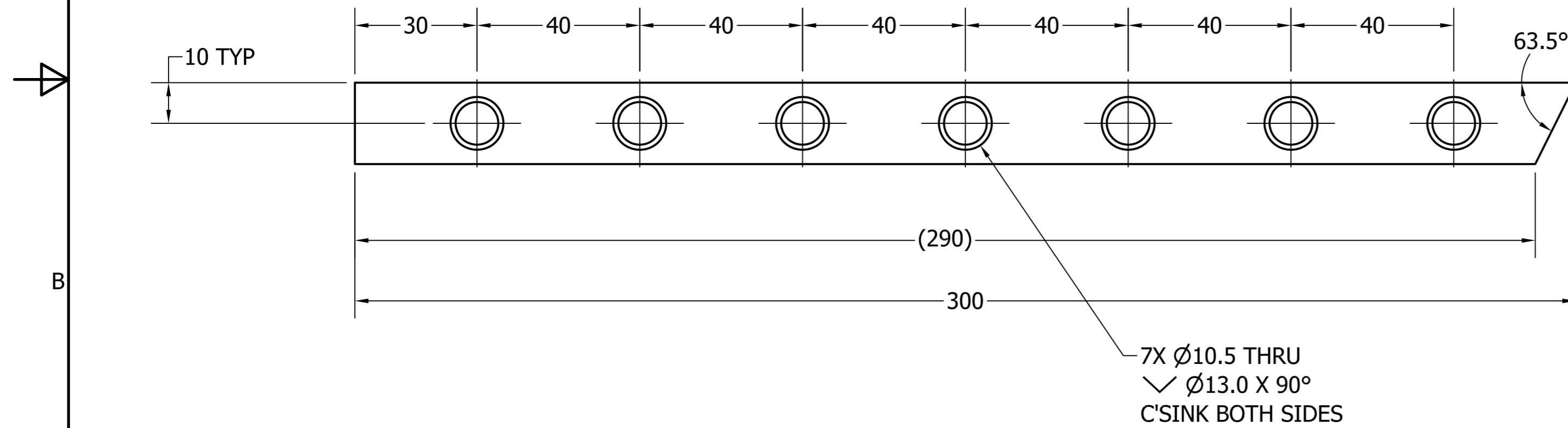
PARTS LIST

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: dwashenko CHECKED:	DATE 11/2/2011	
MATERIAL: Steel, Mild, Welded HEAT TREAT: ENG FINISH: SEE NOTES	APPROVED:	SIZE: A2 SCALE: .33:1	DRAWING NUMBER: 472-8101 REV: B SHEET: 1 OF 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW



SCALE .250



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
XX ± 0.2
XXX ± 0.1
XXXX ± 0.01

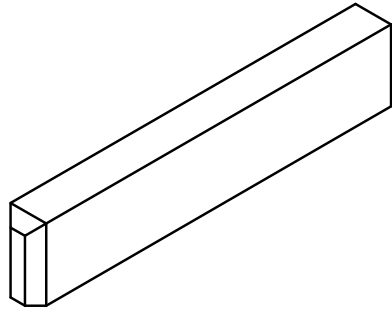


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

PROJECT NO:	472-8101	QTY	1
MATERIAL:	1018 STEEL	HEAT TREAT:	
FINISH:		ENGINEER:	D. WASHENKO
DRAWN BY:	dwashenko	DATE:	11/2/2011
CHECKED BY:	BJS	DATE:	11/2/2011
TOTAL QTY IN DUMMY	1	SCALE:	.75 : 1

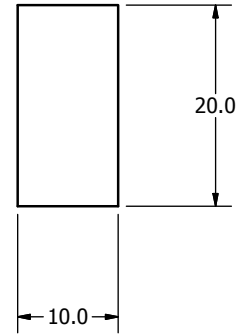
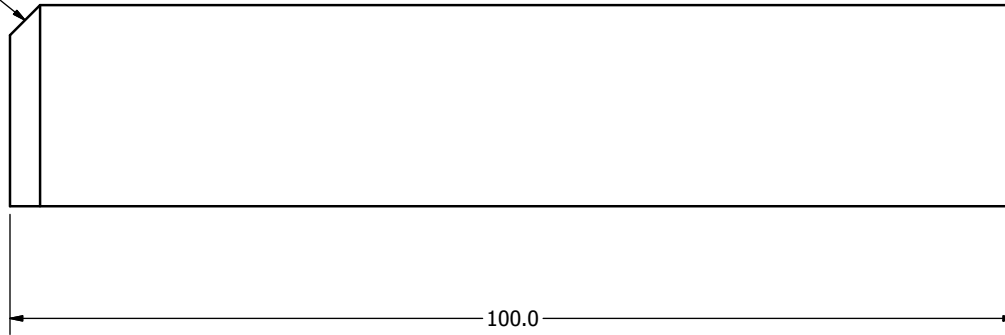
DESCRIPTION:	MAIN BAR
SIZE:	A21 of 1
DRAWING NO.:	472-8102
REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW



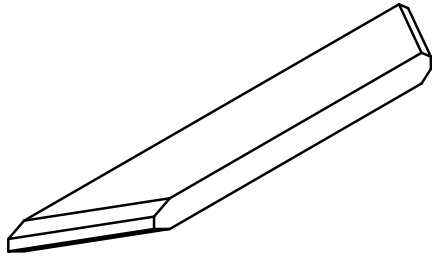
SCALE 1.000

3.0 X 45° Chamfer
3 PLACES

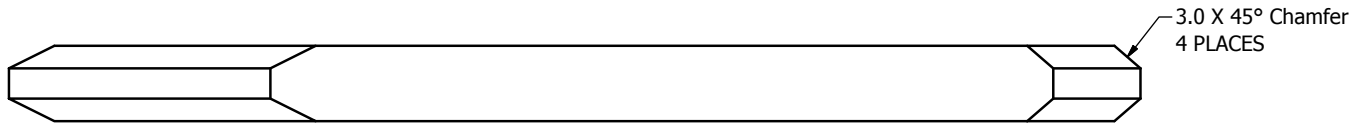
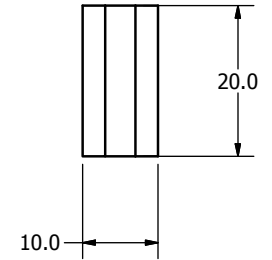
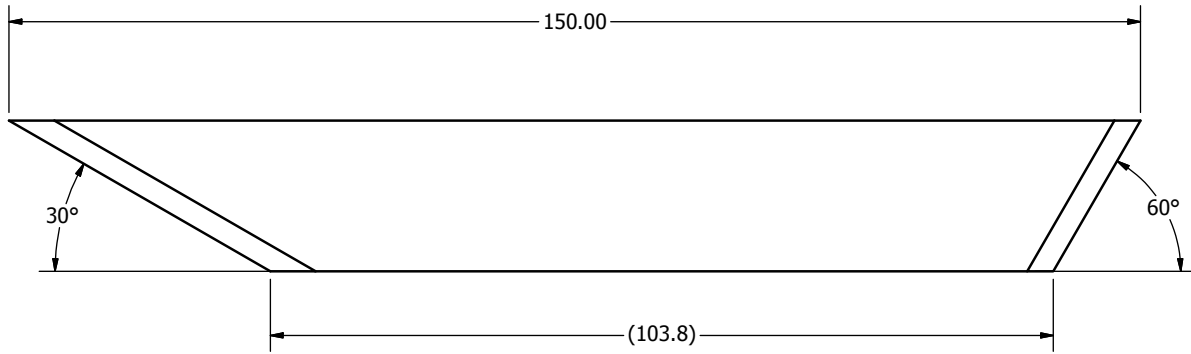


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 X 0.2 XX 0.3 XXX 0.51 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-8101	MATERIAL:	1018 STEEL	DESCRIPTION:
DESIGNED BY:	dwashenko	DATE:	11/2/2011	LOWER BAR
CHECKED BY:	BJS	DATE:	11/2/2011	SIZE: SHEET
ENGINEER:	D. WASHENKO	DATE:	11/2/2011	A3 1 OF 1
HEAT TREAT:		FINISH:		DRAWING NO. 472-8103
TOTAL QTY IN DUMMY	1	SCALE:	2.0 : 1	REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW



SCALE .750



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 16 XX ± 0.2 ✓ XXX ± 0.3 XXXX ± 0.01		
PROJECT NO:	472-8101	MATERIAL:	1018 STEEL	DESCRIPTION:
DESIGNED BY:	dwashenko	DATE:	11/2/2011	SUPPORT BAR
CHECKED BY:	BJS	DATE:	11/2/2011	SIZE: SHEET
ENGINEER:	D. WASHENKO	DATE:	11/2/2011	A3 1 OF 1
HEAT TREAT:		FINISH:		SCALE: 1.5 : 1
QTY	1	TOTAL QTY IN DUMMY	1	DRAWING NO. 472-8104

6 5 4 3 2 1

D

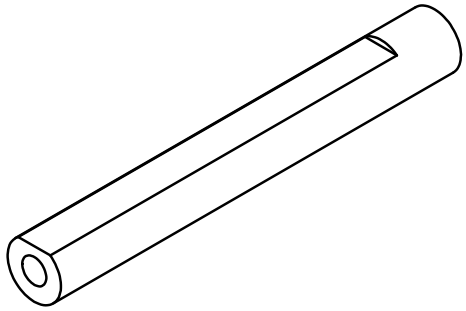
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B

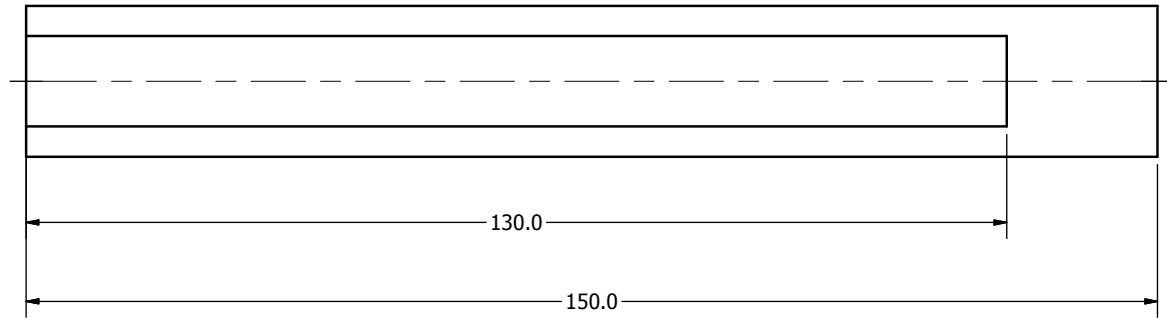
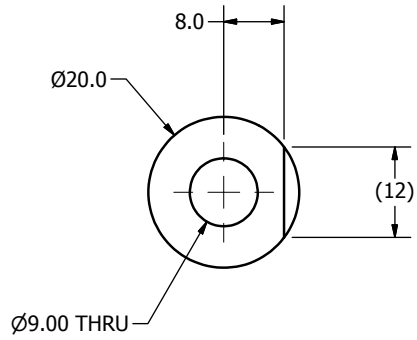
A

6 5 4 3 2 1

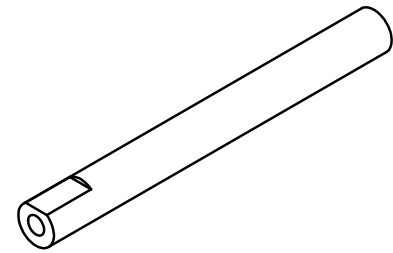
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW



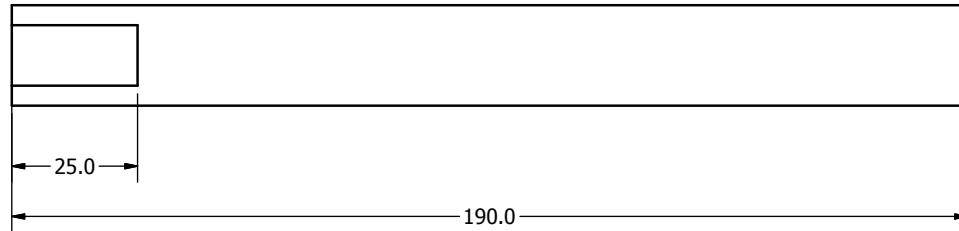
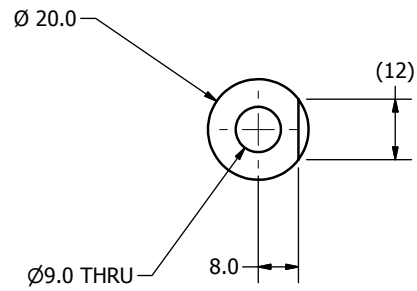
SCALE .750



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.XX ± 0.1 16 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-8101	MATERIAL:	1018 STEEL	DESCRIPTION:
DESIGNED BY:	dwashenko	DATE:	11/2/2011	LOWER ROD
CHECKED BY:	BJS	DATE:	11/2/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	D. WASHENKO	A31 OF 1
TOTAL QTY IN DUMMY:	2	FINISH:		SCALE: 1.5 : 1
				DRAWING NO.:
				472-8105
				REV:
				A



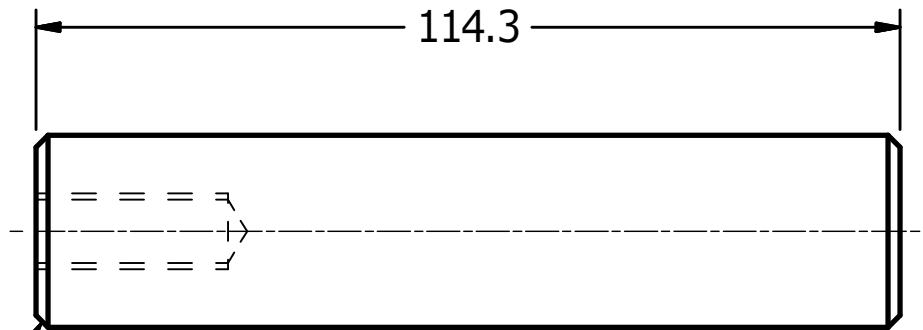
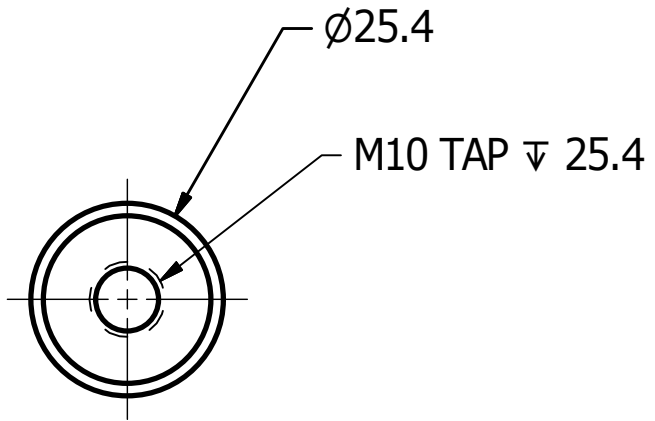
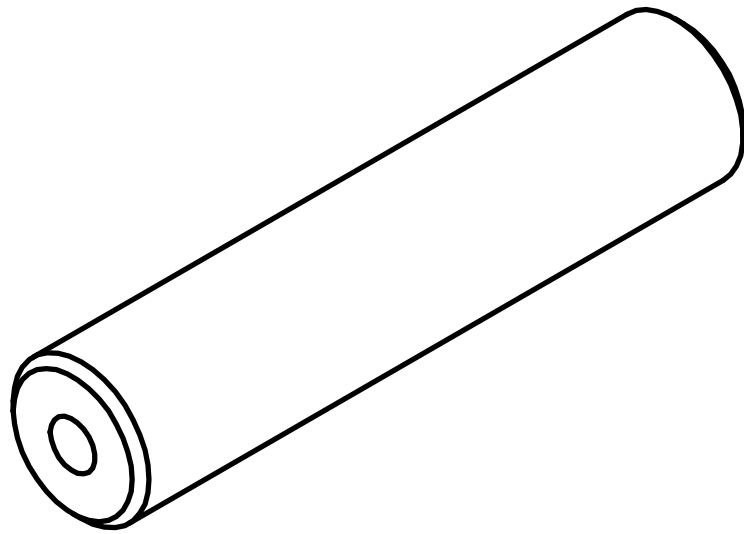
SCALE .500



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX 0.2 XXX 0.3 XXXX 0.01		
PROJECT NO.:	472-8101	MATERIAL:	1018 STEEL	DESCRIPTION: UPPER ROD DRAWING NO.: 472-8106
DRIVE BY:	dwashenko	CHECKED BY:	BJS	
DATE:	11/2/2011	DATE:	11/2/2011	
HEAT TREAT:		ENGINEER:	D. WASHENKO	REMOVE BLURBS & BREAK SHARP EDGES SCALE: 1.0 : 1
TOTAL QTY IN DUMMY	1	FINISH:		SIZE: A3 SHEET: 1 OF 1 REV: A

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RELEASED TO PRODUCTION	1/20/03	JS
80027	B	UPDATED TITLE BLOCK FOR MACHINE FINISH	8/9/2012	BTH



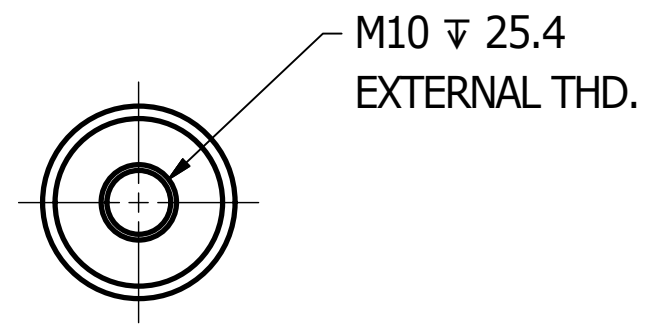
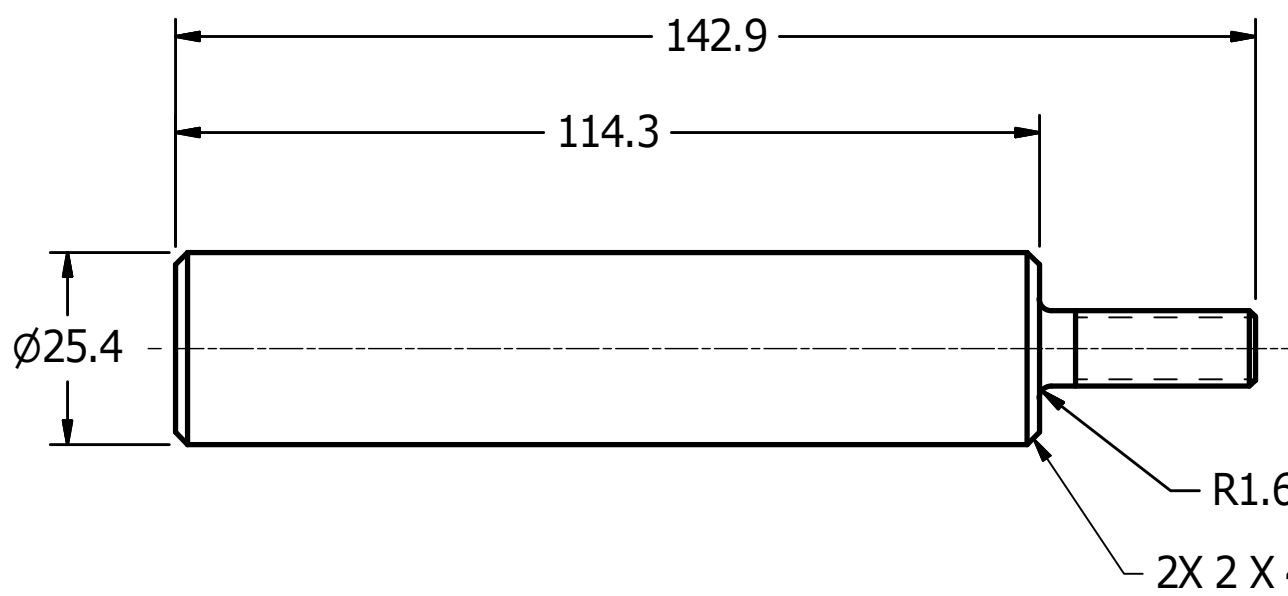
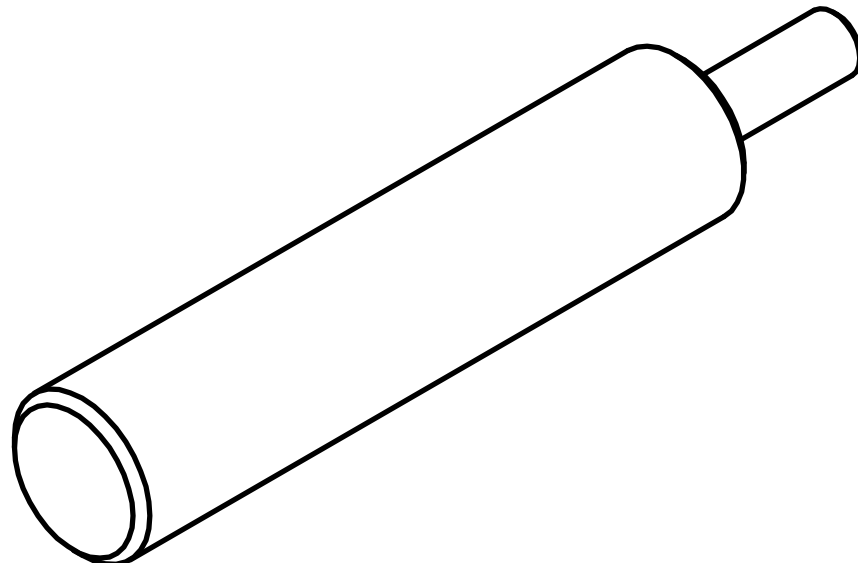
2X 1.6 X 45° CHAMFER

NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Dave Walker CHECKED ENG APPROVED	DATE 8/9/2012	
MATERIAL 1018 STEEL HEAT TREAT FINISH NICKEL PLATE	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER W50-84104
	SCALE: 1:1	SHEET 1 OF 1	REV B

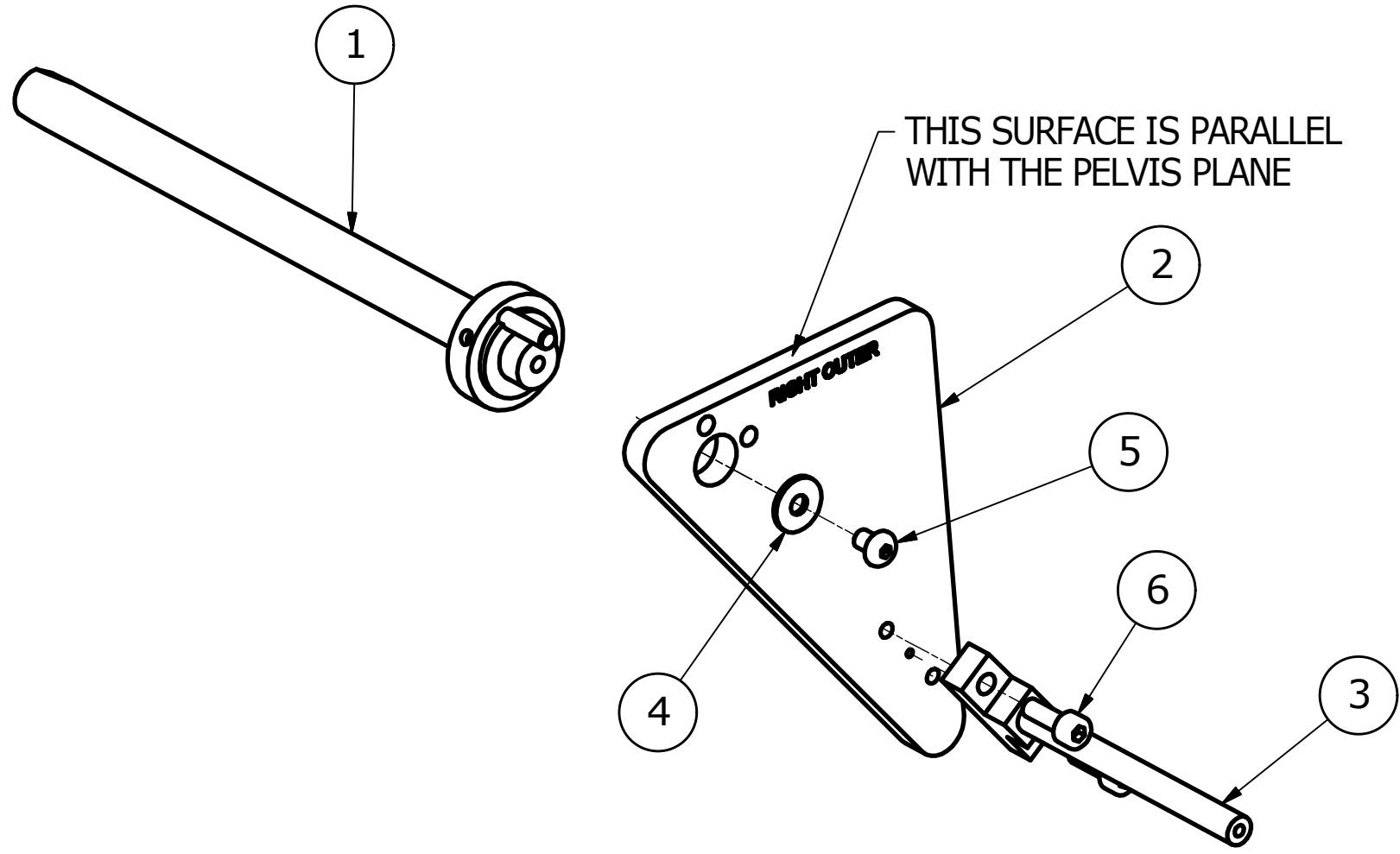
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	RELEASED TO PRODUCTION	1/20/03	JS
80027	B	UPDATED TITLE FOR MACHINE FINISH	8/9/2012	BTH



NOTES:
1. REMOVE BURRS AND BREAK ALL SHARP EDGES.


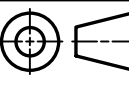
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN J. WANG CHECKED	DATE 8/9/2012	
MATERIAL CRS 4140/4130 HEAT TREAT	ENG	THIRD ANGLE PROJECTION	SIZE A3
FINISH NICKEL PLATE	APPROVED	DRAWING NUMBER W50-84106	REV B
		SCALE: 1:1	SHEET 1 OF 1

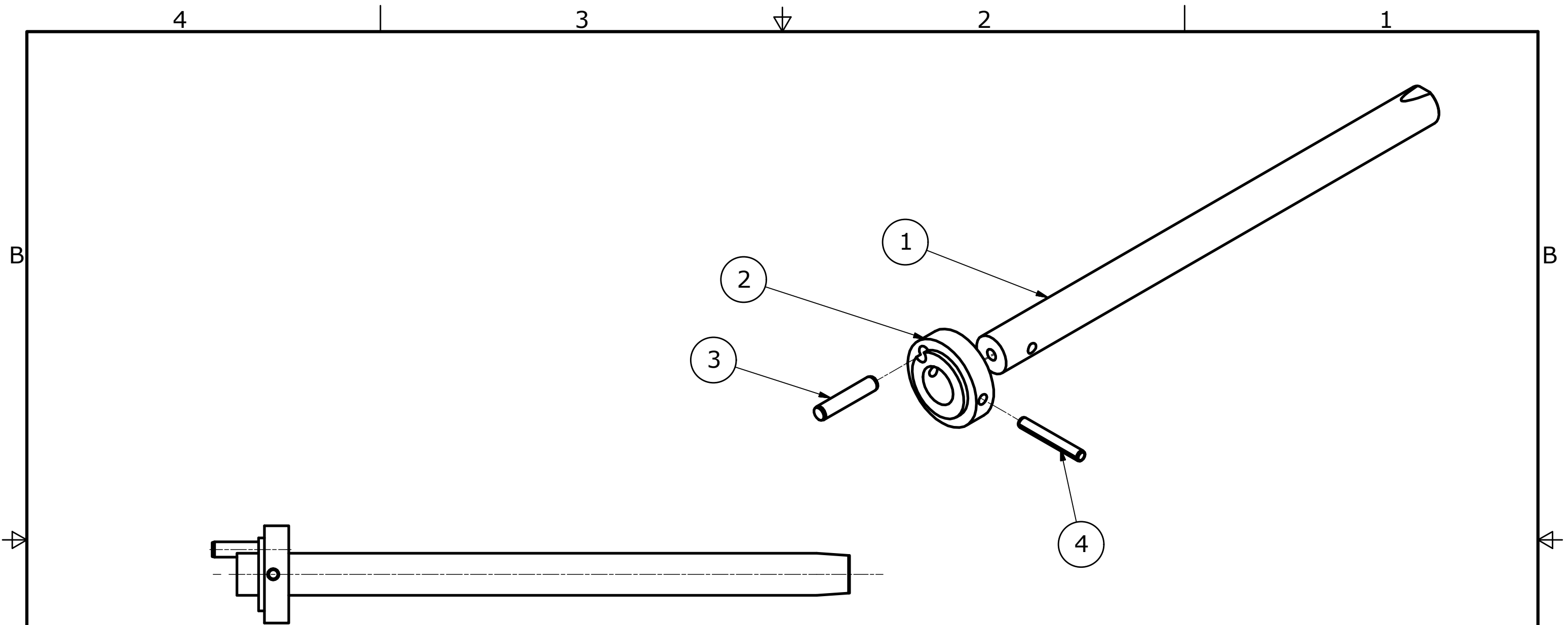
4 | 3 | 2 | 1



6	2	5000152	SCREW, SHCS M4-0.7 x 12
5	1	5001075	SCREW, BHCS M4x0.7 x 6mm
4	1	5000155V	WASHER, 4.3mm x 12mm x 1mm
3	1	472-8220	SILL ADAPTOR H-POINT GAGE
2	1	472-8215	PLATE, H-POINT GAGE
1	1	472-8210	PIN ASS'Y., H-POINT GAGE
ITEM	QTY	PART NUMBER	DESCRIPTION


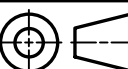
PARTS LIST

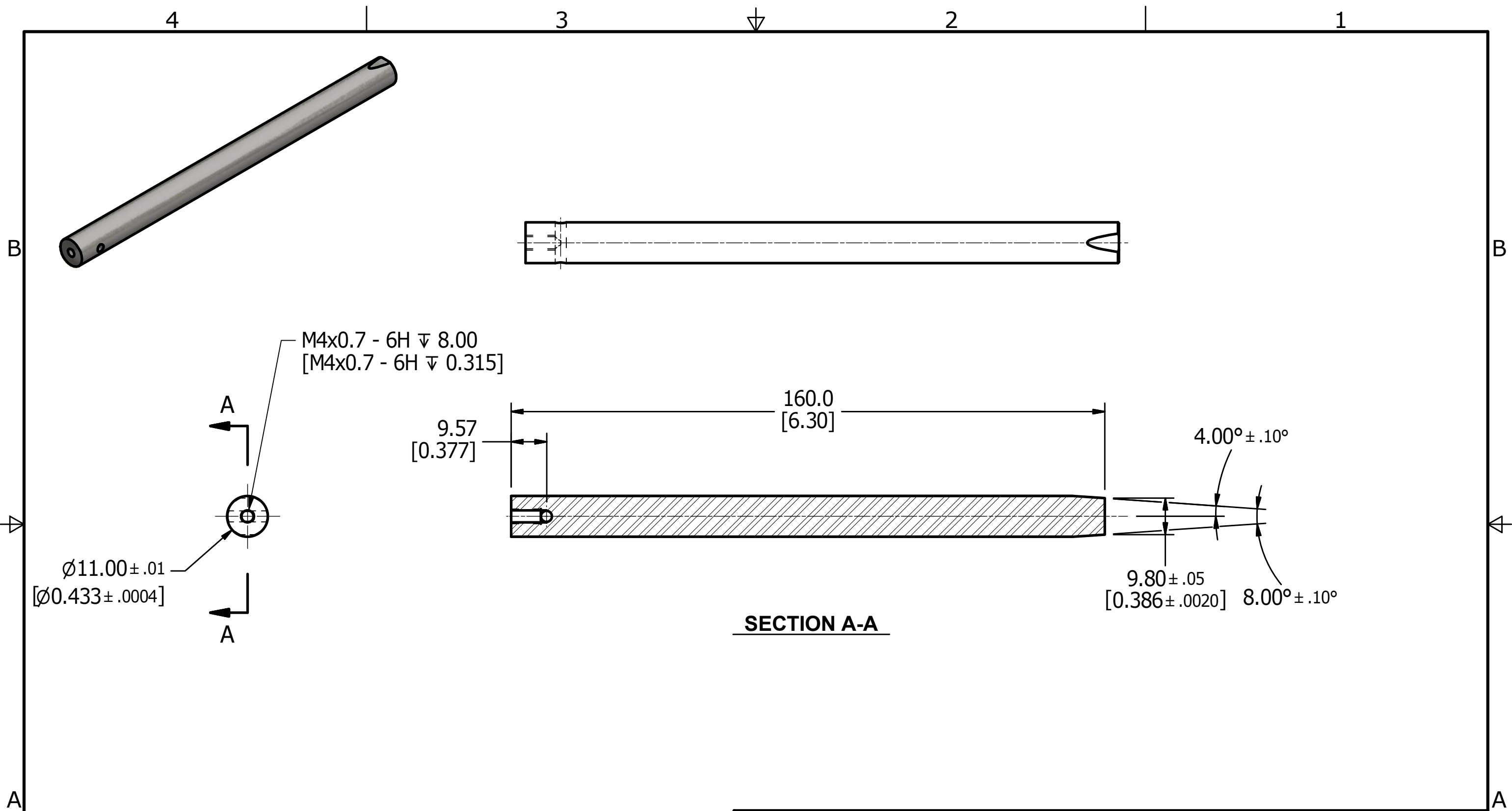
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.5 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		H-POINT GAGE ASSEMBLY THOR-M
	MATERIAL	DRAWN Dave Walker	8/28/2015	 THIRD ANGLE PROJECTION
	HEAT TREAT	CHECKED		
FINISH	ENG			
	APPROVED		SIZE: A3 SCALE: 0.75:1	
			DRAWING NUMBER: 472-8200 SHEET: 1 OF 1	


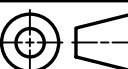


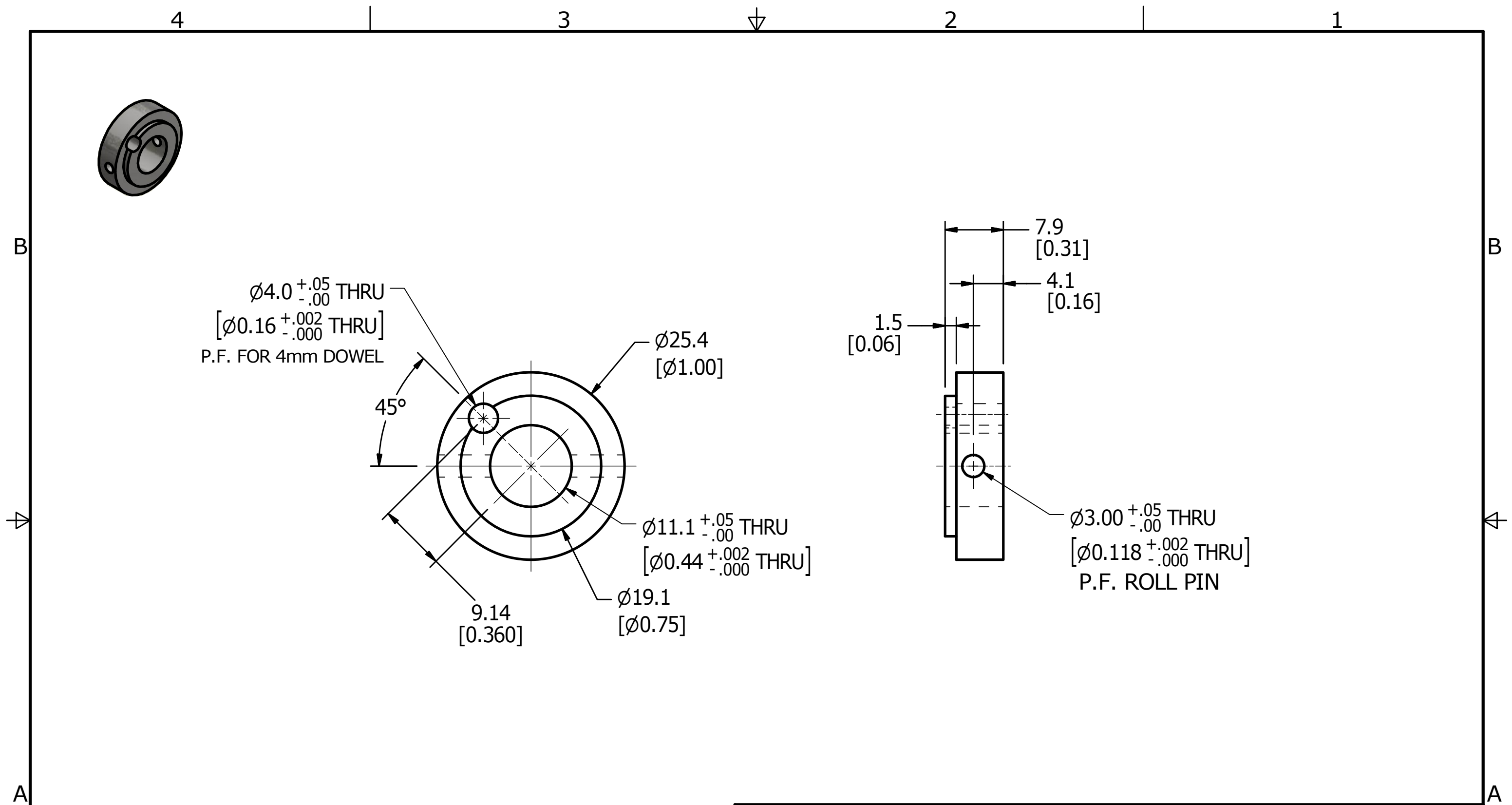
4	1	5000189V	ROLL PIN M3 x 22 SS
3	1	5000405V	PIN, DOWEL M4 x 20
2	1	472-8212	DISK, H-POINT GAGE
1	1	472-8211	PIN, TAPPERED, H-POINT GAGE
ITEM	QTY	PART NUMBER	DESCRIPTION



PARTS LIST

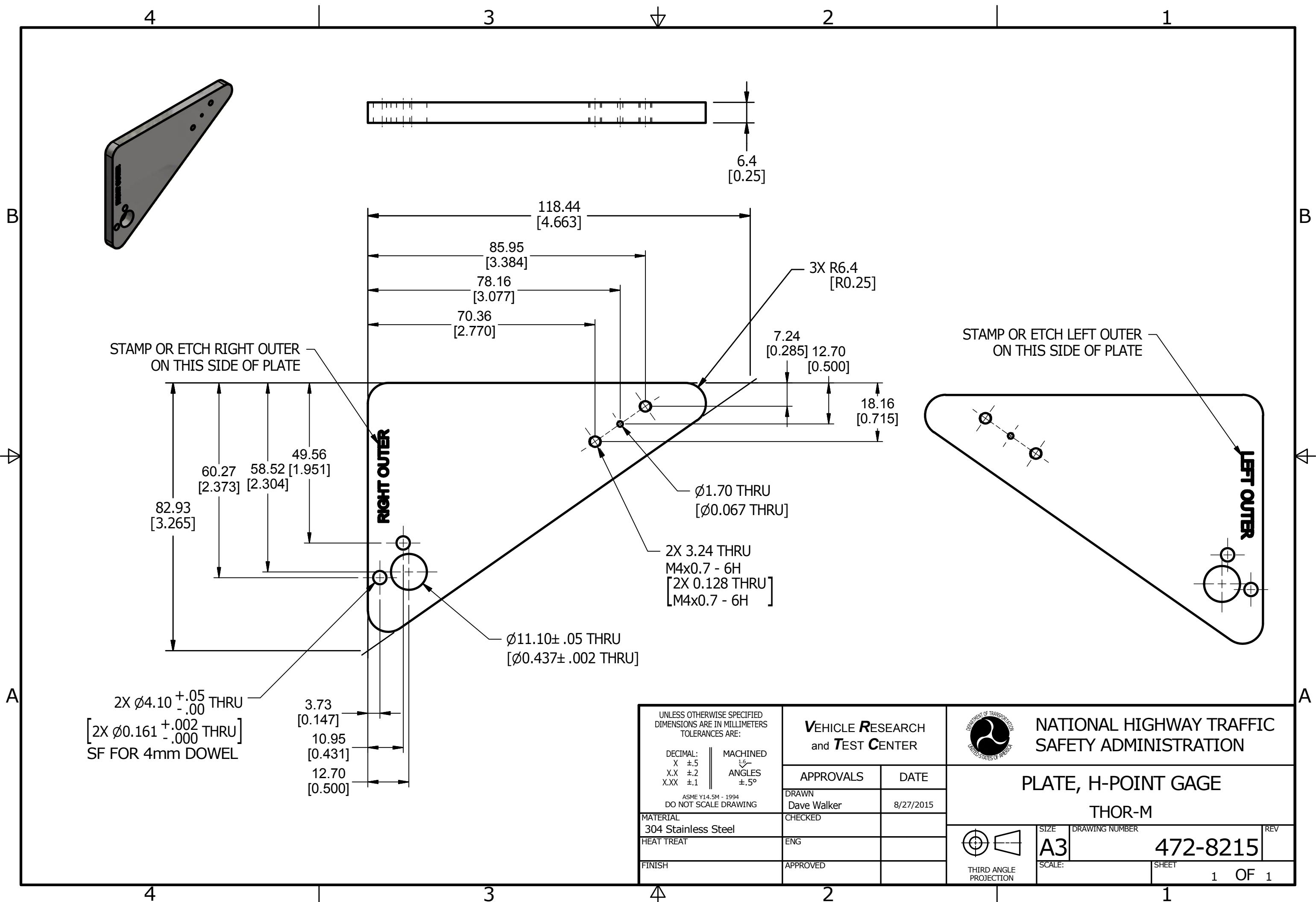
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	APPROVALS DRAWN Dave Walker CHECKED	DATE 8/27/2015	
MATERIAL	HEAT TREAT	FINISH	 THIRD ANGLE PROJECTION
SIZE A3		DRAWING NUMBER 472-8210	REV SHEET 1 OF 1


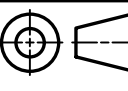


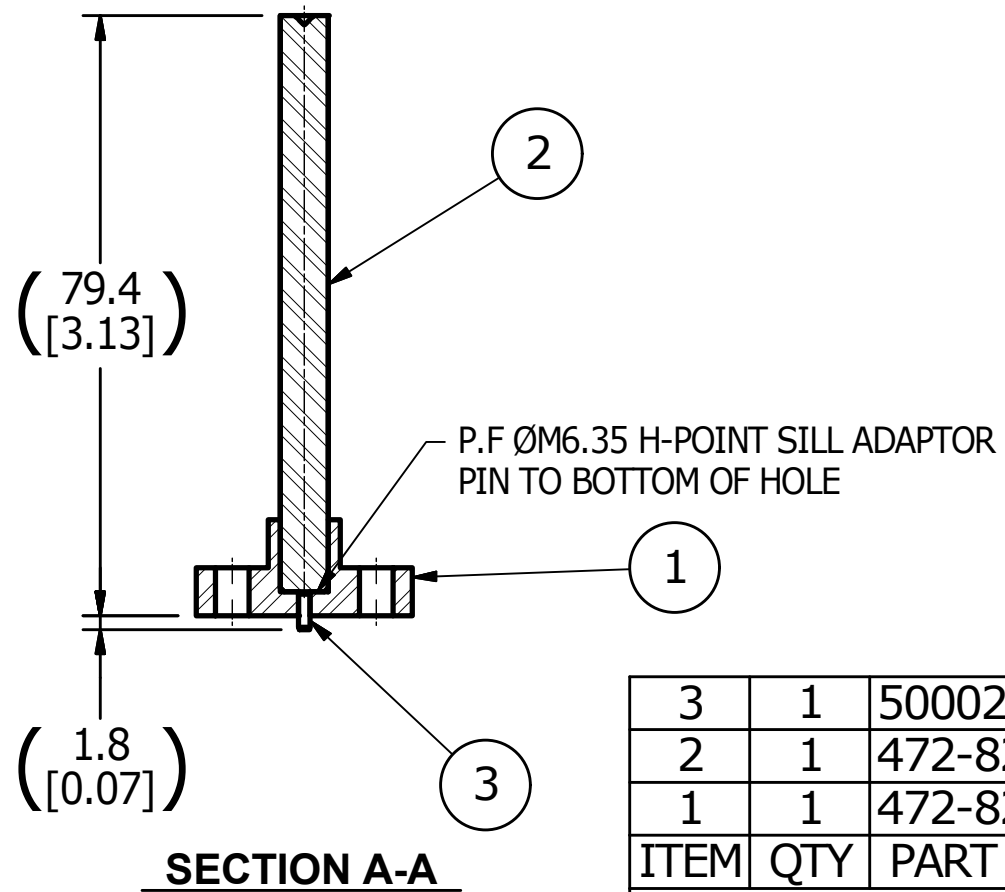
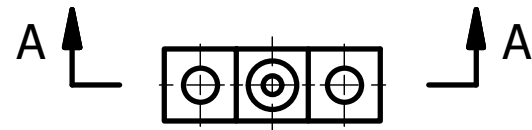
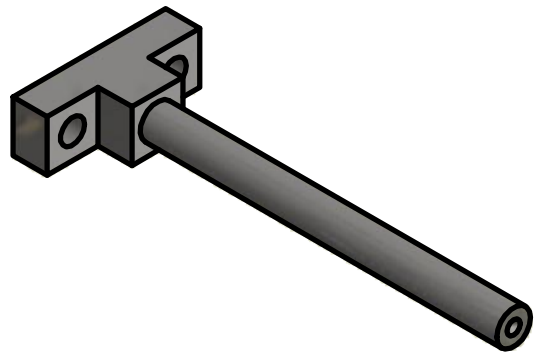
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	APPROVALS DRAWN Dave Walker CHECKED	DATE 8/27/2015	PIN, TAPPERED, H-POINT GAGE THOR-M	
MATERIAL 304 Stainless Steel HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-8211 SHEET 1 OF 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN Dave Walker CHECKED	DATE 8/27/2015		DISK, H-POINT GAGE THOR-M
MATERIAL 304 Stainless Steel HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 2:1	



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLES X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	PLATE, H-POINT GAGE THOR-M	
	DRAWN Dave Walker	8/27/2015	SIZE DRAWING NUMBER REV A3 472-8215 1	
	CHECKED		SCALE: SHEET 1 OF 1	
MATERIAL 304 Stainless Steel	ENG	 THIRD ANGLE PROJECTION		
HEAT TREAT ENG	APPROVED			




ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	5000224	PIN, DOWEL M1.5 x 5
2	1	472-8222	PIN, H-POINT SILL ADAPTOR
1	1	472-8221	BASE, H-POINT SILL ADAPTOR

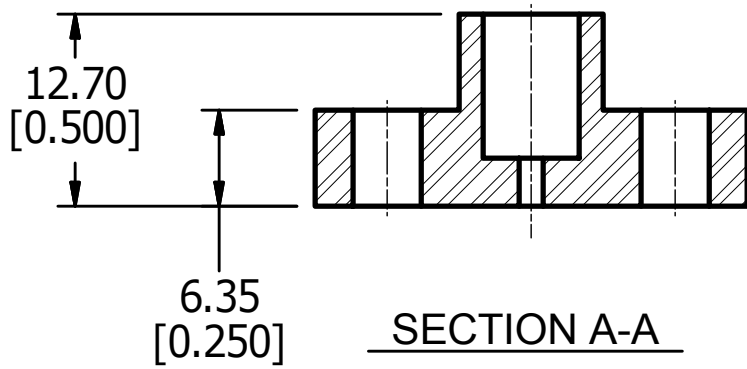
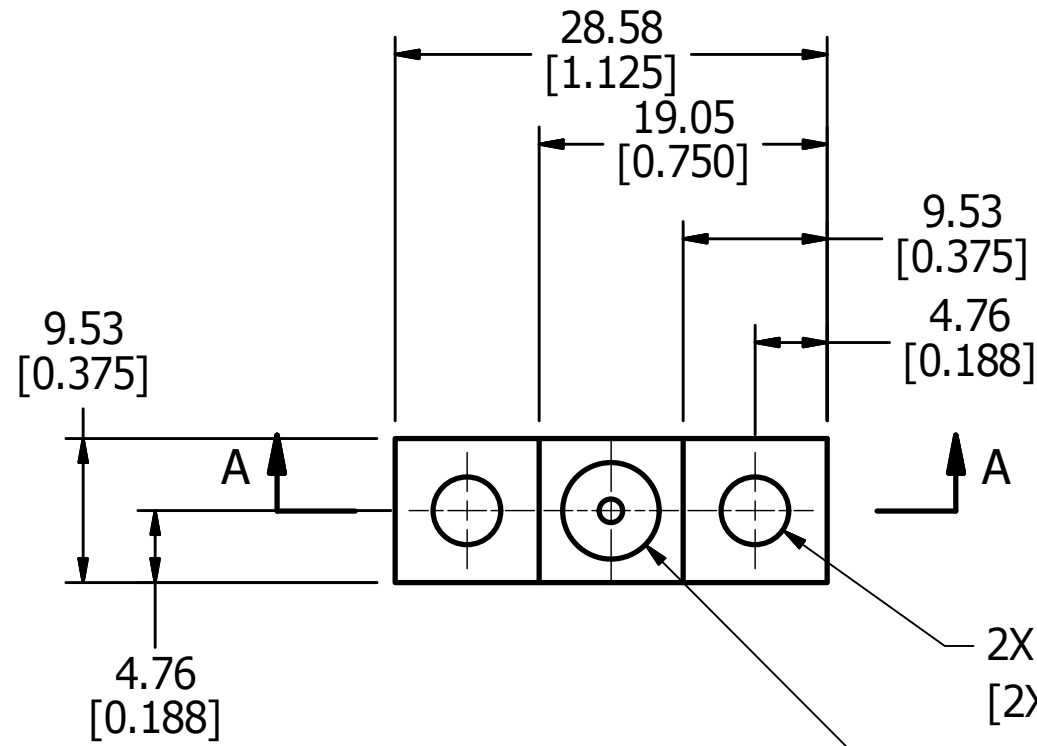
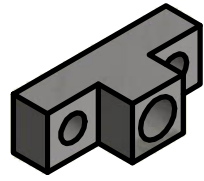
PARTS LIST

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	1.5
X.X ±.2	ANGLES
X.XX ±.1	±.5°

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS DRAWN Dave Walker		DATE 8/27/2015	
CHECKED		SILL ADAPTOR H-POINT GAGE THOR-M	
ENG		SIZE A3	
APPROVED		DRAWING NUMBER 472-8220	
FINISH		SCALE: 1:1	
		SHEET 1 OF 1	



2X $\varnothing 4.50$ THRU
[2X $\varnothing 0.177$ THRU]

$\varnothing 1.57^{+0.00}_{-0.03}$ THRU, PF DOWEL PIN

$\sqsubset \varnothing 6.35^{+0.00}_{-0.03} \nabla 9.53^{+0.00}_{-0.03}$ PF $\varnothing 6.35$ PIN TO BOTTOM

$\left[\varnothing 0.062^{+0.000}_{-0.001}$ THRU, PF DOWEL PIN

$\left[\sqsubset \varnothing 0.250^{+0.000}_{-0.001} \nabla 0.375^{+0.000}_{-0.001}$ PF $\varnothing 6.35$ PIN TO BOTTOM

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
TOLERANCES ARE:

