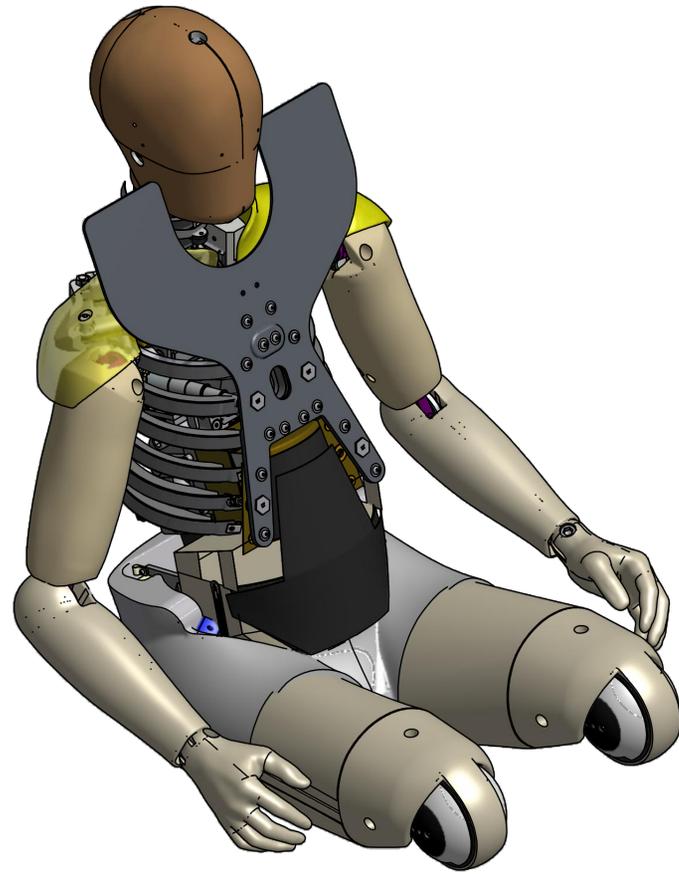
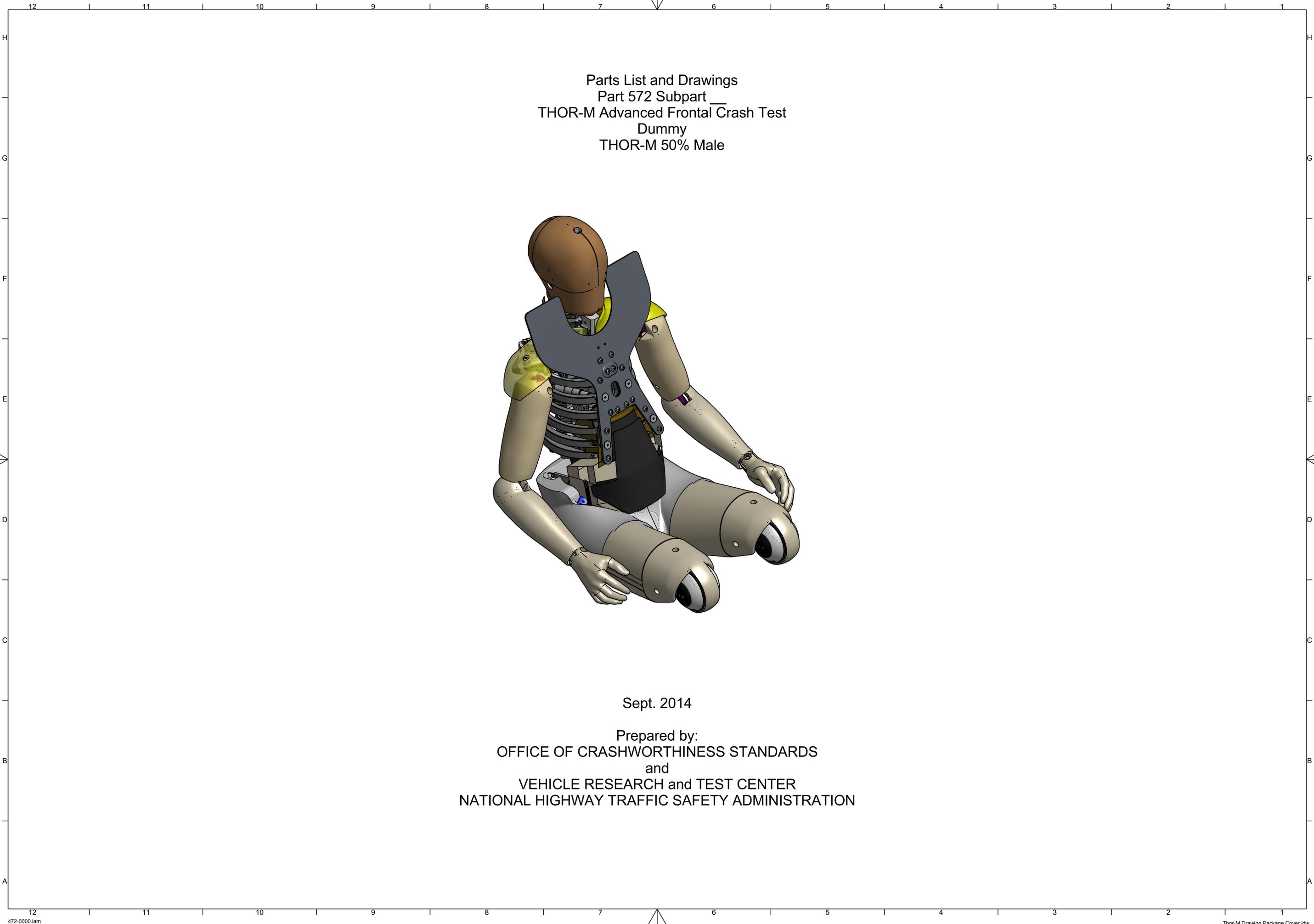


Parts List and Drawings
Part 572 Subpart ____
THOR-M Advanced Frontal Crash Test
Dummy
THOR-M 50% Male

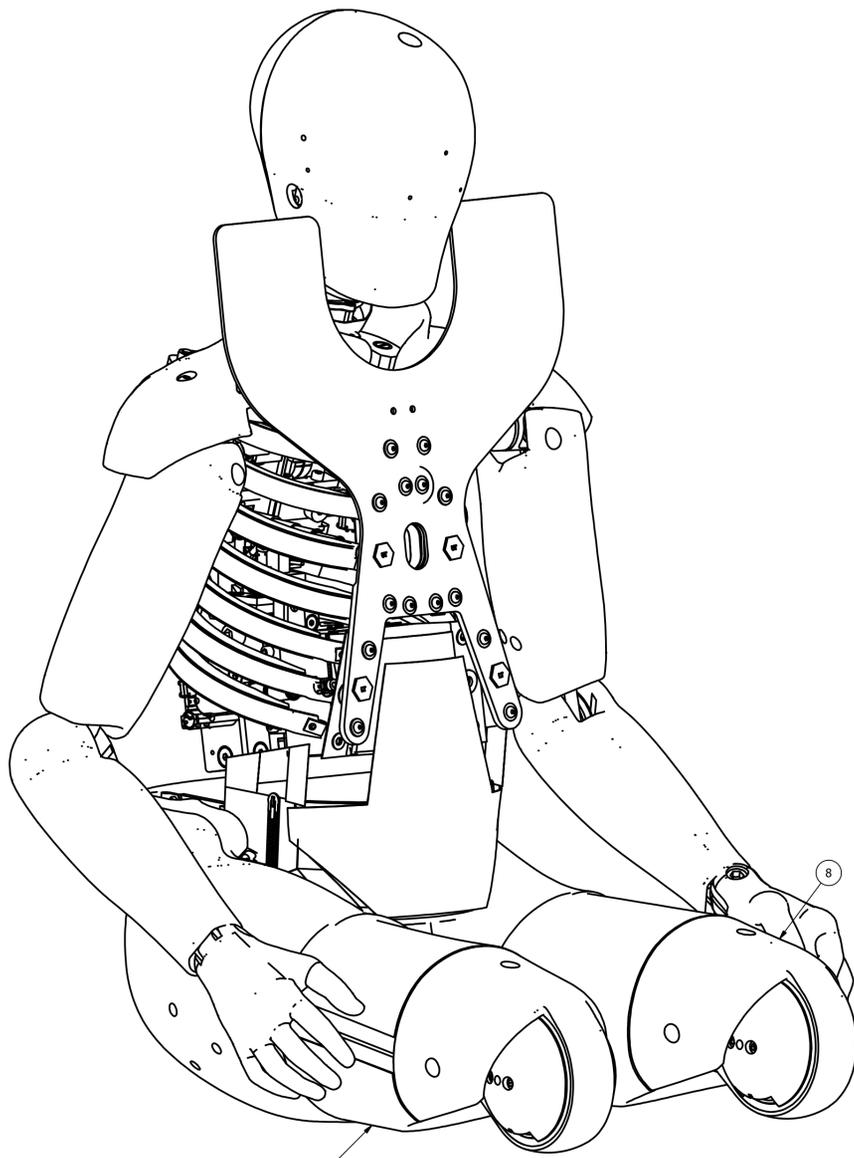


Sept. 2014

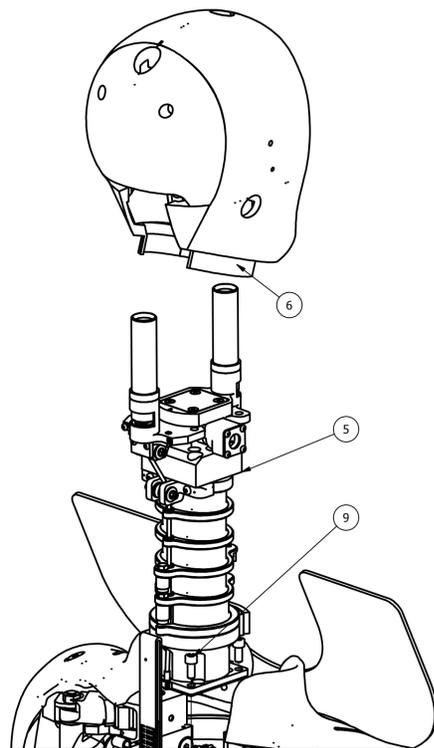
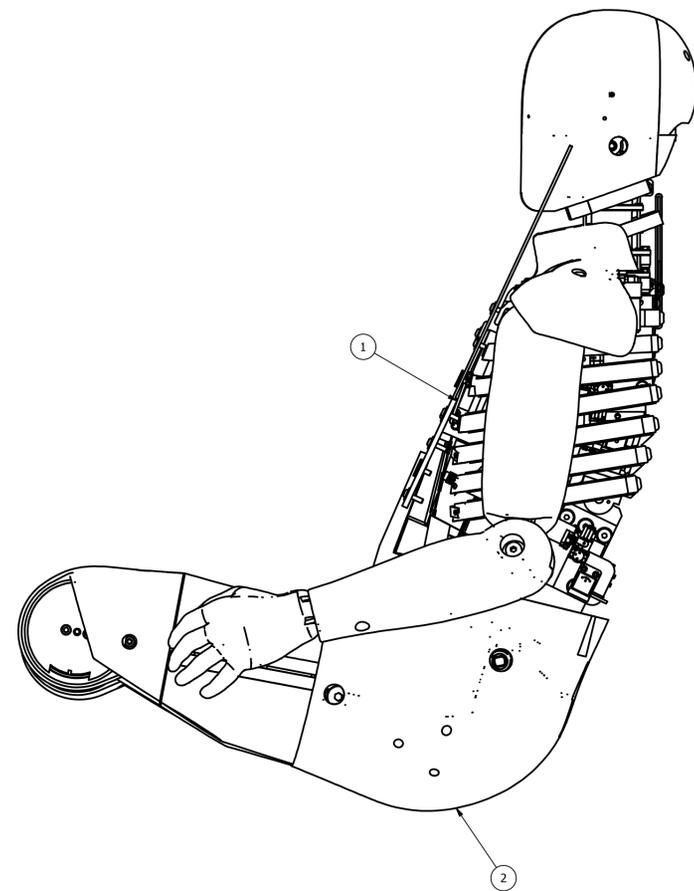
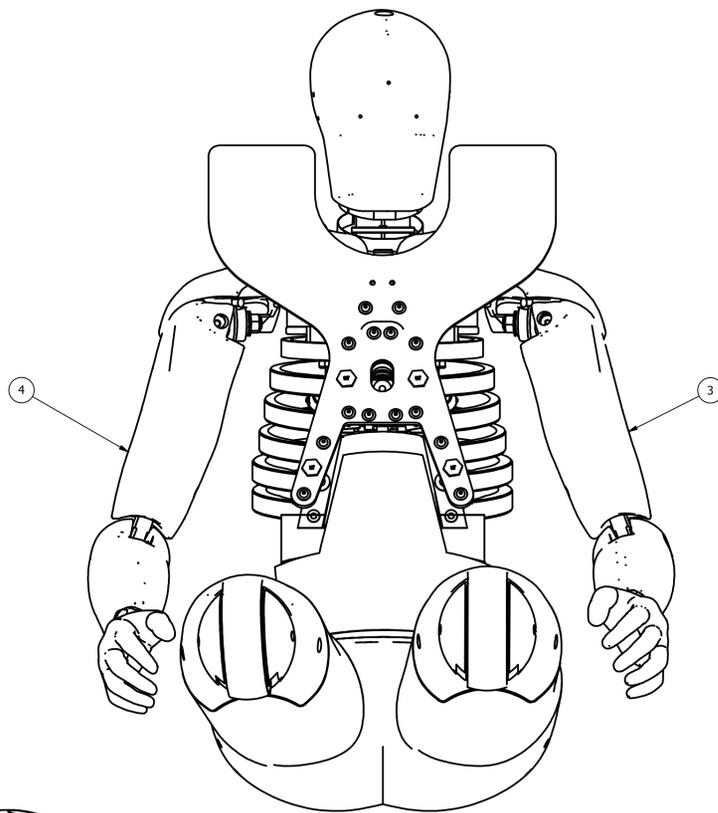
Prepared by:
OFFICE OF CRASHWORTHINESS STANDARDS
and
VEHICLE RESEARCH and TEST CENTER
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



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, -2 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 472-0000 - HEAD ASSEMBLY, THOR-M	5/20/2014	DW
E		ADDED ITEM NUMBER 14 & 15 & ITEM #5 TO SHT. 2 OF 3	9/15/2014	DW



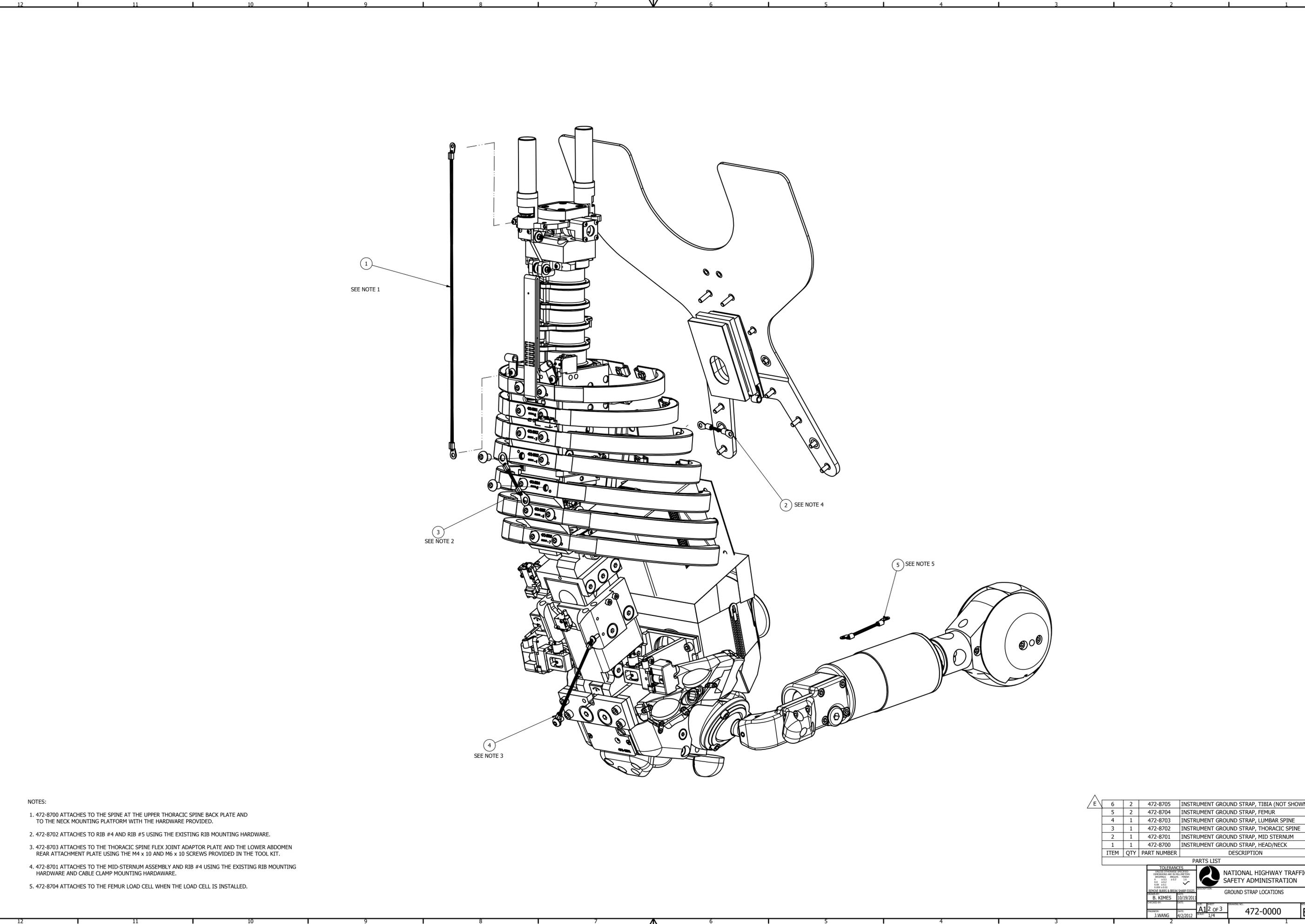
SCALE 1 / 3



HEAD AND NECK ASSEMBLY
SCALE 1/3

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

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ASSEMBLY	QTY	DATE	BY	DATE	BY
NEXT ASSEMBLY		10/19/2011	B. KIMES	3/1/2012	J. WANG
TOTAL QTY IN DUMMY					

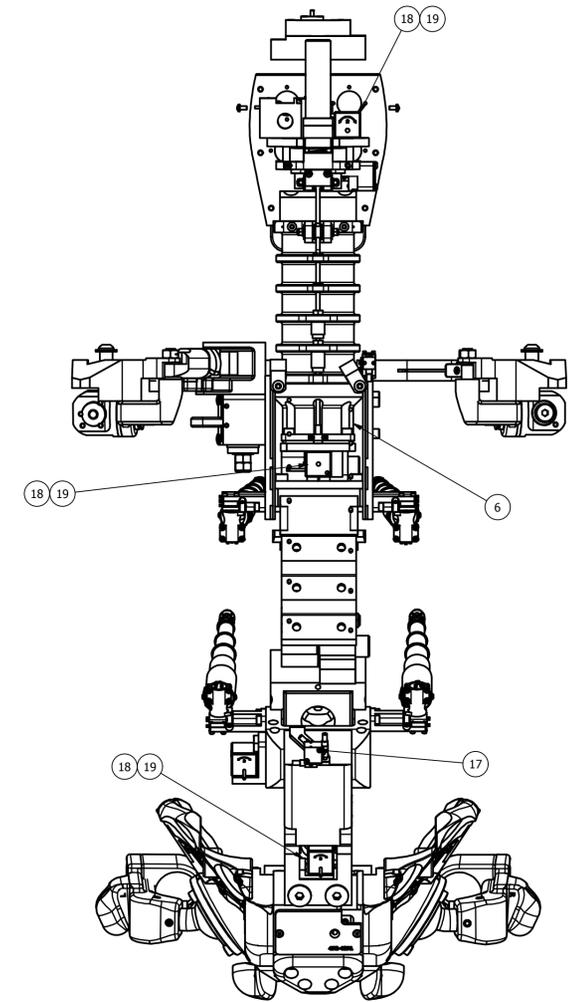
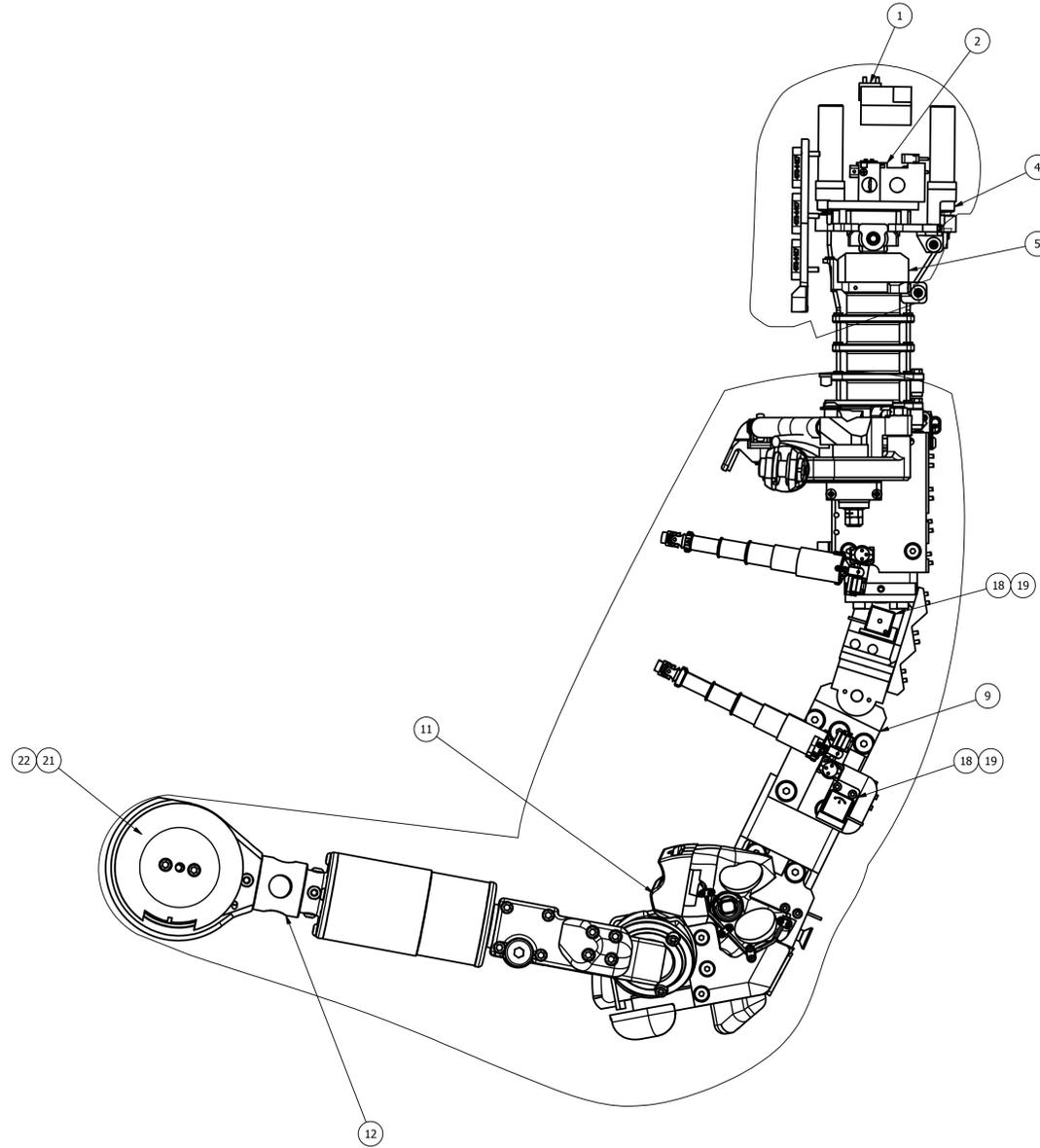
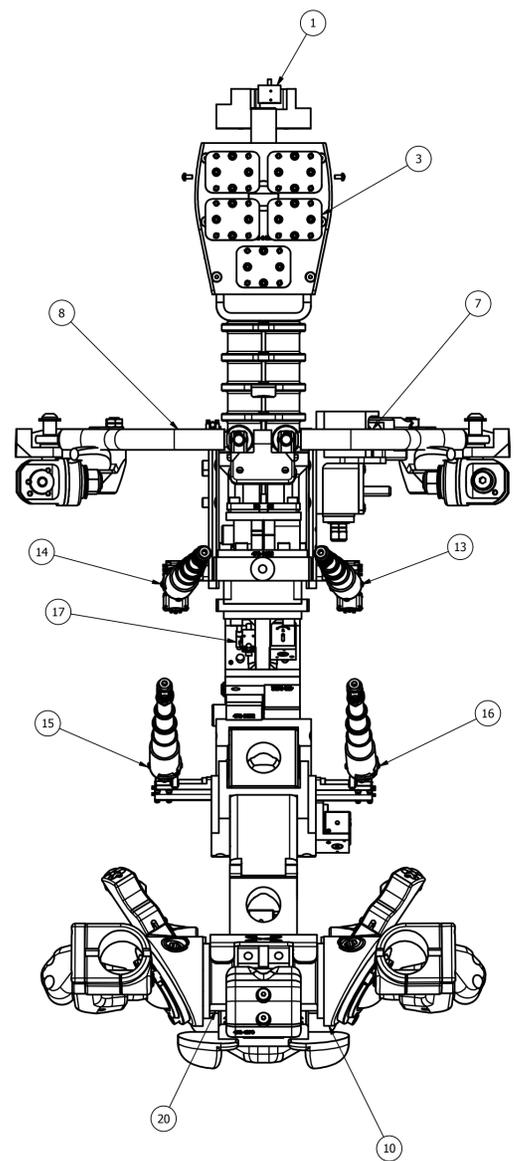


NOTES:

1. 472-8700 ATTACHES TO THE SPINE AT THE UPPER THORACIC SPINE BACK PLATE AND TO THE NECK MOUNTING PLATFORM WITH THE HARDWARE PROVIDED.
2. 472-8702 ATTACHES TO RIB #4 AND RIB #5 USING THE EXISTING RIB MOUNTING HARDWARE.
3. 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.
4. 472-8701 ATTACHES TO THE MID-STERNUM ASSEMBLY AND RIB #4 USING THE EXISTING RIB MOUNTING HARDWARE AND CABLE CLAMP MOUNTING HARDWARE.
5. 472-8704 ATTACHES TO THE FEMUR LOAD CELL WHEN THE LOAD CELL IS INSTALLED.

ITEM	QTY	PART NUMBER	DESCRIPTION
6	2	472-8705	INSTRUMENT GROUND STRAP, TIBIA (NOT SHOWN)
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

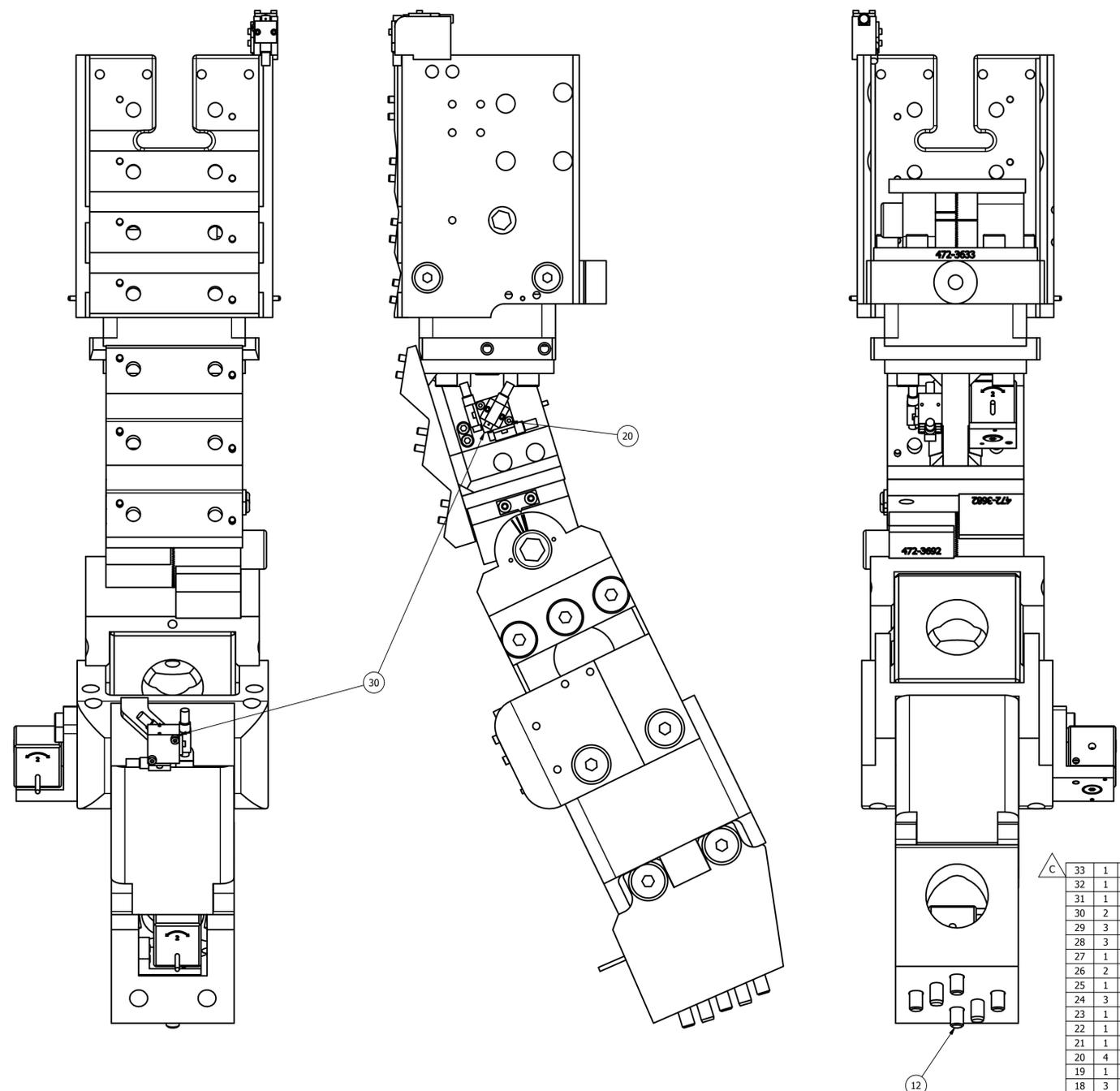
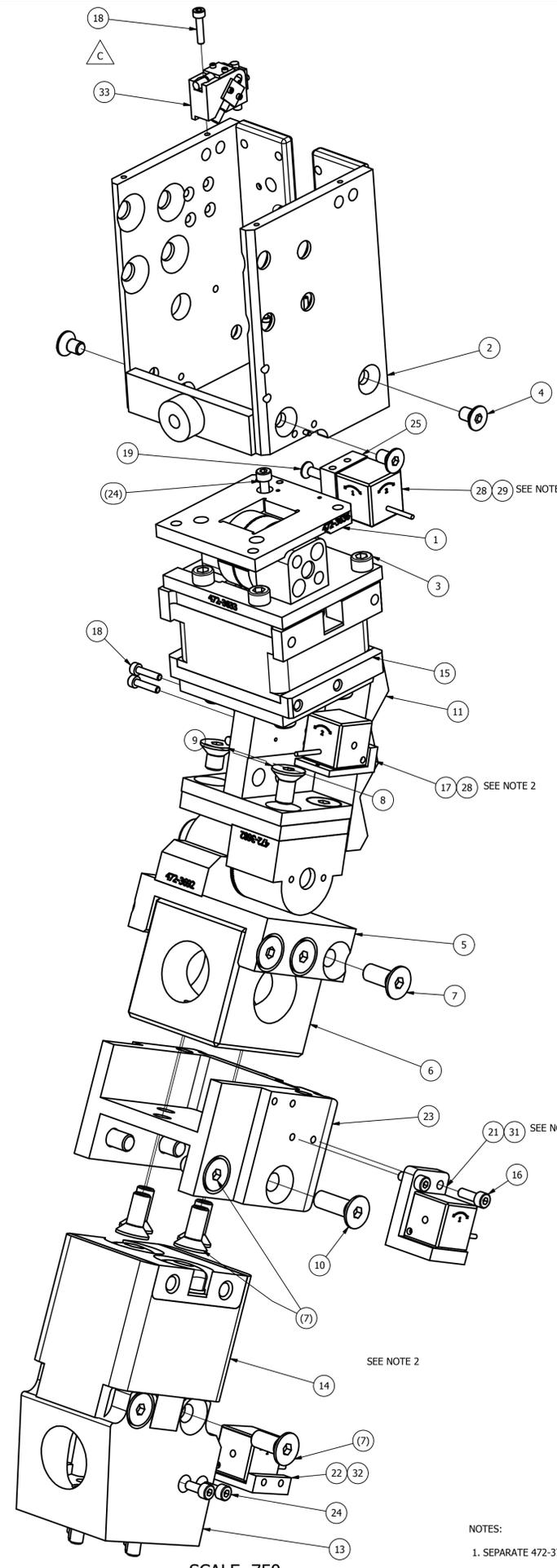
TOLERANCES UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE TO BE HUNDREDS OF MILLIMETERS DECIMALS .0125 .025 .038 .050 .063 .075 .088 .100 .125 .150 .175 .200 .250 .315 .375 .450 .560 .700 .875 .1000 .1250 .1575 .2000 .2500 .3150 .3937 .5000 .6250 .7875 .10000 .12500 .15750 .20000 .25000 .31500 .39375 .50000 .62500 .78750 .100000 .125000 .157500 .200000 .250000 .315000 .393750 .500000 .625000 .787500 .1000000 .1250000 .1575000 .2000000 .2500000 .3150000 .3937500 .5000000 .6250000 .7875000 .10000000 .12500000 .15750000 .20000000 .25000000 .31500000 .39375000 .50000000 .62500000 .78750000 .100000000 .125000000 .157500000 .200000000 .250000000 .315000000 .393750000 .500000000 .625000000 .787500000 .1000000000 .1250000000 .1575000000 .2000000000 .2500000000 .3150000000 .3937500000 .5000000000 .6250000000 .7875000000 .10000000000 .12500000000 .15750000000 .20000000000 .25000000000 .31500000000 .39375000000 .50000000000 .62500000000 .78750000000 .100000000000 .125000000000 .157500000000 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22	1	SA572-S90-R	STRING POT, MINI (RIGHT)
21	1	SA572-S90-L	STRING POT, MINI (LEFT)
20	1	SS72-S129	ACETABULUM LOAD CELL, RIGHT
19	5	SA572-S44	TILT SENSOR
18	5	SA572-S113	TILT SENSOR
17	1	472-4203	TRI PACK ACCEL ASSY
16	1	472-3580	IRTRACC ASSY, LOWER LEFT
15	1	472-3570	IRTRACC ASSY, LOWER RIGHT
14	1	472-3560	IRTRACC ASSY, UPPER RIGHT
13	1	472-3550	IRTRACC ASSY, UPPER LEFT
12	2	SA572-S120	FEMUR LOAD CELL
11	2	SA572-S119	A.I.S.I.S. LOAD CELL
10	1	SA572-S128	ACETABULUM LOAD CELL (LEFT)
9	1	SA572-S127	THORACIC SPINE LOAD CELL
8	1	SA572-S116	CLAVICLE LOAD CELL (RIGHT)
7	1	SA572-S115	CLAVICLE LOAD CELL (LEFT)
6	1	SA572-S111	LOWER NECK LOAD CELL
5	1	SA572-S110	UPPER NECK LOAD CELL
4	2	SA572-S112	SKULL SPRING LOAD CELL
3	5	SA572-S124	FACE LOAD CELL
2	1	472-1200	ACCEL. MOUNTING PLATE, HEAD
1	1	472-1101	BIAXIAL ACCEL. ASSY, HEAD
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST				
<small>UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DECIMALS ARE TO 0.005 ANGLES ARE IN DEGREES FINISHES ARE AS SHOWN TOLERANCES ARE: FRACTIONS DECIMALS ANGLES X.X .005 .001 1/4 X.XX .002 .001 1/2 X.XXX .001 .0005 3/4</small>				
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION				
SENSOR/LOAD CELL LOCATIONS				
DESIGNED BY:	B. KIMES	DATE:	10/19/2011	
CHECKED BY:	J. WANG	DATE:	4/2/2012	
DRAWING NO.:		472-0000	REV.:	1/4
SHEET NO.:		13	OF 3	

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



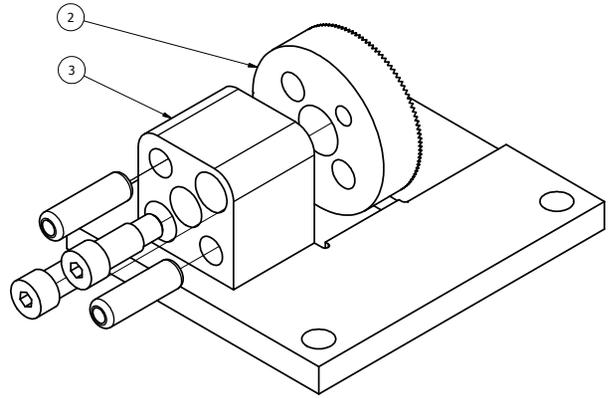
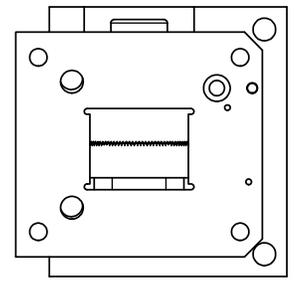
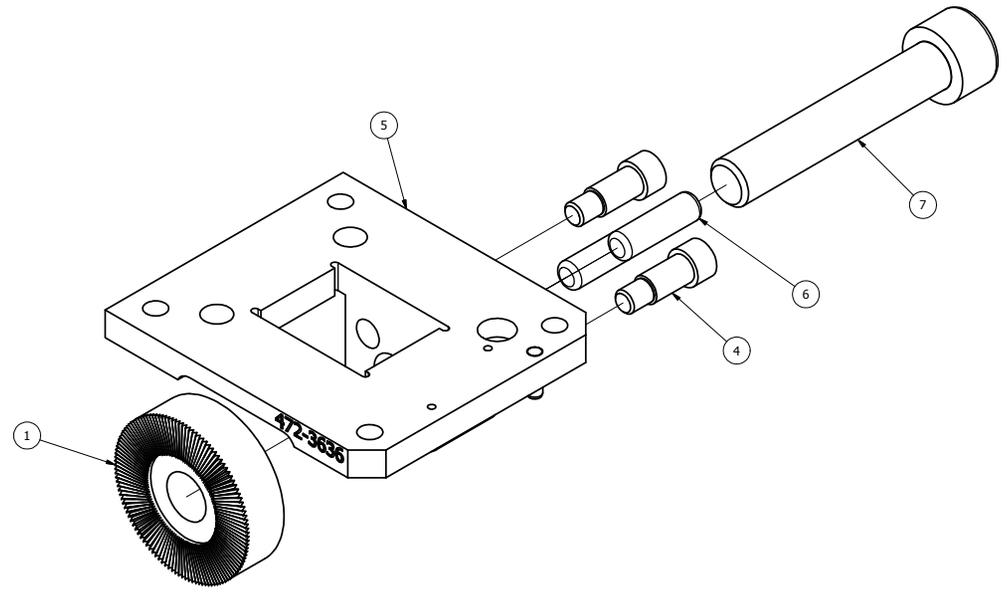
ITEM	QTY	PART NUMBER	DESCRIPTION
33	1	472-3857	T1 ACCEL. MOUNT ASSEMBLY
32	1	472-3777-2	TILT SENSOR ASSY, THORACIC SPINE (SA572-S123)
31	1	472-3776-2	TILT SENSOR ASSY, REAR THORACIC (SA572-S123)
30	2	472-4203	TRI-PACK ACCEL ASSY
29	3	SA572-544	TILT SENSOR
28	3	SA572-S113	TILT SENSOR
27	1	472-3775-2	TILT SENSOR ASSY (SA572-S123)
26	2	5001137	M2 X 0.4 X 14 LG. SHCS
25	1	472-3635	LOWER NECK TILT SENSOR MOUNT
24	3	5000151	M4 X 0.7 X 10 LG. SHCS
23	1	472-3731	THORACIC SPINE LOAD CELL FLEX JOINT ADAPTOR PLATE
22	1	472-3777-1	TILT SENSOR ASSEMBLY, REAR THORACIC (SA572-S113)
21	1	472-3776-1	TILT SENSOR ASSEMBLY, THORACIC SPINE (SA572-S113)
20	4	5000985	M2 X 0.4 X 16 LG. SHCS
19	1	5001086	M4 X 0.7 X 12 LG. FHCS
18	3	5000252	SCREW, SHCS M3-0.5 X 14 LG.
17	1	472-3775-1	TILT SENSOR ASSEMBLY (SA572-S113)
16	2	5000152	M4 X 0.7 X 12 LG. SHCS
15	1	472-3646	UPPER THORACIC SPINE FLEX JOINT ASSEMBLY
14	1	472-3746	LUMBAR SPINE FLEX JOINT ASSEMBLY
13	1	472-3760	PELVIS/LUMBAR MOUNTING BLOCK ASSEMBLY
12	4	5000001	M6 X 1 X 20 LG. SHCS
11	1	472-3660	LOWER THORACIC SPINE ASSEMBLY
10	2	5000117	M8 X 1.25 X 25 LG. FHCS
9	2	5001091	M8 X 1.25 X 16 LG. FHCS
8	2	5001090	M8 X 1.25 X 12 LG. FHCS
7	16	5000868	M8 X 1.25 X 20 LG. FHCS
6	1	472-3720	THORACIC SPINE LOAD CELL STRUCTURAL REPLACEMENT
5	1	472-3670	LUMBAR SPINE PITCH CHANGE ASSEMBLY
4	4	5000204	M6 X 1 X 10 LG. FHCS
3	8	5000281	M6 X 1 X 12 LG. SHCS
2	1	472-3620	UPPER THORACIC SPINEBOX WELDMENT
1	1	472-3630	NECK PITCH CHANGE MECHANISM ASSEMBLY

- NOTES:
1. SEPARATE 472-3750 FROM 472-3740 AND ASSEMBLE THE M6 X 20 SHCS TO MOUNT THE SPINE ASSEMBLY TO THE PELVIS.
 2. S572-S113 SENSORS ARE SHOWN, S572-S123 SENORS CAN BE MOUNTED INSTEAD.

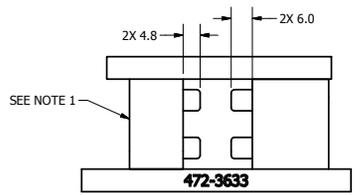
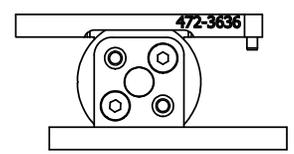
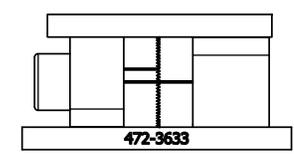
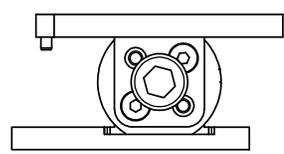
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472-0000		1	THOR-M	B. KIMES		9/29/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
NEXT ASSEMBLY		QTY	DATE	DATE		DATE	SPINE MECHANICAL ASSEMBLY	
TOTAL QTY IN DUMMY		1	DATE	DATE		DATE	472-3600	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM200 R10 AND CONVERTED TO METRIC FOR THOR-M	9/27/2011	BK



SCALE 1.500



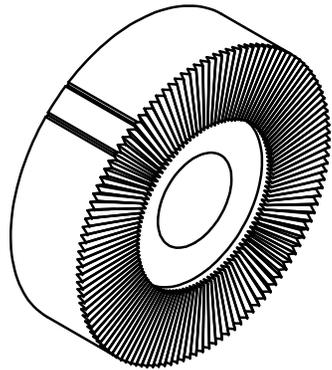
SEE NOTE 1

STAR PATTERN MECHANISMS AND BOLTS HIDDEN TO SHOW DOWELS
SCALE 1.000

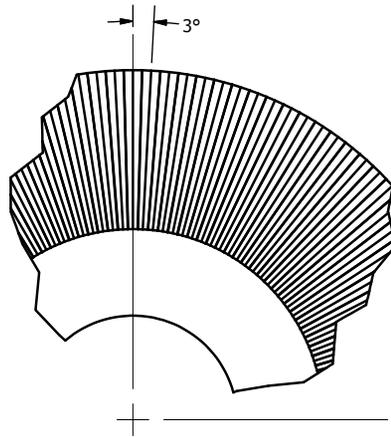
- NOTES:
- INSTALL THESE DOWELS (2X) FLUSH OR BELOW SURFACE.
 - THREADED END OF DOWELS SHOULD FACE OUT, AS SHOWN.

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

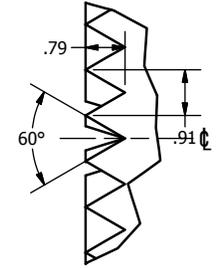
PARTS LIST		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
462-3600	1	DATE:	9/27/2011		
NEXT ASSEMBLY	QTY	DESIGNED BY:	B. KIMES		
TOTAL QTY IN DUMMY	1	DATE:	1/16/2012		
		DATE:	9/27/2011	NECK PITCH CHANGE MECHANISM ASSEMBLY	
		DATE:	1/16/2012	A21 of 1	
		DATE:	1/16/2012	472-3630	



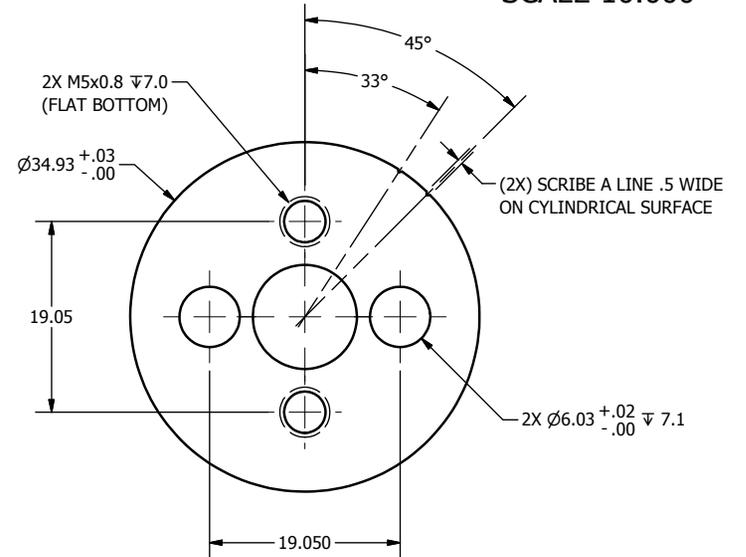
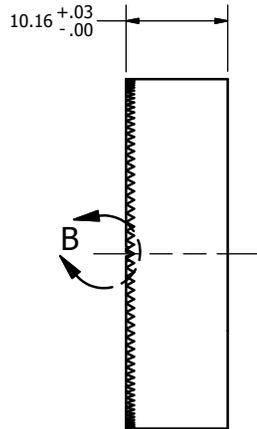
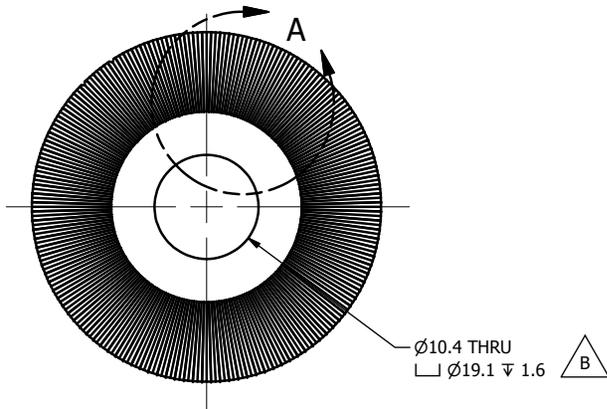
SCALE 2.000



DETAIL A
SCALE 4.000



DETAIL B
TOOTH PATTERN
SCALE 10.000

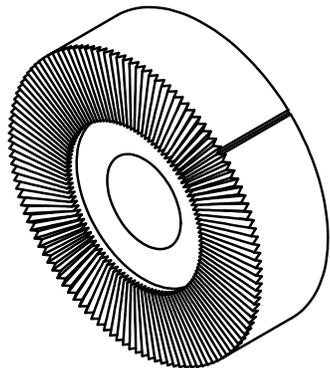


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM210 R4 AND CONVERTED TO METRIC FOR THOR-M;	9/26/2011	BK
	B	Ø10.4 WAS Ø9.53+.03/-0	3/15/2012	BK

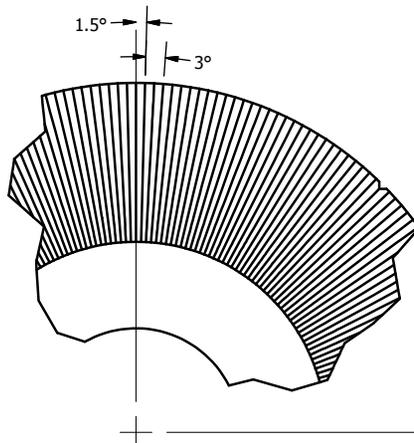
NOTES:

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.

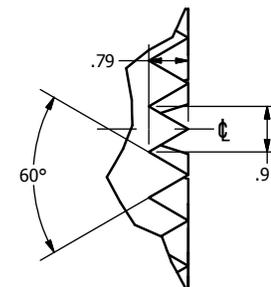
DO NOT SCALE DRAWING		TOLERANCES			 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	DECIMALS	ANGLES	
PROJECT NO:	473-3630	DIMENSIONS ARE IN MILLIMETERS	0.05	0.5°	1.6
MATERIAL:	1 Stainless Steel, 440C	X .05 ± 0.2			
DATE:	9/26/2011	X.X ± 0.3			
CHECKED BY:	B. KIMES	X.XX ± 0.01			
DATE:	9/26/2011	REMOVE BURRS & BREAK SHARP EDGES			DESCRIPTION: NECK PITCH CHANGE MECHANISM, STAR PATTERN 1
ENGINEER:	J. WANG	DATE:	1/16/2012	SIZE: SHEET	
TOTAL QTY IN DUMMY	1	FINISH:		A3 1 OF 1	DRAWING NO.:
				SCALE: 1.000	472-3632



SCALE 2.000

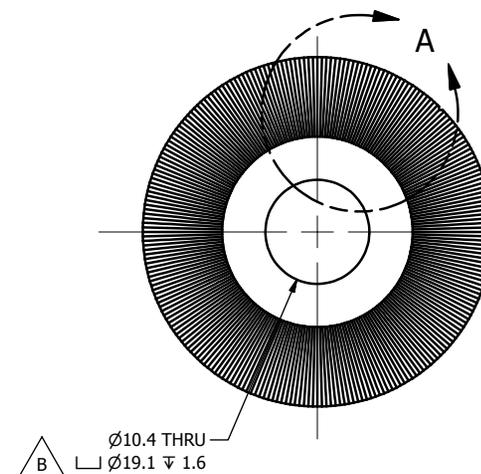
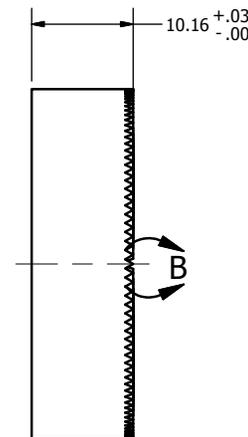
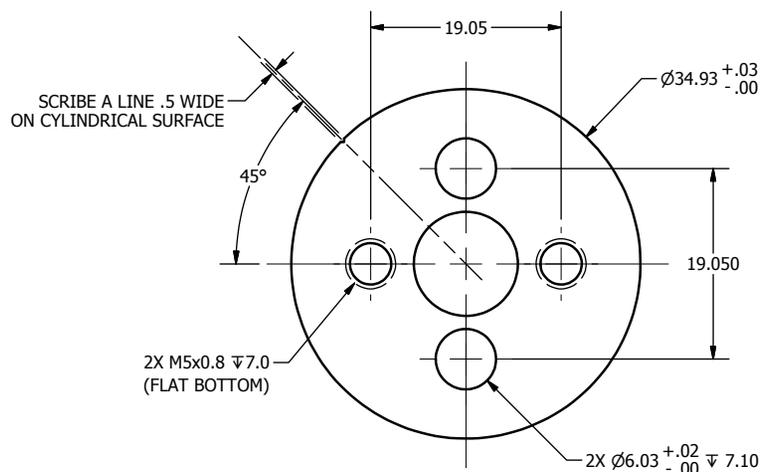


DETAIL A
SCALE 4.000



DETAIL B
TOOTH PATTERN
SCALE 10.000

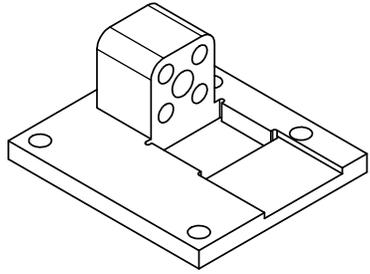
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM211 R3 AND CONVERTED TO METRIC FOR THOR-M	9/26/2011	BK
	B	Ø10.4 WAS Ø9.53+.03/-0	3/15/2012	BK



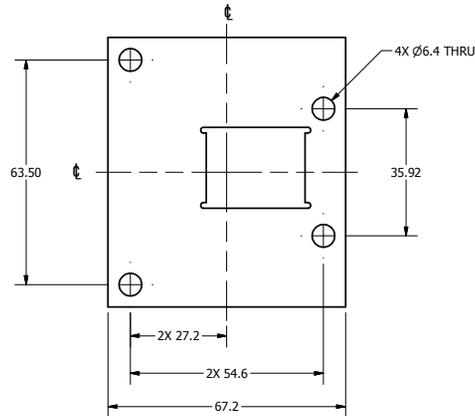
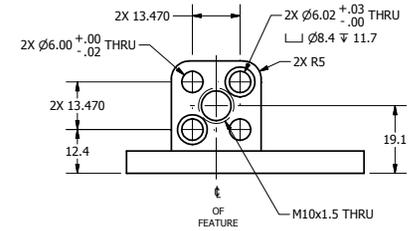
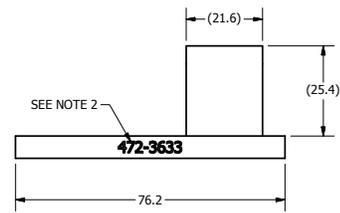
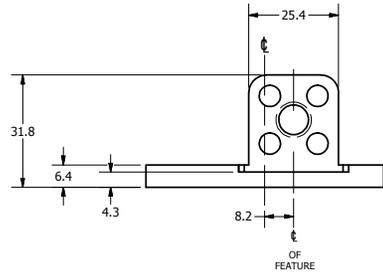
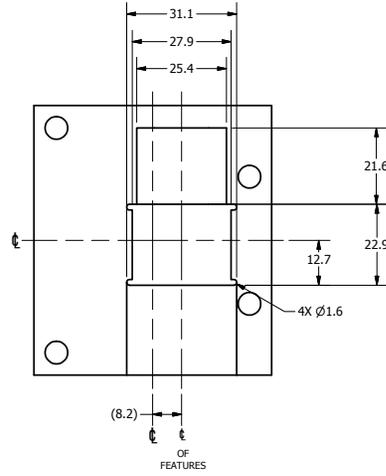
NOTES:

- 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.XX ±0.2 ✓ X.XXX ±0.3 ✓ X.XXX ±0.01 ✓		
PROJECT NO:	472-3630	MATERIAL:	Stainless Steel, 440C	DESCRIPTION: NECK PITCH CHANGE MECHANISM, STAR PATTERN 2
QTY	1	HEAT TREAT:	Rc 56-59	
TOTAL QTY IN DUMMY	1	FINISH:		
DRAWN BY:		CHECKED BY:		SIZE: SHEET
B. KIMES		B. KIMES		A3 1 OF 1
DATE:		DATE:		SCALE: 1.000
9/26/2011		1/16/2012		DRAWING NO.:
		J. WANG		472-3631
				REV:
				B



SCALE 1.000

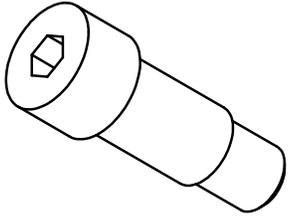


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 3. POWDER OR BEAD BLAST.
 4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

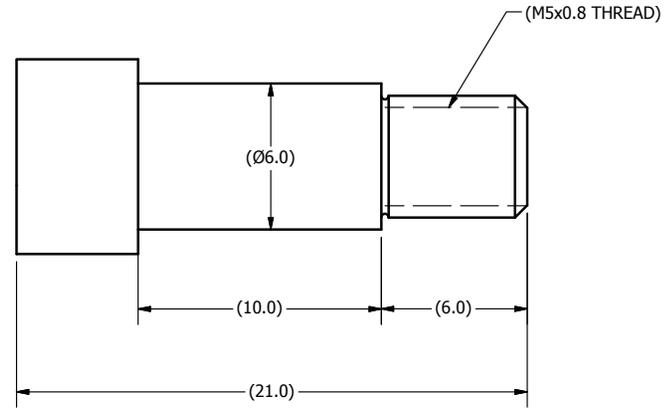
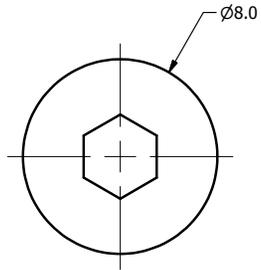
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM213 R10 AND CONVERTED TO METRIC FOR THOR-M	9/26/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN PARENTHESES		SHOW HIDDEN & BREAK DIMENSIONS		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	1.000
					472-3633

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

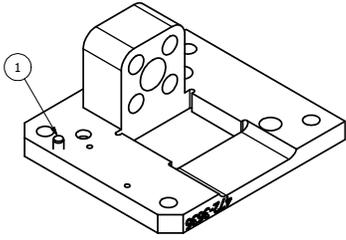


NOTES:

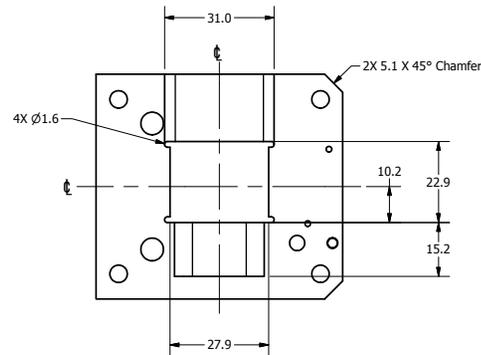
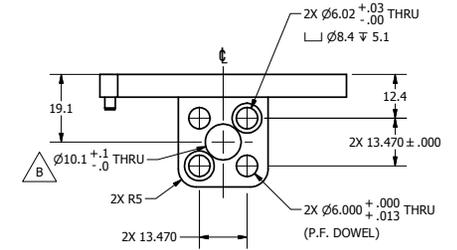
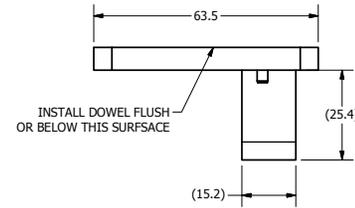
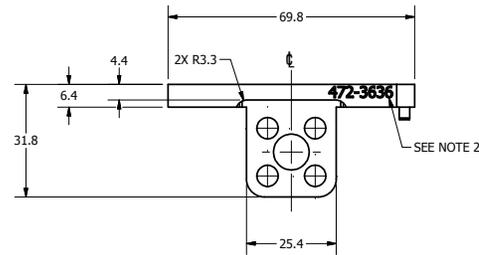
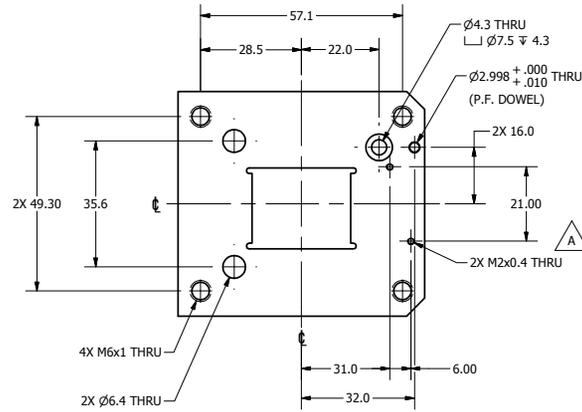
1. MAKE FROM M6 x 10 SHOULDER SCREW (5001122), MODIFY AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X.X ±0.2	±0.5 ±0.5
		X.XX ±0.1	±0.1 ±0.1
		X.XXX ±0.05	±0.05 ±0.05
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.	MATERIAL:	DRAWN BY:	DATE:
472-3630	4	B. KIMES	11/16/2011
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	4	J. WANG	1/16/2012

	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
	DESCRIPTION: NECK PITCH CHANGE MECHANISM BOLT	
SIZE: B SHEET: 1 OF 1 SCALE: 5.000	DRAWING NO.: 472-3634	REV: A



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.

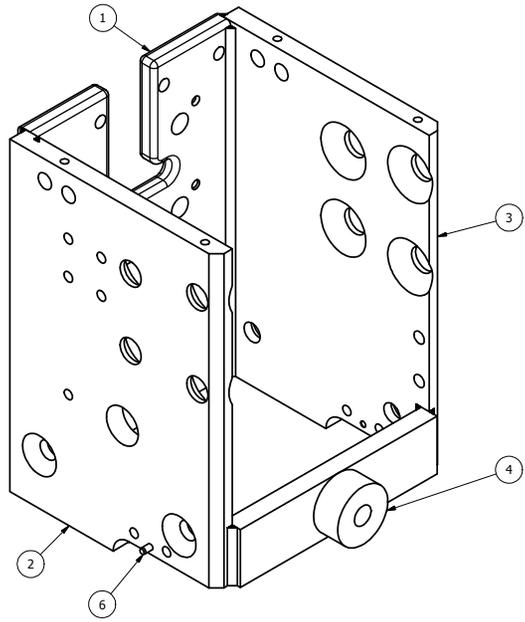
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM216 R15 AND CONVERTED TO METRIC FOR THOR-M; REORIENT IES SENSOR HOLES (M2)	9/26/2011	BK
	B	Ø10.1+ .1/-0 WAS Ø9.5	3/15/2012	BK

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

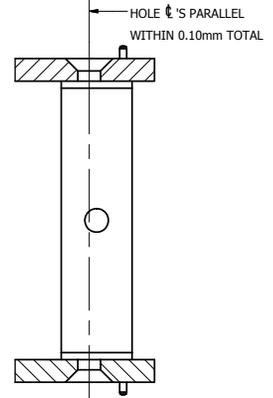
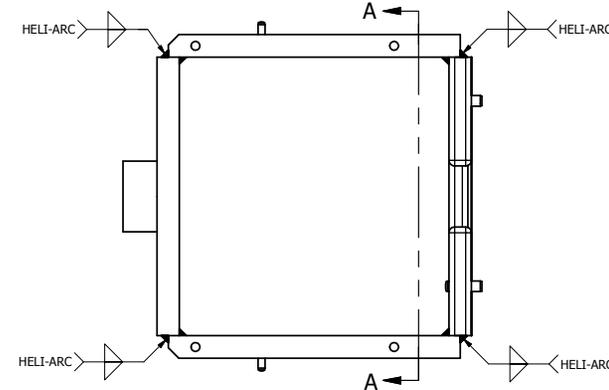
PARTS LIST			
DO NOT SCALE DRAWING	TOLERANCES		
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS		
	FRACTIONS		
	UNLESS OTHERWISE SPECIFIED		
	SHOW DIMENSIONS & HATCH CROSS SECTIONS		
472-3630	1	1018 CRS	9/26/2011
NEXT ASSEMBLY	QTY	BY	DATE
TOTAL QTY IN DUMMY	1	SEE NOTES	1/16/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
NECK PITCH CHANGE MECHANISM TOP PLATE	
A21 of 1	472-3636
1.000	

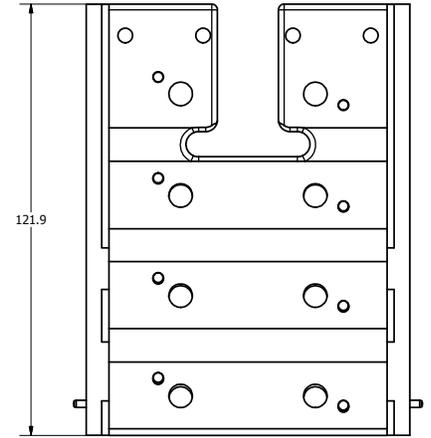
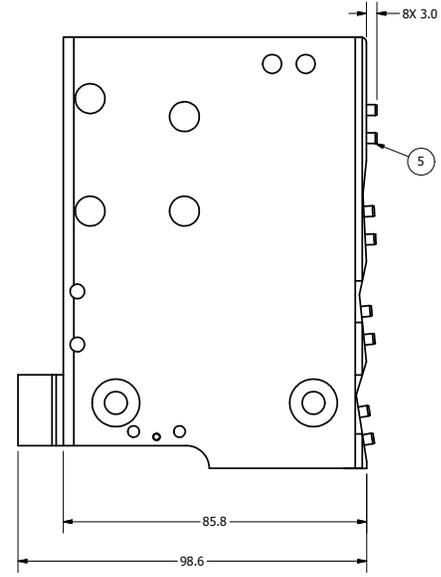
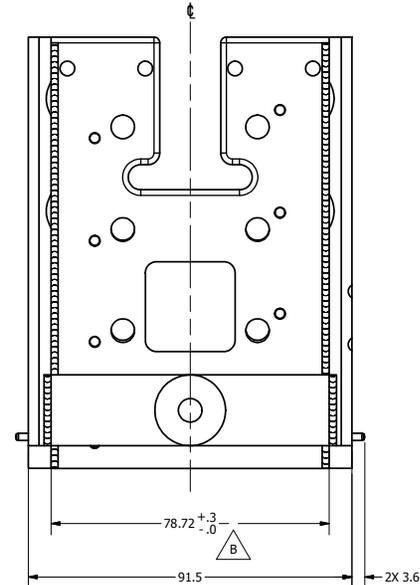
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T15PW120 R3; ADD FRONT PLATE, NICKEL PLATE WAS TEFLON COAT	9/28/2011	BK
	B	78.72 +.3/-0 WAS 78.7	6/25/2012	BK
	C	UPDATE TO SHOW SIDE PLATE CHANGES	10/12/2012	BK



SCALE 1.000



SECTION A-A
SCALE 1.000



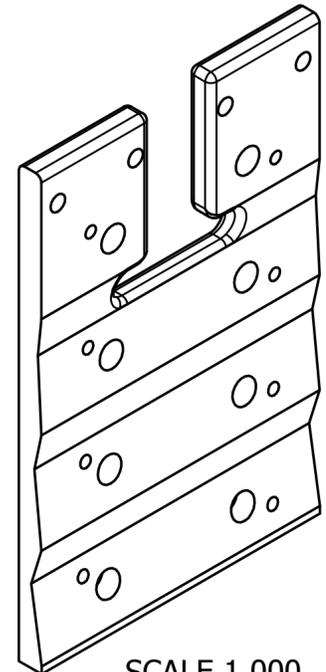
- NOTES:
- DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 - WELDMENT TOLERANCE ± 0.5 mm, UNLESS OTHERWISE NOTED.
 - POWDER OR BEAD BLAST.
 - NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER WELDING.
 - DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
 - INSTALL DOWEL PINS AFTER NICKEL 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

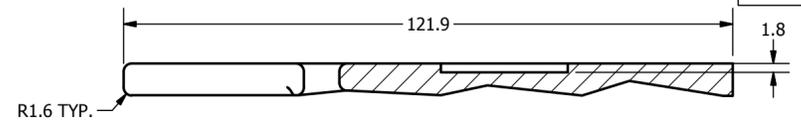
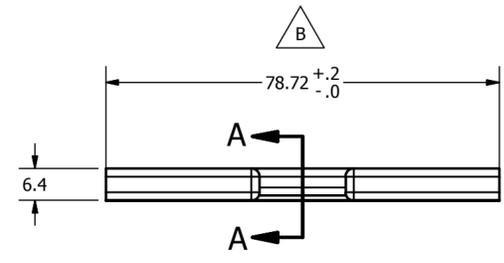
PARTS LIST
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DIMENSIONS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS 0.1 1/16 0.01 1/32 0.001 0.001 0.001 0.001		SHOW HIDDEN & BREAK DIMENSIONS B. KIMES 9/28/2011 PREPARED BY: DATE:		
472-3600	1	472-3600	1	UPPER THORACIC SPINEBOX WELDMENT
NEXT ASSEMBLY	QTY	PREPARED BY	DATE	A21 of 1 1.000
TOTAL QTY IN DUMMY	1	DATE	1/16/2012	472-3620

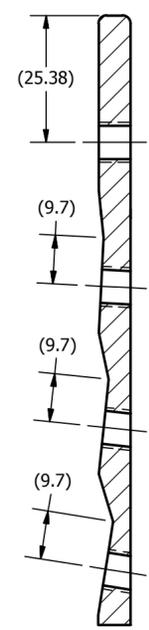
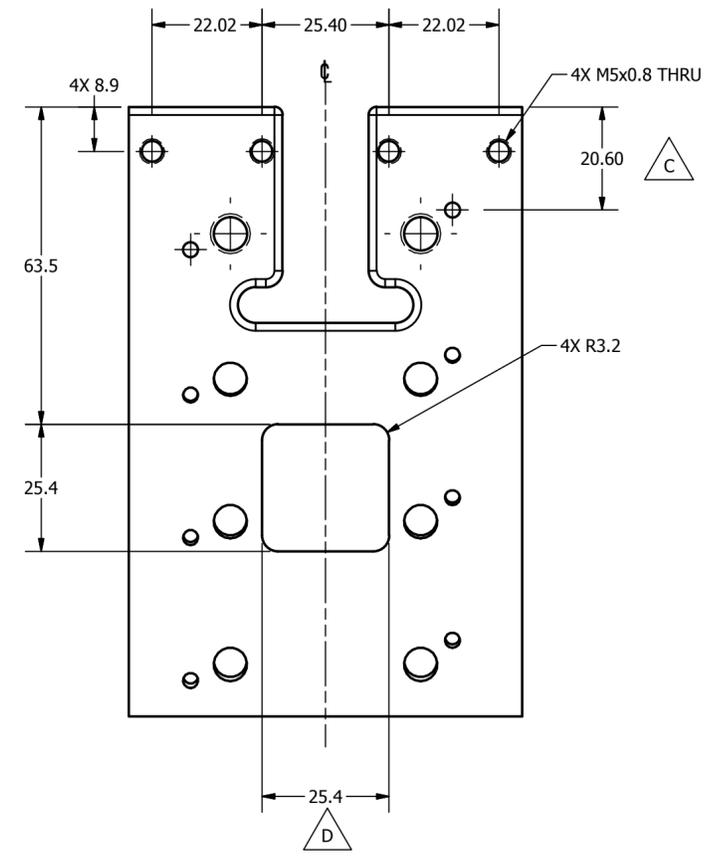
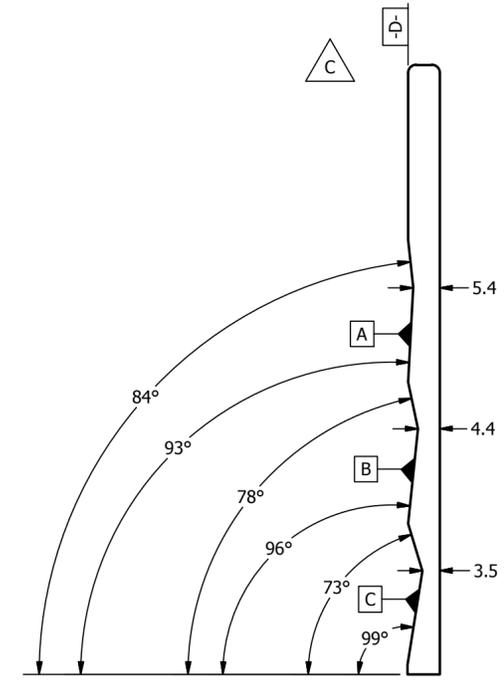
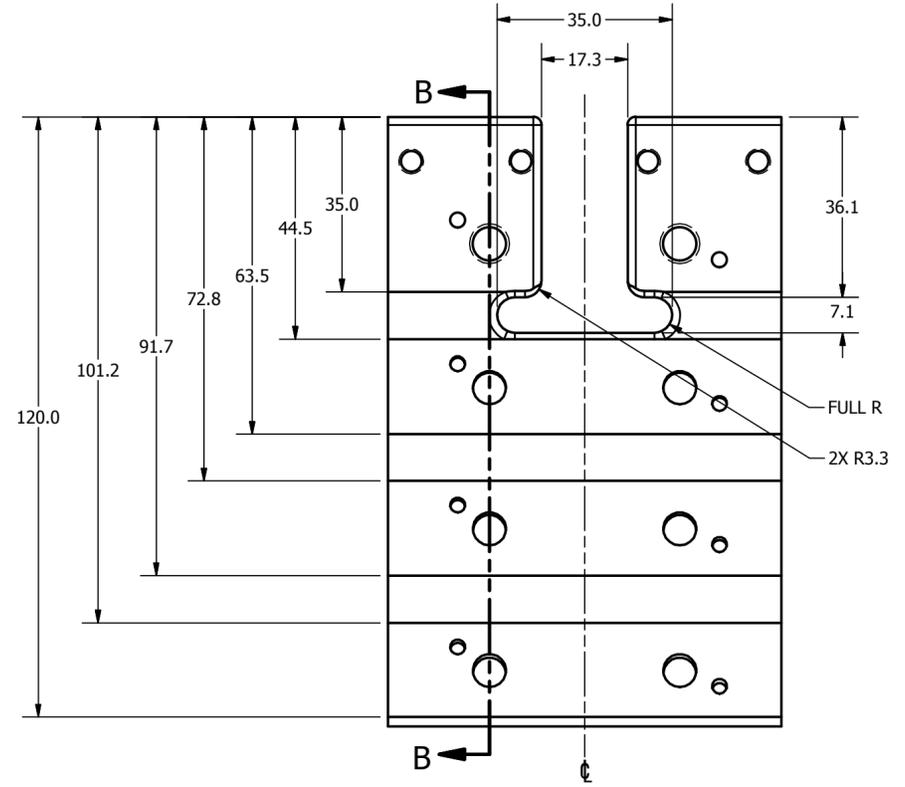
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM123 R8 AND CONVERTED TO METRIC FOR THOR-M	9/27/2011	BK
	B	78.72+/-2/-0 WAS 78.7	6/25/2012	BK
	C	ADD DATUMS D, E, BASIC DIMENSIONS, AND POSITIONAL TOLERANCING; DIMENSION HOLES FROM DATUM E; 38.10, [52.40] WAS (38.10), (52.40); ADD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



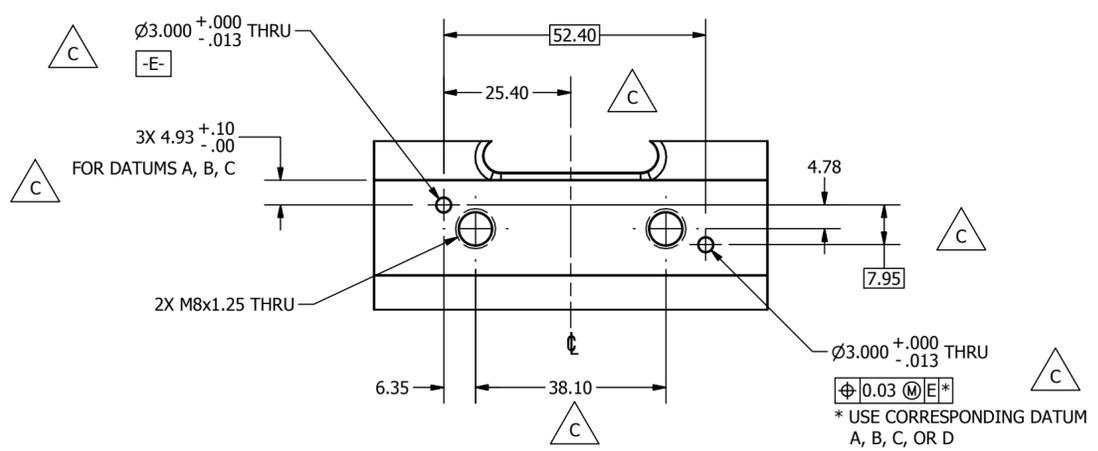
SCALE 1.000



SECTION A-A
SCALE 1.000



SECTION B-B
SCALE 1.000

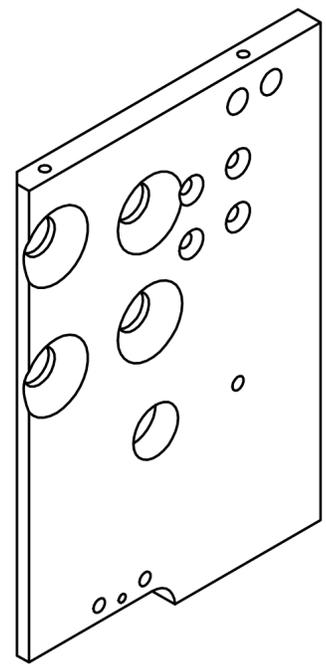


VIEW PERPENDICULAR TO
DATUMS A, B, & C
HOLE PATTERNS TYP. 3 PLACES
SCALE 1.000

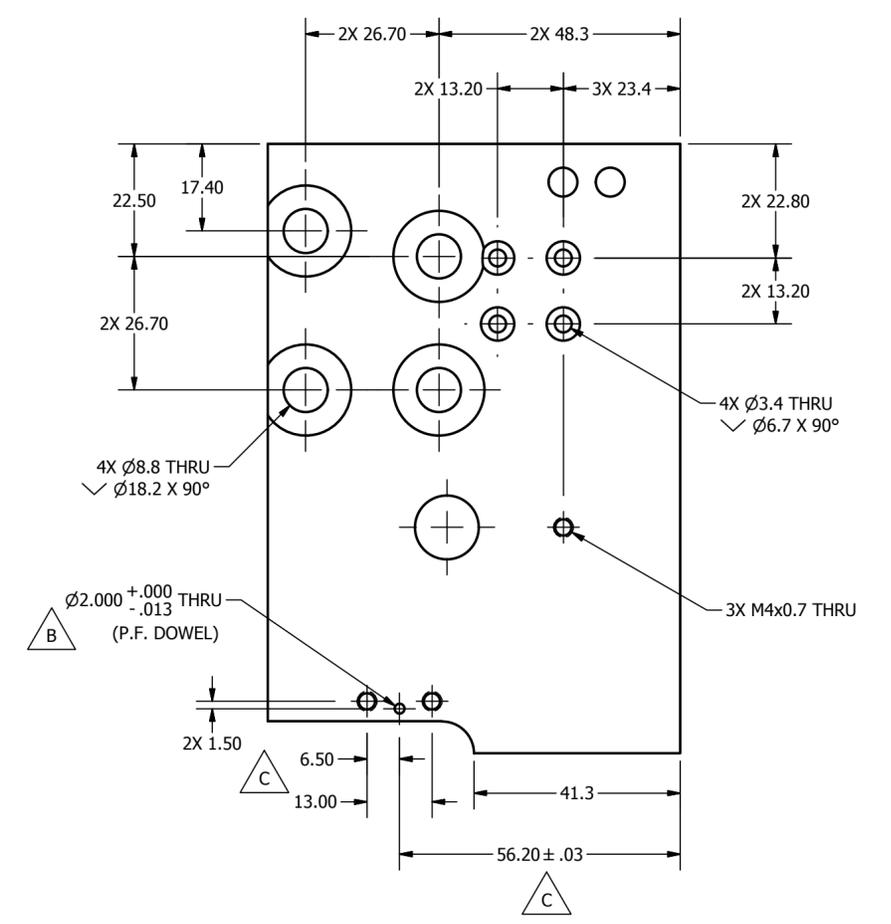
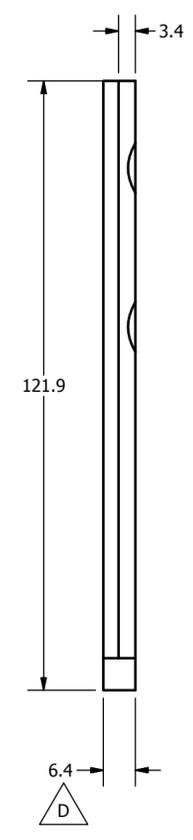
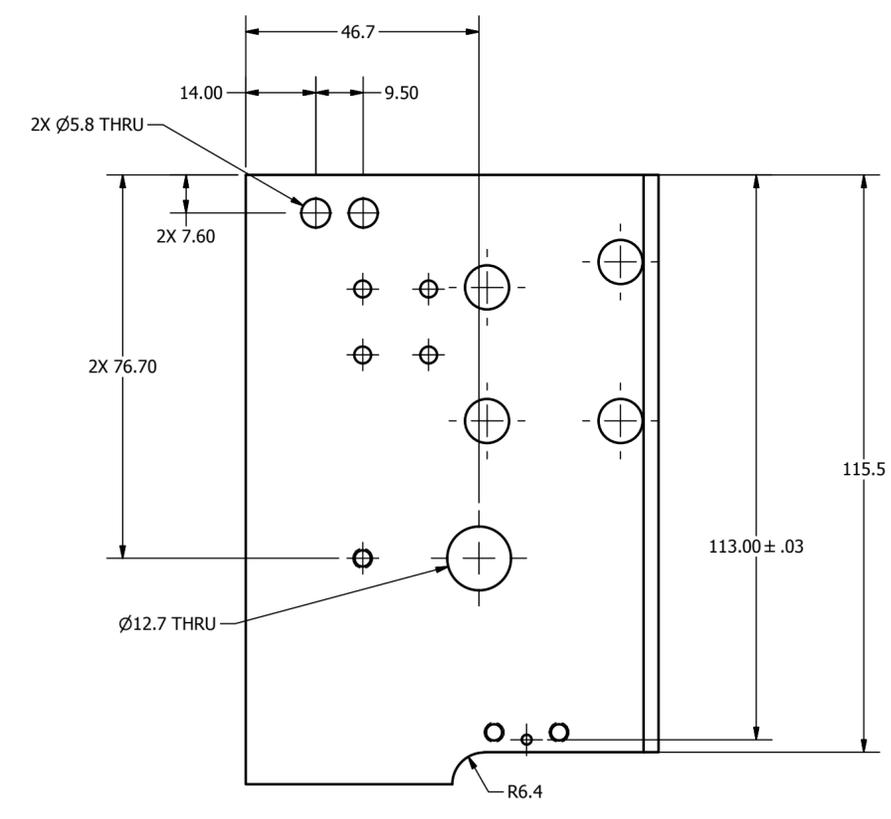
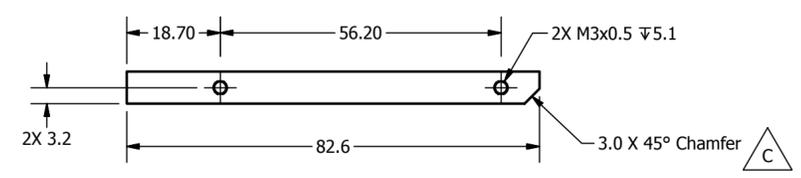
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

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	DRAWING NO: 472-3623
DATE:	1/16/2012	SCALE:	1.000	
TOTAL QTY IN DUMMY:	1	SIZE:	A2 1 OF 1	REV:

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

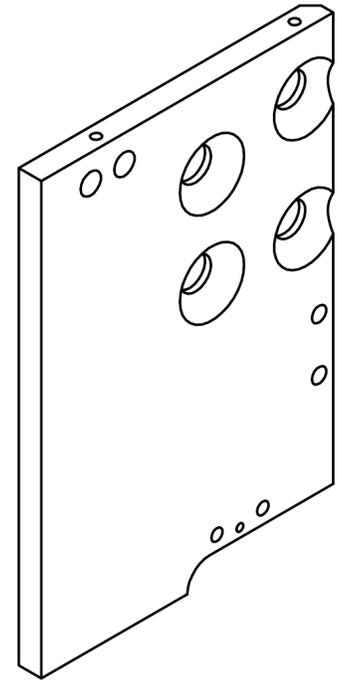


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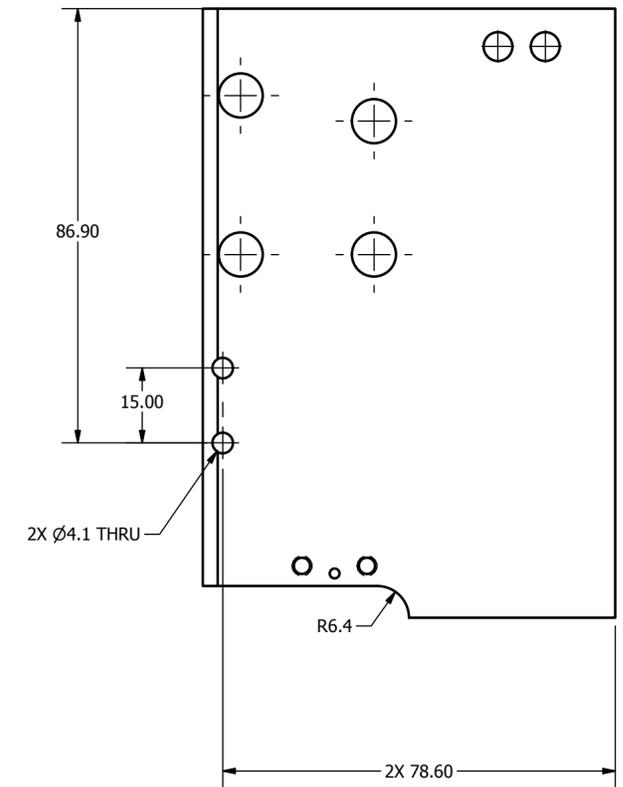
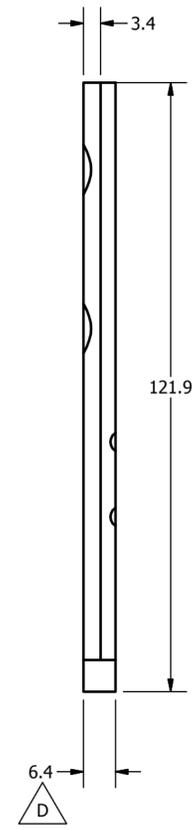
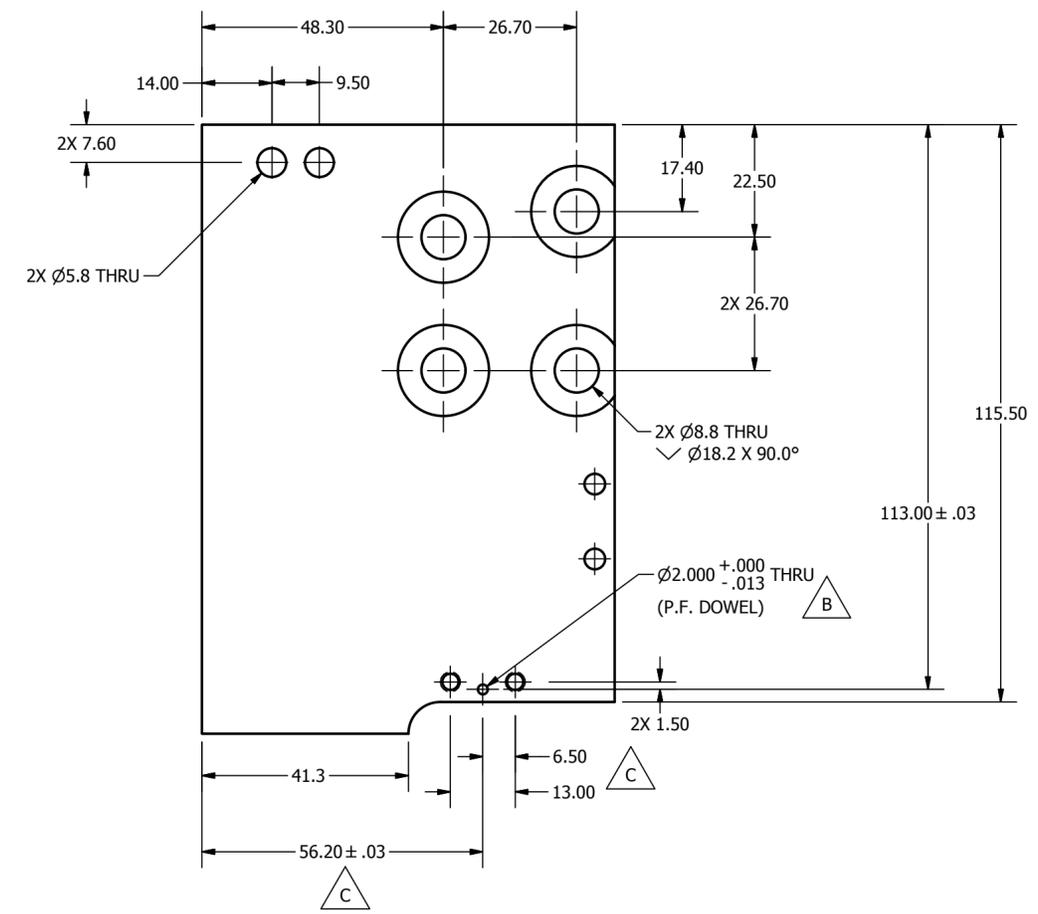
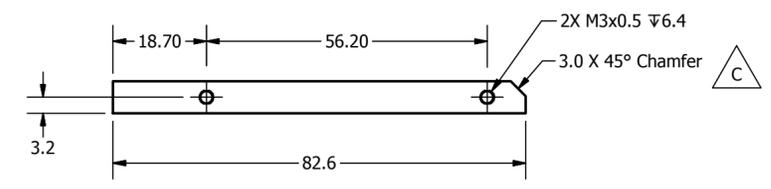


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		DESCRIPTION: UPPER THORACIC SPINE SIDE PLATE, RIGHT	
PROJECT NO:	472-3620	DATE:	9/27/2011	SIZE:	A2
DESIGN BY:	B. KIMES	DATE:	9/27/2011	DRAWING NO.:	472-3621
CHECKED BY:		DATE:		SCALE:	1.000
ENGINEER:	J. WANG	DATE:	1/16/2012		
FINISH:					
HEAT TREAT:					
REVISIONS:					
QTY	1				
TOTAL QTY IN DUMMY	1				

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

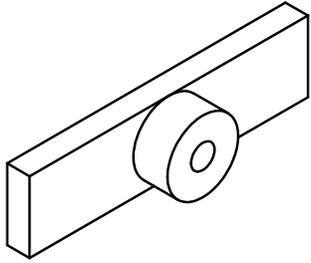


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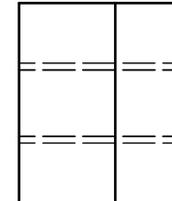
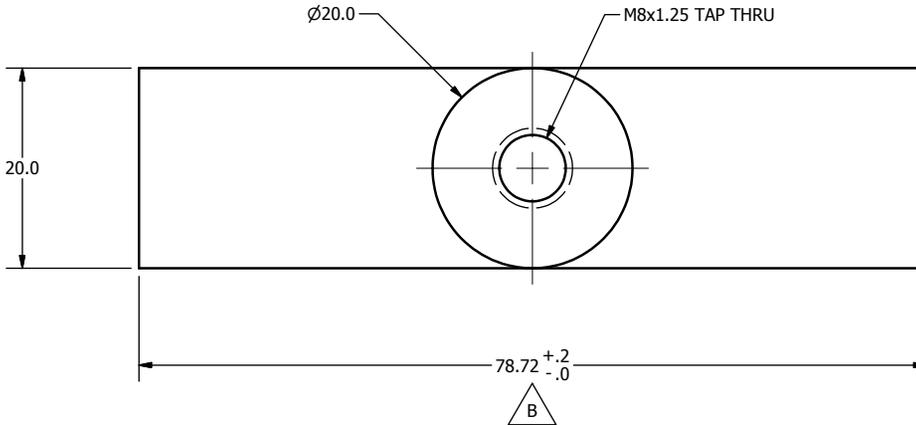
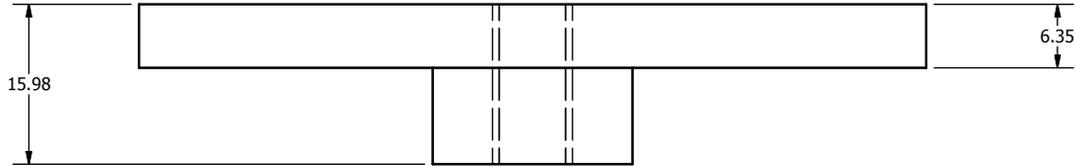


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		UPPER THORACIC SPINE SIDE PLATE, LEFT	
PROJECT NO:	472-3620	MATERIAL:	1018 STEEL	DESIGNED BY:	B. KIMES
DATE:	9/27/2011	CHECKED BY:	J. WANG	DATE:	1/16/2012
HEAT TREAT:		FINISH:		SCALE:	A2 1 OF 1
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	1	DRAWING NO:	472-3622

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
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X .05 ± 0.07 16
X.X ± 0.2
X.XX ± 0.3
X.XXX ± 0.01
REMOVE BURRS & BREAK SHARP EDGES

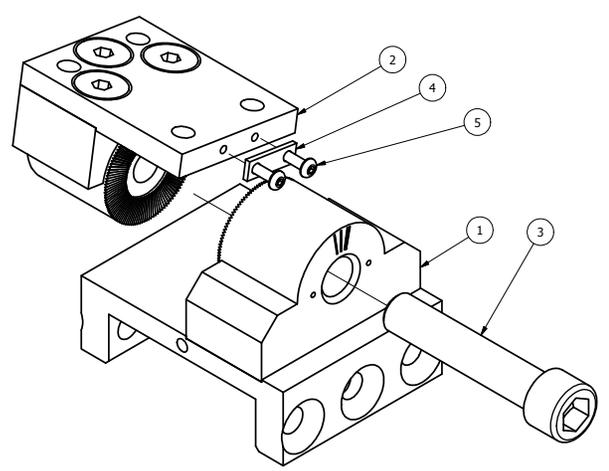


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

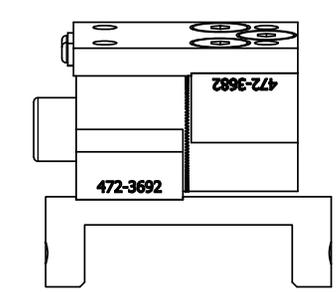
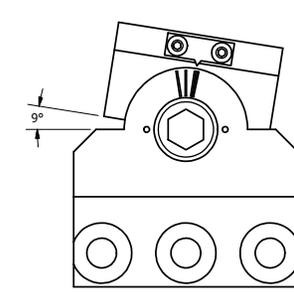
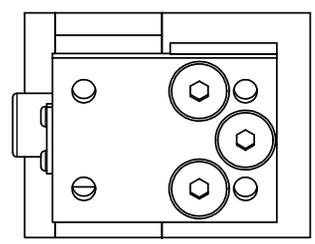
DESCRIPTION: UPPER THORACIC SPINE FRONT PLATE

PROJECT NO.: 472-3620	QTY: 1	MATERIAL: 1018 STEEL	DATE: 9/23/2011	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-3624	REV: B
CHECKED BY: dwashenko	HEAT TREAT:	FINISH:	DATE: 1/16/2012	SCALE: 2.000			
TOTAL QTY IN DUMMY: 1							

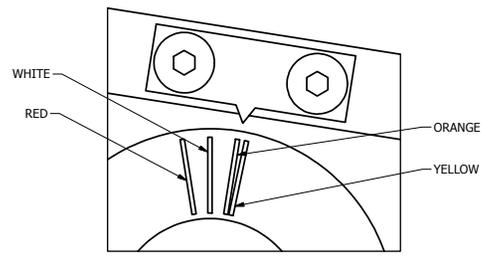
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM500 R04 AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	BK



SCALE 1.000



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



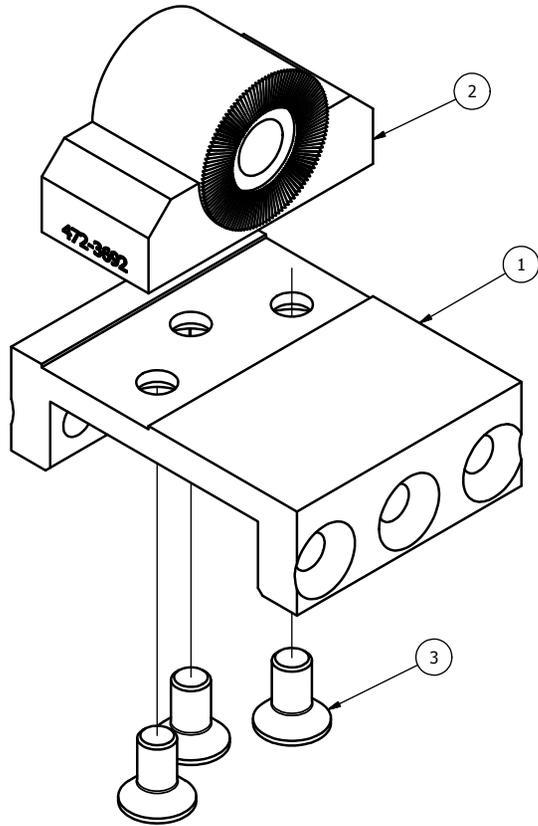
POSTURE SETTINGS
SCALE 3.000

- NOTES:
1. USE LOCTITE ANTISEIZE LUBRICANT OR EQUIVALENT ON THE M12 X 60 S.H.C.S. PRIOR TO INSERTION. TORQUE BOLT TO 50 FT-LB TO TIGHTEN PITCH CHANGE MECHANISM.
 2. TO ADJUST THE SPINE POSTURE, LOOSEN THE M12 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.

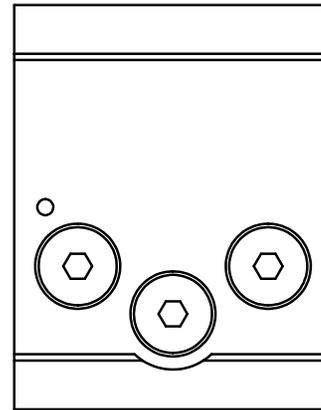
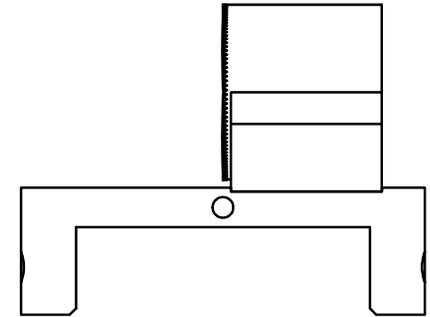
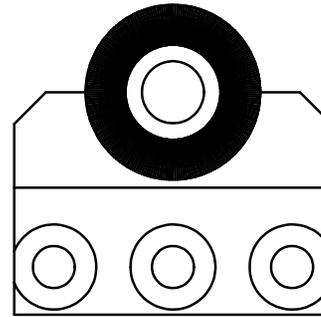
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5001074	M3 X 0.5 X 10 LG. BHCS
4	1	472-3713	LUMBAR SPINE PITCH CHANGE INDICATOR
3	1	5000442	M12 X 1.75 X 60 LG. SHCS
2	1	472-3680	LUMBAR SPINE PITCH CHANGE UPPER HALF ASSEMBLY
1	1	472-3690	LUMBAR SPINE PITCH CHANGE LOWER HALF ASSEMBLY

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DATE:	9/23/2011	DATE:	9/23/2011	LUMBAR SPINE PITCH CHANGE ASSEMBLY	
BY:	B. KIMES	BY:	J. WANG		
QTY:	1	QTY:	1	A21 of 1	
TOTAL QTY IN DUMMY:	1	DATE:	11/2/2012	472-3670	

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



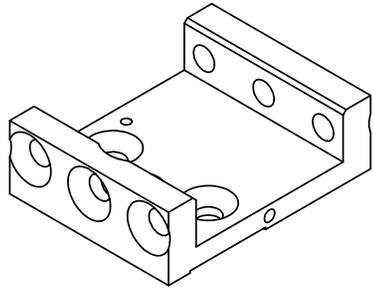
NOTES:

1. ASSEMBLE SCREWS USING LOCTITE 271 THREADLOCKER OR EQUIVALENT.

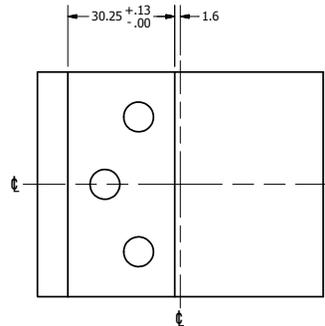
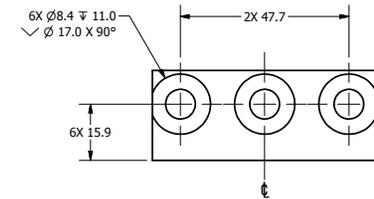
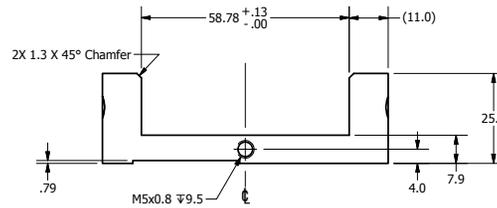
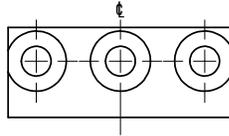
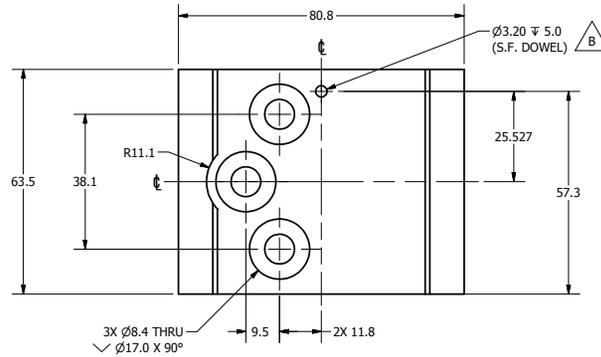
ITEM	QTY	PART NUMBER	DESCRIPTION
3	3	5001091	M8 X 1.25 X 16 LG. FHCS
2	1	472-3692	LUMBAR SPINE PITCH CHANGE STAR WHEEL, RIGHT SIDE
1	1	472-3691	LUMBAR SPINE PITCH CHANGE BOTTOM PLATE

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 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		
PROJECT NO.:	473-3670	MATERIAL:	1	DESCRIPTION: LUMBAR SPINE PITCH CHANGE LOWER HALF ASSEMBLY
CHECKED BY:	B. KIMES	DATE:	9/23/2011	
ENGINEER:	J. WANG	DATE:	1/16/2012	
HEAT TREAT:		SCALE:	1.000	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3690
TOTAL QTY IN DUMMY	1	FINISH:		REV: A



SCALE 1.000

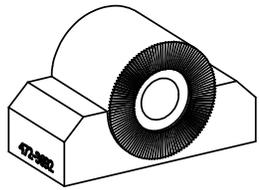


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. POWDER OR BEAD BLAST.
 3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

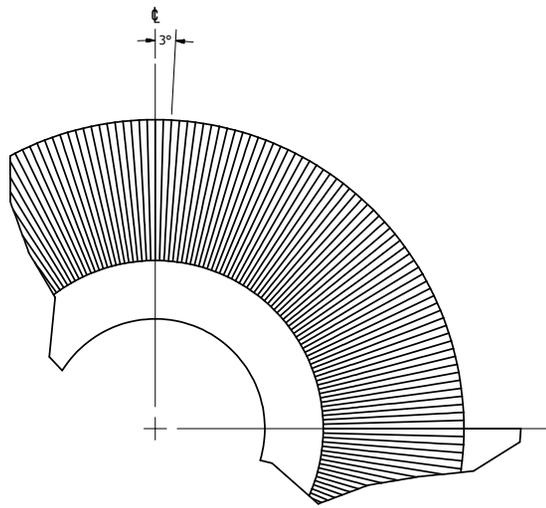
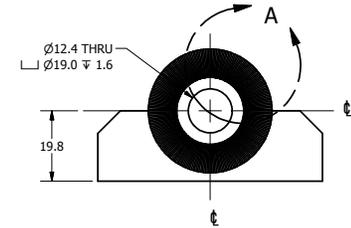
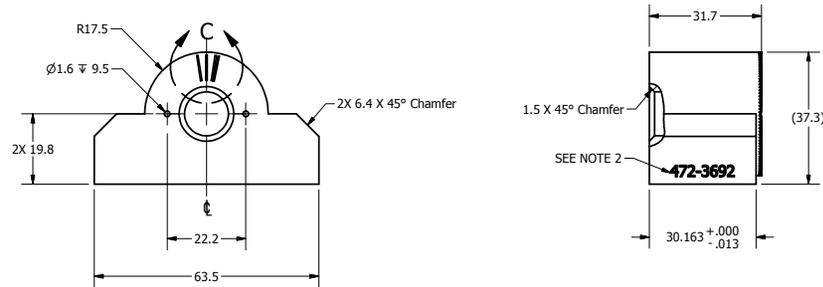
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM521 R06 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK
	B	ADD DOWEL LOCATION HOLE	12/19/2011	BK

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

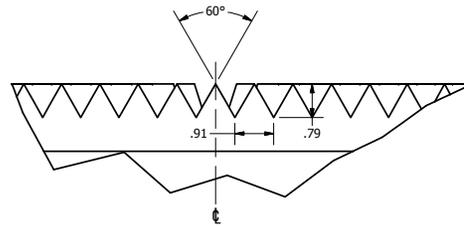
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM523 R0 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK



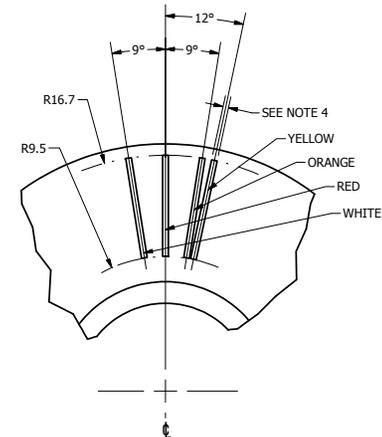
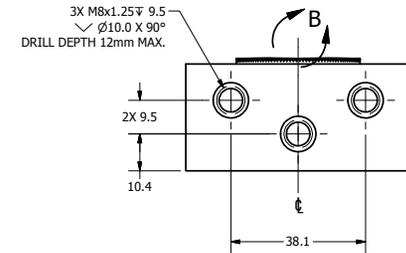
SCALE 1.000



DETAIL A
SCALE 5.000



DETAIL B
TOOTH PATTERN
SCALE 12.000



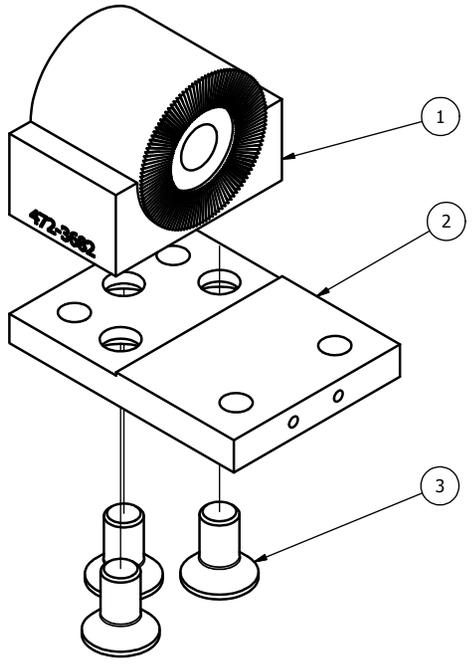
DETAIL C
SCALE 4.000

NOTES:

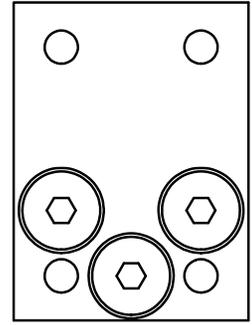
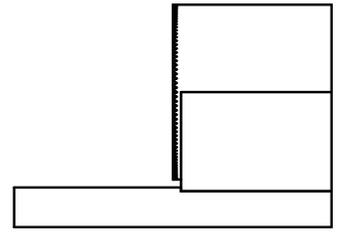
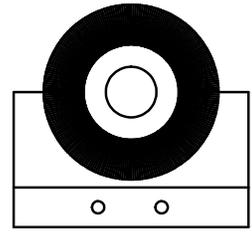
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PAT NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. FIRST CUT OF STAR PATTERN OFFSET 1.5° FROM VERTICLE, TOTAL OF 120 RADIAL LINES ARE REQUIRED.
4. ENGRAVE LINES WITH MAXIMUM THICKNES OF 0.5mm, PAINT IN LINE AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS .X .XX .XXX .XXX .X .XX .XXX .XXX .X .XX .XXX .XXX .X .XX .XXX .XXX		SHOW DIMENSIONS & SURFACE FINISH SYMBOLS PART NO. 472-3690 DESCRIPTION Stainless Steel, 440C QUANTITY 1 DATE 9/22/2011 DRAWN BY B. KIMES CHECKED BY J. WANG DATE 1/16/2012		

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 .05 0.5° 1.6 XX ±0.2 XXX ±0.3 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:	

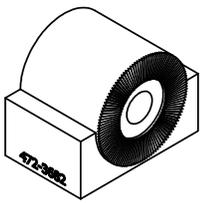


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

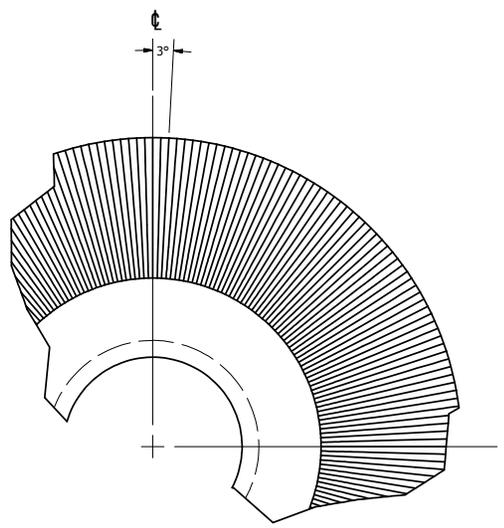
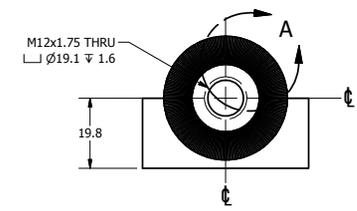
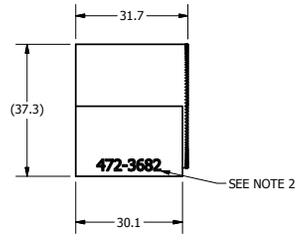
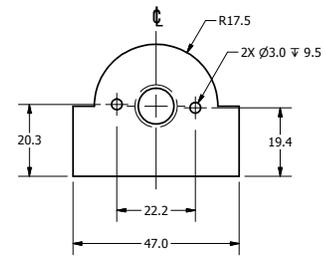
DESCRIPTION:
LUMBAR SPINE PITCH CHANGE UPPER HALF ASSEMBLY

SIZE: A3
SHEET: 1 OF 1
SCALE: 1.000
DRAWING NO.: 472-3680
REV.: A

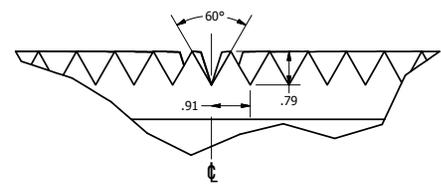
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM523 R0 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	BK



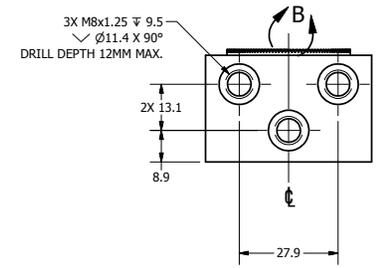
SCALE 1.000



DETAIL A
SCALE 5.000



DETAIL B
TOOTH PATTERN
SCALE 12.000

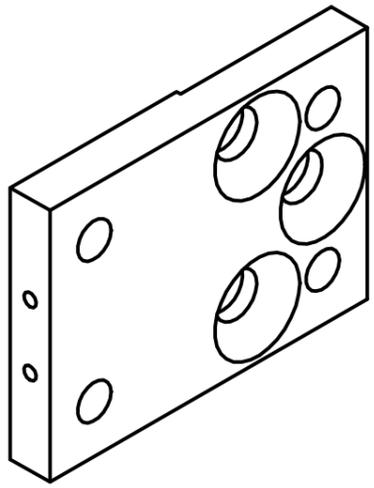


NOTES:

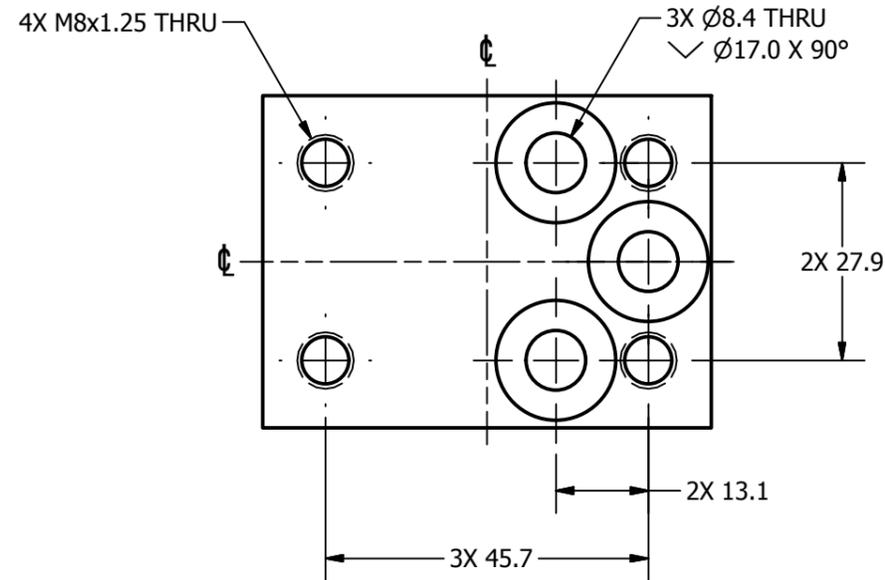
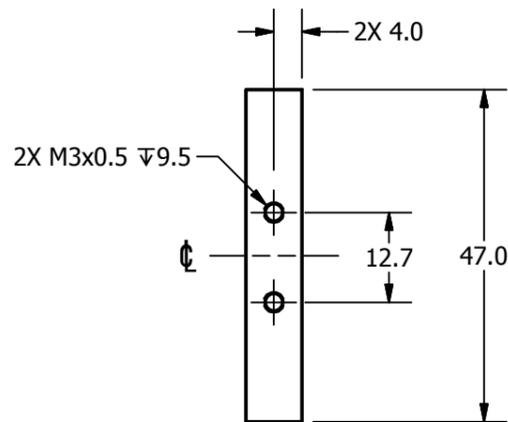
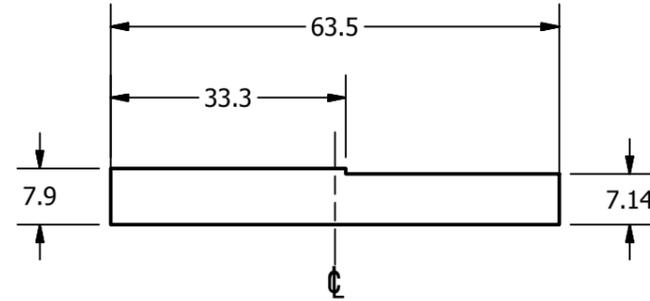
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PAT NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. FIRST CUT OF STAR PATTERN OFFSET 1.5° FROM VERTICLE, TOTAL OF 120 RADIAL LINES ARE REQUIRED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS .1 .005 .005 .005 .2 .010 .010 .010 .3 .015 .015 .010 .4 .020 .020 .010 .5 .025 .025 .010 .6 .030 .030 .010 .7 .035 .035 .010 .8 .040 .040 .010 .9 .045 .045 .010 1.0 .050 .050 .010 1.5 .075 .075 .015 2.0 .100 .100 .020 3.0 .150 .150 .030 4.0 .200 .200 .040 5.0 .250 .250 .050 6.0 .300 .300 .060 8.0 .400 .400 .080 10.0 .500 .500 .100				
PART NO: 472-3682 QTY: 1 NEXT ASSEMBLY: QTY: 1 TOTAL QTY IN DUMMY: 1	MATERIAL: Stainless Steel, 440C FINISH: Rc .56-60	DESIGNED BY: B. KIMES DATE: 9/22/2011	DRAWN BY: J. WANG DATE: 1/16/2012	LUMBAR SPINE PITCH CHANGE STAR WHEEL, LEFT SIDE A21 of 1 472-3682

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



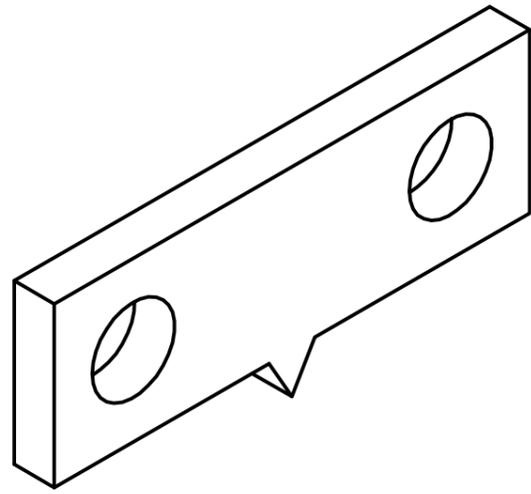
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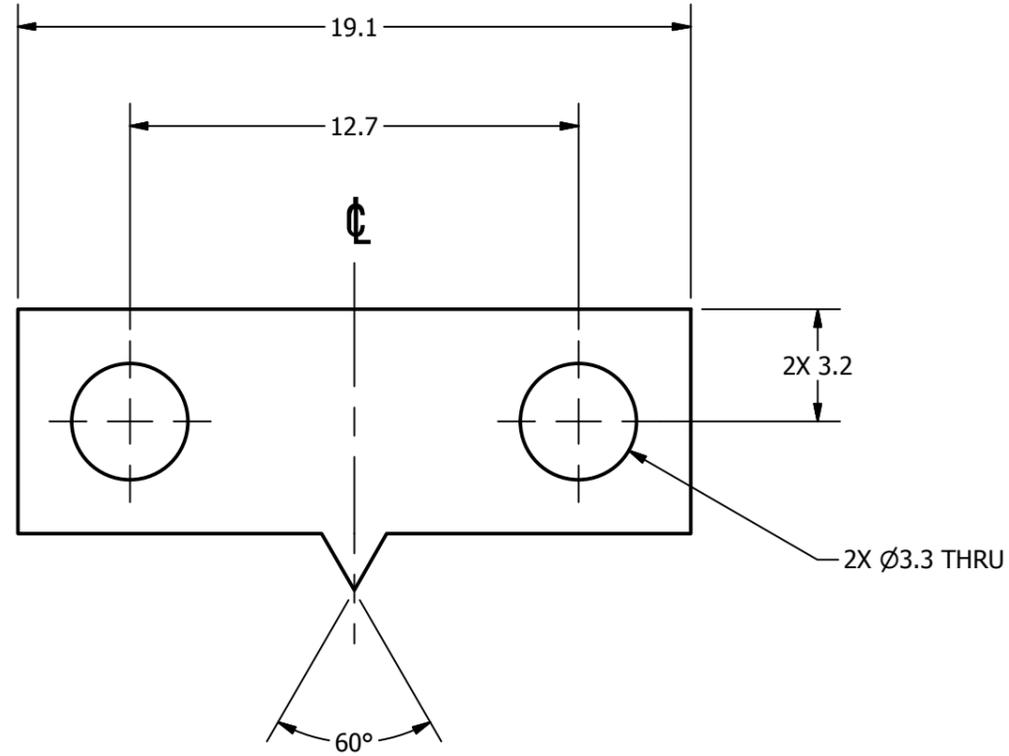
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT CL , 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 ° ± 0.5 1.6 XXX ± 0.1 ° ± 0.5 1.6 XXXX ± 0.01 ° ± 0.5 1.6		
PROJECT NO.:	472-3680	MATERIAL:	1018 STEEL	DESCRIPTION:
HEAT TREAT:		ENGINEER:	J. WANG	LUMBAR SPINE PITCH CHANGE TOP PLATE
FINISH:	SEE NOTES	CHECKED BY:	B. KIMES	DATE:
		DATE:	1/16/2012	DATE:
		DATE:	9/22/2011	DATE:
TOTAL QTY IN DUMMY	1	SIZE:	A3	SCALE:
		SHEET:	1 OF 1	DRAWING NO.:
		SCALE:	1.000	472-3681



SCALE 5.000

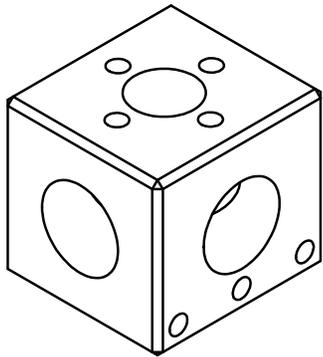


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM523 R0 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	BK

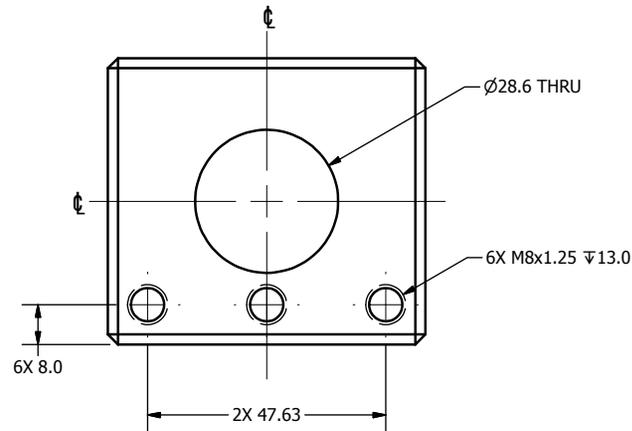
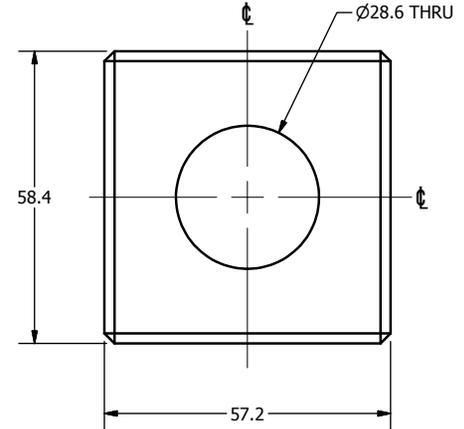
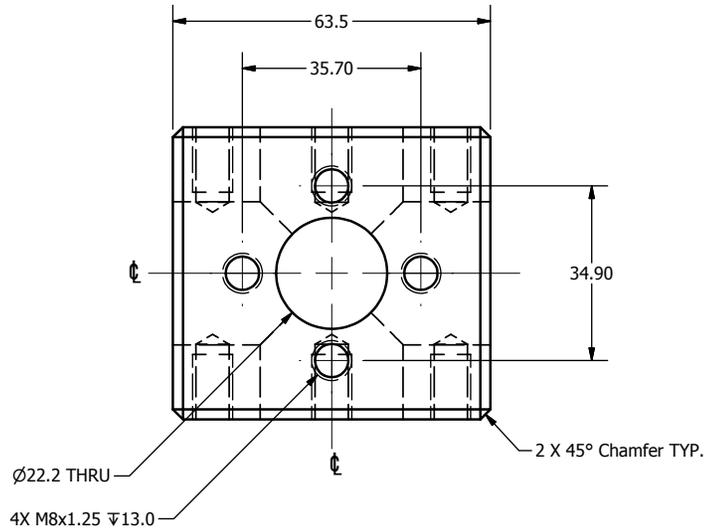
NOTES:

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 ± 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.:	472-3670	MATERIAL:	Brass, Soft Yellow	DESCRIPTION:
HEAT TREAT:		ENGINEER:	J. WANG	LUMBAR SPINE PITCH CHANGE INDICATOR
CHECKED BY:		DATE:	1/16/2012	SIZE: A3
DATE:	9/21/2011	SCALE:	5.000	SHEET 1 OF 1
TOTAL QTY IN DUMMY	1	DRAWING NO.:	472-3713	REV: A



SCALE .750



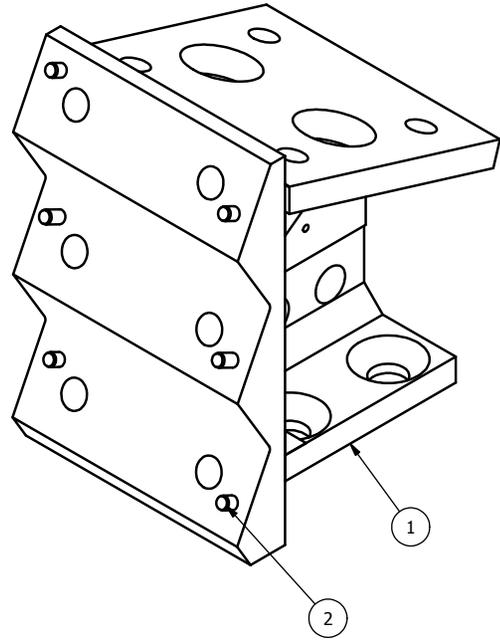
NOTES:

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.
5. PART WEIGHT: 1.03 \pm 0.01 kg (2.27 \pm 0.02 LBS).

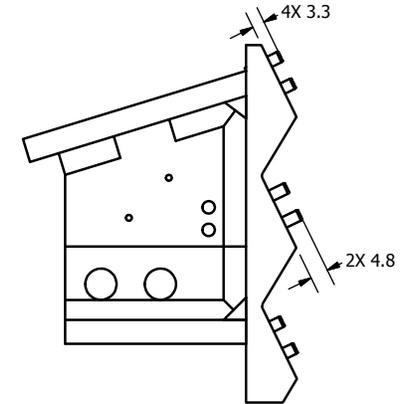
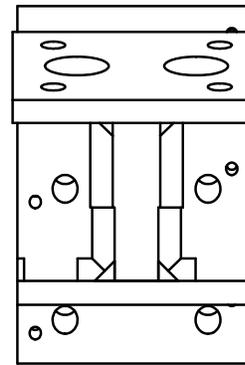
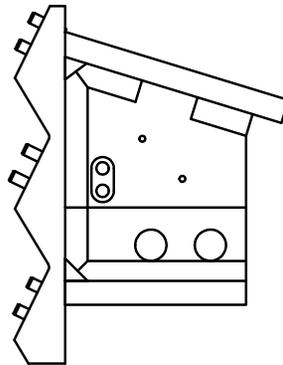


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REDESIGNED TO ONE PIECE FROM TWO PIECES FROM T1SPM620 R01; ADD WEIGHT SPEC	9/21/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION THORACIC SPINE LOAD CELL STRUCTURAL REPLACEMENT
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° 1.6 X .02 0.5° 1.6 X .03 0.5° 1.6 X .01 0.5° 1.6		
PROJECT NO:	472-3600	MATERIAL:	1018 STEEL	DATE:
CHECKED BY:	B. KIMES	DATE:	9/21/2011	SCALE:
ENGINEER:	J. WANG	DATE:	1/16/2012	SIZE:
HEAT TREAT:		FINISH:	SEE NOTES	SHEET:
TOTAL QTY IN DUMMY:	1	REVISION:		DRAWING NO.:
				472-3720



SCALE 1.000



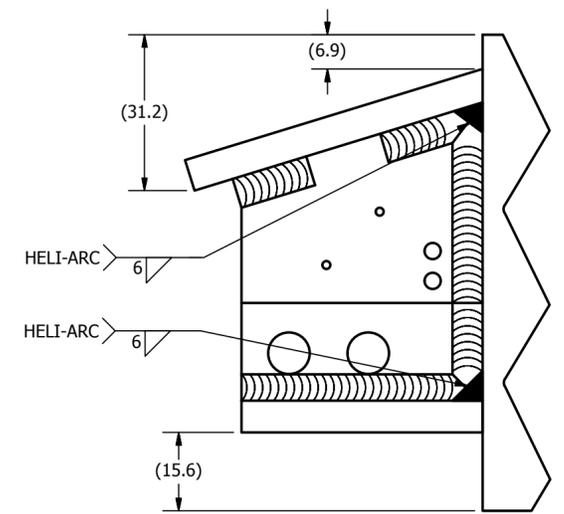
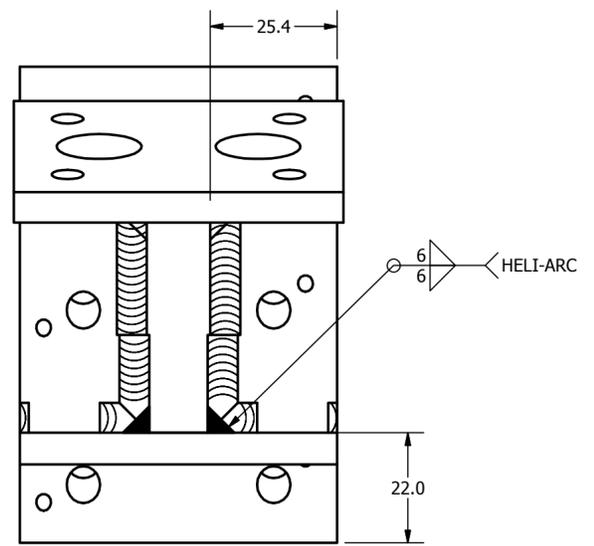
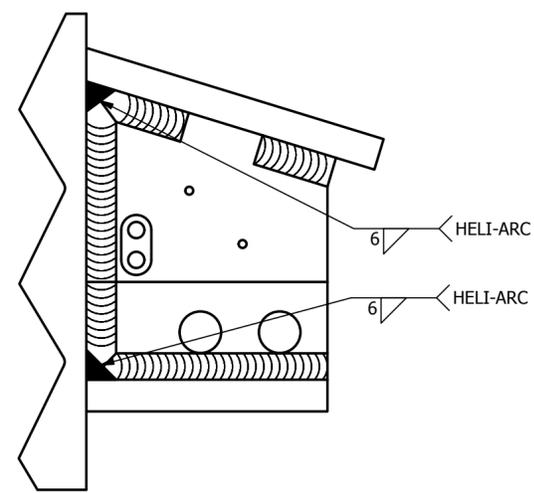
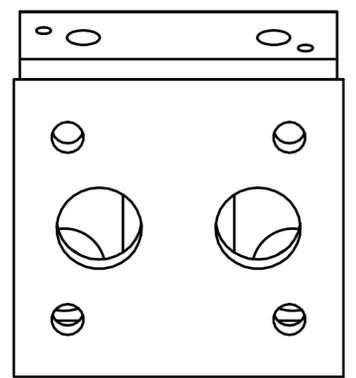
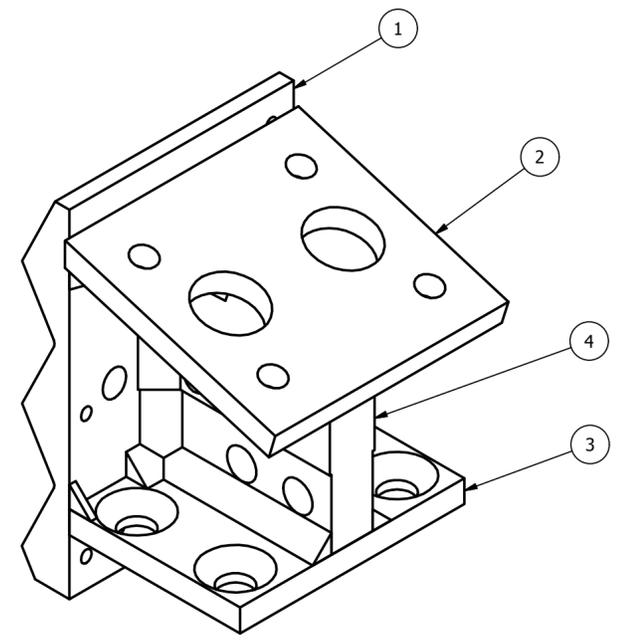
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM400 R3 AND CONVERTED TO METRIC FOR THOR-M	9/28/2011	BK

ITEM	QTY	PART NUMBER	DESCRIPTION
2	6	5000284	M3 X 10 LG. DOWEL PIN
1	1	472-3660	LOWER THORACIC SPINE WELDED ASSEMBLY

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 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-3600	DRAWN BY:	B. KIMES	DATE:
CHECKED BY:		DATE:	9/28/2011	
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:		SCALE:	1/16/2012	1:1
FINISH:		SIZE:	A3	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	DESCRIPTION:	LOWER THORACIC SPINE ASSEMBLY	DRAWING NO.:
			472-3650	REV.:
				A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPW400 R7 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK



- 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.

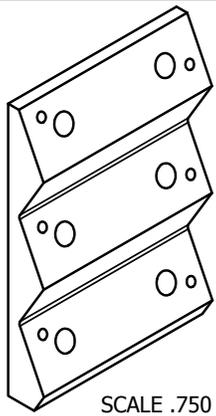
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-3662	LOWER THORACIC SPINE CENTRAL PLATE
3	1	472-3663	LOWER THORACIC SPINE BOTTOM PLATE
2	1	472-3661	TOP PLATE, LOWER THORACIC SPINE
1	1	472-3664	RIB MOUNTING PLATE, LOWER THORACIC SPINE

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 DESIGN BY: B. KIMES DATE: 9/20/2011 CHECKED BY: J. WANG DATE: 1/16/2012 ENGINEER: J. WANG DATE: 1/16/2012		
PROJECT NO:	472-3650	MATERIAL:	Welded Steel Mild	SCALE: 1:1
NEXT ASSEMBLY	QTY	FINISH:	SEE NOTES	SIZE: A2
TOTAL QTY IN DUMMY	1	DATE:	1/16/2012	1 OF 1

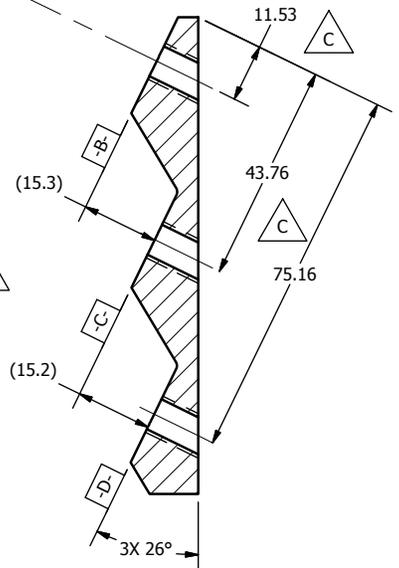
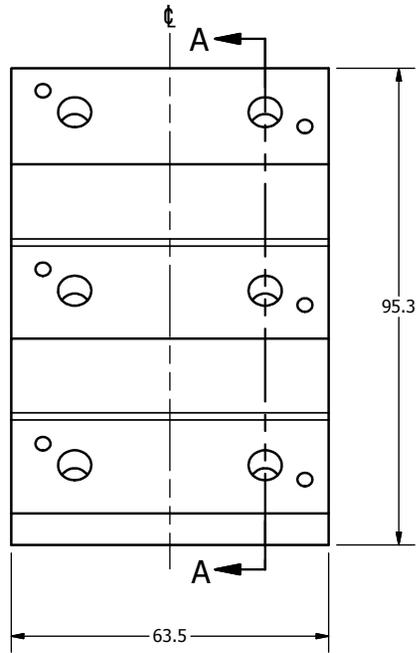
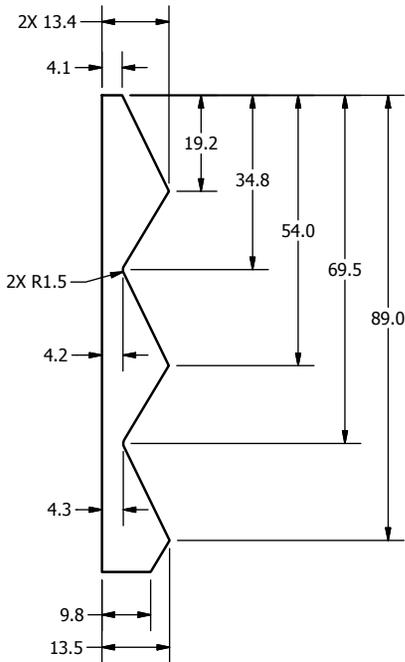
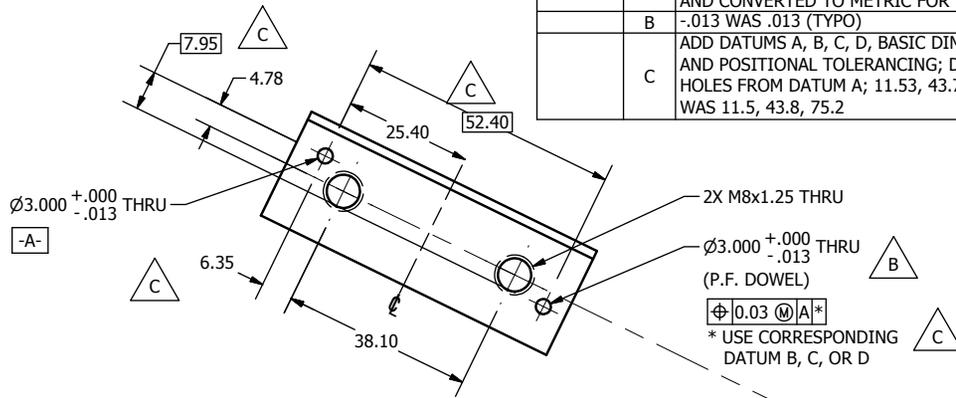
DRAWING NO: 472-3660

472-3650	1	Welded Steel Mild	9/20/2011	1 OF 1	472-3660
NEXT ASSEMBLY	QTY	FINISH:	SEE NOTES	SCALE: 1:1	
TOTAL QTY IN DUMMY	1	DATE:	1/16/2012		



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

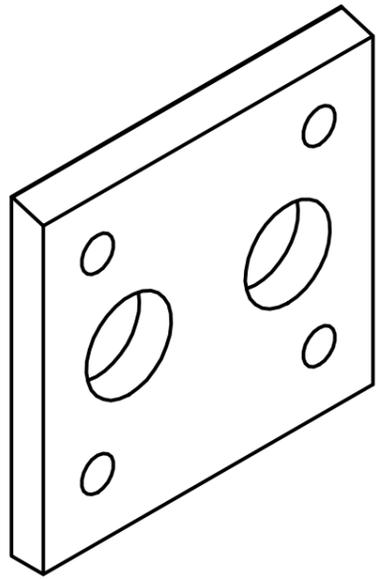


SECTION A-A
SCALE 1.000

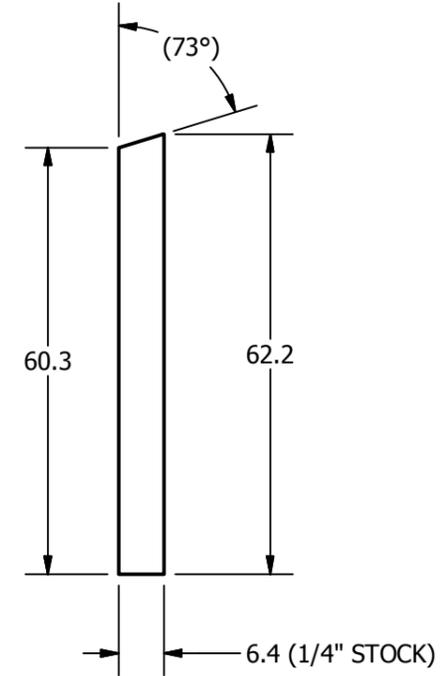
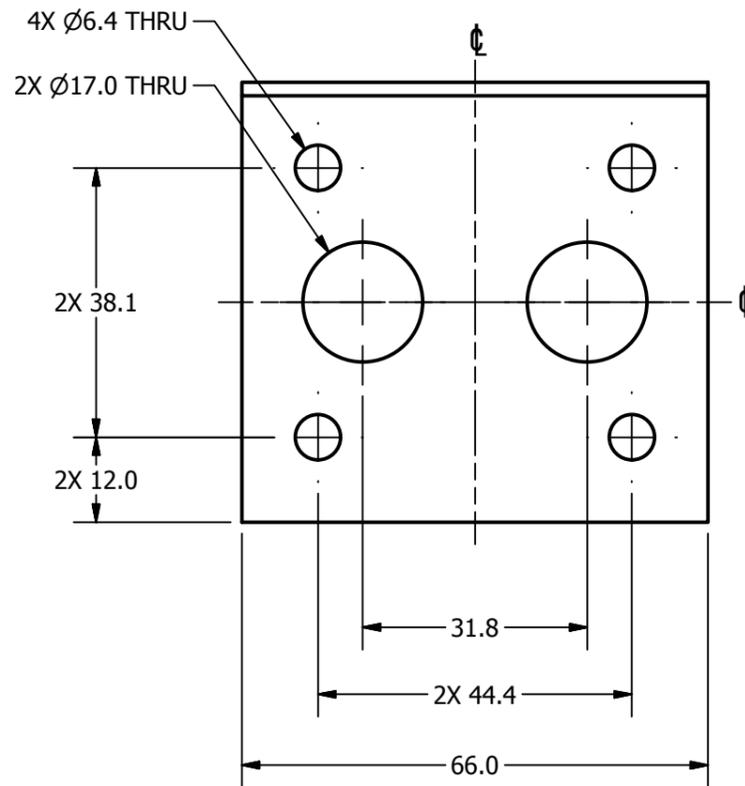
NOTES:
DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

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 .015 X .05 16 XXXX .015 X .05 16		
PROJECT NO:	472-3660	MATERIAL:	1018 STEEL	DESCRIPTION:
DATE:	9/19/2011	DESIGNED BY:	B. KIMES	RIB MOUNTING PLATE, LOWER THORACIC SPINE
CHECKED BY:		DATE:		SIZE: SHEET
ENGINEER:	J. WANG	DATE:	1/16/2012	A31 OF 1
HEAT TREAT:		FINISH:		SCALE: 1.000
TOTAL QTY IN DUMMY	1			DRAWING NO: 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

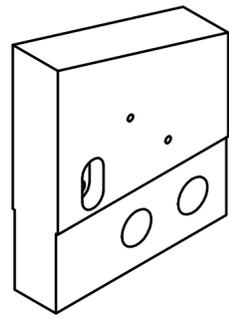
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
.XX ± 0.2 ± 0.2 1.6
.XXX ± 0.1 ± 0.1 1.6
XXX ± 0.01 ± 0.01 1.6



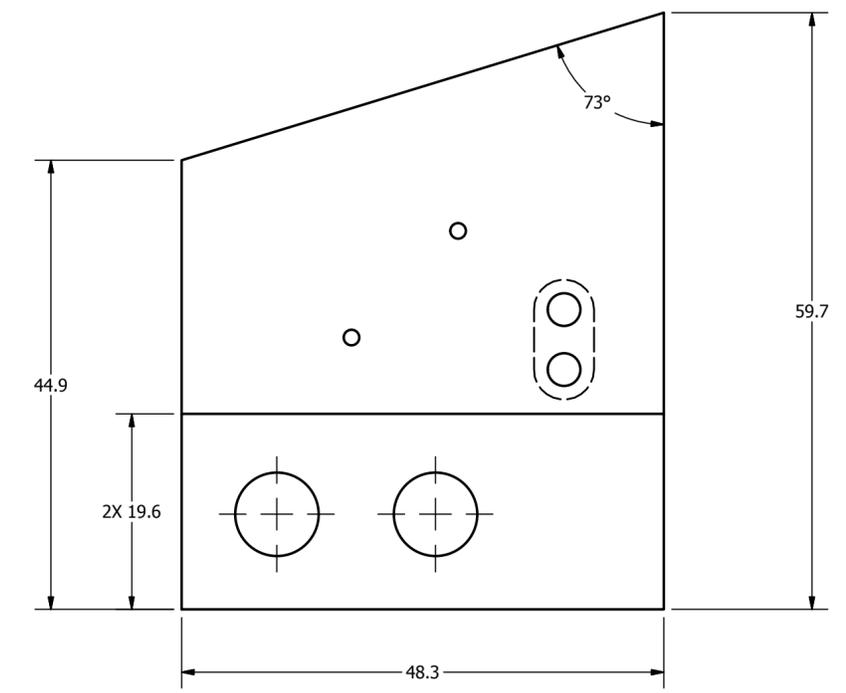
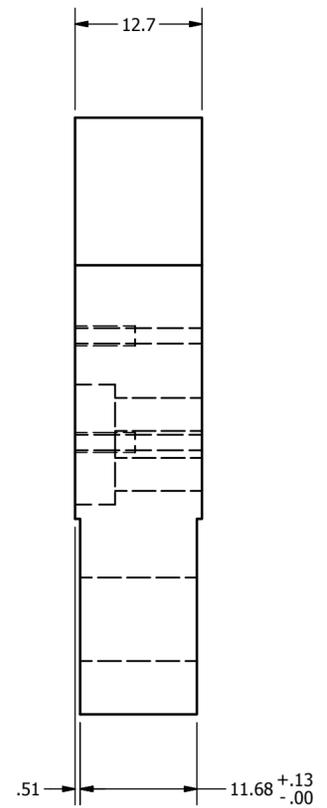
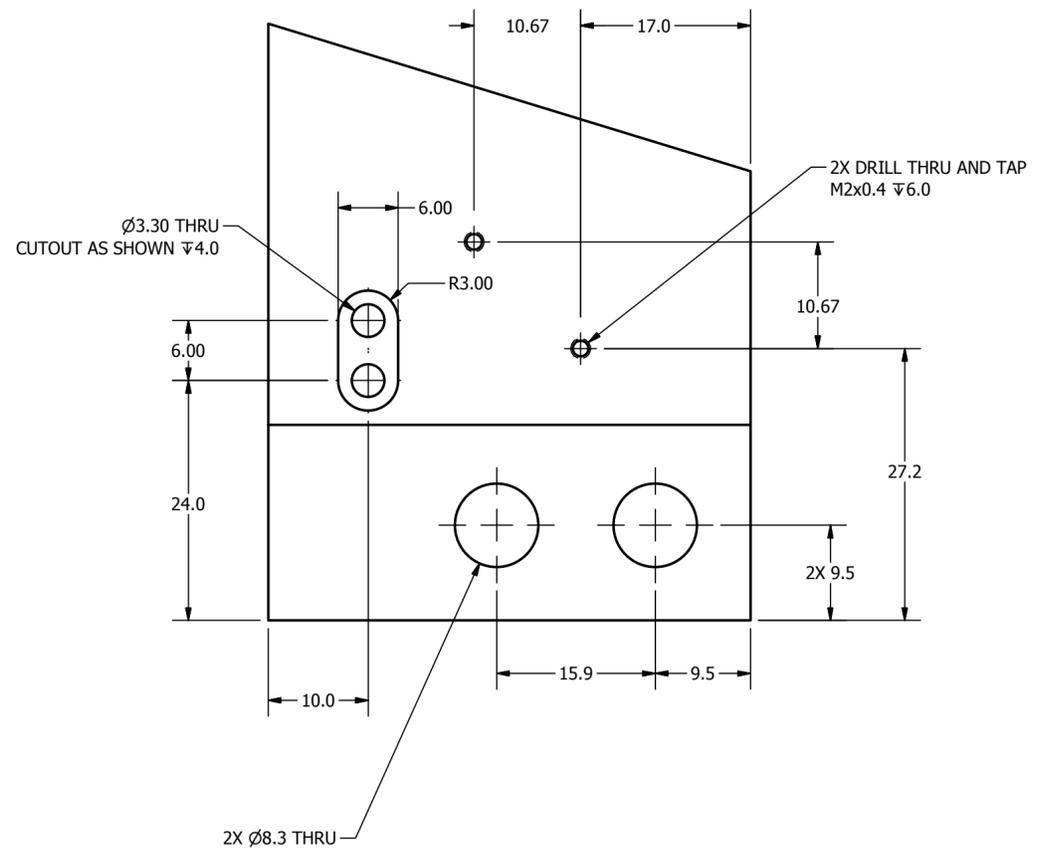
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

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

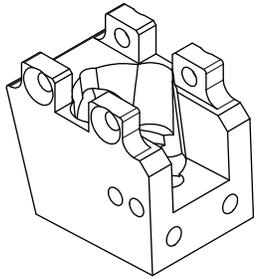
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM412 R5 AND CONVERTED TO METRIC FOR THOR-M	9/19/2011	BK



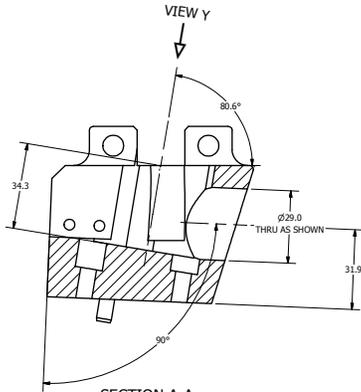
SCALE 1.000



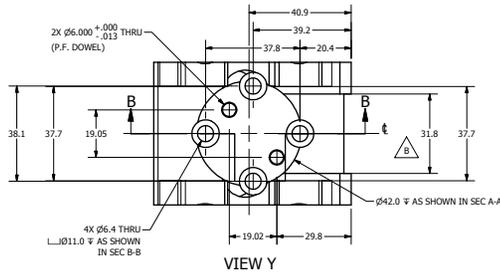
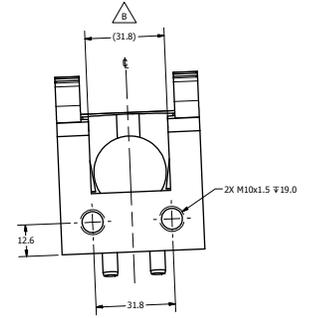
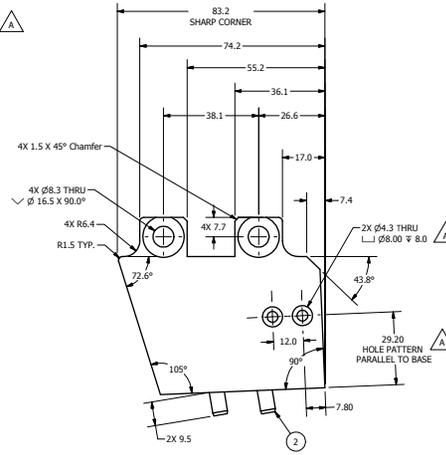
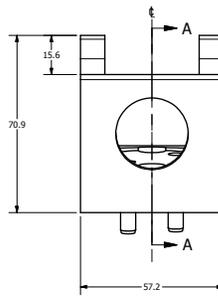
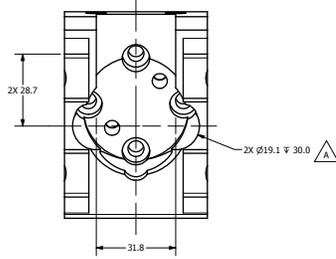
DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION		TOLERANCES <small>(UNLESS OTHERWISE SPECIFIED)</small> DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
PROJECT NO:	472-3660	DATE:	10/18/2011	DESIGNED BY:	B. KIMES		DATE:	9/19/2011	
NEXT ASSEMBLY	QTY	REVISION:		CHECKED BY:		DATE:			
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	DATE:	1/16/2012	SCALE:	2.000		
DESCRIPTION: CENTRAL PLATE, LOWER THORACIC SPINE						SIZE: A2	SHEET: 1 OF 1	DRAWING NO.: 472-3662	REV: A



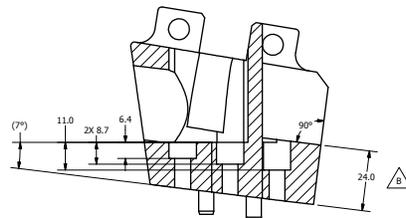
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SECTION A-A
SCALE 1.000



VIEW Y



SECTION B-B
SCALE 1.000

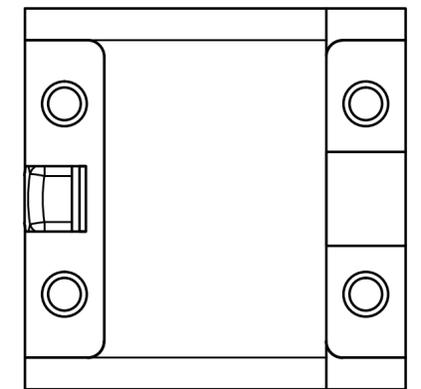
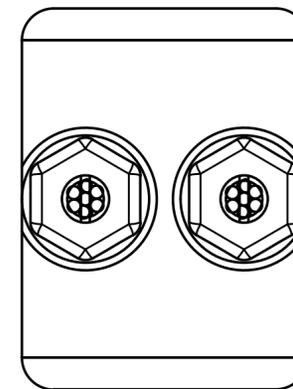
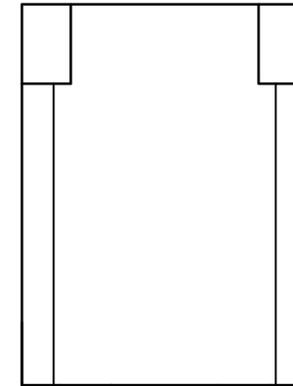
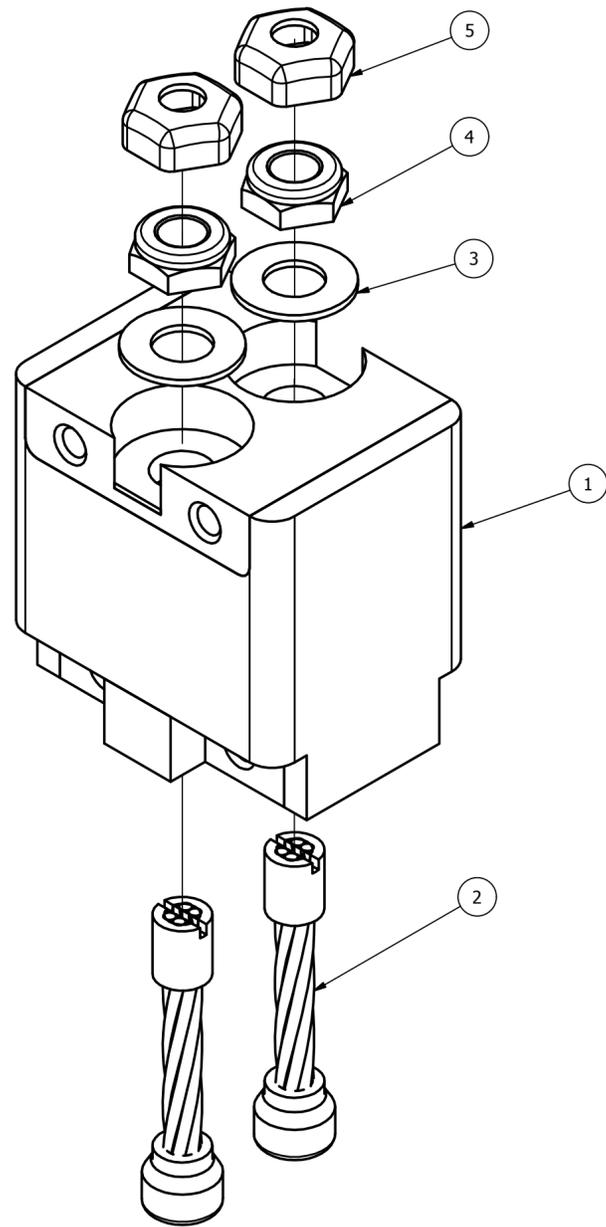
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϵ , 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.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T15PM805 R0 AND CONVERTED TO METRIC FOR THOR-M, REDESIGN TILT SENSOR MOUNT TO CORRECT TILT SENSOR ORIENTATION; 2X 19.1 DIA 30 DEEP WAS 2X 811.1, 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

ITEM	QTY	PART NUMBER	DESCRIPTION														
2	2	5000433	M6 X 12 LG. DOWEL PIN														
<table border="1"> <thead> <tr> <th colspan="2">DO NOT SCALE DRAWING</th> <th colspan="2">PARTS LIST</th> </tr> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>APP</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>09/16/11</td> <td>B. KIMES</td> <td></td> </tr> </tbody> </table>				DO NOT SCALE DRAWING		PARTS LIST		REV	DATE	BY	APP	1	09/16/11	B. KIMES			
DO NOT SCALE DRAWING		PARTS LIST															
REV	DATE	BY	APP														
1	09/16/11	B. KIMES															
<table border="1"> <thead> <tr> <th colspan="2">NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</th> </tr> <tr> <td>472-3660</td> <td>1</td> <td>1018 STEEL</td> <td>1</td> </tr> </thead> <tbody> <tr> <td>NEXT ASSEMBLY</td> <td>QTY</td> <td>1</td> <td>NAME</td> </tr> <tr> <td>TOTAL QTY IN DRAWING</td> <td>1</td> <td>SEE NOTES</td> <td>1</td> </tr> </tbody> </table>				NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		472-3660	1	1018 STEEL	1	NEXT ASSEMBLY	QTY	1	NAME	TOTAL QTY IN DRAWING	1	SEE NOTES	1
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION																	
472-3660	1	1018 STEEL	1														
NEXT ASSEMBLY	QTY	1	NAME														
TOTAL QTY IN DRAWING	1	SEE NOTES	1														
<table border="1"> <thead> <tr> <th colspan="2">NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</th> </tr> <tr> <td>472-3760</td> <td>1</td> </tr> </thead> <tbody> <tr> <td>ALL OF 1</td> <td>472-3760</td> </tr> </tbody> </table>			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		472-3760	1	ALL OF 1	472-3760	B								
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION																	
472-3760	1																
ALL OF 1	472-3760																

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



SCALE 1.000

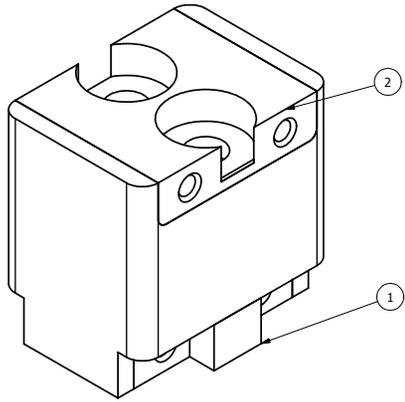
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	472-3647	M12 VINYL NUT COVER
4	2	472-3747	M12x1.75 LOCKNUT, MODIFIED
3	2	9000135	WASHER FLAT 1/2 PTFE
2	2	472-3745	LUMBAR SPINE FLEX JOINT CABLE ASSEMBLY
1	1	472-3740	LUMBAR SPINE FLEX JOINT MOLDED ASSEMBLY

PARTS LIST

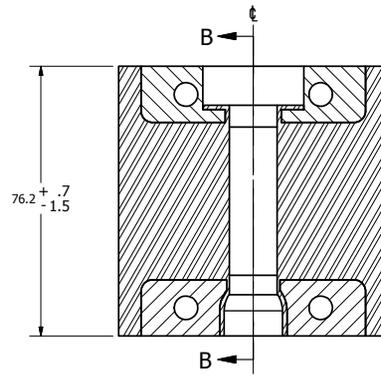
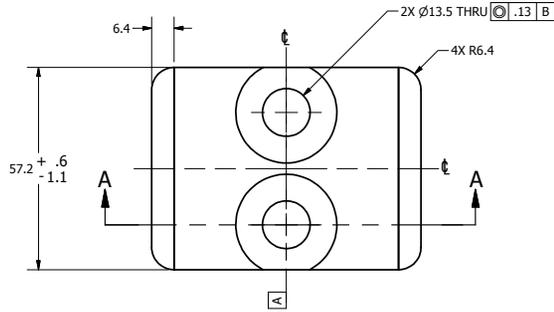
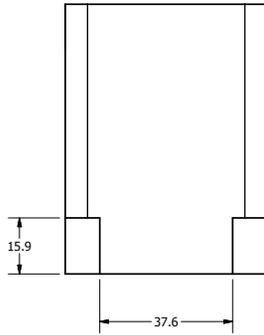
DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION		TOLERANCES <small>(UNLESS OTHERWISE SPECIFIED)</small> DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
PROJECT NO:		DATE:		DESCRIPTION:		
472-3600		10/25/2011		LUMBAR SPINE FLEX JOINT ASSEMBLY		SIZE: A2 SHEET: 1 OF 1 SCALE: 1.000
NEXT ASSEMBLY		QTY		DRAWING NO:		
TOTAL QTY IN DUMMY		1		472-3746		

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

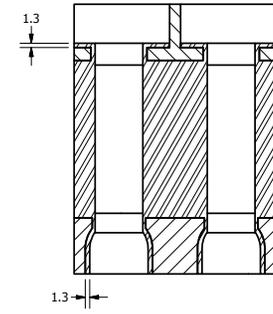
DATE: 1/17/2012
 ENGINEER: J. WANG
 DRAWING NO: 472-3746
 SHEET: 1 OF 1
 SCALE: 1.000



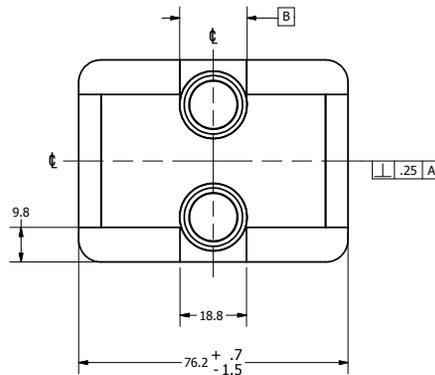
SCALE 1.000



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.

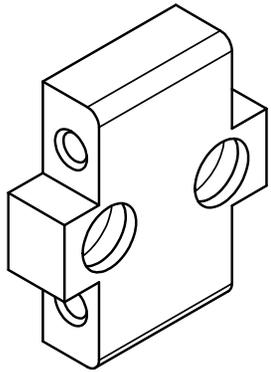
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM710 RB0 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK

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

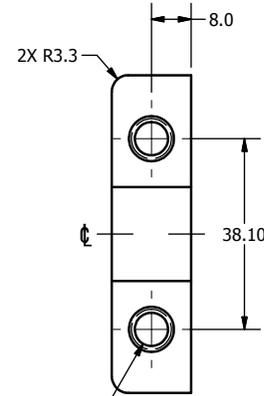
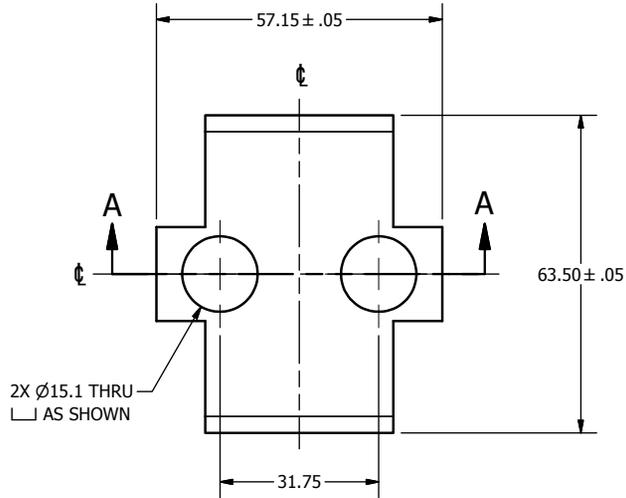
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS .1 .2 .5 .125 .25 .5 .125 .25 .1 .2 .5 .125 .25 .5 .125 .25 .1 .2 .5 .125 .25 .5 .125 .25		SHOW DIMENSIONS & USE AS SUB DIMENSIONS UNLESS NOTED OTHERWISE		
472-3746	1	BUTYL RUBBER SHORE A 75±5	B. KIMES	9/20/2011
NEXT ASSEMBLY	QTY	DATE	PREPARED BY	DATE
TOTAL QTY IN DUMMY	1		J. WANG	1/16/2012

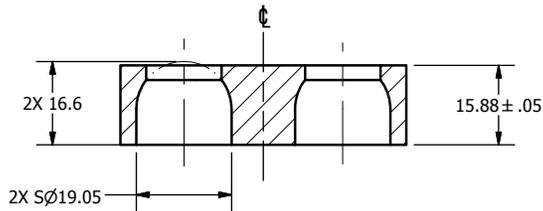
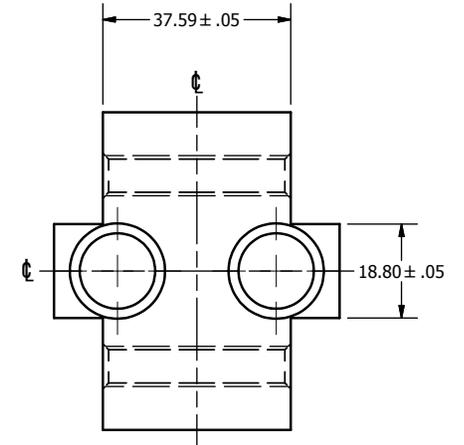
LUMBAR SPINE FLEX JOINT MOLDED ASSEMBLY		A21 of 1		472-3740	
SCALE 1.000					



SCALE 1.000



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



SECTION A-A
 SCALE 1.000

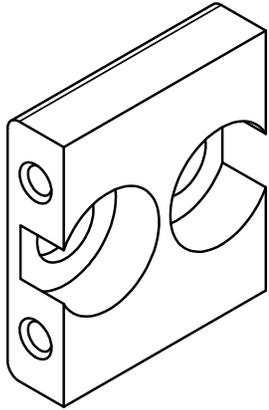
NOTES:

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.

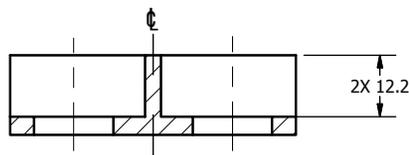
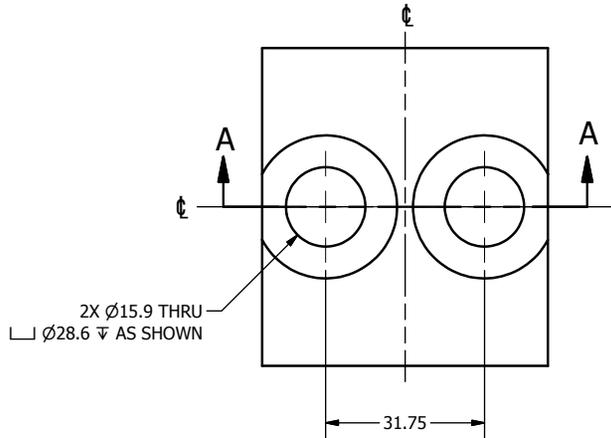


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM712 R80 AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK
	B	2X M8 x 1.25 HOLES WERE Ø6.6	6/15/2012	BK
	C	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	7/23/2012	CEF
	D	FINISH .008mm MAX. WAS .0003 MAX.	11/9/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.	472-3740	MATERIAL	1018 STEEL	DESCRIPTION
CHECKED BY:	B. KIMES	DATE:	9/20/2011	LUMBAR SPINE FLEX JOINT BOTTOM PLATE
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:	SEE NOTES	DATE:	1/17/2012	SCALE: 1.000
TOTAL QTY IN DUMMY	1	SEE NOTES		SIZE: SHEET: A3 1 OF 1
				DRAWING NO.: 472-3742



SCALE 1.000

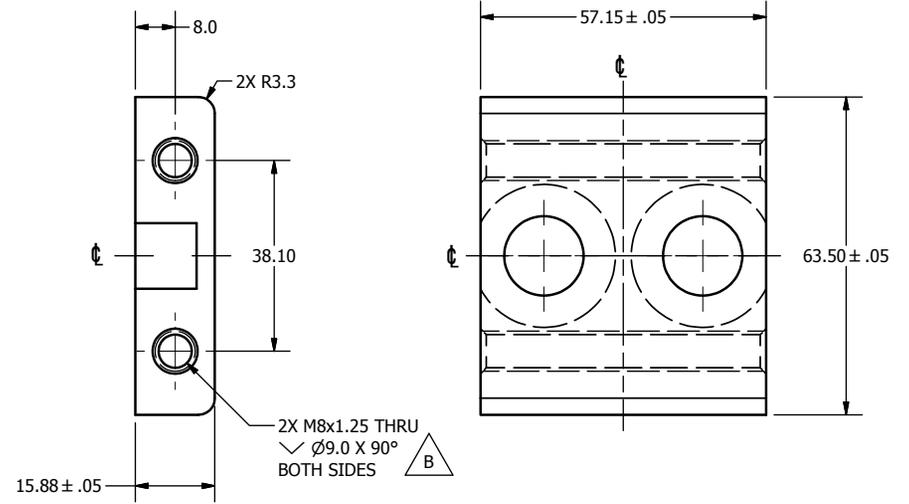


SECTION A-A
 SCALE 1.000

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 RBO 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 .3 X.XX .02 .3 X.XXX .031 .3		
PROJECT NO.:	472-3740	MATERIAL:	1018 STEEL	DESCRIPTION: LUMBAR SPINE FLEX JOINT TOP PLATE
DATE:	9/20/2011	DESIGNED BY:	B. KIMES	
HEAT TREAT:		CHECKED BY:	J. WANG	DATE:
FINISH:	SEE NOTES	DATE:	1/17/2012	SCALE:
TOTAL QTY IN DUMMY	1	SEE NOTES		SCALE: 1.000



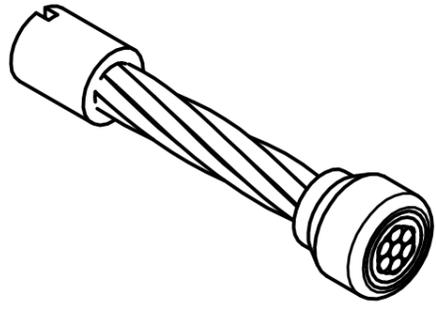
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION:
 LUMBAR SPINE FLEX JOINT TOP PLATE

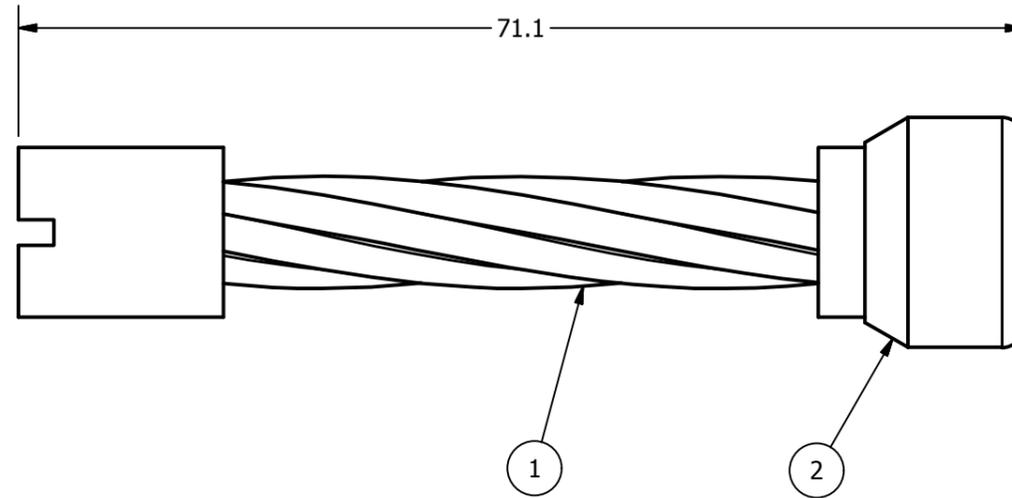
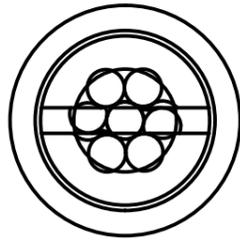
SIZE: SHEET: DRAWING NO.:
 A3 1 OF 1 472-3741

REV: D

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.

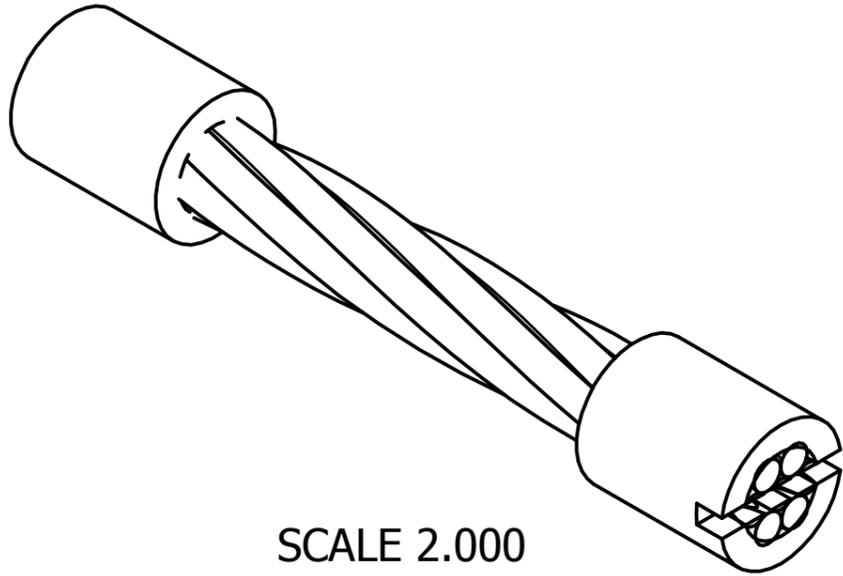
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3743	THREADED BALL END
1	1	472-3744	LUMBAR SPINE FLEX JOINT CABLE

PARTS LIST

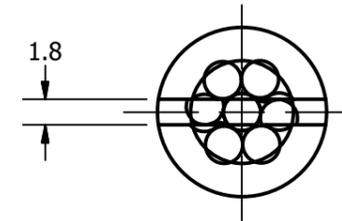
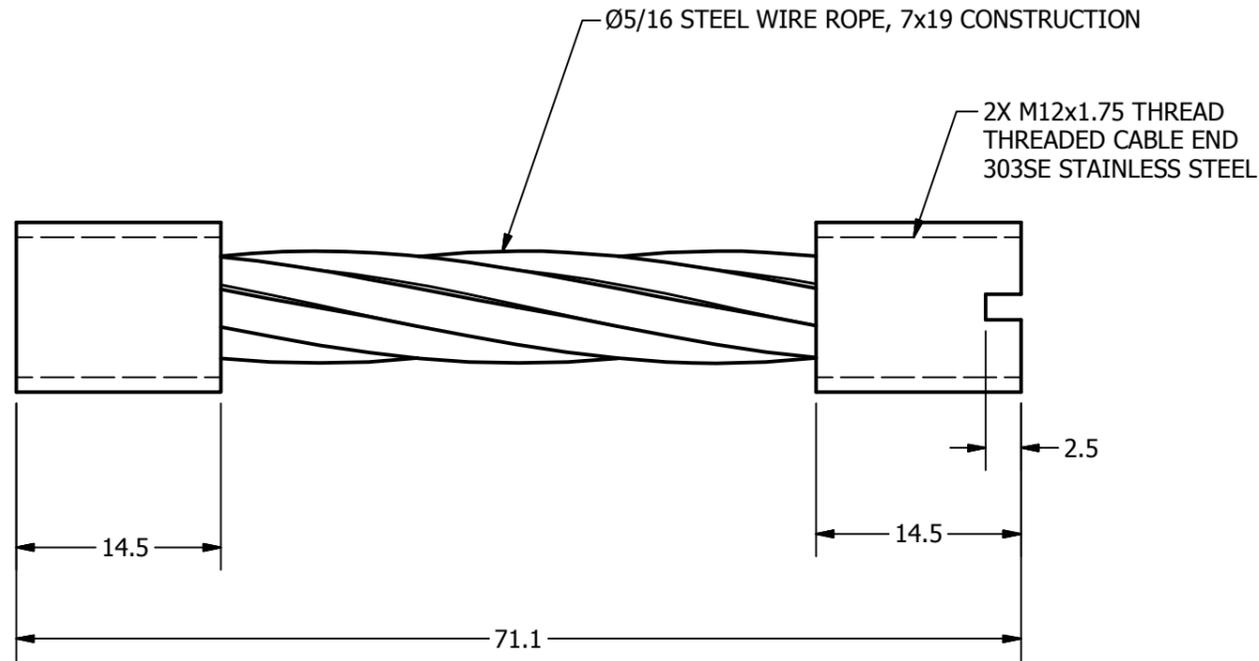
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ° ± 0.5 1.6 XX ± 0.2 ° ± 0.2 1.6 XXX ± 0.1 ° ± 0.1 1.6 XXXX ± 0.01 ° ± 0.01 1.6		
PROJECT NO.:		REMOVE BURRS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

472-3746	2
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

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

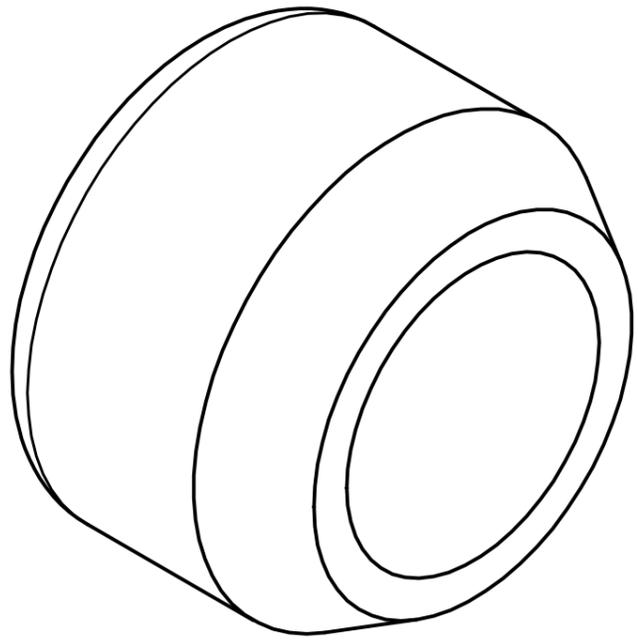


NOTES:

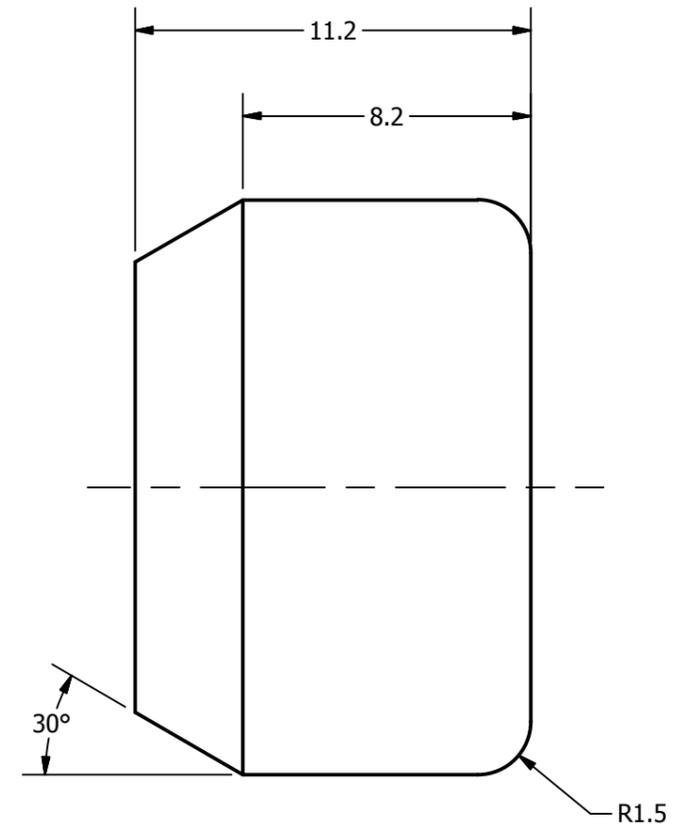
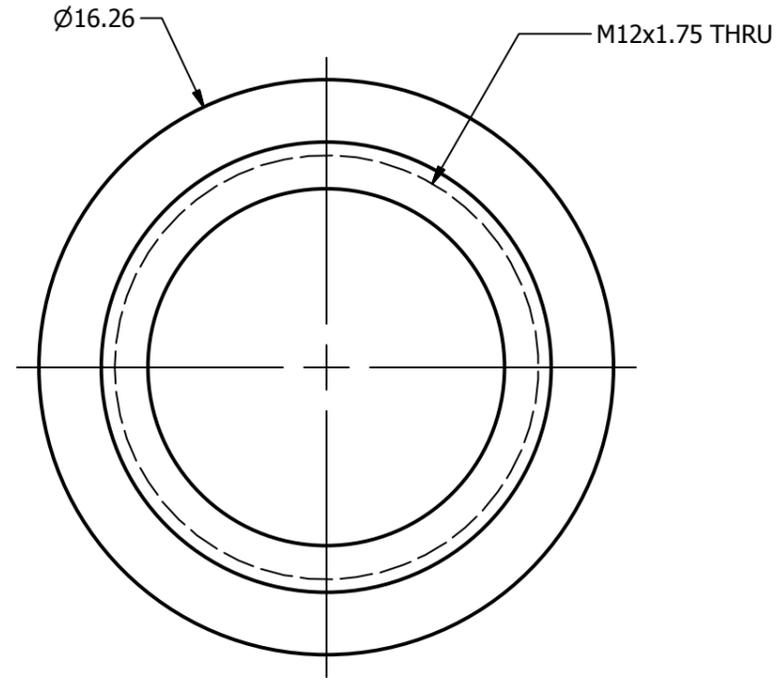
1. DIMENSIONS SHOWN ARE FINAL DIMENSIONS AFTER SWAGING.

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 ± 0.1 ± 0.5 1.6		
PROJECT NO.:	472-3745	MATERIAL:	1	DESCRIPTION: LUMBAR SPINE FLEX JOINT CABLE
CHECKED BY:	B. KIMES	DATE:	10/25/2011	SIZE: A3
ENGINEER:	J. WANG	DATE:	1/17/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	2	FINISH:		DRAWING NO.: 472-3744
				SCALE: 2.000

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

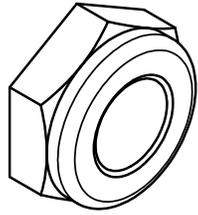


SCALE 5.000

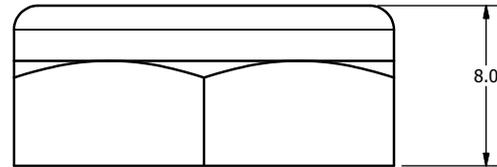
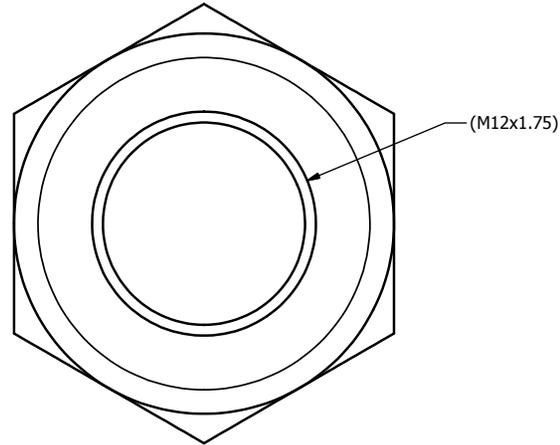


472-3745		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-3645		1	MATERIAL: 304 STAINLESS STEEL	 THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 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	SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER: J. WANG	DATE: 1/17/2012		DRAWING NO.: 472-3743 REV: A

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



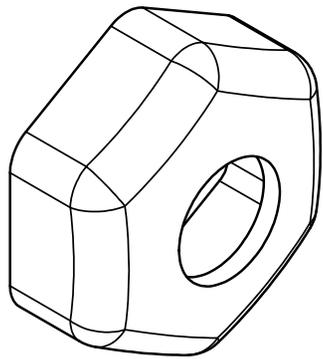
SCALE 2.000



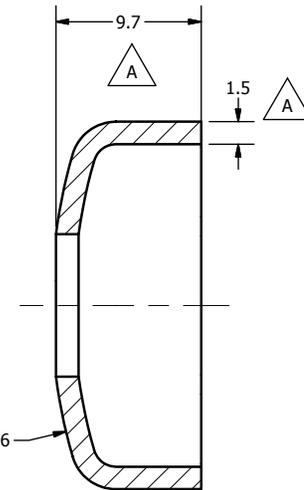
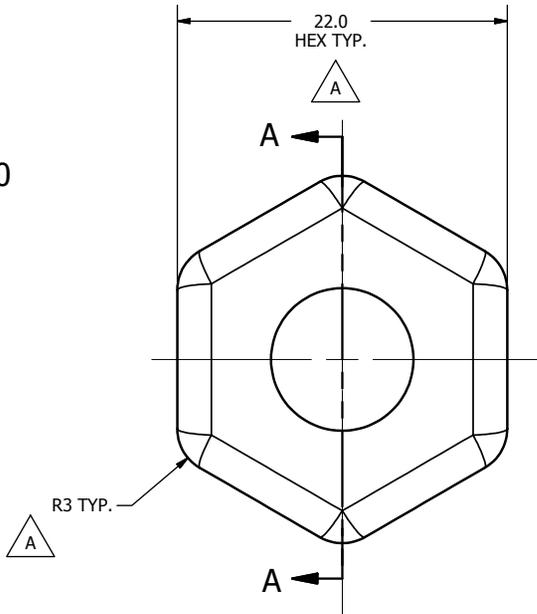
NOTES:

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

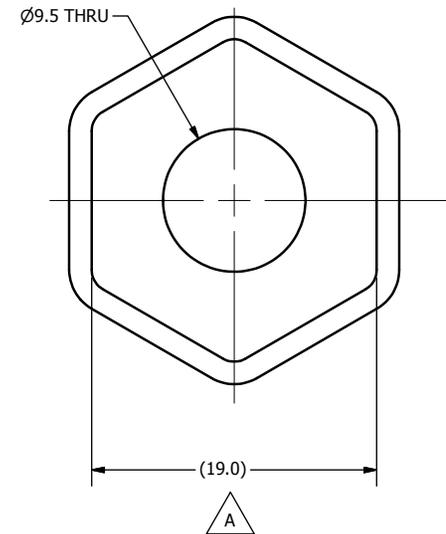
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 16 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3746	2	DATE:	10/25/2011
MATERIAL:	472-3646	2	CHECKED BY:	B. KIMES
NEXT ASSEMBLY	QTY	4	DATE:	1/17/2012
TOTAL QTY IN DUMMY	QTY	4	ENGINEER:	J. WANG
SIZE: A3		SHEET: 1 OF 1		DRAWING NO.: 472-3747 REV: A
SCALE: 4.000				



SCALE 3.000



SECTION A-A
SCALE 3.000



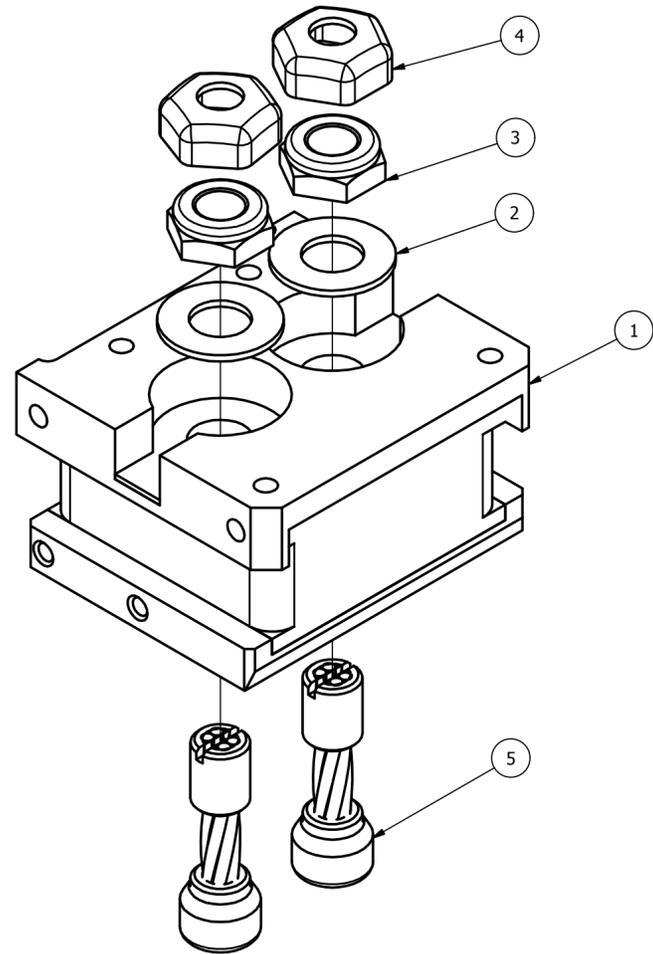
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM313 AND CONVERTED TO METRIC FOR THOR-M; 9.7 WAS 7.6; ADD 1.5, (19.0), R36, R3 TYP., 22.0 HEX TYP.	12/15/2011	BK

NOTES:

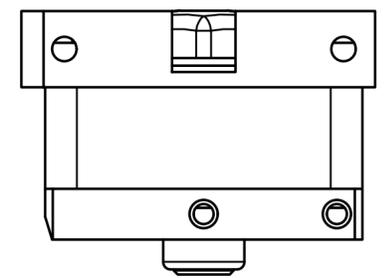
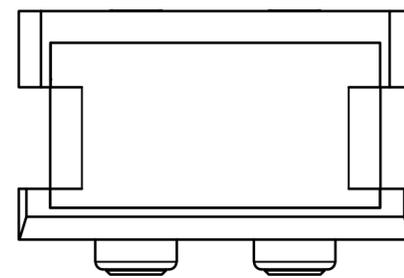
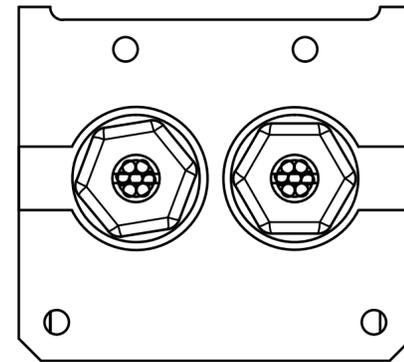
1. MATERIAL: POLYURETHANE OR EQUIVALENT, DUROMETER 50±5 SHORE A.
2. MUST COVER THE TOP OF A STANDARD METRIC LOCK NUT (REF #5000462).

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS			
		DECIMALS	ANGLES		
472-3746	2	PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: M12 VINYL NUT COVER
472-3646	2	MATERIAL:	SEE NOTES	ENGINEER:	
NEXT ASSEMBLY	QTY	CHECKED BY:	B. KIMES	DATE:	SIZE: A3
TOTAL QTY IN DUMMY	4	HEAT TREAT:		DATE:	SHEET: 1 OF 1
		FINISH:		DATE:	DRAWING NO.: 472-3647
				SCALE: 3.000	REV: A

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



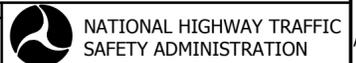
SCALE 1.000



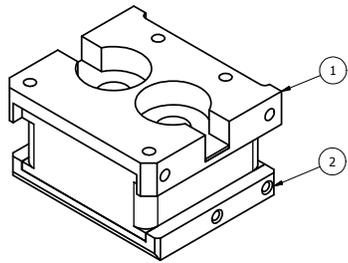
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	472-3645	UPPER THORACIC SPINE FLEX JOINT CABLE ASS'Y.
4	2	472-3647	M12 VINYL NUT COVER
3	2	472-3747	M12x1.75 LOCKNUT, MODIFIED
2	2	9000135	WASHER FLAT 1/2 PTFE
1	1	472-3640	UPPER THORACIC SPINE FLEX JOINT MOLDED ASSEMBLY

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH	
PROJECT NO.: THOR-M		DATE: 10/25/2011	
DRAWN BY: B. KIMES		CHECKED BY: J. WANG	
MATERIAL:		FINISH: REMOVE BURRS & BREAK SHARP EDGES	
HEAT TREAT:		DATE: 1/16/2012	
FINISH:		SCALE: 1.000	
TOTAL QTY IN DUMMY: 1		DRAWING NO.: 472-3646	

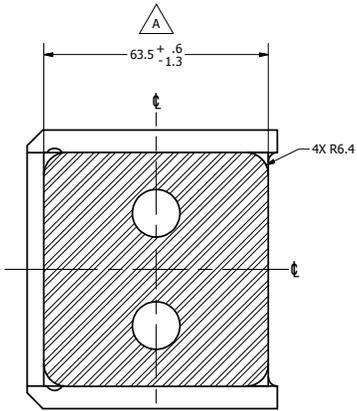
472-3600	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



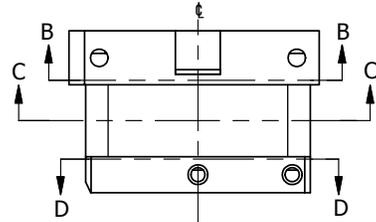
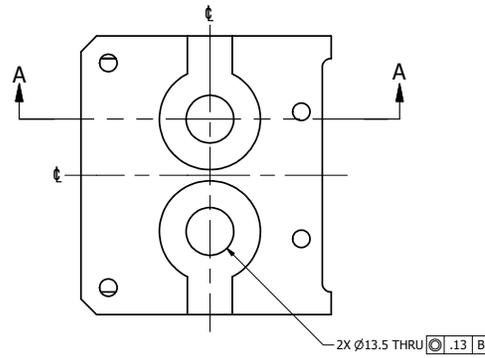
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 UPPER THORACIC SPINE FLEX JOINT ASSEMBLY
 1 OF 1
 SCALE: 1.000



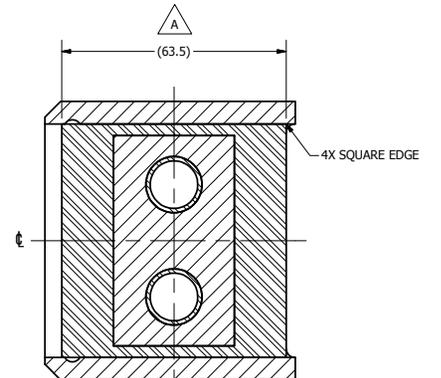
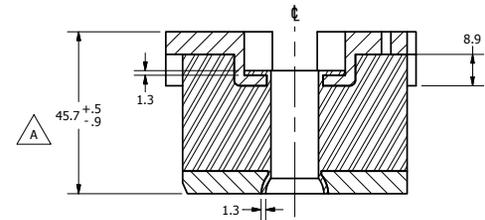
SCALE .750



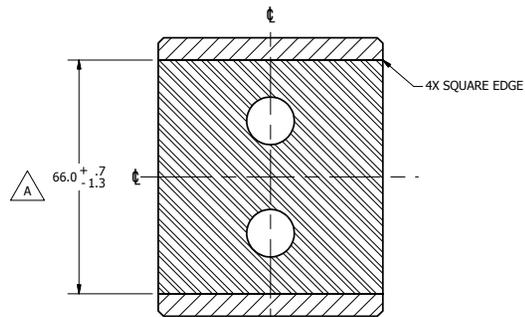
SECTION C-C
SCALE 1.000



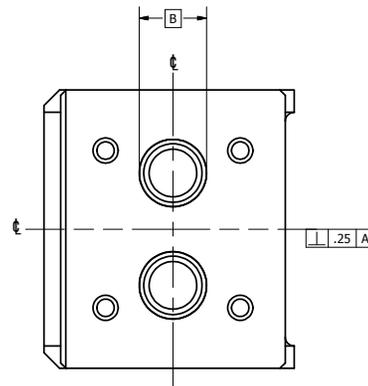
SECTION A-A
SCALE 1.000



SECTION B-B
SCALE 1.000



SECTION D-D
SCALE 1.000



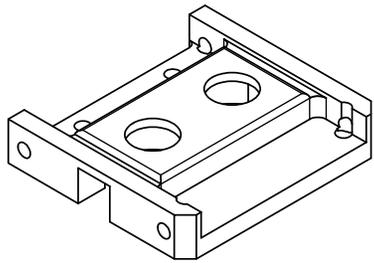
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM310 RB0 AND CONVERTED TO METRIC FOR THOR-M; 63.5 +.6/-1.3 WAS 63.5; 45.7 +.5/- .9 WAS 45.7; 66.0 +.7/-1.3 WAS 66.0; ADD (63.5)	9/20/2011	BK

- 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

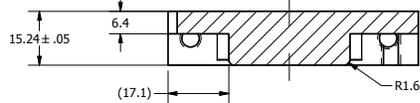
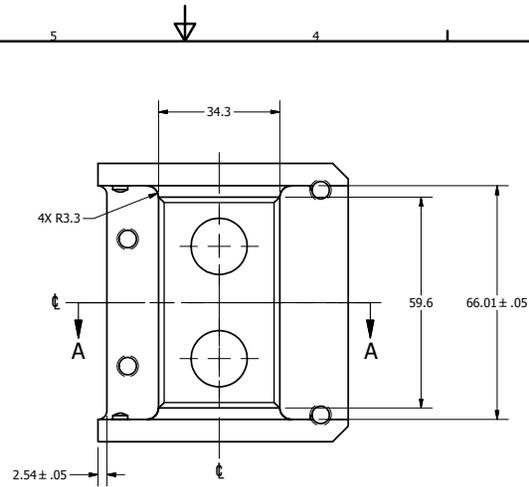
PARTS LIST			
472-3600	1	BUTYL RUBBER SHORE A 75±5	UPPER THORACIC SPINE FLEX JOINT MOLDED ASSEMBLY
TOTAL QTY IN DUMMY	1		

<p>DO NOT SCALE DRAWING</p> <p>THIRD ANGLE PROJECTION</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</p> <p>FRONT VIEW</p> <p>TOP VIEW</p> <p>RIGHT SIDE VIEW</p> <p>LEFT SIDE VIEW</p> <p>BACK VIEW</p> <p>ISOMETRIC VIEW</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
<p>472-3600</p> <p>NEXT ASSEMBLY</p> <p>TOTAL QTY IN DUMMY</p>	<p>QTY</p> <p>1</p> <p>1</p> <p>1</p>	<p>DATE</p> <p>9/20/2011</p> <p>DATE</p> <p>1/16/2012</p>
<p>BY</p> <p>B. KIMES</p> <p>BY</p> <p>J. WANG</p>	<p>DATE</p> <p>9/20/2011</p> <p>DATE</p> <p>1/16/2012</p>	<p>REV</p> <p>A21 of 1</p> <p>472-3640</p>

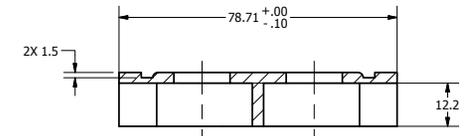
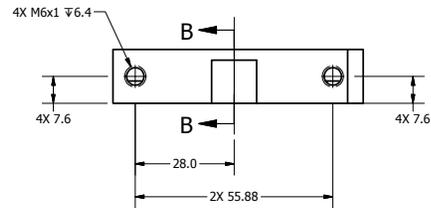


SCALE 1.000

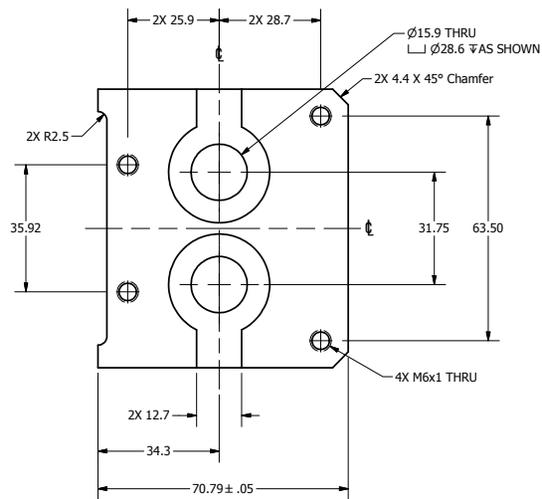
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1SPM311 RBO AND CONVERTED TO METRIC FOR THOR-M	9/20/2011	BK
	B	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	7/23/2012	CEF
	C	FINISH .008mm MAX. WAS .0003 MAX.	1/9/2012	BK



SECTION A-A
SCALE 1.000



SECTION B-B
SCALE 1.000



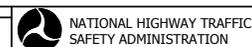
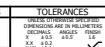
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.

2. POWDER OR BEAD BLAST.

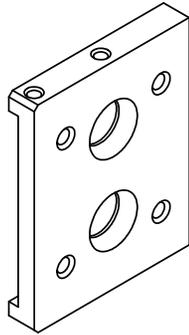
3. SATIN FLASH CHROME PLATE 0.008mm MAX. AFTER MACHINING.

4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

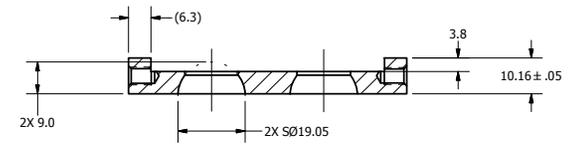
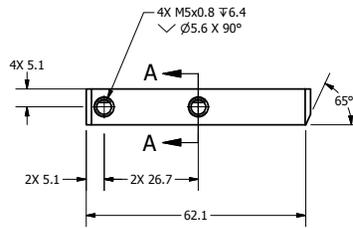
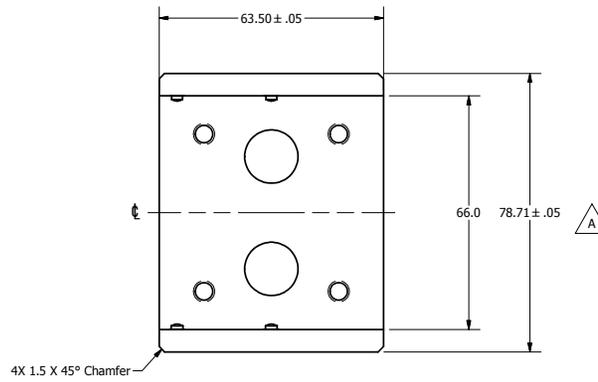


472-3640	1	1018 STEEL	9/20/2011	UPPER THORACIC SPINE FLEX JOINT TOP PLATE	
NEXT ASSEMBLY	QTY	BY	DATE	SCALE	REV
TOTAL QTY IN DUMMY	1	SEE NOTES	J. WANG	1/16/2012	1.000

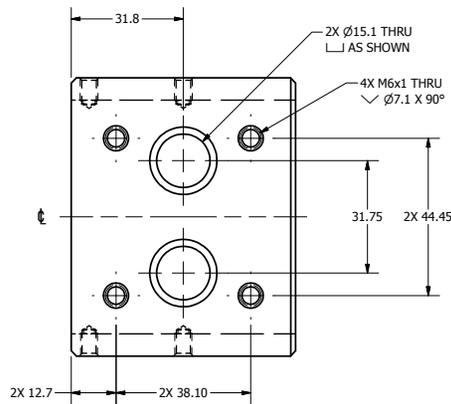
A21 of 1
472-3641



SCALE 1.000



SECTION A-A
SCALE 1.000



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.

2. POWDER OR BEAD BLAST.

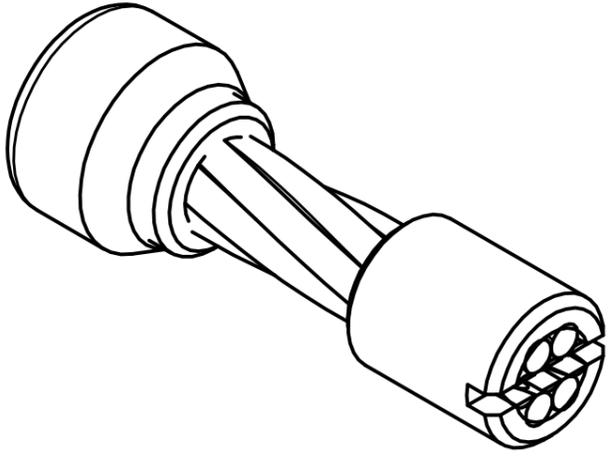
3. SATIN FLASH CHROME PLATE 0.008mm MAX. AFTER MACHINING. \triangle

4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

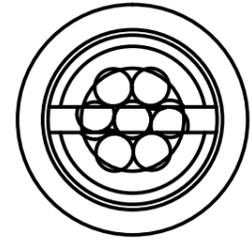
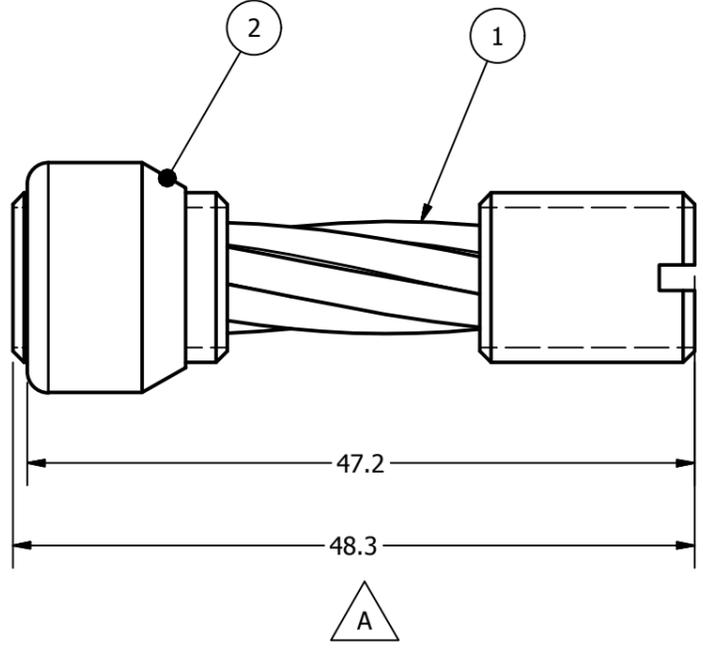
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T15PM312 RB0 AND CONVERTED TO METRIC FOR THOR-M; 78.71 +/- .05 WAS 78.71 +0/- .05	9/20/2011	BK
	B	CHANGED NICKEL PLATE TO SATIN FLASH CHROME	9/20/2011	
	C	FINISH .008mm MAX. WAS .0003 MAX.	11/9/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO THE TENTH UNLESS OTHERWISE SPECIFIED		Holes: .010 Chamfers: .125 Flatness: .010 Parallelism: .010 Perpendicularity: .010 Position: .010 Profile: .010 Roundness: .010 Squareness: .010 Surface Texture: .125		
472-3640	1	1018 STEEL	9/20/2011	UPPER THORACIC SPINE FLEX JOINT BOTTOM PLATE A21 of 1 1.000
NEXT ASSEMBLY	QTY	BY	DATE	
TOTAL QTY IN DUMMY	1	SEE NOTES	11/16/2012	
		PREPARED BY	DATE	472-3642
		J. WANG	11/16/2012	

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

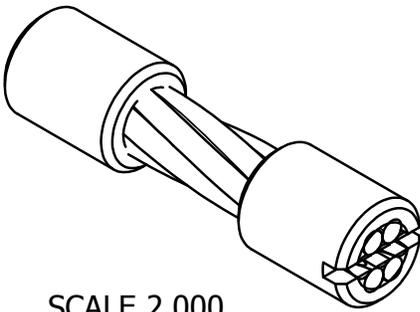


NOTES:

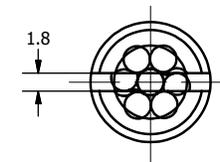
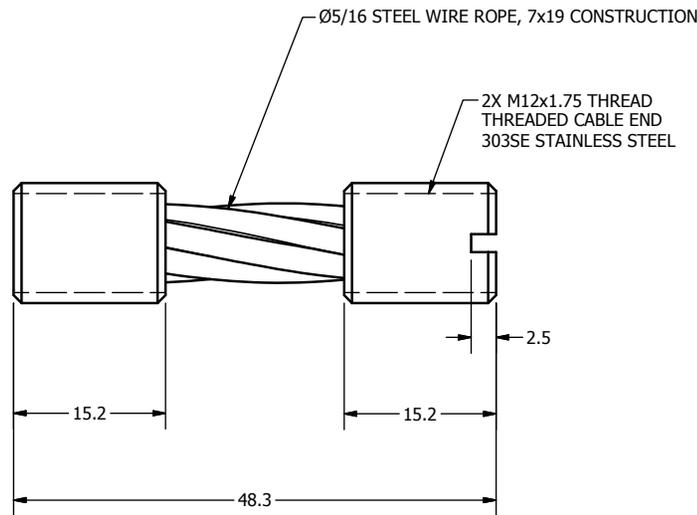
1. USE LOCTITE 271 OR EQUIVALANT TO LOCK 472-3743 IN PLACE AS SHOWN.
2. ONE SAMPLE FROM EACH ASSEMBLY BATCH NEEDS TO BE TESTED TO INSURE NO SLIPPAGE OF THE BALL OR THREADED SLEEVE ON THE CABLE SHALL OCCUR UNDER 1,700 LBS OF TENSILE LOAD.

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	MATERIAL:	REMOVE BURRS & BREAK SHARP EDGES	DATE: 10/25/2011	DESCRIPTION: UPPER THORACIC SPINE FLEX JOINT CABLE ASS'Y.
472-3646	2	HEAT TREAT:	CHECKED BY: B. KIMES DATE: 10/25/2011	
NEXT ASSEMBLY	QTY	FINISH:	ENGINEER: J. WANG DATE: 1/16/2012	SIZE: A3 SHEET: 1 of 1 SCALE: 2.000
TOTAL QTY IN DUMMY	2			DRAWING NO.: 472-3645 REV: A



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

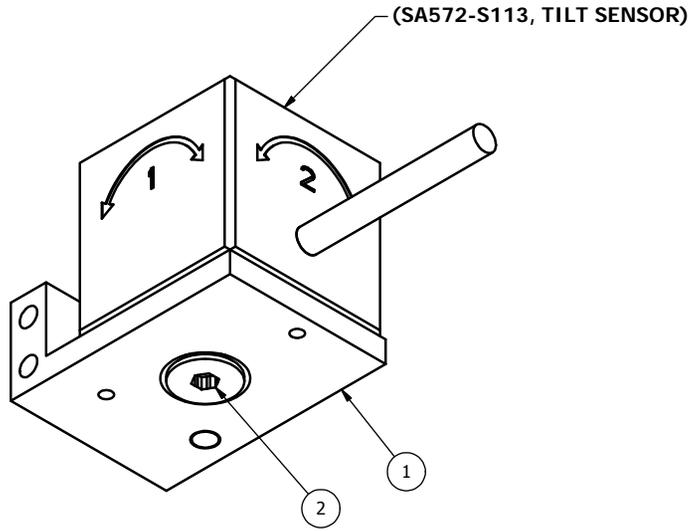


NOTES:

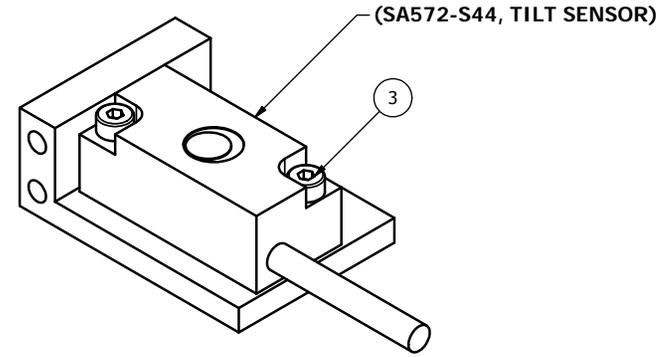
1. DIMENSIONS SHOWN ARE FINAL DIMENSIONS AFTER SWAGING.

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:		1	1	
CHECKED BY:	B. KIMES	10/25/2011	1	
HEAT TREAT:				SIZE: A3 SHEET: 1 OF 1 SCALE: 2.000
TOTAL QTY IN DUMMY	2	2	2	ENGINEER: J. WANG DATE: 1/16/2012

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/10/2011	BK



472-3775-1



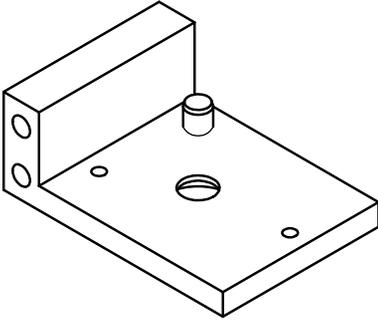
472-3775-2

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 MT, UPPER SPINE

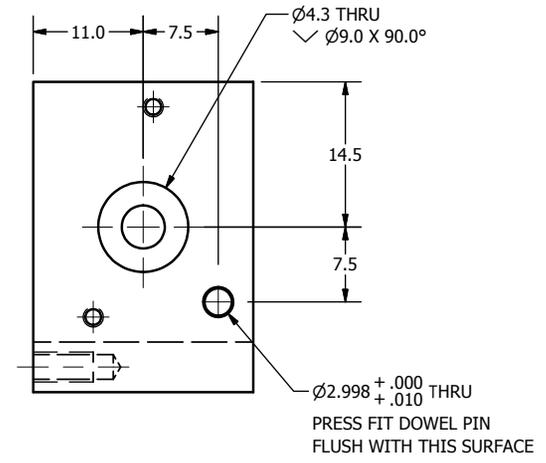
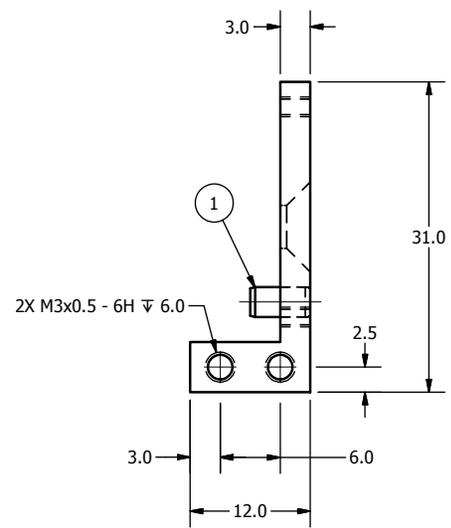
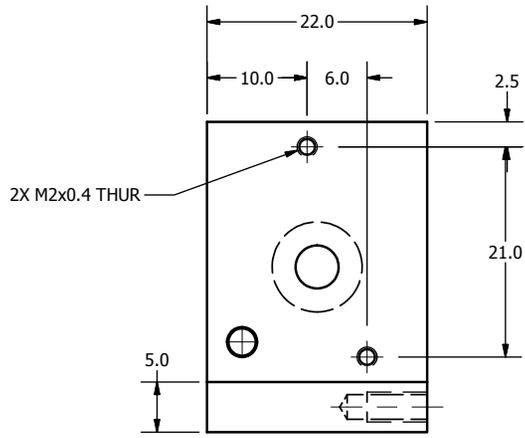
PARTS LIST

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 .005 16 XX .012 .005 16 XXX .025 .005 16 XXXX .051 .005 16		
PROJECT NO.:	472-3600	DATE:	11/10/2011	DESCRIPTION: TILT SENSOR ASSEMBLY SA572-S113 & SA572-S44
MATERIAL:		DESIGNED BY:	B. KIMES	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	
TOTAL QTY IN DUMMY	1	DATE:	1/17/2012	SIZE: A3 SHEET: 1 OF 1 SCALE: 2.000
				DRAWING NO.: 472-3775-1 & 2 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	NEW DESIGN TO CORRECT SA572-S44 TILT SENSOR ORIENTATION	10/7/2011	JW



SCALE 2.000



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

PARTS LIST

<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>DECIMALS ANGLES FINISH</p> <p>0.05 0.5° 1.6</p> <p>0.1 0.2</p> <p>0.3</p> <p>0.01</p> <p>REMOVE BURRS & BREAK SHARP EDGES</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
<p>PROJECT NO.: 472-3775-2</p> <p>MATERIAL: 6061-T6 ALUMINUM</p> <p>HEAT TREAT:</p> <p>FINISH: CLEAR ANODIZE</p>	<p>DATE: 10/7/2011</p> <p>ENGINEER: J. WANG</p> <p>DATE: 1/17/2012</p>	

DESCRIPTION: TILT SENSOR MT, UPPER SPINE SA572-S113 & SA572-S44

SIZE: A3 1 OF 1 SHEET

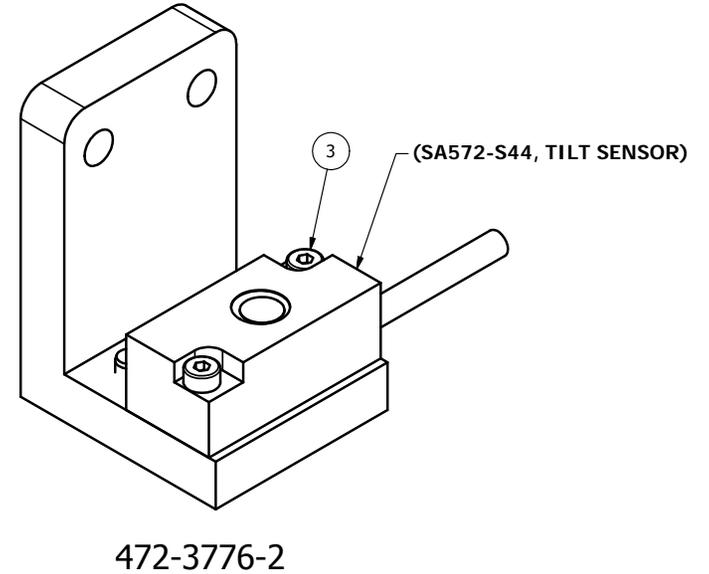
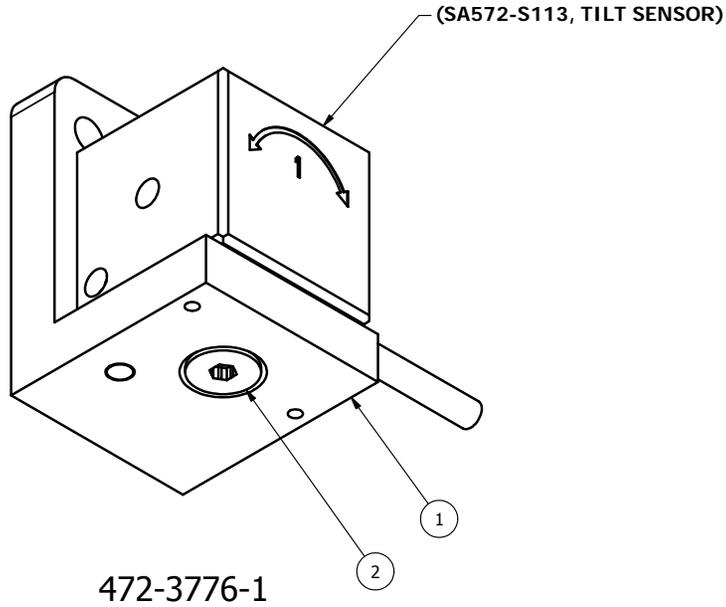
SCALE: 2.000

DRAWING NO.: 472-3773

REV: A

PROJECT NO.	QTY
472-3775-2	1
472-3775-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

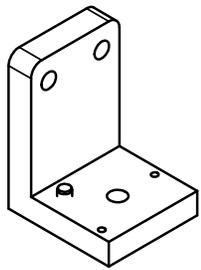
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/11/2011	BK



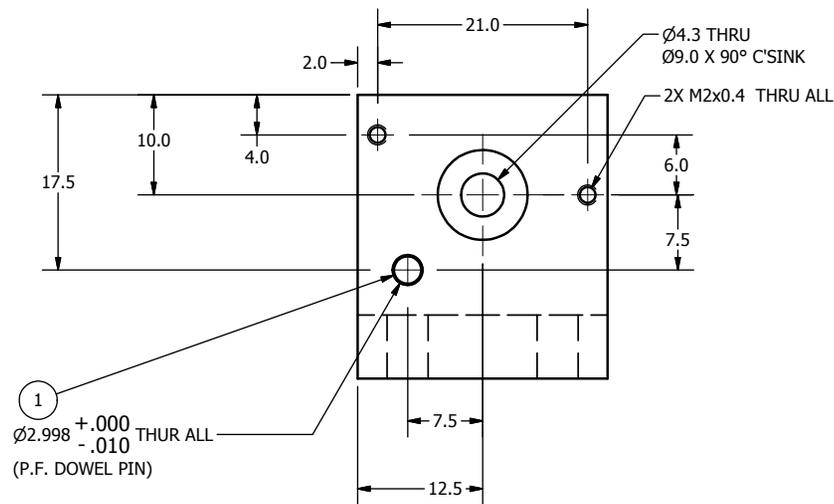
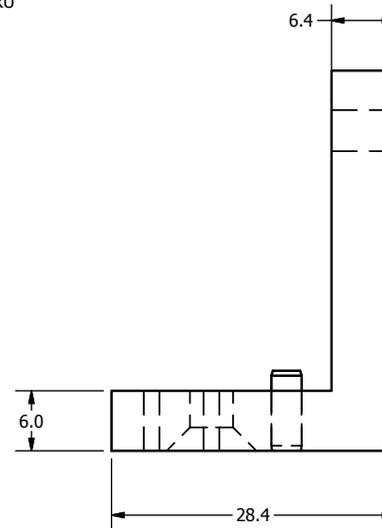
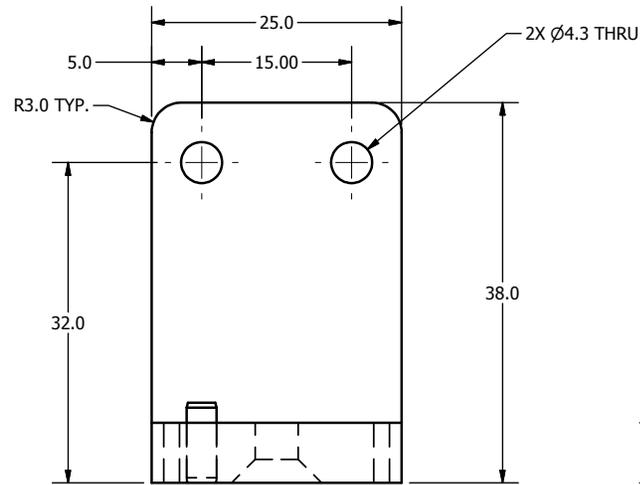
ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000215	M2 X 0.4 X 10 LG. SHCS
2	1	5000646	M4 X 0.7 X 8 LG. FHCS
1	1	472-3771	TILT SENSOR MOUNT, THORACIC SPINE

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.X 0.02 1.6 X.XX 0.01 X.XXX 0.005		
PROJECT NO.	MATERIAL:	DRAWN BY:	DATE:	TILT SENSOR ASSY, THORACIC SPINE SA572-S113 & SA572-S44
472-3600	1	B. KIMES	11/11/2011	
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	SIZE: B SHEET: 1 OF 1 SCALE: 2.000
		J. WANG	1/17/2012	DRAWING NO.: 472-3776-1 & 2 REV: A



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

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 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:	DATE:
MATERIAL:	DESIGNED BY:
HEAT TREAT:	CHECKED BY:
FINISH:	ENGINEER:

DATE:	SCALE:
10/5/2011	2.000

SIZE:	SHEET
A3	1 OF 1

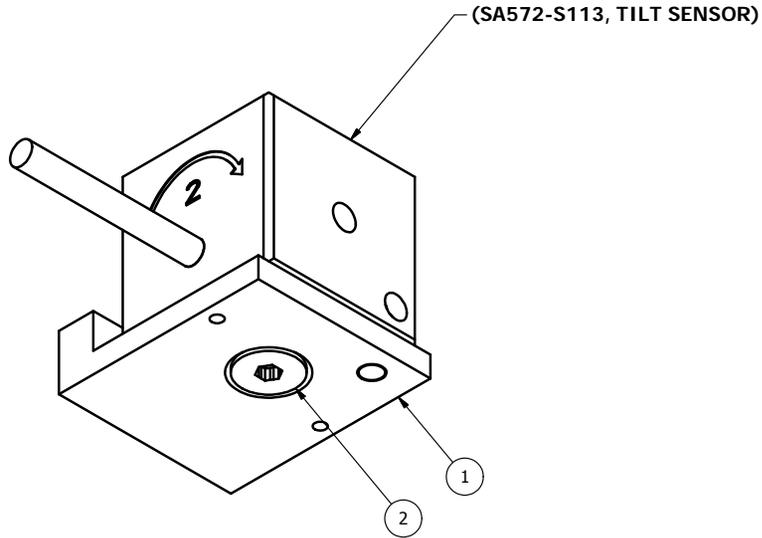
DESCRIPTION:
TILT SENSOR MOUNT, THORACIC SPINE
SA572-S44 & SA572-S113

DRAWING NO.: 472-3771

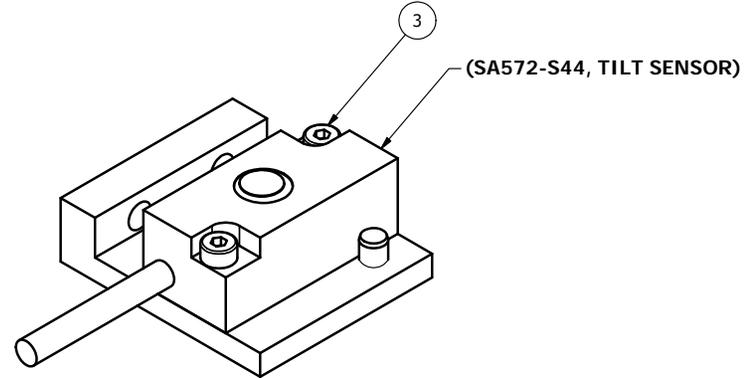
472-3776-2	1
472-3776-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/11/2011	BK



472-3777-1



472-3777-2

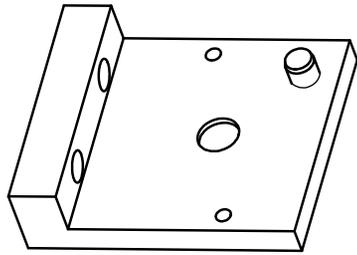
ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	5000215	M2 X 0.4 X 10 LG. SHCS
2	1	5000646	M4 X 0.7 X 8 LG. FHCS
1	1	472-3772	TILT SENSOR MOUNT, REAR THORACIC

PARTS LIST

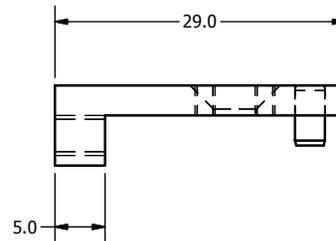
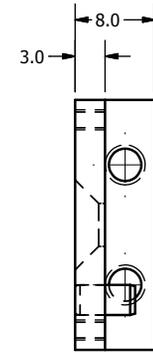
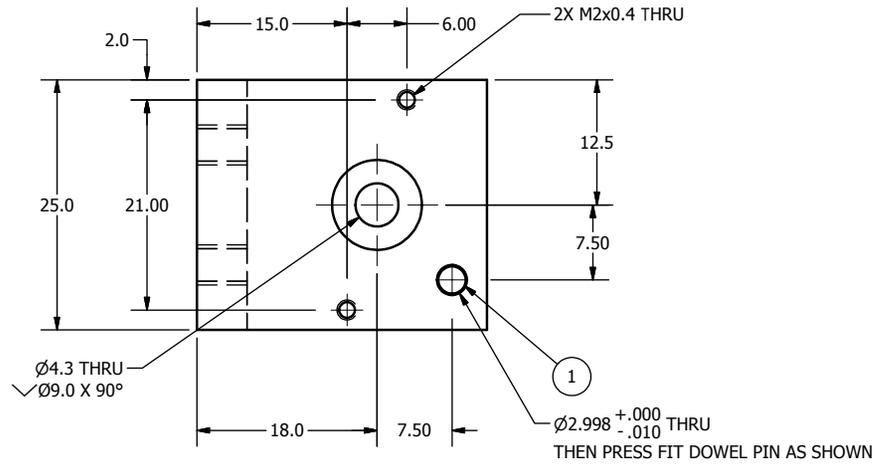
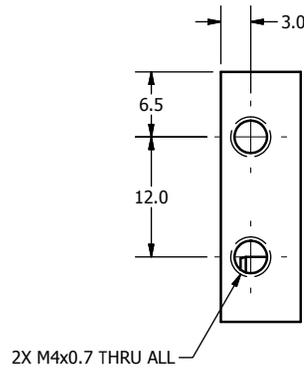
DO NOT SCALE DRAWING 		TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.02 0.5 F X.XX 0.01 1.6 F X.XXX 0.008 1.6 F			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION TILT SENSOR ASSY, REAR THORACIC SA572-S113 & SA572-S44
PROJECT NO.	472-3600	MATERIAL:	DATE:		
THIRD ANGLE PROJECTION	1	HEAT TREAT:	11/11/2011		
	NEXT ASSEMBLY	REMOVE BURRS & BREAK SHARP EDGES	DRAWN BY:		
	QTY		B. KIMES		
	1	ENGINEER:	J. WANG		
	TOTAL QTY IN DUMMY	CHECKED BY:	1/17/2012		
	1	DATE:	1/17/2012		
		SIZE:	B 1 OF 1		
		SCALE:	2.000		
		DRAWING NO.:	472-3777-1 & 2		
		REV.:	A		



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	NEW DESIGN TO CORRECT SA572-S44 TILT SENSOR ORIENTATION	10/7/2011	JW



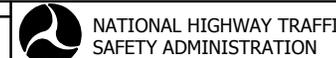
SCALE 2.000



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.

1	1	5000385	M3 X 6 LG. DOWEL PIN
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 0.05 1.6	
		X.X ±0.2	
		X.XX ±0.3	
		X.XXX ±0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.: 472-3777-2		DATE: 10/7/2011	
MATERIAL: 1018 STEEL		DRAWN BY: J. WANG	
HEAT TREAT:		CHECKED BY:	
FINISH: SEE NOTES		DATE: 1/17/2012	
TOTAL QTY IN DUMMY: 1		ENGINEER: J. WANG	

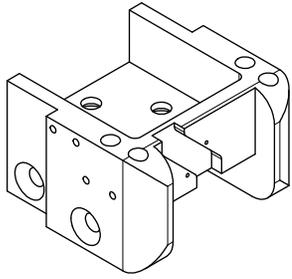


TILT SENSOR MOUNT, REAR THORACIC SA572-S44 & SA572-S113

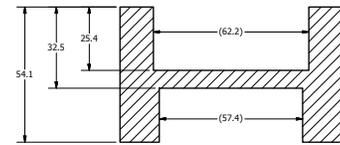
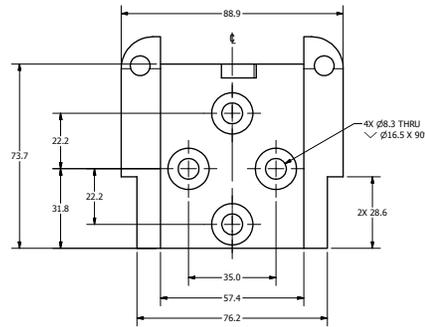
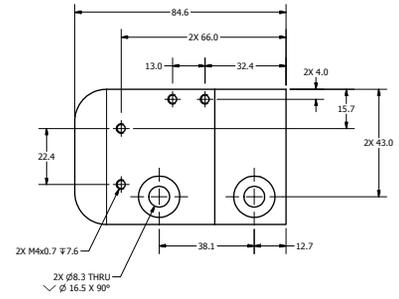
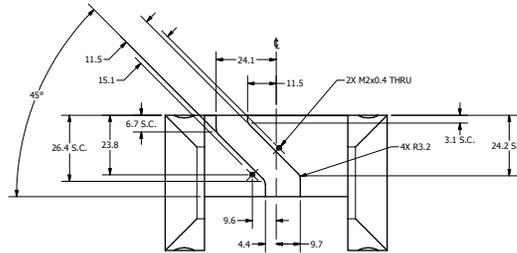
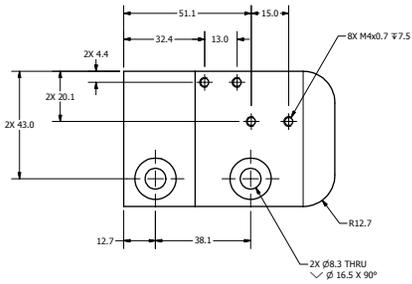
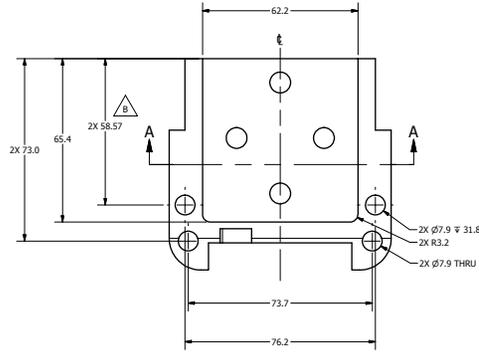
SIZE: A3 SHEET: 1 OF 1 SCALE: 2.000 DRAWING NO.: 472-3772 REV: A



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 S8.57 WAS 2X S4.0	2/20/2012	BK



SCALE 1.000

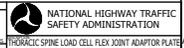


SECTION A-A
SCALE 1.000

NOTES:

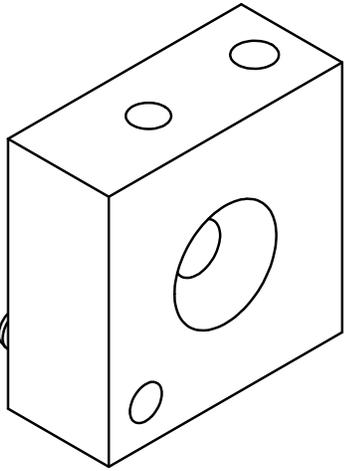
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ASSEMBLY		DRAWING		PROJECT	
472-3600	1	1018 STEEL	B. KIMES	TRUCK SPINE LOAD CELL FLEX JOINT ADAPTOR PLATE	
NEXT ASSEMBLY	QTY				
TOTAL QTY IN SUPPLY	1	SEE NOTES	1	2/20/2012	472-3731

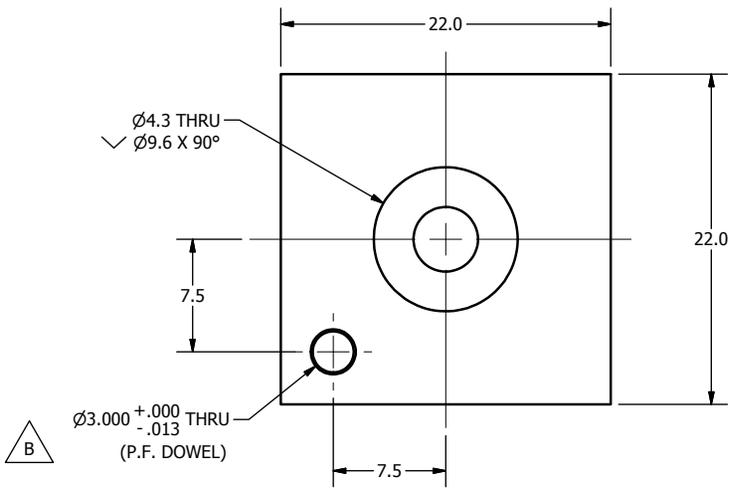
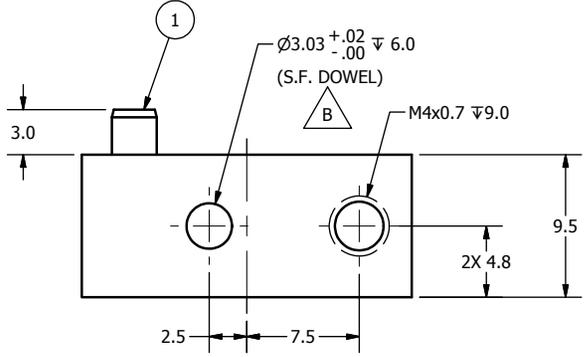


Sheet 1 of 1
Scale 1.000

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:

1. INSTALL DOWEL PIN AFTER ANODIZE.

1	1	5000384	M3 X 8 LG. DOWEL PIN
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 0.57 1.6	
		X.X 0.2	
		X.XX 0.3	
		X.XXX 0.01	
REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO:		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3630		1	
MATERIAL:		7075-T6 ALUMINUM	
NEXT ASSEMBLY		QTY	
TOTAL QTY IN DUMMY		1	
FINISH:		CLEAR ANODIZE	
CHECKED BY:		B. KIMES	
DATE:		9/27/2011	
ENGINEER:		J. WANG	
DATE:		1/16/2012	
SIZE:		A3 1 OF 1	
SCALE:		3.000	
DRAWING NO:		472-3635	
REV:		B	

4

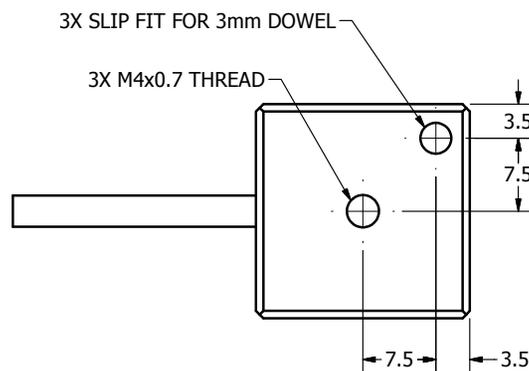
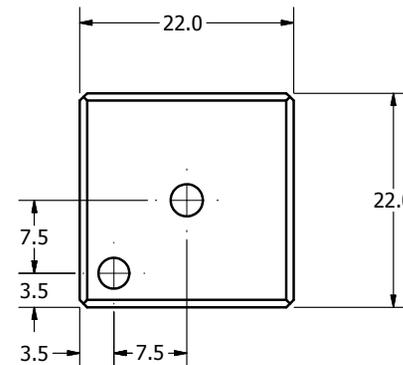
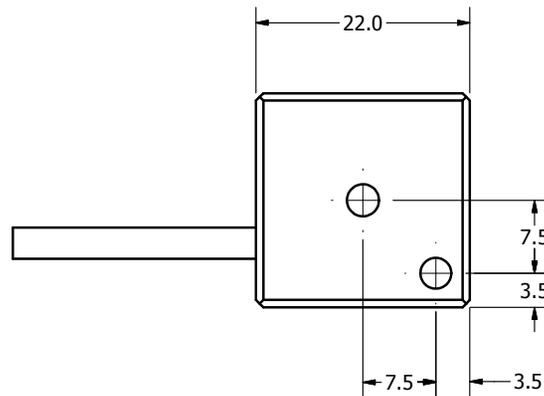
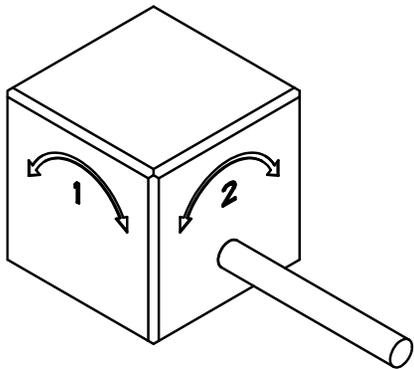
3

2

1

REVISION HISTORY

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



TILT SENSOR SPECIFICATIONS:

MASS: 20g
 RANGE: ±80°
 RESOLUTION: 0.1°
 ACCURACY: ±0.5°
 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 ±0.5 ±0.5 ✓ XX ±0.2 ✓ XXX ±0.1 ✓ XXXX ±0.05 ✓ 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

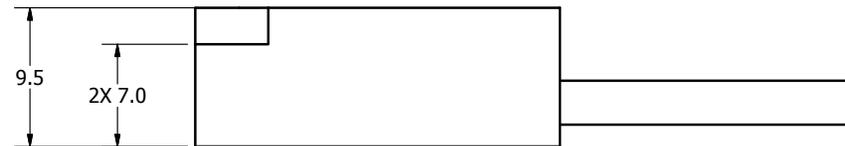
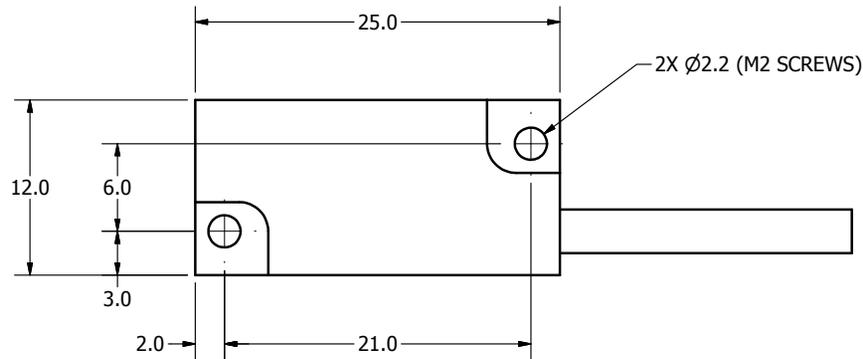
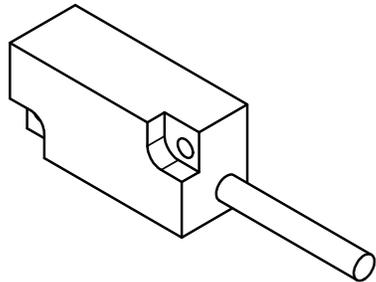
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3

2

1

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



TILT SENSOR SPECIFICATIONS:

MASS: 5g
 RANGE: $\pm 80^\circ$
 RESOLUTION: 0.1°
 ACCURACY: $\pm 0.5^\circ$
 SUPPLY VOLTAGE 5 V
 POWER CONSUMPTION: 6 mA

DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	DECIMALS ANGLES FINISH X ±0.5 ±0.5 ✓ XX ±0.2 XXX ±0.1 XXXX ±0.05 REMOVE ALL BURRS & SHARP EDGES	DRAWN BY: B. Kimes	
PROJECT NO.: MATERIAL: HEAT TREAT: FINISH:	CHECKED BY: DATE:	DESCRIPTION: TILT SENSOR, DUAL AXIS	DRAWING NO.: SA572-S44
SIZE: B	SHEET: 1 OF 1	SCALE: 3.000	REV: A

4

3

2

1

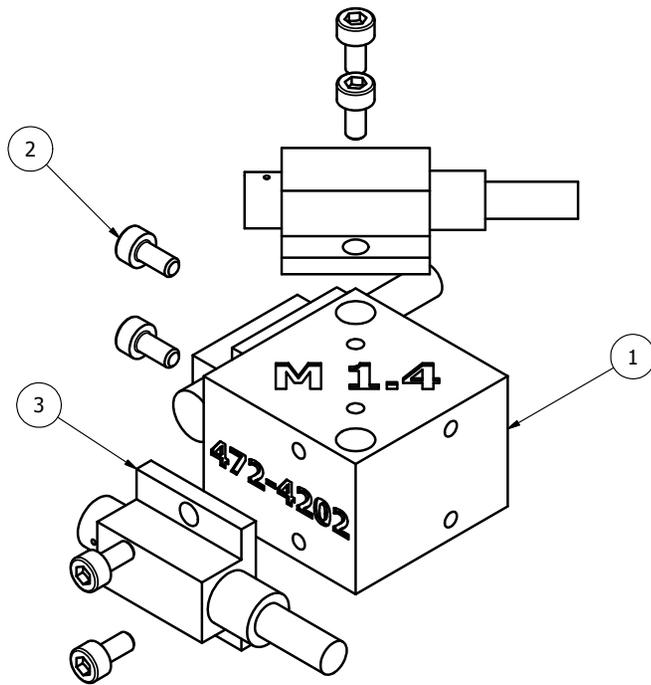
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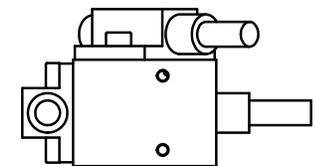
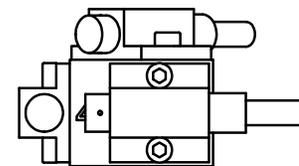
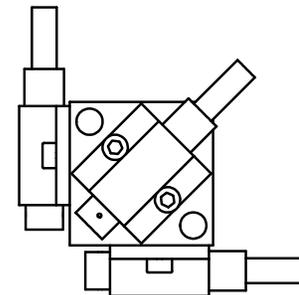
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1

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

<p>DO NOT SCALE DRAWING</p> <p>THIRD ANGLE PROJECTION</p>		<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</p> <table border="1"> <tr> <td>DIMENSIONAL</td> <td>ANGLES</td> <td>FINISH</td> </tr> <tr> <td>X.XX ±0.2</td> <td>±0.5</td> <td>1.6</td> </tr> <tr> <td>X.X ±0.1</td> <td></td> <td></td> </tr> <tr> <td>X.XX ±0.25</td> <td></td> <td></td> </tr> </table> <p>REMOVE BURRS & BREAK SHARP EDGES</p>		DIMENSIONAL	ANGLES	FINISH	X.XX ±0.2	±0.5	1.6	X.X ±0.1			X.XX ±0.25			<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p> <p>DESCRIPTION: TRI-PACK ACCEL. ASSY.</p>	
DIMENSIONAL	ANGLES	FINISH															
X.XX ±0.2	±0.5	1.6															
X.X ±0.1																	
X.XX ±0.25																	
PROJECT NO:	DRAWN BY:	DATE:	SIZE:	SHEET:													
472-4360	KHS	9/1/2011	B	1 OF 1													
NEXT ASSEMBLY	CHECKED BY:	DATE:	SCALE:	DRAWING NO.:													
QTY	TMV	9/14/2011	3:1	472-4203													
TOTAL QTY IN DUMMY	ENGINEER:	DATE:	BY:														
1	J. WANG	1/18/2012	A														

4

3

2

1

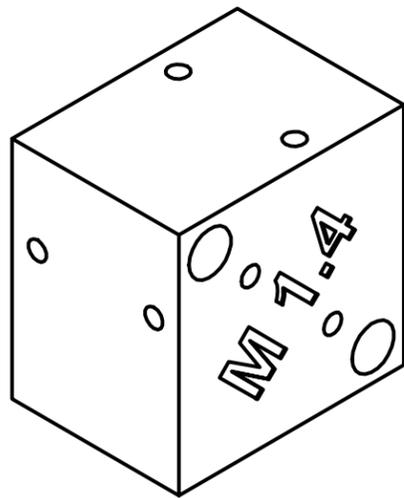
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B

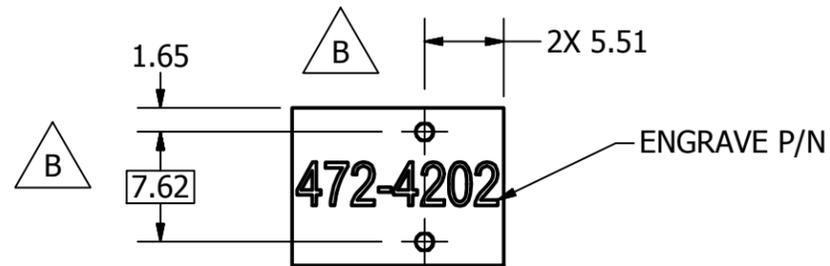
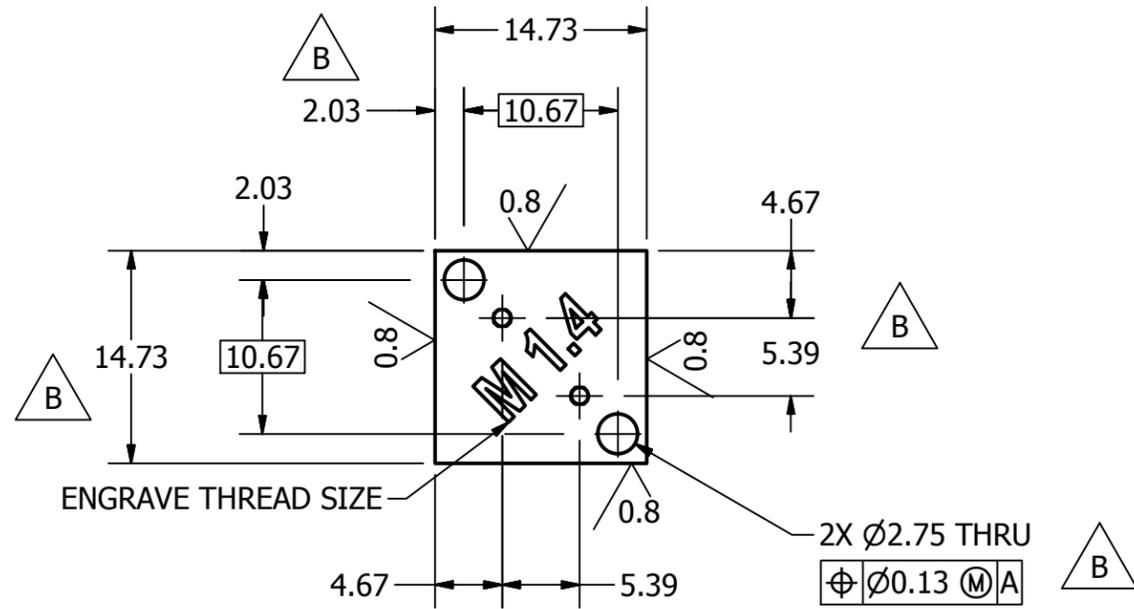
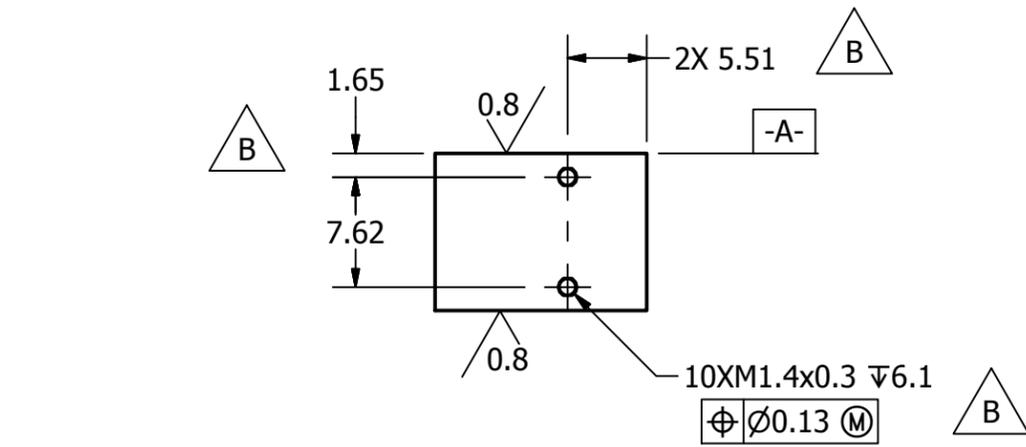
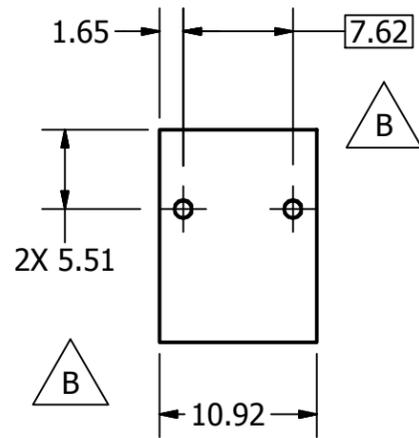
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A

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SCALE 3.000

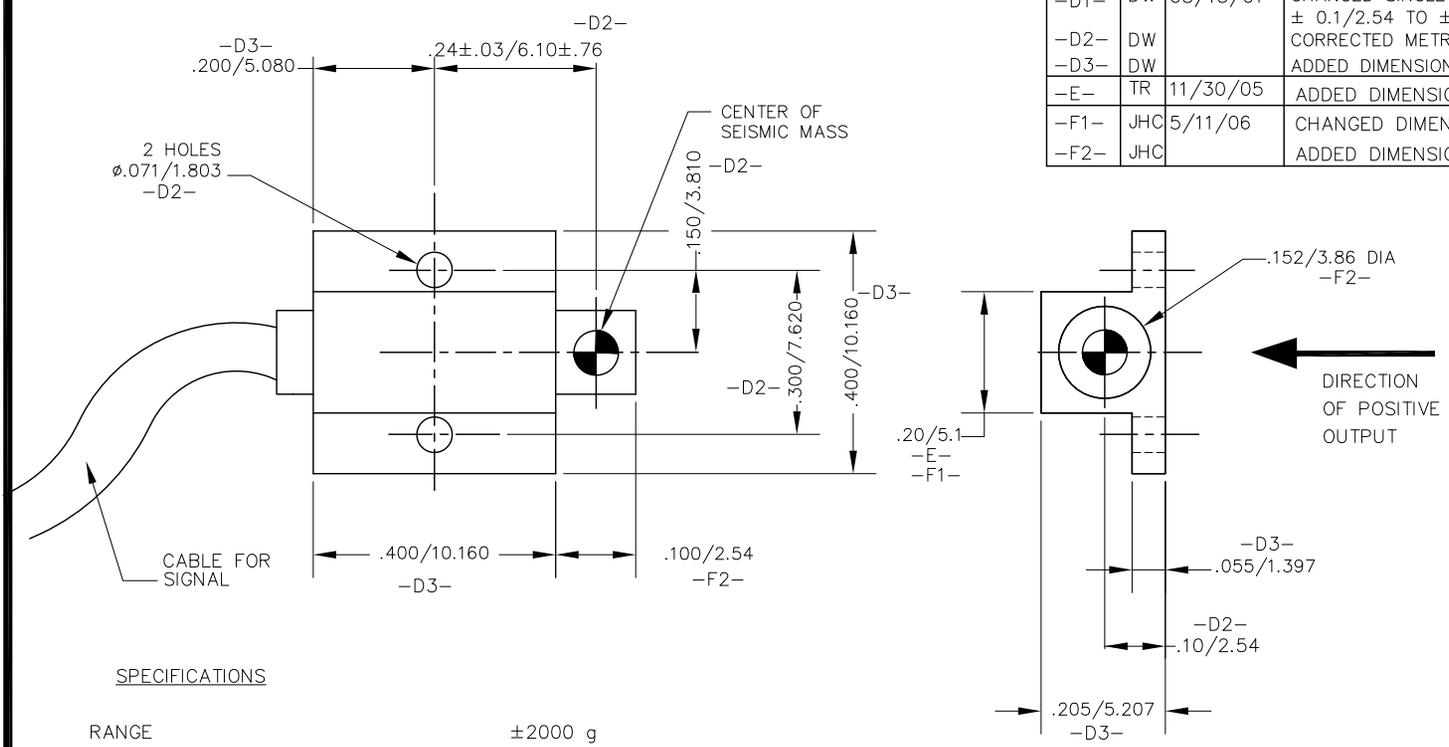


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1INM130 AND CONVERTED TO METRIC FOR THOR-M	9/1/2011	KHS
	B	ADD TOLERANCE TO HOLES; ADD DATUM A; 10.92 WAS 10.9, 14.73 WAS 14.7, 2.03 WAS 2.0. 1.65 WAS 1.7, 4.67 WAS 4.7; ADD BASIC DIMENSION FOR HOLE SPANS; ADD FINISH MARKS; M1.4 TAP 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 ±0.2 1.6 XXX ±0.1 ±0.1 1.6 XXXX ±0.01 ±0.01 1.6			
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: 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: SHEET B 1 OF 1		DRAWING NO.: SA572-S80M	
		SCALE: 2:1		REV: B	

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

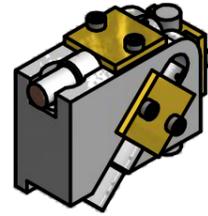
RANGE ±2000 g
 SENSITIVITY .20 mV/g MIN
 MOUNTED RESONANCE FREQUENCY 22,000 Hz MIN

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

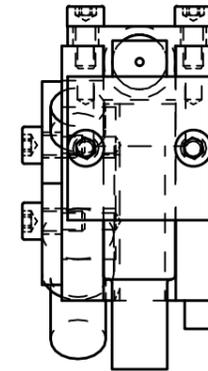
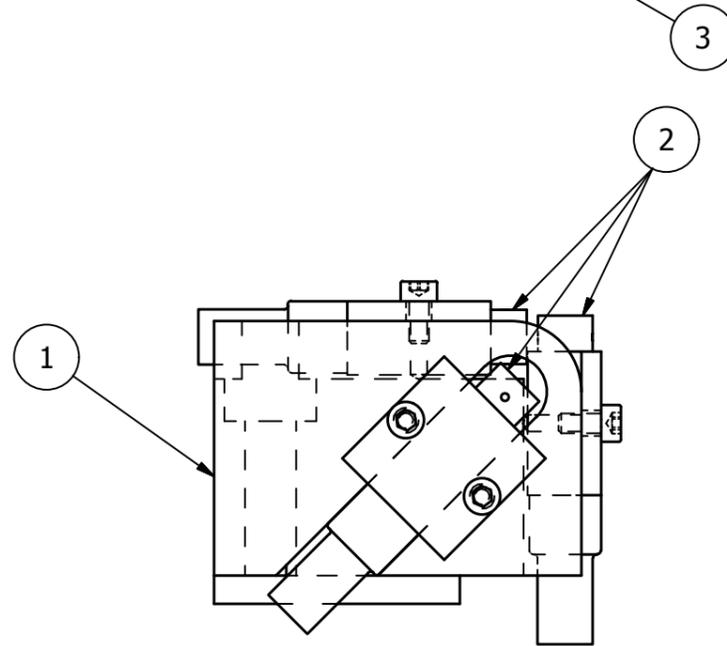
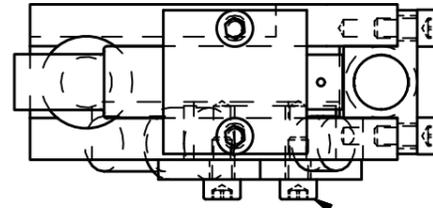
DAMPING RATIO UNDAMPED (.005)
 -B2- TRANSVERSE SENSITIVITY ±1% MAX
 NON-LINEARITY & HYSTERESIS ±2% MAX
 ZERO OFFSET ±25 mV
 EXCITATION 10V DC
 THERMAL SENSITIVITY -5% Typ AT 0°F TO 150°F -D1-
 TEMPERATURE EXPOSURE LIMITS 0°/+200°F WITHOUT DAMAGE -C1-
 WEIGHT 1 gram (WITHOUT CABLE) -B3-
 HUMIDITY SEALED

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

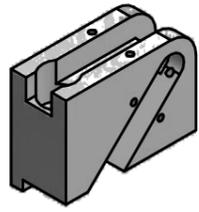


3	6	5000068	SCREW, SHCS M1.4 - 0.3 X 3 LG.
2	3	SA572-S4	UNIAXIAL PIEZORESISTIVE ACCELEROMETER
1	1	472-3858	T1 ACCEL. MOUNT
ITE	QTY	PART NUMBER	DESCRIPTION

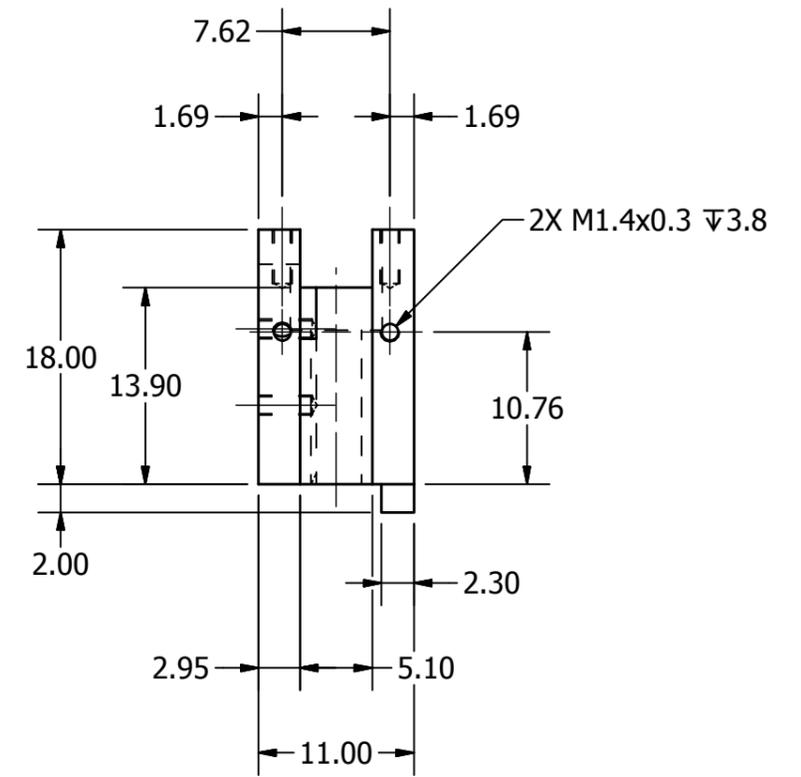
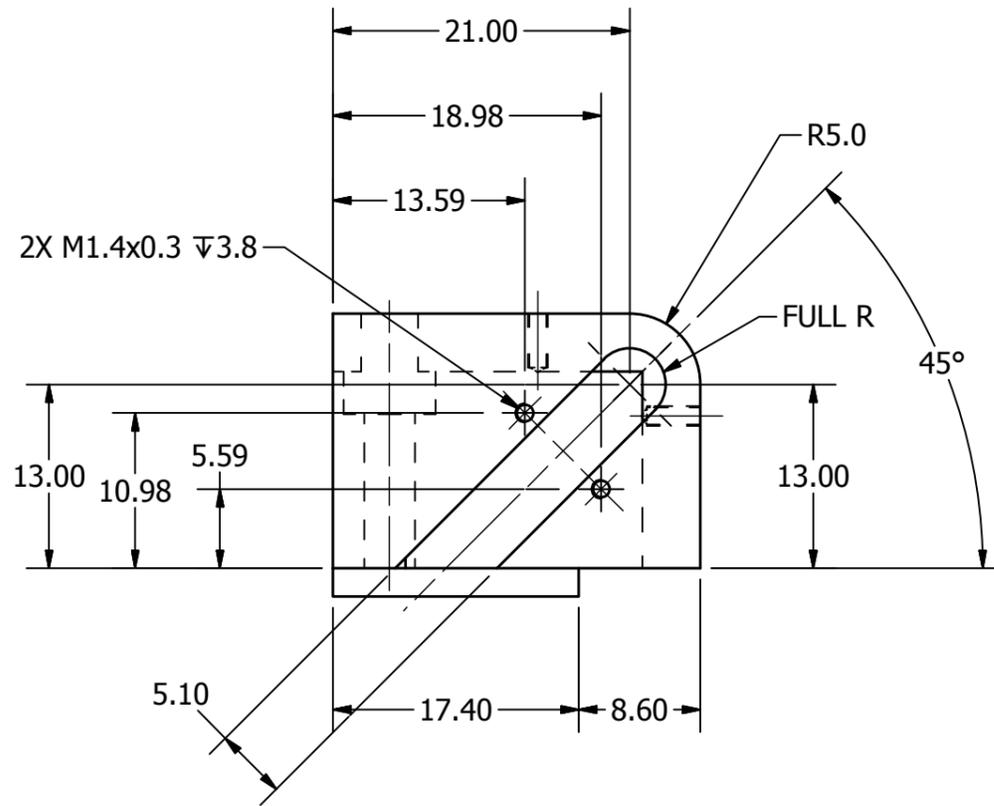
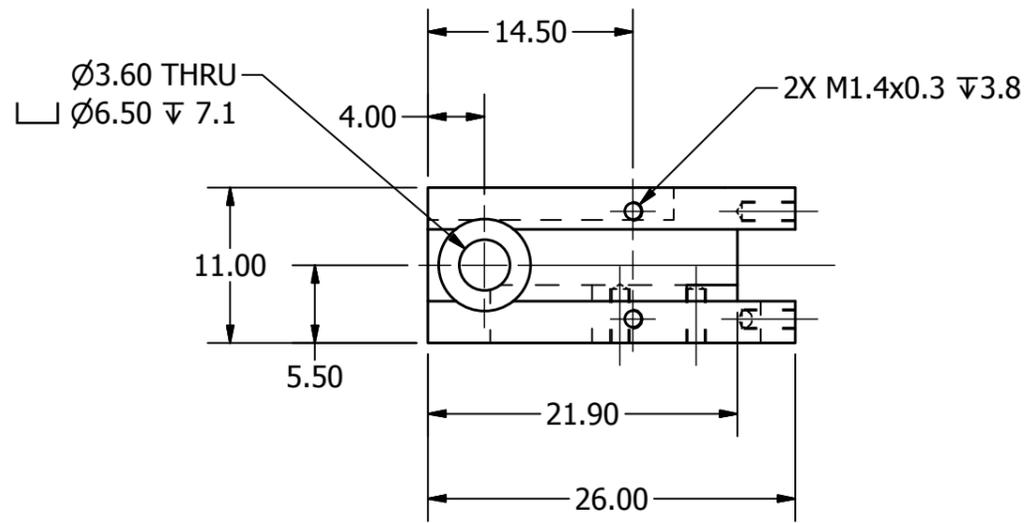
DO NOT SCALE DRAWING
 THIRD ANGLE PROJECTION
 TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X ± 0.5 ± 0.5 1.6
 X.X ± 0.2 ± 0.5 1.6
 X.XX ± 0.1 ± 0.5 1.6
 X.XXX ± 0.01 ± 0.5 1.6



472-3600	1	PROJECT NO.:	REMOVE BURRS & BREAK CHAMP EDGES	DATE:	9/9/2014	DESCRIPTION:	T1 ACCEL. MOUNT ASSEMBLY
NEXT ASSEMBLY	QTY	MATERIAL:	DAVE WALKER	CHECKED BY:	DATE:	SIZE: SHEET	DRAWING NO.:
TOTAL QTY IN DUMMY	1	HEAT TREAT:	ENGINEER:	DATE:	DATE:	A3 1 of 1	472-3857
		FINISH:				SCALE: 2:1	



SCALE 1 : 1



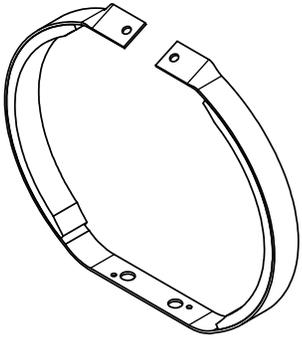
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

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

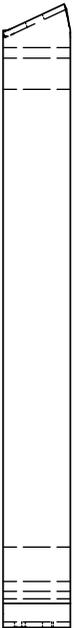
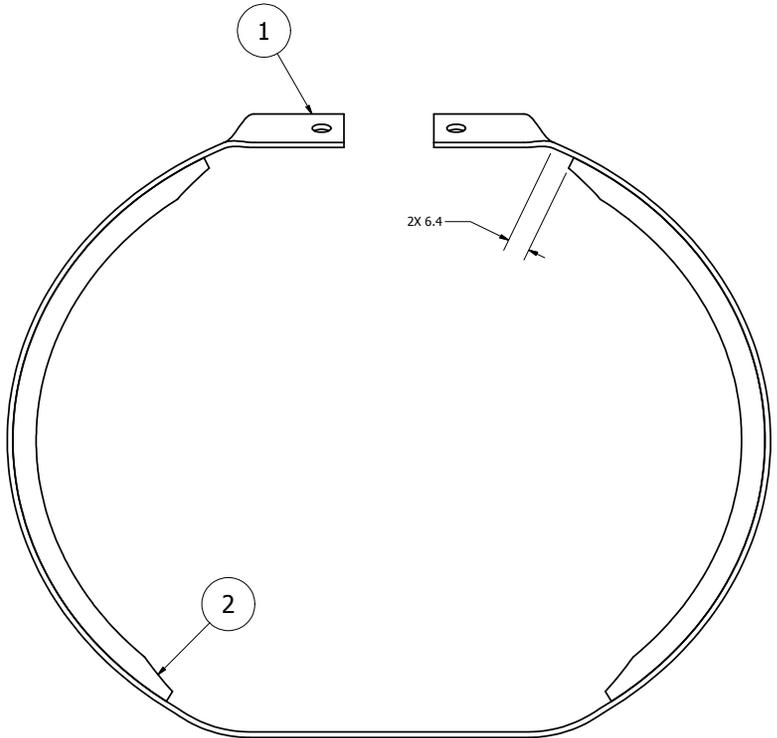


PROJECT NO.:	472-3857	1	DESCRIPTION:	T1 ACCEL. MOUNT
MATERIAL:	Aluminum 6061		DRAWN BY:	Dave Walker
HEAT TREAT:			DATE:	9/9/2014
FINISH:			CHECKED BY:	
			DATE:	
			ENGINEER:	
			DATE:	
			SIZE:	A3
			SHEET:	1 of 1
			SCALE:	2:1
			DRAWING NO.:	472-3858

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

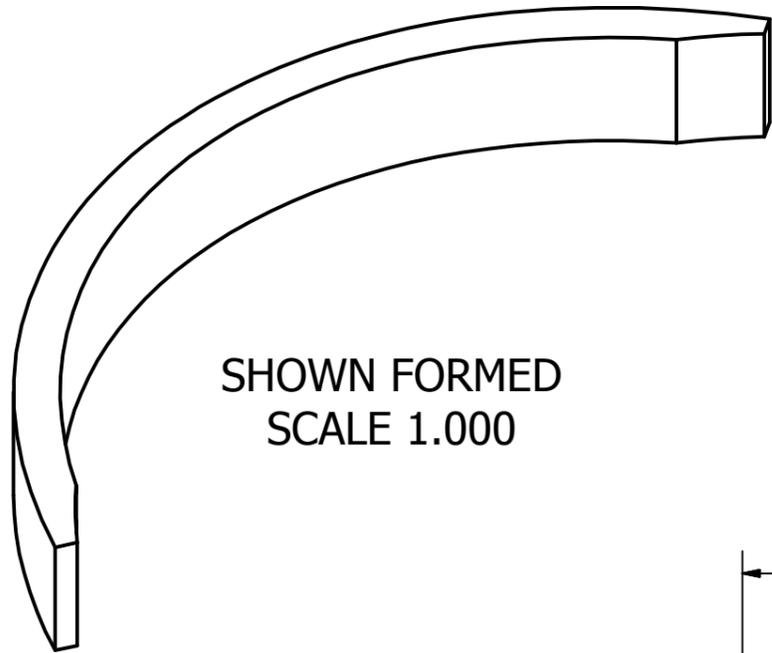
Parts List
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

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

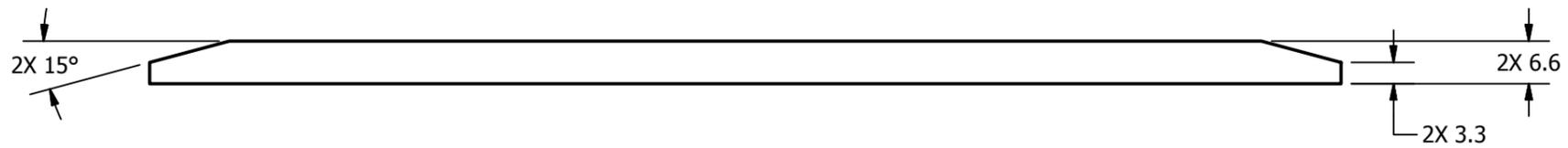
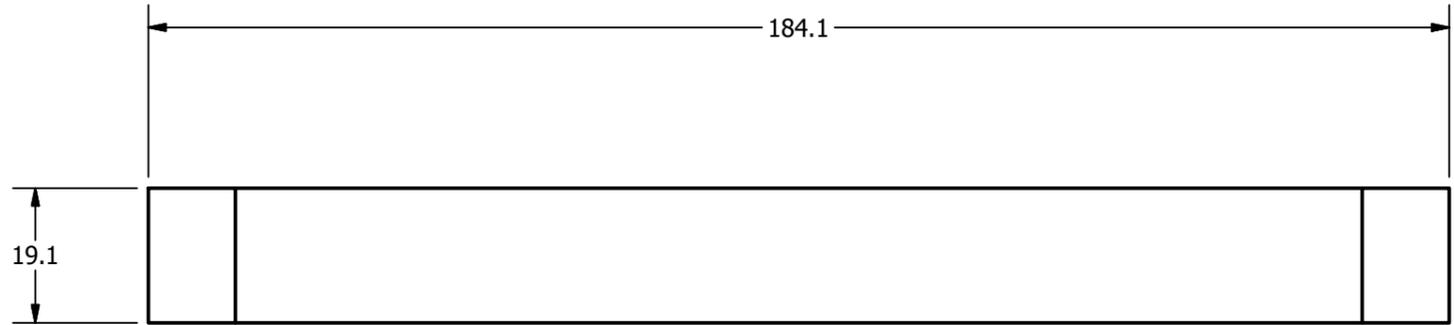
THORAX ELLIPTICAL RIB #1 - ASSEMBLY
A21 of 1
FULL

472-3310

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

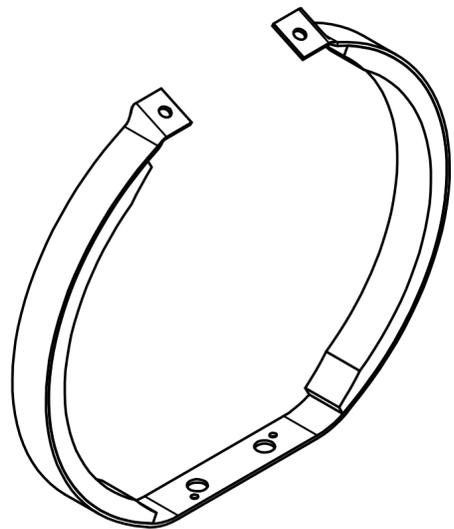


SHOWN FORMED
SCALE 1.000

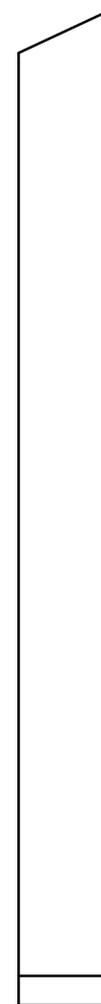
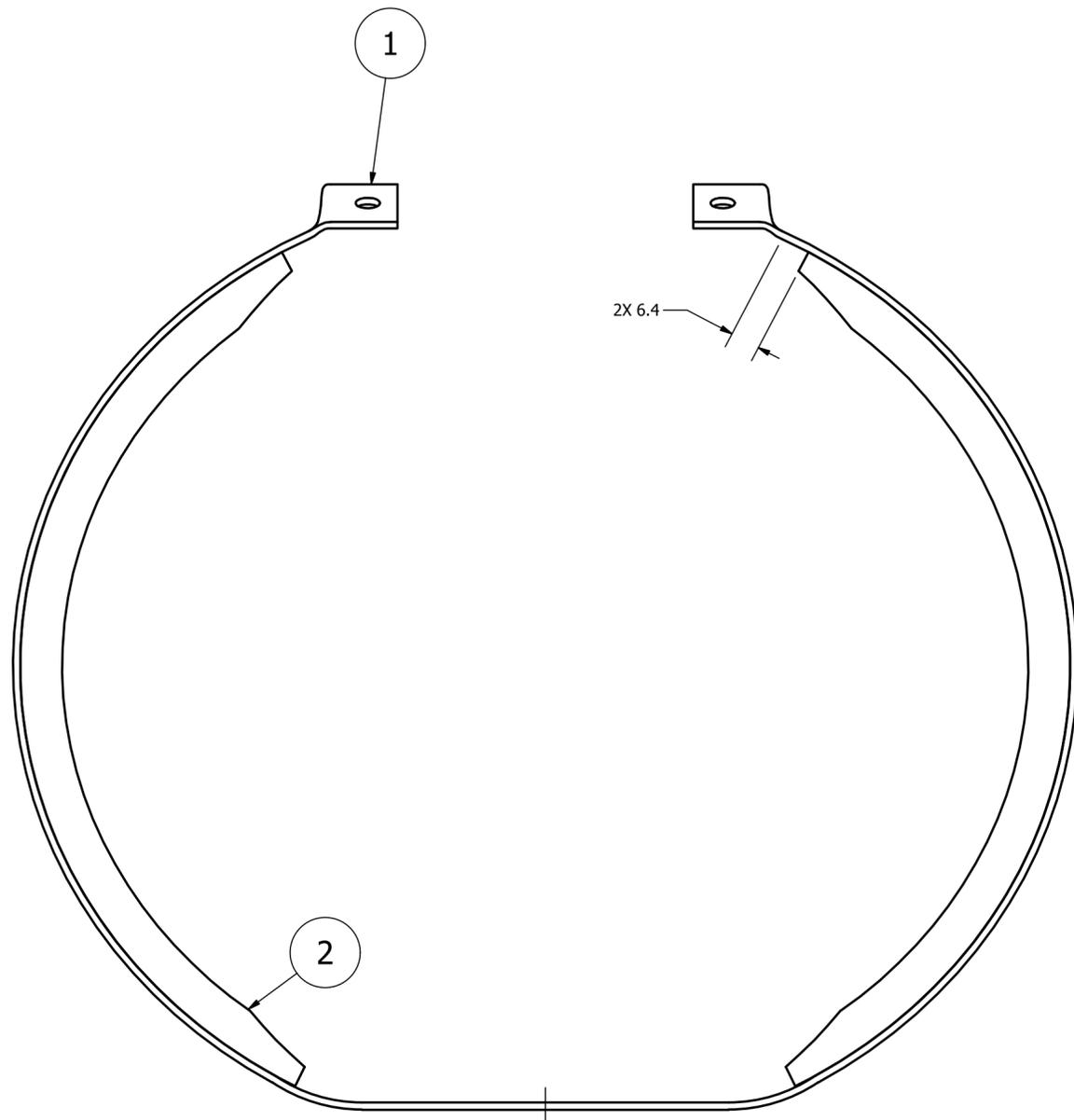


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.1 ±0.5 1.6 XXXX ±0.01 ±0.5 1.6		
PROJECT NO.:		MATERIAL:	ISODAMP 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.

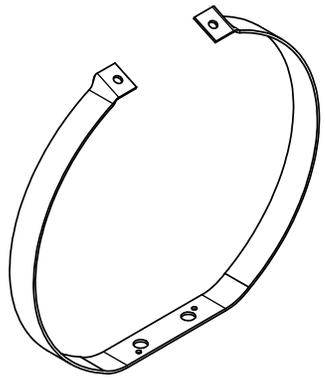
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3322	THORAX ELLIPTICAL RIB #2 - DAMPING MATERIAL
1	1	472-3321	THORAX ELLIPTICAL RIB #2 - STEEL

Parts List

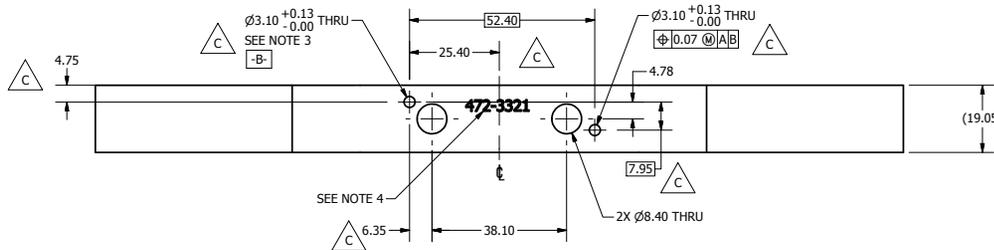
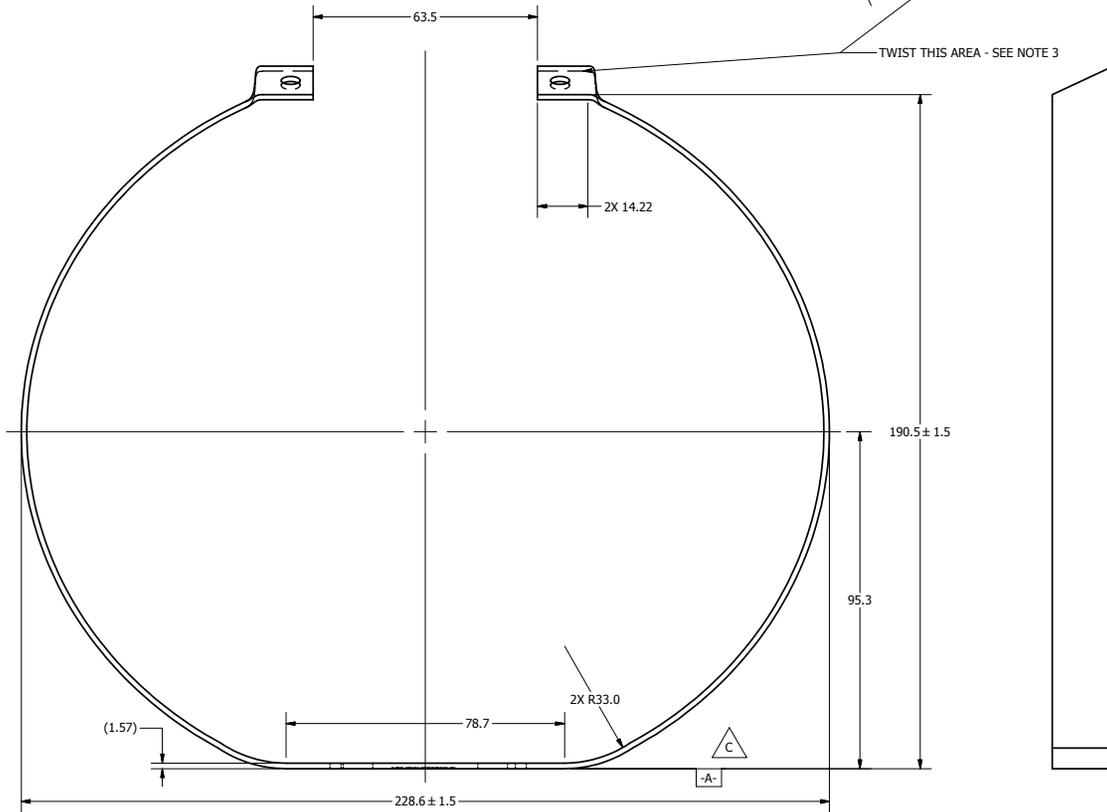
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	MATERIAL:	DRAWN BY:	DATE:	DESCRIPTION:
472-3000	1	Thanh	9/20/2011	THORAX ELLIPTICAL RIB #2 - ASSEMBLY
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: A2
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	1 OF 1
		J. WANG	1/17/2012	SCALE: FULL

472-3000	1	472-3322	THORAX ELLIPTICAL RIB #2 - DAMPING MATERIAL
NEXT ASSEMBLY	QTY	472-3321	THORAX ELLIPTICAL RIB #2 - STEEL
TOTAL QTY IN DUMMY	1	472-3320	THORAX ELLIPTICAL RIB #2 - ASSEMBLY

472-3320
A



ISO VIEW
SCALE 1 : 2

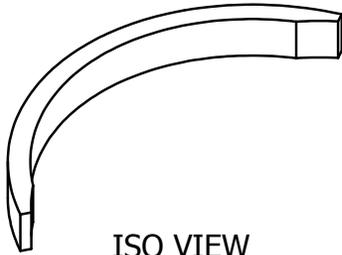


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM321 R3 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	BK
	C	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM A,B, BASIC DIMENSIONS, AND POSITIONAL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

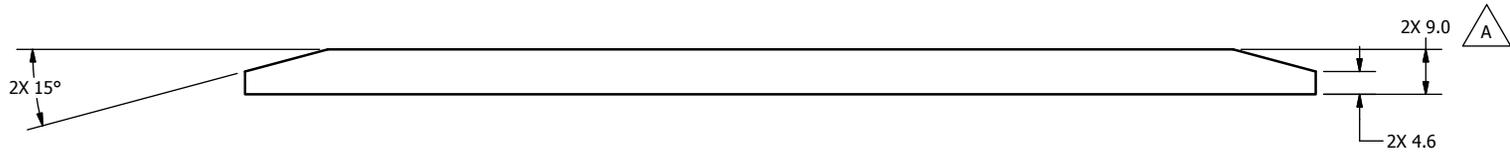
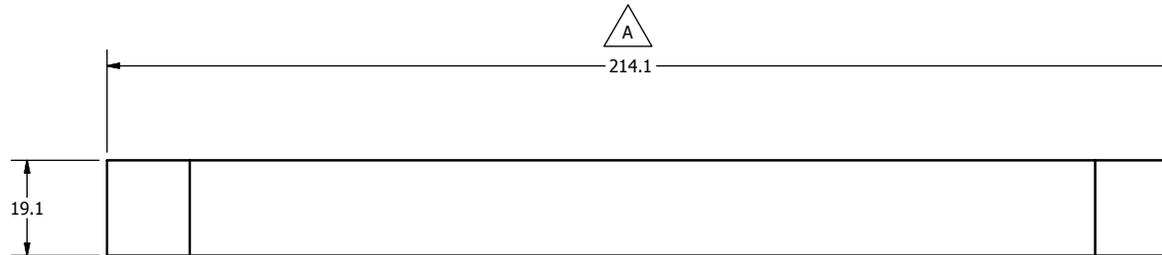
- NOTES: C
- MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 - ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:114.30MM Y:104.14MM
 - AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 14.2MM FLAT AREA 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 FRACTIONS		THORAX ELLIPTICAL RIB #2 - STEEL	
DRAWN BY: [Signature]		CHECKED BY: [Signature]		DATE: 9/21/2011	
472-3320	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	472-3321

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 ± 0.57 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



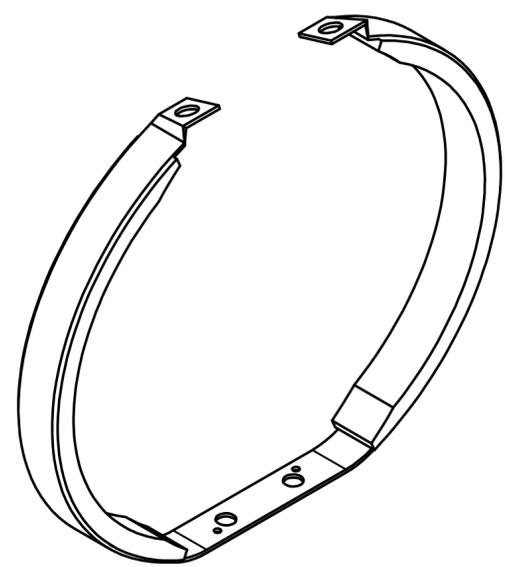
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION:
THORAX ELLIPTICAL RIB #2 - DAMPING MATERIAL

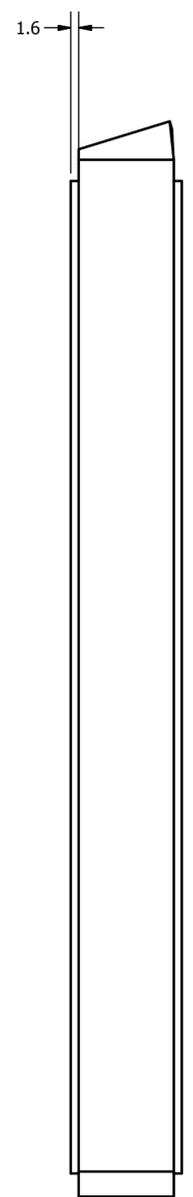
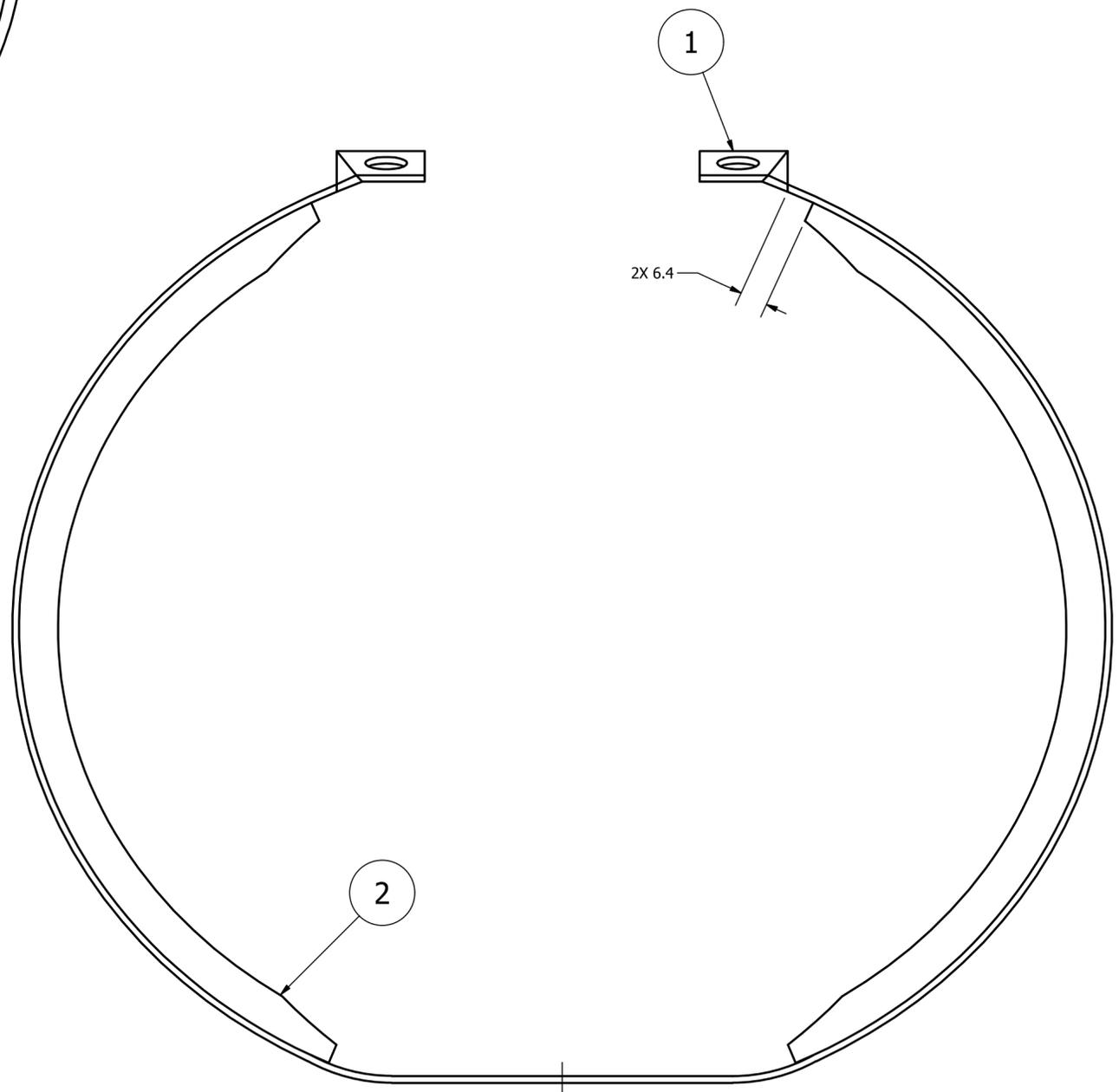
SIZE: SHEET: DRAWING NO.:
A3 1 OF 1 472-3322

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.

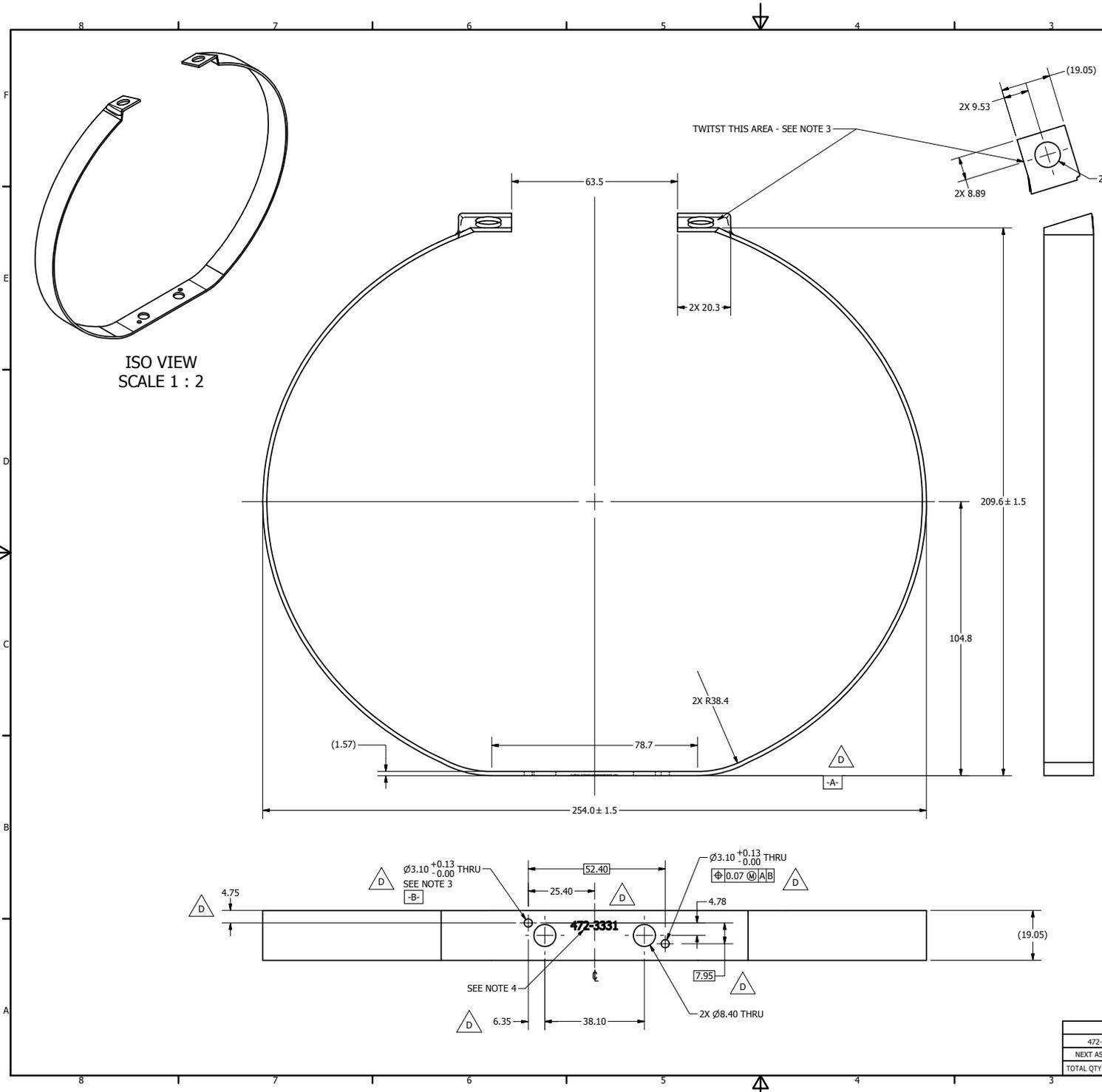
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3332	THORAX ELLIPTICAL RIB #3 - DAMPING MATERIAL
1	1	472-3331	THORAX ELLIPTICAL RIB #3 - STEEL

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		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	DATE:	ENGINEER:	DATE:	DESCRIPTION:
472-3000	9/20/2011	J. WANG	1/17/2012	THORAX ELLIPTICAL RIB #3 - ASSEMBLY
NEXT ASSEMBLY	QTY	SCALE:	DRAWING NO.:	REV:
TOTAL QTY IN DUMMY	1	A2	1 OF 1	472-3330

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

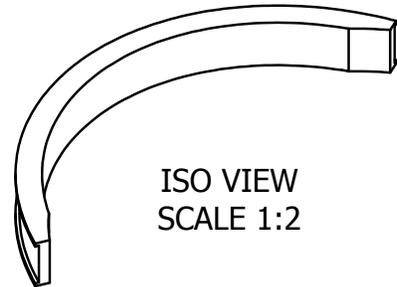
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T11XM331 R4 AND CONVERTED TO METRIC FOR THOR-M	9/21/2011	TKN
	B	112.52 WAS 125.52	4/26/2012	BK
	C	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	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

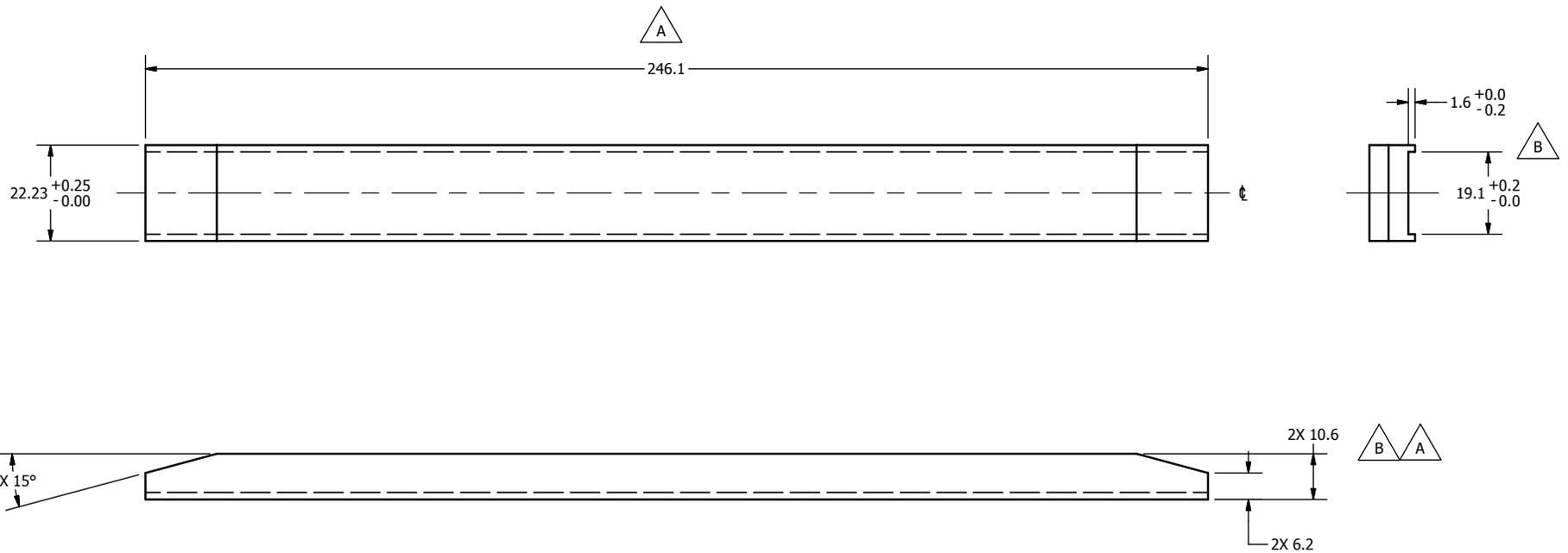
- NOTES: $\triangle D$
1. MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 2. ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:127.00MM Y:112.52MM $\triangle B$
 3. AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE 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 FRACTIONS		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



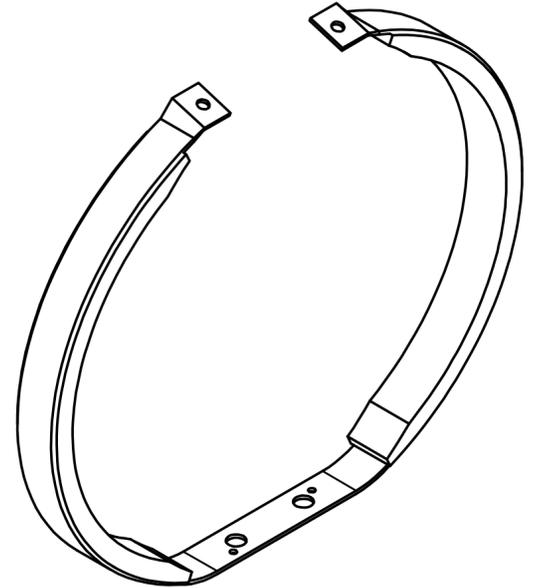
ISO VIEW
SCALE 1:2

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

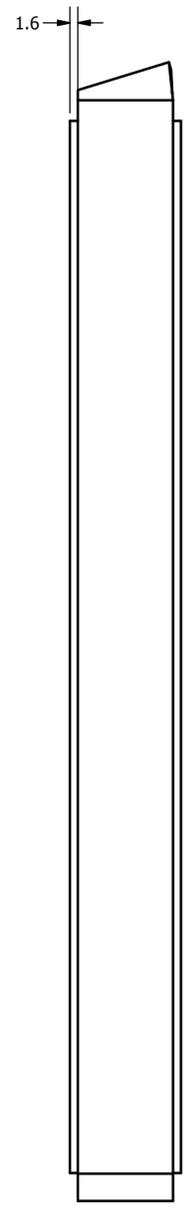
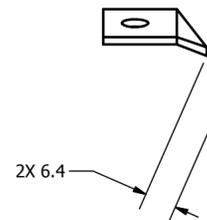
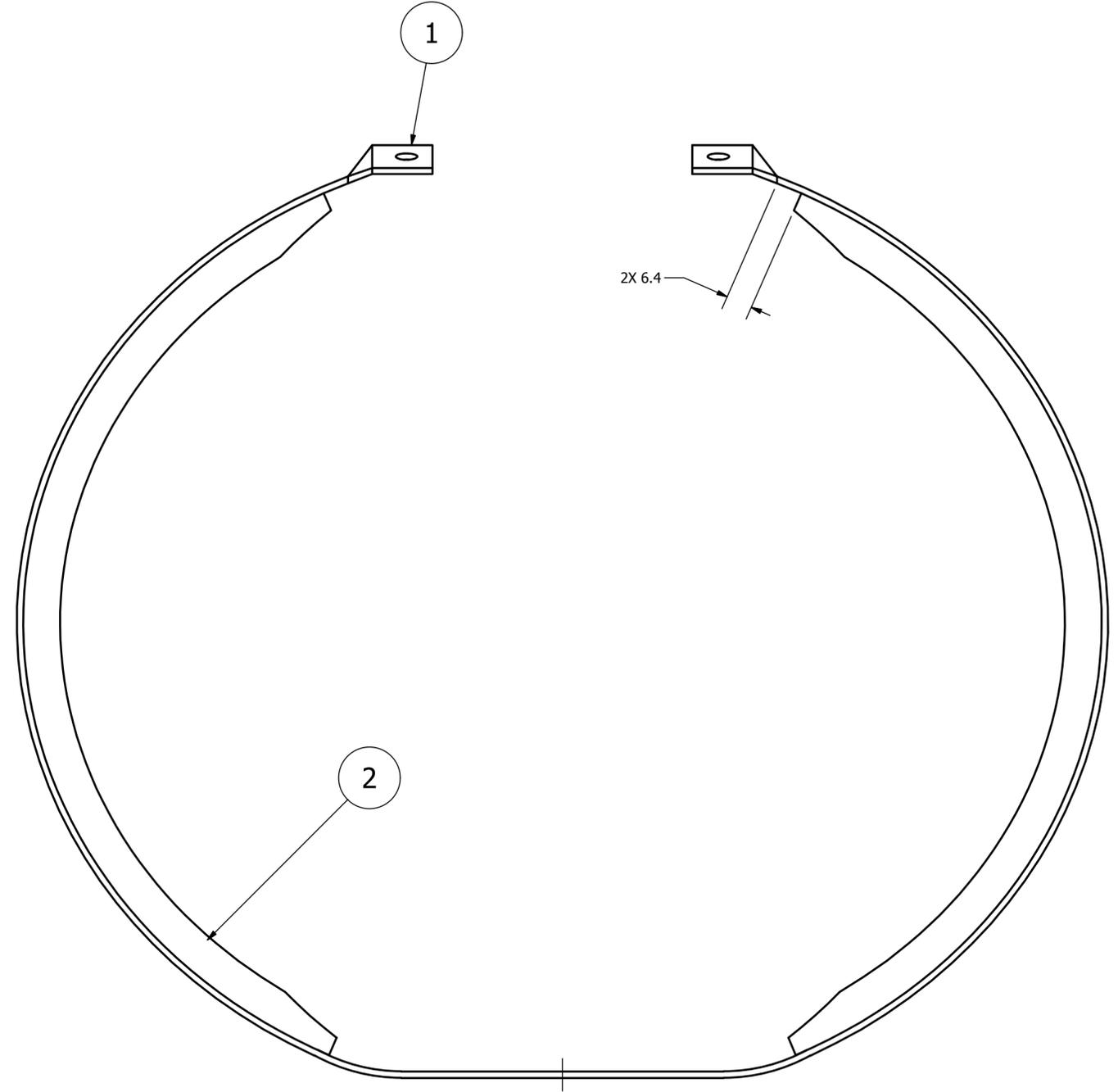


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 X.X 0.2 X.XX 0.3 X.XXX 0.01			
PROJECT NO:	472-3330	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #3 - DAMPING MATERIAL	
DATE:	9/20/2011	DESIGNED BY:	Thanh		
CHECKED BY:		DATE:		SIZE: SHEET	
ENGINEER:	J. WANG	DATE:	1/17/2012	A31 OF 1	
TOTAL QTY IN DUMMY	2	FINISH:		SCALE: FULL	
				DRAWING NO.:	472-3332
				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.

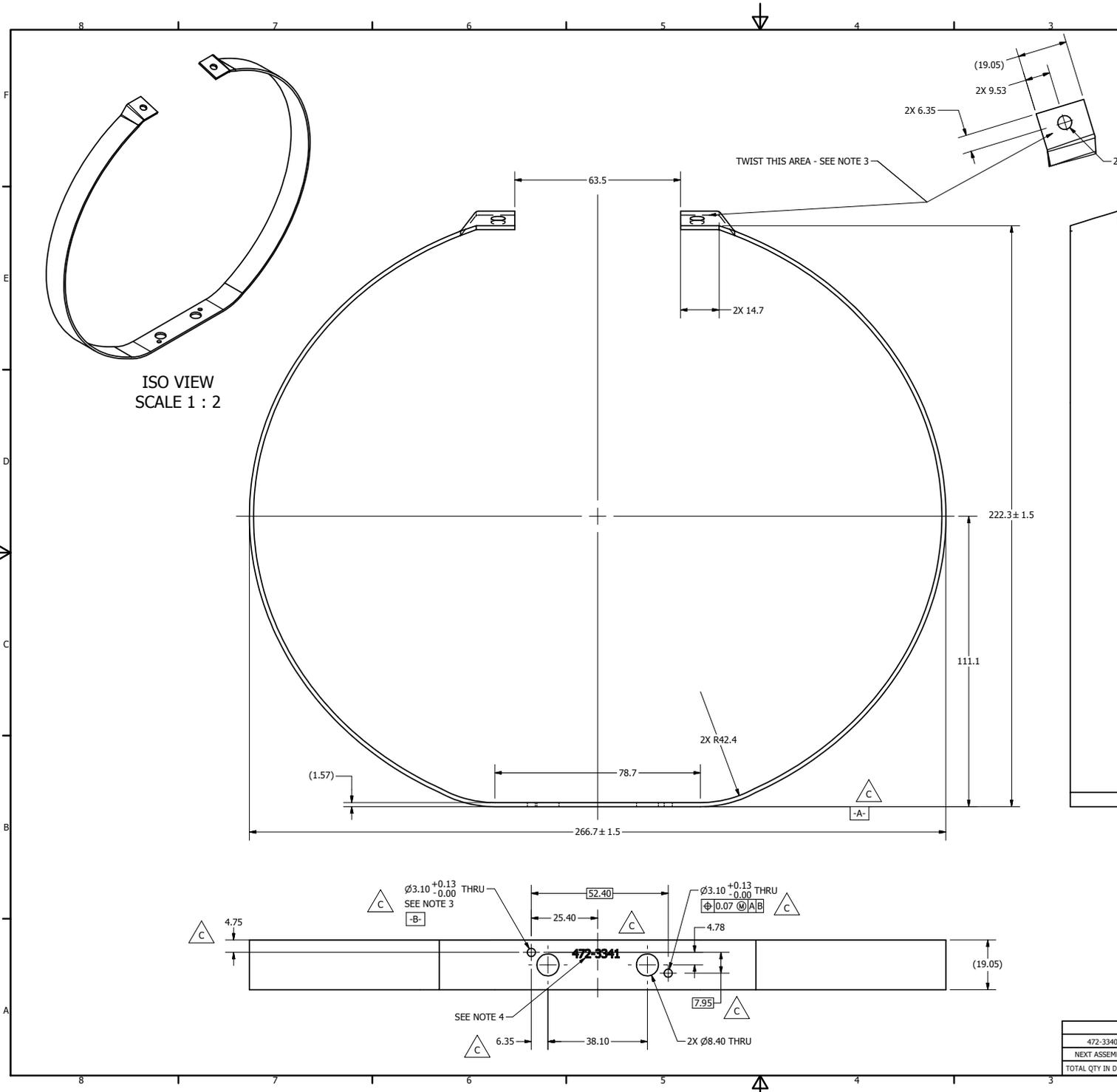
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	472-3342	THORAX ELLIPTICAL RIB #4 - DAMPING MATERIAL
1	1	472-3341	THORAX ELLIPTICAL RIB #4 - STEEL

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:	DATE:	DESCRIPTION:	
472-3000		9/20/2011	THORAX ELLIPTICAL RIB #4 - ASSEMBLY	
NEXT ASSEMBLY	QTY	DATE:	SCALE:	
TOTAL QTY IN DUMMY	1	1/17/2013	A2 1 OF 1	
		ENGINEER:	DRAWING NO:	
		J. WANG	472-3340	

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

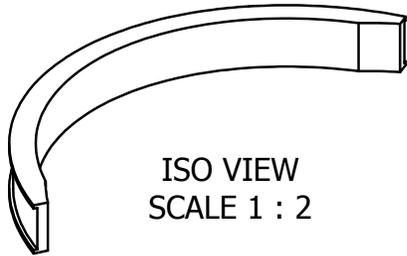
A



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 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

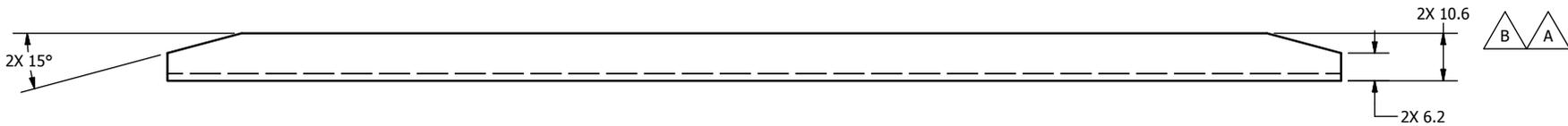
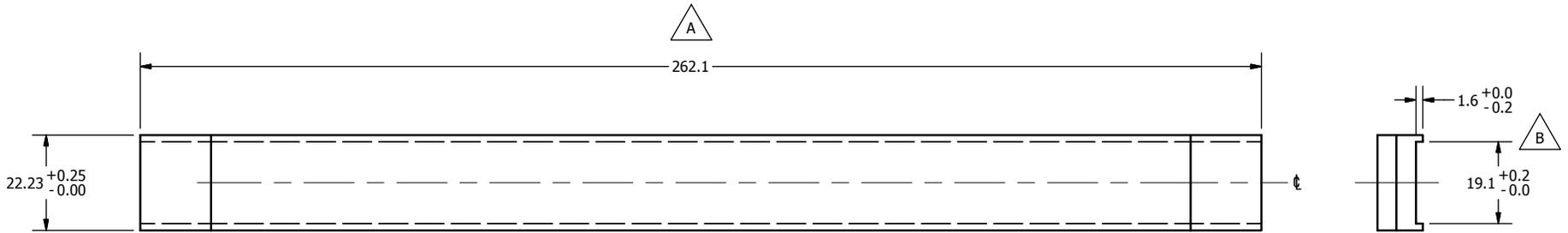
- NOTES:
- MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 - ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:133.35MM Y:118.62MM
 - AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. THEN TWIST THE RIB AT THE 14.7MM FLAT AREA BY BENDING THE BOTTOM OUTWARD BY 17°.
 - ENGRAVE DWG. #472-3341 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 #4 - STEEL	
472-3340	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	472-3341



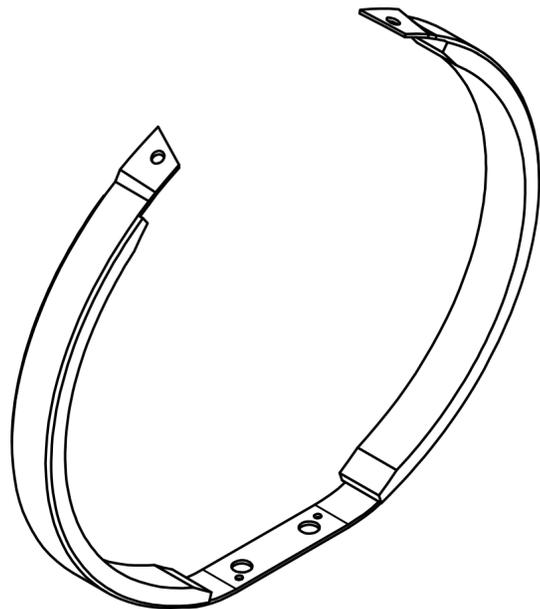
ISO VIEW
SCALE 1 : 2

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

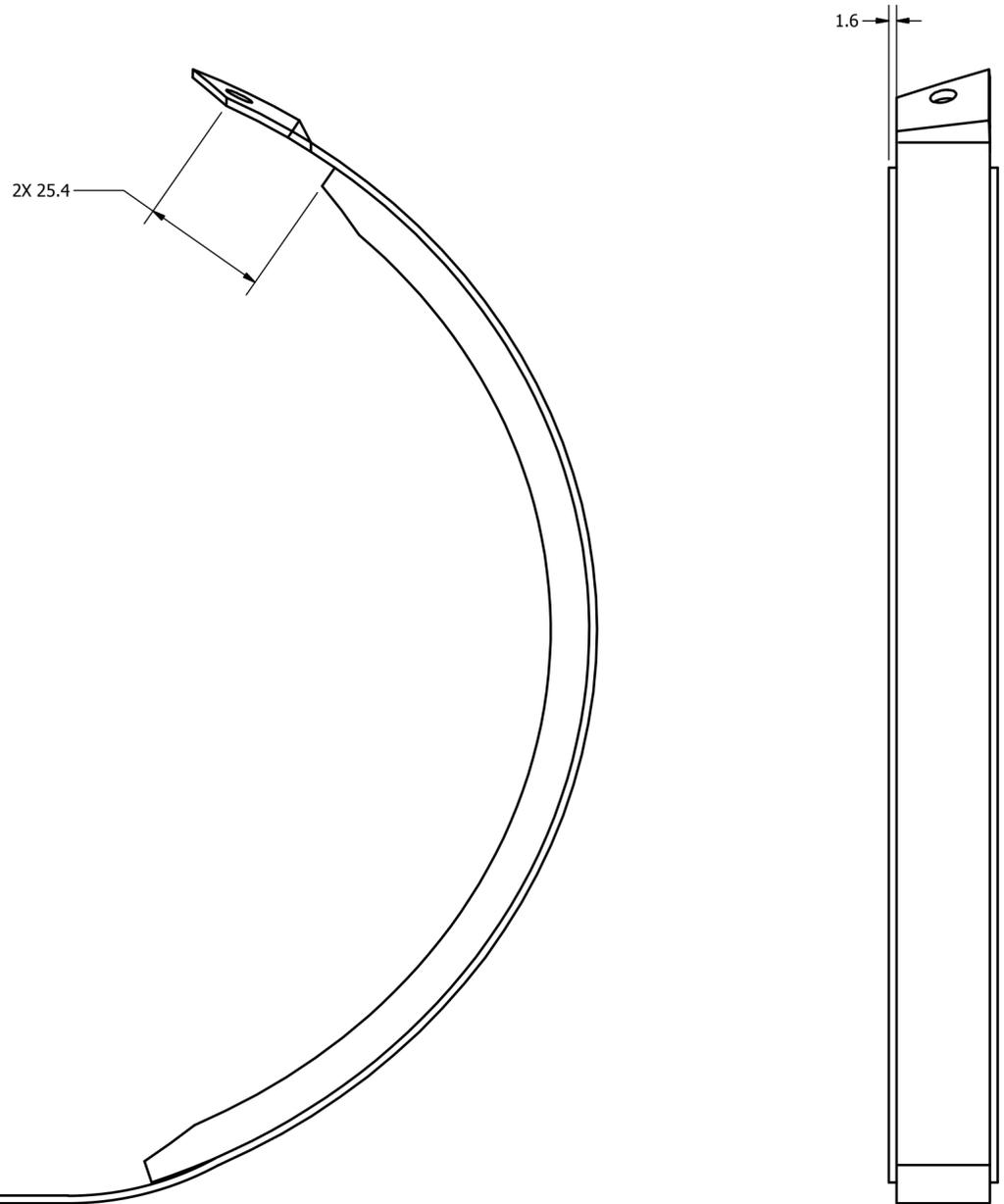
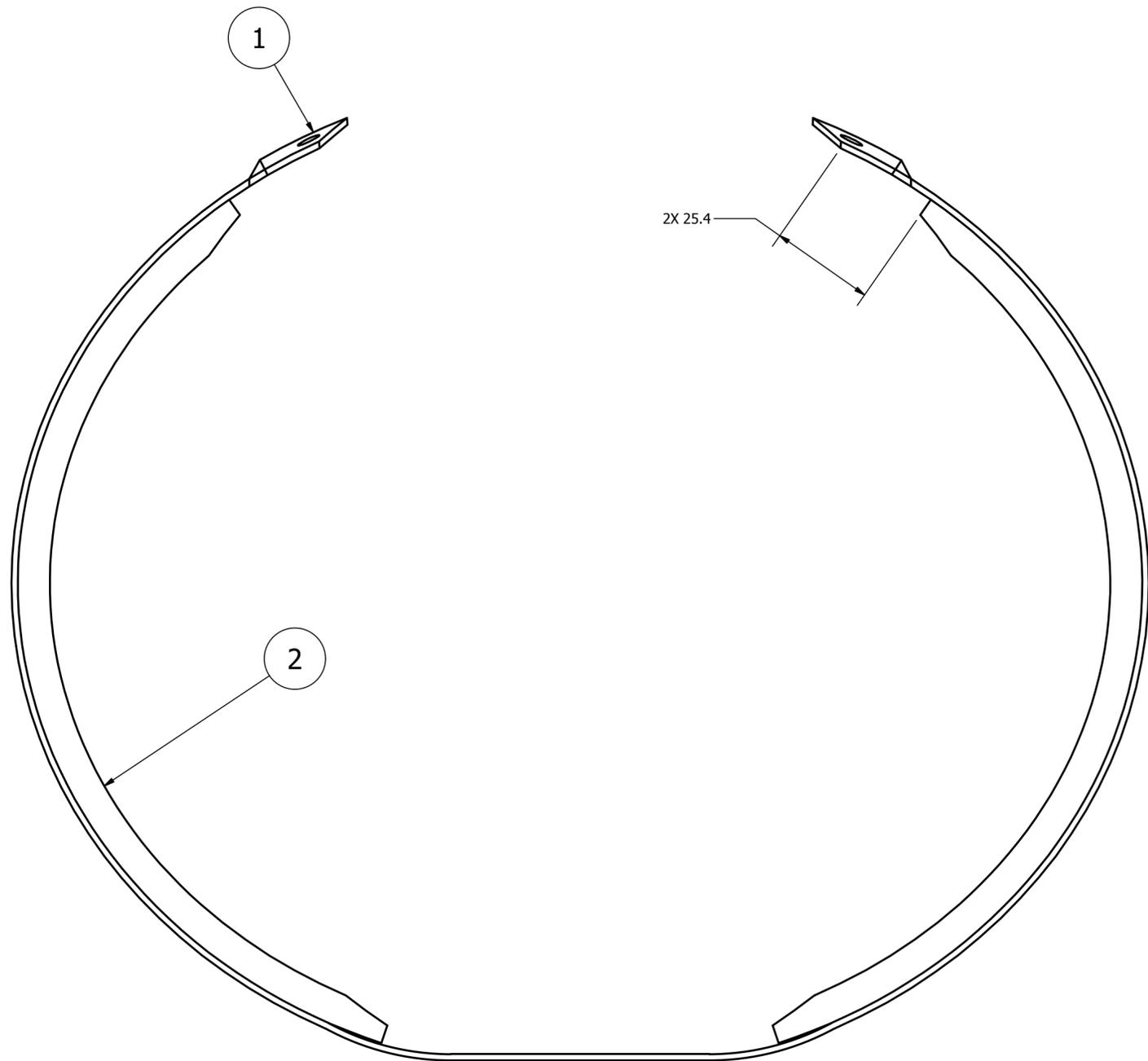


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01		
PROJECT NO.:	472-3340	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #4 - DAMPING MATERIAL
DATE:	9/20/2011	DESIGNED BY:	Thanh	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	
FINISH:		DATE:	1/17/2012	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3342 SCALE: FULL
QTY	2	TOTAL QTY IN DUMMY	2	REV: B

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



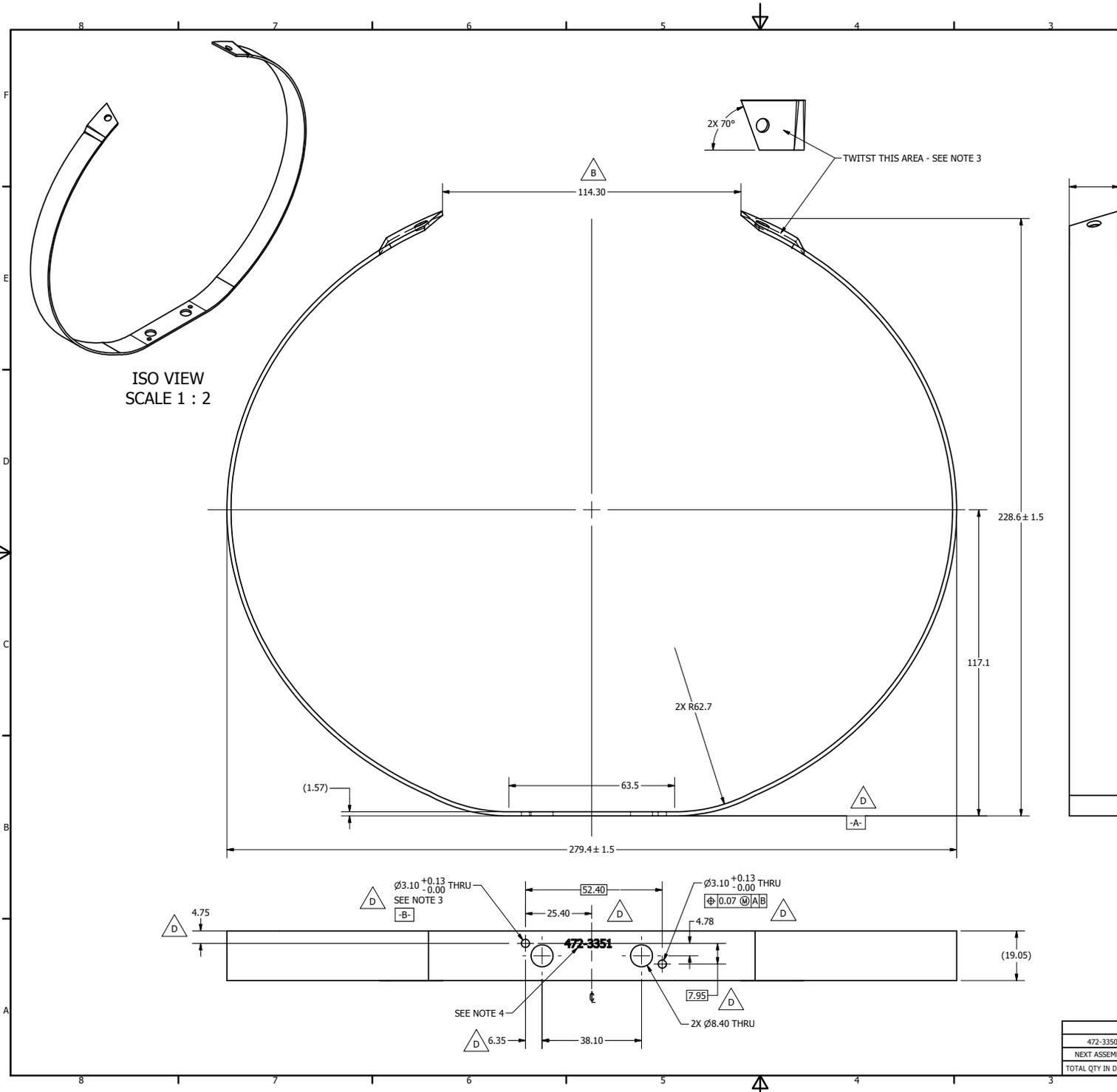
NOTES:
1. THE RIB IS ASSEMBLED BY VACUUM BONDING THE SPRING STEEL TO THE DAMPING MATERIAL USING HYSOL 9430 EPOXY ADHESIVE.

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

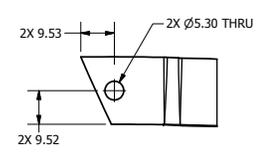
Parts List			
DO NOT SCALE DRAWING	TOLERANCES	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION	(UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01	THORAX ELLIPTICAL RIB #5 - ASSEMBLY	
PROJECT NO:	DATE:	DATE:	SCALE: FULL
472-3000	1	9/20/2011	1 OF 1
NEXT ASSEMBLY	QTY	DATE:	472-3350
TOTAL QTY IN DUMMY	1	1/17/2012	A

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

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THORAX ELLIPTICAL RIB #5 - ASSEMBLY
 DRAWING NO: 472-3350
 SCALE: FULL
 SHEET: 1 OF 1



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

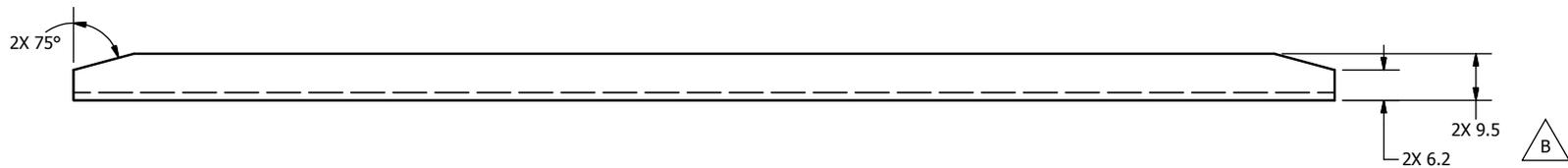
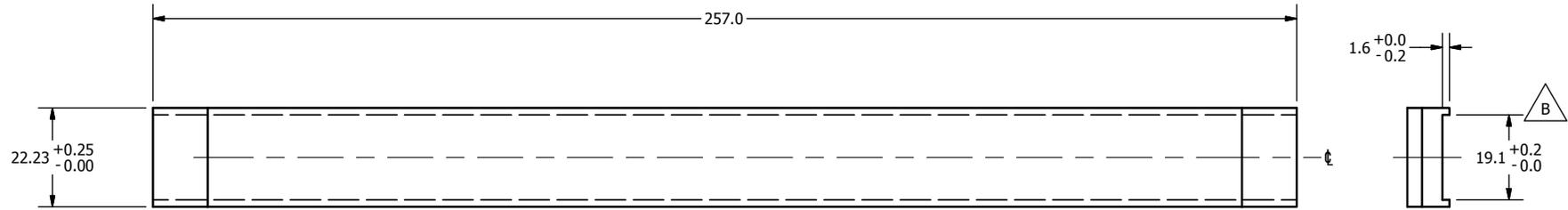
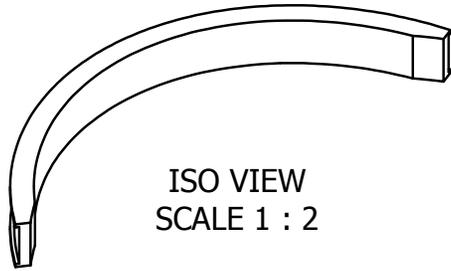


VIEW PERPENDICULAR TO HOLE AXIS
SCALE 1.000

- 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.