DECIMAL:	MACHINED
X ± 0.5	± 0.15
X.X ± 0.2	ANGLES
X.XX ± 0.1	$\pm 5^\circ$

ASME Y14.5M - 1994
DO NOT SCALE DRAWING

MATERIAL
304 Stainless Steel

HEAT TREAT

FINISH

VEHICLE RESEARCH
and TEST CENTER

APPROVALS

DRAWN
Dave Walker

CHECKED

ENG

APPROVED

DATE

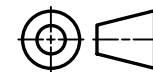
8/27/2015



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

BASE, H-POINT SILL ADAPTOR

THOR-M



THIRD ANGLE
PROJECTION

SIZE
A3

SCALE:
2:1

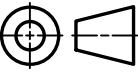
DRAWING NUMBER

472-8221

SHEET

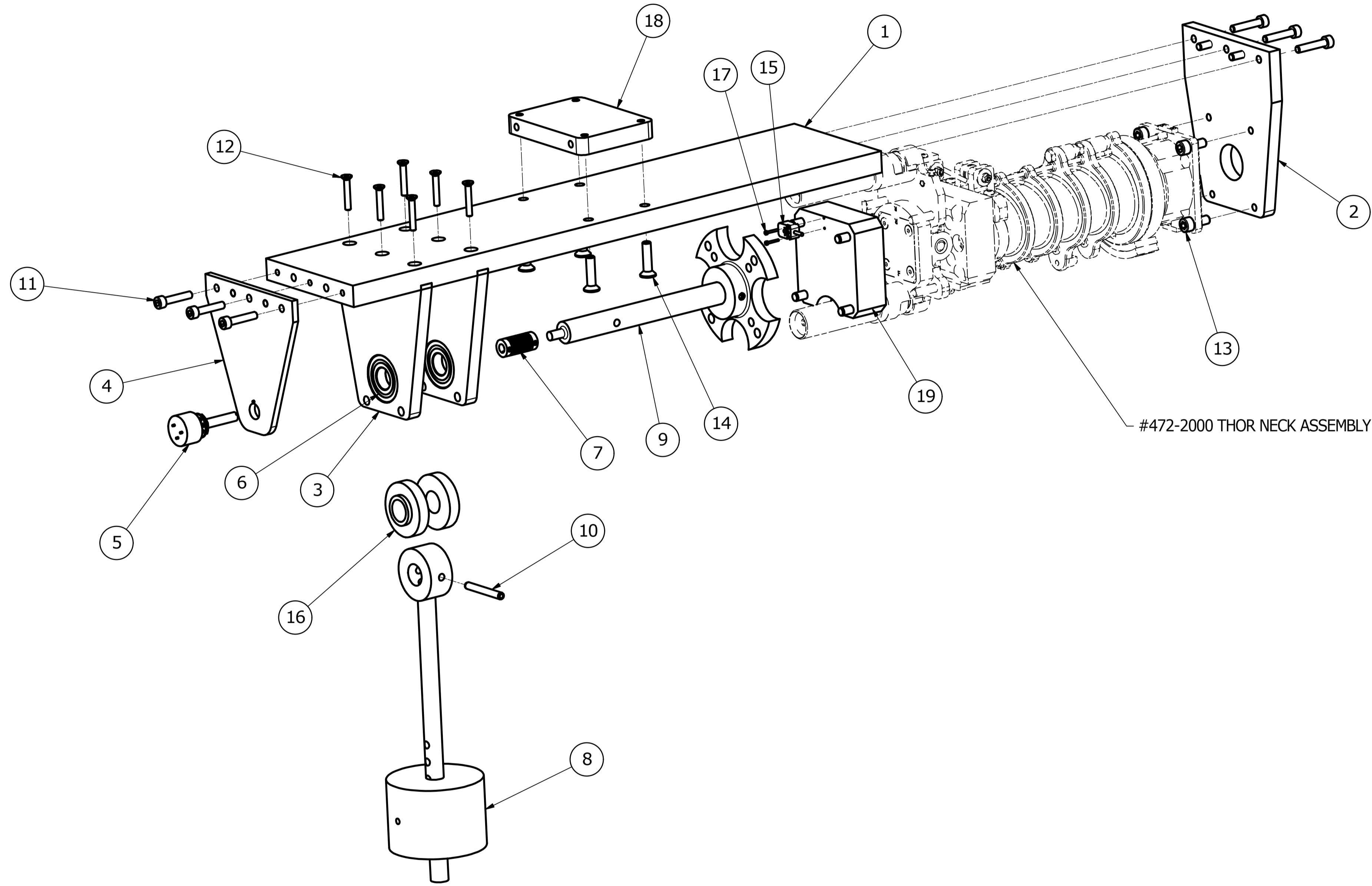
1 OF 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 1.5 X.XX ±.1 1.5 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN Dave Walker CHECKED	DATE 8/27/2015	PIN, H-POINT SILL ADAPTOR THOR-M	
MATERIAL 304 Stainless Steel HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER 472-8222
			SCALE: 1:2	SHEET 1 OF 1

TEST FIXTURES

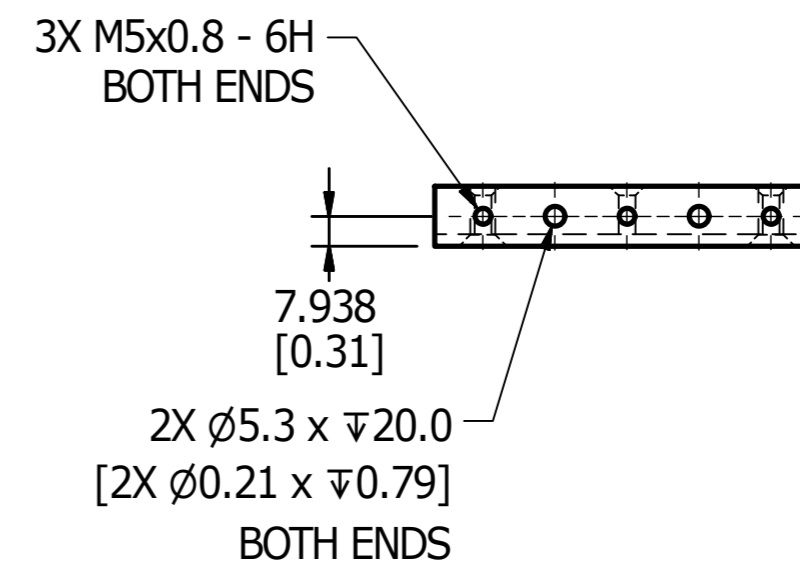
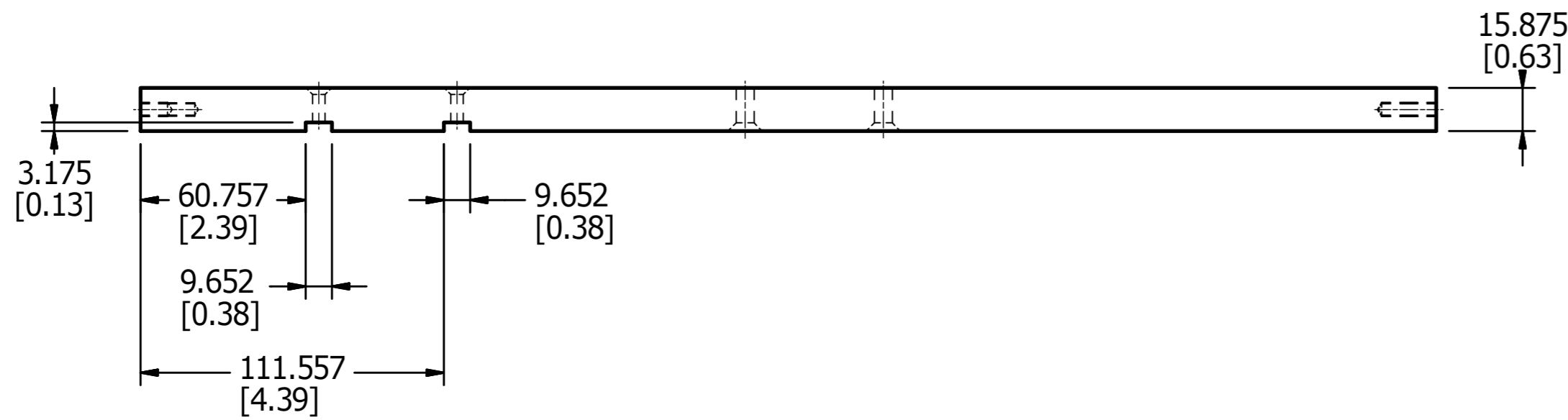
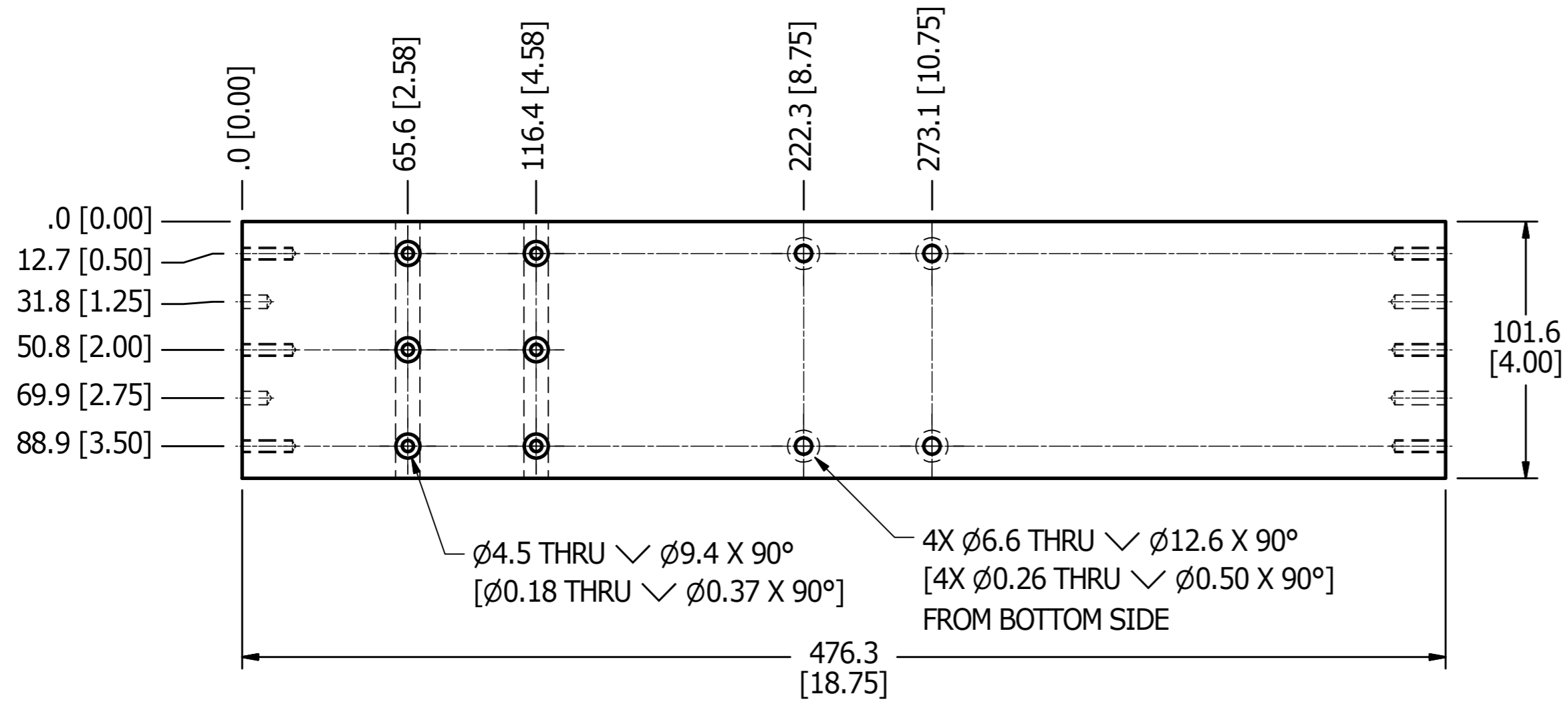
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC; REMOVED PART #DL472-1135 - NECK TWIST FIXTURE END PLATE ASS'Y., LEFT, FRONT IMPACT	9/9/2015	DW
	B	REVISED ITEM 8 - DL472-1160 - NECK TWIST FIXTURE PENDULUM ROD ASS'Y.; ITEM 11 DESCRIPTION WAS SCREW, SHCS M5-08 x 25; ITEM 15 PART # SA572-S56 WAS SA572-S55	8/17/2016	DW



19	1	DL472-1170	NECK TWIST FIXTURE NECK MOUNTING ADAPTER
18	1	DL472-109	NECK TWIST TEST FIXTURE MOUNTING PLATE
17	2	5000376V	SCREW, SHCS M1.4-0.3 x 10
16	2	DL472-1180	NECK TWIST FIXTURE PENDULUM SPACER
15	1	SA572-S56	ANGULAR RATE SENSOR
14	4	5000135	SCREW, FHCS M6-1 x 25
13	4	5000604	SCREW, SHCS M6-1 x 16
12	6	5000292V	SCREW, FHCS M4-0.7 x 25
11	6	5000373V	SCREW, SHCS M5-0.8 x 25
10	1	5000200V	PIN, ROLL M5 x 40
9	1	DL472-1150	NECK TWIST FIXTURE SHAFT ASSEMBLY ASS'Y.
8	1	DL472-1160	NECK TWIST FIXTURE PENDULUM ROD ASS'Y.
7	1	3000300V	SHAFT COUPLING, FLEXIBLE BELLOWS FOR 1/4" [6.4 MM] SHAFT, 1.09" [27.7 MM] LG., 1/2" [12.7 MM] O.D.
6	2	3000150V	BALL BEARING, 5/8" [15.9] BORE, 1 3/8" [35.0] O.D., 11/32" [8.7] THK., S.S.
5	1	SA572-S51	ROTARY POTENTIOMETER
4	1	DL472-1120	NECK TWIST FIXTURE END PLATE ASSEMBLY
3	2	DL472-1140	NECK TWIST FIXTURE MIDDLE SUPPORT PLATE
2	1	DL472-1130	NECK TWIST FIXTURE END PLATE ASS'Y., LATERAL IMPACT
1	1	DL472-1110	NECK TWIST FIXTURE TOP PLATE

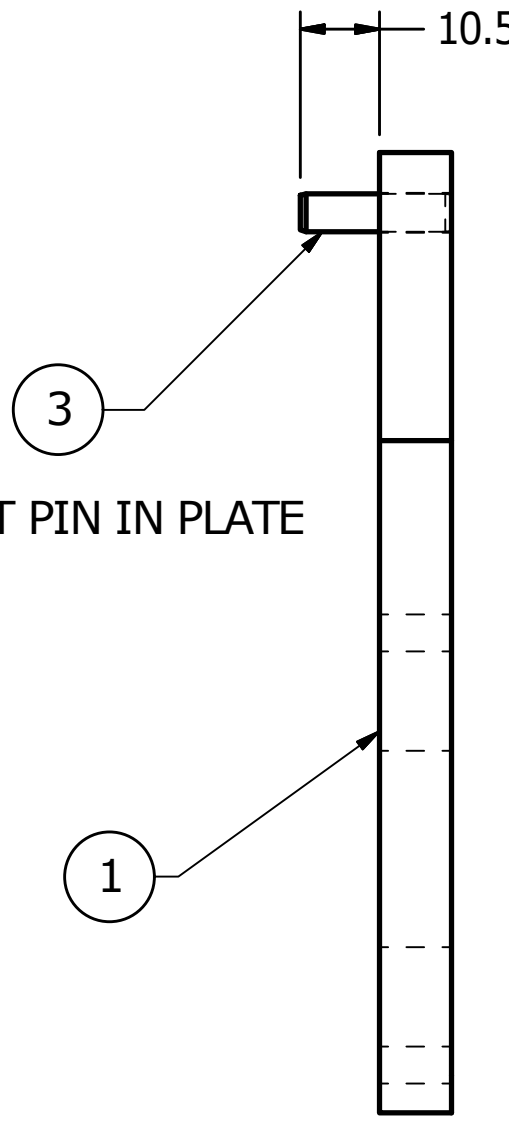
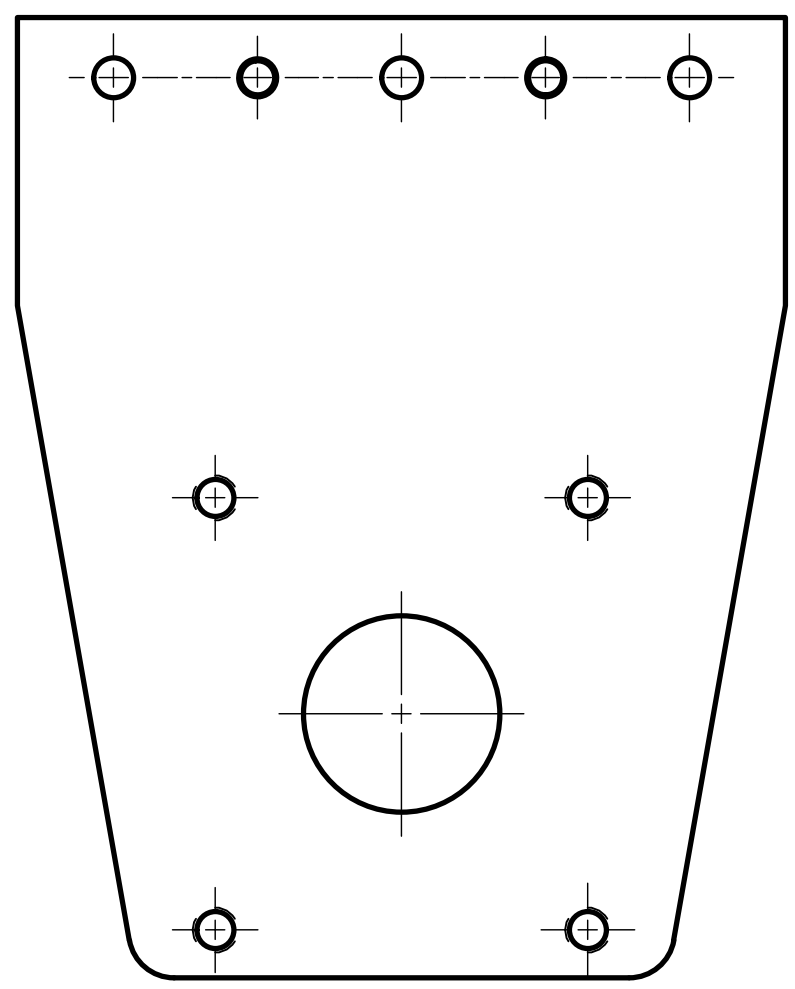
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:			
DECIMAL: X .5 X.X ±.2 X.XX ±.1	MACHINED ±.01 ANGLES ±.5°		
DO NOT SCALE DRAWING		APPROVALS JIM CLEVENGER CHECKED	DATE 6/10/2015
MATERIAL			
HEAT TREAT			
FINISH			
THIRD ANGLE PROJECTION		SIZE A1	DRAWINGS NUMBER DL472-1000
		SCALE 1/2	REV B
		SHEET 1 OF 1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC		DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ± 0.5 X.X ± 0.2 X.XX ± 0.1 MACHINED ANGLES $\pm 5^\circ$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
MATERIAL Aluminum-6061	DRAWN JIM CLEVENGER	2/23/2015	NECK TWIST FIXTURE TOP PLATE
HEAT TREAT	CHECKED		THOR-M
FINISH	ENG		SIZE A2
	APPROVED		DRAWING NUMBER DL472-1110
			SCALE: 1/2
			THIRD ANGLE PROJECTION
			REV A
			SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW



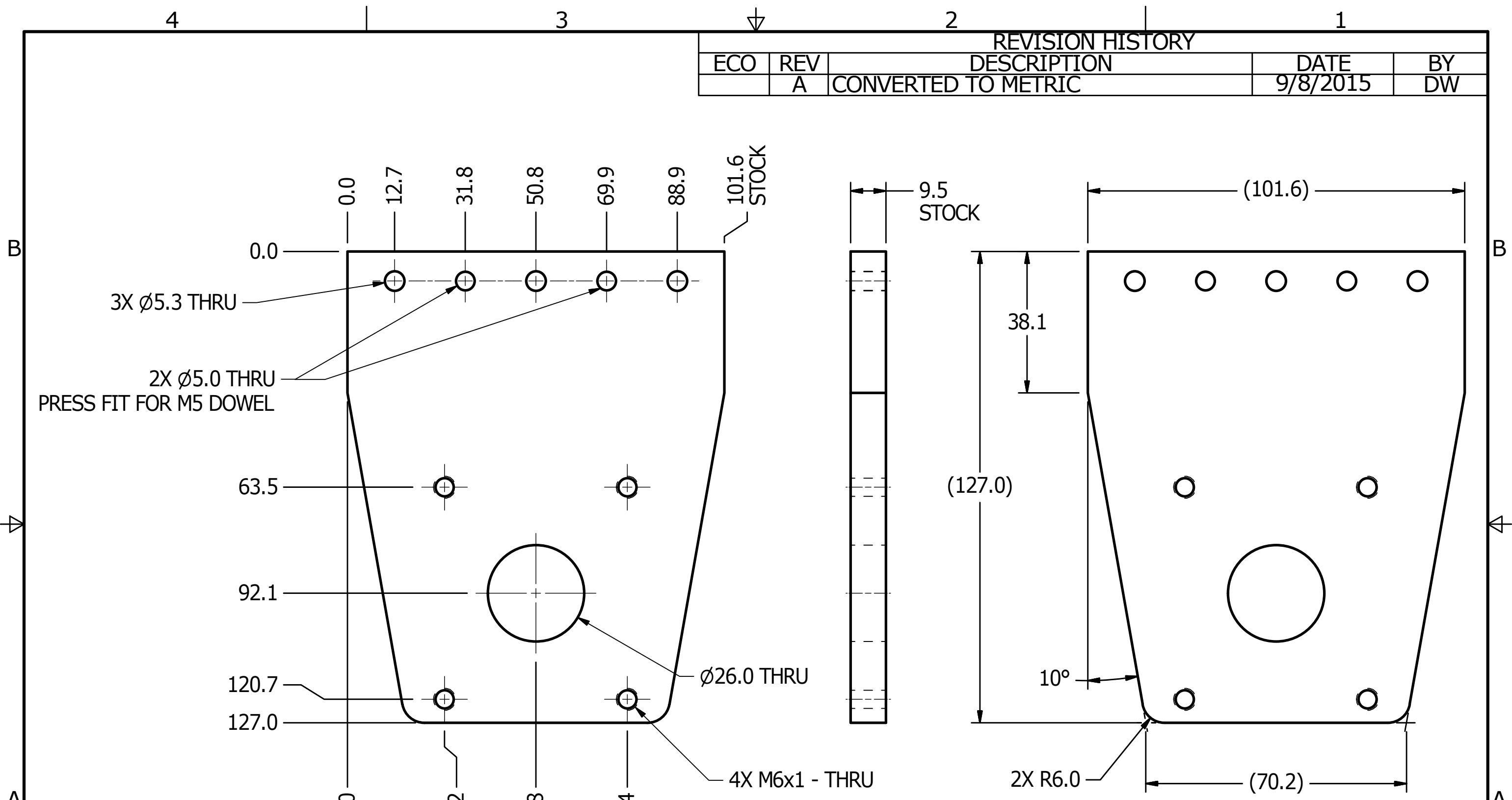
PRESS FIT PIN IN PLATE

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
3	2	5000332V	PIN, DOWEL M5 x 20	Steel
1	1	DL472-1131	NECK TWIST FIXTURE END PLATE, LATERAL IMPACT	

PARTS LIST

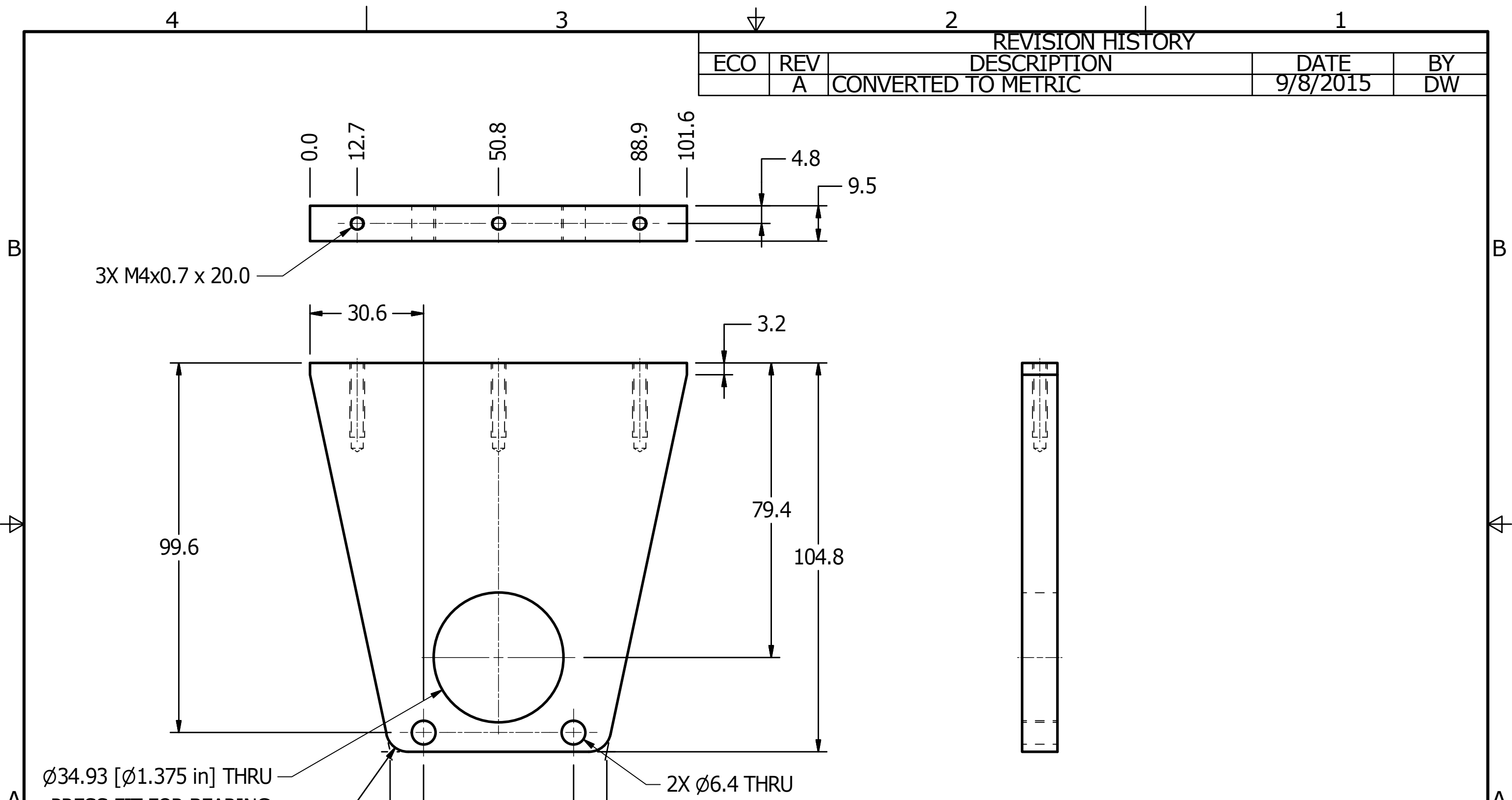
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
					APPROVALS
	MATERIAL	DRAWN JIM CLEVENGER	CHECKED	NECK TWIST FIXTURE END PLATE ASS'Y., LATERAL IMPACT THOR-M	
	HEAT TREAT	ENG			
FINISH	APPROVED				
THIRD ANGLE PROJECTION			SIZE: A3 SCALE: 1:1	DRAWING NUMBER: DL472-1130 SHEET: 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGL X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 2/24/2015	
MATERIAL Aluminum-6061 HEAT TREAT FINISH	ENG APPROVED	THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1
		DRAWING NUMBER DL472-1131	REV A SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: JIM CLEVENGER CHECKED:	DATE 2/24/2015	NECK TWIST FIXTURE MIDDLE SUPPORT PLATE THOR-M	
MATERIAL: Aluminum-6061 HEAT TREAT: ENG FINISH: APPROVED		THIRD ANGLE PROJECTION		

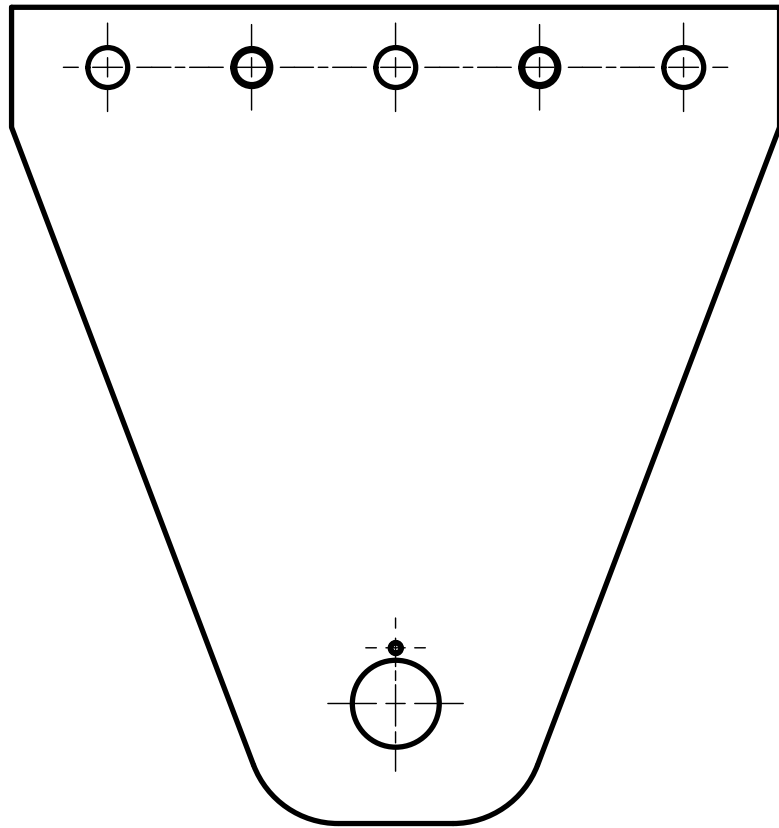
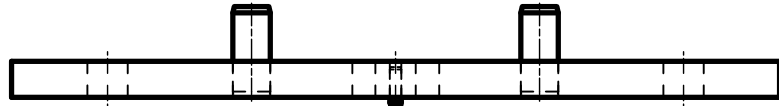
4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC, ADDED PART #5000224 - PIN, DOWEL M1.5 X 5	9/8/2015	DW
	B	REVISED ITEM #1 - DL472-1121 - NECK TWIST FIXTURE END PLATE, RIGHT	3/18/2016	DW



7.2

2 PRESS FIT PIN IN PLATE

1

3 PRESS FIT PIN IN PLATE

1.0

A	3	1	5000224	PIN, DOWEL M1.5 x 5	Steel
	2	2	5000002	PIN, DOWEL M5 x 12	Steel
B	1	1	DL472-1121	NECK TWIST FIXTURE END PLATE, RIGHT	

ITEM	QTY	PART NUMBE	DESCRIPTION	MATERIAL
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PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	1.5
X.X ±.2	ANGLES
X.XX ±.1	±.5°

ASME Y14.5M - 1994 DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

APPROVALS

DATE

NECK TWIST FIXTURE END PLATE ASSEMBLY THOR-M

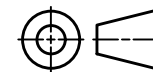
DRAWN JIM CLEVINGER

2/24/2015

CHECKED

ENG

APPROVED



THIRD ANGLE PROJECTION

SIZE A3

SCALE: 1:1

DRAWING NUMBER

DL472-1120

REV B

SHEET

1 OF 1

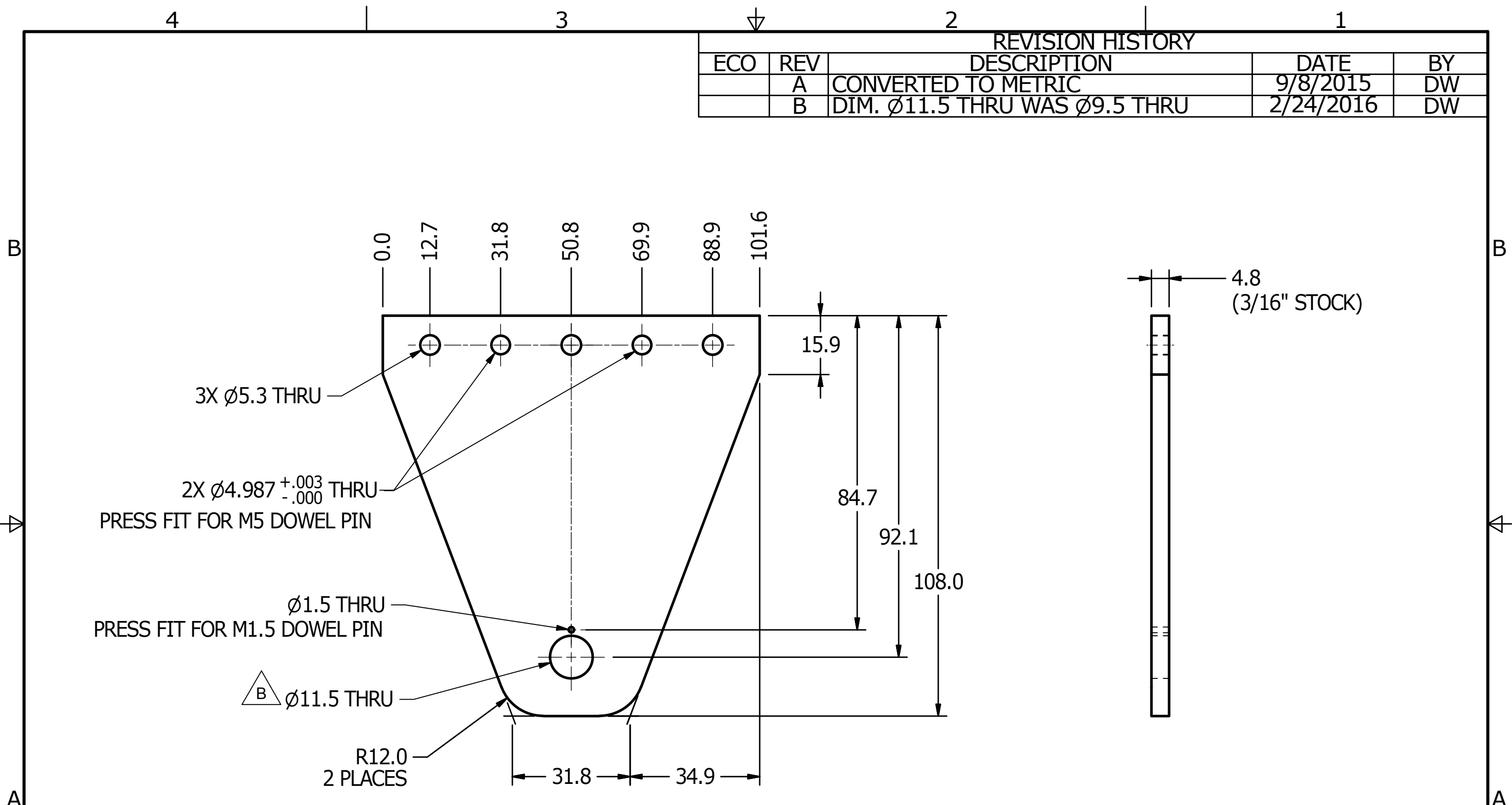
4

3

2

1

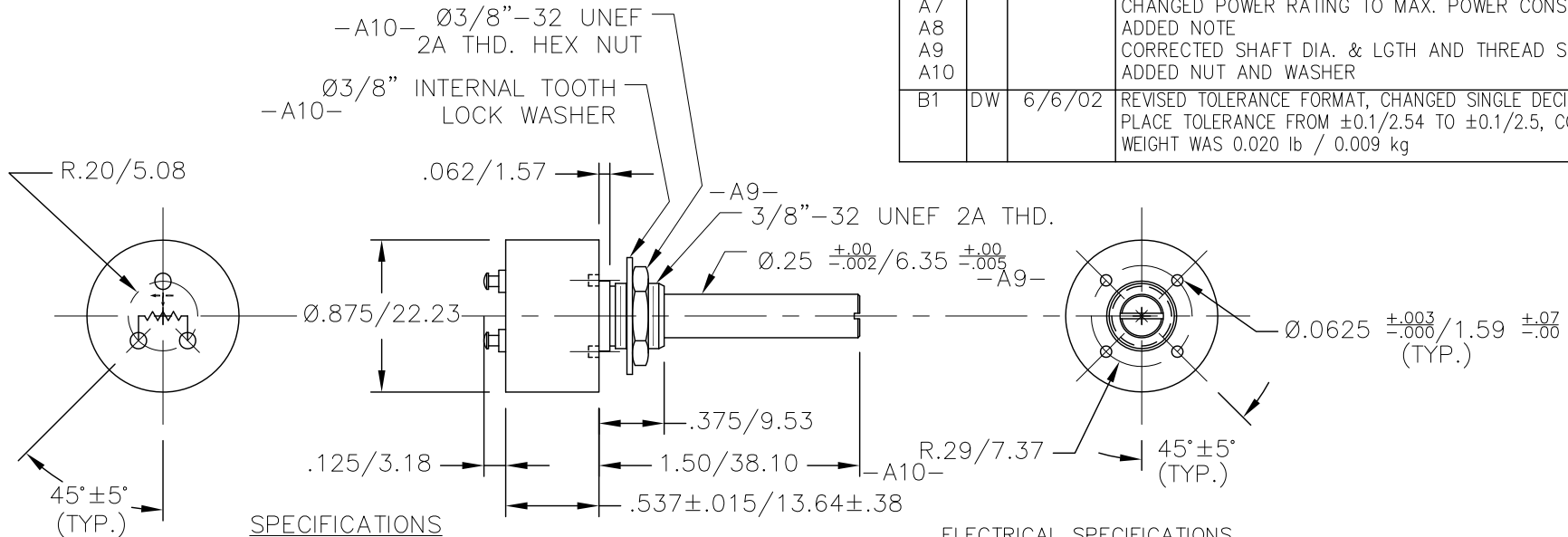
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW
	B	DIM. Ø11.5 THRU WAS Ø9.5 THRU	2/24/2016	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	NECK TWIST FIXTURE END PLATE, RIGHT THOR-M	
	DRAWN JIM CLEVENGER	2/24/2015		
	MATERIAL Aluminum-6061	CHECKED	SIZE A3	DRAWING NUMBER DL472-1121
HEAT TREAT	ENG	SCALE: 1:1	SHEET 1 OF 1	
FINISH	APPROVED	THIRD ANGLE PROJECTION		

REVISION RECORD

ITEM NO.	BY	DATE	DESCRIPTION
A1	DW	9/20/99	CHANGED RESISTANCE OF 1 K Ohm TO 1K, 2K, 5K, 10K Ohm
A2			RESOLUTION FROM CONTINUES TO VIRTUALLY INFINITE
A3			LIFE REDUCED TO >10,000 REVS.
A4			ADDED REFERENCE TO NORMAL OUTPUT SENSITIVITY
A5			CHANGED EFFECTIVE LINEAR RANGE FROM 320-360 ±5° TO 320 ±5°
A6			CHANGED EFFECTIVE ELECTRICAL TRAVEL FROM 320-360 ±5° TO 320 ±5°
A7			CHANGED POWER RATING TO MAX. POWER CONSUMPTION
A8			ADDED NOTE
A9			CORRECTED SHAFT DIA. & LGTH AND THREAD SIZE
A10			ADDED NUT AND WASHER
B1	DW	6/6/02	REVISED TOLERANCE FORMAT, CHANGED SINGLE DECIMAL PLACE TOLERANCE FROM ±0.1/2.54 TO ±0.1/2.5, CORRECTED WEIGHT WAS 0.020 lb / 0.009 kg



SPECIFICATIONS

PERFORMANCE PARAMETERS

- A1-TOTAL RESISTANCE 1K,2K,5K,10K Ohm ±10%
- A2-RESOLUTION VIRTUALLY INFINITE
- ROTATIONAL SPEED to 700 rpm
- LINEARITY ± 0.5% F.S.
- A3-ROTATIONAL LIFE > 10,000 REVS
- SHOCK 50 g

CHARACTERISTICS

- NOMINAL MAXIMUM INPUT VOLTAGE 10V DC
- A4-NOMINAL OUTPUT SENSITIVITY > 0.03%Vin/10 deg (REF.)
- A5-EFFECTIVE LINEAR RANGE 320, ±5 deg
- MECHANICAL TRAVEL NO LIMIT
- MOUNTING PLANE
- A8-SIGNAL OUTPUT MUST BE COMPATIBLE WITH AND RECORDABLE IN A DATA CHANNEL AS DEFINED IN SAE J211

ELECTRICAL SPECIFICATIONS

- A6-EFFECTIVE ELECTRICAL TRAVEL 320, ±5 deg
- INDEPENDENT LINEARITY < ± 0.5% F.S.
- A7-MAX POWER CONSUMPTION < 1/10 Watts

MECHANICAL SPECIFICATIONS

- MECHANICAL ANGLE CONTINUOUS NO STOPS
- TORQUE MAX MINIMAL TORQUE
- OPERATING TEMP. 69-72°F/20.6 - 22.2°C
- STORAGE TEMP. 0-200°F/-17.8-93.3°C
- HUMIDITY 10-70% RELATIVE HUMIDITY
- WATER PROOF NO
- B1-WEIGHT < .050 lb / 0.023 kg

RELEASED

JUN. 10, 2002

NHTSA

UNITS ARE in/mm

TOLERANCES ARE: *	
DECIMALS	ANGLES
.X ±0.1/2.5	+ 0.5°
.XX ±0.01/.25	
.XXX ±0.005/.127	
* unless otherwise noted	

MATERIAL:	
SCALE NONE	
APPROVALS	DATE
DRAWN Gerda England	4/7/98
CHECKED	
ENG J. McFadden	



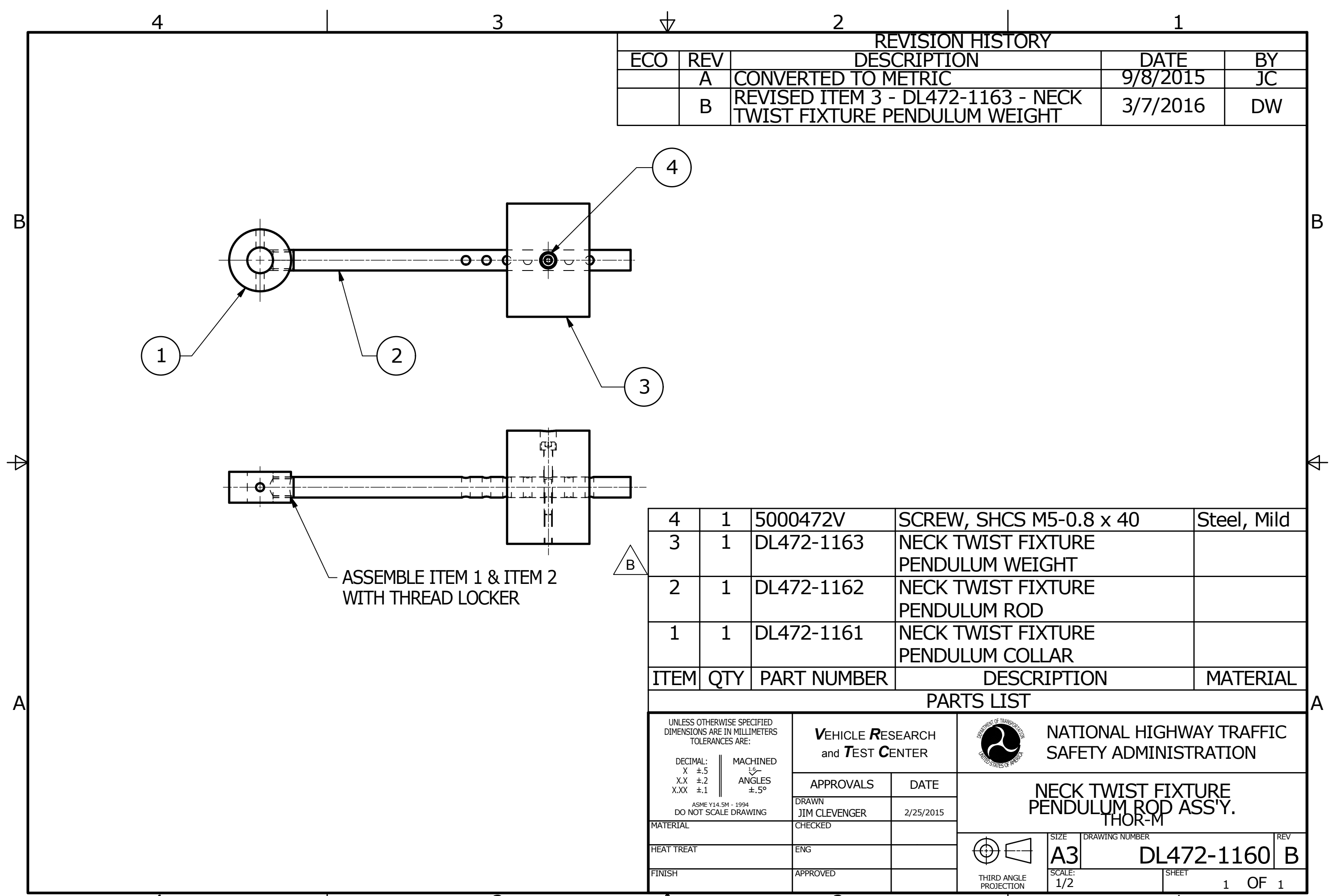
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

CHEST ROTARY POTENTIOMETER

HYBRID III DUMMY FAMILY

SIZE A	DRAWING NUMBER SA572-S51	REV B
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	JC
	B	REVISED ITEM 3 - DL472-1163 - NECK TWIST FIXTURE PENDULUM WEIGHT	3/7/2016	DW

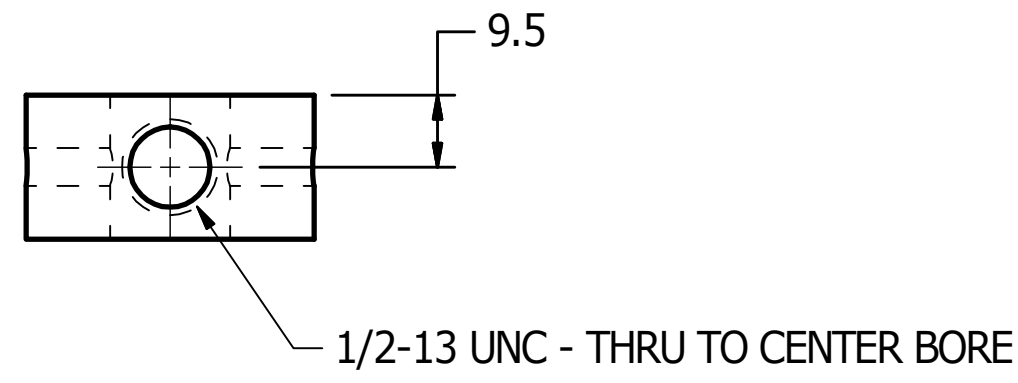
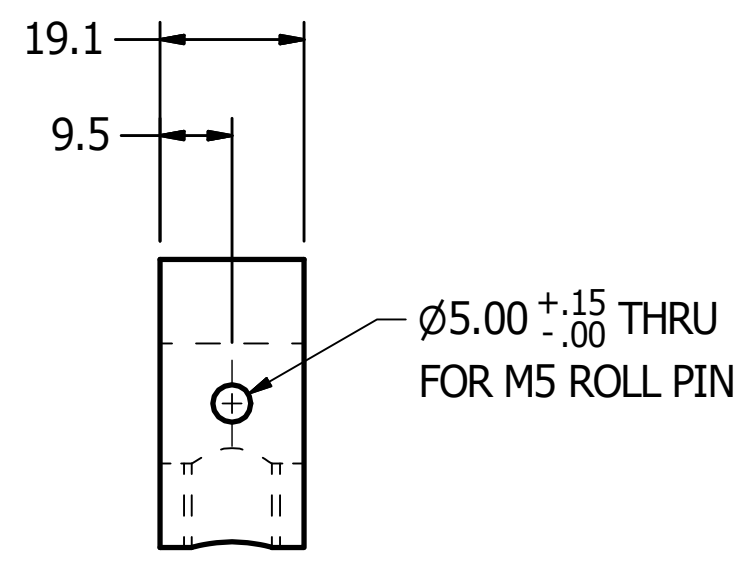
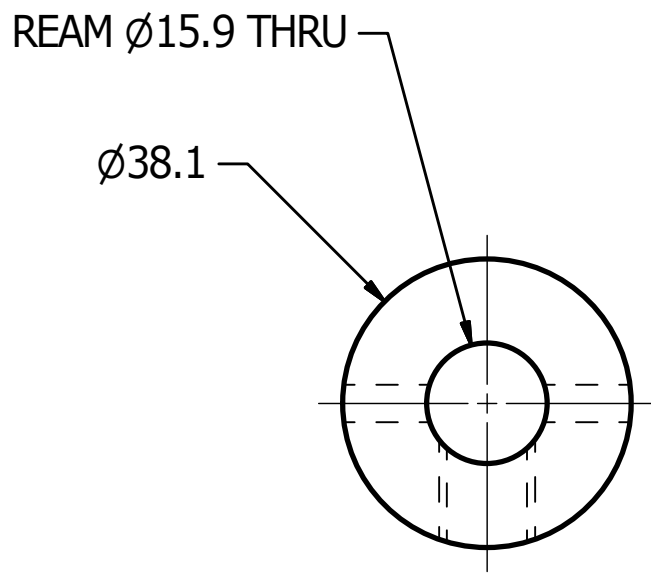


ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
4	1	5000472V	SCREW, SHCS M5-0.8 x 40	Steel, Mild
3	1	DL472-1163	NECK TWIST FIXTURE PENDULUM WEIGHT	
2	1	DL472-1162	NECK TWIST FIXTURE PENDULUM ROD	
1	1	DL472-1161	NECK TWIST FIXTURE PENDULUM COLLAR	

PARTS LIST

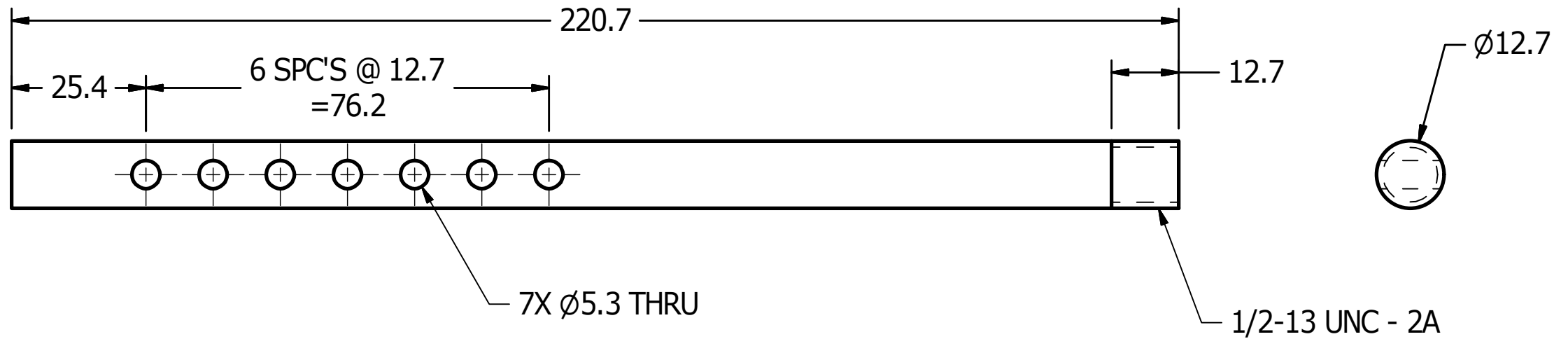
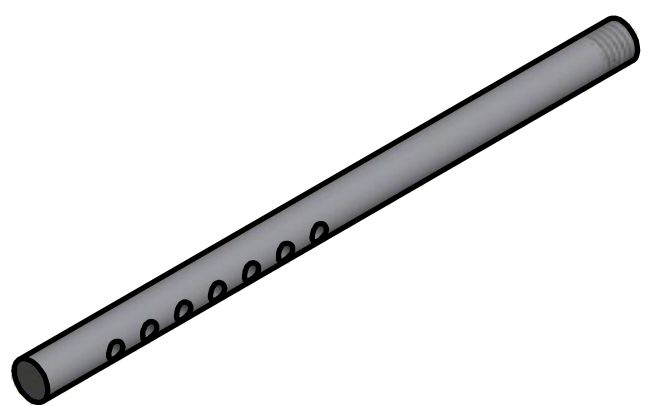
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN JIM CLEVINGER	DATE 2/25/2015	
MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3
		DRAWING NUMBER DL472-1160	REV B
		SCALE: 1/2	SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVENGER	2/25/2015	
	CHECKED		
MATERIAL Steel	ENG		 THIRD ANGLE PROJECTION
HEAT TREAT	APPROVED		
FINISH			SIZE: A3 SCALE: 1:1
		DRAWING NUMBER: DL472-1161	SHEET: 1 OF 1