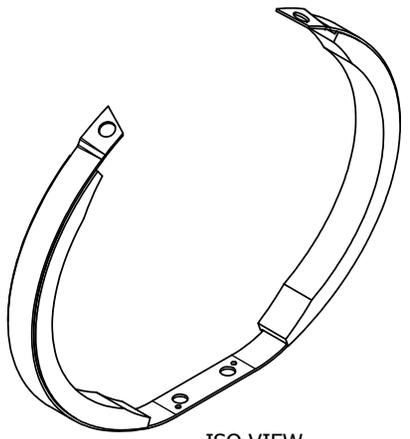
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		THORAX ELLIPTICAL RIB #5 - STEEL	
472-3350	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc: 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	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

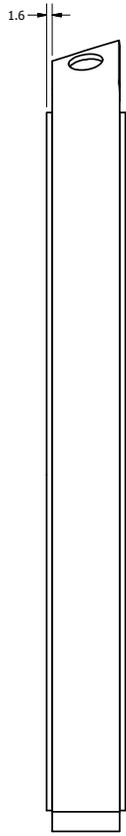
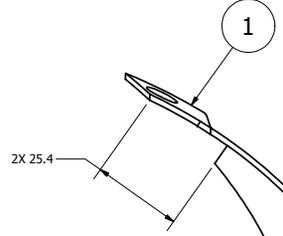
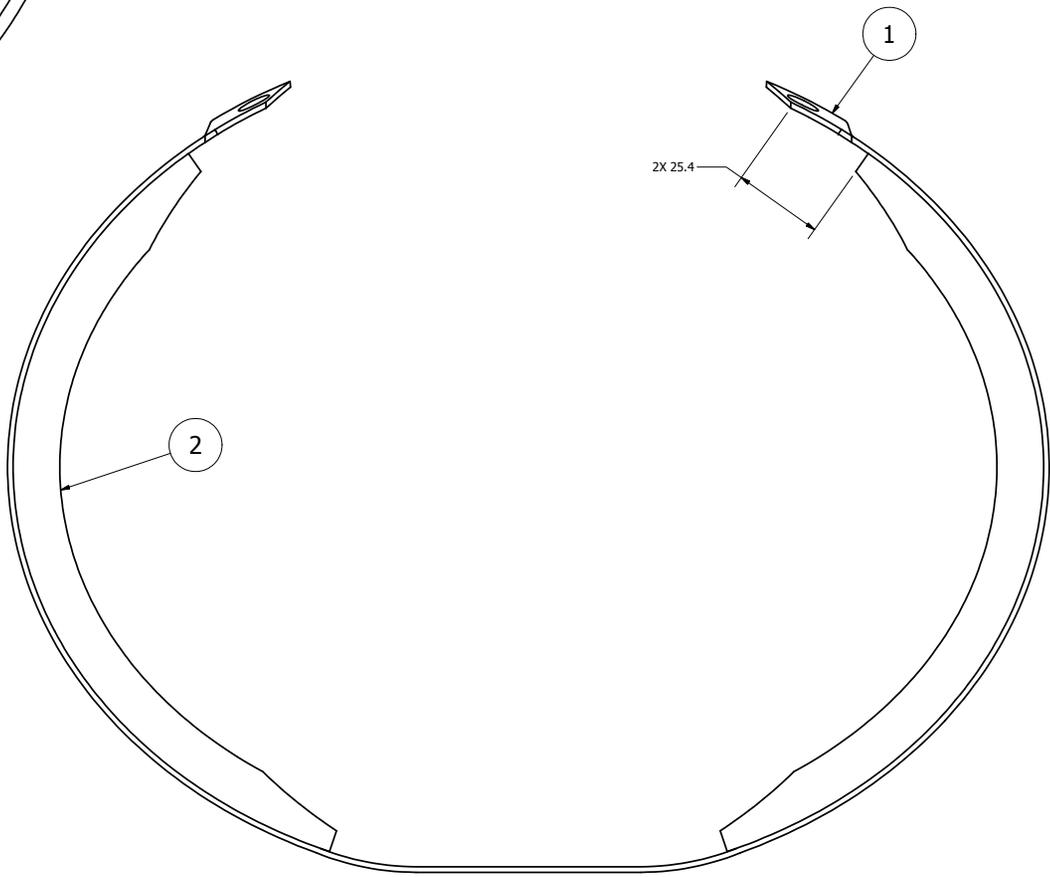


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X 0.2 0.2 XX 0.3 0.3 XXX 0.01		
PROJECT NO.:	472-3350	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL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

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

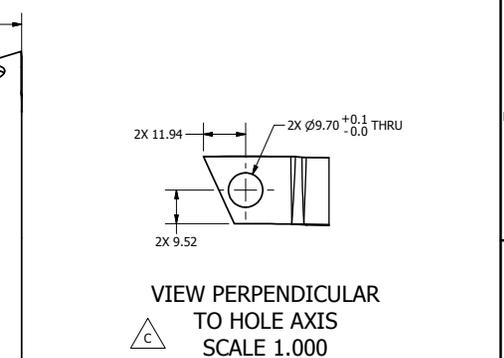
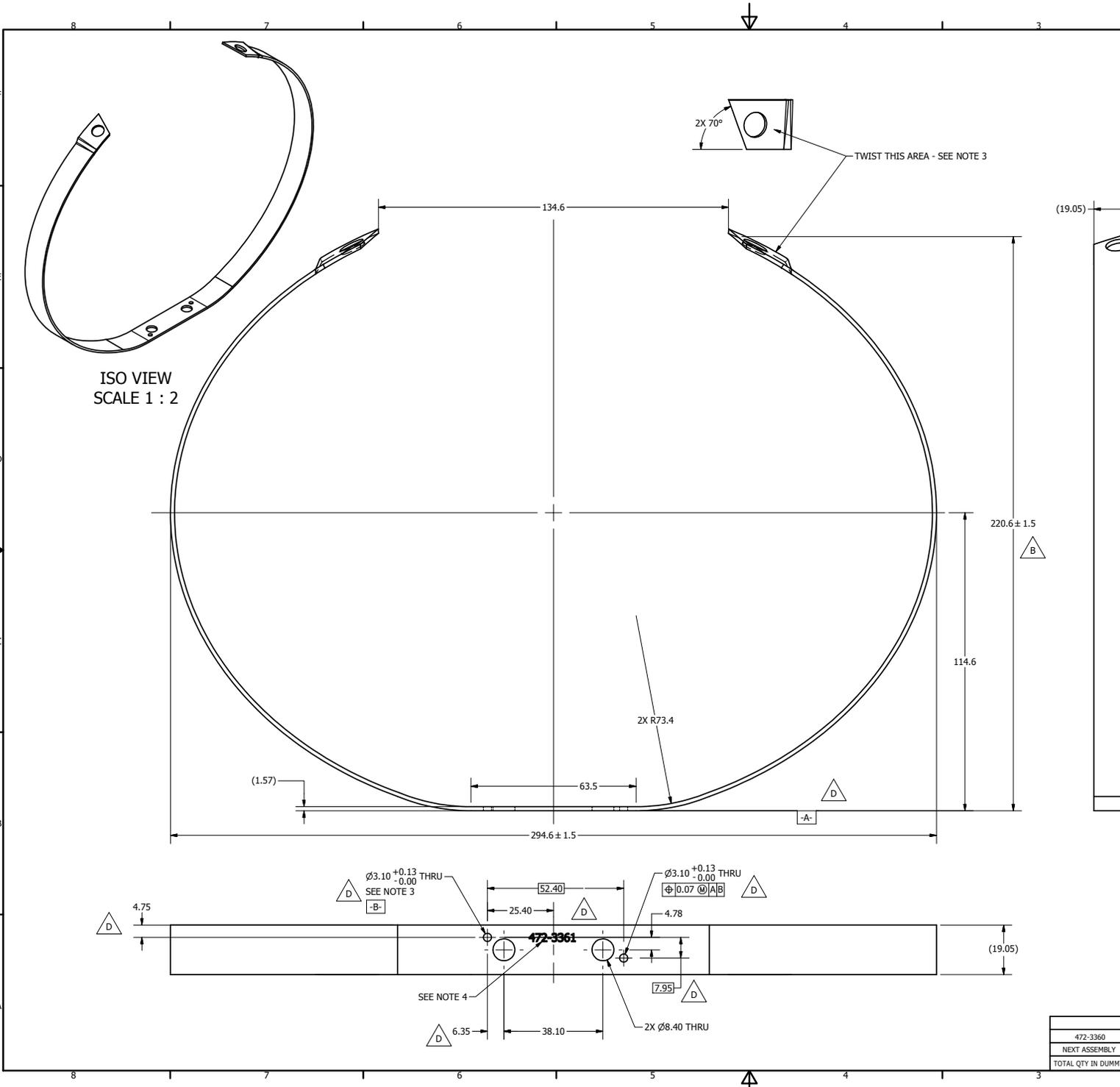
472-3000	1	THORAX ELLIPTICAL RIB #6 - ASSEMBLY
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

THORAX ELLIPTICAL RIB #6 - ASSEMBLY

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

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

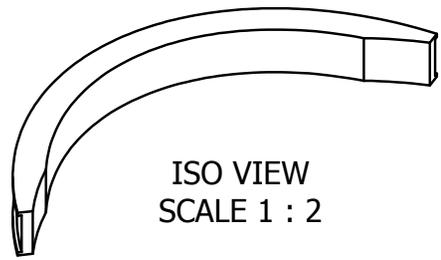


- VIEW PERPENDICULAR TO HOLE AXIS
SCALE 1.000**
- NOTES: D
- MAKE RIB FROM 1070 ANNEALED SPRING STEEL 1.57MM THICK X 19.05MM WIDE.
 - ELLIPTICAL SHAPE SEMI-AXIS OUTSIDE DIMENSIONS ARE: X:147.32MM Y:119.38MM
 - AFTER RIB IS FORMED - PRIOR TO HEAT-TREAT, ORIENT THE RIB SO THAT THE HOLE PATTERN IS AS SHOWN. 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.

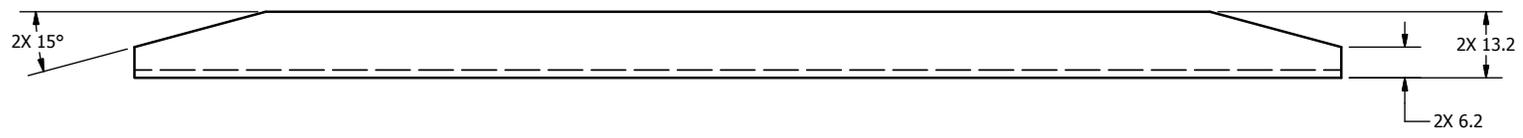
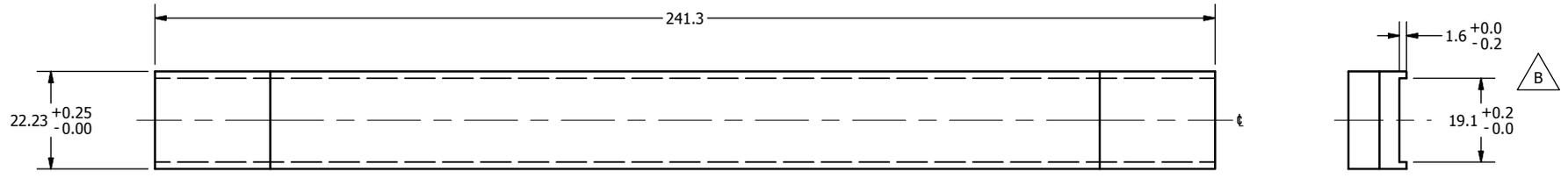
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THREE ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN PARENTHESES		THORAX ELLIPTICAL RIB #6 - STEEL	
472-3360	1	1070 SPRING STEEL	Thanh	9/21/2011	
NEXT ASSEMBLY	QTY	Rc 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	472-3361



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



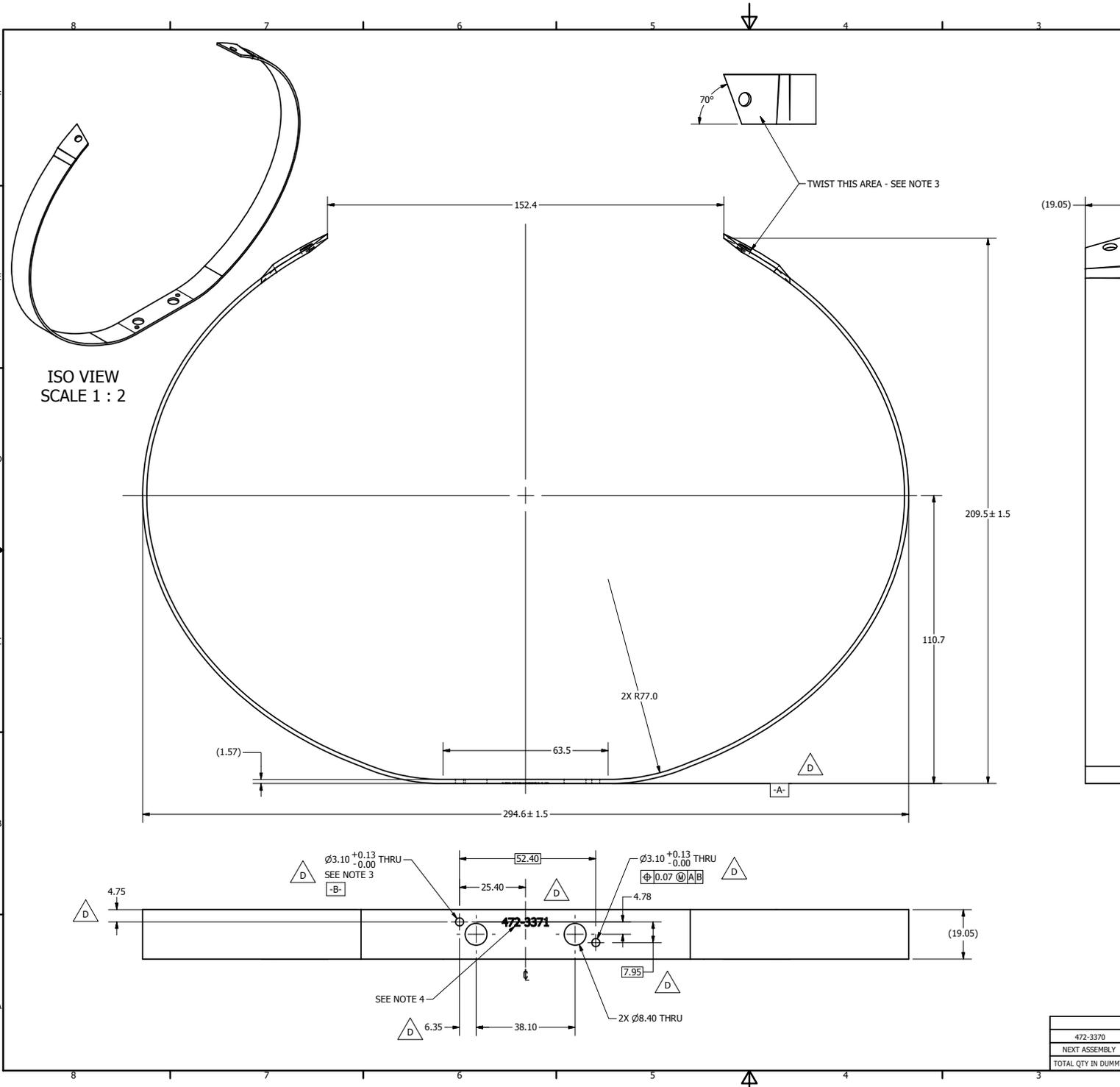
ISO VIEW
SCALE 1 : 2



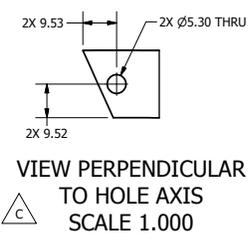
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 16 X.X 0.1 X.XX 0.05 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-3360	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #6 - 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.: 472-3362 SCALE: FULL
FINISH:		DATE:	1/18/2012	REV: B
TOTAL QTY IN DUMMY	2			

6 5 4 3 2 1

A B C D



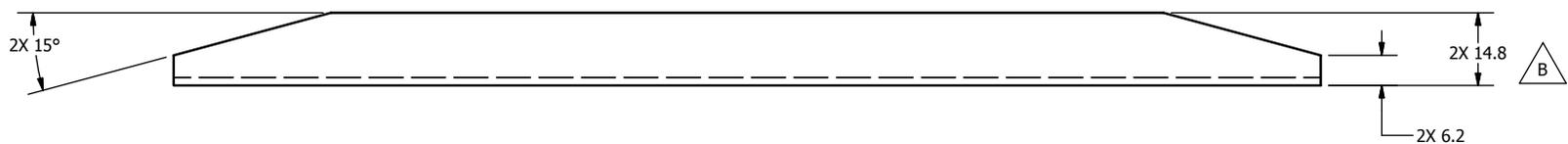
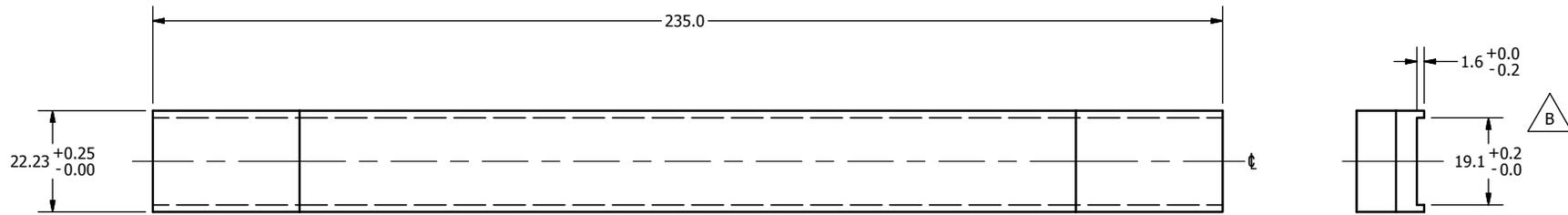
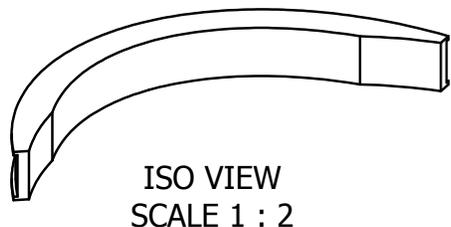
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM371 R4 AND CONVERTED TO METRIC FOR THOR-M0	9/21/2011	TKN
	B	FINISH E-COAT WAS BLK. OXIDE; REMOVE NOTES 6,7; ADD HEAT TREAT TO TITLE BLOCK	5/8/2012	BK
	C	ADD VIEW TO SHOW HOLES	7/11/2012	BK
	D	3.10 WAS 3.03; REMOVE NOTE 5; ADD DATUM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

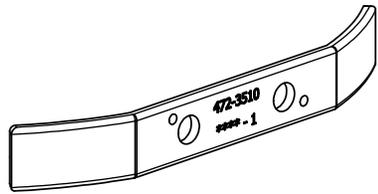
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3370	1	1070 SPRING STEEL	Thanh	9/21/2011	THORAX ELLIPTICAL RIB #7 - STEEL
NEXT ASSEMBLY	QTY	Rc: 43-47			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	472-3371

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

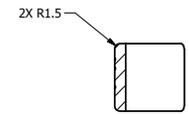
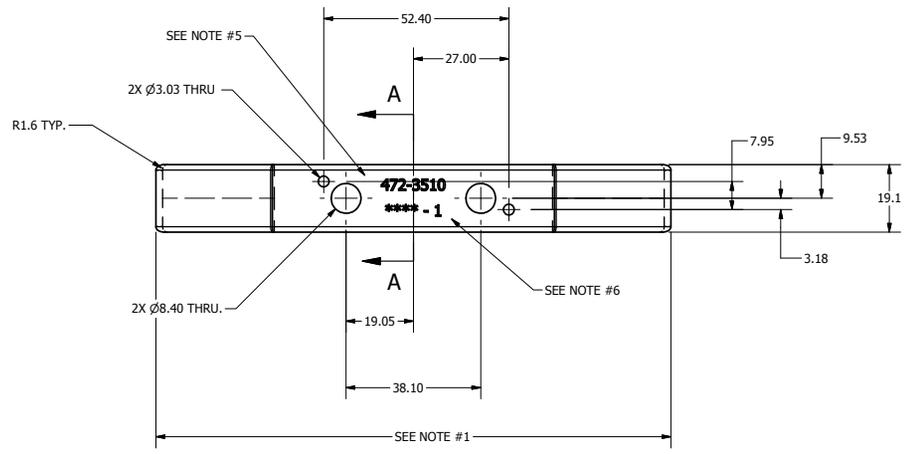
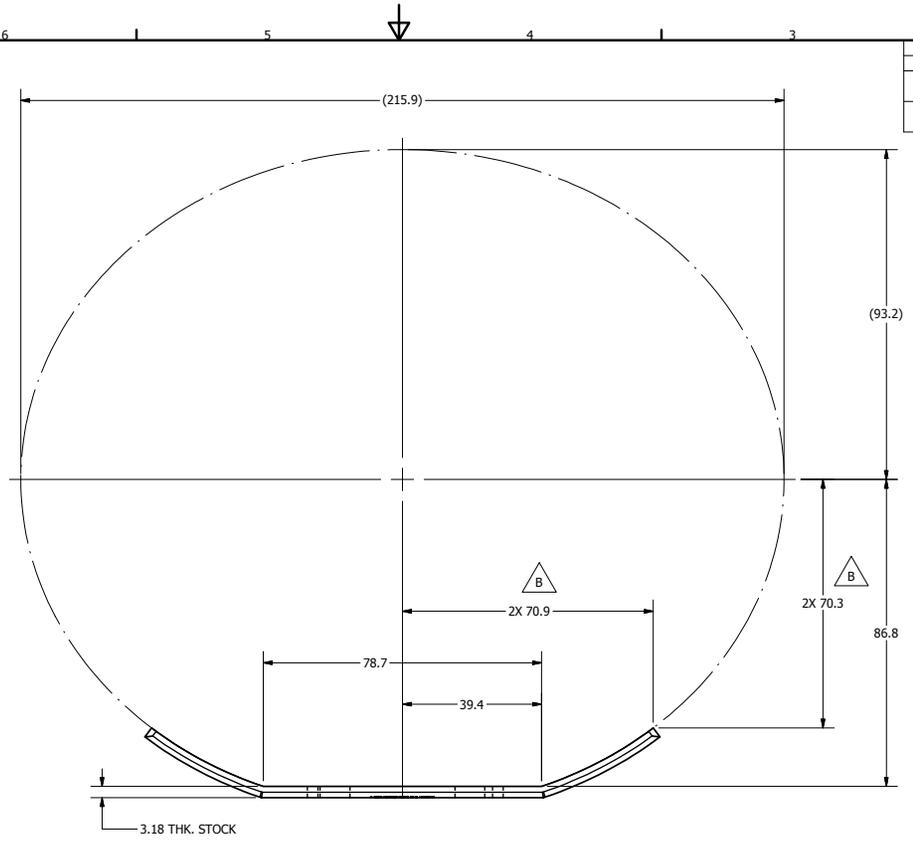


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-3370	MATERIAL:	ISODAMP CN-62	DESCRIPTION: THORAX ELLIPTICAL RIB #7 - DAMPING MATERIAL
DRAWN BY:	Thanh	DATE:	9/21/2011	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	
FINISH:		DATE:	1/18/2012	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3372 SCALE: FULL
REVISIONS	QTY	TOTAL QTY IN DUMMY	2	REV: B

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



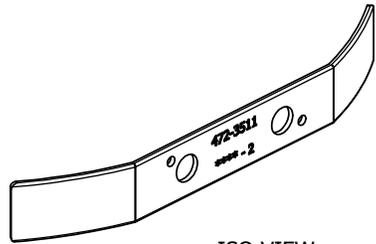
SECTION A-A
SCALE 1 : 1



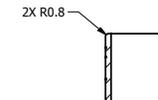
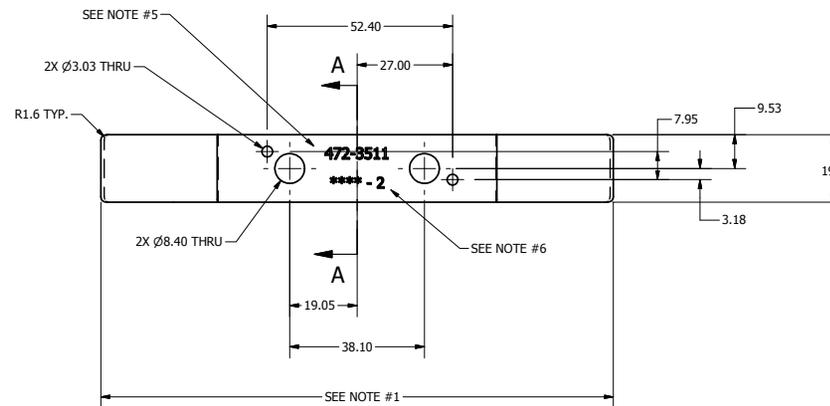
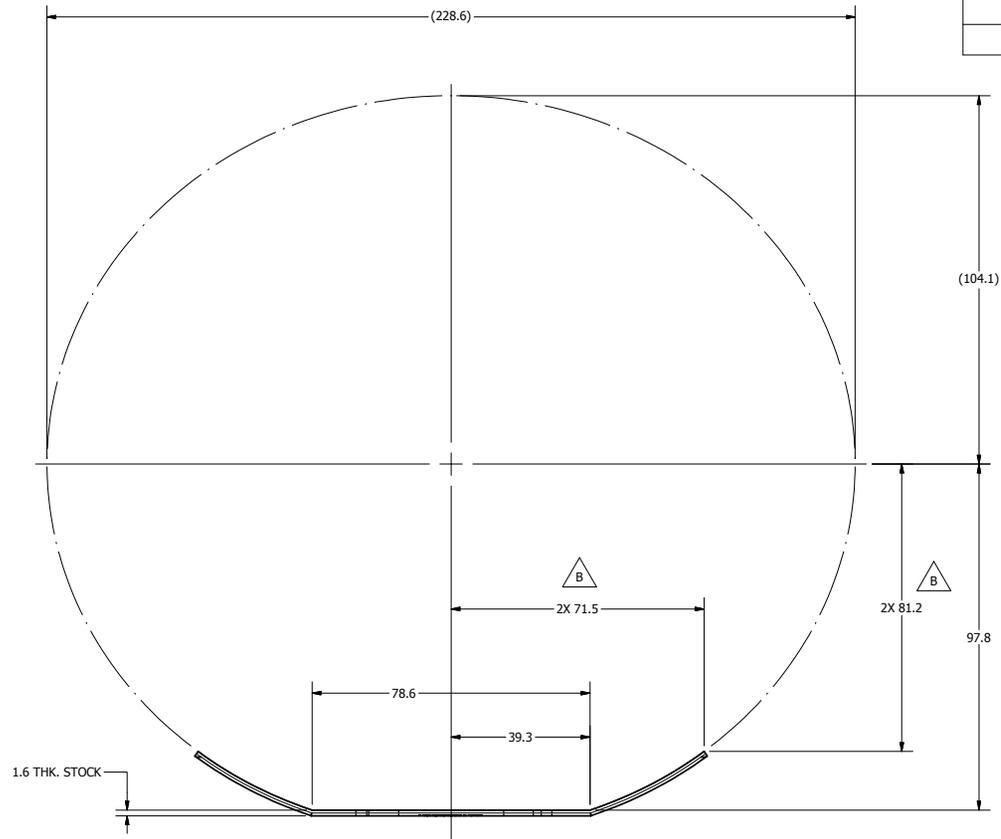
- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=107.9MM, Y=93.2MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3510 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED, WHERE **** IS A FOUR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

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO THE NEAREST 0.1mm		THORAX ELLIPTICAL RIB STIFFENER #1	
REVISED BY:	DATE:	DESIGNED BY:	DATE:	DRAWN BY:	DATE:
472-3000	1	01 TOOL STEEL	Thanh	9/22/2011	
NEXT ASSEMBLY	QTY	SEE NOTES			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	
			DATE:	SCALE:	472-3510
			1/18/2012	A21 of 1	
				FULL	

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



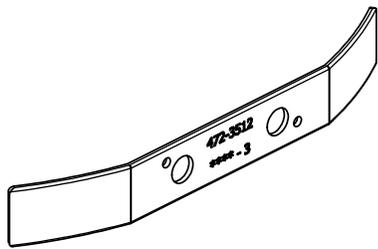
NOTES:

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)

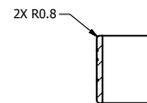
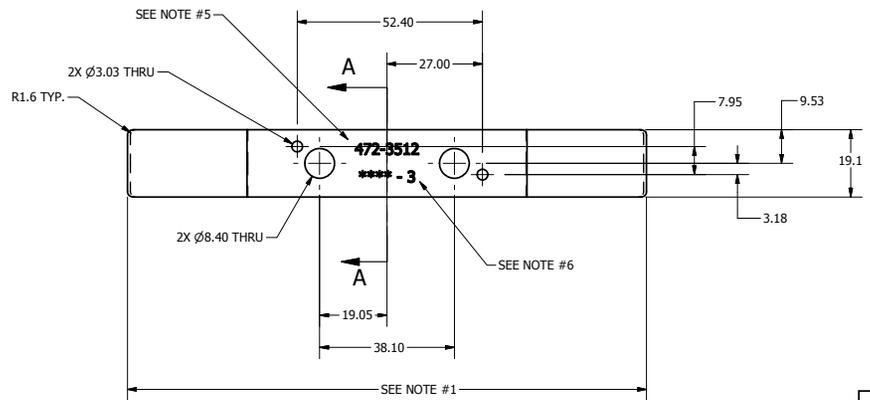
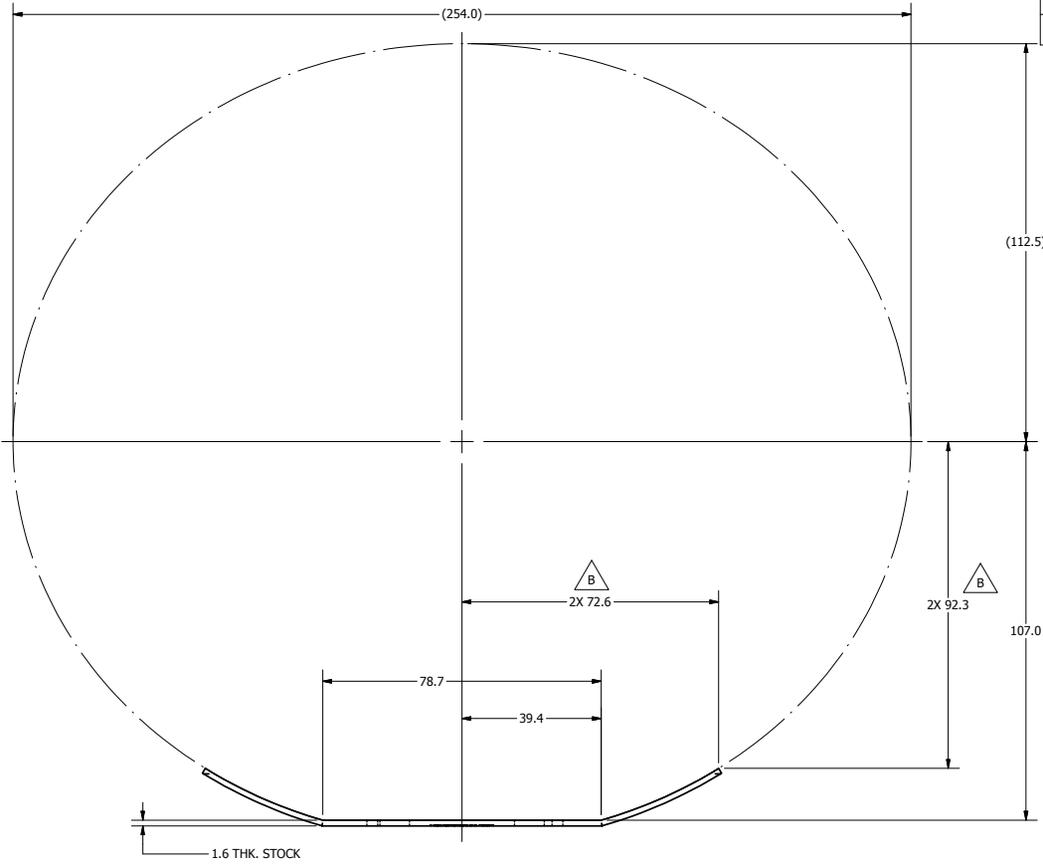
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DECIMAL FRACTIONS: MILLIMETERS DIMENSIONS ARE TO UNLESS OTHERWISE SPECIFIED FRACTIONS: 1/16" 1/8" 1/4" 3/8" 1/2" 5/8" 3/4" 7/8" 1"		THORAX ELLIPTICAL RIB STIFFENER #2	
472-3000	1	01 TOOL STEEL	Thanh	9/22/2011	
NEXT ASSEMBLY	QTY	SEE NOTES	PREPARED BY	DATE	
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	

A21 of 1		472-3511	
FULL		B	

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



ISO VIEW
SCALE 1 : 1



SECTION A-A
SCALE 1 : 1



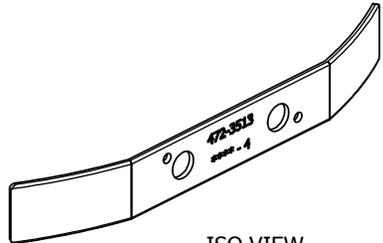
NOTES:

1. LENGTH PRIOR TO BENDING IS 152.4MM
2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
3. SEMI-AXES ARE X=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)

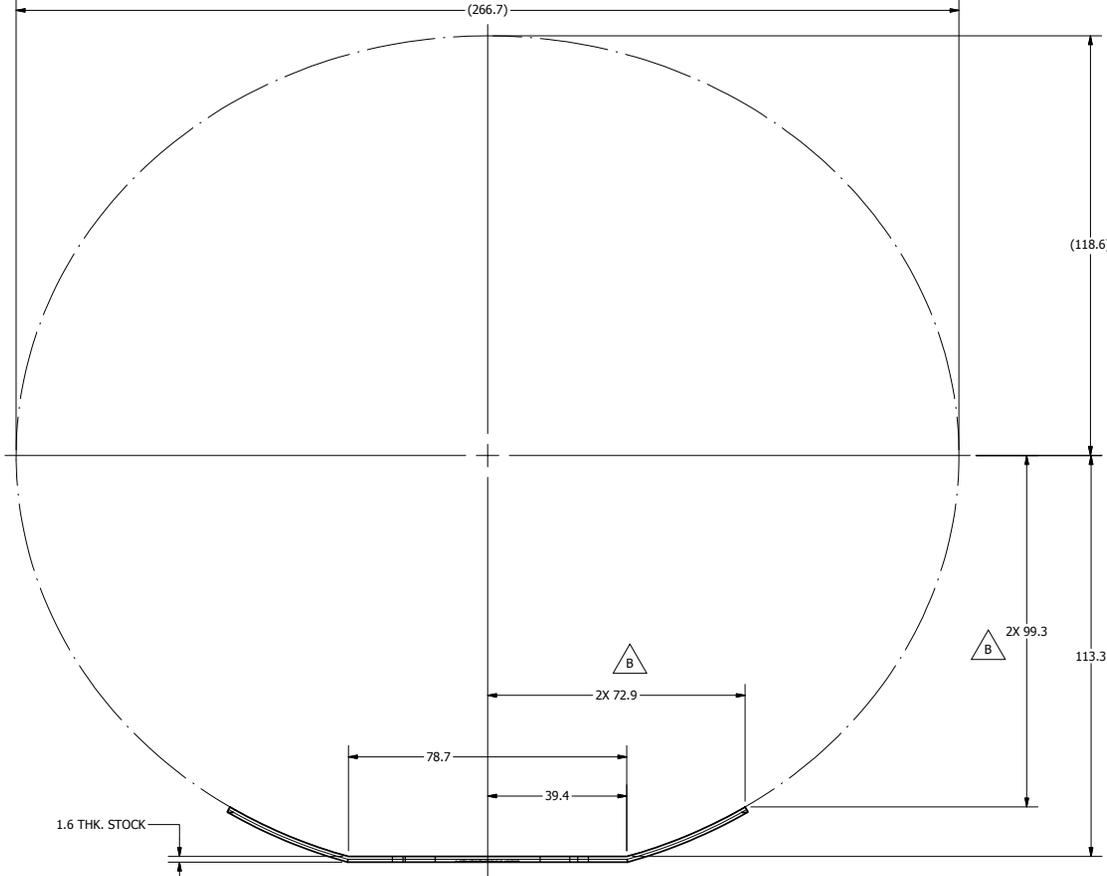
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3000	1	01 TOOL STEEL	Thanh	9/22/2011	THORAX ELLIPTICAL RIB STIFFENER #3
NEXT ASSEMBLY	QTY	SEE NOTES			
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	472-3512

REV	QTY	DESCRIPTION	DATE	BY
A	1	01 TOOL STEEL	9/22/2011	Thanh
B	1	E-COAT	1/18/2012	J. WANG

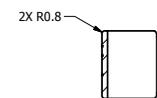
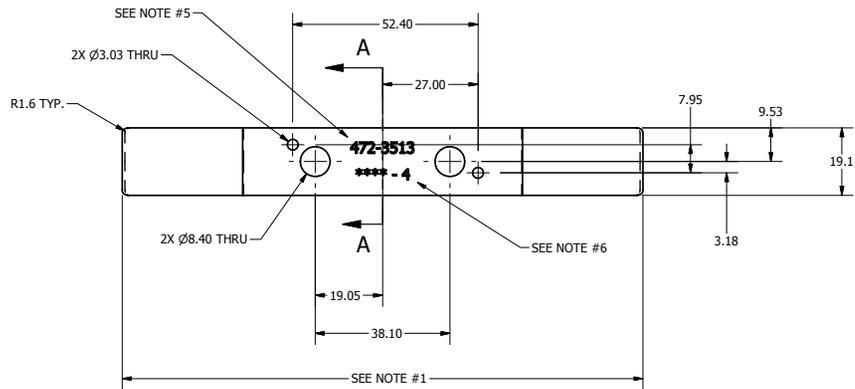
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1TXM013 R6 AND CONVERTED TO METRIC FOR THOR-M	9/22/2011	TKN
	B	REMOVE FIT NOTES (4 & 5), ADD FINISH E-COAT; ADD 2X 99.3, 2X 72.9	3/22/2012	BK



ISO VIEW
SCALE 1 : 1



1.6 THK. STOCK



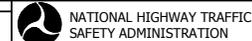
SECTION A-A
SCALE 1 : 1



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)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3000	1	01 TOOL STEEL	Thanh	9/22/2011	THORAX ELLIPTICAL RIB STIFFENER #4
NEXT ASSEMBLY	QTY	SEE NOTES	J. WANG	1/18/2012	472-3513
TOTAL QTY IN DUMMY	1	E-COAT			

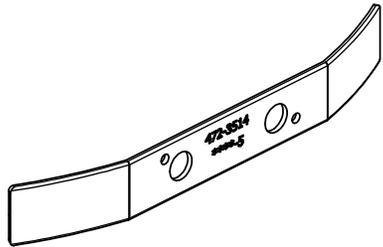


THORAX ELLIPTICAL RIB STIFFENER #4

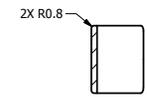
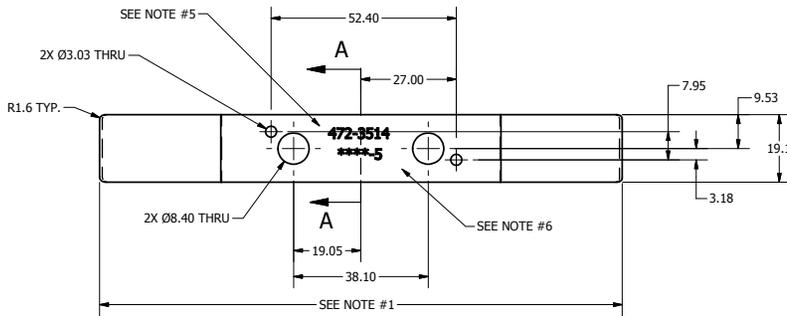
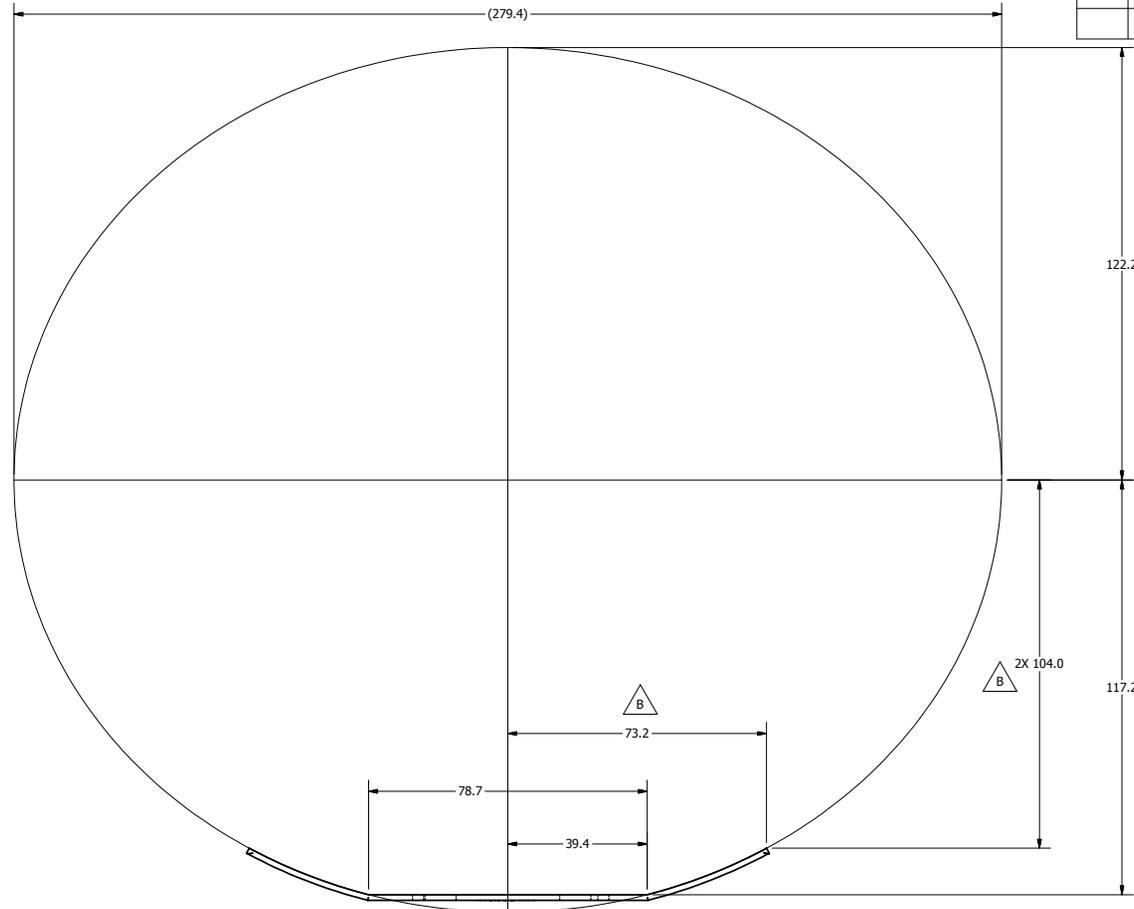
472-3513

1 of 1 FULL

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



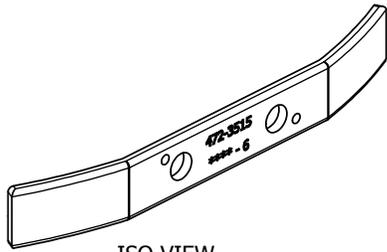
- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=139.7MM, Y=122.2MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3514 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR 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		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.01		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	

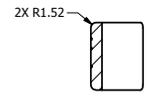
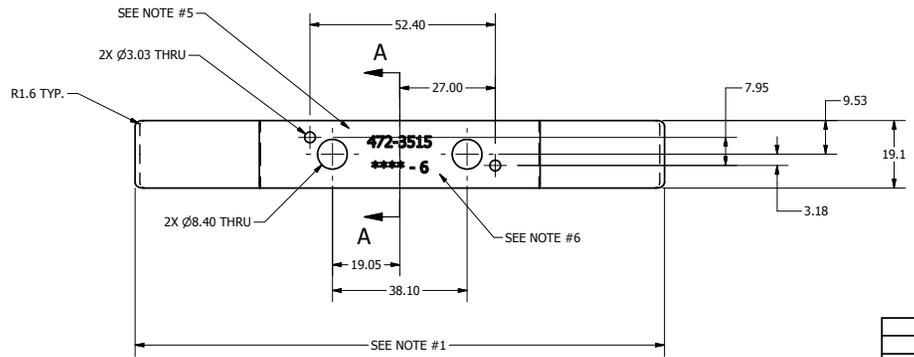
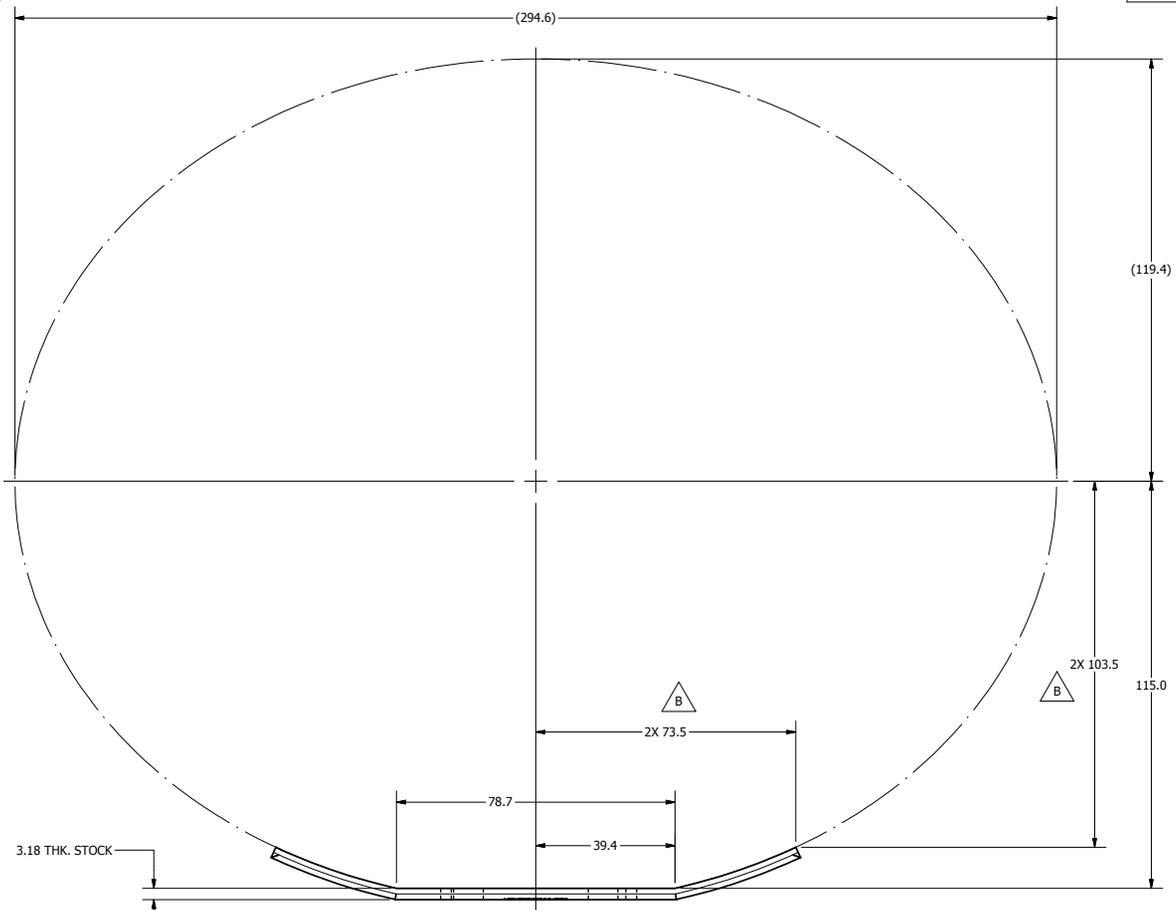
THORAX ELLIPTICAL RIB STIFFENER #5

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



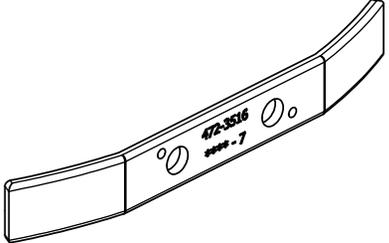
SECTION A-A
SCALE 1 : 1



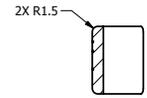
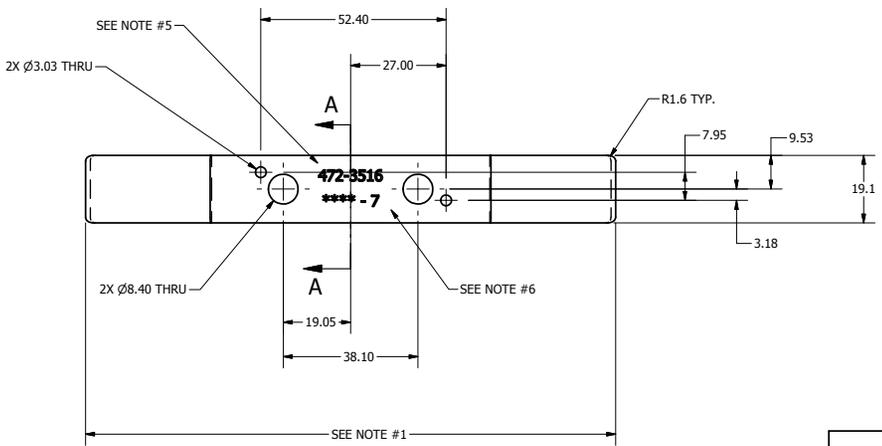
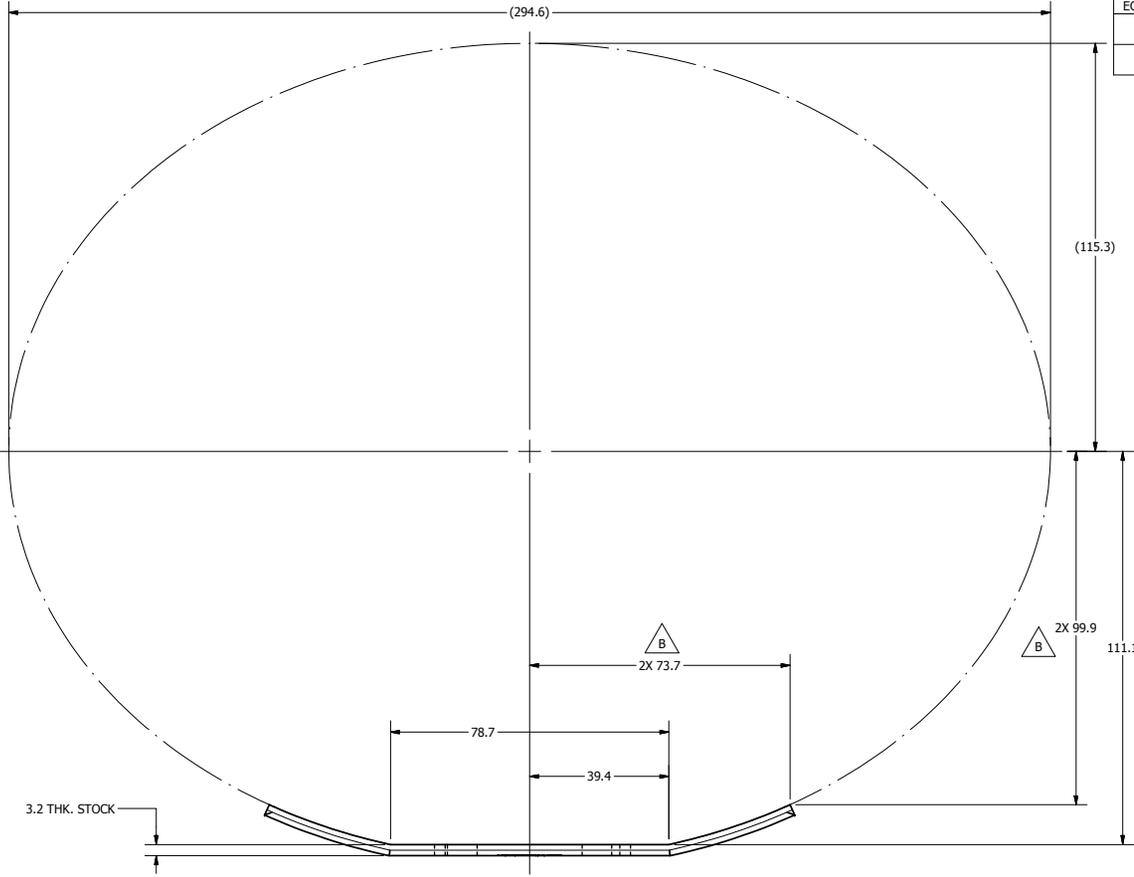
- NOTES:
1. LENGTH PRIOR TO BENDING IS 152.4MM
 2. BENT ENDS FOLLOW THE ELLIPTICAL CURVES SHOWN.
 3. SEMI-AXES ARE X=147.3MM, Y=119.4MM
 4. HEAT TREAT TO Rc 50 +/- 2
 5. ENGRAVE DWG. # 472-3515 AT THE LOCATION SPECIFIED.
 6. ENGRAVE SERIAL NUMBER ****-# AT THE LOCATION SPECIFIED. WHERE **** IS A FOUR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



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=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	PREPARED BY	DATE	
TOTAL QTY IN DUMMY	1	E-COAT	J. WANG	1/18/2012	

THORAX ELLIPTICAL RIB STIFFENER #7

472-3516

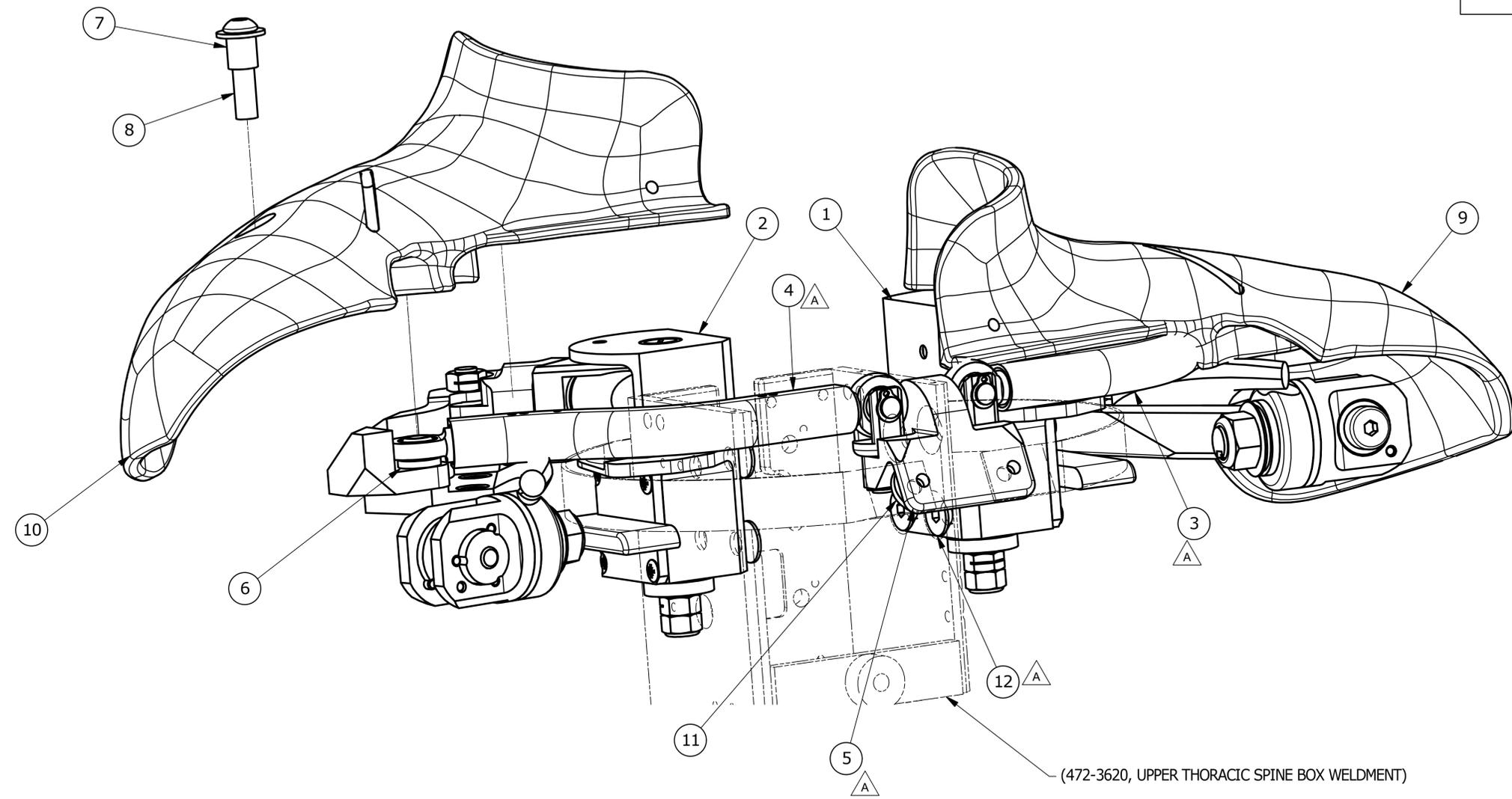
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A	REVISED ITEMS 3, 4, 5. ADDED ITEM 12	2/10/2014	JHC
	B	DRAWING NUMBER WAS AXSDM000M; REMOVED SD3 UPPER HUMERUS ASSEMBLY - AXAMM000; TITLE WAS SD3 SHOULDER AND ARMS ASSEMBLY; 472-3810 WAS AXSDM300, 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	SIZE D	REV B
FINISH			SHEET 1 OF 1	

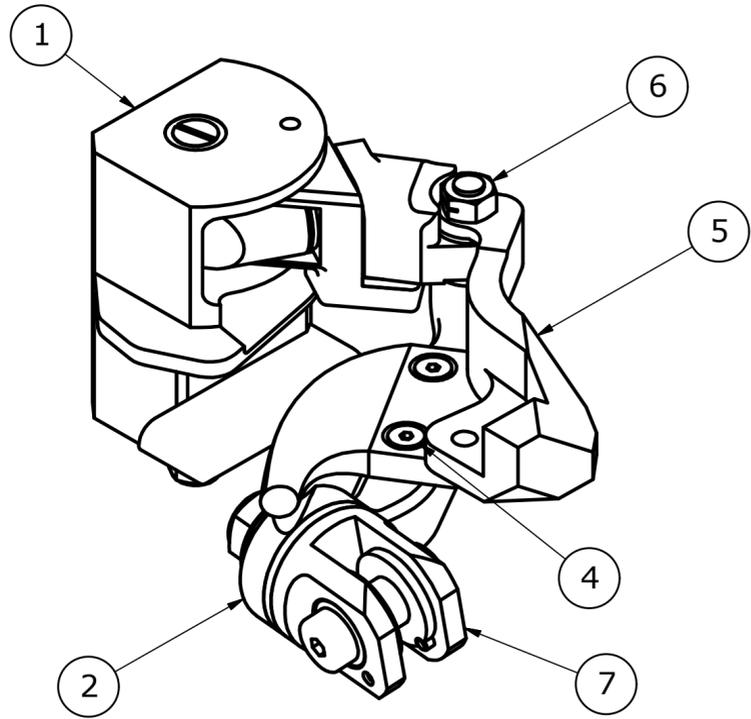
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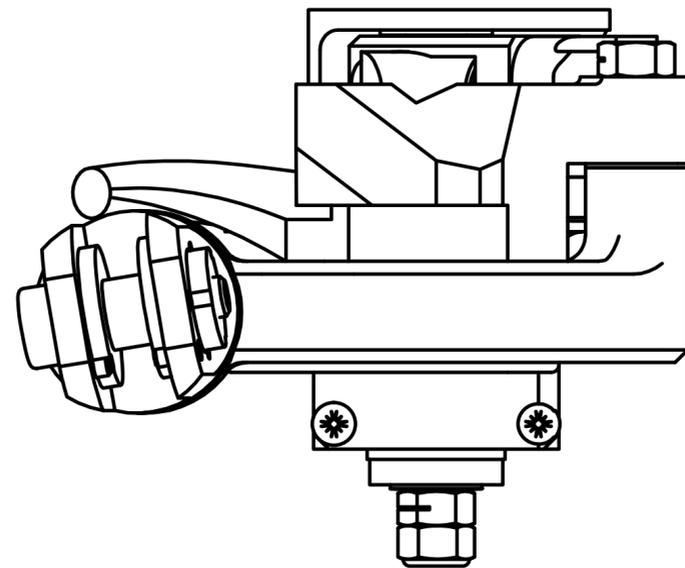
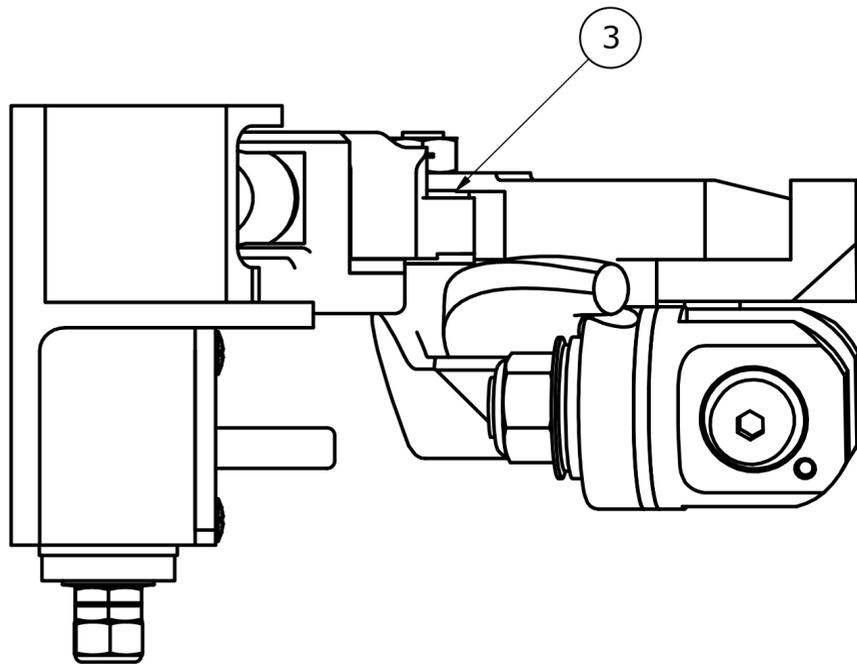
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM300; 472-3811 WAS AXSDM600, 472-3829-1 WAS AXSDM012B, 472-3818 WAS AXSDM030B, 472-3830-1 WAS AXSDM010B & 472-3831 WAS AXSDM500	9/9/2014	DW



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 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		LEFT SHOULDER ASSEMBLY	
DRAWN JIM CLEVENGER		8/5/2013			
CHECKED					
MATERIAL ENG		APPROVED		SIZE C	DRAWING NUMBER 472-3810
HEAT TREAT				SCALE: 1:1	REV A
FINISH				SHEET 1 OF 1	

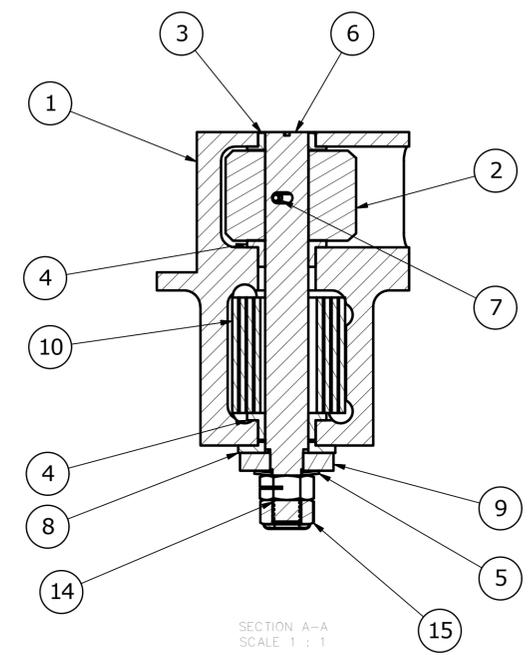
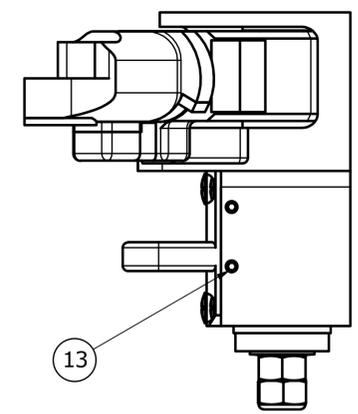
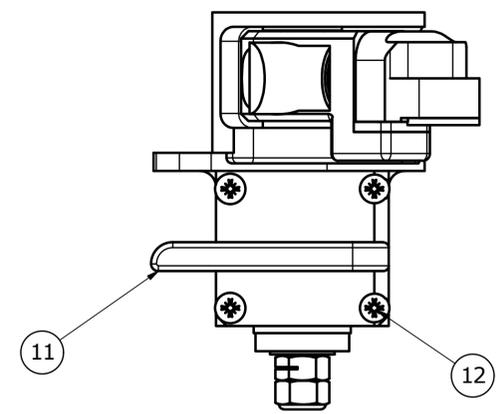
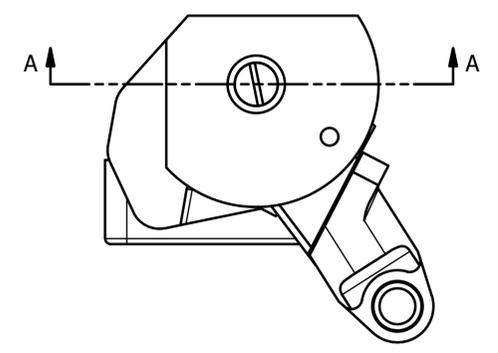
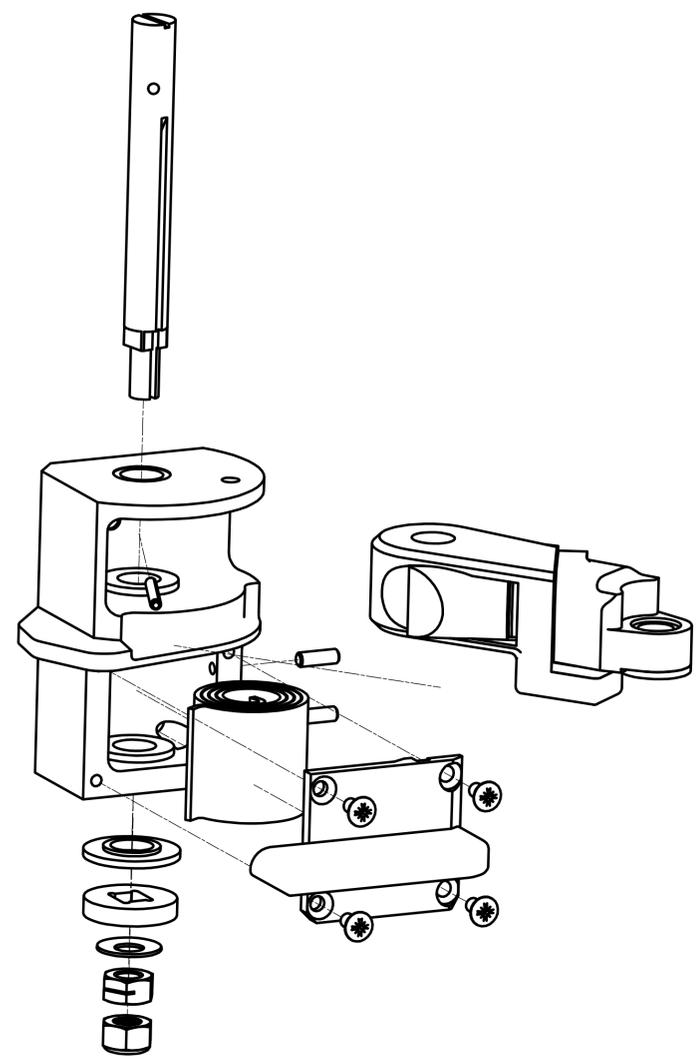
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM600; IN PARTS LIST, 472-3812-1 WAS AXSDM002B, 472-3813-1 WAS AXSDM700, 472-3822 WAS AXSDFM020B, 472-3823 WAS AXSDM019B, 472-3824 WAS AXSDM001B, 472-3825 WAS AXSDM005C, 472-3826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

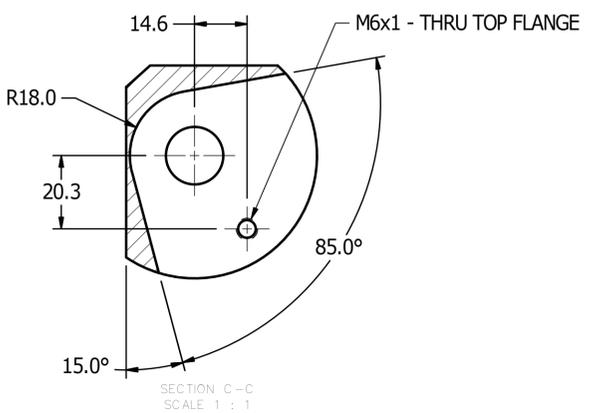
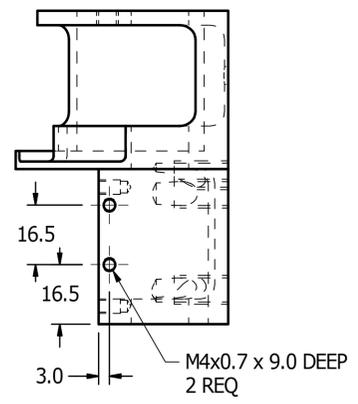
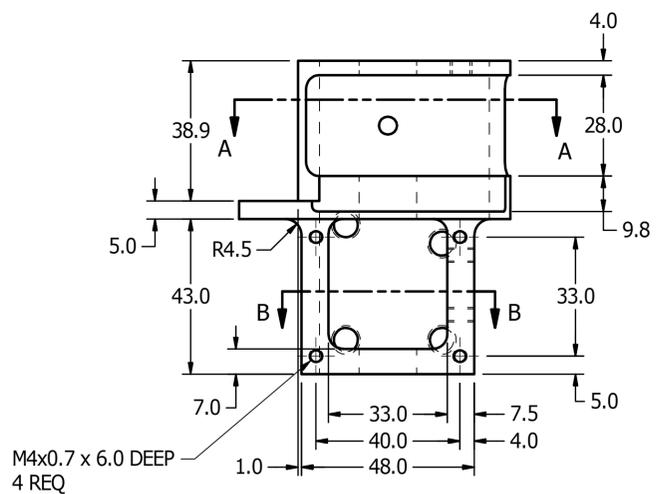
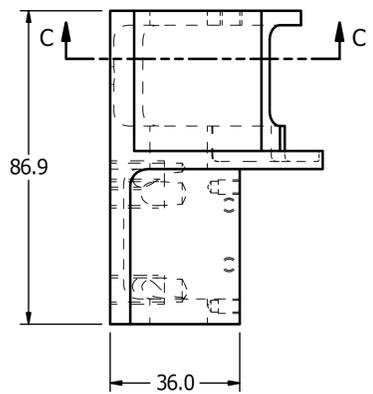
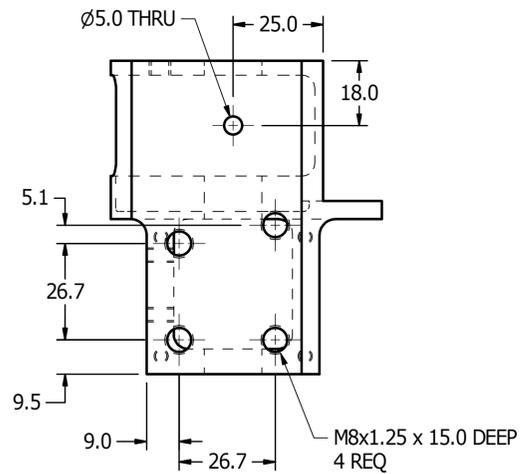
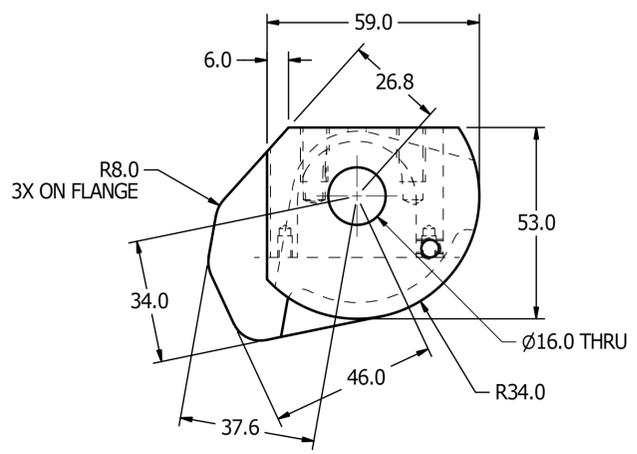
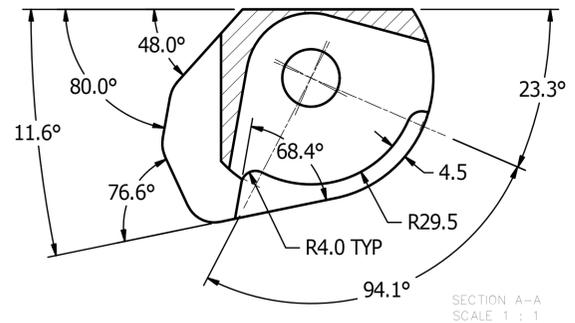
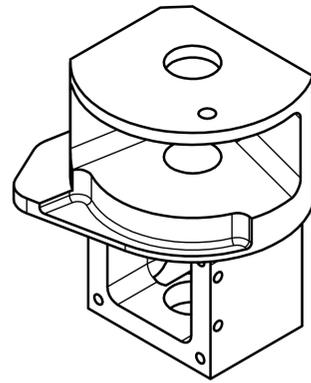


SECTION A-A
SCALE 1 : 1

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	
APPROVALS	DATE	APPROVALS	DATE	SIZE	DRAWING NUMBER
DRAWN JIM CLEVENGER	8/9/2013	APPROVED		D	472-3811
CHECKED		APPROVED		SCALE: 1:1	REV A
				SHEET	1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM002B	9/10/2014	



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	
	DRAWN JIM CLEVELER	8/15/2013	SPRING HOUSING COVER, LH
MATERIAL: Steel	ENG		SIZE: D
TREAT TREAT	APPROVED		DRAWING NUMBER: 472-3812-1
FINISH			SCALE: 1:1
			SHEET: 1 OF 1

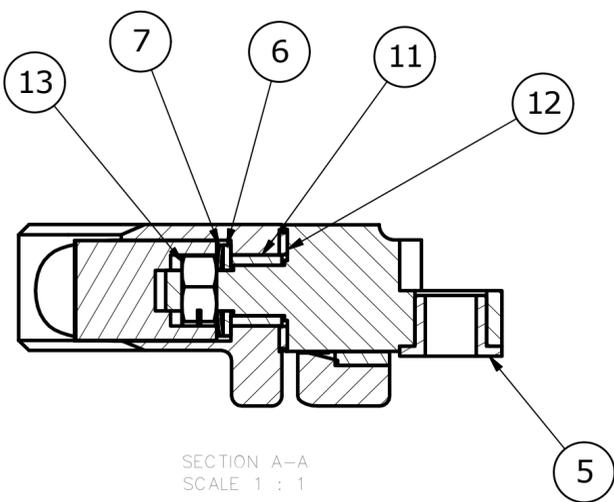
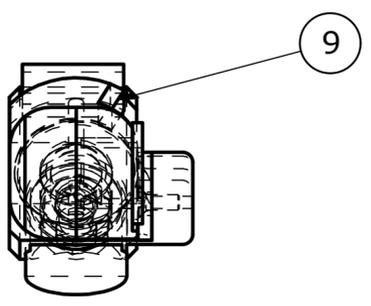
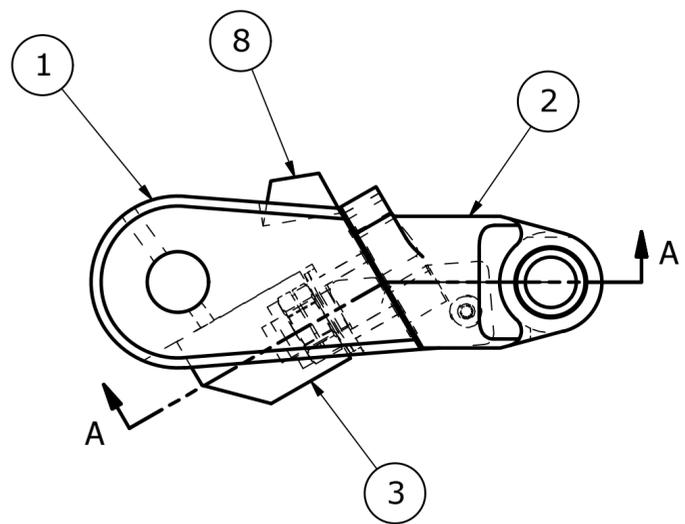
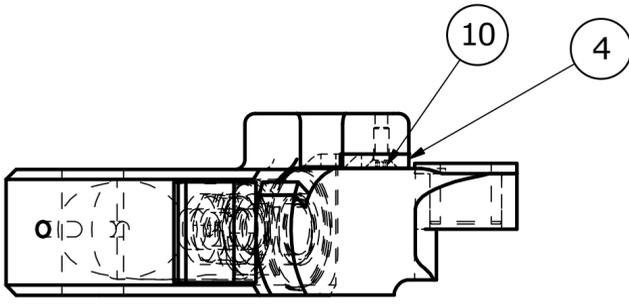
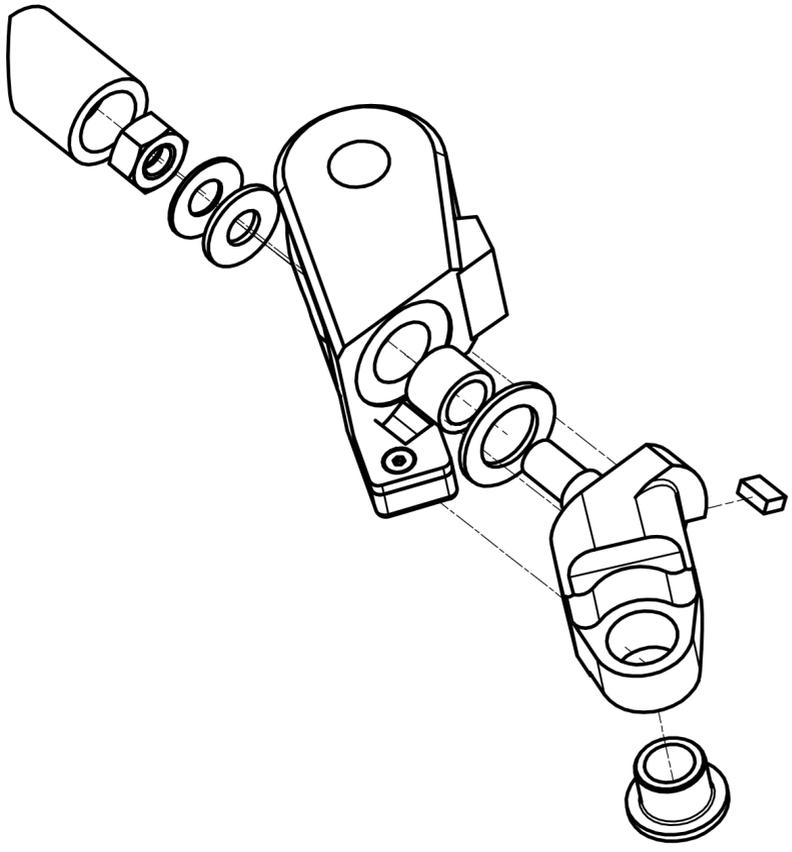
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2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	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



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 CLEVINGER 8/8/2013 CHECKED: _____ MATERIAL: ENG HEAT TREAT: APPROVED FINISH: _____	
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SHOULDERS SUPPORT ASSEMBLY, LH SIZE: C DRAWING NUMBER: 472-3813-1 REV: A SCALE: 1:1 SHEET: 1 OF 1	

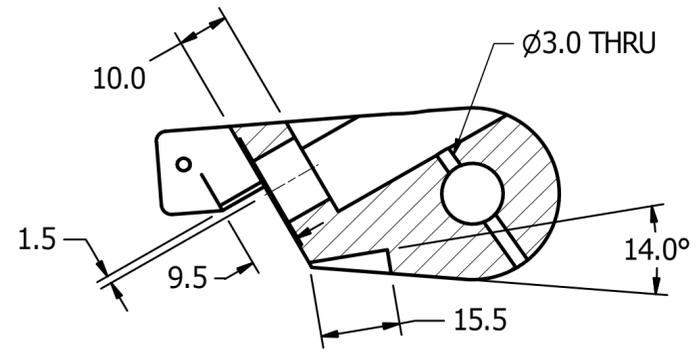
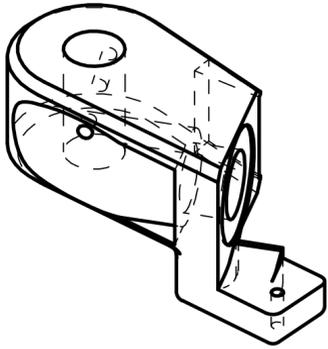
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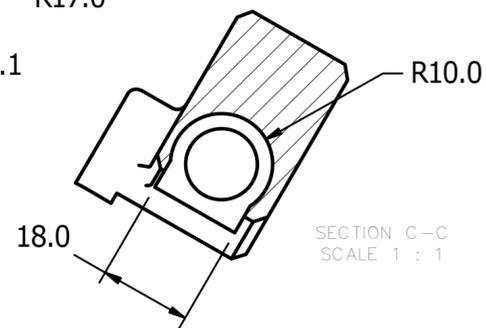
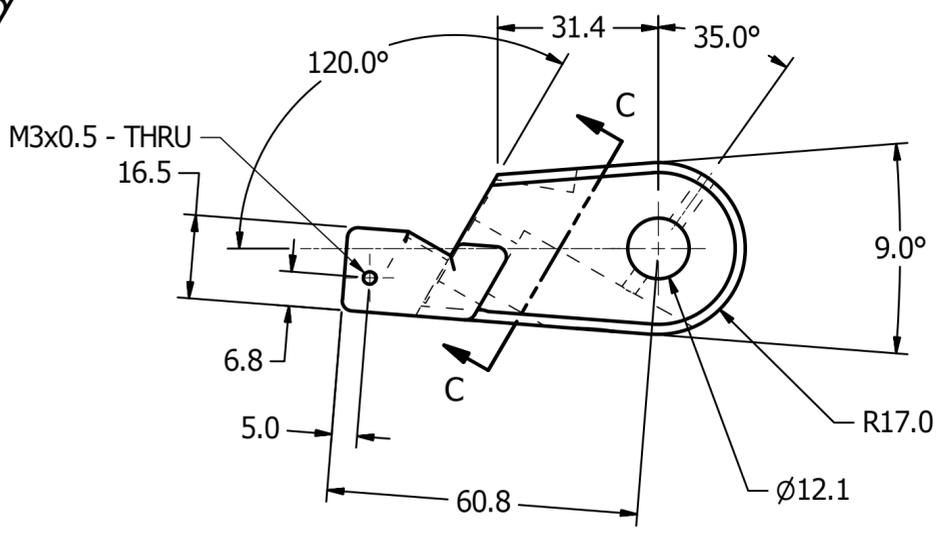
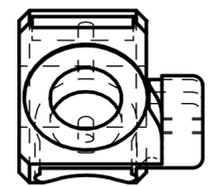
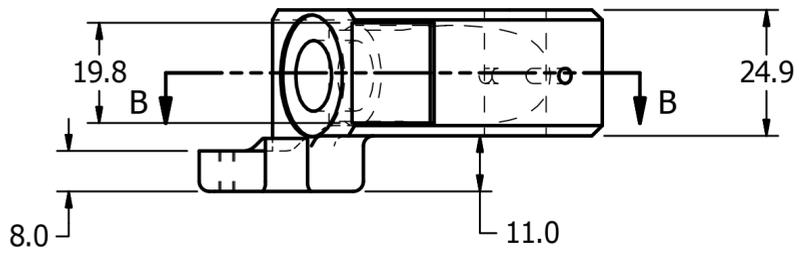
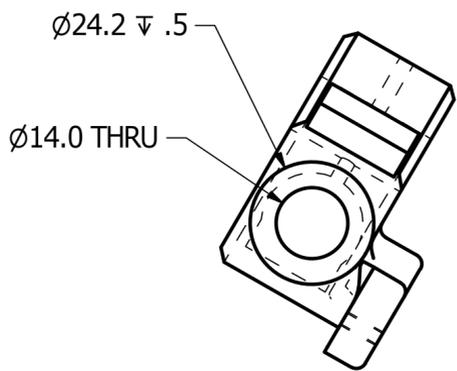
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXSDM006B	9/10/2014	DW



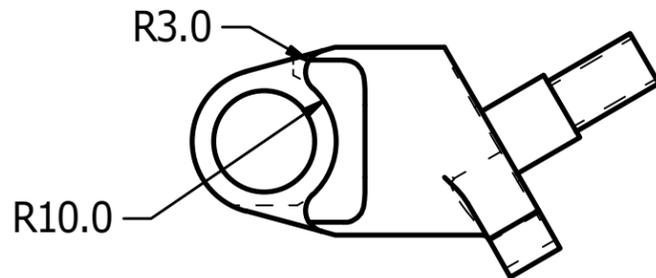
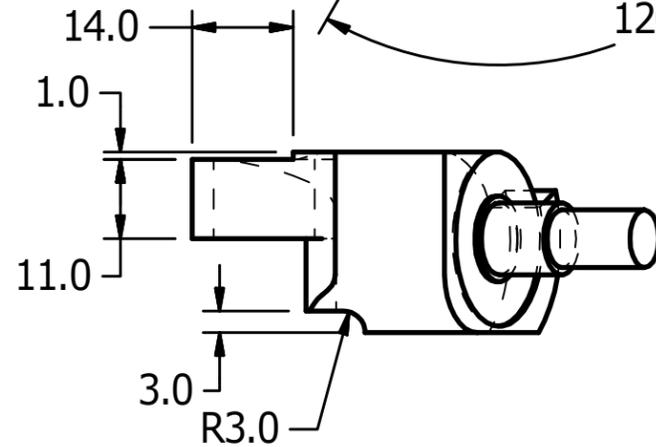
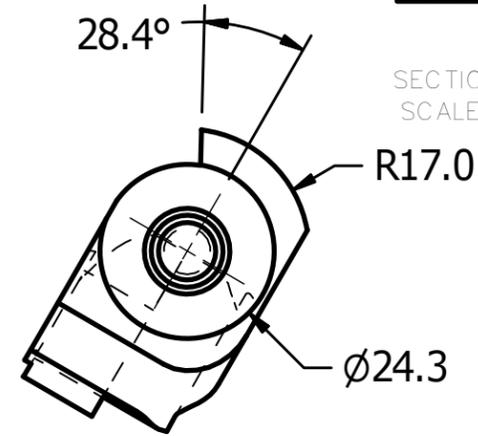
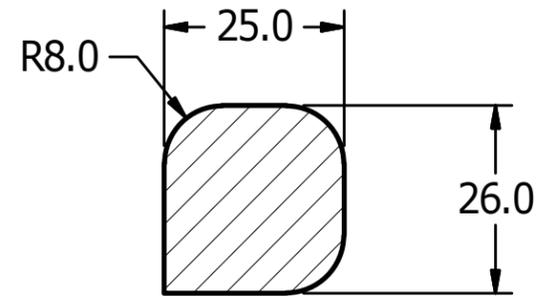
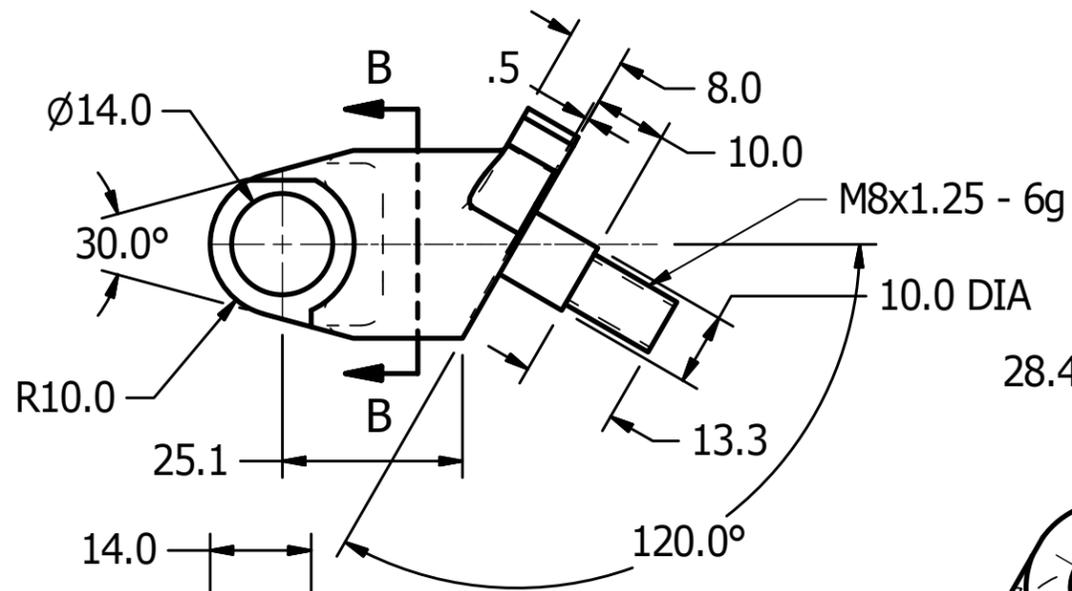
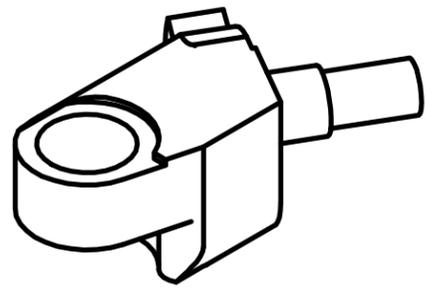
SECTION B-B
SCALE 1 : 1



SECTION C-C
SCALE 1 : 1

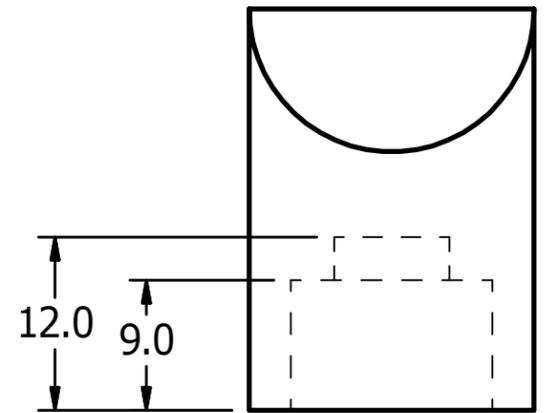
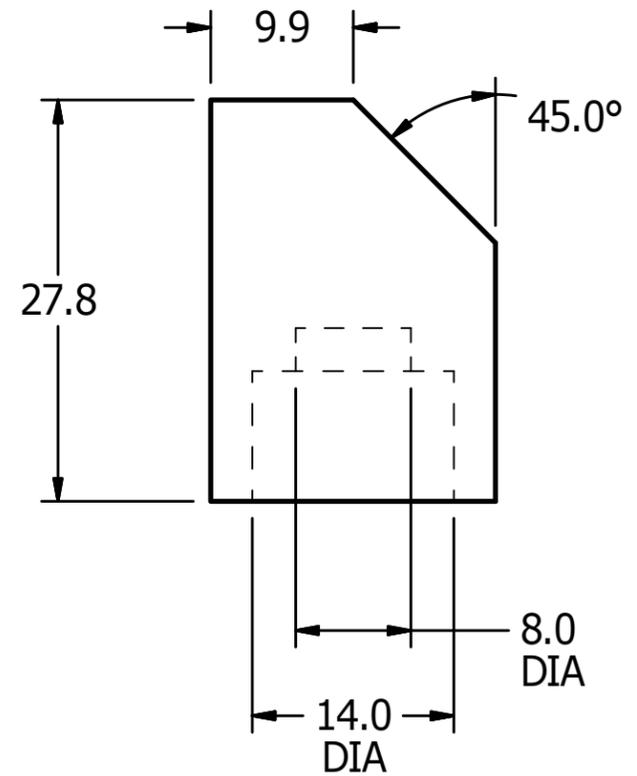
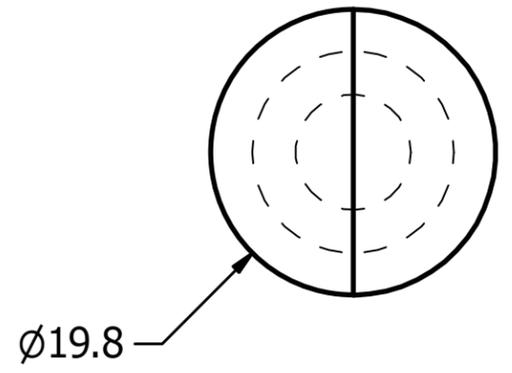
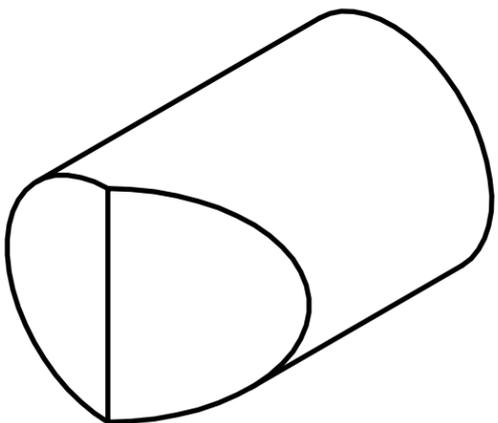
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		SHOULDER SUPPORT, LH	
DRAWN JIM CLEVENGER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

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM008B	9/10/2014	DW



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		SHOULDER SUPPORT PIVOT, LH
	DRAWN JIM CLEVINGER	8/15/2013	SIZE B	
	CHECKED		DRAWING NUMBER 472-3815-1	
MATERIAL Steel	ENG		REV A	
HEAT TREAT	APPROVED		SHEET 1 OF 1	
FINISH			SCALE: 1:1	

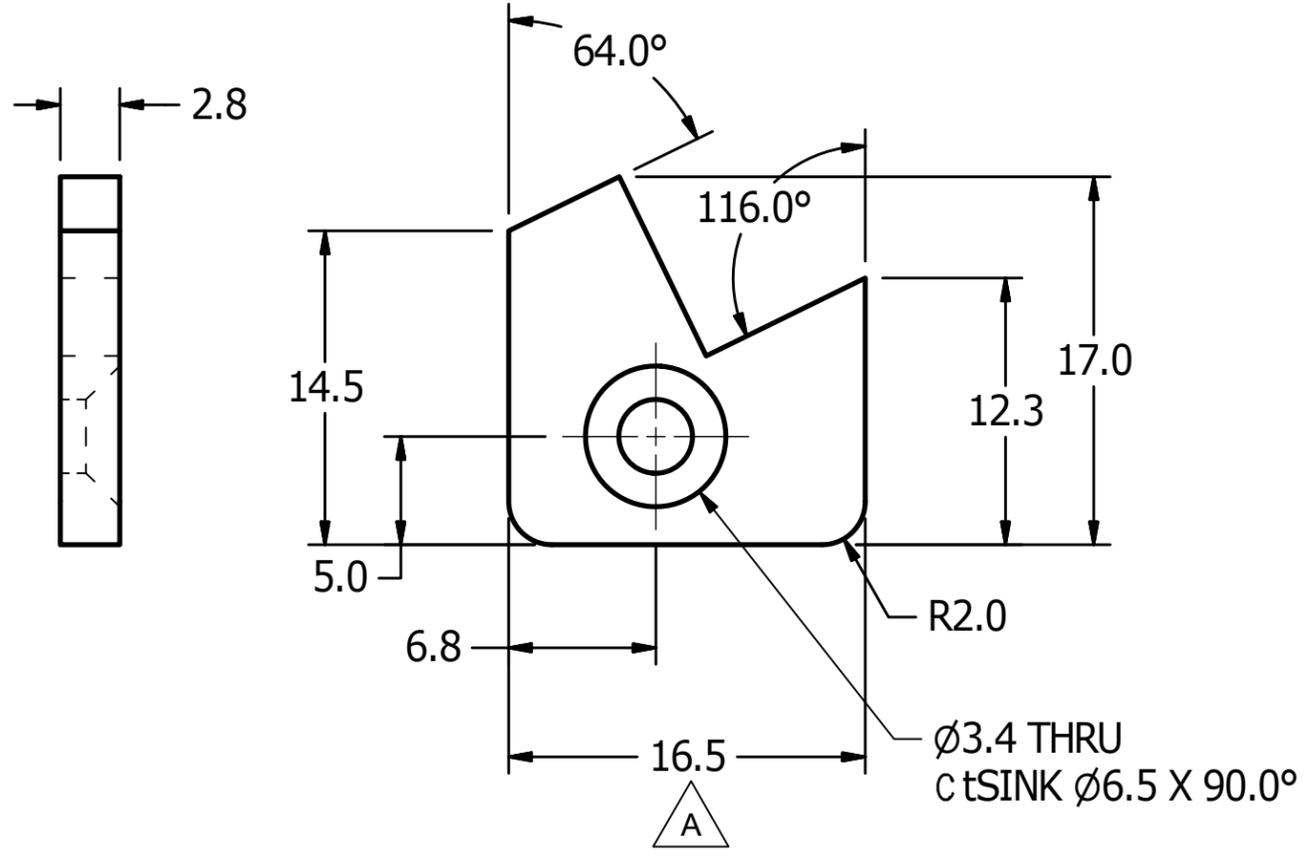
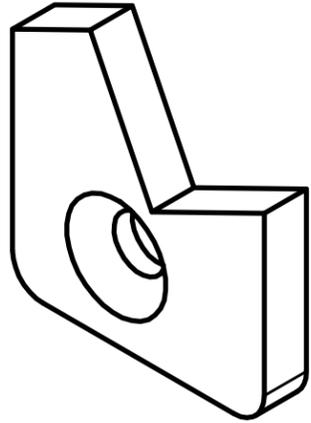
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ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM016C	9/10/2014	DW



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		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION FORWARD ROM BUFFER
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Urethane, Clear	ENG		SIZE: B DRAWING NUMBER: 472-3816 REV: A
HEAT TREAT	APPROVED		
FINISH			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 1.6 ✓
X.X ±.2
X.XX ±.1
ASME Y14.5M - 1994
DO NOT SCALE DRAWING

**VEHICLE RESEARCH
and TEST CENTER**

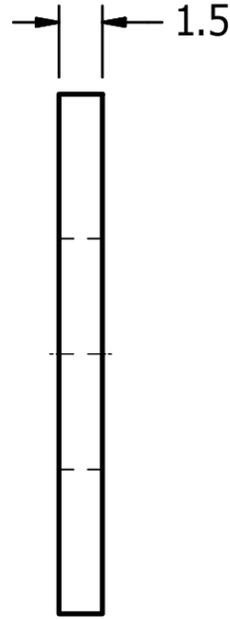
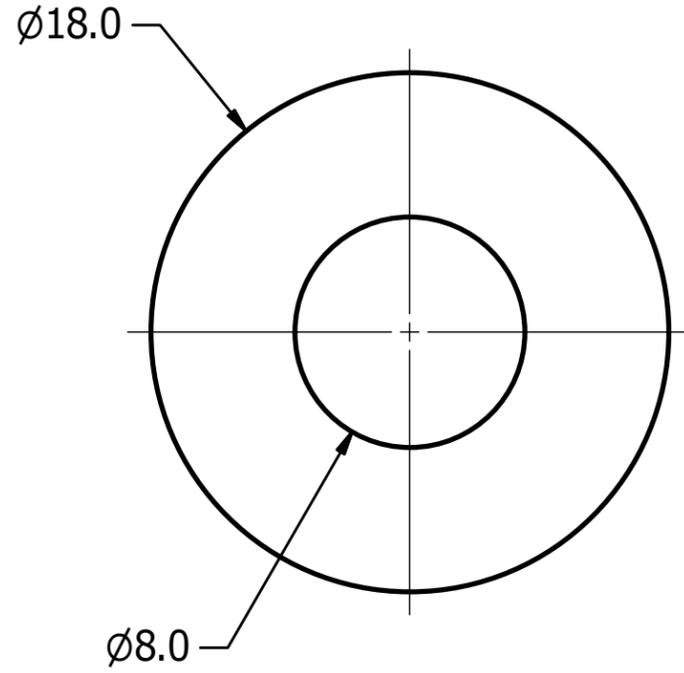
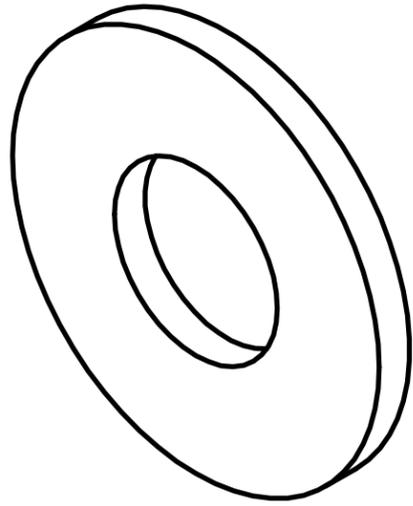
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/20/2013
CHECKED	
ENG	
APPROVED	

 NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

BUFFER, LOWER LEFT

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	
		SCALE: 4X			

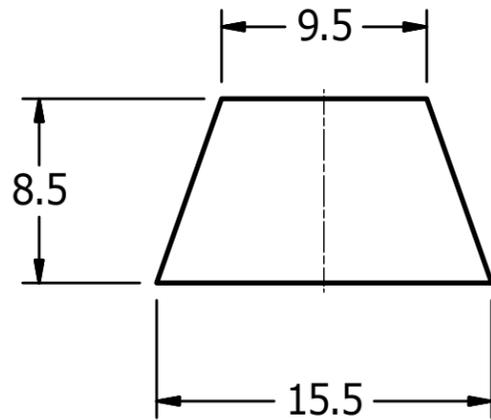
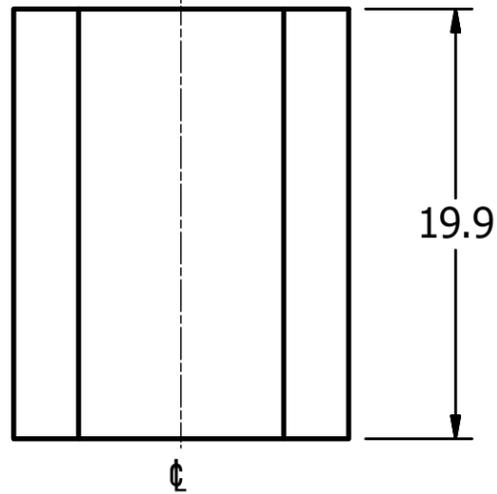
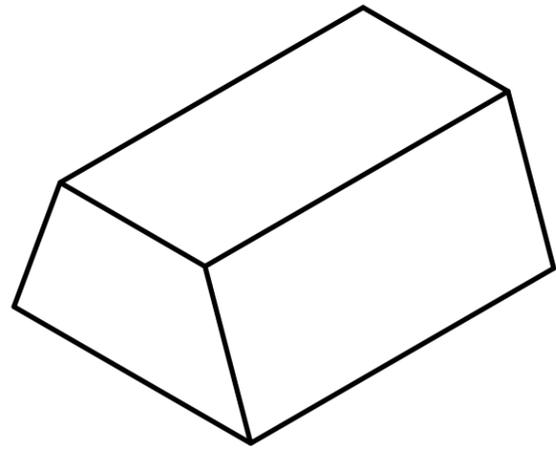
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS ASXDM017B	9/10/2014	DW



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



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

REAR ROM BUFFER

MATERIAL Urethane, Clear

HEAT TREAT

FINISH

SIZE B

SCALE: 3X

DRAWING NUMBER

472-3819

REV A

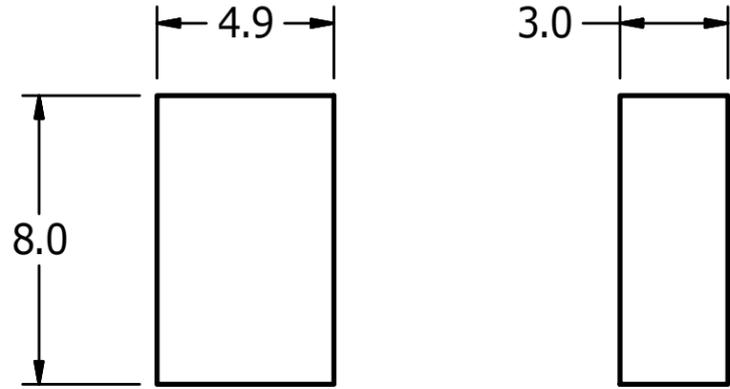
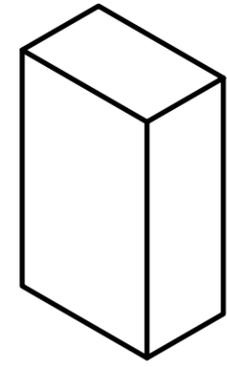
SHEET 1 OF 1

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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					

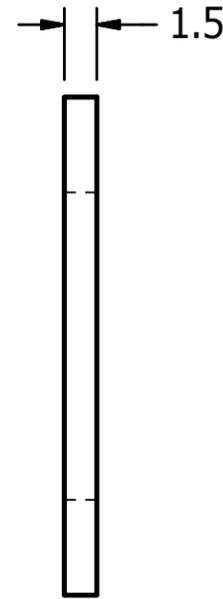
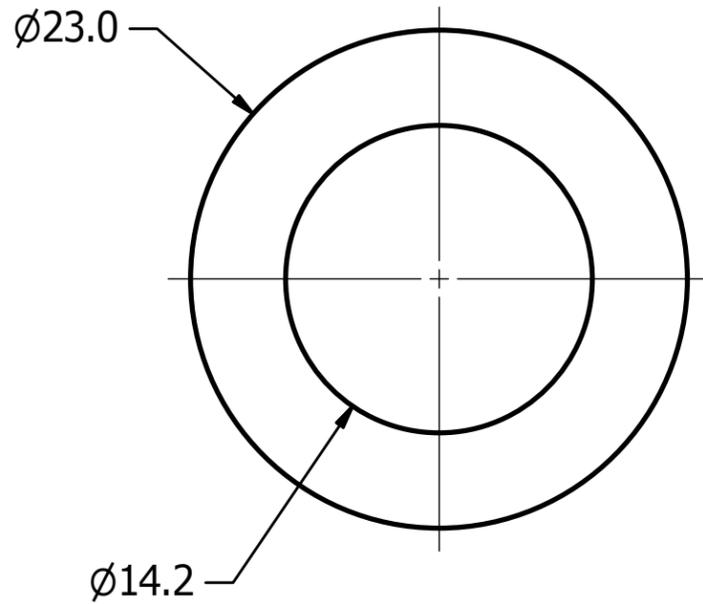
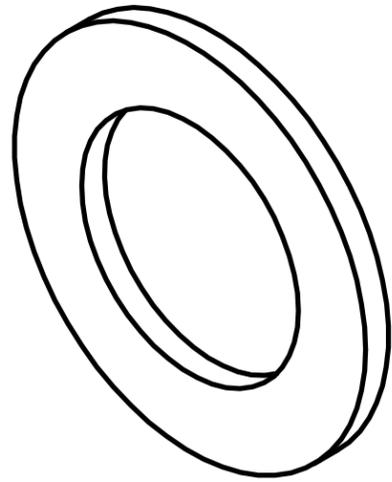
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM031B	9/10/2014	DW



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	8/20/2013	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	

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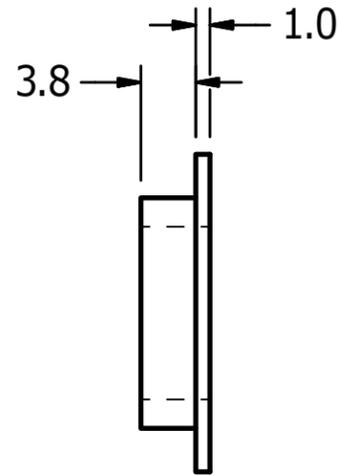
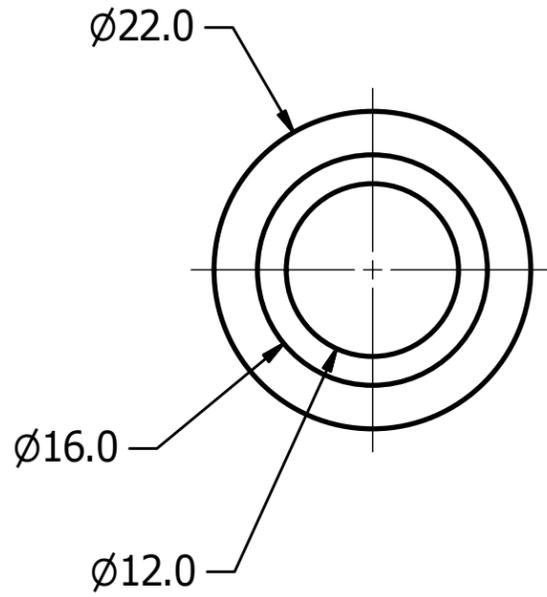
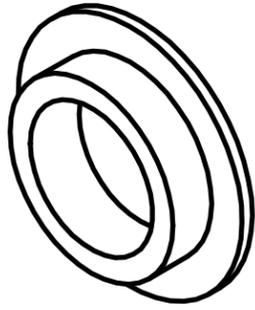
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXSDM020B	9/10/2014	DW



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	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/21/2013
CHECKED	
ENG	
APPROVED	
FINISH	

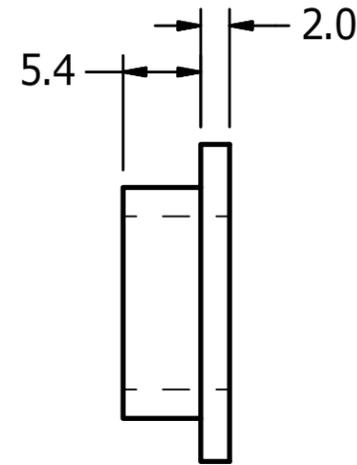
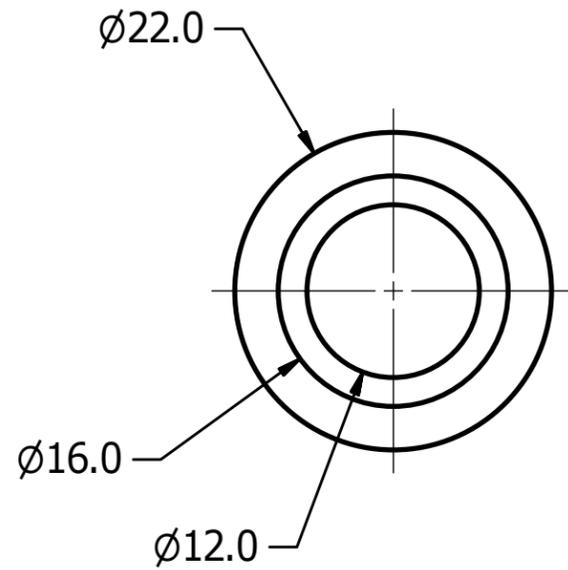
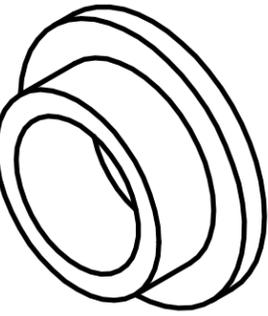
 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	SPRING HOUSING BUSHING, UPPER	
	SIZE B	DRAWING NUMBER 472-3822
	SHEET 1 OF 1	REV A

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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	
MATERIAL	Acetal Resin, Black	ENG	SPRING HOUSING BUSHING, LOWER
HEAT TREAT		APPROVED	
FINISH			SIZE: B DRAWING NUMBER: 472-3823 SHEET: 1 OF 1

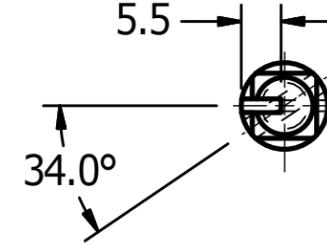
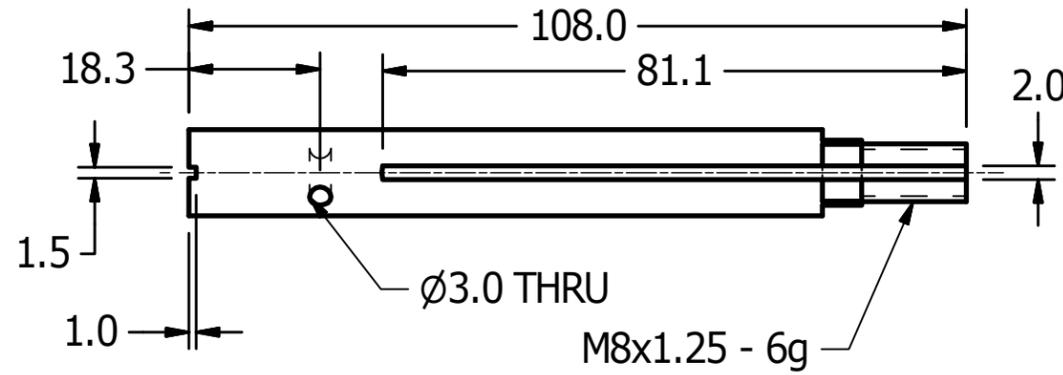
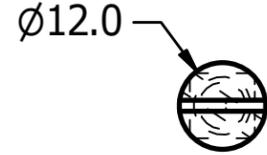
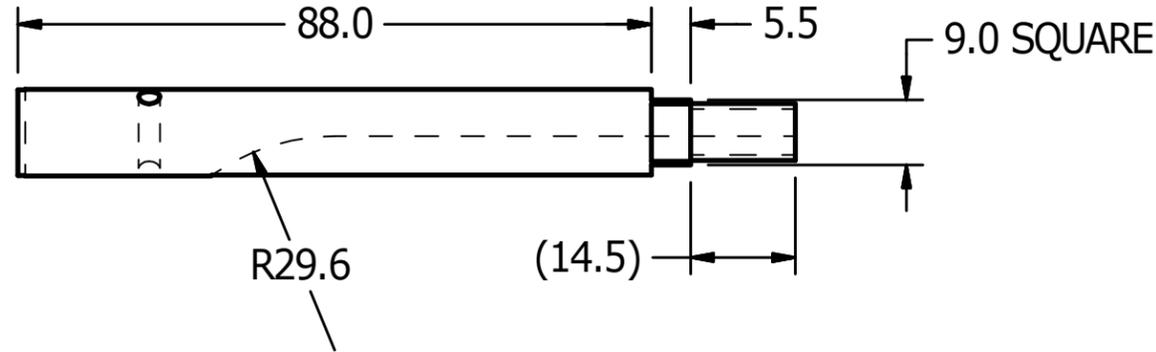
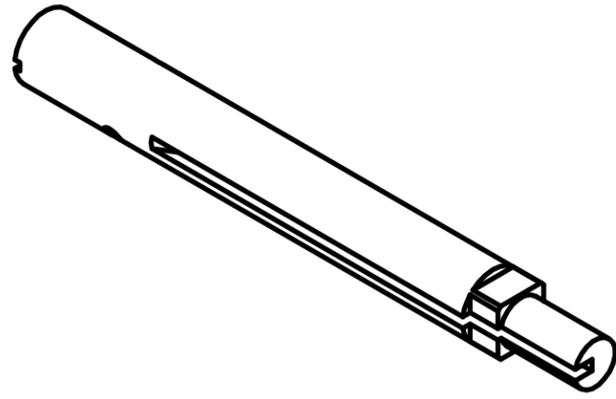
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM001B	9/10/2014	DW



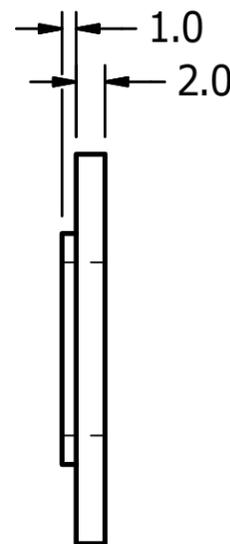
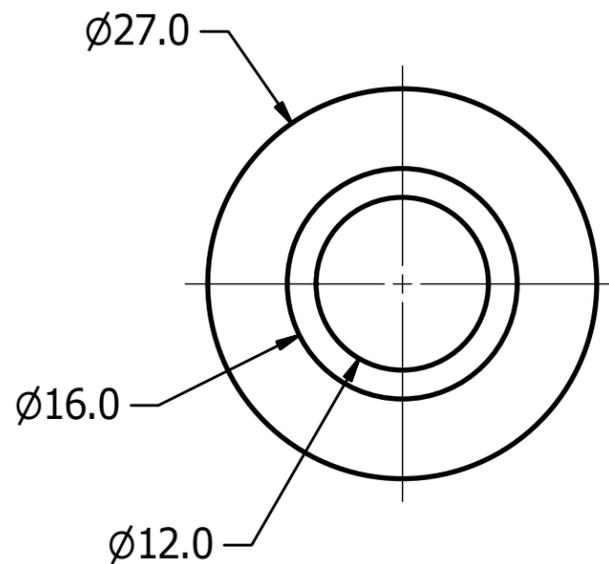
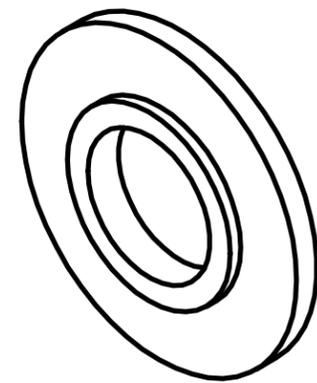
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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	
	CHECKED		
MATERIAL Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3824
FINISH			SCALE: 1:1
			REV A
			SHEET 1 OF 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	SPRING HOUSING WASHER, LOWER	
	APPROVALS	DATE			
	DRAWN JIM CLEVINGER	8/21/2013	SIZE B DRAWING NUMBER 472-3825 REV A		
	CHECKED				
MATERIAL Acetal Resin, Black	ENG	SCALE: 2X SHEET 1 OF 1			
HEAT TREAT	APPROVED				
FINISH					

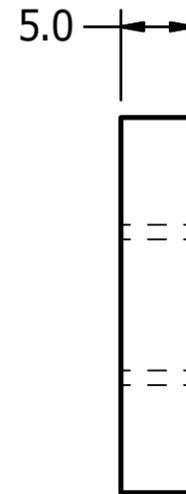
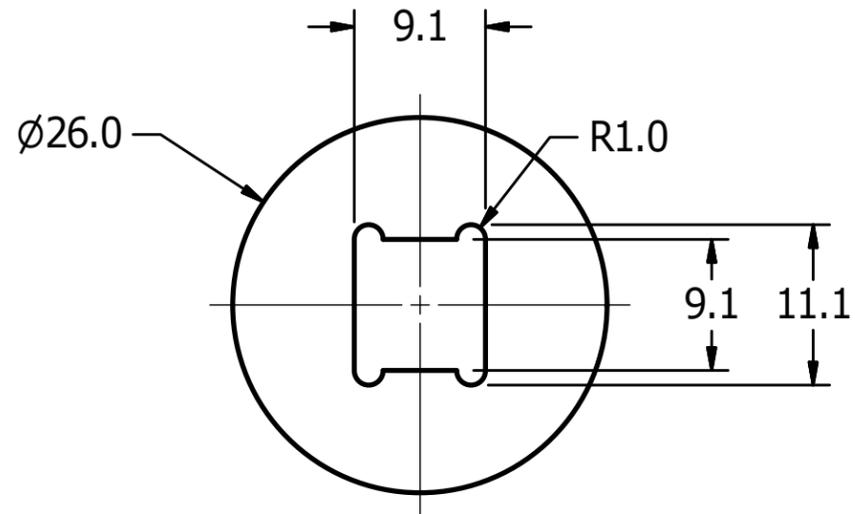
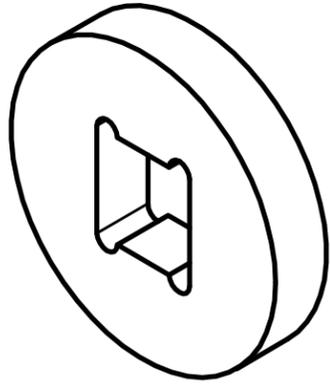
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM004B	9/10/2014	DW



B

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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
			SHEET 1 OF 1
			REV A

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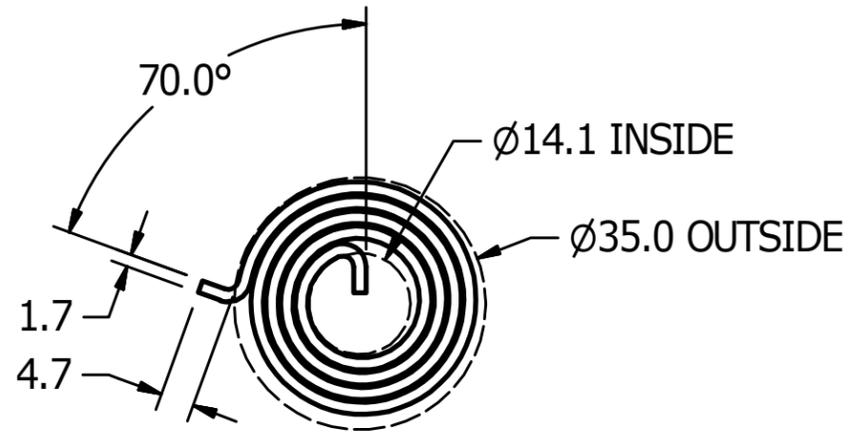
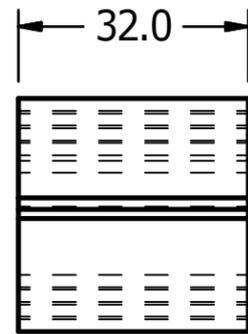
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM018	9/10/2014	DW

B

B



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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

3

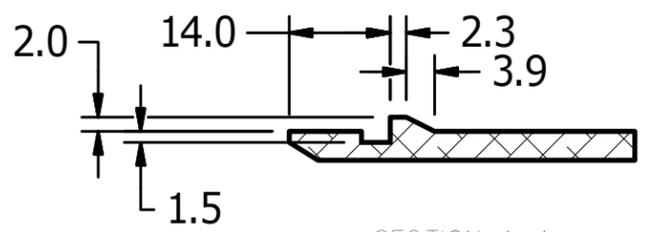
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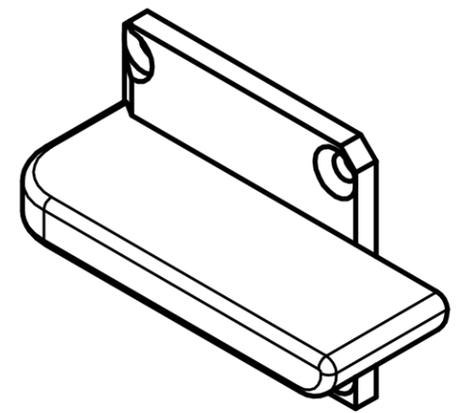
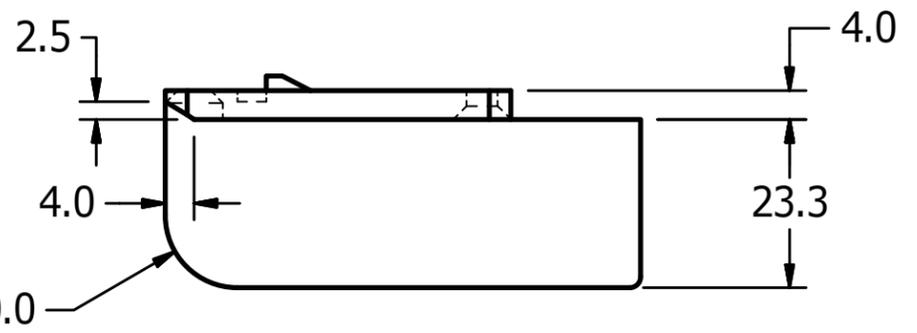
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4 3 2 1

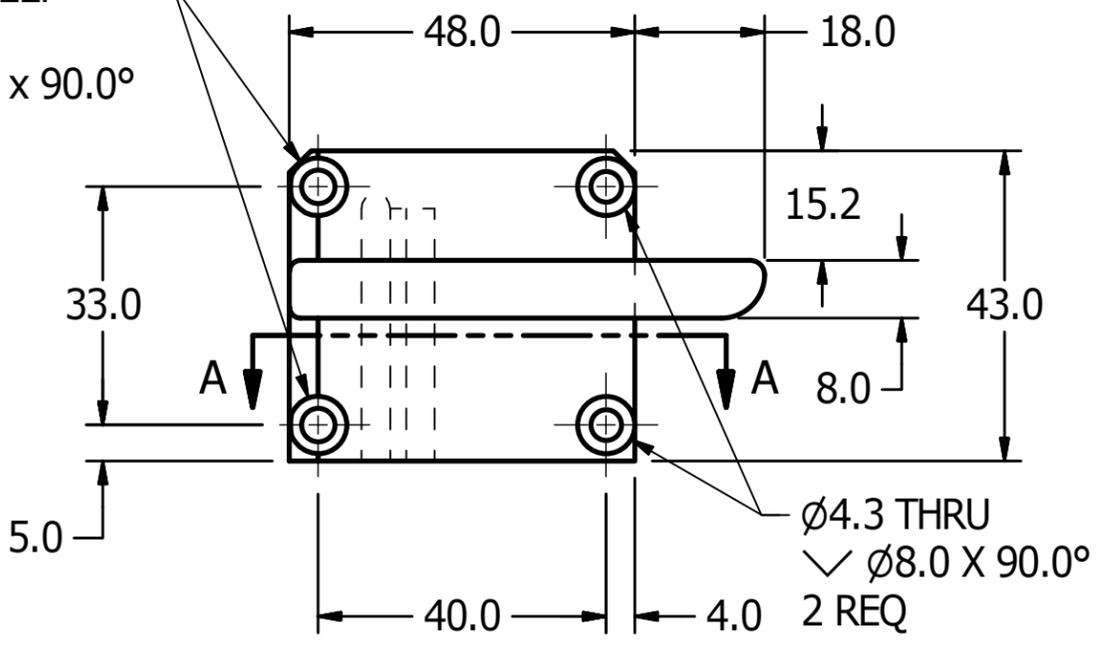
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM014B	9/10/2014	DW



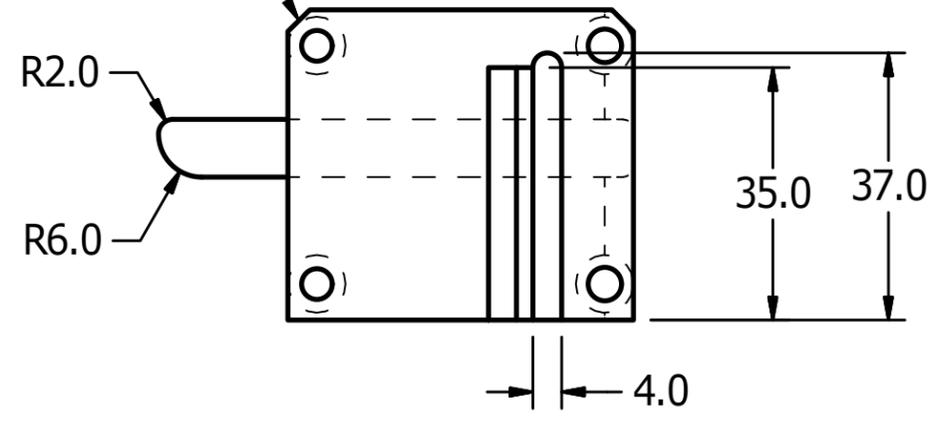
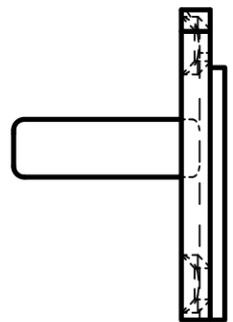
SECTION A-A
SCALE 1 : 1



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

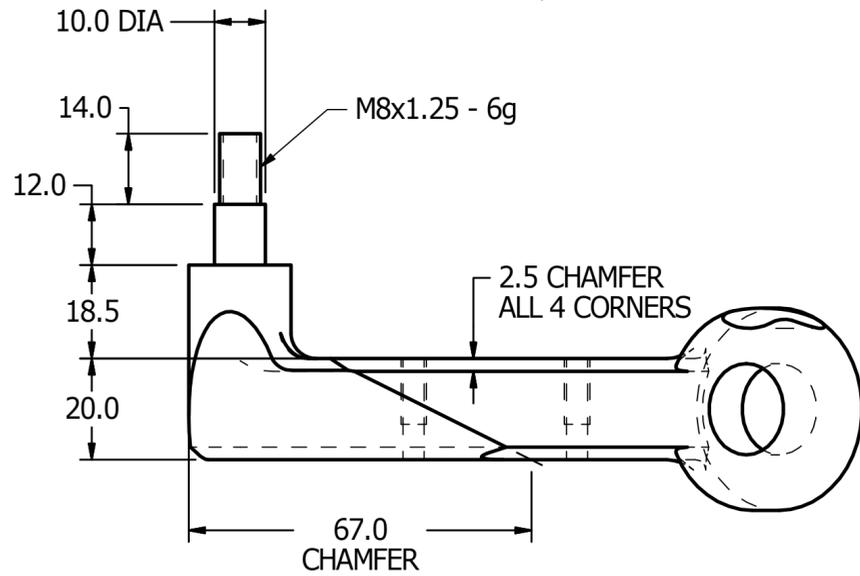
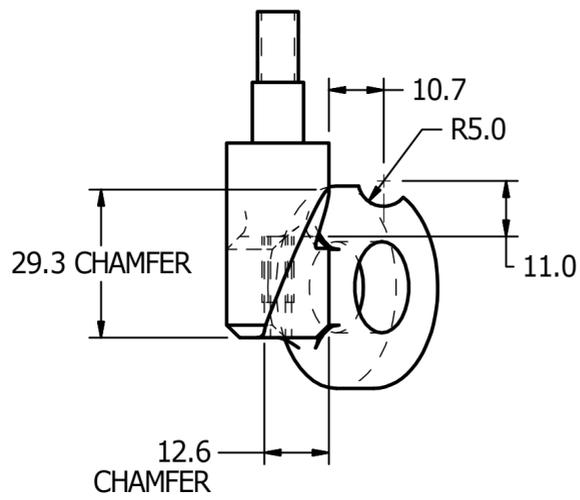
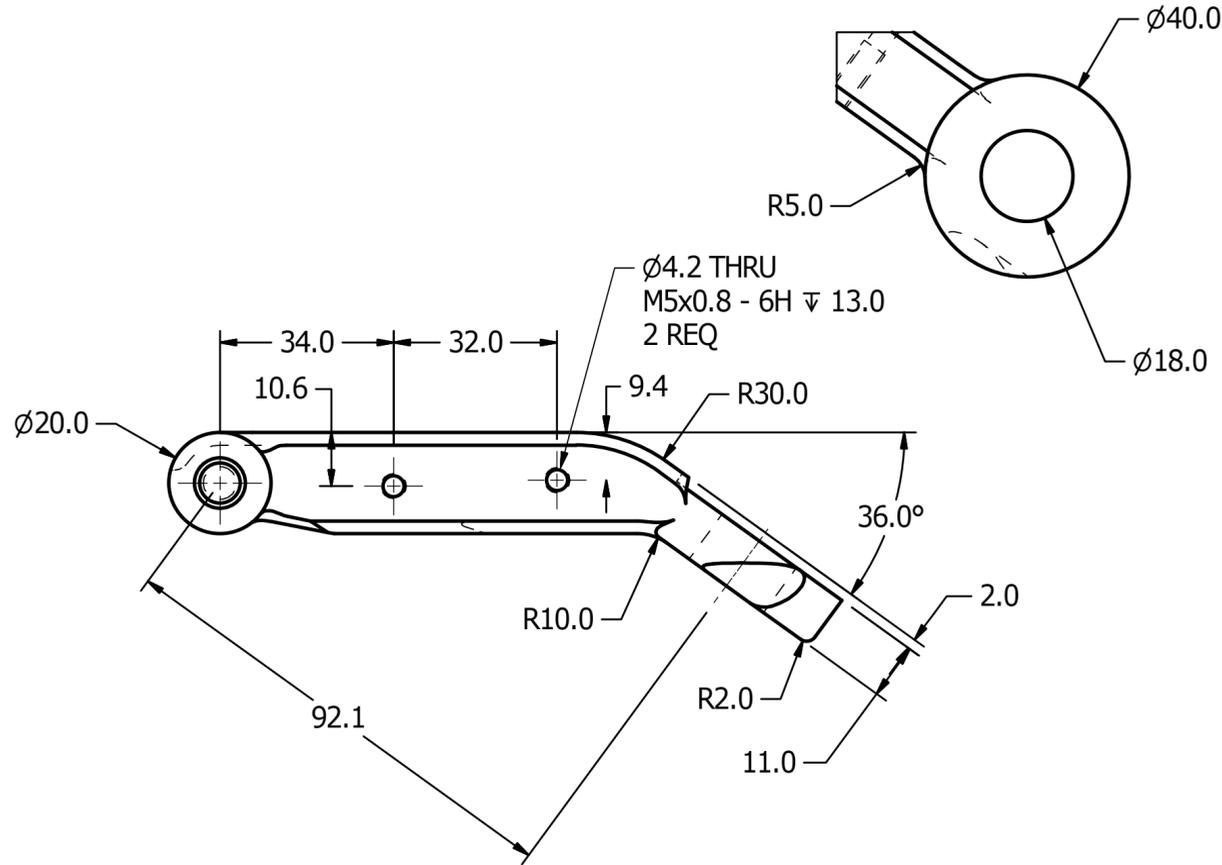
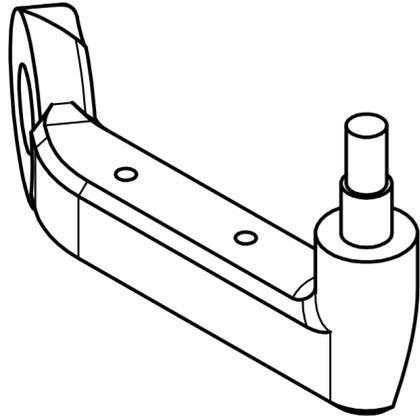
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3

2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM012B	9/10/2014	DW



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	ARM LINK, LH	
MATERIAL	Steel	ENG		SIZE	C
HEAT TREAT		APPROVED		DRAWING NUMBER	472-3829-1
FINISH				SCALE:	1:1
				SHEET	1 OF 1

4

3

2

1

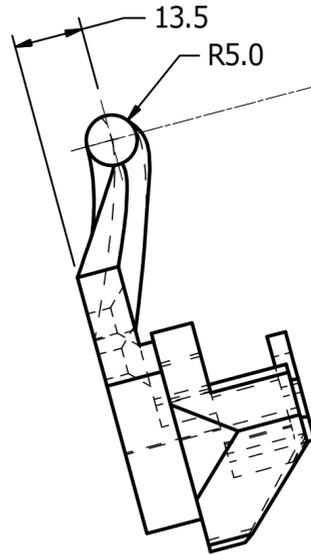
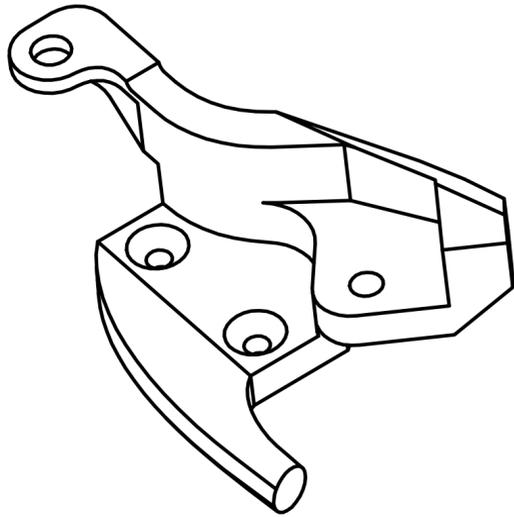
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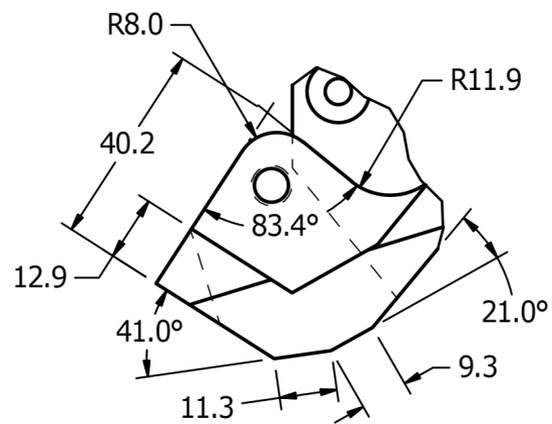
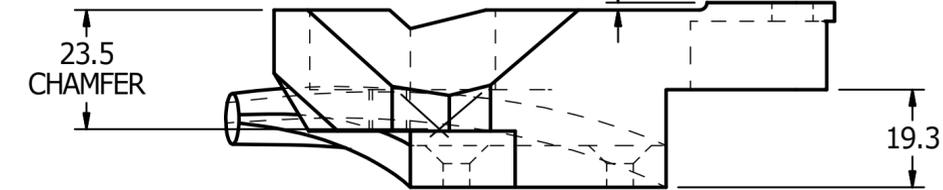
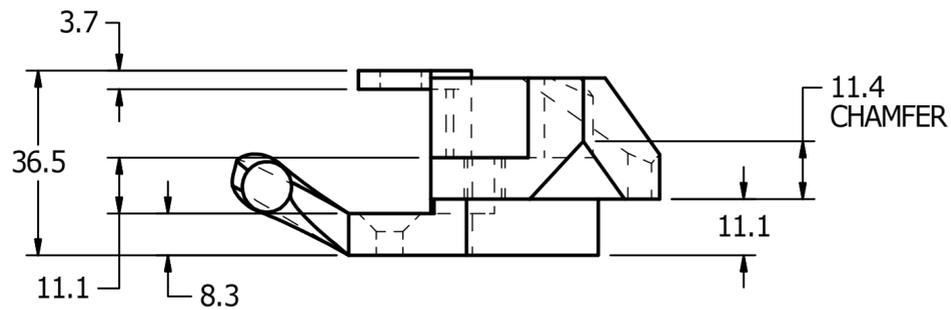
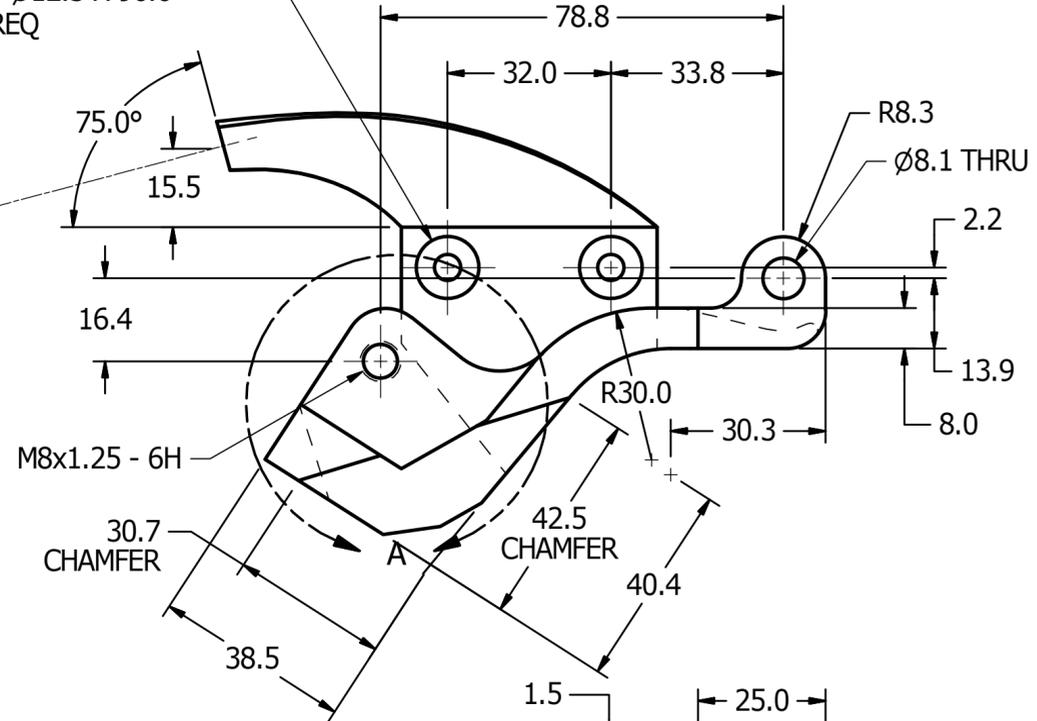
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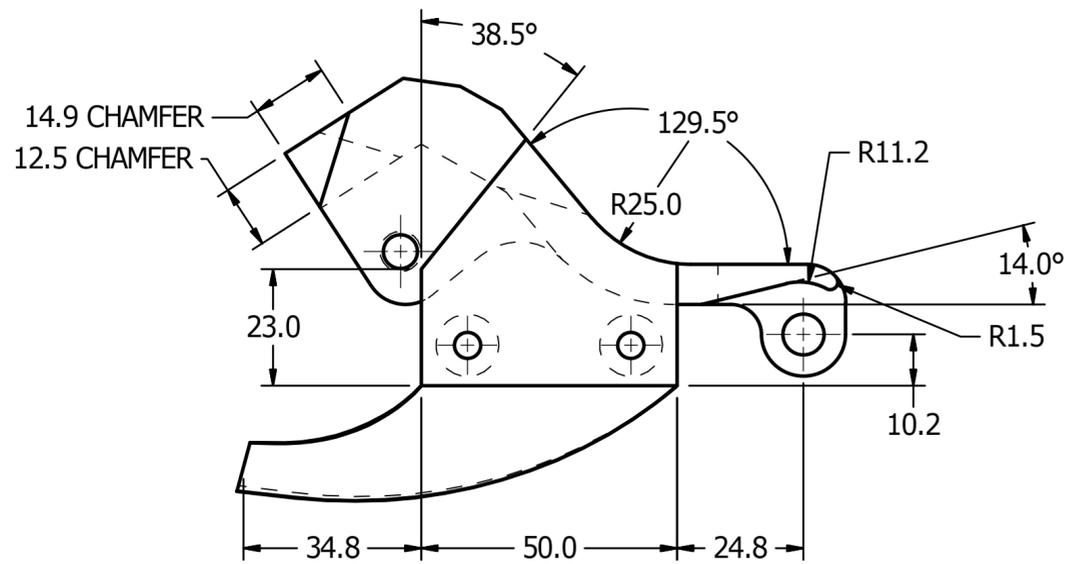
ZONE		REV	DESCRIPTION	DATE	BY
		A	DRAWING NUMBER WAS AXSDM010B	9/10/2014	DW



Ø5.2 THRU
 ✓ Ø12.3 X 90.0°
 2 REQ



DETAIL A
 SCALE 1 : 1



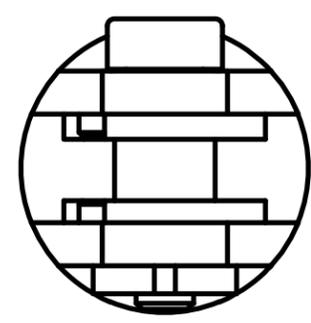
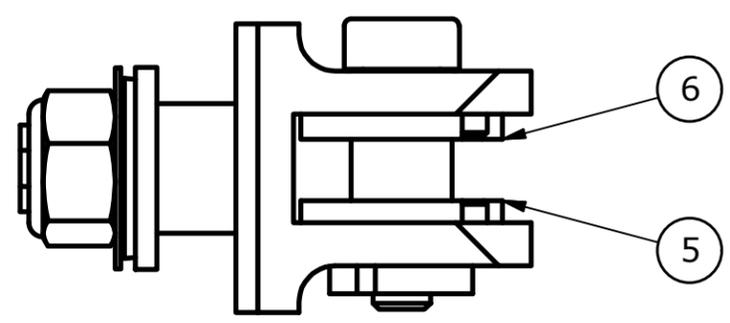
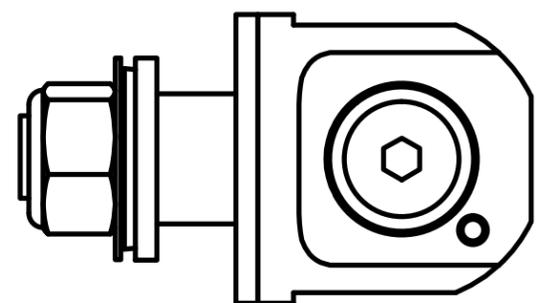
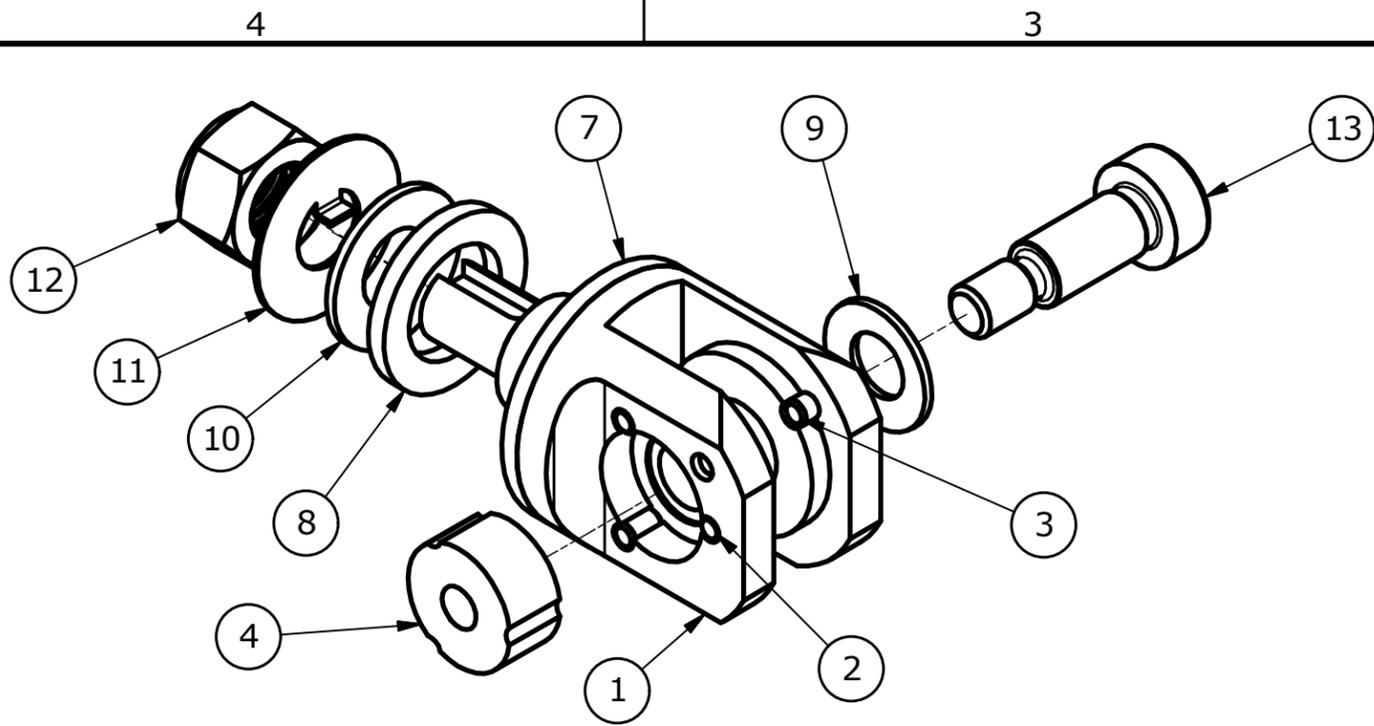
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ XX ±.2 XXX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
APPROVALS		DATE		SCAPULA, LH	
DRAWN JIM CLEVINGER		8/19/2013		DRAWING NUMBER 472-3830-1	
CHECKED				REV A	
MATERIAL Steel		ENG		SIZE C	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH				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
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
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
4	1	472-3833	NUT, UPPER ARM PIVOT
3	2	5000524	PIN, DOWEL M4 x 8
2	3	5000680	PIN, DOWEL M4 x 6
1	1	472-3832	ARM CLEVIS

ITEM	QTY	PART NUMBER	DESCRIPTION
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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		ARM CLEVIS ASSEMBLY	
DRAWN JIM CLEVINGER		8/7/2013			
MATERIAL		ENG		SIZE	
HEAT TREAT		APPROVED		B	
FINISH				DRAWING NUMBER	
				472-3831	
				REV	
				A	
		SCALE: 1:1		SHEET 1 OF 1	

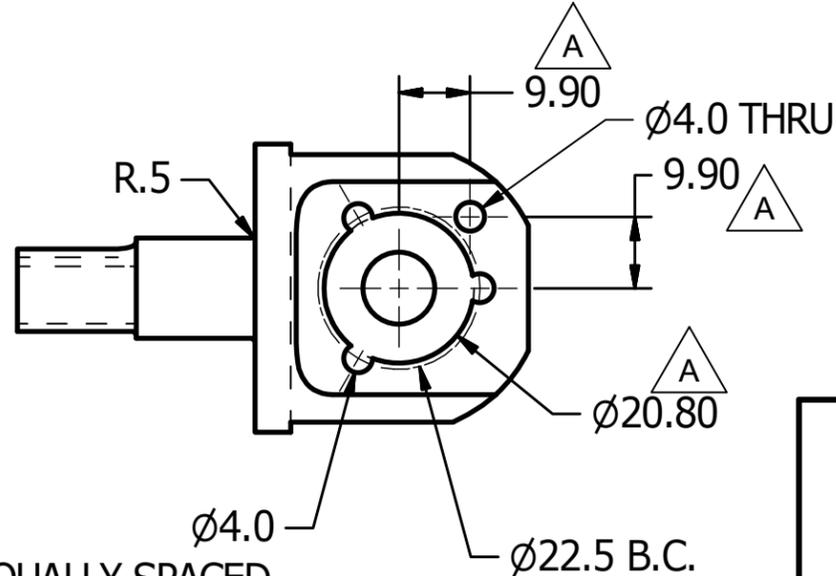
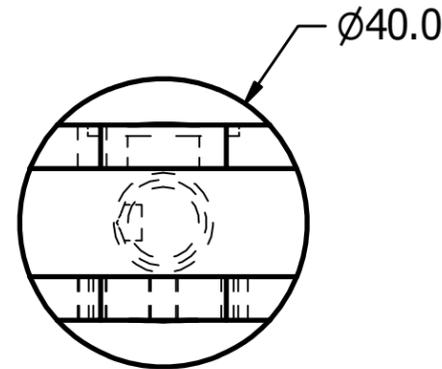
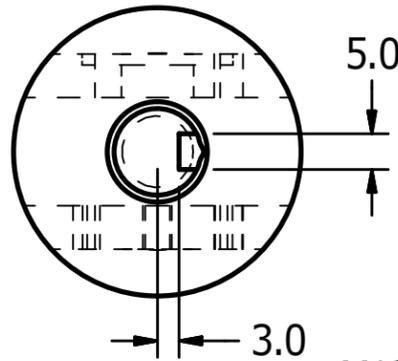
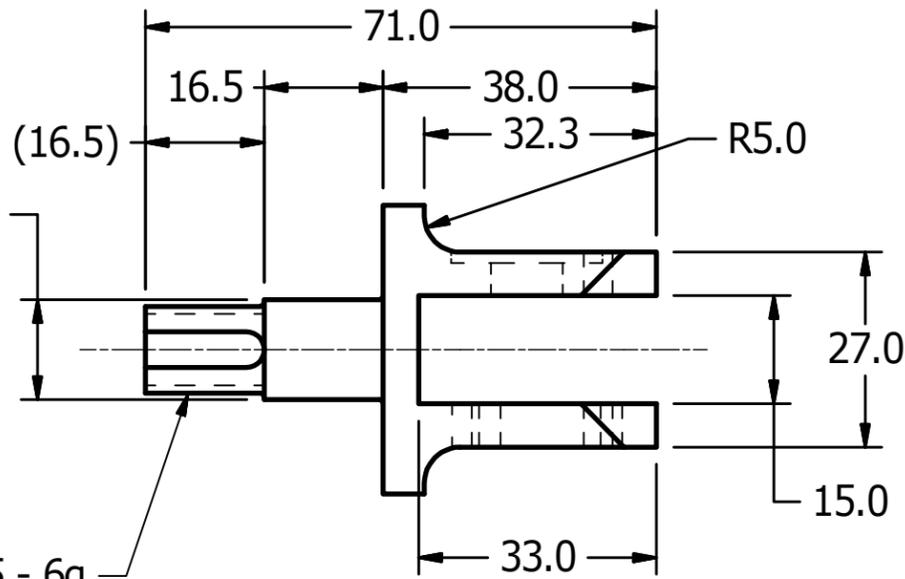
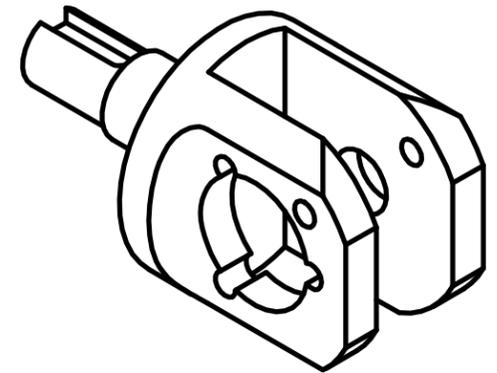
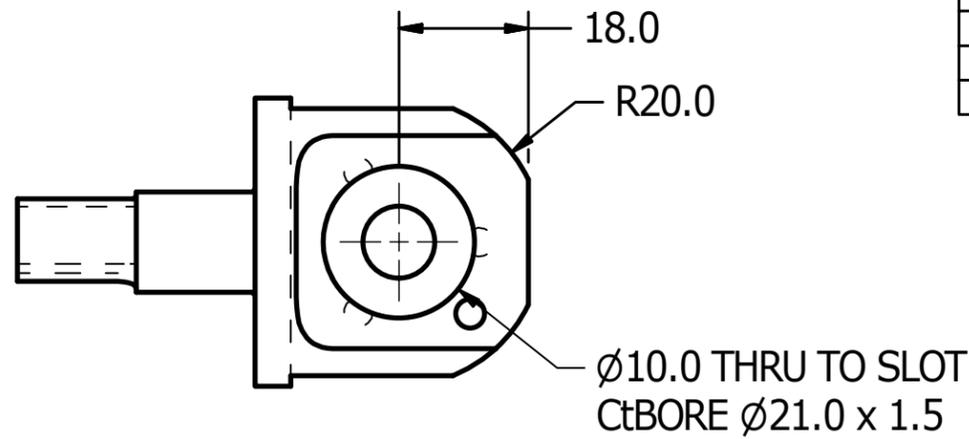
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1

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

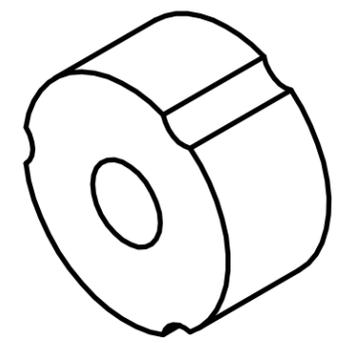
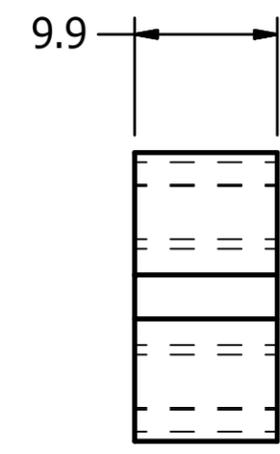
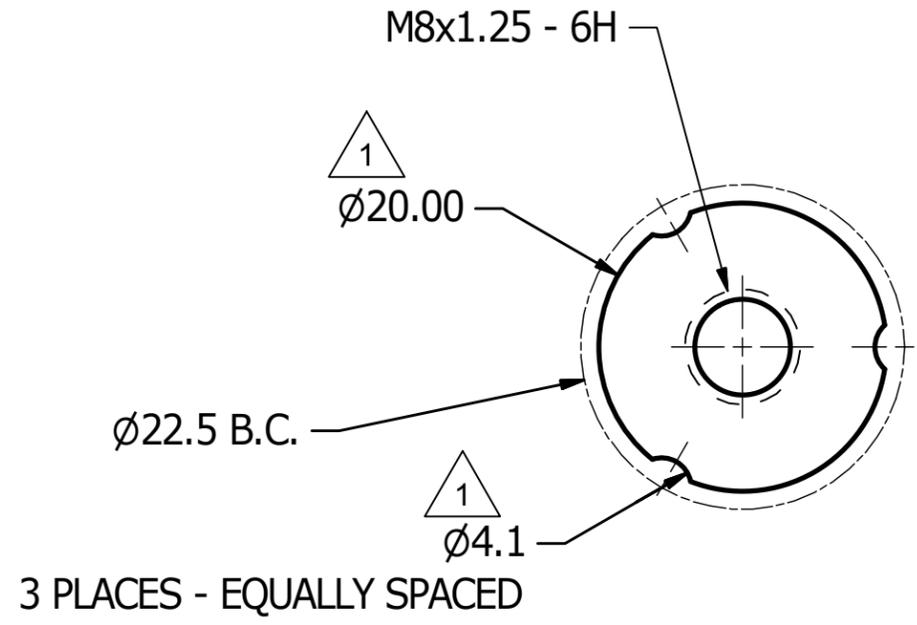
ASME Y14.5M - 1994
 DO NOT SCALE DRAWING

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	
DRAWING NUMBER		472-3832	
SHEET		1 OF 1	
SCALE: 1:1			

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

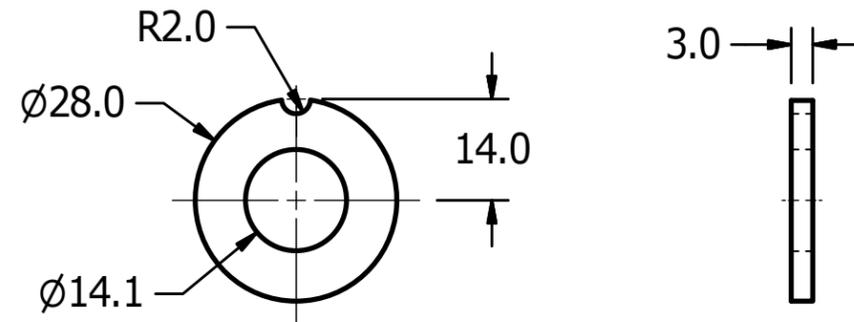
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM046	9/10/2014	DW



B

B

A

A

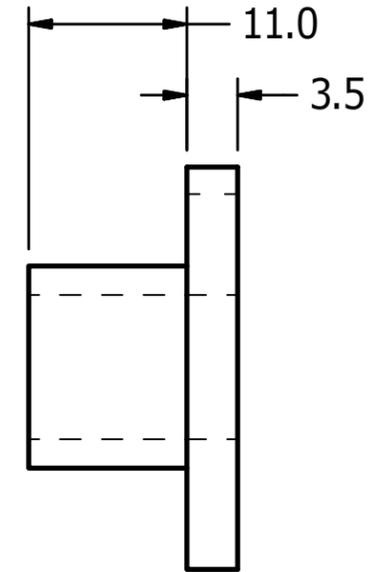
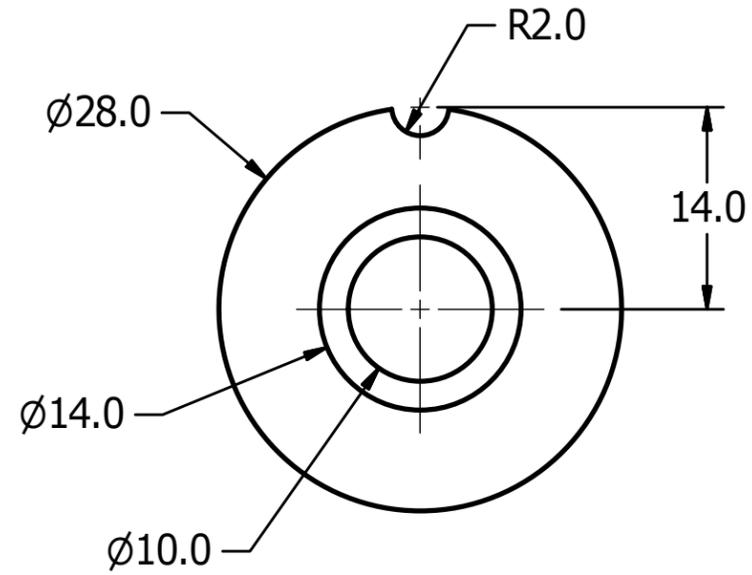
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	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

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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 DRAWING NUMBER: 472-3835 REV: A
HEAT TREAT	APPROVED		
FINISH			
		SCALE: 2X	SHEET: 1 OF 1

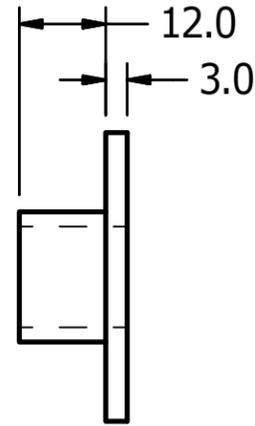
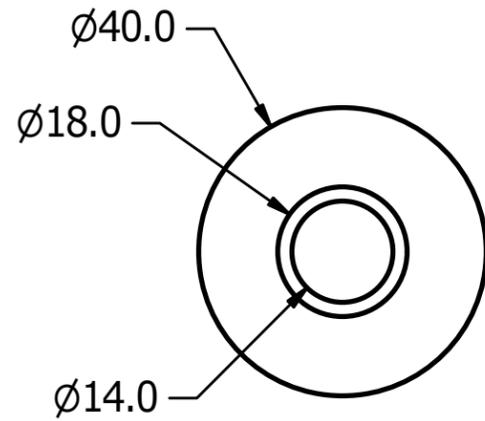
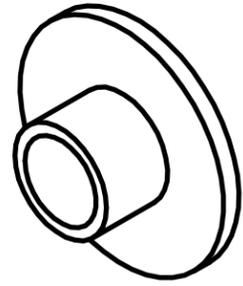
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1

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



B

B

A

A

A

A

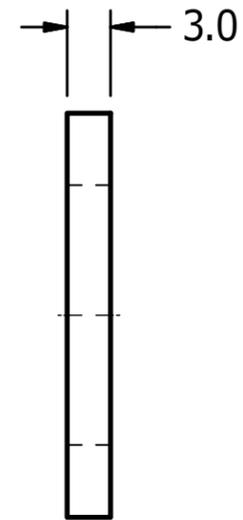
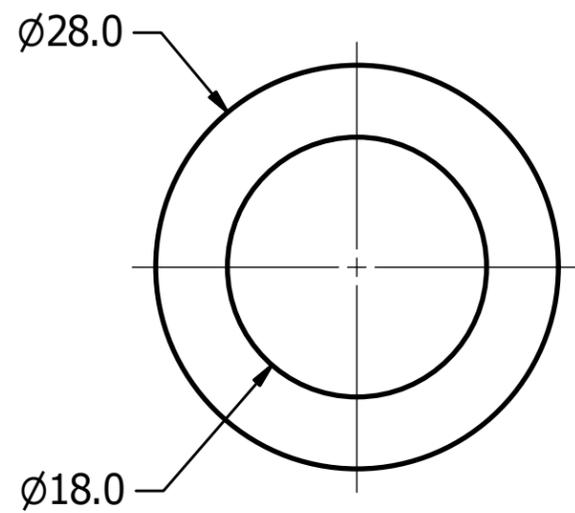
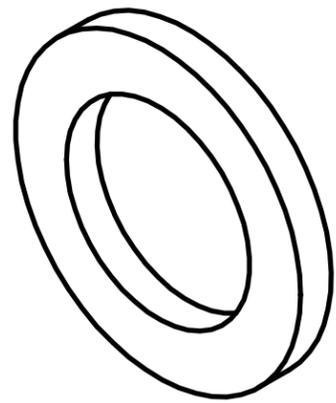
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 1.6 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION BUSHING, ARM PIVOT
	APPROVALS	DATE	
	DRAWN JIM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

4

3

2

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 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 Stainless Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3837
FINISH			SCALE: 1:1
			SHEET 1 OF 1
			REV A

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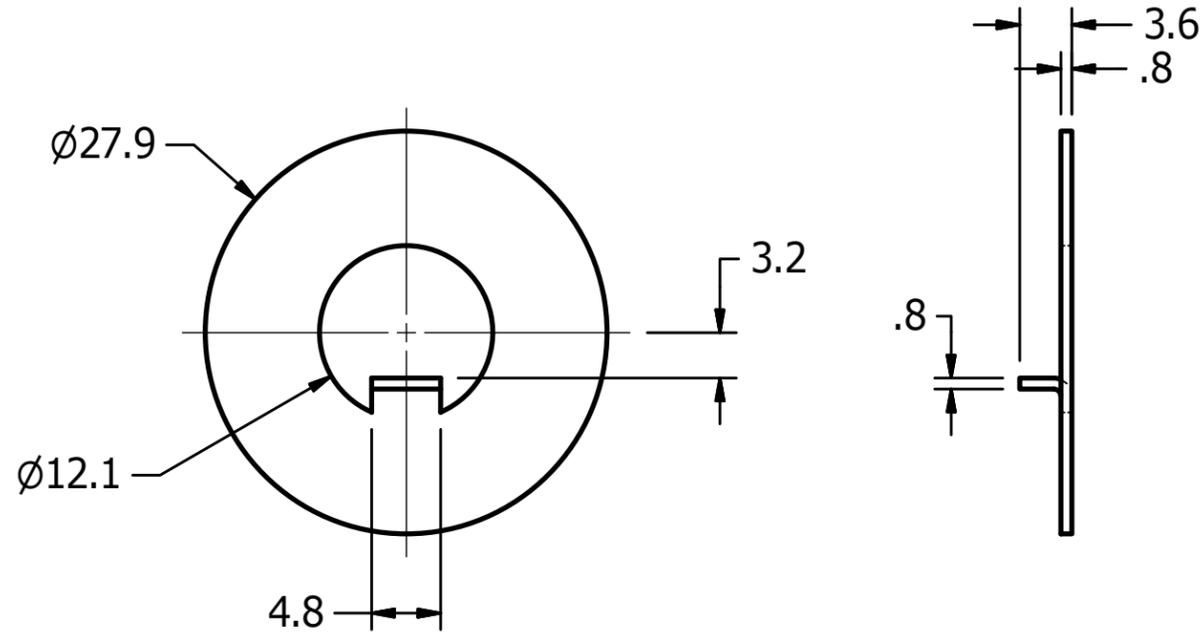
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM510V	9/11/2014	DW