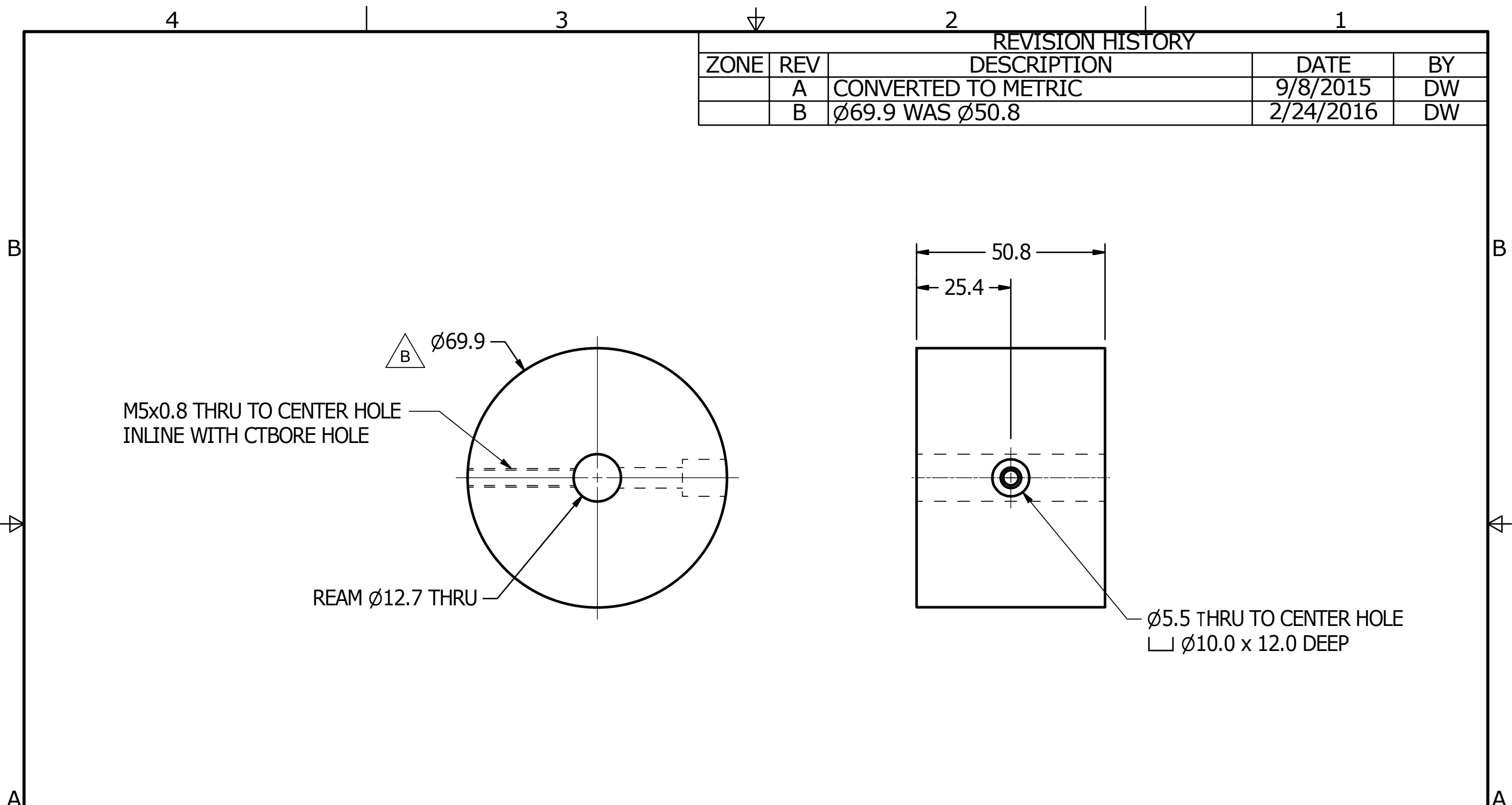
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	2/25/2015	JC



STOCK: Ø1/2" CR ROUND BAR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVENGER	2/25/2015	
	CHECKED		
MATERIAL Steel	ENG		THIRD ANGLE PROJECTION
HEAT TREAT	APPROVED		
FINISH			SIZE: A3 SCALE: 1:1
		DRAWING NUMBER: DL472-1162 SHEET: 1 OF 1	REV: A

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW
	B	Ø69.9 WAS Ø50.8	2/24/2016	DW

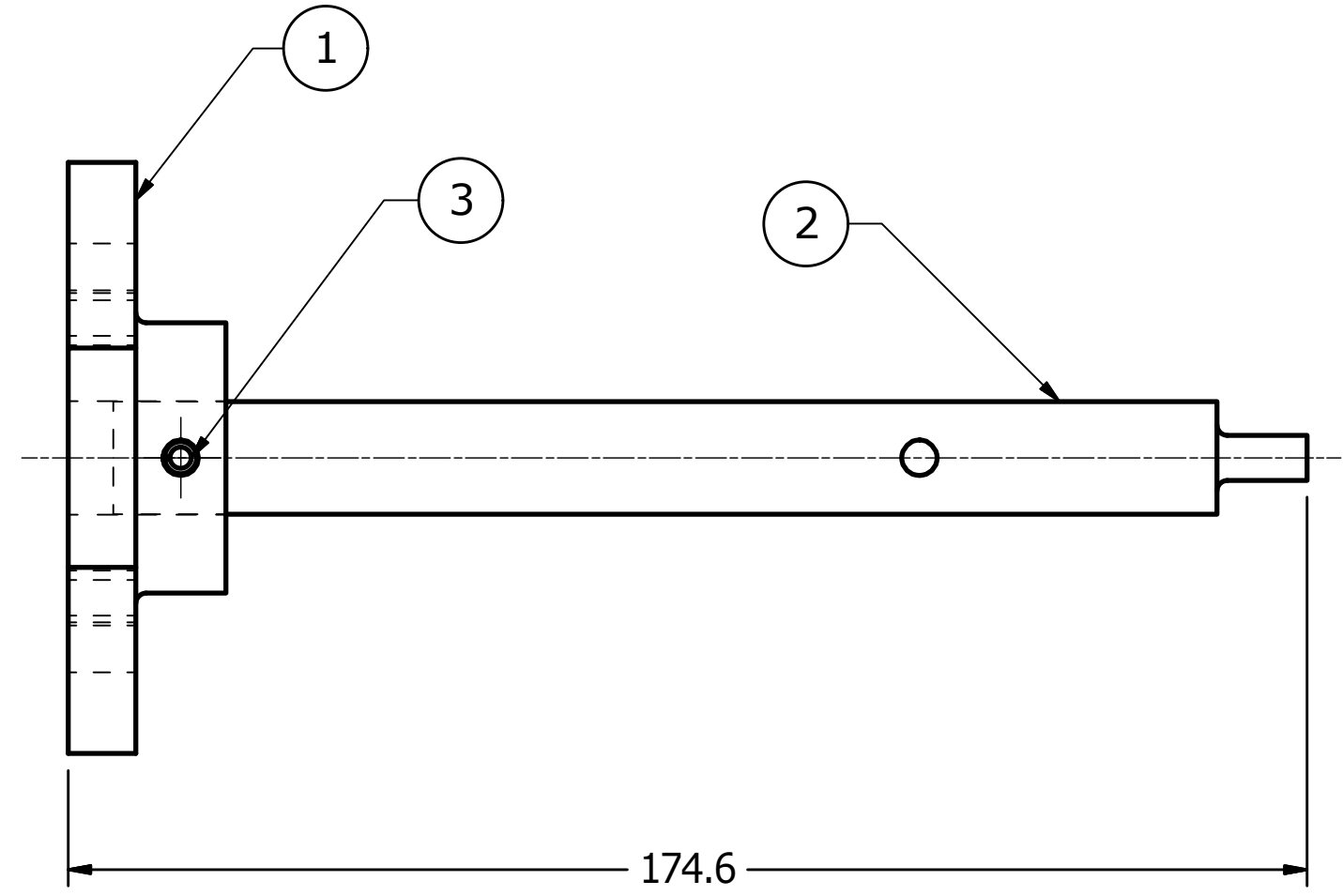
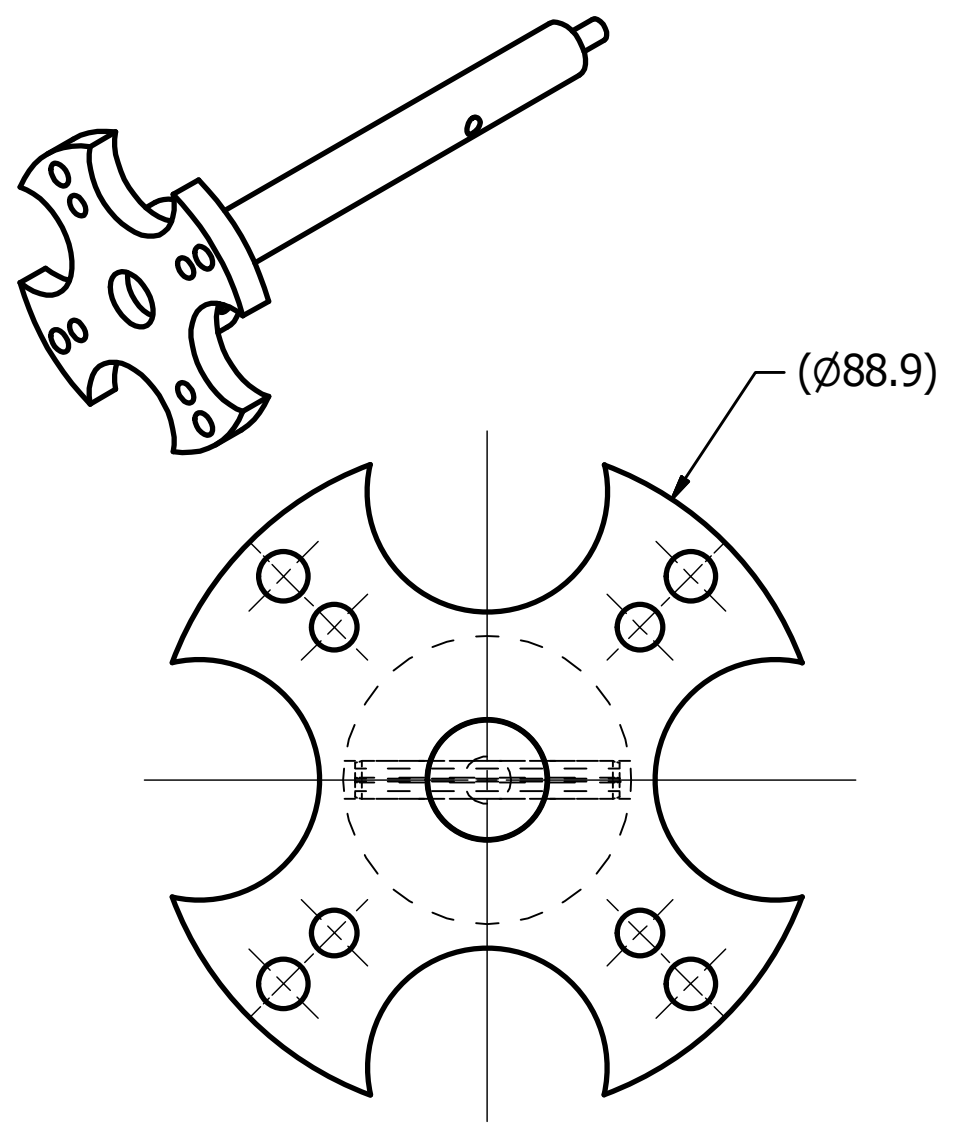


△ B Ø69.9
 M5x0.8 THRU TO CENTER HOLE
 INLINE WITH CTBORE HOLE
 REAM Ø12.7 THRU

50.8
 25.4
 Ø5.5 THRU TO CENTER HOLE
 □ Ø10.0 x 12.0 DEEP

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 2/25/2015		NECK TWIST FIXTURE PENDULUM WEIGHT THOR-M	
MATERIAL Steel HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1		DRAWING NUMBER DL472-1163 SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW

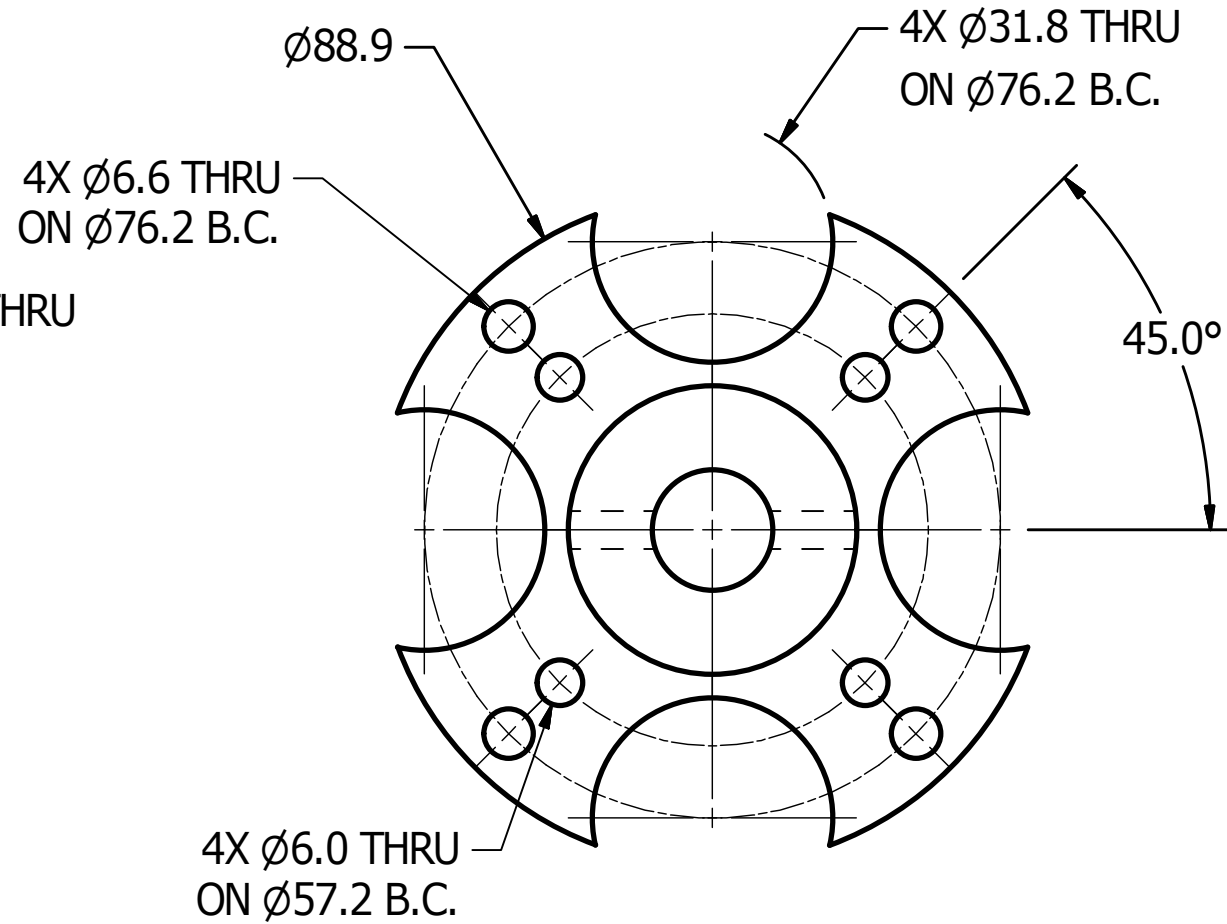
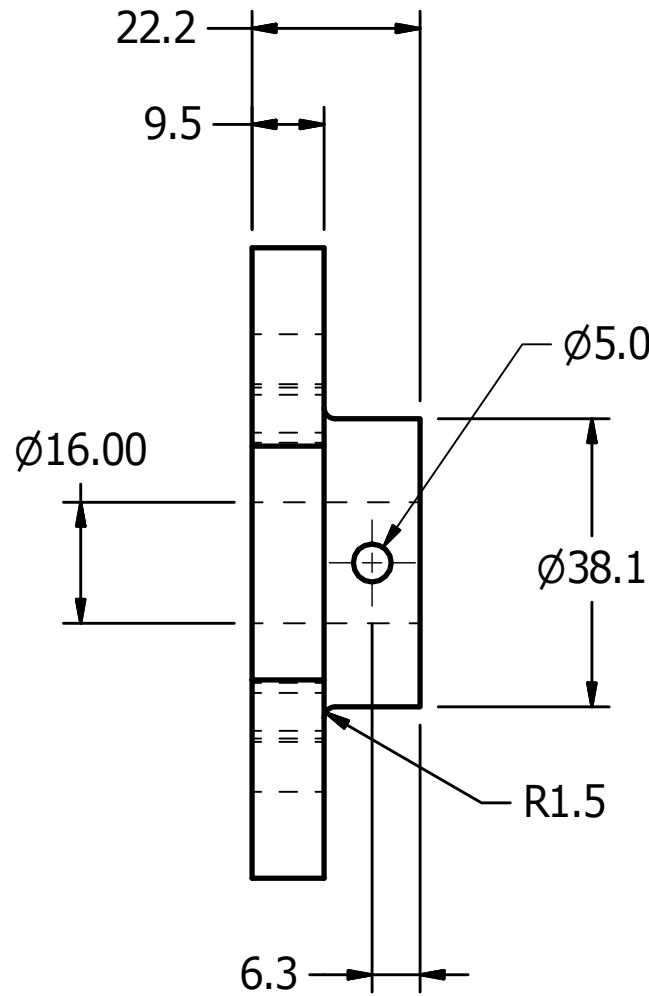
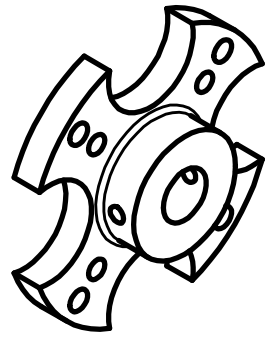



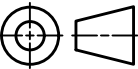
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
3	1	5000198V	PIN, ROLL M5 x 35	S.S.
2	1	DL472-1152	NECK TWIST FIXTURE ROTATION SHAFT	
1	1	DL472-1151	NECK TWIST FIXTURE NECK ATTACHMENT PLATE	

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION: DECIMAL: ANGLES: MACHINED: ±1/64 .X ±.1 ±.5 ✓ .XX ±.01 .XXX ±.005 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 2/24/2015		NECK TWIST FIXTURE SHAFT ASSEMBLY THOR-M	
MATERIAL	HEAT TREAT	APPROVED	SIZE A3		
FINISH			THIRD ANGLE PROJECTION	SCALE: 1:1	SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/8/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN JIM CLEVINGER CHECKED		DATE 2/24/2015	
	MATERIAL Aluminum 6061 HEAT TREAT FINISH		NECK TWIST FIXTURE NECK ATTACHMENT PLATE THOR-M	
	APPROVED		 THIRD ANGLE PROJECTION	SIZE A3
			SCALE: 1:1	REV A
			SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/4/2015	DW

B

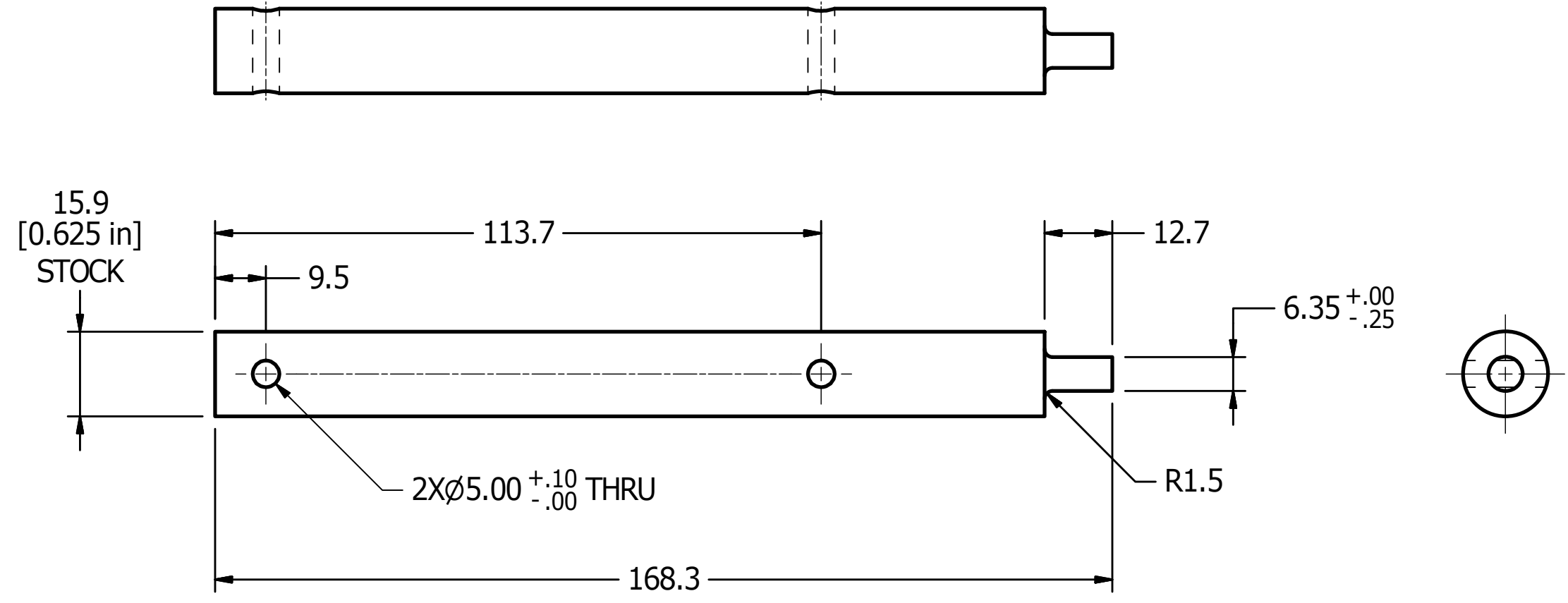
B

A

A

A

A

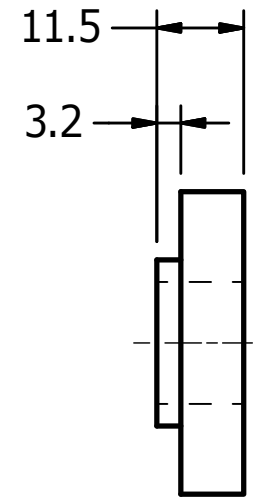
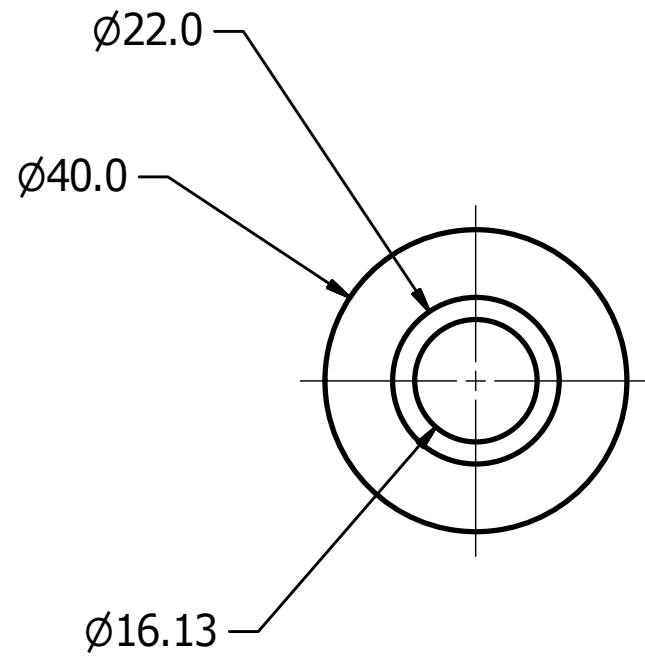


STOCK: Ø5/8" CR BAR

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		NECK TWIST FIXTURE ROTATION SHAFT THOR- M		
	DRAWN JIM CLEVENGER	2/24/2015				SIZE A3
	MATERIAL Steel, Mild	CHECKED		SCALE: 1:1	SHEET 1 OF 1	
HEAT TREAT	ENG					
FINISH	APPROVED					

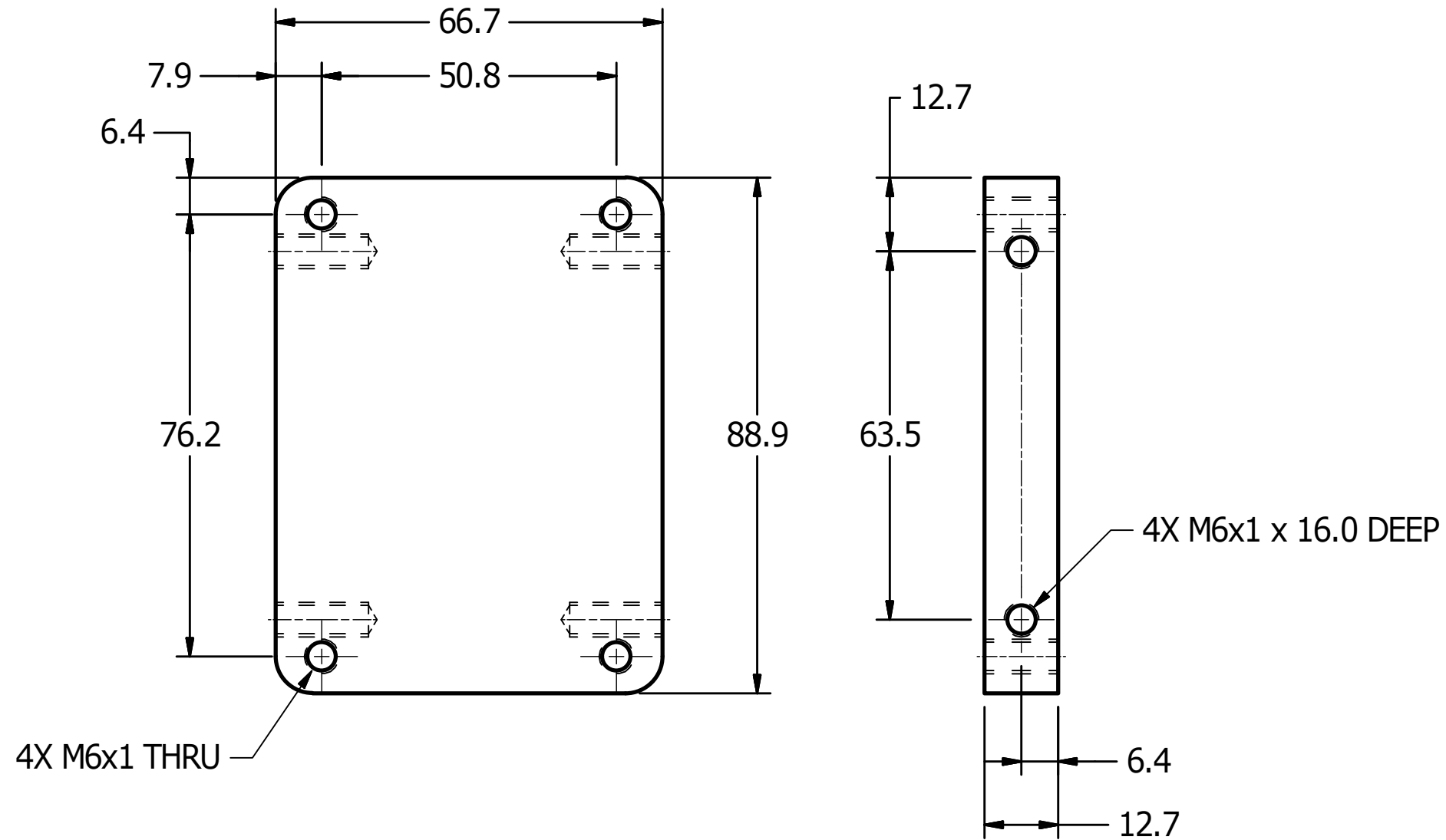


REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/4/2015	DW



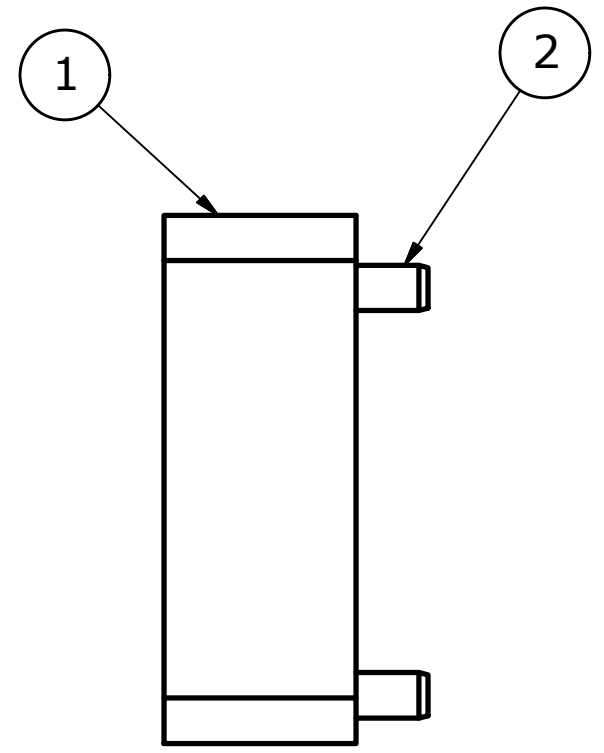
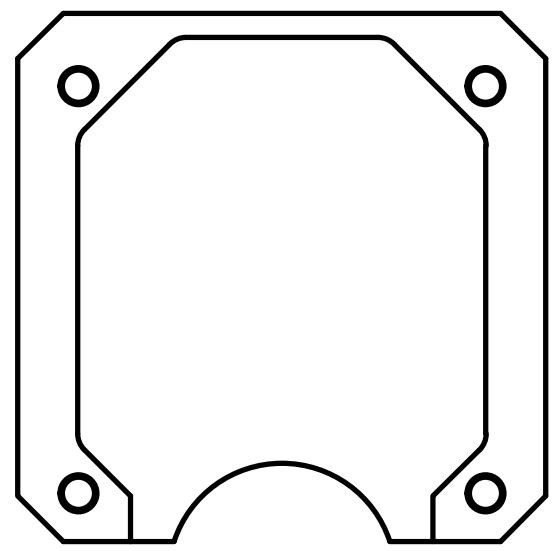
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Jim Clevenger CHECKED ENG APPROVED	DATE 7/20/2015	
MATERIAL Steel, Mild HEAT TREAT FINISH	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: FULL	DRAWING NUMBER DL472-1180 SHEET 1 OF 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/4/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 2/24/2015		NECK TWIST TEST FIXTURE MOUNTING PLATE THOR-M	
MATERIAL Aluminum-6061 HEAT TREAT FINISH	ENG APPROVED		SIZE A3	DRAWING NUMBER DL472-109	REV A
			SCALE: 1:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/4/2015	DW



ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
2	4	5000445	PIN, DOWEL M6 x 20	Steel
1	1	DL472-1171	NECK TWIST FIXTURE NECK ADAPTER PLATE	Aluminum 6061

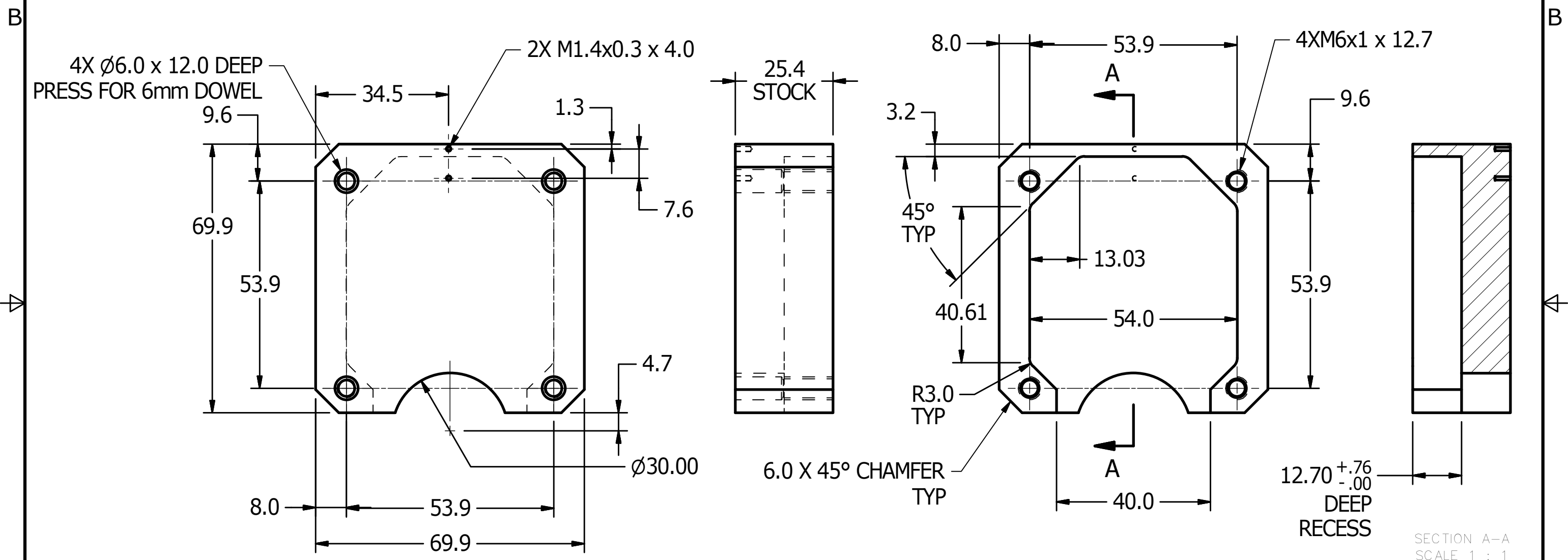
PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.5 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 2/24/2015		NECK TWIST FIXTURE NECK MOUNTING ADAPTER THOR-M	
MATERIAL HEAT TREAT FINISH	ENG APPROVED		SIZE A3		
			SCALE: 1:1	SHEET 1 OF 1	

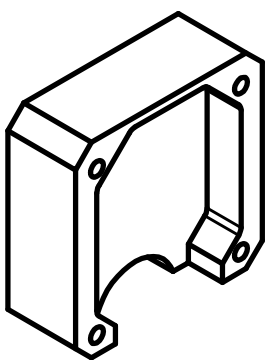
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/4/2015	JC

NOTE:

THE M6 AND THE 6mm DOWEL HOLES LINE UP



SECTION A-A
SCALE 1 : 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTION: DECIMAL: ANGLES: MACHINED: $\pm 1/64$.X ± 1 ± 5 $\sqrt{\text{✓}}$.XX ± 0.01 .XXX ± 0.005 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 2/24/2015	
	MATERIAL Aluminum 6061 HEAT TREAT	ENG	SIZE A3
	FINISH	APPROVED	DRAWING NUMBER DL472-1171 SCALE: 1:1

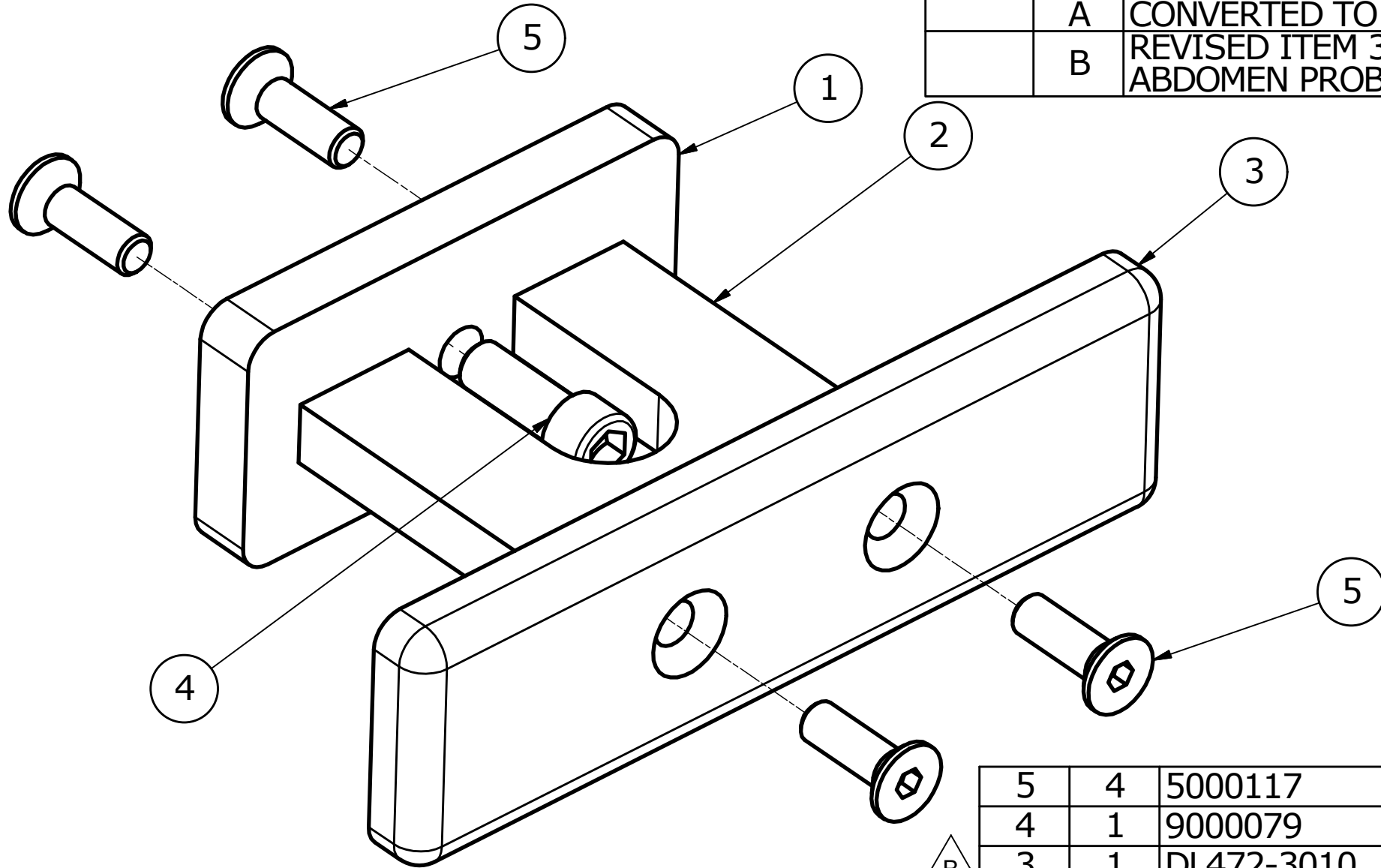
4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/9/2015	DW
	B	REVISED ITEM 3 - 472-3010 - LOWER ABDOMEN PROBE FACE FRONT PLATE	3/7/2016	DW



5	4	5000117	SCREW, FHCS M8-1.25 x 5
4	1	9000079	SCREW, SHCS 3/8-16 x 1"
3	1	DL472-3010	LOWER ABDOMEN PROBE FACE FRONT PLATE
2	1	DL472-3020	LOWER ABDOMEN PROBE FACE CONNECTOR PLATE
1	1	DL472-3030	LOWER ABDOMEN PROBE FACE MOUNTING PLATE

ITEM	QTY	PART NUMBER	DESCRIPTION
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PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:

DECIMAL:	MACHINED
X ±.5	1.5
X.X ±.2	ANGLES
X.XX ±.1	±.5°

ASME Y14.5M - 1994 DO NOT SCALE DRAWING

VEHICLE RESEARCH and TEST CENTER



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

APPROVALS

DATE

LOWER ABDOMEN PROBE FACE ASSEMBLY THOR-M

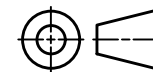
DRAWN JIM CLEVENGER

6/10/2015

CHECKED

ENG

APPROVED



THIRD ANGLE PROJECTION

SIZE A3

DRAWING NUMBER

DL472-3000

REV B

SCALE: 1:1

SHEET

1 OF 1

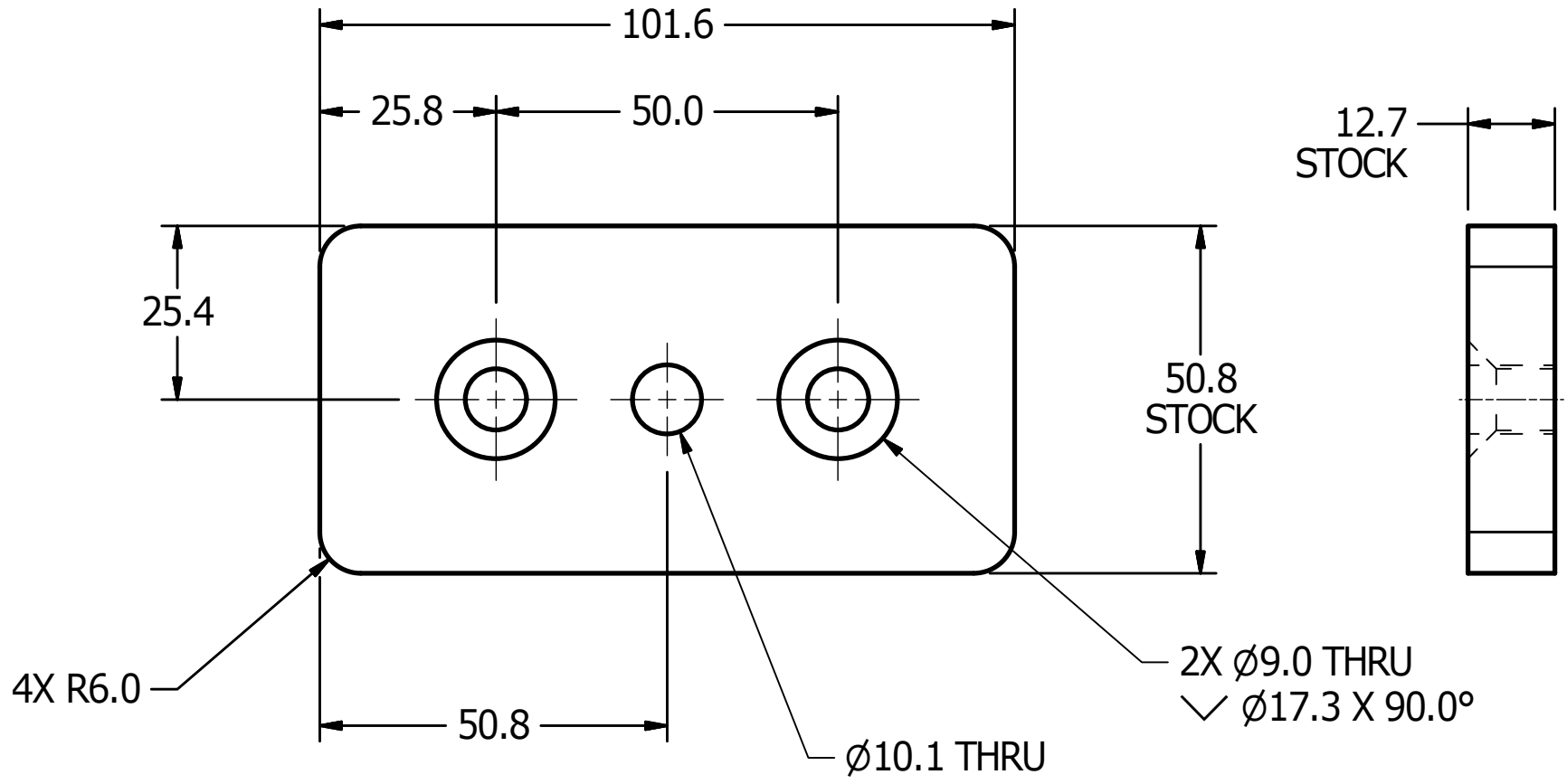
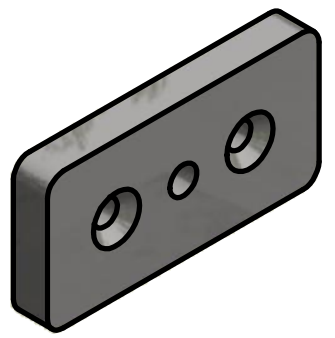
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2

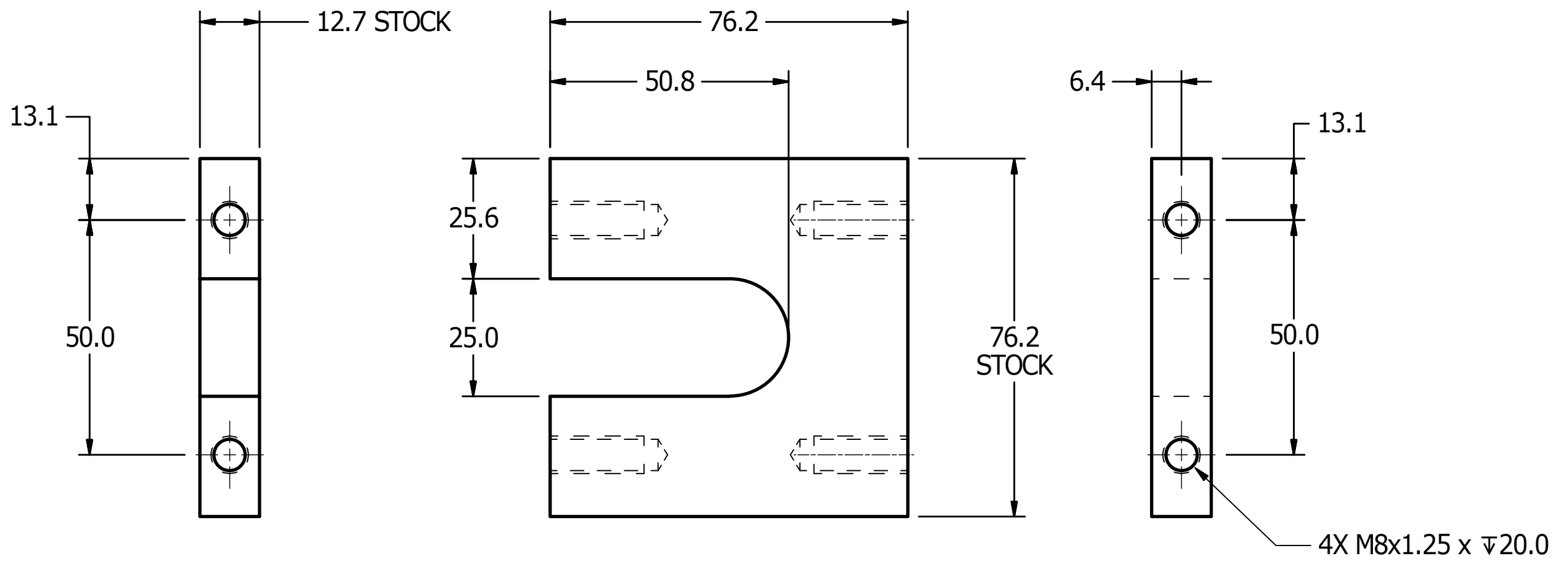
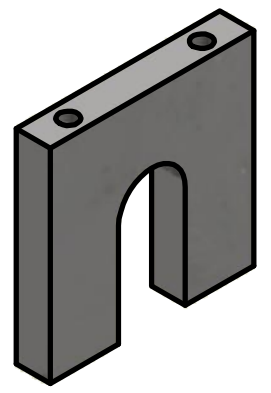
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/9/2015	DW



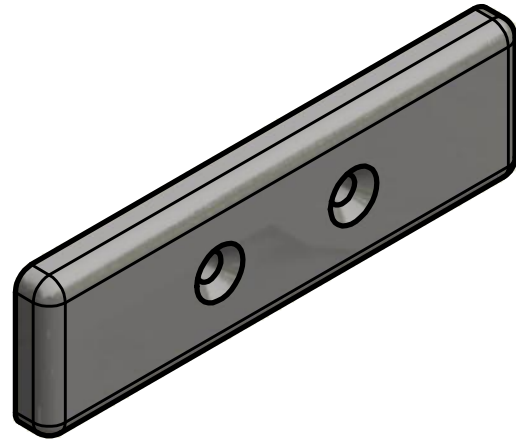
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 6/10/2015		LOWER ABDOMEN PROBE FACE MOUNTING PLATE THOR-M	
MATERIAL Steel, Mild HEAT TREAT FINISH	ENG APPROVED		SIZE A3	DRAWING NUMBER DL472-3030	REV A
			SCALE: 1:1	SHEET 1 OF 1	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/9/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		LOWER ABDOMEN PROBE FACE CONNECTOR PLATE THOR-M	
	DRAWN JIM CLEVENGER	6/10/2015	SIZE		
	MATERIAL Steel, Mild	CHECKED		A3	DL472-3020
HEAT TREAT	ENG		SCALE: 1:1	SHEET	1 OF 1
FINISH	APPROVED				

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/9/2015	DW
	B	ADDED DIMINSION 4X R6	3/7/2016	DW



B

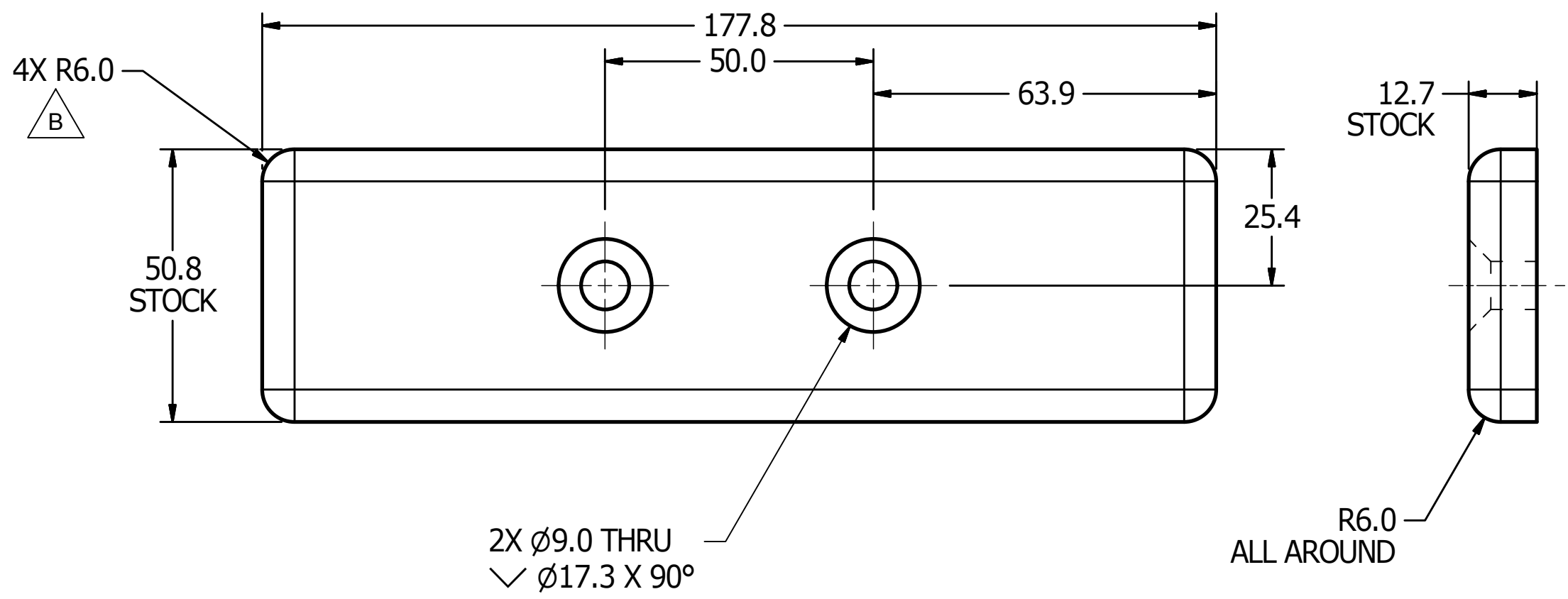
B

A

A

A

A



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN JIM CLEVENGER CHECKED ENG APPROVED	DATE 6/10/2015	LOWER ABDOMEN PROBE FACE FRONT PLATE THOR-M	
MATERIAL Steel, Mild HEAT TREAT FINISH	SIZE A3		DRAWING NUMBER DL472-3010	REV B
THIRD ANGLE PROJECTION		SCALE: 1:1	SHEET 1 OF 1	

4

3

2

1

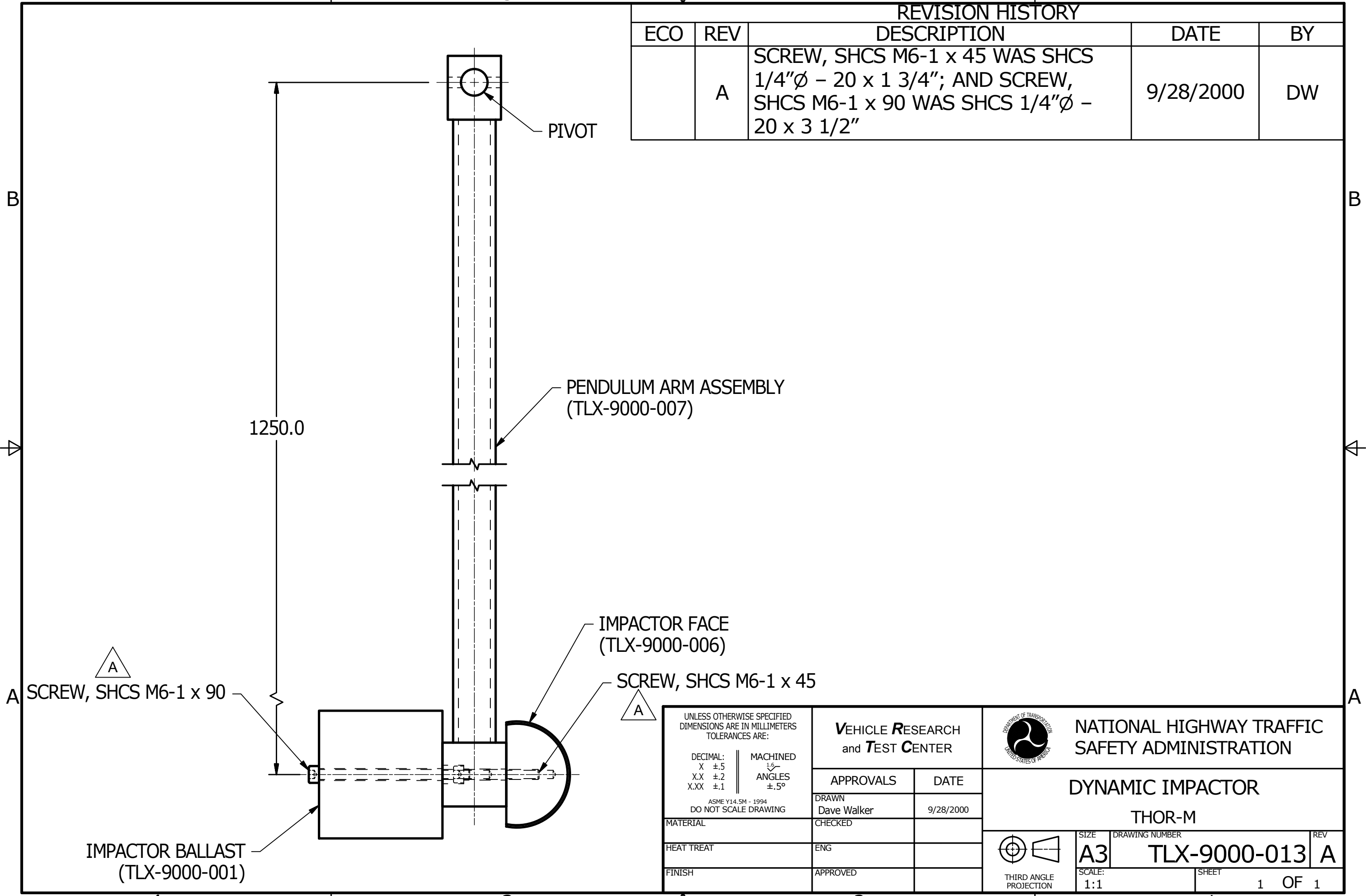
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	SCREW, SHCS M6-1 x 45 WAS SHCS 1/4"Ø - 20 x 1 3/4"; AND SCREW, SHCS M6-1 x 90 WAS SHCS 1/4"Ø - 20 x 3 1/2"	9/28/2000	DW



B

B

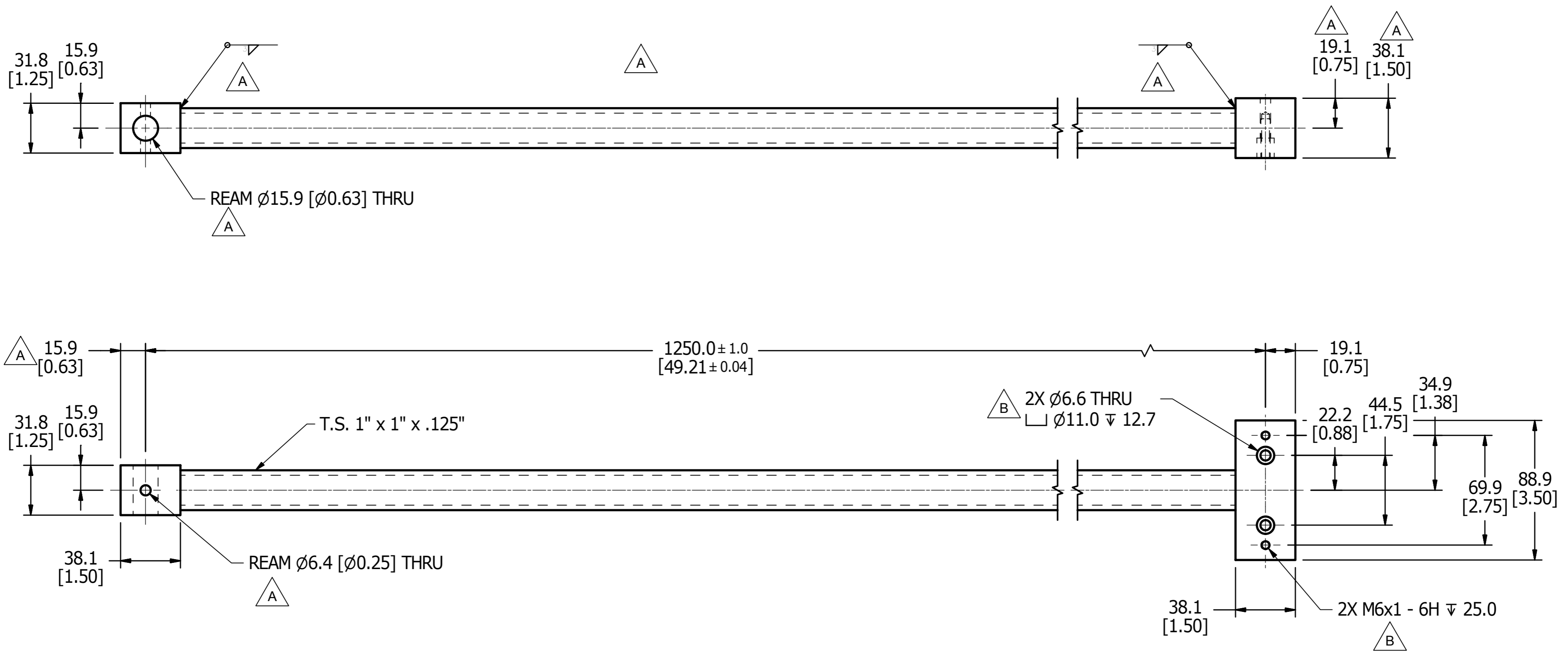
A

A

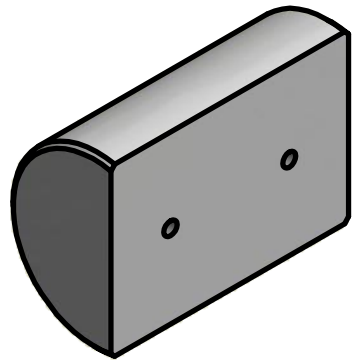


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE	DYNAMIC IMPACTOR THOR-M		
	DRAWN Dave Walker	9/28/2000			
	MATERIAL	CHECKED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER TLX-9000-013
HEAT TREAT	ENG	SCALE: 1:1	SHEET 1 OF 1		
FINISH	APPROVED				

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	REMOVED HOLES, ADDED DIMENSIONS, CHANGED DRILL TO REAM, CORRECTED DIMENSION (0.625 WAS 15.88), AND ADDED WELD SYMBOLS	9/8/2000	DW
	B	HOLE DIM. 2X Ø6.6 THRU □ Ø11.0 X12.7 WAS DRILL 6.528 (0.257) THRU COUNTERBORE 10.0/(0.4375) x 12.7/(0.50) DEEP (2 PLC'S.); AND 2X M6x1 - 6H x 25.0 WAS DRILL 5.105/(0.201) x 25.4/(1.0) DEEP TAP 1/4-20 (2 PLC'S.)	9/10/2015	DW
	C	ADDED MATERIAL	8/18/2016	DW

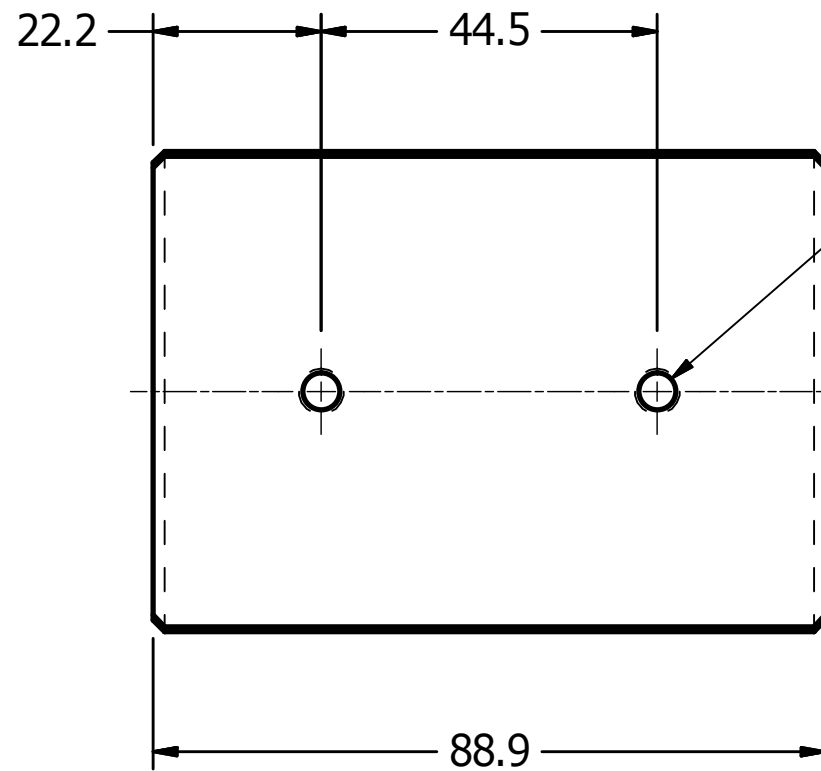
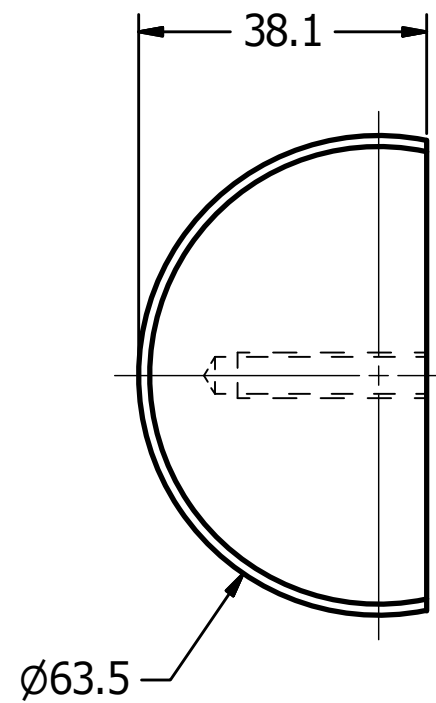
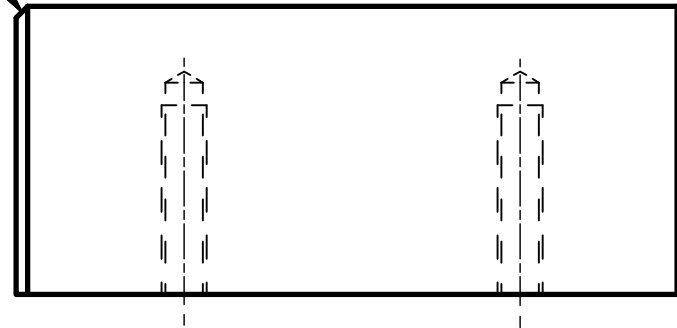


UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED: 1/16 ANGLES: ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN: Dave Walker CHECKED:	DATE 3/20/2000	
MATERIAL: MILD STEEL HEAT TREAT:	ENG:	APPROVED:	SIZE: A2 DRAWING NUMBER: TLX-9000-007 SCALE: 1:2 SHEET: 1 OF 1



1.5 X 45° CHAMFER
TYP. BOTH ENDS

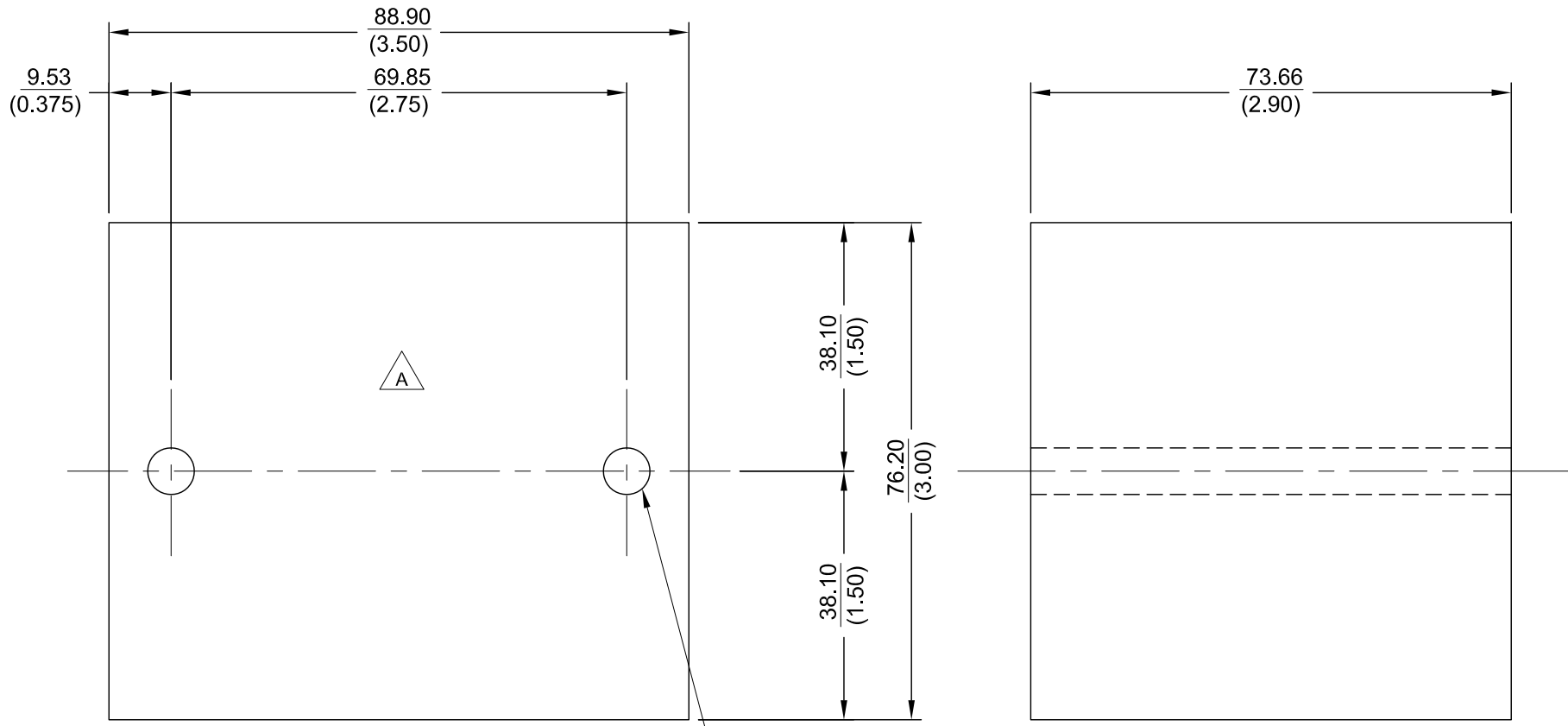
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	ADDED DECIMAL EQUIVALENT TO DRILL SIZE	5/23/2002	DW
	B	REMOVED "#7" FROM HOLE NOTE	9/19/2003	DW
	C	DIMENSION 2X M6-1 - 6H ∇ 25.0 WAS DRILL 5.105/0.201 X 25.4/1.0 DEEP TAP 1/4-20 (2 PLC'S.)	9/9/2015	DW



2X M6x1 - 6H ∇ 25.0

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1.6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE		TEST FIXTURE - IMPACTOR FACE		
	MATERIAL PTFE, Teflon	DRAWN Dave Walker	9/9/2015	THOR-M		
	HEAT TREAT	CHECKED			SIZE: A3	DRAWING NUMBER: TLX-9000-006
FINISH	ENG		THIRD ANGLE PROJECTION	SCALE:	SHEET: 1 OF 1	

REVISION RECORD			
ITEM NO.	BY	DATE	DESCRIPTION
A	DW	9/19/2003	REMOVED TAPED HOLES (ACCELEROMETER)



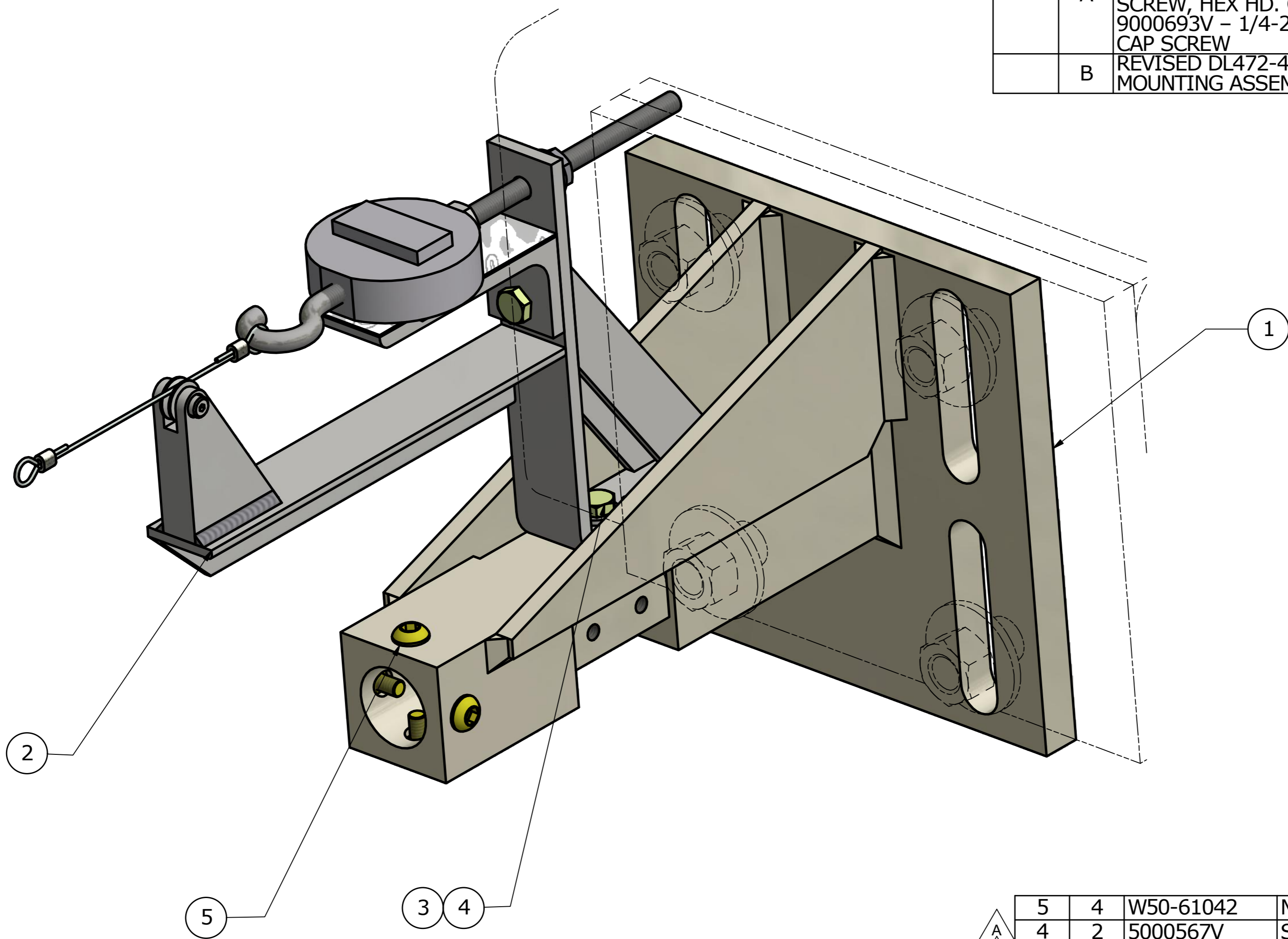
DRILL 7.14/(0.28125) THRU
(2 PLC'S.)

WEIGHT: 3.94 kg./(8.68 lbs.)



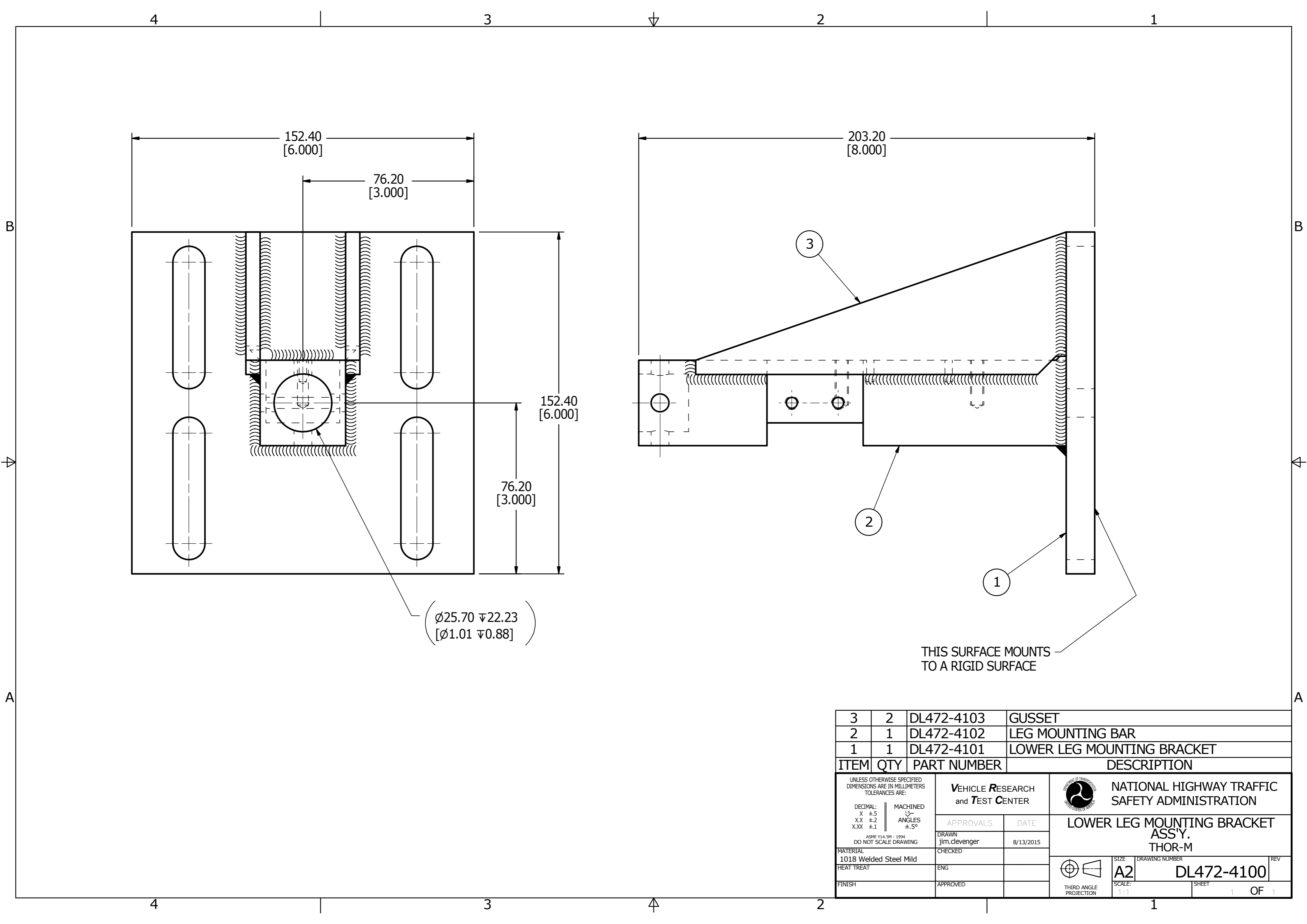
UNITS ARE mm/in		MATERIAL: STEEL		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TOLERANCES ARE: *		SCALE	1=1	TEST FIXTURE - IMPACTOR BALLAST	
DECIMALS	ANGLES	APPROVALS	DATE	THOR-LX LOWER EXTREMITY	
.X ±2.5/0.1	+ 0.5°	DRAWN	3/20/00	DRAWING NUMBER	
.XX ±0.25/0.01		CHECKED		TLX-9000-001	
.XXX ±0.127/0.005		ENG		SIZE	REV
* unless otherwise noted				A	A

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	PART #5000094 - WASHER, FLAT M6 WAS #9000244 - WASHER, FLAT Ø1/4; AND PART #5000567V - SCREW, HEX HD. CAP M6-1 x 20 WAS 9000693V - 1/4-20 x 3/4 HEX HEAD CAP SCREW	9/10/2015	DW
	B	REVISED DL472-4200 LOAD CELL MOUNTING ASSEMBLY	8/16/2016	DW



5	4	W50-61042	MODIFIED BHSS M6 THREAD
4	2	5000567V	SCREW, HEX HD. CAP M6-1 x 20
3	2	5000094	WASHER, FLAT M6
2	1	DL472-4200	LOAD CELL MOUNTING ASSEMBLY
1	1	DL472-4100	LOWER LEG MOUNTING BRACKET ASS'Y.

ITEM	QTY	PART NUMBER	DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:			
DECIMAL: X ±.5 XX ±.2 XXX ±.1		MACHINED ANGLES ±.5°	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING			
MATERIAL 1018		HEAT TREAT	
FINISH			
VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS DRAWN Jim Clevenger		DATE 10/26/2009	
CHECKED		THOR M	
ENG		ACHILLES FIXTURE - COMPLETE	
APPROVED		THOR M	
THIRD ANGLE PROJECTION		SIZE A2	DRAWING NUMBER DL472-4000
SCALE:		SHEET 1	REV B
		OF 1	

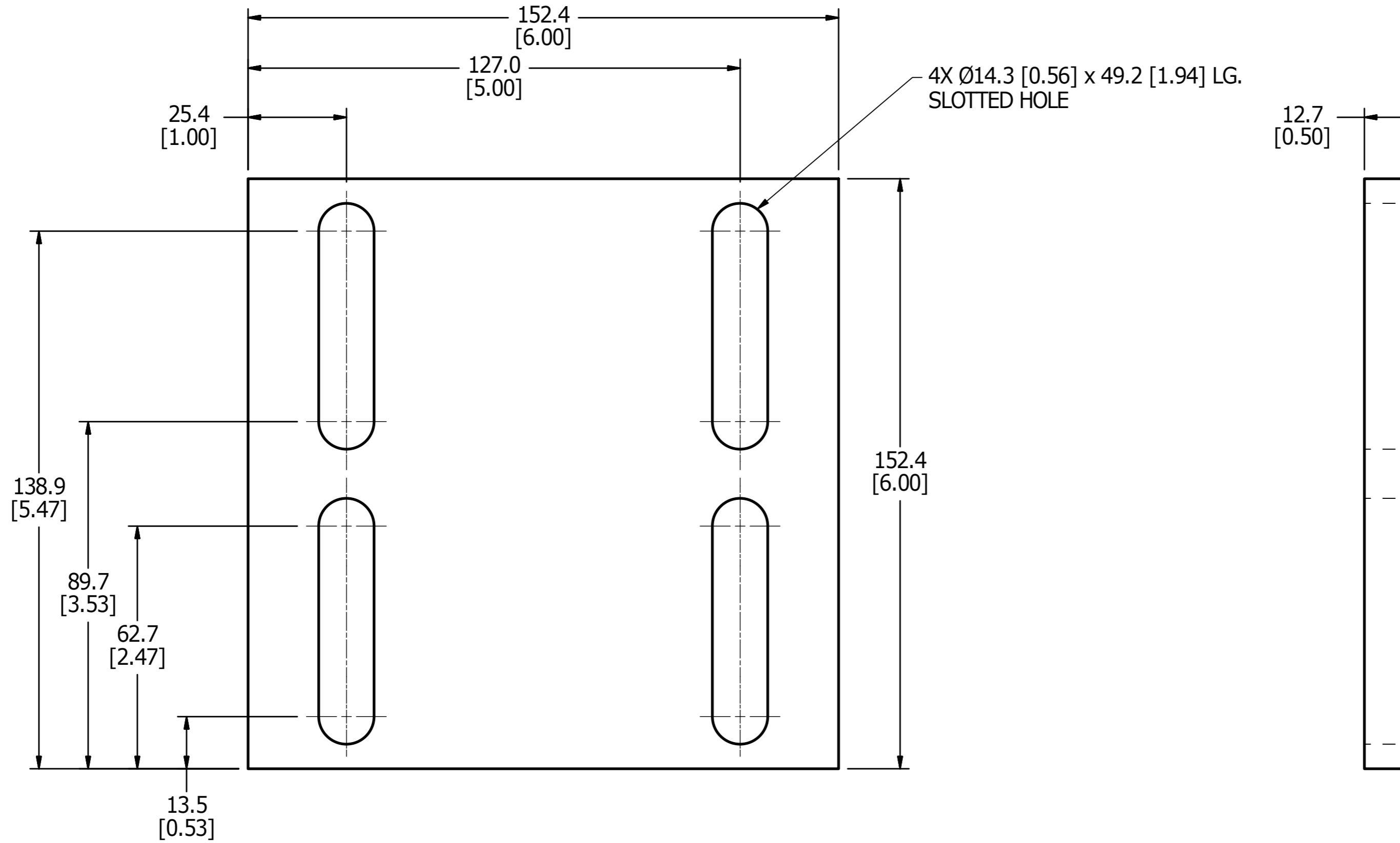
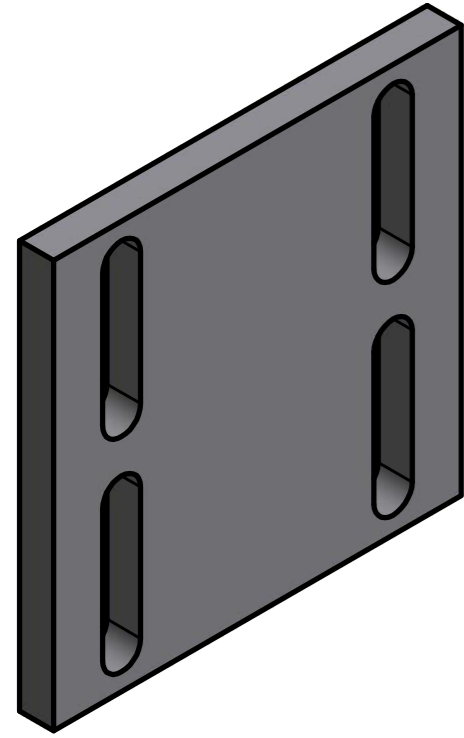



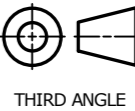
($\varnothing 25.70 \pm 22.23$)
 [$\varnothing 1.01 \pm 0.88$]

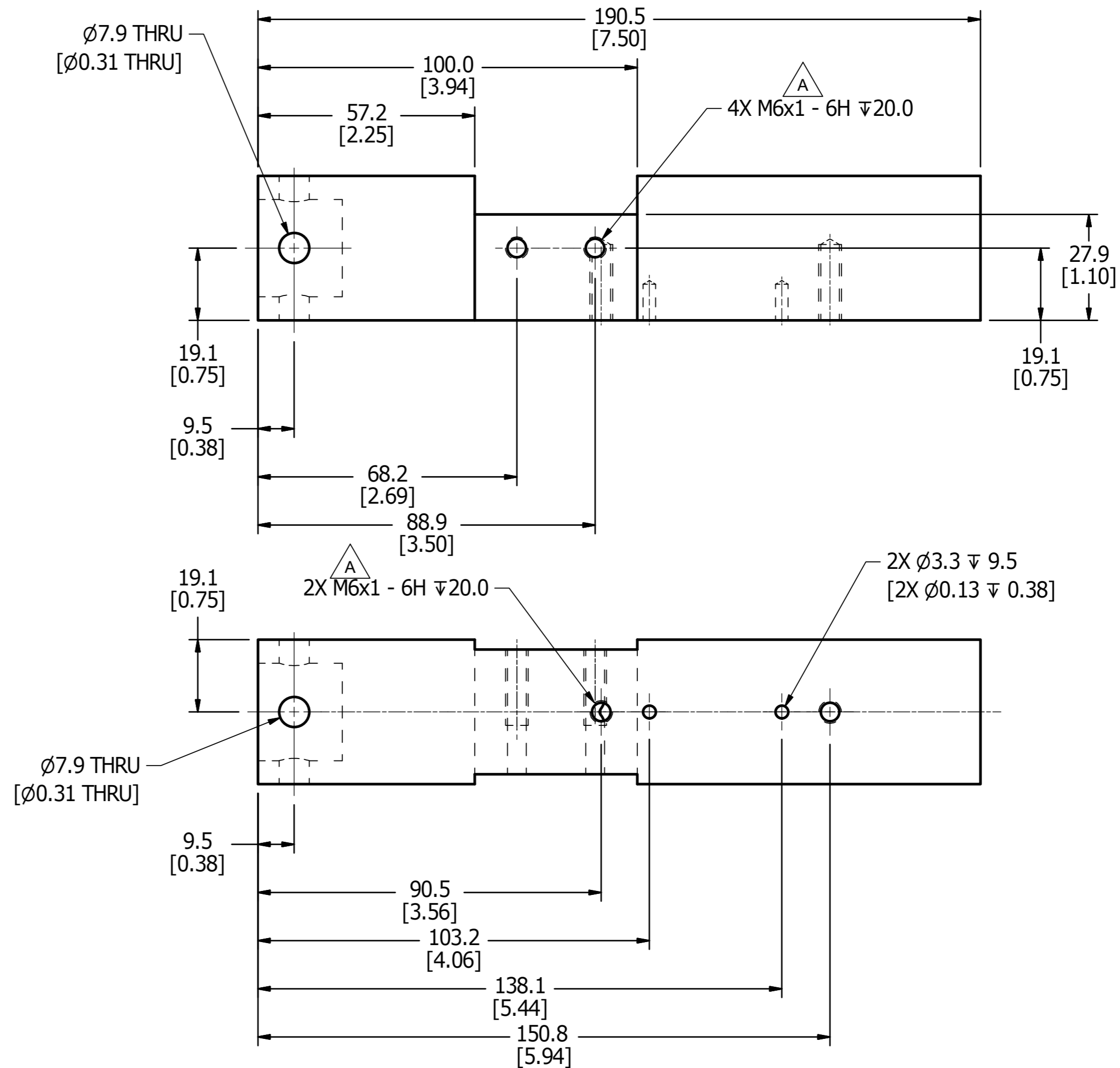
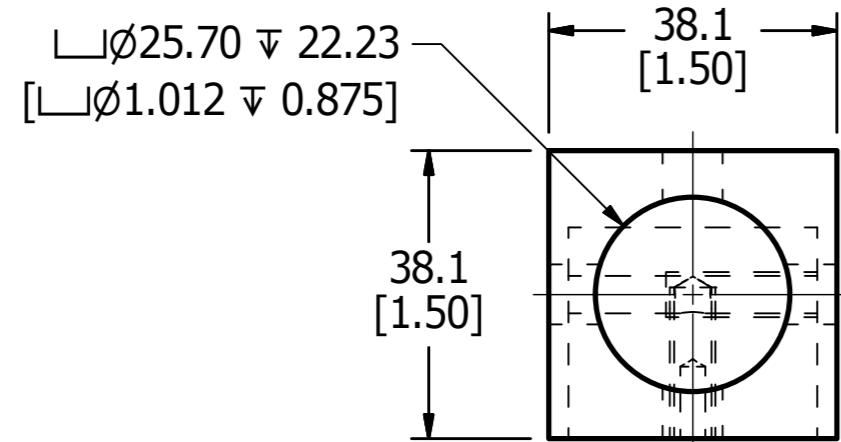
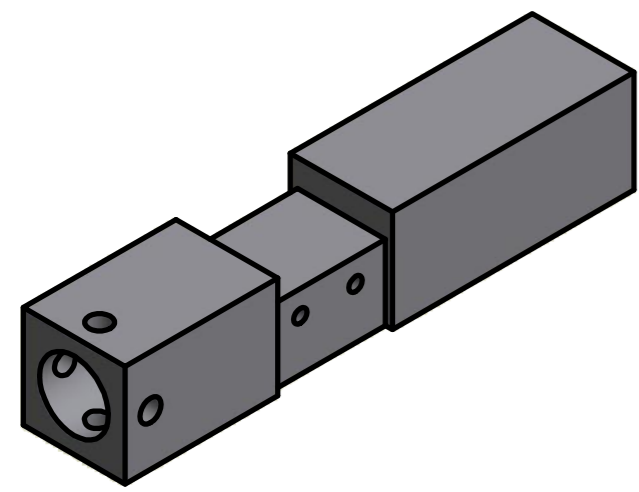
THIS SURFACE MOUNTS
 TO A RIGID SURFACE

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	DL472-4103	GUSSET
2	1	DL472-4102	LEG MOUNTING BAR
1	1	DL472-4101	LOWER LEG MOUNTING BRACKET

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN jim.devinger	DATE 8/13/2015	
MATERIAL 1018 Welded Steel Mild	CHECKED	SIZE A2	DRAWING NUMBER DL472-4100
HEAT TREAT	ENG	SCALE: 1:1	SHEET 1 OF 1
FINISH	APPROVED	THIRD ANGLE PROJECTION	

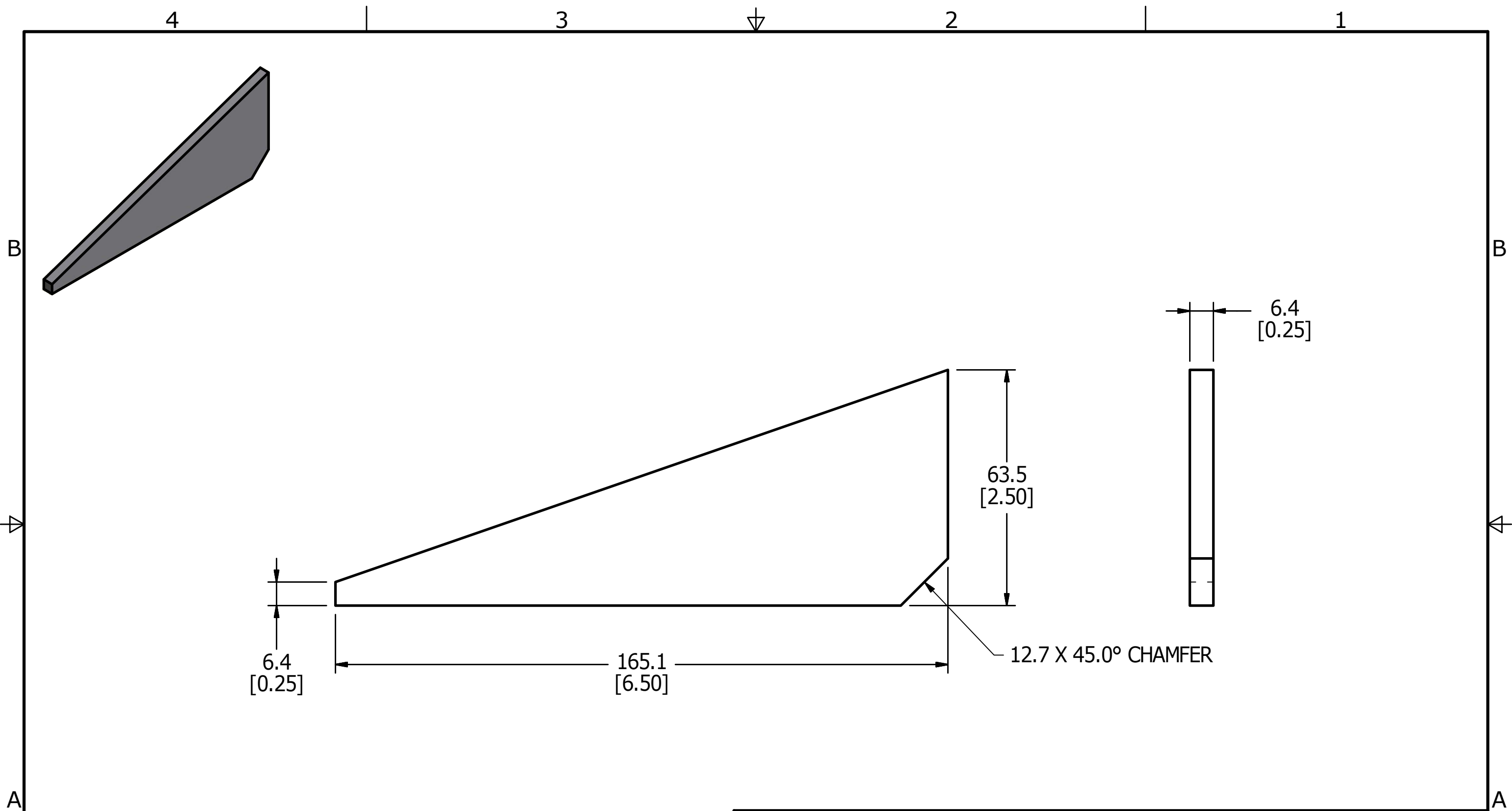



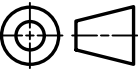
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Dave Walker CHECKED	DATE 9/1/2015	
MATERIAL 1018 Steel HEAT TREAT	ENG	APPROVED	 SCALE: 1:1
FINISH	SHEET 1 OF 1	DRAWING NUMBER DL472-4101	REV



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	HOLE NOTE 4X M6x1 - 6H ± 20.0 WAS 4X 1/4-28 UNF - 2B ± 9.5; HOLE NOTE 2X M6x1 - 6H ± 20.0 WAS 2X 1/4-20 UNC - 2B ± 15.9	9/10/2015	DW

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED: ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN: Dave Walker CHECKED:	DATE 9/1/2015		LEG MOUNTING BAR THOR-M	
MATERIAL: 1018 Steel HEAT TREAT: FINISH:	ENG: APPROVED:	SIZE: A2 SCALE: 1:1	DRAWING NUMBER: DL472-4102 SHEET: 1 OF 1	REV: A	



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 1/8 X.XX ±.1 1/16 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN Dave Walker CHECKED	DATE 9/1/2015	GUSSET THOR-M	
MATERIAL 1018 Steel HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER DL472-4103
			SCALE: 1:1	SHEET 1 OF 1

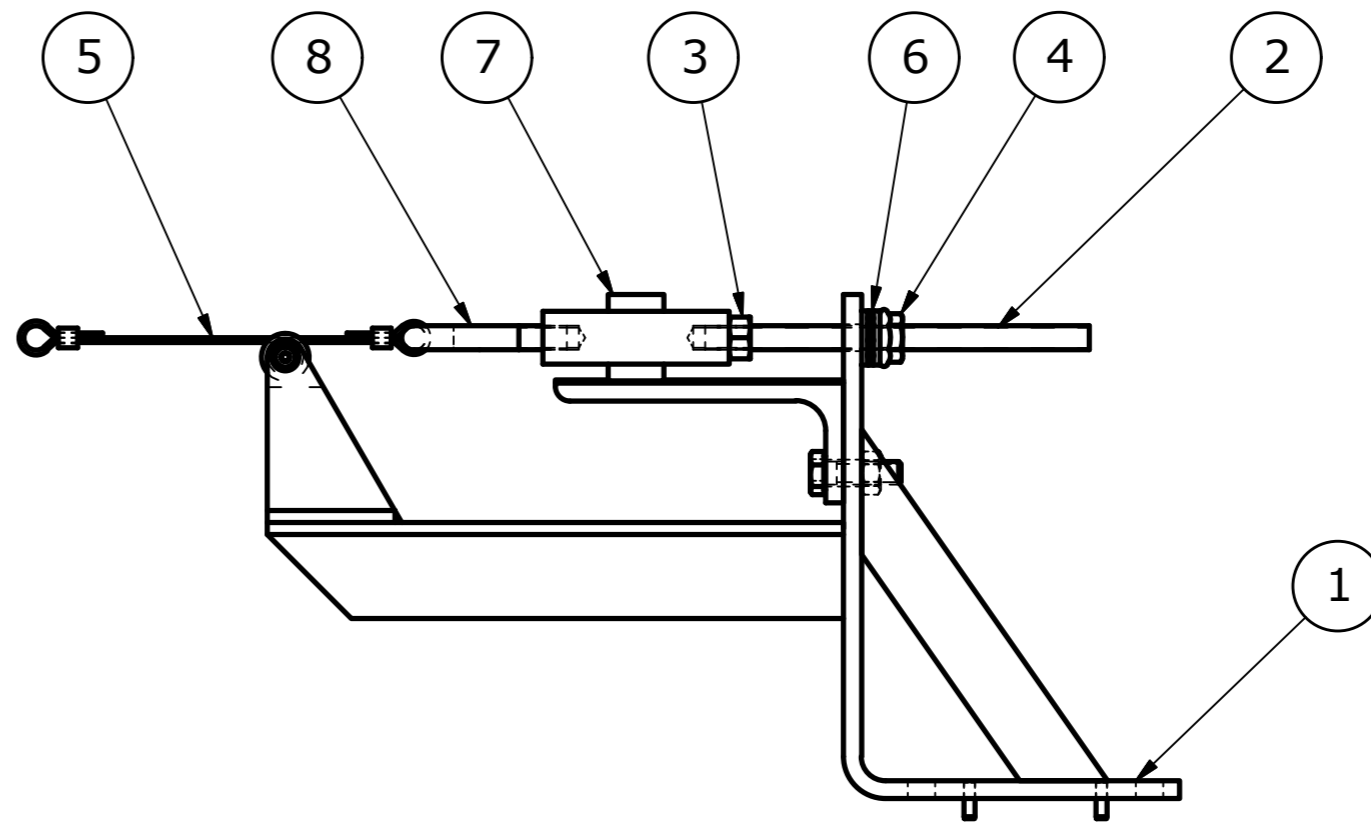
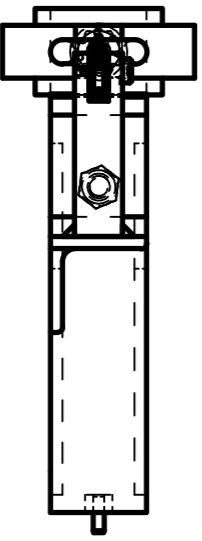
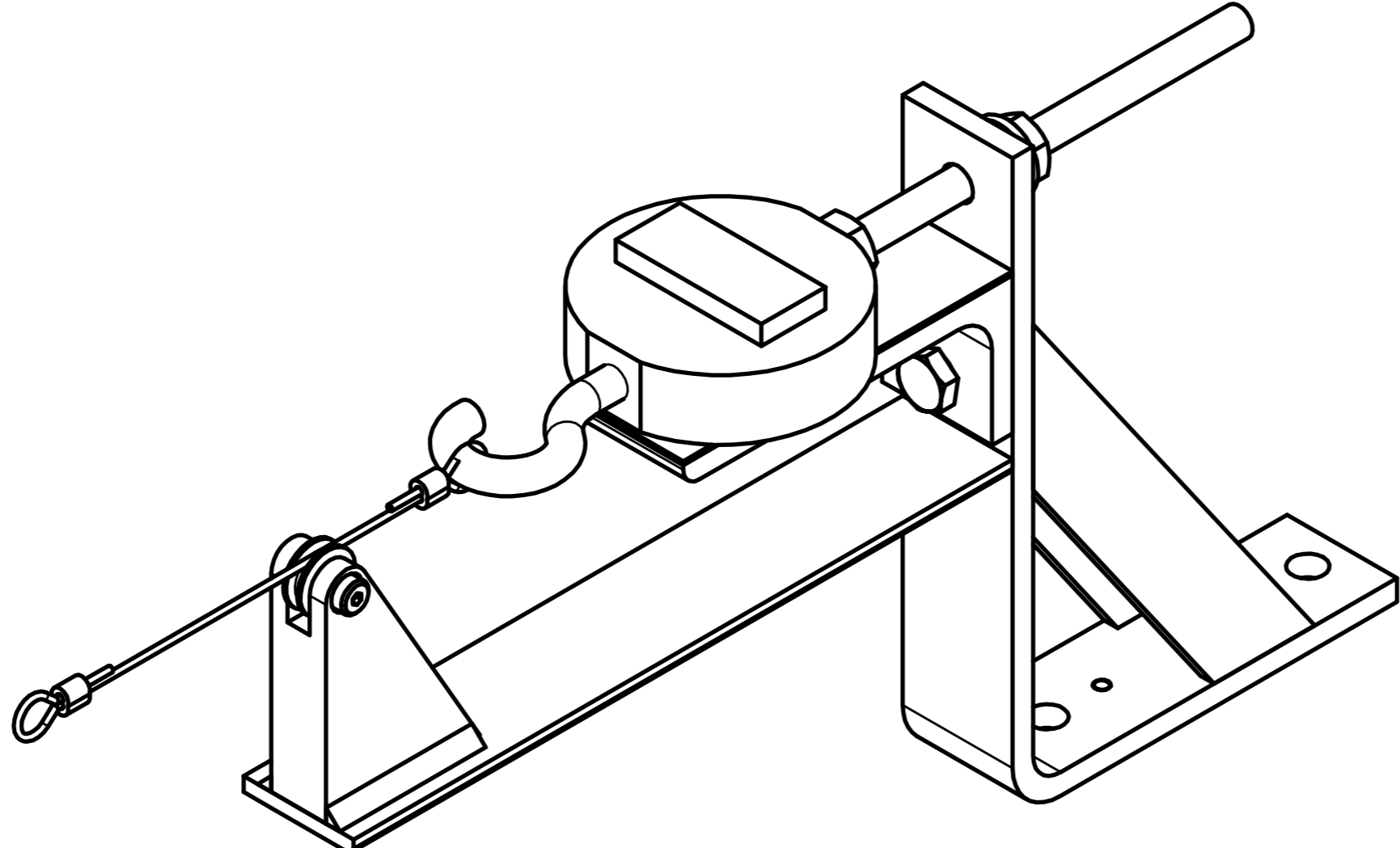
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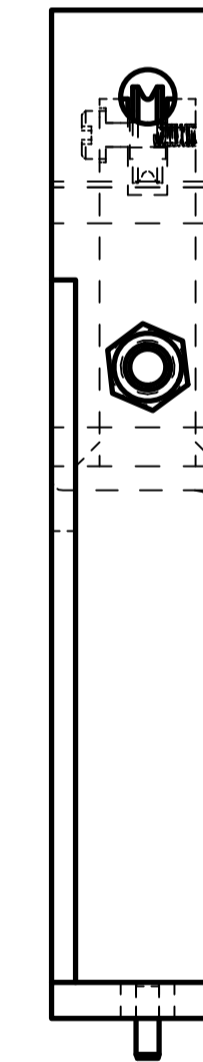
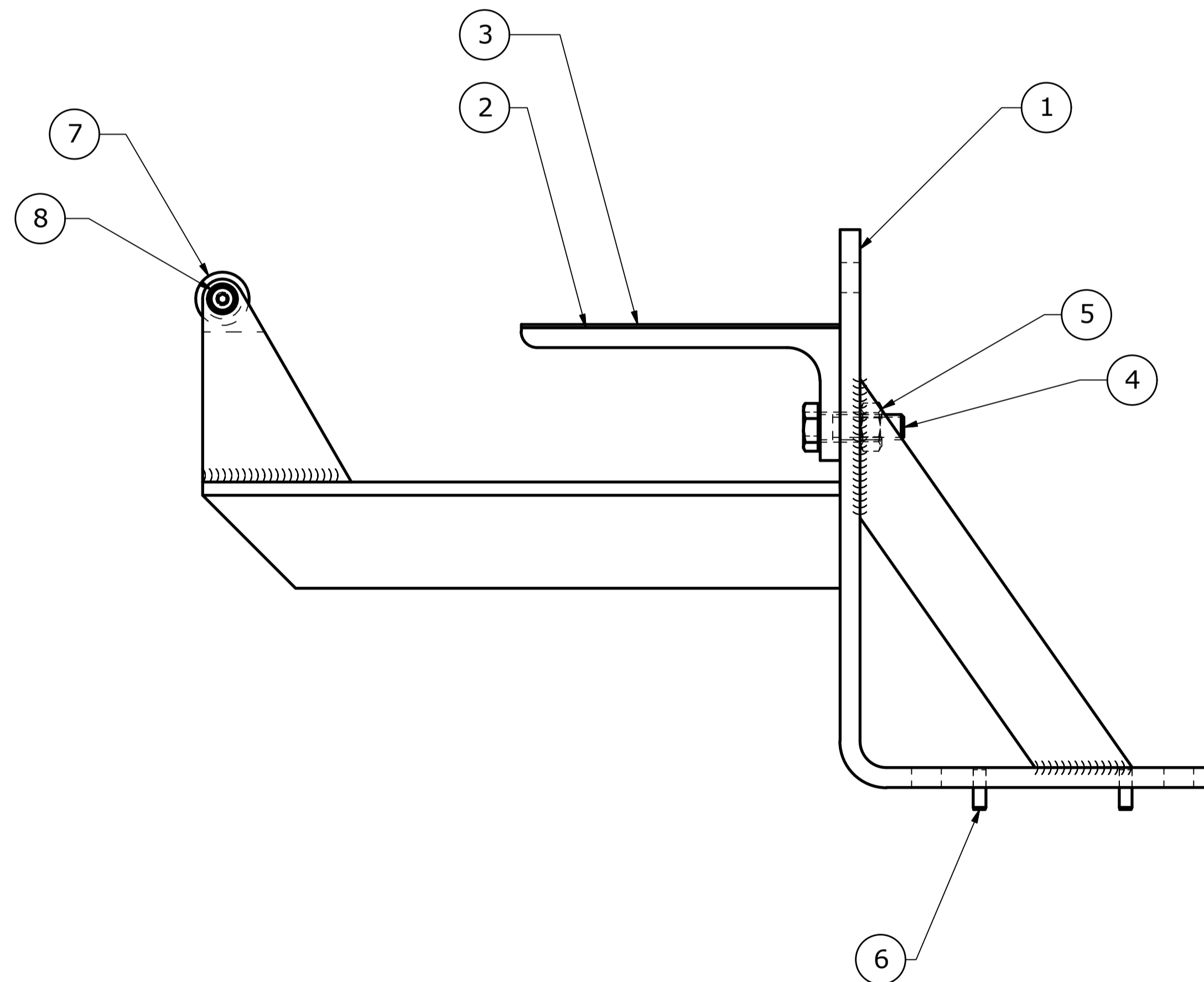
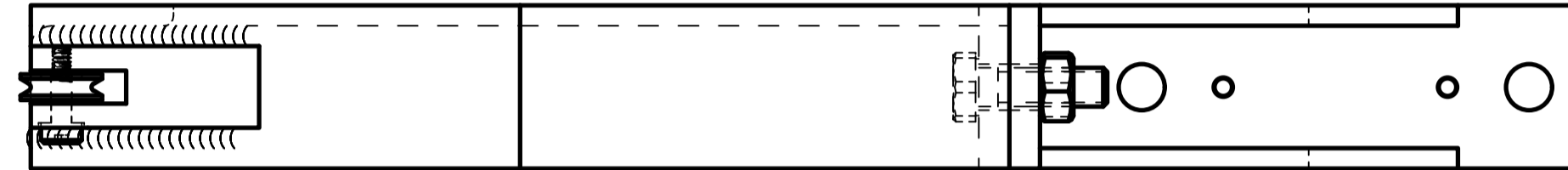
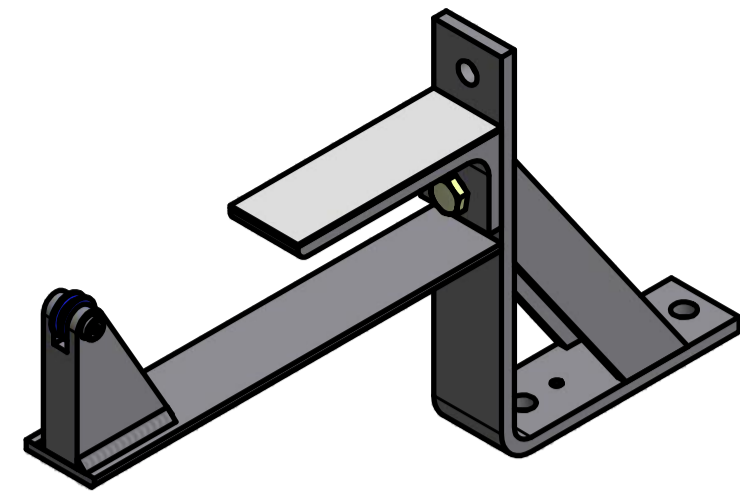
1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	REVISED PART # DL472-4203 PULL WIRE ASSEMBLY	8/16/2016	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	DL472-4204	EYE BOLT - MODIFIED
7	1	5001500V	LOAD CELL, 25# CAP, LCR-25
6	1	5000685V	THRUST BEARING, 1/4" ID
5	1	DL472-4203	PULL WIRE ASSEMBLY
4	1	9000101V	HEX NUT, FLANGED, 1/4-28
3	1	9000110	HEX NUT 1/4-28
2	1	DL472-4202	DRAW SCREW
1	1	DL472-4210	MOUNTING BRACKET ASSEMBLY