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	8/20/2013	
	CHECKED		
MATERIAL Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3838
FINISH			SCALE: 2X
			SHEET 1 OF 1
			REV A

4

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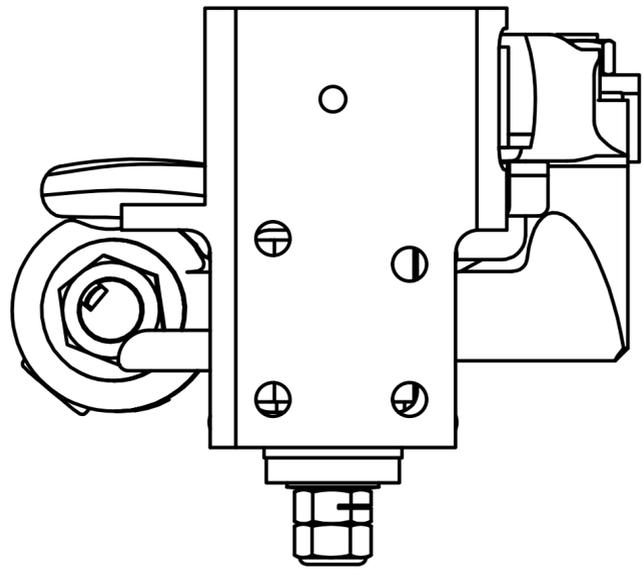
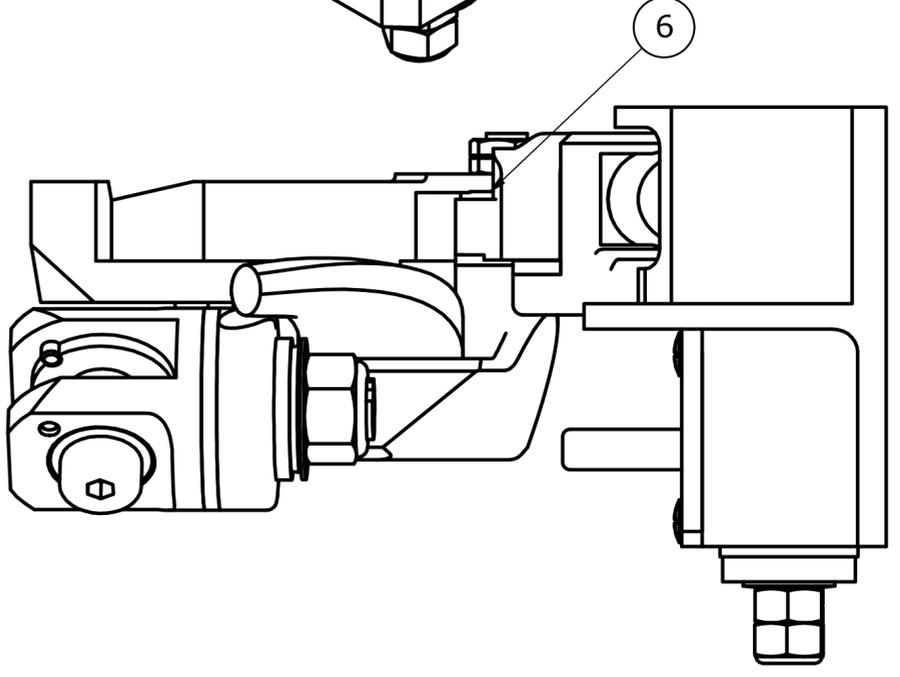
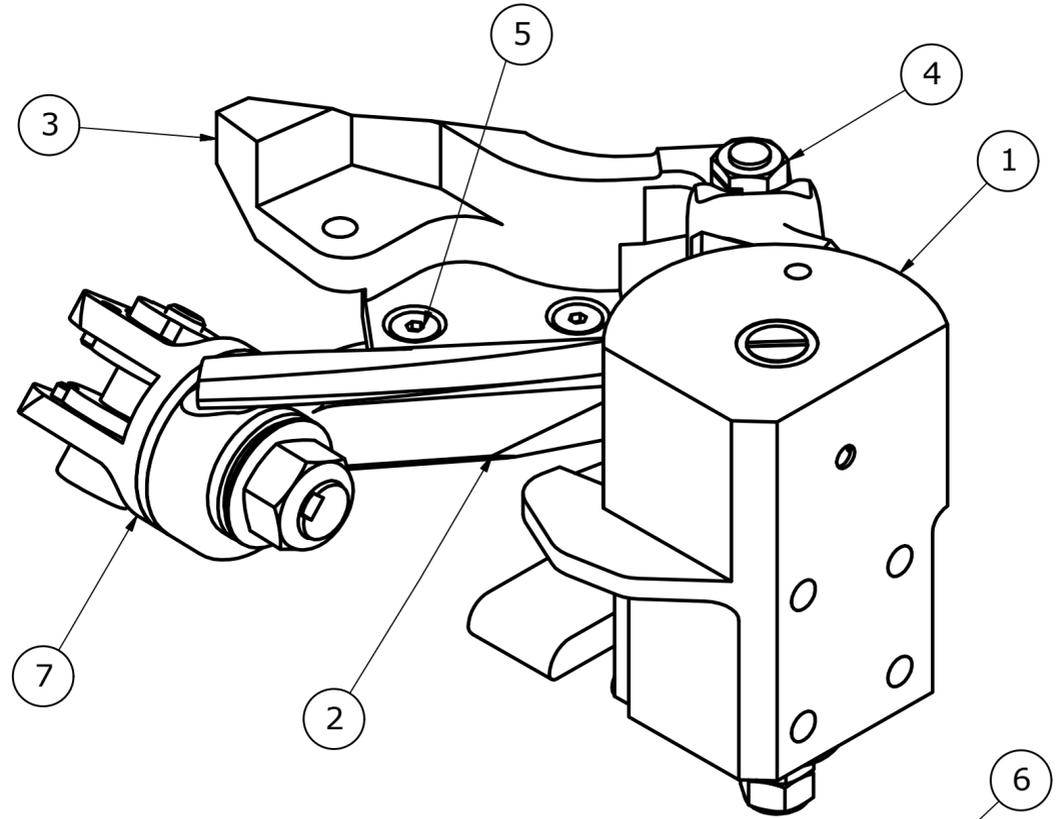
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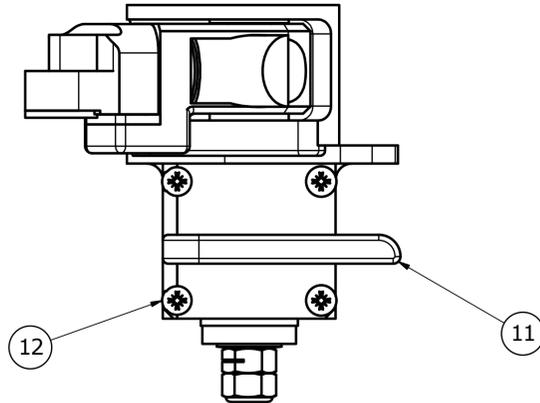
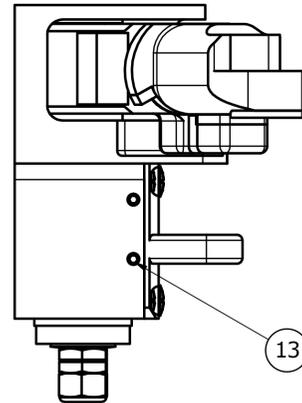
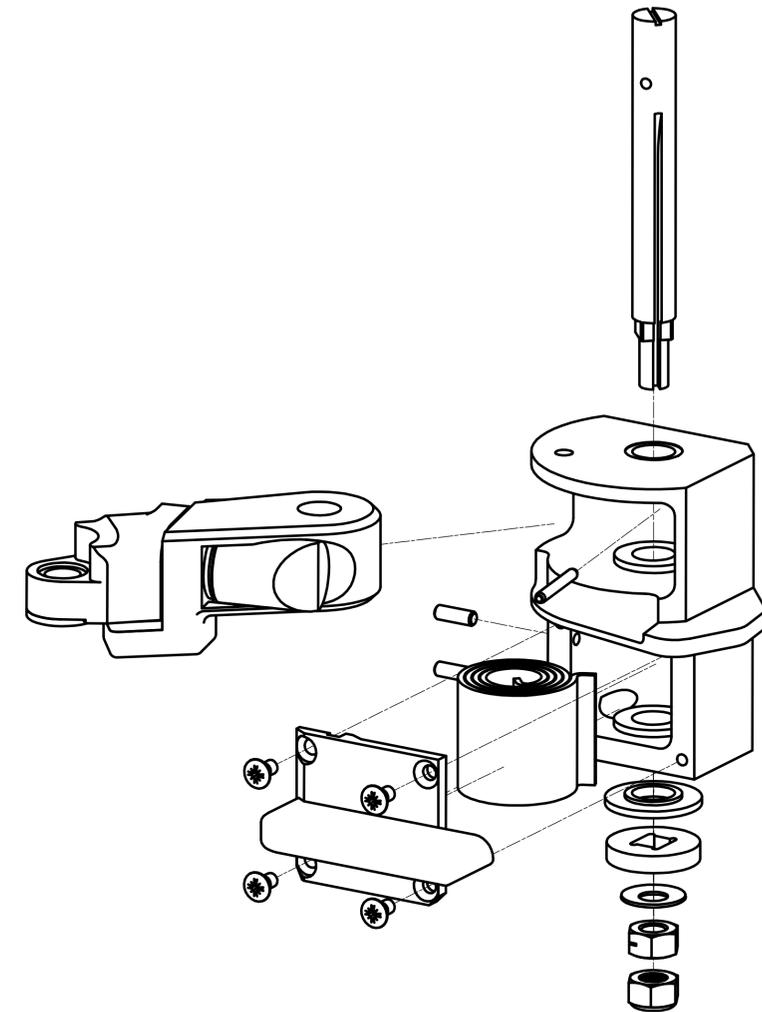
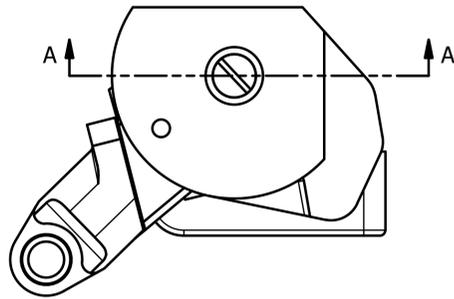
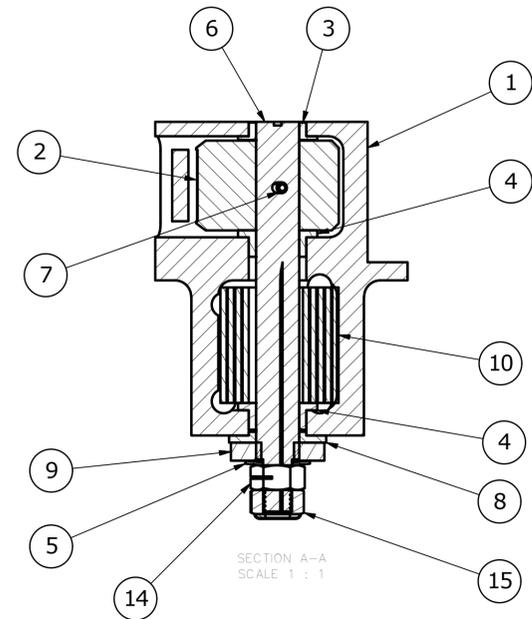
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM400; IN PARTS LIST 472-3841 WAS AXSDM900, 472-3829-2 WAS AXSDM013B, 472-2830-2 WAS AXSDM011B, 472-3818 WAS AXSDM030B & 472-3831 WAS AXSDM500	9/11/2014	DW



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

PARTS LIST				
ITEM	QTY	PART NUMBER	DESCRIPTION	
<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>				
<small>VEHICLE RESEARCH and TEST CENTER</small> APPROVALS: _____ DATE: _____ DRAWN: JIM CLEVENGER 8/5/2013 CHECKED: _____		<small>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</small> 		
MATERIAL: ENG HEAT TREAT: APPROVED FINISH:			SIZE: C SCALE: 1:1	DRAWING NUMBER: 472-3840 SHEET: 1 OF 1 REV: A

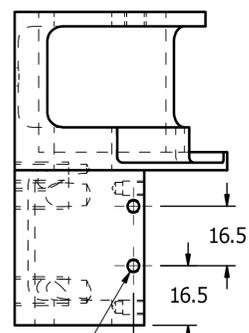
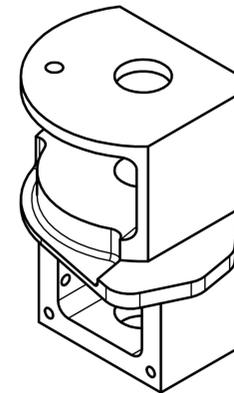
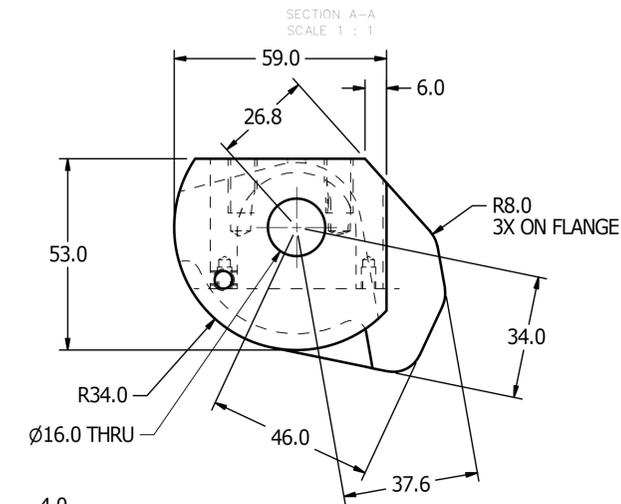
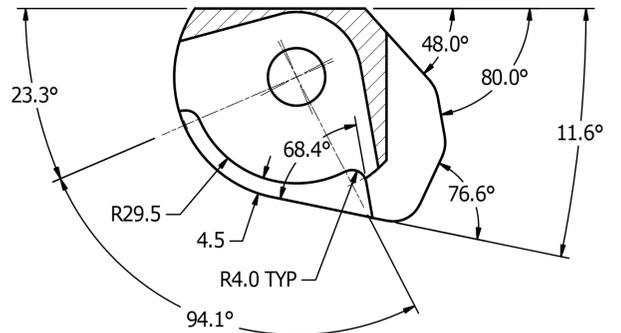
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ZONE	REV	REVISION HISTORY	DATE
	A	DRAWING NUMBER WAS AXSDM900; IN PARTS LIST 472-3812-2 WAS AXSDM003C, 472-3813-2 WAS AXSDM800, 472-3822 WAS AXSDM0020B, 472-3823 WAS AXSDM019B, 472-3824 WAS AXSDM001B, 472-3825 WAS AXSDM005C, 472-3826 WAS AXSDM004B, 472-3827 WAS AXSDM018 & 472-3828-2 WAS AXSDM015B	9/11/2014
			DW



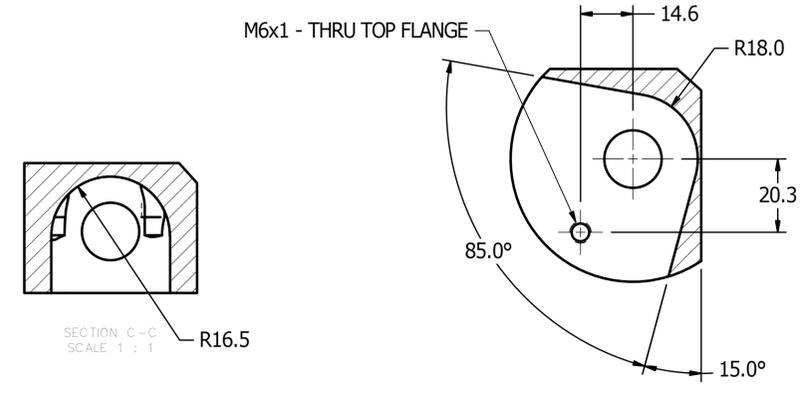
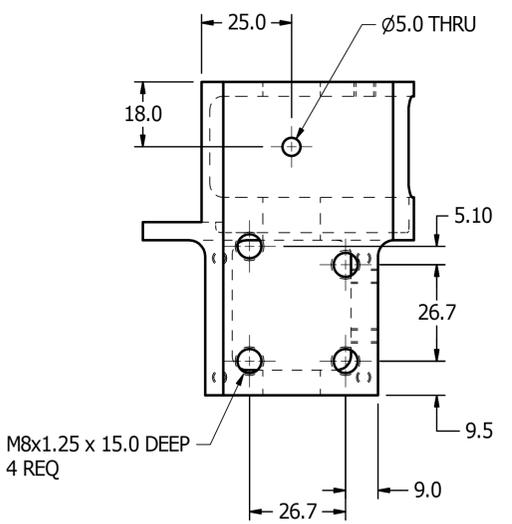
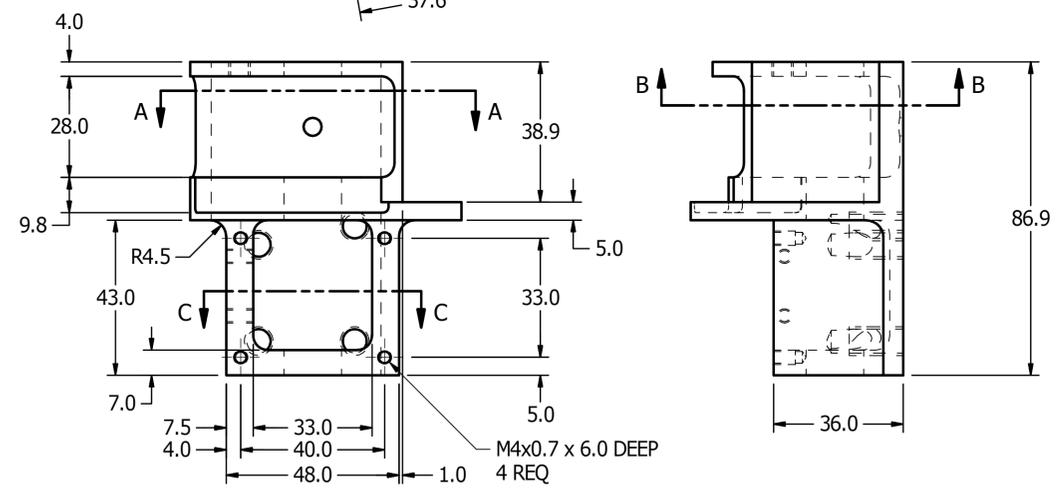
	15	1	5001165V	NYLOCK, M8 x 1.25
	14	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
	13	2	5000292V	SCREW, SSFP M4 x 12
	12	4	5000699	SCREW, FHMS M4 x .7 x 8 PHILLIPS
A	11	1	472-3828-2	RIB GUIDE LOWER, RH
	10	1	472-3827	SPRING
A	9	1	472-3826	WASHER
A	8	1	472-3825	SPRING HOUSING WASHER, LOWER
A	7	1	5000140	ROLL PIN, M3 x 24
	6	1	472-3824	SPRING SHAFT
A	5	1	5001170V	SPRING DISC WASHER, 20 x 8.2 x 1.0
A	4	2	472-3823	SPRING HOUSING BUSHING, LOWER
	3	1	472-3822	SPRING HOUSING BUSHING, UPPER
A	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			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: X ±.5 XX ±.2 XXX ±.1 DECIMAL ANGLES: MACHINED: X ±.5 XX ±.2 XXX ±.1 DO NOT SCALE DRAWING		VEHICLE RESEARCH and TEST CENTER APPROVALS: _____ DATE: 8/8/2013 DRAWN: JIM CLEVENGER CHECKED: _____ MATERIAL: _____ ENG: _____ TREAT TREAT: _____ APPROVED: _____ FINISH: _____	
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIGHT SHOULDER PIVOT ASSEMBLY SIZE: D DRAWING NUMBER: 472-3841 REV: A SCALE: 1:1 SHEET: 1 OF 1	

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM003C	9/11/2014	DW



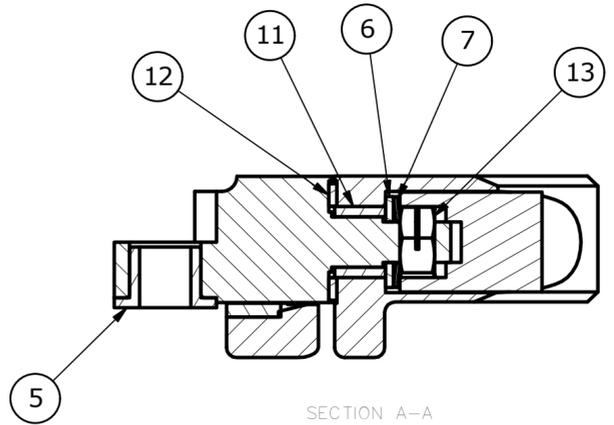
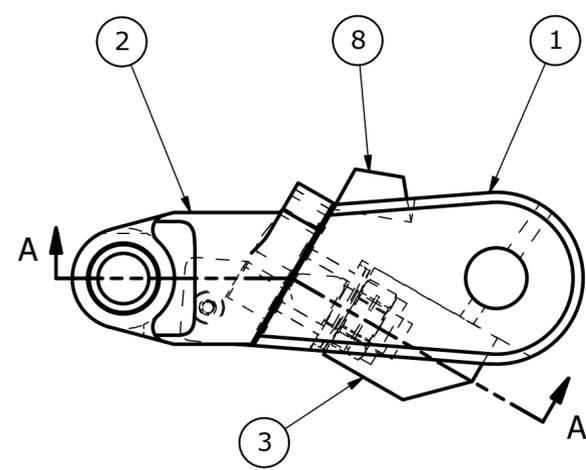
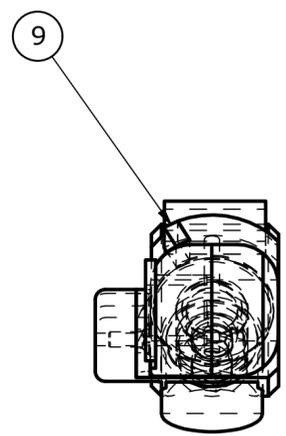
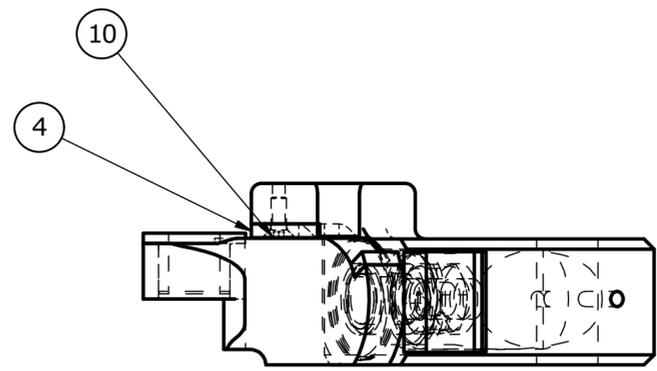
M4x0.7 THRU TO POCKET 2 REQ



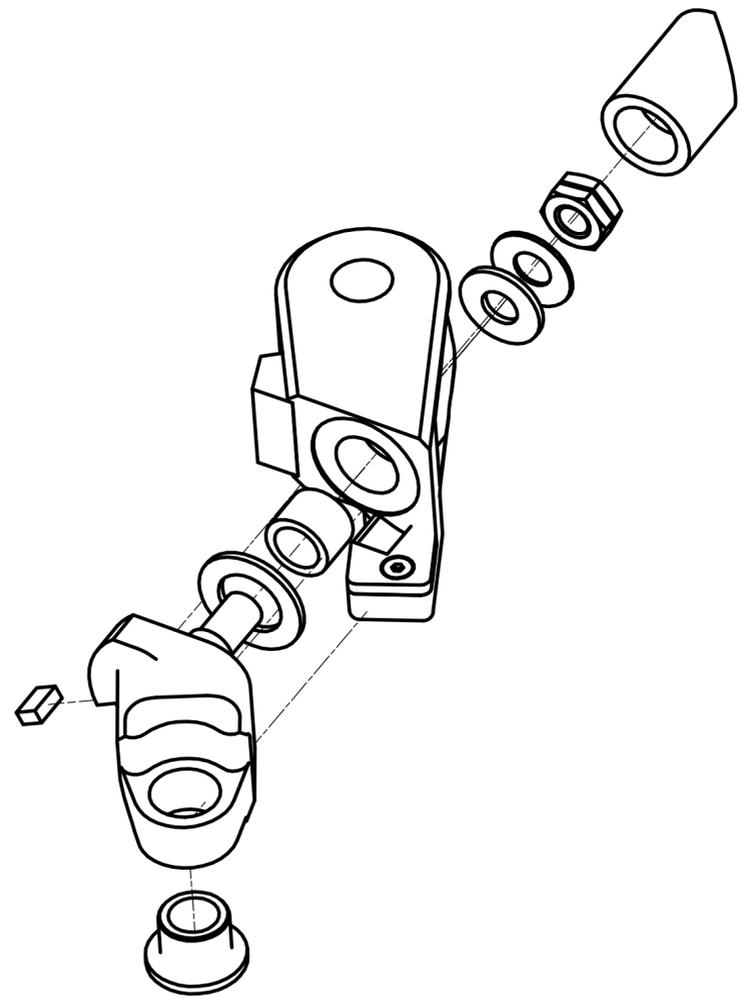
SECTION B-B SCALE 1:1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE:		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL: ±0.5	ANGLES: MACHINED: ✓	APPROVALS	DATE	DRAWN: JIM CLEVENGER 8/14/2013	
XX ±0.2	XXX ±1	CHECKED		8/14/2013	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		ENG		DRAWING NUMBER: 472-3812-2	
MATERIAL: Steel	TREAT TREAT	APPROVED		SIZE: D	REV: A
FINISH:	SCALE: 1:1			DRAWING NUMBER: 472-3812-2	
				SHEET: 1 OF 1	

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



SECTION A-A
SCALE 1 : 1



A	13	1	5001164V	LOCKNUT, M8 x 1.25, SNEP #ESN H100
	12	1	472-3821	LINK WASHER, 23 x 14.2 x 1.5
	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	
MATERIAL		APPROVALS	DATE
HEAT TREAT		JIM CLEVINGER	8/8/2013
FINISH		CHECKED	
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
		SHOULDER SUPPORT ASSEMBLY, RH	
SIZE	DRAWING NUMBER	REV	
C	472-3813-2	A	
SCALE:	1:1	SHEET	1 OF 1

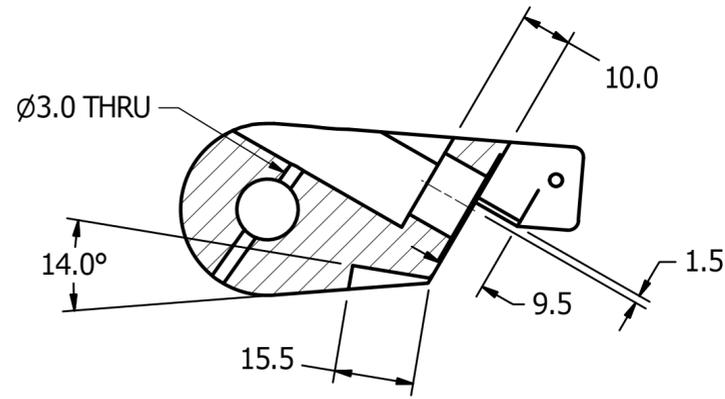
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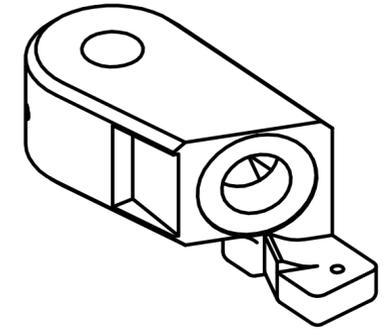
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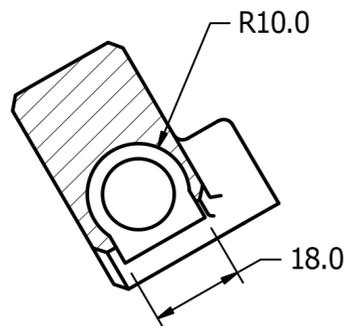
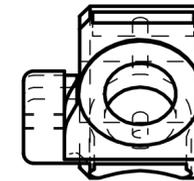
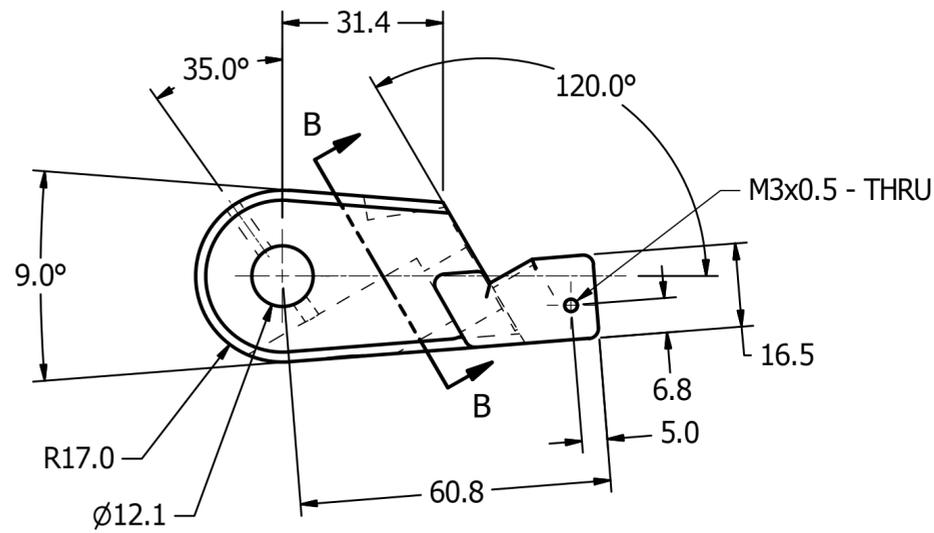
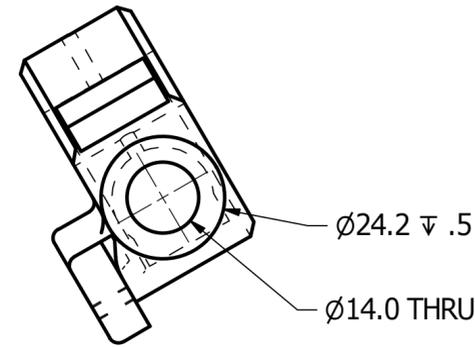
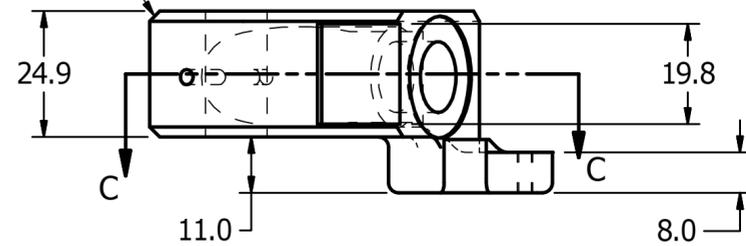
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM007B	9/11/2014	DW



SECTION C-C
SCALE 1 : 1



2.0 X 45.0° CHAMFER



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		SIZE C	
CHECKED				DRAWING NUMBER 472-3814-2	
MATERIAL Steel		ENG		REV A	
HEAT TREAT		APPROVED		SCALE: 1:1	
FINISH				SHEET 1 OF 1	

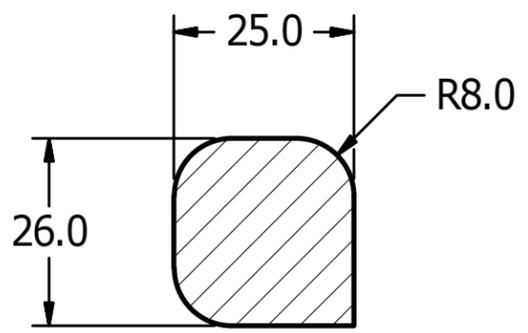
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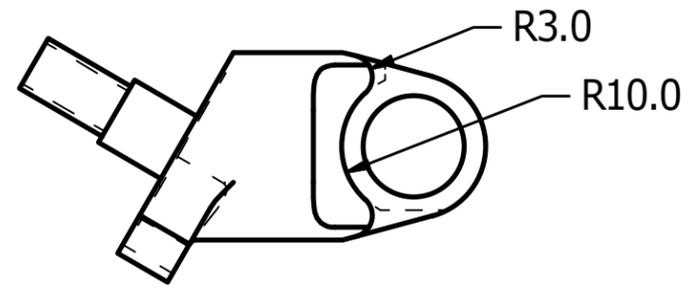
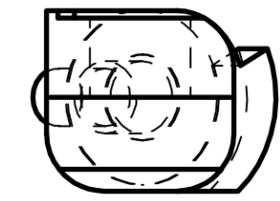
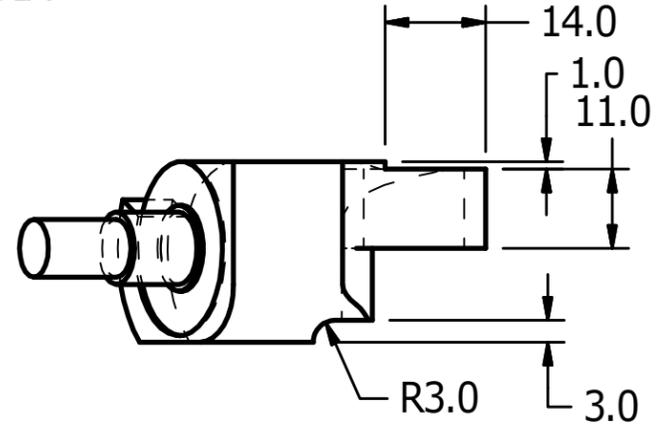
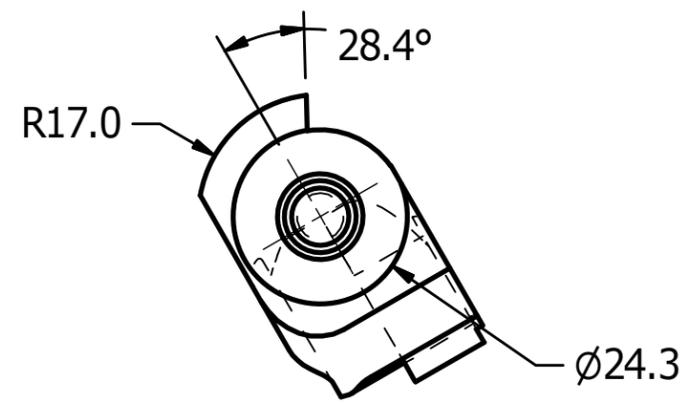
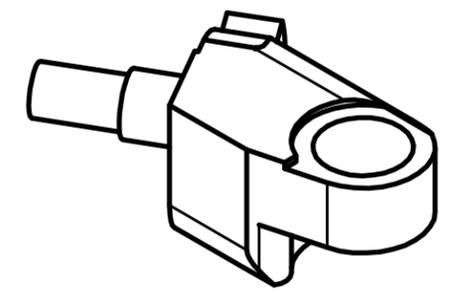
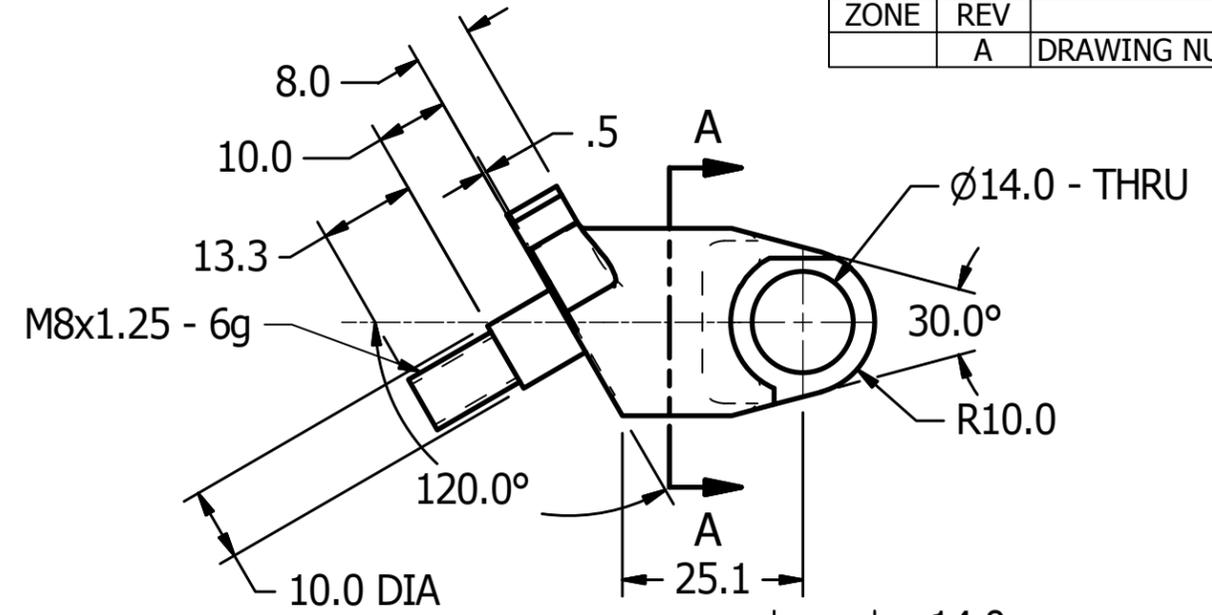
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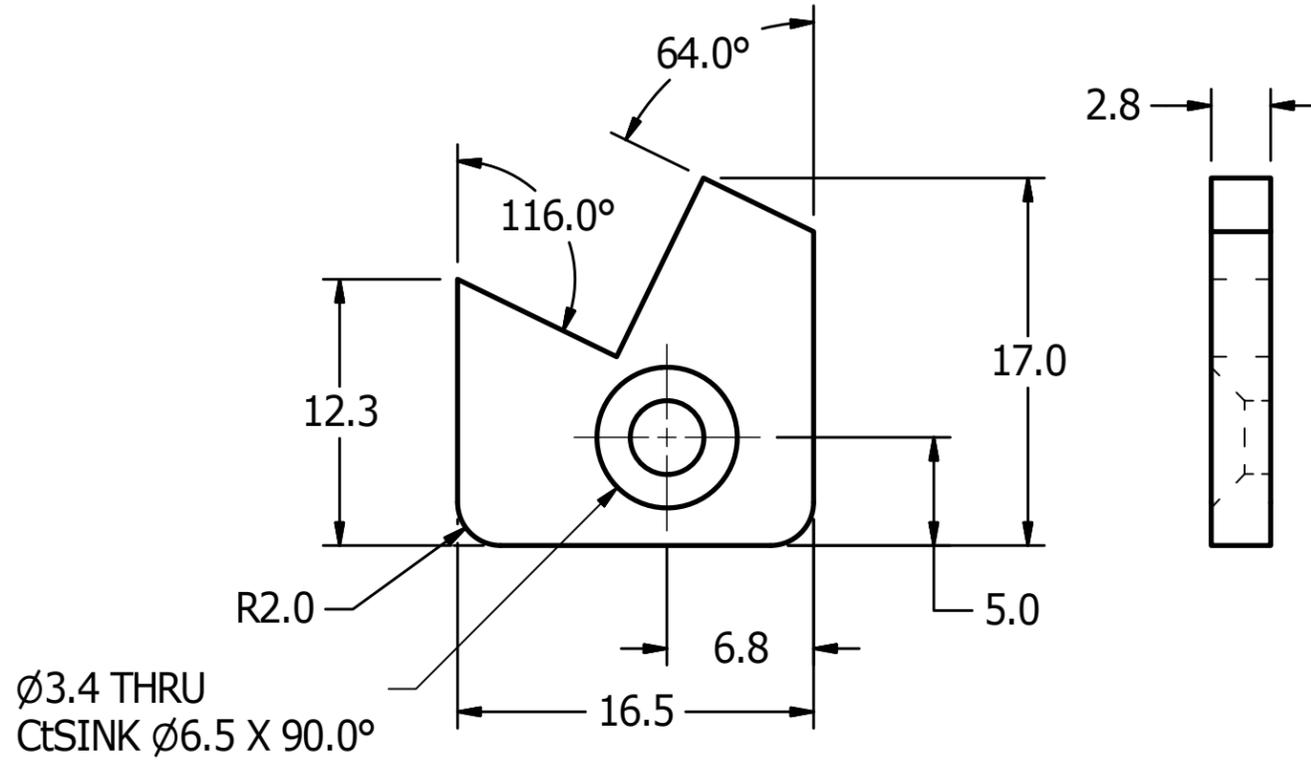
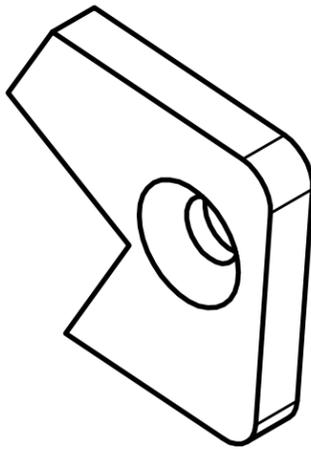
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM009B	9/11/2014	DW



SECTION A-A
SCALE 1 : 1



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 472-3815-2
FINISH			REV A
			SCALE: 1:1
			SHEET 1 OF 1



REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM026B	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 BUFFER, LOWER RIGHT
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/20/2013	
	CHECKED		
MATERIAL Acetal Resin, Black	ENG		
HEAT TREAT	APPROVED		
FINISH			
	SIZE B	DRAWING NUMBER 472-3817-2	REV A
	SCALE: 3X	SHEET 1 OF 1	

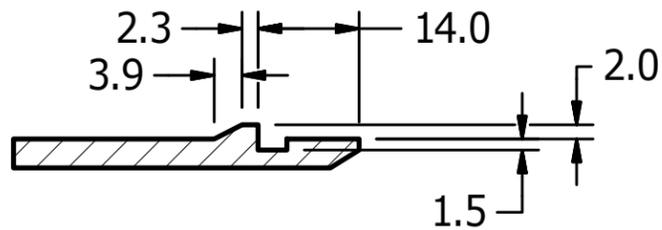
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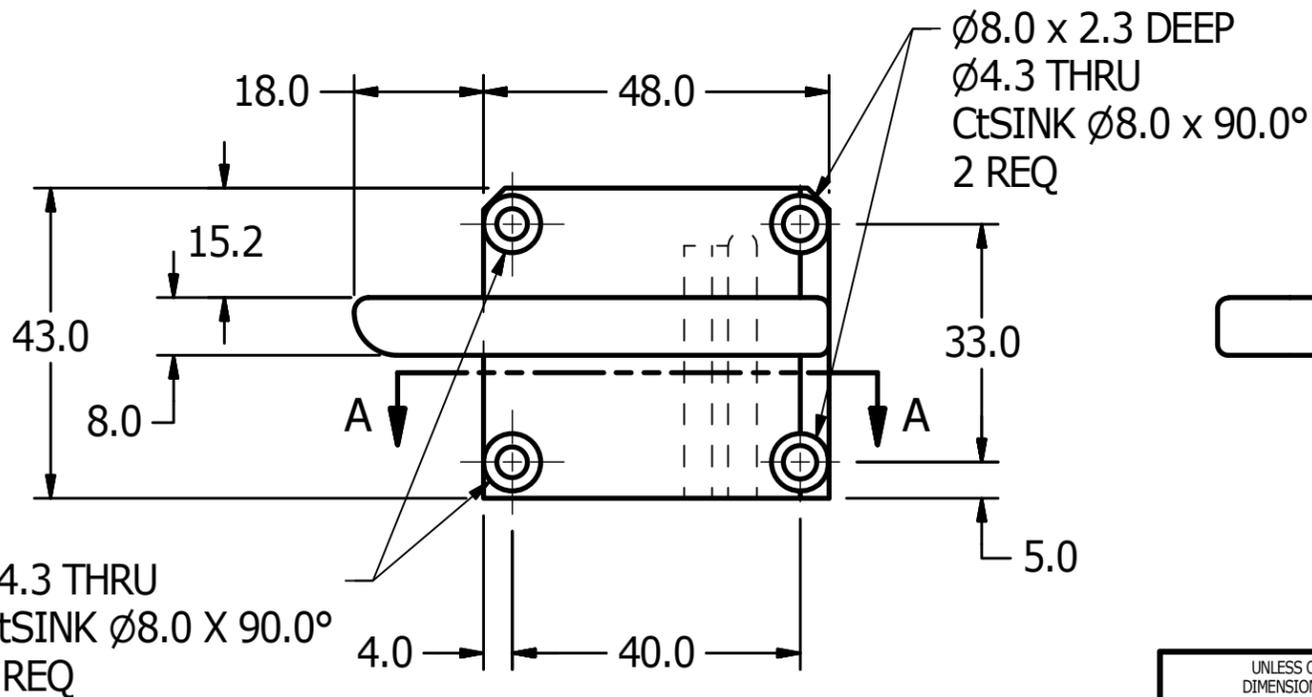
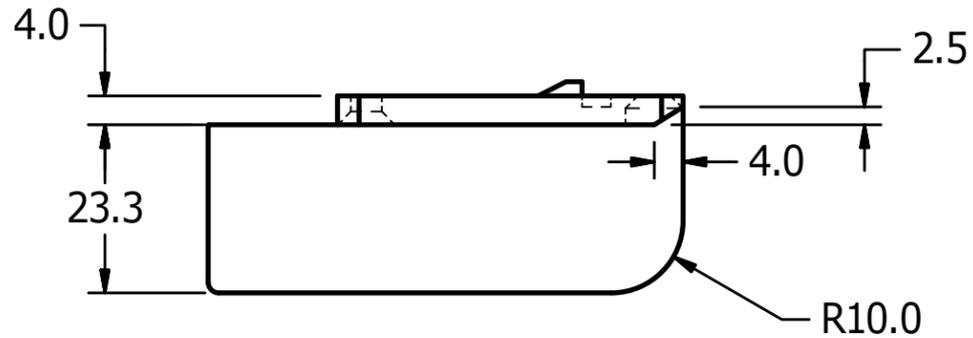
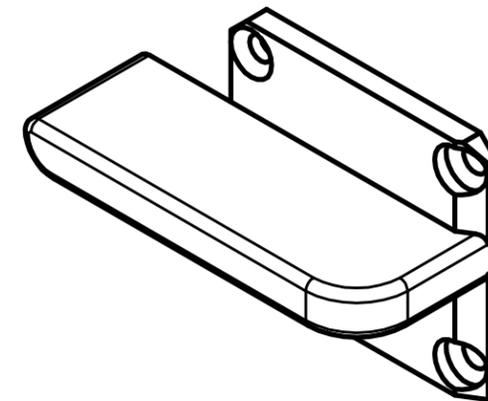
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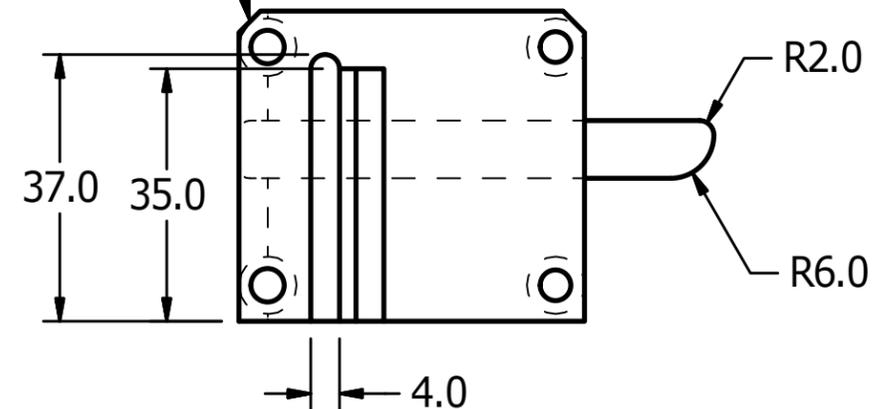
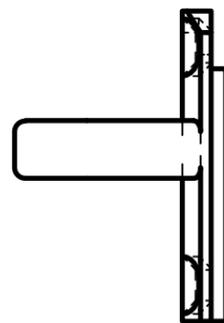
REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM015B	9/11/2014	DW



SECTION A-A
SCALE 1 : 1



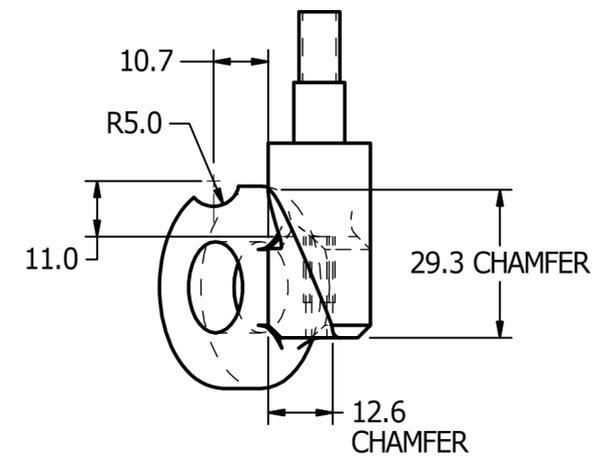
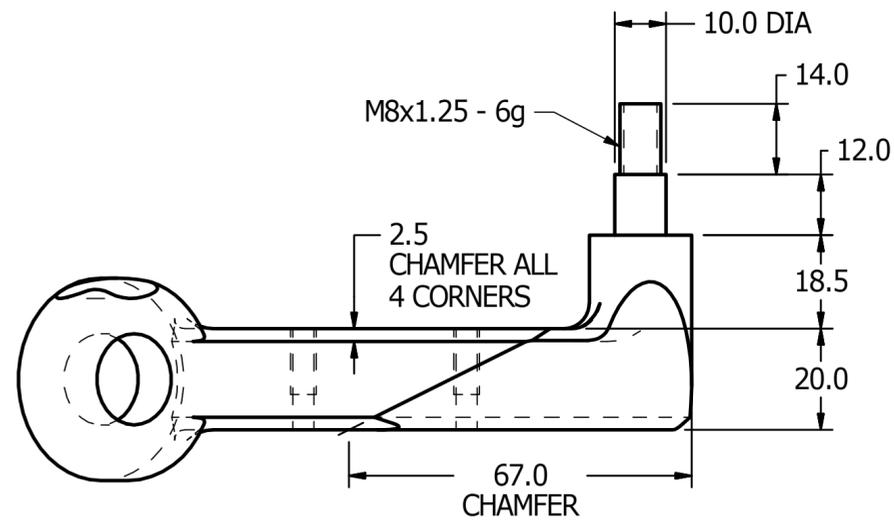
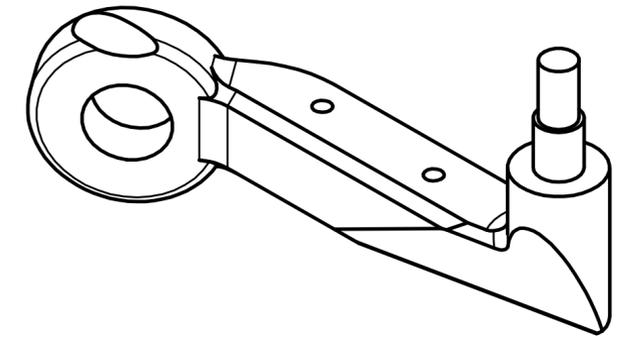
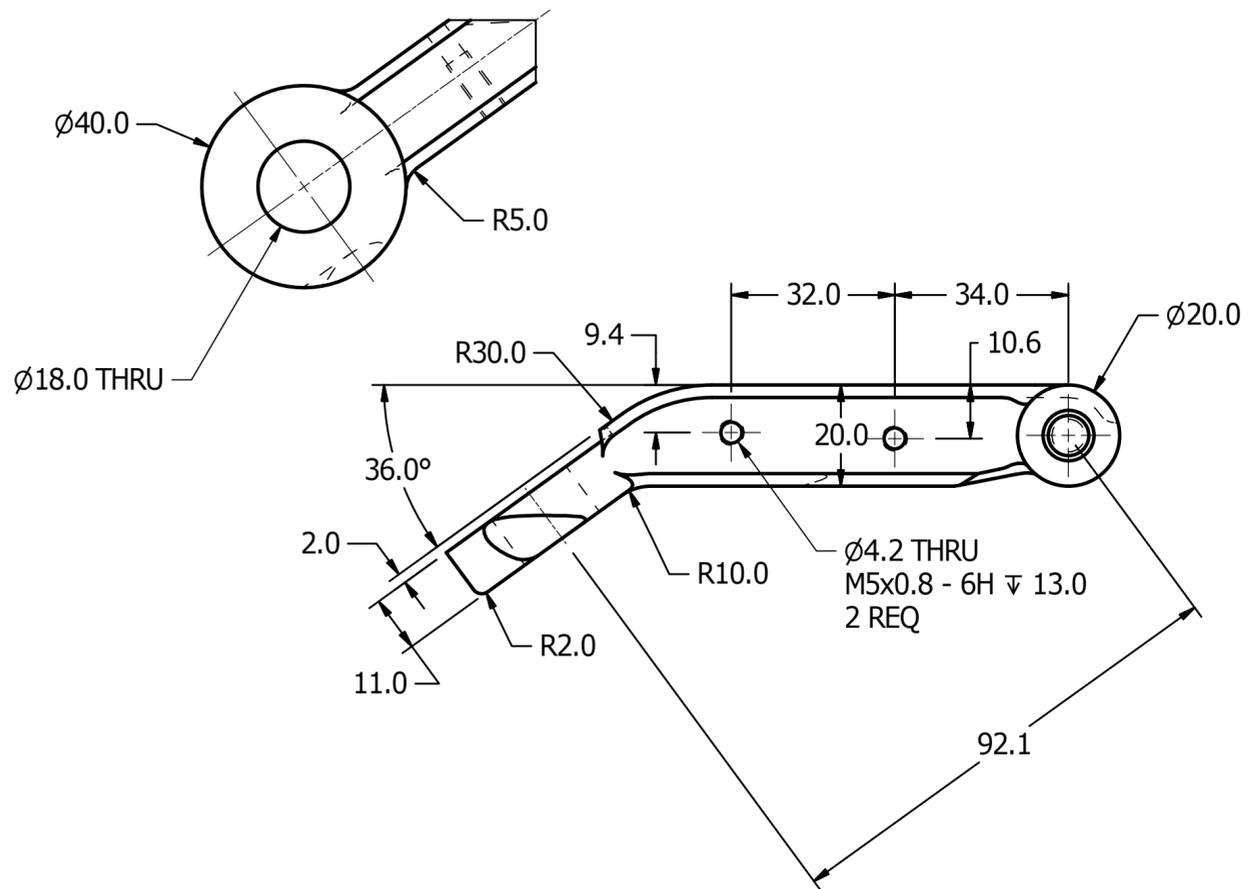
3.0 X 45.0° CHAMFER



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		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION RIB GUIDE LOWER, RH
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	8/21/2013	
	CHECKED		
MATERIAL Aluminum 6061	ENG		SIZE B DRAWING NUMBER 472-3828-2 REV A
HEAT TREAT	APPROVED		
FINISH			SHEET 1 OF 1 SCALE: 1:1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM013B	9/11/2014	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	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS DRAWN JIM CLEVENGER CHECKED	DATE 8/15/2013	
MATERIAL Steel	ENG APPROVED	SIZE C	DRAWING NUMBER 472-3829-2
HEAT TREAT FINISH		SCALE: 1:1	REV A SHEET 1 OF 1

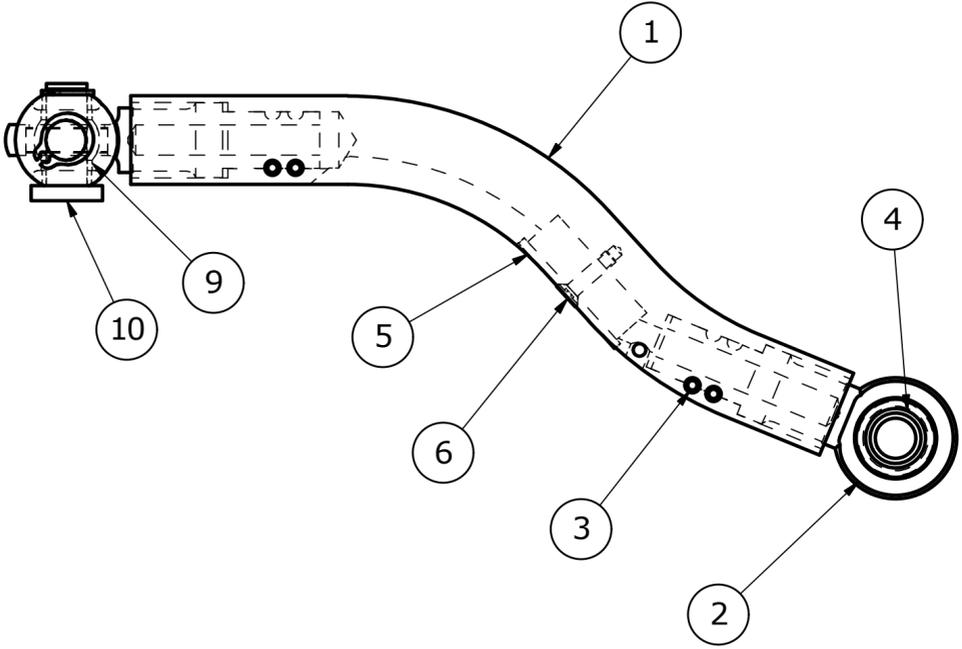
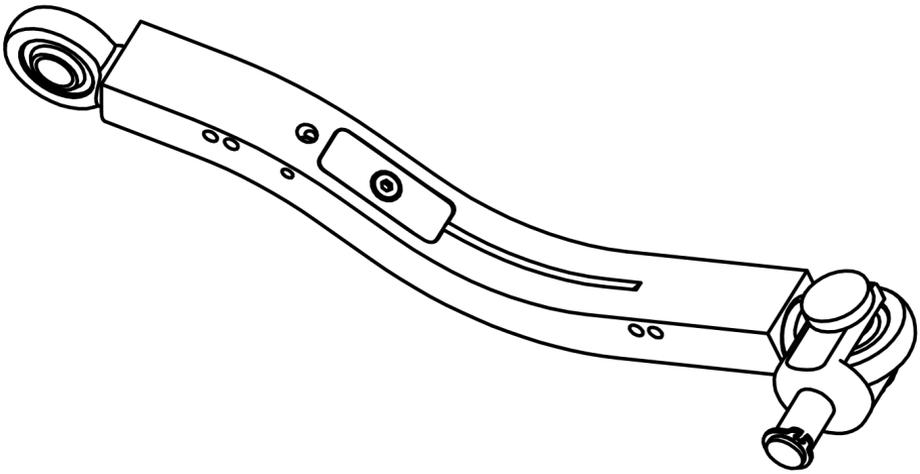
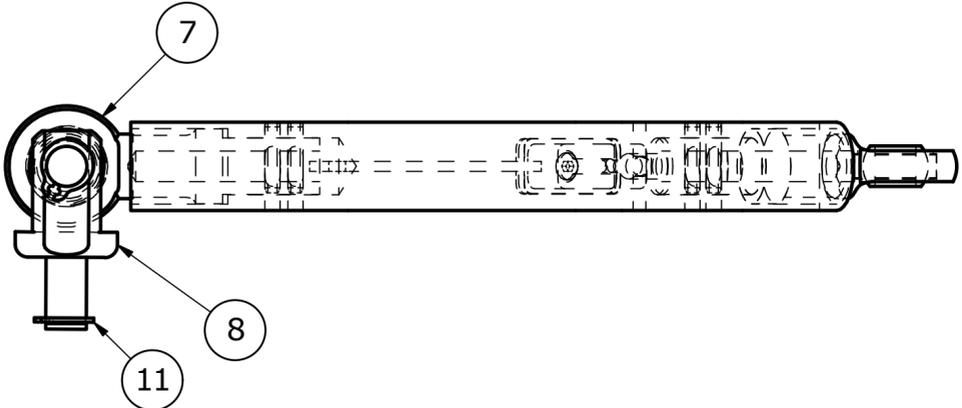
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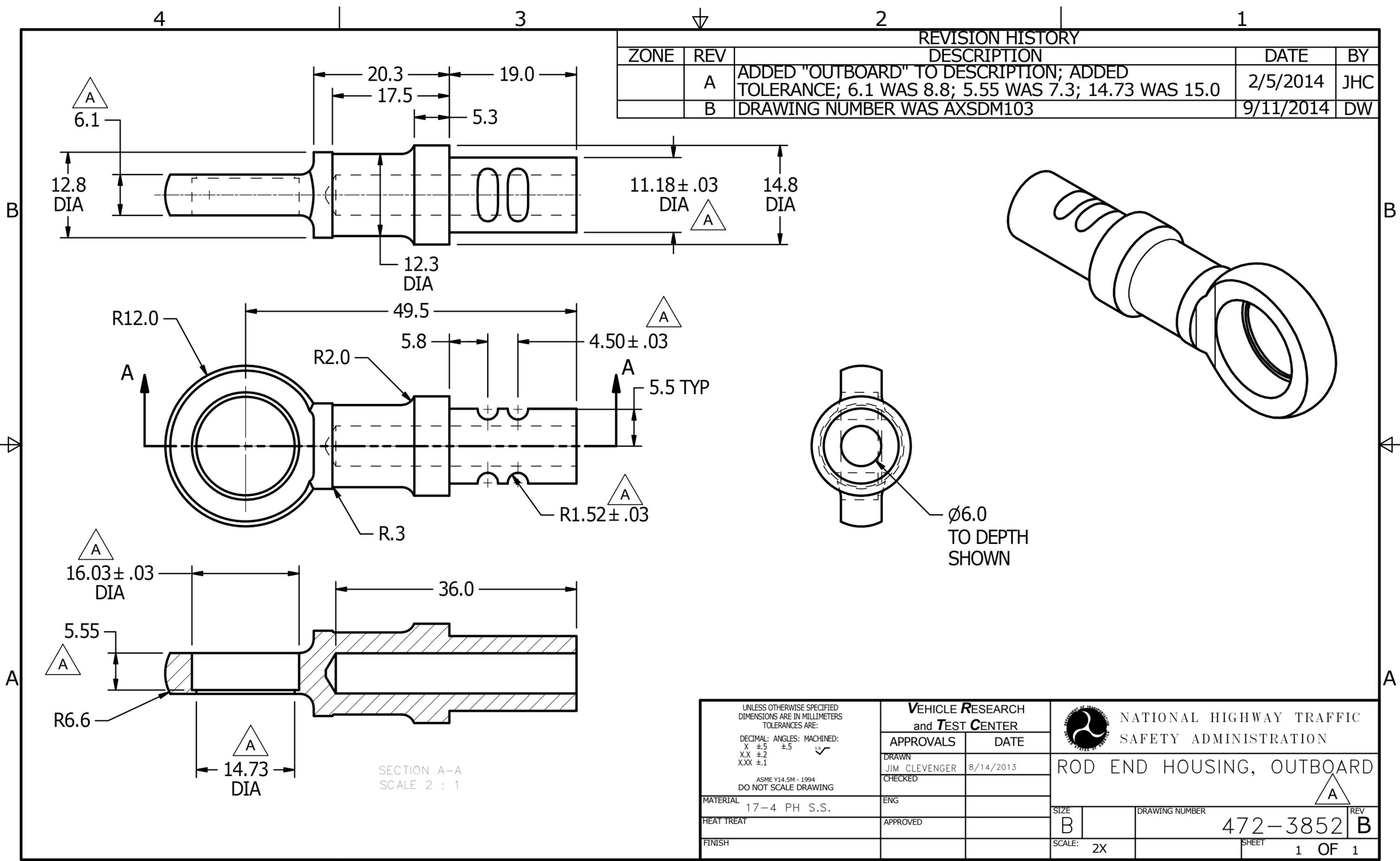
REVISION HISTORY				
ZON	REV	DESCRIPTION	DATE	BY
	A	CHANGED SHEET SIZE TO C; REPLACED ITEMS AXSDM104B, AXSDM034B, AND AXSDM021B WITH ITEM 7, 8, 9, & 10; REMOVED ITEM 5001175V	2/5/2014	JHC
	B	DRAWING NUMBER WAS AXSDM100B; IN PARTS LIST 472-3851 WAS AXSDM101, 472-3852 WAS AXSDM103, 472-3853 WAS AXSDM102,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



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	5000377	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 CLEVENGER CHECKED: _____	
<small>MATERIAL: ENG HEAT TREAT: APPROVED FINISH: _____</small>		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LEFT CLAVICLE ASSEMBLY	
<small>SCALE: 1:1</small>		<small>SIZE: C DRAWING NUMBER: 472-3850 REV: B SHEET: 1 OF 1</small>	

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	
APPROVALS	DATE
DRAWN JIM CLEVINGER	8/14/2013
CHECKED	
ENG	
APPROVED	
MATERIAL 17-4 PH S.S.	
HEAT TREAT	
FINISH	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
ROD END HOUSING, OUTBOARD	
SIZE B	DRAWING NUMBER 472-3852
SCALE: 2X	SHEET 1 OF 1

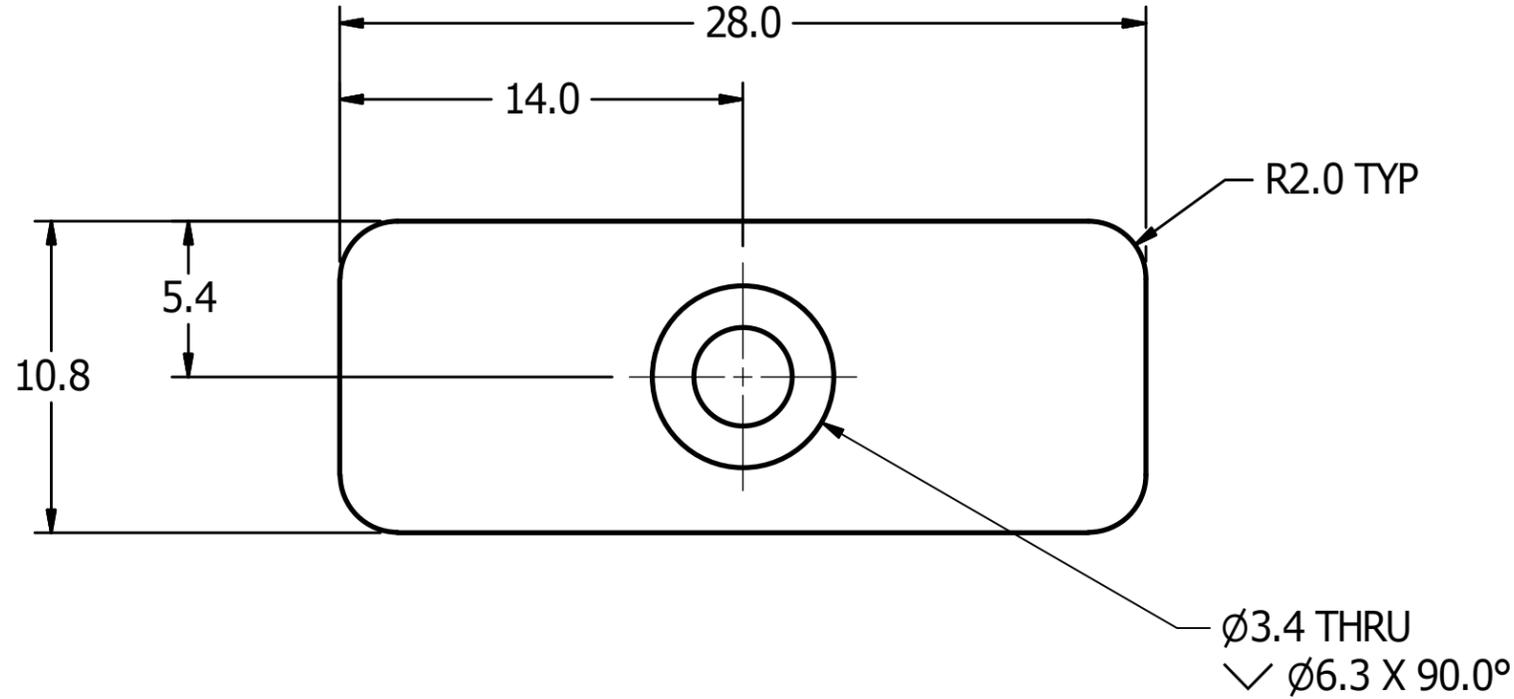
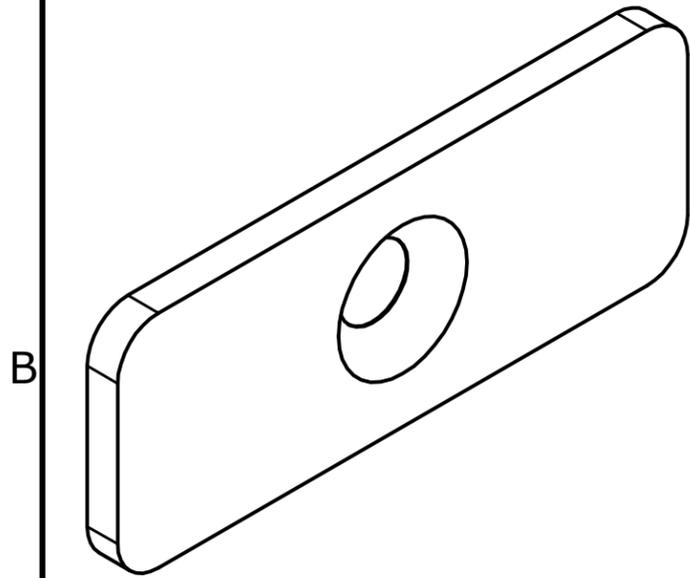
4

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1

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

APPROVALS DATE

DRAWN JIM CLEVINGER 8/14/2013

CHECKED

ENG

APPROVED



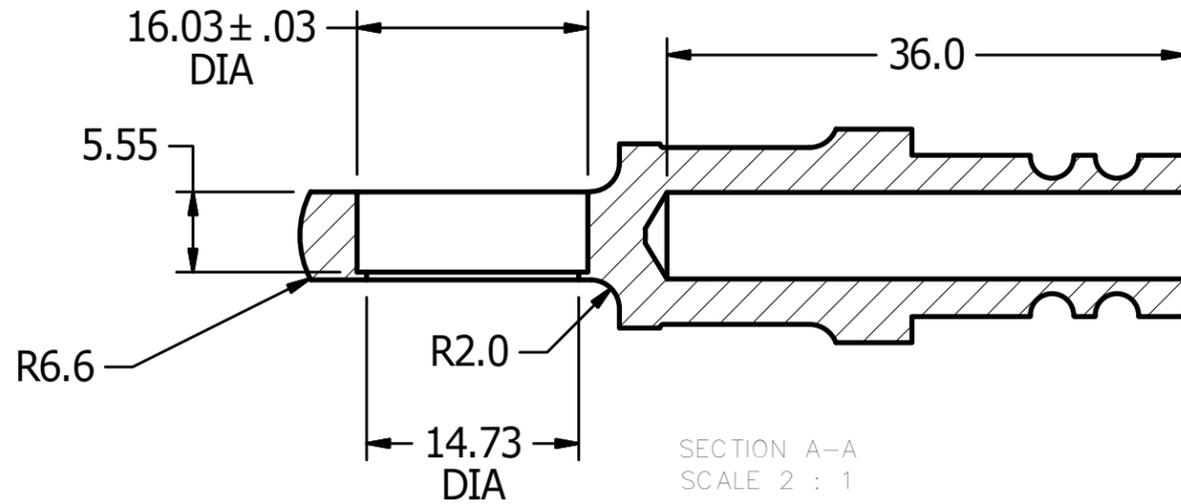
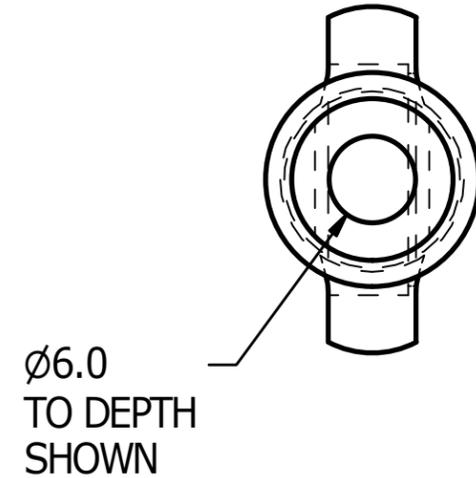
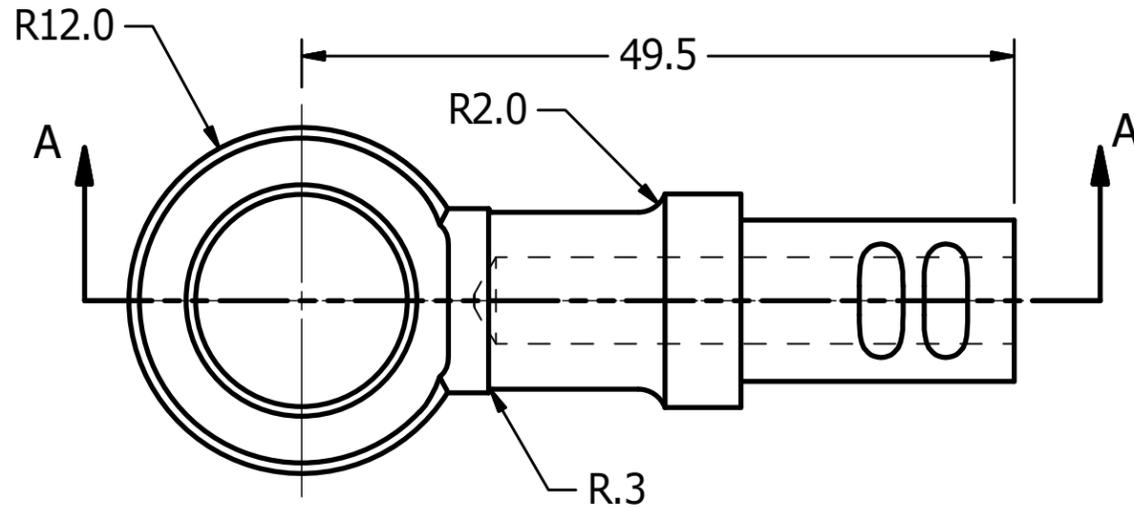
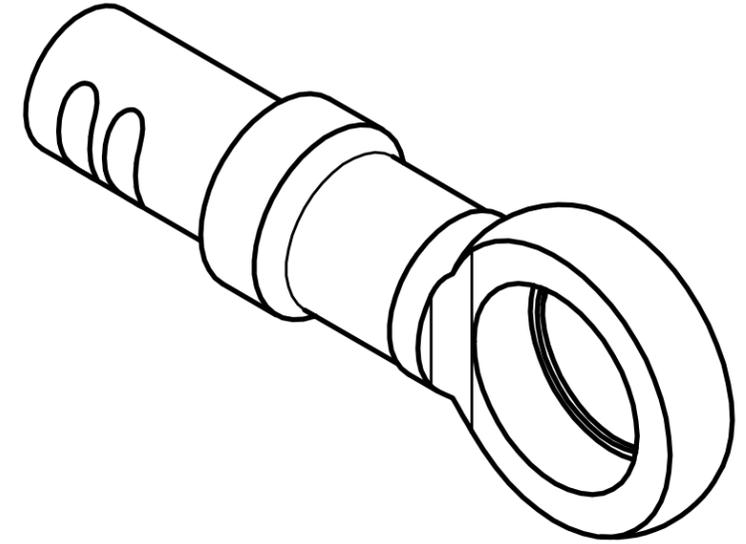
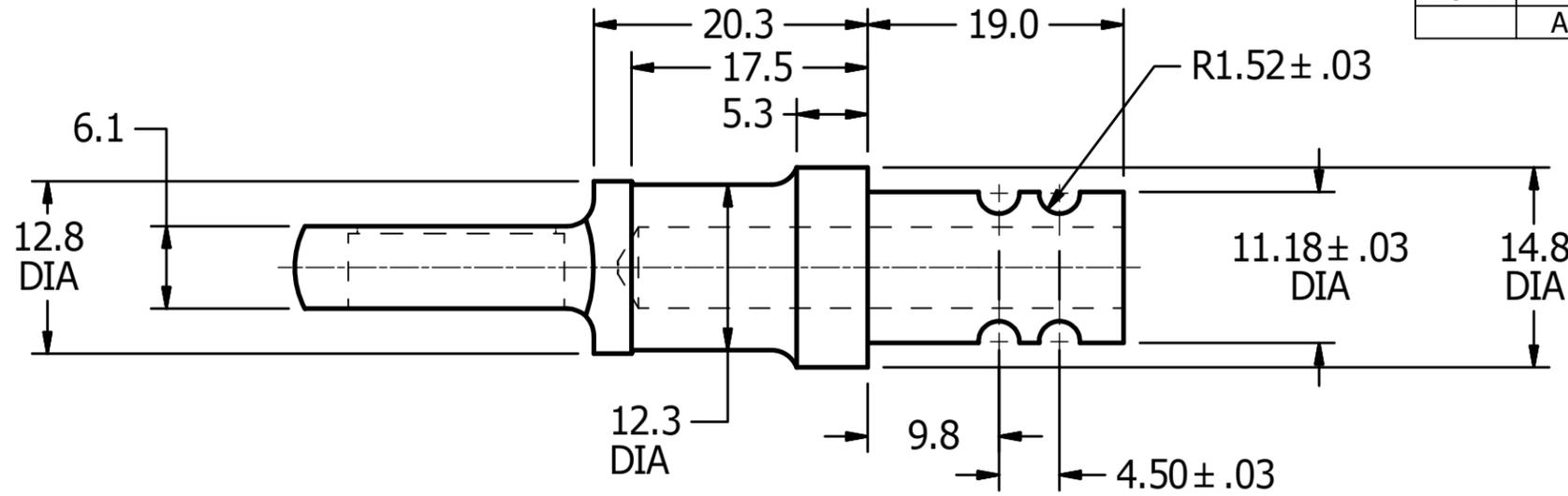
NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

CLAVICLE COVER PLATE

MATERIAL	Steel	SIZE	B
HEAT TREAT		DRAWING NUMBER	472-3853
FINISH		SCALE	4X

REV	A
SHEET	1 OF 1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM105	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		
	DRAWN JIM CLEVINGER	8/14/2013	ROD END HOUSING, INBOARD	
	CHECKED		SIZE B	DRAWING NUMBER 472-3854
MATERIAL 17-4 PH S.S.	ENG	SCALE: 2X	REV A	
HEAT TREAT	APPROVED	SHEET 1 OF 1		
FINISH				

4

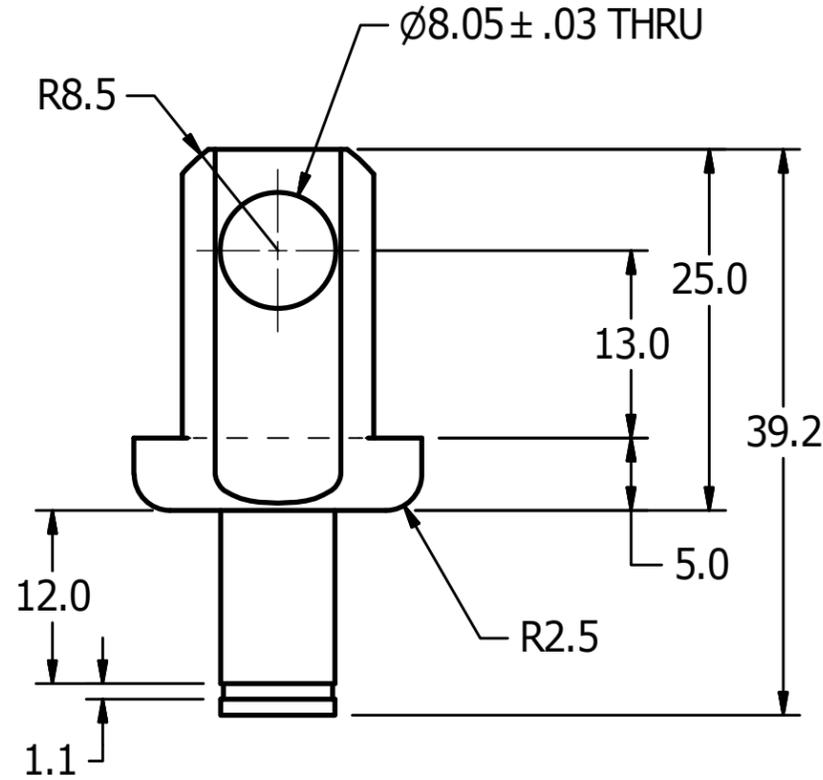
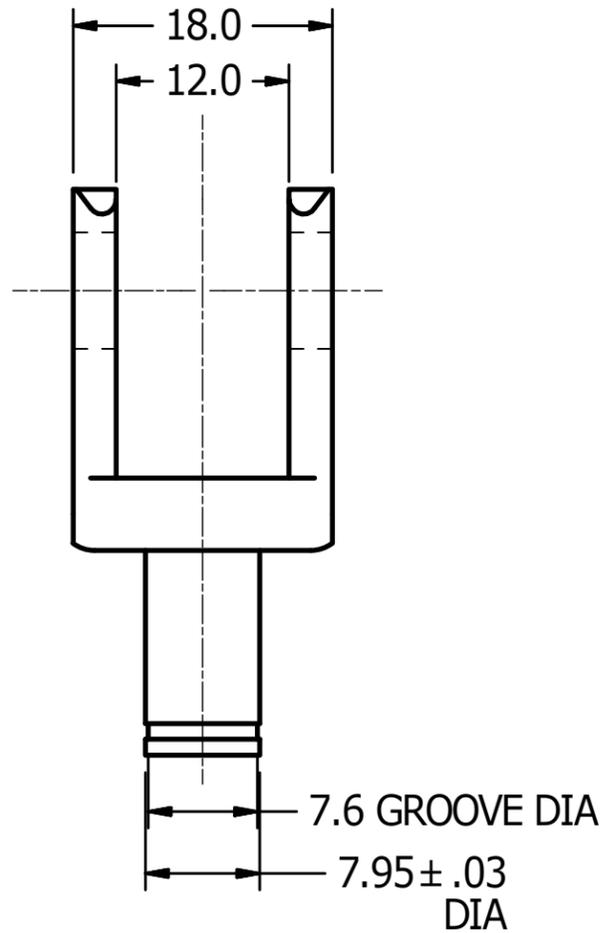
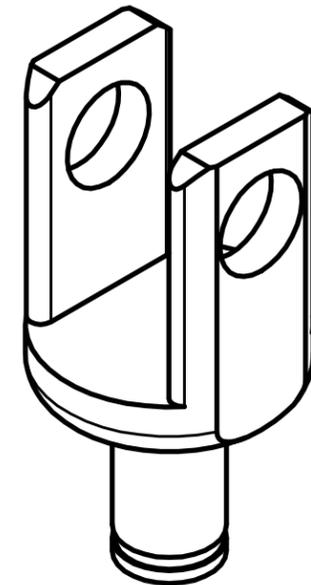
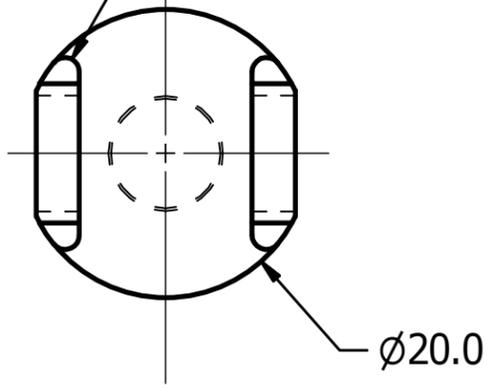
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM107	9/11/2014	DW

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	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LINKAGE BASE, INBOARD THOR-M
	APPROVALS	DATE	
	DRAWN JIM CLEVINGER	2/10/2014	
	CHECKED		
MATERIAL Steel	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-3855
FINISH			REV A
			SHEET 1 OF 1

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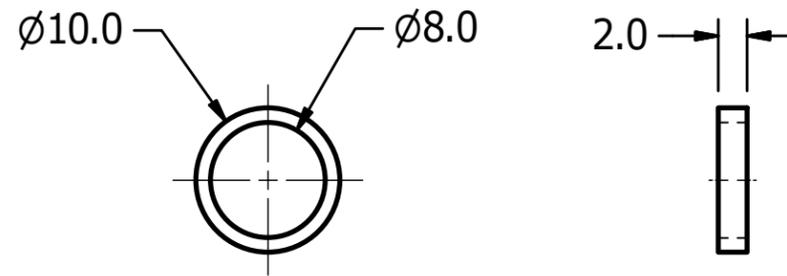
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBRER WAS AXSDM108	9/11/2014	DW



B

B

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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				

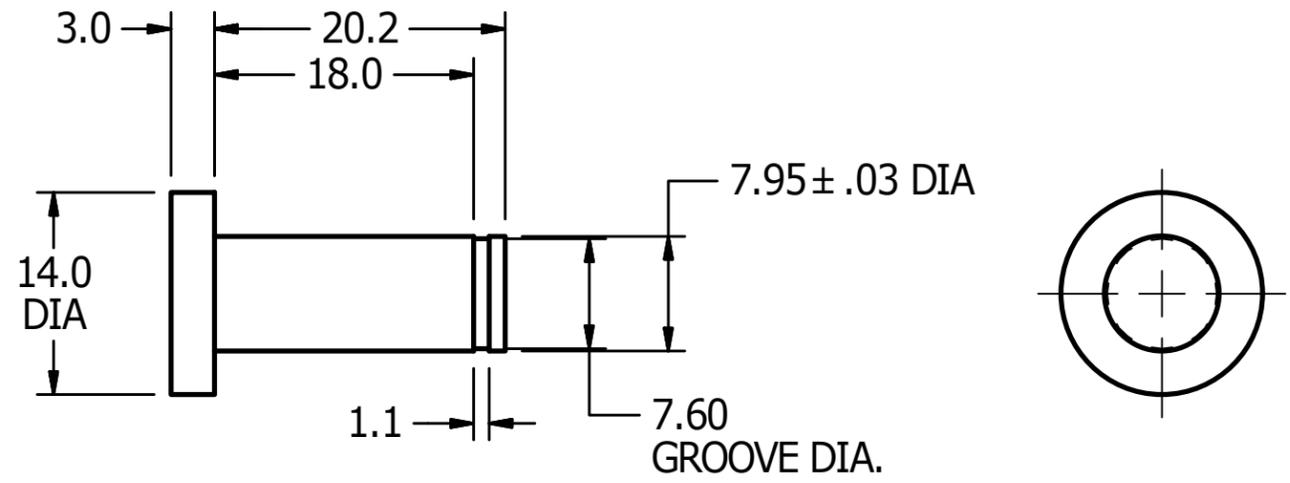
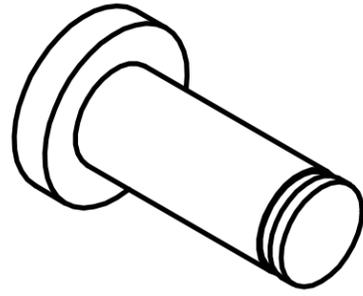
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXADM106	9/15/2014	DW



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	LINKAGE PIN, INBOARD CLAVICLE
	CHECKED		
MATERIAL Steel	ENG	SIZE B	DRAWING NUMBER 472-3899
HEAT TREAT	APPROVED	SCALE:	REV A
FINISH			SHEET 1 OF 1

4

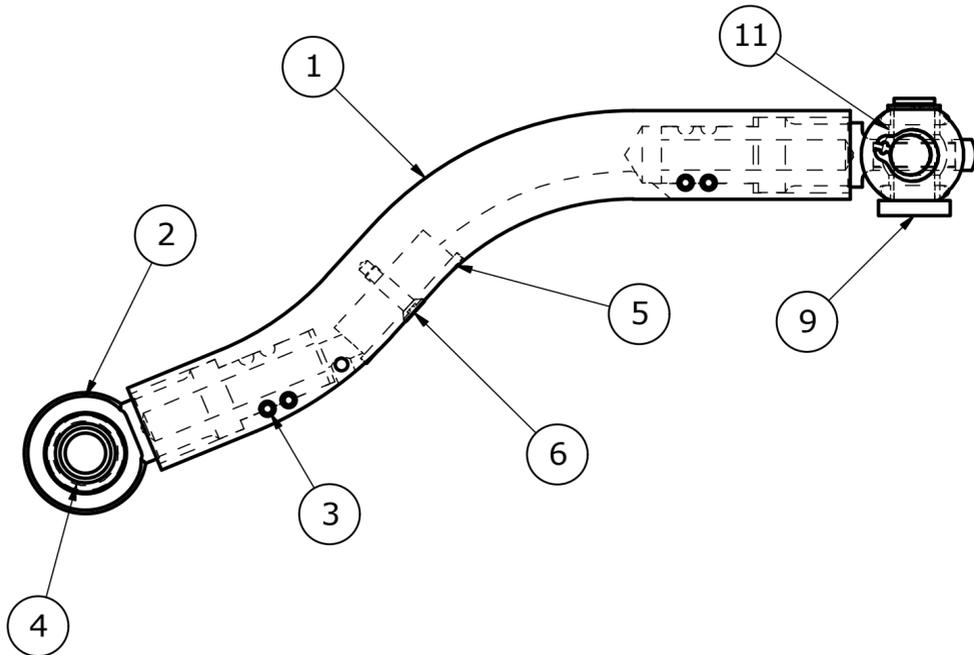
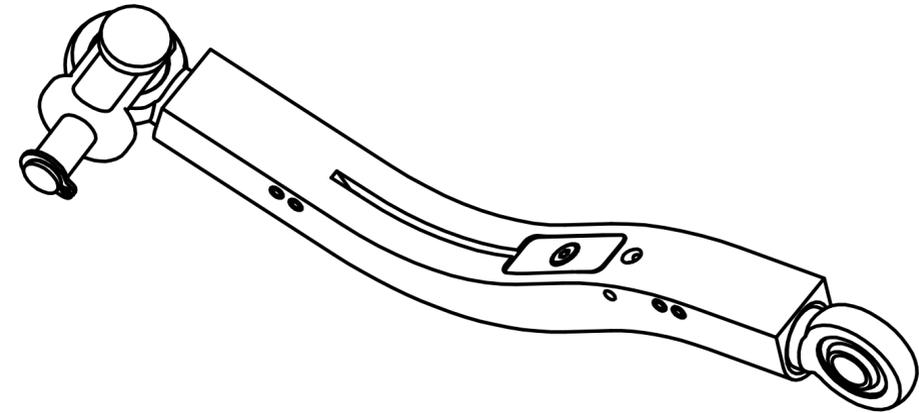
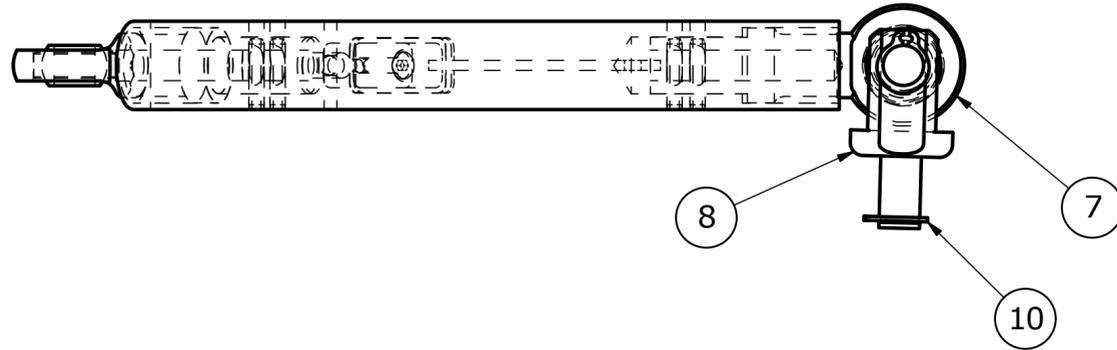
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REVISION HISTORY

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



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		VEHICLE RESEARCH and TEST CENTER	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING		APPROVALS DRAWN: JIM CLEVINGER CHECKED:	DATE 8/12/2013
MATERIAL	ENG	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
HEAT TREAT	APPROVED	RIGHT CLAVICLE ASSEMBLY	
FINISH		SIZE C	DRAWING NUMBER 472-3860
		SCALE: 1:1	REV B
		SHEET 1	OF 1

4

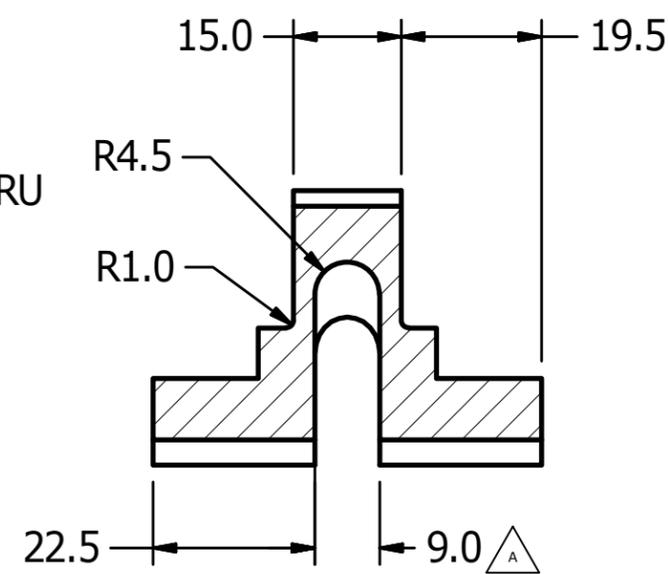
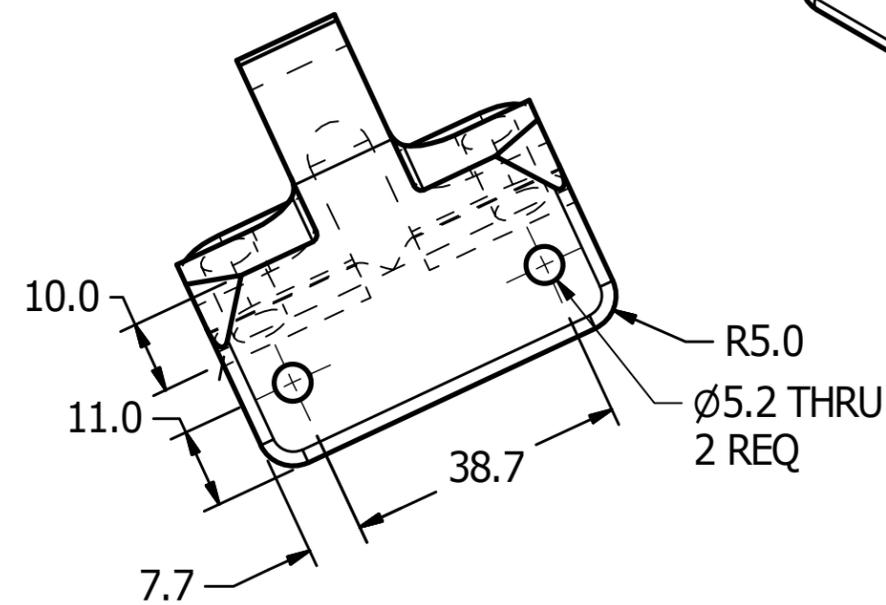
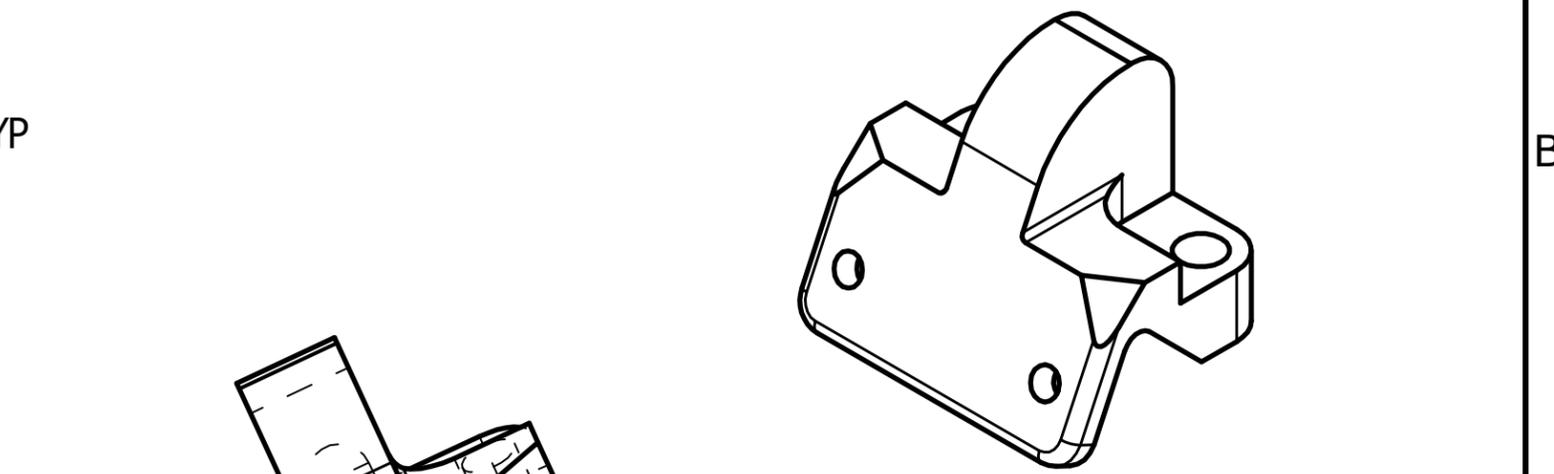
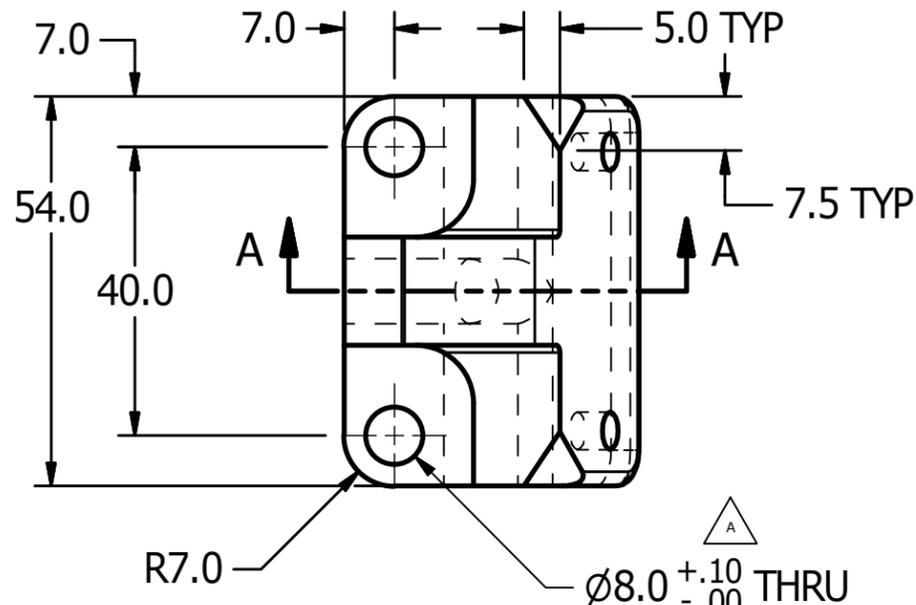
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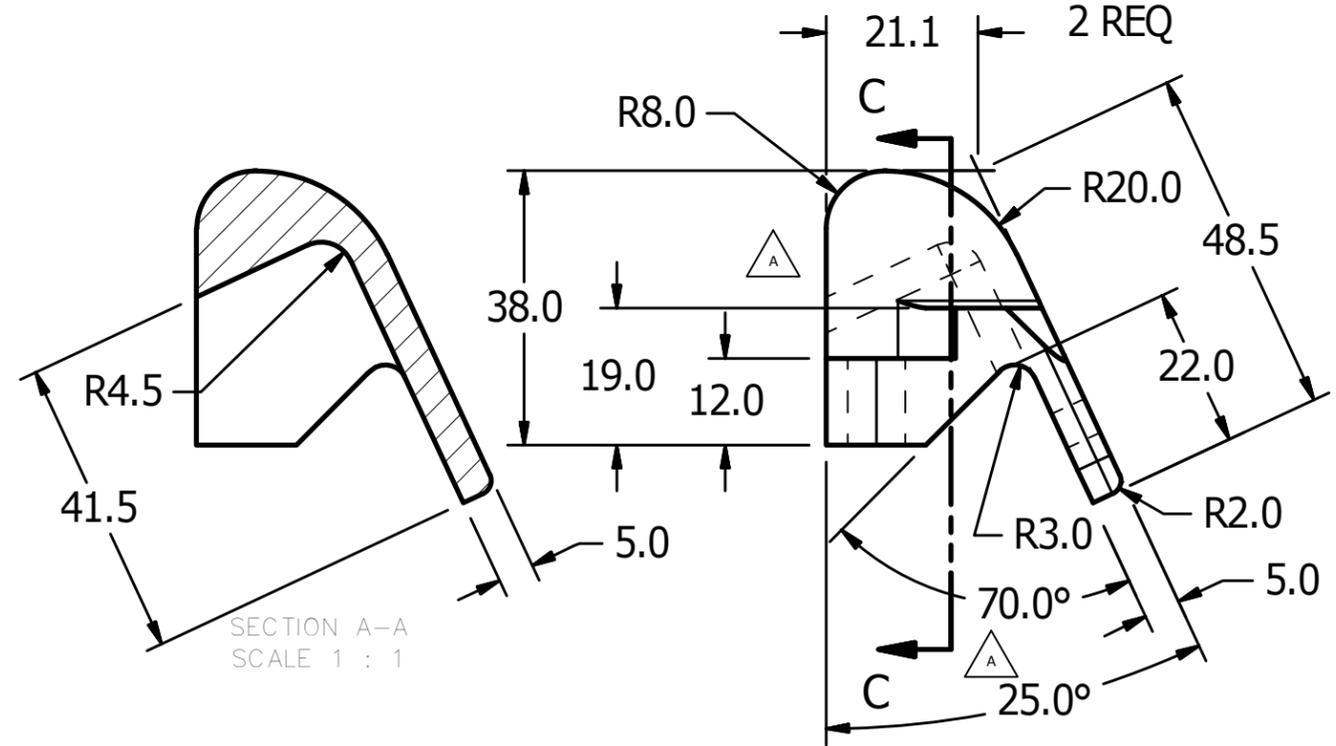
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REVISION HISTORY

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



SECTION C-C
SCALE 1 : 1



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	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
	APPROVALS	DATE	
ASME Y14.5M - 1994 DO NOT SCALE DRAWING	DRAWN JIM CLEVINGER	8/13/2013	STERNUM BRACKET
MATERIAL Aluminum 6061	CHECKED		
HEAT TREAT	ENG		SIZE B
FINISH ANODIZE	APPROVED		DRAWING NUMBER 472-3870
			REV B
			SCALE: 1:1
			SHEET 1 OF 1

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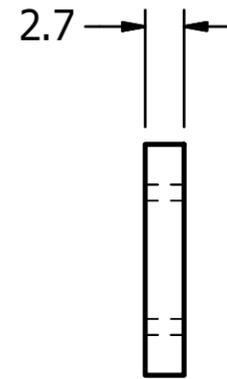
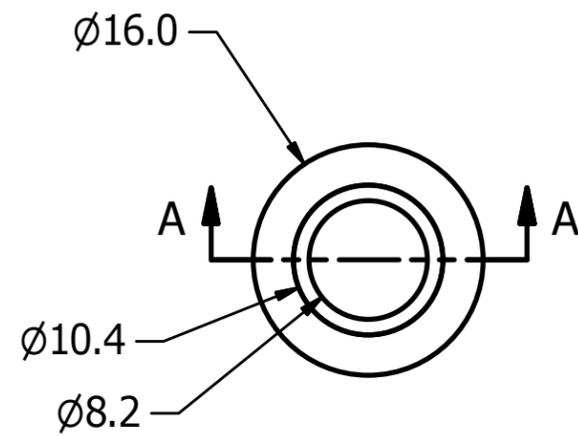
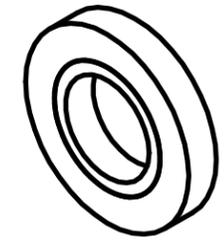
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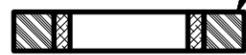
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM038	9/11/2014	DW



RUBBER OUTER RING MOLDED AROUND ALUMINUM INNER HUB



SECTION A-A
SCALE 2 : 1

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		ROD END SPACER ASSY
	DRAWN JIM CLEVINGER	10/29/2013		
	CHECKED			
MATERIAL	ENG	SIZE B	DRAWING NUMBER 472-3880	REV A
HEAT TREAT	APPROVED	SCALE: 2X	SHEET 1 OF 1	
FINISH				

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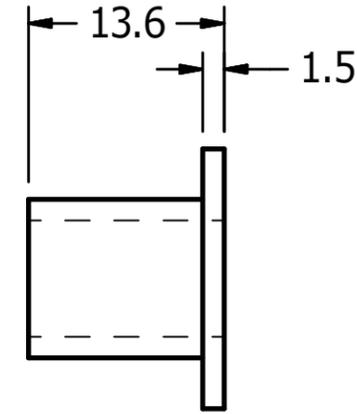
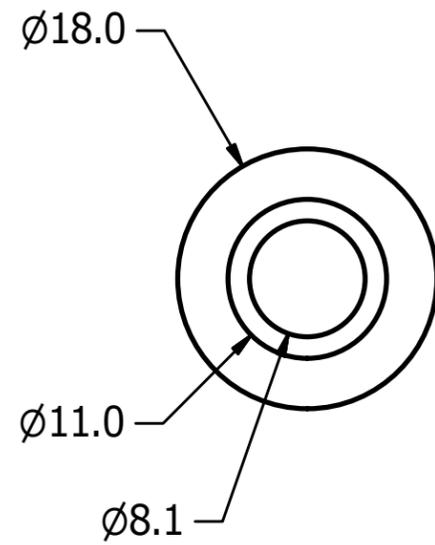
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1

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

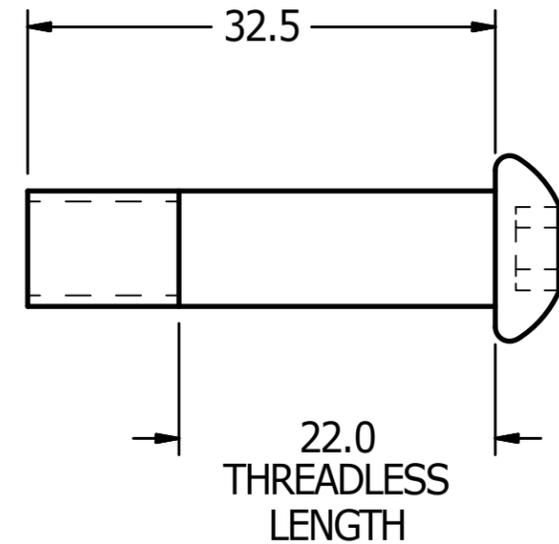
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1

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

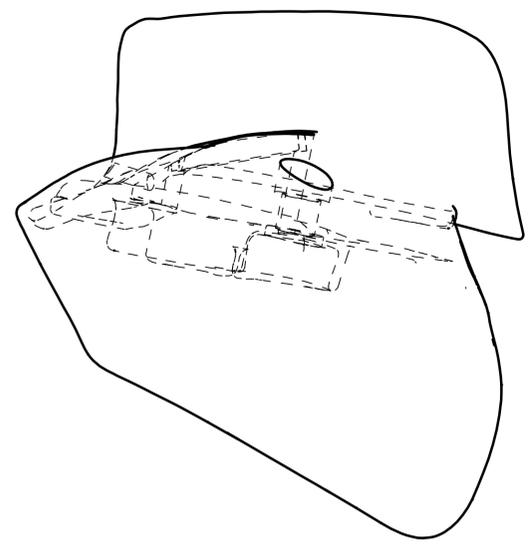
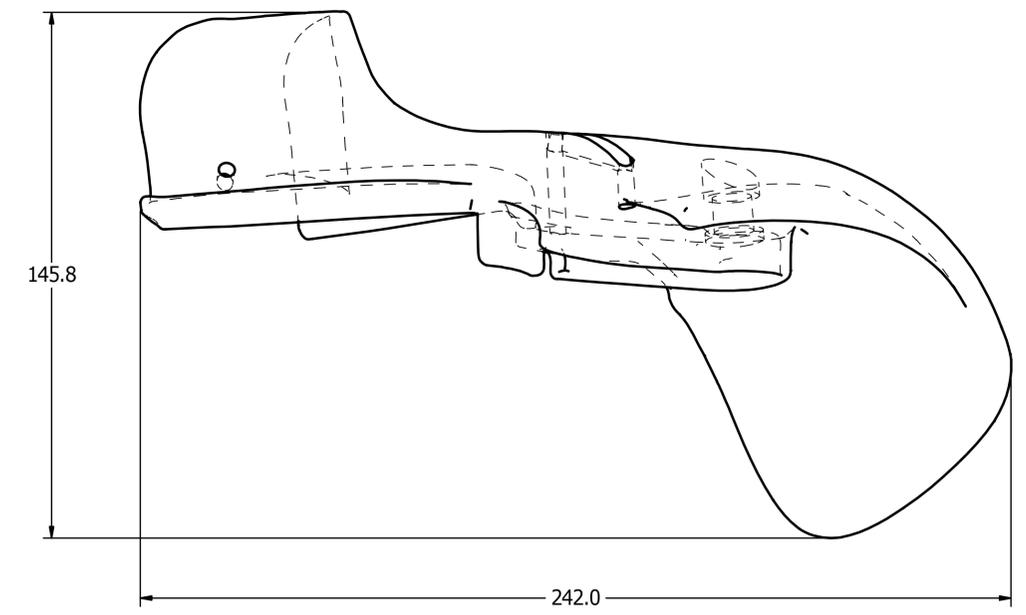
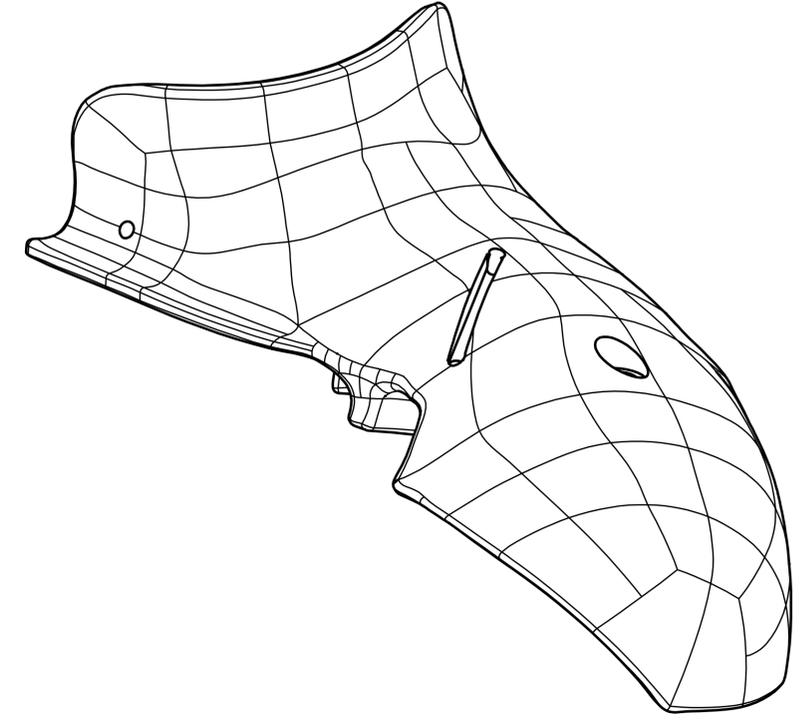
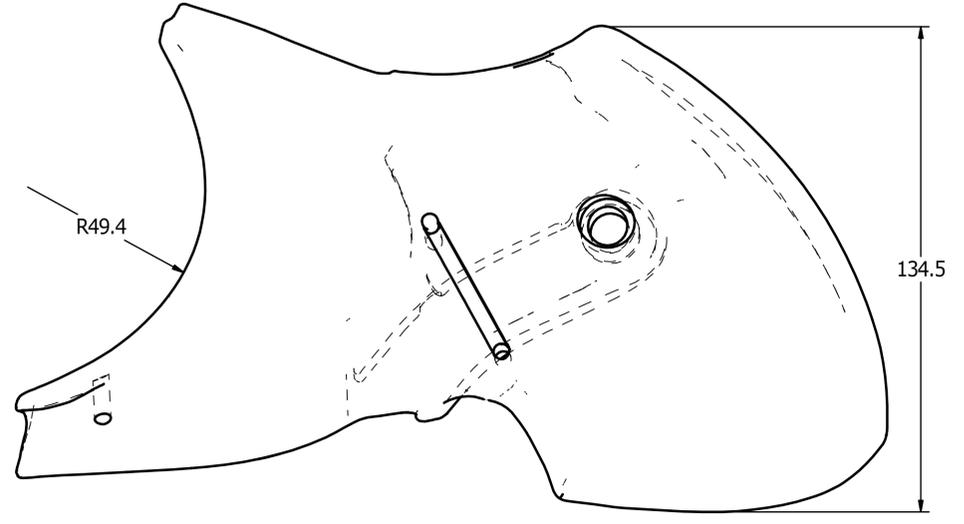


MATERIAL

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

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 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			REV A
			SCALE: 2X
			SHEET 1 OF 1

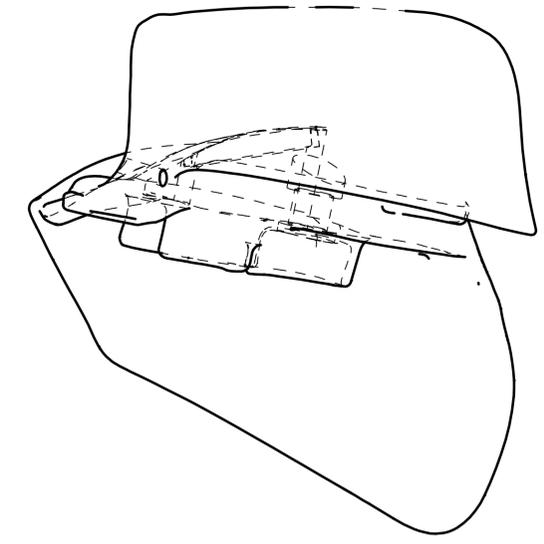
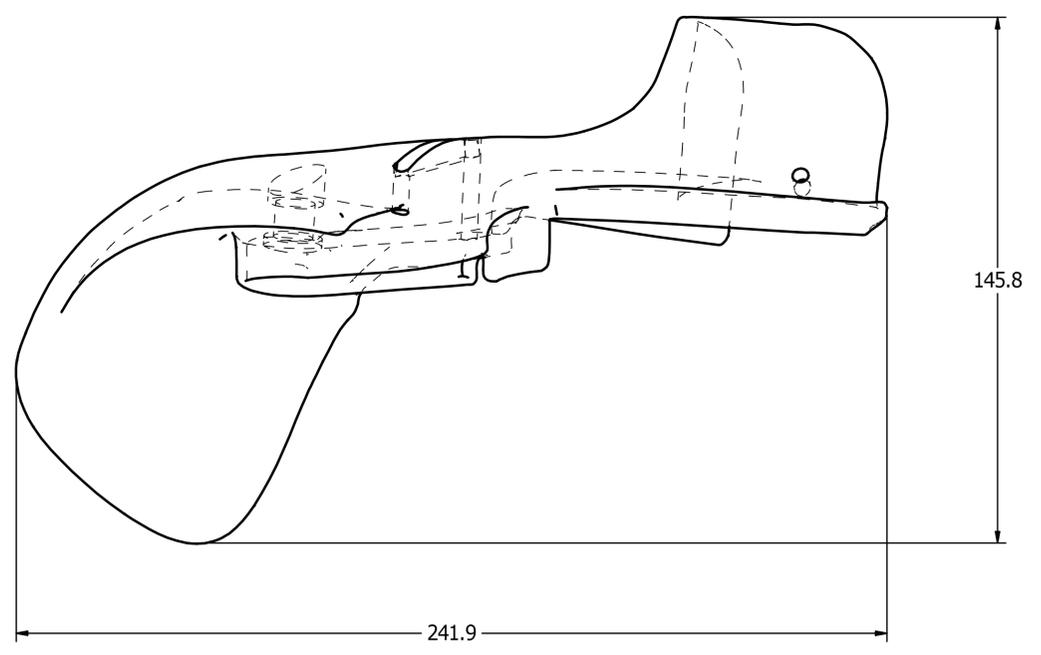
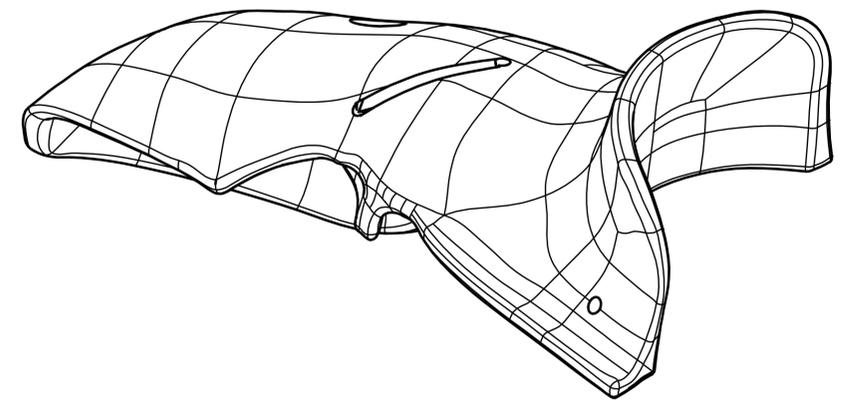
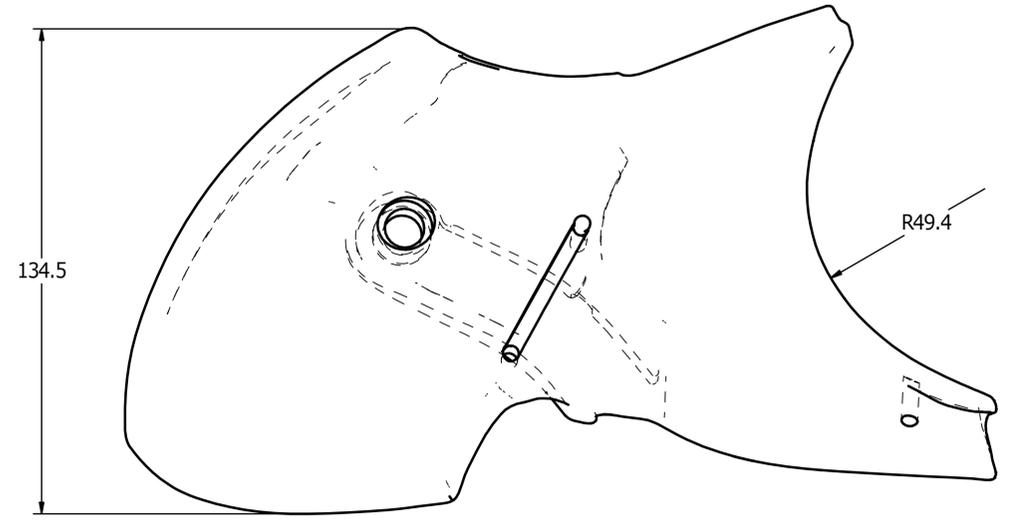
ZONE		REV	REVISION HISTORY	DESCRIPTION	DATE	BY
A			CHANGED SHEET SIZE TO "D", DRAWING NUMBER WAS AXSDM035		9/11/2014	DW



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	

ZONE		REV	REVISION HISTORY	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 ±1 XXX ±1		VEHICLE RESEARCH and TEST CENTER		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DECIMAL ANGLES: MACHINED: X ±0.5 XX ±1 XXX ±1		APPROVALS	DATE	SHOULDER COVER, RIGHT	
DO NOT SCALE DRAWING		JIM CLEVENGER	8/21/2013		
MATERIAL: Urethane, Clear	ENG			SIZE: D	DRAWING NUMBER: 472-3895-2
TREAT TREAT	APPROVED			SCALE: 1:1	SHEET 1 OF 1
FINISH				1	REV A

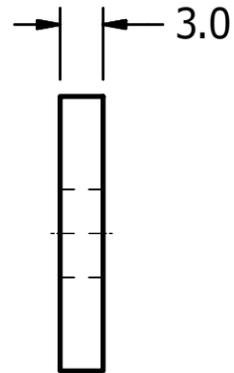
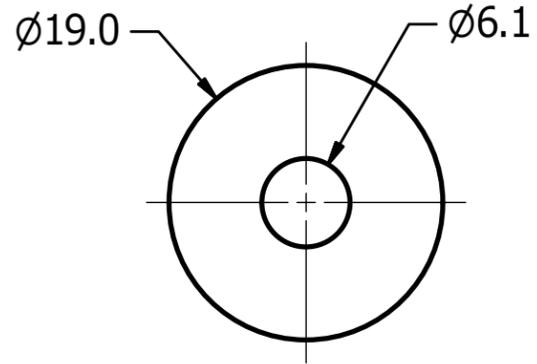
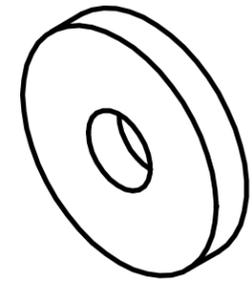
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXSDM033	9/11/2014	DW



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**

APPROVALS	DATE
-----------	------

DRAWN JIM CLEVINGER	2/10/2014
CHECKED	

ENG	
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APPROVED	
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NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

RUBBER SPACER WASHER

MATERIAL Rubber	SIZE B	DRAWING NUMBER 472-3898	REV A
HEAT TREAT	SCALE:	SHEET 1 OF 1	
FINISH			

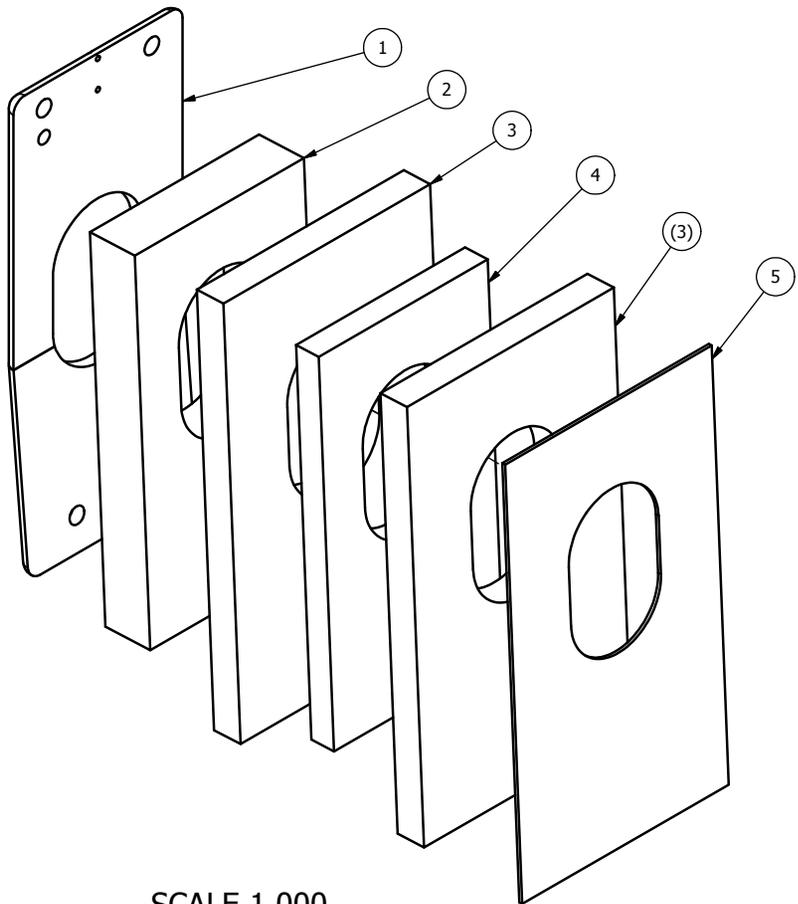
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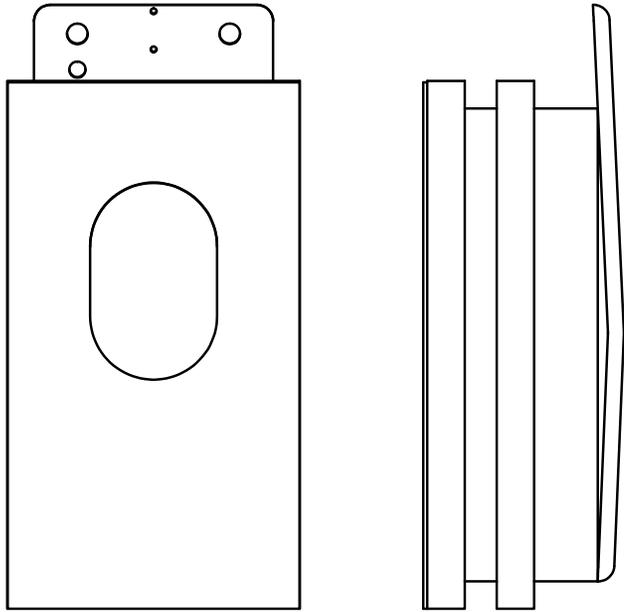
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM015 R0 FOR THOR-M	9/13/2011	BK



SCALE 1.000



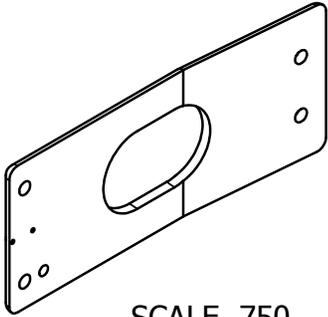
- NOTES:
1. SAND BLAST AND CLEAN WITH ACETONE, THE AREA OF EACH METAL PLATE THAT WILL MAKE CONTACT WITH EITHER THE FOAM OR RUBBER.
 2. ALIGN AND CENTER THE FRONT EDGE OF 472-3414 WITH 472-3413. MAKE SURE THE HOLE PATTERN ON THE METAL PLATE IS AS SHOWN.
 3. CENTER EACH MID-STERNUM MASS PLATE (472-3411) 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

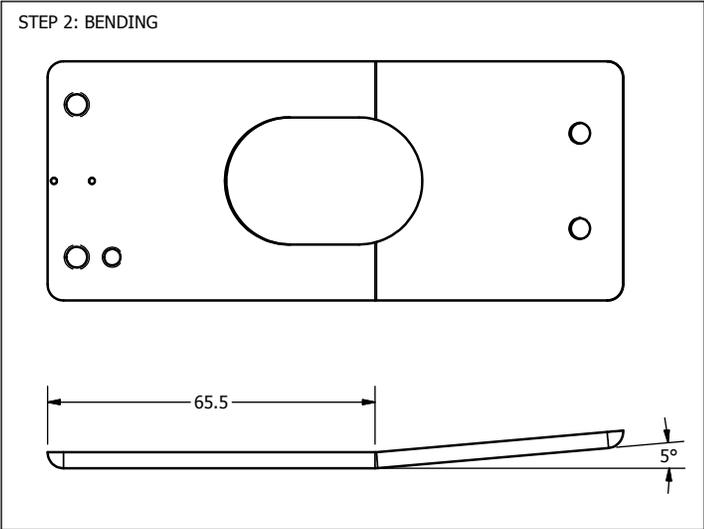
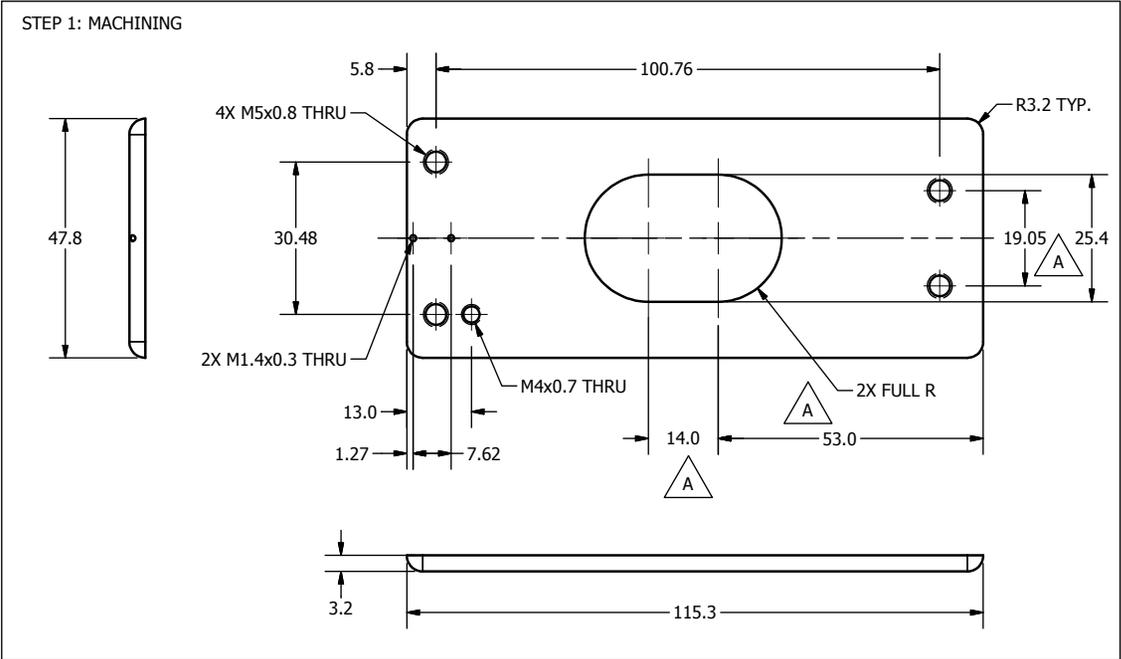
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS	ANGLES FINISH
		X ±0.2	° ±0.5 16
		XX ±0.1	
		XXX ±0.3	
		XXXX ±0.51	
		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			

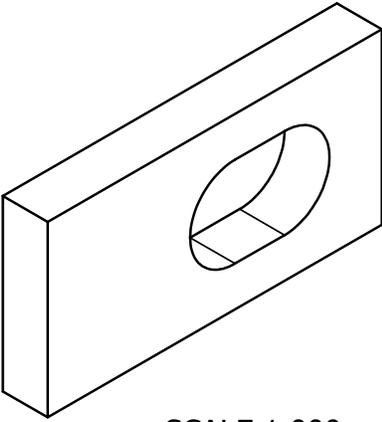
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM010 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD CENTER HOLE	9/13/2011	BK



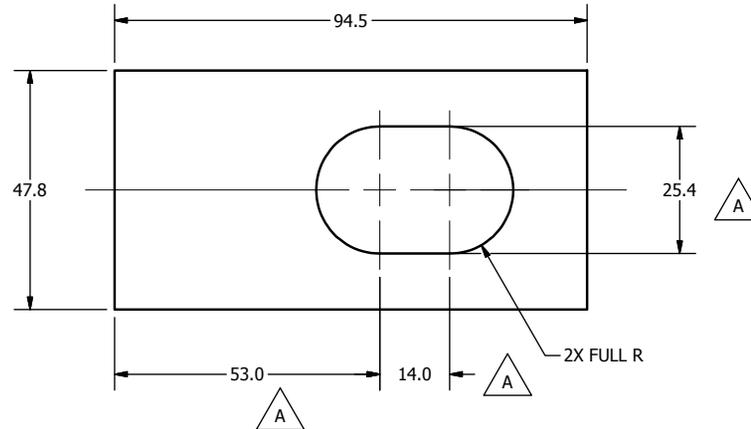
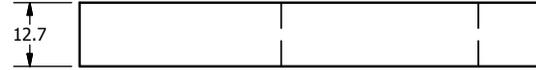
SCALE .750



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.2 ±0.5° 1.6 XX ±0.2 ±0.5° ✓ XXX ±0.3 ±0.5° XXXX ±0.01		
PROJECT NO.	472-3410	MATERIAL	01 TOOL STEEL	DESCRIPTION
DRIVEN BY	1	HEAT TREAT	Rc 40-43	MID-STERNUM PLATE
CHECKED BY	B. KIMES	TREATMENT	TEFLON COATING	DATE
DATE	9/13/2011	ENGINEER	J. WANG	1/17/2012
SIZE	A3	SHEET	1 OF 1	DRAWING NO.
SCALE	1.000	TOTAL QTY IN DUMMY	1	472-3413



SCALE 1.000

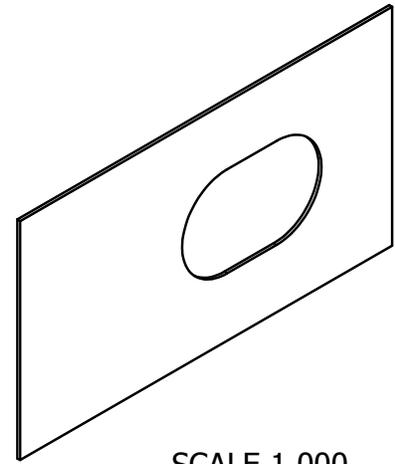


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1MSM014 R0 FOR THOR-M; ADD CENTER HOLE	9/13/2011	BK

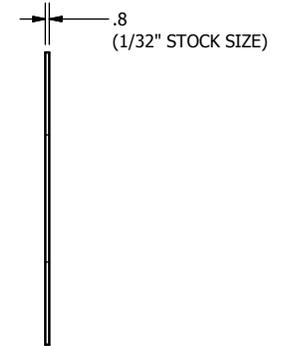
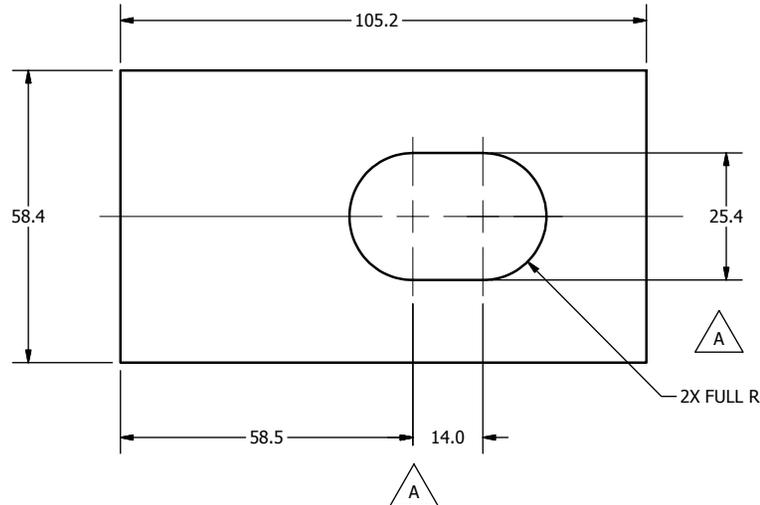
NOTES:

1. DIMENSION TOLERANCE ± 0.8 , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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)	DESCRIPTION:
PROV BY:	1	HEAT TREAT:		MASS DAMPING FOAM #1, MID-STERNUM
CHECKED BY:		FINISH:		DATE:
		ENGINEER:	J. WANG	9/13/2011
TOTAL QTY IN DUMMY	1	DATE:	1/17/2012	SCALE:
		SIZE:	A3	SHEET:
			1	OF 1
		DRAWING NO.:	472-3414	REV.:
				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

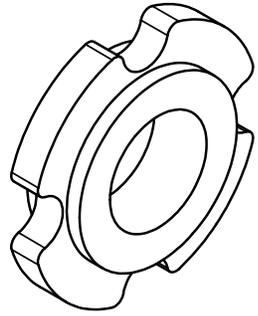
NOTES:

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

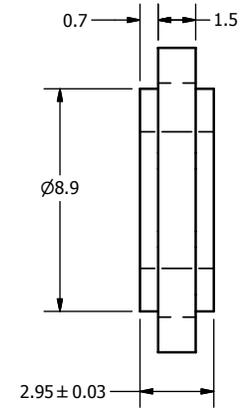
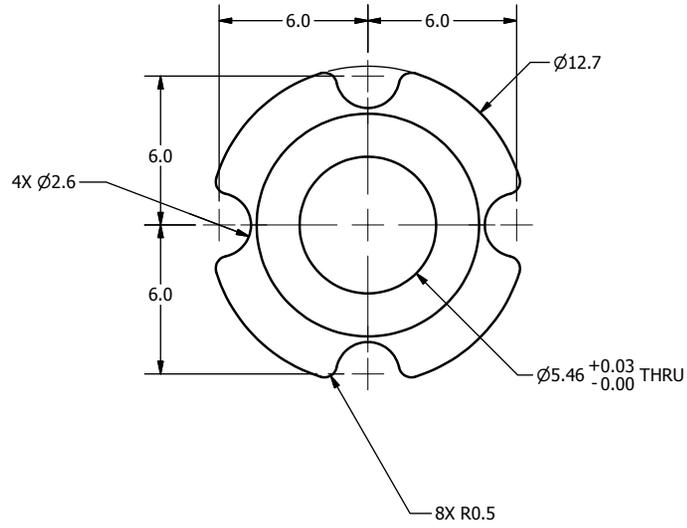
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS
	DECIMALS ANGLES FINISH
	X .05 ± 0.07 1.6
	XX ± 0.2
	XXX ± 0.3
	XXX ± 0.01
	REMOVE BURRS & BREAK SHARP EDGES

PROJECT NO.: 472-3410	QTY: 1	MATERIAL: BUNA-N RUBBER 50A	DATE: 9/13/2011	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: MID-STERNUM RUBBER PAD
CHECKED BY: J. WANG	QTY: 1	DATE: 1/17/2012	ENGINEER: B. KIMES	
TOTAL QTY IN DUMMY: 1			SCALE: 1.000	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-3415 REV: A

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

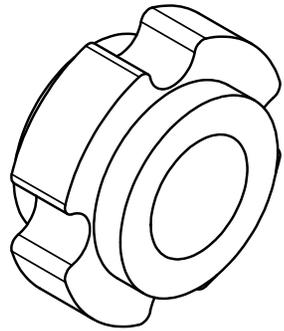


SCALE 5.000

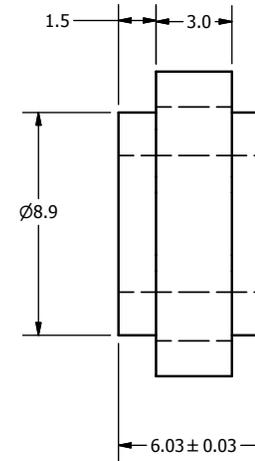
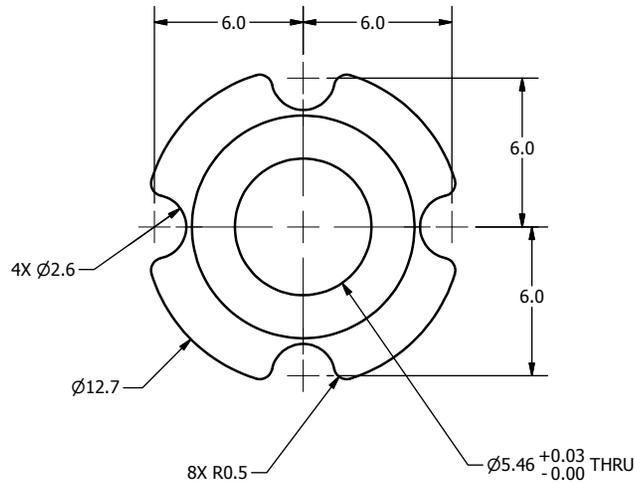


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 ± 0.05 1.6 0.1 ± 0.1 0.2 ± 0.2 0.3 ± 0.3 0.01 ± 0.01		
PROJECT NO:	472-3420	MATERIAL:	Aluminum-7075	DESCRIPTION:
DATE:	1/6/2012	DESIGNED BY:	KHS	BIB INSERT - THIN, SMALL
CHECKED BY:	TMV	DATE:	1/9/2012	SIZE: SHEET
ENGINEER:	J. WANG	DATE:	1/18/2012	A3 1 OF 1
HEAT TREAT:		FINISH:		DRAWING NO. 472-3421
TOTAL QTY IN DUMMY	6	SCALE:	5:1	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

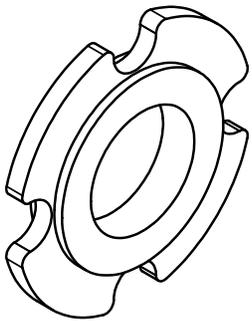
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ± 0.5 ± 0.5 1.6
XX ± 0.2 ± 0.2
XXX ± 0.1 ± 0.1



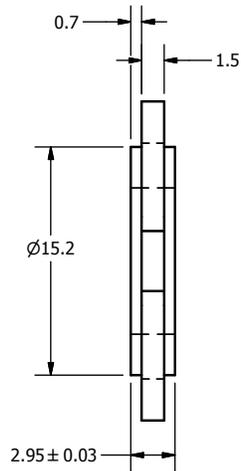
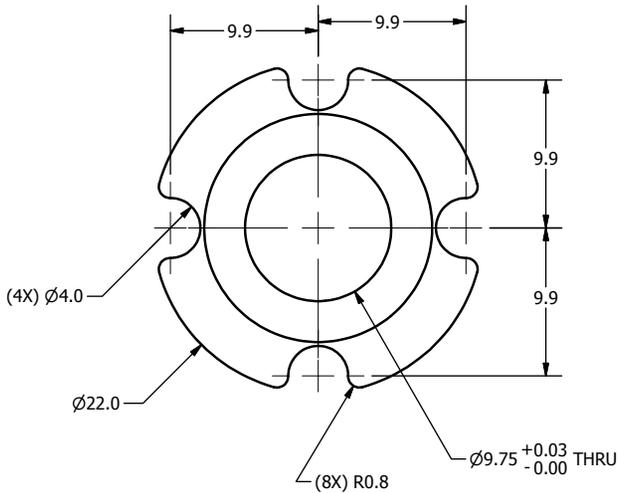
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

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

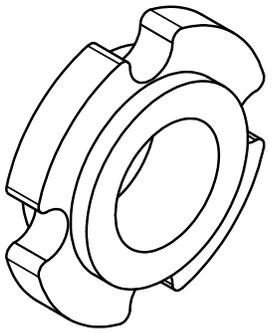


SCALE 3.000

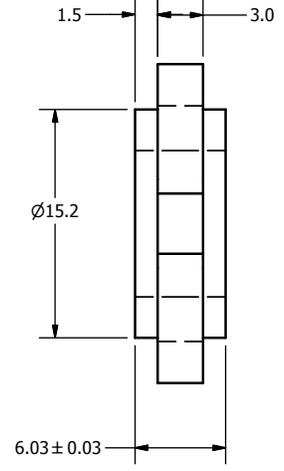
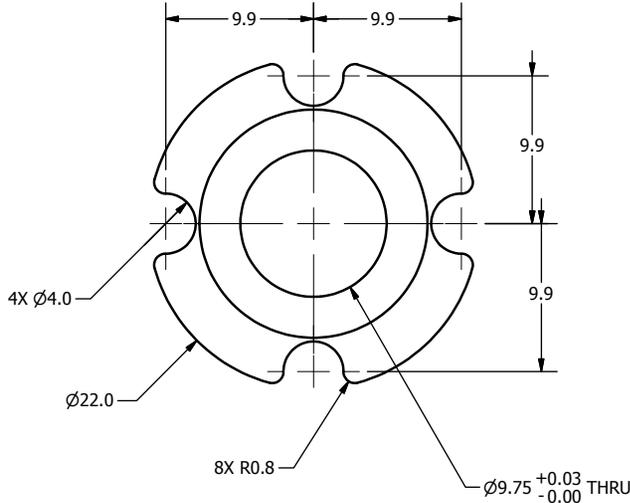


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 0.1 16 0.2 16 0.3 16 0.01 16		
PROJECT NO:	472-3420	MATERIAL:	Aluminum-7075	DESCRIPTION:
DATE:	1/9/2012	DESIGNED BY:	KHS	BIB INSERT - THIN, LARGE
CHECKED BY:	TMV	DATE:	1/9/2012	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
TOTAL QTY IN DUMMY:	2	FINISH:		SCALE: 3:1
				DRAWING NO: 472-3423
				REV: A

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

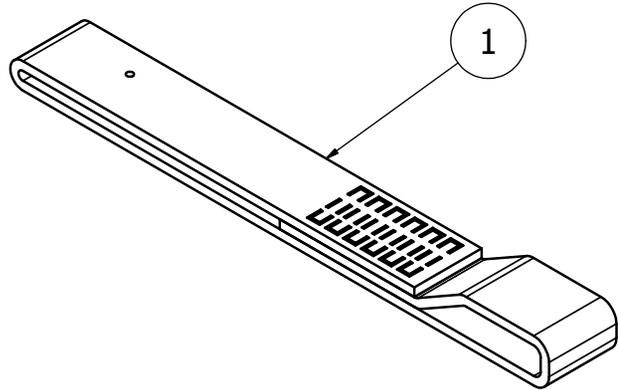


SCALE 3.000

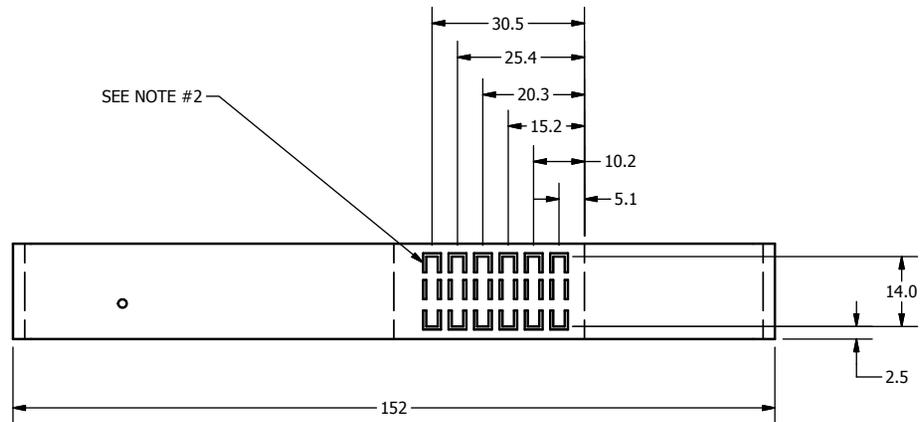
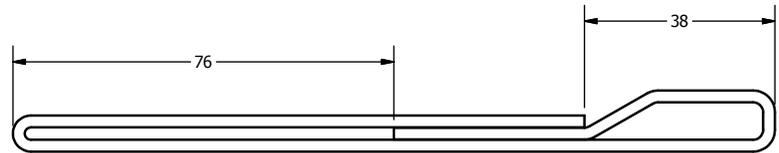


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 16 XX ±0.2 ±0.5 16 XXX ±0.3 ±0.5 16 XXXX ±0.01 ±0.5 16		
PROJECT NO.:	472-3420	MATERIAL:	Aluminum-7075	DESCRIPTION:
DESIGNED BY:	KHS	DATE:	1/9/2012	BIB INSERT - THICK, LARGE
CHECKED BY:	TMV	DATE:	1/9/2012	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
TOTAL QTY IN DUMMY:	2	DATE:	1/18/2012	DRAWING NO.:
				472-3424

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER T1TXM017 RN/C AND CONVERTED TO METRIC FOR THOR-M	9/23/2011	TKN



ISO VIEW
SCALE 1 : 1



NOTES:

- CUT THE NYLON WEBBING TO A LENGTH OF 343MM AND OVERLAP AS DIMENSIONED.
- STITCH THE NYLON WEBBING USING KEVLAR THREAD AS DIMENSIONED.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	8003026	NYLON WEBBING 2.4mm (3/32") THK X 19mm (3/4") WIDE

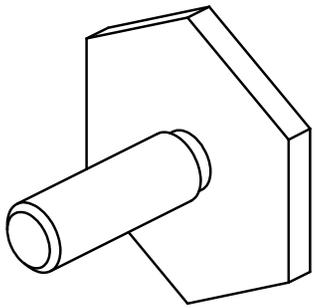
Parts List

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 0.5° 16 XX ± 0.2 0.5° ✓ XXX ± 0.3 0.5° XXXX ± 0.01		
PROJECT NO:	472-3000	MATERIAL:	1	DESCRIPTION: THORAX RIB #1 DUMMY LIFT STRAP
DRAWN BY:	Thanh	CHECKED BY:	Thanh	DATE: 9/23/2011
HEAT TREAT:		ENGINEER:	J. WANG	DATE: 1/18/2012
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: A3 1 OF 1

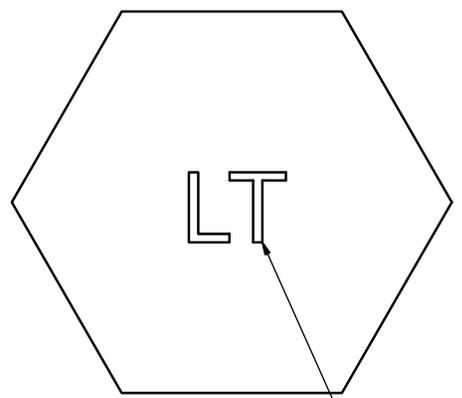
472-3517

A

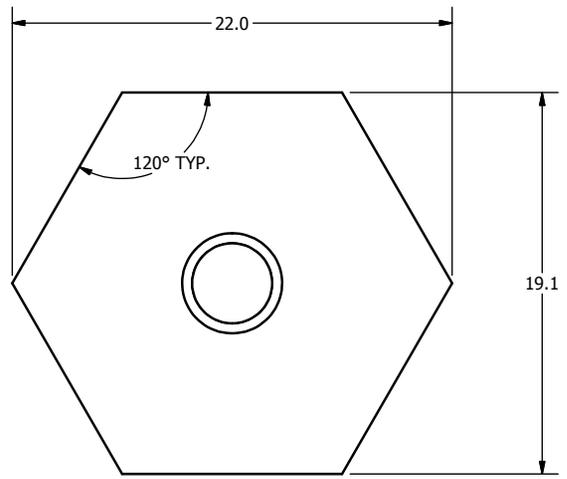
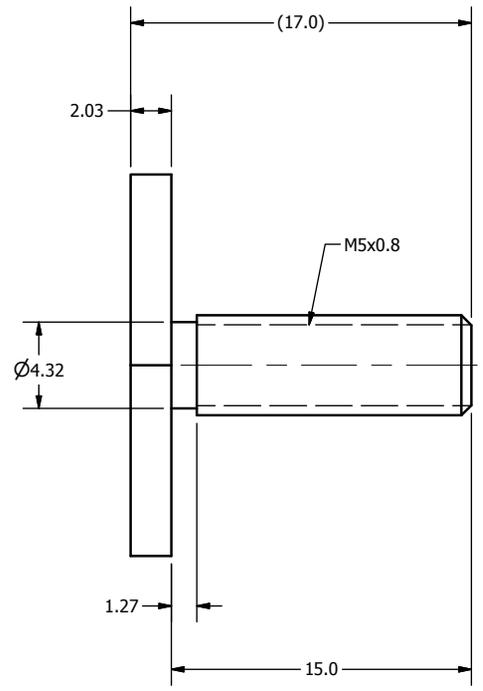
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	7/25/2012	BK
	B	CHANGE DESC, "LOWER THORAX" WAS "ABDOMEN"; STAMP "LT" ON PART AND ADD NOTE 4; ADD VIEW	7/11/2013	BK



ISO VIEW
SCALE 3.000



B SEE NOTE 4



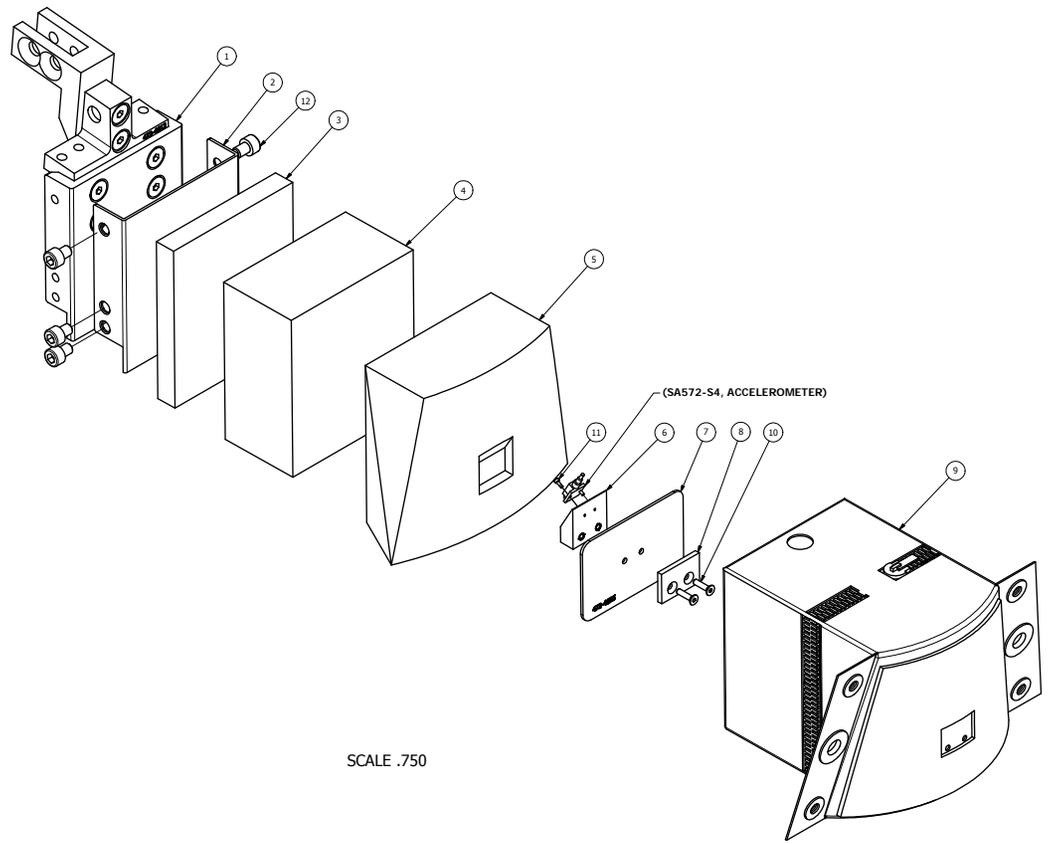
- NOTES:
- POWDER OR BEAD BLAST.
 - NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 - DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.
 - STAMP OR ETCH "LT" (3mm MIN. CHARACTERS) WHERE SHOWN.

B

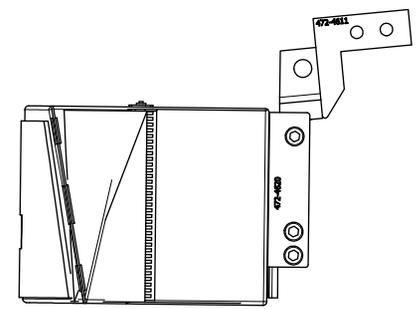
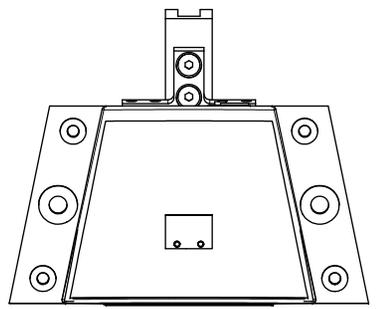
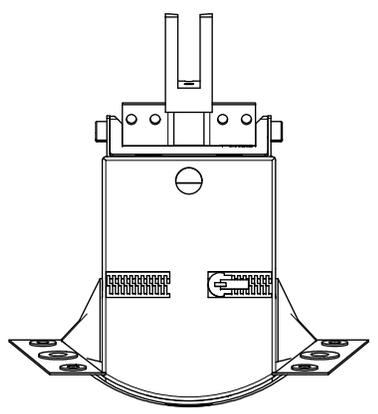
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION IRTRACC CONNECTING BOLT, LOWER THORAX	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 X 0.2 XX 0.3 XXX 0.51 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO:	472-3000	MATERIAL:	1018 STEEL HEX	DATE:	7/25/2012
QTY:	2	CHECKED BY:	Thanh	ENGINEER:	J. WANG
HEAT TREAT:		DATE:	1/18/2012	SCALE:	4.000
FINISH:	SEE NOTES	DESCRIPTION:	IRTRACC CONNECTING BOLT, LOWER THORAX		
TOTAL QTY IN DUMMY:	2	SEE NOTES	SIZE SHEET:	A3 1 OF 1	
			DRAWING NO.:	472-3520	

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

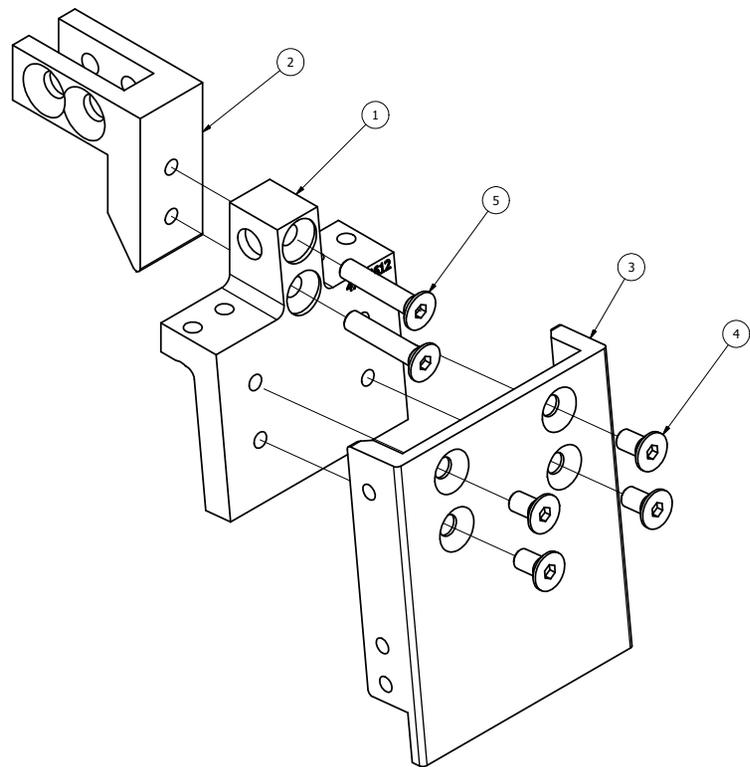


ITEM	QTY	PART NUMBER	DESCRIPTION
12	6	5000085	M6 X 1 X 8 LG. SHCS
11	2	5000375	M1.4 X 0.3 X 4 LG. SHCS
10	2	5000377	M3 X 0.5 X 12 LG. FHCS SS
9	1	472-4627	GROMMET ASSEMBLY, UPPER ABDOMEN BAG
8	1	472-4626	ACCELEROMETER MOUNT PLATE
7	1	472-4625	LOAD DISTRIBUTION PLATE
6	1	472-4624	ACCELEROMETER MOUNT, 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

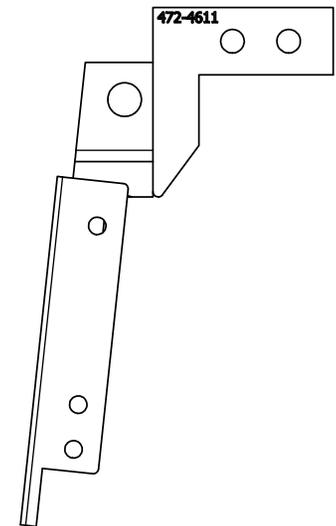
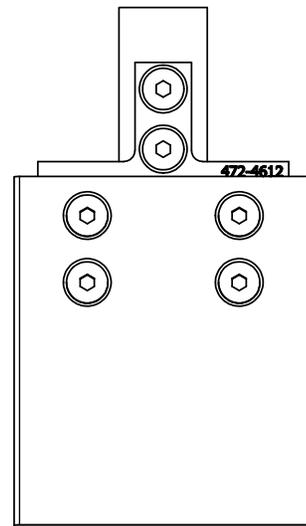
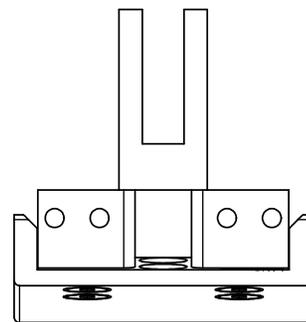
DO NOT SCALE DRAWING		TOLERANCES		PARTS LIST	
472-3000	1				
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DRAWING	1				

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 UPPER ABDOMEN ASSEMBLY
 B. KIMES 03/2011
 1 of 1
 472-4600

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JAM100 R05 (AND CONVERTED TO METRIC) FOR THOR-M	9/7/2011	BK



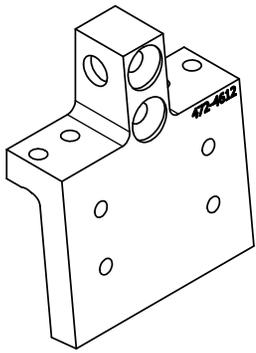
SCALE 1.000



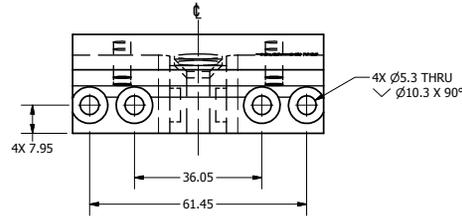
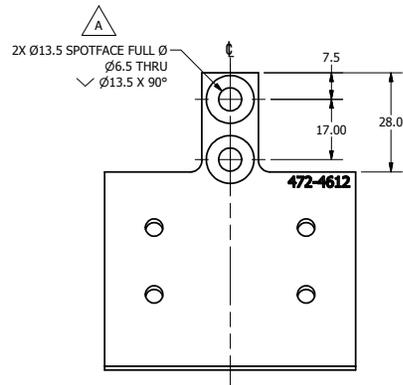
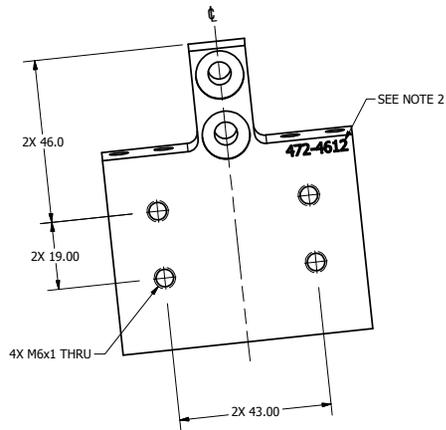
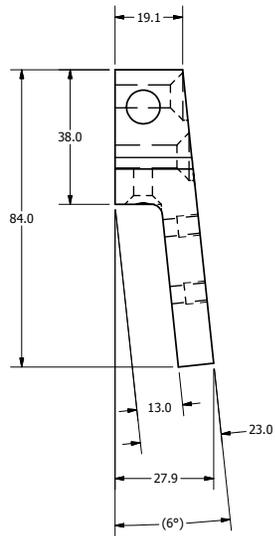
- NOTES:
- ASSEMBLE USING PERMANENT LIQUID THREAD LOCKER.