<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</small> DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° <small>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</small>	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LOAD CELL MOUNTING ASSEMBLY THOR-M
	APPROVALS DRAWN: Jim Clevenger CHECKED:	DATE: 8/13/2015	



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	PART # 5000567V - SCREW, HEX HD. CAP M6-1 x 20 WAS 90000963V - SCREW, HEX HD. CAP, 1/4-20 x 3/4; PART #9009091 - NUT, HEX M6-1 WAS 9000105 - NUT, HEX 1/4; PART #5000284 - PIN, DOWEL M3 x 10 WAS 9000046 - PIN DOWEL 1/8" x 3/8"	9/10/2015	JC

ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	9002947V	SCREW, SHSS 1/8 x 3/8
7	1		PULLEY, FOR 3/16"Ø WIRE ROPE, .125"Ø BORE x .375"Ø GROOVE x .1875" HUB WIDTH
6	2	5000284	PIN, DOWEL M3 x 10
5	1	9009091	NUT, HEX M6-1
4	1	5000567V	SCREW, HEX HD. CAP M6-1 x 20
3	1		TEFLON PAD, 0.8 [0.03] x 25.4 [1.00] x 76.2 [3.00]
2	1	DL472-4216	LOAD CELL SUPPORT
1	1	DL472-4211	LOAD ARM WELDMENT

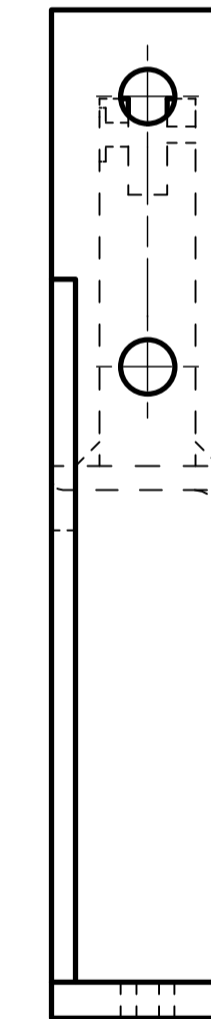
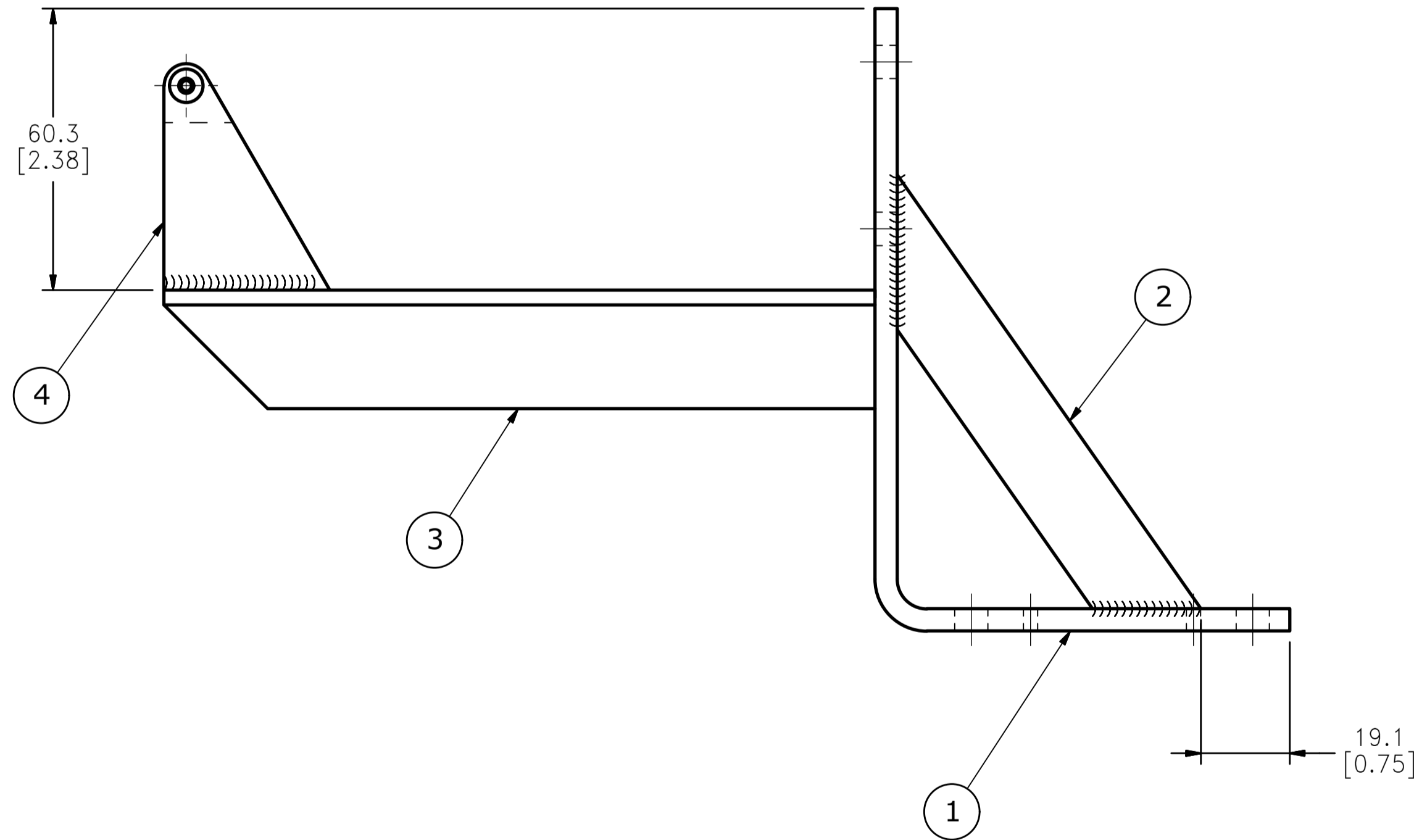
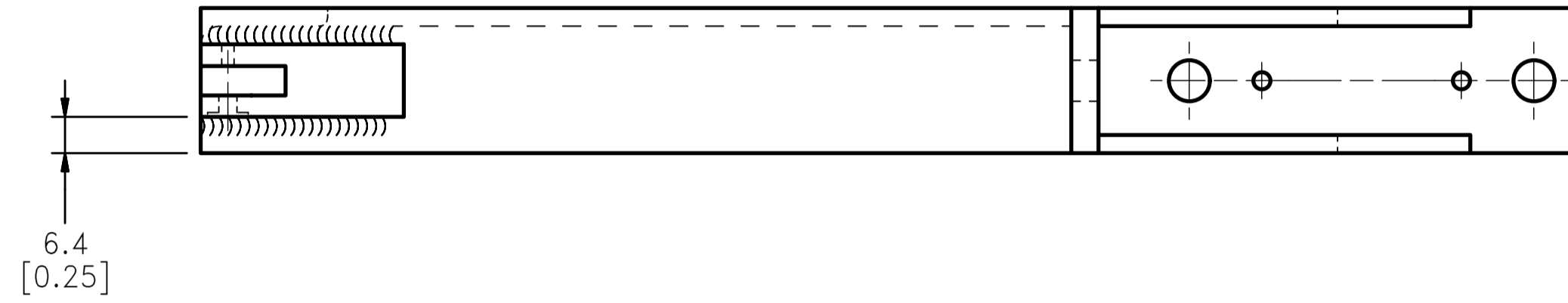
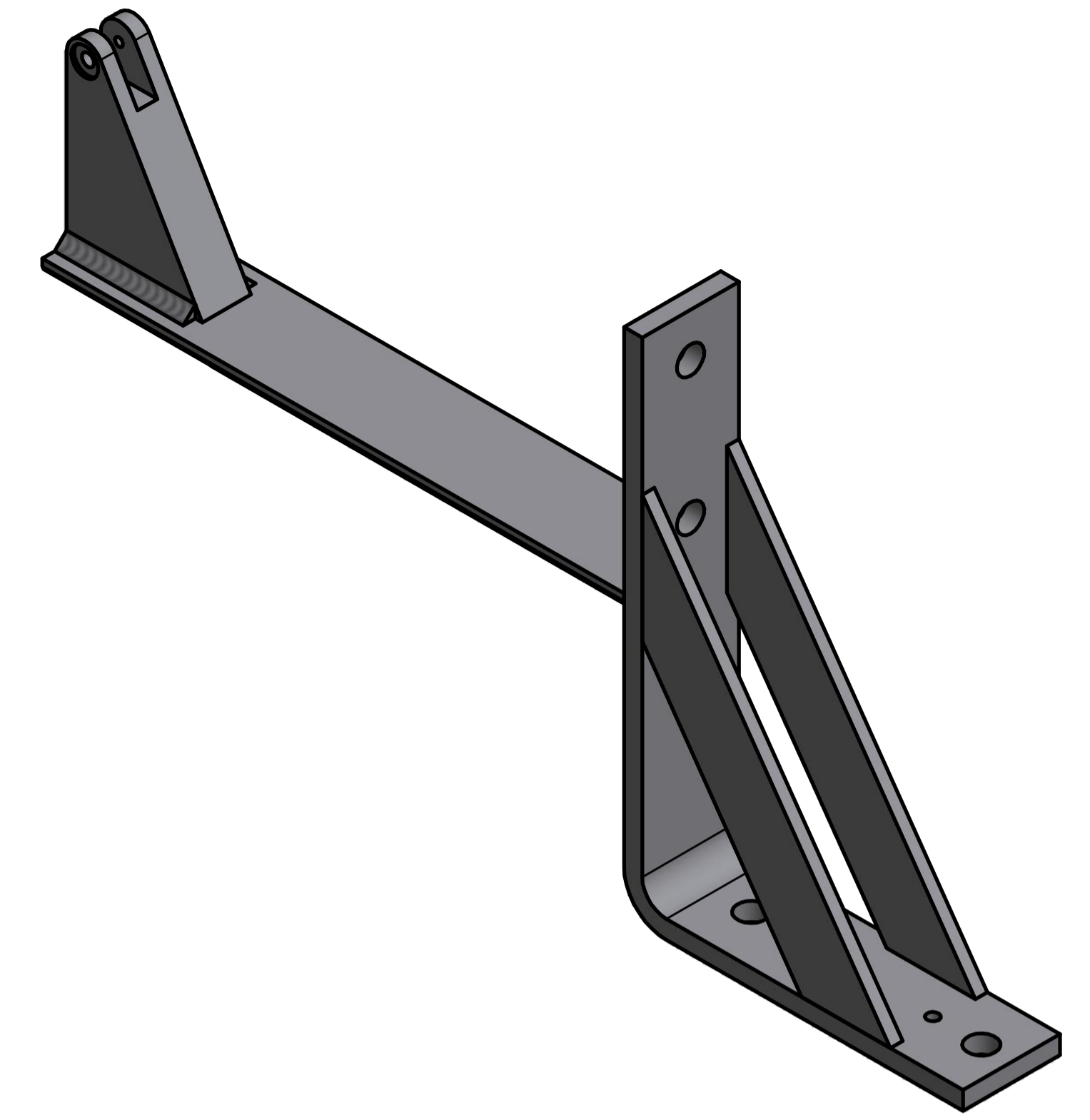
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.3M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: Jim Clevenger CHECKED:	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION MOUNTING BRACKET ASSEMBLY THOR-M SIZE: A1 SCALE: 1:1 DRAWINGS NUMBER: DL472-4210 SHEET 1 OF 1
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4	1	DL472-4215	PULLEY BRACKET
3	1	DL472-4214	PULLEY SUPPORT ANGLE
2	2	DL472-4213	GUSSET
1	1	DL472-4212	LOAD CELL BRACKET
ITEM	QTY	PART NUMBER	DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	LOAD ARM WELDMENT THOR-M	
ASME Y14.3M - 1994 DO NOT SCALE DRAWING		DRAWN jmn.clevenger	10/26/2009	DRAWINGS NUMBER DL472-4211	
MATERIAL Welded Steel Mild	HEAT TREAT	CHECKED	ENG	SCALE: 1:1	REV 1 OF 1
FINISH	APPROVED			THIRD ANGLE PROJECTION	

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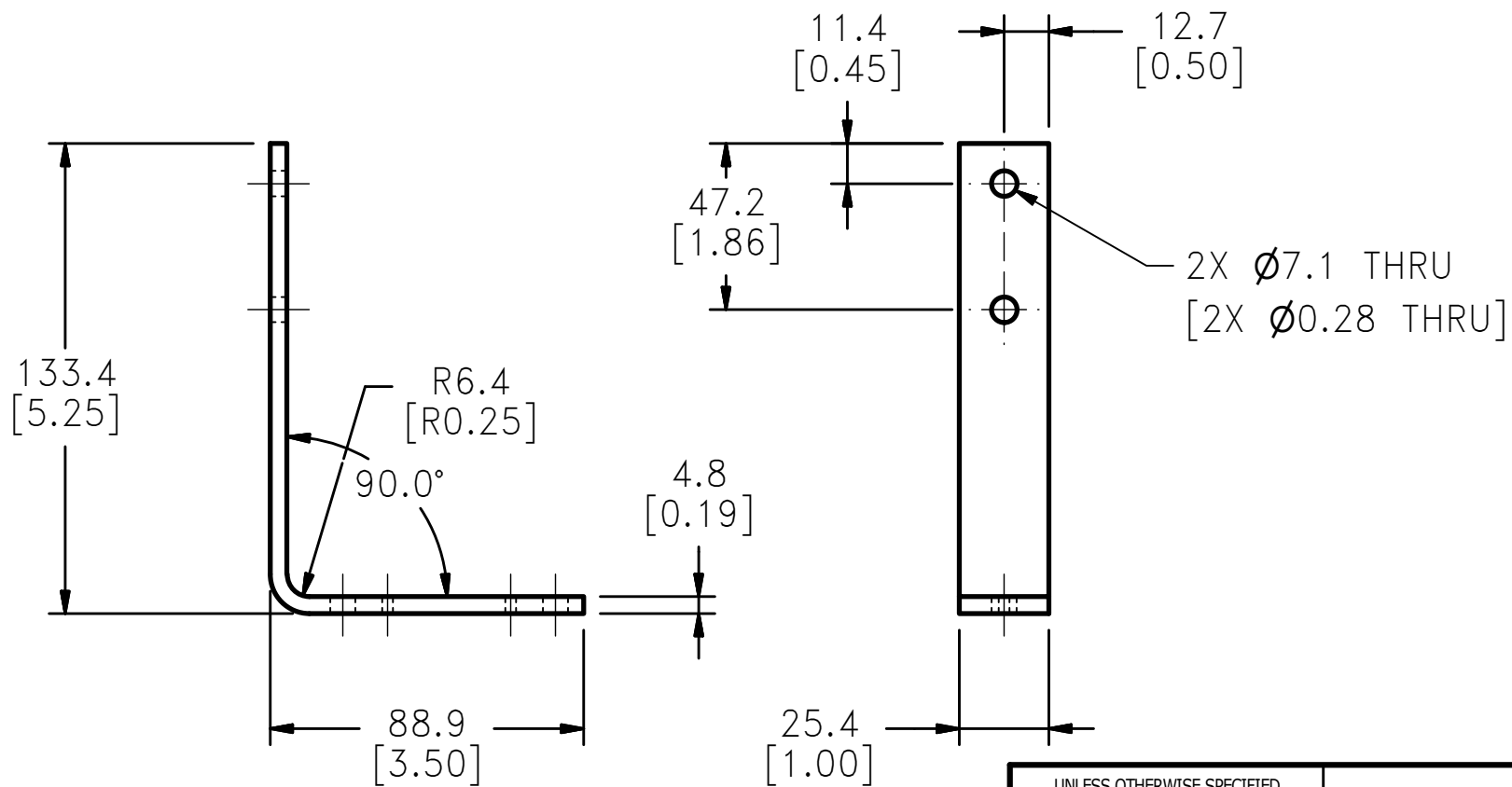
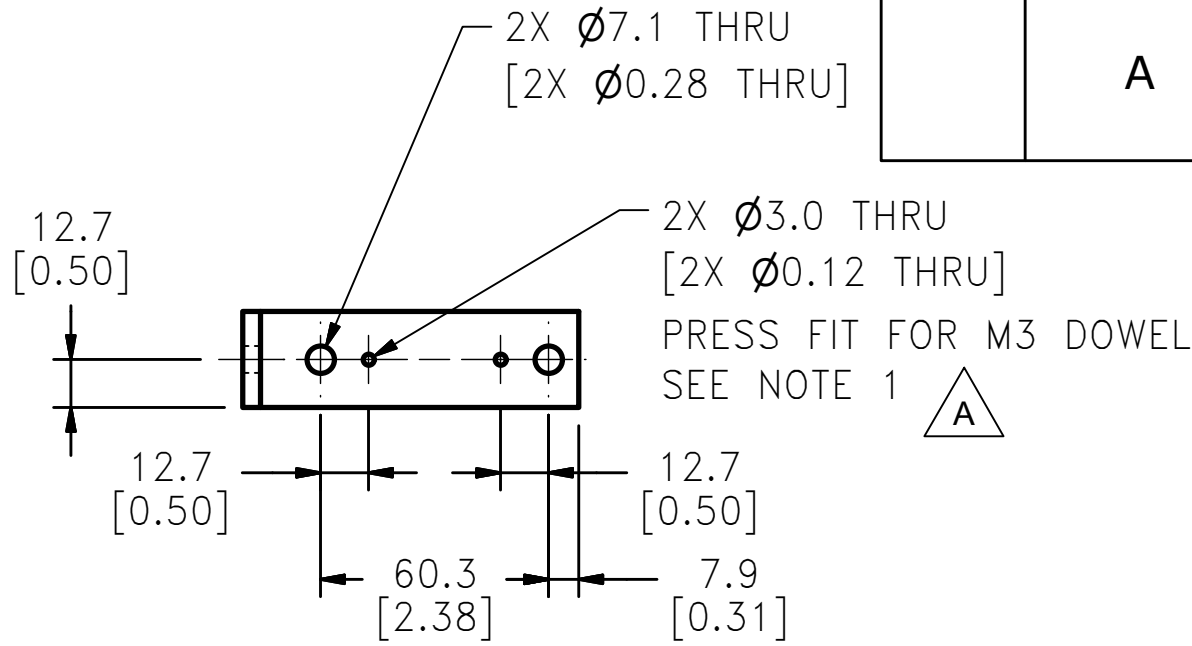
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	DIMENSION 2X Ø3.0 THRU [2X Ø0.12 THRU] PRESS FIT FOR M3 DOWEL SEE NOTE 1 WAS 2X Ø3.2 THRU [2X Ø0.13 THRU] 2 PLACES SEE NOTE 1	10/26/2009	JC



NOTE:

1. THESE HOLES ARE LOCATING DOWEL HOLES AND MUST MATCH UP WITH CORRESPONDING HOLES IN THE LEG MOUNTING BRACKET

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Jim Clevenger CHECKED ENG APPROVED	DATE 10/26/2009	
MATERIAL Steel HEAT TREAT FINISH	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1	DRAWING NUMBER DL472-4212 SHEET 1 OF 1

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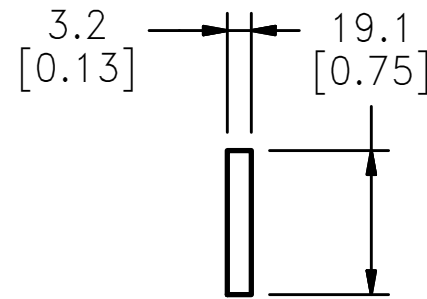
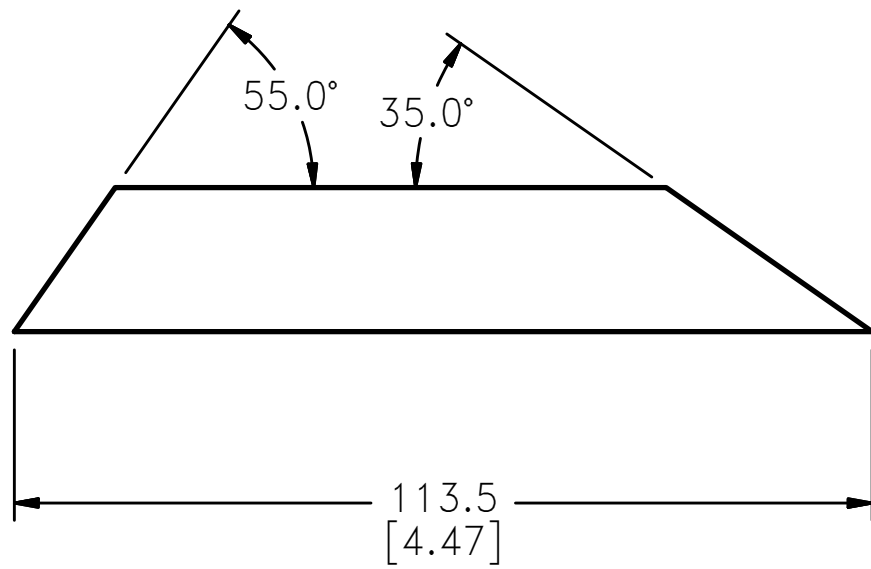
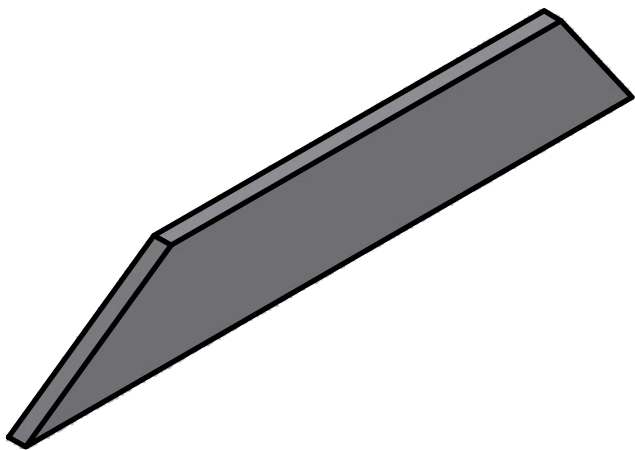
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A

A

A


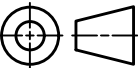
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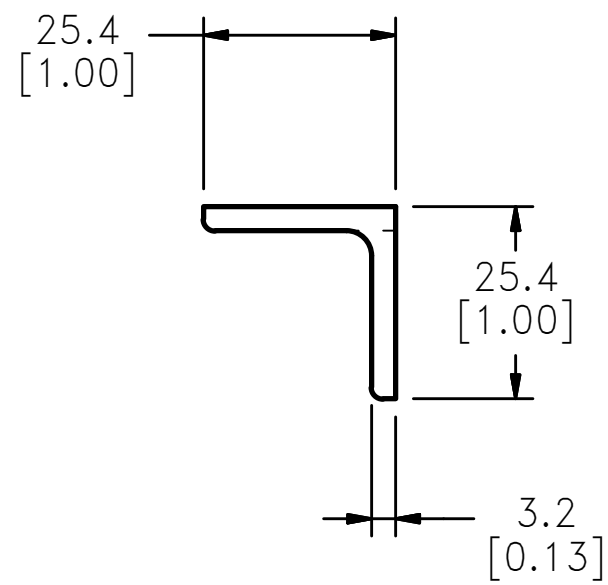
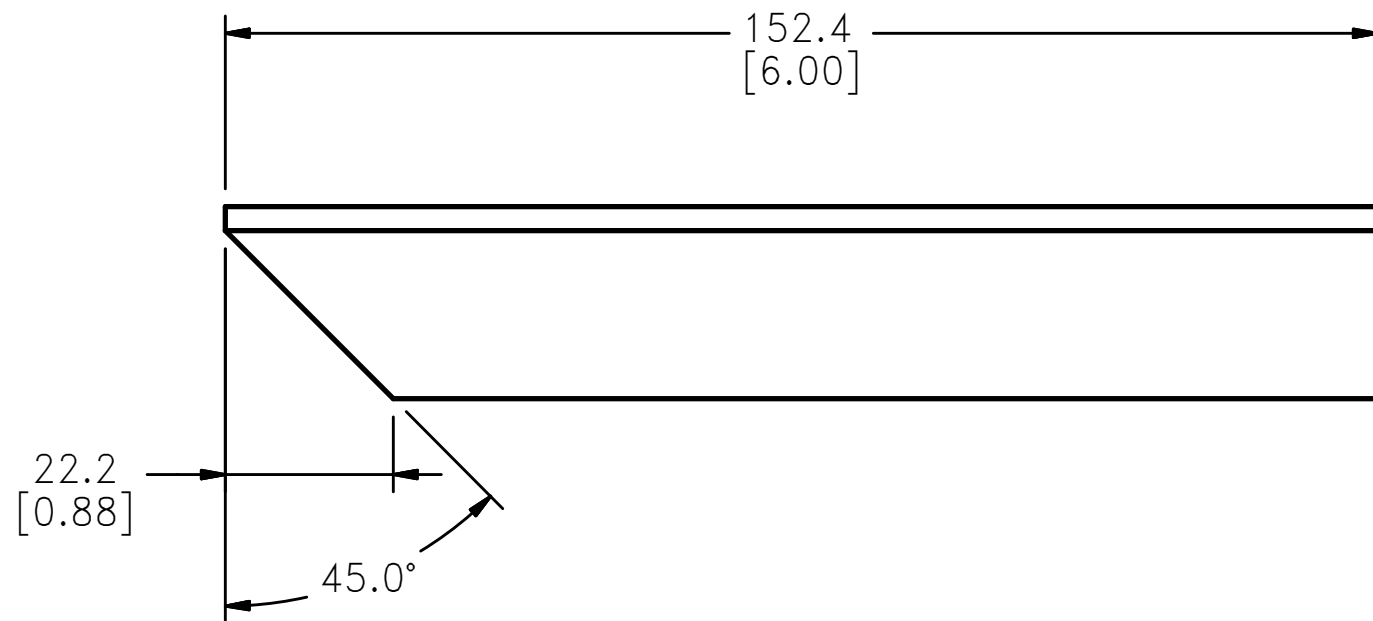
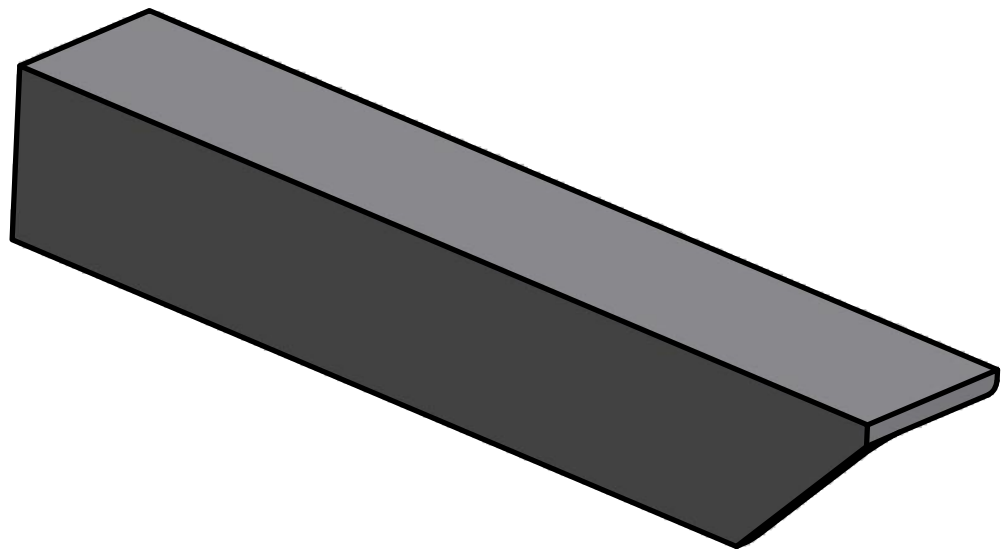
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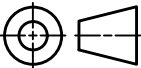
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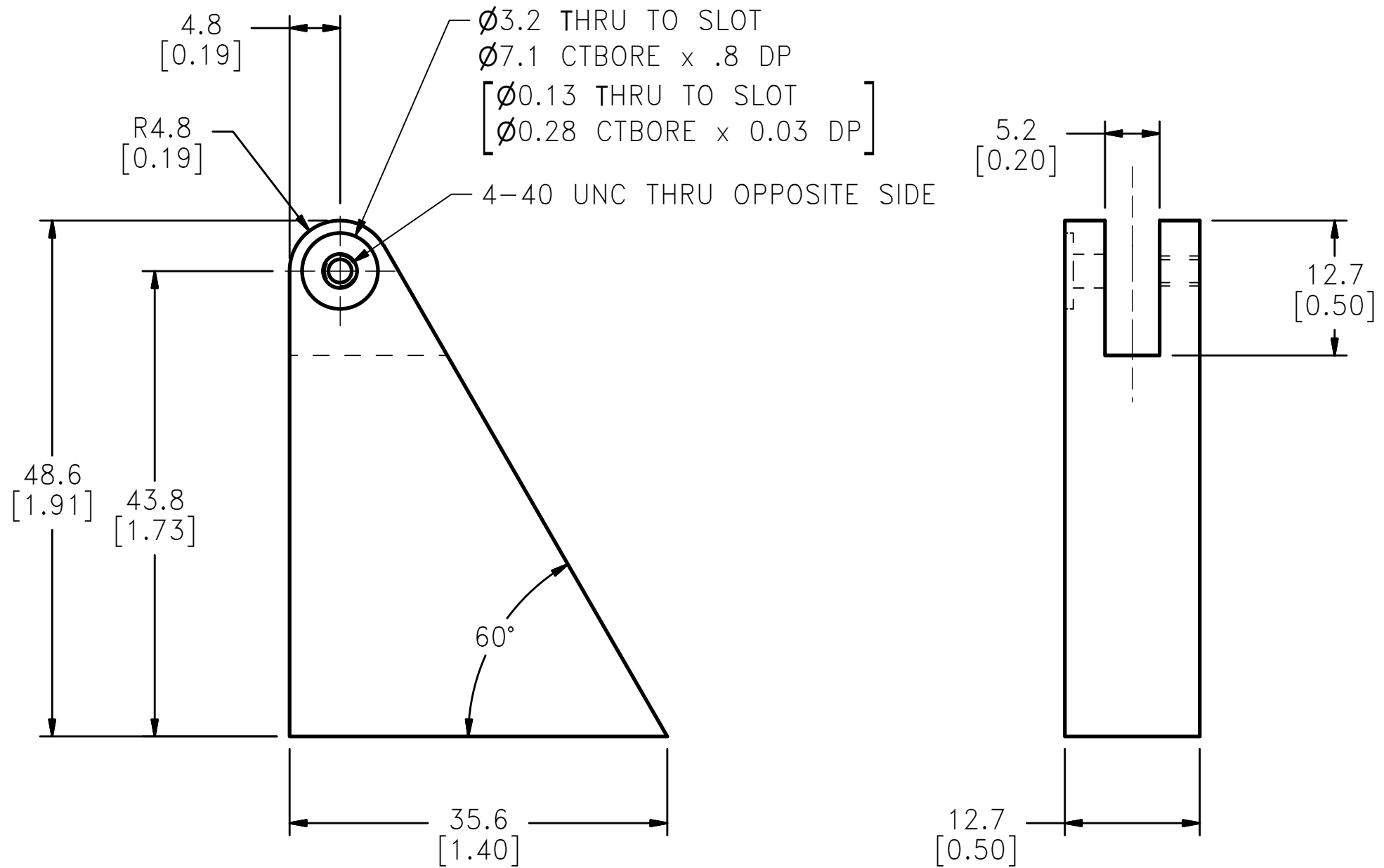
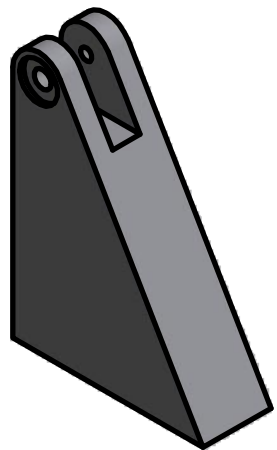
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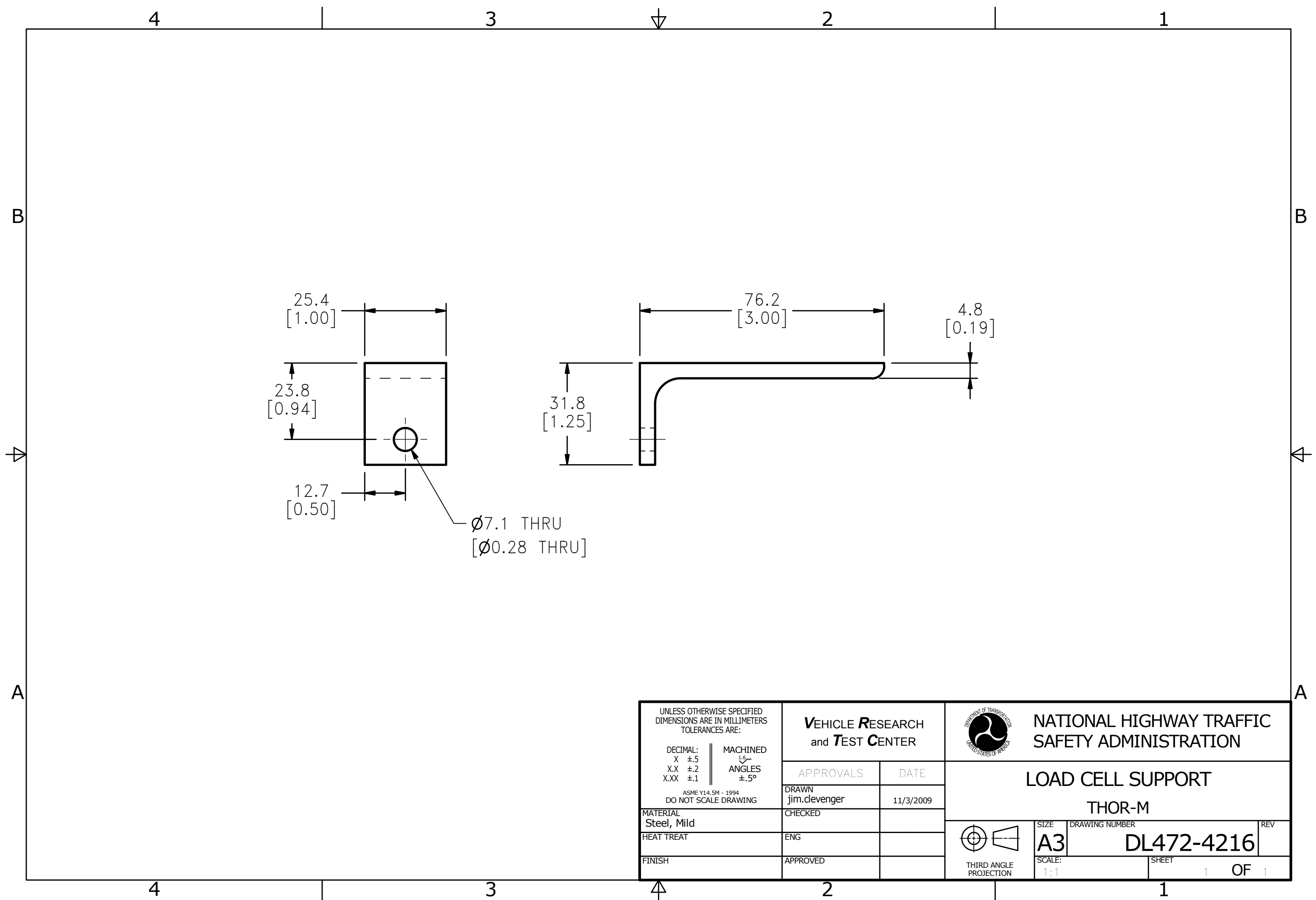
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	APPROVALS DRAWN jim.devinger CHECKED	DATE 10/26/2009	GUSSET THOR-M	
MATERIAL Steel HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3 SCALE: 1:1	DRAWING NUMBER DL472-4213 SHEET 1 OF 1

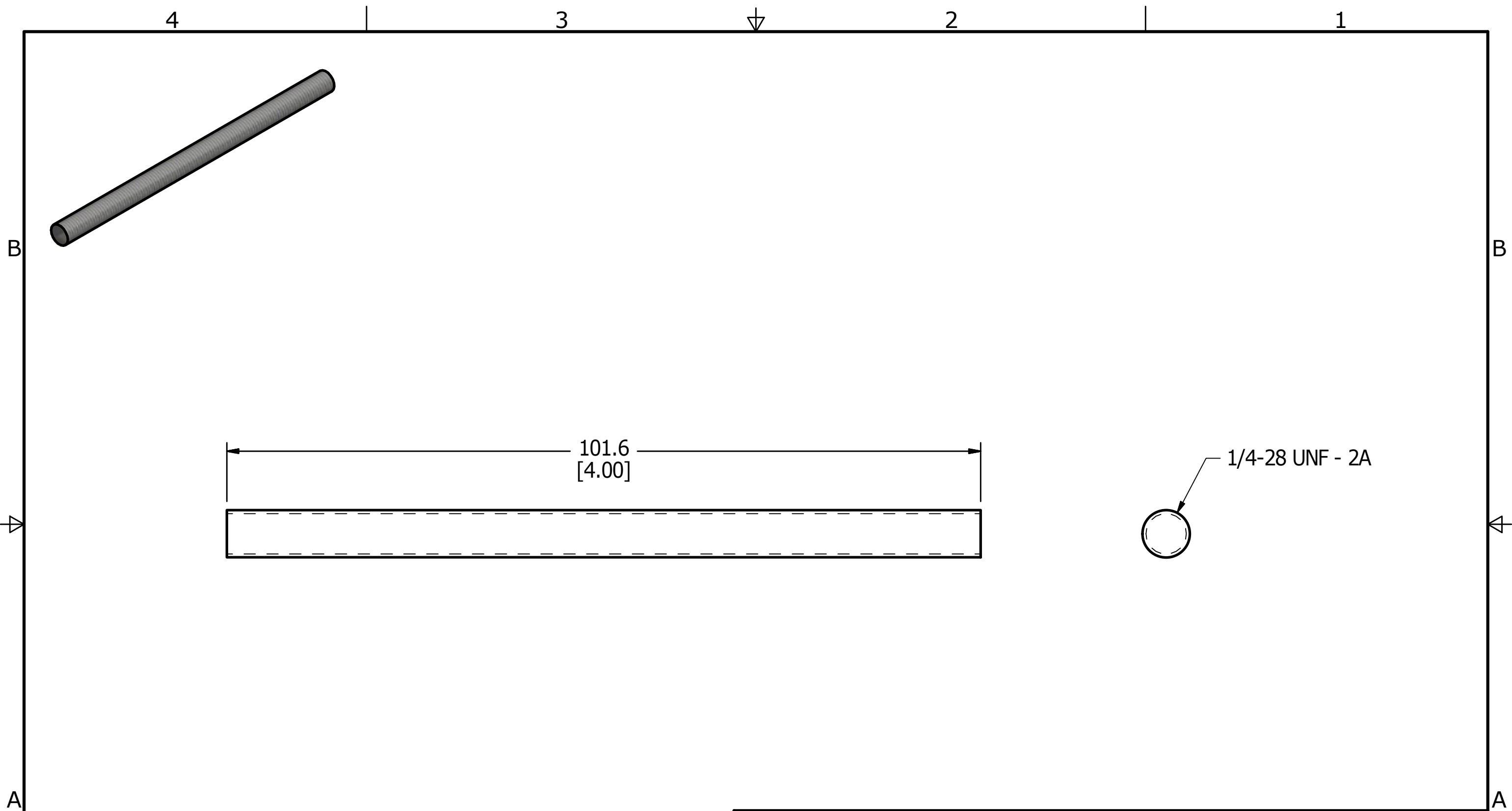



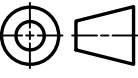
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 ↙ X.X ±.2 ↘ X.XX ±.1 ↙ ANGLE ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	PULLEY SUPPPORT ANGLE THOR-M	
DRAWN jim.devinger	10/26/2009			
MATERIAL Steel, Mild	CHECKED	 THIRD ANGLE PROJECTION		
HEAT TREAT	ENG			
FINISH	APPROVED	SIZE A3	DRAWING NUMBER DL472-4214	REV
		SCALE: 1:1	SHEET 1 OF 1	



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DATE		PULLEY BRACKET THOR-M	
MATERIAL Steel	DRAWN jim.devinger	CHECKED	10/26/2009	 THIRD ANGLE PROJECTION
HEAT TREAT	ENG	APPROVED		
FINISH				SIZE: A3 SCALE: 1:1
			DRAWING NUMBER: DL472-4215	SHEET: 1 OF 1





UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 1/8 X.XX ±.1 1/16 ANGLES ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION						
	APPROVALS DRAWN Dave Walker CHECKED	DATE 9/1/2015		DRAW SCREW THOR-M					
MATERIAL Steel, Mild HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	<table border="1"> <tr> <td>SIZE A3</td> <td>DRAWING NUMBER DL472-4202</td> <td>REV</td> </tr> <tr> <td>SCALE: 2:1</td> <td>SHEET 1 OF 1</td> <td></td> </tr> </table>	SIZE A3	DRAWING NUMBER DL472-4202	REV	SCALE: 2:1	SHEET 1 OF 1	
SIZE A3	DRAWING NUMBER DL472-4202	REV							
SCALE: 2:1	SHEET 1 OF 1								

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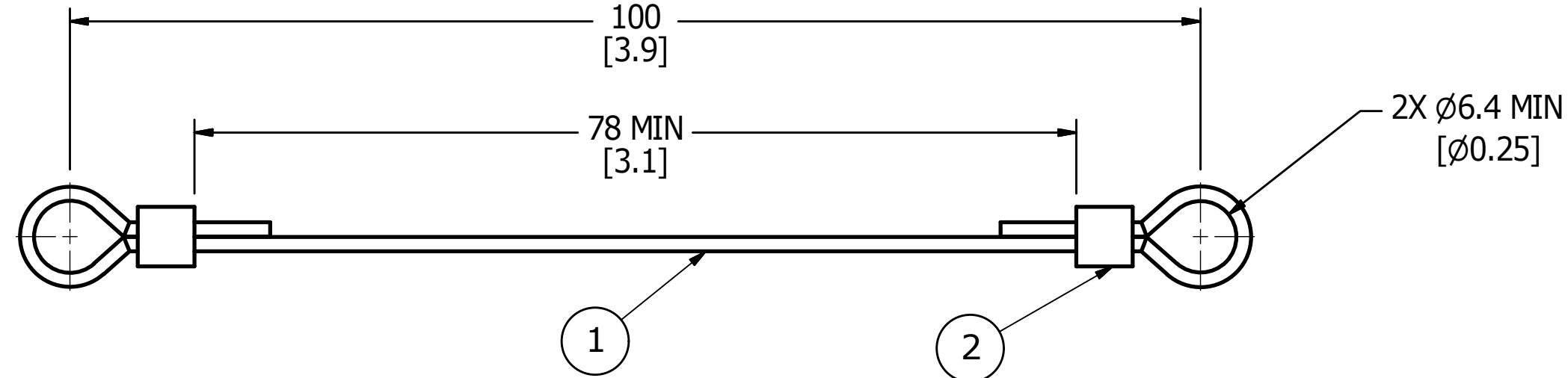
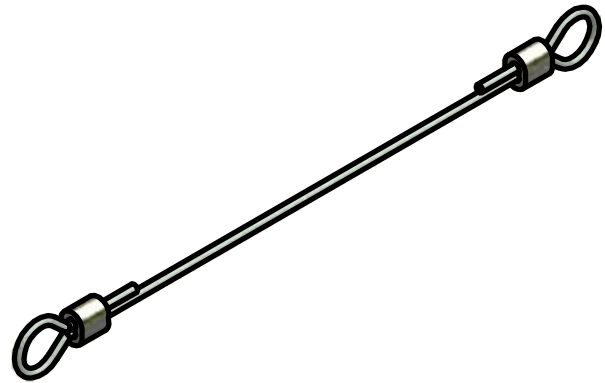
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REVISION HISTORY

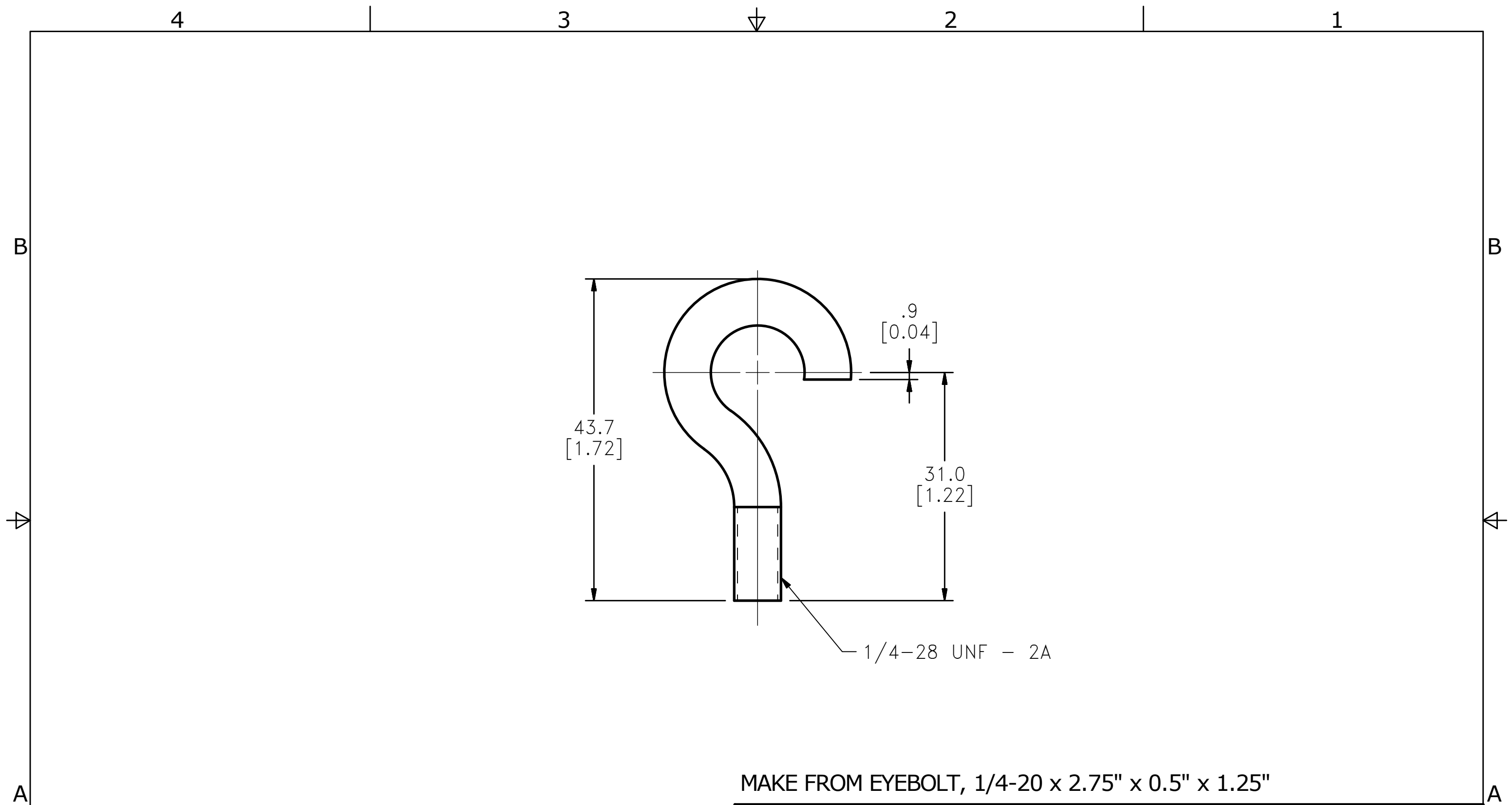
ZONE	REV	DESCRIPTION	DATE	BY
	A	SHORTENED CABLE AND ADDED LOOP TO LEFT END	8/9/2016	DW




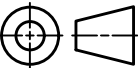
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
2	2		WIRE ROPE OVAL COMPRESSION SLEEVE FOR 3/64"Ø WIRE ROPE	Zinc-Plated Copper
1	1		WIRE ROPE, 7 x 7, Ø0.047"	Steel, Galvanized

PARTS LIST

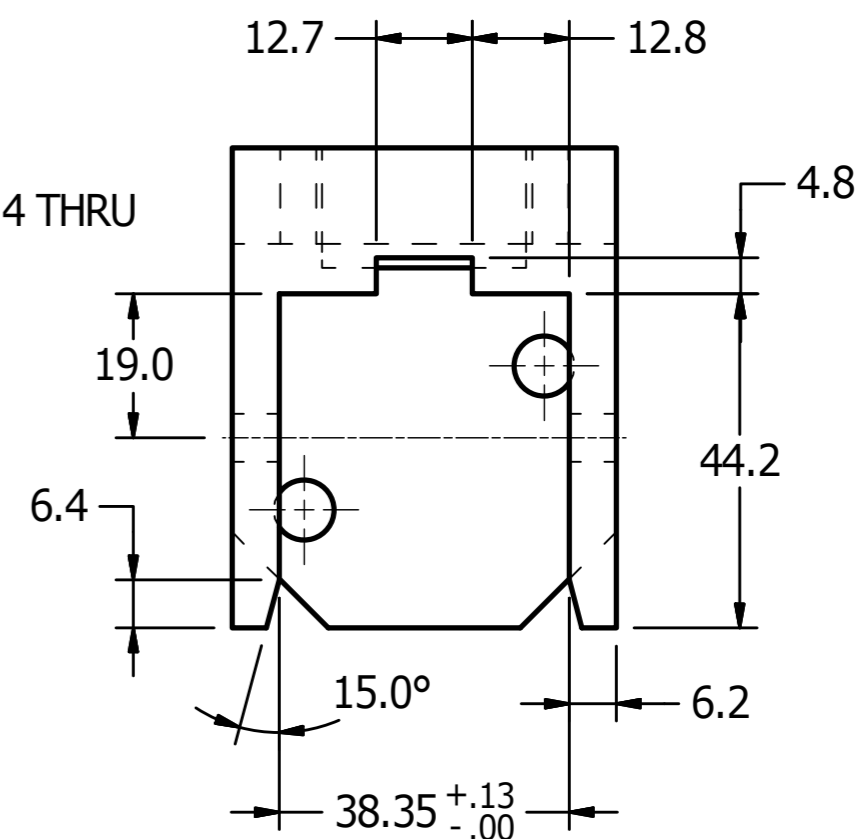
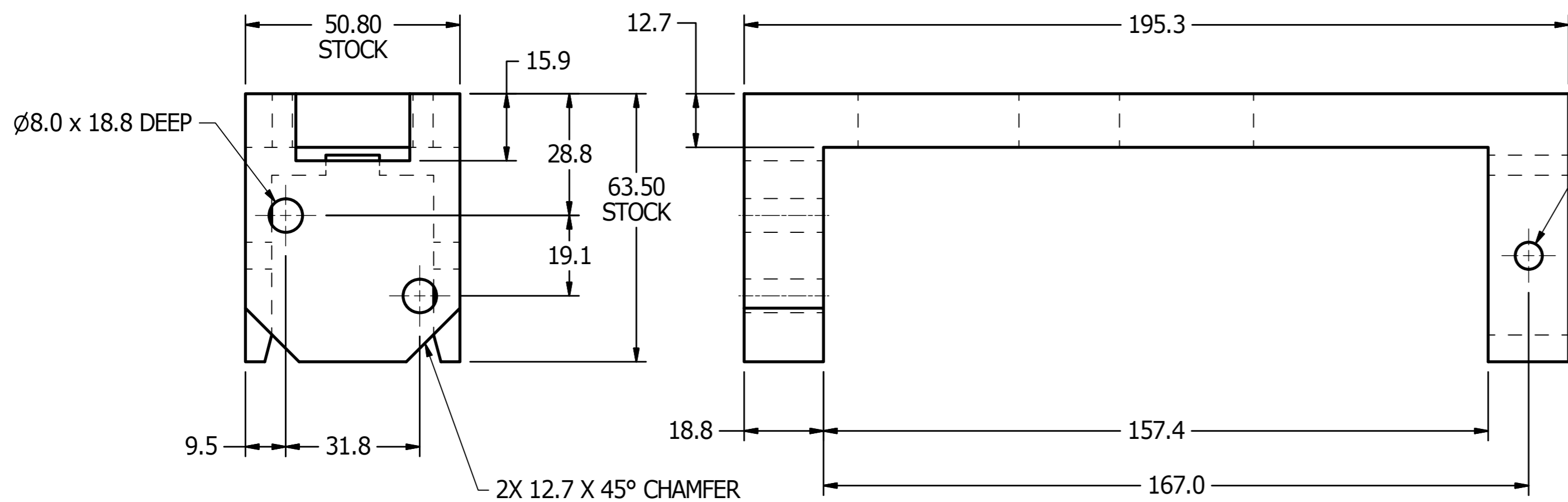
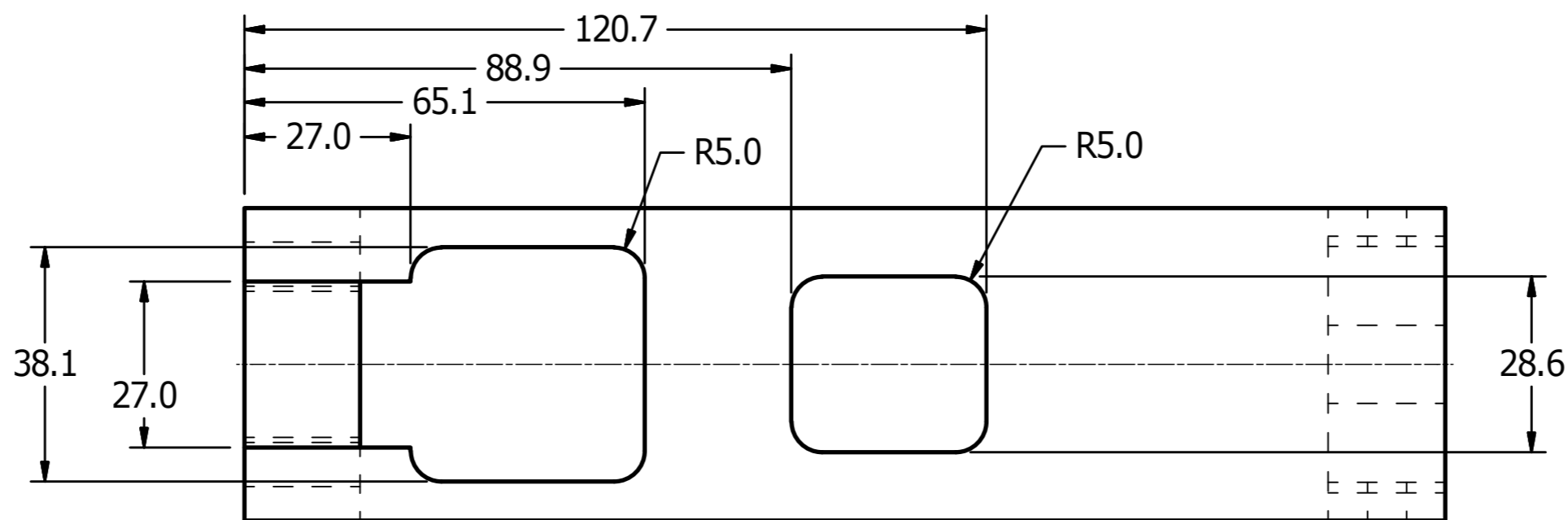
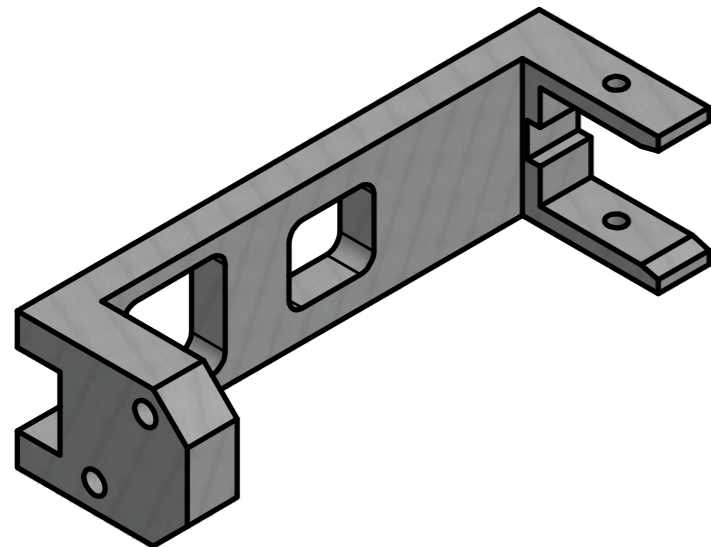
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, X.X ±.2, X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN Dave Walker CHECKED ENG APPROVED	DATE 9/1/2015		PULL WIRE ASSEMBLY THOR-M		SIZE A3
				SCALE: 2:1	SHEET 1 OF 1	



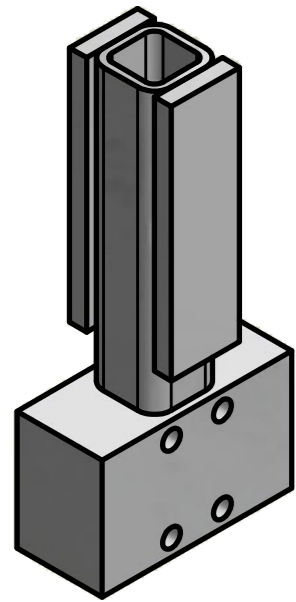
MAKE FROM EYEBOLT, 1/4-20 x 2.75" x 0.5" x 1.25"

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 1.5 X.XX ±.1 1.4 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	EYE BOLT - MODIFIED THOR-M	
DRAWN Dave Walker	12/21/2009			
CHECKED				
MATERIAL Steel, Mild	ENG			
HEAT TREAT	APPROVED			
FINISH				
		 THIRD ANGLE PROJECTION	SIZE: A3	DRAWING NUMBER: DL472-4204
		SCALE:		SHEET: 1 OF 1

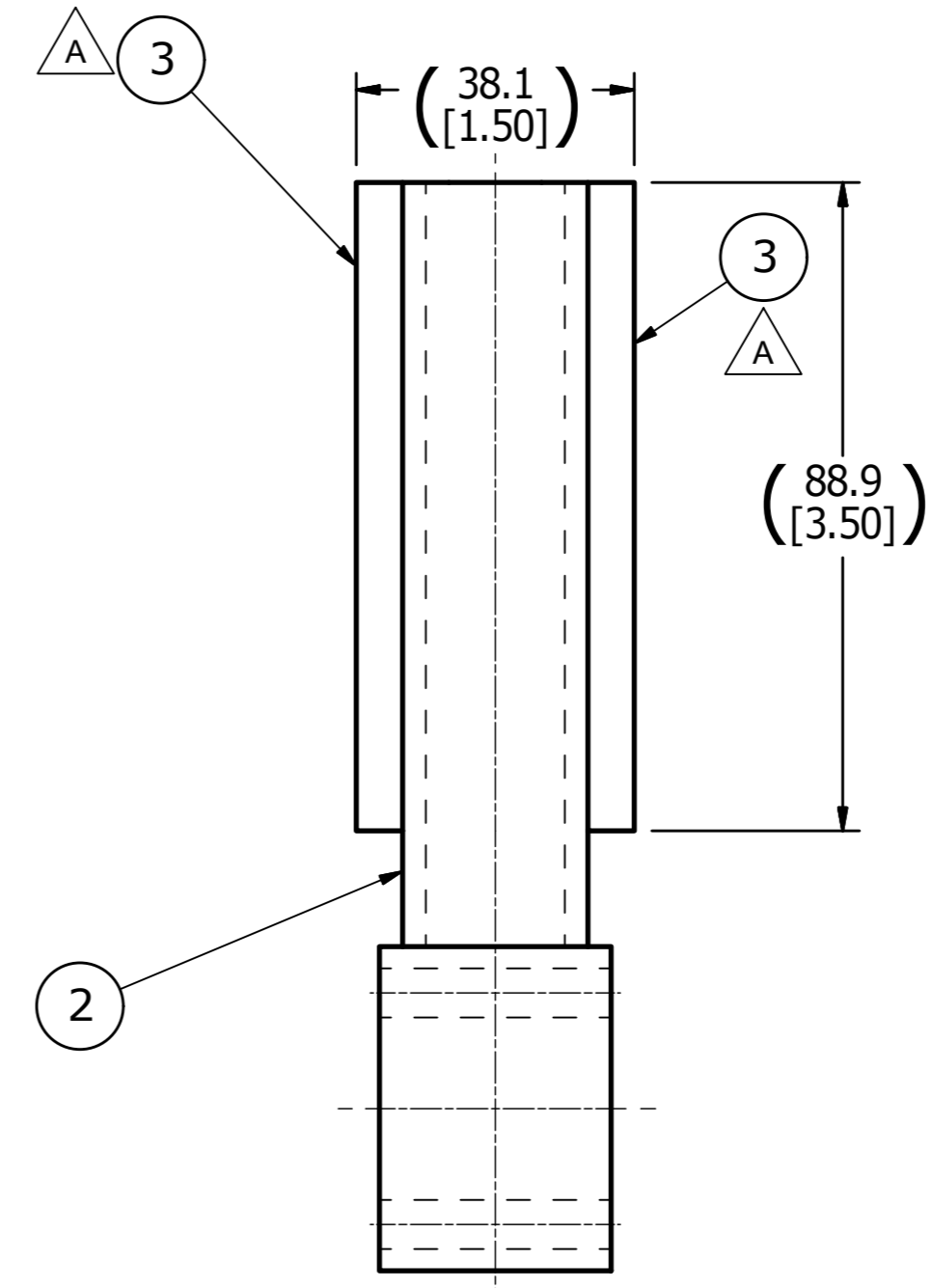
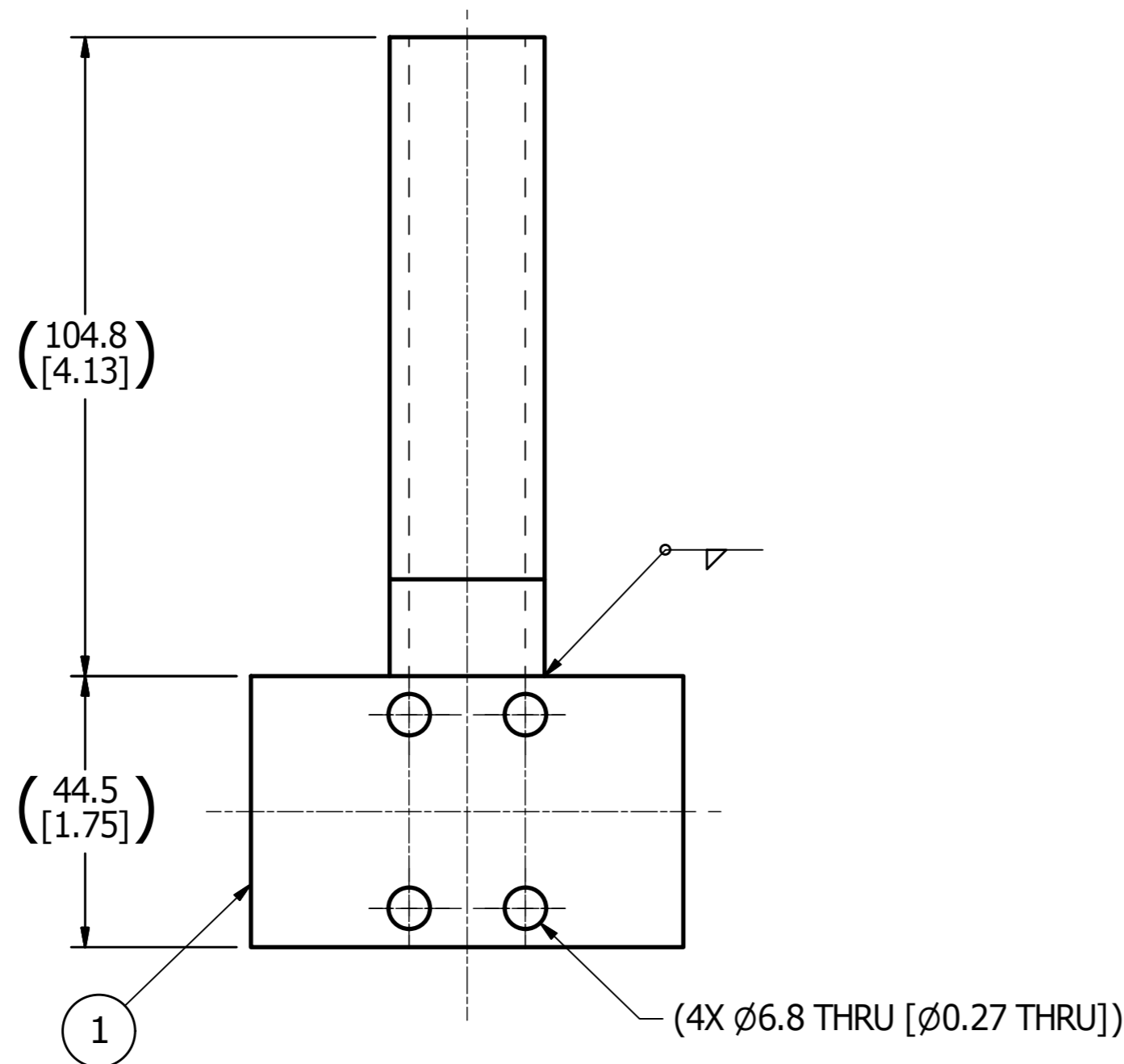
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	CONVERTED TO METRIC	9/9/2015	DW



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Jim Clevenger CHECKED ENG APPROVED	DATE 3/3/2010	
MATERIAL Aluminum-6061 HEAT TREAT FINISH	SCALE: 1:1	SIZE A2 DRAWING NUMBER DL472-3500 SHEET 1 OF 1	REV A



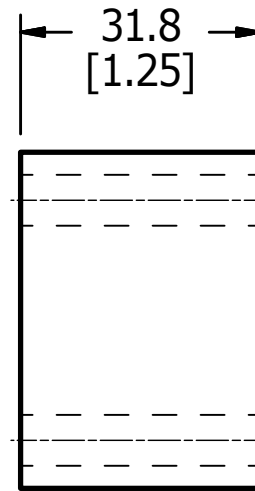
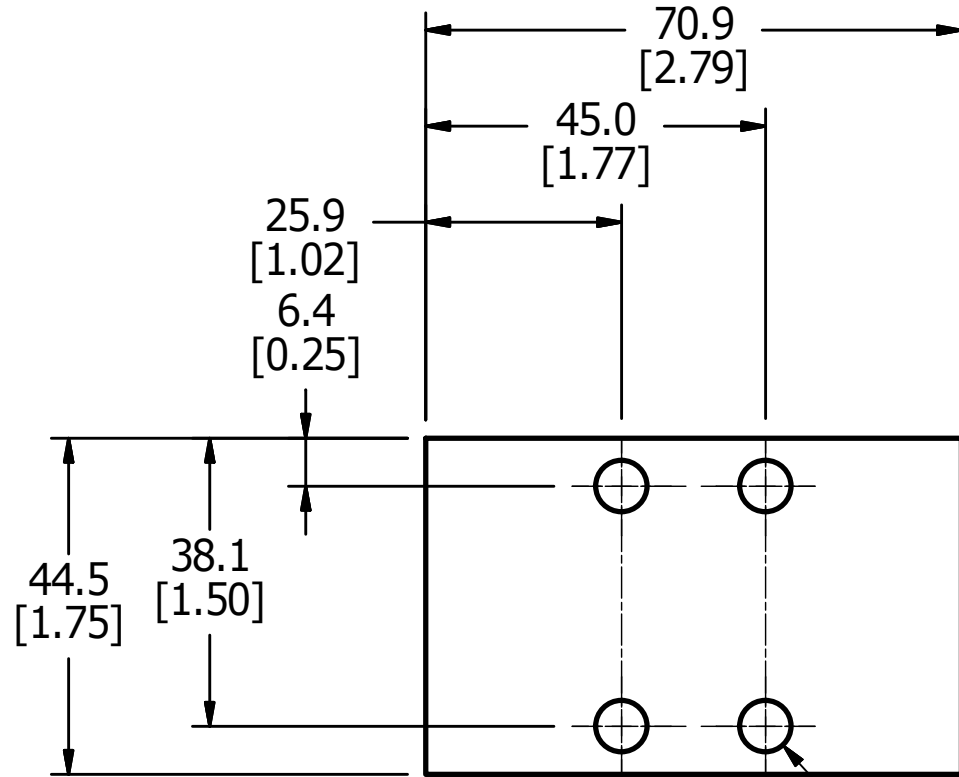
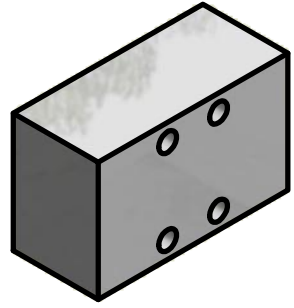
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
	A	ADDED ENSOLITE FOAM	9/22/2003	DW
	B	ADDED PARTS NUMBERS AND DETAIL DRAWINGS; ADDED "OR EQUIVALENT" TO NOTE #1	9/11/2015	DW




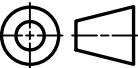
NOTES:
 1. ATTACH FOAM ITEM #3 WITH 3M DP-110 EPOXY ADHESIVE OR EQUIVALENT.

ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
3	2	TLX-9000-027	INVERSION/EVERSION BRACKET, FOAM IMPACT PAD	ENSOLITE AHC
2	1	TLX-9000-026	INVERSION/EVERSION BRACKET, IMPACT TUBE	Aluminum 6061
1	1	TLS-9000-025	INVERSION/EVERSION BRACKET, ATTACHMENT BAR	Aluminum 6061

PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5, XX ±.2, XXX ±.1 MACHINED ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		
APPROVALS DRAWN: Dave Walker CHECKED:		DATE: 3/20/2001		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION TEST FIXTURE - DYNAMIC INVERSION/EVERSION BRACKET THOR-M
MATERIAL:	HEAT TREAT:	FINISH:	SIZE: A2 SCALE: 1:1	DRAWING NUMBER: TLX-9000-015 REV: B SHEET: 1 OF 1



4X \varnothing 6.8 THRU [\varnothing 0.27 THRU]

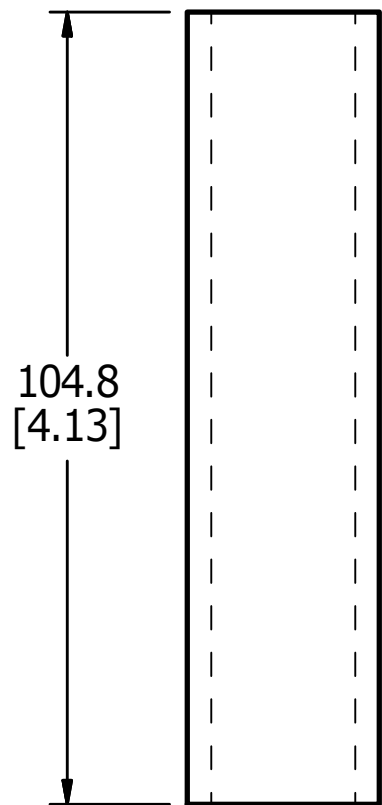
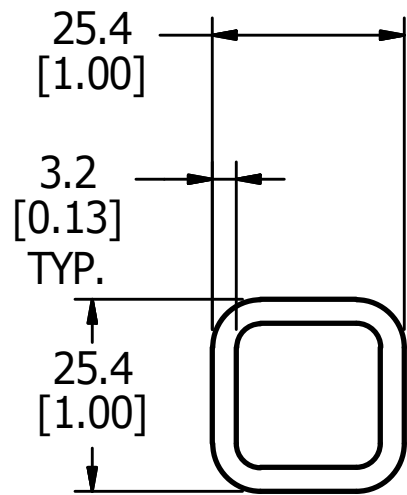
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	APPROVALS DRAWN Dave Walker CHECKED	DATE 9/11/2015	INVERSION/EVERSION BRACKET, ATTACHMENT BAR THOR-M	
MATERIAL Aluminum 6061 HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER TLX-9000-025
		SCALE: 1:1	SHEET 1 OF 1	REV

4


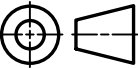
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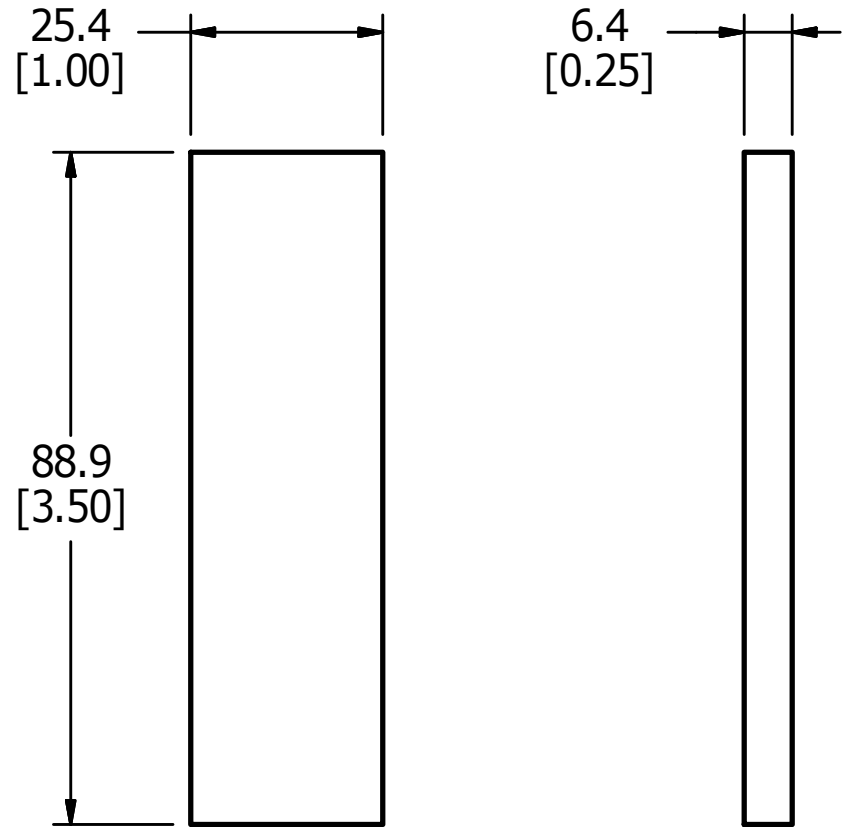
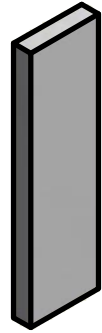
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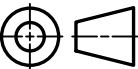
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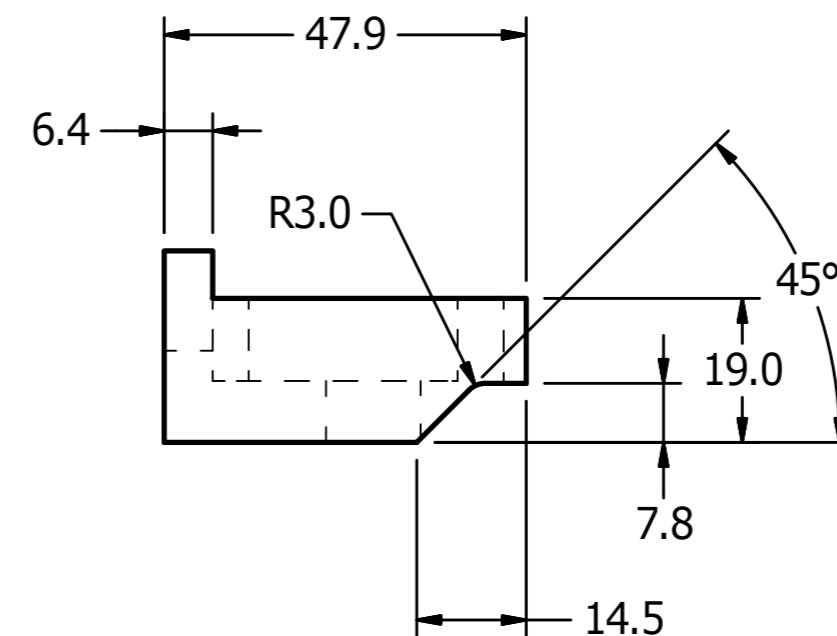
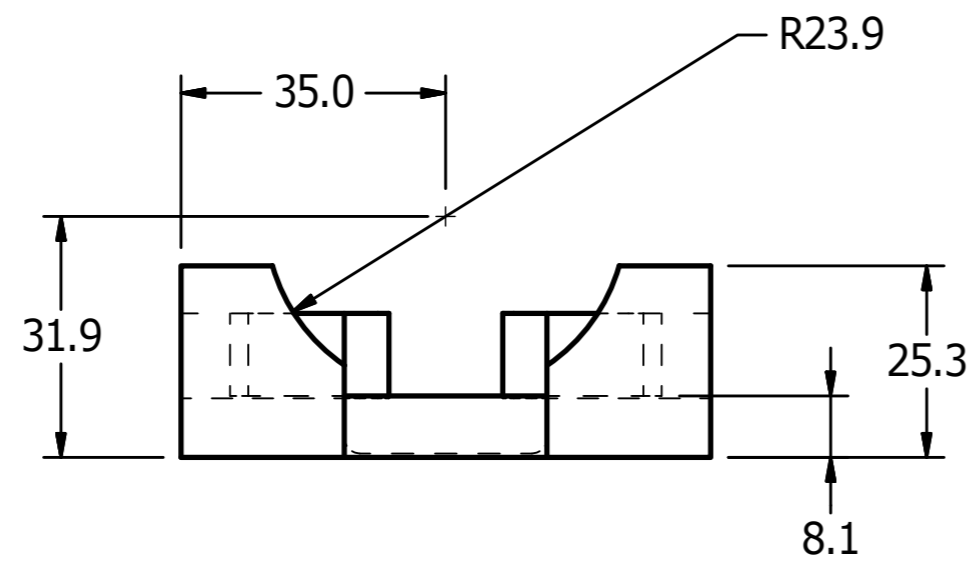
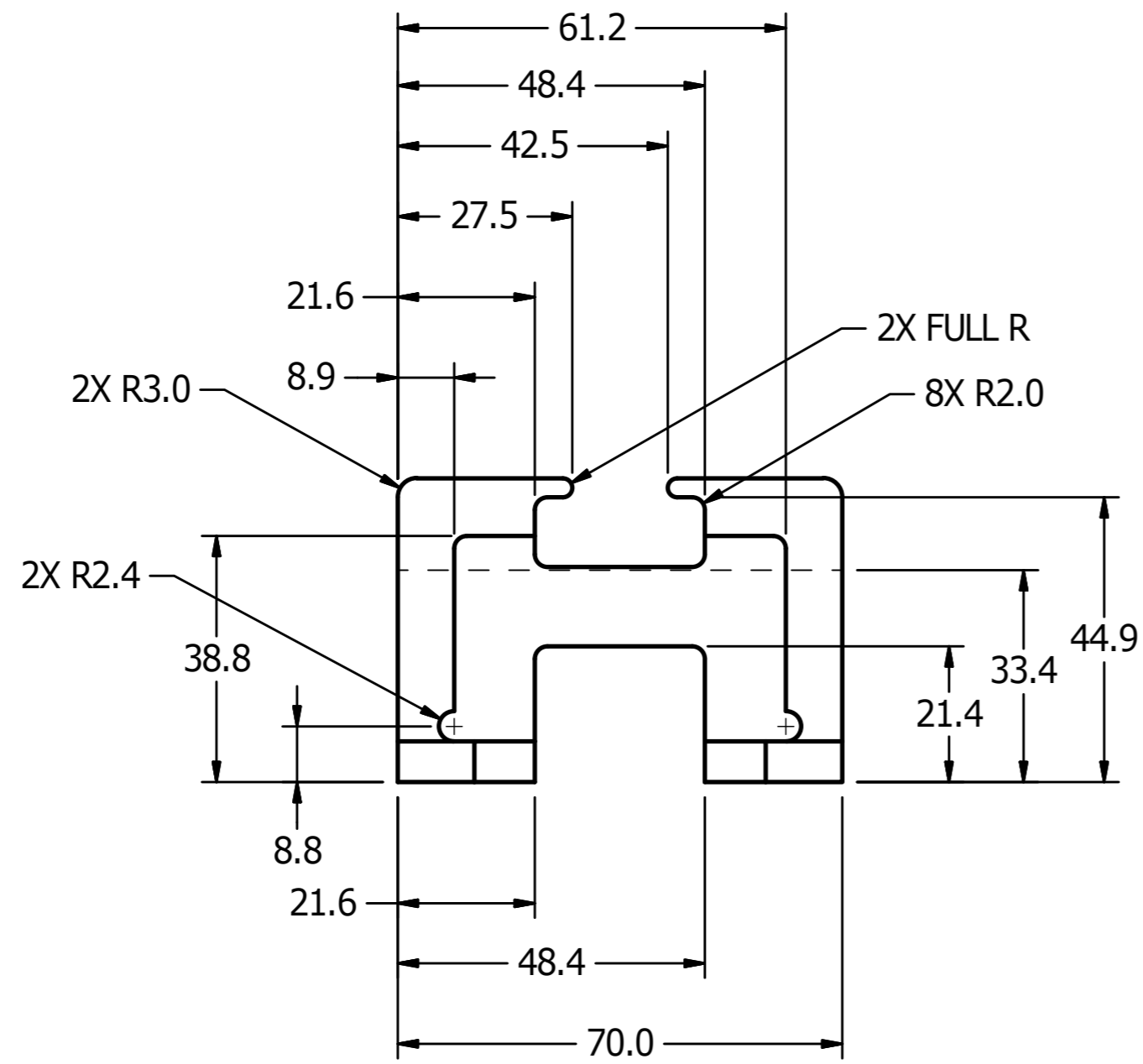
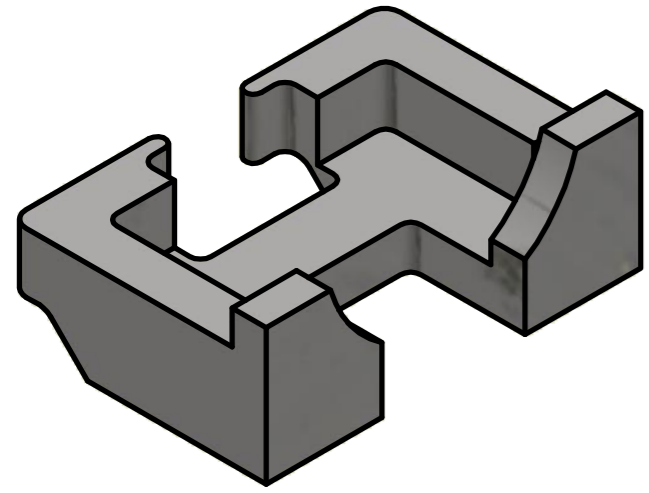


MATERIAL: T.S. 1" x 1" x 1/8" x 4.125"[104.8mm]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED 1/6 ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
DRAWN Dave Walker	9/11/2015	 THIRD ANGLE PROJECTION	
CHECKED			SIZE: A3 SCALE: 1:1
MATERIAL Aluminum 6061	ENG		DRAWING NUMBER: TLX-9000-026 SHEET: 1 OF 1
HEAT TREAT	APPROVED		




UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 1.6 X.XX ±.1 1.6 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN Dave Walker CHECKED	DATE 9/11/2015		INVERSION/EVERSION BRACKET, FOAM IMPACT PAD THOR-M	
MATERIAL ENSOLITE FOAM AHC HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION	SIZE A3		DRAWING NUMBER TLX-9000-027
		SCALE: 1:1	SHEET 1 OF 1		



NOTES:

1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 X.X ±.2 X.XX ±.1 MACHINED ANGLER ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN Dave Walker CHECKED	DATE 8/18/2016	
MATERIAL Steel, Mild HEAT TREAT FINISH .0003 ELECTROLESS NICKEL	APPROVED	THOR-M DRAWING NUMBER TLX-9000-016M	REV 1 OF 1
SCALE: 1 : 1		SHEET 1 OF 1	

4

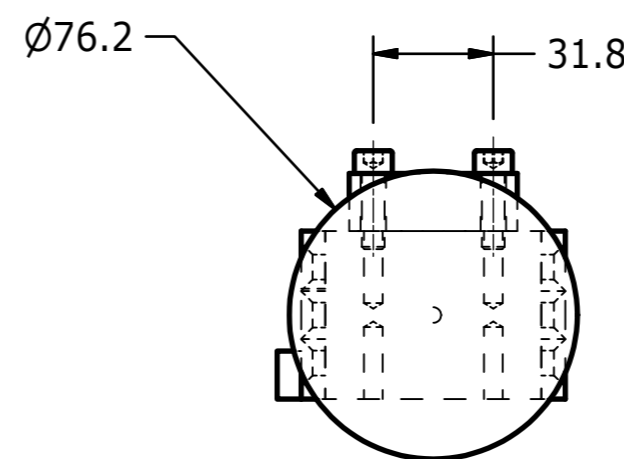
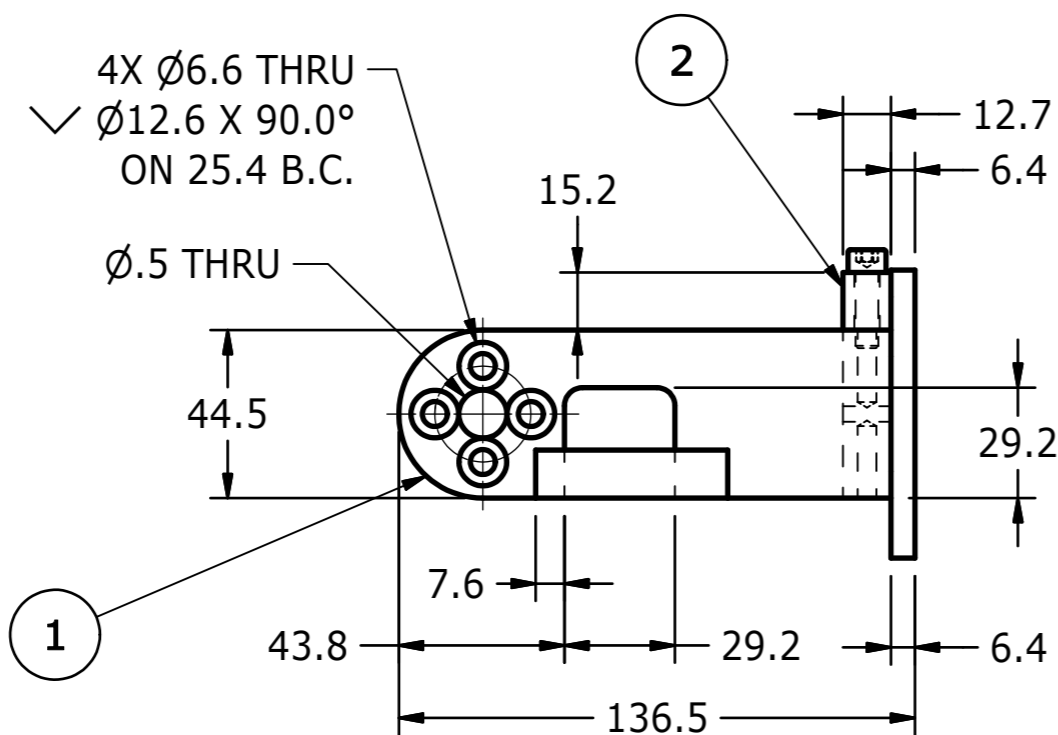
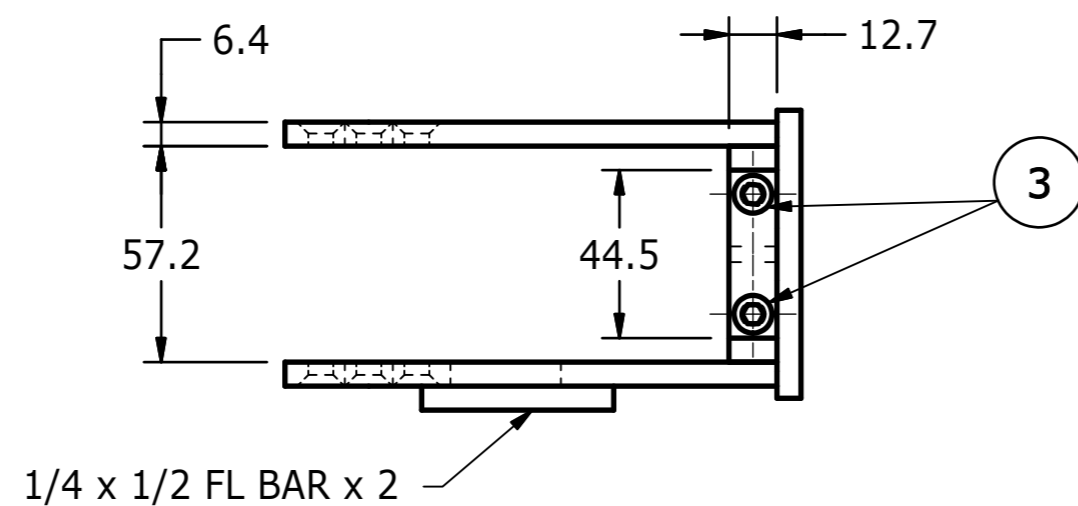
3

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B

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A

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3	2	500001	SCREW, SHCS M6-1.0 x 20mm
2	1	DL472-5020	KNEE SLIDER TEST DISTRIBUTION BRACKET - BALLAST WEIGHT
1	1	DL472-5010	KNEE SLIDER TEST DISTRIBUTION BRACKET - WELDMENT
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

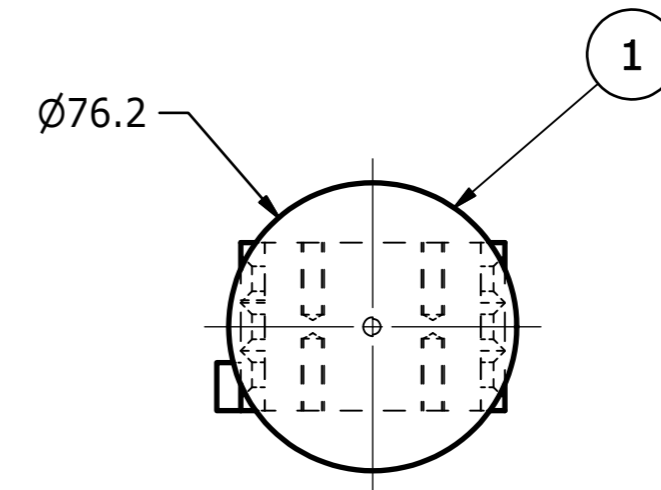
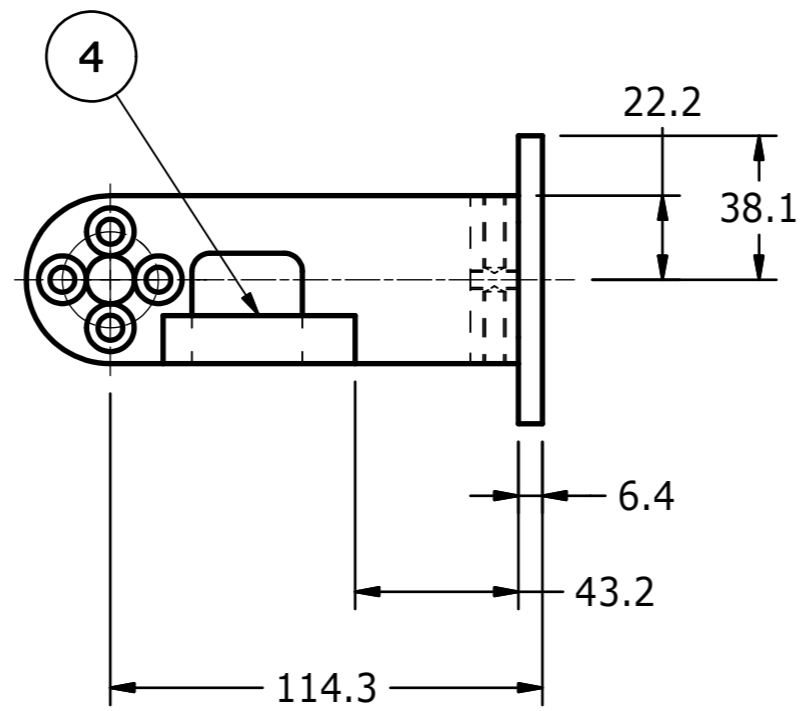
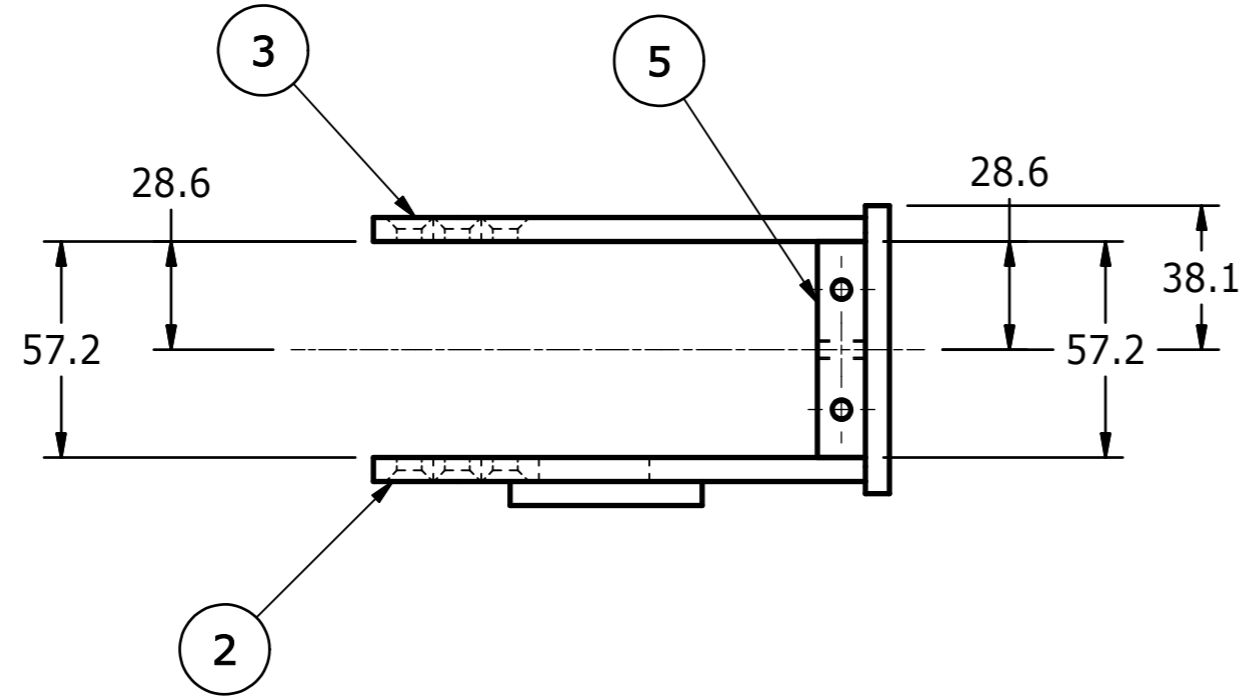
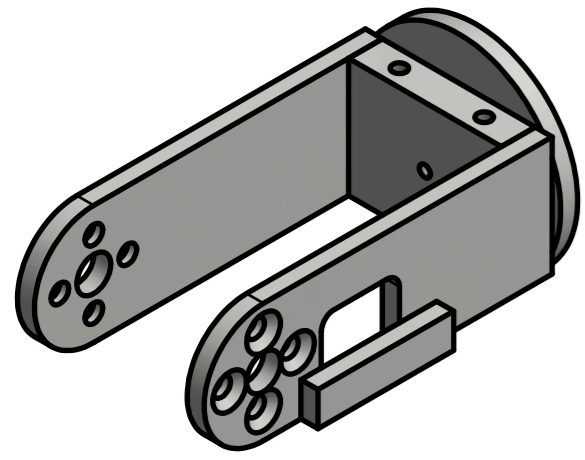
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 X.XX ±.1	MACHINED ↓ ANGLES ±.5°	APPROVALS	DATE	KNEE SLIDER TEST DISTRIBUTION BRACKET - ASS'Y. THOR-M	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN JIM CLEVENGER	8/27/2015		
MATERIAL	CHECKED			THIRD ANGLE PROJECTION	SIZE A2
HEAT TREAT	ENG				DRAWING NUMBER DL472-5000
FINISH	APPROVED			SCALE: 0.5:1	SHEET 1 OF 1

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ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	DL472-5015	KNEE SLIDER TEST DISTRIBUTION BRACKET - BACK PLATE
4	1	DL472-5014	KNEE SLIDER TEST DISTRIBUTION BRACKET - TIE BAR
3	1	DL472-5013	KNEE SLIDER TEST DISTRIBUTION BRACKET, SIDE PLATE - LEFT
2	1	DL472-5012	KNEE SLIDER TEST DISTRIBUTION BRACKET, SIDE PLATE - RIGHT
1	1	DL472-5011	KNEE SLIDER TEST DISTRIBUTION BRACKET - IMPACT PLATE

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: X ±.5 XX ±.2 X.XX ±.1 MACHINED ↓ ANGLES ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		KNEE SLIDER TEST DISTRIBUTION BRACKET - WELDMENT THOR-M	
DRAWN Dave Walker		10/2/2015			
MATERIAL		CHECKED		THIRD ANGLE PROJECTION	
HEAT TREAT		ENG			
FINISH		APPROVED		SCALE: A2	
				SHEET 1 OF 1	

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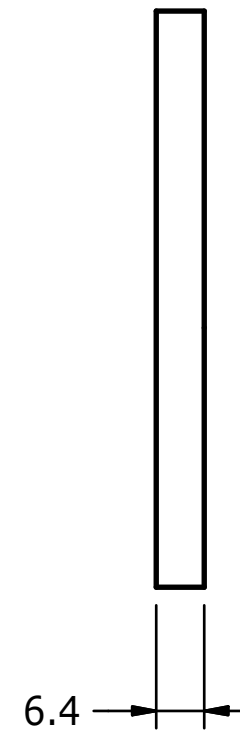
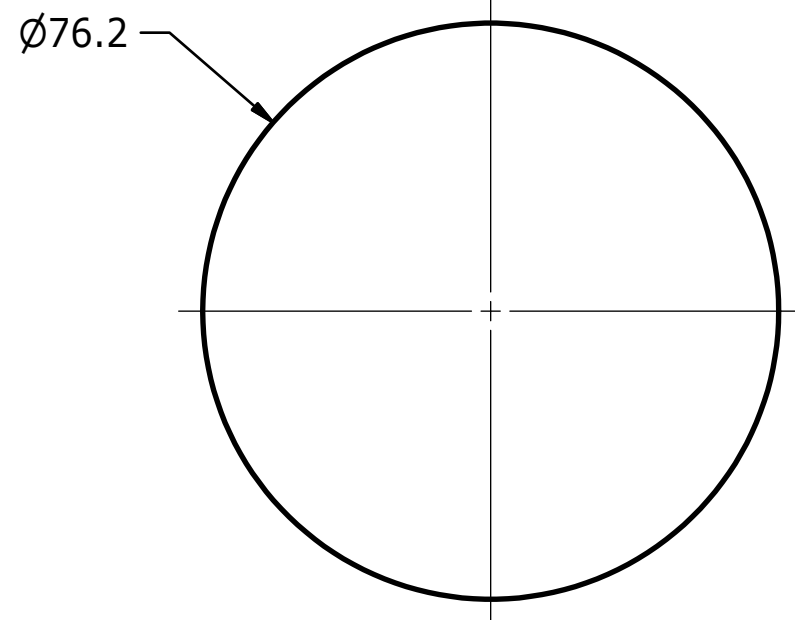
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<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 1.5 X.XX ±.1 1.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>		
	<p>APPROVALS</p> <p>DRAWN Dave Walker</p> <p>CHECKED</p> <p>ENG</p> <p>APPROVED</p>	<p>DATE</p> <p>10/2/2015</p>	<p>KNEE SLIDER TEST DISTRIBUTION BRACKET - IMPACT PLATE THOR-M</p>		
<p>MATERIAL 1018 STEEL</p> <p>HEAT TREAT</p> <p>FINISH</p>	<p>THIRD ANGLE PROJECTION</p>		<p>SIZE A3</p> <p>SCALE:</p>	<p>DRAWING NUMBER DL472-5011</p> <p>SHEET 1 OF 1</p>	<p>REV</p>

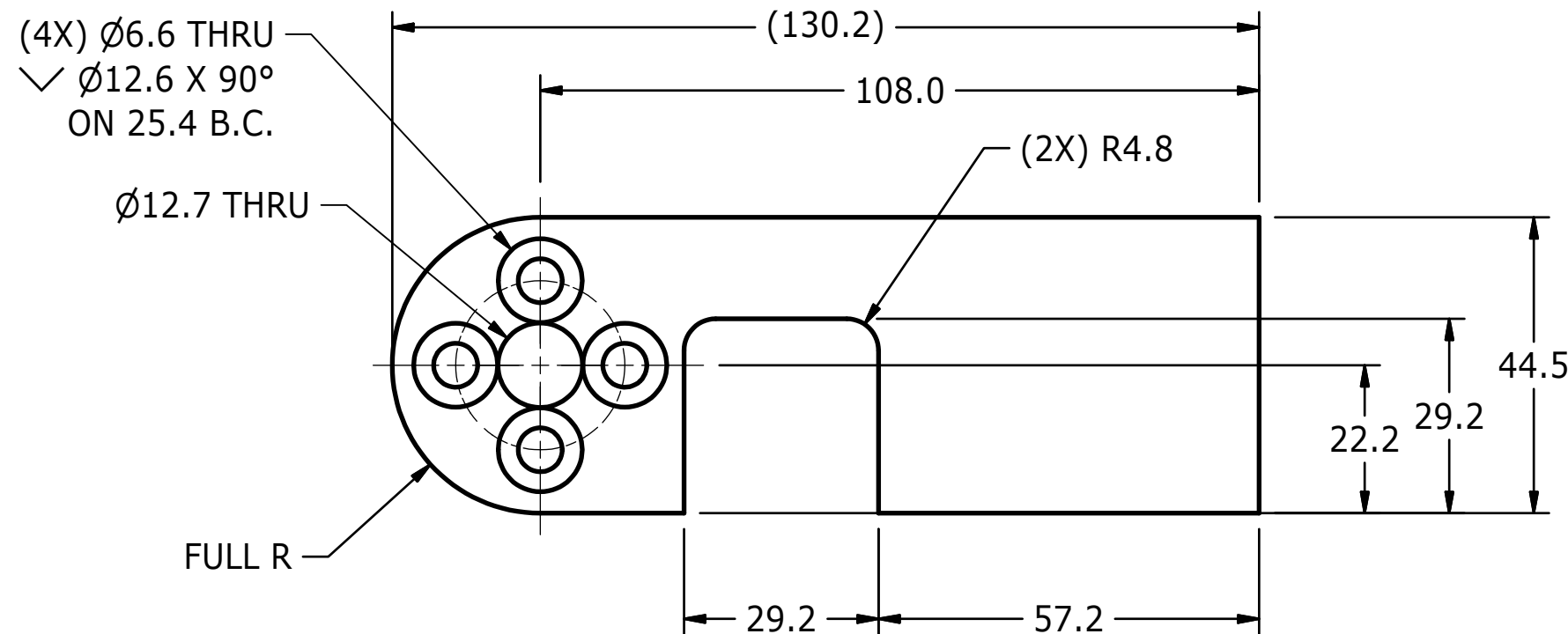
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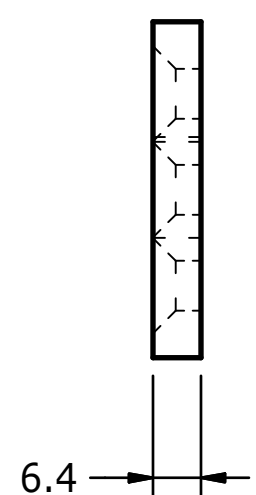


(4X) Ø6.6 THRU
 ✓ Ø12.6 X 90°
 ON 25.4 B.C.