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

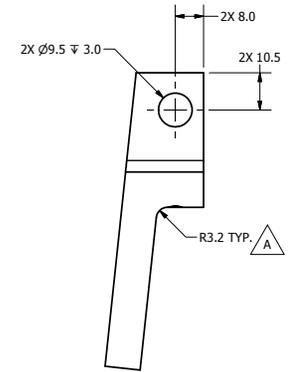
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		DECIMAL FRACTIONS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS: FRACTION 0.1 1/16 0.2 1/8 0.5 1/4 1.0 1/2 2.0 1 3.0 3/8 4.0 1/2 5.0 3/4 6.0 3/8 8.0 1 10.0 1 12.0 1 1/4 15.0 1 1/2 20.0 2 25.0 2 1/2 30.0 3 30.0 3 1/2 40.0 4 50.0 5 60.0 6 75.0 7 1/2 100.0 10 125.0 12 1/2 150.0 15 200.0 20 250.0 25 300.0 30 400.0 40 500.0 50 600.0 60 800.0 80 1000.0 1000	
472-4600	1	DATE: 9/7/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION SPINAL MOUNT BRACKET ASSEMBLY
NEXT ASSEMBLY	QTY	DESIGNED BY: B. KIMES	
TOTAL QTY IN DUMMY	1	DATE: 1/18/2012	
		DESIGNED BY: J. WANG	DRAWN BY: [] CHECKED BY: [] APPROVED BY: [] DATE: [] SHEET: A21 of 1 PART NUMBER: 472-4610



SCALE 1.000

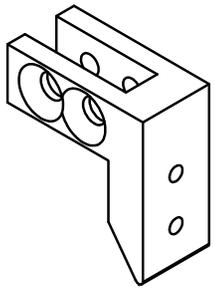


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM111 R03 AND CONVERTED TO METRIC FOR THOR-M; ADD 2X SPOTFACE, R3.2 TYP., (OPTIONAL) TO NOTE 2, NOTES 1,3,5; FINISH WAS FLOUROCARBON	9/6/2011	BK

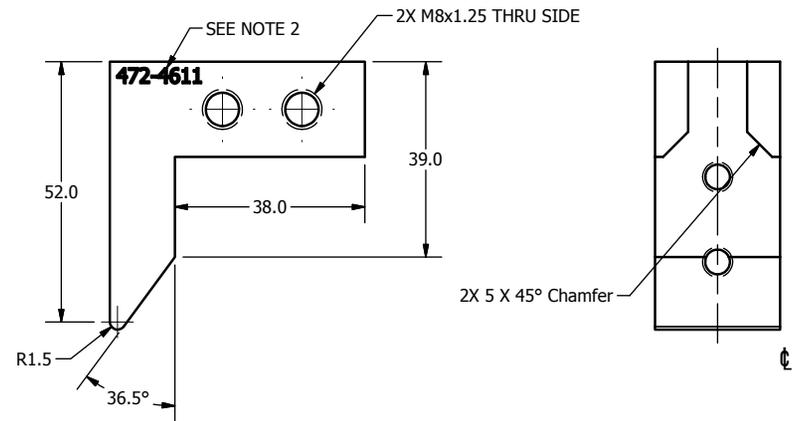
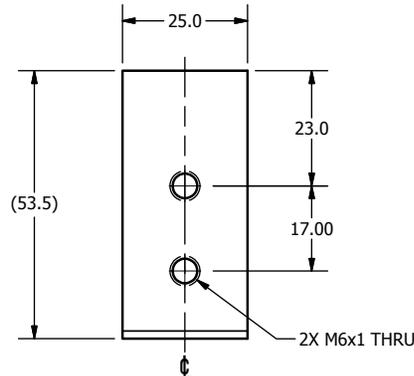
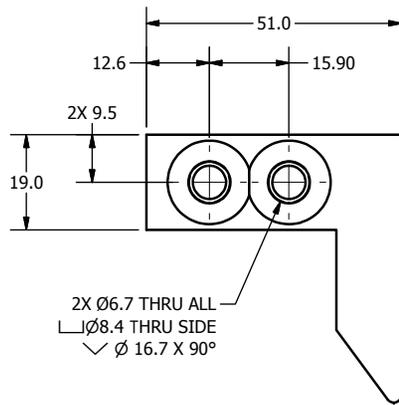
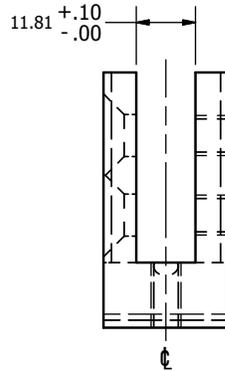


- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
 3. POWDER OR BEAD BLAST.
 4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		THORACIC INSTR. BRACKET BASE PLATE	
472-4610	1	1018 STEEL	9/6/2011	A21 of 1	
NEXT ASSEMBLY	QTY	DESIGNED BY	DATE	1.000	
TOTAL QTY IN DUMMY	1	PREPARED BY	DATE	472-4612	
		J. WANG	1/18/2012		



SCALE .750



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.

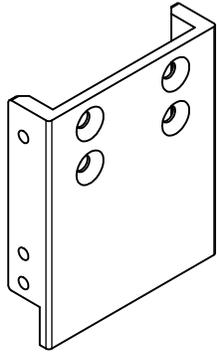
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM110 R06 AND CONVERTED TO METRIC FOR THOR-M; ADD (OPTIONAL) TO NOTE 2, NOTES 1,3,5; FINISH WAS FLOUROCARBON COATING	9/6/2011	BK

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 0.2 X.X 0.3 X.XX 0.01 X.XXX 0.01		
PROJECT NO:	472-4610	MATERIAL:	1018 STEEL	DATE:
CHECKED BY:	B. KIMES	DATE:	9/6/2011	SCALE:
ENGINEER:	J. WANG	DATE:	1/18/2012	SCALE:
FINISH:	SEE NOTES	DATE:		SCALE:

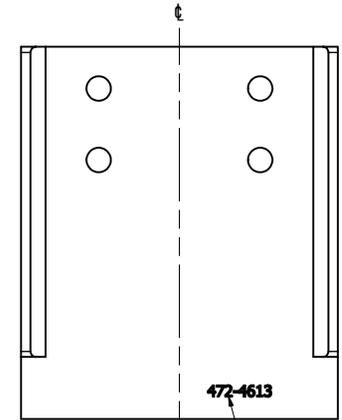
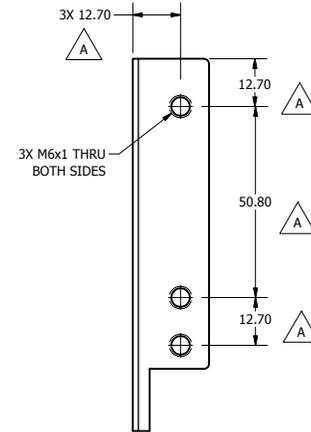
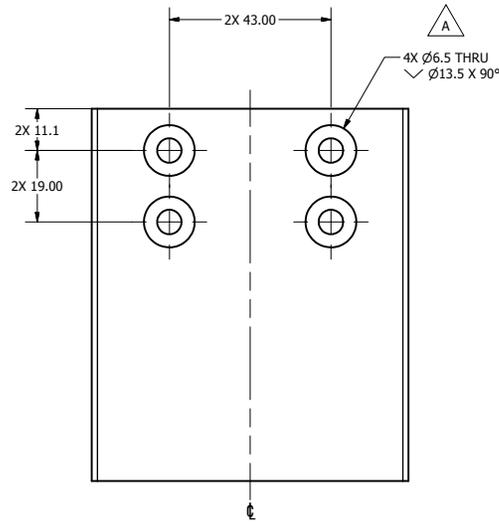
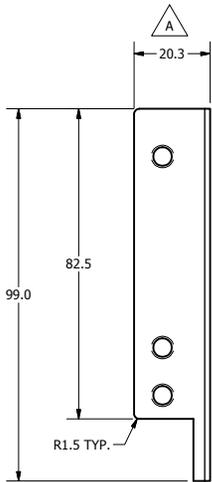
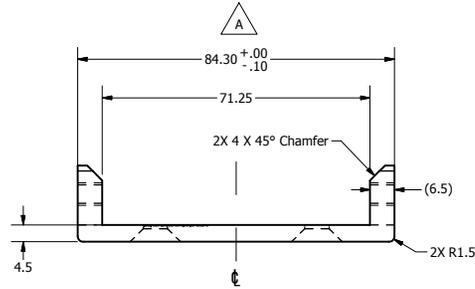
472-4610	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

SIZE	SHEET	DRAWING NO.	REV.
A3	1 OF 1	472-4611	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



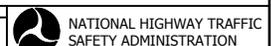
SCALE .750



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.

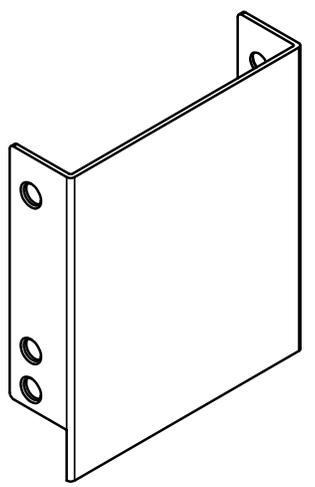
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS FRACTIONS ARE TO BE USED DECIMALS ARE TO BE USED DIMENSIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED



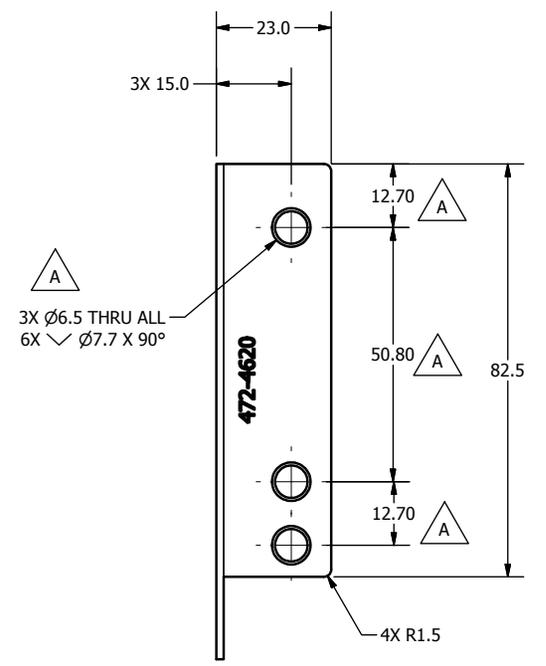
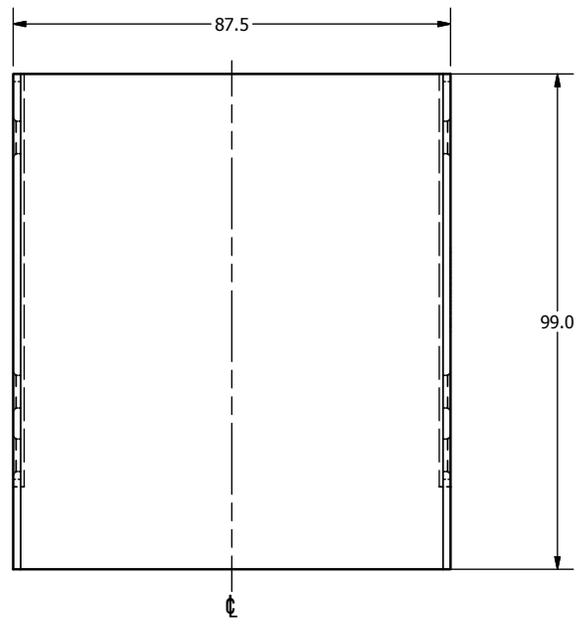
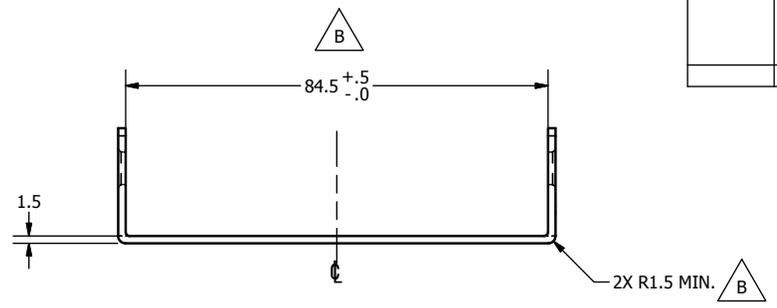
UPPER ABDOMEN SPINAL MOUNT BRACKET

472-4610	1	1018 STEEL	B. KIMES	9/6/2011	1 OF 1	472-4613
NEXT ASSEMBLY	QTY	DATE	APPROVED BY	DATE	SHEET	REV
TOTAL QTY IN DUMMY	1	SEE NOTES	J. WANG	1/18/2012	1,000	A

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

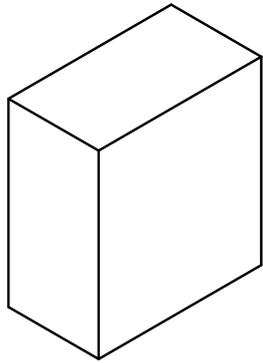


NOTES:

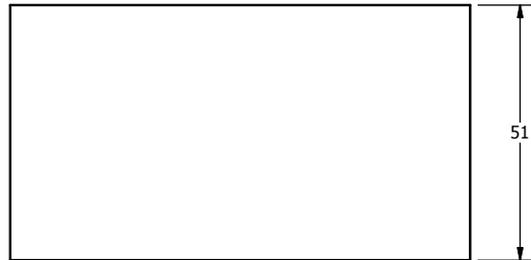
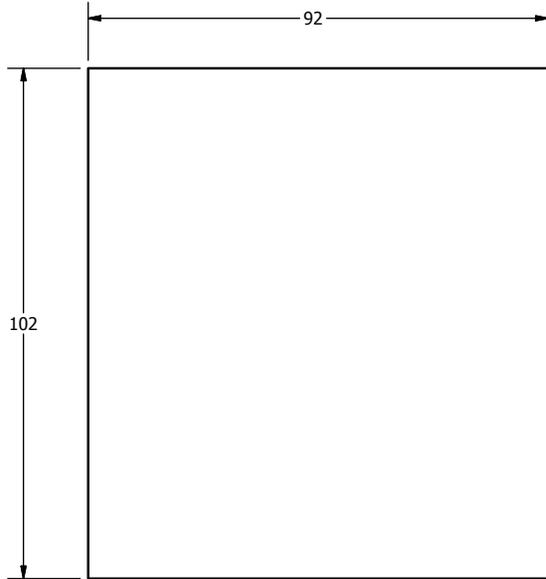
1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: UPPER ABDOMEN INTERN. MOUNT PLATE FRONT	
PROJECT NO.: 472-4600		MATERIAL: 1018 STEEL		DRAWN BY: B. KIMES	
NEXT ASSEMBLY TOTAL QTY IN DUMMY		HEAT TREAT: SEE NOTES		DATE: 1/18/2012	
QTY 1		CHECKED BY: J. WANG		DATE: 9/6/2011	
1		ENGINEER: J. WANG		DATE: 1/18/2012	
		FINISH: SEE NOTES		SCALE: 1.000	
				SIZE SHEET A3 1 OF 1	
				DRAWING NO.: 472-4620	
				REV: B	

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



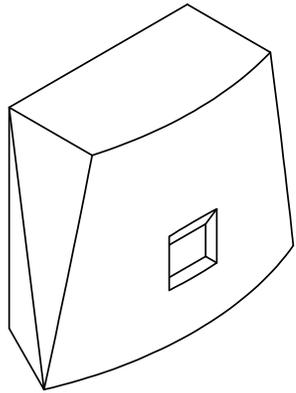
SCALE .500



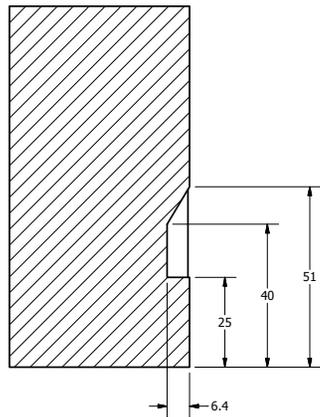
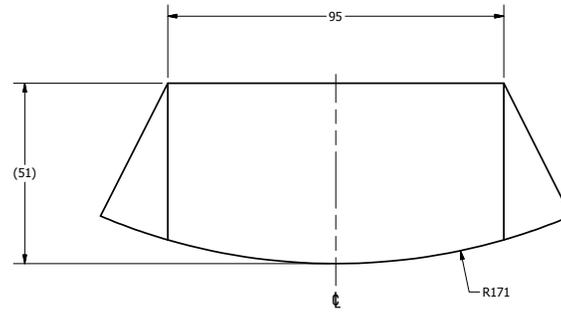
NOTES:

- 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.

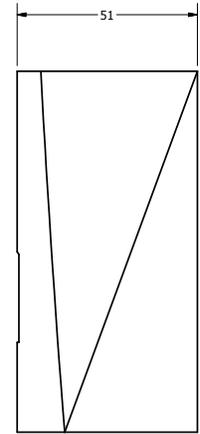
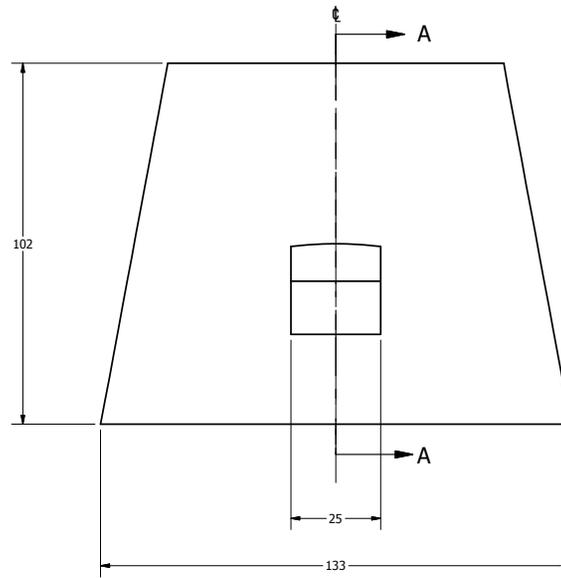
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° 16 XX ±0.2 0.5° ✓ XXX ±0.3 0.5° XXXX ±0.01		
PROJECT NO:	472-4600	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	9/7/2011	DESIGNED BY:	B. KIMES	INTERNAL FOAM MIDDLE LAYER
CHECKED BY:		DATE:		SIZE: A3
HEAT TREAT:		ENGINEER:	J. WANG	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



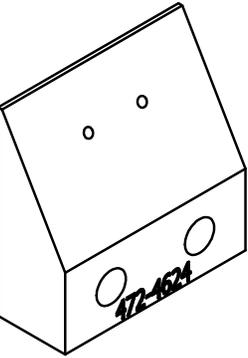
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAM012 R04 FOR THOR-M; ADD NOTE 1 & 2	9/8/2011	BK
	B	REDESIGN TO ORIGINAL NHTSA DESIGN REV 3 (WITHOUT HOLES)	2/4/2012	BK

NOTES:

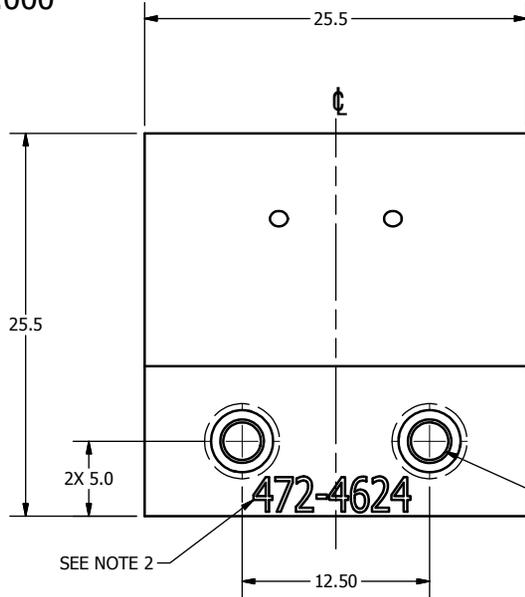


1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED
2. FOAM TOLERANCE $\pm 1\text{mm}$, UNLESS OTHERWISE NOTED.
3. MATERIAL: CHARCOAL POLYESTER FOAM WITH NOMINAL DENSITY OF 6 LB/CU FT OR EQUIVALENT. MATERIAL CAN BE ADJUSTED TO MEET CERTIFICATION REQUIREMENT.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		INTERNAL FOAM FRONT LAYER	
REVISED BY:	DATE:	DESIGNED BY:	DATE:	APPROVED BY:	DATE:
		B. KIMES	9/8/2011		
472-4600	1	SEE NOTES			
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DUMMY	1				
		PREPARED BY:	DATE:	SCALE:	
		J. WANG	1/18/2012	A21 of 1	472-4623
				1.000	

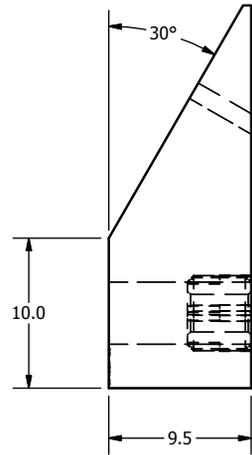
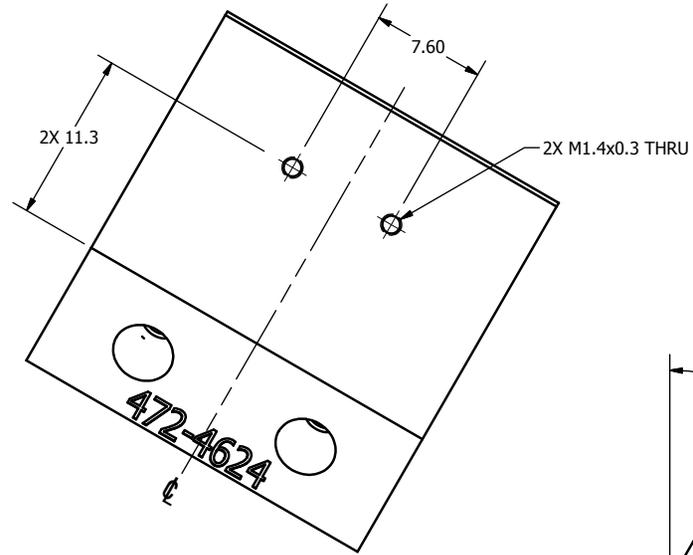


SCALE 2.000



SEE NOTE 2

1 2X DRILL AND TAP THRU FOR M3 X .5 X 4.25 MINI KEENSERT INSTALL OPPOSITE SIDE



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		
	DECIMALS	ANGLES	FINISH
	X .50	± 0.5°	1.6
	X .2		
	X .1		
	X .05		
	X .02		
	X .01		
	REMOVE BURRS & BREAK SHARP EDGES		

PROJECT NO:	472-4600	1	MATERIAL:	6061-T6 ALUMINUM	DATE:	9/7/2011	DESIGNER:	B. KIMES	SCALE:	3.000	DESCRIPTION:	ACCELEROMETER MOUNT, UPPER ABDOMEN
CHECKED BY:			HEAT TREAT:		DATE:		ENGINEER:	J. WANG				
FINISH:	CLEAR ANODIZE											

TOTAL QTY IN DUMMY	1											

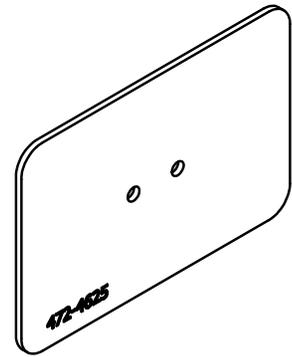
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)



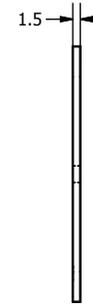
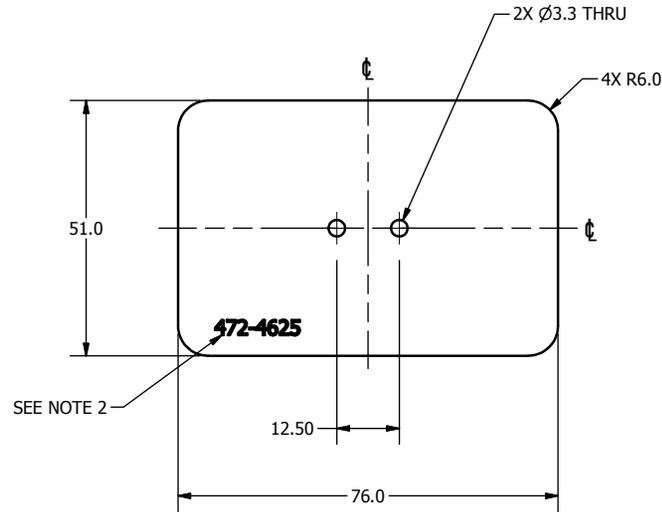
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

472-4624





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

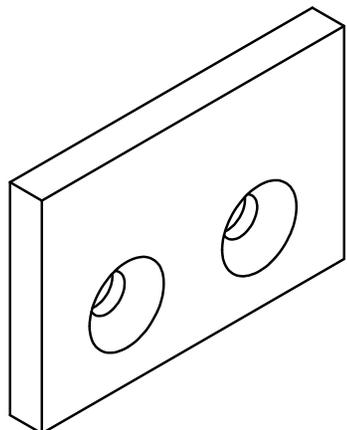
NOTES:



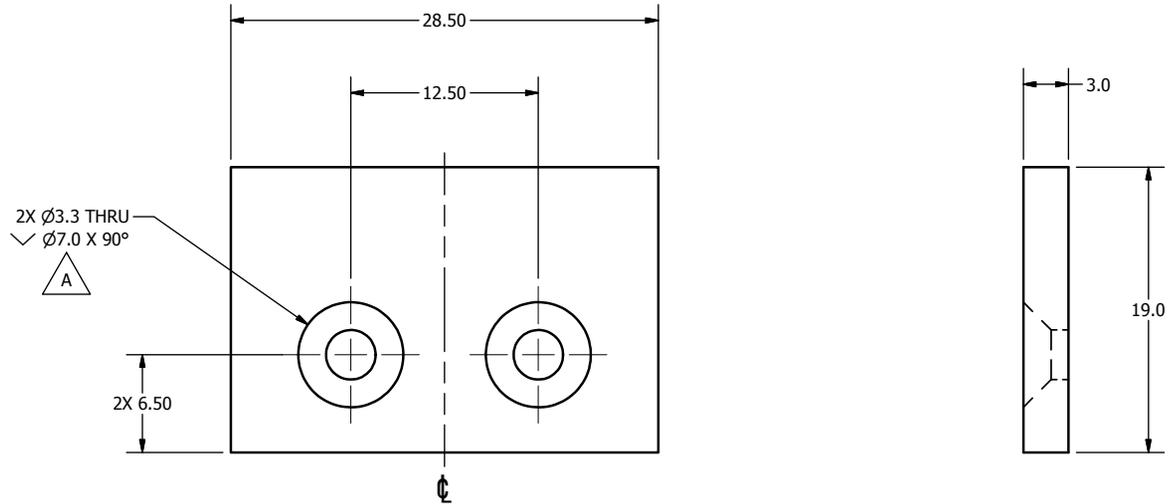
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 16 XX ±0.2 ±0.5 ✓ XXX ±0.3 ±0.5 ✓ XXXX ±0.01		
PROJECT NO.:	472-4600	MATERIAL:	High Density Polyethylene	DESCRIPTION: LOAD DISTRIBUTION PLATE
PROV BY:	1	CHECKED BY:	B. KIMES	
DATE:	9/7/2011	DATE:	9/7/2011	
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 SCALE: 1.000
TOTAL QTY IN DUMMY:	1	FINISH:		DRAWING NO.: 472-4625 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



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

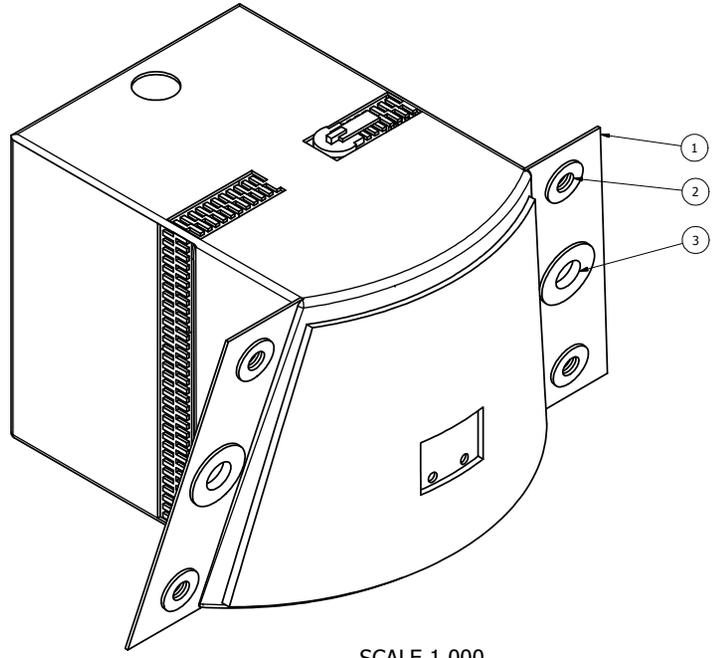
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

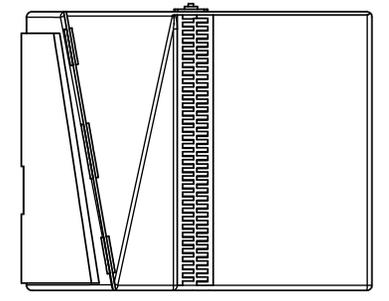
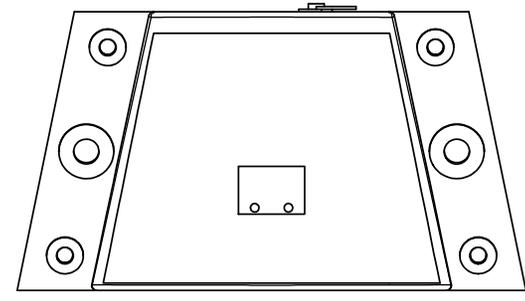
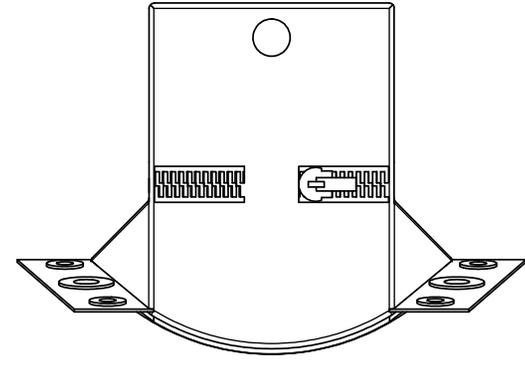
DESCRIPTION: ACCELEROMETER MOUNT PLATE

PROJECT NO.: 472-4600	QTY: 1	MATERIAL: DELRIN BLACK	DATE: 9/7/2011	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-4626	REV: A
CHECKED BY: B. KIMES	HEAT TREAT:	ENGINEER: J. WANG	DATE: 1/18/2012	SCALE: 3.000			
TOTAL QTY IN DUMMY: 1	FINISH:						

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.

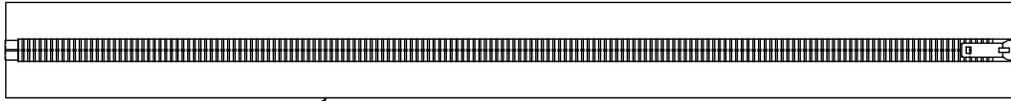
ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	6002912	GROMMET, .375 I.D. X .815 O.D.
2	4	6002911	GROMMET, .250 I.D. X .545 O.D.
1	1	472-4650	BAG-SEWING ASSEMBLY, UPPER ABDOMEN

PARTS LIST			
DO NOT SCALE DRAWING	TOLERANCES	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIS ANGLE PROJECTION	UNLESS SPECIFIED OTHERWISE DIMENSIONS ARE IN INCHES DECIMALS ANGLES DEGREES	GROMMET ASSEMBLY, UPPER ABDOMEN BAG	
DATE: 9/12/2011	BY: B. KIMES	DATE: 4/2/2012	
PREPARED BY: J. WANG	DATE: 1/18/2012	DATE: 4/2/2012	

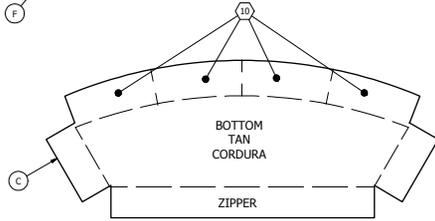
472-4600	1						
NEXT ASSEMBLY	QTY	REF	DATE	BY	DATE	BY	DATE
TOTAL QTY IN DUMMY	1						

Sheet 1 of 1
 472-4627

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	

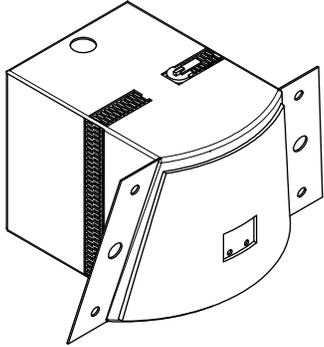


F

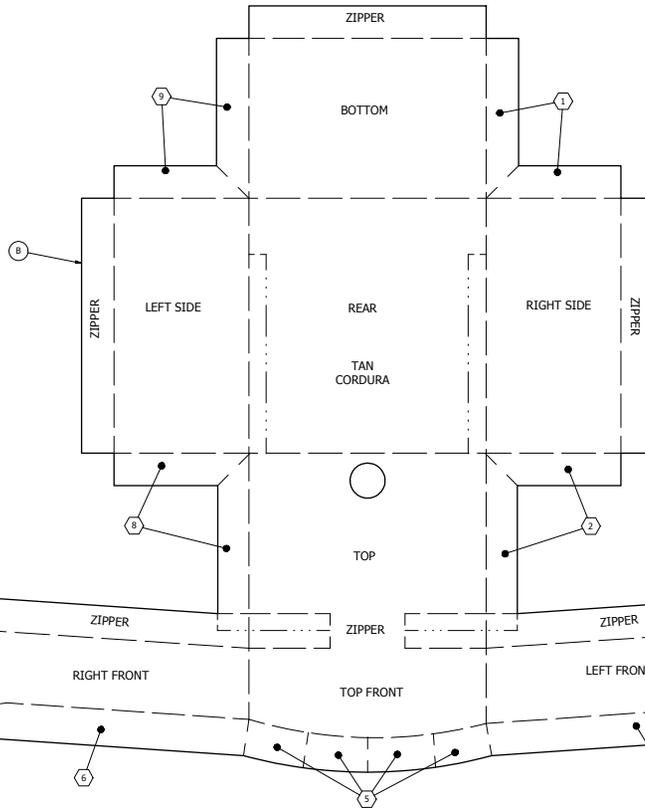


BOTTOM
TAN
CORDURA

ZIPPER



SCALE .750



ZIPPER

BOTTOM

LEFT SIDE

REAR

RIGHT SIDE

TAN
CORDURA

TOP

TOP FRONT

RIGHT FRONT

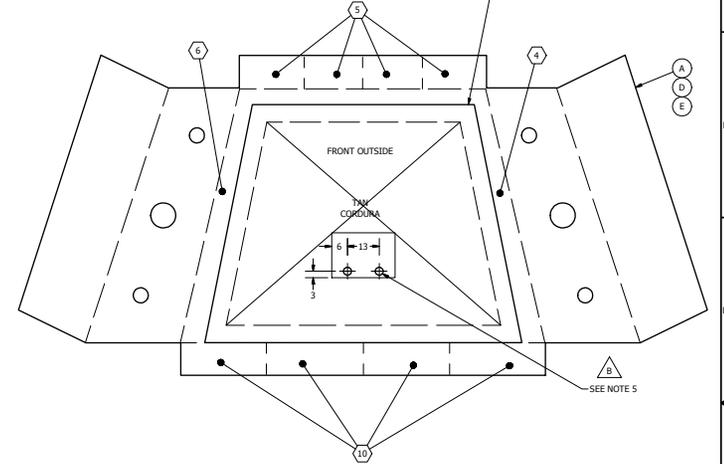
LEFT FRONT

ZIPPER

ZIPPER

ZIPPER

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).



SEE NOTE 5

LEGEND	
---	PATTERN EDGES
- - -	STITCH LINES
---	CUT LINES

NOTES:

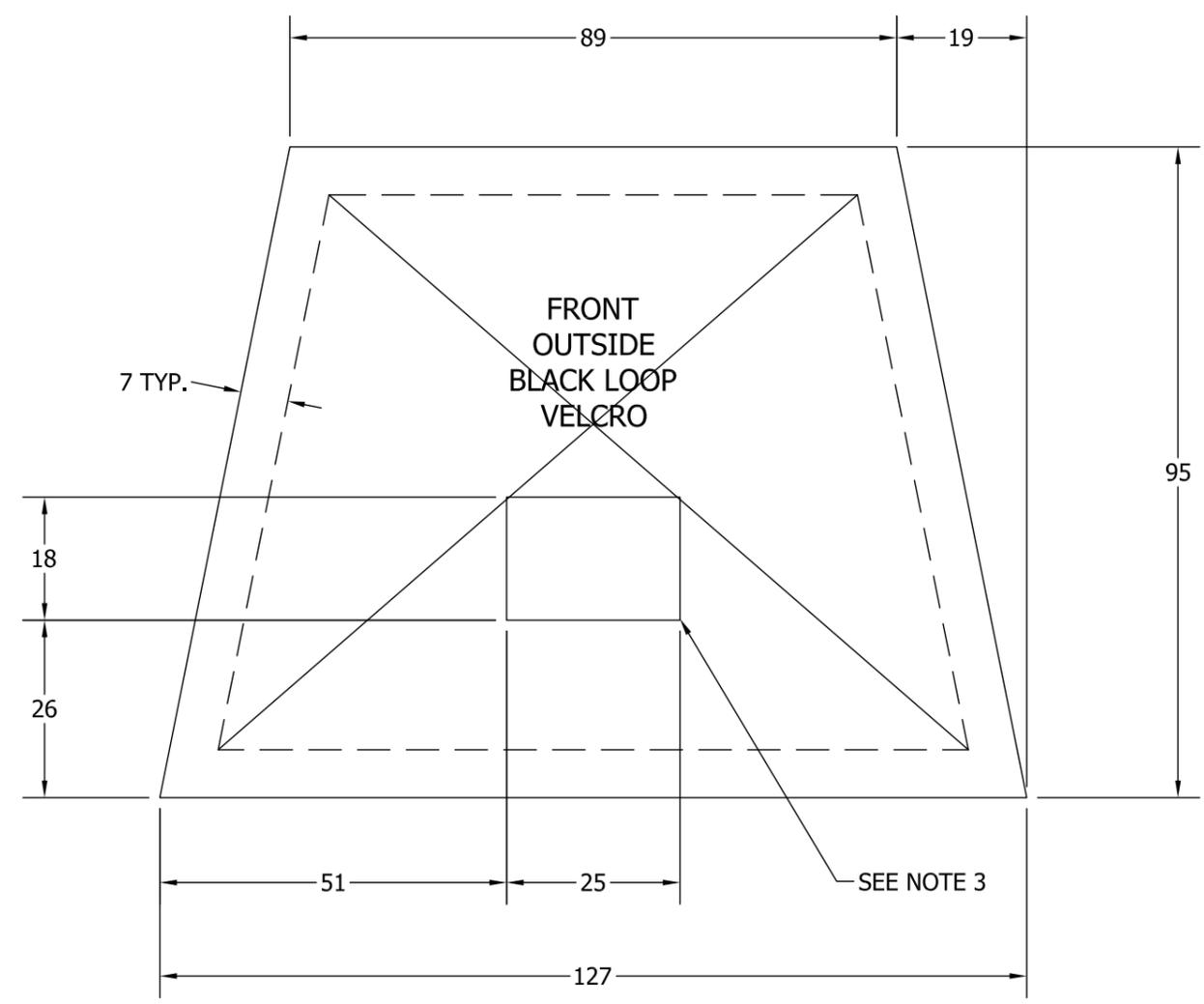
1. THE NUMBERING SCHEME IS USED TO INDICATE WHICH PATTERN EDGES ARE SEWN TOGETHER TO CREATE THE UPPER ABDOMEN BAG.
2. STITCHES MUST BE CONSISTANT AND SECURE.
3. THE BAG IS STITCHED WITH KEVLAR THREAD (MINIMUM 3 STITCHES/CM).
4. FABRIC: CORDURA NYLON (TAN)
ZIPPER: STIFFENED NYLON (WHITE)
SIZE: #10, LENGTH 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		ISSUES		PARTS LIST	
472-4627	1	B. KIMES	03/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
TOTAL QTY IN DRAWING	1	1 NAME	2 DATE	BAG SEWING ASSEMBLY, UPPER ABDOMEN	

All 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

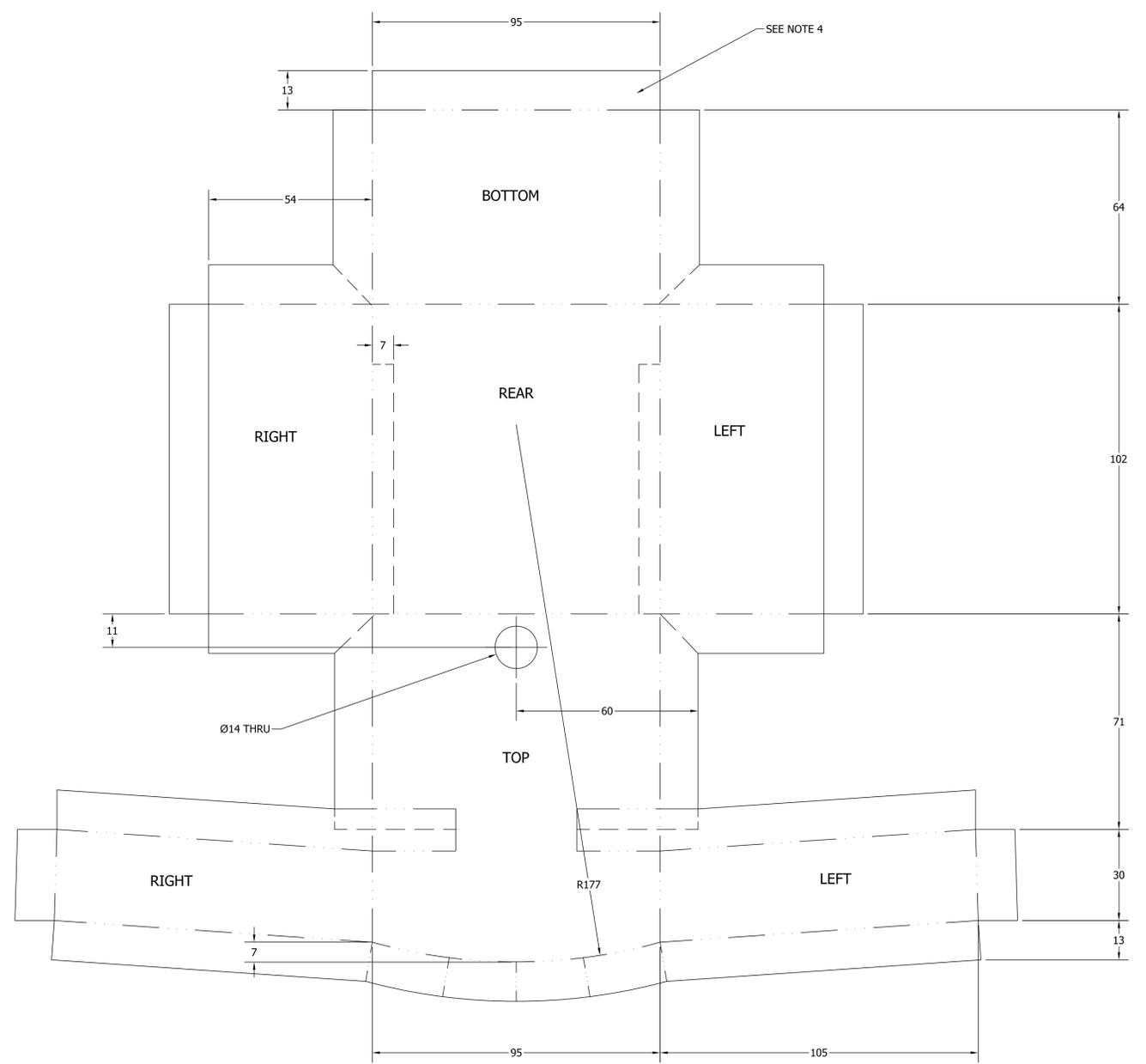
NOTES:

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:	DRAWN BY:	DATE:	DESCRIPTION:
	SEE NOTES	B. KIMES	9/9/2011	FRONT VELCRO PATCH
HEAT TREAT:	FINISH:	CHECKED BY:	DATE:	SIZE: SHEET
		J. WANG	1/18/2012	A31 OF 1
TOTAL QTY IN DUMMY	QTY	SCALE:	DRAWING NO.:	REV:
1	1	1:000	472-4651	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF311 R04 FOR THOR-M; ADD NOTE 2	9/9/2011	BK

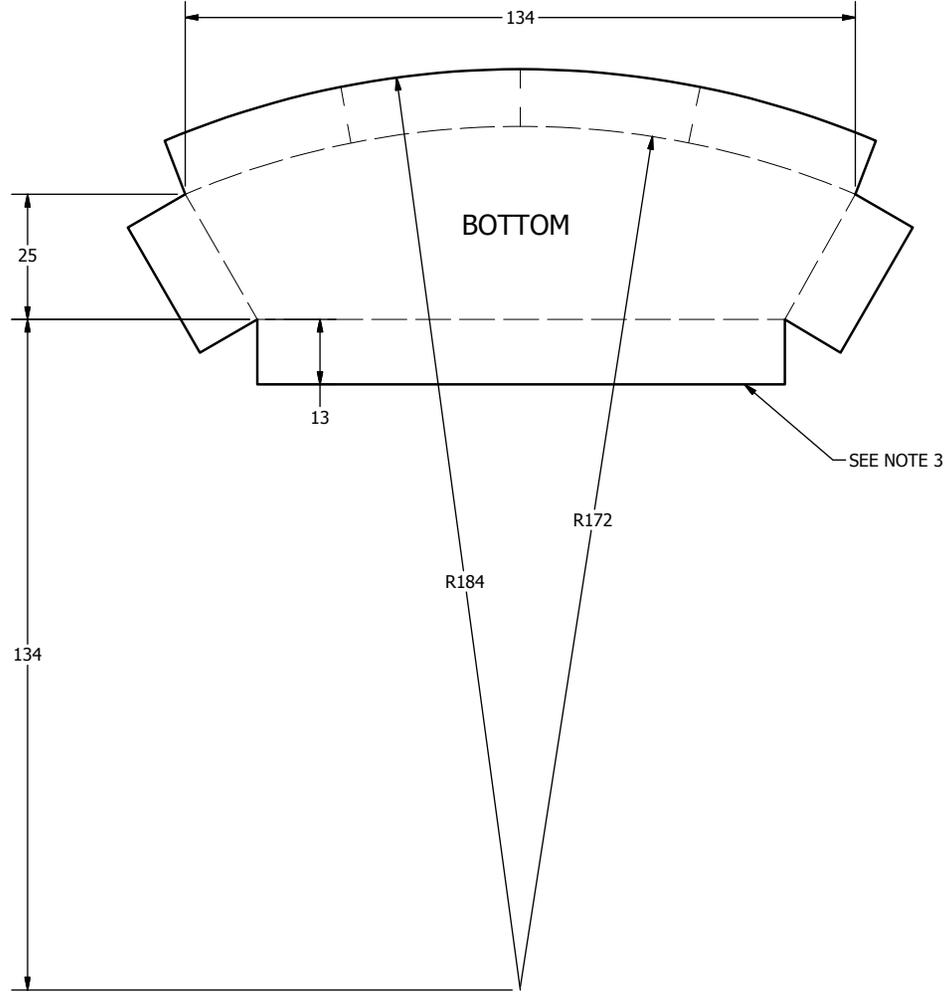


LEGEND	
	PATTERN EDGES
	CUT LINES
	FOLD LINES

- 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 FRACTIONS 0.1 1/16 0.2 1/8 0.5 1/4 1.0 1/2 2.0 1/2 5.0 1/2 10.0 1/2		
PROJECT NO:	472-4650	DATE:	9/9/2011	TOP/SIDE REAR FABRIC PATTERN A11 of 1 SCALE: 1:1000 472-4652
REVISED BY:	SEE NOTES	DESIGNED BY:	B. KIMES	
DATE:		DATE:	1/18/2012	
PREPARED BY:	J. WANG	CHECKED BY:		

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF312 R02 FOR THOR-M; ADD NOTE 2	9/9/2011	BK



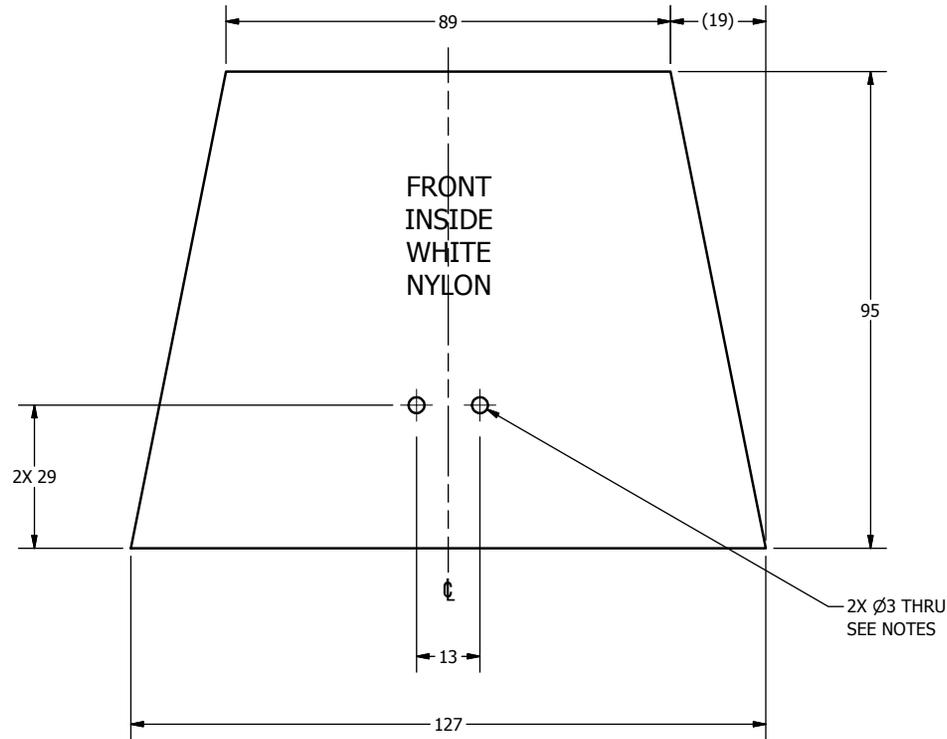
LEGEND	
	PATTERN LINES
	FOLD LINES
	CUT LINES

- 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

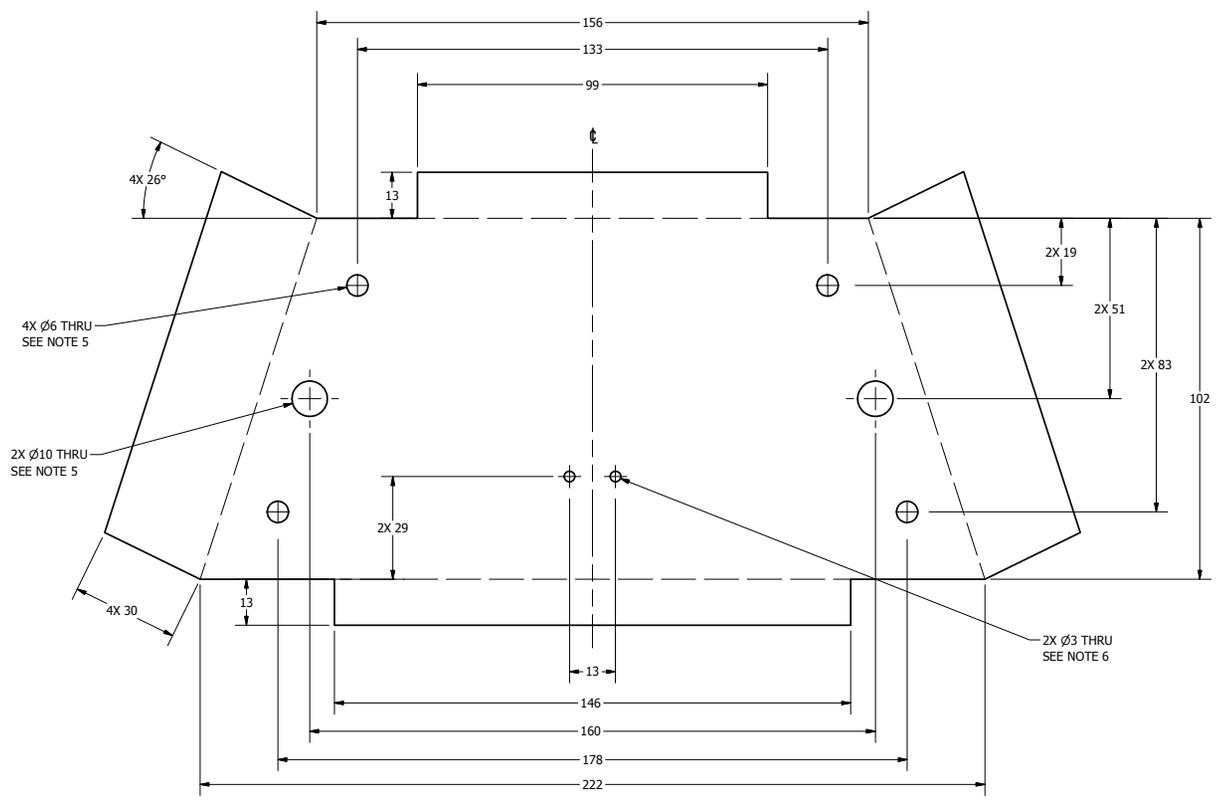


NOTES:

-  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>F ±0.5 ° ±0.5 1.6</small> <small>M ±0.2 ° ±0.5 1.6</small> <small>X ±0.3 ° ±0.5 1.6</small> <small>XX ±0.3 ° ±0.5 1.6</small> <small>XXX ±0.3 ° ±0.5 1.6</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
FINISH:		DATE:	1/18/2012	SCALE: 1.000
TOTAL QTY IN DUMMY	1			DRAWING NO. 472-4654

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T11UAF314 R04 FOR THOR-M; ADD NOTES 1 & 3	9/12/2011	BK



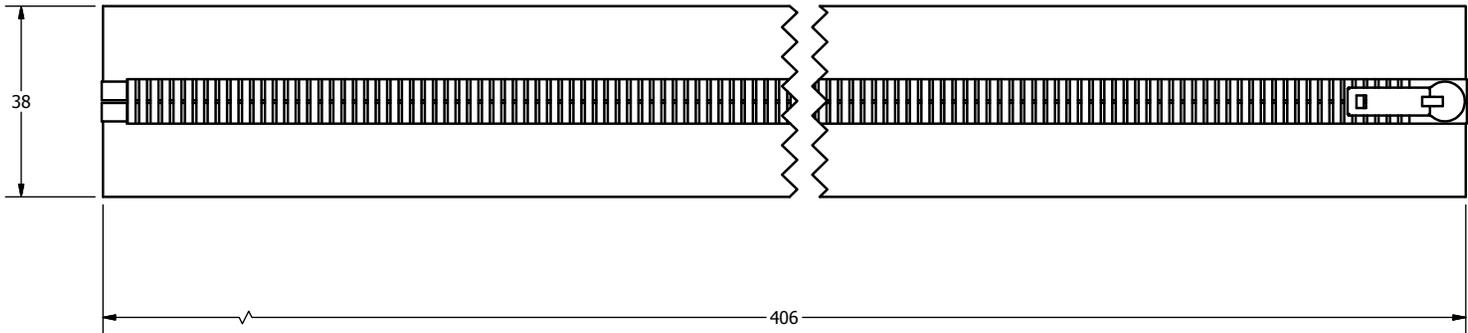
LEGEND	
	PATTERN EDGES
	FOLD LINES

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 DIMENSIONS & BREAK SUBSTANCES		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

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1UAF315 R05 FOR THOR-M; ADD NOTE 3	9/12/2011	BK

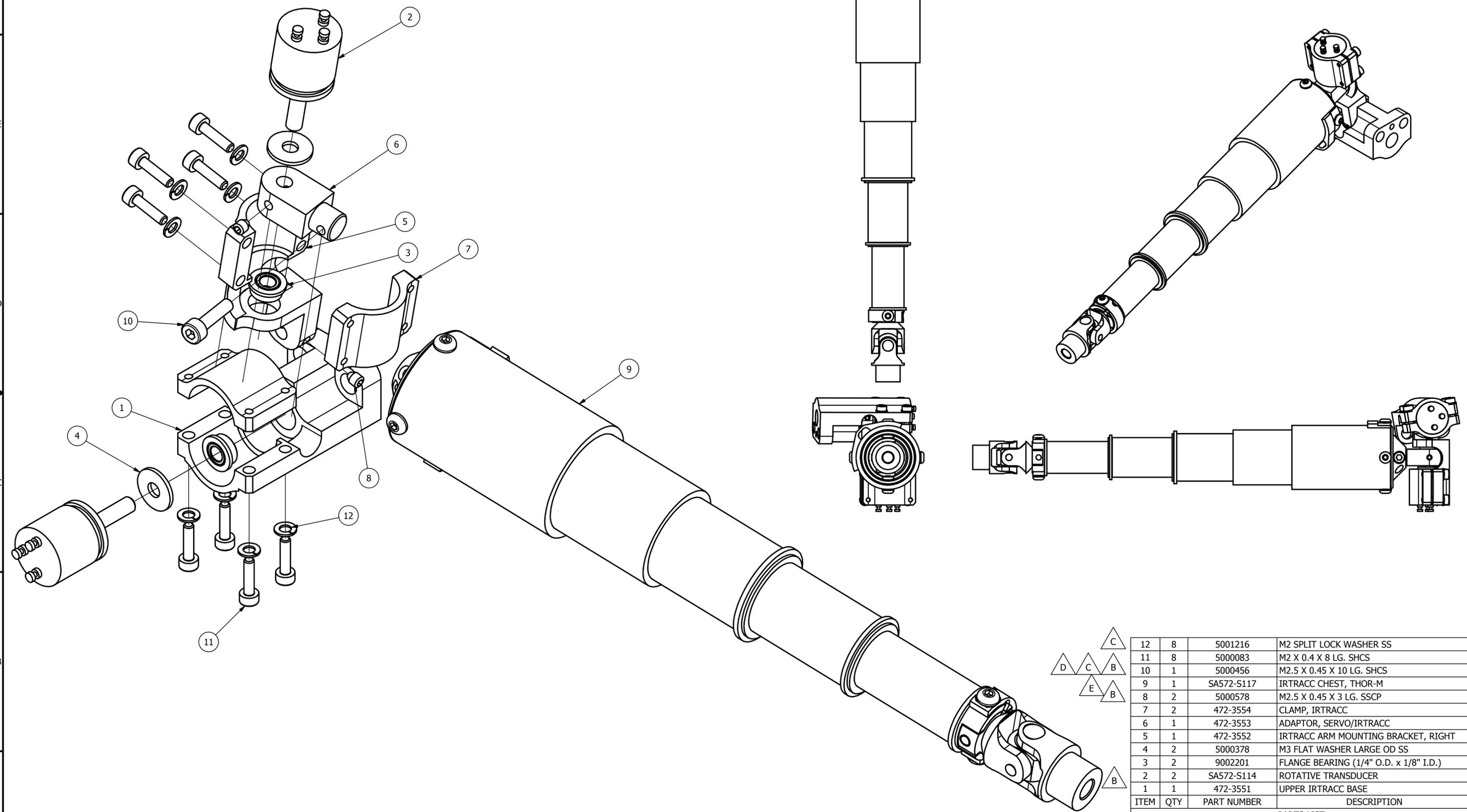


NOTES:

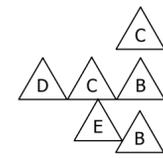
1. SIZE: #10, BROWN POLYESTER, METAL (BRASS)
ZIPPER TYPE: OPEN TOP -CLOSED BOTTOM STYLE.
2. THE ENDS SHOULD BE SEWN TOGETHER TO PREVENT THE SLIDER FROM PULLING OFF THE TRACK.
3. ZIPPER TOLERANCE $\pm 1\text{mm}$, UNLESS OTHERWISE NOTED.

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		
PROJECT NO.:	472-4650	MATERIAL:	Default	DESCRIPTION: ZIPPER, UPPER ABDOMEN
DATE:	9/12/2011	DESIGNED BY:	B. KIMES	SIZE: A3
CHECKED BY:		DATE:	9/12/2011	SHEET: 1 OF 1
HEAT TREAT:		ENGINEER:	J. WANG	DRAWING NO.: 472-4656
DATE:	1/18/2012	SCALE:	1.000	REV: A
TOTAL QTY IN DUMMY:	1			

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

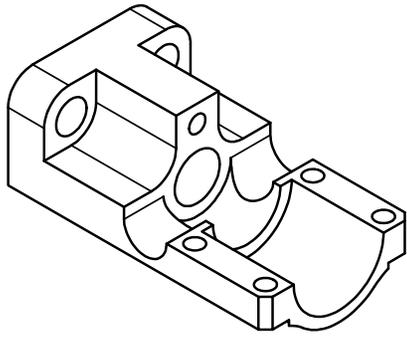


SCALE 2.000

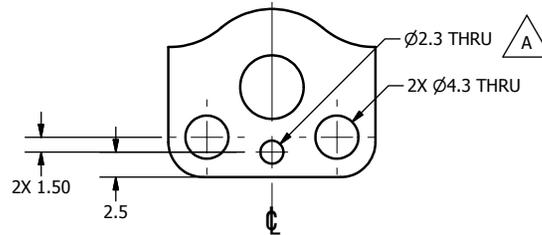
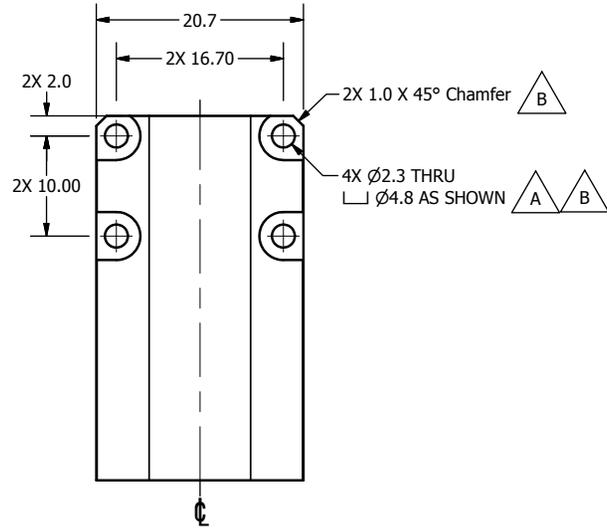
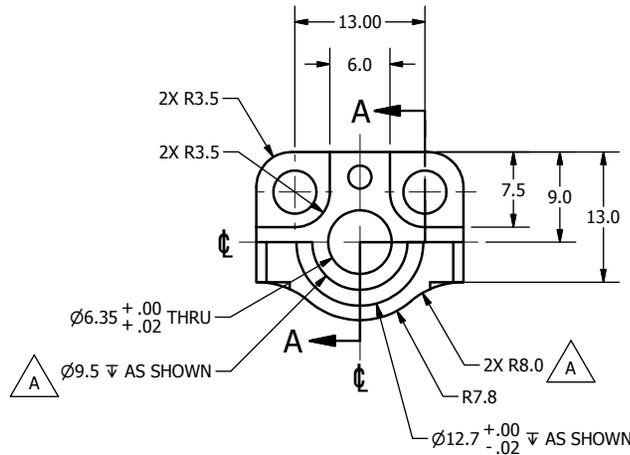


ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
9	1	SA572-S117	IRTRACC CHEST, THOR-M
8	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
7	2	472-3554	CLAMP, IRTRACC
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3552	IRTRACC 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

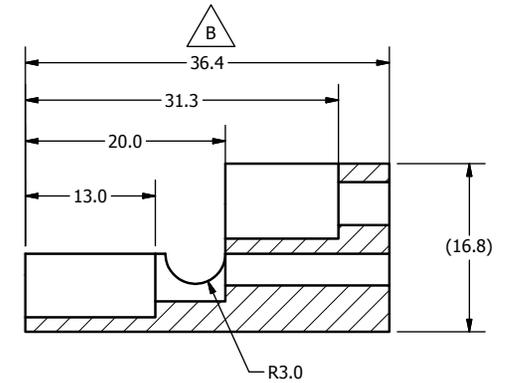
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05	
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	DATE:	DESIGNER:	DESCRIPTION:
472-3000	9/7/2012	B. KIMES	IRTRACC ASSEMBLY, UPPER LEFT
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	1	J. WANG	1/10/2012
FINISH:		ENGINEER:	DATE:
		J. WANG	1/10/2012
SCALE:		SIZE:	SHEET:
1.000		A2	1 OF 1
DRAWING NO:			REV:
472-3550			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



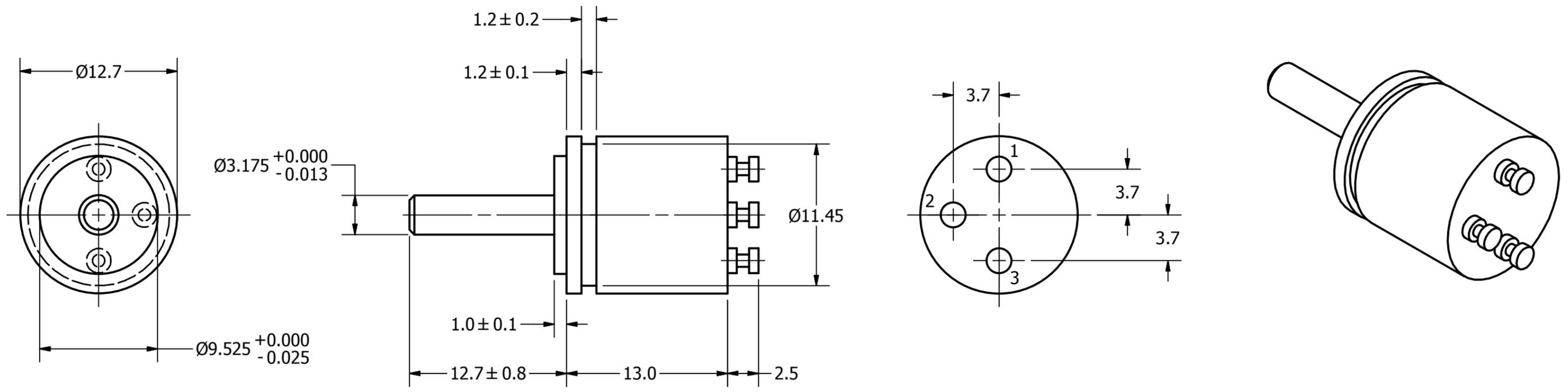
SECTION A-A
SCALE 2.000

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 1.6 XXX 0.3 0.5 1.6 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				A3 1 OF 1
DRAWING NO.:				472-3551
REV.:				B

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY



SPECIFICATIONS

SHAFT GUIDING: BALL BEARINGS
 INDEPENDENT LINEARITY (TEA): $\pm 0.25\%$
 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: $-55^{\circ}C$ TO $+125^{\circ}C$
 MAXIMUM SPEED ROTATION: 600

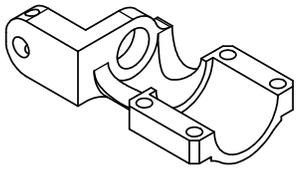
PIN DESIGNATION

1 = -EXCITATION
 2 = +SIGNAL
 3 = +EXCITATION

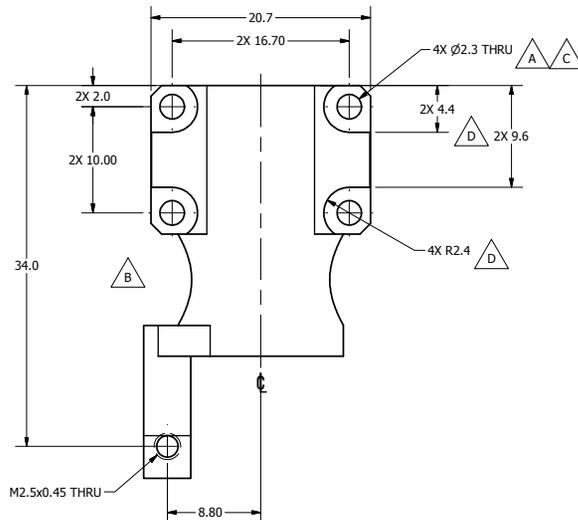
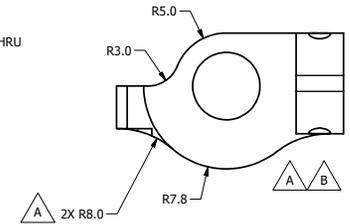
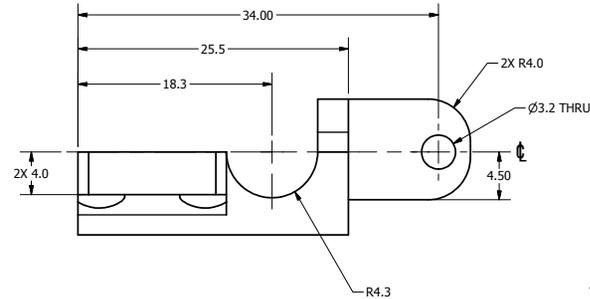
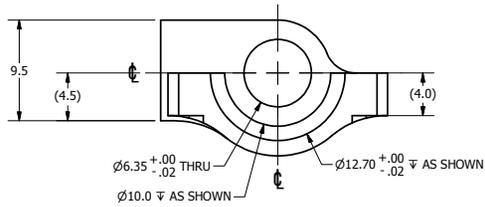
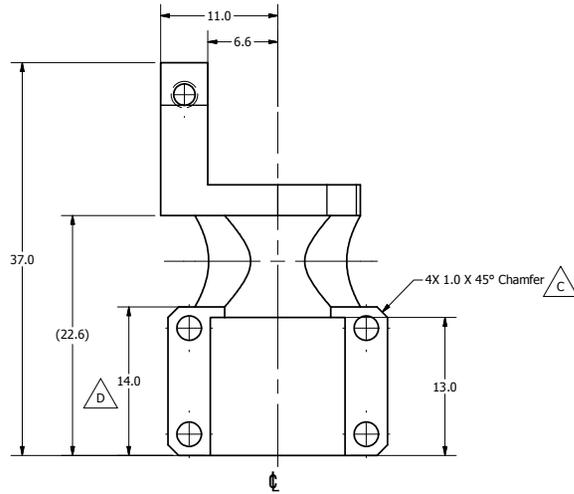
REFERENCE: VISHAY SFERNICE #EOC-50-ESC-102

UNLESS OTHERWISE SPECIFIED:
 ALL MACHINED SURFACES 1.60 OR BETTER.

PARTS LIST				
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:	DEPARTMENT OF TRANSPORTATION
	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:	DRAWING NUMBER: SA572-S114
			QTY./DUMMY: 4	Page: 1 of 1



SCALE 2.000

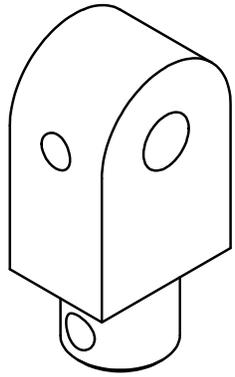


NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

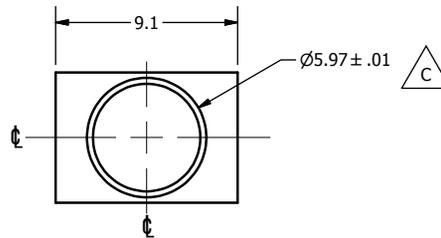
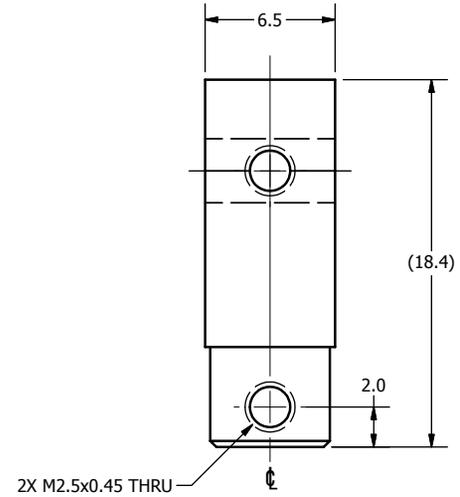
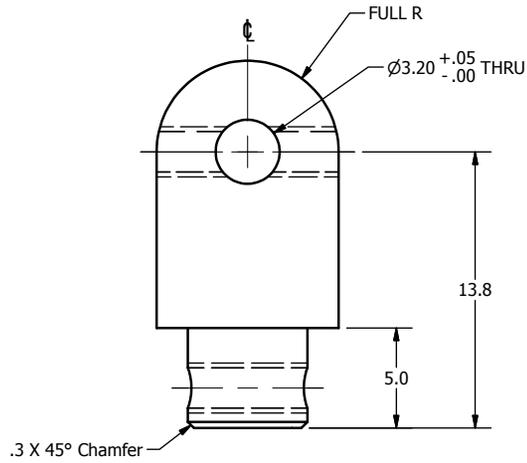
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM113 R01 FOR THOR-M 2.3 DIA. HOLES WERE M2 THREADED; 2X R8.0 WAS 3.0; ADD VIEW, R3.0 DIMENSION; FINISH WAS RED ANODIZE	10/5/2011	BK
	B	REMOVE CUT OUT, R3.0	3/22/2012	BK
	C	ADD 4X 1.0 X 45° CHAMFER; C'BORE $\phi 4.8$ WAS $\phi 4.3$	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	
472-3550	1	7075-T6 ALUMINUM	B. KIMES	9/7/2012	IRTRACC ARM MOUNTING BRACKET, RIGHT
NEXT ASSEMBLY	QTY				
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



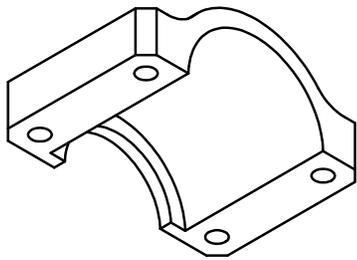
SCALE 4.000



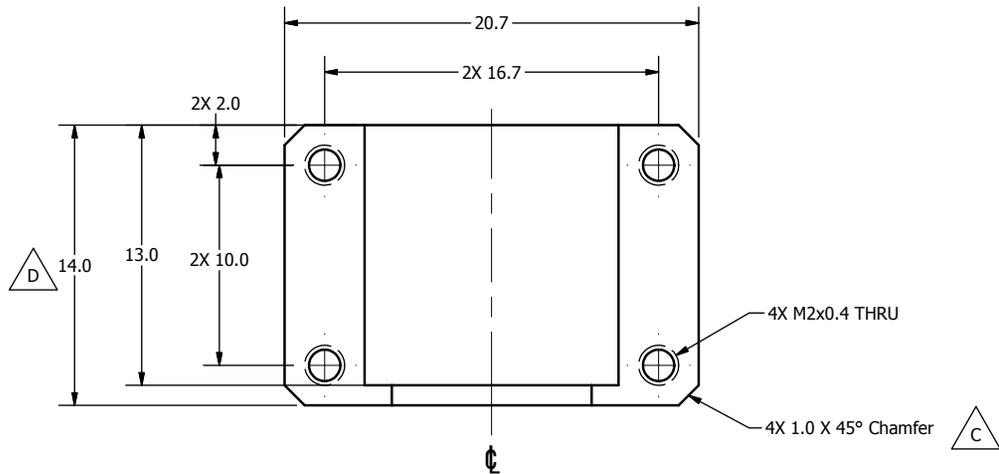
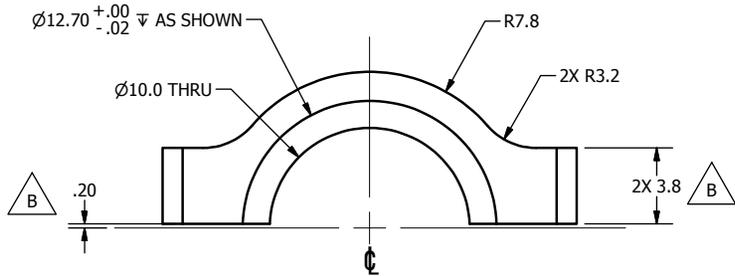
NOTES:

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 ±.01	DESCRIPTION: ADAPTOR, SERVO/IRTRACC	
472-3560	1	PROJECT NO.:	REMOVE BLURRS & BREAK SHARP EDGES		
472-3550	1	MATERIAL: 303 STAINLESS STEEL	CHECKED BY: B. KIMES	DATE: 10/6/2011	DRAWING NO. 472-3553
NEXT ASSEMBLY	QTY	HEAT TREAT:	ENGINEER: J. WANG	DATE: 1/11/2012	
TOTAL QTY IN DUMMY	3	FINISH:	SCALE: 4.000	SIZE: A3	SHEET: 1 OF 1



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

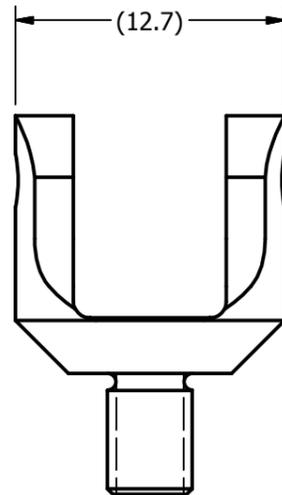
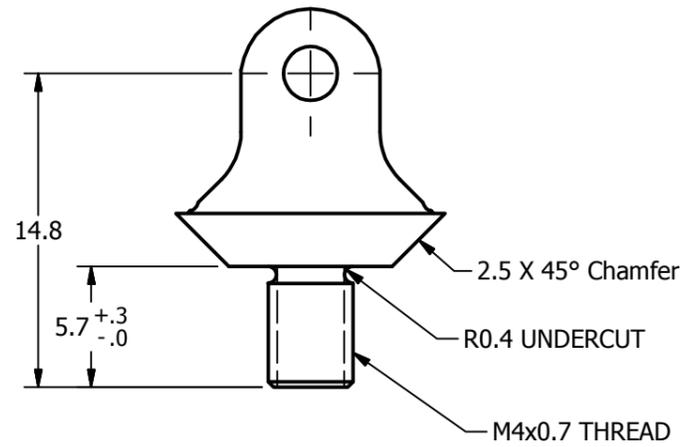
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

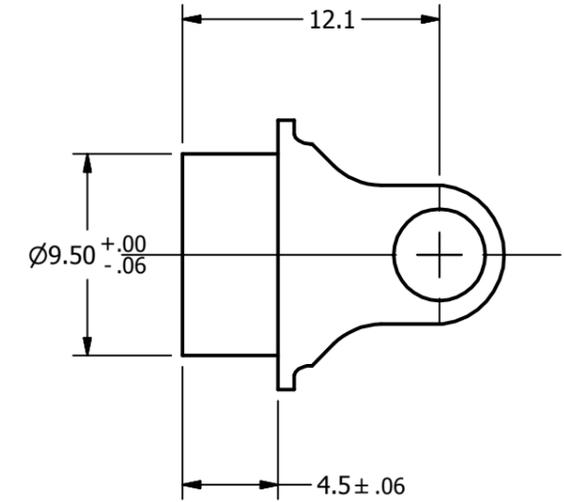
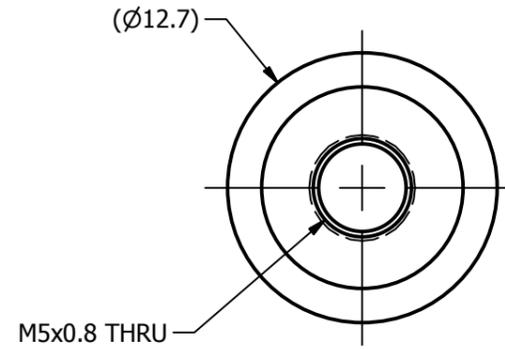
472-3580	1	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: CLAMP, ITRACC
472-3570	1	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5° ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓		
472-3560	1	PROJECT NO.:	REMOVE BURRS & BREAK SHARP EDGES		
472-3550	1	MATERIAL: 7075-T6 ALUMINUM	DESIGNED BY: B. KIMES	DATE: 9/7/2012	
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	DATE:	SIZE: A3
TOTAL QTY IN DUMMY	4	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/11/2012	SHEET: 1 OF 1
					DRAWING NO.: 472-3554



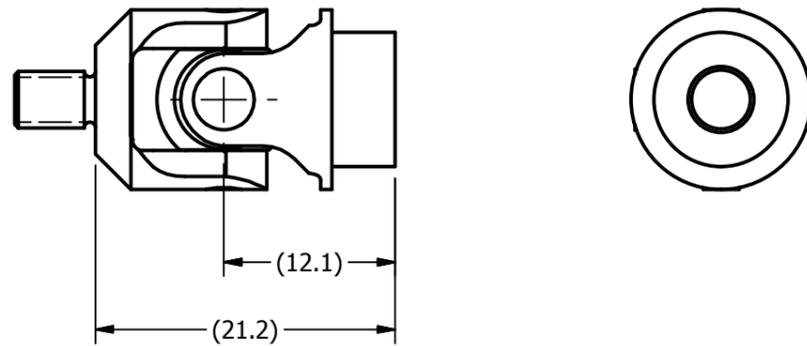
SCALE 2.000



IRTRACC SEGMENT
SCALE 3.000



BIB SEGMENT
SCALE 3.000



NOTES:

1. MAKE FROM 9002660V, MODIFY AS SHOWN.

DO NOT SCALE DRAWING



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

DATE: 5/30/2014



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

DESCRIPTION:
UNIVERSIAL JOINT, MODIFIED, THOR-M

PROJECT NO.:	
MATERIAL:	SA572-S117
HEAT TREAT:	
FINISH:	
TOTAL QTY IN DUMMY	1

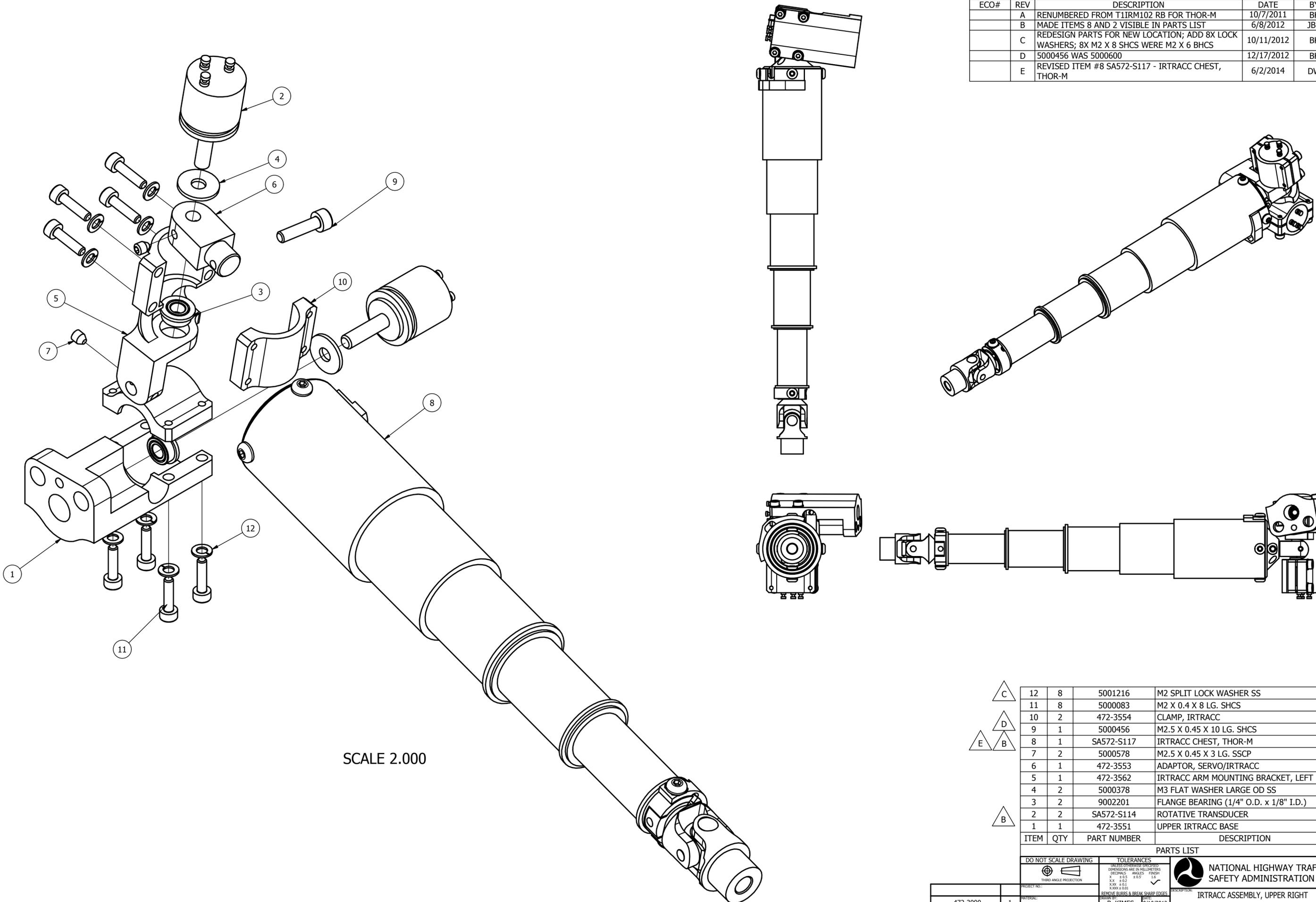
QTY	1
ENGINEER:	Dave Walker
DATE:	5/30/2014

CHECKED BY:	
DATE:	
ENGINEER:	
DATE:	

SIZE:	A3
SHEET:	1 of 1
SCALE:	2.000

DRAWING NO.:	472-8115
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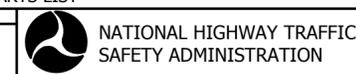
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM102 RB FOR THOR-M	10/7/2011	BK
	B	MADE ITEMS 8 AND 2 VISIBLE IN PARTS LIST	6/8/2012	JBH
	C	REDESIGN PARTS FOR NEW LOCATION; ADD 8X LOCK WASHERS; 8X M2 X 8 SHCS WERE M2 X 6 BHCS	10/11/2012	BK
	D	5000456 WAS 5000600	12/17/2012	BK
	E	REVISED ITEM #8 SA572-S117 - IRTRACC CHEST, THOR-M	6/2/2014	DW



SCALE 2.000

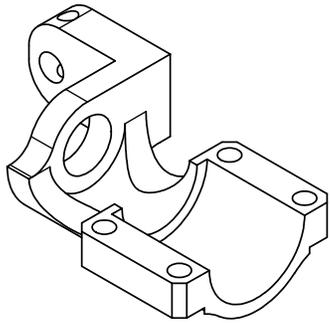
ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	2	472-3554	CLAMP, IRTRACC
9	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
8	1	SA572-S117	IRTRACC CHEST, THOR-M
7	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3562	IRTRACC 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	
PROJECT NO.:		DATE:	
MATERIAL:		DRAWN BY:	
HEAT TREAT:		DATE:	
CHECKED BY:		ENGINEER:	
FINISH:		DATE:	
TOTAL QTY IN DUMMY:		SCALE:	

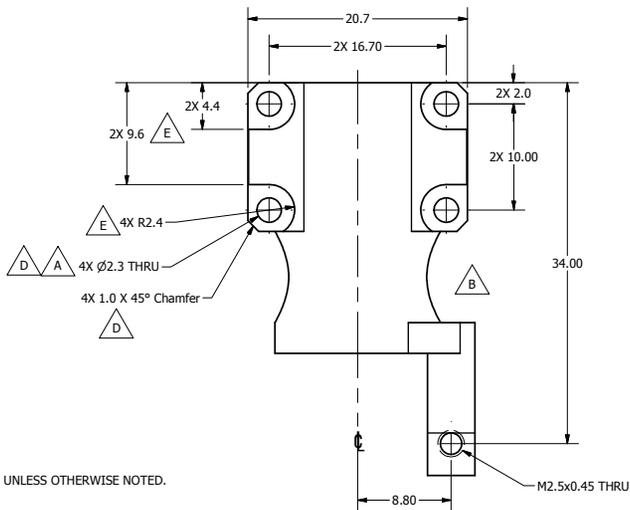
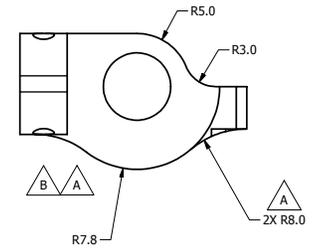
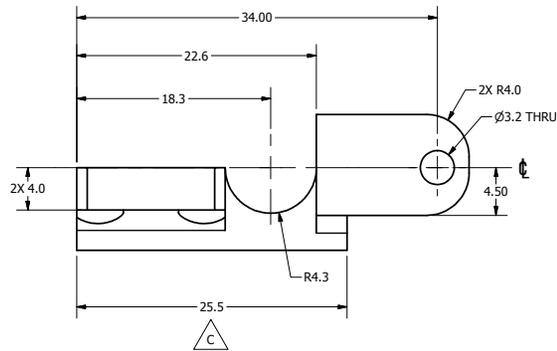
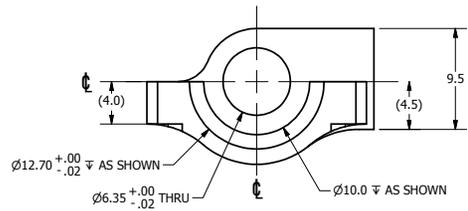
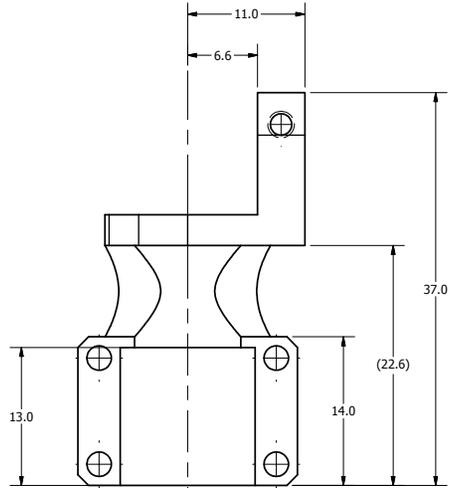


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DESCRIPTION: IRTRACC ASSEMBLY, UPPER RIGHT

472-3000	1	472-3560	1	1/11/2012	1.000	1	472-3560
NEXT ASSEMBLY	QTY	DATE	SCALE	DRAWING NO.	REV		
TOTAL QTY IN DUMMY	1	1/11/2012	1.000	472-3560	E		



SCALE 3.000



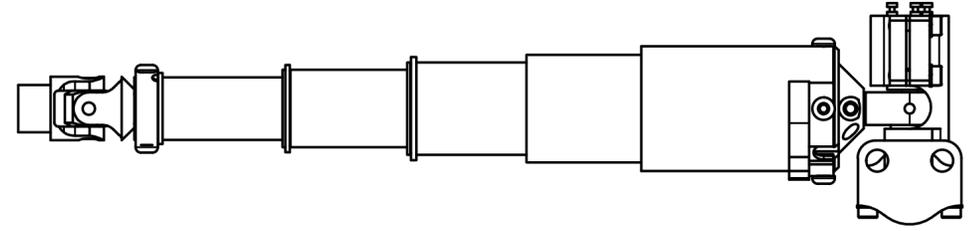
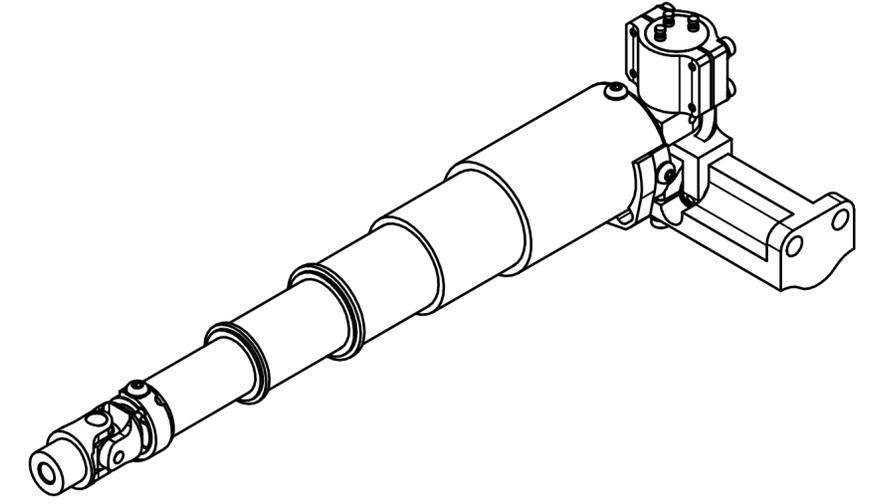
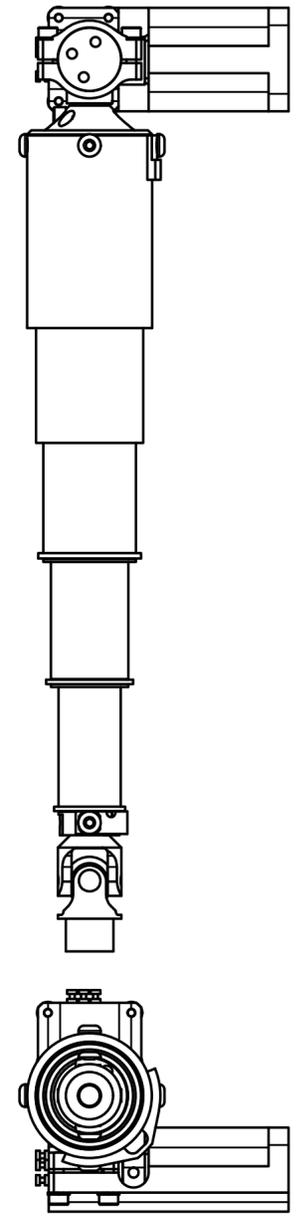
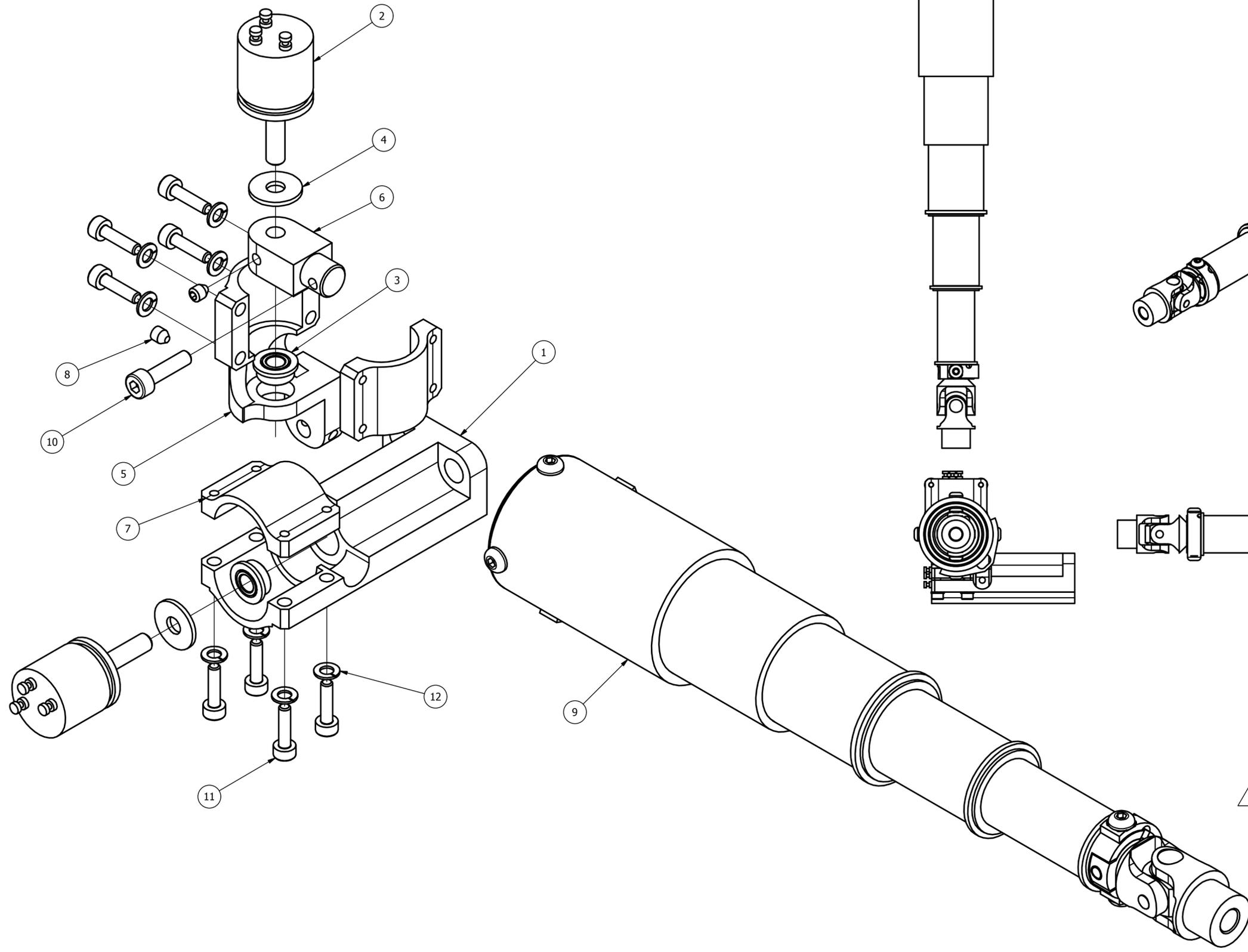
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T11RM114 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 ϕ 4.8 WAS ϕ 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	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS		IRTRACC ARM MOUNTING BRACKET, LEFT	
472-3560	1	7075-T6 ALUMINUM	B. KIMES	9/10/2012	A21 of 1
NEXT ASSEMBLY	QTY				3.000
TOTAL QTY IN DUMMY	1	CLEAR ANODIZE	J. WANG	1/11/2012	472-3562

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

SCALE 2.000

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

TOLERANCES
 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

REMOVE BURRS & BREAK SHARP EDGES

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

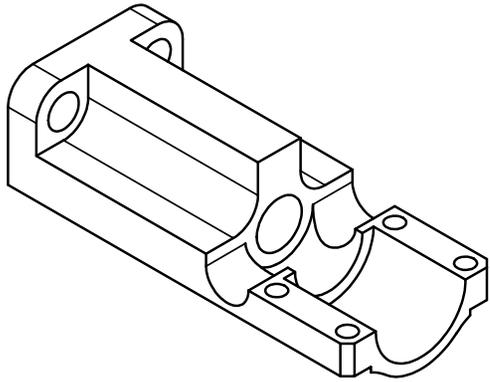
IRTRACC ASSEMBLY, LOWER RIGHT

PROJECT NO: 472-3000
 DATE: 10/7/2011
 DRAWN BY: B. KIMES
 CHECKED BY: J. WANG
 ENGINEER: J. WANG
 DATE: 1/11/2012

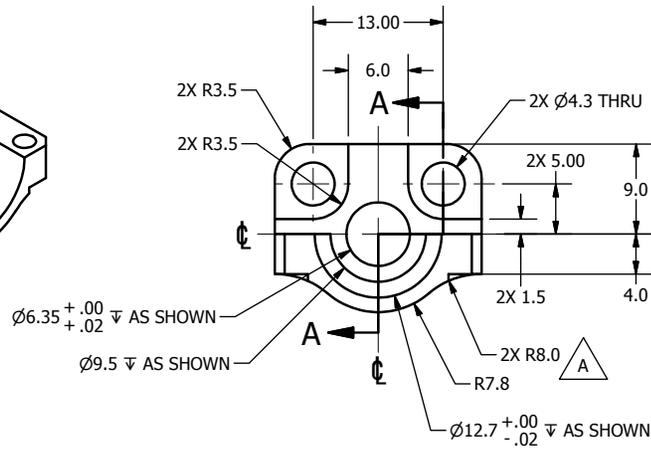
DESCRIPTION: IRTRACC ASSEMBLY, LOWER RIGHT

SCALE: 2.000

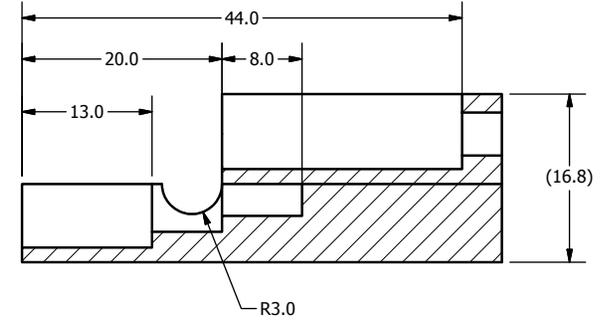
SIZE: A2
 SHEET: 1 OF 1
 DRAWING NO: 472-3570



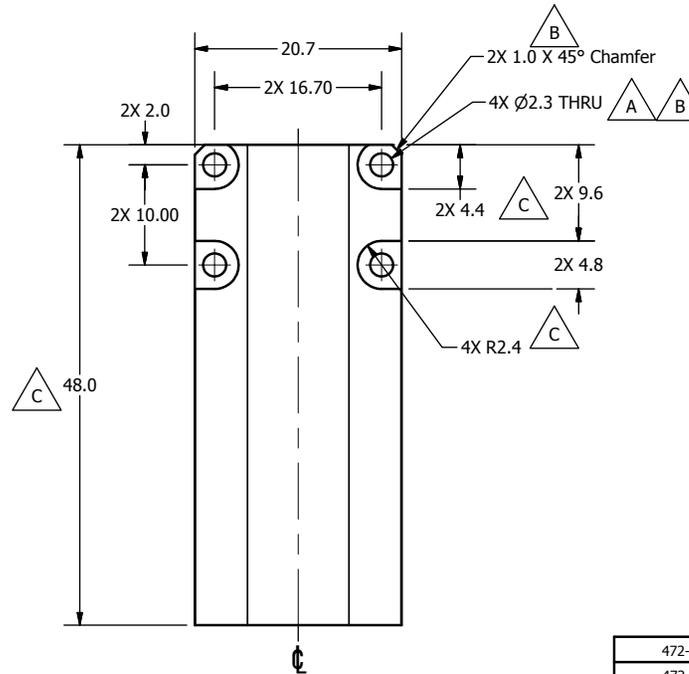
SCALE 2.000



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

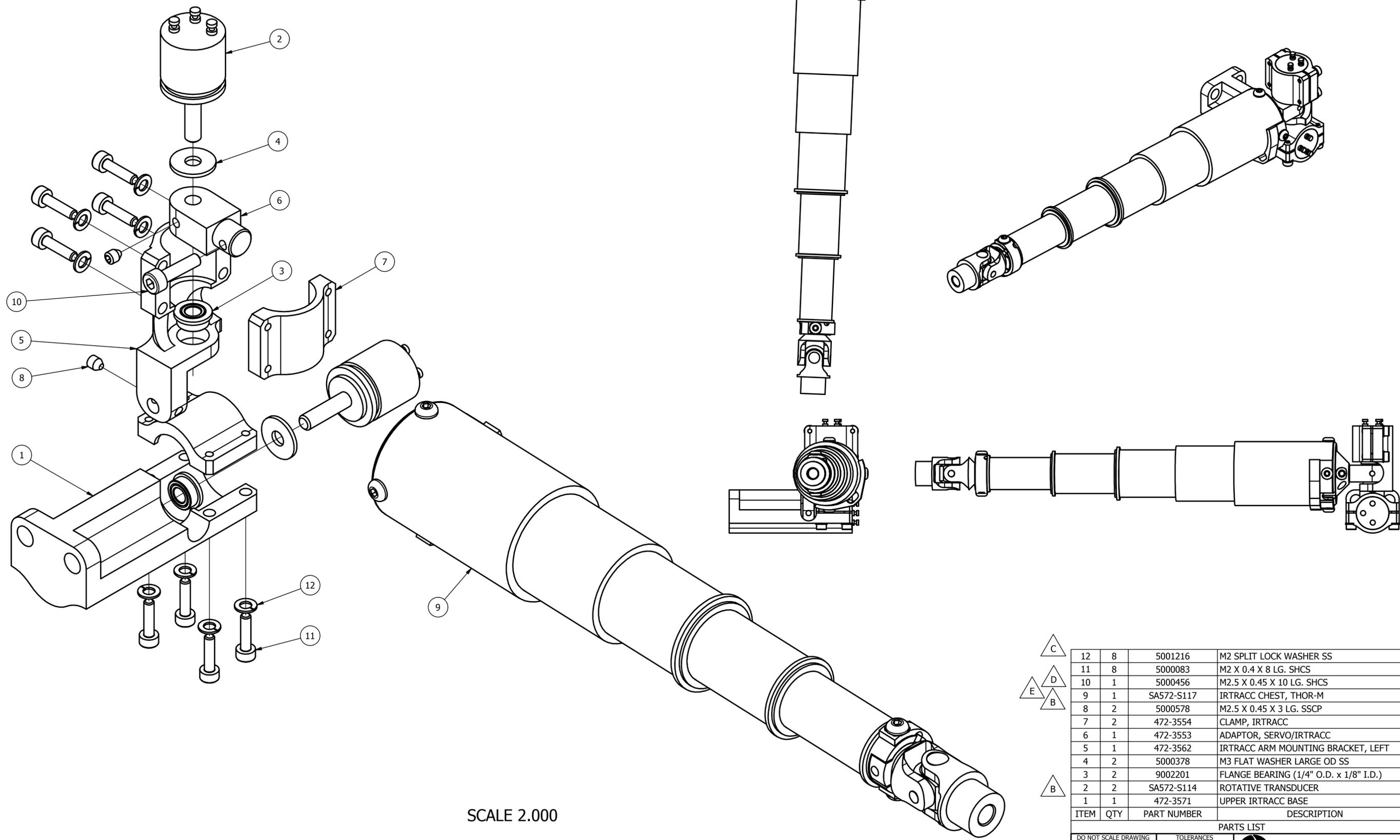


NOTES:

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		DESCRIPTION: UPPER ITRACC BASE	
PROJECT NO.: 472-3560	1	MATERIAL: 7075-T6 ALUMINUM	DATE: 10/6/2011	SIZE: A3	SHEET: 1 OF 1
PROJECT NO.: 472-3550	1	MATERIAL: 7075-T6 ALUMINUM	DATE: 10/6/2011	SCALE: 2.000	DRAWING NO.: 472-3571
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY: B. KIMES	DATE: 1/11/2012	REV: C
TOTAL QTY IN DUMMY	2	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/11/2012	

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

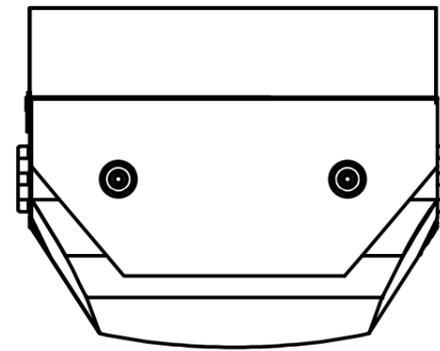
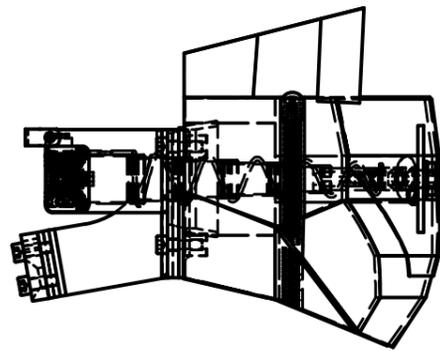


SCALE 2.000

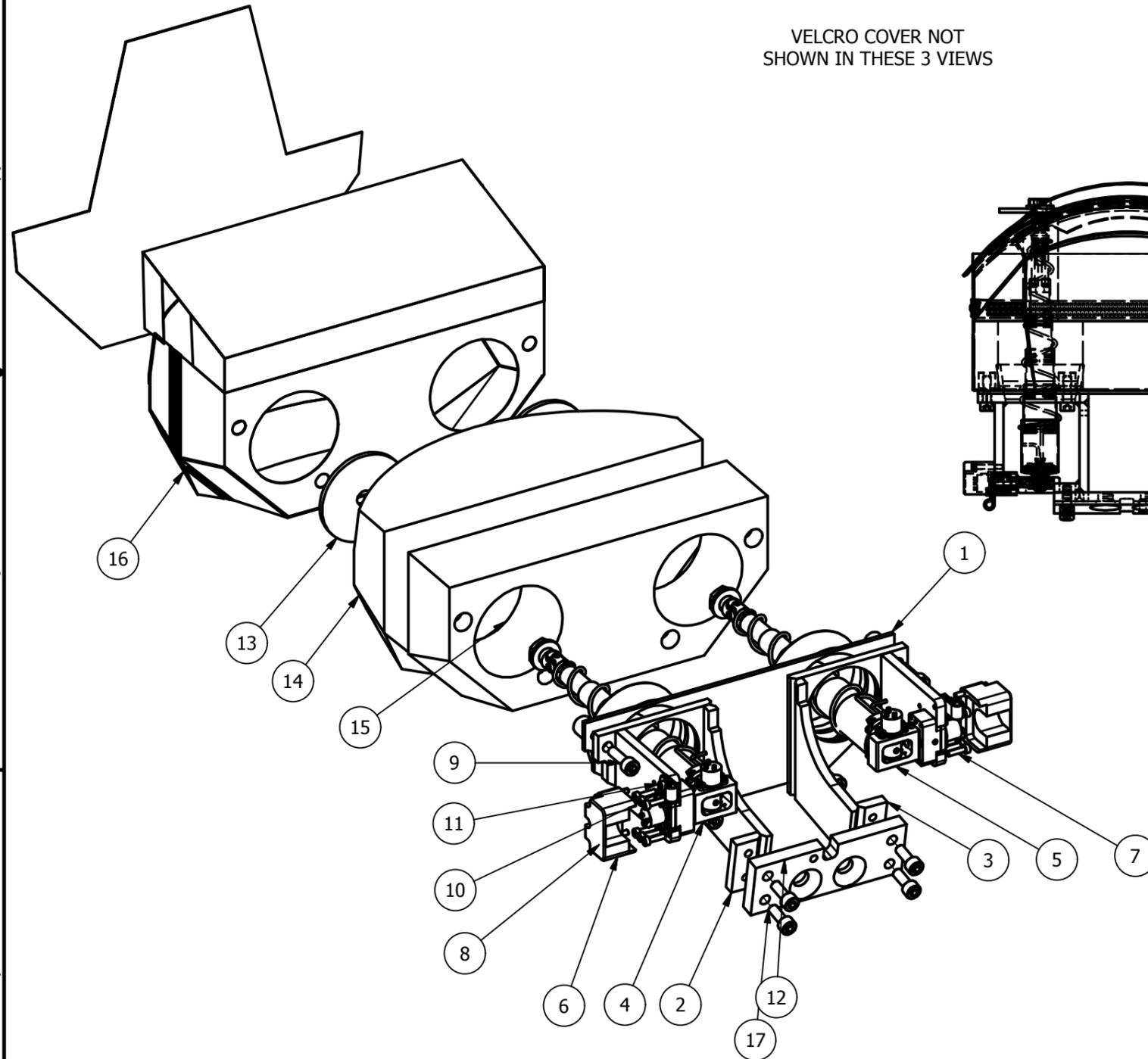
ITEM	QTY	PART NUMBER	DESCRIPTION
12	8	5001216	M2 SPLIT LOCK WASHER SS
11	8	5000083	M2 X 0.4 X 8 LG. SHCS
10	1	5000456	M2.5 X 0.45 X 10 LG. SHCS
9	1	SA572-S117	IRTRACC CHEST, THOR-M
8	2	5000578	M2.5 X 0.45 X 3 LG. SSCP
7	2	472-3554	CLAMP, IRTRACC
6	1	472-3553	ADAPTOR, SERVO/IRTRACC
5	1	472-3562	IRTRACC 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

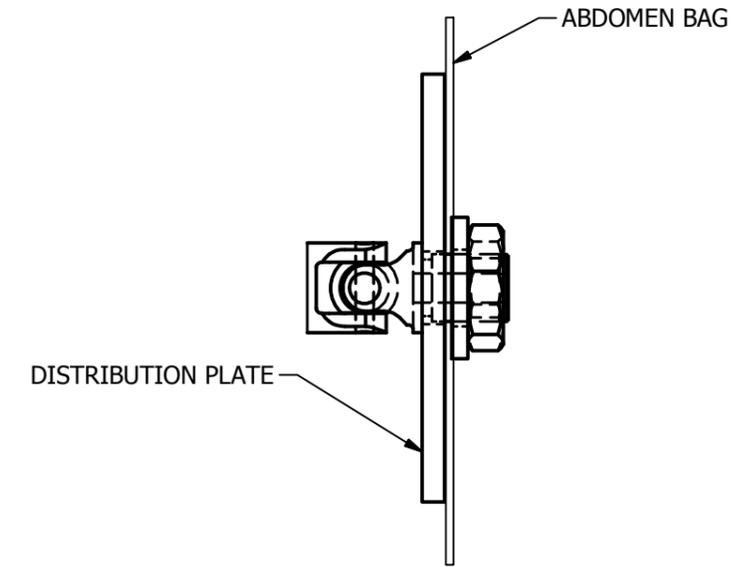
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		X ± 0.5 0.5° 1.6 XX ± 0.2 0.2° 1.6 XXX ± 0.1 0.1° 1.6 XXXX ± 0.01 0.01° 1.6		
PROJECT NO:	472-3000	DATE:	10/27/2011	DESCRIPTION: IRTRACC ASSEMBLY, LOWER LEFT
MATERIAL:		DESIGNED BY:	B. KIMES	
HEAT TREAT:		CHECKED BY:		
FINISH:		ENGINEER:	J. WANG	
NEXT ASSEMBLY	QTY	DATE:	1/11/2012	SIZE: A2 SHEET: 1 OF 1 SCALE: 1.000
TOTAL QTY IN DUMMY	1	DATE:	1/11/2012	DRAWING NO: 472-3580



VELCRO COVER NOT SHOWN IN THESE 3 VIEWS



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



VIEW Z
SCALE 1.000



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
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
.XX ±0.2
.XXX ±0.1
X.XXX ±0.01
REMOVE BURRS & BREAK SHARP EDGES

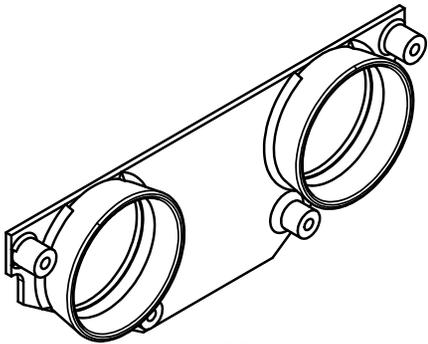


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

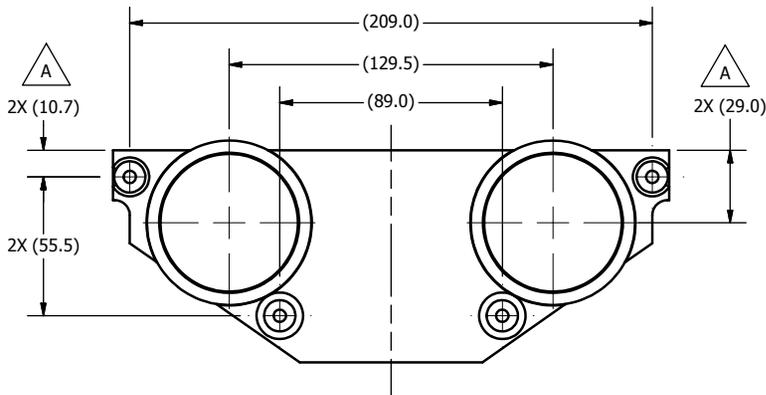
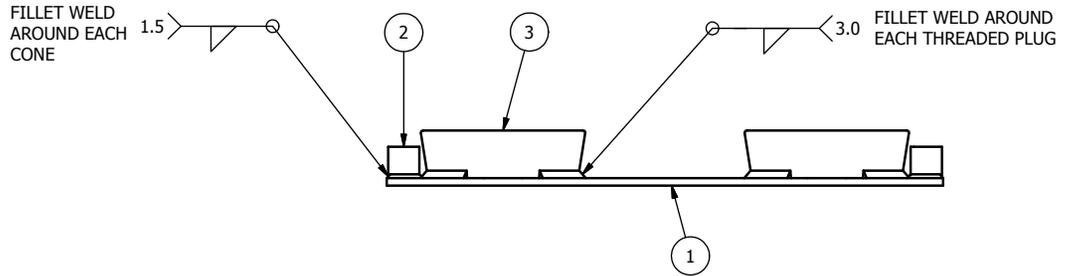
DESCRIPTION: LOWER ABDOMEN MECHANICAL ASS'Y

PROJECT NO.: THOR-M	DRAWN BY: dwashenko	DATE: 8/23/2011	SIZE: A3	SHEET: 1 of 1	DRAWING NO.: 472-4700	REV: F
MATERIAL:	HEAT TREAT:	CHECKED BY:	DATE:	SCALE: .750		
NEXT ASSEMBLY	QTY	ENGINEER: J. WANG	DATE: 1/11/2012			
TOTAL QTY IN DUMMY	1					

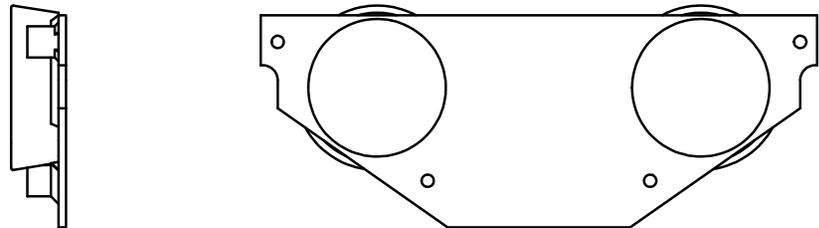
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM080 R04 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTES 4 & 6; 2X (10.7) WAS 9.7, 2X (29.0) WAS 28.0	8/22/2011	DW



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

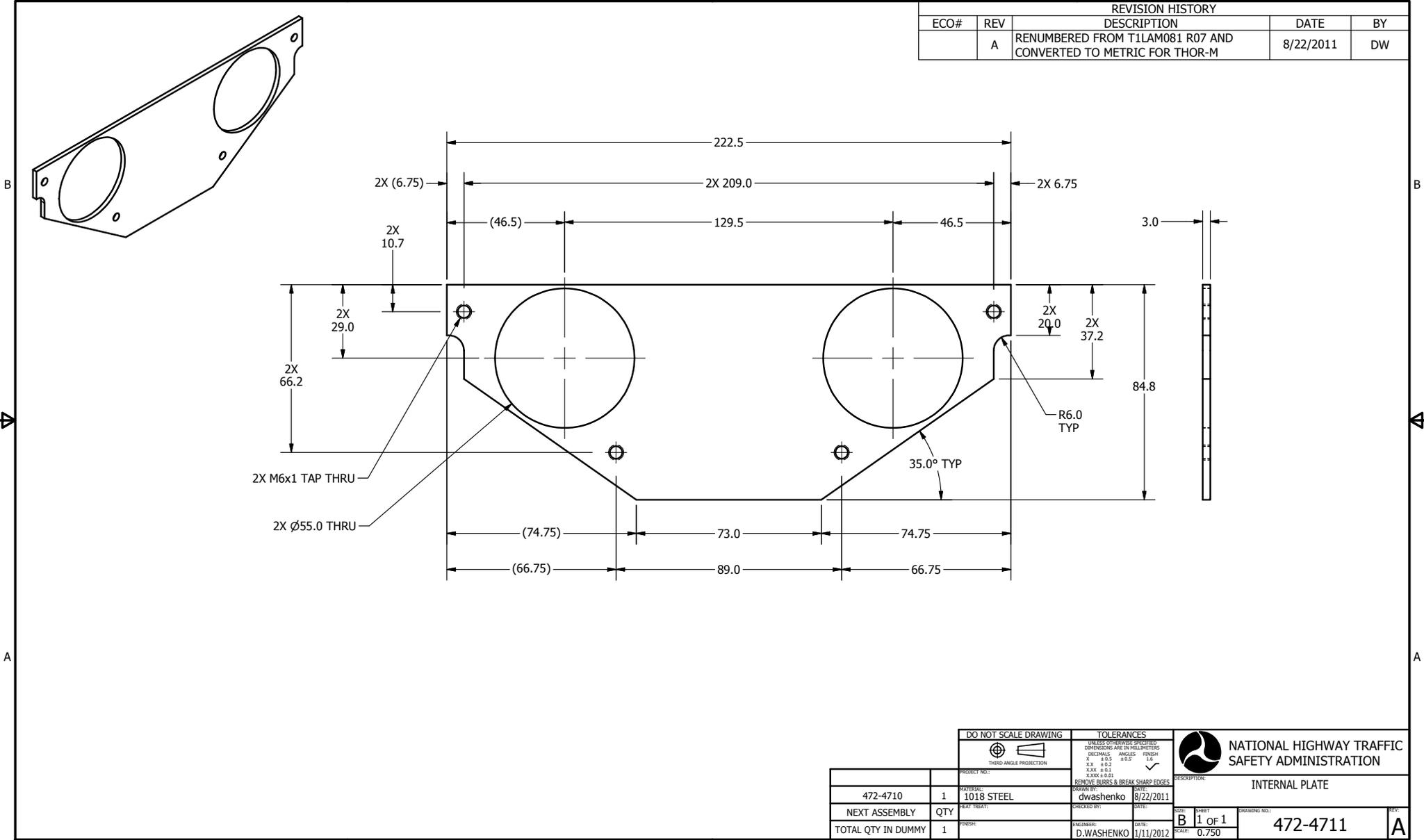
4

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

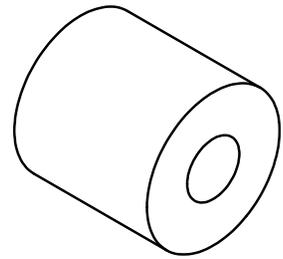
4

3

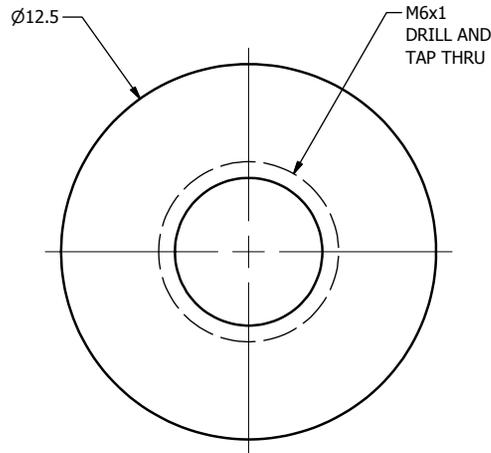
2

1

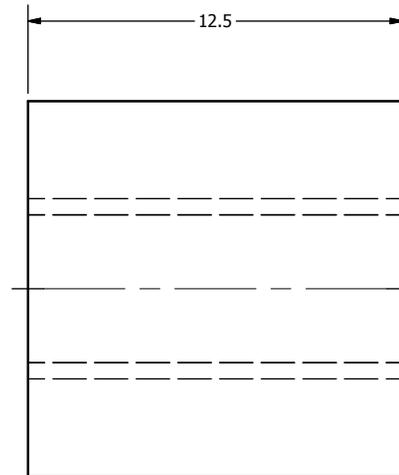
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X.X 0.0 1.6 X.XX 0.1 X.XXX 0.05			
PROJECT NO:	472-4710	MATERIAL:	1018 STEEL	DESCRIPTION:	INTERNAL PLATE
DATE:	8/22/2011	DRAWN BY:	dwashenko	CHECKED BY:	
QTY:	1	ENGINEER:	D.WASHENKO	DATE:	1/11/2012
TOTAL QTY IN DUMMY:	1	FINISH:		SIZE:	B 1 OF 1
				SCALE:	0.750
				DRAWING NO.:	472-4711
				REV:	A



SCALE 3.0



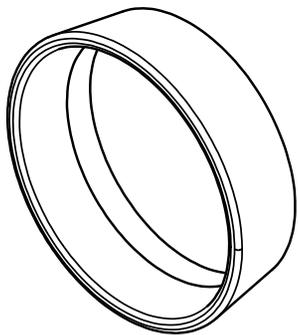
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM083 R02 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	DW



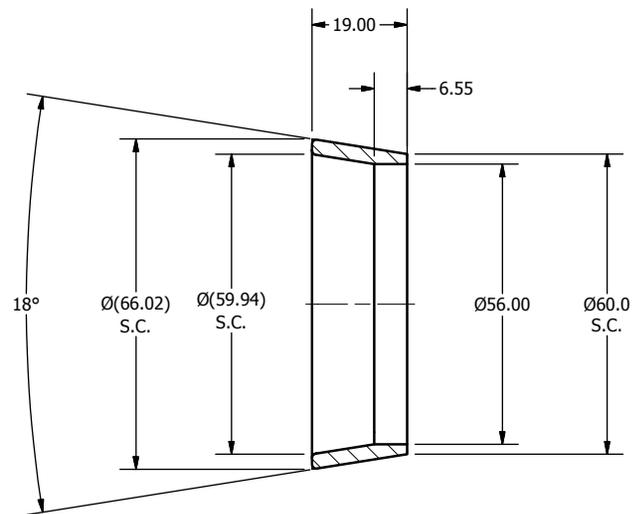
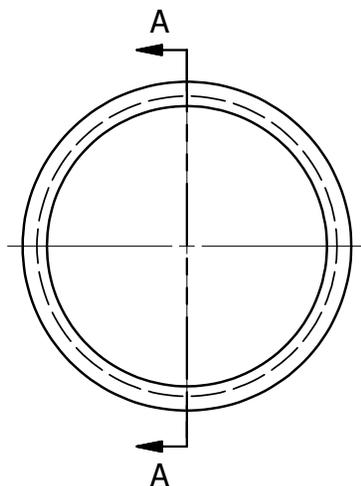
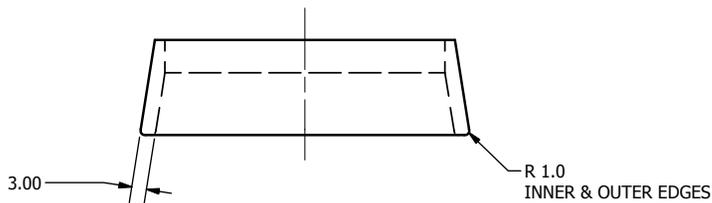
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO.:	472-4710	MATERIAL:	1018 STEEL	DESCRIPTION:
DRIVER BY:	dwashenko	DATE:	8/22/2011	REMOVE BURRS & BREAK SHARP EDGES
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		DATE:		A31 OF 1
FINISH:		ENGINEER:	D. WASHENKO	SCALE: 6.000
DATE:		DATE:	1/11/2012	DRAWING NO.:
				472-4712
				REV:
				A

472-4710	4
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	4

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM082 R6 AND CONVERTED TO METRIC FOR THOR-M	08/30/11	DW



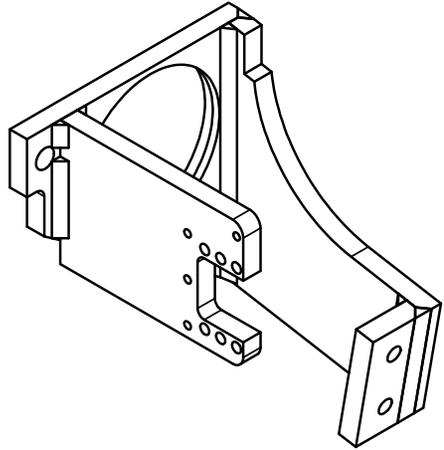
SCALE 1.000



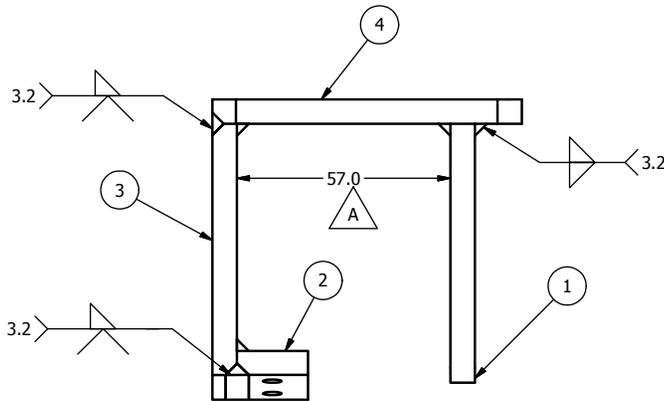
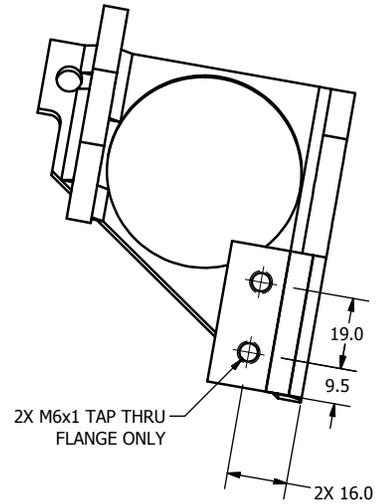
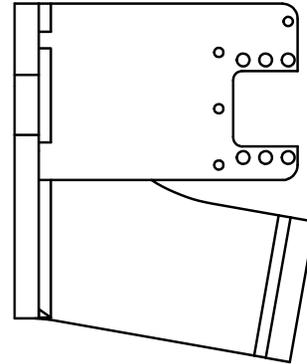
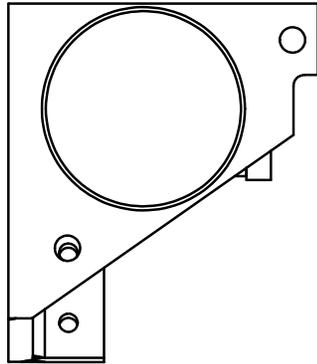
SECTION A-A
SCALE 1.000

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 ± 0.57 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
DATE:	6/16/2010	DESIGNED BY:	dwashenko	
CHECKED BY:		HEAT TREAT:		SIZE: SHEET
DATE:		ENGINEER:	D. WASHENKO	A31 OF 1
DATE:	1/11/2012	SCALE:	1.000	DRAWING NO.:
DATE:		TOTAL QTY IN DUMMY:	2	472-4713
DATE:		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



SCALE .750



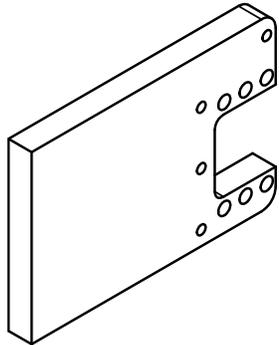
NOTES:

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.

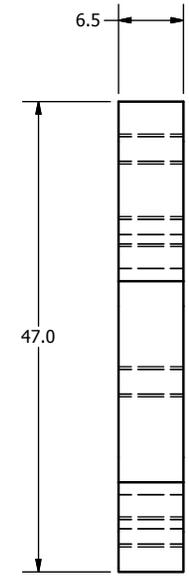
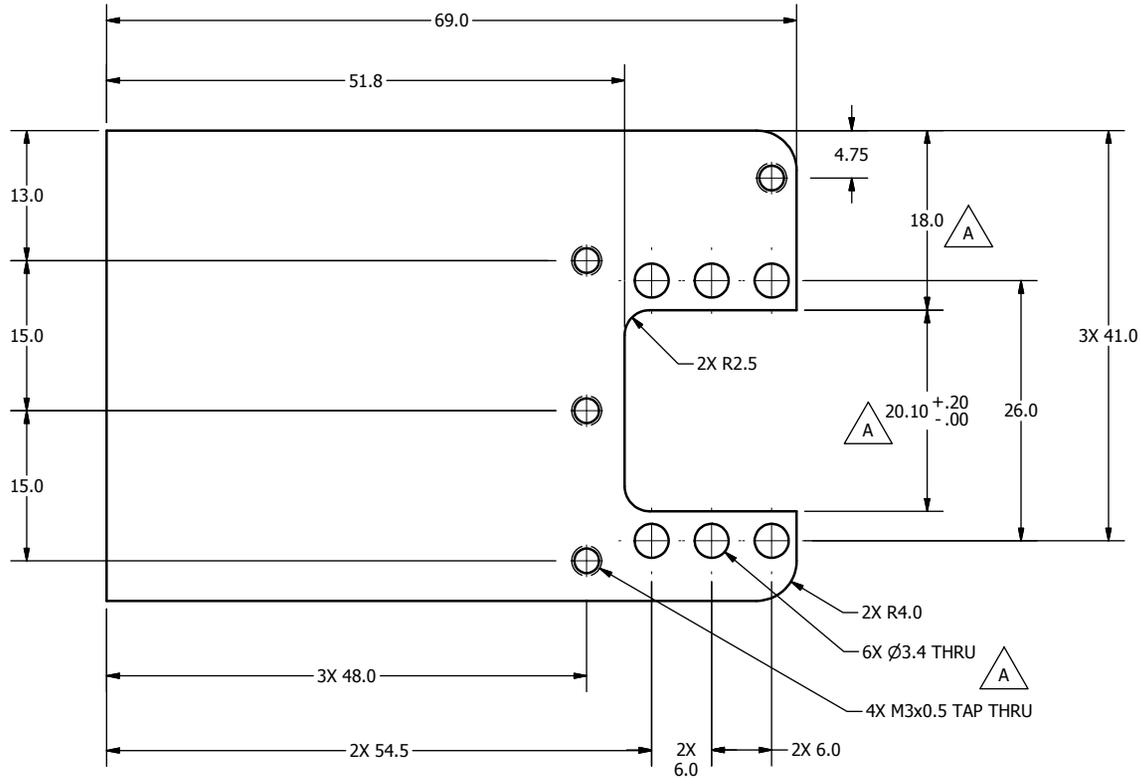
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-4724-1	SIDE ATTACH BRACKET FRONT LEFT PLATE
3	1	472-4723-1	SIDE BRACKET PLATE, LEFT
2	1	472-4722	SIDE BRACKET REAR FLANGE
1	1	472-4721	DGSP MOUNT

PARTS LIST

DO NOT SCALE DRAWING	TOLERANCES	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
THIRD ANGLE PROJECTION	<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>X .0 .0 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.: 472-4700	MATERIAL:	DESCRIPTION: ATTACH BRACKET WELD ASSY, LEFT
DATE: 8/22/2011	DESIGNED BY: dwashenko	SCALE: 0.750
CHECKED BY:	DATE:	SIZE: A3
HEAT TREAT:	DATE: 1/1/2012	SHEET: 1 OF 1
FINISH: SEE NOTES	ENGINEER: D. WASHENKO	DRAWING NO.: 472-4720-1
TOTAL QTY IN DUMMY: 1	SCALE: 0.750	REV: A



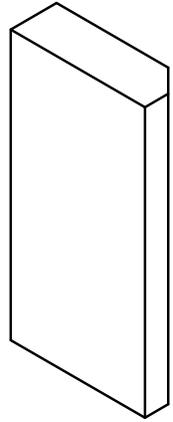
SCALE 1.0



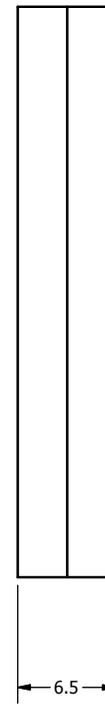
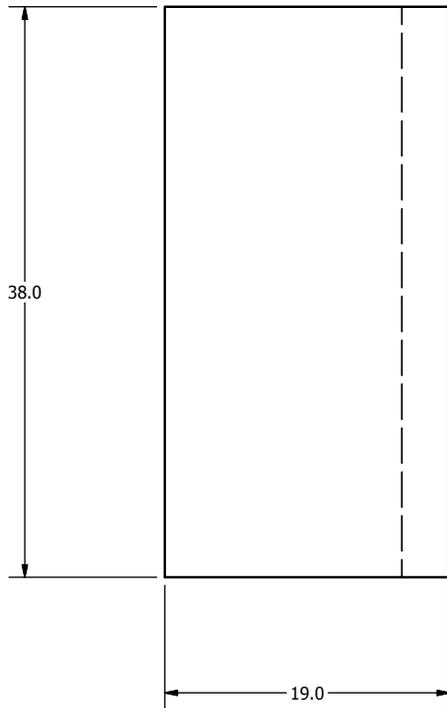
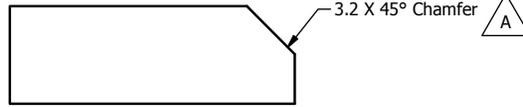
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM044 R3 FOR THOR-M; 18.0 WAS 17.95; 20.10 \pm .20/-0.00 WAS 20.10 \pm .05/-0.00; Ø3.4 WAS Ø3.18; 4X M3x.5 WAS 4X #4-40	8/22/2011	DW

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 0.5° 1.6 XX 0.2 0.5° 1.6 XXX 0.3 0.5° 1.6 XXXX 0.01		
PROJECT NO:	472-4720-2	1	DATE:	8/22/2011
MATERIAL:	1018 CRS	1	DESIGNED BY:	dwashenko
HEAT TREAT:			CHECKED BY:	
FINISH:			DATE:	1/12/2012
ENGINEER:	D. WASHENKO		DATE:	1/12/2012
TOTAL QTY IN DUMMY	2		SCALE:	2.000
DESCRIPTION:				DGSP MOUNT 472-4721
SIZE: SHEET: DRAWING NO.:				A3 1 OF 1 472-4721

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 0.05 1.6
X.X 0.2
X.XX 0.3
X.XXX 0.01
REMOVE BURRS & BREAK SHARP EDGES



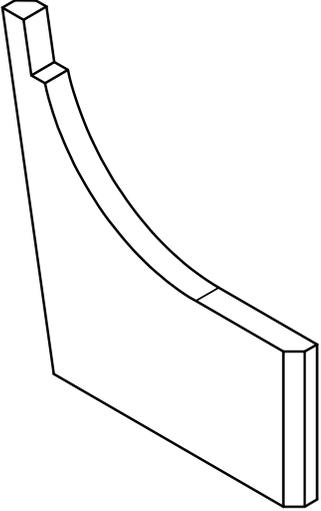
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

472-4720-2	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

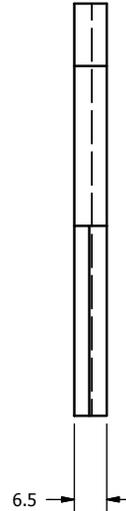
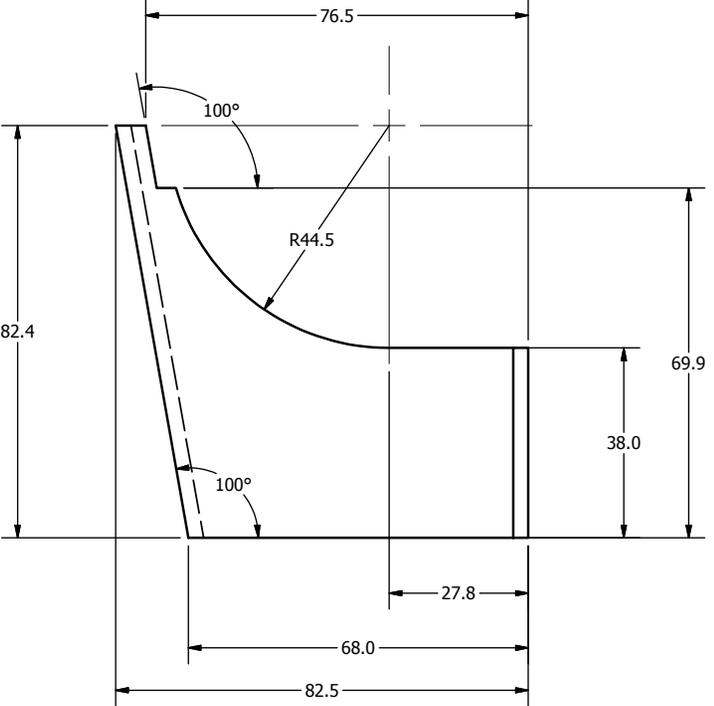
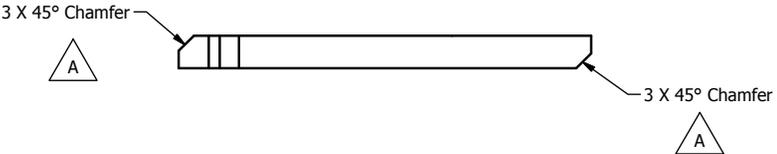
DATE:	8/31/2011
ENGINEER:	D. WASHENKO
DATE:	1/12/2012

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

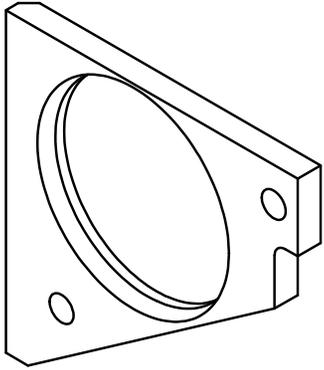


SCALE 1.000

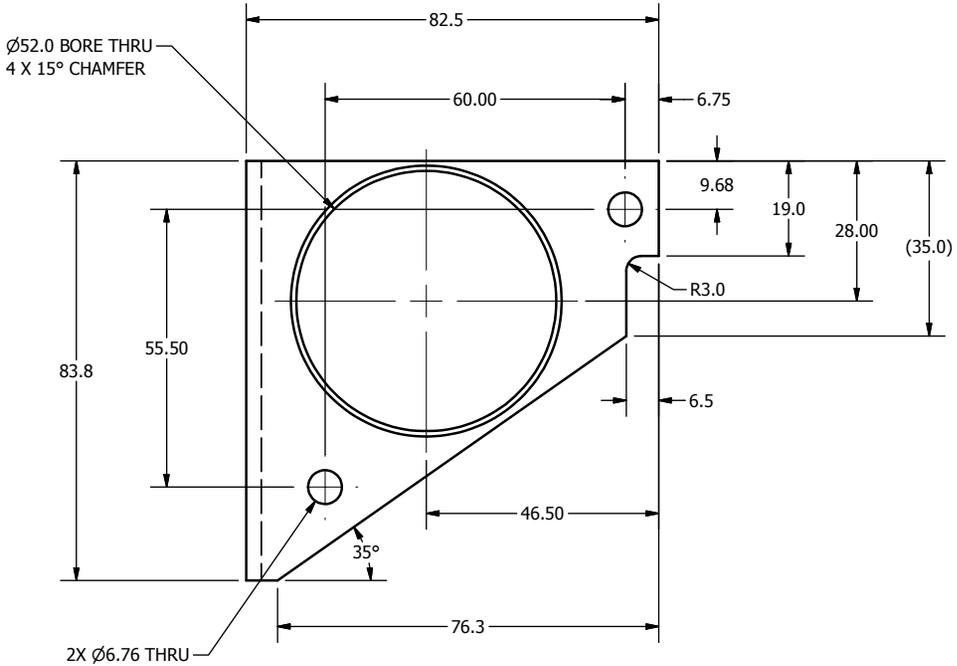
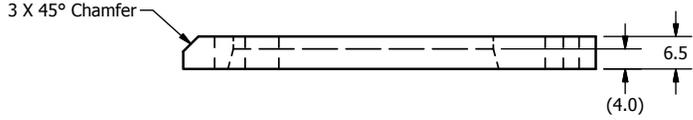


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>0.05 0.05° 1.6</small> <small>0.1 0.1° 1.6</small> <small>0.2 0.2° 1.6</small> <small>0.3 0.3° 1.6</small> <small>0.01 0.01° 1.6</small>		
PROJECT NO.:	472-4720-1	MATERIAL:	1018 STEEL	<small>REMOVE BURRS & BREAK SHARP EDGES</small> DESCRIPTION: SIDE BRACKET PLATE, LEFT
DRAWN BY:	dwashenko	DATE:	8/31/2011	
CHECKED BY:		DATE:		<small>SIZE: A3</small> <small>SHEET: 1 OF 1</small> <small>DRAWING NO.: 472-4723-1</small> <small>REV: A</small>
ENGINEER:	D. WASHENKO	DATE:	1/12/2012	<small>SCALE: 1.000</small>
TOTAL QTY IN DUMMY	1	FINISH:		

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM043L R07 FOR THOR-M	8/31/2011	DW

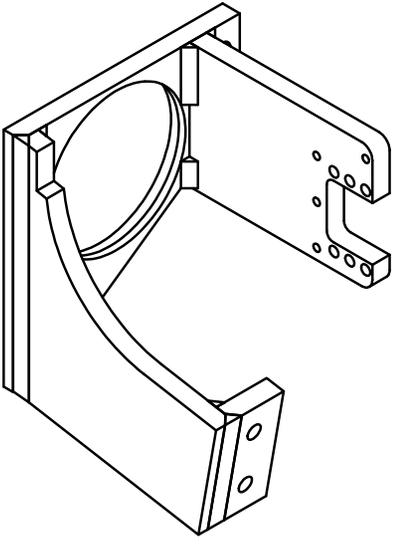


SCALE 1.000

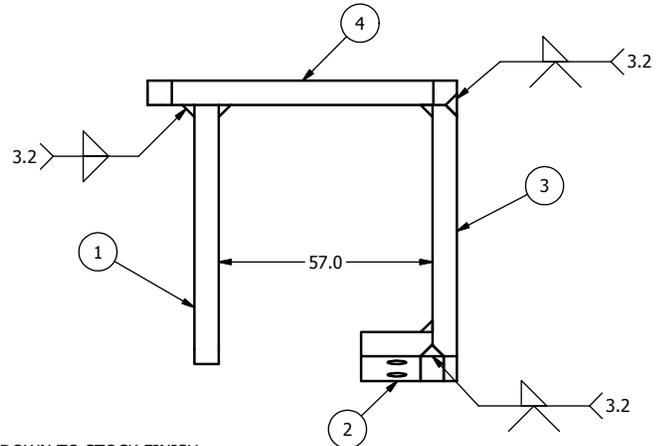
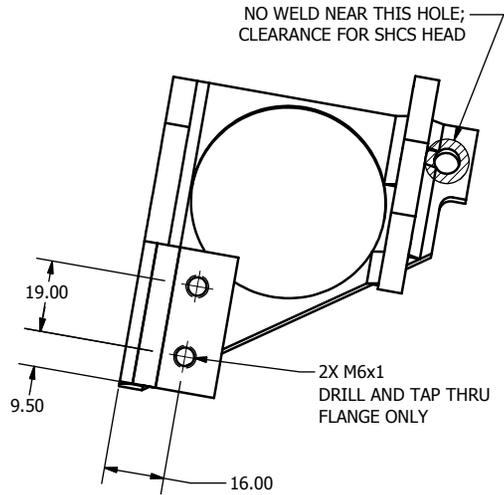
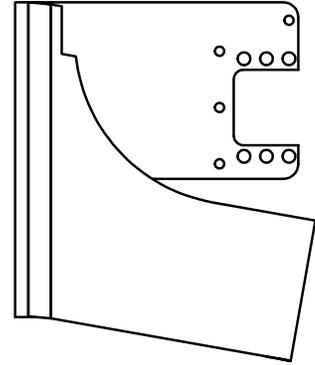
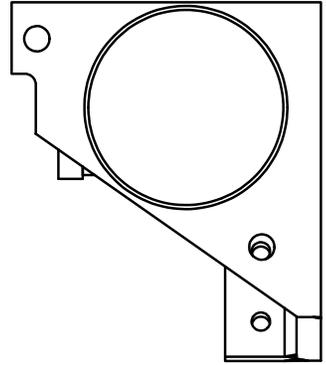


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>X 0.05 ± 0.05 1.6</small> <small>X.X ± 0.2</small> <small>X.XX ± 0.3</small> <small>X.XXX ± 0.01</small> <small>REMOVE BLURS & BREAK SHARP EDGES</small>		
PROJECT NO:	472-4720-1	MATERIAL:	1018 Steel	<small>DESCRIPTION:</small> SIDE ATTACH BRACKET FRONT LEFT PLATE
DRAWN BY:	dwashenko	DATE:	8/31/2011	
CHECKED BY:		DATE:		
HEAT TREAT:		FINISH:		<small>SIZE: SHEET</small> A31 OF 1
ENGINEER:	D. WASHENKO	DATE:	1/12/2012	<small>DRAWING NO.:</small> 472-4724-1
TOTAL QTY IN DUMMY	1	SCALE:	1.000	<small>REV.:</small> 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



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.

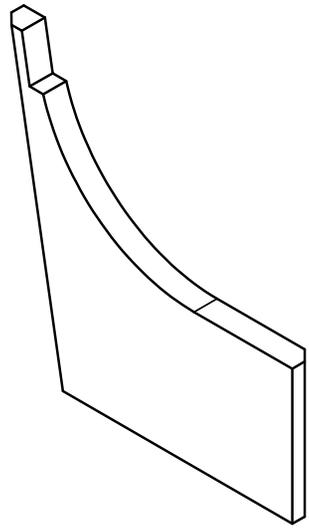


ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-4724-2	SIDE ATTACH BRACKET FRONT RIGHT PLATE
3	1	472-4723-2	SIDE BRACKET PLATE, RIGHT
2	1	472-4722	SIDE BRACKET REAR FLANGE
1	1	472-4721	DGSP MOUNT

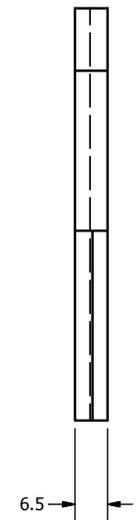
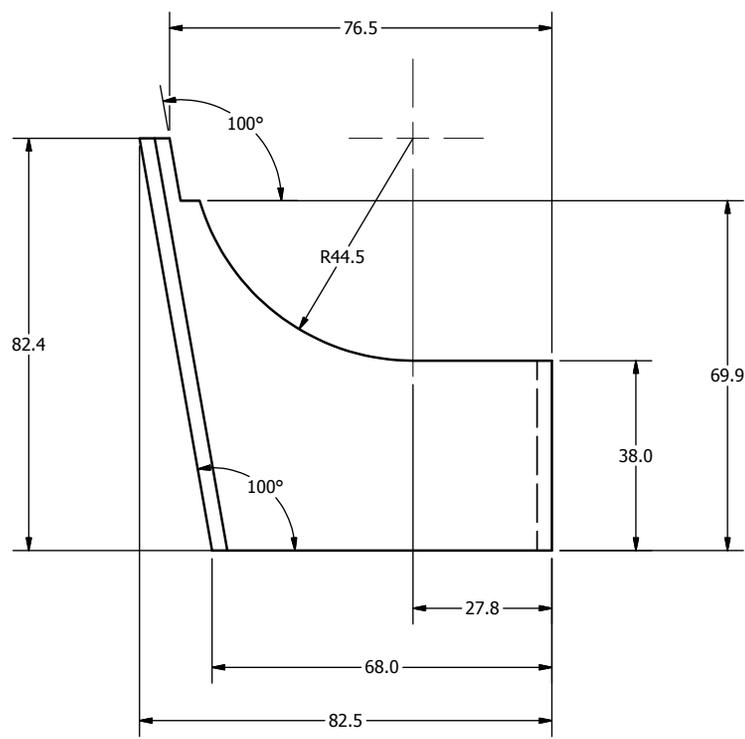
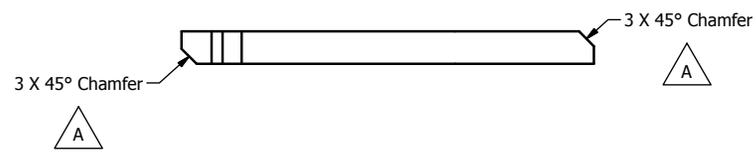
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		0.0 0.5 1.6	
		X.X 0.2 0.5	
		X.XX 0.3 1.6	
		X.XXX 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	DATE:	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-4700	8/22/2011	ATTACH BRACKET WELD ASSY. RIGHT	
MATERIAL:	DESIGNED BY:	SCALE:	SIZE SHEET
	dwashenko	0.750	A31 OF 1
HEAT TREAT:	CHECKED BY:	DATE:	DRAWING NO.:
		1/11/2012	472-4720-2
TOTAL QTY IN DUMMY	1	ENGINEER:	REV:
		D. WASHENKO	A

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

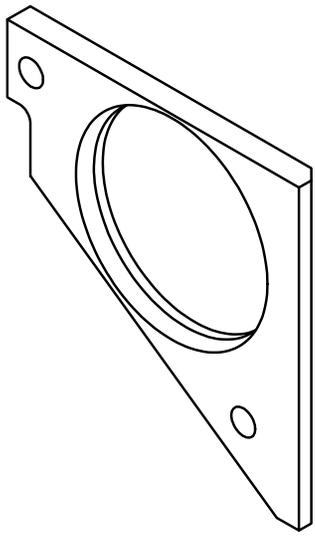


SCALE 1.000

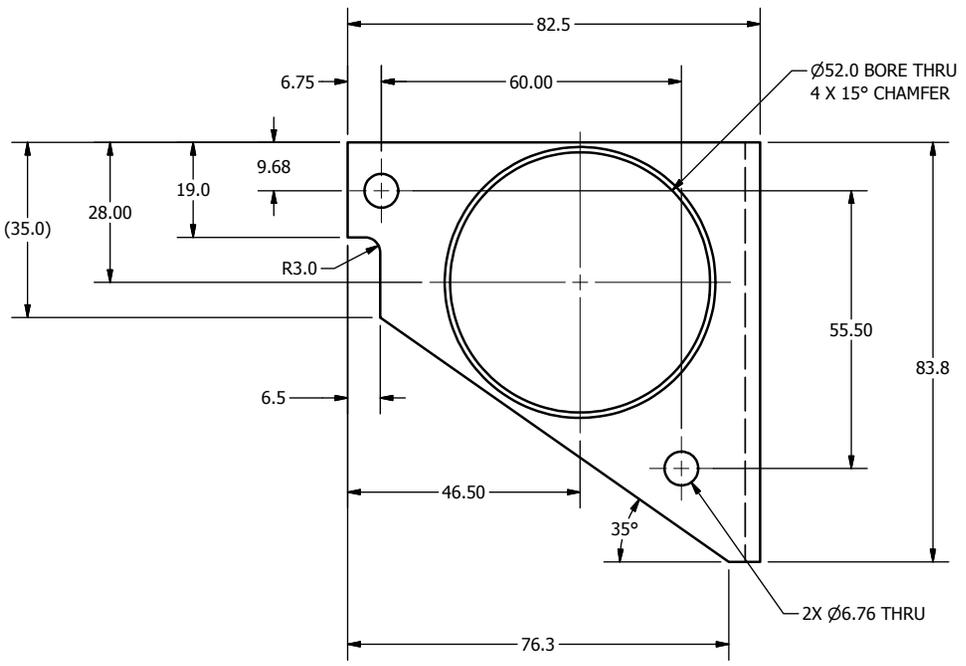
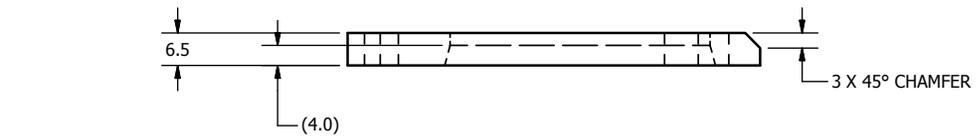


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01					
PROJECT NO:	472-4720-2	MATERIAL:	1018 STEEL	DESCRIPTION: SIDE BRACKET PLATE, RIGHT			
DATE:	8/31/2011	DESIGNED BY:	dwashenko				
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.:	472-4723-2	REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM043R R7 FOR THOR-M	9/1/11	DW

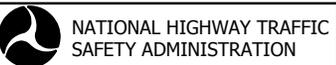


SCALE 1.000



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°



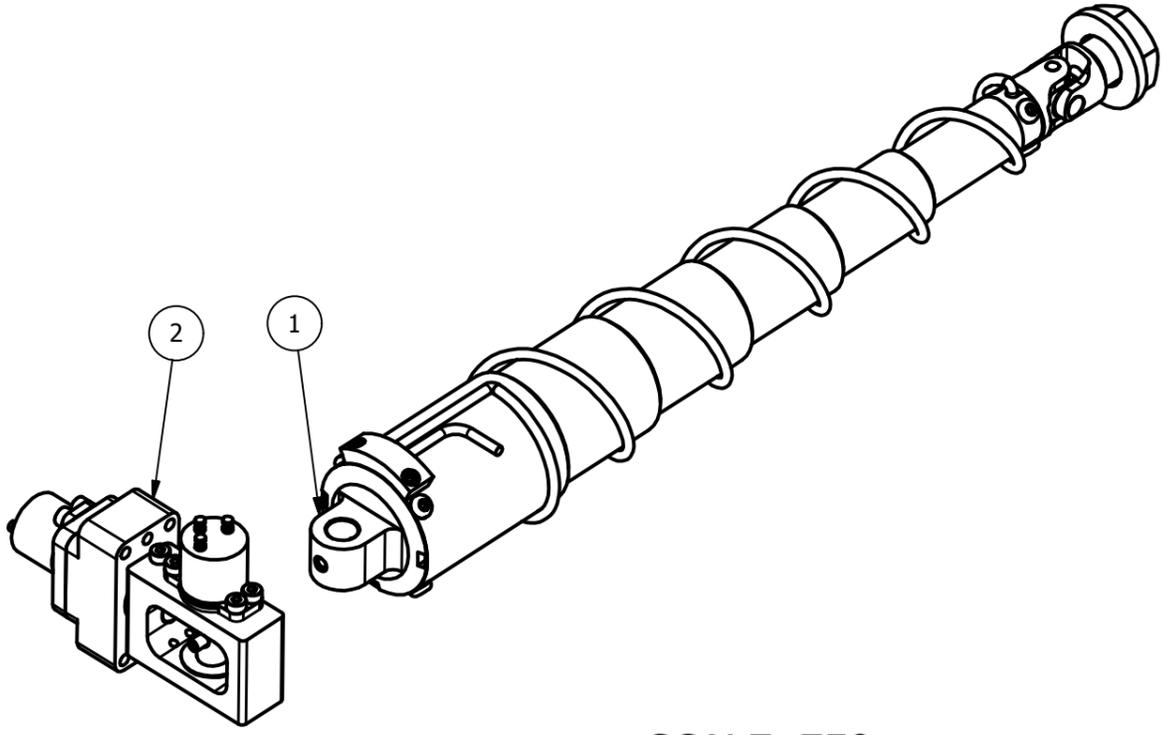
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-4720-2	QTY: 1	MATERIAL: 1018 STEEL	DATE: 7/2/2010	SCALE: 1.000	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-4724-2	REV: A
CHECKED BY: d washenko	HEAT TREAT:	FINISH:	DATE: 1/12/2012	SCALE: 1.000	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-4724-2	REV: A
TOTAL QTY IN DUMMY: 1	FINISH:	ENGINEER: D. WASHENKO	DATE: 1/12/2012	SCALE: 1.000	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-4724-2	REV: A

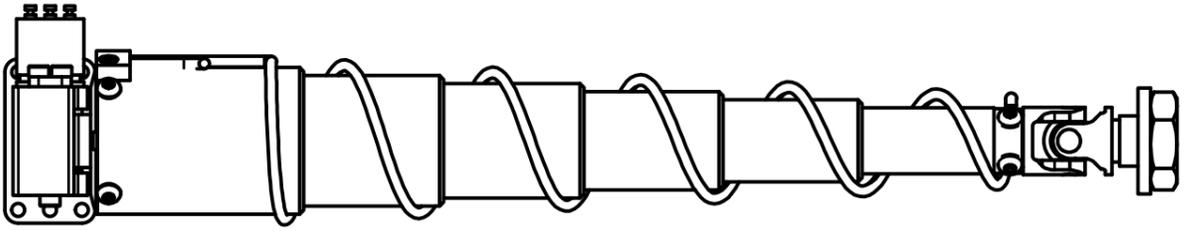
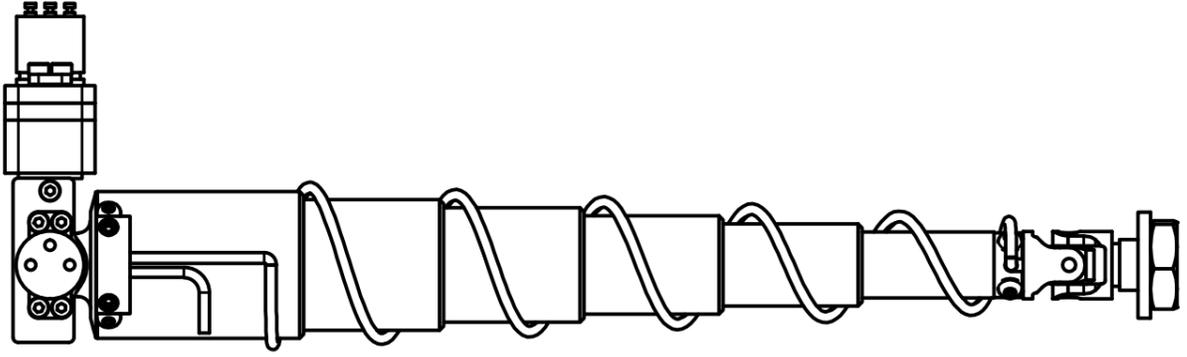
REMOVE BURRS & BREAK SHARP EDGES

DESCRIPTION: SIDE ATTACH BRACKET FRONT RIGHT PLATE

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



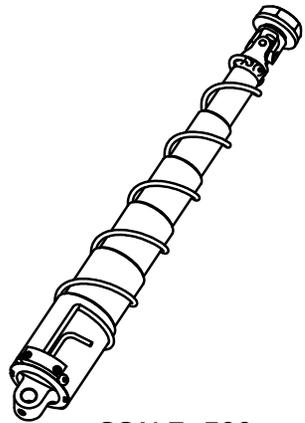
SCALE .750



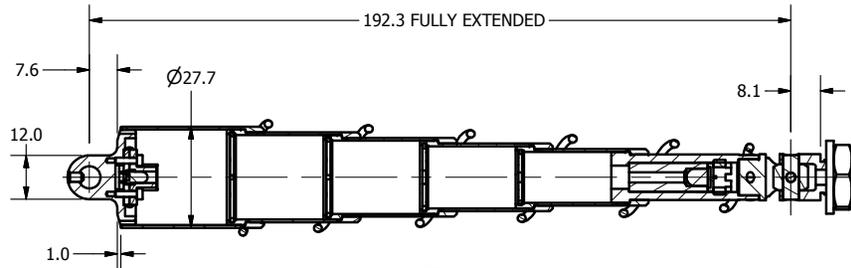
- NOTES:
1. ASSEMBLE IRTRACC TO PIVOT ASSEMBLY AS SHOWN.
 2. PROVIDE INDIVIDUAL CERT SHEETS FOR IRTRACC AND (2) POTENTIOMETERS.