Ø12.7 THRU

(2X) R4.8

FULL R




B

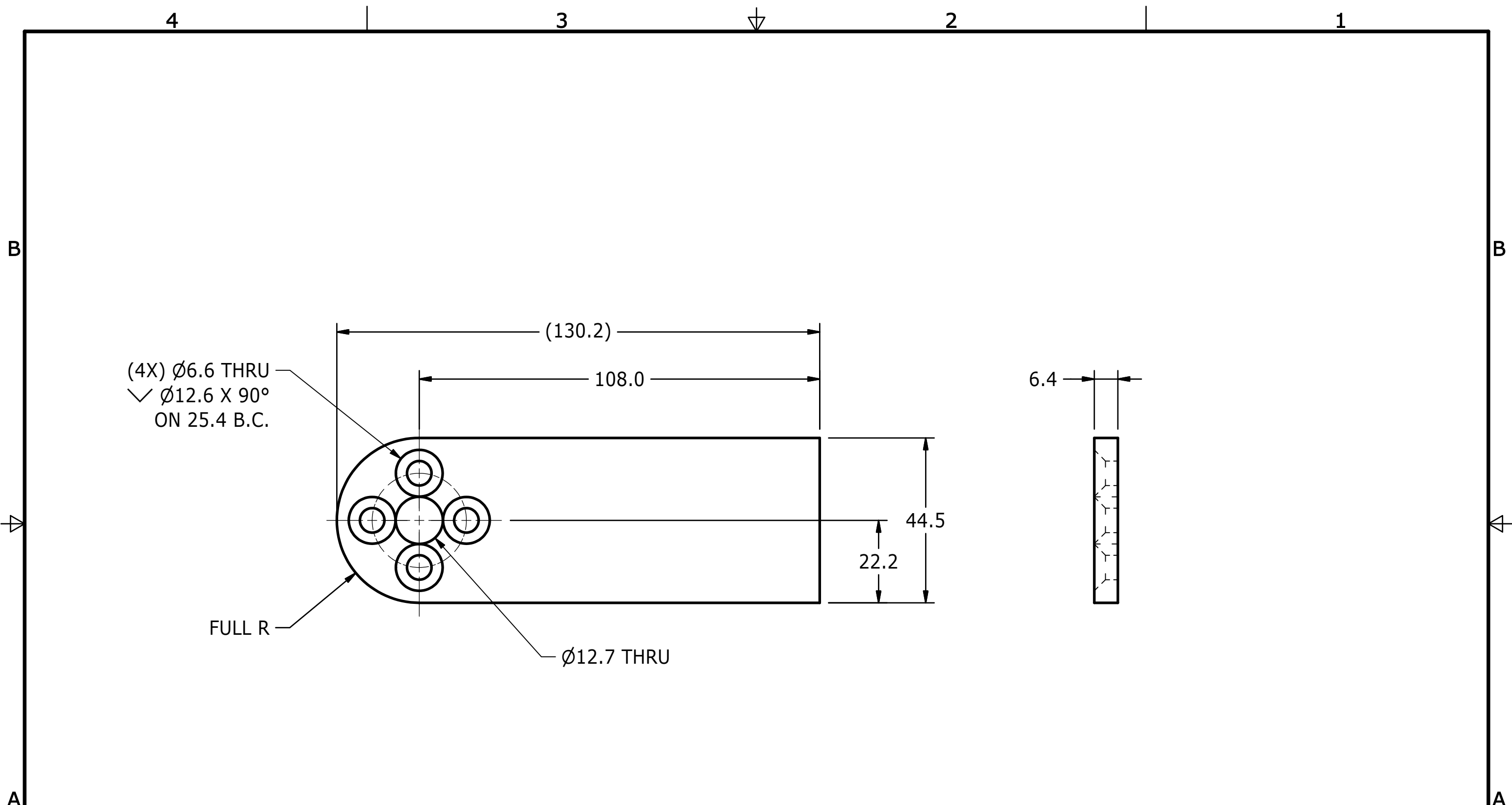
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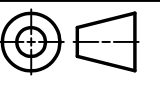
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/5 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	KNEE SLIDER TEST DISTRIBUTION BRACKET, SIDE PLATE - RIGHT THOR-M	
	DRAWN Dave Walker	10/2/2015		
	CHECKED			
MATERIAL 1018 STEEL	ENG			SIZE: A3 DRAWING NUMBER: DL472-5012
HEAT TREAT	APPROVED			SCALE: SHEET 1 OF 1
FINISH				

4 3 2 1



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1.6 X.X ±.2 ANGLE X.XX ±.1 ±.5° <small>ASME Y14.5M - 1994</small> DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	KNEE SLIDER TEST DISTRIBUTION BRACKET, SIDE PLATE - LEFT THOR-M	
	DRAWN Dave Walker	10/2/2015		
	MATERIAL 1018 STEEL	CHECKED	SIZE A3	DRAWING NUMBER DL472-5013
HEAT TREAT	ENG	 THIRD ANGLE PROJECTION		SHEET 1 OF 1
FINISH	APPROVED			

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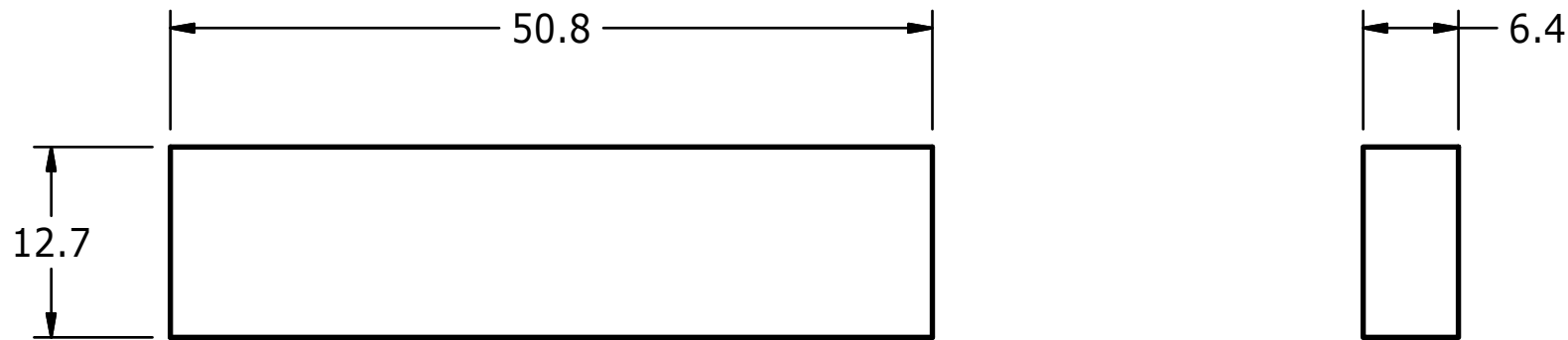
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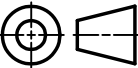
B

B



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A

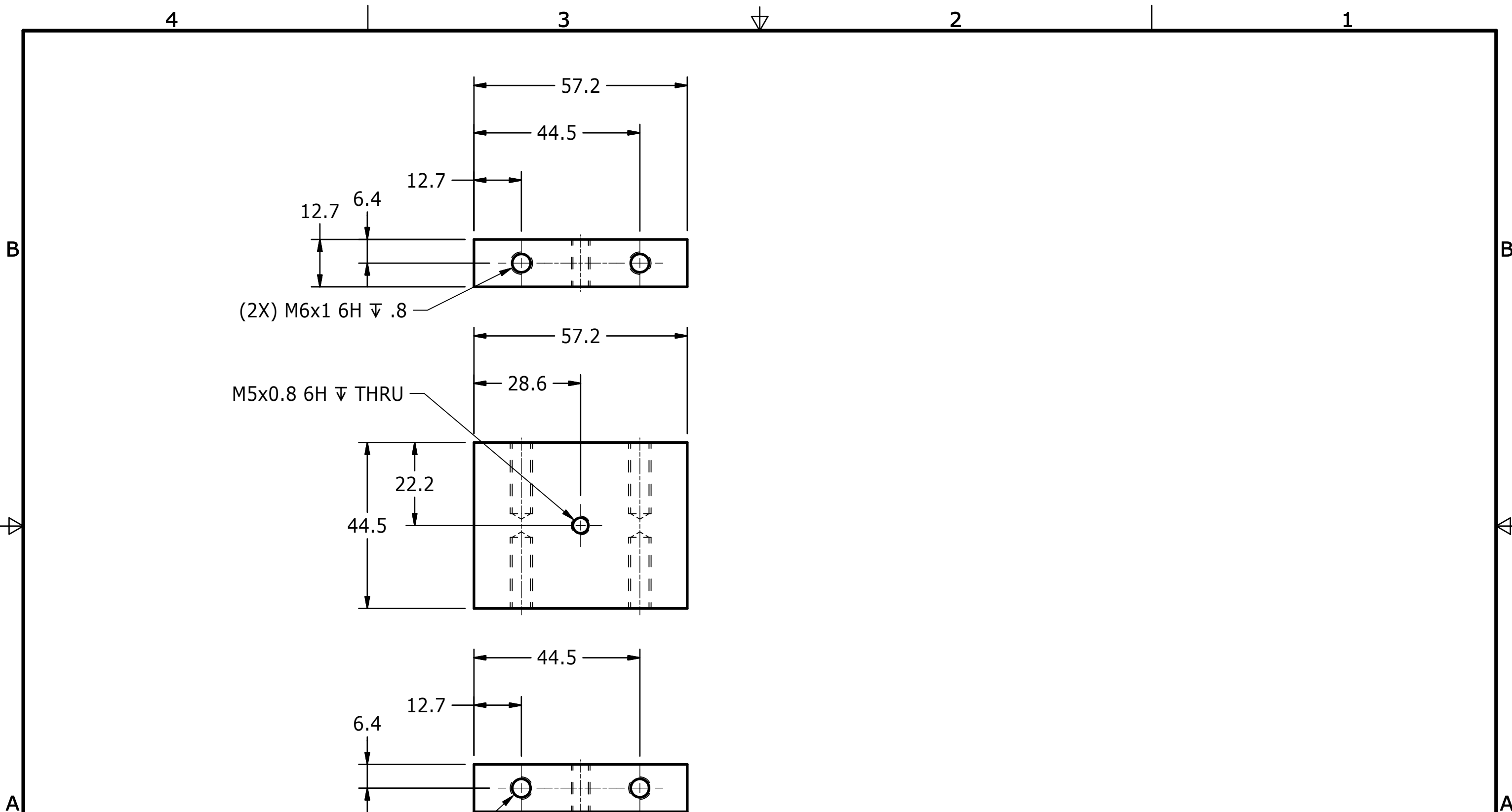
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	APPROVALS	DATE	<p>KNEE SLIDER TEST DISTRIBUTION BRACKET - TIE BAR THOR-M</p>	
	DRAWN Dave Walker	10/5/2015		
	MATERIAL 1018 STEEL	CHECKED	 <p>THIRD ANGLE PROJECTION</p>	
HEAT TREAT	ENG	SIZE A3	DRAWING NUMBER DL472-5014	REV
FINISH	APPROVED	SCALE: 2:1	SHEET 1	OF 1



4

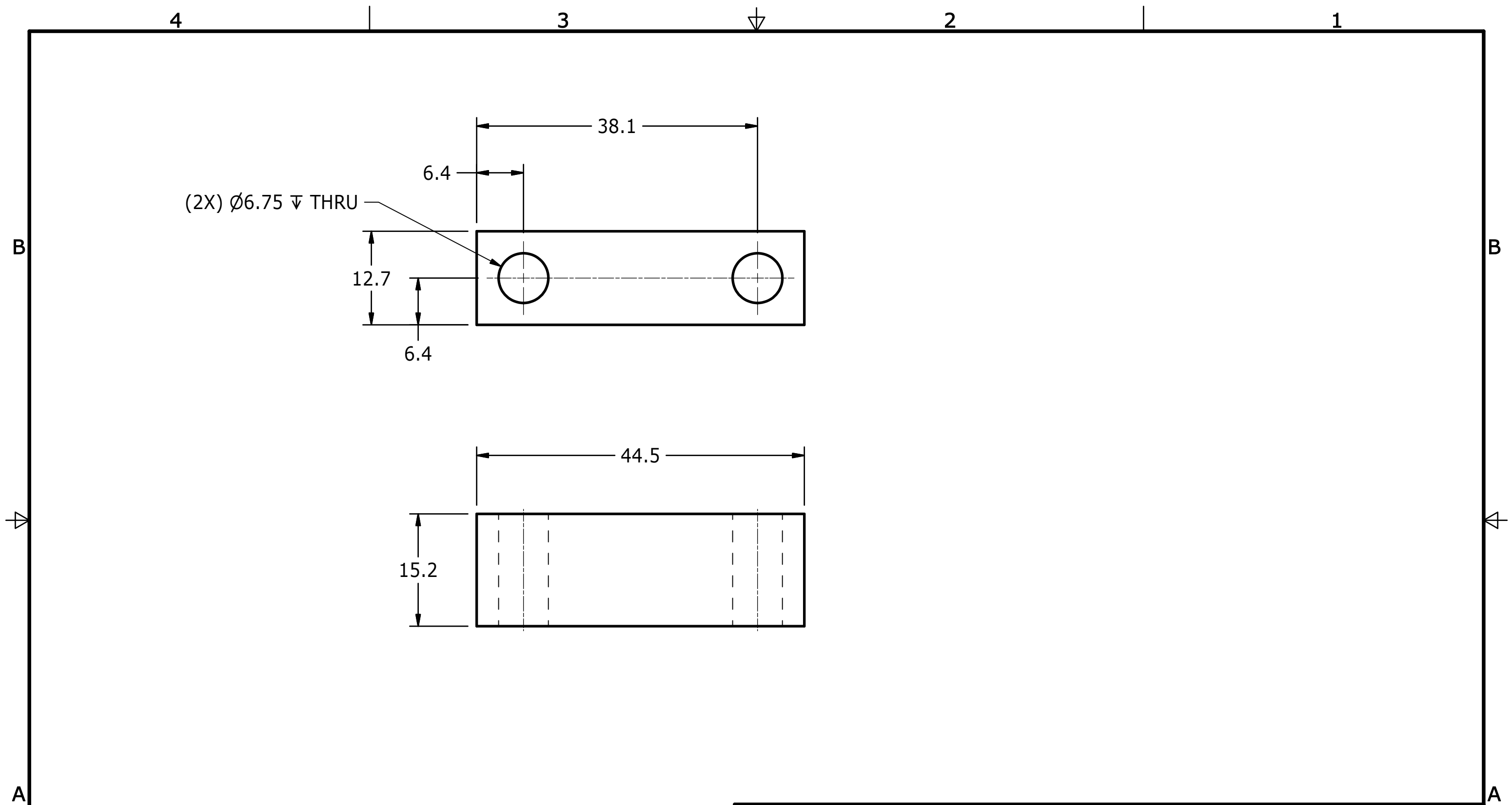
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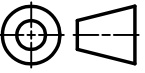
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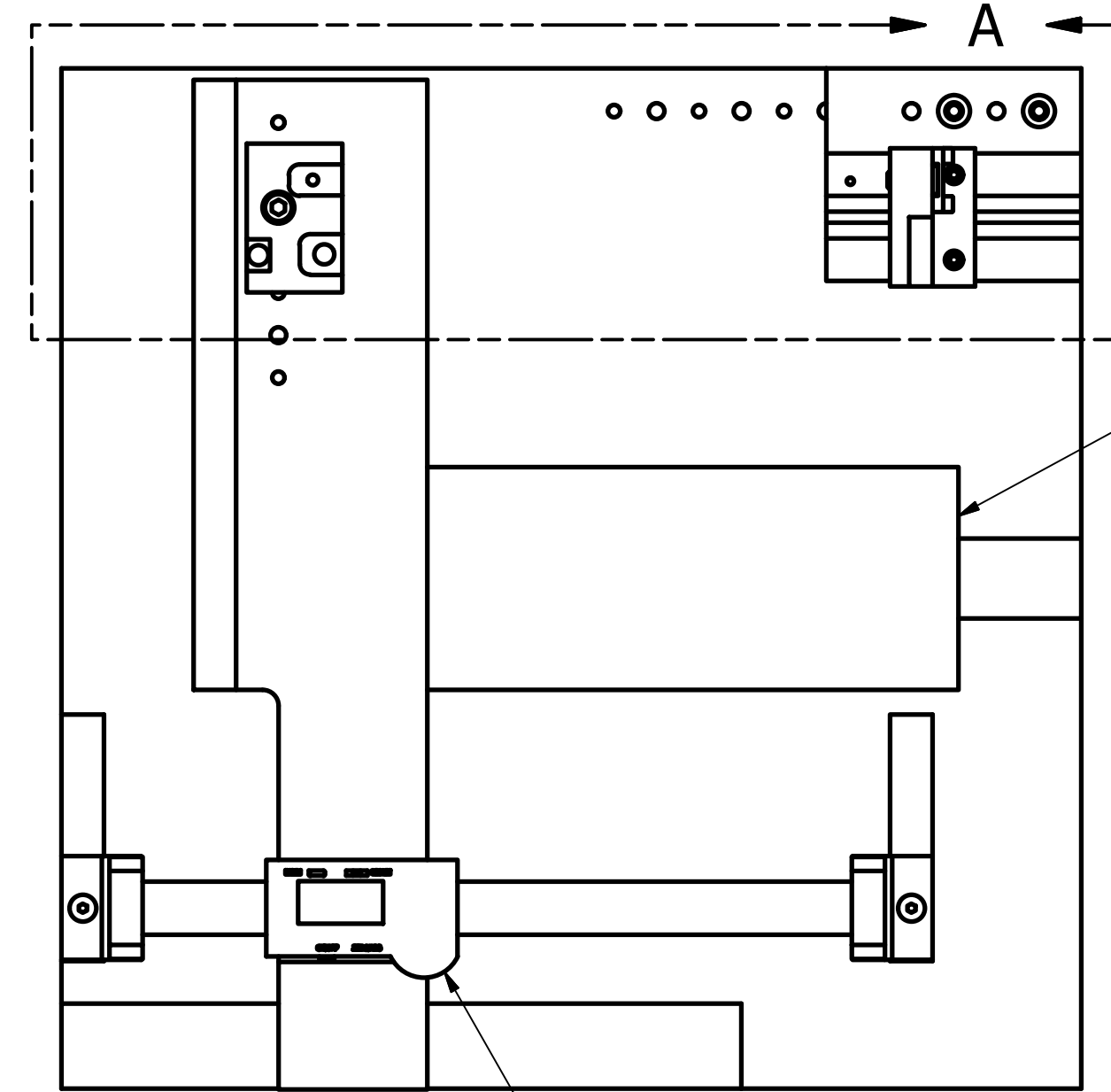
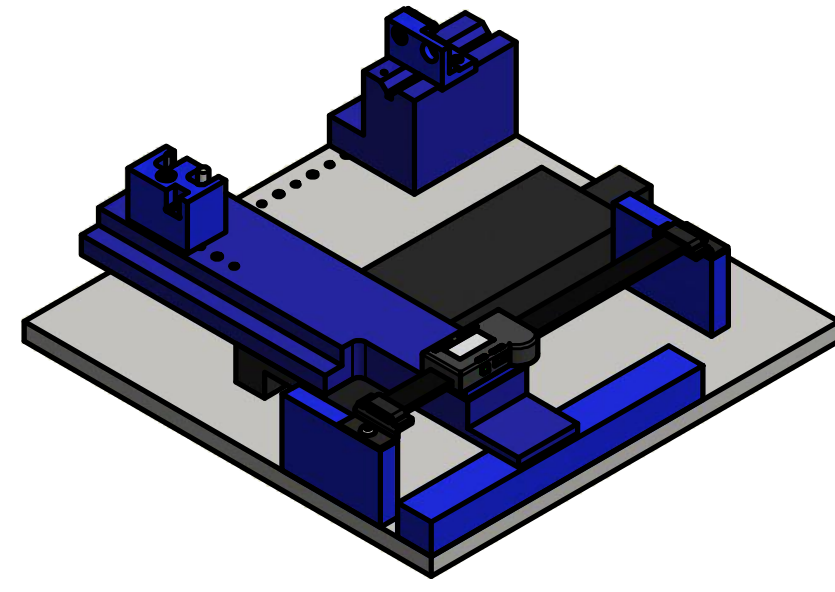
1



<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	<p>VEHICLE RESEARCH and TEST CENTER</p>		 <p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
	APPROVALS	DATE	<p>KNEE SLIDER TEST DISTRIBUTION BRACKET - BACK PLATE THOR-M</p>	
	DRAWN Dave Walker	10/5/2015		
	MATERIAL 1018 STEEL	CHECKED	SIZE A3	DRAWING NUMBER DL472-5015
HEAT TREAT	ENG	 <p>THIRD ANGLE PROJECTION</p>		SHEET 1 OF 1
FINISH	APPROVED			

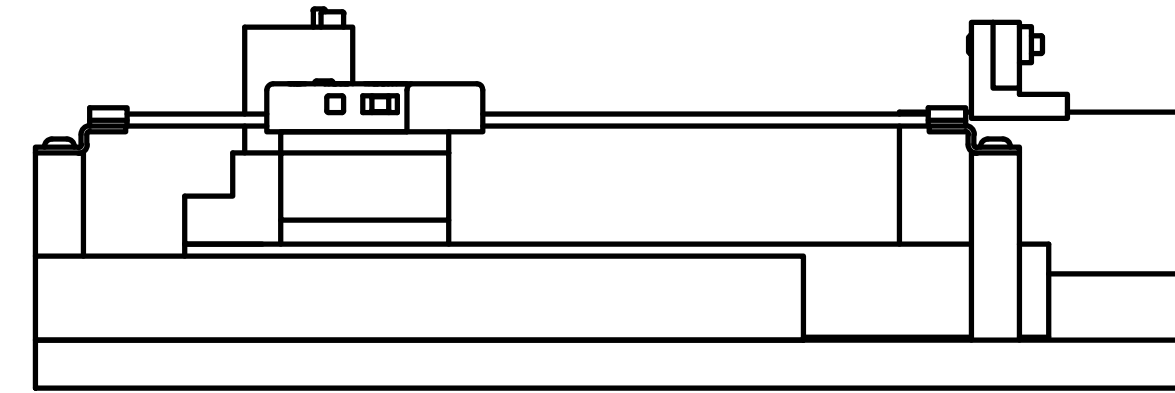


<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:</p> <p>DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5°</p> <p>ASME Y14.5M - 1994 DO NOT SCALE DRAWING</p>	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS	DATE	KNEE SLIDER TEST DISTRIBUTION BRACKET - BALLAST WEIGHT THOR-M		
	DRAWN Dave Walker	10/5/2015			
	CHECKED		 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER DL472-5020
MATERIAL 1018 STEEL	ENG	SCALE: 2:1		SHEET 1	OF 1
HEAT TREAT	APPROVED				
FINISH					



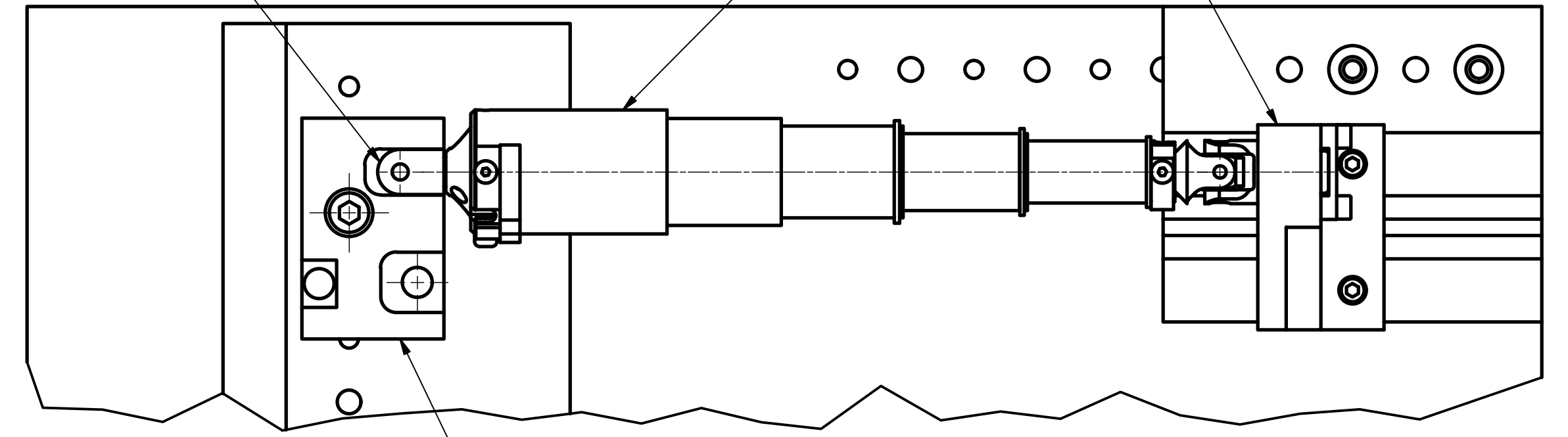
BALL BEARING SLIDE TABLE
MINIMUM TRAVEL 6" (150mm)

DIGITAL SCALE, MINIMUM RANGE
0"-8" (0mm-200mm)



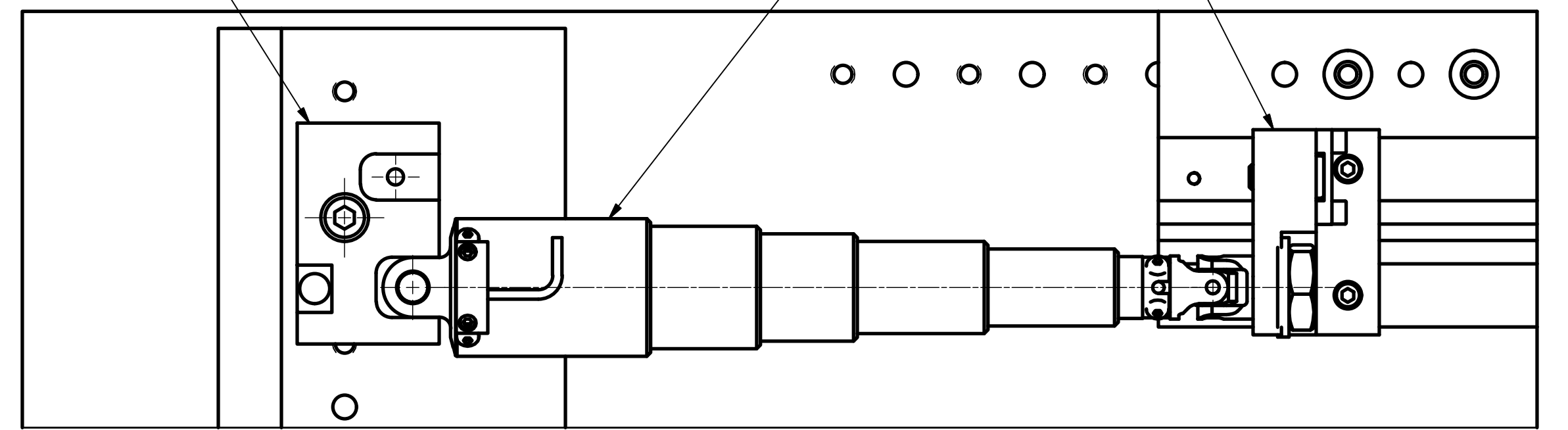
ADAPTOR SERVO/IRTRACC
472-3553

THORAX IRTRACC
SA572-S121

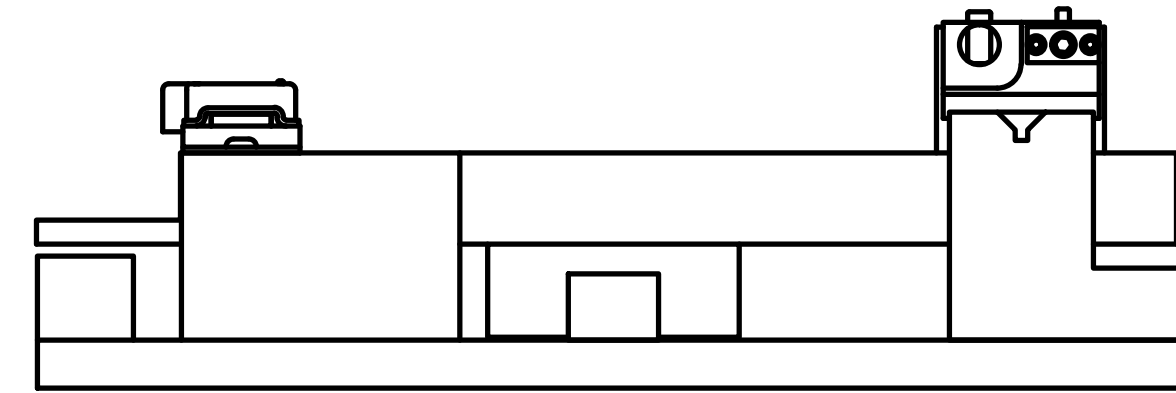


DETAIL A
THORAX IRTACC SETUP
SCALE 1:1

ABDOMEN IRTRACC
SA572-S121



DETAIL A
ABDOMEN IRTRACC SETUP
SCALE 1:1



2	1	DL472-6050	DSCF - REAR IRTRACC MOUNT BLOCK ASS'Y.
1	1	DL472-6010	DSCF - FRONT IRTRACC MOUNT BLOCK ASS'Y.
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: .X ±.1 .XX ±.01 .XXX ±.005	MACHINED ±.005 ANGLES ±.5° FRACTION ±1/64	APPROVALS	DATE	DIGITAL SLIDE CALIBRATION FIXTURE	
MATERIAL		DRAWN Dave Walker	5/3/2016	SIZE D DRAWING NUMBER DL472-6000	
HEAT TREAT		CHECKED		SCALE: 1 OF 1	
FINISH		APPROVED		THIRD ANGLE PROJECTION	

4

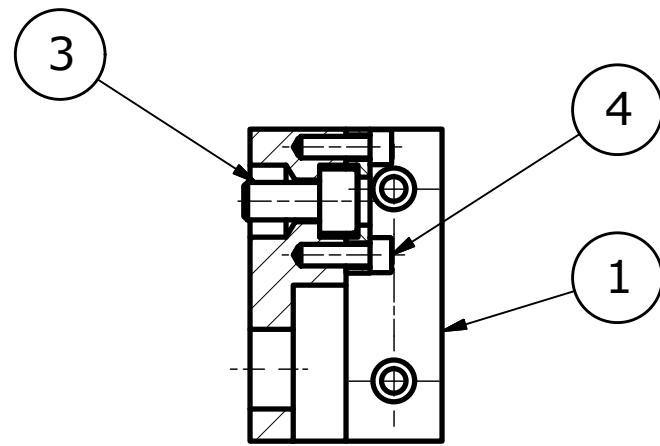
3

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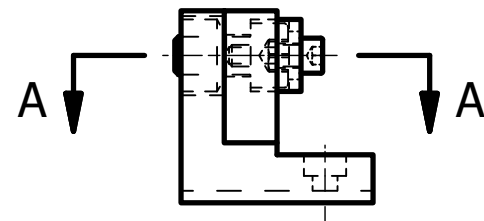
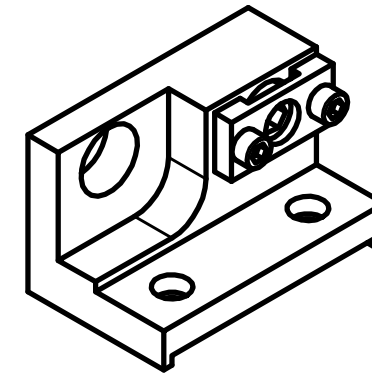
1

B

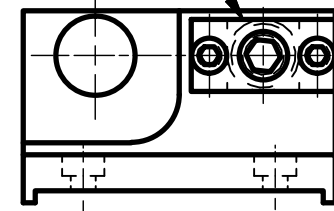
B



SECTION A-A
SCALE 1 : 1




2



4	2	9000378V	SCREW, SHCS #4-40 x 3/8"
3	1	5000291	SCREW, SHCS M5-0.8 x 10
2	1	DL472-6012	DSCF - FRONT ITRACC MOUNT BLOCK ASS'Y. - SCREW RETAINER
1	1	DL472-6011	DSCF - FRONT ITRACC MOUNT BLOCK
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL: MACHINED $\frac{1}{25}$.X ±.1 ANGLES ±.5° .XX ±.01 FRACTION ±1/64 .XXX ±.005 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
	APPROVALS DRAWN JIM CLEVINGER CHECKED	DATE 8/18/2015		DSCF - FRONT ITRACC MOUNT BLOCK ASS'Y.		
	MATERIAL HEAT TREAT FINISH	ENG APPROVED	 THIRD ANGLE PROJECTION		SIZE: B SCALE: 1:1	DRAWING NUMBER DL472-6010
			SHEET 1 OF 1			

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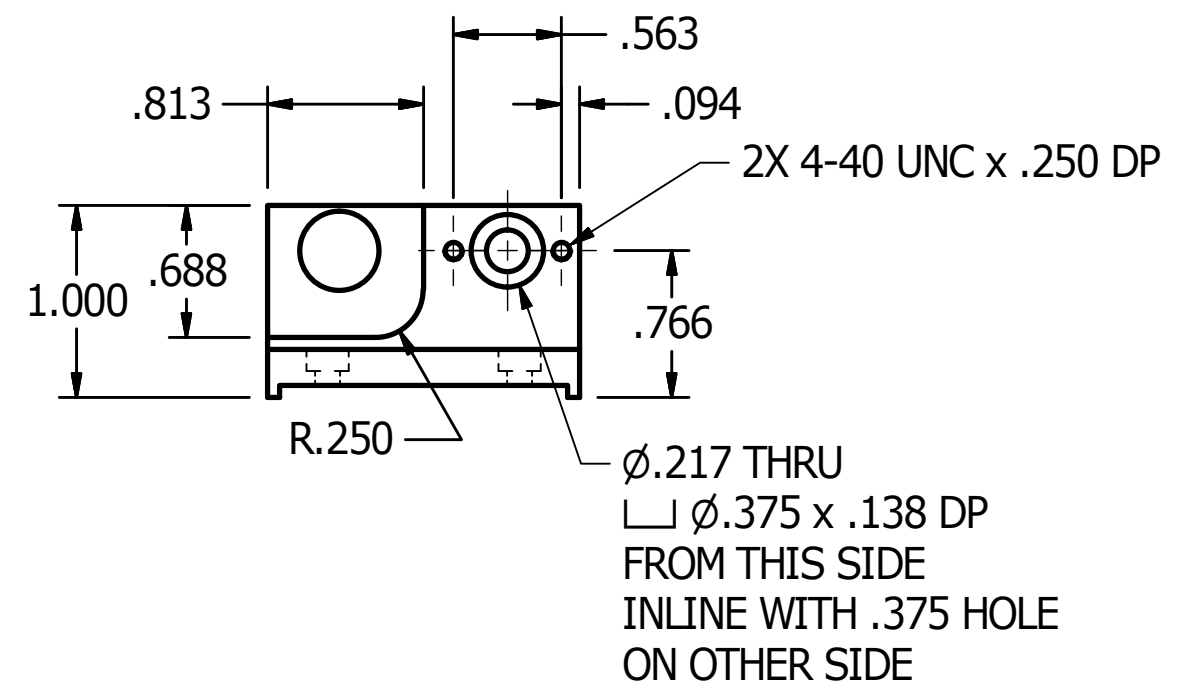
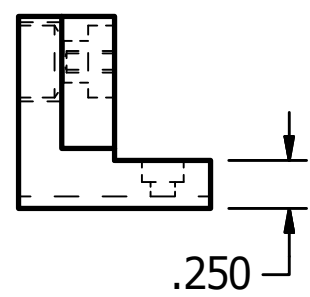
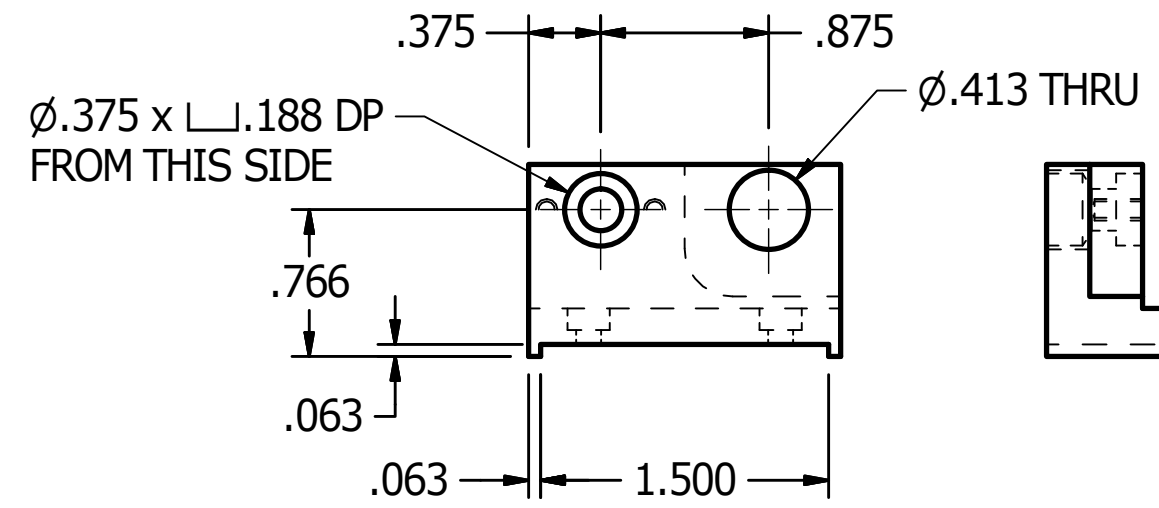
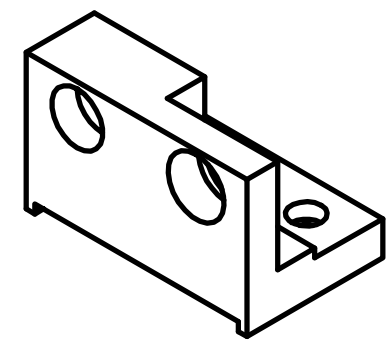
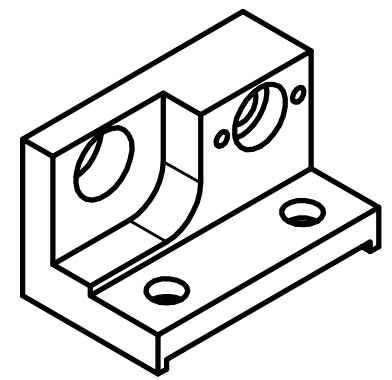
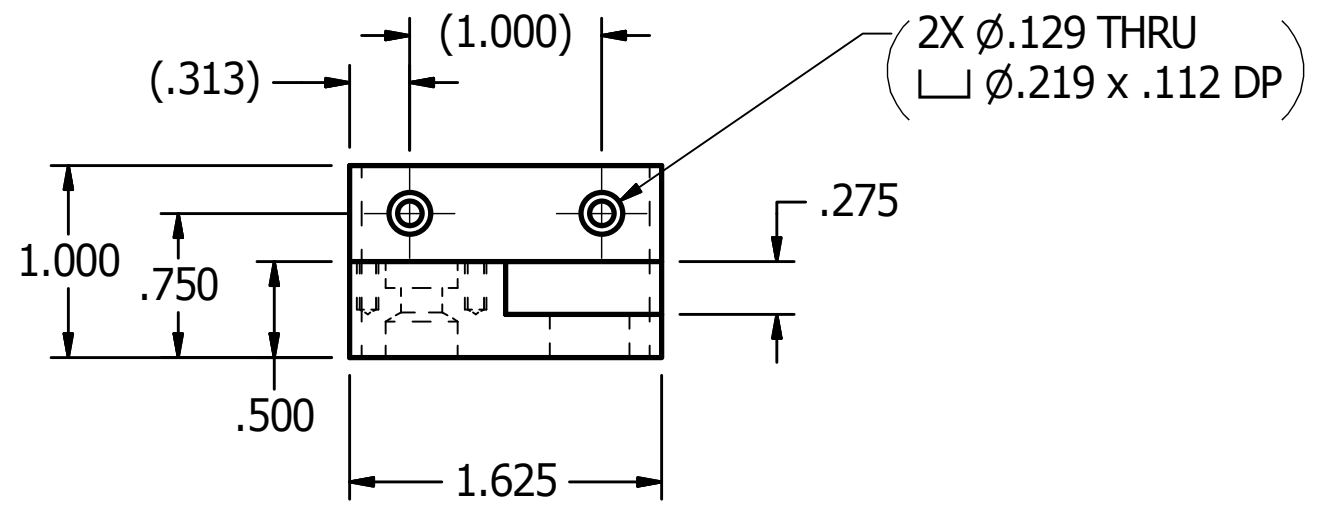
B

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:

DECIMAL:	MACHINED
.X \pm .1	ANGLES \pm .5°
.XX \pm .01	FRACTION \pm 1/64
.XXX \pm .005	

ASME Y14.5M - 1994 DO NOT SCALE DRAWING

MATERIAL	Aluminum 6061
HEAT TREAT	ENG
FINISH	APPROVED

VEHICLE RESEARCH and TEST CENTER

APPROVALS	DATE
DRAWN JIM CLEVENGER	8/18/2015
CHECKED	
ENG	
APPROVED	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DSCF - FRONT IRTRACC MOUNT BLOCK

SIZE	DRAWING NUMBER	REV
B	DL472-6011	
SCALE:	SHEET	
1:1	1 OF 1	

THIRD ANGLE PROJECTION

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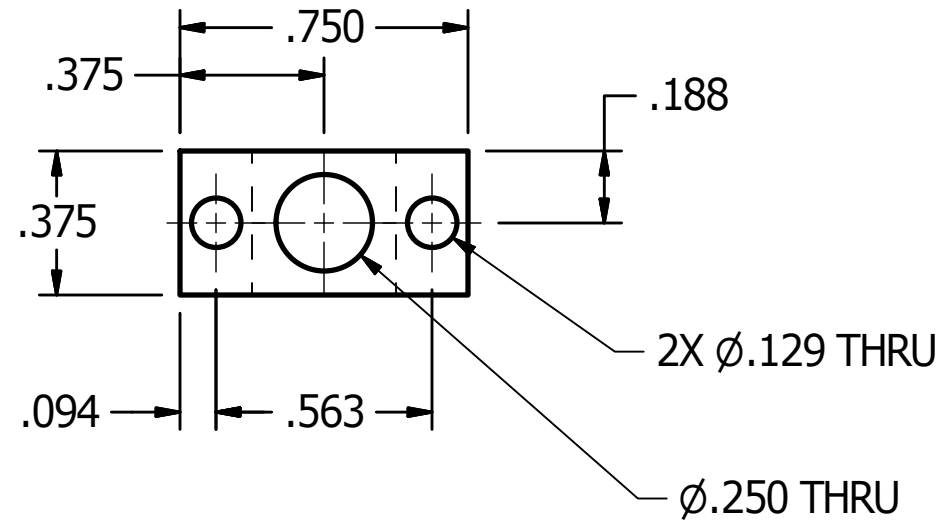
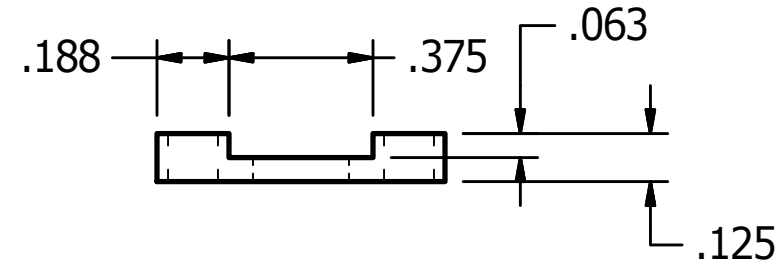
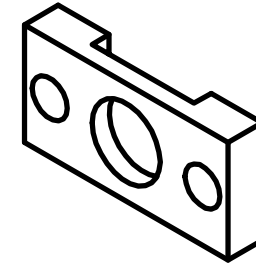
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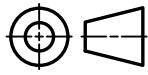


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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL: MACHINED $\frac{1}{25}$.X $\pm .1$ ANGLES $\pm .5^\circ$.XX $\pm .01$ FRACTION $\pm 1/64$.XXX $\pm .005$ ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE	DSCF - FRONT ITRACC MOUNT BLOCK ASS'Y. - SCREW RETAINER	
	DRAWN JIM CLEVINGER	8/18/2015		
	MATERIAL Aluminum 6061	CHECKED	 SIZE: B DRAWING NUMBER: DL472-6012 REV:	
HEAT TREAT	ENG	SCALE: 2:1 SHEET: 1 OF 1		
FINISH	APPROVED			

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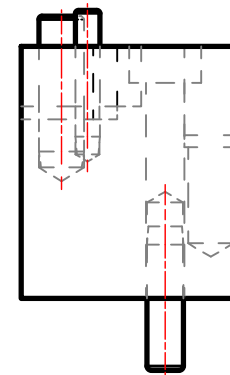
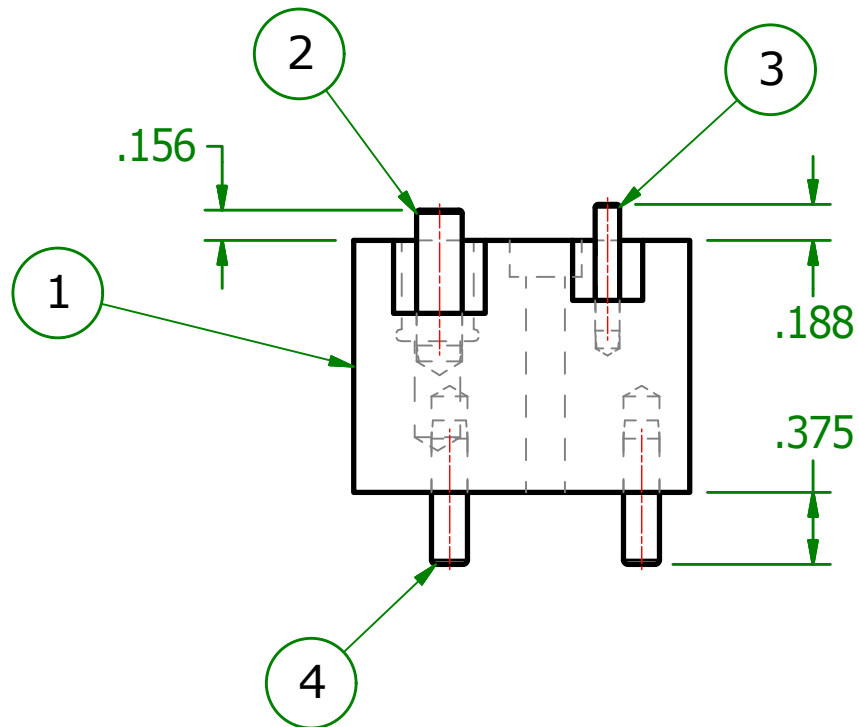
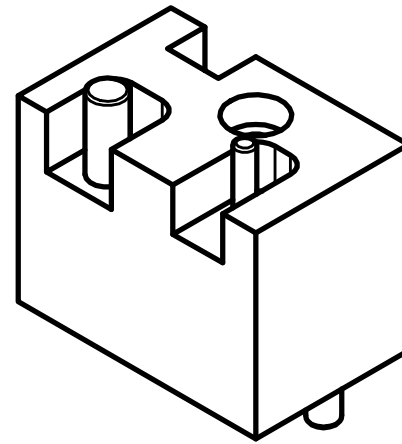
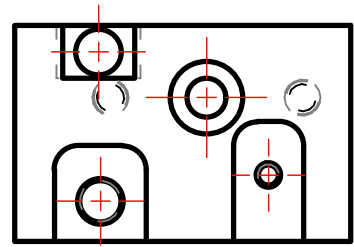
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B

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4	2	9000012V	PIN, DOWEL 1/8" x 3/4"	Steel, Mild
3	1	9000042V	PIN, DOWEL 3/16" x 3/4"	Steel, Mild
2	1	5000445	PIN, DOWEL M6 x 20mm	Steel, Mild
1	1	DL472-6051	DSCF - REAR ITRACC MOUNT BLOCK	
ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL

PARTS LIST

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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL: .X ±.1 .XX ±.01 .XXX ±.005 MACHINED: .125 ANGLES ±.5° FRACTION ±1/64 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		
	APPROVALS DRAWN JIM CLEVENGER	DATE 8/18/2015		DSCF - REAR ITRACC MOUNT BLOCK ASS'Y.		
	MATERIAL HEAT TREAT FINISH	CHECKED ENG APPROVED				SIZE B
			SCALE: 1:1	SHEET 1 OF 1		

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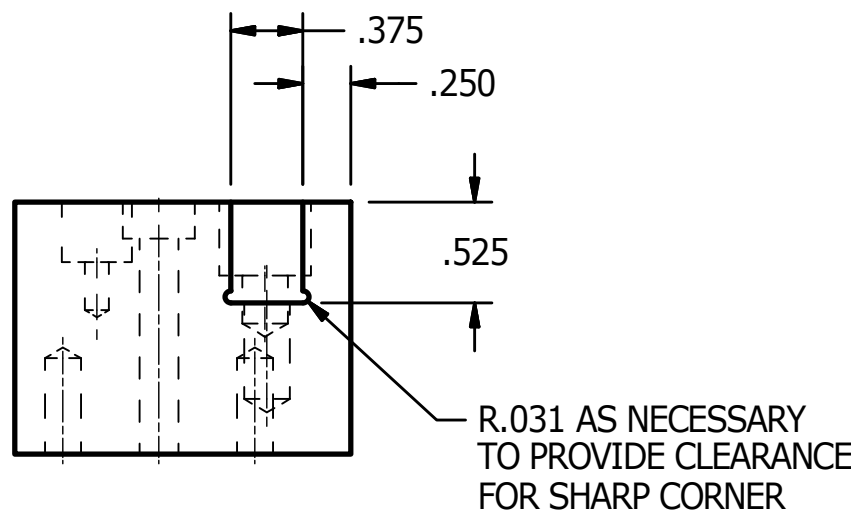
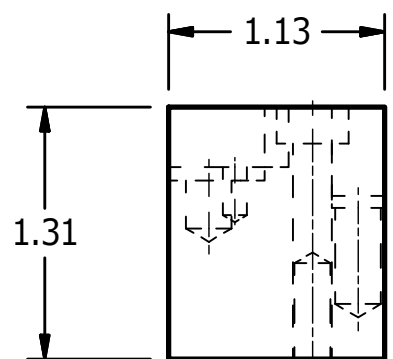
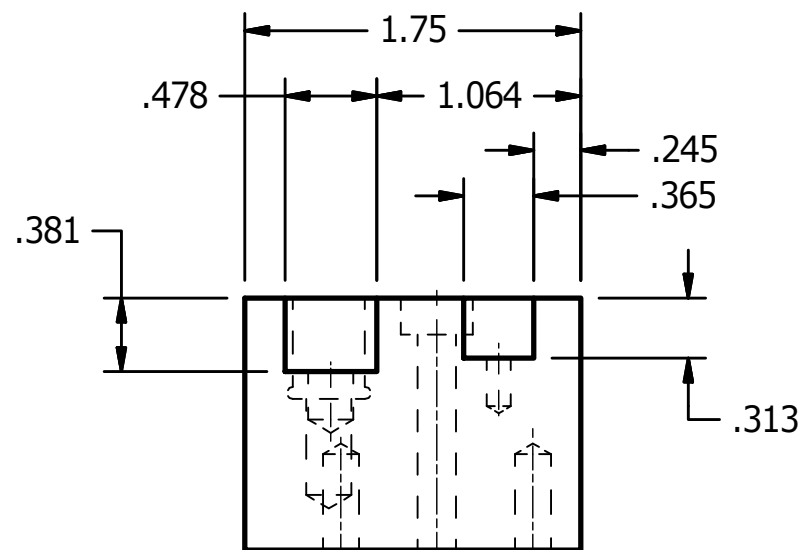
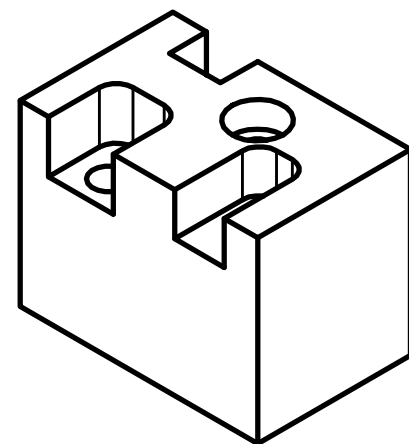
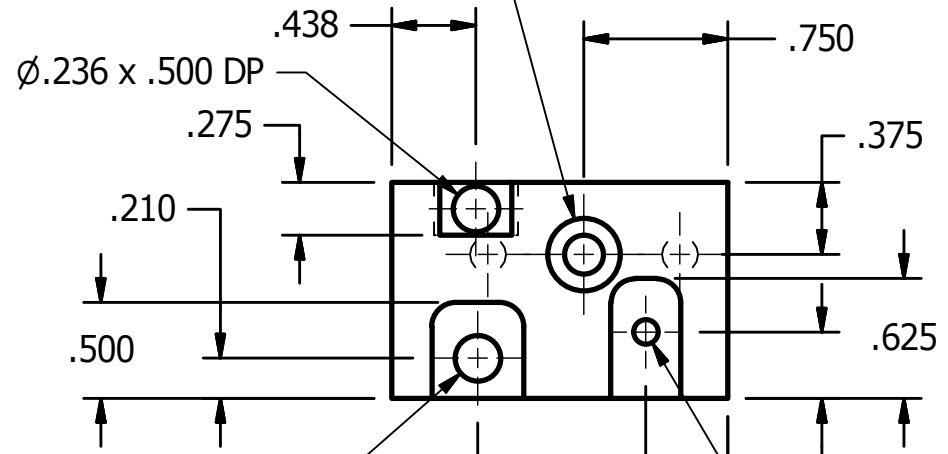
4

3

2

1

Ø.201 THRU
└─┘ Ø.375 x .190 DP



B

B

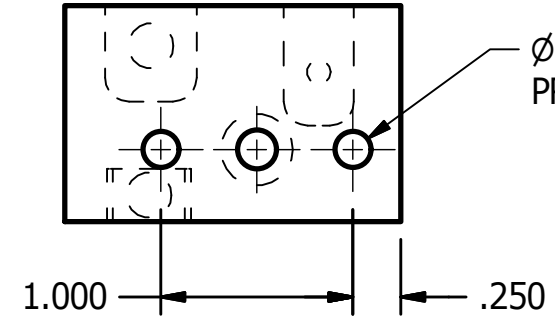
A



A

A

A

Ø.188 x .500 DP
PRESS FIT 3/16\"/>



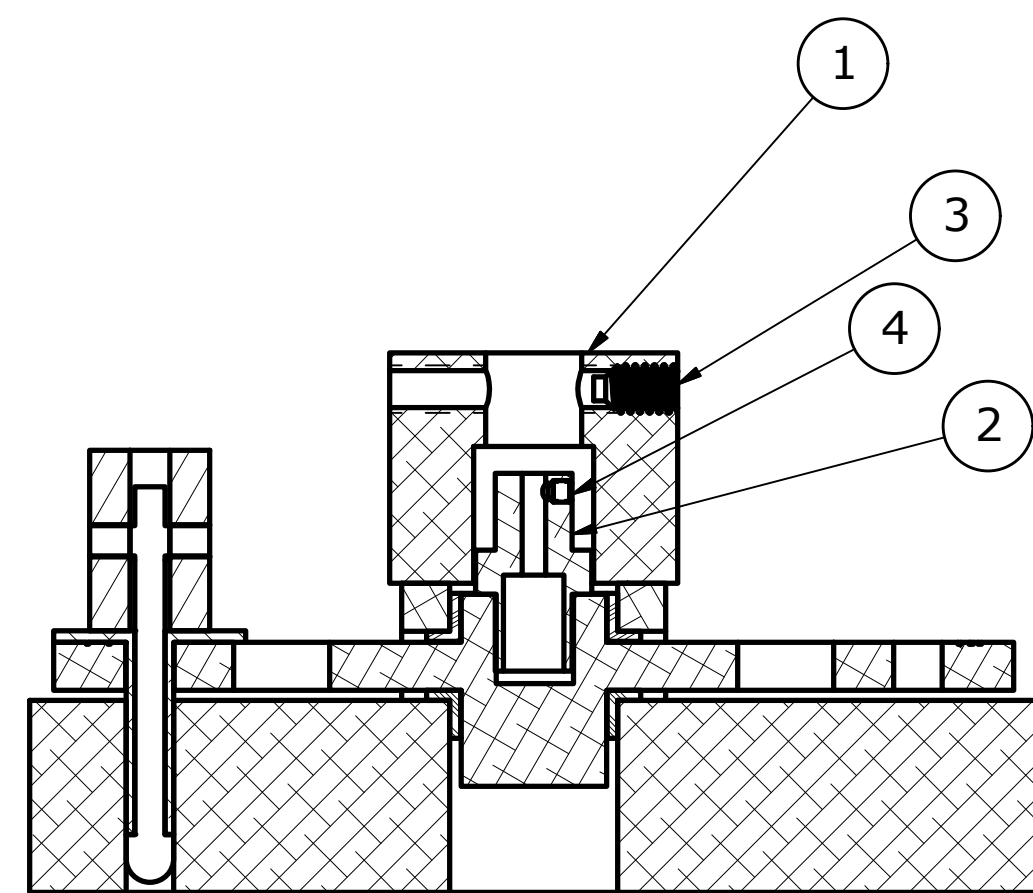
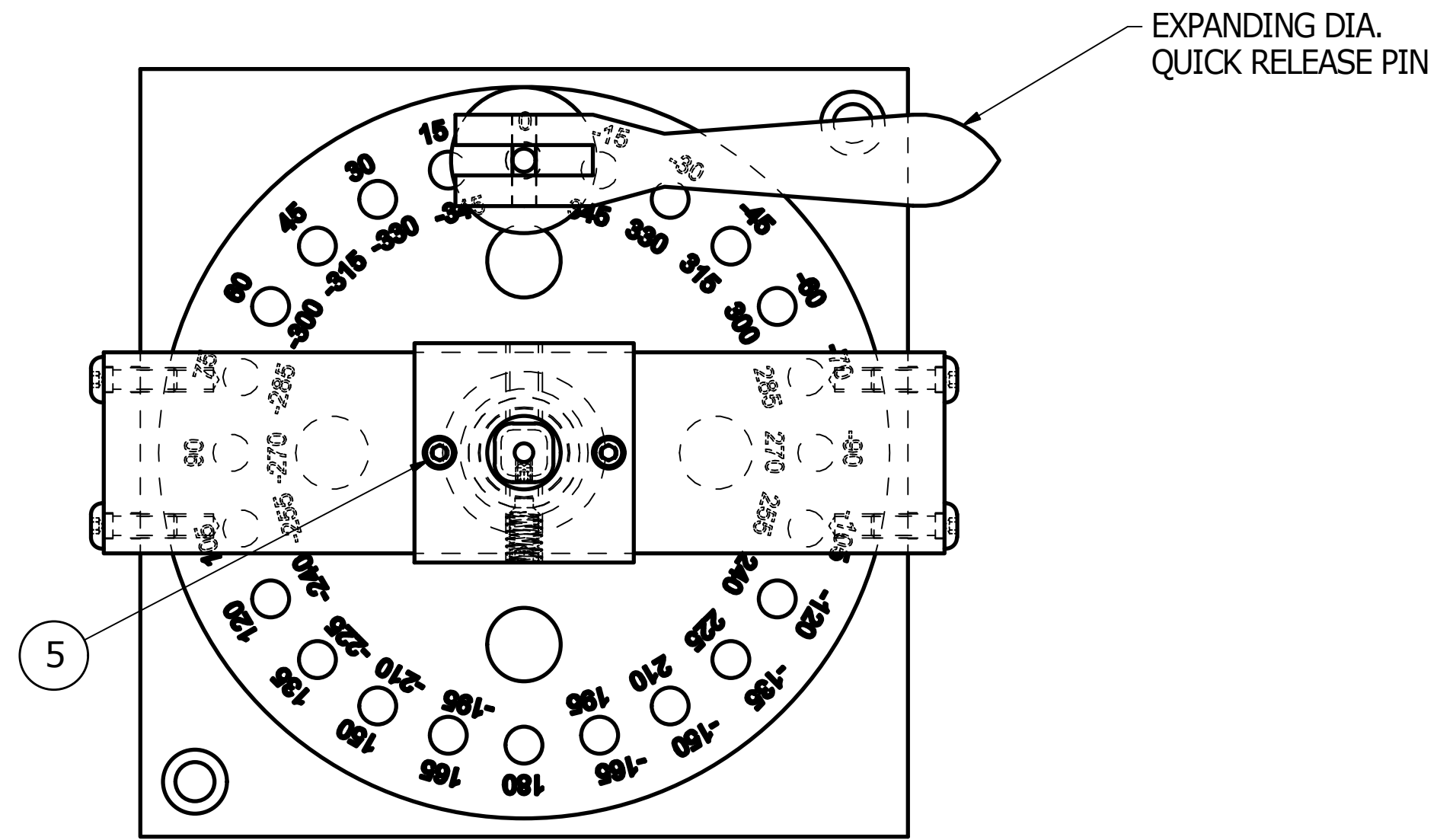
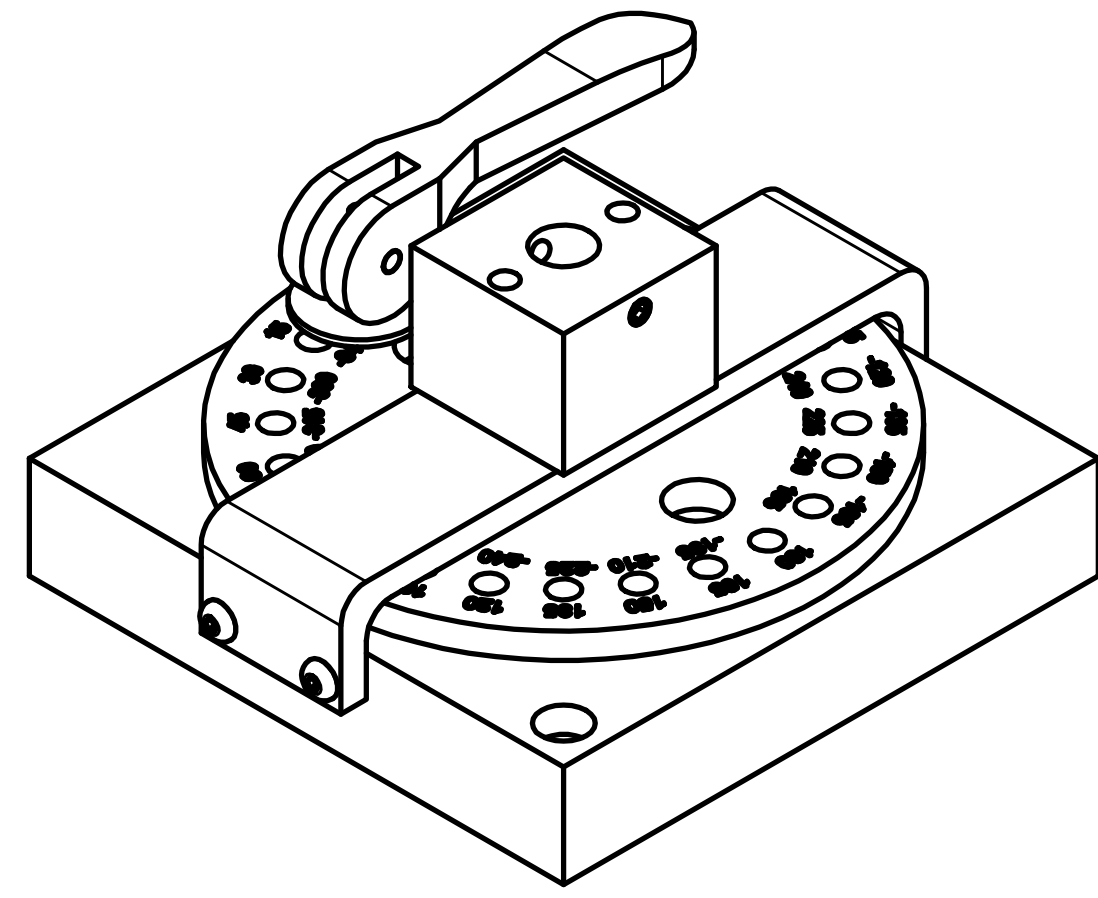
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMAL: .X ±.1 .XX ±.01 .XXX ±.005 MACHINED 125- ANGLES ±.5° FRACTION ±1/64 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS	DATE		DSCF - REAR IRTRACC MOUNT BLOCK
	DRAWN JIM CLEVINGER	8/18/2015	 THIRD ANGLE PROJECTION	
	CHECKED			
MATERIAL Aluminum 6061	ENG		DRAWING NUMBER: DL472-6051 SHEET: 1 OF 1	
HEAT TREAT	APPROVED			
FINISH				

4

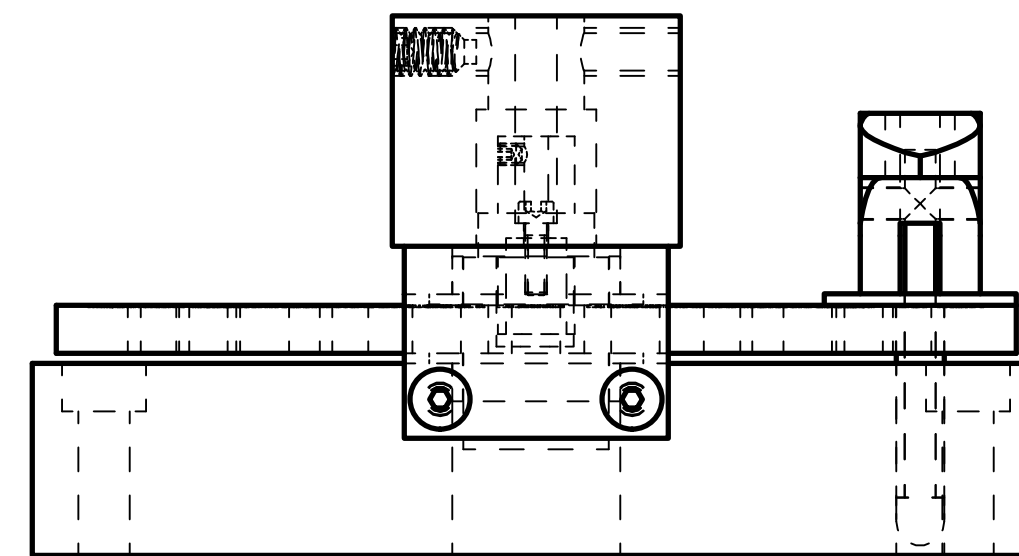
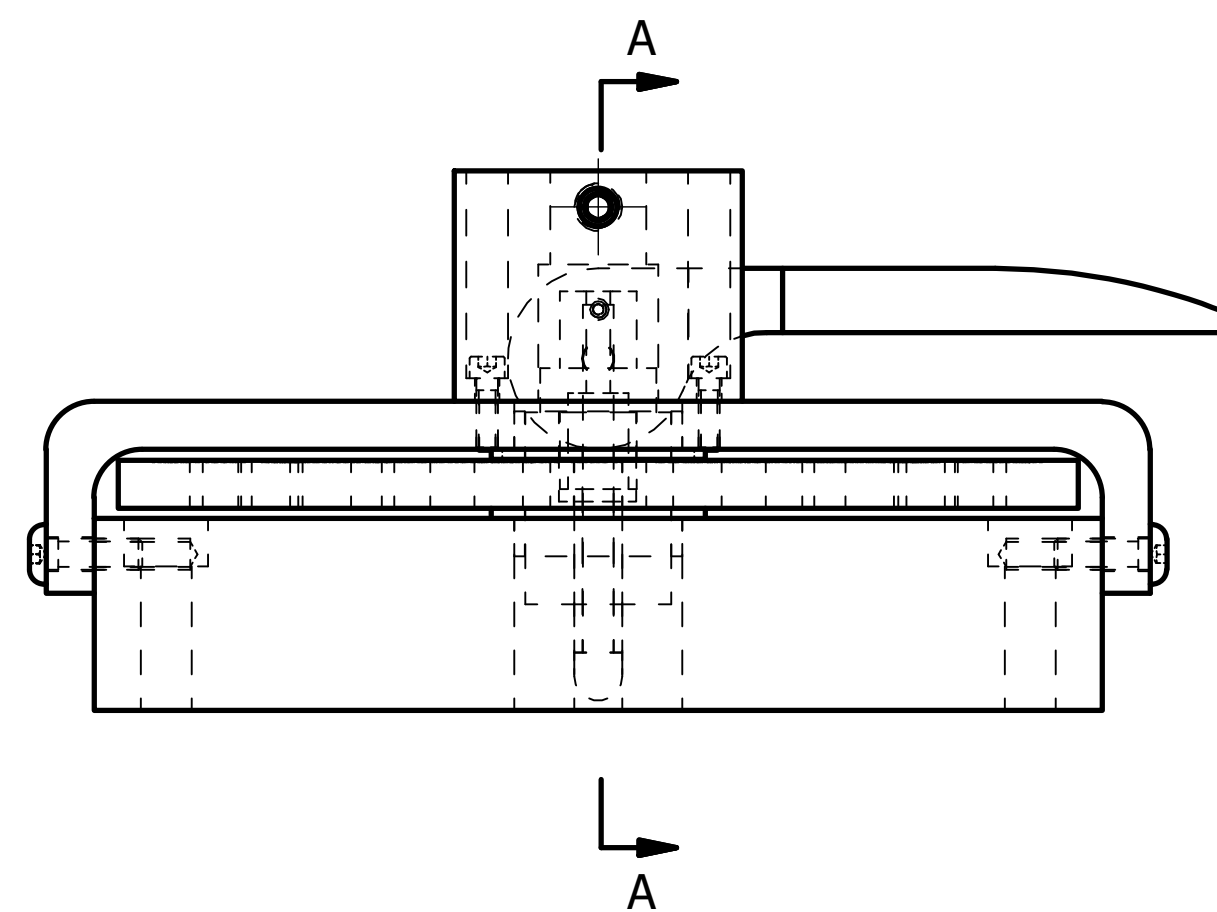
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2

1

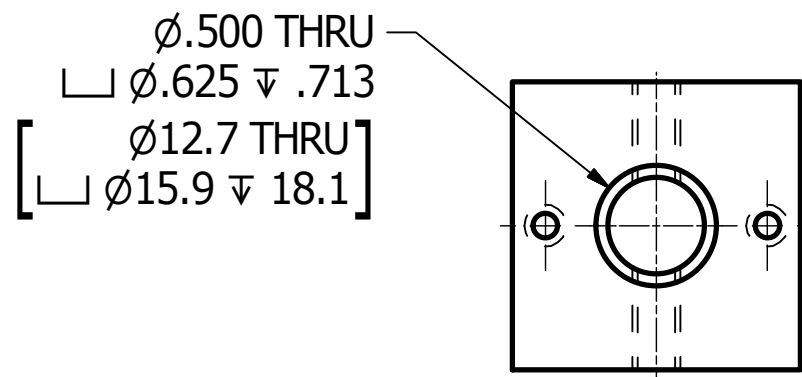
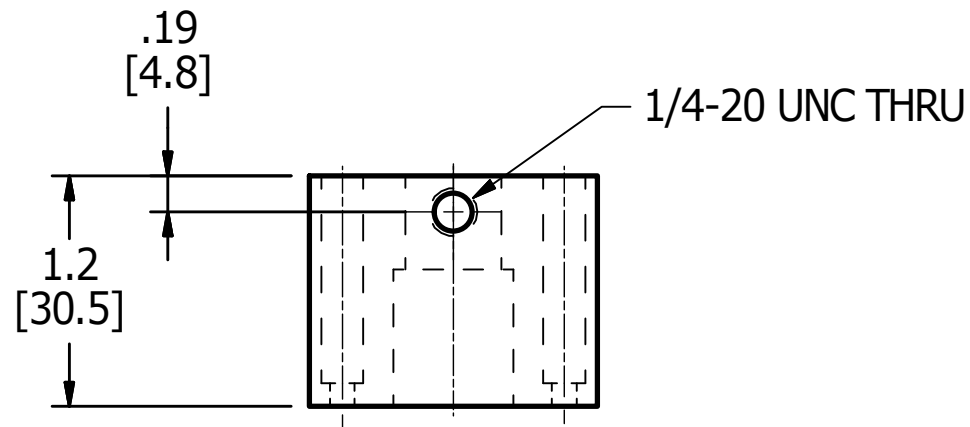
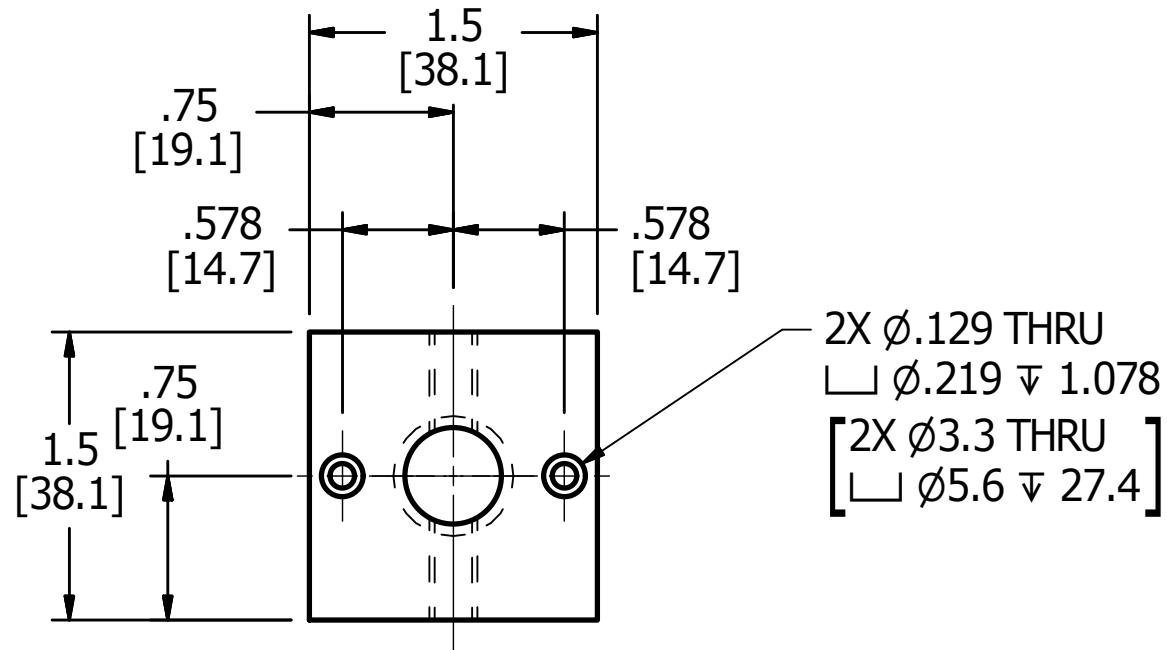
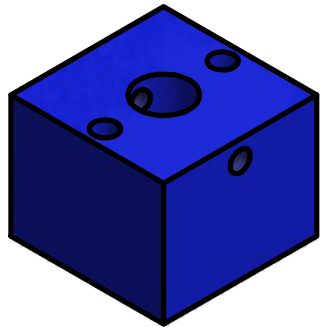


SECTION A-A



ITEM	QTY	PART NUMBER	DESCRIPTION	MATERIAL
5	2	9000378V	SCREW, SHCS #4-40 x 3/8"	Steel, Mild
4	1	9000154	SCREW, SSCP #4-40 x 1/8"	Steel, Mild
3	1	9001016V	SCREW, SSCP 1/4-20 x 3/8" NYLON TIP	Steel, Mild
2	1	DL472-6122	POTENTIOMETER CLAMP BLOCK	
1	1	DL472-6121	POTENTIOMETER HOLD DOWN BLOCK	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: .X ±.1	MACHINED ±.005	APPROVALS	DATE	POTENTIOMETER CALIBRATION FIXTURE ASS'Y.	
.XX ±.01	ANGLES ±.5°	DAVE WALKER	5/4/2016		
.XXX ±.005	FRACTION ±1/64	CHECKED		DRAWING NUMBER DL472-6100	
MATERIAL		ENG			
HEAT TREAT		APPROVED		THIRD ANGLE PROJECTION	



UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 DECIMAL: MACHINED
 .X ±.1 ANGLES ±.5°
 .XX ±.01 FRACTION ±1/64
 .XXX ±.005
 ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

VEHICLE RESEARCH
 and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
 SAFETY ADMINISTRATION

APPROVALS DATE

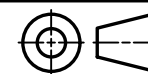
DRAWN
 Dave Walker 5/4/2016

CHECKED

ENG

APPROVED

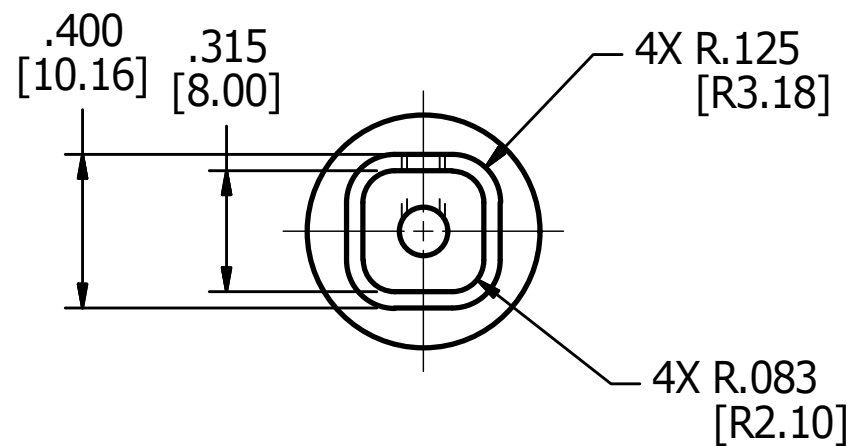
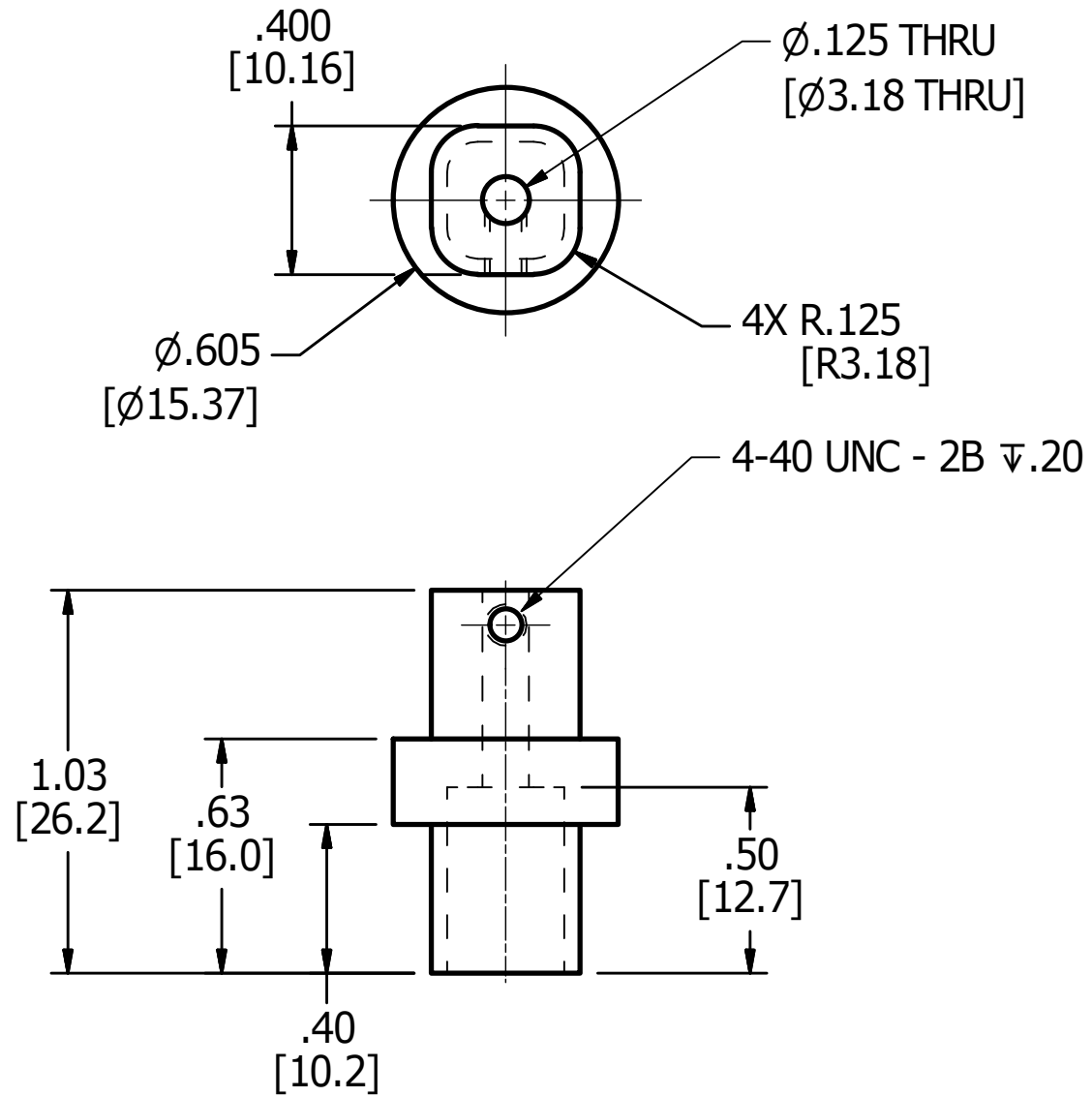
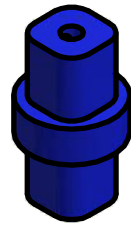
POTENTIOMETER HOLD DOWN
 BLOCK



THIRD ANGLE
 PROJECTION

SIZE DRAWING NUMBER REV
 B DL472-6121

SCALE: SHEET
 1:1 1 OF 1



UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES
 TOLERANCES ARE:
 DECIMAL: MACHINED ∇
 .X $\pm .1$ ANGLES $\pm .5^\circ$
 .XX $\pm .01$ FRACTION $\pm 1/64$
 .XXX $\pm .005$
 ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

VEHICLE RESEARCH
 and TEST CENTER



NATIONAL HIGHWAY TRAFFIC
 SAFETY ADMINISTRATION

APPROVALS DATE

DRAWN
 Dave Walker 5/4/2016

CHECKED

ENG

APPROVED

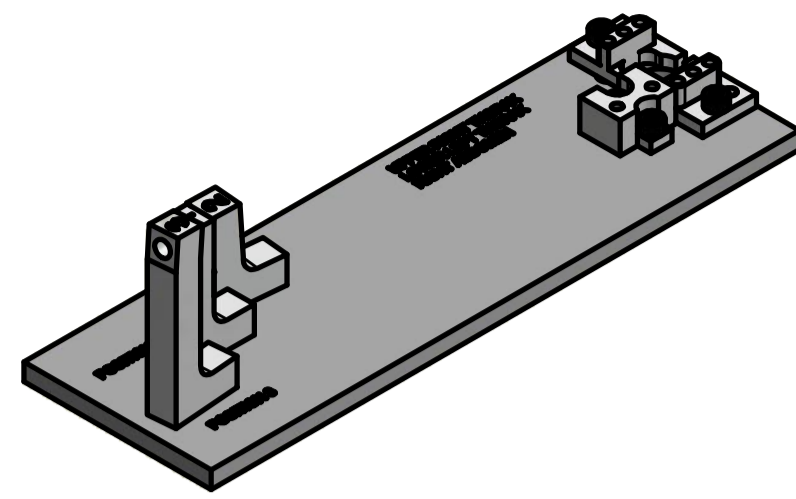
POTENTIOMETER CLAMP BLOCK



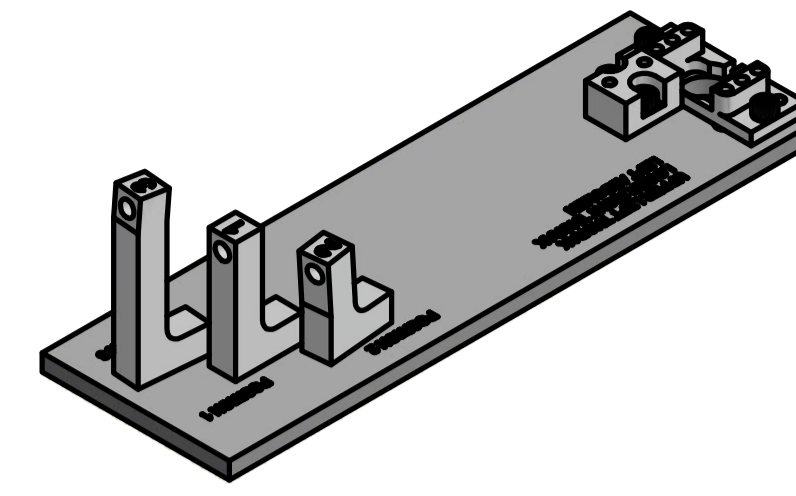
THIRD ANGLE PROJECTION

SIZE DRAWING NUMBER REV
 B DL472-6122

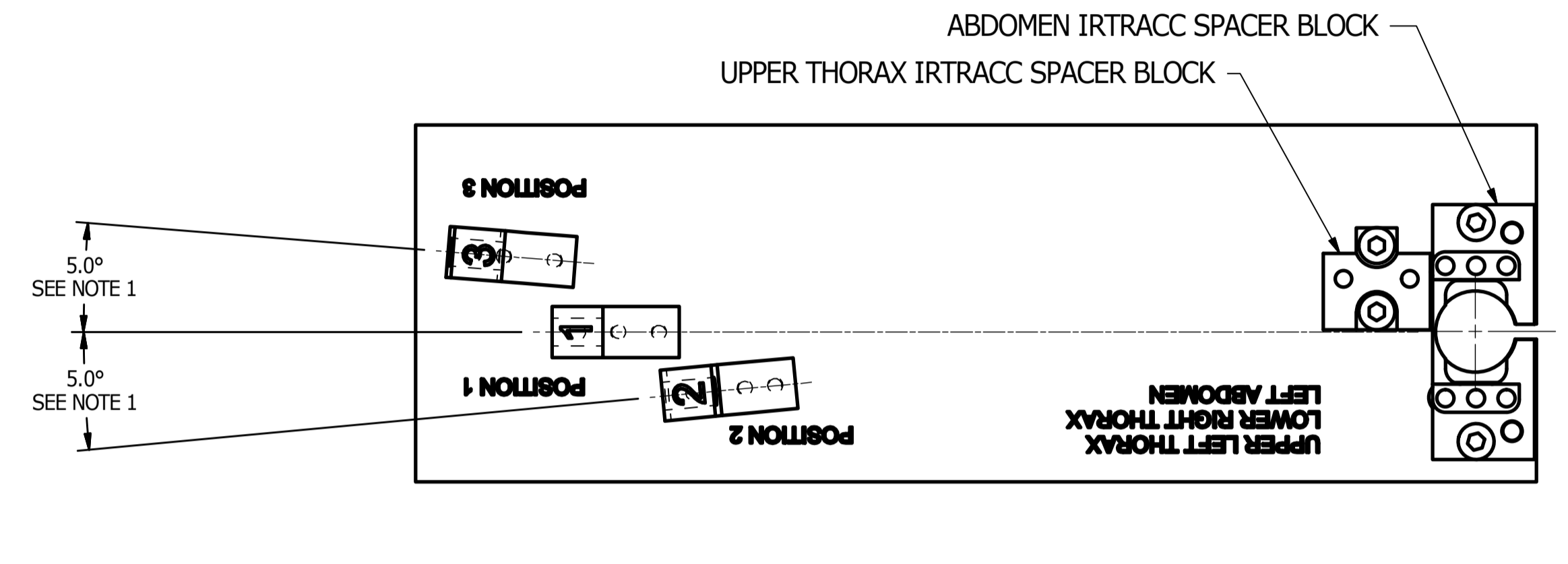
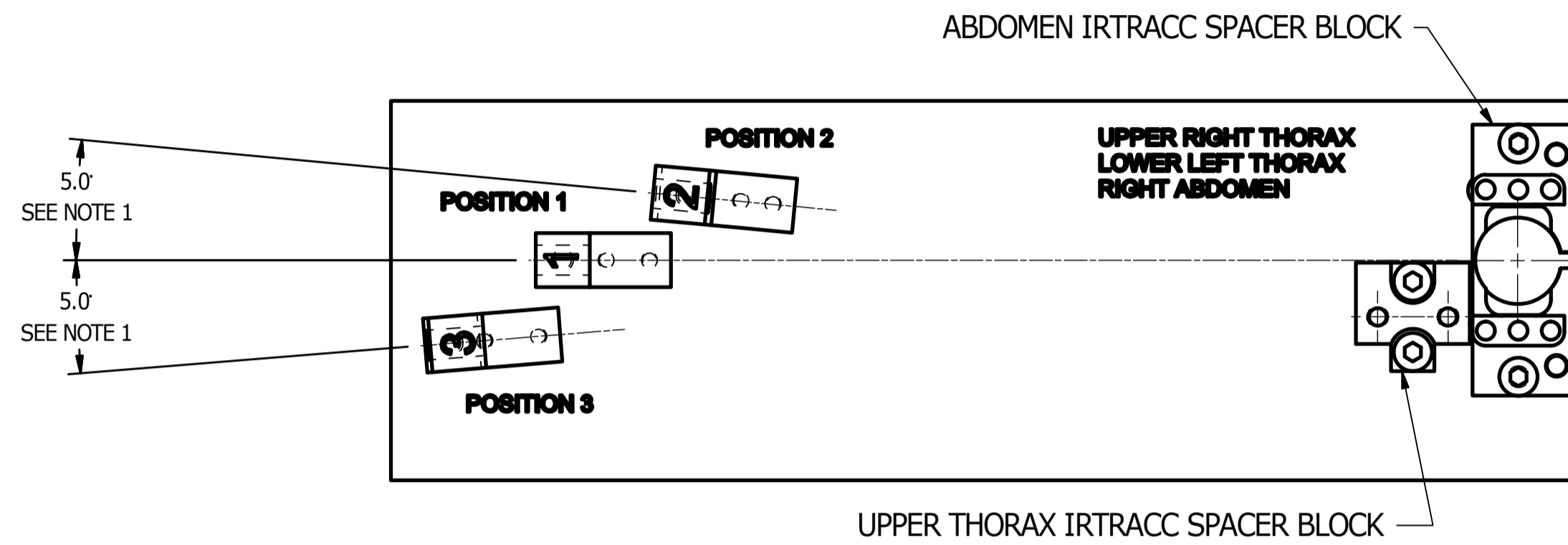
SCALE: SHEET 1 OF 1
 2:1 1 OF 1



TOP SIDE

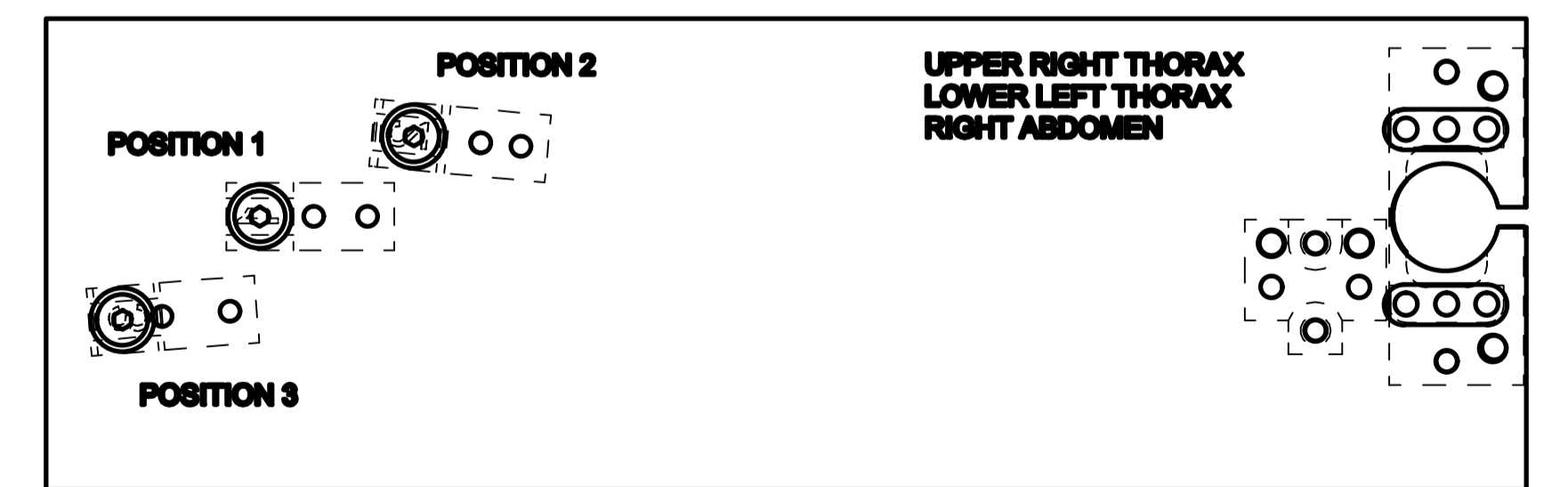
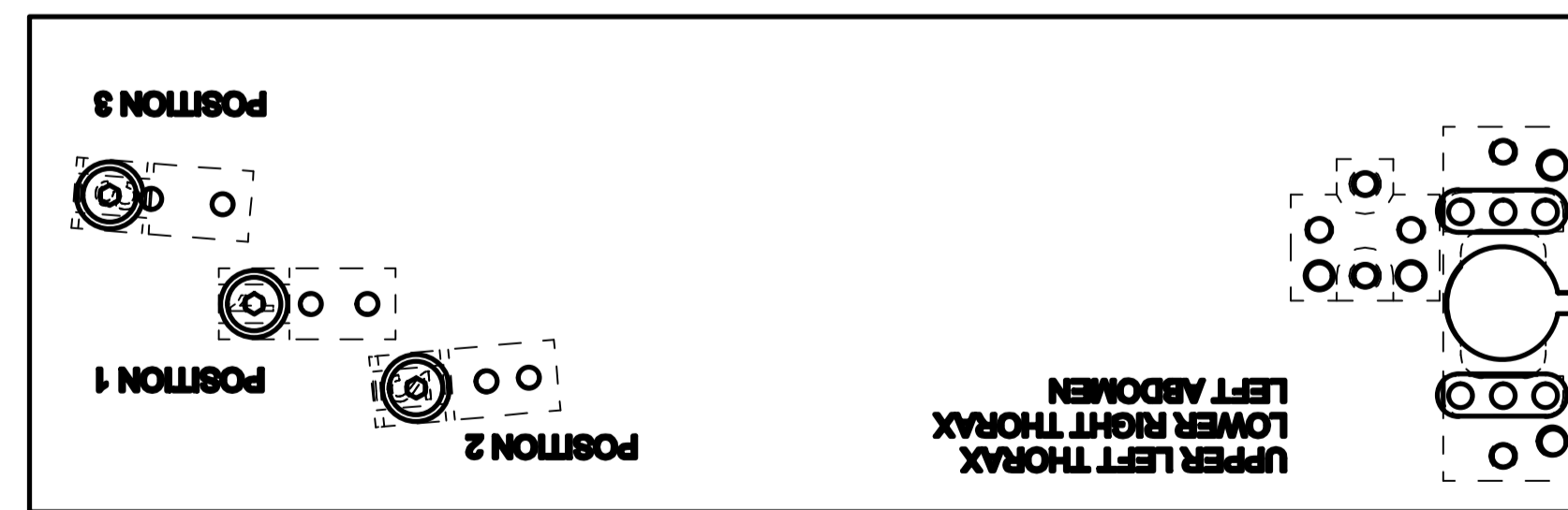
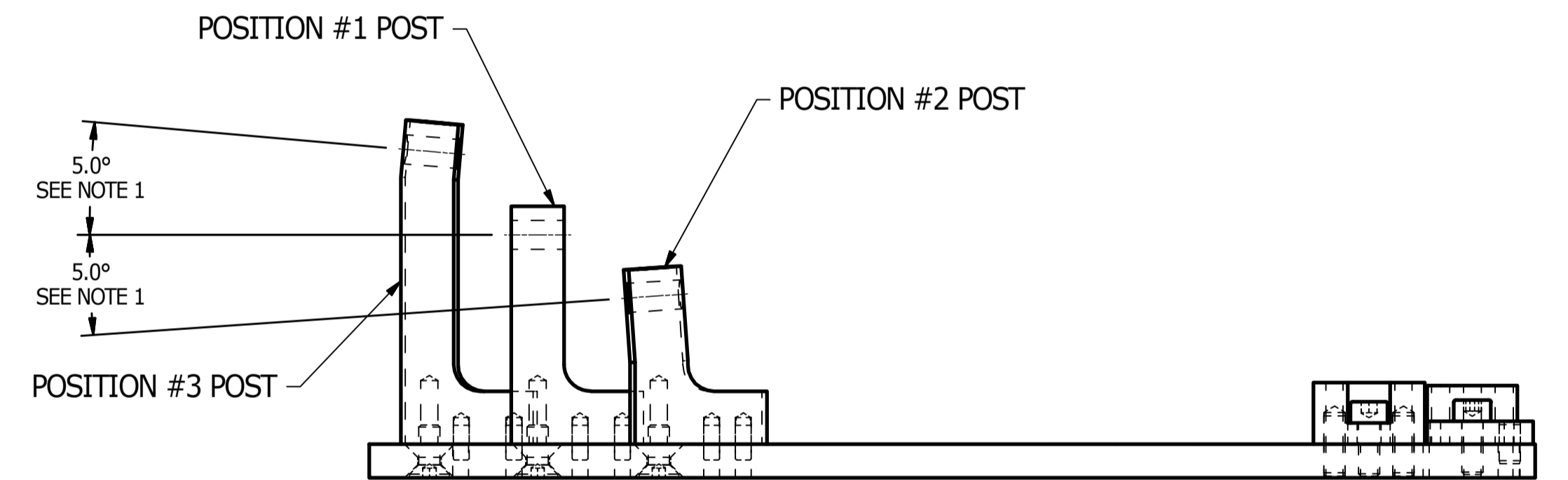
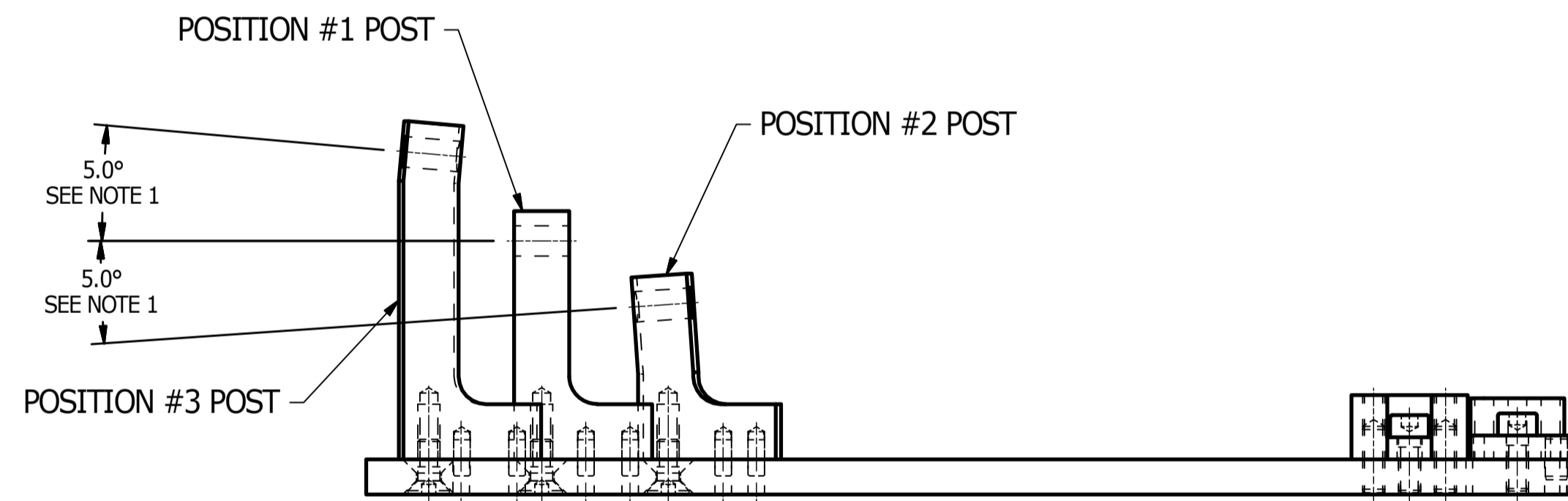


BOTTOM SIDE



**UPPER RIGHT THORAX
LOWER LEFT THORAX
RIGHT ABDOMEN**

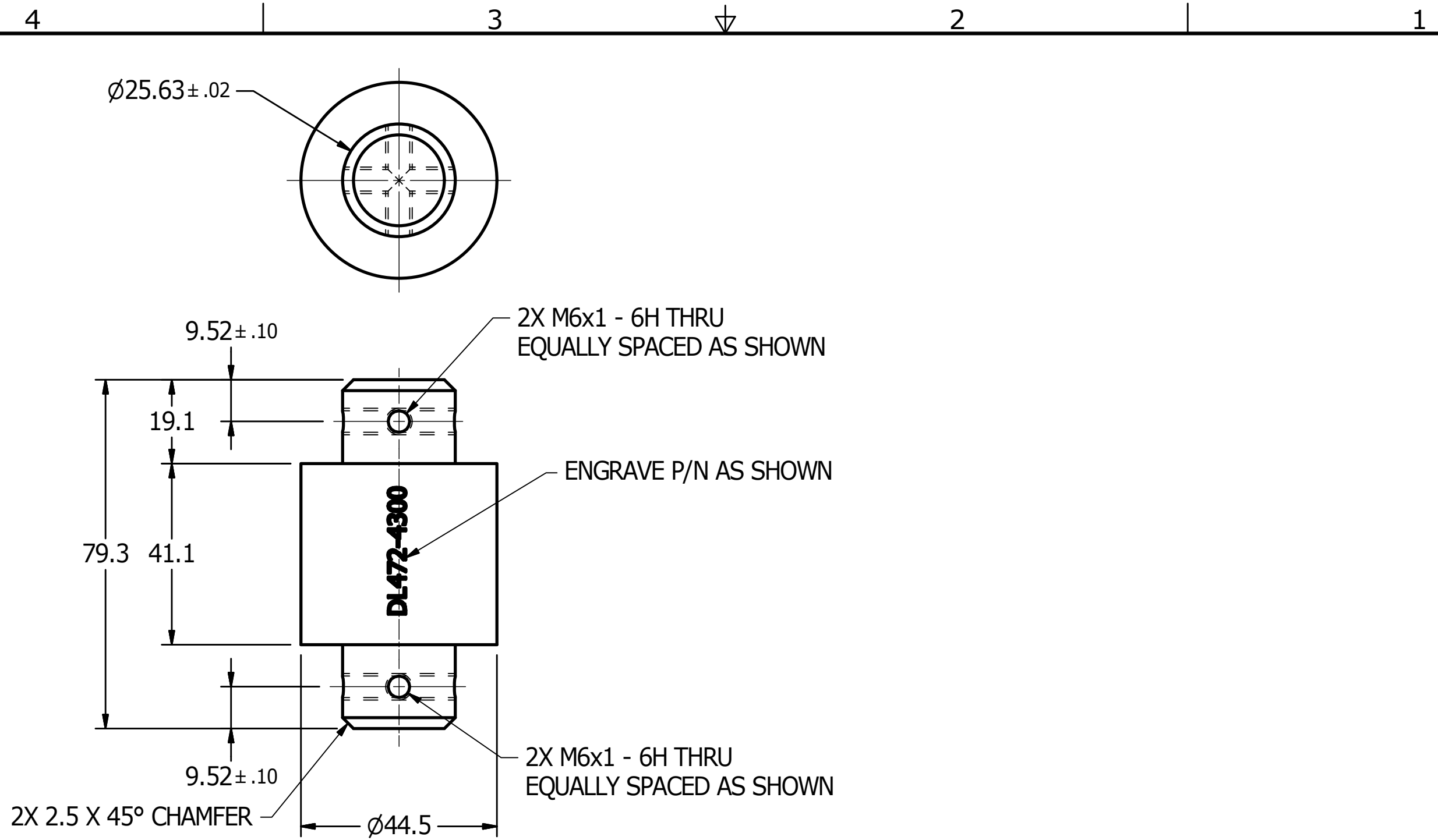
**UPPER LEFT THORAX
LOWER RIGHT THORAX
LEFT ABDOMEN**



NOTES:

1. DIMENSIONS SHOWN, (5.0°) ARE FOR THE THORAX IRTACC'S, THE DIMENSIONS FOR THE ABDOMEN IRTACC'S ARE 4.3°.
2. THE LINEAR IRTACC LENGTH DIMENSIONS ARE 20 mm FOR THE THORAX IRTACC'S AND 21.6 mm FOR THE ABDOMEN IRTACC'S.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: X ±.5 XX ±.2 XXX ±.1	MACHINED ANGLES ±.5°	APPROVALS	DATE	THOR 3D IRTACC SET UP FIXTURE	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		DRAWN Dave Walker	5/10/2016	THOR-M	
MATERIAL	FINISH	CHECKED	APPROVED	SIZE A1	DRAWING NUMBER TF-472-6000
				SCALE N.T.S.	REV 1 OF 1


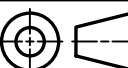


2X 2.5 X 45° CHAMFER

2X M6x1 - 6H THRU
EQUALLY SPACED AS SHOWN

ENGRAVE P/N AS SHOWN

2X M6x1 - 6H THRU
EQUALLY SPACED AS SHOWN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: MACHINED X ±.5 1/6 X.X ±.2 ANGLE X.XX ±.1 ±.5° ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	APPROVALS DRAWN Dave Walker CHECKED	DATE 8/16/2016	TIBIA ADAPTOR THOR M	
MATERIAL 1018 STEEL HEAT TREAT	ENG	 THIRD ANGLE PROJECTION	SIZE A3	DRAWING NUMBER DL472-4300
FINISH .0003 ELECTROLESS NICKEL	APPROVED	SCALE: 1 : 1	SHEET 1 OF 1	REV