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 <small>DESCRIPTION:</small> 3D IRTRACC ASS'Y, LEFT, THOR ABDOMEN - METRIC
<small>THIRD ANGLE PROJECTION</small>		<small>REMOVE BURRS & BREAK SHARP EDGES</small> DATE: 8/23/2011 DRAWN BY: dwashenko		
PROJECT NO.: THOR-M MATERIAL:		CHECKED BY: dwashenko DATE: 8/23/2011		SIZE: A3 SHEET: 1 OF 1 SCALE: .750
NEXT ASSEMBLY QTY:		ENGINEER: D. WASHENKO DATE: 1/12/2012		
TOTAL QTY IN DUMMY: 1		DRAWING NO.: 472-4730-1		REV: B



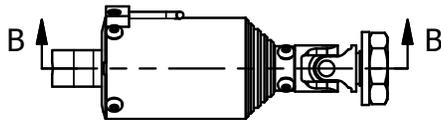
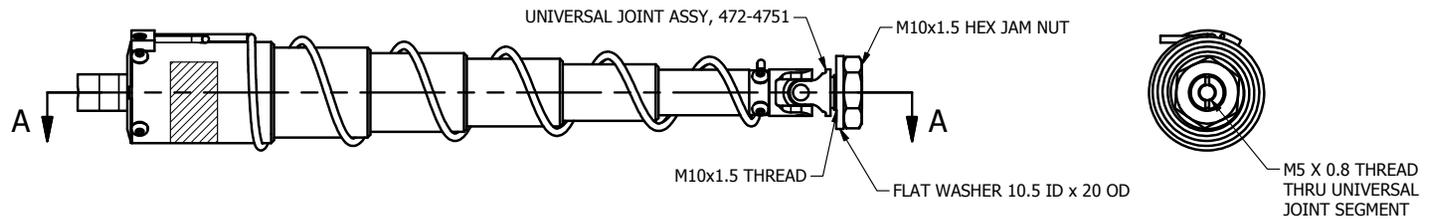
SCALE .500



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 0.05 1.6
 X.XX 0.01 0.05 1.6
 X.XXX 0.005 0.05 1.6
 REMOVE BURRS & BREAK SHARP EDGES

PROJECT NO.	1
472-4730-2	1
472-4730-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

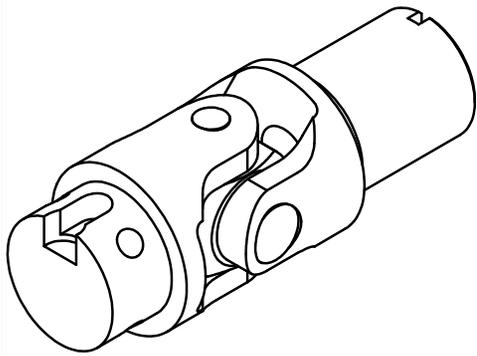
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: 120mm IRTRACC ASSEMBLY - METRIC

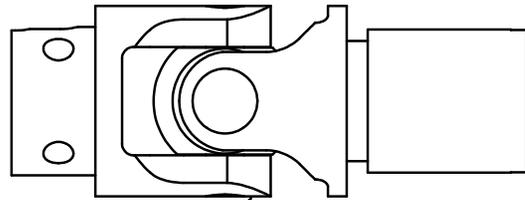
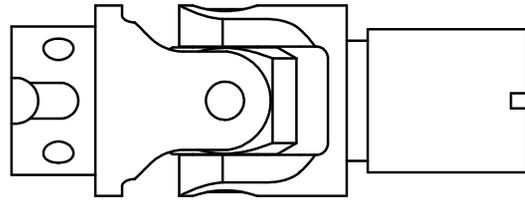
DATE: 8/23/2011
 DRAWN BY: dwashenko
 CHECKED BY: D. WASHENKO
 DATE: 1/12/2012

SIZE: B 1 OF 1
 SCALE: 0.750

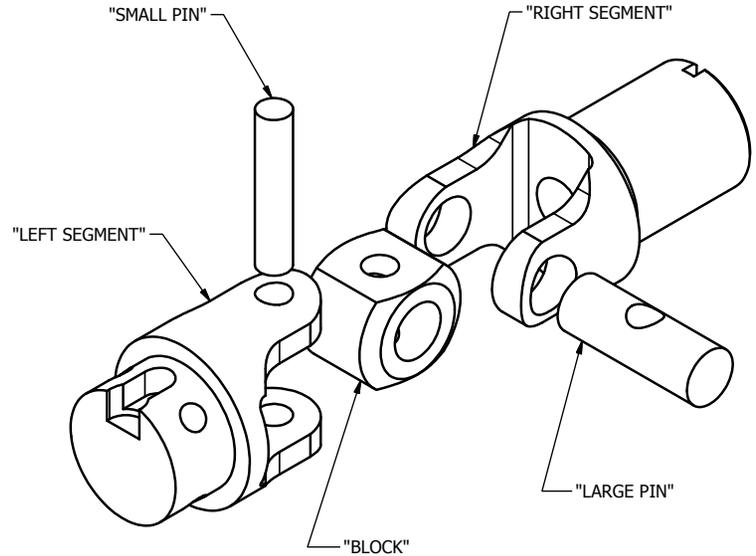
DRAWING NO.: SA572-S121



SCALE 3.000



1

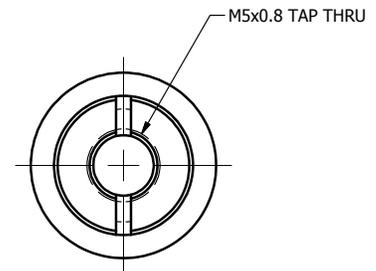
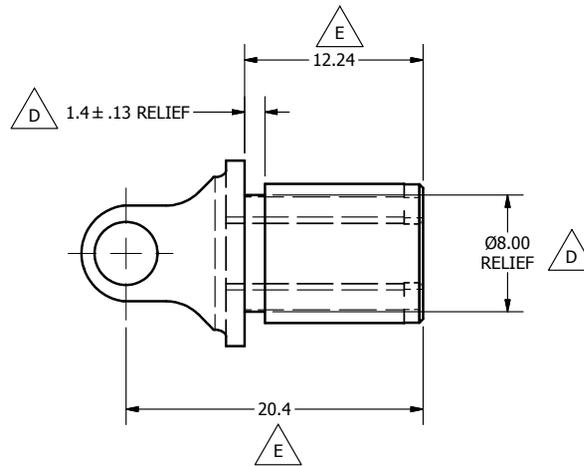
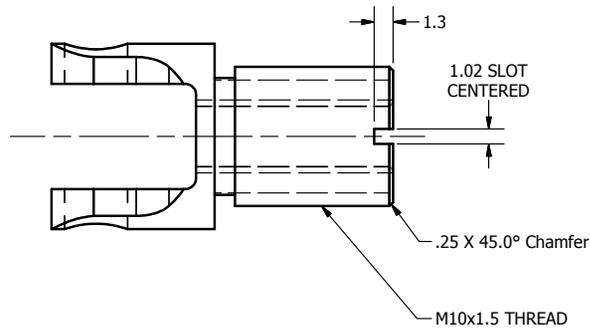
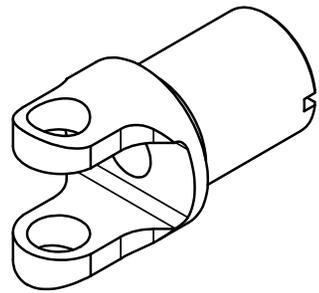


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION; NEW VERSION BASED ON 9900	8/23/2011	DW
	B	ADD SHEET 3 WITH LEFT SEGMENT DIMENSIONS	3/8/2012	DW
	C	REMOVED PLATING; ITEM WAS UJ500	6/18/2012	MCO
	D	CHANGE UNDERCUT; Ø8.0 WAS Ø 8.5, 1.4±.13 WAS 1.0 (SHT 2)	1/10/2013	BK
	E	20.4 WAS 16.8; 12.24 WAS 8.64 (SHT 2)	2/14/2013	BK

NOTES:

1. UNIVERSAL JOINT ASSEMBLY IS PURCHASED IN KIT FORM.
 2. MODIFY "RIGHT SEGMENT" AS SHOWN ON SHEET 2.
 3. MODIFY "LEFT SEGMENT" AS SHOWN ON SHEET 3.
 4. NICKEL PLATE "RIGHT SEGMENT" AFTER MACHINING. 0.008mm MAXIMUM PER SIDE.
 5. PREASSEMBLE UNIVERSAL JOINT WITHOUT GREASE TO VERIFY SMOOTH AND CORRECT MOVEMENT. REMOVE NICKEL PLATE MATERIAL FROM I.D. OF RIGHT SEGMENT, AS NECESSARY.
 6. DISASSEMBLE JOINT ASSEMBLY. LIGHTLY GREASE AL BEARING AND CONTACT SURFACES.
 7. INSTALL THE LARGE PIN THRU THE RIGHT SEGMENT AND BLOCK WITH CENTER HOLES ALIGNED.
 8. ORIENT LEFT SEGMENT OVER BLOCK WITH CENTER HOLES ALIGNED AND INSTALL SMALL PIN THRU LEFT SEGMENT, BLOCK, & LARGE PIN.
 9. 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.)**
10. 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 S.S. ± 0.1 16° ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓ REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:	MATERIAL:	DESIGNED BY:	DATE:
SA572-S121	1	dwashenko	8/23/2011
NEXT ASSEMBLY:	QTY:	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY:	2	D. WASHENKO	1/12/2012
FRISON: SEE NOTES		ENGINEER:	DATE:
		D. WASHENKO	1/12/2012
		SIZE:	SHEET:
		A3	1 OF 3
		SCALE:	3.0
DESCRIPTION: NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UNIVERSAL JOINT ASSEMBLY			REV: E
DRAWING NO. 472-4751			



RIGHT SEGMENT

DO NOT SCALE DRAWING

TOLERANCES

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS

DIGITALS ANGLES FINISH

X.X .0.2

X.XX .0.1

X.XXX .0.05

REMOVE BURRS & BREAK SHARP EDGES

DATE

8/23/2011



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

DESCRIPTION:

UNIVERSAL JOINT ASSEMBLY

PROJECT NO.	
MATERIAL:	SA572-S121
QTY	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

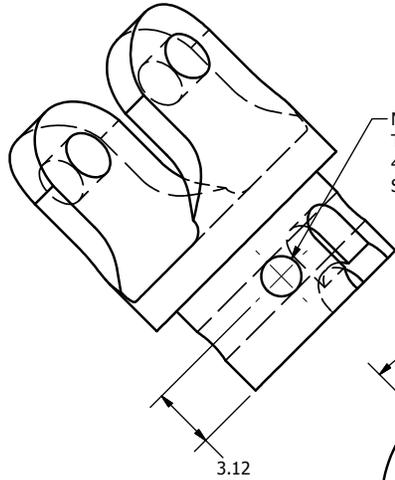
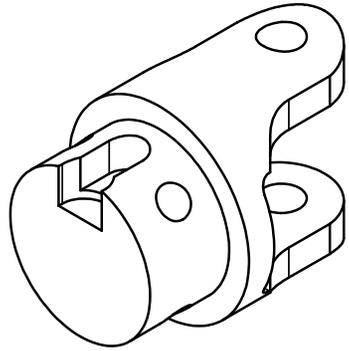
THIRD ANGLE PROJECTION
HEAT TREAT:
ENGINEER:
SEE NOTES

DRAWN BY:	dwashenko
CHECKED BY:	
DATE:	8/23/2011
ENGINEER:	D.WASHENKO

SIZE:	B
SHEET:	2 OF 3
SCALE:	3.0

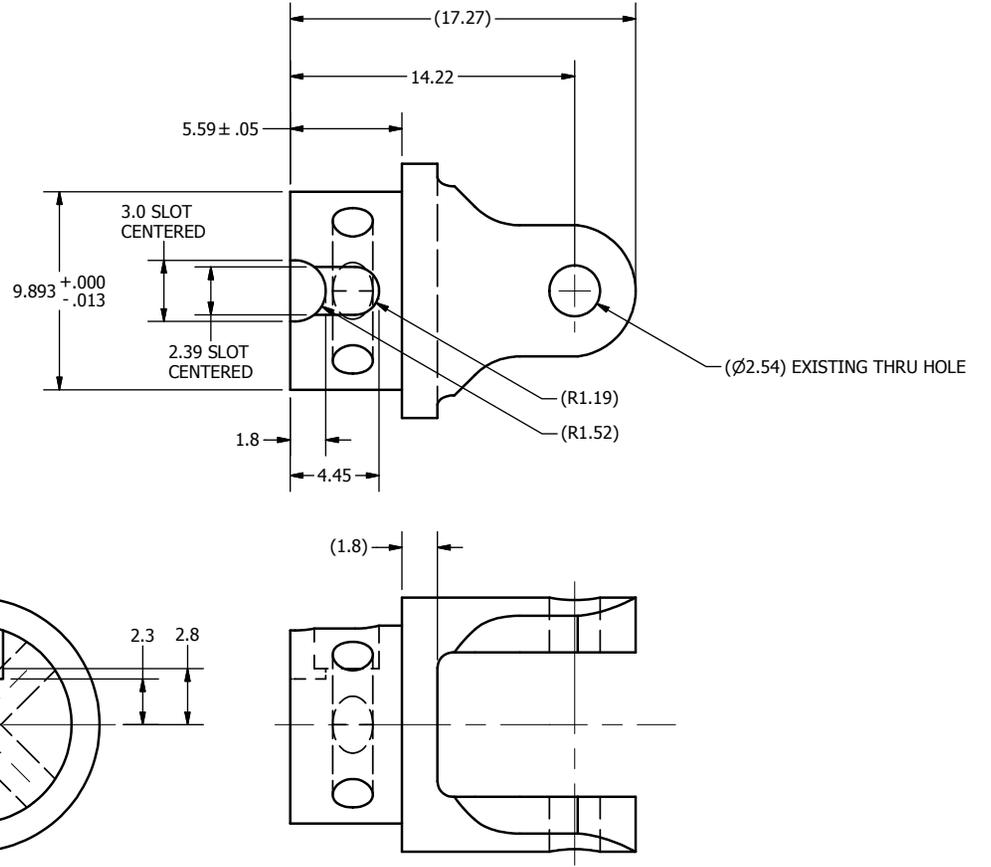
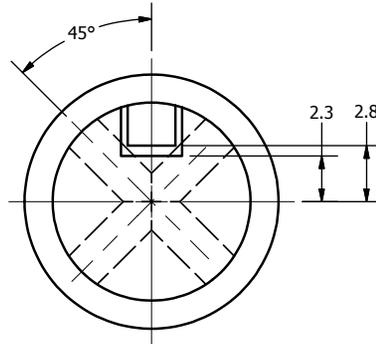
DRAWING NO.:	472-4751
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REV: E



M2.5x0.45 TAP
THRU TO CENTER
4 HOLES EQUALLY
SPACED ON O.D.

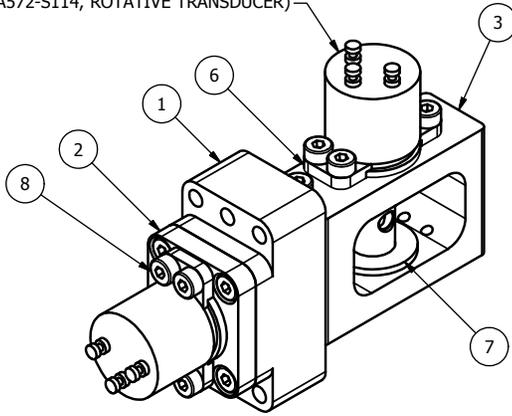
3.12



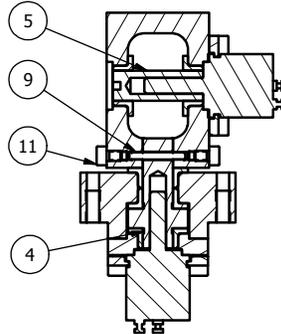
LEFT SEGMENT

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 1.0 XXX 0.51		
PROJECT NO.:	SA572-S121	MATERIAL:	QTY	DESCRIPTION: UNIVERSAL JOINT ASSEMBLY
DATE:	8/23/2011	ENGINEER:	TOTAL QTY IN DUMMY	
DESIGNED BY:	dwashenko	CHECKED BY:	2	SCALE: 3.0 DRAWING NO.: 472-4751 REV: E

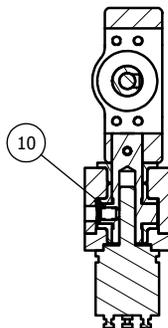
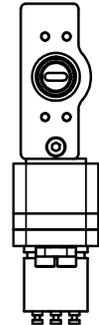
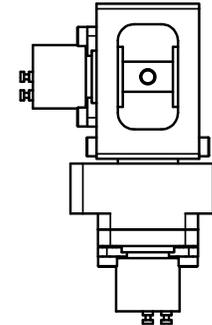
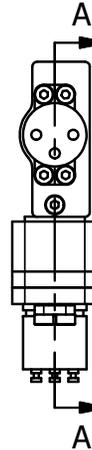
(2X SA572-S114, ROTATIVE TRANSDUCER)



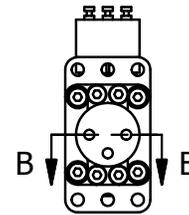
SCALE 1.50



SECTION A-A
SCALE 1.0



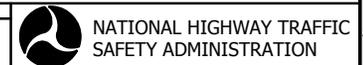
SECTION B-B



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

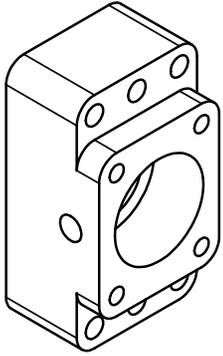
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 1.6 XXX ±0.3 ±0.5 1.6 X-XXX ±0.01	
PROJECT NO.: 472-4730-1	MATERIAL: NEXT ASSEMBLY	DATE: 8/22/2011	SCALE: 1.000
QTY: 1	CHECKED BY: dwashenko	DATE: 1/12/2012	SIZE SHEET: A3 1 OF 1
TOTAL QTY IN DUMMY: 1	DESIGNER: D. WASHENKO	DATE: 1/12/2012	DRAWING NO.: 472-4740-1



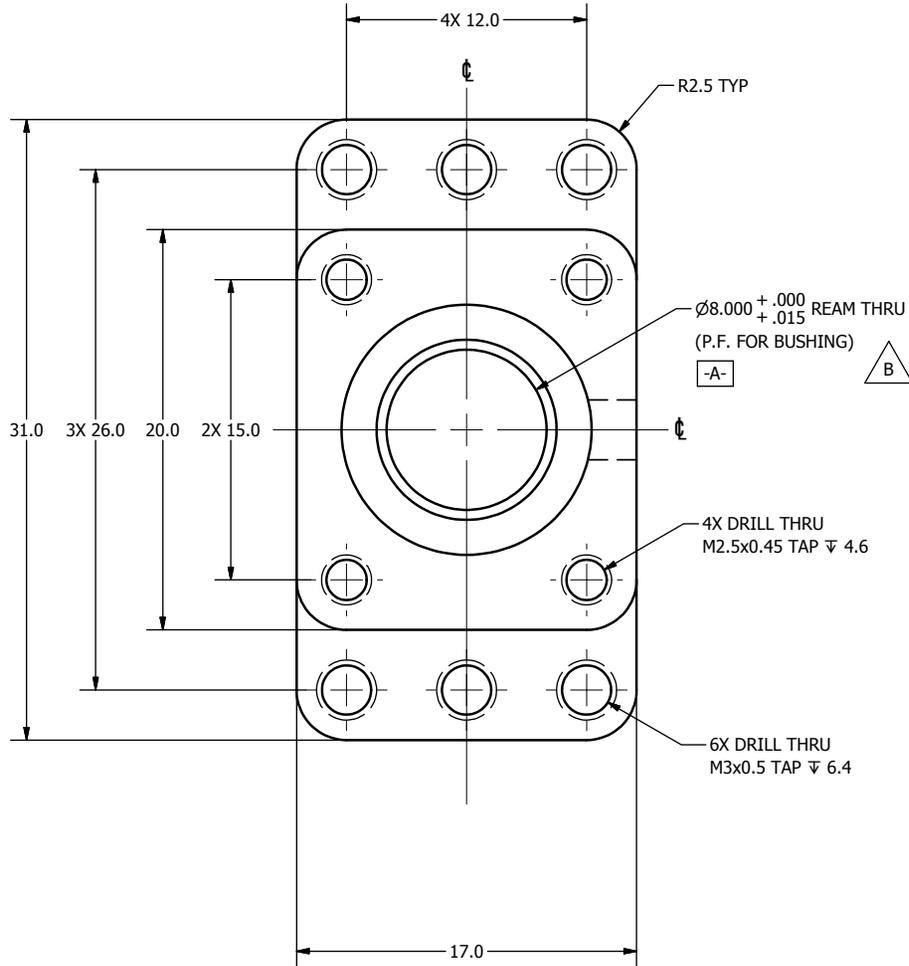
DESCRIPTION: PIVOT ASSEMBLY, LEFT

SCALE: 1.000

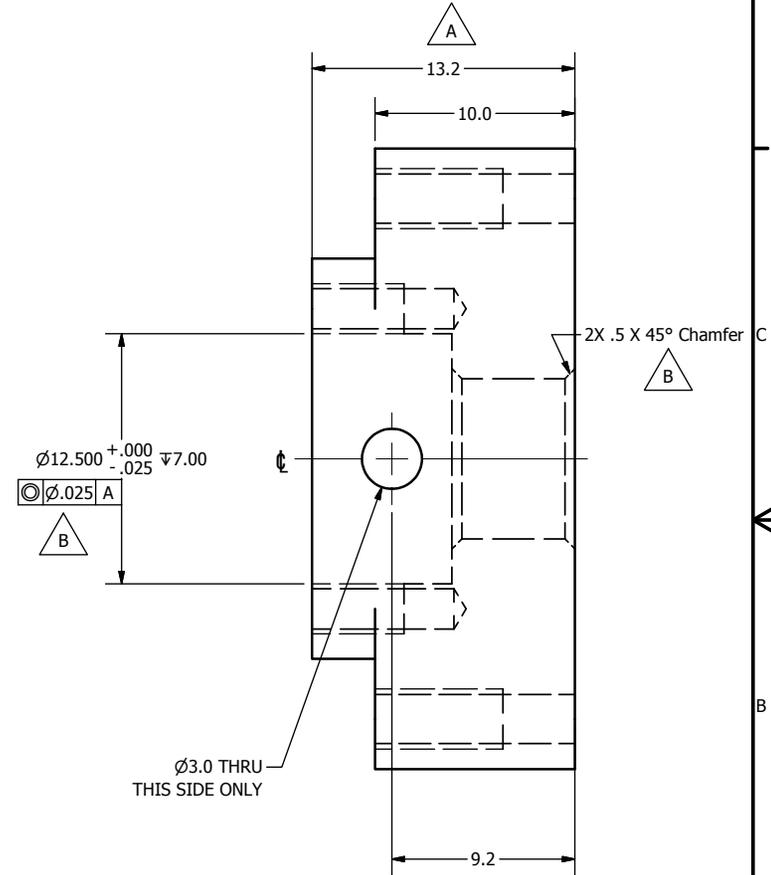
REV: A



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 ∇ , UNLESS OTHERWISE NOTED.

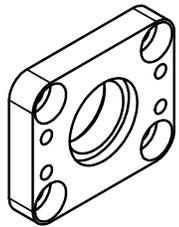
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

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

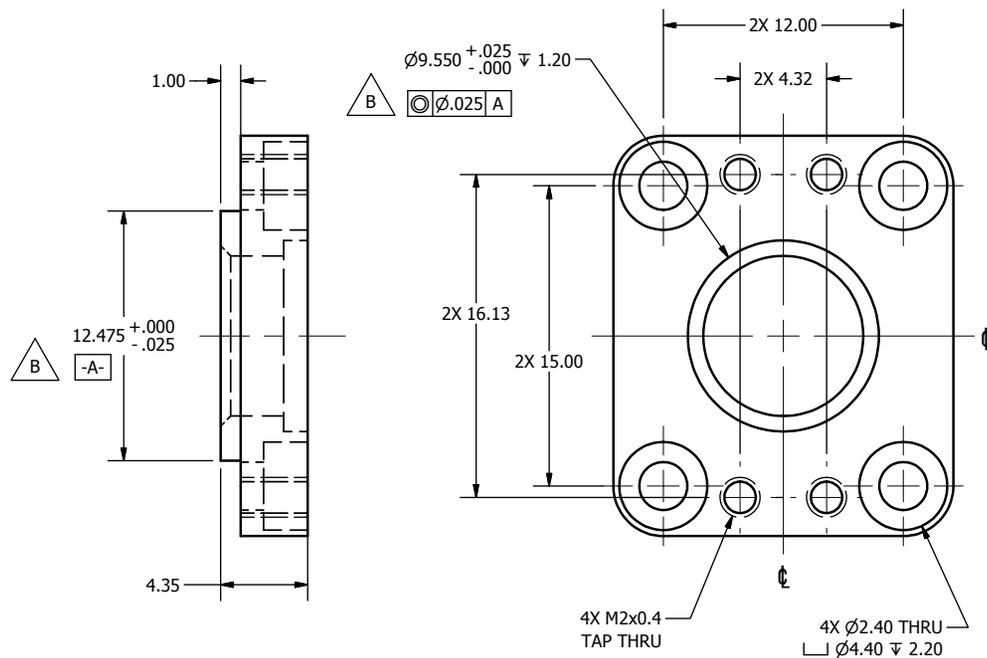
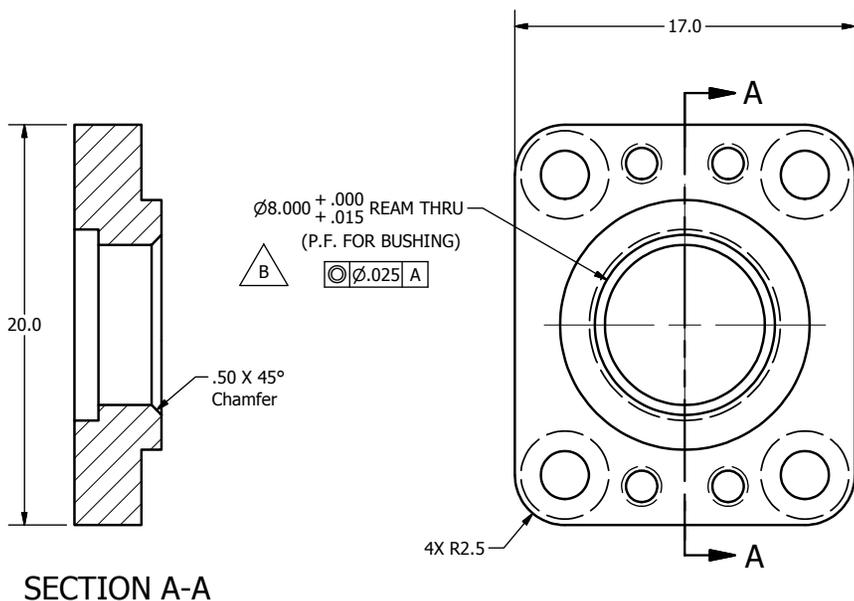


NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

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		
		FINISH:					

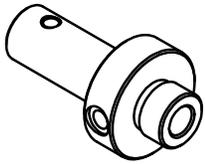


SCALE 2.000

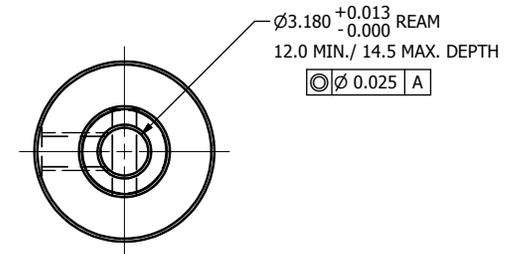
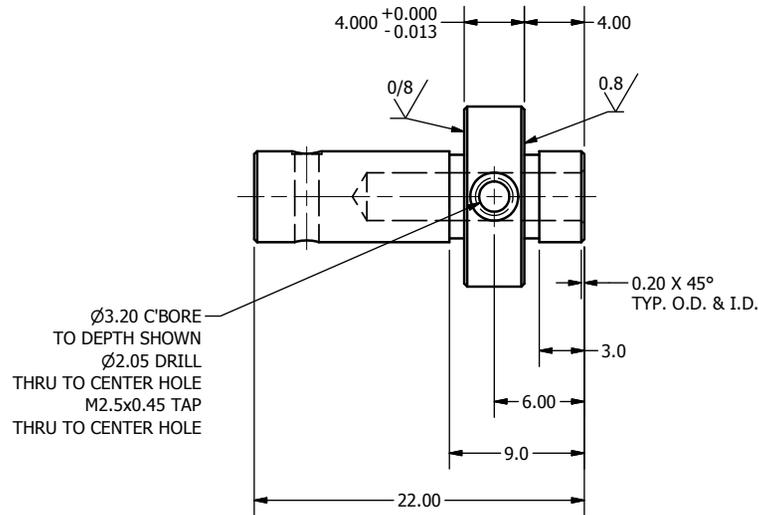
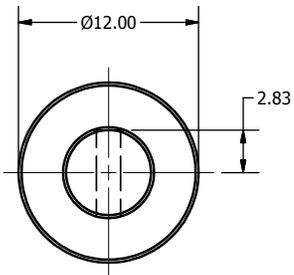
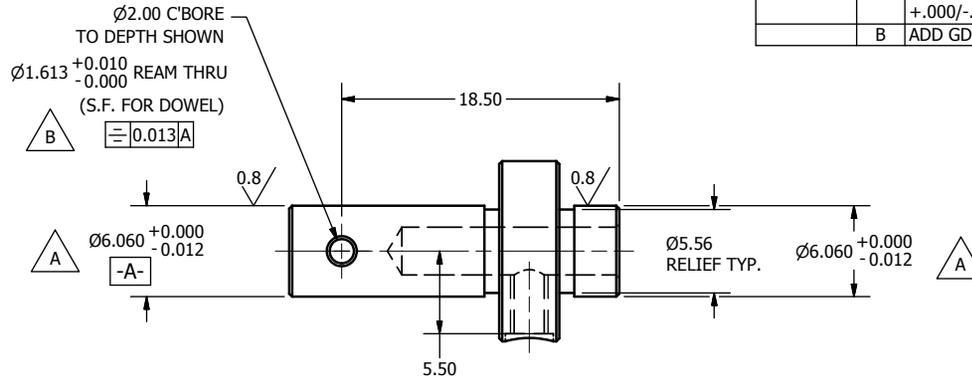


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM202 R00 FOR THOR-M	8/22/2011	DW
	B	ADD TOLERANCES, GD&T BOXES; Ø12.475 WAS Ø12.48	8/1/2012	BK

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	DATE:	8/22/2011
MATERIAL:	303 S.S. OR EQUIVALENT	1	ENGINEER:	dwashenko
HEAT TREAT:			CHECKED BY:	
NEXT ASSEMBLY	QTY		DATE:	1/12/2012
TOTAL QTY IN DUMMY	2		DRUMMER:	D. WASHENKO
			SCALE:	4.000
			SIZE SHEET	A3 1 OF 1
			DRAWING NO.	472-4742
			REV.	B



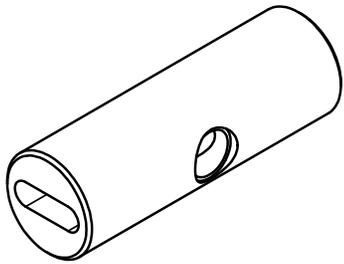
SCALE 2.000



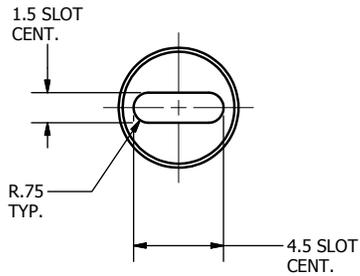
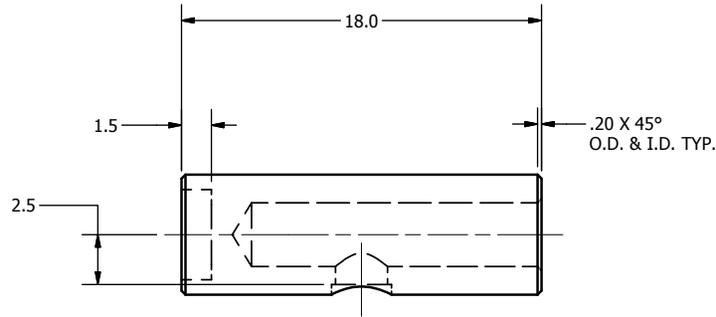
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T11RM204 R00 FOR THOR-M; $\varnothing 1.613^{+0.010/-0.000}$ WAS $\varnothing 1.613$; $\varnothing 6.060^{+0.000/-0.012}$ WAS $\varnothing 6.060^{+0.000/-0.013}$	9/1/11	DW
	B	ADD GD&T BOX	8/1/2012	BK

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
DRAWING NO. 472-4744			SCALE: 3.000	REV: B

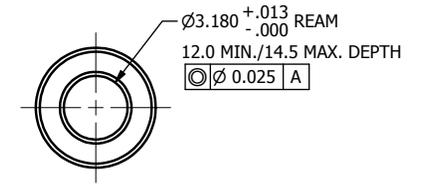
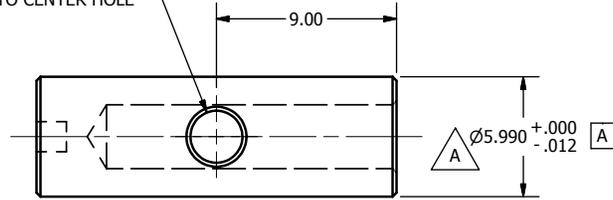
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM205 R00 FOR THOR-M; Ø5.990+-.000/-.012 WAS Ø5.990+-.000/-.013	9/1/11	DW



SCALE 4.000

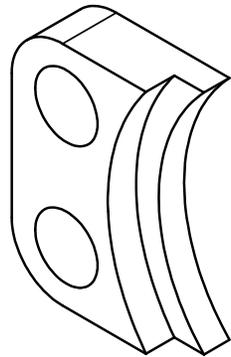


Ø3.00 C'BORE TO DEPTH SHOWN
Ø2.60 DRILL THRU TO CENTER HOLE

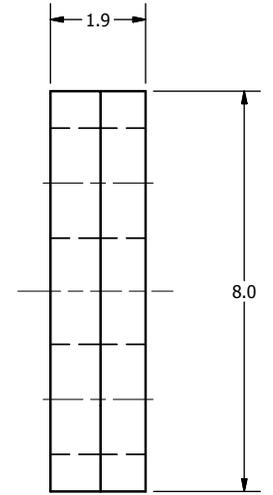
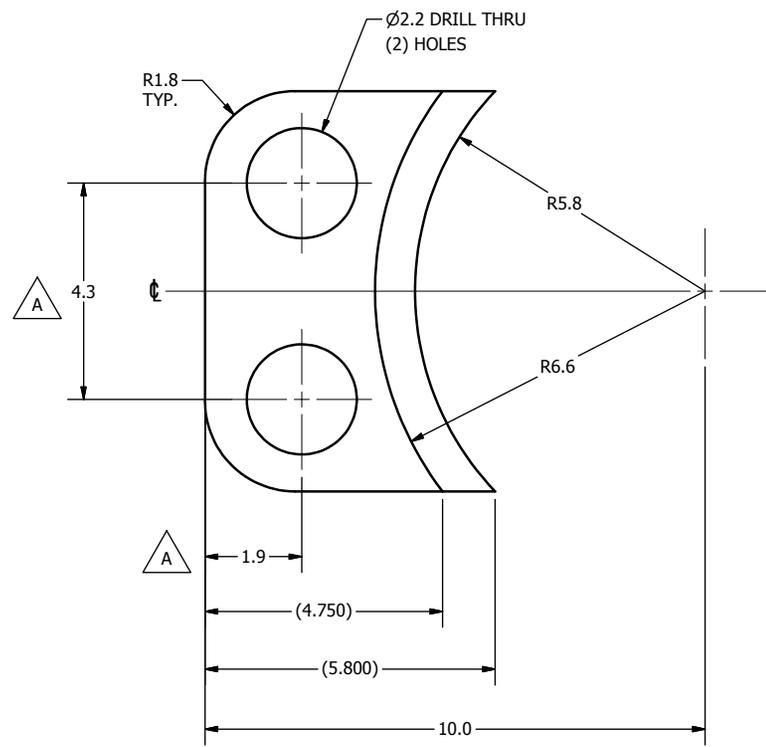
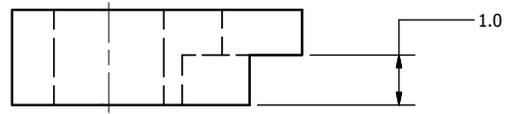


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 16 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-4740-2	1	DATE:	6/18/2010
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 ± 0.2 XXX ± 0.3 XXXX ± 0.01 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

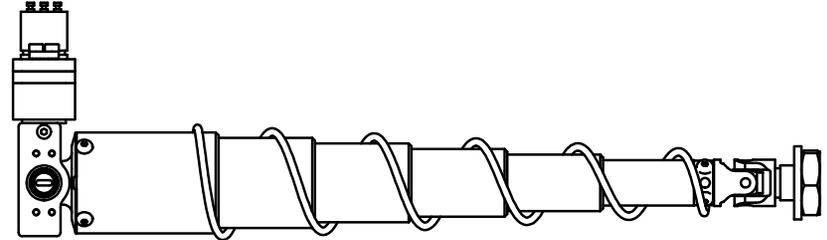
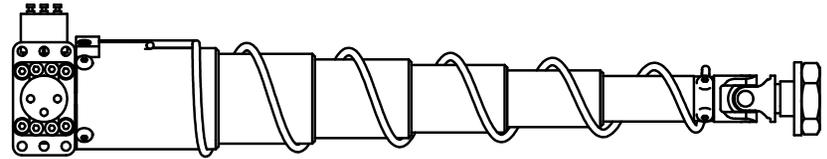
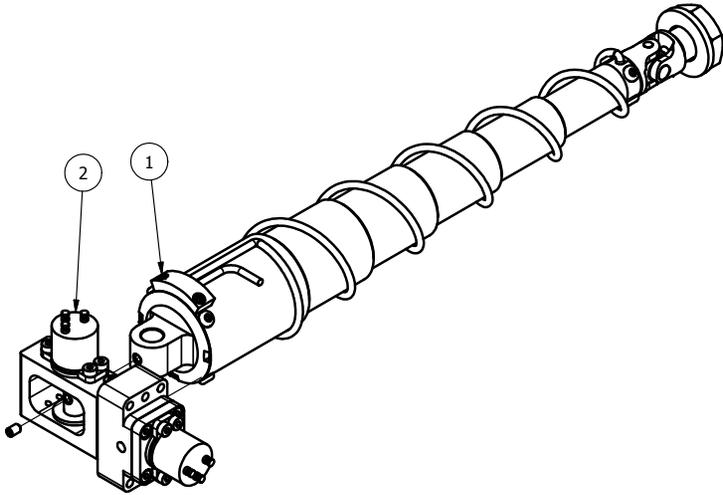
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3

2

1

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 IRTRACC TO PIVOT ASSEMBLY AS SHOWN.
- 2. PROVIDE INDIVIDUAL CERT SHEETS FOR IRTRACC AND (2) POTENTIOMETERS.



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-4740-2-U	PIVOT ASSEMBLY, RIGHT UNTESTED
1	1	SA572-S121-U	120mm IRTRACC ASSEMBLY - METRIC UNTESTED

PARTS LIST

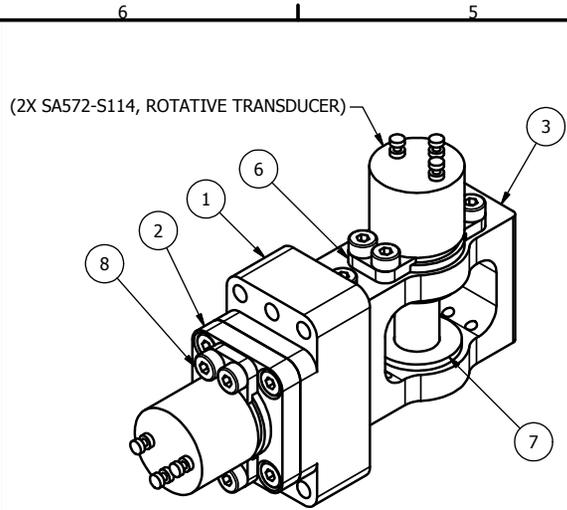
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.0 0.0 1.6 X.XX 0.1 X.XXX 0.05		
PROJECT NO:		DRAWN BY: dwashenko		DATE: 8/23/2011
MATERIAL:		CHECKED BY:		DATE:
HEAT TREAT:		ENGINEER: D. WASHENKO		DATE: 1/12/2012
FINISH:		SIZE: B		SHEET: 1 OF 1
DRAWING NO.:		DRAWING NO.:		472-4730-2
TOTAL QTY IN DUMMY		FOUR: .750		BY: B

4

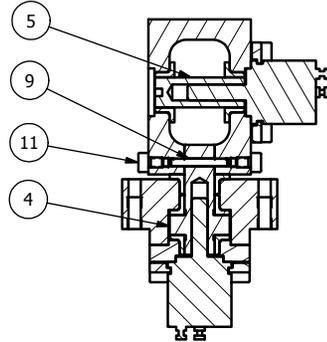
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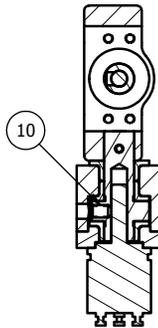
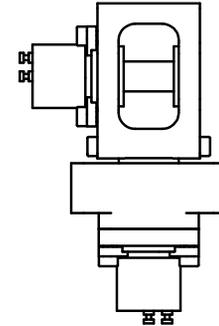
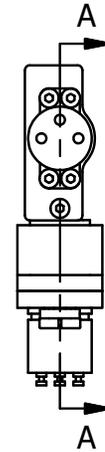
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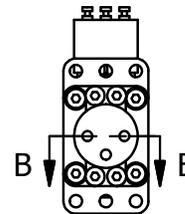
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SECTION A-A
SCALE 1.0



SECTION B-B



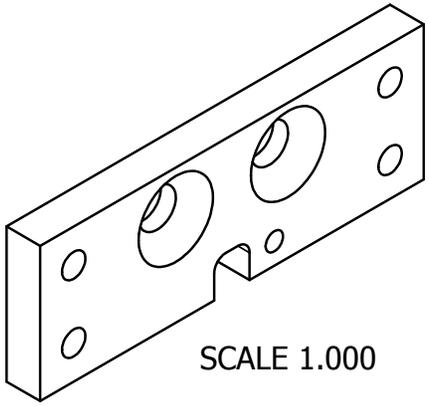
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1IRM202 R00 AND CONVERTED TO METRIC FOR THOR-M; CREATE RIGHT SIDE	8/22/2011	DW

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

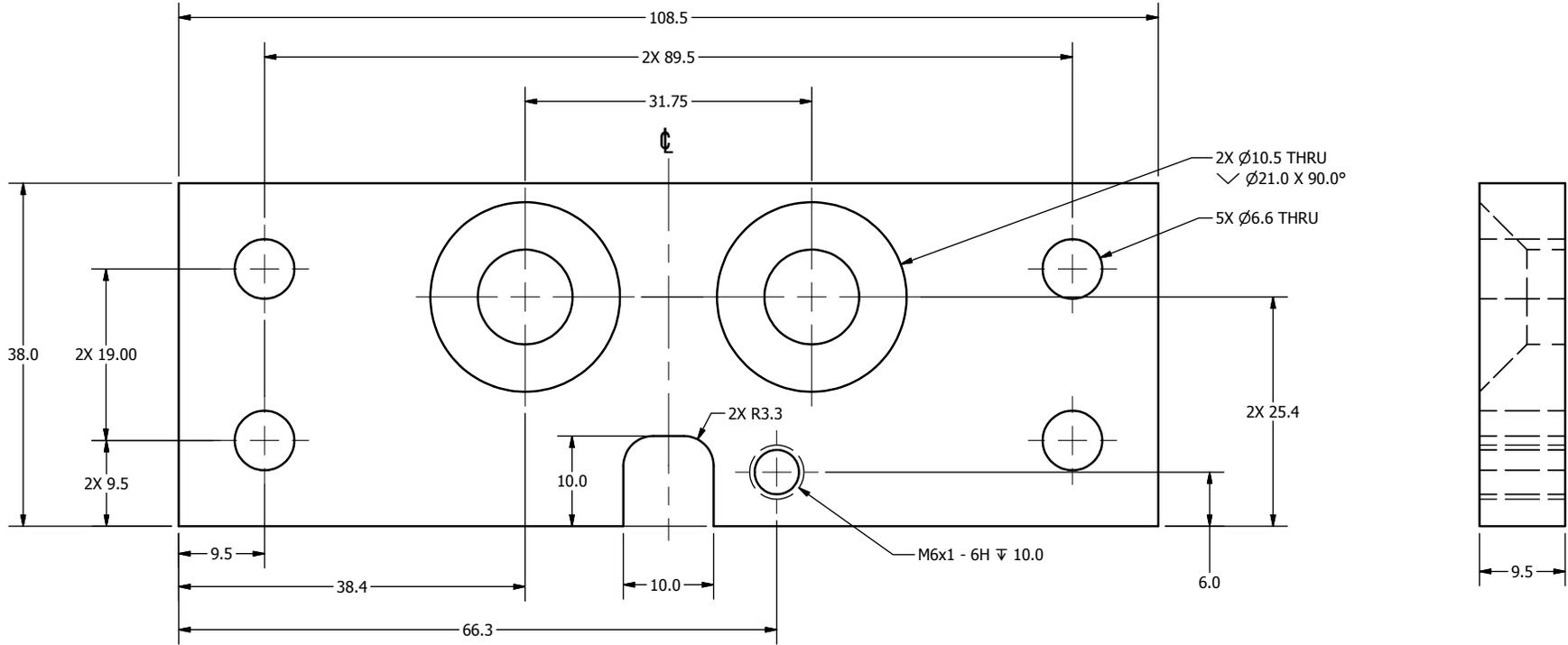
PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 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 .007 X.XX .025 .007 X.XXX .051 .007 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-4730-2	MATERIAL:	1	DESCRIPTION: PIVOT ASSEMBLY, RIGHT
CHECKED BY:	dwashenko	DATE:	8/22/2011	
DATE:	1/12/2012	SCALE:	1.000	
TOTAL QTY IN DUMMY		1	1	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-4740-2 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAM010 R03 AND CONVERTED TO METRIC FOR THOR-M	9/1/2011	DW



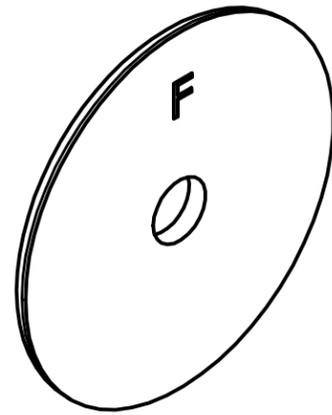
SCALE 1.000



- 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.

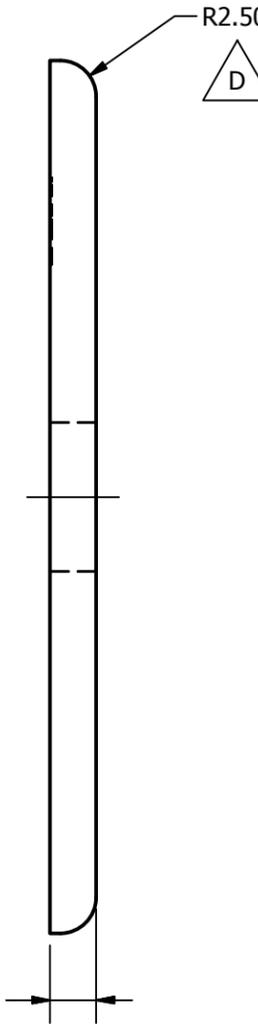
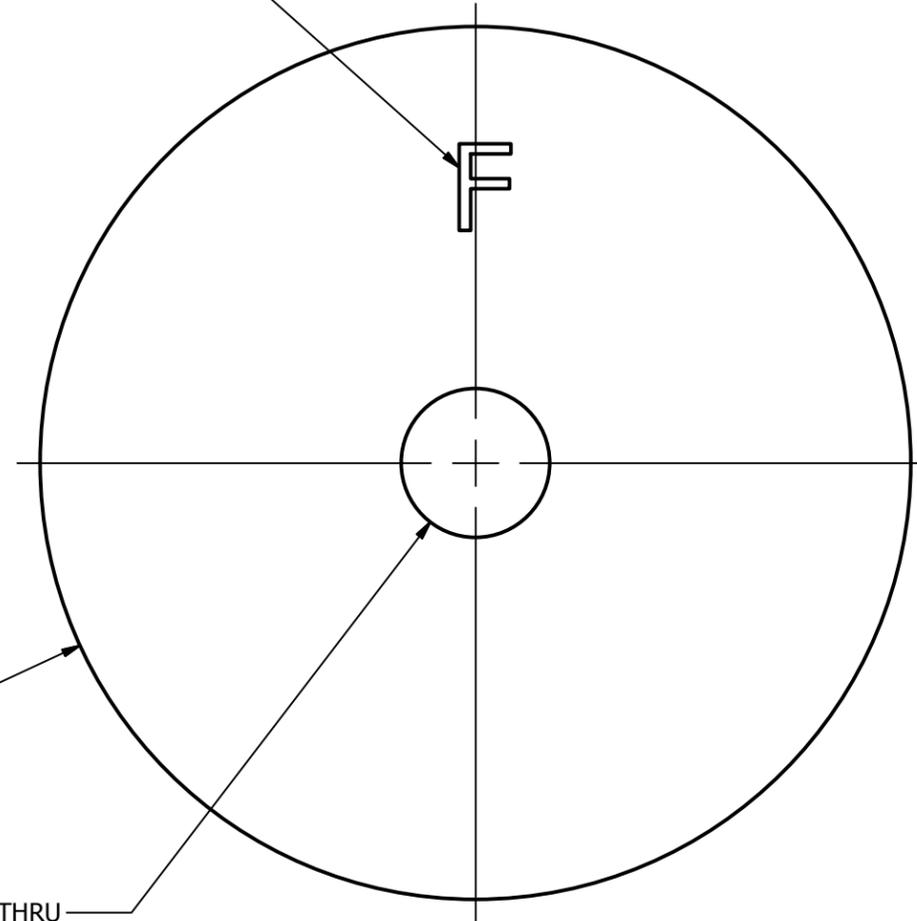
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-4700	MATERIAL:	1018 STEEL	DESCRIPTION:
DATE:	9/1/2011	DESIGNED BY:	dwashenko	REAR ATTACHMENT PLATE
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	D. WASHENKO	A31 OF 1
FINISH:	SEE NOTES	DATE:	1/12/2012	SCALE: 2.000
TOTAL QTY IN DUMMY	1			DRAWING NO. 472-4761

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

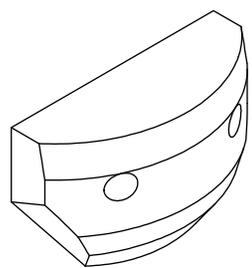


NOTES:

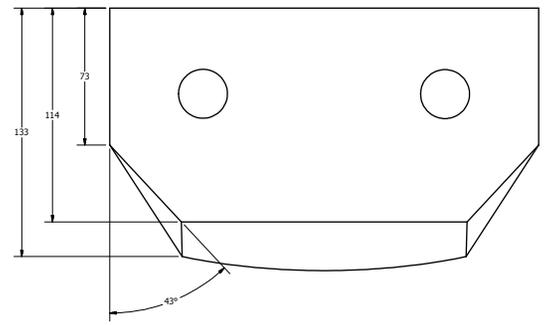
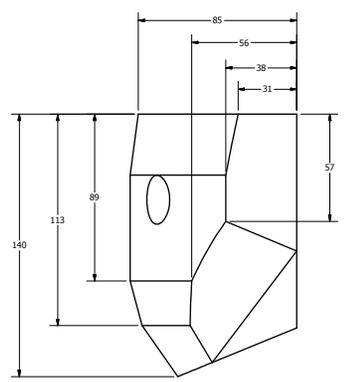
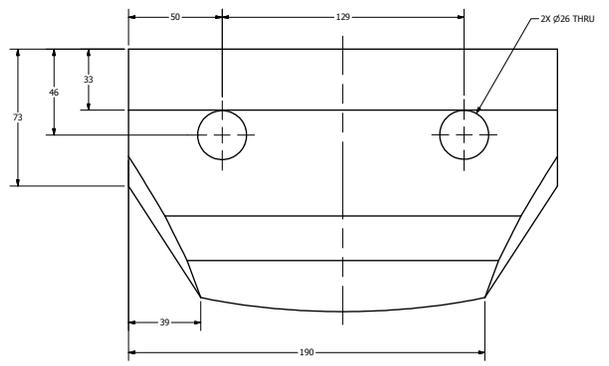
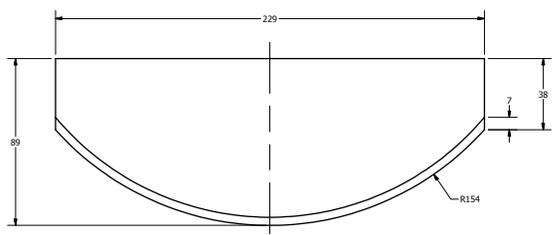
- △ D 1. STAMP OR ETCH "F" AS SHOWN.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: LOWER ABDOMEN DISTRIBUTION PLATE
 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.:		MATERIAL:	Acetal Resin, Black	REMOVE BURRS & BREAK SHARP EDGES
472-4700	2	DRAWN BY:	dwashenko	DATE: 9/1/2011
NEXT ASSEMBLY	QTY	CHECKED BY:		DATE:
TOTAL QTY IN DUMMY	2	FINISH:		DATE:
		ENGINEER:	D. WASHENKO	DATE: 1/12/2012
		SIZE: SHEET	B 1 OF 1	DRAWING NO.: 472-4762
		SCALE:	2.000	REV: D

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	5	CONVERTED FROM ENGLISH TO METRIC EXCLUDING FASTENERS	9/20/2006	C. SPADE
	A	RENUMBERED FROM Y1LAM012 R05 FOR THOR-M	12/8/2011	BK

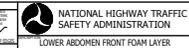


SCALE .500



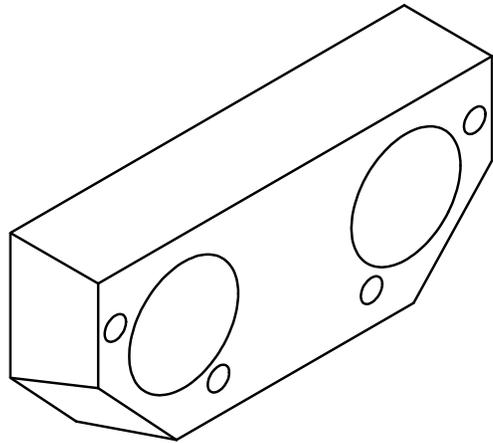
- NOTES:
- MATERIAL: CHARCOAL POLYESTER FOAM WITH NOMINAL DENSITY OF 6 LBS/CU FT
SAE J18 SPECIFICATION: 1A0
1- OPEN CELL
A- NONCIL RESISTANT
O- COMPRESSION DEFLECTION 25% 3.5-14 KPA (0.5-2 PSI)
 - NOMINAL STIFFNESS @ 75% COMPRESSION: 43+3 KPA (6.2+0.5 PSI)
@ 90% COMPRESSION: 420+30 KPA (62+0.5 PSI)
REFER TO CERTIFICATION MANUAL FOR PERFORMANCE SPECIFICATIONS FOR THIS PART.

472-4760		1	SEE NOTES	B. KIMES	2/8/2011	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LOWER ABDOMEN FRONT FOAM LAYER
NEXT ASSEMBLY		QTY				
TOTAL QTY IN DRAWING		1				

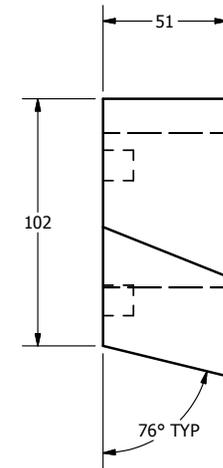
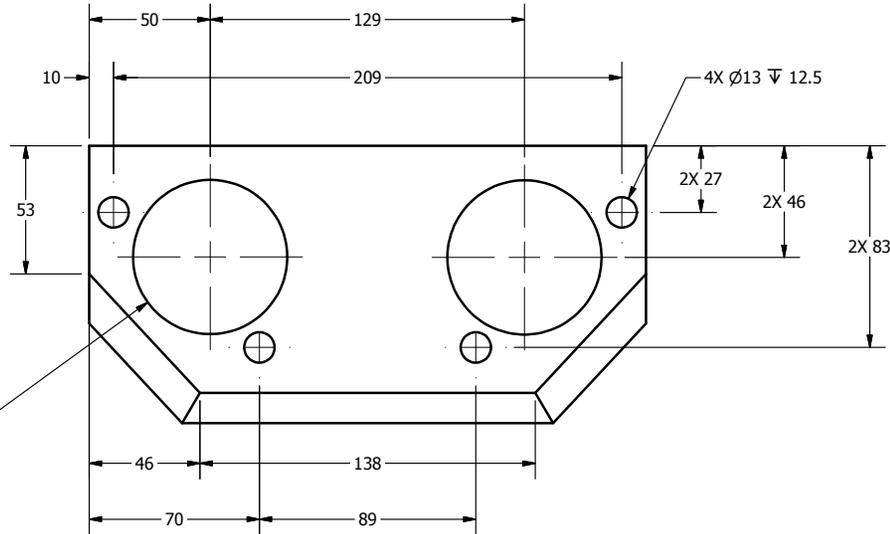
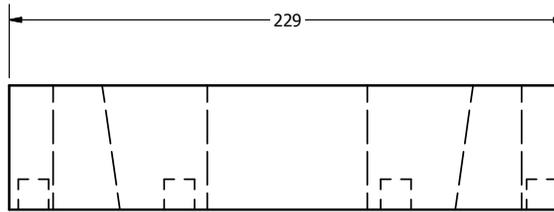


LOWER ABDOMEN FRONT FOAM LAYER

A11 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		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: LOWER ABDOMEN REAR FOAM LAYER
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 0.0 X.XXX 0.05		
PROJECT NO.	472-4700	DATE:	9/1/2011	SIZE: B
DRAWN BY:	SEE NOTES	CHECKED BY:	dwashenko	SHEET: 1 OF 1
NEXT ASSEMBLY	QTY	ENGINEER:	D. WASHENKO	DRAWING NO.: 472-4765
TOTAL QTY IN DUMMY	1	DATE:	1/12/2012	SCALE: .500

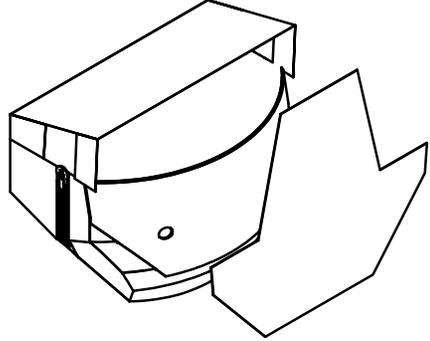
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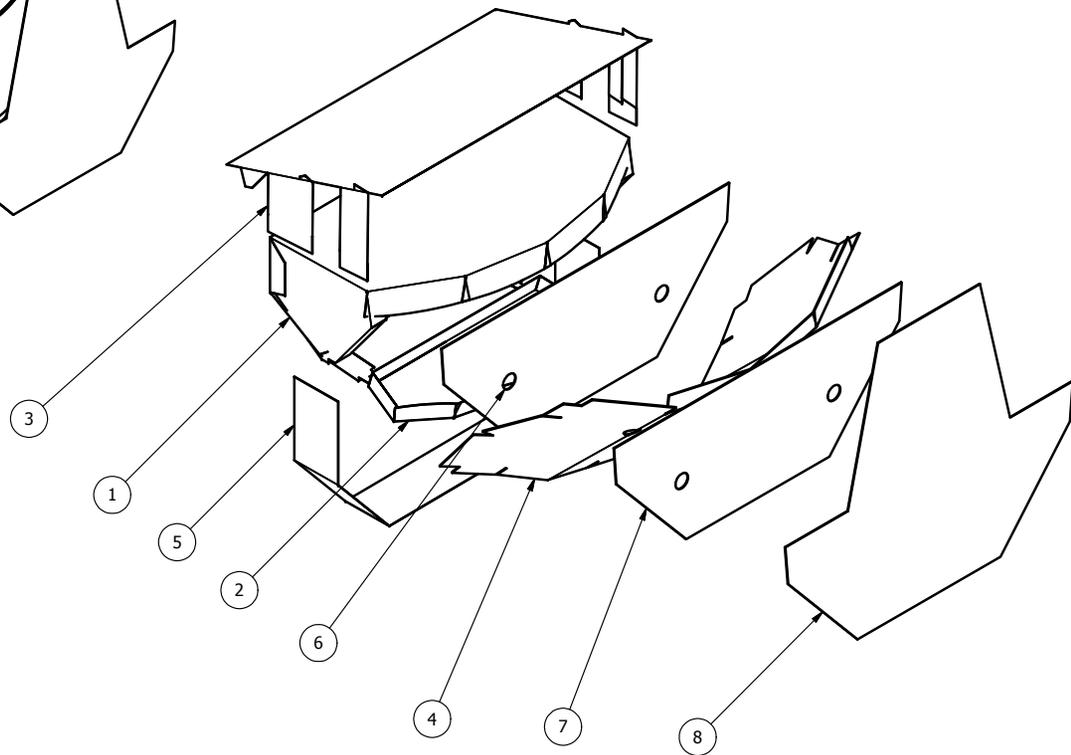
2

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:

1. EXPLODED VIEW SHOWS SOME COMPONENTS IN PARTIALLY FOLDED STATE.
2. ISO VIEW SHOWS COMPONENTS IN IDEAL STATE.
3. STITCH ALL ADJACENT TABS TO FORM SEWN ASSEMBLY AS SHOWN. SEE INDIVIDUAL PATTERN DRAWINGS FOR MORE INFORMATION.
4. 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		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.0 0.5 1.6 X.XX 0.1 X.XXX 0.05 REMOVE BURRS & BREAK SHARP EDGES		
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	FOOT: .333

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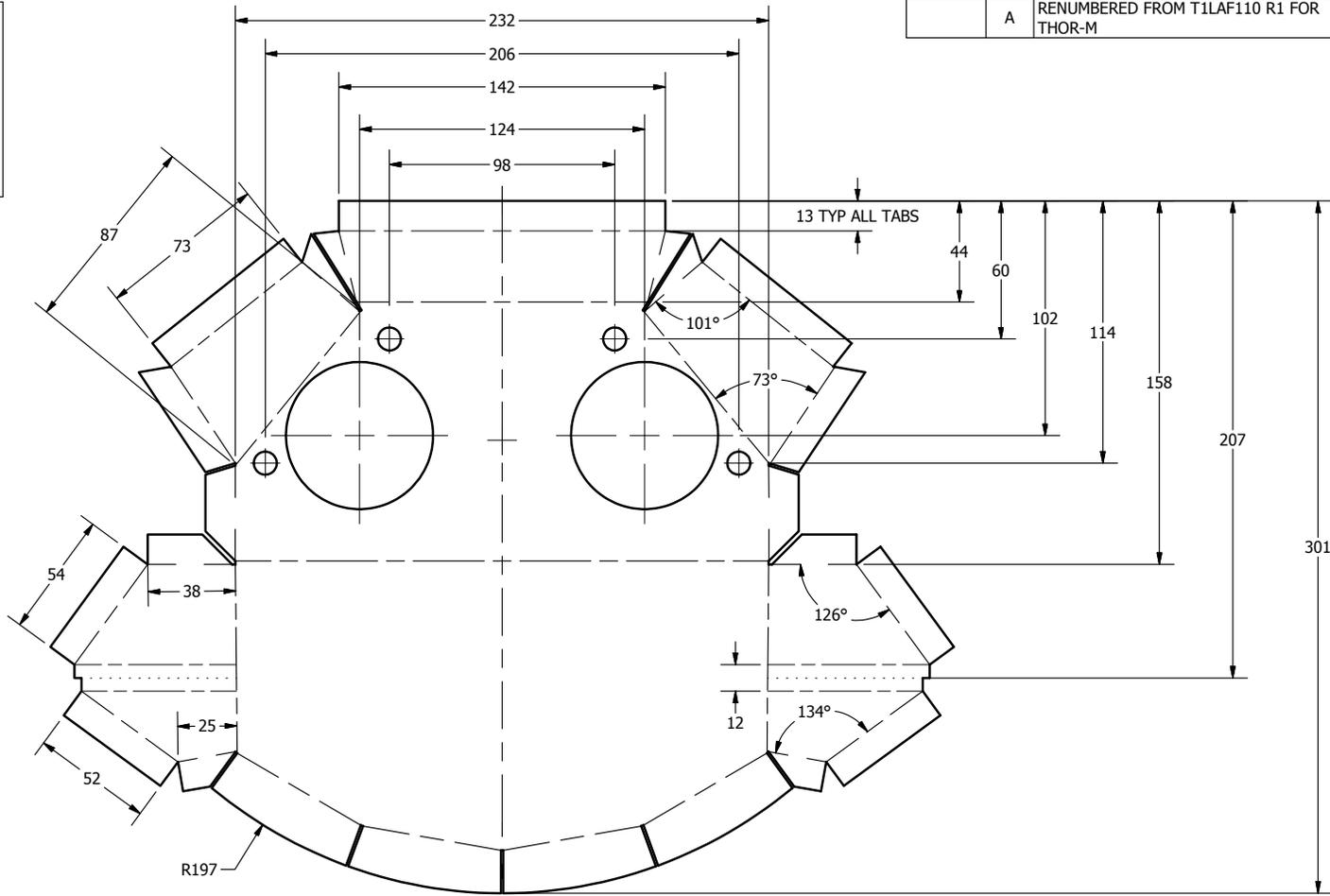
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1

LEGEND

- PATTERN EDGE
- - - - FOLD LINE
- CUT LINE

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF110 R1 FOR THOR-M	9/8/2011	DW



- 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.

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.	DRAWN BY:	DRAWN BY:	DATE:
472-4763	SEE NOTES	dwashenko	9/8/2011
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	1	D. WASHENKO	1/12/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: LOWER ABDOMEN TOP / SIDES / REAR PATTERN

SIZE: B 1 OF 1 SHEET
SCALE: 1.000

DRAWING NO.: 472-4763-1

REV: A

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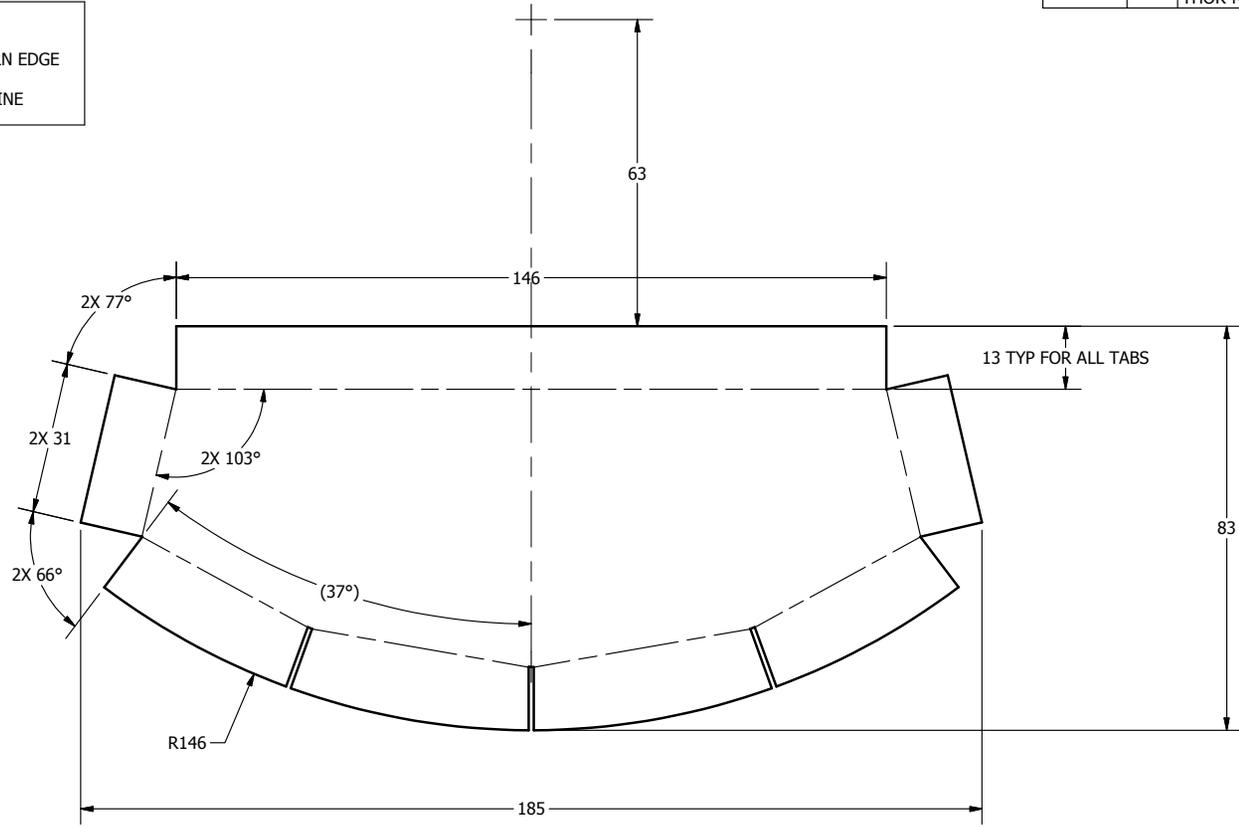
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF111 R1 FOR THOR-M	9/8/2011	DW

LEGEND	
	PATTERN EDGE
	FOLD LINE



NOTES:

1. MATERIAL: CORDURA NYLON FABRIC (1000 DENIER NYLON - 10 OZ/YD.)
2. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

TOLERANCES		
DIMENSIONAL	ANGLES	FINISH
X.X ±0.2	±0.5	F.6
X.XX ±0.1		
X.XXX ±0.05		

REMOVE BURRS & BREAK SHARP EDGES

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.	472-4763	DATE:	9/8/2011	SIZE:	B	SHEET:	1 OF 1	DRAWING NO.:	472-4763-2	REV:	A
DRAWN BY:	SEE NOTES	DRAWN BY:	dwashenko	SCALE:	1.000						
REVISION:		CHECKED BY:		DATE:							
NEXT ASSEMBLY	QTY	ENGINEER:	D. WASHENKO	DATE:	1/12/2012						
TOTAL QTY IN DUMMY	1										

4

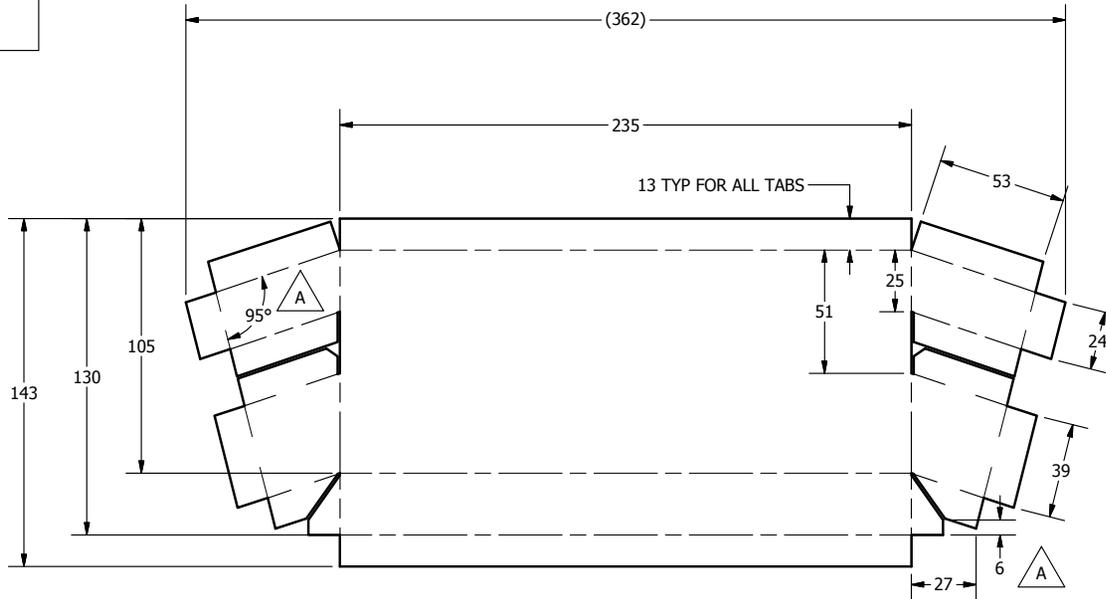
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF112 R1 FOR THOR-M; 6 WAS 7; 95 WAS 94	9/8/2011	DW

LEGEND	
	PATTERN EDGE
	FOLD LINE



- NOTES:
1. MATERIAL: CORDURA NYLON FABRIC (1000 DENIER NYLON - 10 OZ/YD)
 2. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING OUT MATERIAL.

DO NOT SCALE DRAWING		TOLERANCES	
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
		DIMENSIONAL	ANGLES FINISH
		X .02	1.6
		XX .02	
		XXX .01	
		XXXX .02	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO:	DRAWN BY:	DATE:	DESCRIPTION:
472-4763	dwashenko	9/8/2011	LOWER ABDOMEN TOP POCKET PATTERN
NEXT ASSEMBLY	CHECKED BY:	DATE:	SIZE: B
TOTAL QTY IN DUMMY	ENGINEER:	DATE:	SHEET 1 OF 1
1	D. WASHENKO	1/12/2012	SCALE: 1:000

		DRAWING NO. 472-4763-3	
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION		REV: A	

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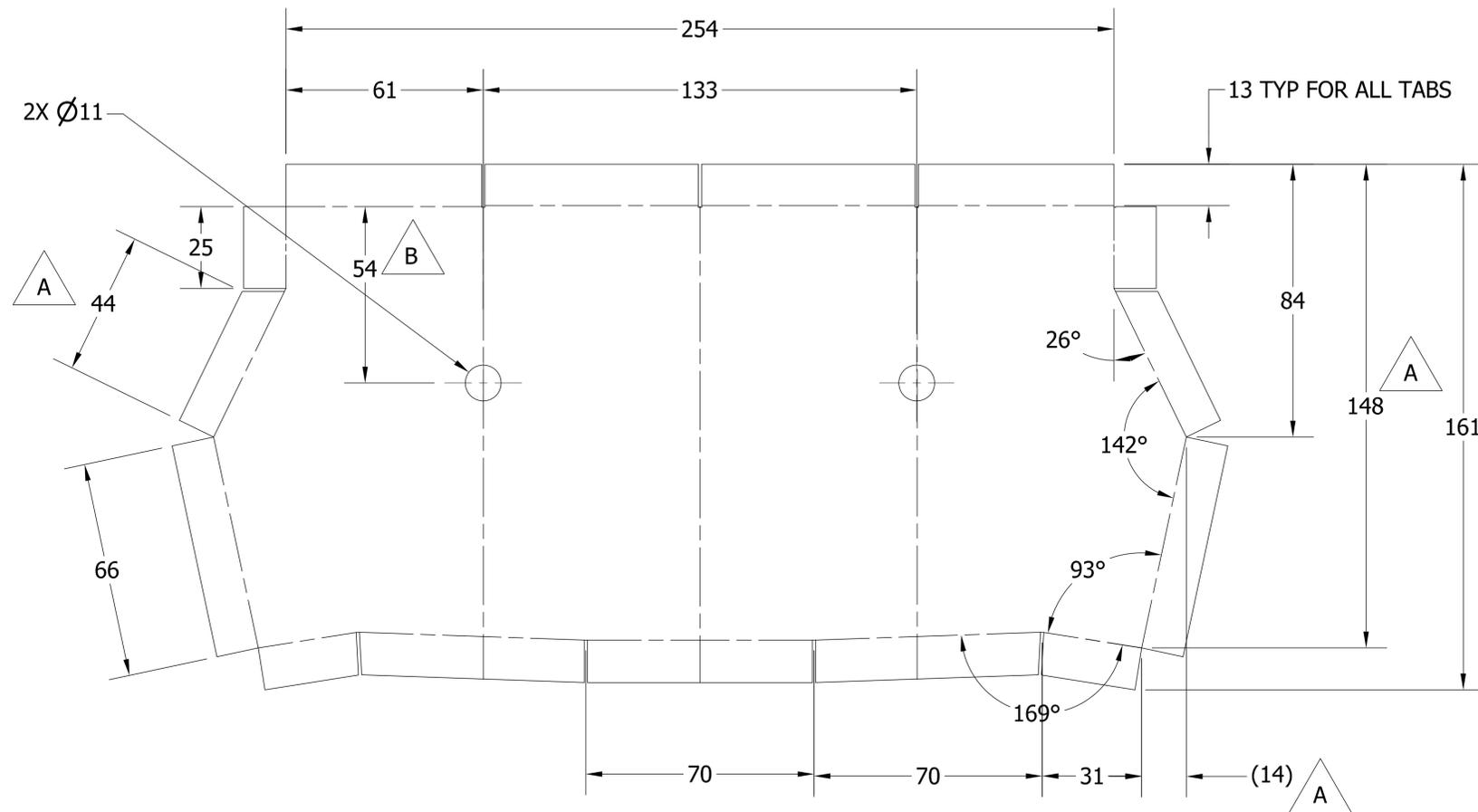
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF113 R1 FOR THOR-M; ADD NOTE 4; 44 WAS 45, 148 WAS 150, (14) WAS 15	9/8/2011	DW
	B	DIMENSION 54 WAS FROM EDGE OF MATERIAL	8/12/2014	DW

LEGEND	
	PATTERN EDGE
	FOLD LINE



NOTES:

1. MATERIAL: CORUDRA 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. DIMENSIONS ARE SYMMETRIC ABOUT CENTERLINE.



DO NOT SCALE DRAWING



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		

REMOVE BURRS & BREAK SHARP EDGES

PROJECT NO:	472-4763	1	MATERIAL: SEE NOTES	DATE: 9/8/2011	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: LOWER ABDOMEN FRONT PATTERN
DRAWN BY:	NEXT ASSEMBLY	QTY	HEAT TREAT:	DATE:	
CHECKED BY:	TOTAL QTY IN DUMMY	1	FINISH:	DATE: 1/12/2012	
SIZE: D	SHEET: 1 OF 1	DRAWING NO.: 472-4763-4	SCALE: 1.000	REV: B	

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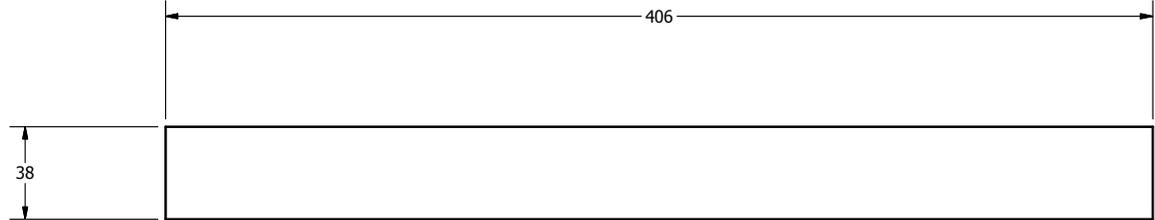
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF114 R2 FOR THOR-M	9/8/2011	DW

B



B

A

A

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.

4

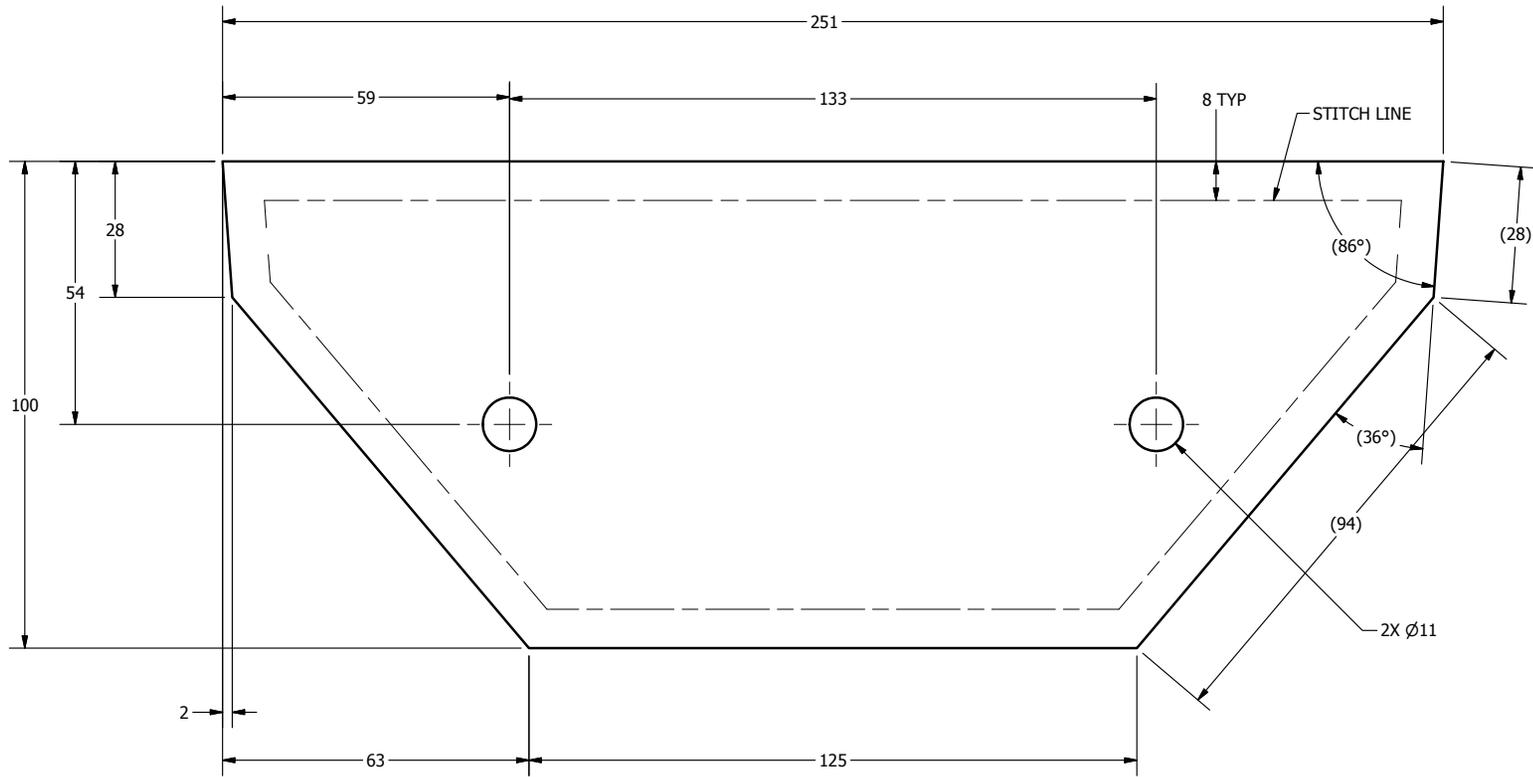
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DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X.X 0.0 0.5 1.6 X.XX 0.1 X.XXX 0.05 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.	472-4763	DRAWN BY:	dwashenko	DATE:	9/8/2011
REVISION:	1	SEE NOTES	CHECKED BY:	DATE:	
NEXT ASSEMBLY	QTY	ENGINEER:	D. WASHENKO	DATE:	1/12/2012
TOTAL QTY IN DUMMY	1	SCALE:		SIZE:	B 1 OF 1
				DRAWING NO.:	472-4763-5
				REV:	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF115 R1 FOR THOR-M	9/8/2011	DW



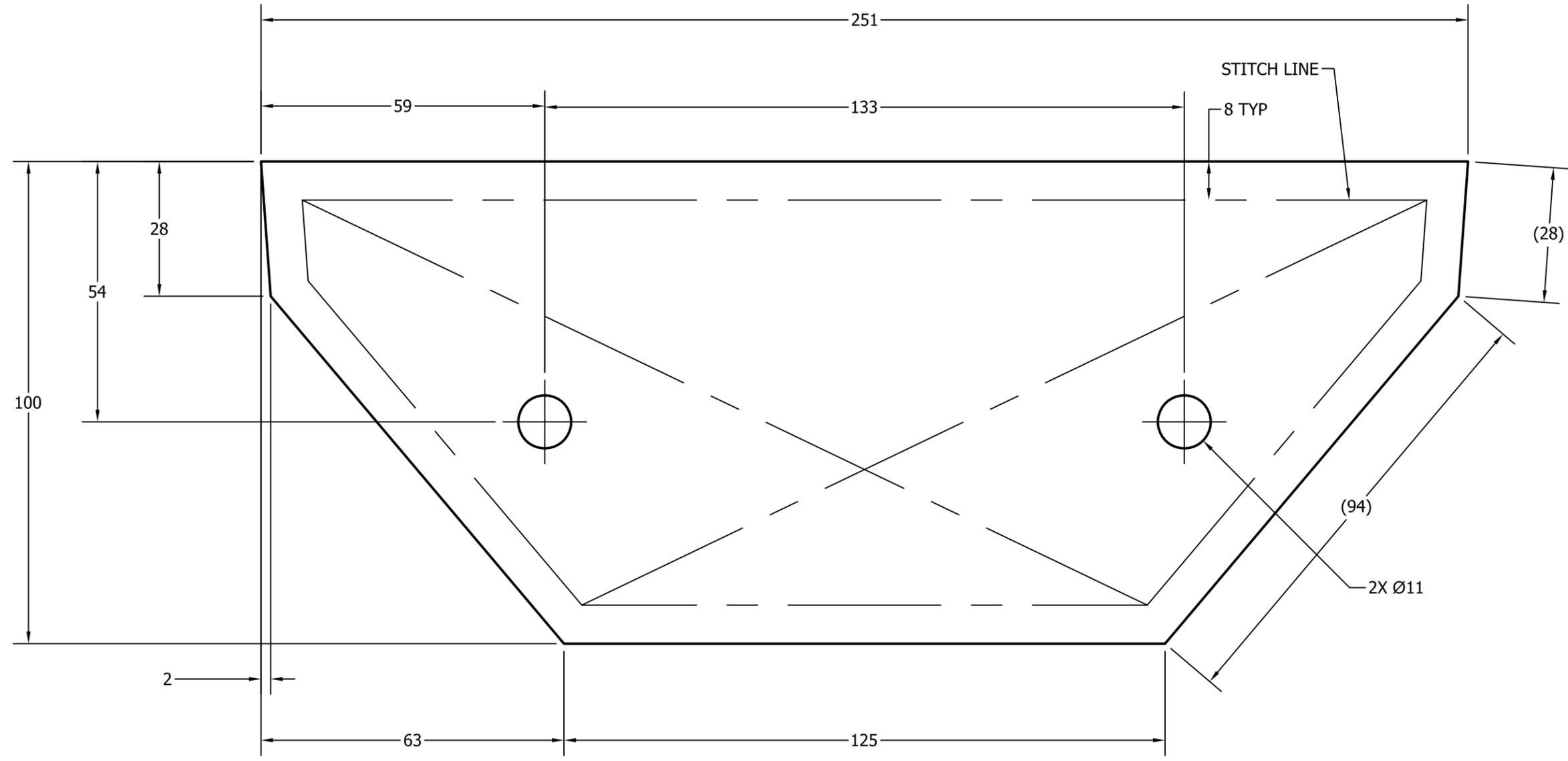
NOTES:

1. MATERIAL: NYLON STIFFENING CLOTH (DUCK CLOTH)
(20 OZ/YD; MEETS MIL-C-3953)
SEW TO THE INSIDE OF OF PATTERN 472-4763-4
2. CUT HOLES AFTER SEWING
3. PRINT TO SCALE AND USE AS PATTERN FOR CUTTING MATERIAL.

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.	DATE:	DRAWN BY:	CHECKED BY:
472-4763	1	dwashenko	9/8/2011
NEXT ASSEMBLY	QTY	ENGINEER:	DATE:
TOTAL QTY IN DUMMY	1	D. WASHENKO	1/12/2012

		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DESCRIPTION: LOWER ABDOMEN STIFFENING CLOTH			
SIZE:	SHEET:	DRAWING NO.:	REV.:
B	1 OF 1	472-4763-6	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF116 R2 FOR THOR-M	9/8/2011	DW



NOTES:

1. MATERIAL: BLACK LOOP VELCRO. SEW TO THE 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.

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.:		MATERIAL:	SEE NOTES	DESCRIPTION: LOWER ABDOMEN OUTSIDE VELCRO PATCH
472-4763	1	DRAWN BY:	dwashenko	DATE: 9/8/2011
NEXT ASSEMBLY	QTY	CHECKED BY:		DATE:
TOTAL QTY IN DUMMY	1	ENGINEER:	D. WASHENKO	DATE: 1/12/2012
		SCALE:	B 1 OF 1	DRAWING NO.: 472-4763-7
				REV: A

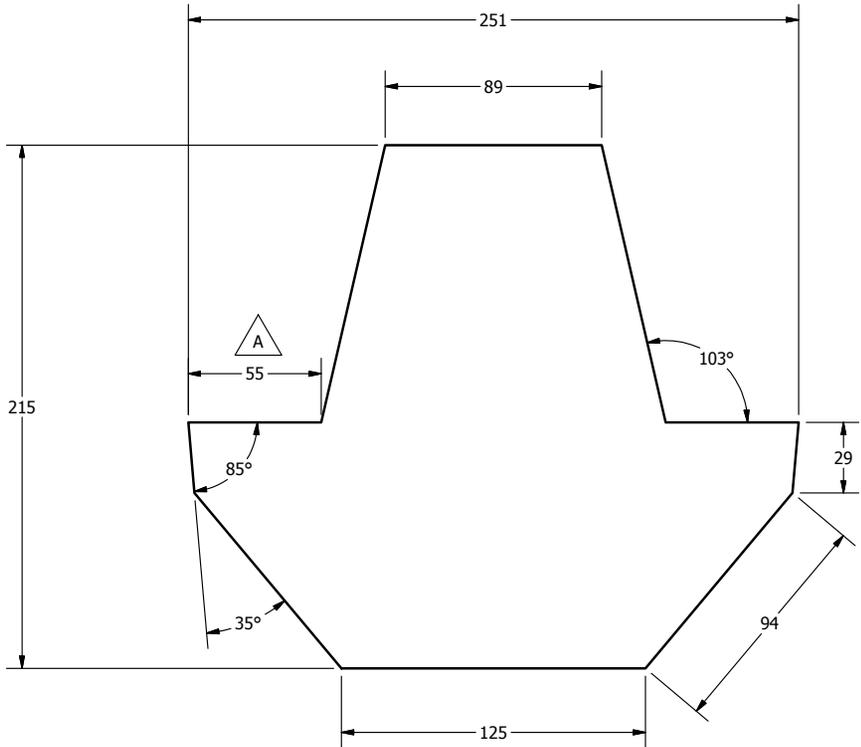
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1LAF117 R1 FOR THOR-M; 55 WAS 56	9/8/2011	DW



- 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	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.	DRAWN BY:	DRAWN BY:	DATE:
472-4763	SEE NOTES	dwashenko	9/8/2011
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	1	D. WASHENKO	1/12-2012

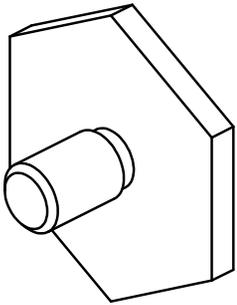
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UPPER AND LOWER ABDOMEN VELCRO COVER			
SIZE:	SHEET:	DRAWING NO.:	REV.:
B	1 OF 1	472-4763-8	A
SCALE:	1.000		

4

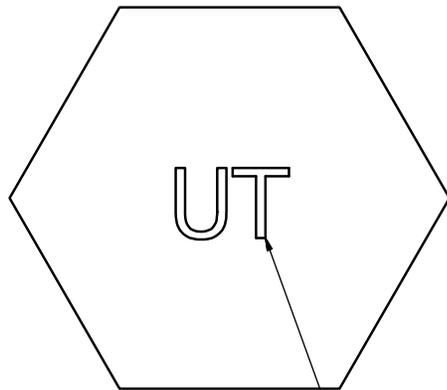
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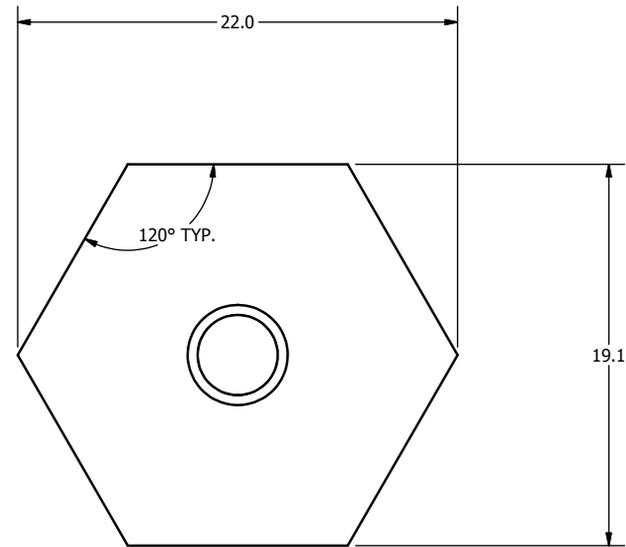
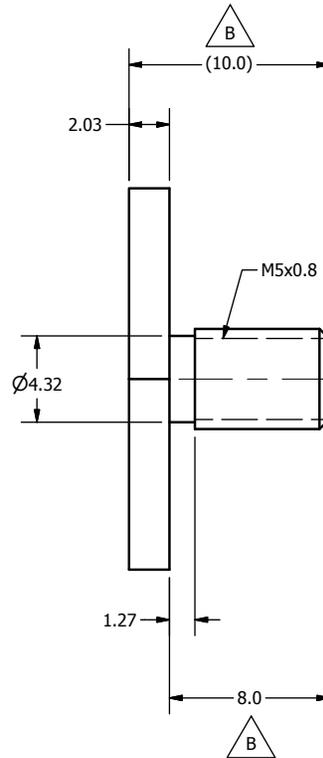
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ISO VIEW
SCALE 3.000



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



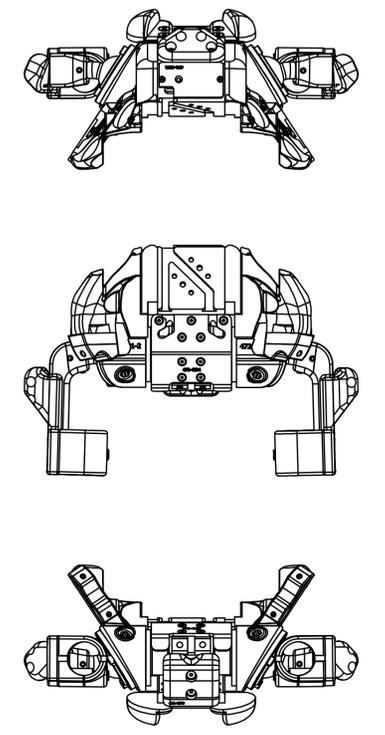
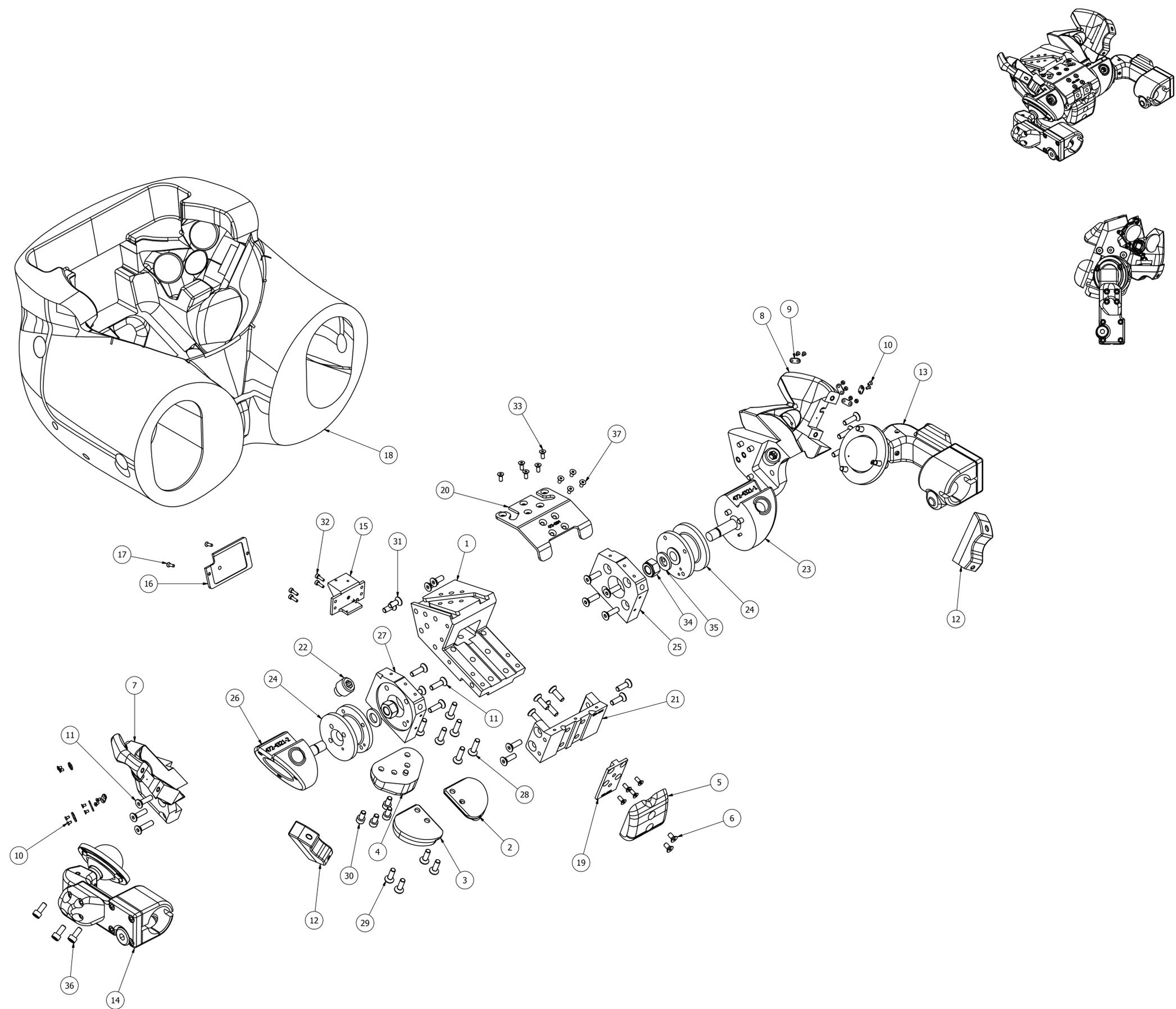
NOTES:

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 ± 0.2 XXX ± 0.3 XXXX ± 0.01 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:
FRESH:	SEE NOTES	DATE:	1/18/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
TOTAL QTY IN DUMMY:	2	SCALE:	4.000	472-3518

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLS000 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; REMOVES 5000416	9/18/2014	DW



FLESH REMOVED IN THESE VIEWS

ITE	QTY	PART NUMBER	DESCRIPTION
37	4	5000646	M4 X 0.7 X 8 LG. FHCS
36	6	5000604	M6 X 1 X 14 LG. SHCS
35	2	5000267	M12 FLAT WASHER PLAIN ZINC
34	2	5000462	M12 X 1.75 HEX LOCK NUT ZINC
33	9	5000023	SCREW, FHCS M4-0.7 X 10 LG.
32	4	5000119	M3 X 0.5 X 10 LG. SHCS
31	4	5000090	M6 X 1 X 16 LG. FHCS
30	4	5000281	M6 X 1 X 12 LG. SHCS
29	12	5001089	M6 X 1 X 20 LG. FHCS
28	8	5000135	M6 X 1 X 25 LG. FHCS
27	1	472-4325-2	PELVIS LOAD CELL MTG. PLATE (RIGHT)
26	1	472-4321-2	PELVIS SOCKET ADAPTER (RIGHT)
25	1	472-4325-1	PELVIS LOAD CELL MTG PLATE LEFT
24	2	472-4323	ACETABULAR LOAD CELL STRUCTURAL REPLACEMENT
23	1	472-4321-1	PELVIS SOCKET ADAPTOR (LEFT)
22	2	472-4310	FRICTION ADJUSTMENT SET SCREW ASSEMBLY
21	1	472-4205	PELVIS, REAR PLATE
20	1	472-4204	PELVIS TOP PLATE
19	1	472-4330	FRONT PELVIC PLATE
18	1	472-4100	PELVIS FLESH, MOLDED
17	2	5000203	M3 X 0.5 X 10 LG. FHCS
16	1	472-4371	PELVIS ACCELEROMETER COVER
15	1	472-4361	PELVIS TRI-PACK MOUNTING BRKT.
14	1	472-4800-2	RIGHT FEMUR BALL JOINT ASS'Y
13	1	472-4800-1	LEFT FEMUR BALL JOINT ASS'Y
12	2	472-4375	S.R. THOR A.S.I.S.
11	12	5000572	M6 X 1 X 22 LG. FHCS
10	16	5000723	M2.5 X 0.45 X 5 LG. FHCS
9	8	472-4372	ILIAC CABLE COVER, PELVIS
8	1	472-4380-1	LEFT ILIAC ASSEMBLY
7	1	472-4380-2	RIGHT ILIAC ASSEMBLY
6	2	5000084	M5 X 0.8 X 10 LG. FHCS
5	1	472-4370	MACHINED FRONT PELVIC CASTING
4	1	472-4350	PELVIS COCCYX
3	1	472-4340-2	PELVIS RIGHT D-PT
2	1	472-4340-1	PELVIS LEFT D-PT
1	1	472-4211	PELVIS BASE MODULE

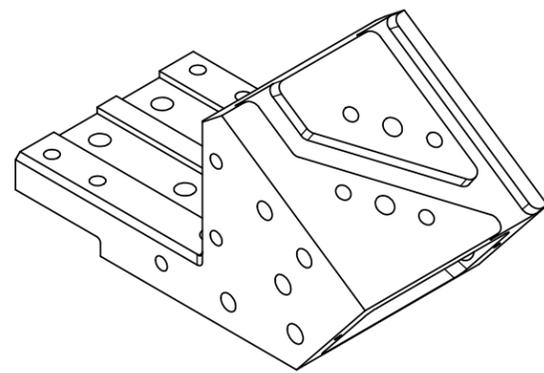
PARTS LIST

DO NOT SCALE DRAWING
 TOLERANCES:
 FRACTIONAL DECIMAL MILS
 HOLE DIMS ±0.010
 SHAFT DIMS ±0.005
 SHOW HIDDEN & BREAK SHARP EDGES
 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

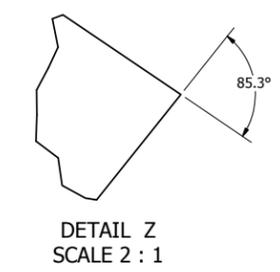
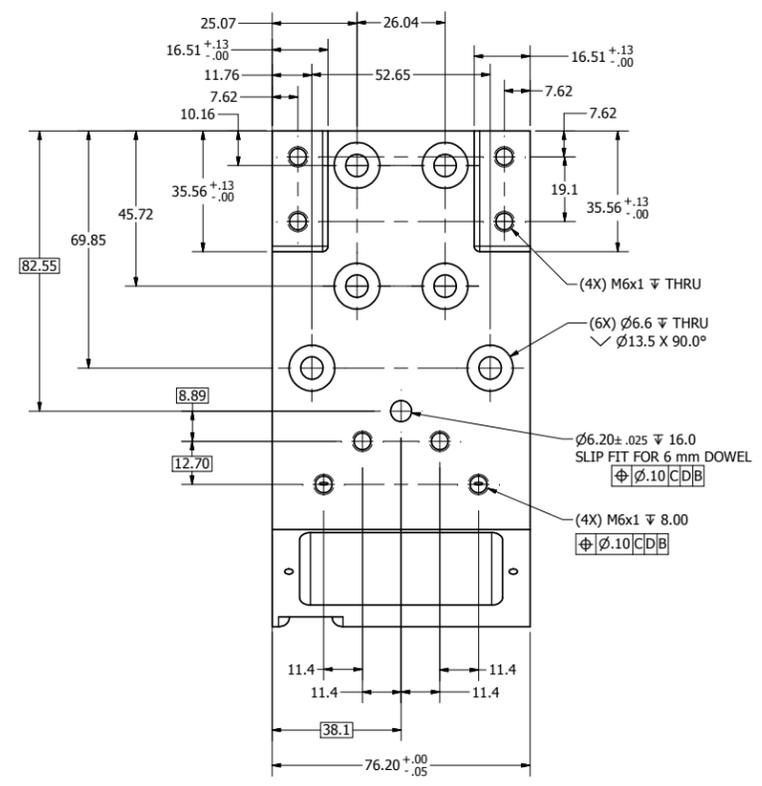
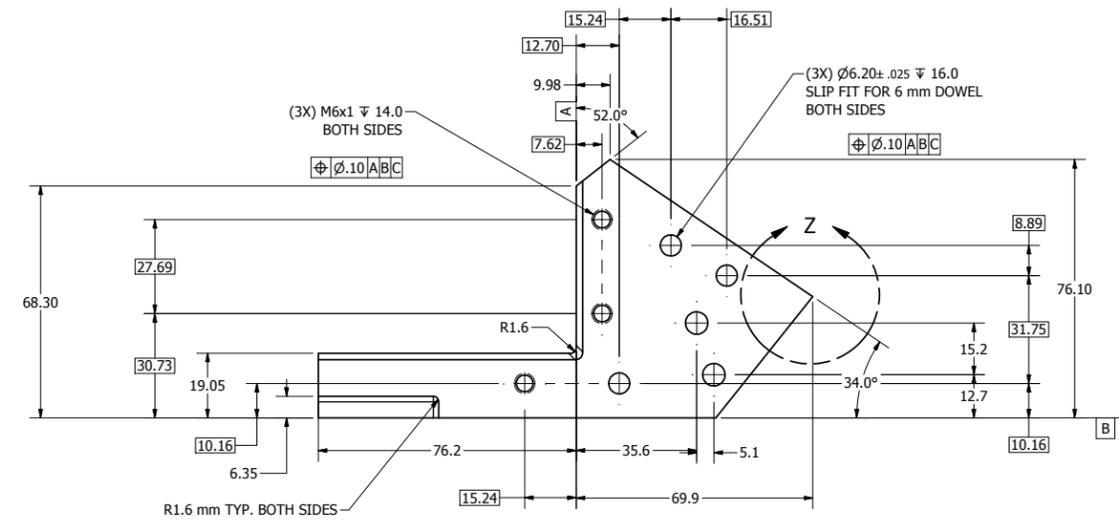
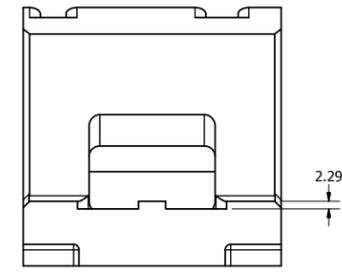
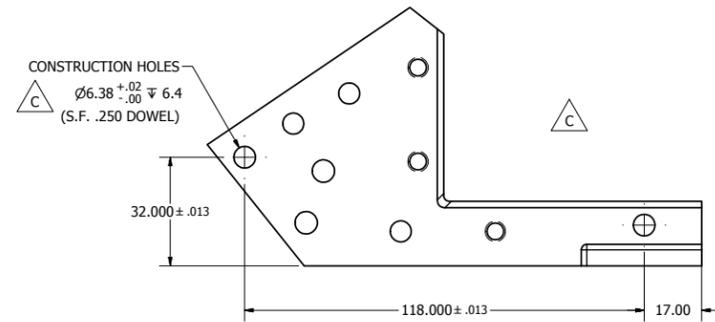
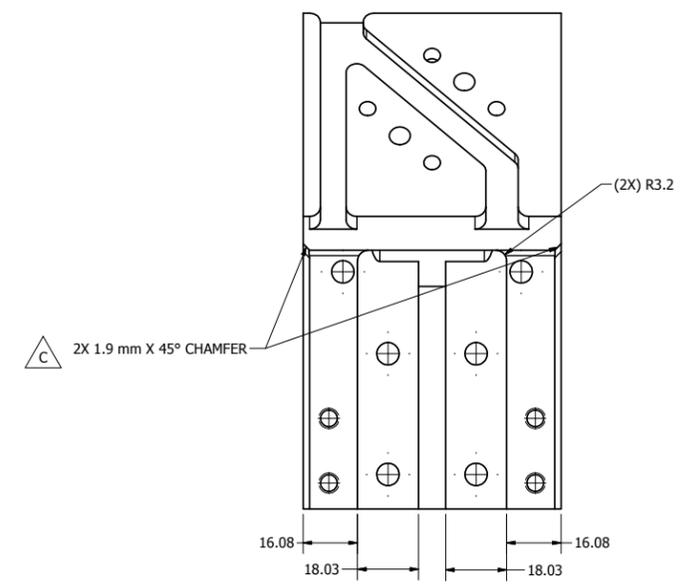
472-0000	1	PELVIS ASSEMBLY
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

NOTES:
 1. WEIGHT OF ASSEMBLY TO BE 10.60 ±.25kg.

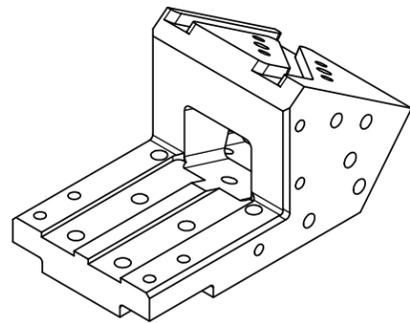
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM010-03 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ
	B	NICKEL PLATE FINISH WAS TEFLON	12/22/2011	TMV
	C	ADD VIEW TO SHOW ADDED CONSTRUCTION HOLES; 2X M3 WAS M2.5 (SHT 2); 1.9 WAS 1.91	6/27/2012	BK



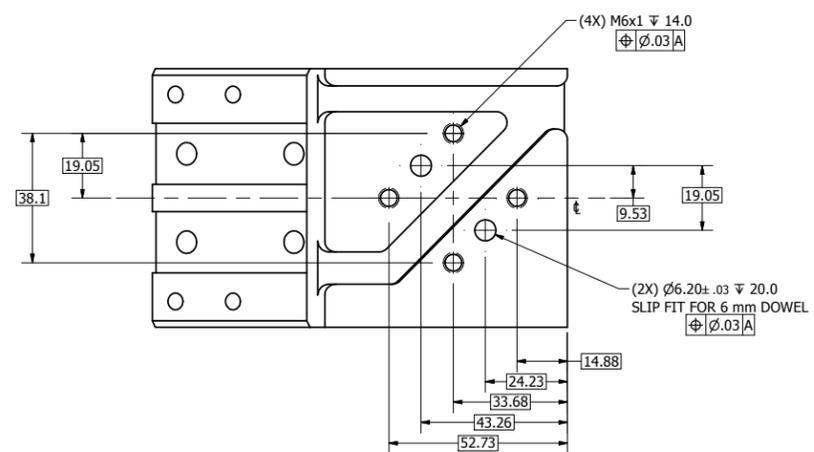
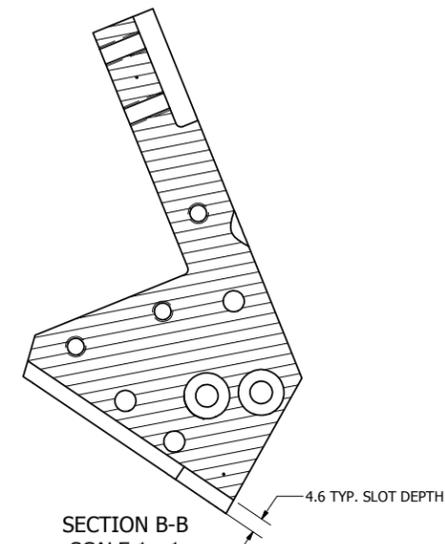
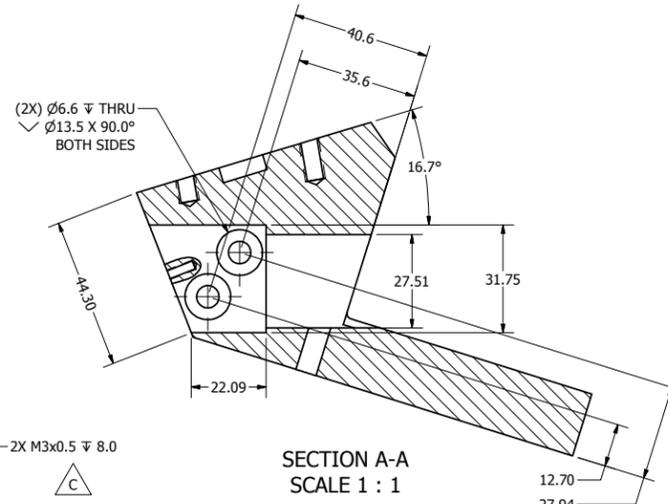
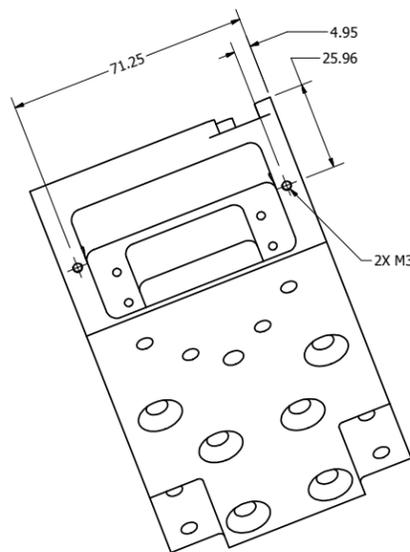
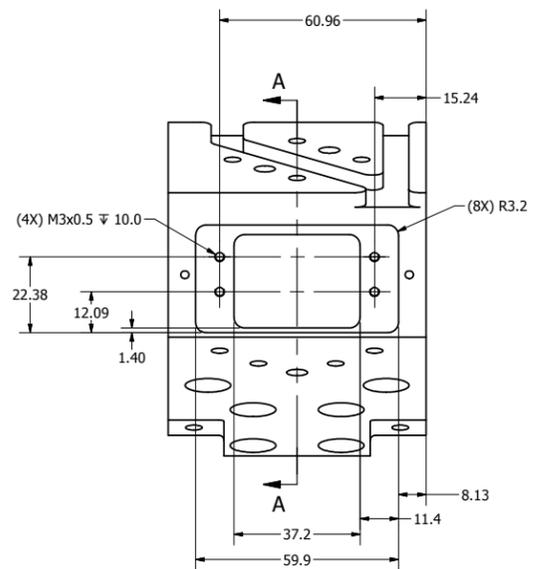
SCALE 1.000



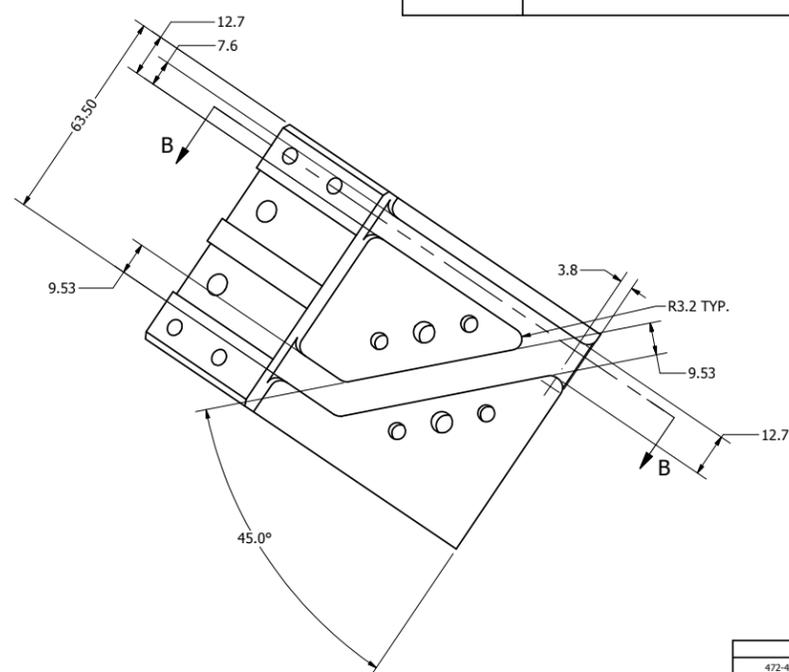
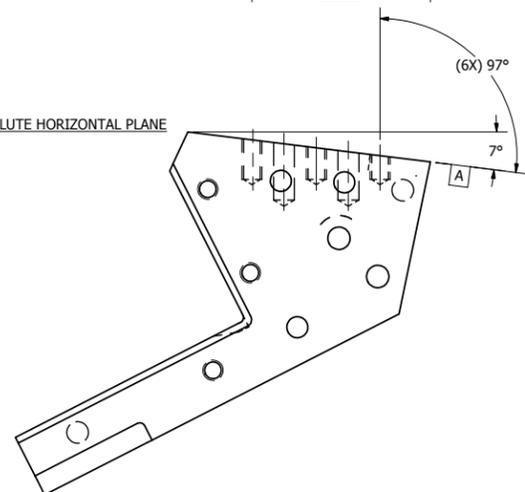
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED		MILITARY STANDARD		PELVIS BASE MODULE	
472-4210	1	1018 STEEL	DLW	8/18/2011	A11 OF 2
NEXT ASSEMBLY	QTY		TMV	12/29/2011	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL RATE 888 RW	J. WANG	1/29/2012	
					472-4211



SCALE .750

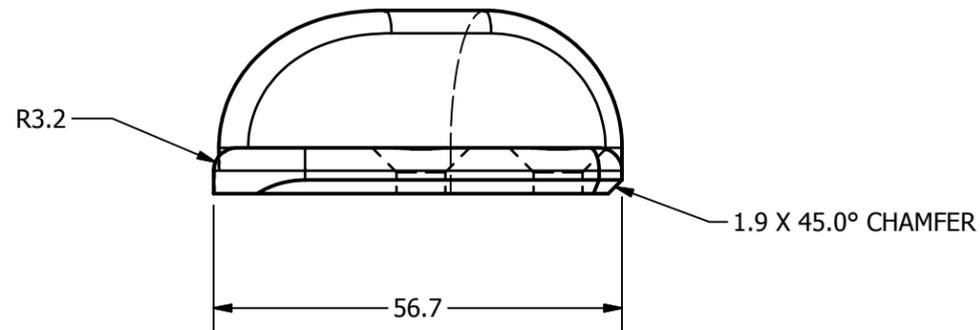
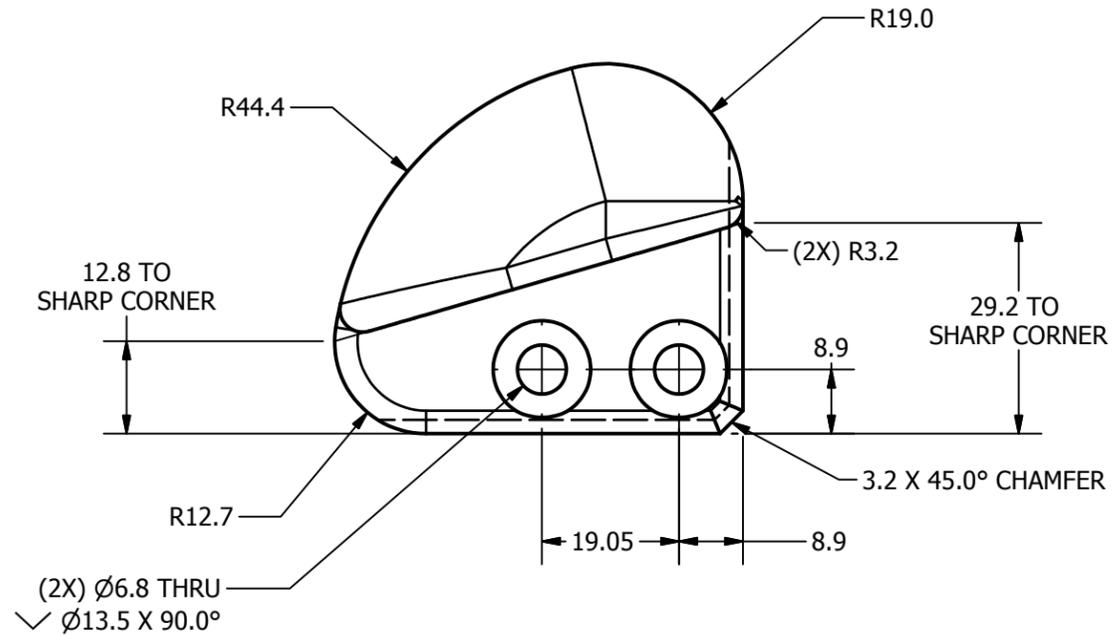
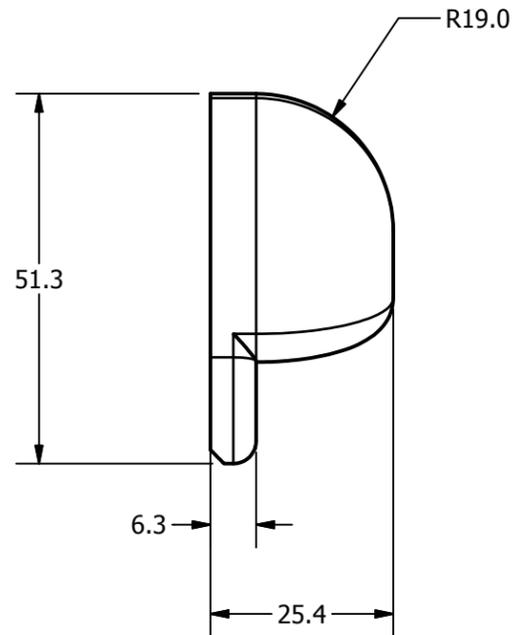
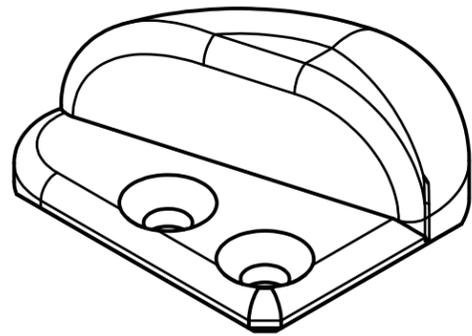


ABSOLUTE HORIZONTAL PLANE



DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED		FRACTIONS DECIMALS		PELVIS BASE MODULE	
FRACTIONS DECIMALS		FRACTIONS DECIMALS		A12 OF 2	
472-4210	1	1018 STEEL	DLW	8/20/2011	472-4211
NEXT ASSEMBLY	QTY		TW	12/29/2011	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL RATE 88 RW	J. WANG	1/29/2012	

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

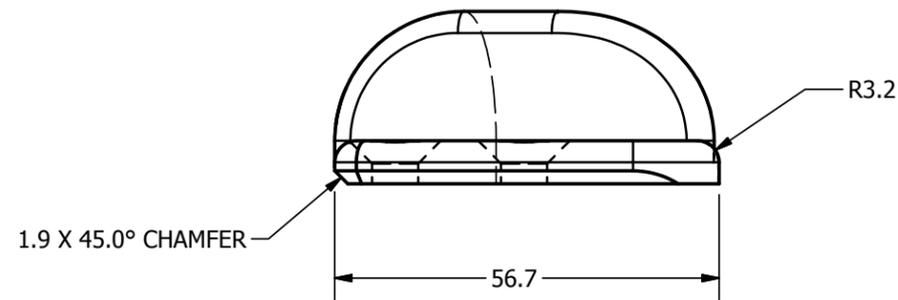
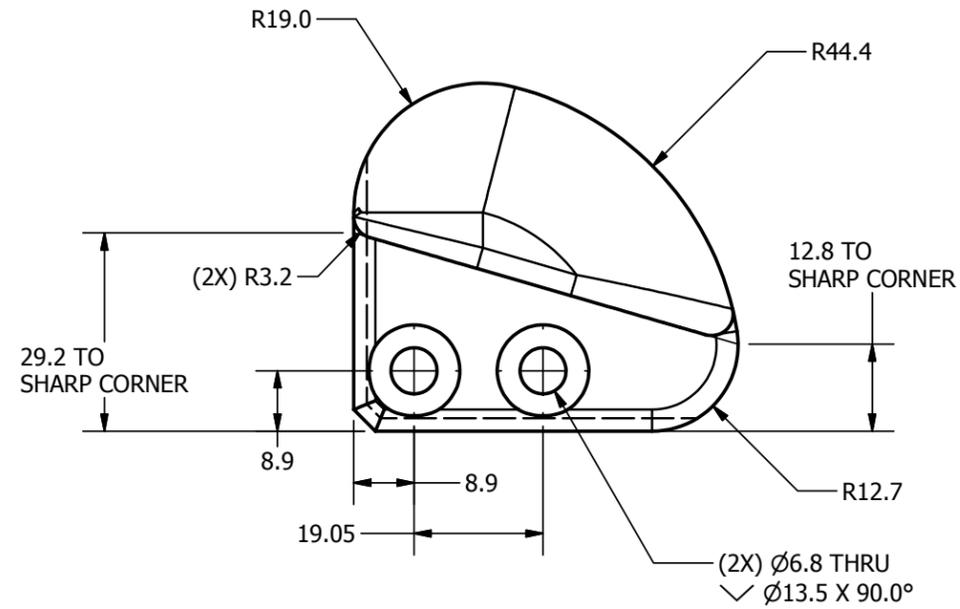
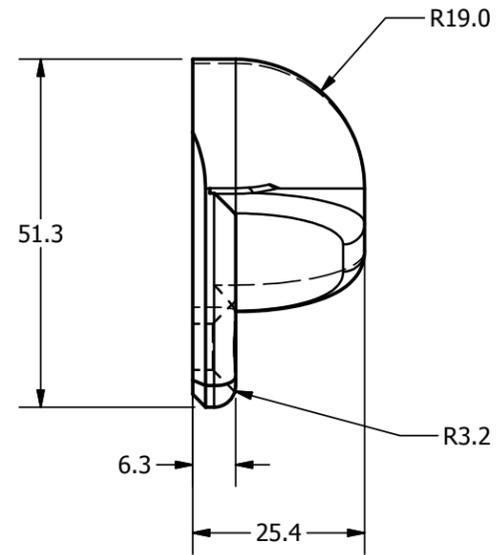
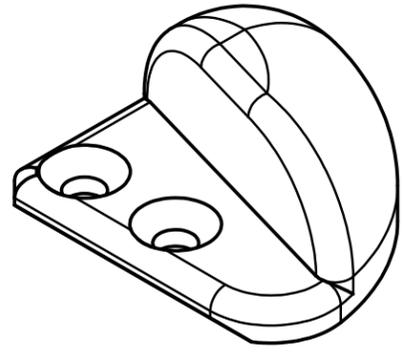
TOLERANCES		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		
DECIMALS	ANGLES	FINISH
X ±0.5	±0.5°	1.6
X.X ±0.2		
X.XX ±0.1		
X.XXX ±0.01		



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	SIZE: B			
TOTAL QTY IN DUMMY	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/23/2012	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



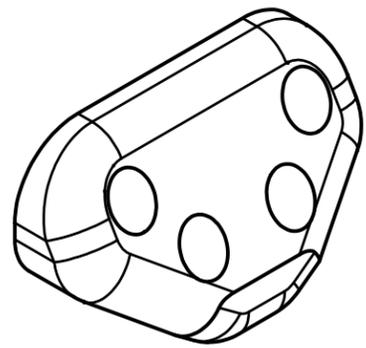
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

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

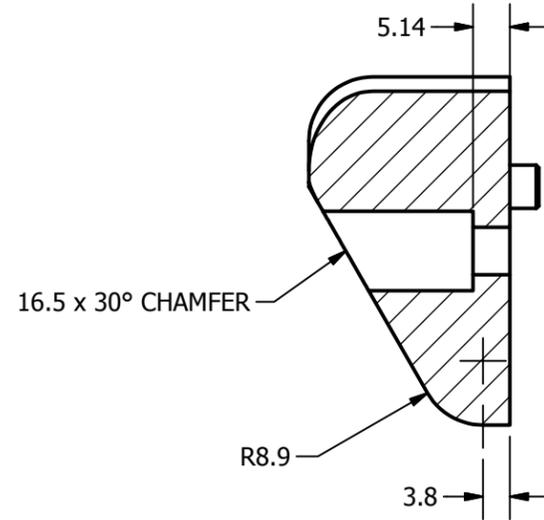
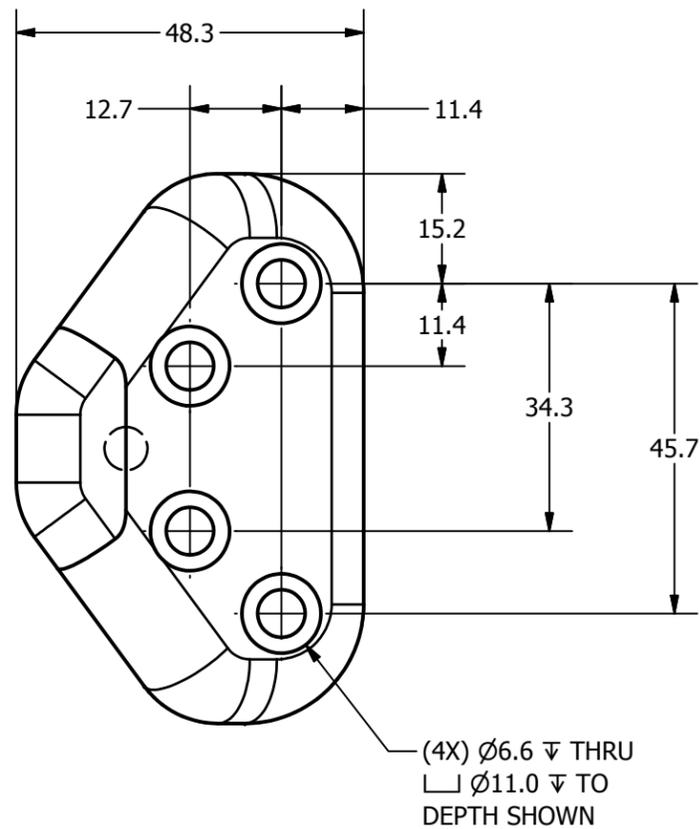


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

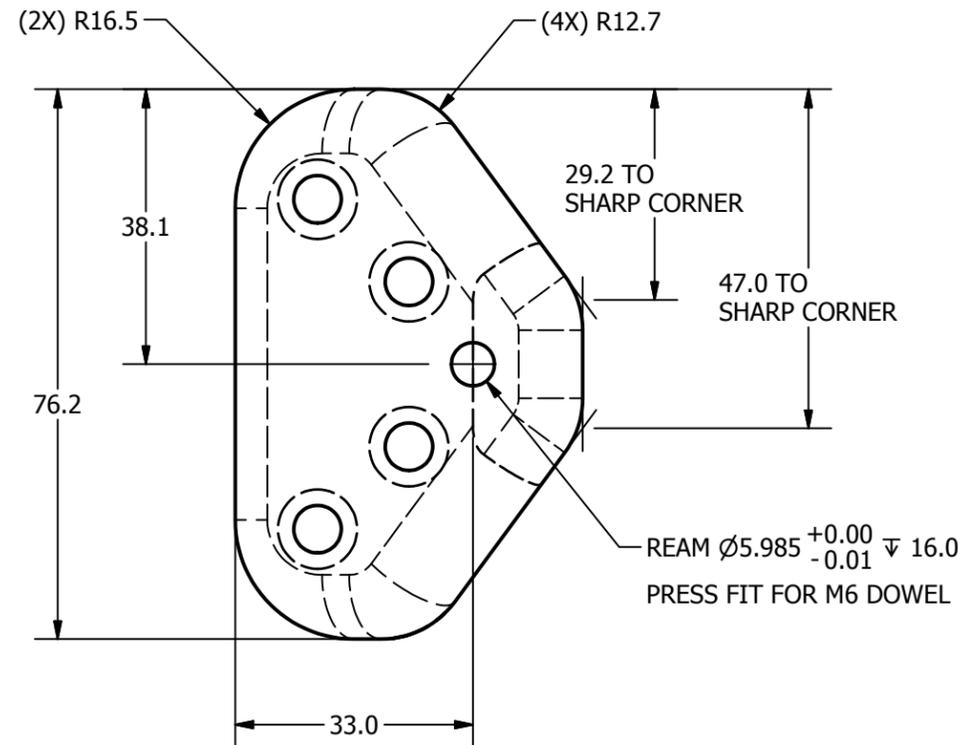
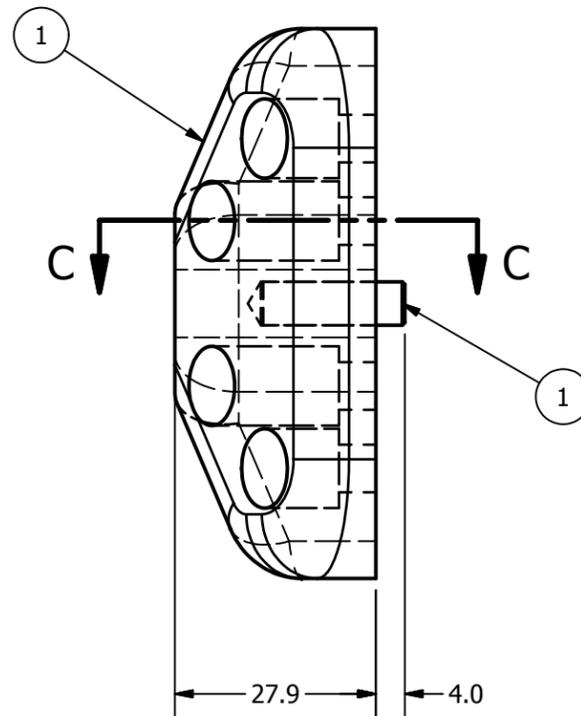
PROJECT NO.: 472-4000	1	MATERIAL: Aluminum-6061	DRAWN BY: jordan	DATE: 8/24/2011	DESCRIPTION: PELVIS RIGHT D-PT		
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY: TMV	DATE: 10/26/2011			
TOTAL QTY IN DUMMY	1	FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/23/2012			
SIZE: A3 1 OF 1					SCALE: 1:1	DRAWING NO.: 472-4340-2	REV: A



SCALE .750

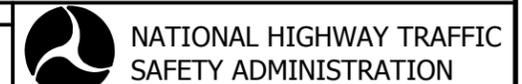


SECTION C-C
SCALE 1 : 1

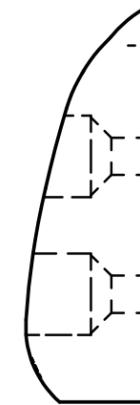
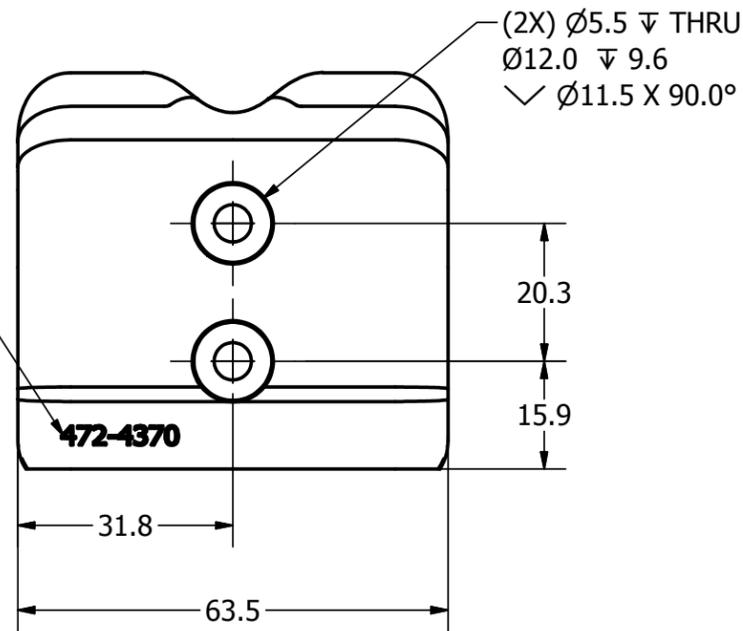
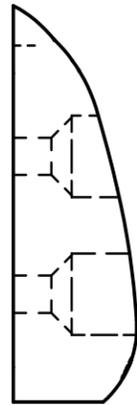
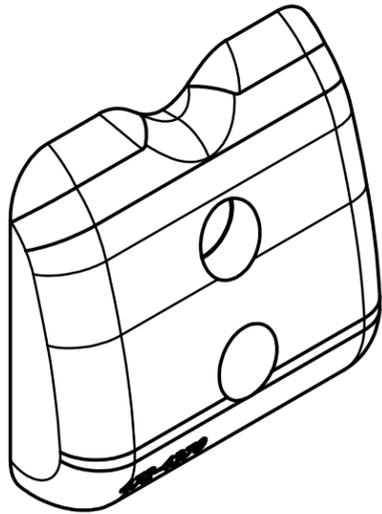


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM013-04 AND CONVERTED TO METRIC FOR THOR-M	8/23/2011	JSJ

1	1	5000570	PIN, DOWEL M6 X 20 mm
ITEM	QTY	PART NUMBER	DESCRIPTION
Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
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	
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	
472-4000	1	MATERIAL: Aluminum-6061	DRAWN BY: jjordan
NEXT ASSEMBLY	QTY	HEAT TREAT:	DATE: 8/23/2011
TOTAL QTY IN DUMMY	1	FINISH: CLEAR ANODIZE	CHECKED BY: TMV
			DATE: 10/28/2011
			ENGINEER: J. WANG
			DATE: 1/23/2012
DESCRIPTION: PELVIS COCCYX			SCALE: 1:1
DRAWING NO.: 472-4350			REV: 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



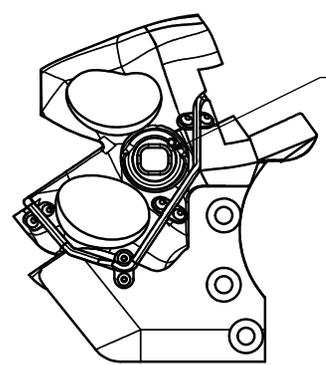
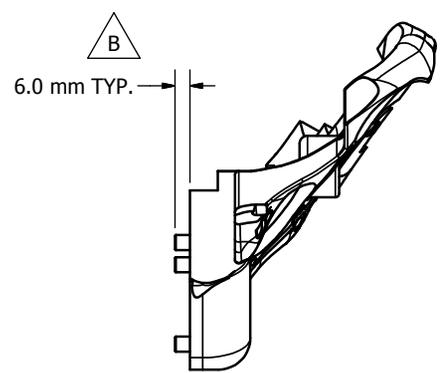
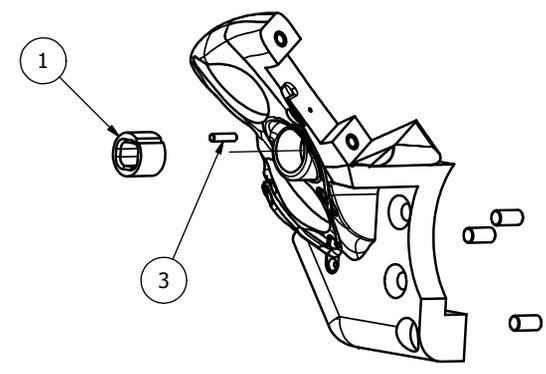
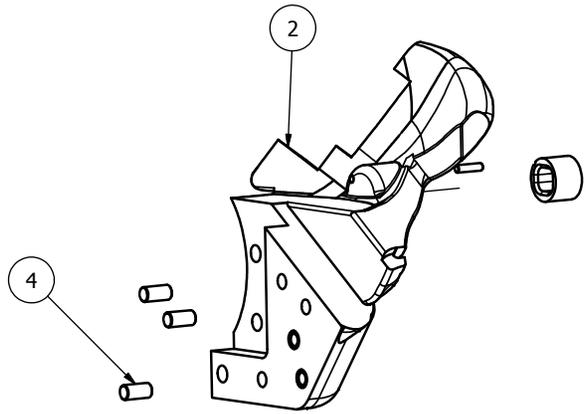
NOTES:

- 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 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO.:		MATERIAL:	Thermoplastic Resin	DESCRIPTION:
472-4000	1	DRAWN BY:	DLW	MACHINED FRONT PELVIC CASTING
NEXT ASSEMBLY	QTY	CHECKED BY:	TMV	DATE:
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	10/25/2011
		DATE:	1/23/2012	SCALE: 1:1
				SIZE: A3
				SHEET 1 OF 1
				DRAWING NO.: 472-4370
				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



472-4381 TO BE INSTALLED AS SHOWN
LONGER DIMENSION OF OPENING
IS TO BE HORIZONTAL

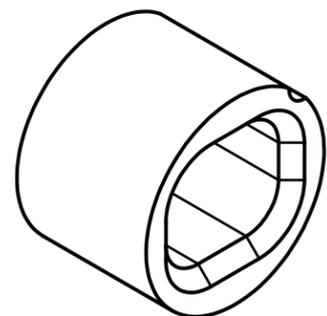
ITEM	QTY	PART NUMBER	DESCRIPTION
4	3	5000433	PIN, DOWEL M6 X 12 mm
3	1	5000183	PIN, DOWEL M3 X 12 mm
2	1	472-4382-2	PELVIS WING MACHINING (RIGHT)
1	1	472-4381	PELVIS H-PT. TOOL BEARING

Parts List

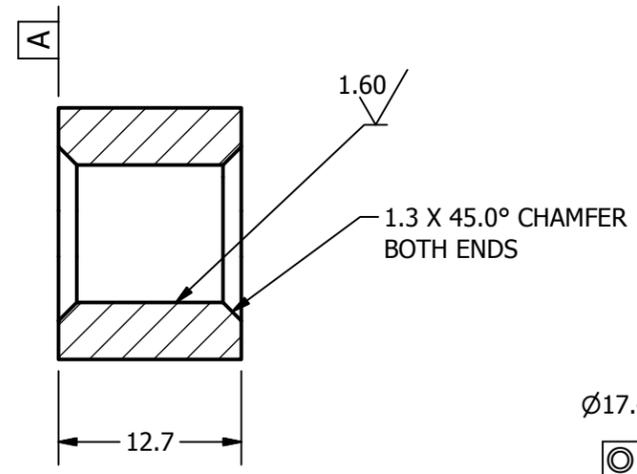
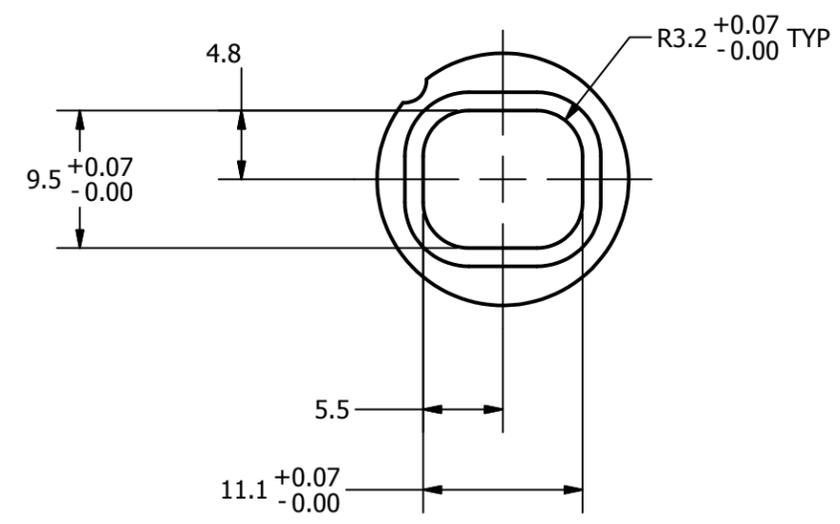
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 1.6 XX 0.02 XXX 0.03 XXXX 0.04		
PROJECT NO.:	DATE:	REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION:
472-4000	8/10/2011	S. RICE		RIGHT ILIAC ASSEMBLY
NEXT ASSEMBLY	DATE:	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	1	TMV	9/20/2011	A31 OF 1
		ENGINEER:	DATE:	SCALE: 1:2
		J. WANG	1/24/2012	

472-4000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

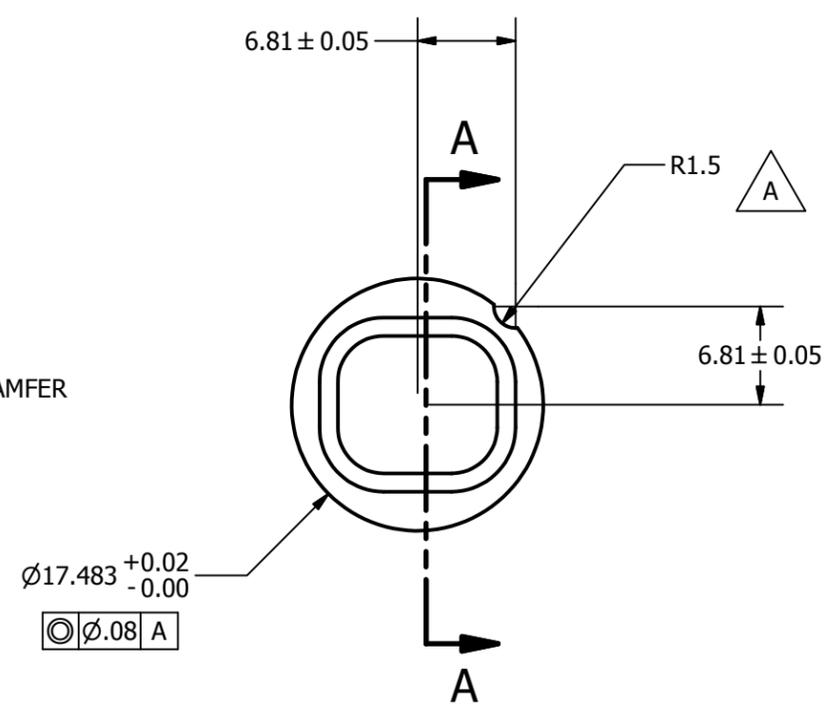
472-4380-2



SCALE 2.000



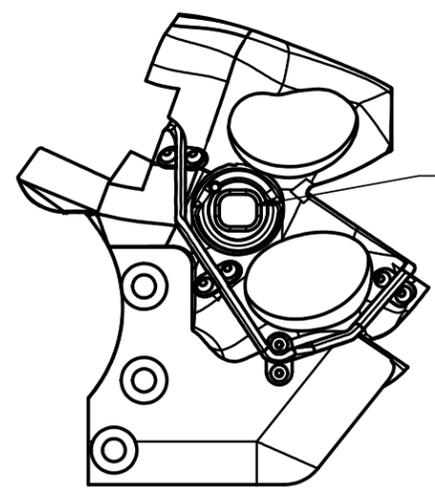
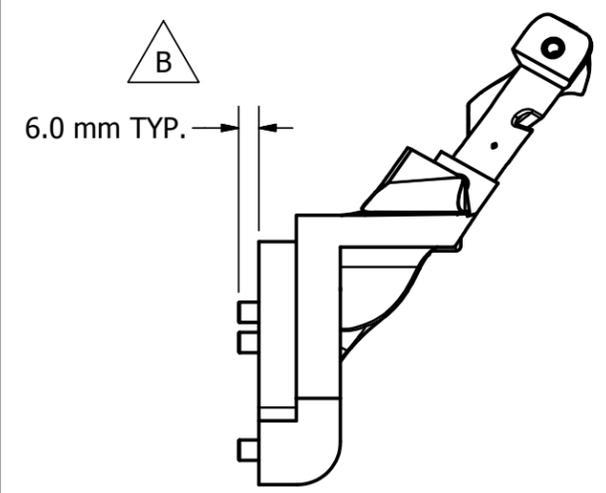
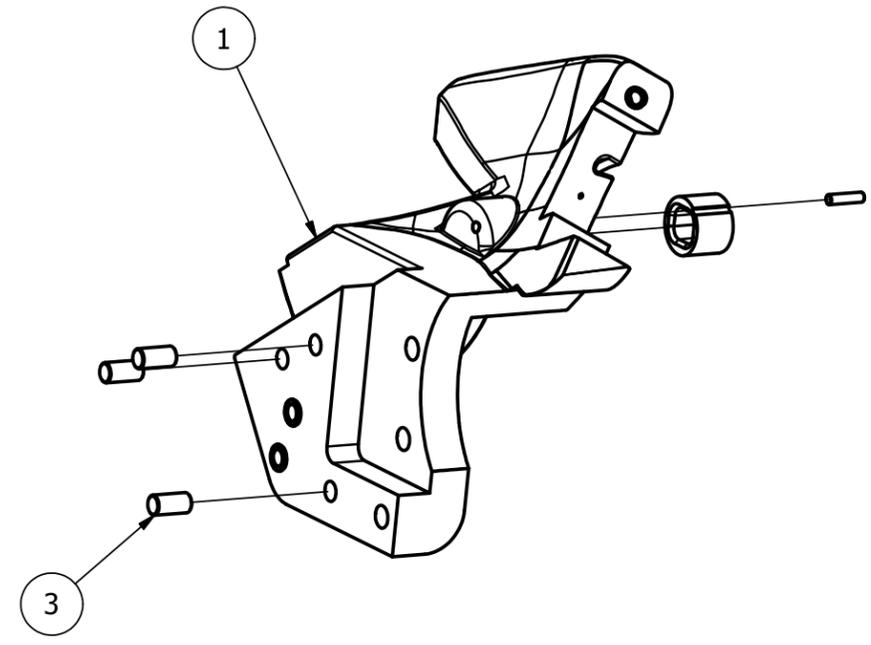
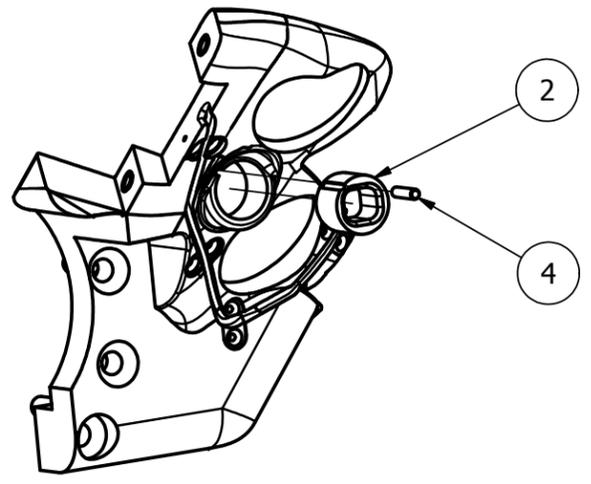
SECTION A-A
SCALE 2 : 1



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

472-4380-2		1	DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-4380-1		1	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		DESCRIPTION: PELVIS H-PT. TOOL BEARING	
NEXT ASSEMBLY		QTY	MATERIAL: 4140 STEEL		DRAWN BY: jjordan		DATE: 8/23/2011	
TOTAL QTY IN DUMMY		2	HEAT TREAT: RC 44-48		CHECKED BY: TMV		DATE: 10/26/2011	
			FINISH: ELECTROLESS NICKEL PLATE .008 MAX		ENGINEER: J. WANG		DATE: 1/23/2012	
							SIZE: SHEET B 1 OF 1 SCALE: 2:1	
							DRAWING NO.: 472-4381	
							REV: A	

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



472-4381 TO BE INSTALLED AS SHOWN
LONGER DIMENSION OF OPENING
IS TO BE HORIZONTAL.

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
	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: S. RICE
	DATE: 8/10/2011
MATERIAL:	CHECKED BY: TMV
	DATE: 9/21/2011
HEAT TREAT:	ENGINEER: J. WANG
	DATE: 1/23/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

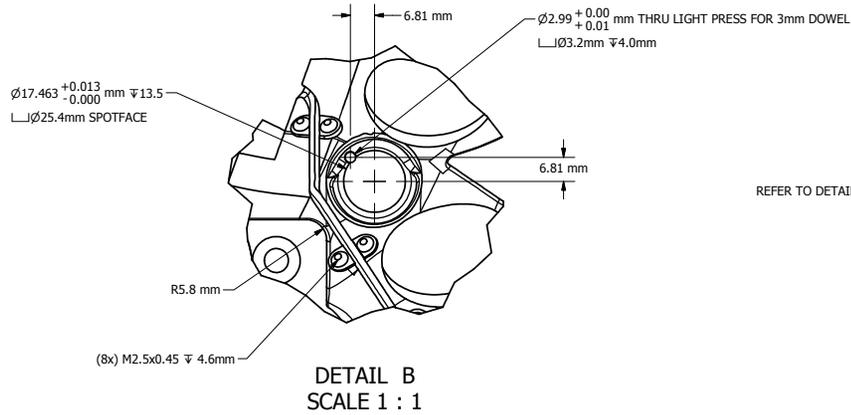
DESCRIPTION: LEFT ILIAC ASSEMBLY

SIZE: A3 1 OF 1 SHEET
SCALE: 1:2

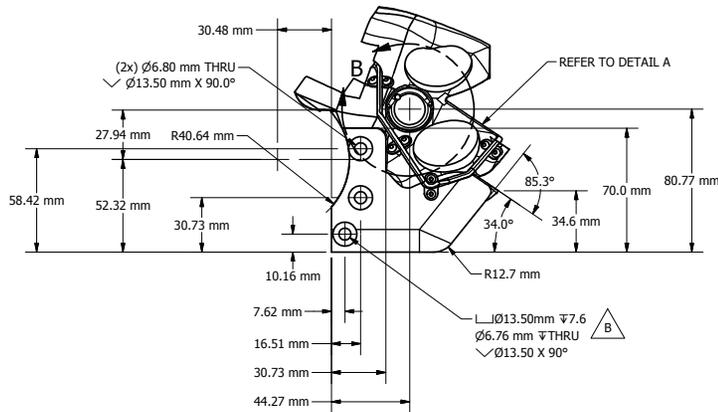
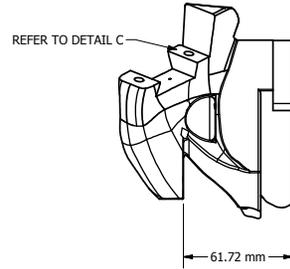
DRAWING NO.: 472-4380-1

472-4000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

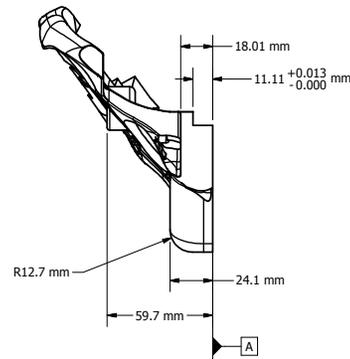
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
78027	A	RENUMBERED FROM T1PLM011-05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	JSJ
10439	B	Ø2.99 +00/-01 WAS +01/-00 12.7 DEEP WAS 16.00	5/3/2012	TMV
70784	B	CBORE Ø13.50 WAS Ø6.8	1/31/2013	BK



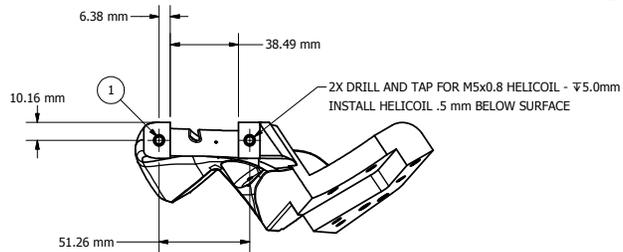
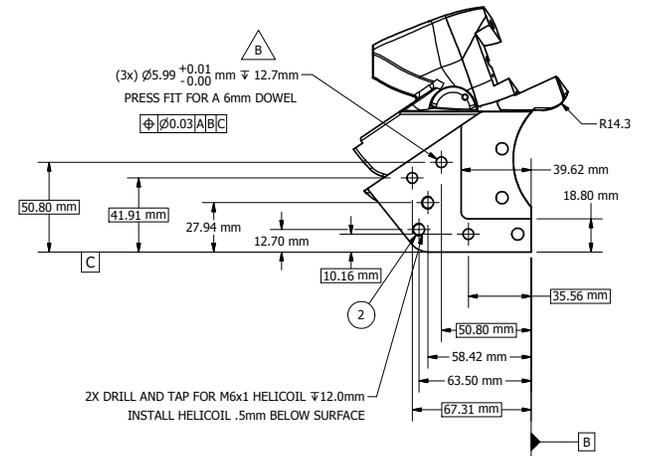
DETAIL B
SCALE 1 : 1



HORIZONTAL PLANE
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

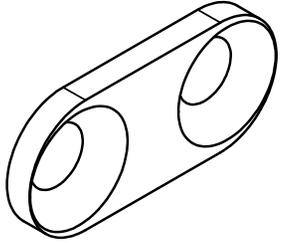
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000088	HELICOIL, M6 X 1 X 9mm
1	2	5000086	HELICOIL, M5 X 0.8 X 7.5

Parts List
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

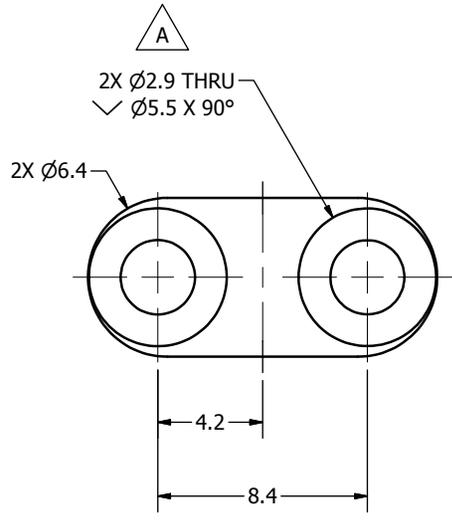
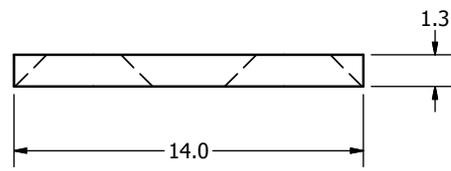
REV	QTY	DESCRIPTION	DATE	BY
472-4380-1	1	Aluminum Cast 357-T6	Jordan	8/25/2011
TOTAL QTY IN DUMMY	1			

PELVIS WING MACHINING (LEFT)
A21 of 1
12
472-4382-1

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TI1PLM020 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

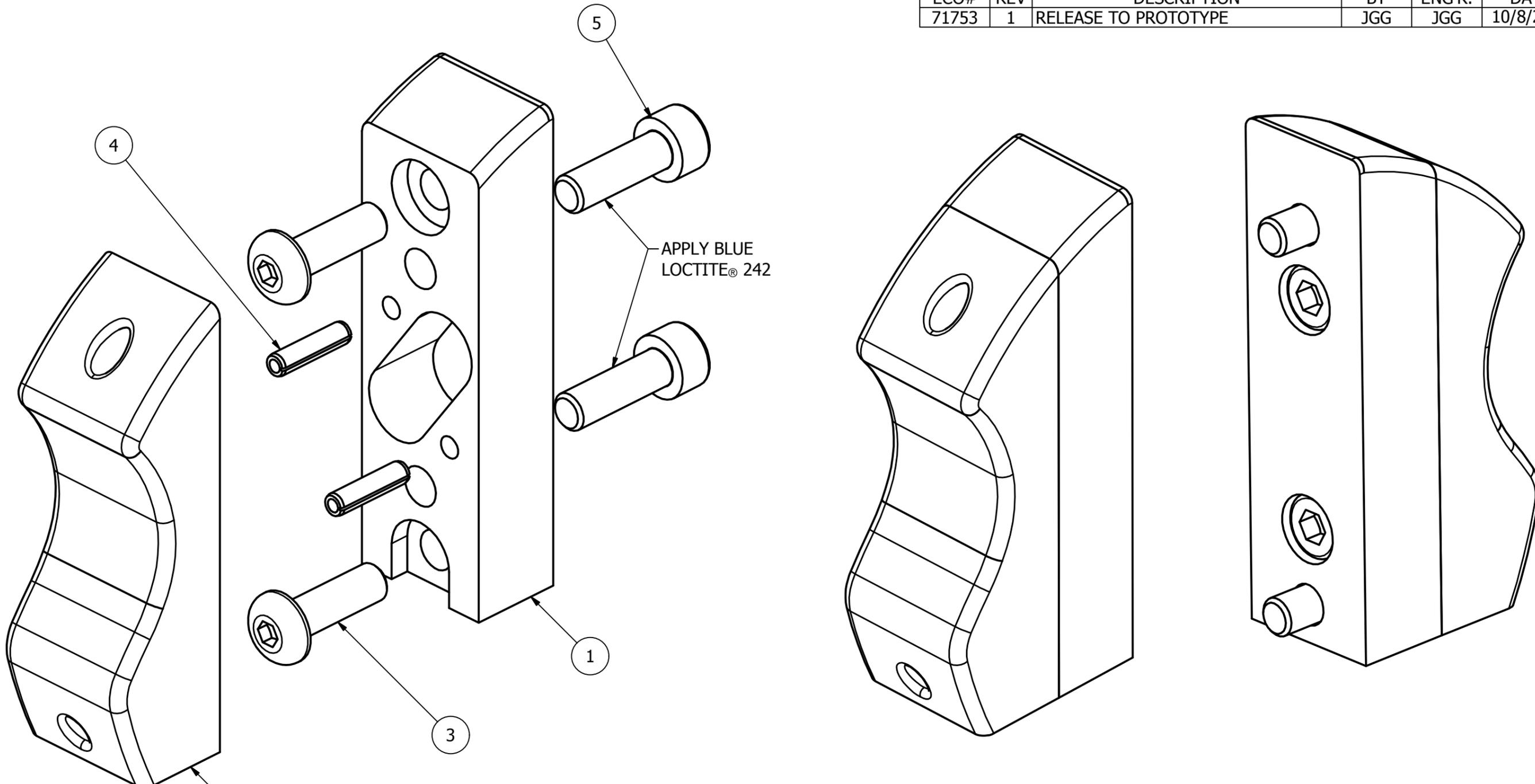


SCALE 5.000



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 16 X.X ± 0.2 ✓ X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO.	472-4000	MATERIAL	Acetal Resin, White	DESCRIPTION
QUANTITY	8	DATE	8/10/2011	ILIAC CABLE COVER, PELVIS
CHECKED BY	DLW	ENGINEER	J. WANG	SCALE
DATE	9/8/2011	DATE	1/24/2012	5.000
HEAT TREAT		CHECKED BY	TMV	SIZE SHEET
FINISH		DATE	9/8/2011	A31 OF 1
TOTAL QTY IN DUMMY	8	ENGINEER	J. WANG	DRAWING NO.
		DATE	1/24/2012	472-4372

REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
71753	1	RELEASE TO PROTOTYPE	JGG	JGG	10/8/2013



ASSEMBLY INSTRUCTIONS

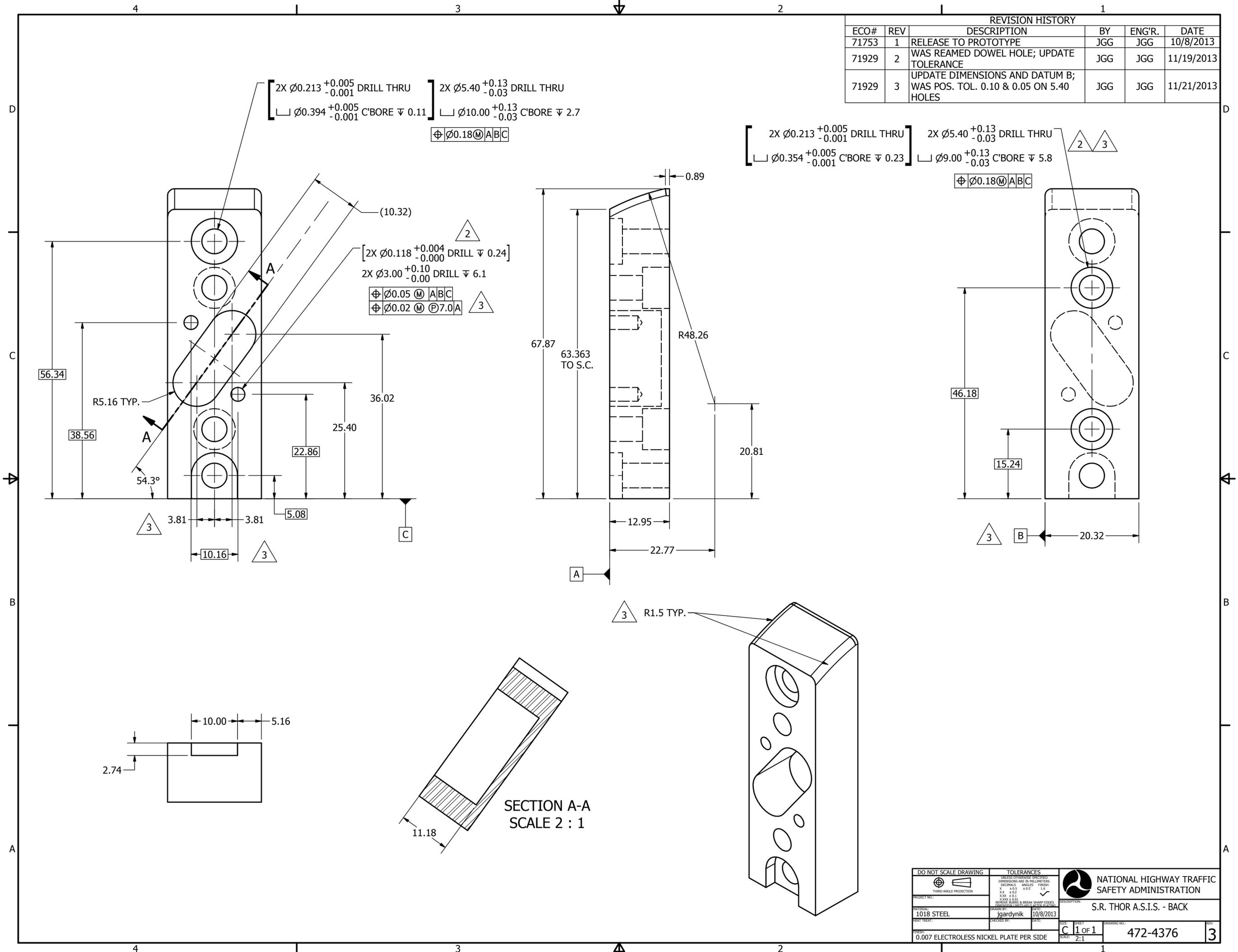
1. PRESS THE M3 ROLL PINS INTO PART #472-4376 AS SHOWN.
2. PLACE THE M5 X 0.8 X 16MM LG. BHCS IN THE CLEARANCE HOLES.
3. PRESS PART #472-4377 ONTO THE ROLL PINS AS SHOWN.
4. FASTEN THE TWO SIDES TOGETHER USING M5 X 0.8 X 16MM LG SHCS WITH LOCTITE® BLUE 242 AS SHOWN. TORQUE TO 7 Nm [60 IN-LBF]

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

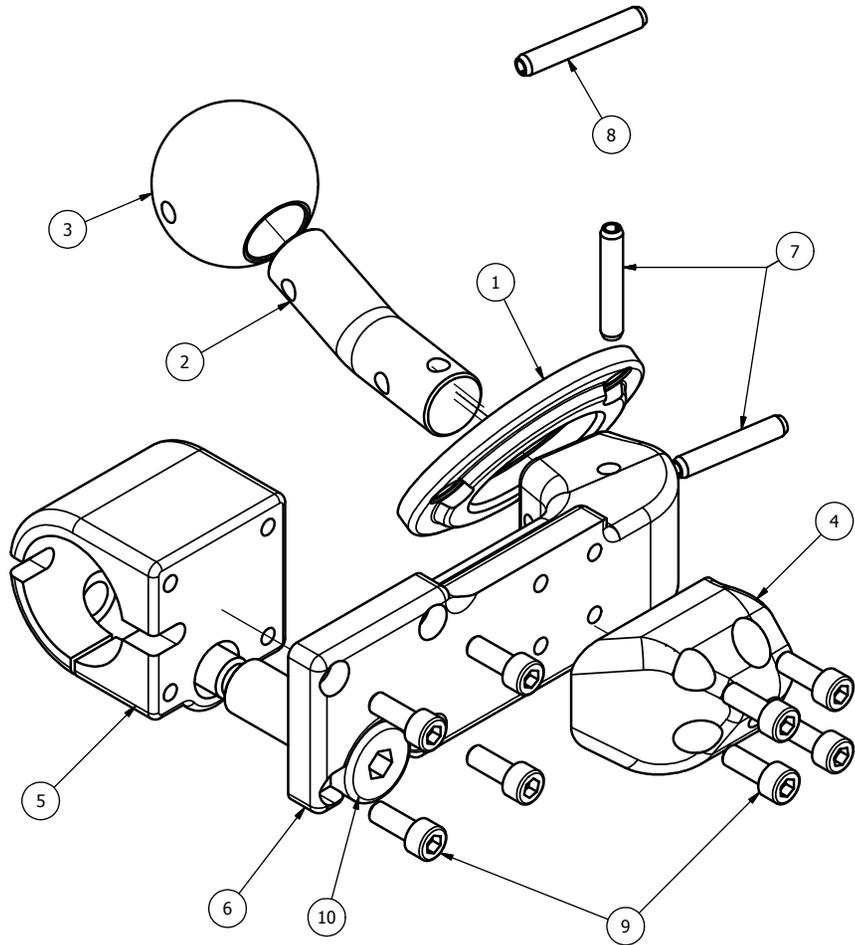
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ±0.5 ° ±0.5 1.6 X.X ±0.2 ° X.XX ±0.1 ° X.XXX ±0.01 ° REMOVE BURRS & BREAK SHARP EDGES DIMENSION LIMITS FIELD AFTER PLATING		
PROJECT NO.:	DATE:	DRAWN BY:	DATE:	DESCRIPTION:
MATERIAL:	HEAT TREAT:	CHECKED BY:	DATE:	S.R. THOR A.S.I.S.
FINISH:	SCALE:	SIZE:	SHEET:	DRAWING NO.:
	2:1	A3	1 of 1	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

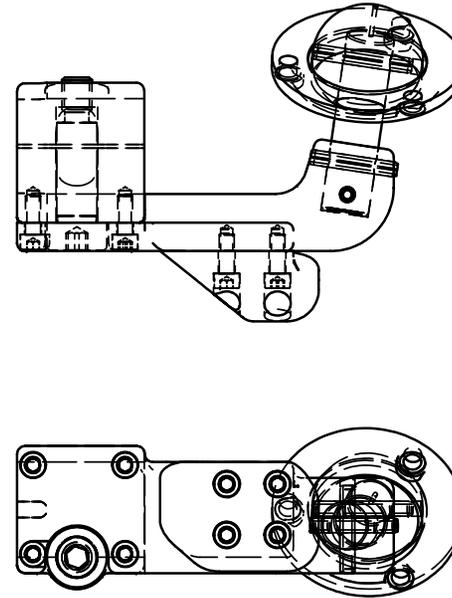


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		S.R. THOR A.S.I.S. - BACK	
PROJECT NO:		DECIMALS ANGLES FINISH		DRAWING NO. 472-4376	
MATERIAL: 1018 STEEL		X ±0.5 ±0.5 ✓		REV: 3	
DRAWN BY: jgardynik		XXX ±0.1		SCALE: 2:1	
DATE: 10/8/2013		XXX ±0.1		DRAWING NO. 472-4376	
CHECKED BY:		REMOVE BURRS & BREAK SHARP EDGES; DIMENSIONS UNLESS OTHERWISE SPECIFIED		SCALE: 2:1	
FINISH: 0.007 ELECTROLESS NICKEL PLATE PER SIDE		SIZE: C		SHEET: 1 OF 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

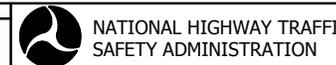


ISO VIEW
SCALE 3/4



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

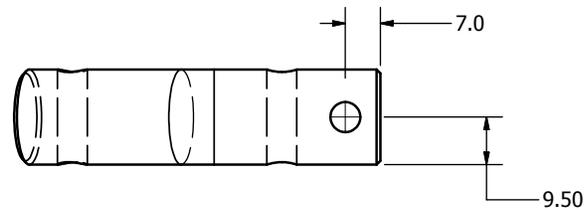
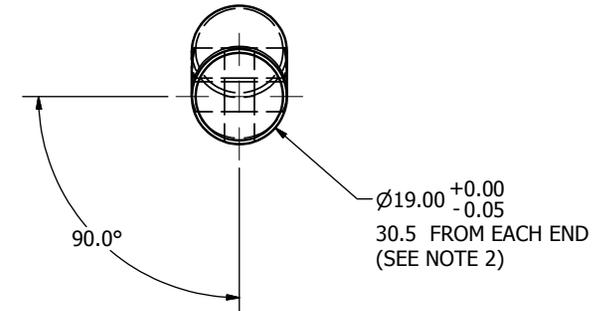
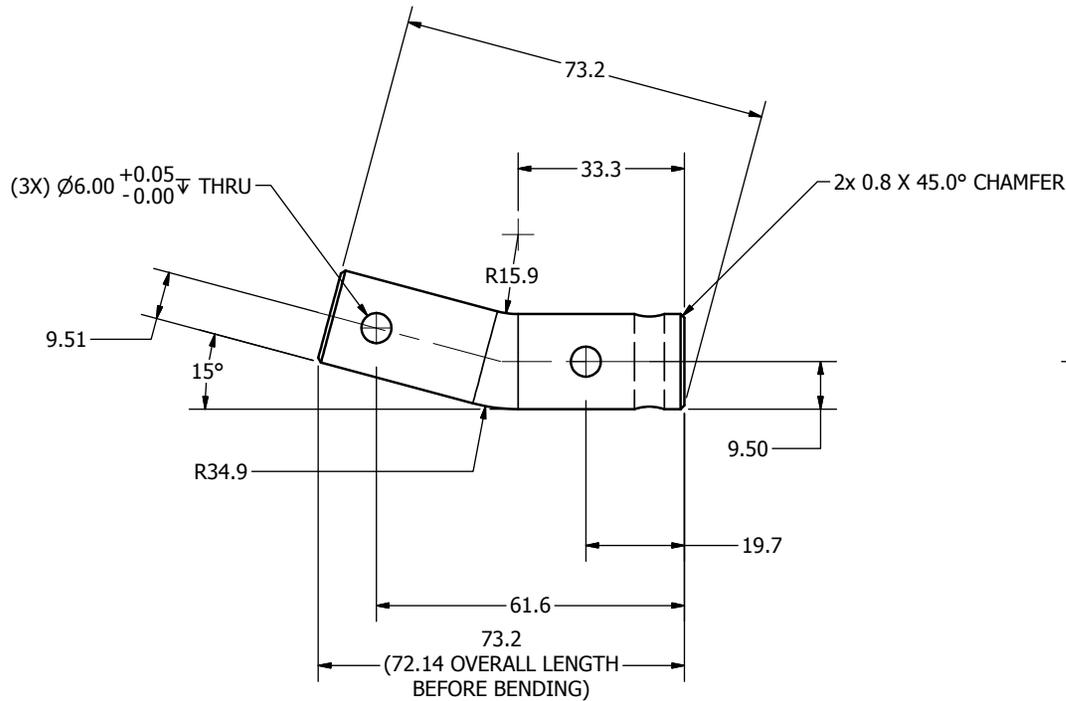
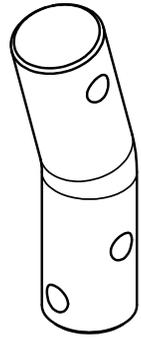
Parts List	
DO NOT SCALE DRAWING THIRD ANGLE PROJECTION	TOLERANCES UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.5 1.6 X.X ±0.2 X.XX ±0.3 X.XXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES
PROJECT NO.: 472-4000	DATE: 8/17/2011
MATERIAL: NEXT ASSEMBLY QTY	DRAWN BY: Thanh
HEAT TREAT: TOTAL QTY IN DUMMY 1	CHECKED BY: J. WANG
FINISH: DATE: 1/23/2012	DATE: 1/23/2012
SIZE: A3 SHEET: 1 OF 1	DRAWING NO.: 472-4800-1



LEFT FEMUR BALL JOINT ASS'Y

B

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

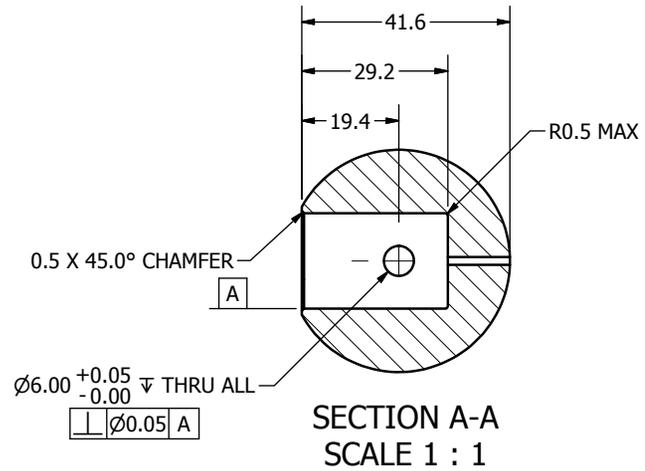
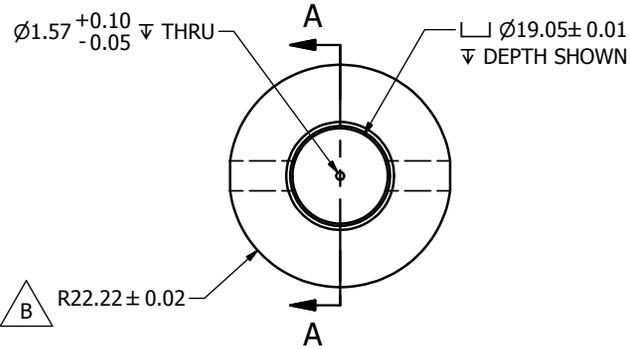
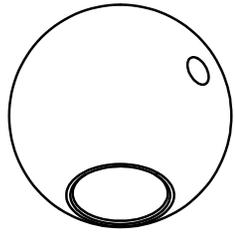


NOTES:

- ONCE THE SHAFT IS BENT TO 15°, THE DIAMETER NEAR THE BEND WILL NEED REMACHINING.

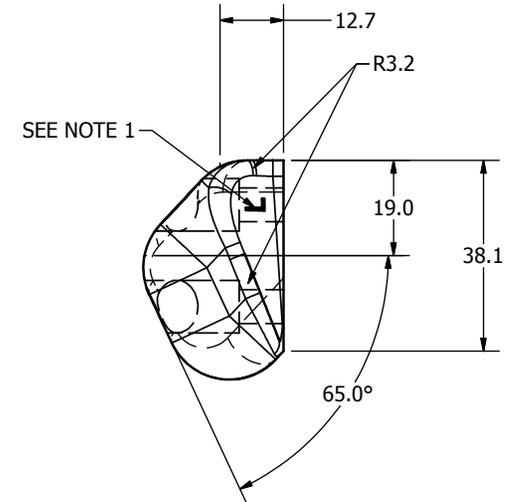
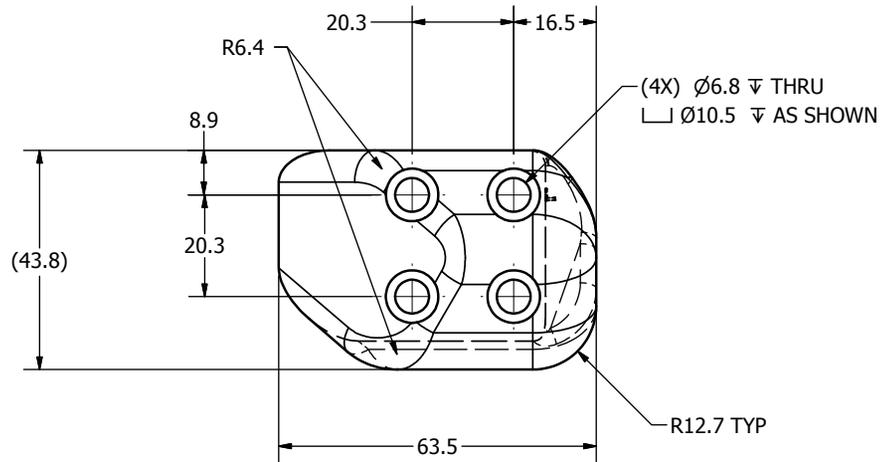
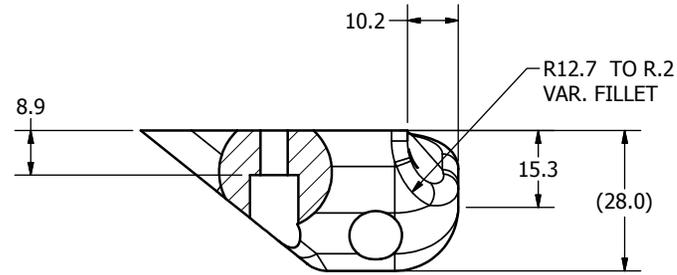
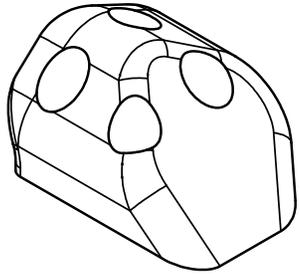
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 1.6 ✓ XX .02 1.6 ✓ XXX .01 1.6 ✓ XXXX 0.01 1.6 ✓		
PROJECT NO.:	472-4800-2	1	PROJECT NO.:	472-4800-1
MATERIAL:	4130 STEEL	1	DESIGNED BY:	HORCHLER
HEAT TREAT:	Rc 44-48	1	CHECKED BY:	TMV
FINISH:	ELECTROLESS NICKEL .008 MAX	2	DATE:	10/26/2011
			ENGINEER:	J. WANG
			DATE:	1/25/2012
TOTAL QTY IN DUMMY: 2				DESCRIPTION: HIP SHAFT SCALE: 1:1 SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-4819 REV.: 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



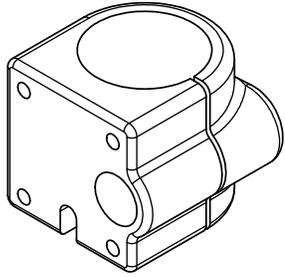
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 16 XX .02 16 XXX .01 16 XXXX 0.01		
PROJECT NO.: 472-4800-2	QTY: 1	DRAWN BY: HORCHLER	DATE: 8/17/2011	DESCRIPTION: FEMUR BALL DRAWING NO.: 472-4820
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

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM112 R2 THOR-M	8/18/2011	JSJ

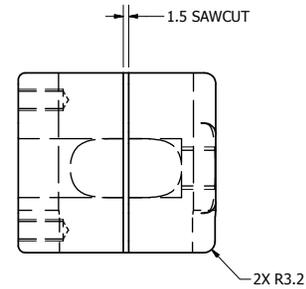
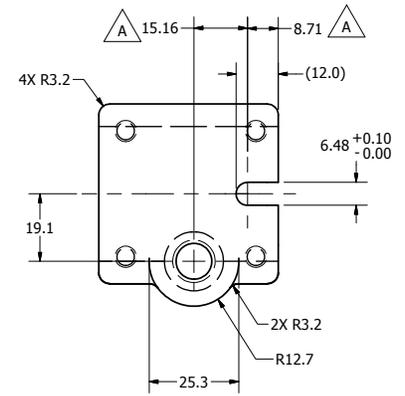
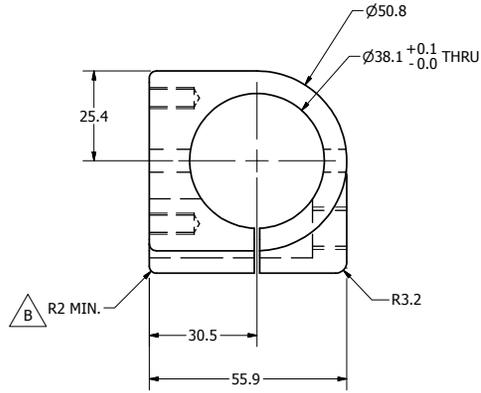
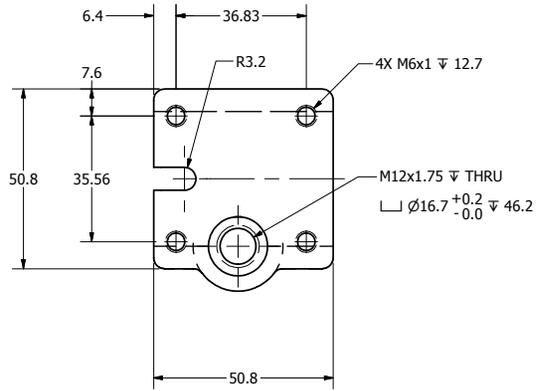


NOTES:
1. ENGRAVE THE LETTER "L"

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED		
PROJECT NO.:	472-4800-1	MATERIAL:	Acetal Resin, White	DESCRIPTION:
DATE:	8/17/2011	HEAT TREAT:		TROCHANTER, LEFT
CHECKED BY:	TMV	ENGINEER:	J. WANG	DATE:
DATE:	10/25/2011	SCALE:	1:1	SIZE: SHEET
ENGINEER:	1/25/2012	SCALE:	1:1	A31 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		DRAWING NO.:
				472-4812-1
				REV.:
				A

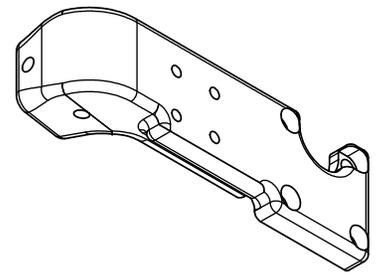
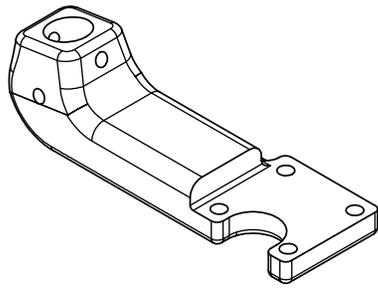


REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM114 R4 FOR THOR-M; 15.16 WAS 15.14, 8.71 WAS 8.76	8/18/2011	JSJ
	B	ADD R2 WAS R1.6	4/24/2012	BK

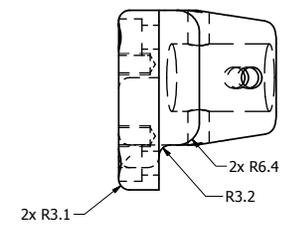
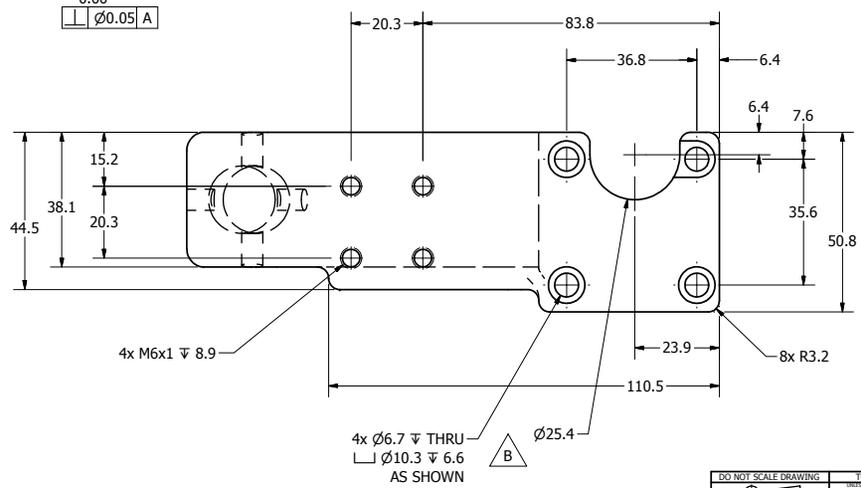
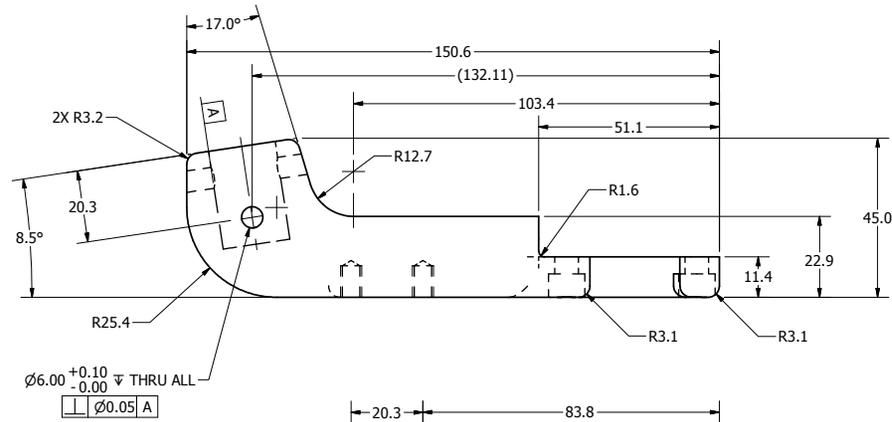
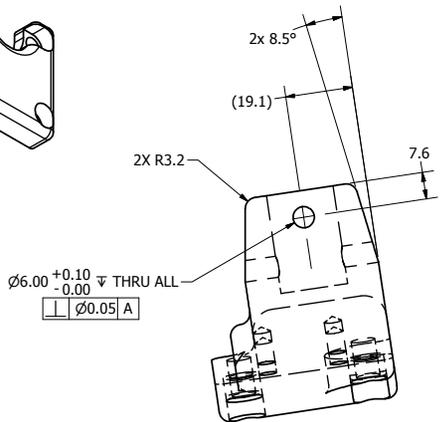
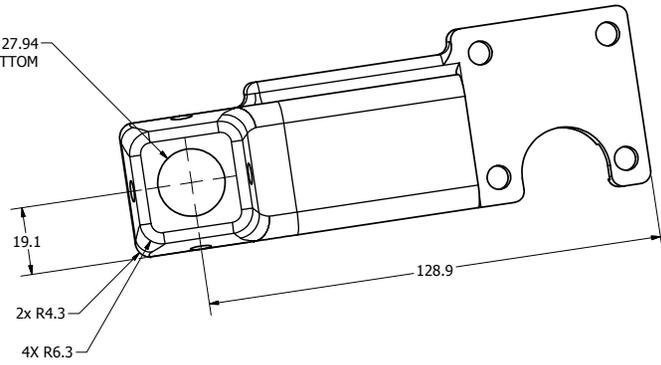


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION					
 THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS 0.1 1/16 0.25 1/8 0.5 1/4 1 1/2 2 1 5 1 1/4 10 1 1/2 20 2 50 2 1/4 100 3 1/4 200 4 1/4 500 5 1/4 1000 6 1/4 2000 7 1/4 5000 8 1/4 10000 9 1/4 20000 10 1/4 50000 11 1/4 100000 12 1/4 200000 13 1/4 500000 14 1/4 1000000 15 1/4 2000000 16 1/4 5000000 17 1/4 10000000 18 1/4 20000000 19 1/4 50000000 20 1/4 100000000 21 1/4 200000000 22 1/4 500000000 23 1/4 1000000000 24 1/4 2000000000 25 1/4 5000000000 26 1/4 10000000000 27 1/4 20000000000 28 1/4 50000000000 29 1/4 100000000000 30 1/4 200000000000 31 1/4 500000000000 32 1/4 1000000000000 33 1/4 2000000000000 34 1/4 5000000000000 35 1/4 10000000000000 36 1/4 20000000000000 37 1/4 50000000000000 38 1/4 100000000000000 39 1/4 200000000000000 40 1/4 500000000000000 41 1/4 1000000000000000 42 1/4 2000000000000000 43 1/4 5000000000000000 44 1/4 10000000000000000 45 1/4 20000000000000000 46 1/4 50000000000000000 47 1/4 100000000000000000 48 1/4 200000000000000000 49 1/4 500000000000000000 50 1/4 1000000000000000000 51 1/4 2000000000000000000 52 1/4 5000000000000000000 53 1/4 10000000000000000000 54 1/4 20000000000000000000 55 1/4 50000000000000000000 56 1/4 100000000000000000000 57 1/4 200000000000000000000 58 1/4 500000000000000000000 59 1/4 1000000000000000000000 60 1/4 2000000000000000000000 61 1/4 5000000000000000000000 62 1/4 10000000000000000000000 63 1/4 20000000000000000000000 64 1/4 50000000000000000000000 65 1/4 100000000000000000000000 66 1/4 200000000000000000000000 67 1/4 500000000000000000000000 68 1/4 1000000000000000000000000 69 1/4 2000000000000000000000000 70 1/4 5000000000000000000000000 71 1/4 10000000000000000000000000 72 1/4 20000000000000000000000000 73 1/4 50000000000000000000000000 74 1/4 100000000000000000000000000 75 1/4 200000000000000000000000000 76 1/4 500000000000000000000000000 77 1/4 1000000000000000000000000000 78 1/4 2000000000000000000000000000 79 1/4 5000000000000000000000000000 80 1/4 10000000000000000000000000000 81 1/4 20000000000000000000000000000 82 1/4 50000000000000000000000000000 83 1/4 100000000000000000000000000000 84 1/4 200000000000000000000000000000 85 1/4 500000000000000000000000000000 86 1/4 1000000000000000000000000000000 87 1/4 2000000000000000000000000000000 88 1/4 5000000000000000000000000000000 89 1/4 10000000000000000000000000000000 90 1/4 20000000000000000000000000000000 91 1/4 50000000000000000000000000000000 92 1/4 100000000000000000000000000000000 93 1/4 200000000000000000000000000000000 94 1/4 500000000000000000000000000000000 95 1/4 1000000000000000000000000000000000 96 1/4 2000000000000000000000000000000000 97 1/4 5000000000000000000000000000000000 98 1/4 10000000000000000000000000000000000 99 1/4 20000000000000000000000000000000000 100 1/4		SHOW DIMENSIONS & REFERENCE DIMENSIONS DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS 0.1 1/16 0.25 1/8 0.5 1/4 1 1/2 2 1 5 1 1/4 10 1 1/2 20 2 50 2 1/4 100 3 1/4 200 4 1/4 500 5 1/4 1000 6 1/4 2000 7 1/4 5000 8 1/4 10000 9 1/4 20000 10 1/4 50000 11 1/4 100000 12 1/4 200000 13 1/4 500000 14 1/4 1000000 15 1/4 2000000 16 1/4 5000000 17 1/4 10000000 18 1/4 20000000 19 1/4 50000000 20 1/4 100000000 21 1/4 200000000 22 1/4 500000000 23 1/4 1000000000 24 1/4 2000000000 25 1/4 5000000000 26 1/4 10000000000 27 1/4 20000000000 28 1/4 50000000000 29 1/4 100000000000 30 1/4 200000000000 31 1/4 500000000000 32 1/4 1000000000000 33 1/4 2000000000000 34 1/4 5000000000000 35 1/4 10000000000000 36 1/4 20000000000000 37 1/4 50000000000000 38 1/4 100000000000000 39 1/4 200000000000000 40 1/4 500000000000000 41 1/4 1000000000000000 42 1/4 2000000000000000 43 1/4 5000000000000000 44 1/4 10000000000000000 45 1/4 20000000000000000 46 1/4 50000000000000000 47 1/4 100000000000000000 48 1/4 200000000000000000 49 1/4 500000000000000000 50 1/4 1000000000000000000 51 1/4 2000000000000000000 52 1/4 5000000000000000000 53 1/4 10000000000000000000 54 1/4 20000000000000000000 55 1/4 50000000000000000000 56 1/4 100000000000000000000 57 1/4 200000000000000000000 58 1/4 500000000000000000000 59 1/4 1000000000000000000000 60 1/4 2000000000000000000000 61 1/4 5000000000000000000000 62 1/4 10000000000000000000000 63 1/4 20000000000000000000000 64 1/4 50000000000000000000000 65 1/4 100000000000000000000000 66 1/4 200000000000000000000000 67 1/4 500000000000000000000000 68 1/4 1000000000000000000000000 69 1/4 2000000000000000000000000 70 1/4 5000000000000000000000000 71 1/4 10000000000000000000000000 72 1/4 20000000000000000000000000 73 1/4 50000000000000000000000000 74 1/4 100000000000000000000000000 75 1/4 200000000000000000000000000 76 1/4 500000000000000000000000000 77 1/4 1000000000000000000000000000 78 1/4 2000000000000000000000000000 79 1/4 5000000000000000000000000000 80 1/4 10000000000000000000000000000 81 1/4 20000000000000000000000000000 82 1/4 50000000000000000000000000000 83 1/4 100000000000000000000000000000 84 1/4 200000000000000000000000000000 85 1/4 500000000000000000000000000000 86 1/4 1000000000000000000000000000000 87 1/4 2000000000000000000000000000000 88 1/4 5000000000000000000000000000000 89 1/4 10000000000000000000000000000000 90 1/4 20000000000000000000000000000000 91 1/4 50000000000000000000000000000000 92 1/4 100000000000000000000000000000000 93 1/4 200000000000000000000000000000000 94 1/4 500000000000000000000000000000000 95 1/4 1000000000000000000000000000000000 96 1/4 2000000000000000000000000000000000 97 1/4 5000000000000000000000000000000000 98 1/4 10000000000000000000000000000000000 99 1/4 20000000000000000000000000000000000 100 1/4		472-4800-1 1 1018 STEEL NEXT ASSEMBLY QTY TOTAL QTY IN DUMMY 1 ELECTROLESS NICKEL 008 MAX		DESIGNED BY: HORCHLER CHECKED BY: J. WANG DATE: 8/17/2011 DATE: 11/25/2012 DRAWING NO.: 472-4814-1 SHEET NO.: 111 PART NO.: 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



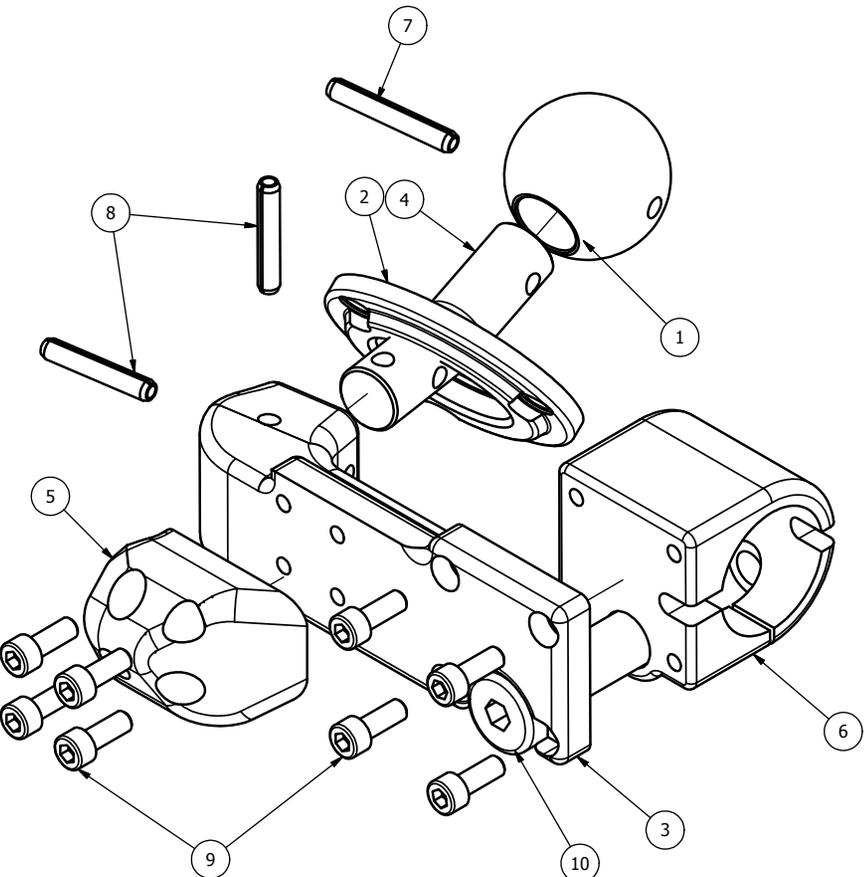
Ø19.05±0.02 ∇ 27.94
FLAT BOTTOM



NOTES:
1. BREAK ALL SHARP EDGES.
2. PLUG Ø19.05 AND M6x1 HOLES BEFORE APPLYING SURFACE FINISH.

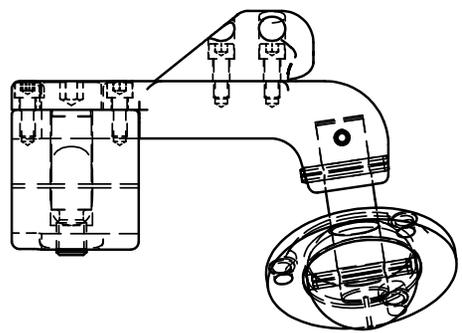
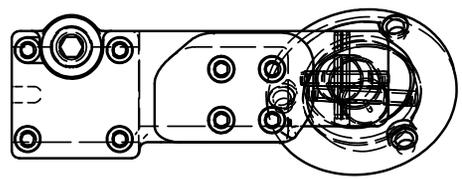
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN HUNDRETHS FRACTIONS ARE IN THIRDS		HIP ARM, LEFT	
472-4800-1	1	1018 STEEL	HORCHLER	8/17/2011	
NEXT ASSEMBLY	QTY		PREPARED BY	DATE	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL .008 MAX	J. WANG	1/25/2012	

A21 of 1		472-4815-1
11	11	



ISO VIEW
SCALE 3/4

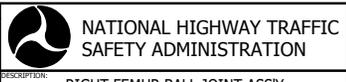
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM101 R2 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	TKN
	B	ADD 5000298	7/19/2012	BK



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
ITEM	QTY	PART NUMBER	DESCRIPTION

Parts List

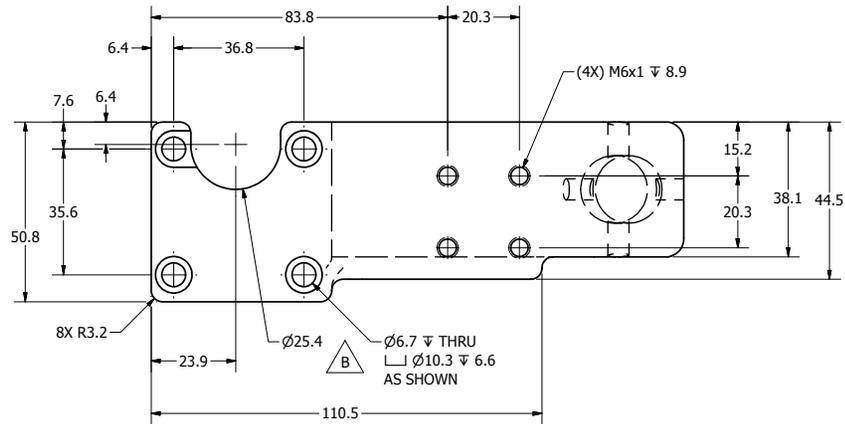
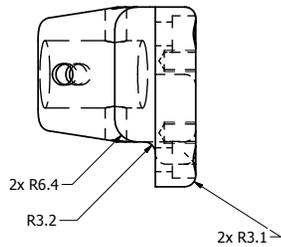
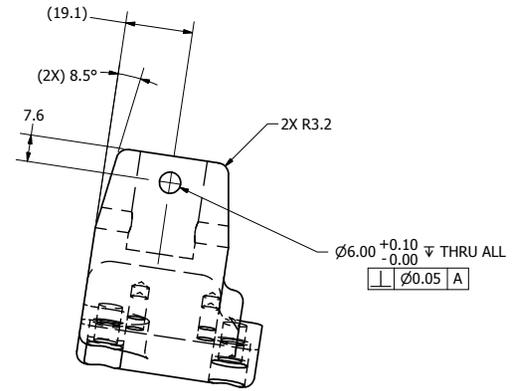
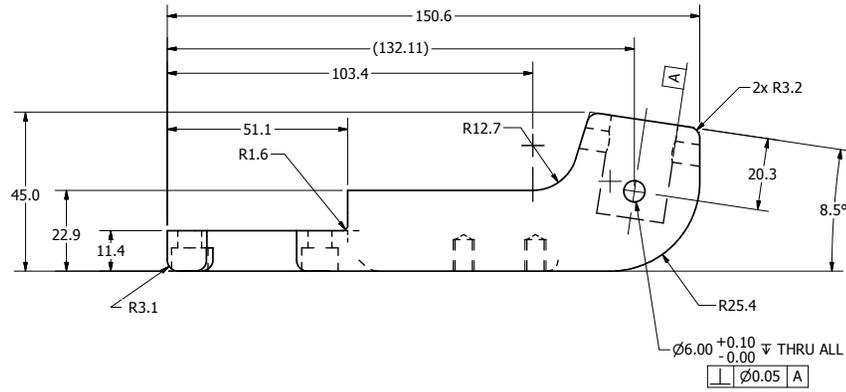
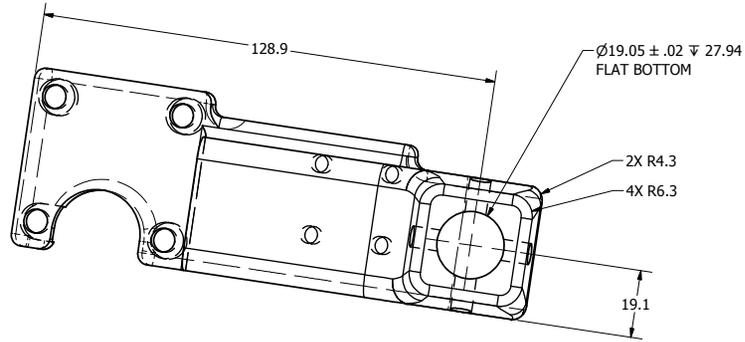
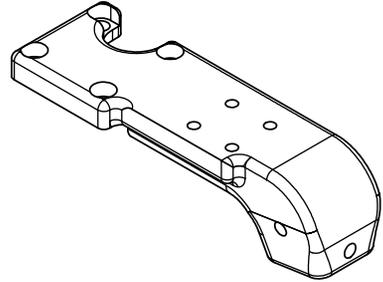
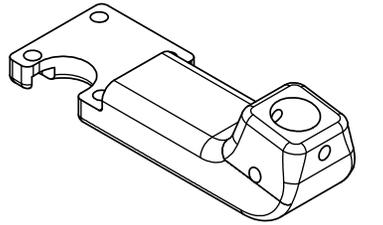
DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
	DECIMALS ANGLES FINISH
	0.05 0.05 1.6
	X.X ±0.2
	X.XX ±0.3
	X.XXX ±0.01



NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

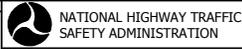
PROJECT NO:	DATE:	8/17/2011	SIZE:	SHEET:	DRAWING NO.:	REV.:
472-4000	1	THANH	A3	1 OF 1	472-4800-2	B
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SCALE:		
TOTAL QTY IN DUMMY	1	J. WANG	1/23/2012	1:2		

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	
472-4800-2	1	1018 STEEL	HORCHLER	8/17/2011	HIP ARM, RIGHT
NEXT ASSEMBLY	QTY		PREPARED BY	DATE	REVISED BY
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL .008 MAX	J. WANG	1/25/2012	11

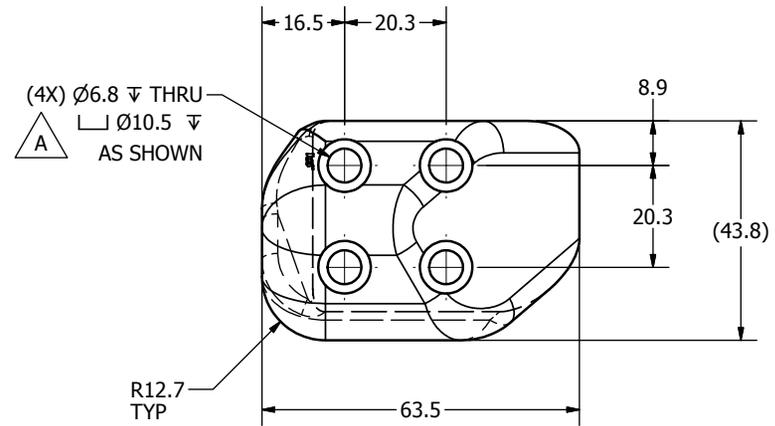
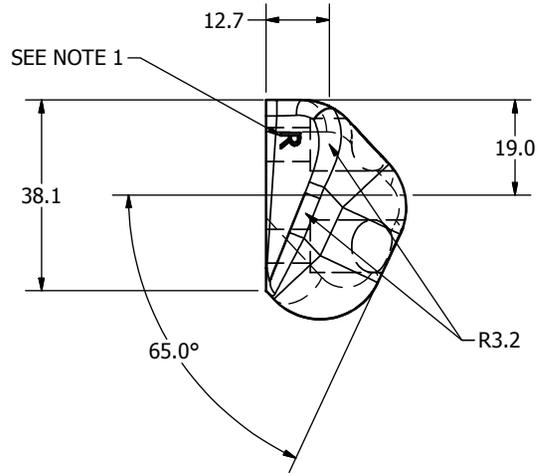
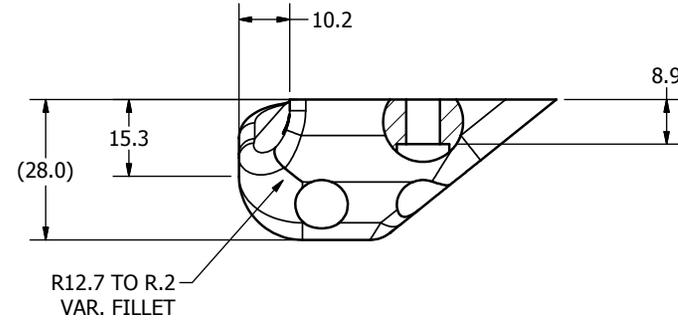
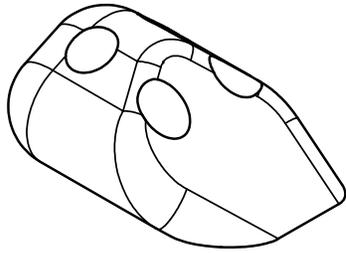


HIP ARM, RIGHT

472-4815-2

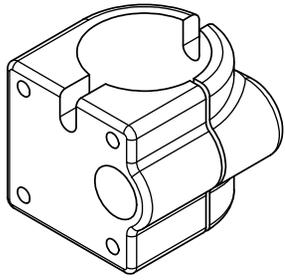
A21 of 1

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

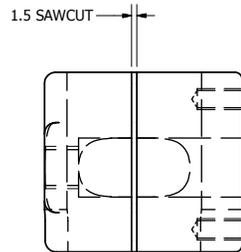
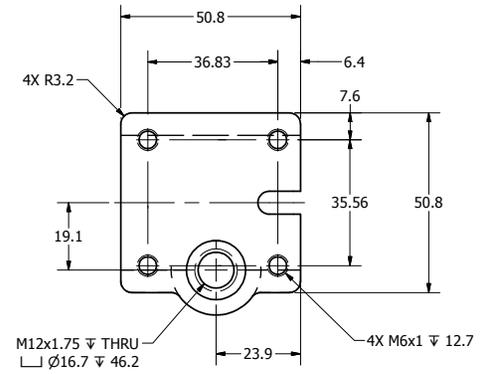
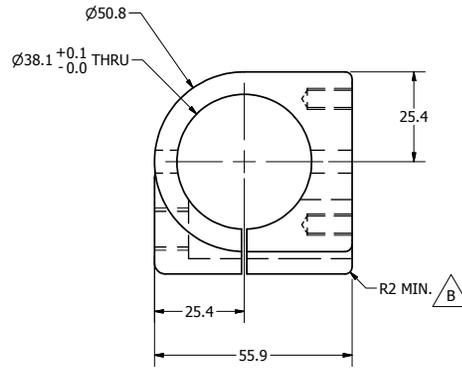
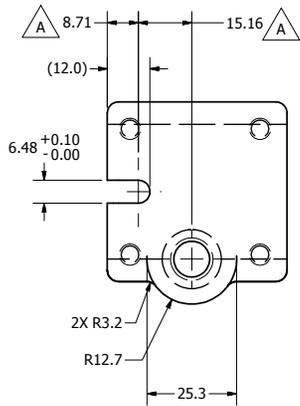


NOTES:
1. ENGRAVE THE LETTER "R"

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	CHECKED BY:	HORCHLER	TROCHANTER, RIGHT
DATE:	10/25/2011	ENGINEER:	J. WANG	SIZE: A3
DATE:	1/25/2012	SCALE:	1:1	SHEET: 1 OF 1
TOTAL QTY IN DUMMY: 1				DRAWING NO.:
				472-4812-2

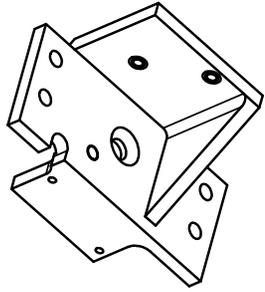


SCALE 1.000



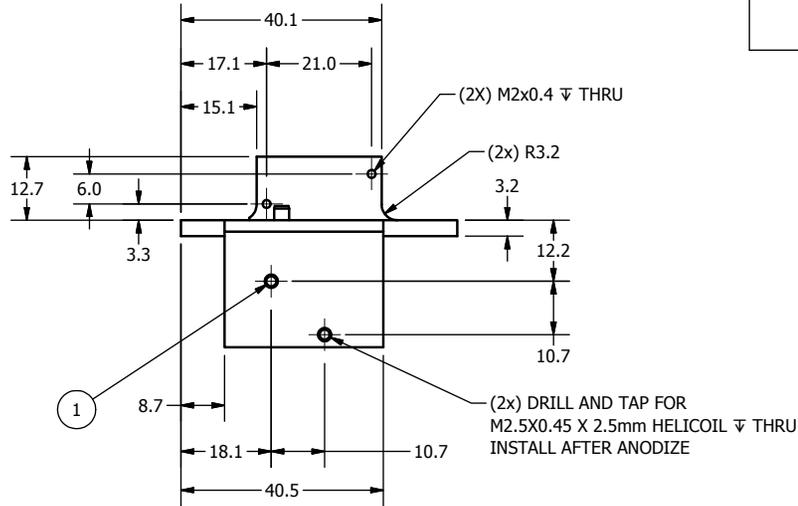
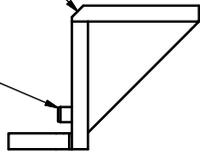
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM116 R03 FOR THOR-M; 15.16 WAS 15.14, 8.71 WAS 8.76	8/18/2011	JSJ
	B	ADD R2 WAS R1.6	4/24/2012	BK

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN PARENTHESES		HIP CYLINDER, RIGHT	
PART NO. 472-4800-2		SHOW HIDDEN & BREAK SHARP EDGES		DATE 8/17/2011	
QTY 1		MATERIAL 1018 STEEL		DRAWN BY HORCHLER	
NEXT ASSEMBLY		ELECTROLESS NICKEL Z08 MAN		CHECKED BY J. WANG	
TOTAL QTY IN DUMMY 1		DATE 1/25/2012		DRAWN BY 1/25/2012	
		PAGE 1 OF 1		472-4814-2	

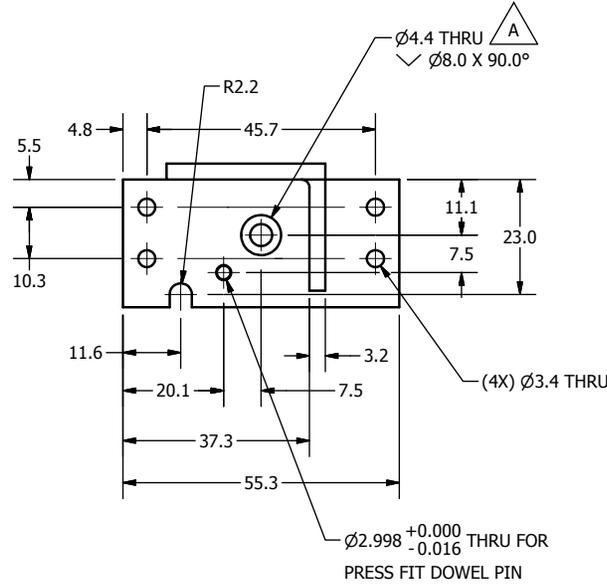


2.3 X 45.0° Chamfer

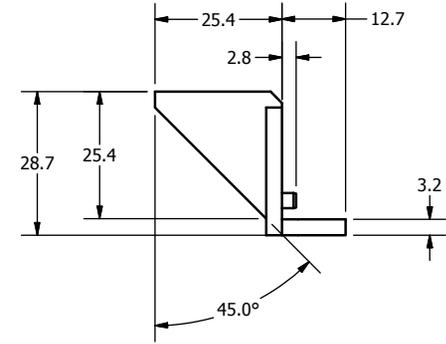
2



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 1.0 1.6
X 0.2 0.5
X.X 0.3
X.XX 0.01
X.XXX 0.001

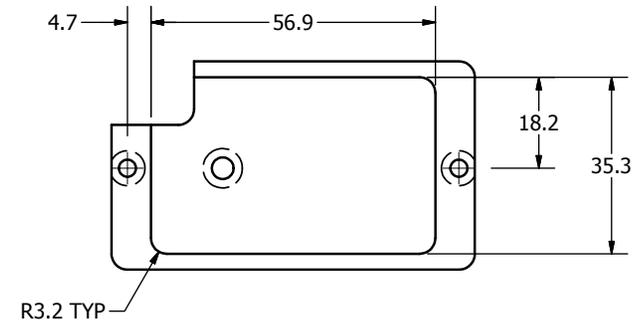
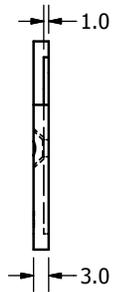
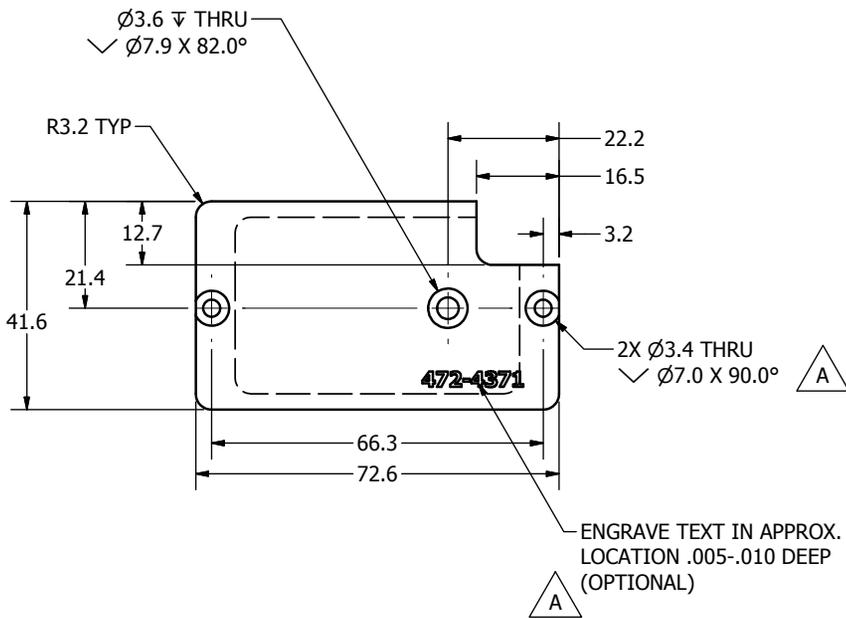


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-4000	QTY: 1	MATERIAL: 6061-T6 ALUMINUM	DATE: 8/23/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION PELVIS TRI-PACK MOUNTING BRKT.
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	

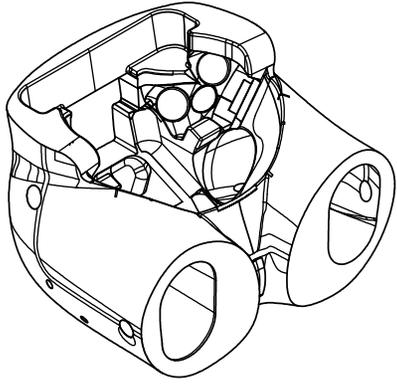
SIZE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-4361	REV: A
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REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM111 R03 FOR THOR-M; Ø3.4 THRU C'SINK Ø7.0 X 90° WAS Ø3.0 THRU C'SINK Ø6.6 X 82°; ADD (OPTIONAL) TO NOTE	8/18/2011	JSJ

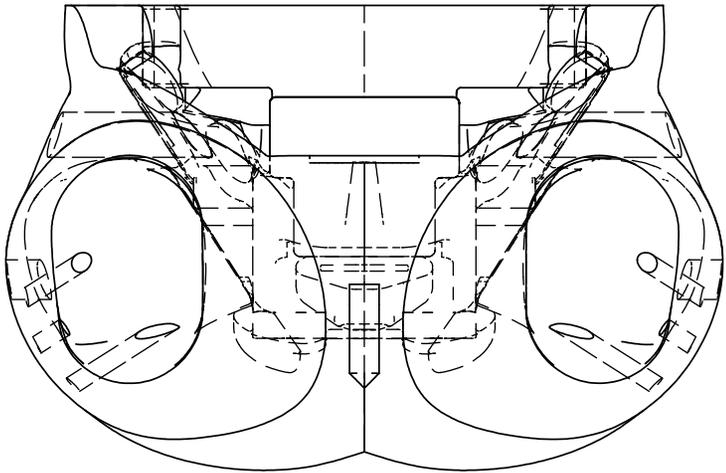
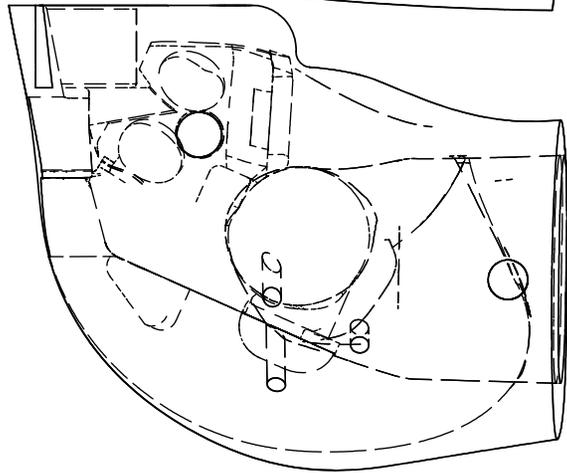
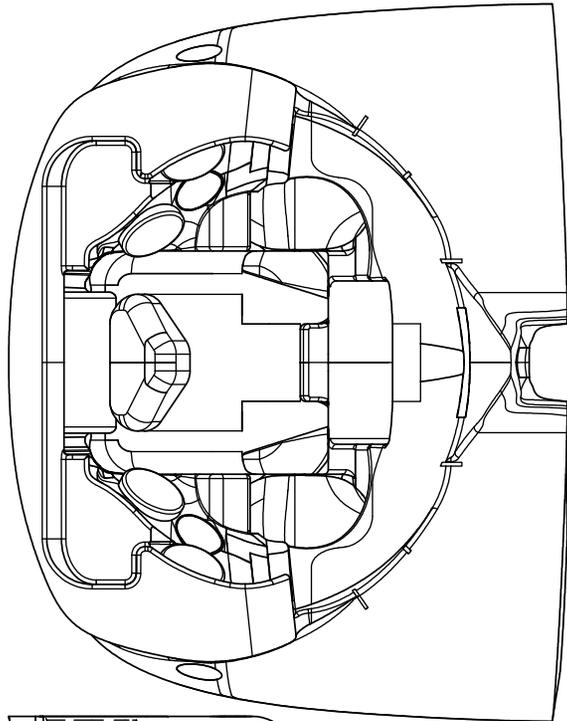


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO.:	472-4000	MATERIAL:	Aluminum-6061-T6	DESCRIPTION:
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	SCALE:	1:1	1 OF 1
TOTAL QTY IN DUMMY:	1			DRAWING NO.:
				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

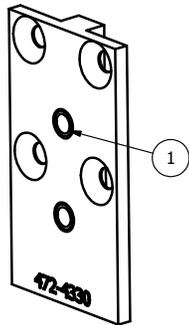
DO NOT SCALE DRAWING 		TOLERANCES <small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS</small> .3 .125 .005 .0005 .6 .250 .010 .0010 1.2 .500 .020 .0020 2.5 1.000 .050 .0050 5.0 2.000 .100 .0100 12.5 5.000 .200 .0200 25.0 10.000 .500 .0500 50.0 20.000 1.000 .1000 100.0 40.000 2.000 .2000 250.0 100.000 5.000 .5000 500.0 200.000 10.000 1.0000 1.000 .005 .005 .005 2.000 .010 .010 .010 5.000 .020 .020 .020 10.000 .050 .050 .050 25.000 .100 .100 .100 50.000 .200 .200 .200 100.000 .500 .500 .500 250.000 1.000 1.000 1.000 500.000 2.000 2.000 2.000 1.000 .005 .005 .005 2.000 .010 .010 .010 5.000 .020 .020 .020 10.000 .050 .050 .050 25.000 .100 .100 .100 50.000 .200 .200 .200 100.000 .500 .500 .500 250.000 1.000 1.000 1.000 500.000 2.000 2.000 2.000		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION PELVIS FLESH, MOLDED	
PART NO: 472-4000	QTY: 1	SEE NOTES	DESIGNED BY: S. RICE	DATE: 8/15/2011	
NEXT ASSEMBLY	QTY	TMV	DATE: 9/12/2011	DRAWN BY: J. WANG	
TOTAL QTY IN DUMMY	1	DATE: 1/18/2012	SCALE: .500	PART NO: 472-4100	

4

3

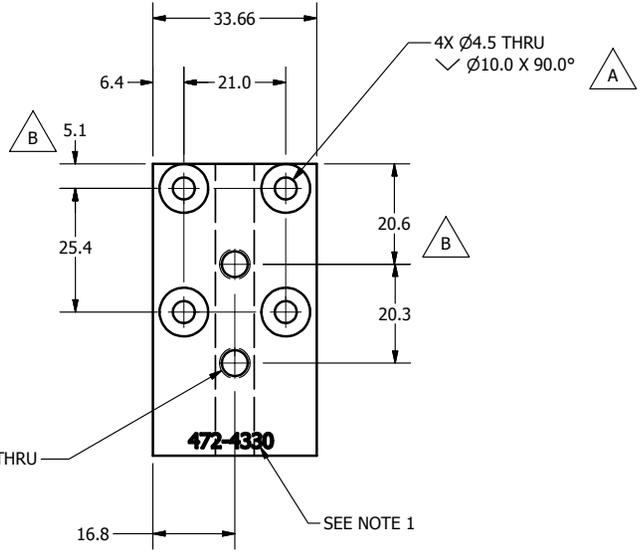
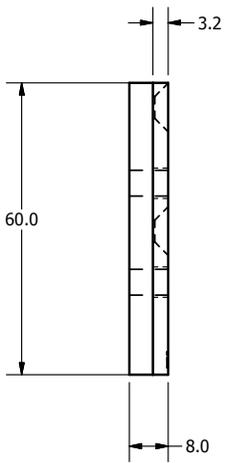
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1



1

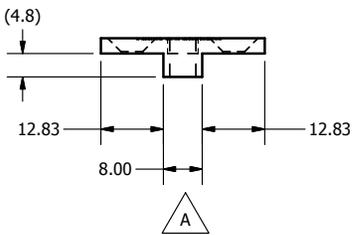
B



2X M5x0.8 HELICOIL THRU

472-4330

SEE NOTE 1



- NOTES:
1. ENGRAVE 472-4330 ON THE AREA SPEC'D ABOVE. (OPTIONAL) A
 2. INSTALL HELICOILS AFTER ANODIZE.

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

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 0.1 1.6	
		X.XXX 0.01 0.8	
		X.XXX 0.001 0.8	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.	MATERIAL: Aluminum-6061-T6	DRAWN BY: Jordan	DATE: 8/23/2011
472-4000	1	CHECKED BY: TMV	DATE: 10/27/2011
NEXT ASSEMBLY	QTY	ENGINEER: J. WANG	DATE: 1/23/2012
TOTAL QTY IN DUMMY	1	FINISH: CLEAR ANODIZE	
		DESCRIPTION: FRONT PELVIC PLATE	
		DRAWING NO.: 472-4330	
		SHEET: 1 OF 1	
		SCALE: 1:1	

4

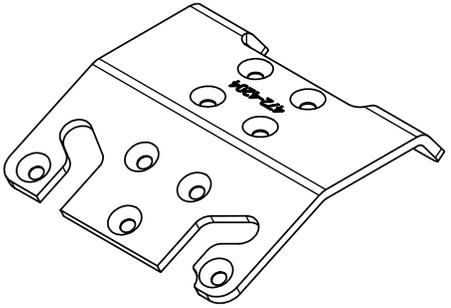
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2

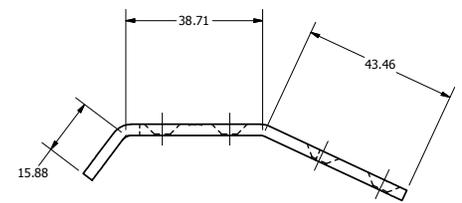
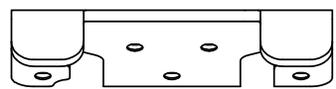
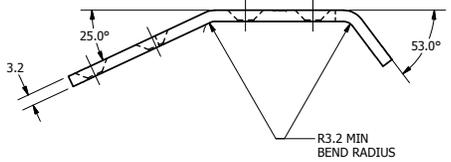
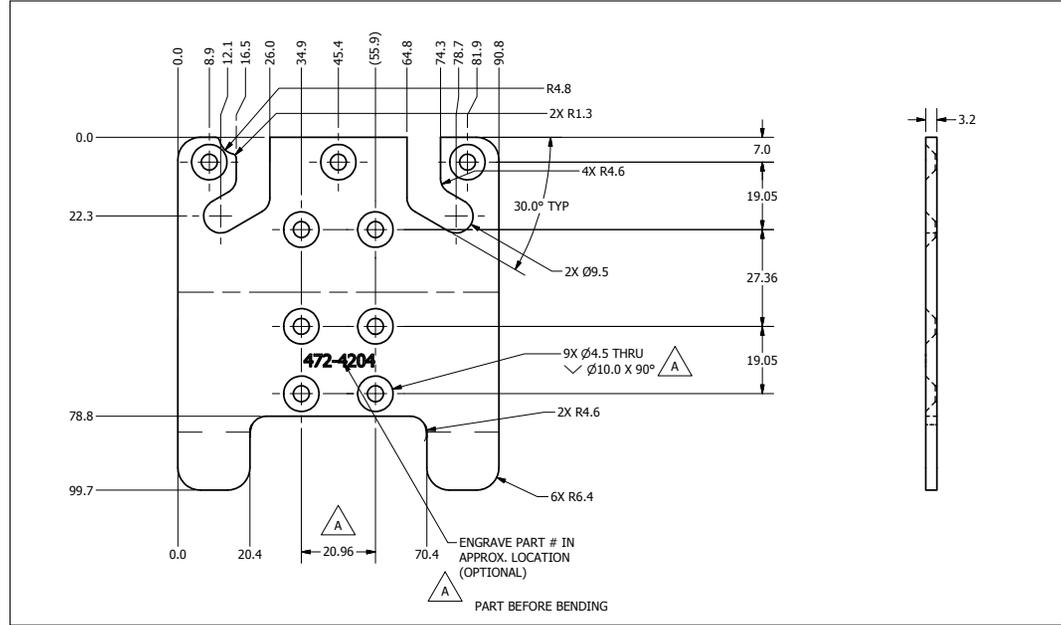
1



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

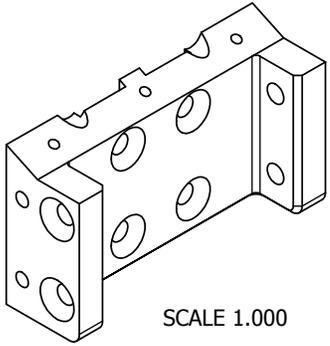


SCALE 1.000

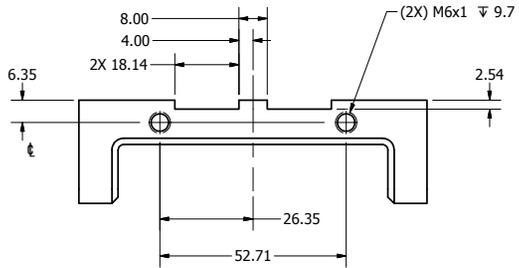
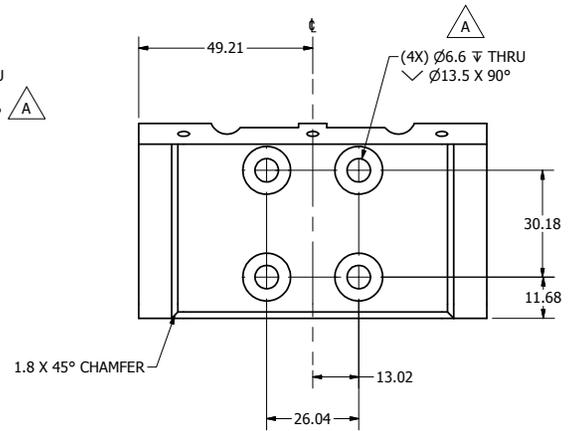
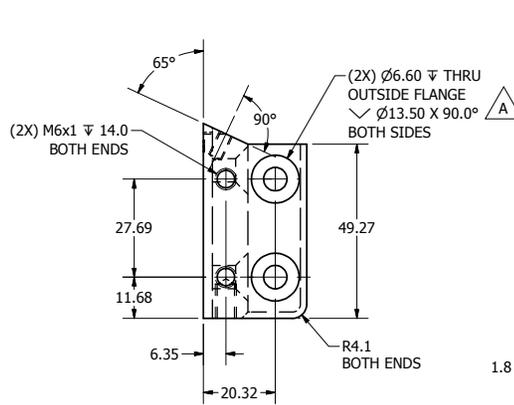
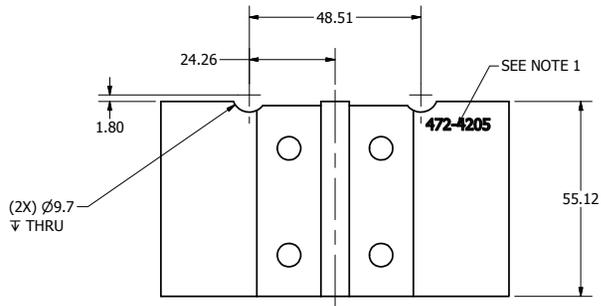
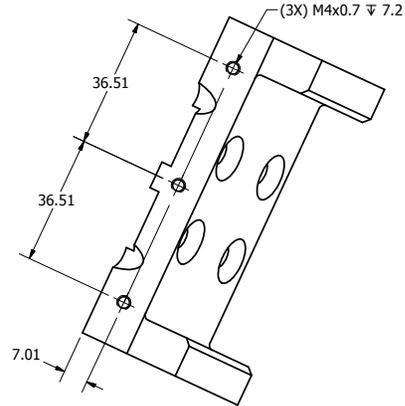
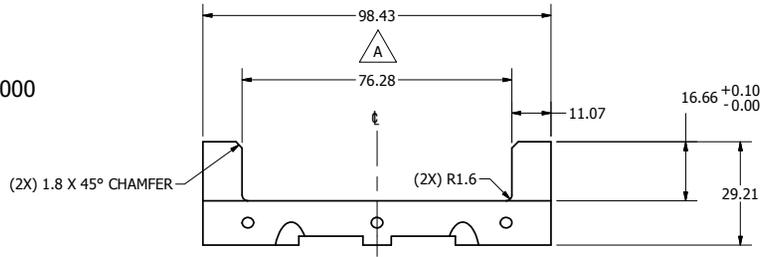


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DECIMAL FRACTIONS UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS FRACTIONS: FRACTION DECIMAL EQUIV. FRACTION 1/16 0.0625 1/8 0.125 1/4 0.25 3/8 0.375 1/2 0.5 5/8 0.625 3/4 0.75 7/8 0.875 1 1.0 1 1/8 1.125 1 1/4 1.25 1 3/4 1.5 2 2.0 2 1/2 2.5 3 3.0 4 4.0 5 5.0 6 6.0 8 8.0 10 10.0 12 12.0 16 16.0 20 20.0 25 25.0 30 30.0 40 40.0 50 50.0 60 60.0 80 80.0 100 100.0			
PART NO. 472-4300		DRAWN BY jordan		DATE 8/25/2011	
MATERIAL Aluminum-6061-T6		DESIGNED BY TMV		DATE 10/27/2011	
NEXT ASSEMBLY QTY 1		CHECKED BY J. WANG		DATE 1/18/2012	
TOTAL QTY IN DUMMY 1		FINISH CLEAR ANODIZE		SHEET 11 OF 11 PART NO. 472-4204	

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM214 R05 AND CONVERTED TO METRIC FOR THOR-M; 98.43 WAS 98.43+.00/-0.05; 76.28 WAS 76.28+.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



SCALE 1.000

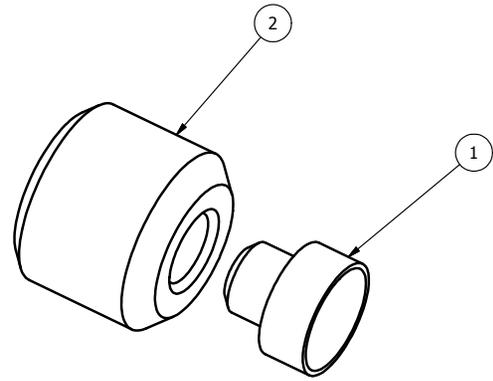


NOTE:
1. ENGRAVE DWG. #472-4205 AT APPROXIMATE LOCATION SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIS DRAWING IS UNCONTROLLED UNLESS INDICATED OTHERWISE		DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		PELVIS, REAR PLATE	
472-4300	1	1018 STEEL	Jordan	8/24/2011	
NEXT ASSEMBLY	QTY		TMV	10/26/2011	
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL PLATE (88 PH)	J. WANG	1/18/2012	

ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM214 R05 AND CONVERTED TO METRIC FOR THOR-M; 98.43 WAS 98.43+.00/-0.05; 76.28 WAS 76.28+.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

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

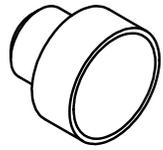
Parts List

<p>DO NOT SCALE DRAWING</p> <p>THIRD ANGLE PROJECTION</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</p> <table border="1"> <tr> <th>DIMENSIONAL</th> <th>ANGLES</th> <th>FINISH</th> </tr> <tr> <td>X ± 0.2</td> <td>0.5°</td> <td>1.6</td> </tr> <tr> <td>XX ± 0.1</td> <td></td> <td></td> </tr> <tr> <td>XXX ± 0.05</td> <td></td> <td></td> </tr> </table>			DIMENSIONAL	ANGLES	FINISH	X ± 0.2	0.5°	1.6	XX ± 0.1			XXX ± 0.05			<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>
	DIMENSIONAL	ANGLES	FINISH													
X ± 0.2	0.5°	1.6														
XX ± 0.1																
XXX ± 0.05																
<p>REMOVE BURRS & BREAK SHARP EDGES</p>																

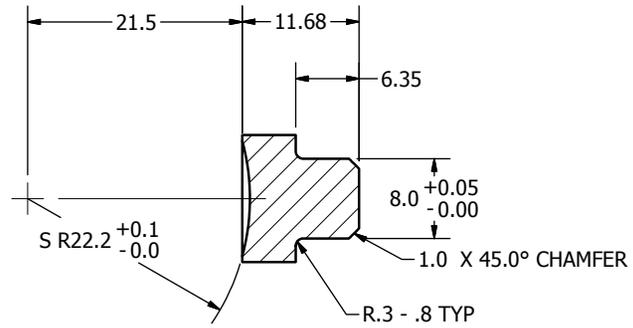
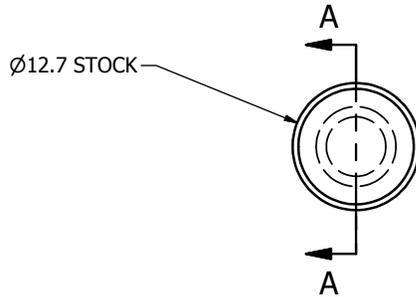
PROJECT NO.		DRAWN BY:	jordan	DATE:	8/24/2011
472-4000	2	MATERIAL:		CHECKED BY:	TMV
NEXT ASSEMBLY	QTY	HEAT TREAT:		DATE:	9/13/2011
TOTAL QTY IN DUMMY	2	FINISH:		ENGINEER:	J. WANG
				DATE:	1/20/2012

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
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DECIMALS ANGLES FINISH
0.05 ± 0.05 1.6
0.1 ± 0.1 1.6
0.2 ± 0.2 1.6
0.3 ± 0.3 1.6
0.01 ± 0.01 1.6



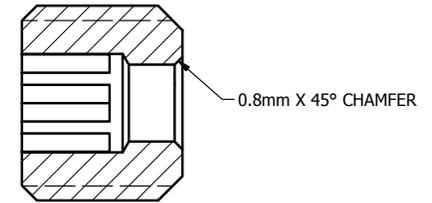
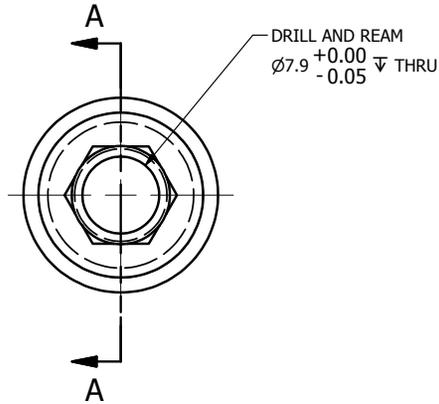
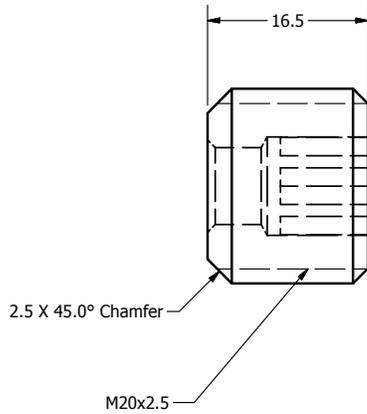
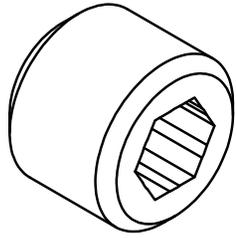
NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

PROJECT NO.: 472-4310	QUANTITY: 1	MATERIAL: Nylon-6/6	DATE: 8/24/2011	DESCRIPTION: FRICTION ADJUSTMENT NYLON TIP
CHECKED BY: TMV	HEAT TREAT:	ENGINEER: J. WANG	DATE: 9/13/2011	
TOTAL QTY IN DUMMY: 2	FINISH:	SCALE: 2.000	DATE: 1/23/2012	

SIZE: A3
SHEET: 1 OF 1

DRAWING NO.: 472-4311

REV: A



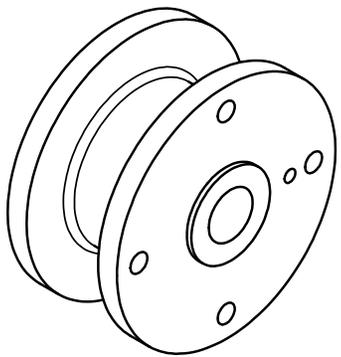
SECTION A-A
SCALE 2 : 1

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
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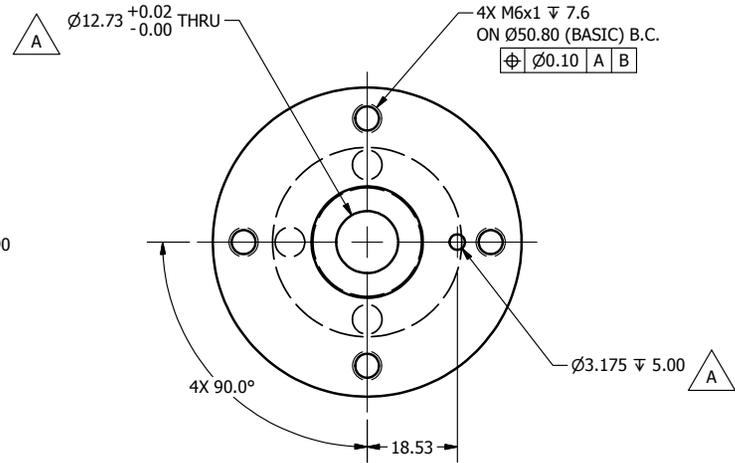
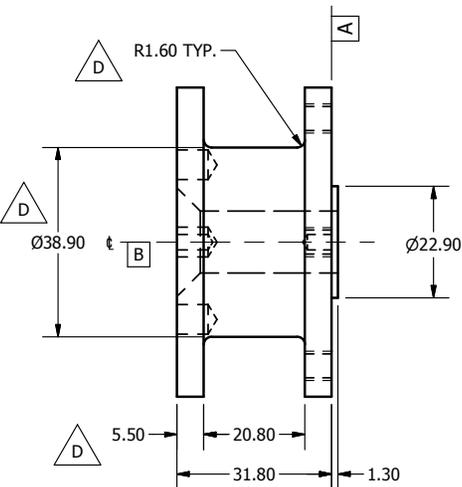
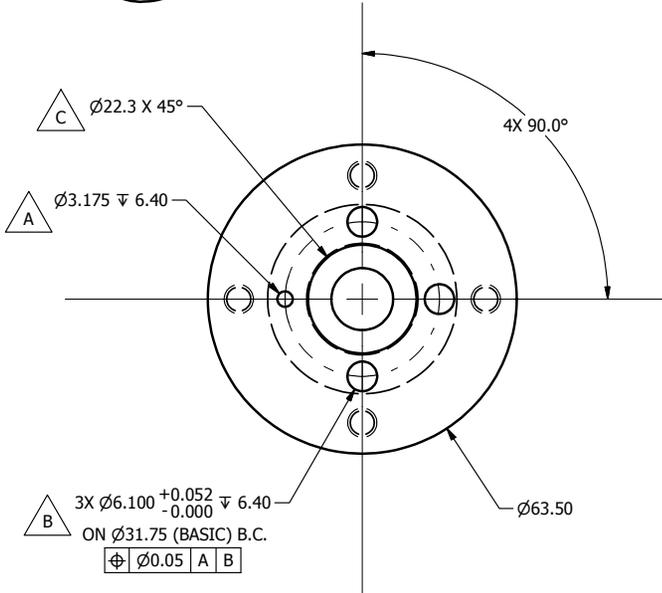
NOTES:

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		FRICITION ADJUSTMENT SET SCREW	
PROJECT NO. 472-4310		DRAWN BY: jordan		DATE: 8/24/2011	
QTY: 1		CHECKED BY: TMV		DATE: 9/9/2011	
NEXT ASSEMBLY		ENGINEER: J. WANG		DATE: 1/23/2012	
TOTAL QTY IN DUMMY: 2		SIZE: B		SHEET: 1 OF 1	
		FORGET: 2:1		DRAWING NO.: 472-4312	
				REV: A	



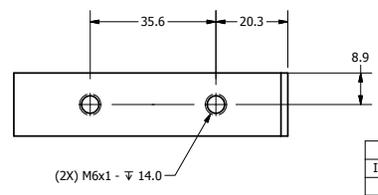
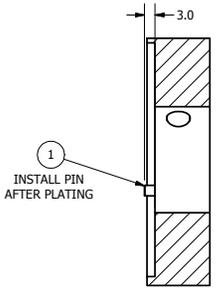
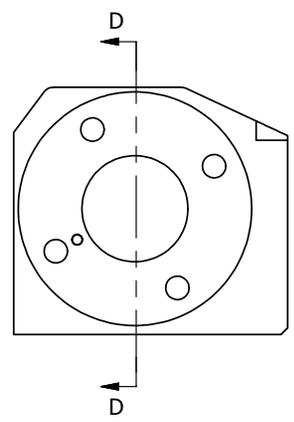
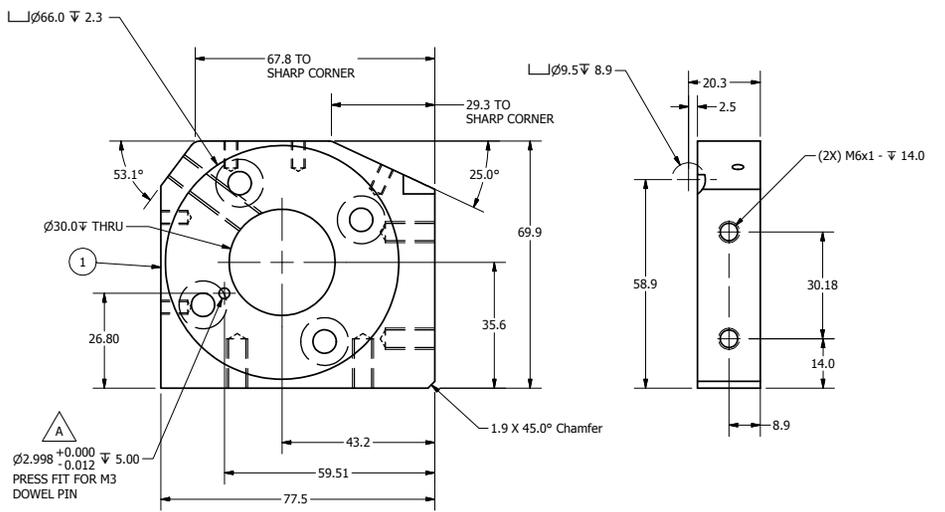
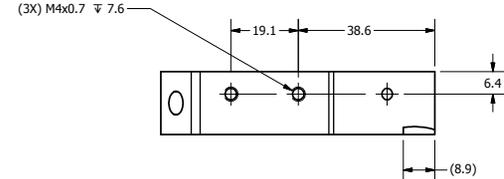
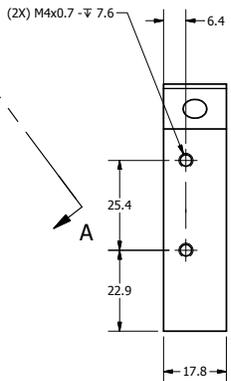
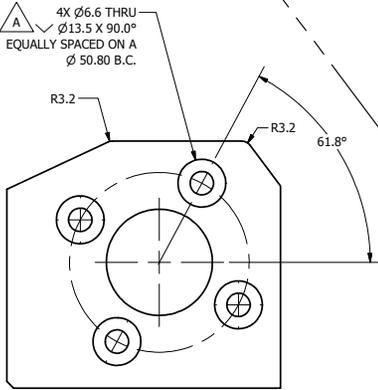
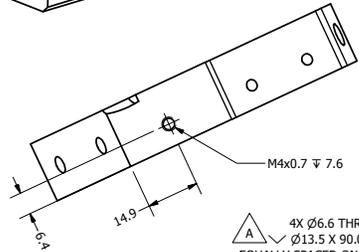
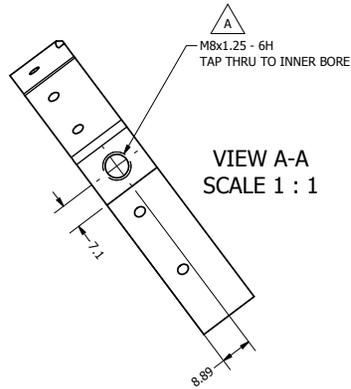
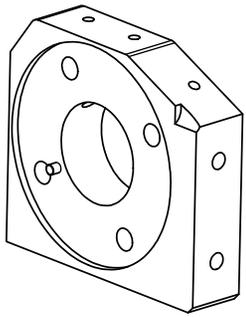
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM220 R03 AND CONVERTED TO METRIC FOR THOR-M; ADD $\varnothing 3.175 \pm 6.40$, $\varnothing 3.175 \pm 5.00$; $\varnothing 12.73 \pm 0.02/-0.00$ WAS $12.73 \pm 0.08/-0.00$	8/23/2011	JSJ
	B	$\varnothing 6.10 \pm 0.05/-0$ WAS $\varnothing 6.042 \pm 0.052/-0$	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
 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 0.0 1.6
 X.XXX 0.001 0.0 1.6
 REMOVE BURRS & BREAK SHARP EDGES



PROJECT NO.	472-4000	MATERIAL:	1018 STEEL	DRAWN BY:	jjordan	DATE:	10/20/2011	SHEET:	B 1 OF 1	DRAWING NO.:	472-4323	REV:	D
NEXT ASSEMBLY	QTY	PART TREAT:		CHECKED BY:		DATE:		SCALE:	1:1				
TOTAL QTY IN DUMMY	2	FINISH:	NICKEL PLATE .008 MAX	ENGINEER:	J. WANG	DATE:	1/23/2012						



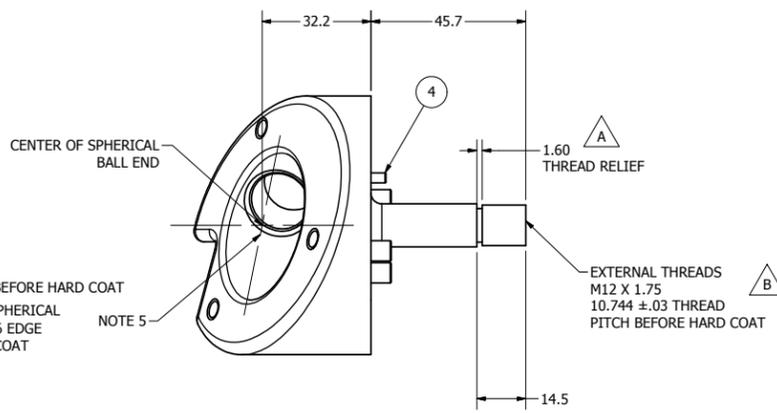
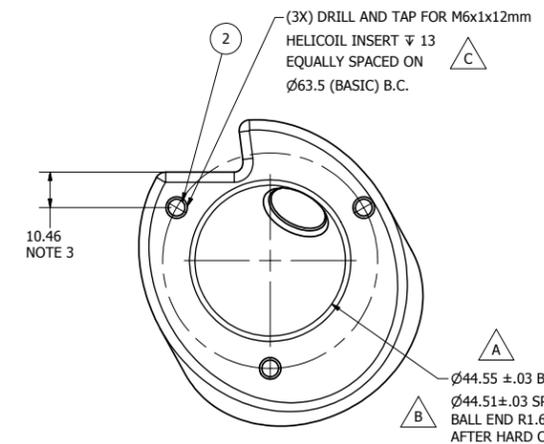
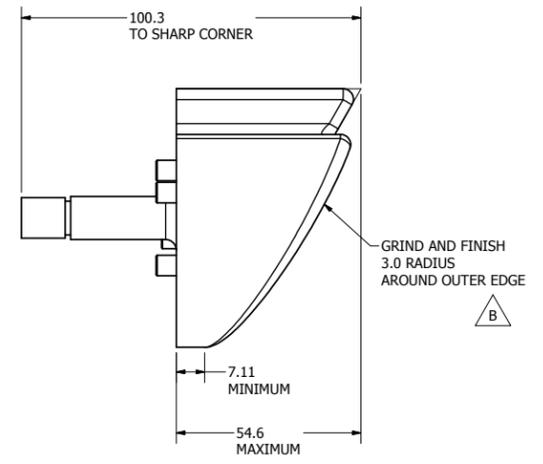
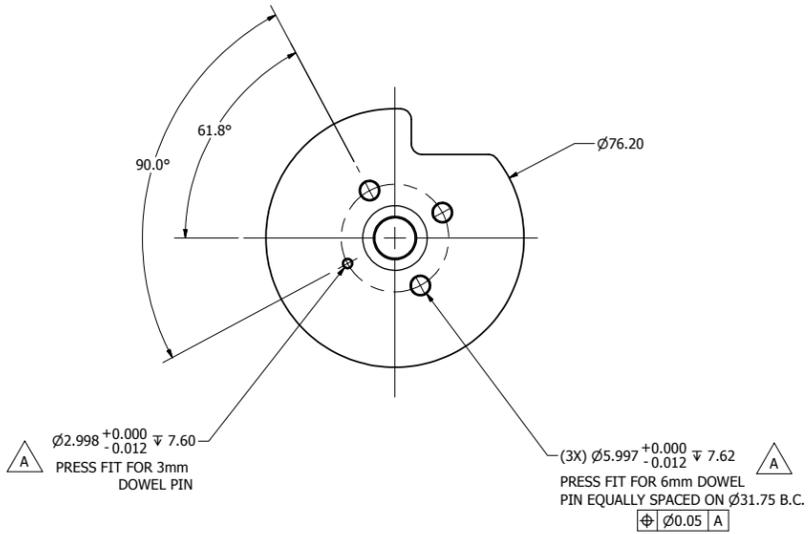
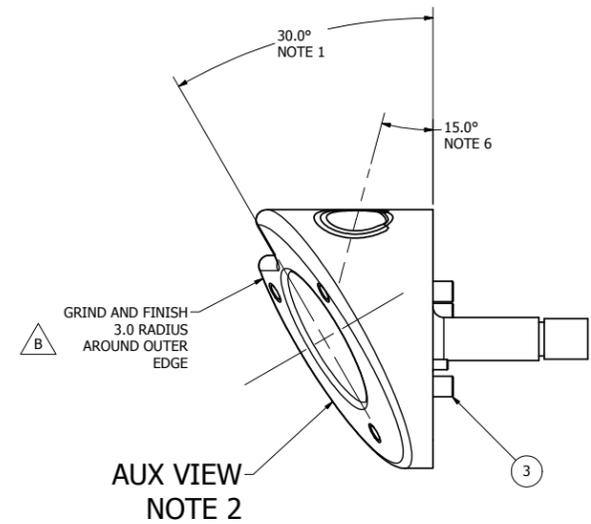
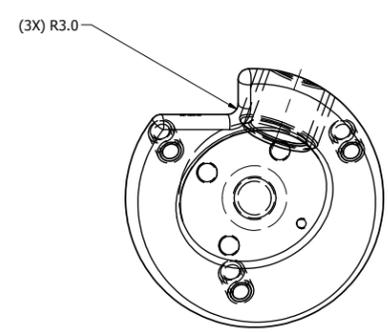
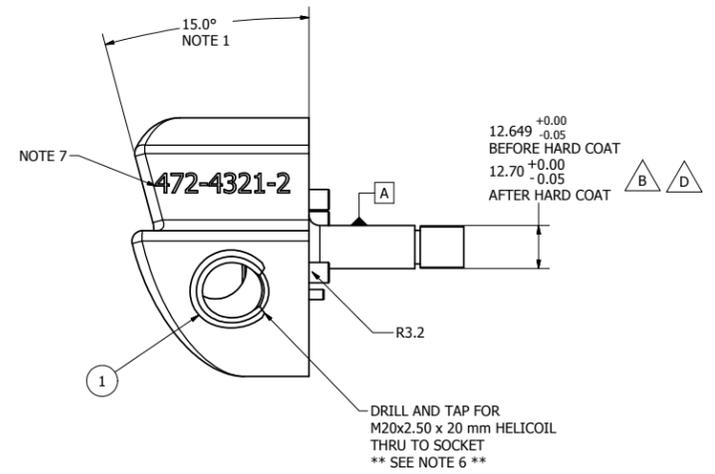
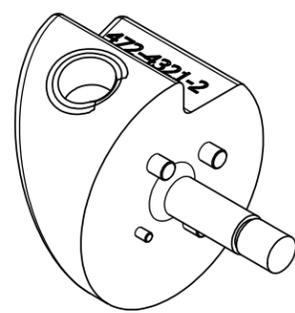
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TIPLM211-03 AND CONVERTED TO METRIC FOR THOR-M; 6.6 WAS 6.8, CSINK Ø13.5 X 90° WAS Ø13.2 X 82; ADD Ø2.998 +0.000/-0.012 1 5.0, M8x1.25 TAP HOLE	8/22/2011	JSJ
	B	NICKEL PLATE WAS TEFLON (ECO 10179)	10/17/2011	TMV

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	DESCRIPTION	DATE
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL PLATE 300 WAA	J. WANG 1/23/2012

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 FRACTIONS ARE TO BE USED FRACTIONS ARE TO BE USED FRACTIONS ARE TO BE USED		
PROJECT NO.	DESIGNER	DATE	 PELVIS LOAD CELL MTG PLATE LEFT
472-4000	Jordan	8/22/2011	
NEXT ASSEMBLY	QTY	DESCRIPTION	DATE
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL PLATE 300 WAA	J. WANG 1/23/2012

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+0.000/-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	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/-0.01	7/12/2012	TMV



AUX VIEW NOTE 2

- 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 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	9005155	HELICOIL, M6x1x12mm
1	1	5000430	HELICOIL M20x2.5 X 20 mm

DO NOT SCALE DRAWING

TOLERANCES UNLESS OTHERWISE SPECIFIED

FRONT VIEW

DATE: 8/25/2011

DESIGNED BY: jgerden

CHECKED BY: TMV

DATE: 7/2/2012

DATE: 1/23/2012

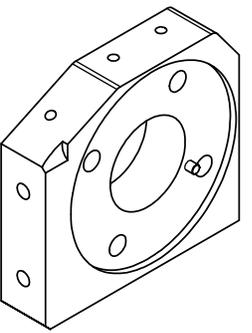
DESIGNED BY: J. WANG

DATE: 1/23/2012

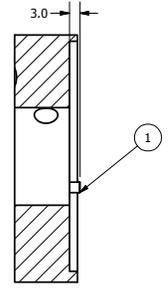
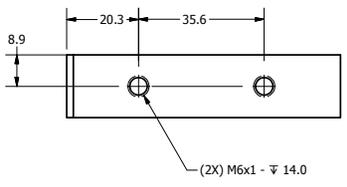
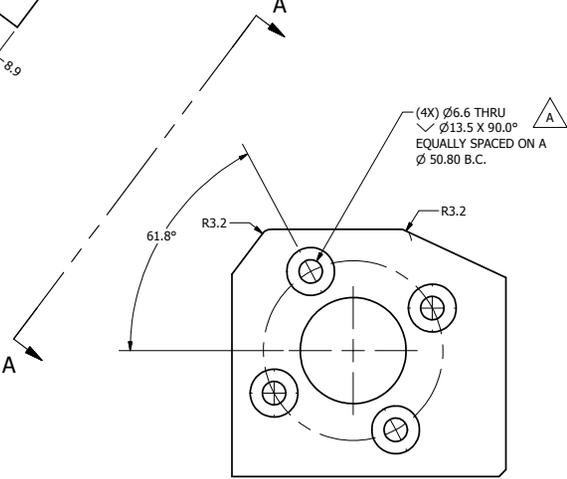
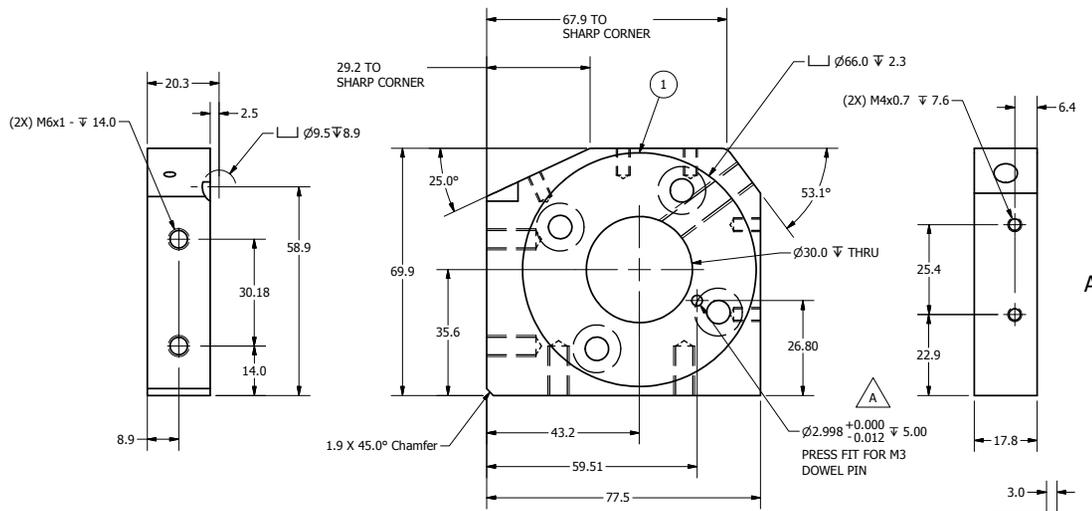
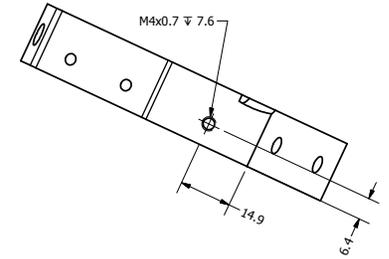
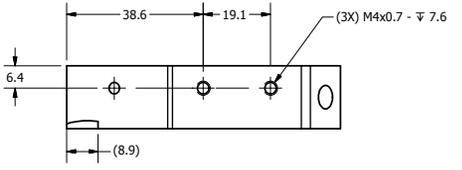
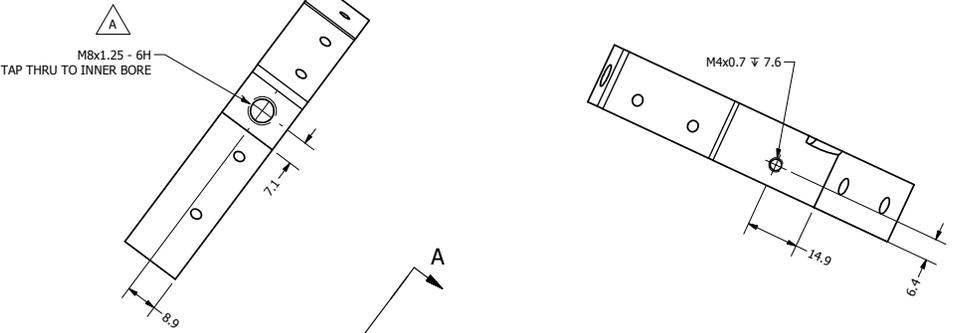
1 OF 1

472-4321-2

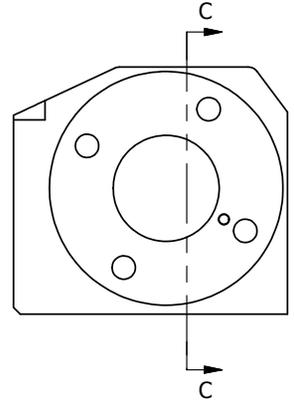
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PLM211-03 AND CONVERTED TO METRIC FOR THOR-M; · 6.6 WAS · 6.8, C'SINK Ø13.5 X 90° WAS Ø13.2 X 82°; ADD Ø2.998 +.000/-0.012 1.5.0, M8x1.25 TAP HOLE	8/23/2011	JSJ
	B	NICKEL PLATE FINISH WAS TEFLON (ECO 10181)	10/18/2011	TMV



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

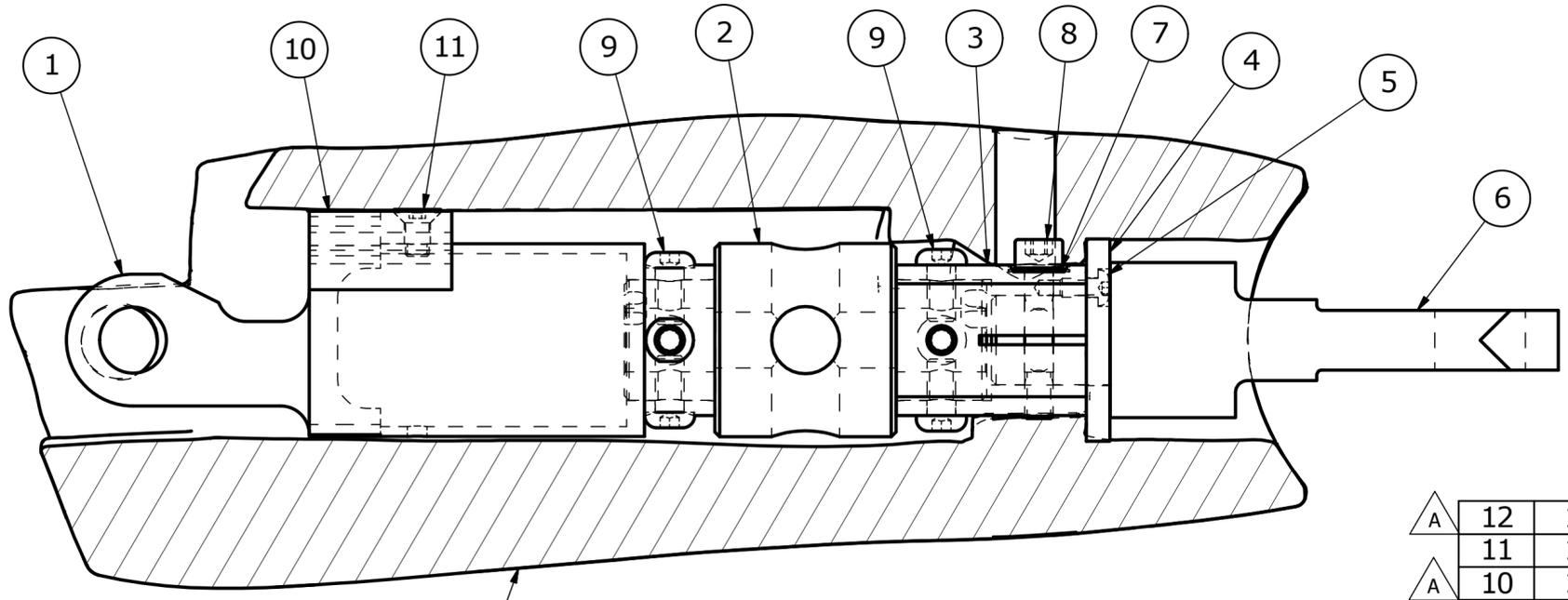
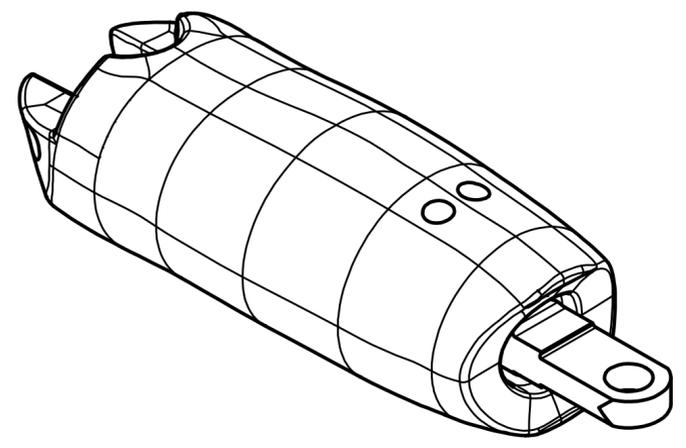
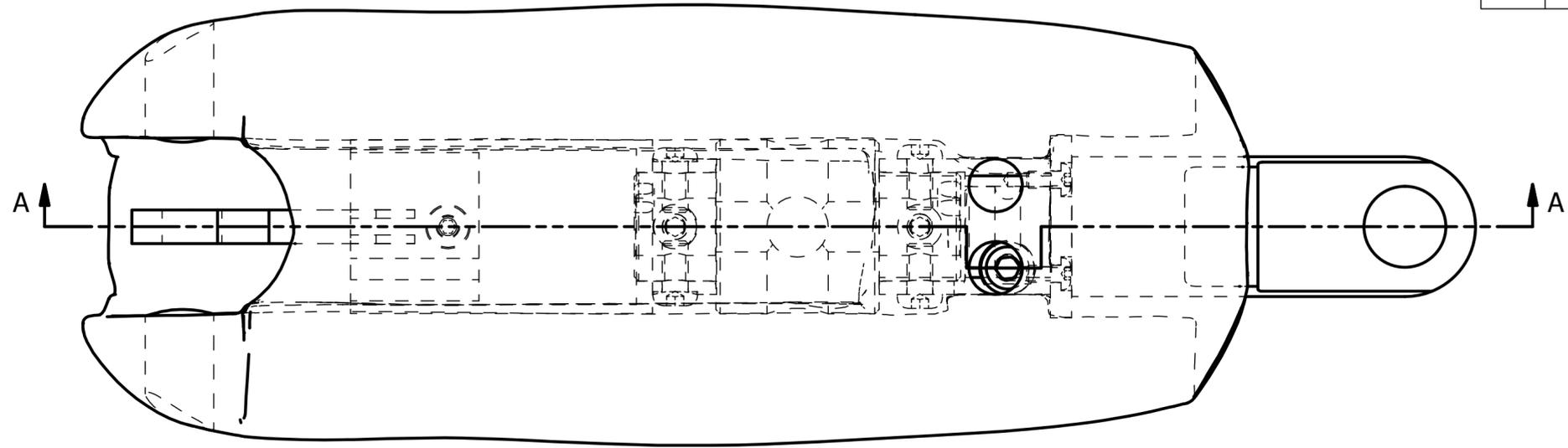
Parts List			
472-4000	1	1018 STEEL	Jordan
NEXT ASSEMBLY	QTY	BY	DATE
TOTAL QTY IN DUMMY	1	ELECTROLESS NICKEL PLATE (88 PH)	J. WANG

TOLERANCES			
UNLESS OTHERWISE SPECIFIED	ALL DIMENSIONS ARE IN MILLIMETERS	DECIMALS	FRACTIONS
±0.15	±0.05	±0.01	±0.005
±0.30	±0.10	±0.02	±0.01
±0.60	±0.20	±0.04	±0.02
±1.20	±0.40	±0.08	±0.04
±2.40	±0.80	±0.16	±0.08

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
PROJECT NO.	DATE	REV	DESCRIPTION
472-4000	8/23/2011		PELVIS LOAD CELL MTG. PLATE (RIGHT)
DESIGNED BY	CHECKED BY	DATE	BY
Jordan	TMV	10/31/2011	JSJ
DATE	BY	DATE	BY
10/31/2011	J. WANG	11/23/2012	TMV

472-4325-2	1	ELECTROLESS NICKEL PLATE (88 PH)	J. WANG
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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: 8/12/2013 DRAWN: JIM CLEVINGER CHECKED: _____ MATERIAL: ENG HEAT TREAT: APPROVED FINISH: _____	
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UPPER HUMERUS ASSEMBLY SIZE: C DRAWING NUMBER: 472-6200 REV: A SCALE: 1:1 SHEET: 1 OF 1	

4

3

2

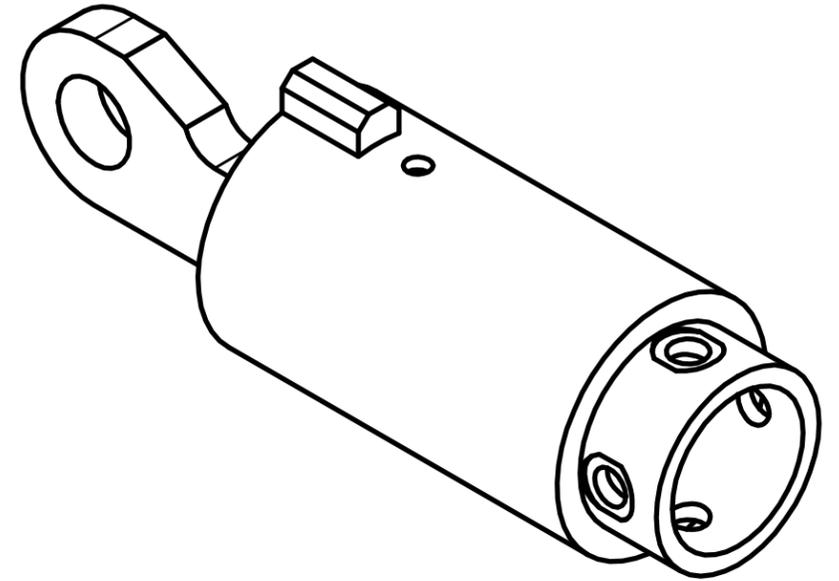
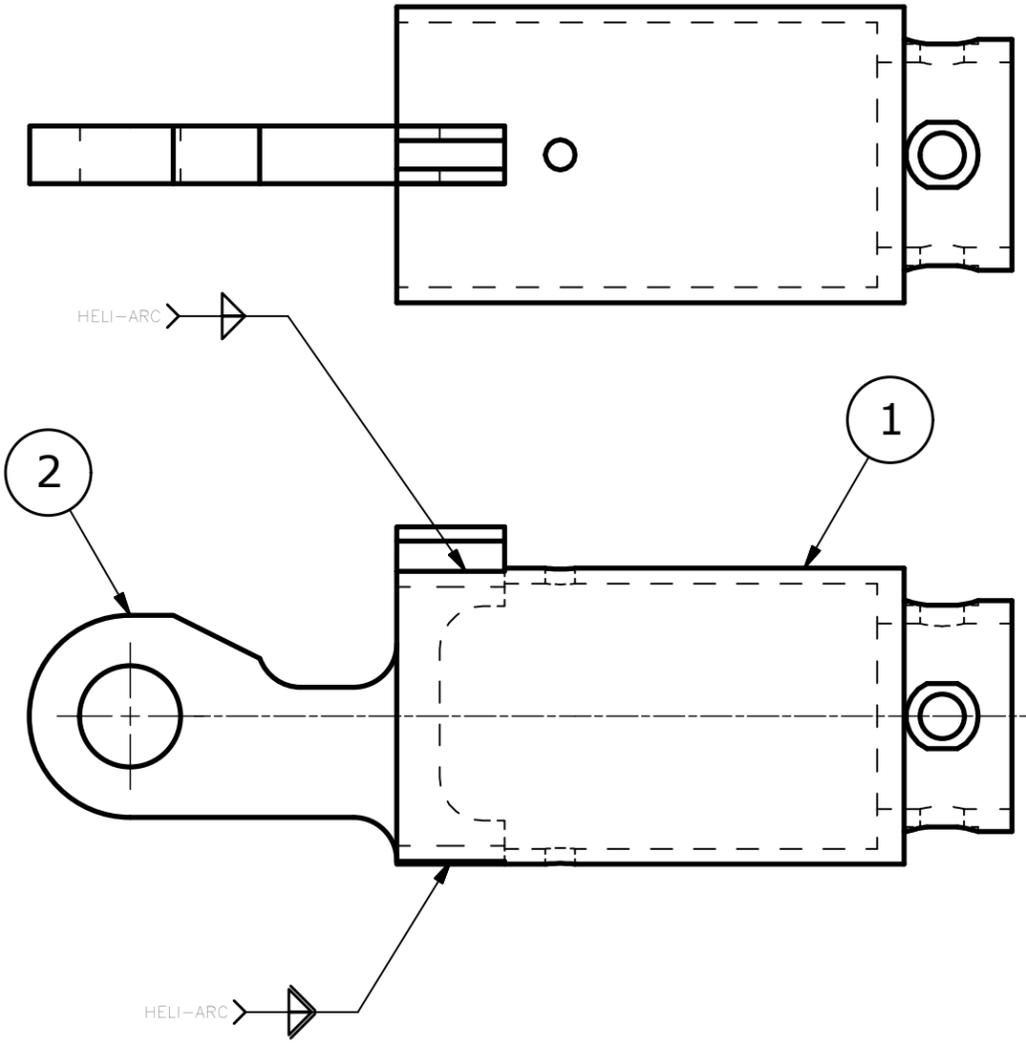
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM010, IN PARTS LIST 472-6211 WAS AXAMM012, 472-6212 WAS AXAMM011	9/15/2014	DW

B

A

A



B

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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 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	UPPER HUMERUS WELDMENT	
	APPROVALS DRAWN JIM CLEVINGER CHECKED	DATE 8/20/2013		SIZE B	DRAWING NUMBER 472-6210
MATERIAL Steel, Mild, Welded	ENG APPROVED	SCALE: 1:1	SHEET 1 OF 1		

4

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2

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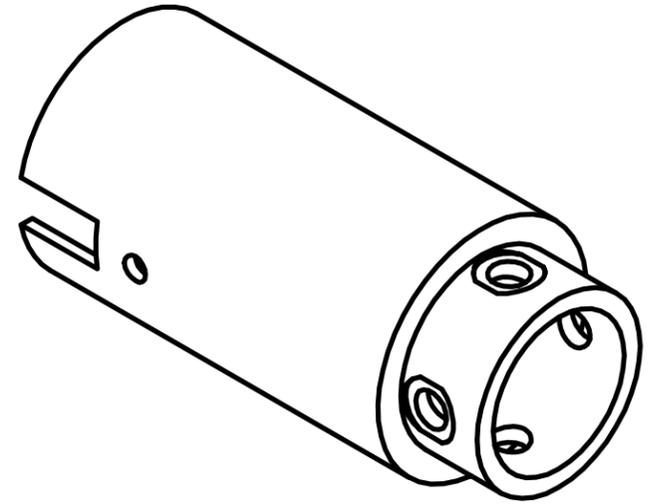
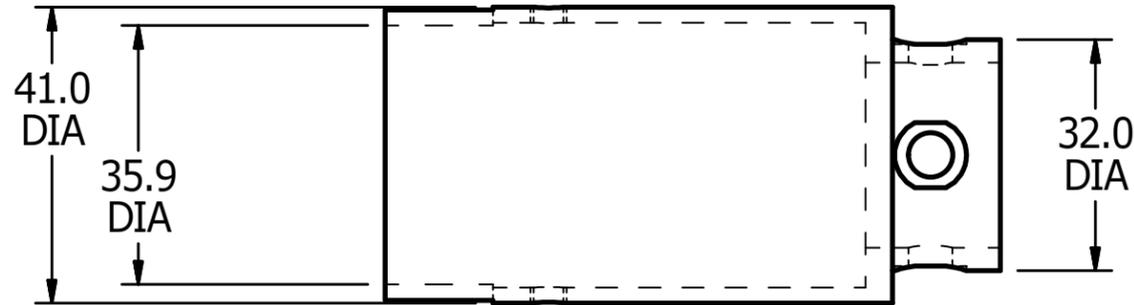
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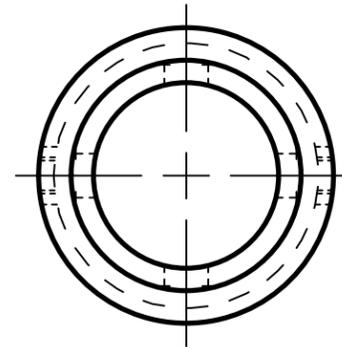
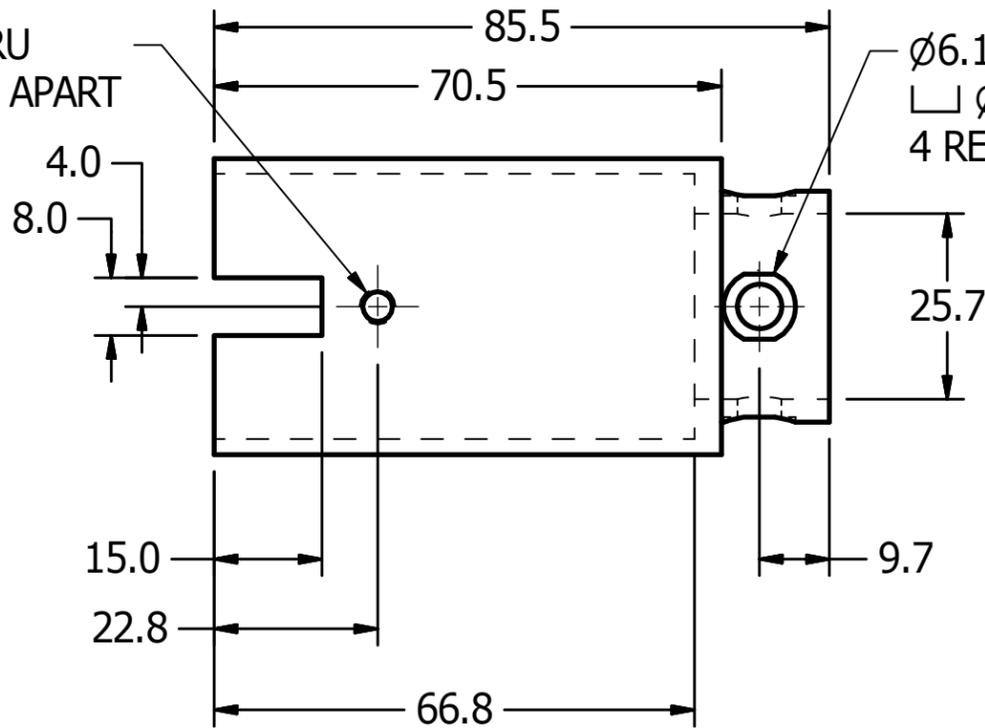
2

1

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	DESI
	A	DRAWING NUMBER WAS AXAMM012	9/15/2014	DW



M5x0.8 - THRU
2 REQ - 180° APART



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 Steel	ENG	SIZE B	DRAWING NUMBER 472-6211
HEAT TREAT	APPROVED	SCALE: 1:1	REV A
FINISH		SHEET 1 OF 1	

4

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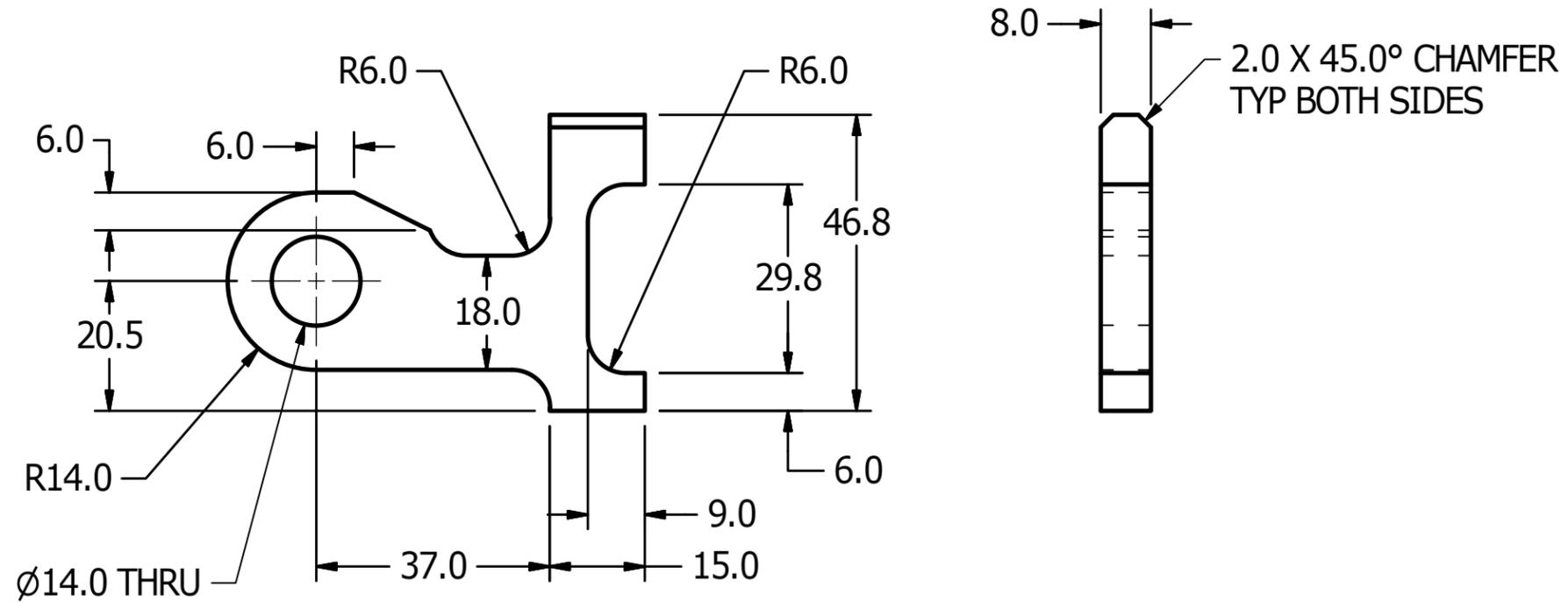
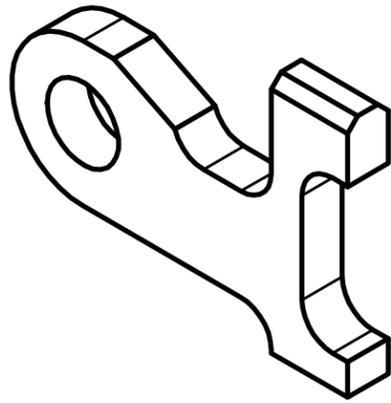
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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM011	9/15/2014	DW



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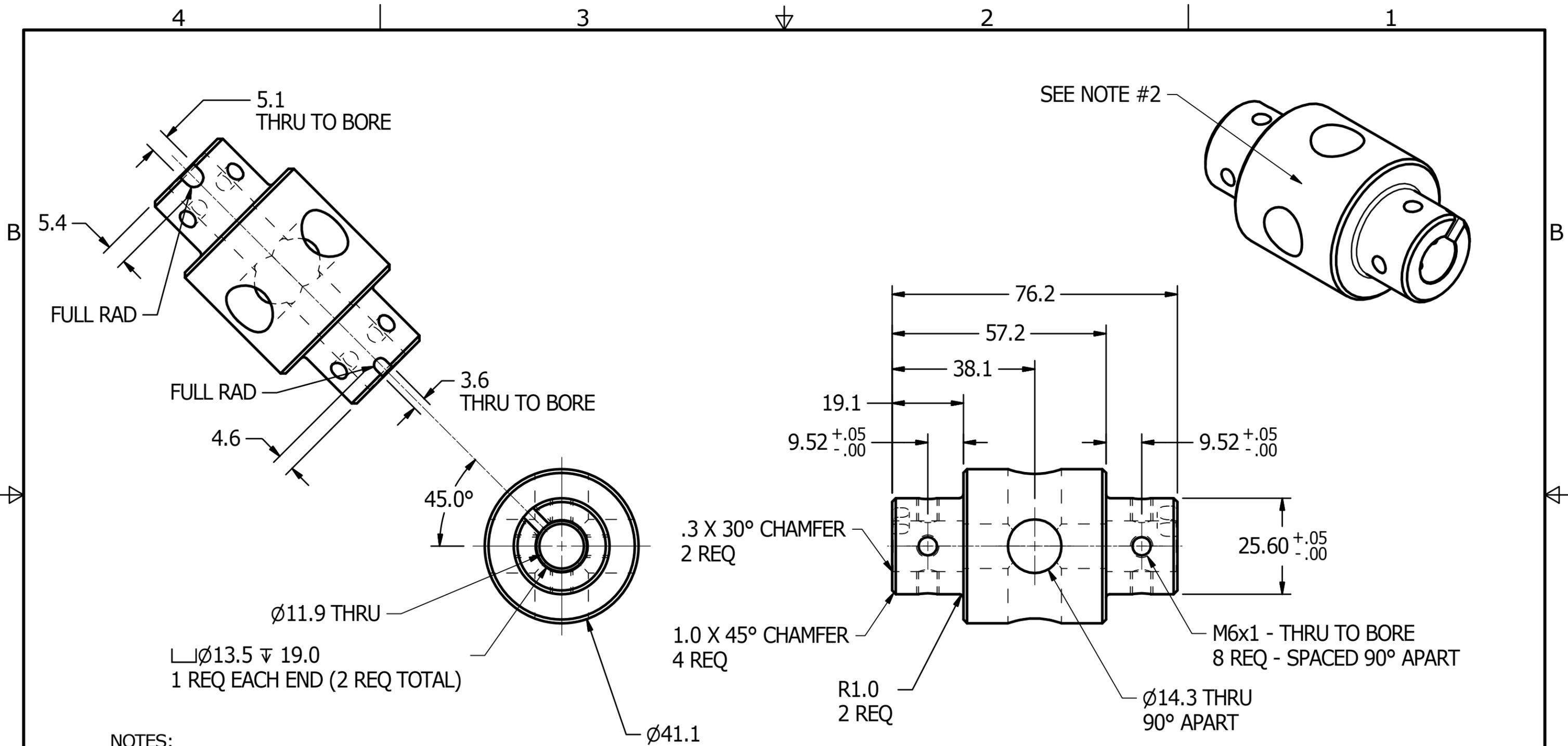
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: ANGLES: MACHINED: X ±.5 ±.5 ✓ X.X ±.2 X.XX ±.1 ASME Y14.5M - 1994 DO NOT SCALE DRAWING	VEHICLE RESEARCH and TEST CENTER		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	UPPER ARM MOUNT	
	APPROVALS	DATE			
	DRAWN JIM CLEVINGER	8/20/2013			
	CHECKED				
MATERIAL Steel	ENG		SIZE B	DRAWING NUMBER 472-6212	REV A
HEAT TREAT	APPROVED		SCALE: 1:1	SHEET 1 OF 1	
FINISH					

4

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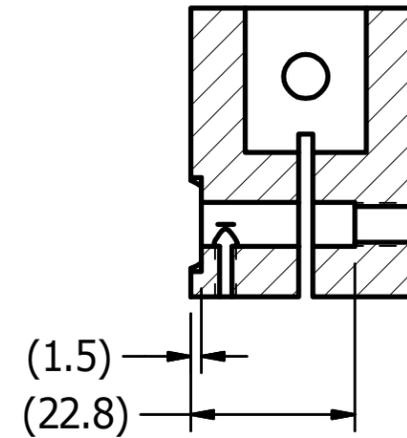
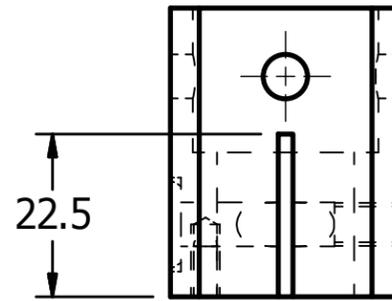
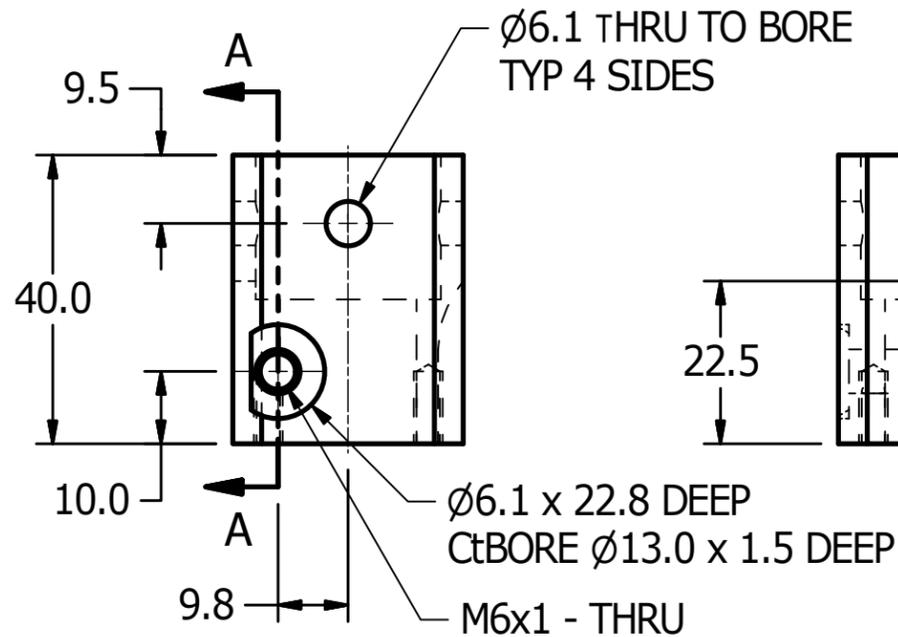
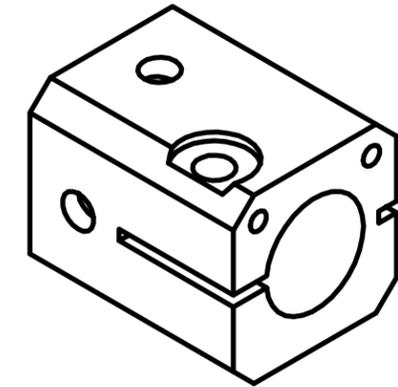
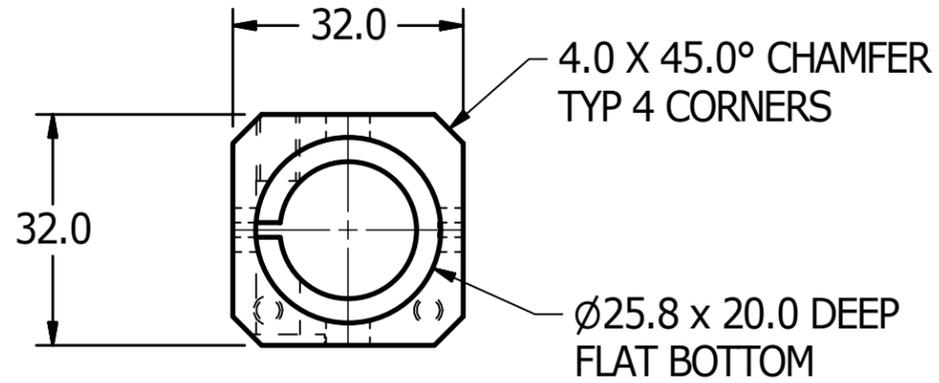


NOTES:

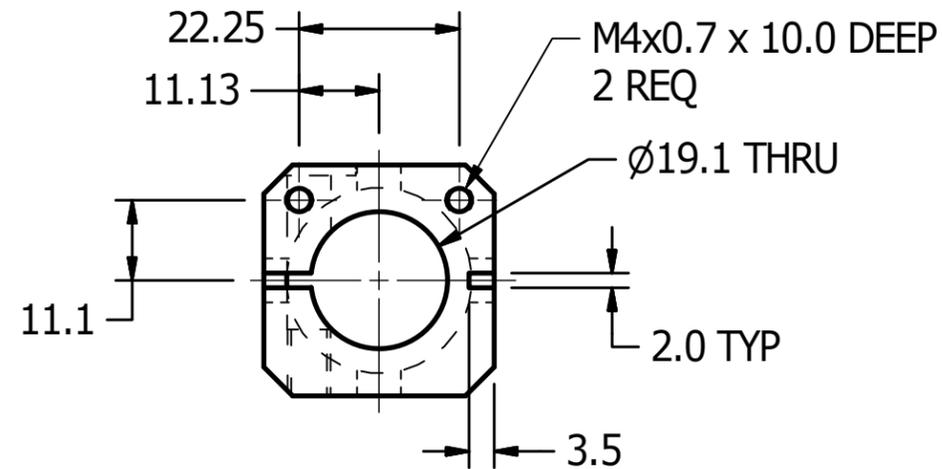
1. REMOVE BURRS AND BREAK SHARP EDGES
2. STAMP OR ETCH PART NUMBER AS SHOWN
3. NICKEL PLATE .012 MAX. AFTER MACHINING
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH

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	
MATERIAL Steel	DRAWN JIM CLEVINGER	12/4/2013	STRUCTURAL REPLACEMENT LEG LOAD CELL
HEAT TREAT	CHECKED		
FINISH NICKEL PLATE	ENG		SIZE B
	APPROVED		DRAWING NUMBER W50-61041
			SCALE:
			SHEET 1 OF 1

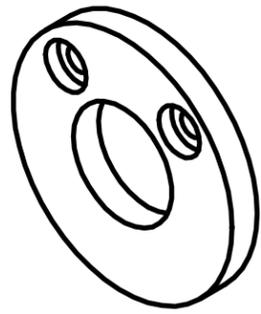
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ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM001	9/15/2014	DW



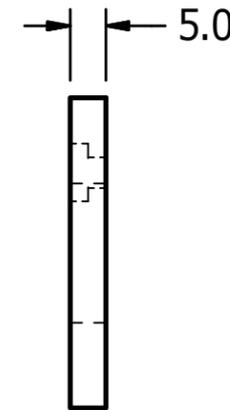
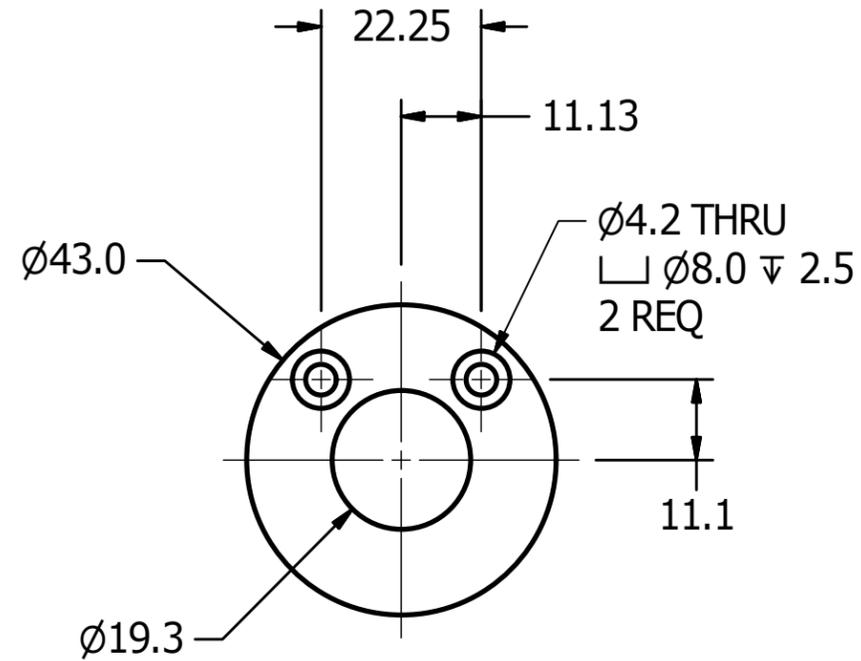
SECTION A-A
SCALE 1 : 1



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	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 472-6220
FINISH ANODIZE			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 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 Aluminum 6061	ENG		SIZE B
HEAT TREAT	APPROVED		DRAWING NUMBER 472-6230
FINISH ANODIZE			SCALE: 1:1
			REV A
			SHEET 1 OF 1

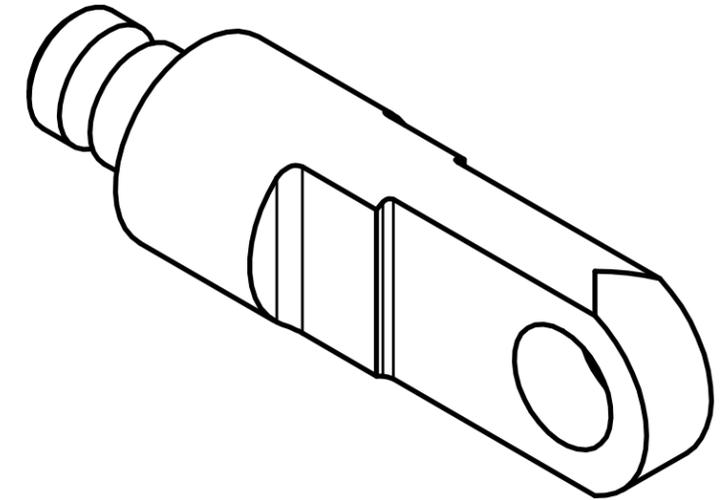
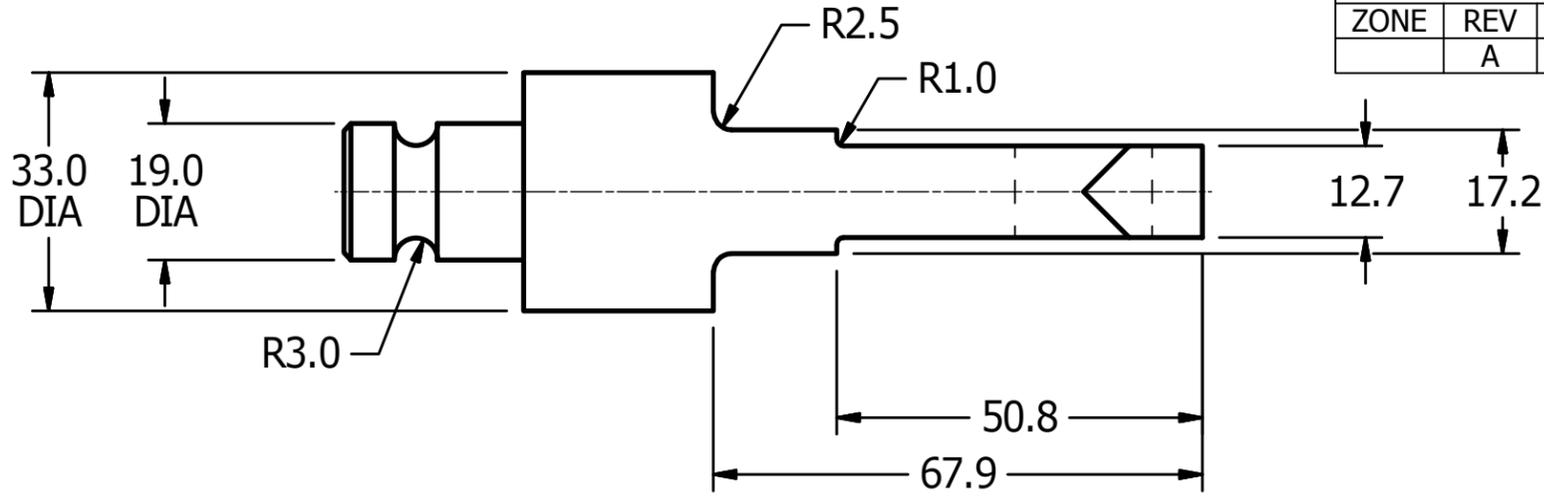
4

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REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM003	9/15/2014	DW



B

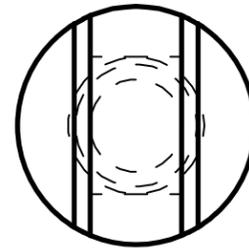
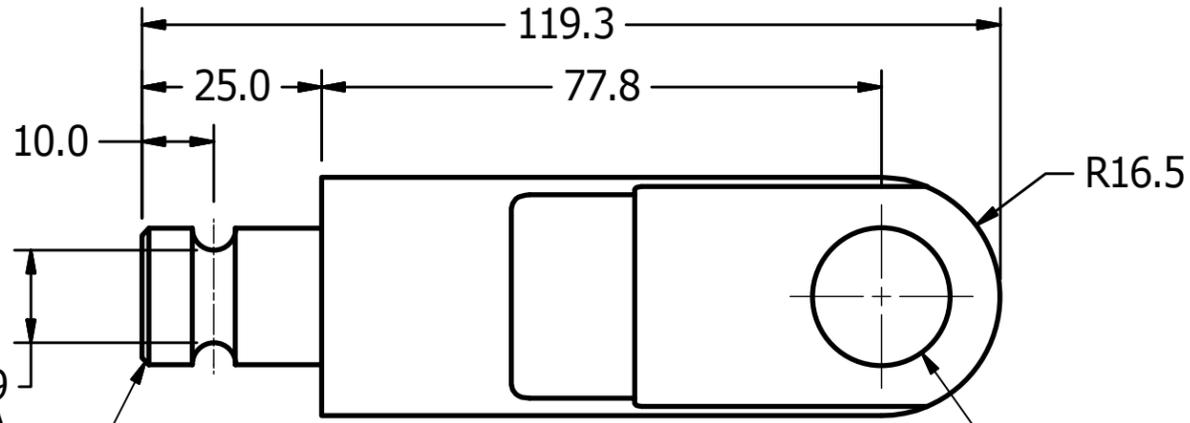
B

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1.0 X 45.0° CHAMFER

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMAL: 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	SIZE B	DRAWING NUMBER 472-6240
	MATERIAL Aluminum 6061	ENG	HEAT TREAT ANODIZE	APPROVED
		SCALE: 1:1	SHEET 1 OF 1	

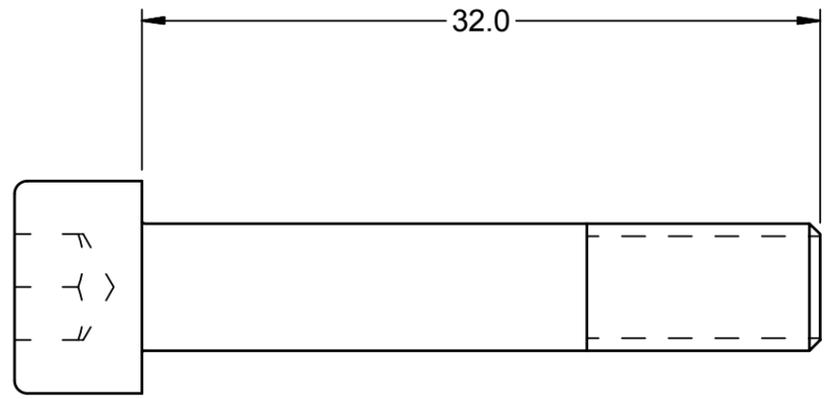
4

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1

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			
CHECKED					
MATERIAL Steel, Mild		ENG			
HEAT TREAT		APPROVED		SIZE A3	DRAWING NUMBER 472-6250
FINISH				SCALE: 3:1	REV A
				SHEET 1	OF 1

4

3

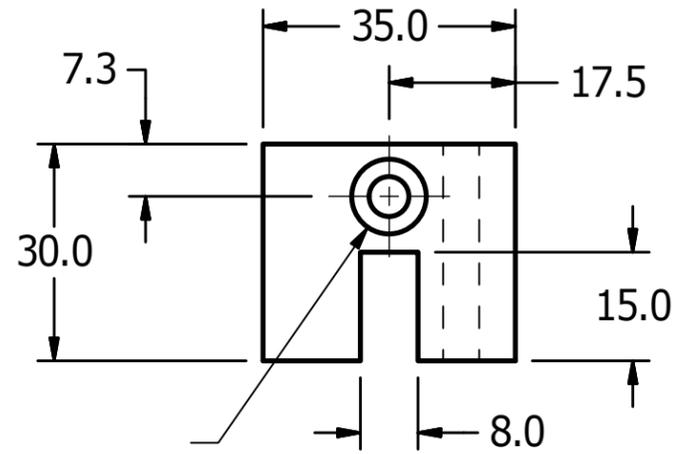
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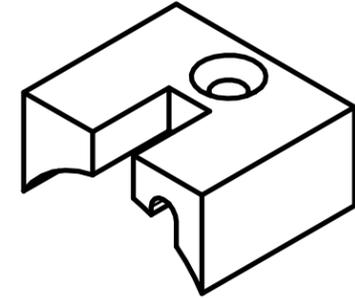
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ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM005	9/15/2014	DW

B

B

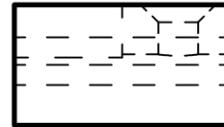
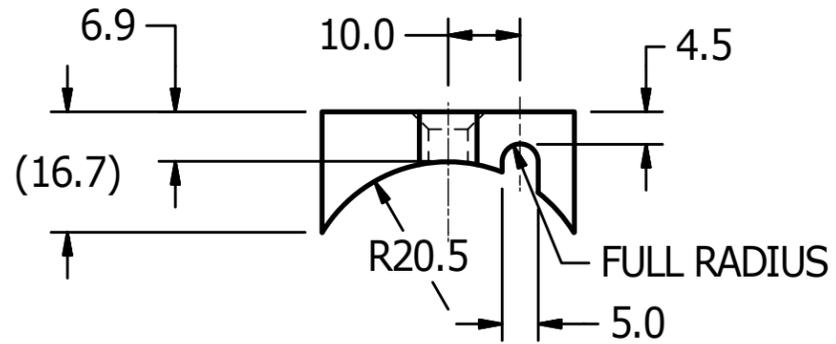


Ø5.5 THRU
C tSINK Ø10.4 X 90.0°



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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

4

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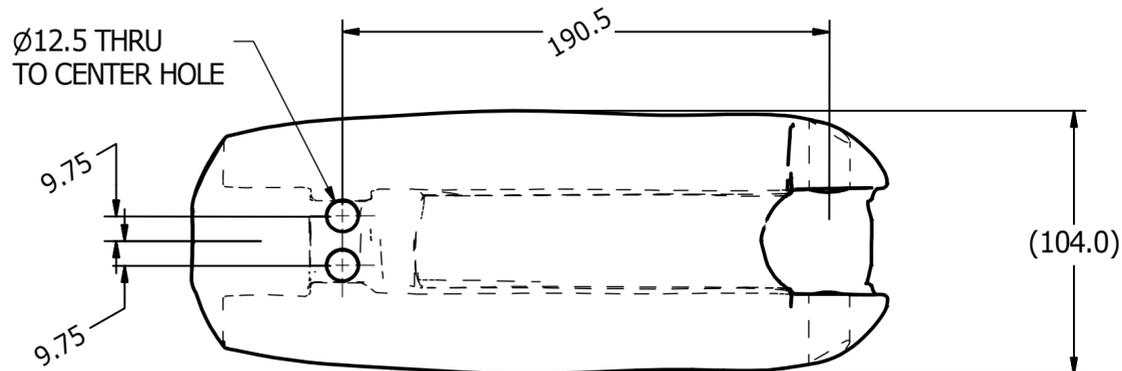
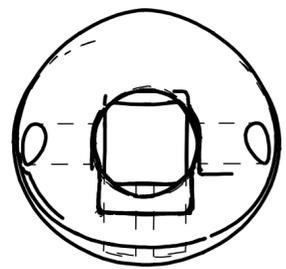
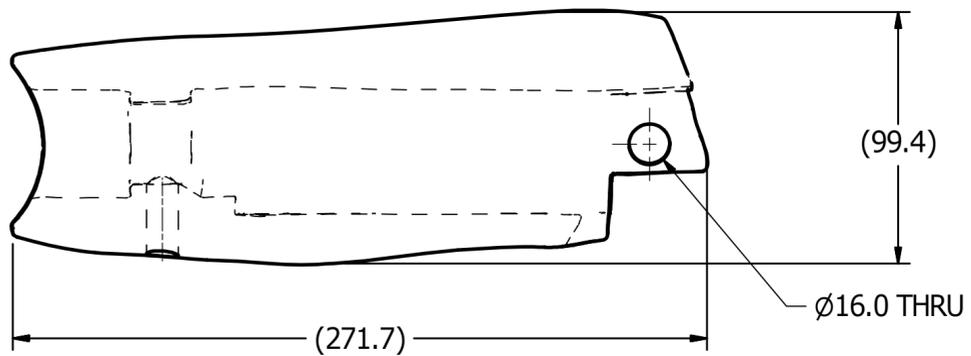
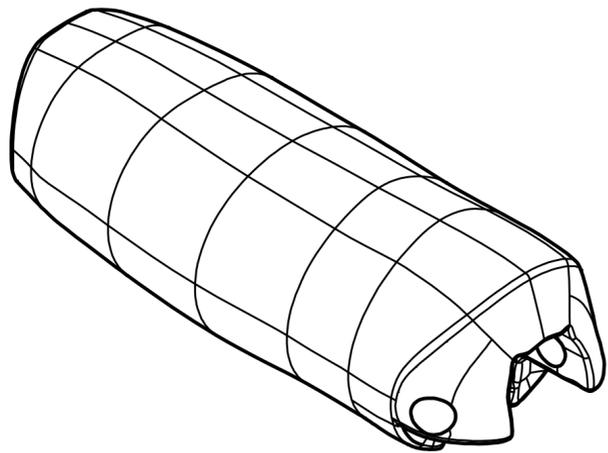
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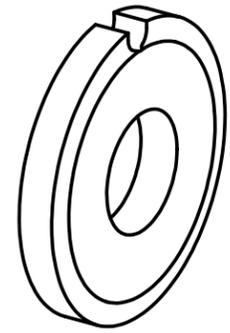
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ZONE	REV	DESCRIPTION	DATE	BY
	A	DRAWING NUMBER WAS AXAMM004	9/15/2014	DW



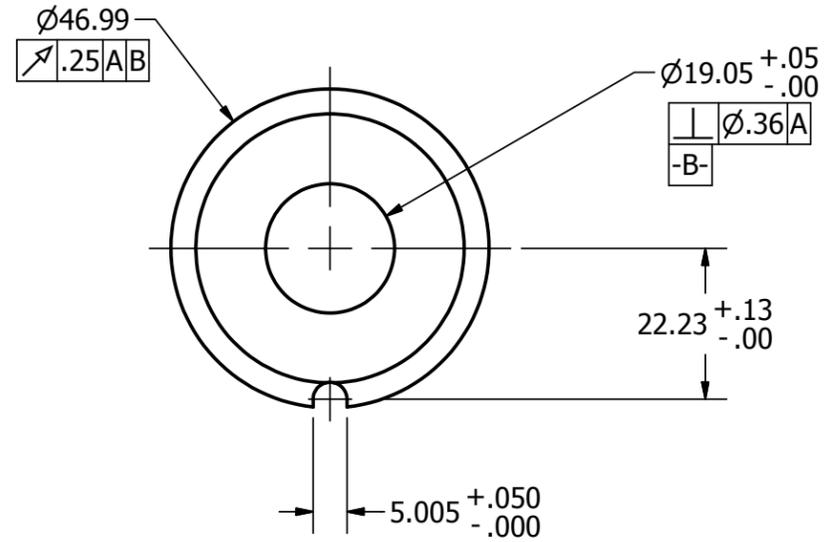
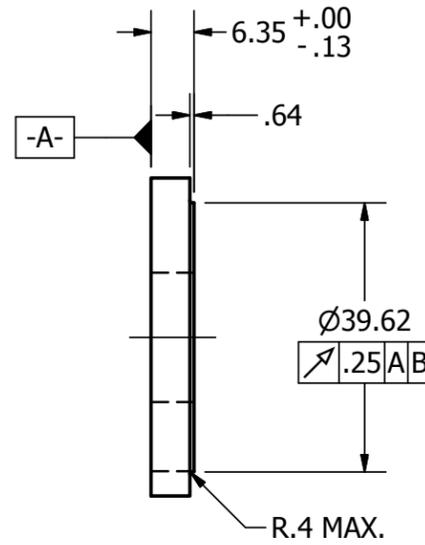
NOTE:
A 3-D FILE IS AVAILABLE FOR REFERENCE FROM NHTSA

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		UPPER ARM FLESH	
DRAWN JIM CLEVINGER		10/29/2013		DRAWING NUMBER	
CHECKED				472-6270	
MATERIAL Polystyrene		ENG		SIZE C	REV A
HEAT TREAT		APPROVED		SCALE: 1/2	SHEET 1 OF 1
FINISH				1	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #7805-200 AND CONVERTED TO METRIC FOR THOR-M	9/30/2011	TKN

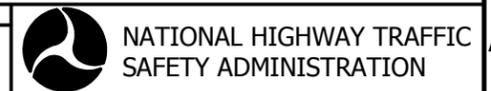


ISO VIEW
SCALE 1 : 1



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
REMOVE BURRS & BREAK SHARP EDGES



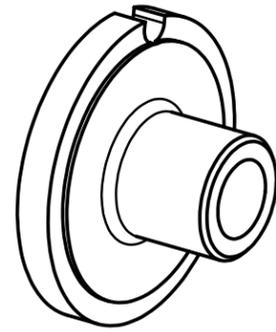
DESCRIPTION: WASHER, ELBOW PIVOT THOR-M

472-6000-2	1
472-6000-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

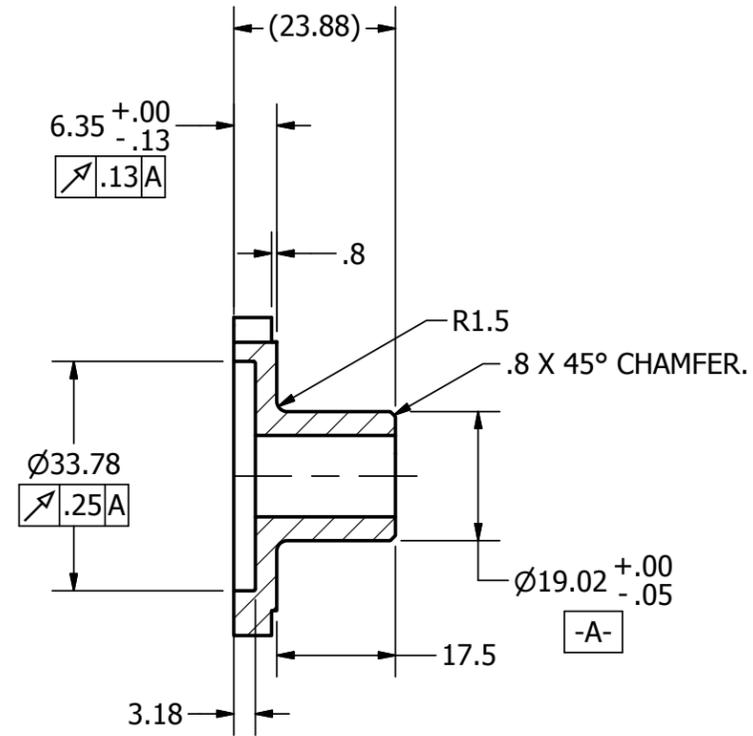
PROJECT NO.:	DRAWN BY:	DATE:
MATERIAL:	Thanh	9/30/2011
HEAT TREAT:	CHECKED BY:	DATE:
FINISH:	J. WANG	1/30/2012

SIZE: A3	SHEET: 1	DRAWING NO.:	REV:
SCALE: FULL	1	472-6600	A

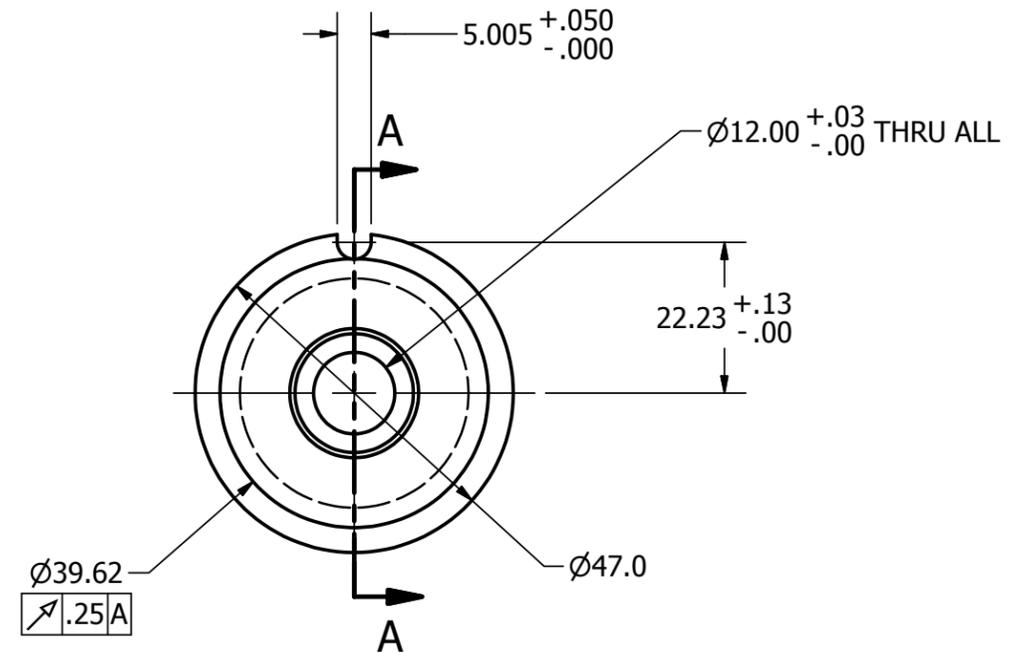
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-199 AND CONVERTED TO METRIC FOR THOR-M	9/30/2011	TKN



ISO VIEW
SCALE 1 : 1



SECTION A-A
SCALE 1 : 1

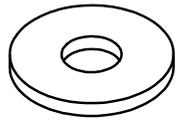


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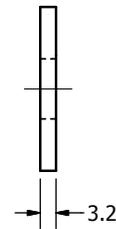
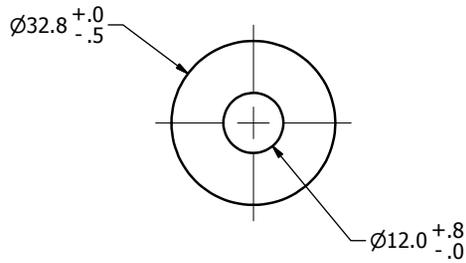
1. MATERIAL: DELRIN 500 ACETAL RESIN ® DUPONT

472-6000-2		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-6000-1		1	MATERIAL:	THIRD ANGLE PROJECTION	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	SEE NOTES	DRAWN BY:	DATE:	REMOVE BURRS & BREAK SHARP EDGES Thanh 9/30/2011	
TOTAL QTY IN DUMMY		2	FINISH:	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

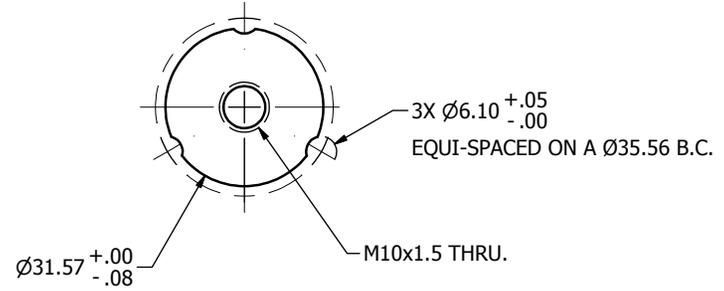
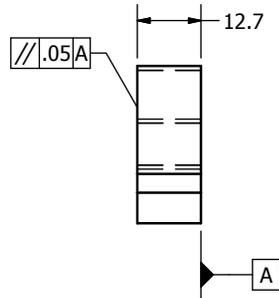


472-6000-2		1	PROJECT NO.:	DO NOT SCALE DRAWING	TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
472-6000-1		1	MATERIAL: URETHANE 95A	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
NEXT ASSEMBLY		QTY	HEAT TREAT:	CHECKED BY: Thanh	DATE: 10/4/2011	SIZE: A3	DRAWING NO.: 472-6950
TOTAL QTY IN DUMMY		2	FINISH:	ENGINEER: J. WANG	DATE: 1/30/2012	SHEET: 1 OF 1	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-202 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

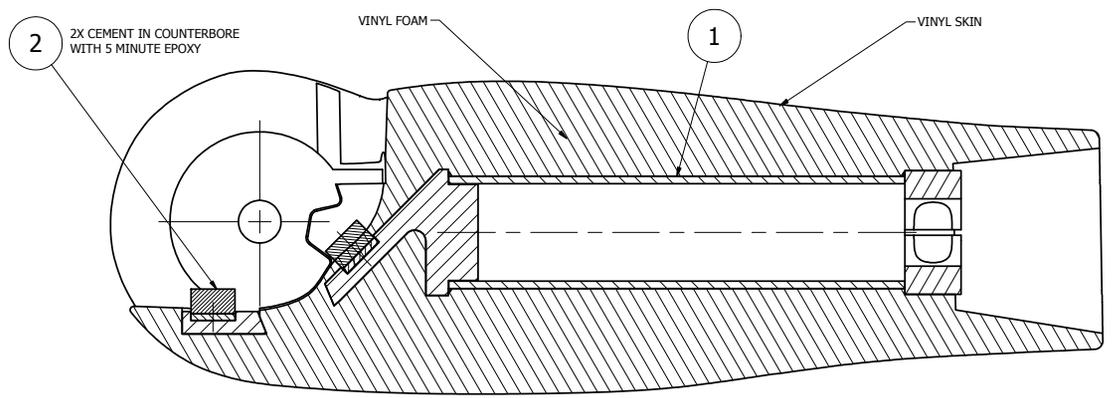
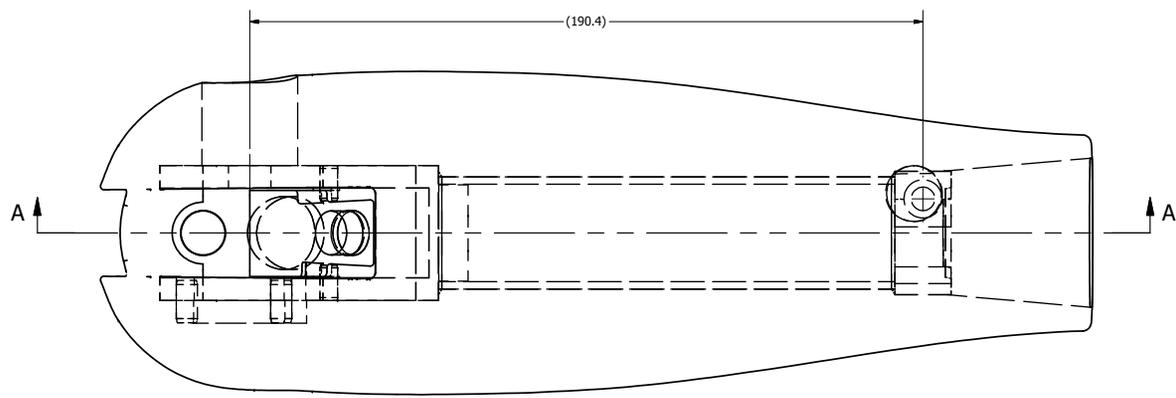


ISO VIEW
SCALE 1 : 1



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION								
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> 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	1	DATE:	10/4/2011								
MATERIAL:	303 STAINLESS STEEL	1	DRAWN BY:	Thanh								
HEAT TREAT:			CHECKED BY:									
FINISH:			DATE:	1/30/2012								
ENGINEER:	J. WANG	2	SCALE:	FULL								
<table border="1"> <tr> <td>472-6000-2</td> <td>1</td> </tr> <tr> <td>472-6000-1</td> <td>1</td> </tr> <tr> <td>NEXT ASSEMBLY</td> <td>QTY</td> </tr> <tr> <td>TOTAL QTY IN DUMMY</td> <td>2</td> </tr> </table>				472-6000-2	1	472-6000-1	1	NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	2	DESCRIPTION: NUT - ELBOW PIVOT THOR-M
472-6000-2	1											
472-6000-1	1											
NEXT ASSEMBLY	QTY											
TOTAL QTY IN DUMMY	2											
<table border="1"> <tr> <td>SIZE</td> <td>SHEET</td> <td>DRAWING NO.</td> <td>REV.</td> </tr> <tr> <td>A3</td> <td>1 OF 1</td> <td>472-6610</td> <td>A</td> </tr> </table>				SIZE	SHEET	DRAWING NO.	REV.	A3	1 OF 1	472-6610	A	
SIZE	SHEET	DRAWING NO.	REV.									
A3	1 OF 1	472-6610	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

DO NOT SCALE DRAWING

TOLERANCES

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.05mm FRACTIONS ARE TO 1/16" UNLESS NOTED OTHERWISE

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472-6000-2	1	REVISED BY:	DATE:	10/3/2011	472-6520
472-6000-1	1	DESIGNED BY:	DATE:	10/3/2011	
NEXT ASSEMBLY	QTY	APPROVED BY:	DATE:	10/3/2011	
TOTAL QTY IN DUMMY	2	DESIGNED BY:	DATE:	10/3/2011	
		APPROVED BY:	DATE:	10/3/2011	
		DESIGNED BY:	DATE:	10/3/2011	
		APPROVED BY:	DATE:	10/3/2011	

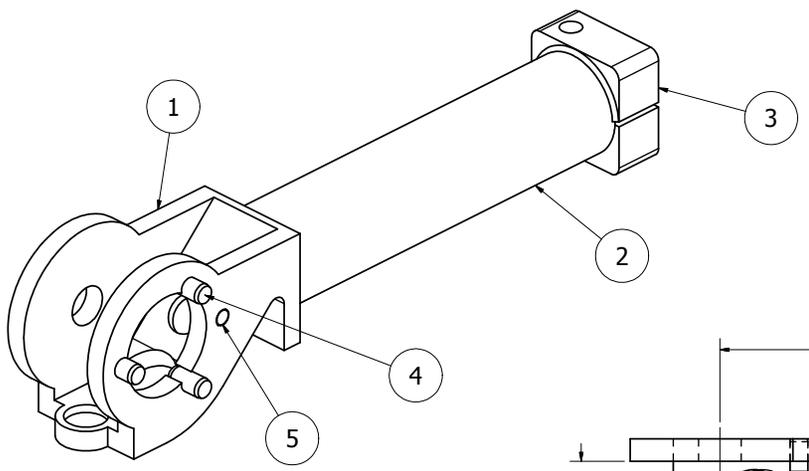
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LOWER ARM MOLDED, THOR-M

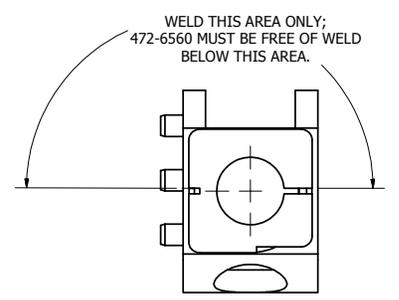
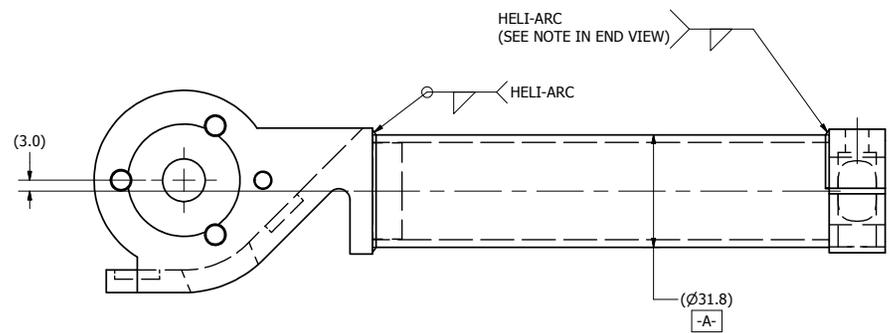
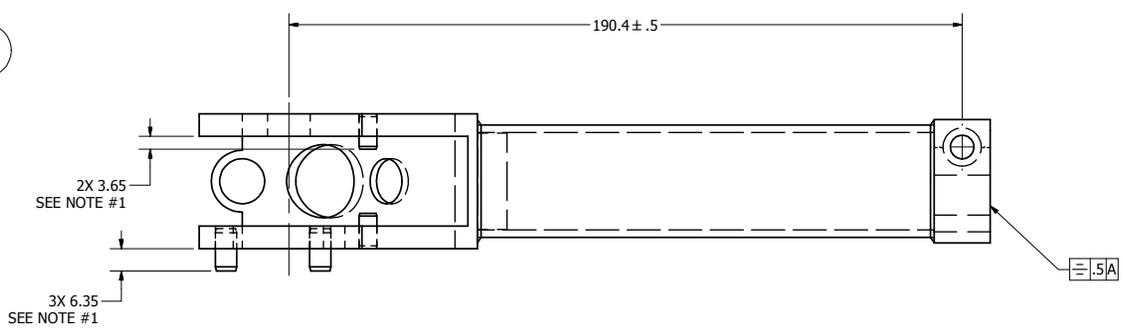
A21 of 1

FULL

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

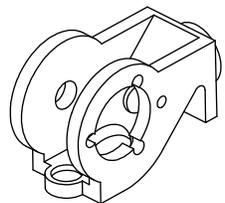


NOTES:
1. INSTALL DOWEL PINS AFTER NICKEL PLATE.

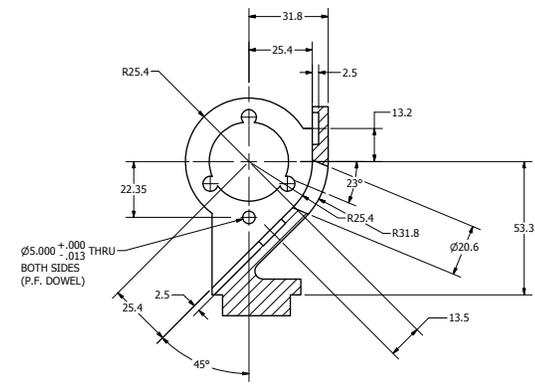
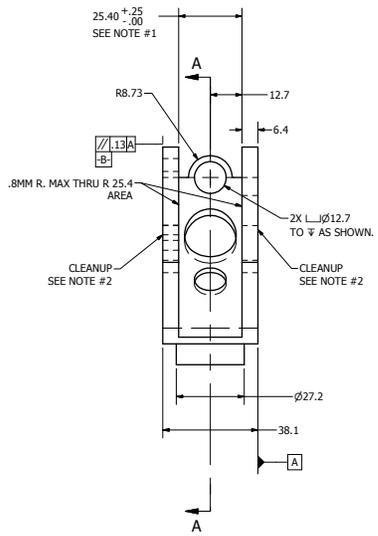
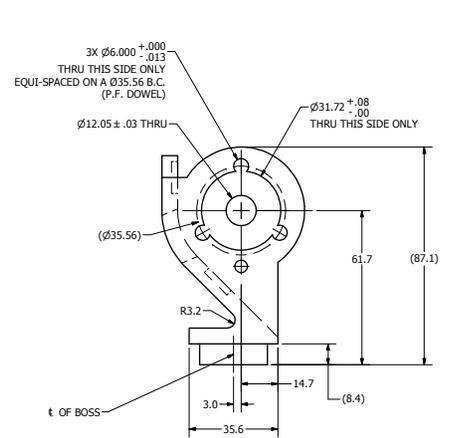
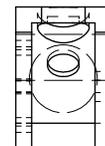
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	5000280	M5 X 10 LG. DOWEL PIN
4	3	5000433	M6 X 12 LG. DOWEL PIN
3	1	472-6560	CLAMP - WRIST ROTATION
2	1	472-6550	TUBE - LOWER ARM
1	1	472-6540	ELBOW YOKE

PARTS LIST		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-6520	1	THANH	10/3/2011	STRUCTURAL ASSY. LOWER ARM - UPPER PART	
NEXT ASSEMBLY	QTY	DATE	DATE		
TOTAL QTY IN DUMMY	2	ELECTROLESS NICKEL PLATE (80% MAX)	J. WANG 11/30/2012		
		A21 of 1		472-6530	

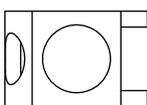
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG# 78051-138 AND CONVERTED TO METRIC FOR THOR-M	9/30/2011	TKN



ISO VIEW
SCALE 1 : 1



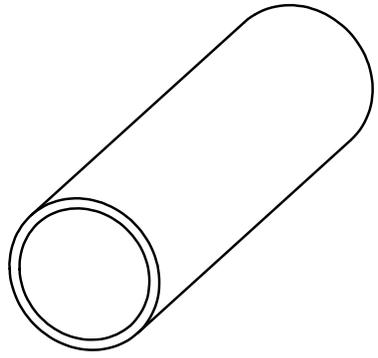
SECTION A-A
SCALE 1 : 1



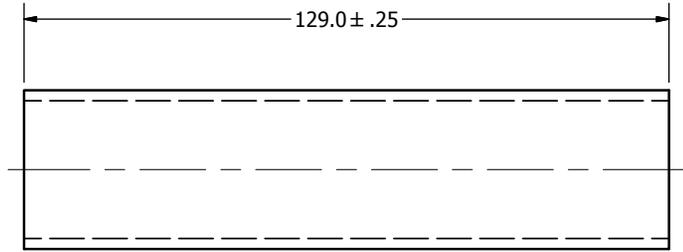
- NOTES:
- PART MAY REQUIRE STRAIGHTENING TO MEET 25.4 $^{+0.25}_{-0.00}$ DIM BEFORE MACHINING.
 - FIRST MACHINE OPERATION.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-6530	1	Thorn	9/30/2011	ELBOW YOKE	
NEXT ASSEMBLY	QTY			A11 of 1	
TOTAL QTY IN DRAWING	2	J. WANG	9/30/2011	472-6540	A

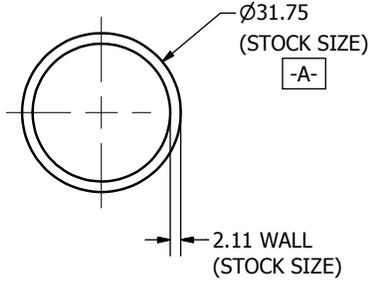
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG# 78051-196 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN



ISO VIEW
SCALE 1 : 1



$\pm .25$
BOTH SIDES

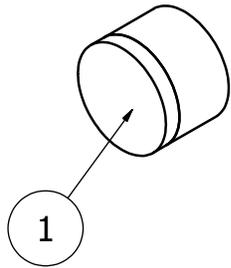


NOTES:

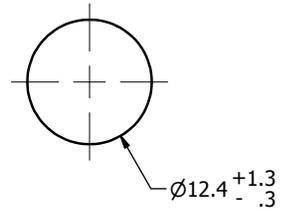
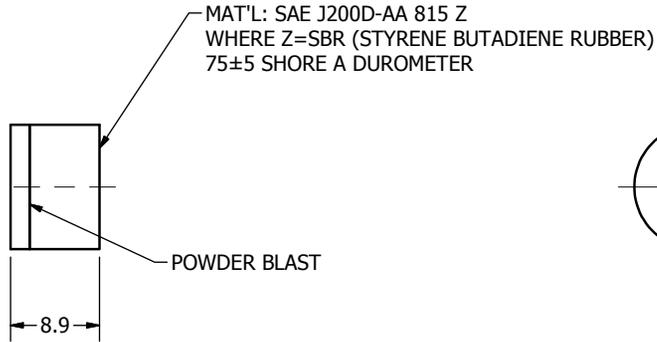
1. MATERIAL: SEAMLESS STEEL MECHANICAL TUBING SAE 1018.
(Ø1¼" 14 ga. WALL)

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 ± 0.07 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
DATE:		DATE:	1/30/2012	DRAWING NO: 472-6550
TOTAL QTY IN DUMMY:	2	FINISH:		SCALE: FULL

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



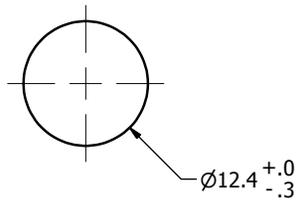
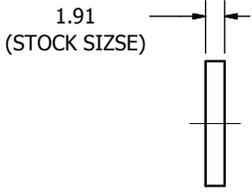
1	1	472-6580	STOP, BACKING, LOWER ARM
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			

DO NOT SCALE DRAWING		TOLERANCES		
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> X ±0.5 ±0.5° 1.6 XX ±0.2 ±0.5° ✓ XXX ±0.3 ±0.5° XXX ±0.01		
PROJECT NO:	472-6520	2	DATE:	10/5/2011
MATERIAL:			CHECKED BY:	Thanh
HEAT TREAT:			DATE:	
TOTAL QTY IN DUMMY:	4		ENGINEER:	J. WANG
			DATE:	1/30/2012
			FINISH:	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 STOP ASM-LOWER ARM THOR-M
 SIZE: A3
 SHEET: 1 OF 1
 DRAWING NO.: 472-6570
 REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-321 AND CONVERTED TO METRIC FOR THOR-M	10/5/2011	TKN

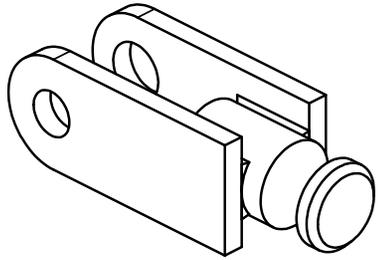
ISO VIEW
SCALE 2:1



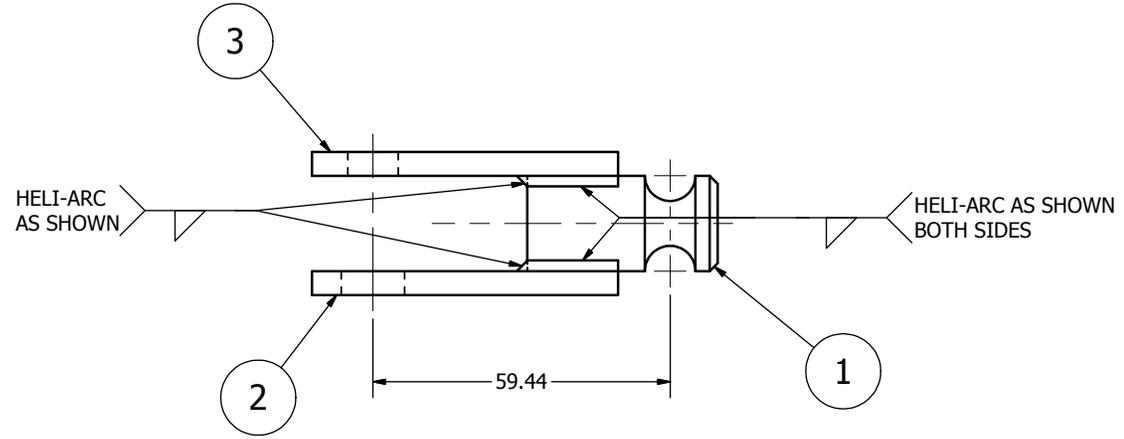
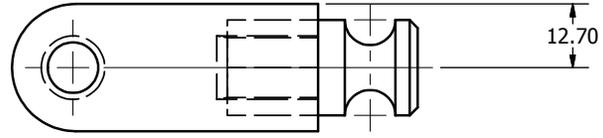
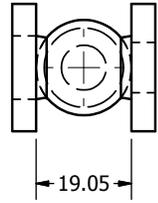
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 16 X.X ±0.2 X.XX ±0.3 X.XXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.:	472-6570	MATERIAL:	1018 STEEL	DESCRIPTION: STOP, BACKING, LOWER ARM	
DRAWN BY:	Thanh	DATE:	10/5/2011		
CHECKED BY:		DATE:			
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/30/2012
TOTAL QTY IN DUMMY	4	FINISH:		SCALE:	2:1

SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-6580	REV.:	A
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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-204 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN



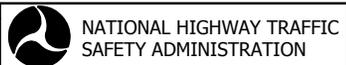
ISO VIEW
SCALE 1 : 1



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

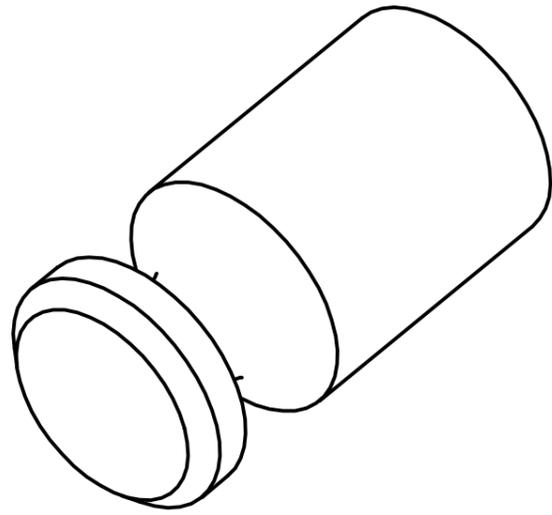
PARTS LIST

DO NOT SCALE DRAWING	TOLERANCES
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 ✓
	REMOVE BURRS & BREAK SHARP EDGES

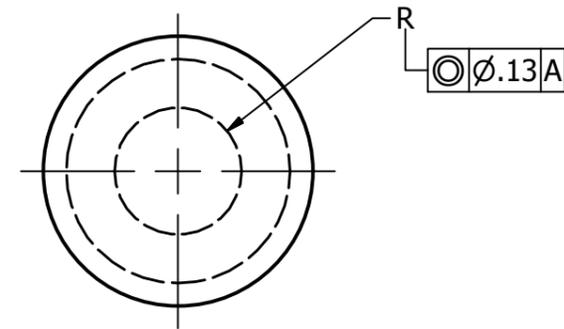
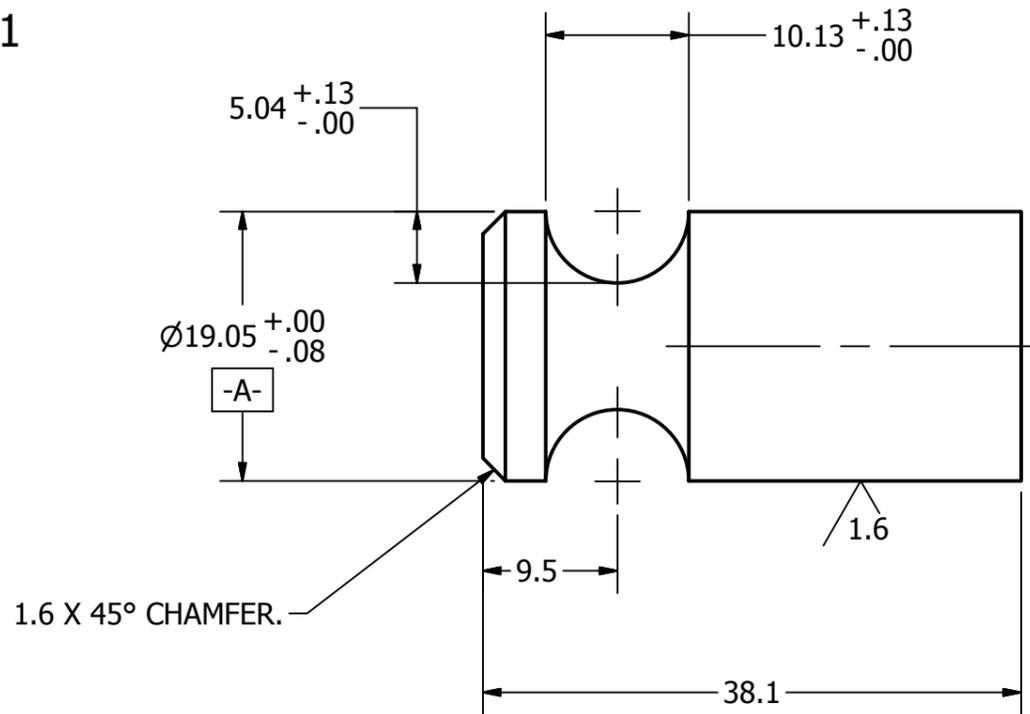


PROJECT NO.: 472-6000-2	QTY: 1	MATERIAL:	DRAWN BY: Thanh	DATE: 10/4/2011	SCALE: A3	SHEET: 1 OF 1	DRAWING NO.: 472-6700	REV: A
NEXT ASSEMBLY:	QTY: 2	HEAT TREAT:	CHECKED BY:	DATE:	ENGINEER: J. WANG	DATE: 1/30/2012		
TOTAL QTY IN DUMMY:	2	FINISH: ELECTROLESS NICKEL PLATE .008 MAX.						

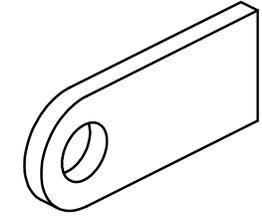
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-207 AND CONVERTED TO METRIC FOR THOR-M	10/3/2011	TKN



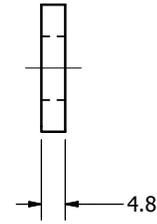
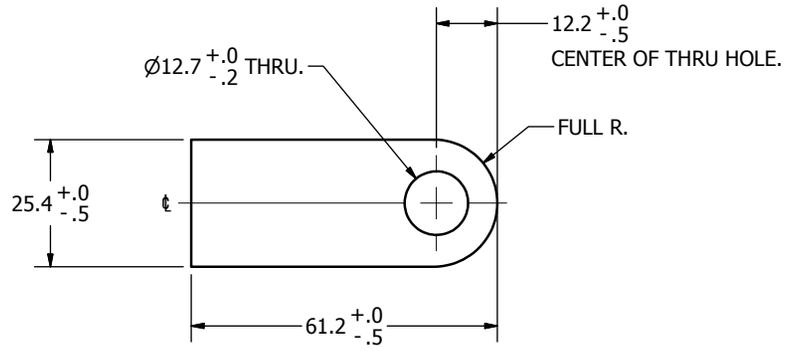
ISO VIEW
SCALE 2:1



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:
DRAWN BY:	Thanh	HEAT TREAT:		SHAFT - WRIST ROTATION
CHECKED BY:	J. WANG	DATE:	1/30/2012	SIZE: SHEET
DATE:	10/3/2011	ENGINEER:	J. WANG	A3 1 of 1
DATE:	10/3/2011	SCALE:	2:1	DRAWING NO.:
TOTAL QTY IN DUMMY	2			472-6730

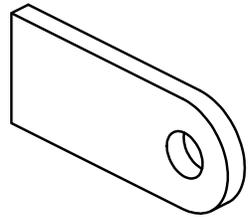


ISO VIEW
SCALE 1 : 1

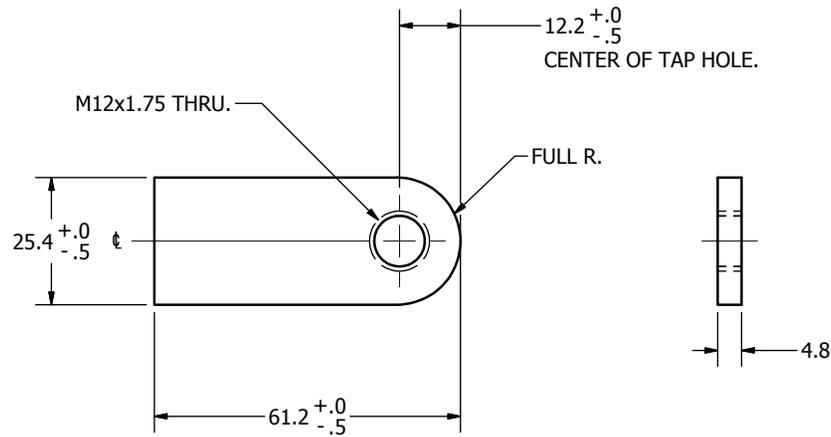


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-205 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5 16 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	SCALE: FULL SIZE: SHEET A3 1 OF 1			
HEAT TREAT:		DATE:	1/30/2012				
TOTAL QTY IN DUMMY	2	FINISH:		DRAWING NO:	472-6710	REV:	A



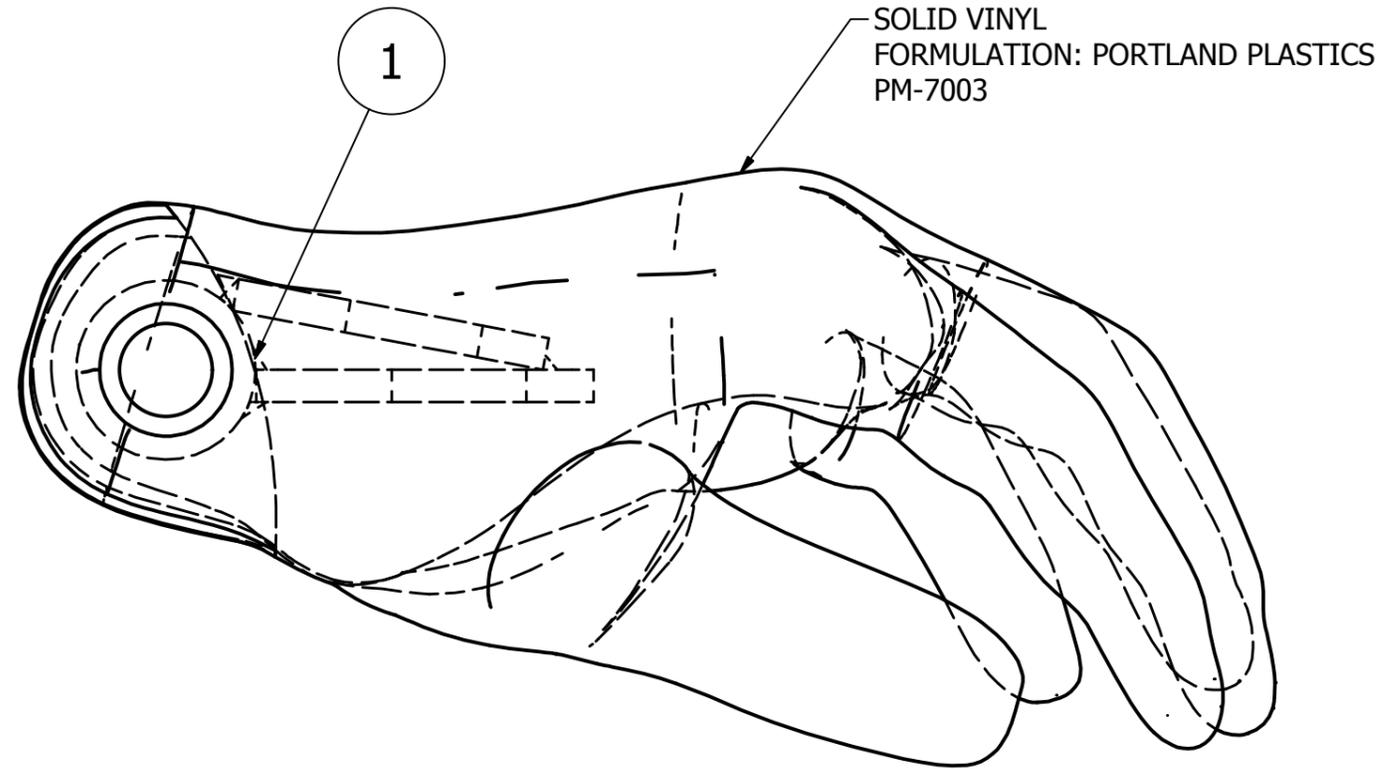
ISO VIEW
SCALE 1 : 1



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 0.05 ± 0.05 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO.: 472-6700	1	MATERIAL: 1018 STEEL	DATE: 10/4/2011	DESCRIPTION: LUG - WRIST, LOWER REMOVE BLURBS & BREAK SHARP EDGES
NEXT ASSEMBLY	QTY	CHECKED BY: Thanh	DATE:	
TOTAL QTY IN DUMMY	2	ENGINEER: J. WANG	DATE: 1/30/2012	
		SCALE: FULL		SIZE: A3 SHEET: 1 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:

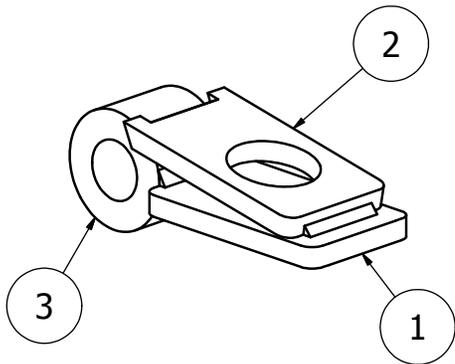
1. UNLESS OTHERWISE SPECIFIED: PIECEMARK USING PART NUMBER AND REVISION LETTER. SERIALIZE
2. PART WEIGHT .57 Kg ± .05 Kg (1.25 LBS ± .10 LBS).

1	1	472-6910	STRUCTURAL ASS'Y-HAND THOR-M
ITEM	QTY	PART NUMBER	DESCRIPTION

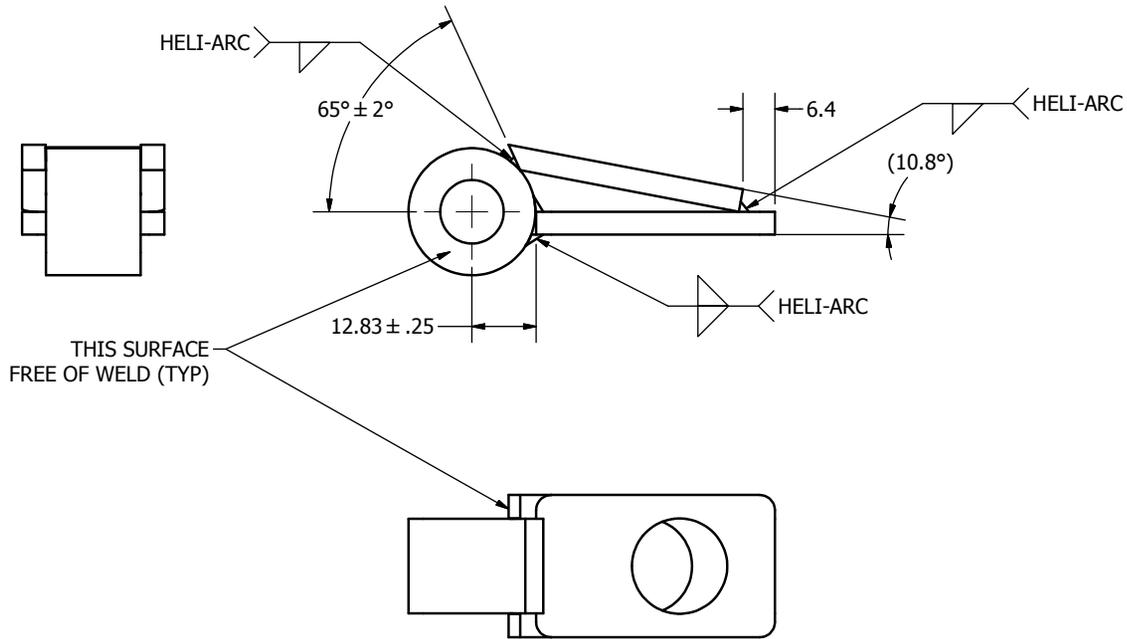
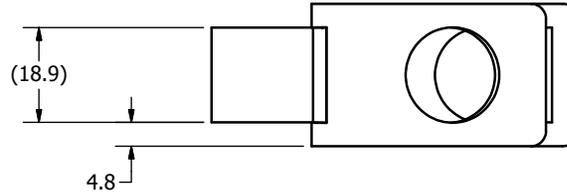
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.2 1.6 XXX ± 0.1 ± 0.1 1.6 XXXX ± 0.01 ± 0.01 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: HAND ASM MOLDED, LEFT THOR-M
DRAWN BY: Thanh		DATE: 10/4/2011		SIZE: SHEET A3 1 of 1
MATERIAL:		CHECKED BY: J. WANG		DRAWING NO.: 472-6900-1
HEAT TREAT:		DATE: 1/30/2012		REV: A
FINISH:		ENGINEER:		SCALE: FULL
TOTAL QTY IN DUMMY		DATE:		

472-6000-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

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



THIS SURFACE
FREE OF WELD (TYP)

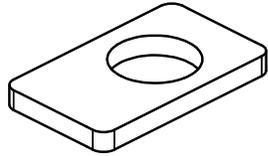
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-6920	HUB, HAND
2	1	472-6930	PLATE - HAND, INNER
1	1	472-6940	HAND PLATE - OUTER

PARTS LIST

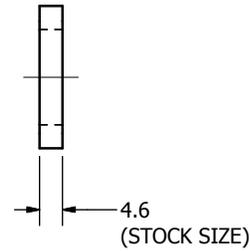
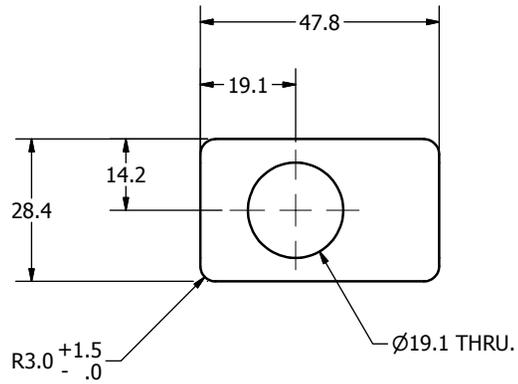
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.5° 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	DATE:	DESIGNED BY:	DATE:	DESCRIPTION:
472-6900-2	10/4/2011	Thanh	1/30/2012	STRUCTURAL ASS'Y-HAND THOR-M
MATERIAL:	CHECKED BY:	DATE:	SCALE:	SIZE SHEET DRAWING NO. REV.
472-6900-1	Thanh		FULL	A3 1 OF 1 472-6910 A
NEXT ASSEMBLY	QTY	ENGINEER:	DATE:	
TOTAL QTY IN DUMMY	2	J. WANG	1/30/2012	
FINISH: ELECTROLESS NICKEL PLATE .008 MAX.				

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
THIRD ANGLE PROJECTION

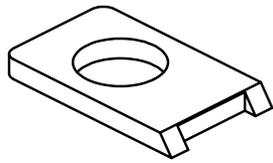
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 1.6
X 0.2
XX 0.3
XXX 0.01
REMOVE BURRS & BREAK SHARP EDGES



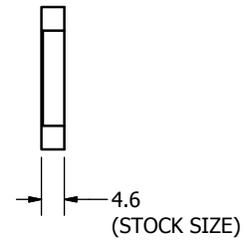
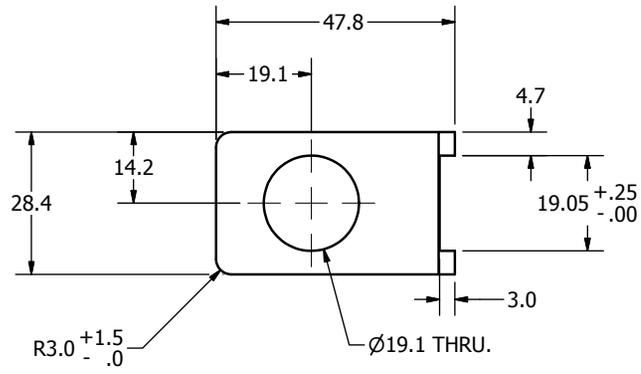
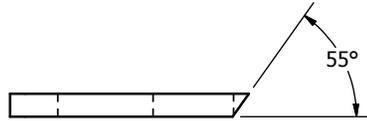
NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

PROJECT NO.: 472-6910	1	MATERIAL: 1018 STEEL	DRAWN BY: Thanh	DATE: 10/4/2011	DESCRIPTION: HAND PLATE - OUTER
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	2	FINISH:	ENGINEER: J. WANG	DATE: 1/30/2012	
SIZE: A3 SHEET: 1 OF 1 SCALE: FULL					DRAWING NO.: 472-6940

REV: A



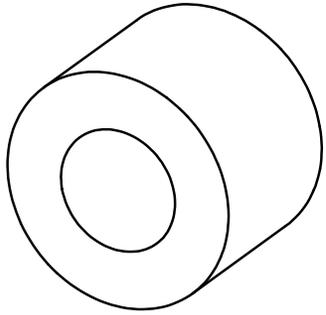
ISO VIEW
SCALE 1 : 1



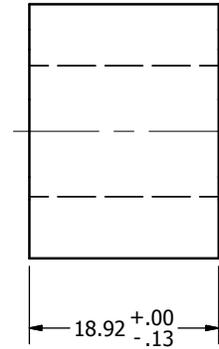
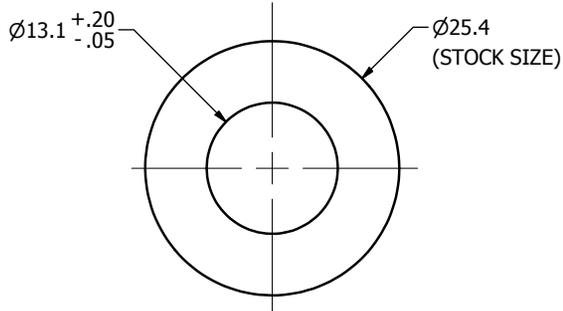
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	REFERENCE DWG #78051-212 AND CONVERTED TO METRIC FOR THOR-M	10/4/2011	TKN

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.X 0.2 X.XX 0.3 X.XXX 0.01		
PROJECT NO:	472-6910	MATERIAL:	1018 STEEL	DESCRIPTION: PLATE - HAND, INNER
DRAWN BY:	Thanh	DATE:	10/4/2011	
CHECKED BY:		DATE:		SIZE: SHEET A31 OF 1 SCALE: FULL
HEAT TREAT:		ENGINEER:	J. WANG	
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



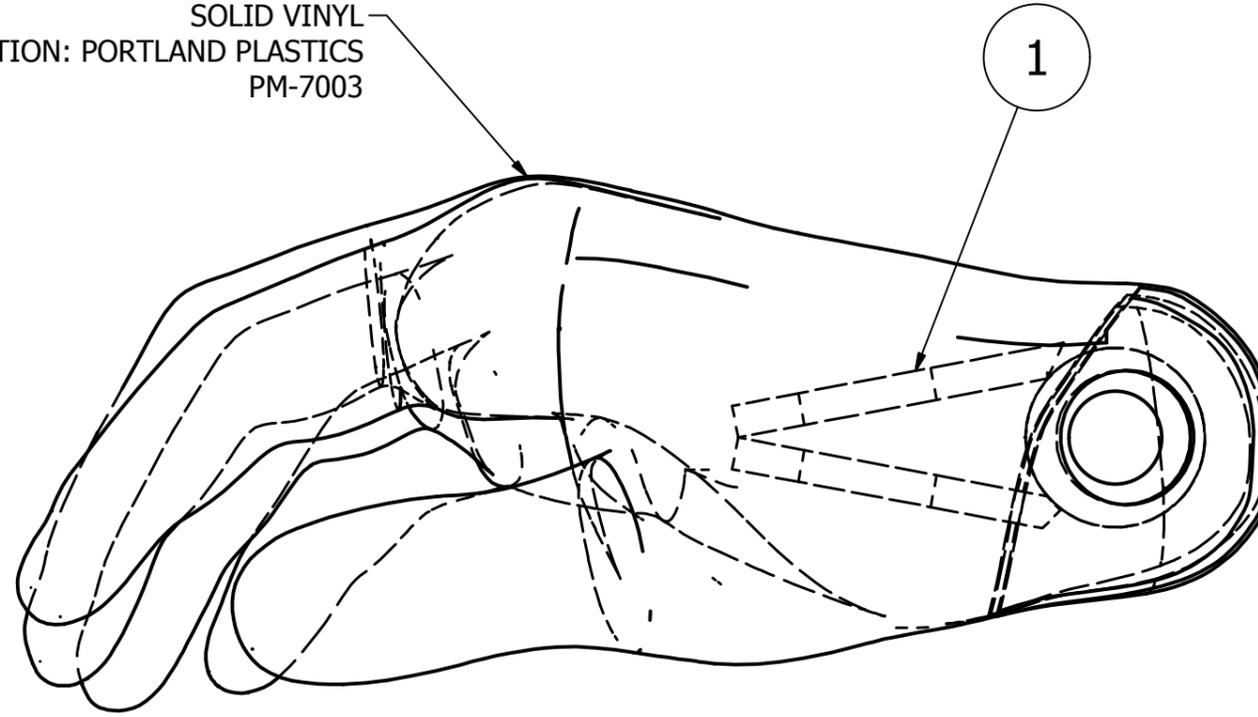
ISO VIEW
SCALE 2:1



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:	1018 STEEL	DRAWN BY:	Thanh	DATE:
472-6910	1	CHECKED BY:	Thanh	10/4/2011
NEXT ASSEMBLY	QTY	HEAT TREAT:		
TOTAL QTY IN DUMMY	2	ENGINEER:	J. WANG	DATE:
				1/30/2012
SIZE: SHEET			DRAWING NO.:	
A3 1 OF 1			472-6920	
SCALE: 2:1			REV.:	
			B	

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:

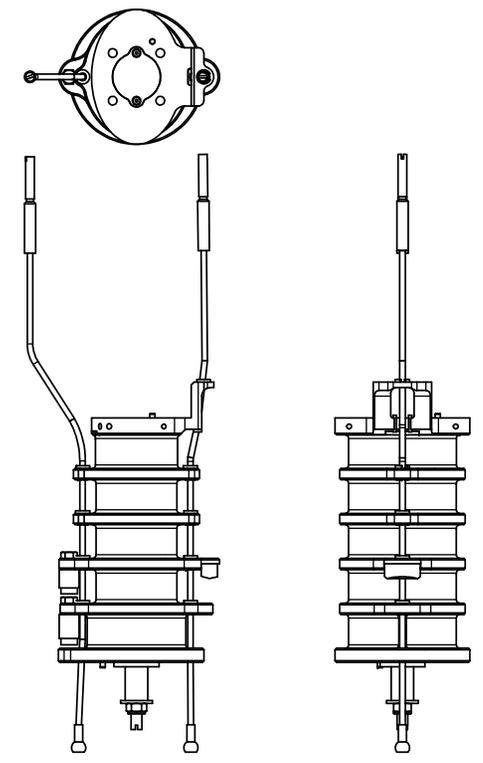
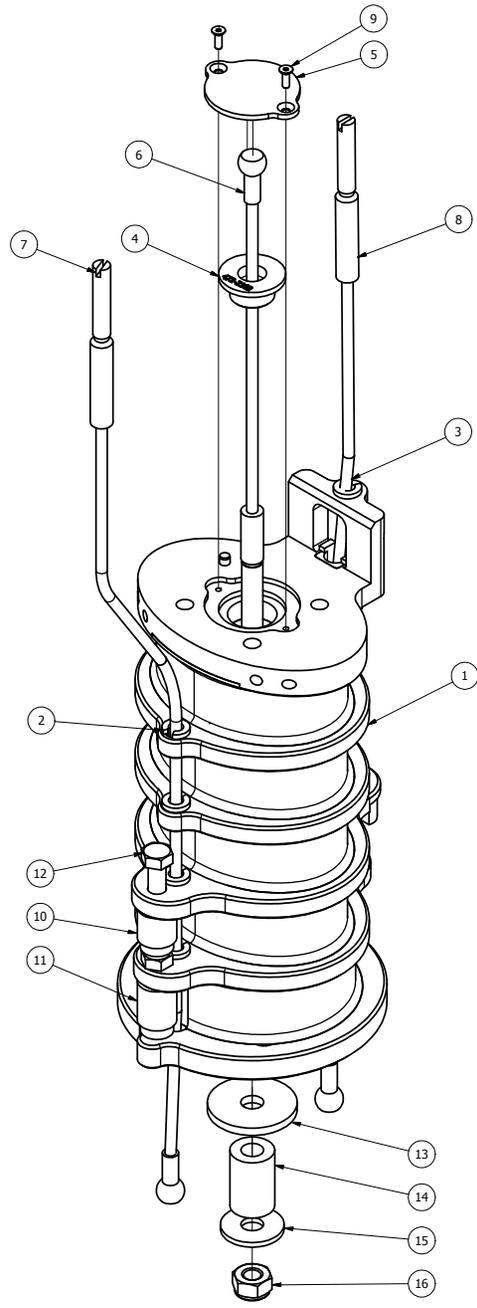
1. UNLESS OTHERWISE SPECIFIED:
PIECEMARK USING PART NUMBER AND
REVISION LETTER. SERIALIZE
2. PART WEIGHT .57 Kg ± .05 Kg (1.25 LBS ± .10 LBS).

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				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NK100 R11 AND CONVERTED TO METRIC FOR THOR-M	8/12/2011	BK



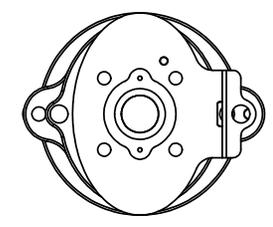
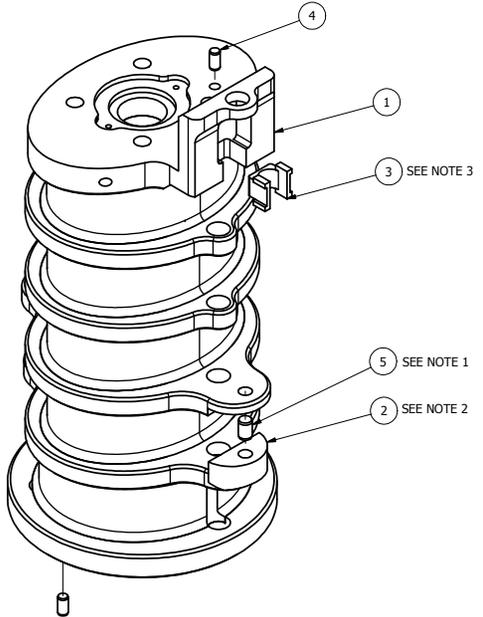
ITEM	QTY	PART NUMBER	DESCRIPTION
16	1	5000503	M6 X 1 HEX LOCK NUT SS
15	1	5001113	M6 FENDER WASHER S.S.
14	1	472-2018	NECK NEOPRENE SPACER
13	1	472-2017	CENTER CABLE WASHER, NECK
12	2	5001109	M5 x.8 x 12 HHCS
11	1	472-2520	LOWER NECK STOP ASSEMBLY
10	1	472-2500	UPPER NECK STOP ASSEMBLY
9	2	5000469	M2 X 0.4 X 6 LG. FHCS
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
1	1	472-2110	FRONT STOP ASSEMBLY, NECK

NOTES:
 1. 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.

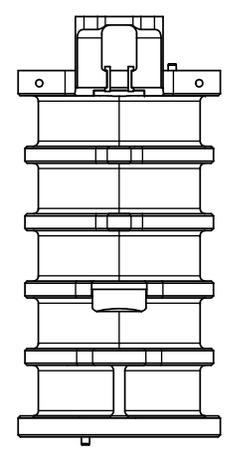
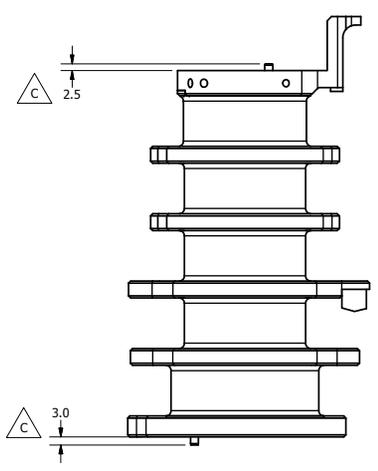
SCALE 1.000

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN MILLIMETERS FRACTIONS ARE IN MILLIMETERS ANGLES ARE IN DEGREES		DIMENSIONS ARE IN INCHES DECIMALS ARE IN INCHES FRACTIONS ARE IN INCHES ANGLES ARE IN DEGREES		
PART NUMBER: 472-2000 QTY: 1 NEXT ASSEMBLY: 472-2100 TOTAL QTY IN DUMMY: 1	DESIGNED BY: B. KIMES DATE: 7/28/2011 CHECKED BY: J. WANG DATE: 1/9/2012	DRAWING SCALE: AS SHOWN SHEET NUMBER: 1 OF 1 PART NUMBER: 472-2100	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION CABLE ASSEMBLY, NECK 472-2100	

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



SCALE 1.000



- NOTES:
1. PRESS 5000524 INTO PART UNTIL PIN IS FLUSH WITH THE TOP SURFACE OF THE PLATE.
 2. BOND 472-2101 TO 472-2120 AND 5000524 AS SHOWN, USING A HIGH STRENGTH, FLEXIBLE, TWO PART EPOXY.
 3. SECURE INTO PLACE USING LOCTITE SUPER BONDER 495 OR EQUIVALENT.

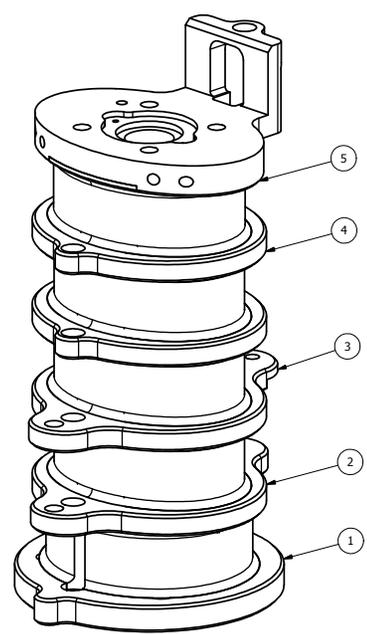
△ C △ B

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

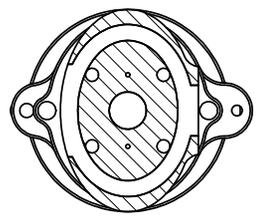
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED FRACTIONS ARE TO BE DECIMALS DECIMALS ARE TO BE IN MILLIMETERS DIMENSIONS ARE TO BE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		SHOW HIDDEN & BREAK DIMENSIONS THIS ANGLE PROJECTION			
472-2100	1	DESIGNED BY	B. KIMES	DATE	7/28/2011
NEXT ASSEMBLY	QTY	APPROVED BY	J. WANG	DATE	1/9/2012
TOTAL QTY IN DUMMY	1	DRAWING NO.		472-2110	

FRONT STOP ASSEMBLY, NECK
 1 OF 1
 750

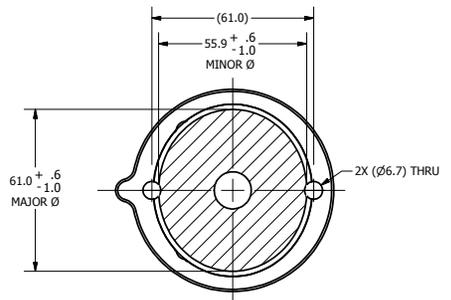
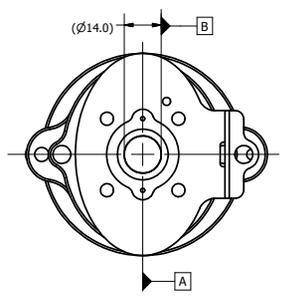
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TINKM105 R02 AND CONVERTED TO METRIC FOR THOR-M	8/22/11	BK



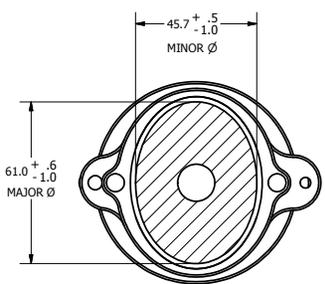
SCALE 1.000



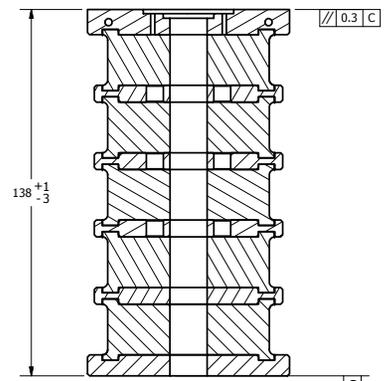
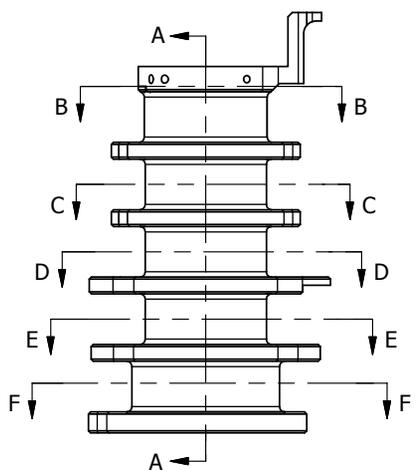
SECTION B-B
SCALE .750



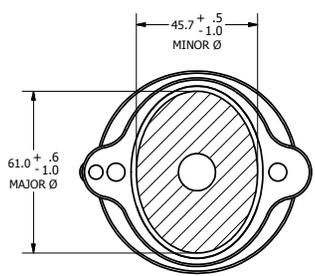
SECTION F-F
SCALE .750



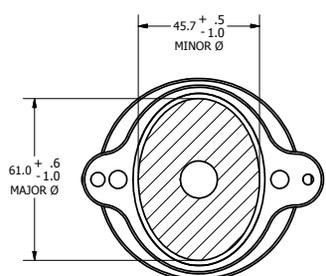
SECTION C-C
SCALE .750



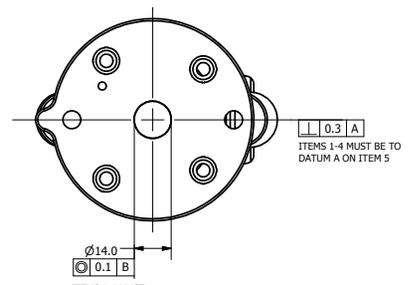
SECTION A-A
SCALE .750



SECTION E-E
SCALE .750



SECTION D-D
SCALE .750



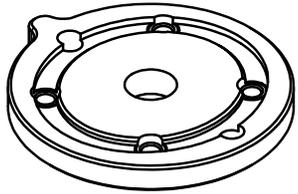
SECTION A-A
ITEMS 1-4 MUST BE TO DATUM A ON ITEM 5

- 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.

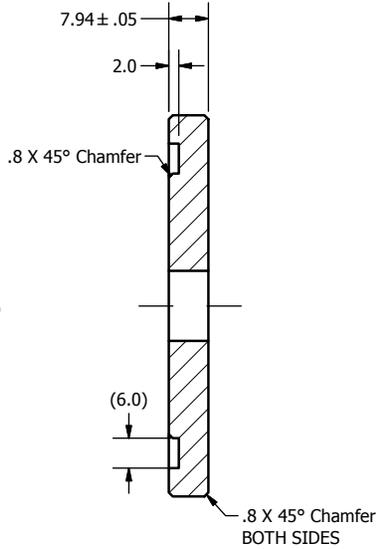
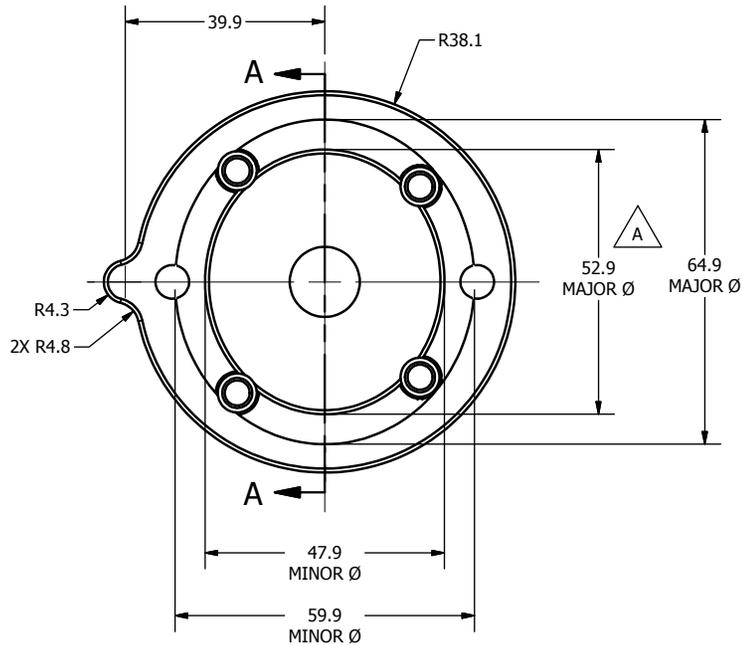
ITEM	QTY	PART NUMBER	DESCRIPTION
5	1	472-2125	TOP PLATE, NECK
4	2	472-2124	NECK PLATE 3
3	1	472-2123	NECK PLATE 2
2	1	472-2122	NECK PLATE 1
1	1	472-2121	NECK BASE

PARTS LIST			
DO NOT SCALE DRAWING	TOLERANCES	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-2110	1	SEE NOTES	7/28/2011
NEXT ASSEMBLY	QTY	BY: B. KIMES	DATE: 7/28/2011
TOTAL QTY IN DUMMY	1	BY: J. WANG	DATE: 1/9/2012

472-2110	1	SEE NOTES	7/28/2011	A21 of 1	472-2120
NEXT ASSEMBLY	QTY	BY: B. KIMES	DATE: 7/28/2011		
TOTAL QTY IN DUMMY	1	BY: J. WANG	DATE: 1/9/2012		

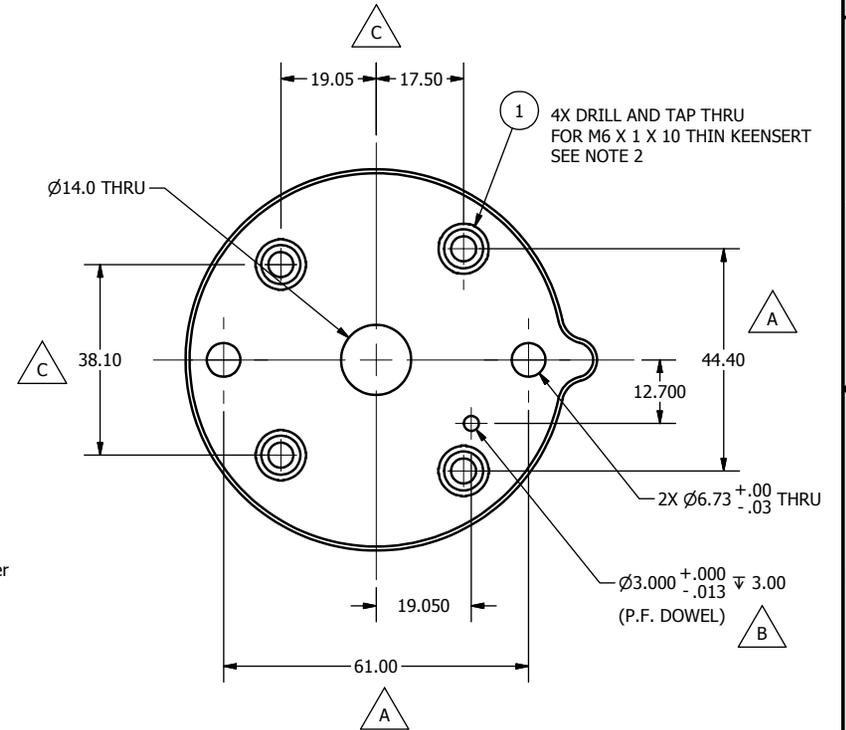


SCALE .750



SECTION A-A
SCALE 1.000

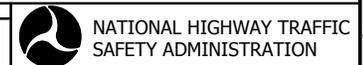
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM110 R11 AND CONVERTED TO METRIC FOR THOR-M; 61.00 WAS 61.0, 52.9 MAJORØ WAS 52.8, 44.40 WAS 44.4	8/22/2011	BK
	B	ADD DOWEL HOLE	12/19/2011	BK
	C	17.50 WAS 17.5; 19.05 WAS 19.0; 38.10 WAS 38.20	3/16/2012	BK



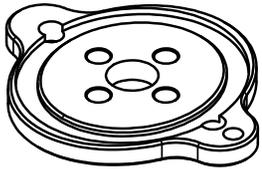
NOTES:

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

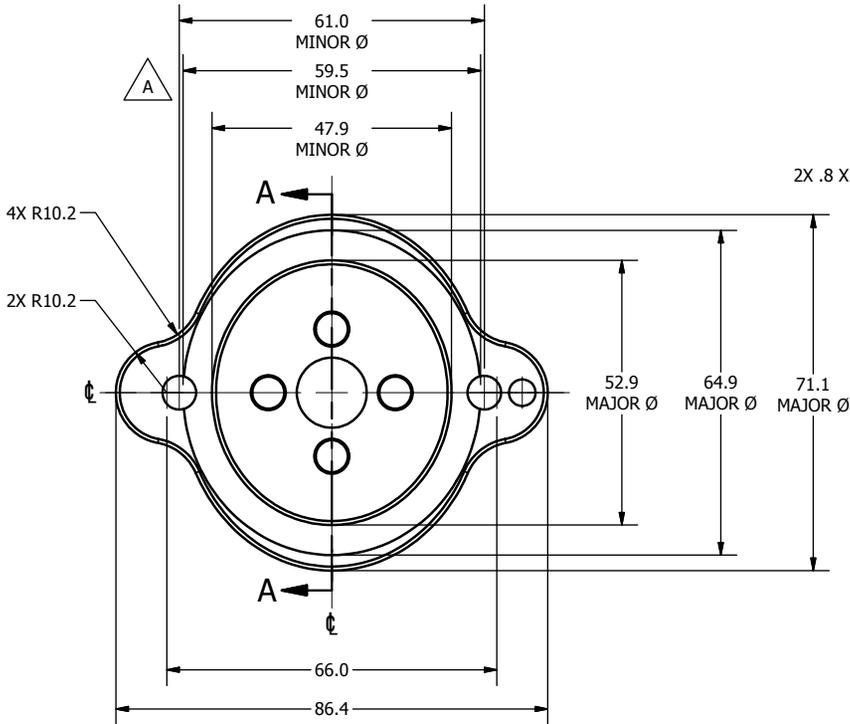
1	4	5001108	M6 X 1 X 10 LG. LIGHTWEIGHT KEENSERT
ITEM	QTY	PART NUMBER	DESCRIPTION
PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DECIMALS ANGLES FINISH X .05 ± 0.05 16 X .02 ± 0.2 X .03 ± 0.3 X .001 ± 0.01	
PROJECT NO.: 472-2120		DATE: 7/28/2011	
MATERIAL: 6061-T6 ALUMINUM		DRAWN BY: B. KIMES	
HEAT TREAT:		DATE:	
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	



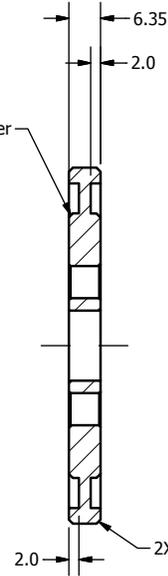
472-2120	1	6061-T6 ALUMINUM	B. KIMES	7/28/2011	A3	1 OF 1	472-2121	C
NEXT ASSEMBLY	QTY	HEAT TREAT	CHECKED BY:	DATE:	SIZE:	SHEET:	DRAWING NO.:	REV.:
TOTAL QTY IN DUMMY	1	FINISH:	ENGINEER:	DATE:	SCALE:	1.000		



SCALE .750



2X .8 X 45° Chamfer



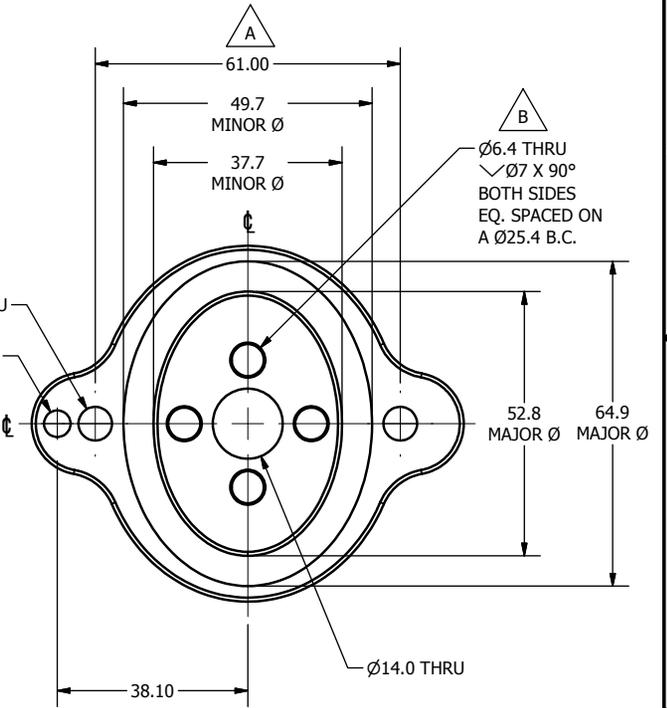
SECTION A-A
SCALE 1.000

2X $\phi 6.73^{+.00}_{-.03}$ THRU

$\phi 5.3$ THRU

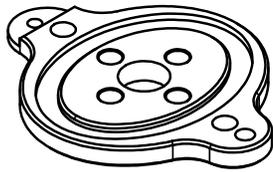
2X .8 X 45° Chamfer

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



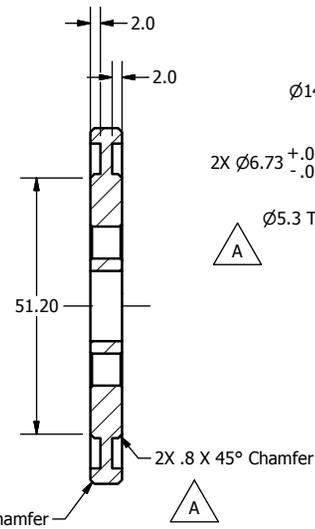
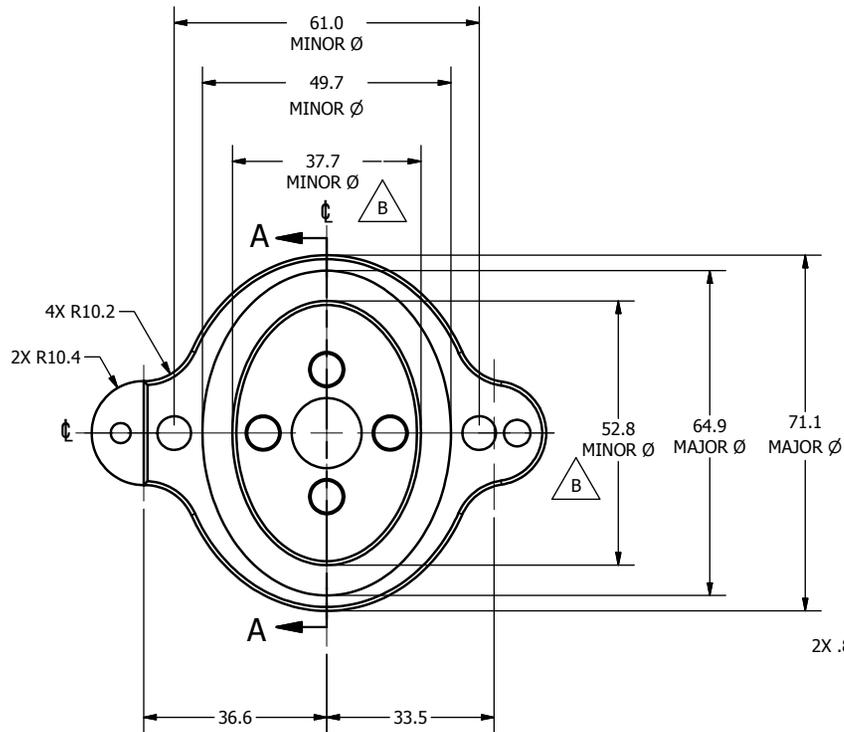
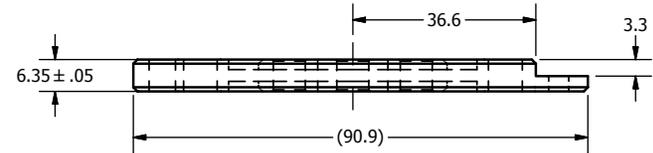
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

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 .02 0.5 1.6 XXX .01 0.5 1.6 XXXX 0.01		
PROJECT NO:	472-2120	MATERIAL:	6061-T6 ALUMINUM	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK PLATE 1
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:	1/9/2012	SCALE:	1.000	SIZE SHEET
TOTAL QTY IN DUMMY	1	FINISH:		A31 OF 1
				472-2122

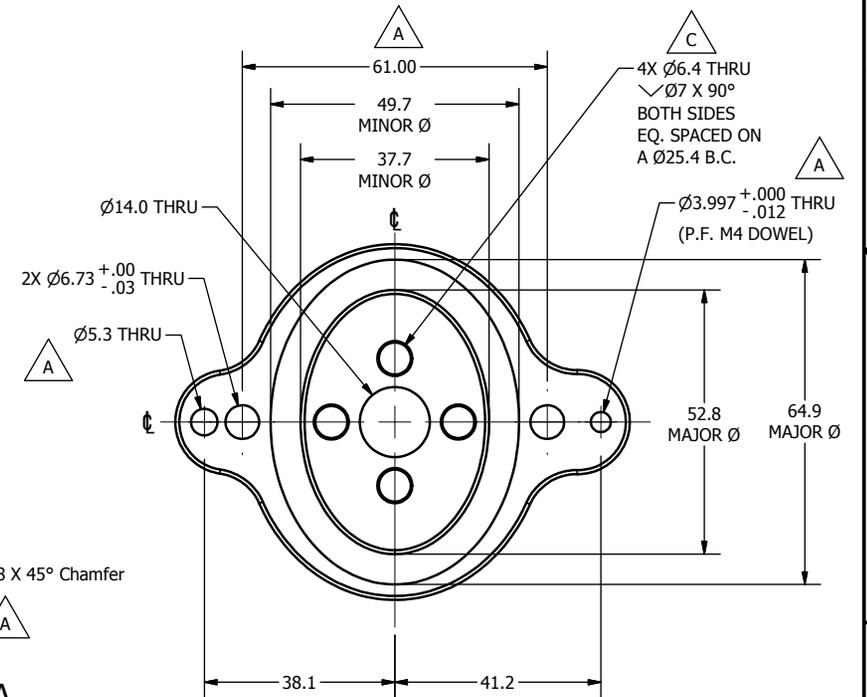


SCALE .750

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/-.012 WAS Ø4.758+.000/-.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



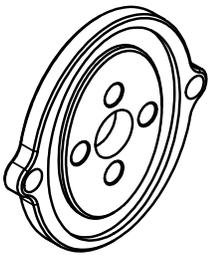
SECTION A-A
SCALE 1.000



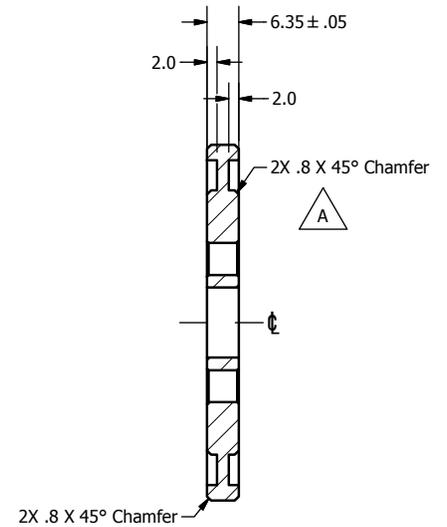
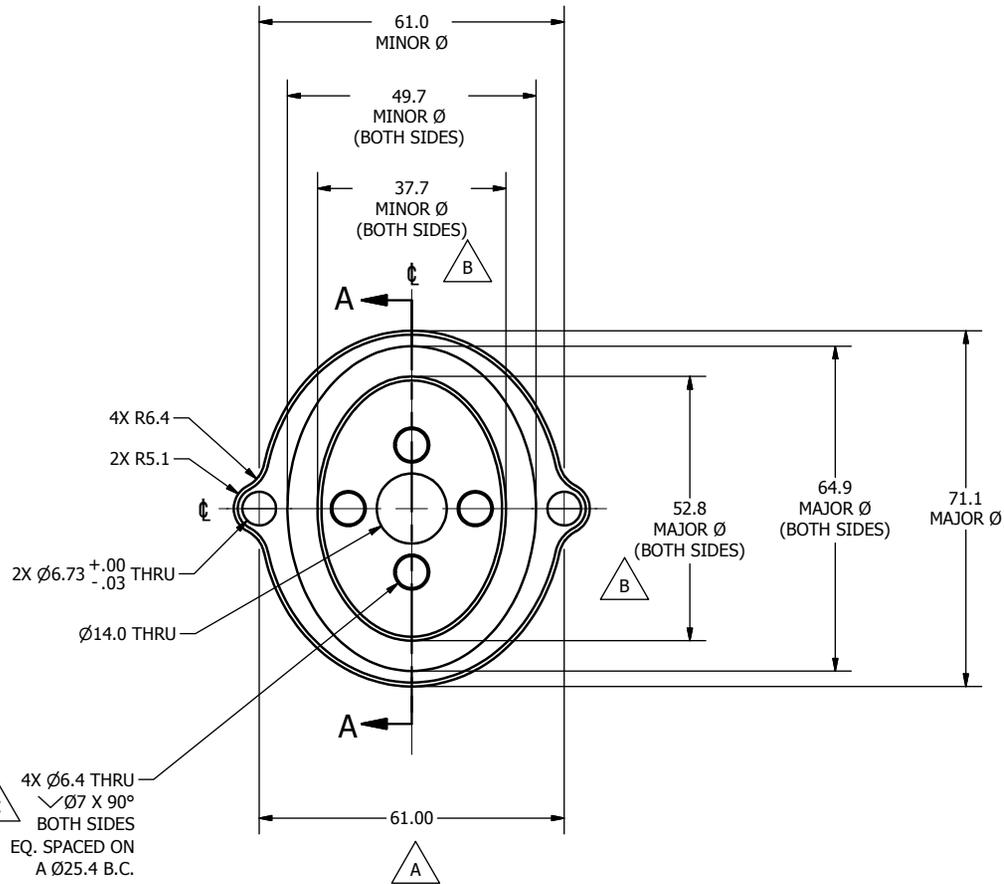
NOTES:

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 16 XX .03 16 XXX .03 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:	1/9/2012	SIZE: SHEET: DRAWING NO.:
ENGINEER:	J. WANG	SCALE:	1.000	472-2123
TOTAL QTY IN DUMMY:	1	FINISH:		REV: C



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.

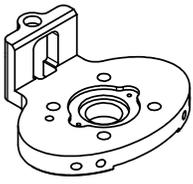
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X .05 ± 0.05 16 ✓
X .1 ± 0.2 ✓
X .2 ± 0.3 ✓
X .3 ± 0.4 ✓
X .5 ± 0.5 ✓
X .75 ± 0.1 ✓
X .1 ± 0.1 ✓
X .2 ± 0.1 ✓
X .3 ± 0.1 ✓
X .4 ± 0.1 ✓
X .5 ± 0.1 ✓
X .6 ± 0.1 ✓
X .7 ± 0.1 ✓
X .8 ± 0.1 ✓
X .9 ± 0.1 ✓
X 1.0 ± 0.1 ✓
X 1.5 ± 0.1 ✓
X 2.0 ± 0.1 ✓
X 3.0 ± 0.1 ✓
X 4.0 ± 0.1 ✓
X 5.0 ± 0.1 ✓
X 6.0 ± 0.1 ✓
X 8.0 ± 0.1 ✓
X 10.0 ± 0.1 ✓
X 12.5 ± 0.1 ✓
X 15.0 ± 0.1 ✓
X 20.0 ± 0.1 ✓
X 25.0 ± 0.1 ✓
X 30.0 ± 0.1 ✓
X 40.0 ± 0.1 ✓
X 50.0 ± 0.1 ✓
X 60.0 ± 0.1 ✓
X 75.0 ± 0.1 ✓
X 100.0 ± 0.1 ✓
X 125.0 ± 0.1 ✓
X 150.0 ± 0.1 ✓
X 200.0 ± 0.1 ✓
X 250.0 ± 0.1 ✓
X 300.0 ± 0.1 ✓
X 400.0 ± 0.1 ✓
X 500.0 ± 0.1 ✓
X 600.0 ± 0.1 ✓
X 750.0 ± 0.1 ✓
X 1000.0 ± 0.1 ✓

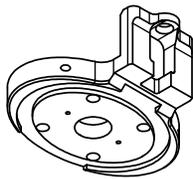


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-2120	QTY: 2	MATERIAL: 6061-T6 ALUMINUM	DATE: 7/28/2011	DRIVEN BY: B. KIMES	DATE: 7/28/2011	SIZE: SHEET A3 1 OF 1	SCALE: 1.000	DRAWING NO.: 472-2124	REV: C
CHECKED BY:	DATE:	HEAT TREAT:	DATE:	ENGINEER: J. WANG	DATE: 1/9/2012	DESCRIPTION: NECK PLATE 3			
TOTAL QTY IN DUMMY:	2	FINISH:							

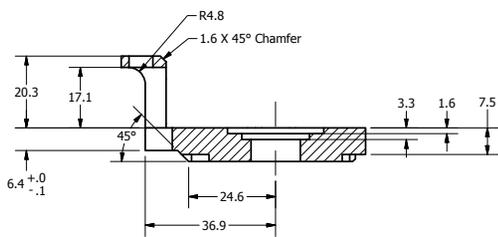
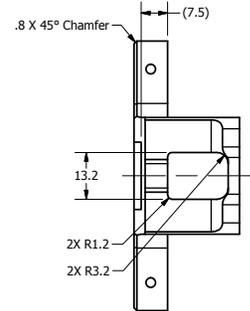
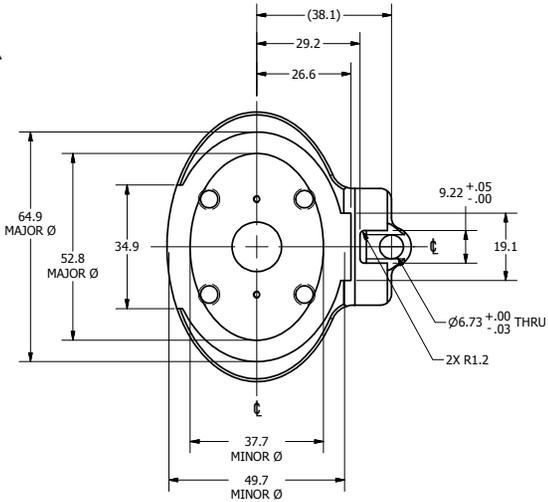
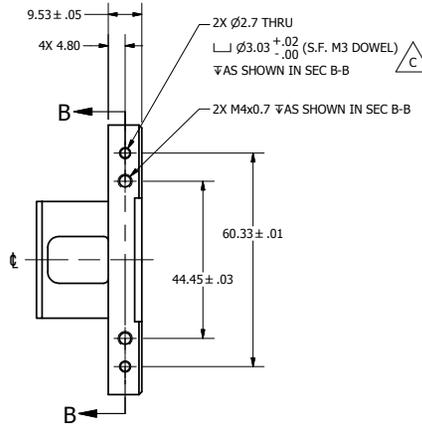
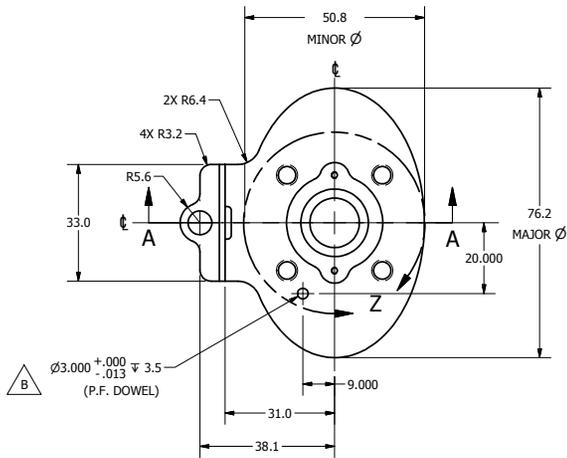


SCALE .750

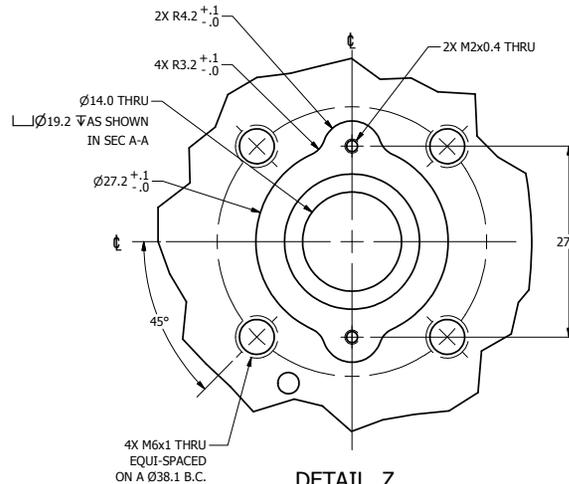


SCALE .750

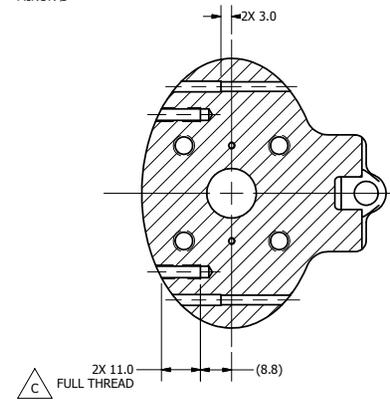
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TINKM116 R17 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTES 2, 3, 4	8/16/2011	BK
	B	ADD LOCATION DOWEL HOLE	12/19/2011	BK
	C	Ø3.03+0.02/-0.00 WAS Ø3.174 +0/-0.013, S.F. DOWEL WAS P.F.; CHANGE THREAD DEPTH, (8.8) WAS 3.1; ADD 2X 11.0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



SECTION A-A
SCALE 1.000



DETAIL Z
SCALE 2.000



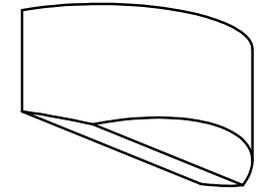
SECTION B-B
SCALE 1.000

NOTES:

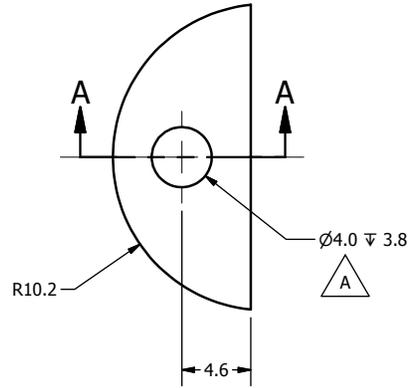
- DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
- POWDER OR BEAD BLAST.
- NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
- DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.



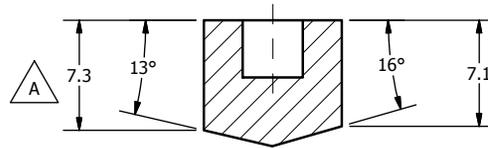
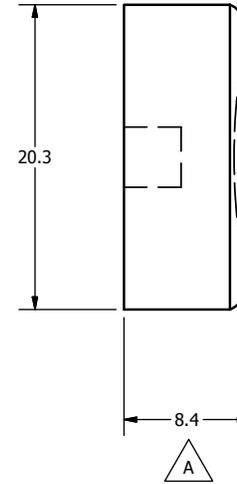
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		TOP PLATE, NECK	
DRAWN BY: B. KIMES		DATE: 7/28/2011		DRAWN BY: B. KIMES	
CHECKED BY: J. WANG		DATE: 1/9/2012		CHECKED BY: J. WANG	
472-2120	1	1018 STEEL		1 OF 1	472-2125
NEXT ASSEMBLY	QTY			1.000	
TOTAL QTY IN DUMMY	1	SEE NOTES			



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

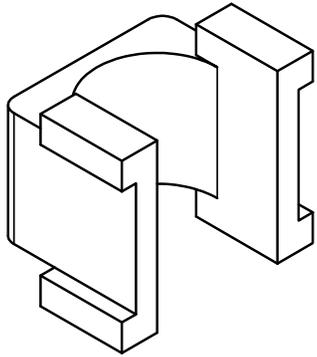


SECTION A-A
SCALE 3.000

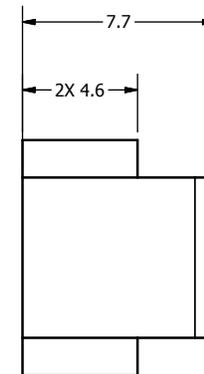
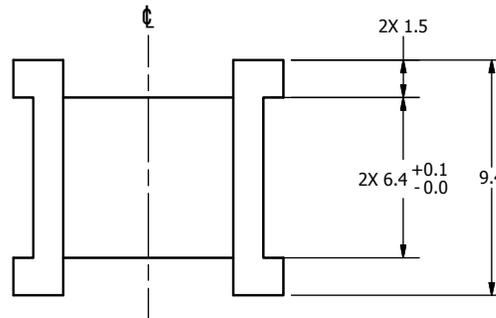
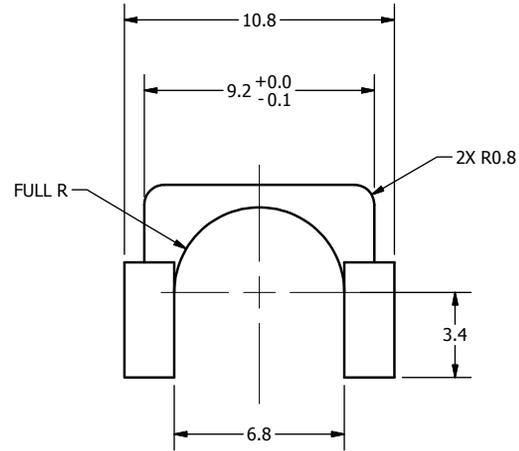
NOTES:

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 0.05 1.6 XX 0.02 0.05 XXX 0.03 0.05 XXXX 0.01		
PROJECT NO.:	472-2110	MATERIAL:	NATURAL RUBBER 75±5 SHORE A	DESCRIPTION:
DATE:	7/28/2011	DESIGNED BY:	B. KIMES	FRONT STOP, NECK
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
DATE:	1/9/2012	SCALE:	3.000	DRAWING NO.:
TOTAL QTY IN DUMMY	1	FINISH:		472-2101
				REV.:
				B



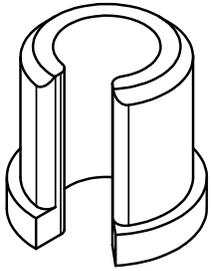
SCALE 5.000



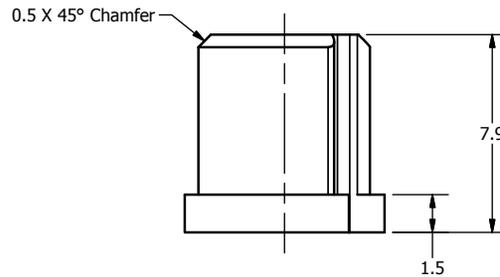
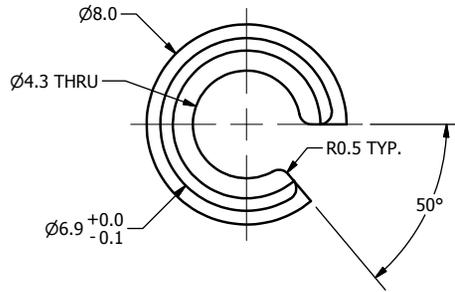
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM125 R03 FOR THOR-M	7/30/2011	BK

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 0.5° 16 X 0.2 0.5° 16 XX 0.3 0.5° 16 XXX 0.01 0.5° 16		
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



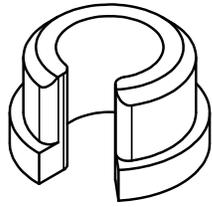
SCALE 5.000



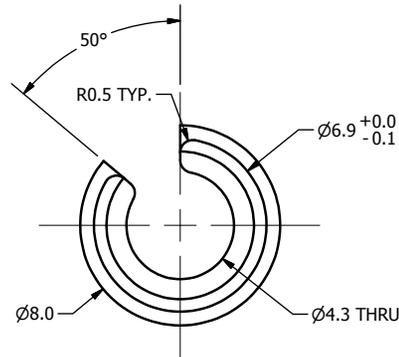
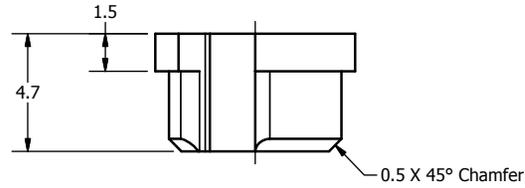
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM129 R01 FOR THOR-M	7/30/2011	BK

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 XXX 0.01 XXXX 0.01		
PROJECT NO.:	472-2100	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK CABLE GUIDE
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
TOTAL QTY IN DUMMY	8	FINISH:		DATE:
				1/9/2012
				SIZE: SHEET: A3 1 OF 1
				SCALE: 5.000
				DRAWING NO. 472-2105
				REV. A

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



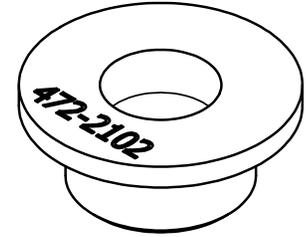
SCALE 5.000



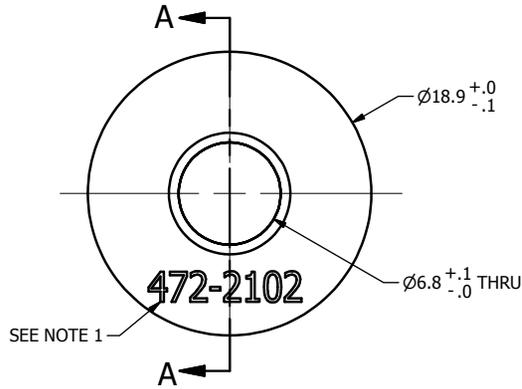
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO:	472-2100	MATERIAL:	Acetal Resin, Black	DESCRIPTION: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

472-2100	1	Acetal Resin, Black
NEXT ASSEMBLY	QTY	
TOTAL QTY IN DUMMY	1	

SIZE	SHEET	DRAWING NO.	REV.
A3	1 OF 1	472-2106	A

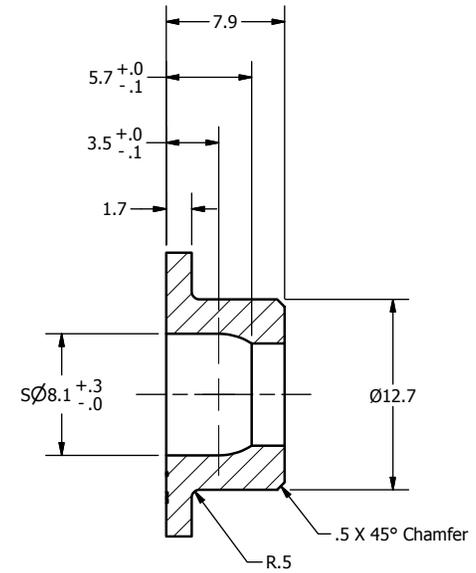


SCALE 3.000



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

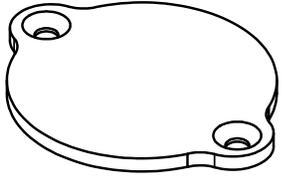
NOTES:

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

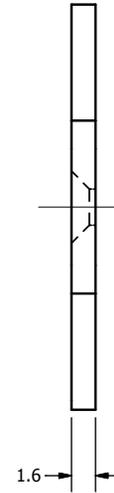
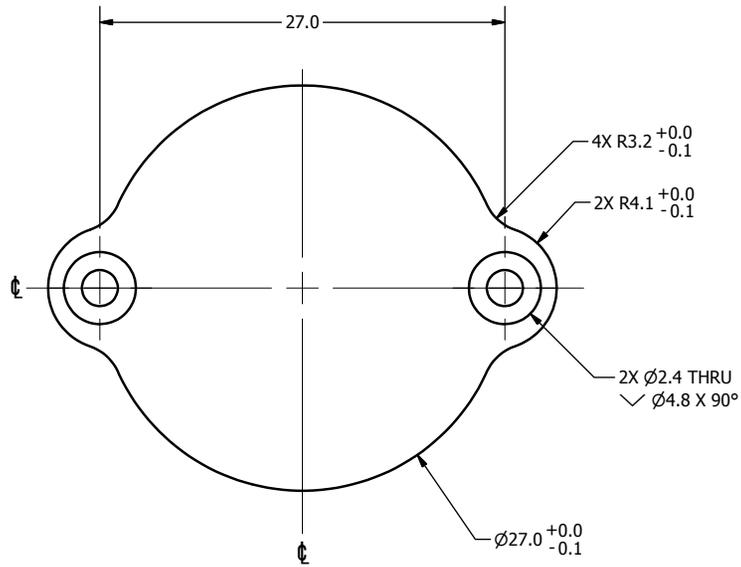
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED		
PROJECT NO.:		DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: CENTER CABLE FIXTURE, NECK
MATERIAL:	7075-T6 ALUMINUM	DECIMALS ANGLES FINISH		
CHECKED BY:	B. KIMES	0.1 0.5 1.6		SCALE: 3.000
DATE:	7/28/2011	X.X ± 0.2		
HEAT TREAT:		X.XX ± 0.3		DRAWING NO. 472-2102
FINISH:	CLEAR ANODIZE	X.XXX ± 0.01		
ENGINEER:	J. WANG	REMOVE BURRS & BREAK SHARP EDGES		REV. A
DATE:	1/9/2012			

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

SIZE: A3
SHEET: 1 OF 1



SCALE 2.000

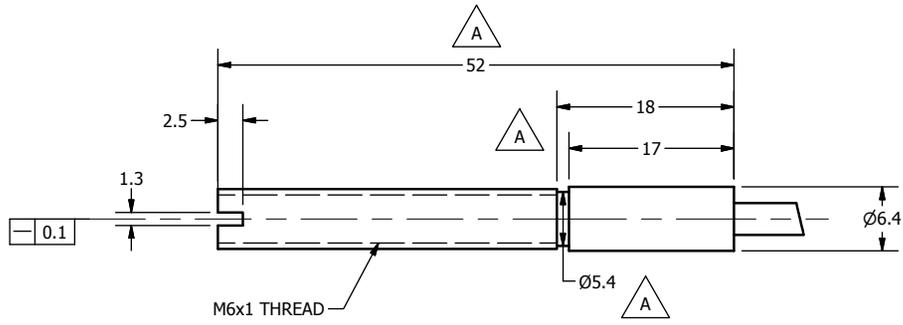


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM124 R03 AND CONVERTED TO METRIC FOR THOR-M	7/30/2011	BK

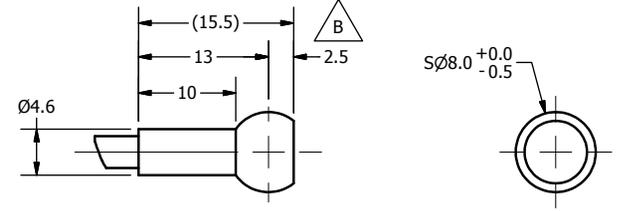
NOTE:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.07 16 X.X ± 0.2 X.XX ± 0.3 X.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	
DATE:		DATE:	1/9/2012	
FINISH:		FINISH:		
TOTAL QTY IN DUMMY		1		SIZE: A3 SHEET: 1 OF 1 SCALE: 3.000
				DRAWING NO.: 472-2103 REV: A

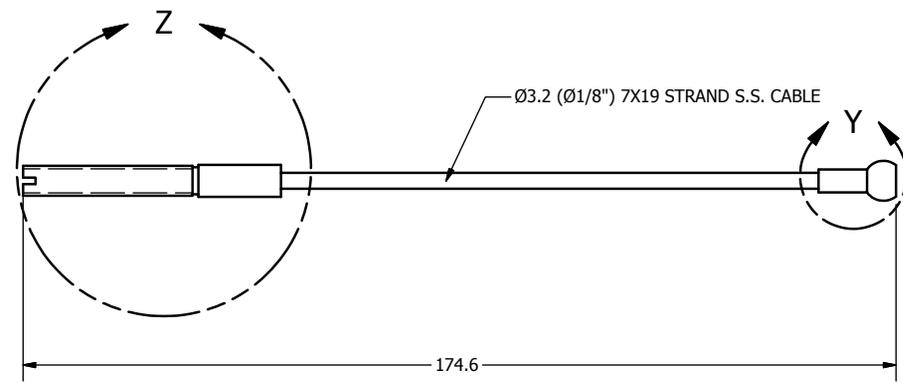
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM119 R04 AND CONVERTED TO METRIC FOR THOR-M; 52 WAS 54; 18 WAS 31; 17 WAS 28; Ø5.4 WAS Ø4	8/1/2011	BK
	B	ADD 2.5 DIMENSION; (15.5) WAS 15.5	6/25/2012	BK



DETAIL Z
THREADED END
SCALE 2.000



DETAIL Y
BALL END
SCALE 2.000



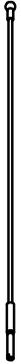
SCALE .500

- NOTES:
- TENSIL STRENGTH OF CABLE ASSEMBLY: 1000 LBS.
 - DIMENSIONS SHOWN ARE AFTER SWAGING AND MACHINING.

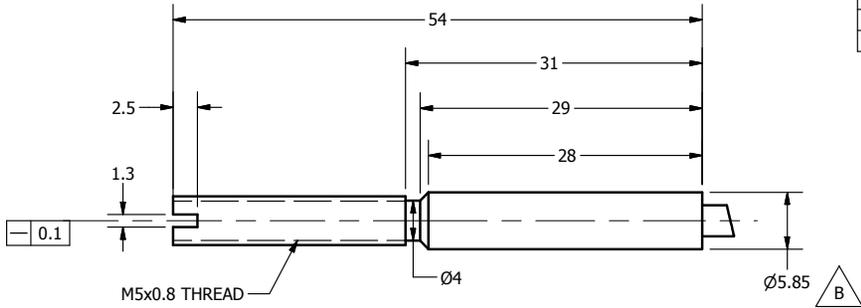
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 ± 0.07 1.6 XX 0.2 ± 0.2 XXX 0.3 ± 0.3 XXXX 0.01		
PROJECT NO:	472-2100	MATERIAL:	1	DESCRIPTION: CENTER CABLE ASSEMBLY, NECK
CHECKED BY:	B. KIMES	DATE:	7/28/2011	
HEAT TREAT:		ENGINEER:	J. WANG	
DATE:	1/9/2012	SCALE:	1.000	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-2140 REV: B

4 3 2 1

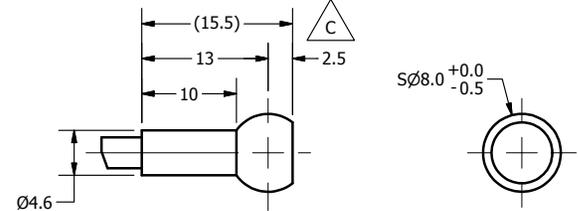
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1NKM117 R11 AND CONVERTED TO METRIC FOR THOR-M	7/30/2011	BK
	B	Ø5.85 WAS Ø6.4	6/13/2012	BK
	C	ADD 2.5 DIMENSION; (15.5) WAS 15.5	6/25/2012	BK



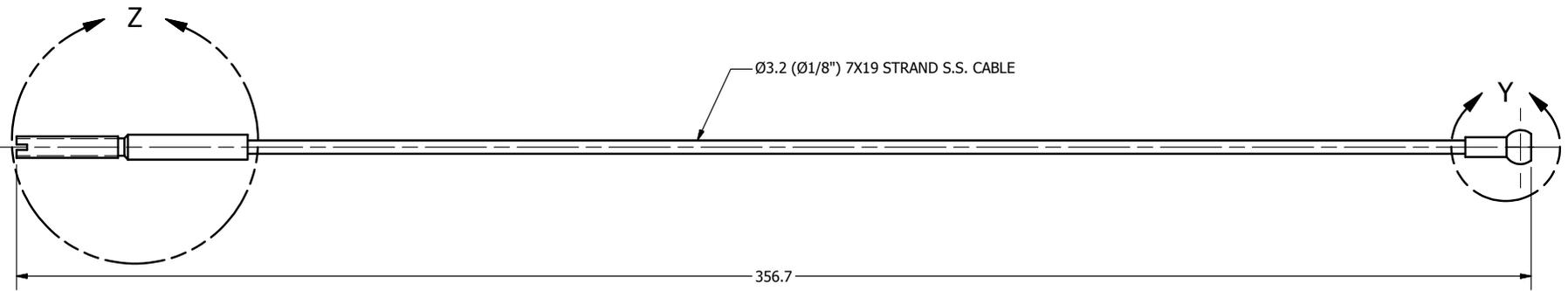
SCALE .250



DETAIL Z
THREADED END
SCALE 2.000



DETAIL Y
BALL END
SCALE 2.000



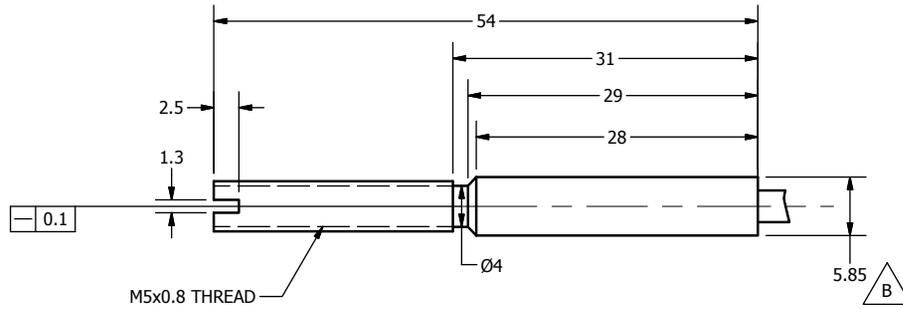
- NOTES:
- TENSIL STRENGTH OF CABLE ASSEMBLY: 1700 LBS.
 - DIMENSIONS SHOWN ARE AFTER SWAGING AND MACHINING.

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 0.1 X.XXX 0.05 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.	MATERIAL:	DRAWN BY:	DATE:	DESCRIPTION:
472-2100	1	B. KIMES	7/28/2011	REAR CABLE ASSEMBLY, NECK
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	SIZE: SHEET
TOTAL QTY IN DUMMY	1	ENGINEER:	DATE:	B 1 OF 1
		J. WANG	1/9/2012	SCALE: 1.000
				DRAWING NO.:
				472-2130
				REV: C

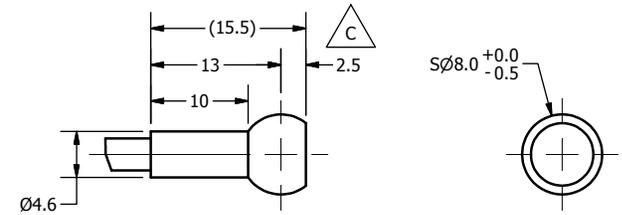
4 3 2 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM122 R12 AND CONVERTED 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

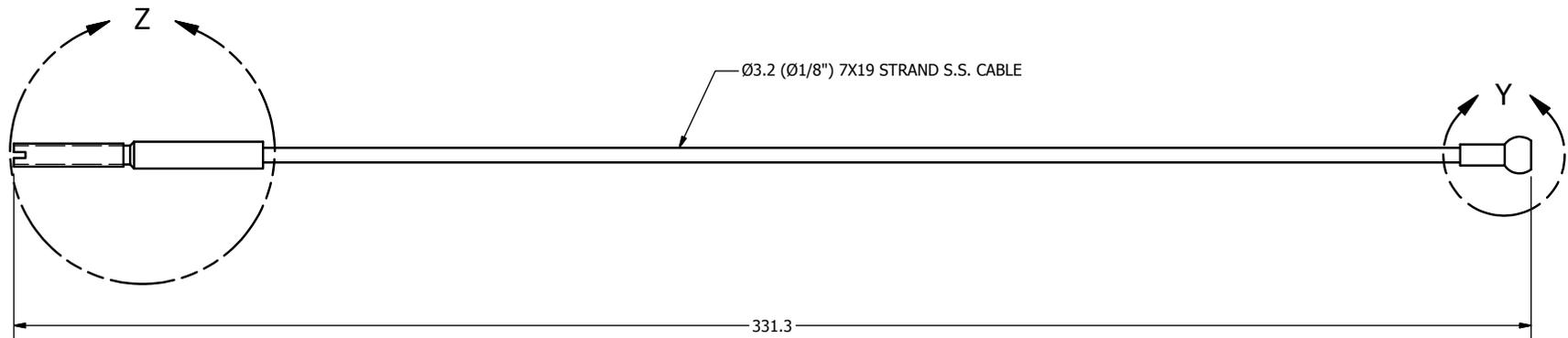
SCALE .250



DETAIL Z
THREADED END
SCALE 2.000



DETAIL Y
BALL END
SCALE 2.000

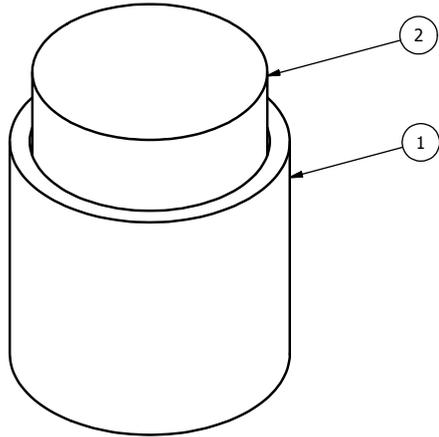


NOTES:

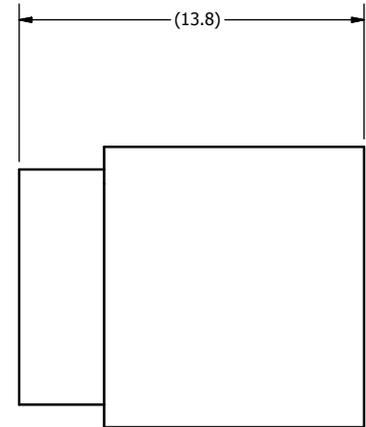
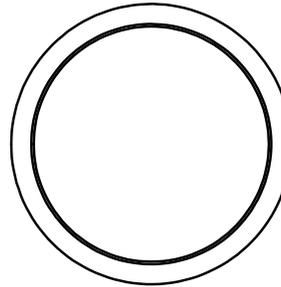
- TENSIL STRENGTH OF CABLE ASSEMBLY: 1700 LBS.
- DIMENSIONS SHOWN ARE AFTER SWAGING AND MACHINING.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS 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:	472-2100	1	DATE:	7/28/2011
MATERIAL:	NEXT ASSEMBLY	QTY	CHECKED BY:	B. KIMES
HEAT TREAT:	TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG
DATE:	DATE:	DATE:	DATE:	DATE:
SCALE:	SCALE:	SCALE:	SCALE:	SCALE:
DESCRIPTION:			FRONT CABLE ASSEMBLY, NECK	
SIZE: SHEET			DRAWING NO. 472-2150	
A3 1 OF 1			REV. C	

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



SCALE 5.000

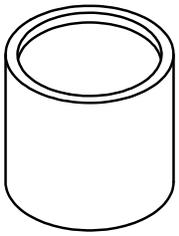


- NOTES:
- BOND 472-2511 TO 472-2510 USING A FLEXIBLE, HIGH STRENGTH, TWO PART RUBBER EPOXY.

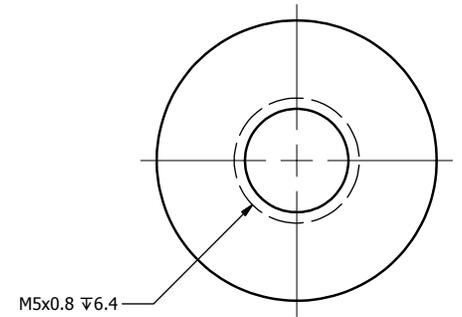
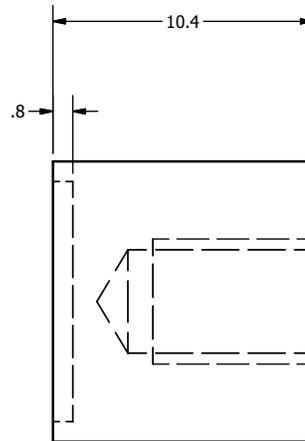
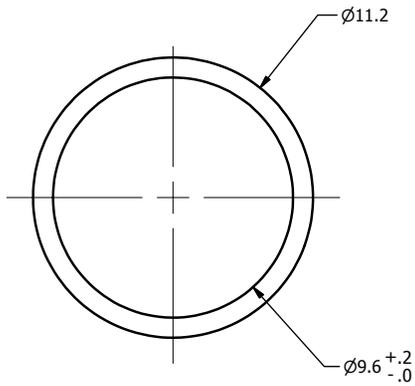
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-2511	NECK SOFT STOP 2
1	1	472-2510	NECK STOP 2

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:		DATE:		 UPPER NECK STOP ASSEMBLY
MATERIAL:		DRAWN BY:		
472-2100		B. KIMES		SCALE: A3 1 OF 1
NEXT ASSEMBLY		DATE: 7/28/2011		
TOTAL QTY IN DUMMY		ENGINEER:		DRAWING NO. 472-2500
1		J. WANG		
FINISH:		DATE: 1/10/2012		REV. A



SCALE 3.000



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

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: NECK STOP 2	
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 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.:	472-2500	MATERIAL:	303 STAINLESS STEEL	DATE:	7/28/2011
CHECKED BY:		ENGINEER:	B. KIMES	SCALE:	5.000
HEAT TREAT:		DATE:	1/10/2012	SHEET:	1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		DRAWING NO.:	472-2510



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

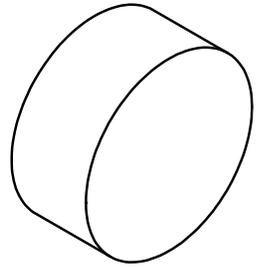
DESCRIPTION: NECK STOP 2

472-2510

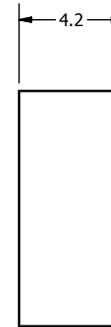
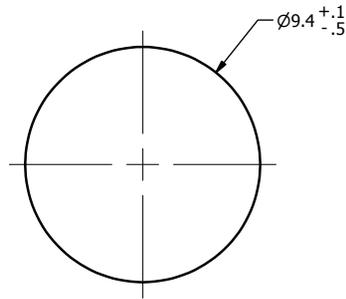
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REVISION HISTORY

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



SCALE 5.000

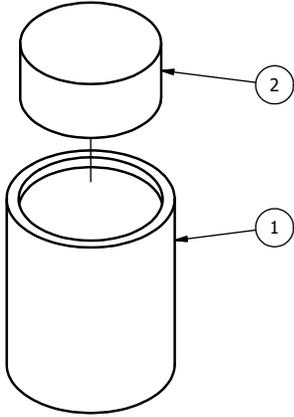
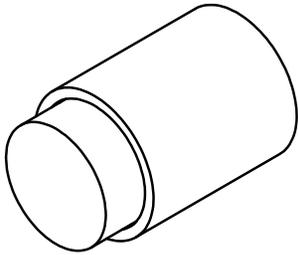


NOTES:

- 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	
PROJECT NO.:	472-2500	MATERIAL:	SBR RUBBER 75A	DESCRIPTION: NECK SOFT STOP 2
CHECKED BY:	J. WANG	DATE:	1/10/2012	
DATE:	7/28/2011	BY:	B. KIMES	
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	1	SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000
			DRAWING NO.:	472-2511
			REV:	A

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.

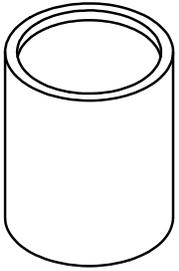
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-2513	NECK SOFT STOP 1
1	1	472-2512	NECK STOP 1

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .05 ± 0.5 16	
		XX ± 0.2	
		XXX ± 0.3	
		XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.: 472-2100		DRAWN BY: skantola	
MATERIAL:		DATE: 11/22/2011	
NEXT ASSEMBLY QTY: 1		HEAT TREAT:	
TOTAL QTY IN DUMMY: 1		CHECKED BY: J. WANG	
		DATE: 1/10/2012	
		ENGINEER: J. WANG	
		DATE: 1/10/2012	
		FINISH:	

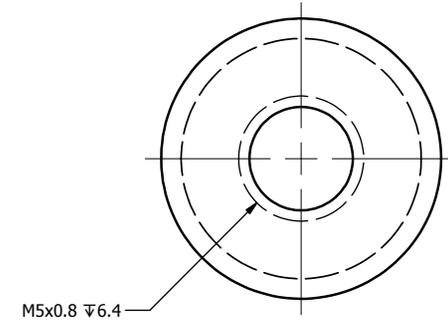
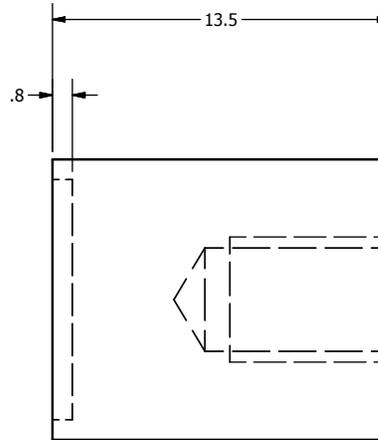
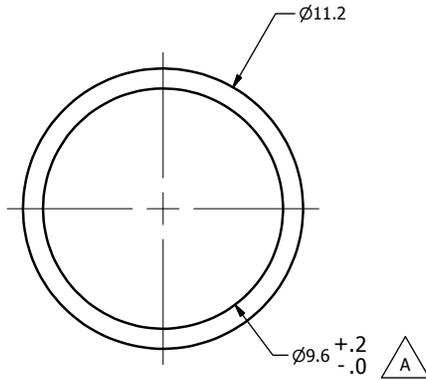


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: LOWER NECK STOP ASSEMBLY
 SIZE: A3
 SHEET: 1 OF 1
 SCALE: 3.000
 DRAWING NO.: 472-2520
 REV: A



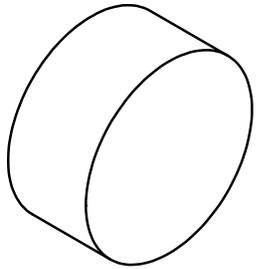
SCALE 3.000



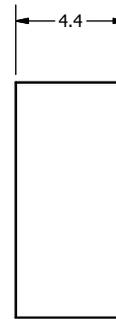
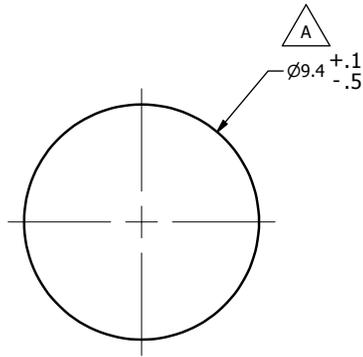
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM512 R06 AND CONVERTED TO METRIC FOR THOR-M; $\varnothing 9.6^{+.2}_{-.0}$ WAS $\varnothing 9.5$	8/19/11	BK

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 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2501	MATERIAL:	303 STAINLESS STEEL	DESCRIPTION:
DESIGNED 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

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

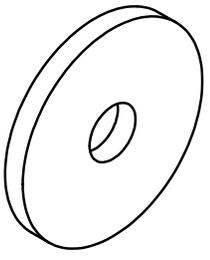


NOTES:

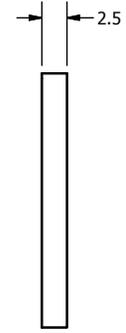
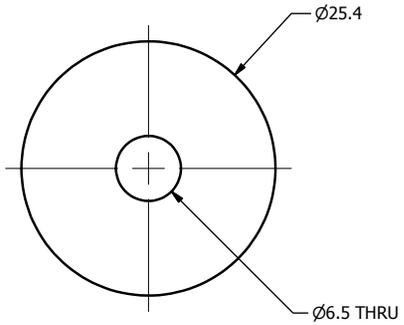
1. RUBBER TOLERANCE ±0.5 AND DUROMETER ±5, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.5 ±0.5° 1.6 XX ±0.2 XXX ±0.3 XXXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
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	
TOTAL QTY IN DUMMY	1	FINISH:		SIZE: SHEET: A3 1 OF 1
				SCALE: 5.000
				DRAWING NO. 472-2513
				REV. A

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM029 R01 FOR THOR-M	7/29/11	BK



SCALE 2.000



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

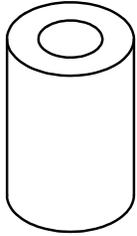
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
XX ±0.2
XXX ±0.3
X-XXX ±0.01



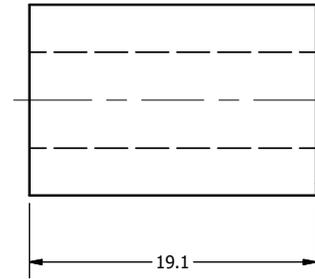
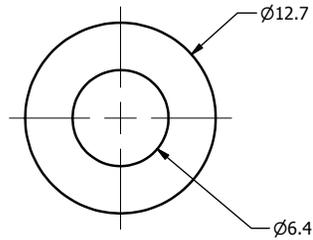
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO.: 472-2100	QTY: 1	MATERIAL: Acetal Resin, Black	DATE: 7/28/2011	DRIVER BY: B. KIMES	DATE: 7/28/2011	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: CENTER CABLE WASHER, NECK
CHECKED BY:	HEAT TREAT:	FINISH:	ENGINEER: J. WANG	DATE: 1/9/2012	SCALE: 2.000	SIZE SHEET: A3 1 OF 1	DRAWING NO.: 472-2017
TOTAL QTY IN DUMMY:	1						REV: A

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.

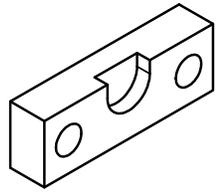
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
0.05 ± 0.05 16°
X.X ± 0.2
X.XX ± 0.3
X.XXX ± 0.01
REMOVE BURRS & BREAK SHARP EDGES

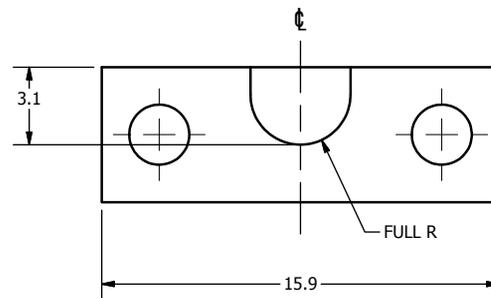
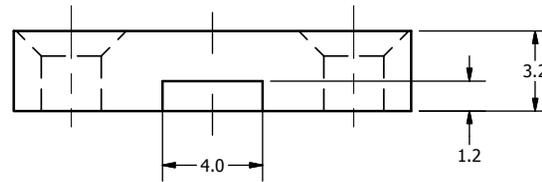
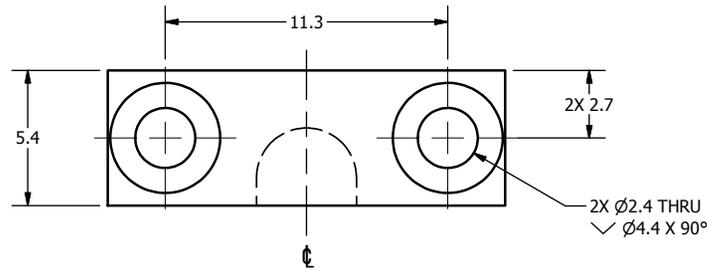


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

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: J. WANG	DATE: 1/9/2012	SCALE: 3.000					



SCALE 3.000



NOTES:

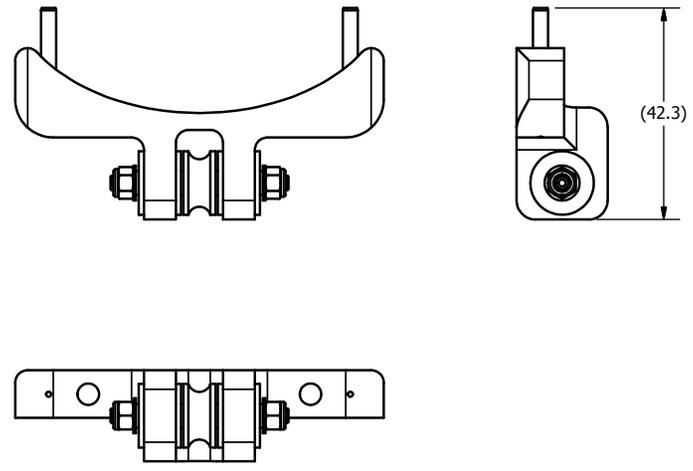
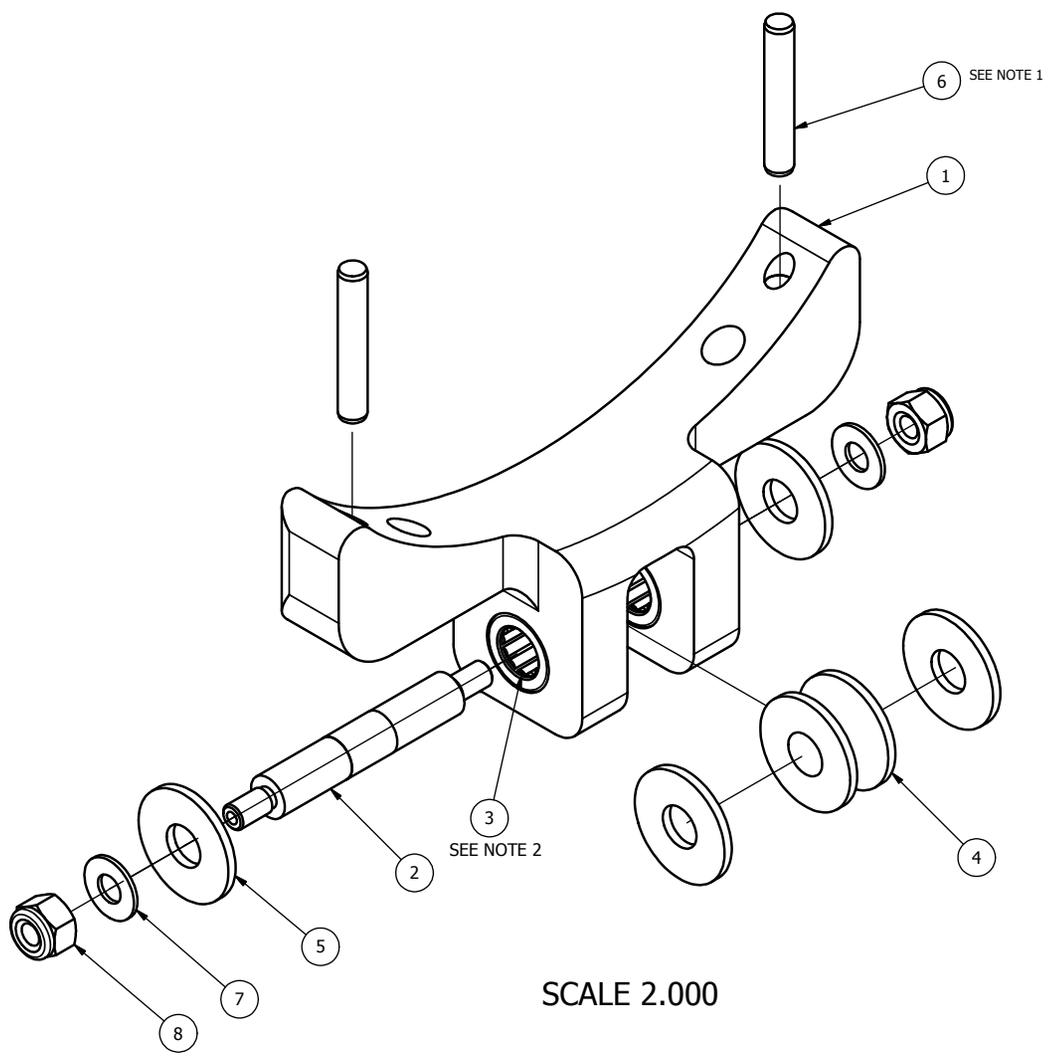
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

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 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-2000	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	CABLE SEAT COVER, NECK
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/9/2012	SCALE: 5.000
TOTAL QTY IN DUMMY	2	FINISH:		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



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

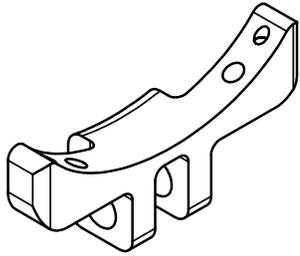
- NOTES:
- PRESS FIT DOWEL PINS AS SHOWN.

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

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.X ±0.2 X.XX ±0.3 X.XXX ±0.01		
PROJECT NO:	472-2000	MATERIAL:	DATE:	DESCRIPTION:
CHECKED BY:	B. KIMES	HEAT TREAT:	DATE:	NECK PULLEY BRACKET ASSEMBLY
DATE:	7/28/2011	FINISH:	DATE:	
ENGINEER:	J. WANG	SCALE:	DATE:	
TOTAL QTY IN DUMMY:	1	SCALE:	1.000	

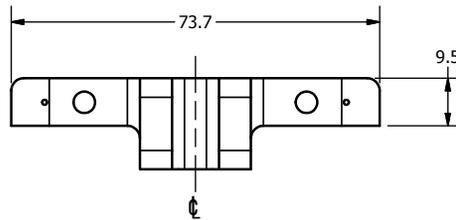
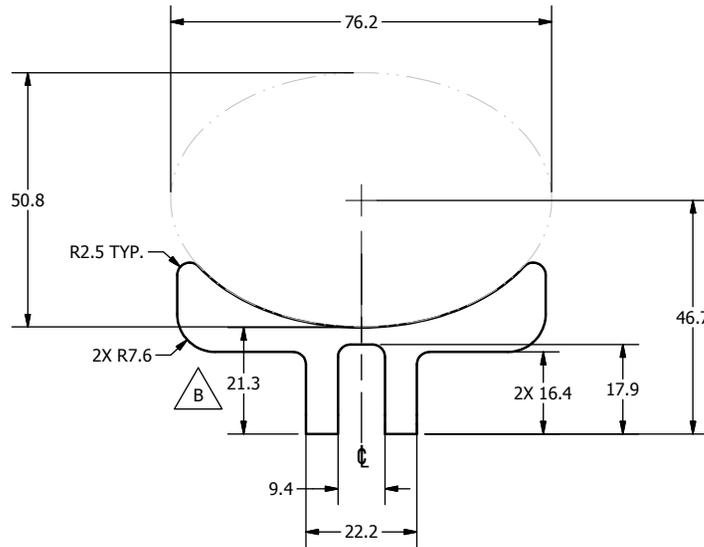
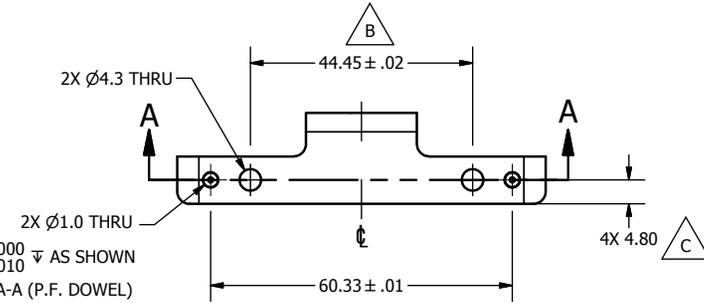
472-2000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

SIZE: A3
 SHEET: 1 OF 1
 DRAWING NO.: 472-2300
 REV: A

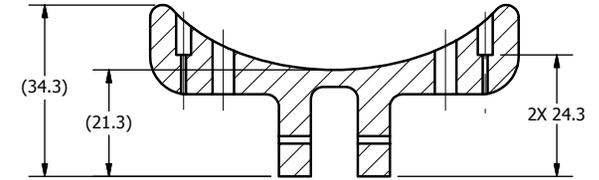


SCALE 1.000

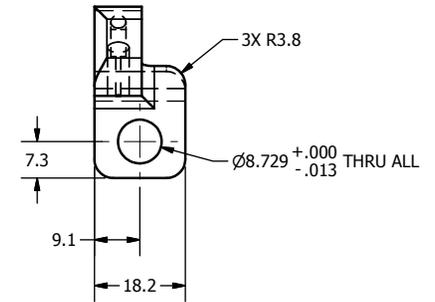
$\triangle A$ \perp $\varnothing 2.998^{+.000}_{-.010}$ AS SHOWN
IN SEC A-A (P.F. DOWEL)



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

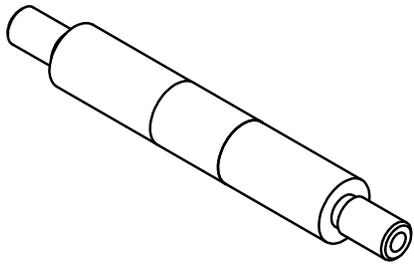


NOTES:

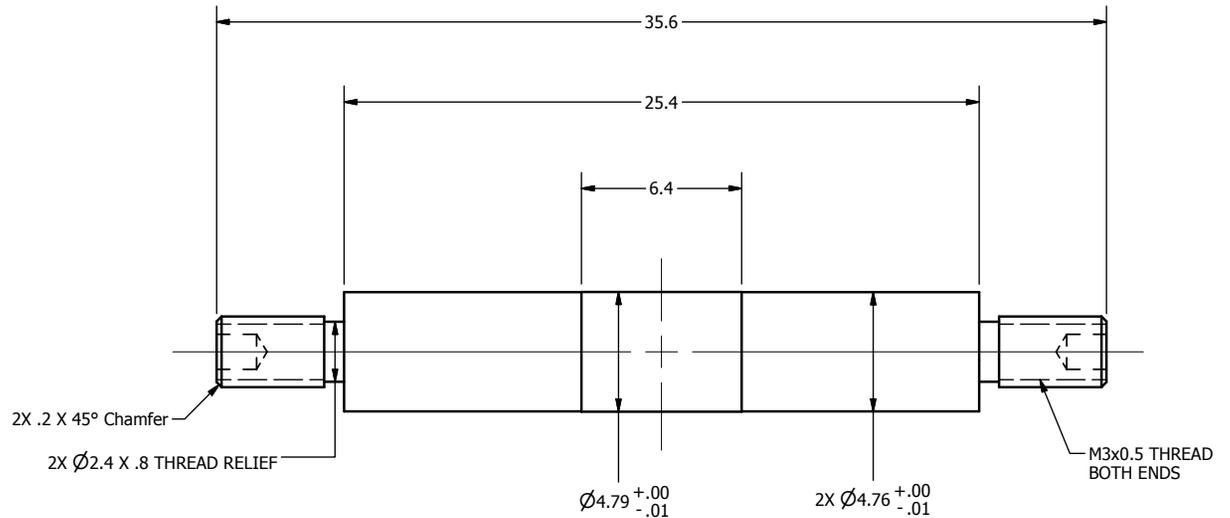
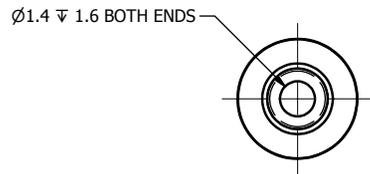
1. REMOVE ALL BURRS AND BREAK ALL SHARP EDGES.
2. DIMENSIONS SYMMETRIC ABOUT \perp , UNLESS OTHERWISE NOTED.
3. POWDER OR BEAD BLAST.
4. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
5. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

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:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	REAR PULLEY BRACKET, NECK
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:	1/10/2012	SCALE:	1.000	SIZE: SHEET
TOTAL QTY IN DUMMY	1	SEE NOTES		A31 OF 1
				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



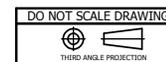
SCALE 3.000



NOTES:



1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.



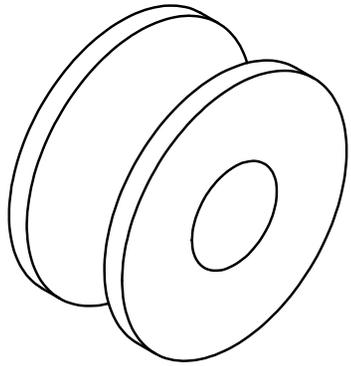
TOLERANCES		
UNLESS OTHERWISE SPECIFIED	DECIMALS	ANGLES
DIMENSIONS ARE IN MILLIMETERS	± 0.05	$\pm 0.5^\circ$
X.X	± 0.2	1.6
X.XX	± 0.1	
X.XXX	± 0.01	

REMOVE BLURRS & BREAK SHARP EDGES

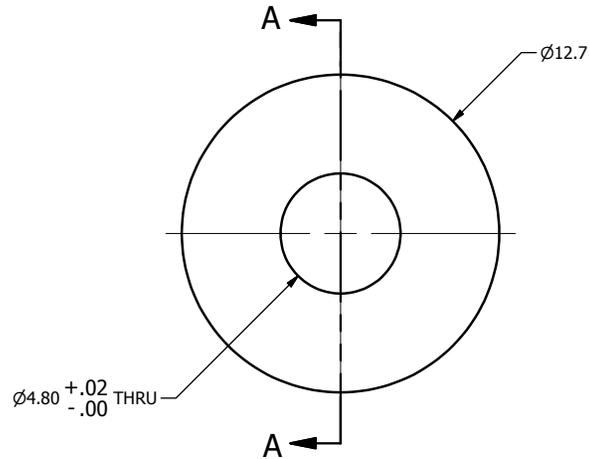


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

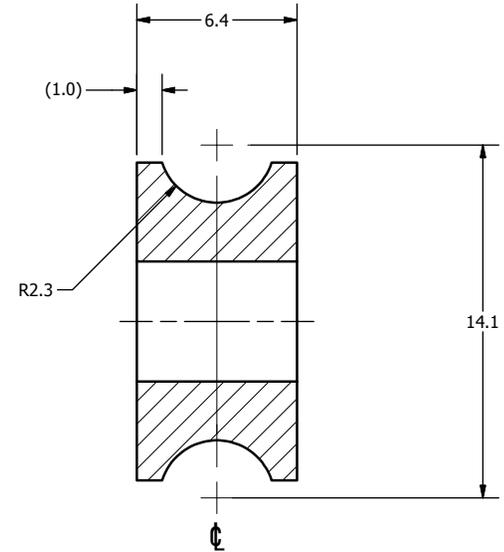
472-2400	1	PROJECT NO.:	DATE:	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.:	REV.:
472-2300	1	MATERIAL: ETD-150 STEEL	7/28/2011				
NEXT ASSEMBLY	QTY	CHECKED BY: B. KIMES	DATE:	DESCRIPTION: REAR CABLE PULLEY SHAFT, NECK			
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/10/2012	SCALE: 5.000	472-2311		
		ENGINEER: J. WANG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



SCALE 5.000

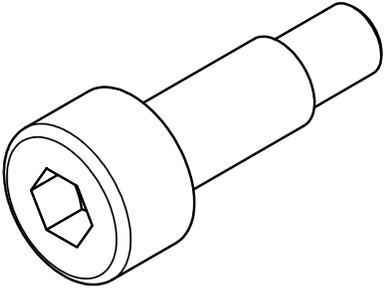


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM312 R04 FOR THOR-M	8/19/11	BK

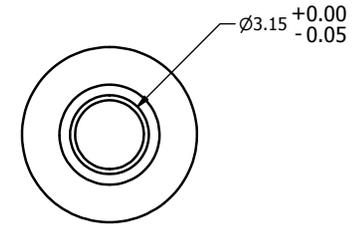
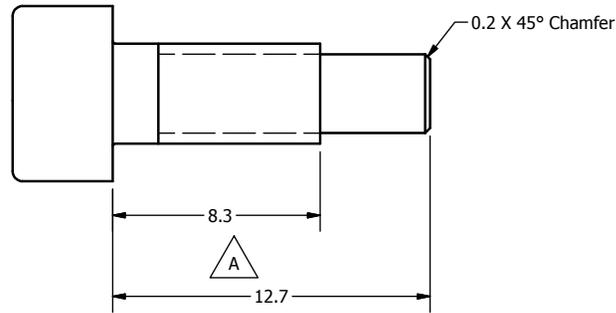


SECTION A-A
SCALE 5.000

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 1.0 XX 0.02 1.0 XXX 0.03 1.0 XXXX 0.01 1.0		
472-2400	1	PROJECT NO.:	DATE:	DESCRIPTION: NECK REAR CABLE PULLEY
472-2300	1	MATERIAL:	7/28/2011	
NEXT ASSEMBLY	QTY	HEAT TREAT:	REMOVE BURRS & BREAK SHARP EDGES	
TOTAL QTY IN DUMMY	2	FINISH:	ENGINEER: B. KIMES	
		CHECKED BY:	DATE:	SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000
		ENGINEER:	DATE:	DRAWING NO.: 472-2312 REV: A
		J. WANG	1/10/2012	



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

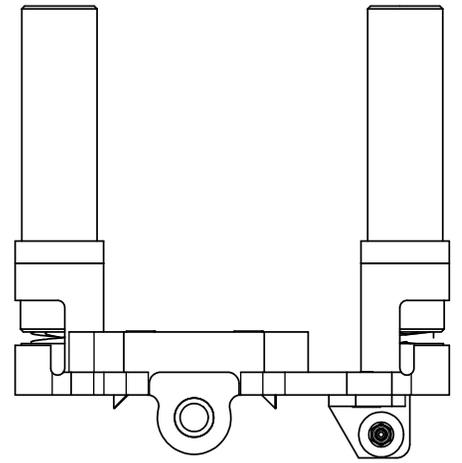
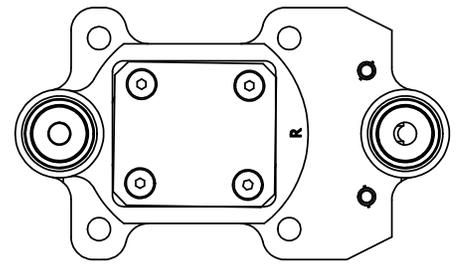
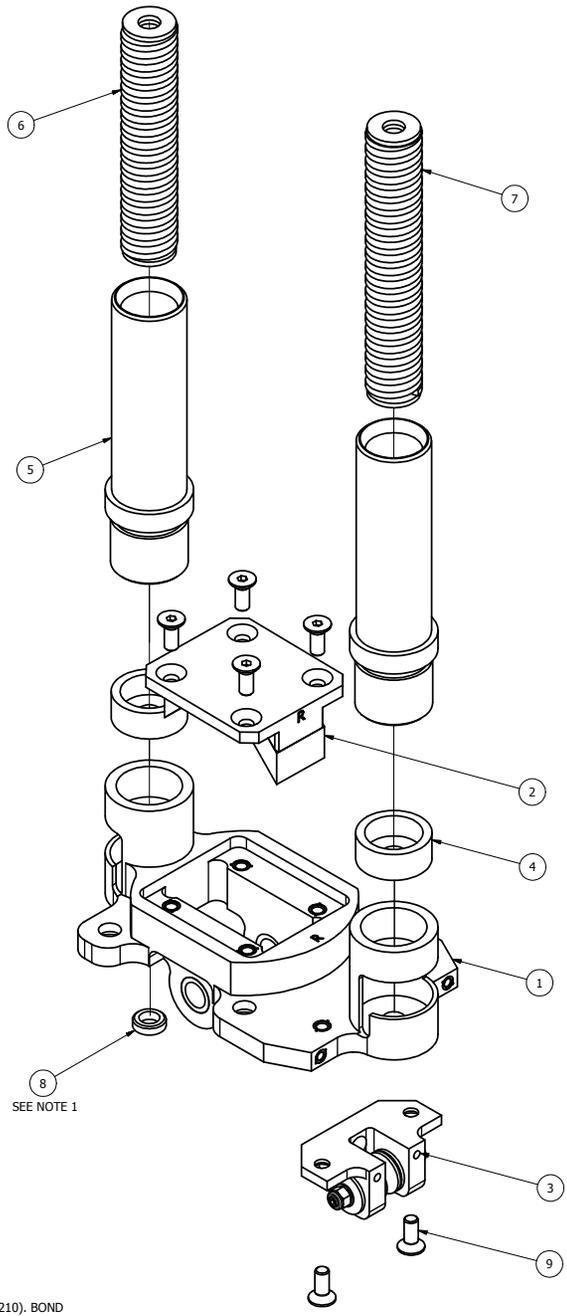
NOTES:



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 ± 0.05 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 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



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
9	6	5000023	M4 X 0.7 X 10 LG. FHCS
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 FRONT/REAR SPRING TUBE
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			
472-2000	1	DATE: 7/28/2011	BY: B. KIMES
NEXT ASSEMBLY	QTY	DATE: 1/10/2012	BY: J. WANG
TOTAL QTY IN DUMMY	1	SCALE: 1.000	REV: A

DO NOT SCALE DRAWING

TOLERANCES

UNLESS NOTED OTHERWISE DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES IN DEGREES

SHOW HIDDEN & BREAK DIMENSIONS

THIRD ANGLE PROJECTION

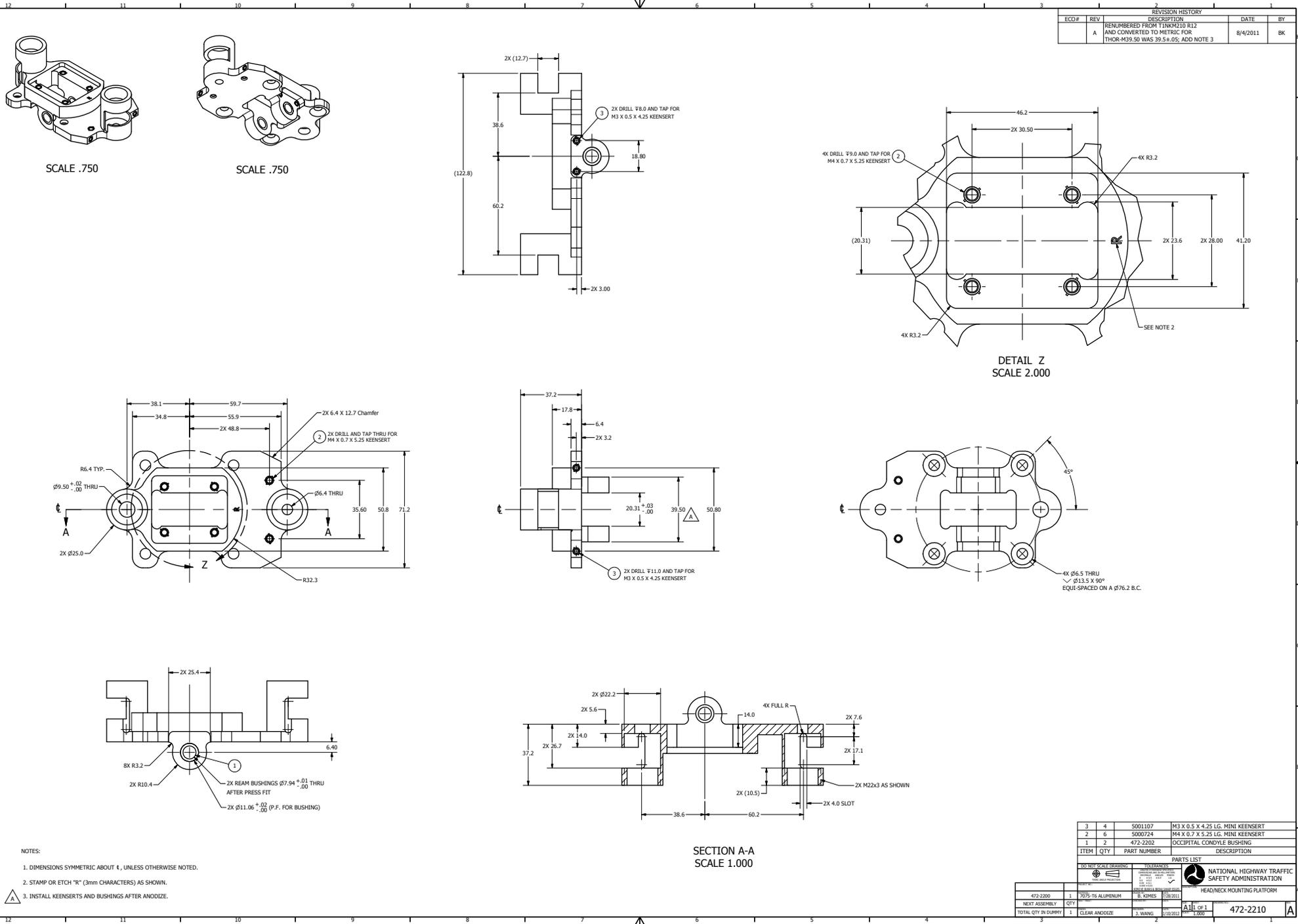
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

MOUNTING PLATFORM ASSEMBLY, NECK

472-2200

A21 of 1

472-2200



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T110K0210 R12 AND CONVERTED TO METRIC FOR THOR-M39.50 WAS 39.5+0.05; ADD NOTE 3	8/4/2011	BK

DETAIL Z
SCALE 2.000

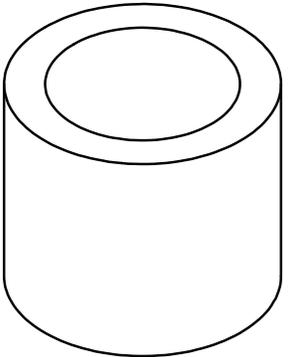
SECTION A-A
SCALE 1.000

- 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.

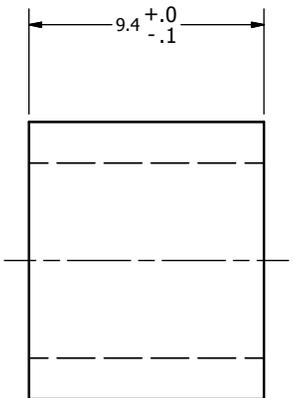
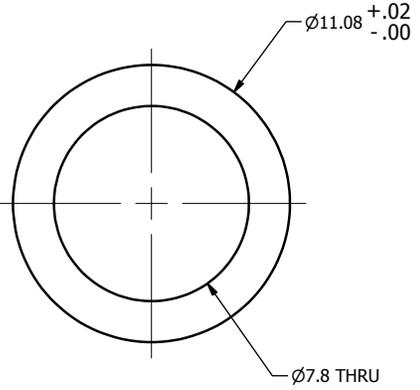
ITEM	QTY	PART NUMBER	DESCRIPTION
3	4	5001107	M3 X 0.5 X 4.25 LG. MINI KEENSERT
2	6	5000724	M4 X 0.7 X 5.25 LG. MINI KEENSERT
1	2	472-2202	OCCIPITAL CONDYLE BUSHING

DO NOT SCALE DRAWING		ISSUES		PARTS LIST	
472-2200	1	7075-T6 ALUMINUM	B. KIMES	7/28/2011	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
NEXT ASSEMBLY	QTY				HEAD/NECK MOUNTING PLATFORM
TOTAL QTY IN DRAWING	1	CLEAR ANODIZE	J. WANG	8/2/2011	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		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 0.5 XXXX 0.01		
PROJECT NO.:	472-2210	MATERIAL:	OILITE BRONZE (SAE841)	DESCRIPTION:
PROV BY:		DATE:	7/28/2011	REMOVE BURRS & BREAK SHARP EDGES
CHECKED BY:		DATE:		SIZE SHEET
HEAT TREAT:		ENGINEER:	J. WANG	SCALE: 5.000
TOTAL QTY IN DUMMY	2	DATE:	1/10/2012	DRAWING NO.:
				472-2202



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

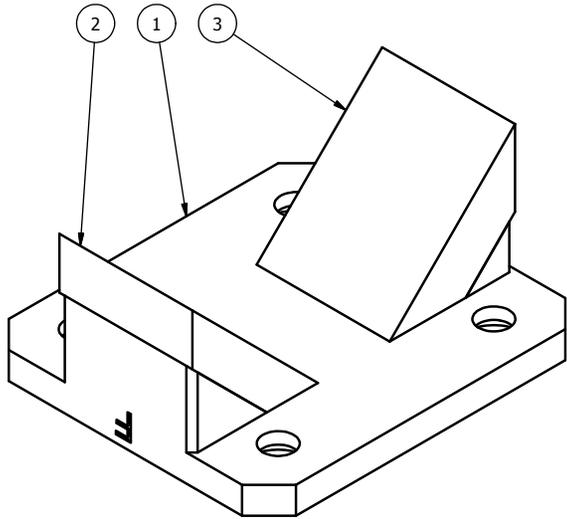
DESCRIPTION: OCCIPITAL CONDYLE BUSHING

SIZE SHEET
A3 1 OF 1
SCALE: 5.000

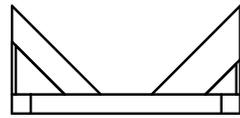
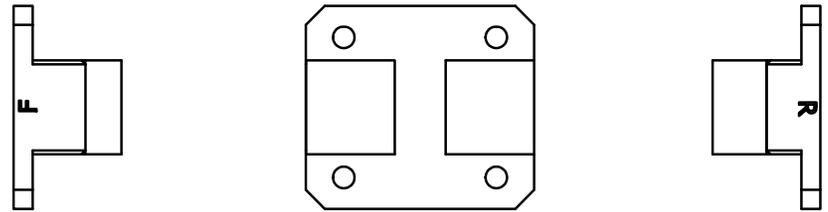
DRAWING NO. 472-2202

REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM045 R02 FOR THOR-M	8/4/11	BK



SCALE 2.000

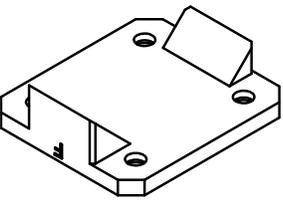


ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-2233	NECK REAR OC STOP
2	1	472-2232	NECK FRONT OC STOP
1	1	472-2231	FLEXION-EXTENSION STOP PLATE, NECK

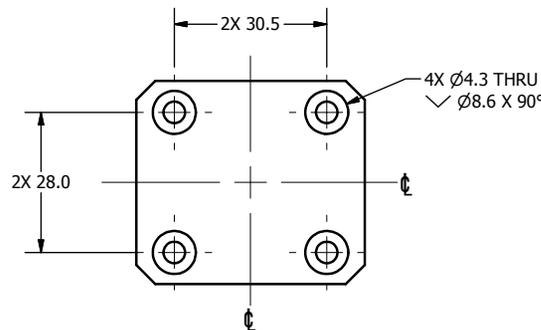
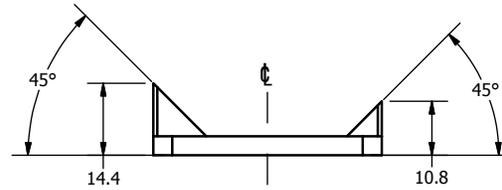
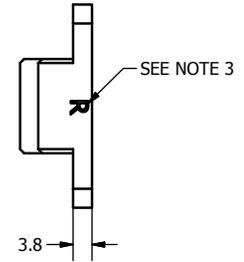
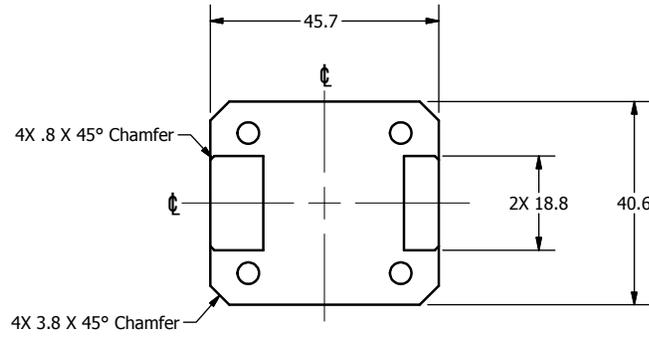
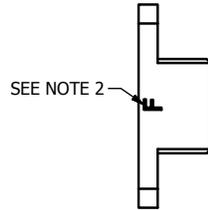
PARTS LIST

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

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 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
PROJECT NO:	MATERIAL:	DATE:	SCALE:	DESCRIPTION: OC STOP ASSEMBLY SIZE: A3 1 OF 1 SHEET: 1 OF 1 DRAWING NO: 472-2230 REV: A
472-2220	1	B. KIMES	7/28/2011	
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	1	J. WANG	1/10/2012	



SCALE 1.000

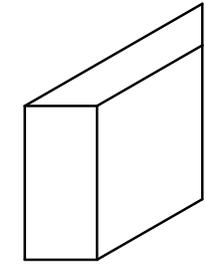


NOTES:

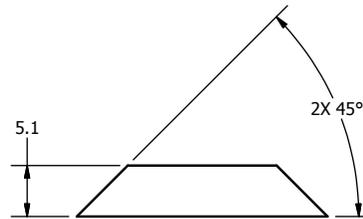
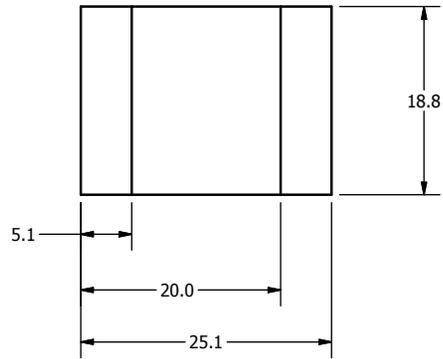
1. DIMENSIONS SYMMETRIC ABOUT C , UNLESS OTHERWISE NOTED.
2. STAMP OR ETCH "F" (3mm CHARACTERS) AT LOCATION SHOWN TO REPRESENT FRONT.
3. STAMP OR ETCH "R" (3mm CHARACTERS) AT LOCATION SHOWN TO REPRESENT REAR.

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM046 R02 AND CONVERTED TO METRIC FOR THOR-M	8/22/11	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION FLEXION-EXTENSION STOP PLATE, NECK
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5° 1.6 X.X ± 0.2 ± 0.5° ✓ X.XX ± 0.3 ± 0.3° X.XXX ± 0.01		
PROJECT NO:	472-2230	MATERIAL:	7075-T6 ALUMINUM	DATE:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	REVISION:
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:	CLEAR ANODIZE	DATE:	1/10/12	SCALE:
TOTAL QTY IN DUMMY		1		SIZE: A3
		1		SHEET: 1 OF 1
		1		DRAWING NO.: 472-2231
		1		REV: A



SCALE 2.000



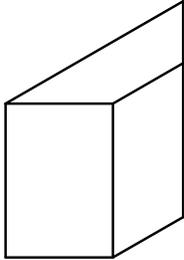
NOTES:

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

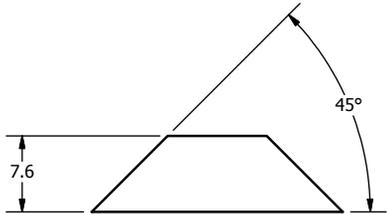
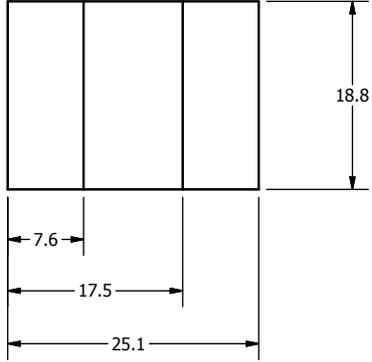
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM047 R03 FOR THOR-M	8/4/11	BK

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 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:	472-2230	MATERIAL:	NEOPRENE 65A	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	NECK FRONT OC STOP
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	
DATE:		DATE:	1/10/2012	
FINISH:		SCALE:	2.000	
TOTAL QTY IN DUMMY		QTY	1	SIZE SHEET: A3 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



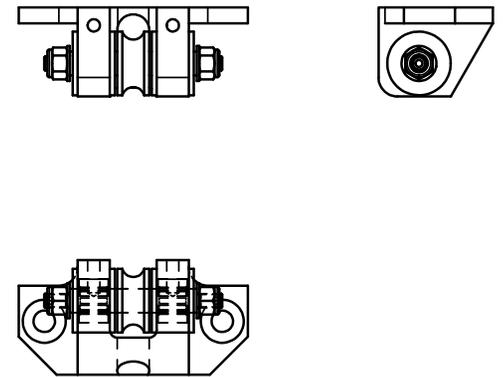
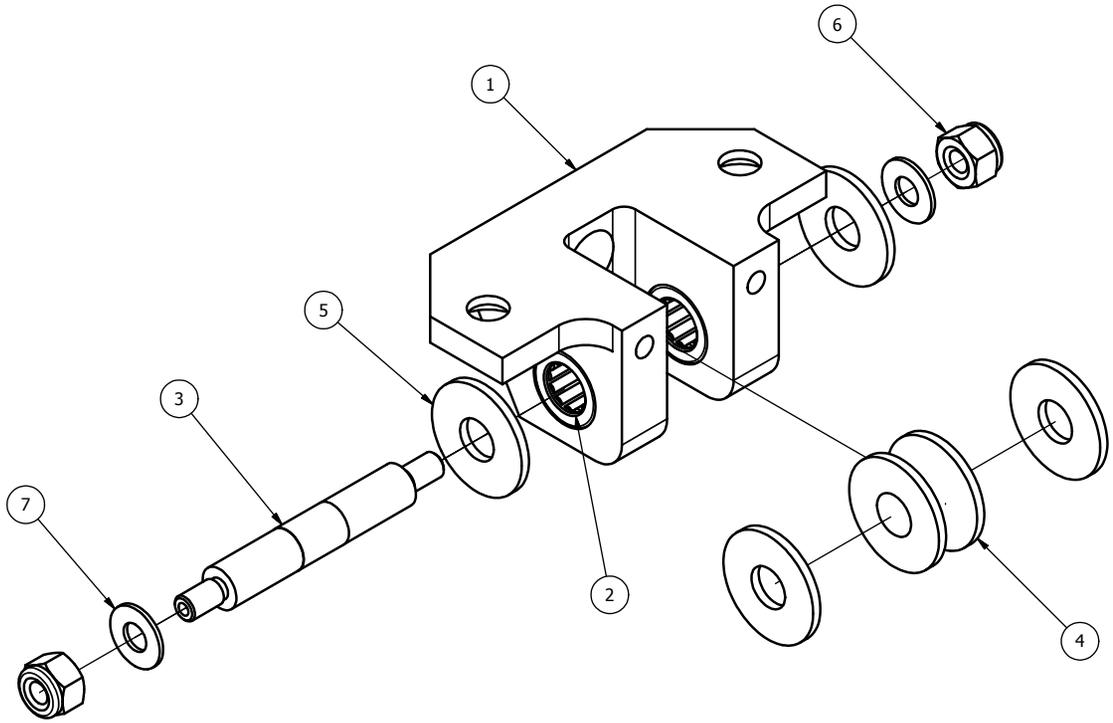
SCALE 2.000



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		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> 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: 2.000
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

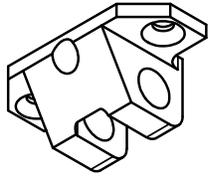
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>X .0.2 ± 0.07 1.6</small> <small>X.X ± 0.2</small> <small>X.XX ± 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
TOTAL QTY IN DUMMY	1	FINISH:		<small>REV:</small> A

PROJECT NO:	472-2000	DATE:	7/28/2011
MATERIAL:		DESIGNED BY:	B. KIMES
CHECKED BY:		DATE:	
HEAT TREAT:		ENGINEER:	J. WANG
TOTAL QTY IN DUMMY	1	FINISH:	

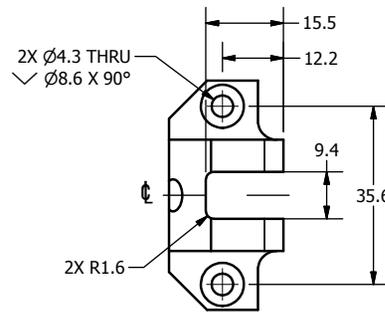
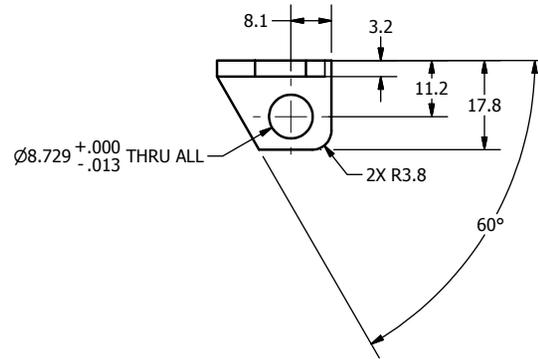
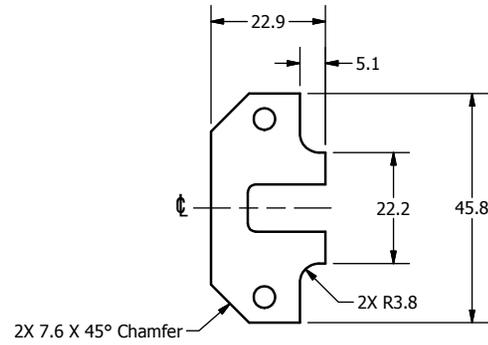
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION:
HEAD/NECK PULLEY BRACKET ASSEMBLY

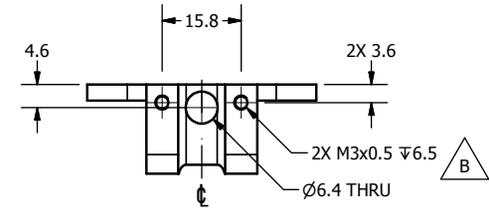
SCALE: 1.000
SIZE SHEET: A31 OF 1
DRAWING NO.: 472-2400
REV: A



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

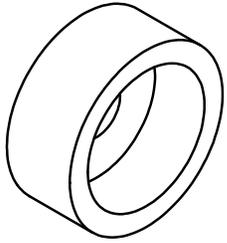


NOTES:

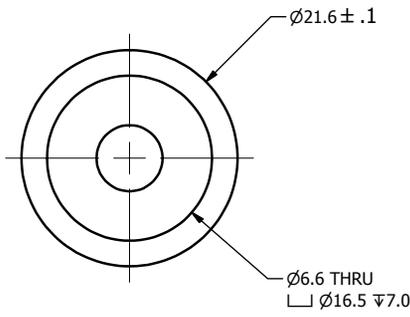
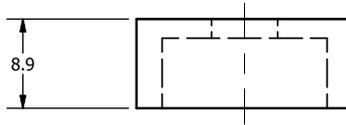
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. POWDER OR BEAD BLAST.
3. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
4. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

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



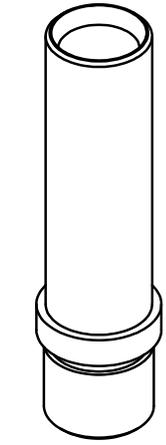
DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

TOLERANCES		
DECIMALS	ANGLES	FINISH
0.05	± 0.5°	1.6
0.1		
0.2		
0.3		
0.01		

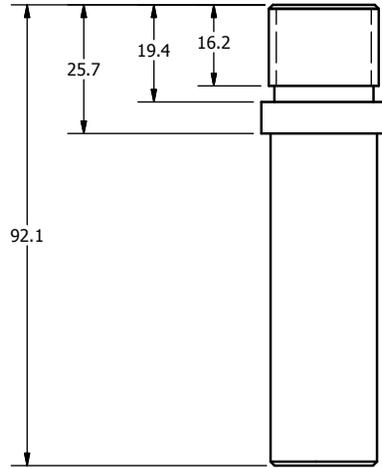


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

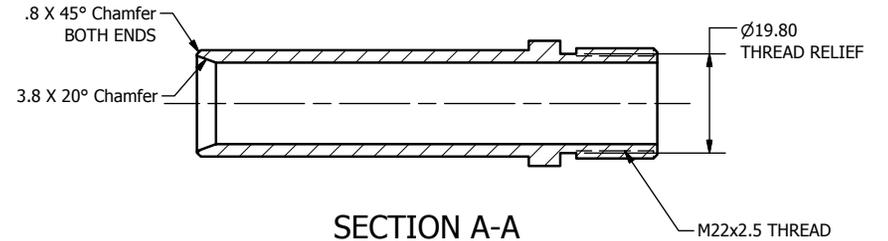
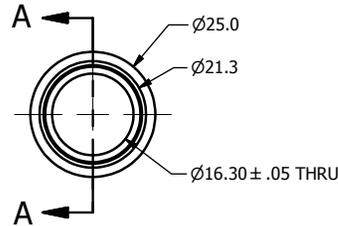
PROJECT NO.: 472-2200	QTY: 2	MATERIAL: 303 STAINLESS STEEL	DATE: 7/28/2011	DRIVER BY: B. KIMES	DATE: 7/28/2011	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION: NECK SPRING LOAD CELL STRUCTURAL REPLACEMENT
CHECKED BY:	HEAT TREAT:	FINISH:	ENGINEER: J. WANG	DATE: 1/10/2012	SCALE: 2.000	SIZE: A3	SHEET: 1 OF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



SCALE 1.000



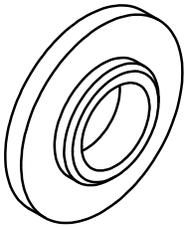
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM211 R07 AND CONVERTED TO METRIC FOR THOR-M	8/4/11	BK



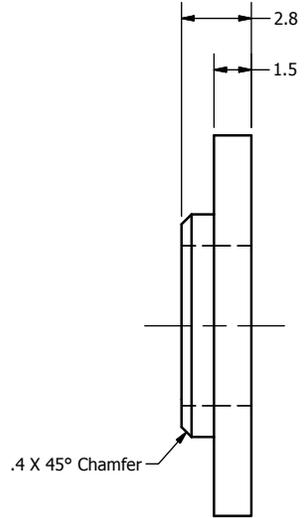
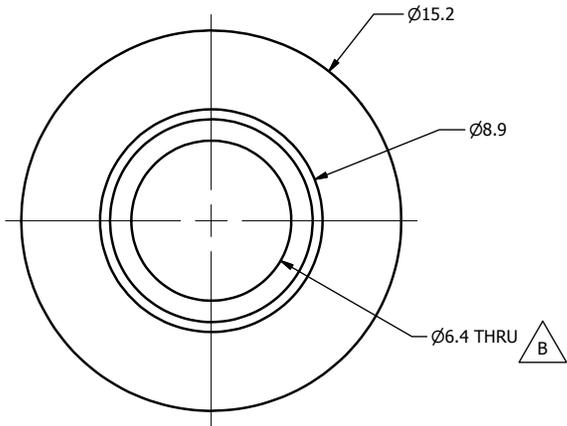
SECTION A-A
SCALE 1.000

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 XX .02 1.6 XXX .03 1.6 XXXX .01 1.6		
PROJECT NO.:	472-2200	MATERIAL:	Acetal Resin, Black	DESCRIPTION:
DATE:	7/28/2011	DESIGNED BY:	B. KIMES	NECK FRONT/REAR SPRING TUBE
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
TOTAL QTY IN DUMMY:	2	DATE:	1/10/2012	SCALE: 1.000
				DRAWING NO. 472-2203

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



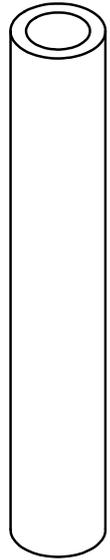
SCALE 3.000



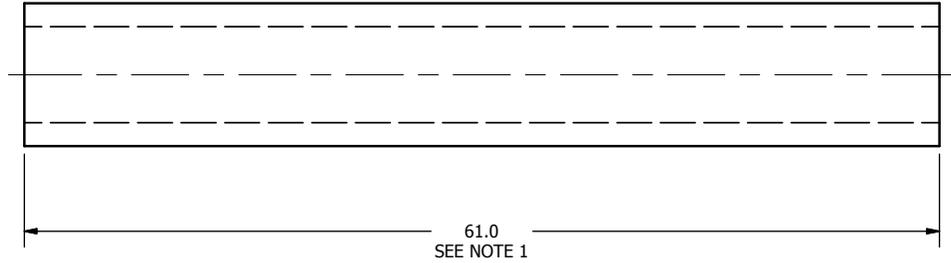
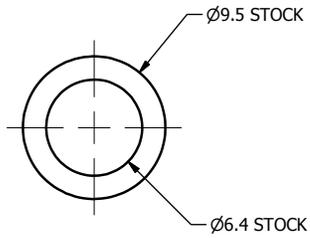
- NOTES:
1. POWDER OR BEAD BLAST.
 2. NICKEL PLATE 0.003mm - 0.008mm MAX. AFTER MACHINING.
 3. DIMENSIONAL LIMITS AND THREADED HOLE SIZES APPLY AFTER FINISH.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ±0.2 ±0.5° 16' XX ±0.2 ±0.5° 16' XXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
472-2240	2	PROJECT NO.:	DATE:	DESCRIPTION: NECK SPRING BUSHING
472-2220	2	MATERIAL: 4140 STEEL	DESIGNED BY: B. KIMES	
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	
TOTAL QTY IN DUMMY	4	FINISH: SEE NOTES	ENGINEER: J. WANG	
		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



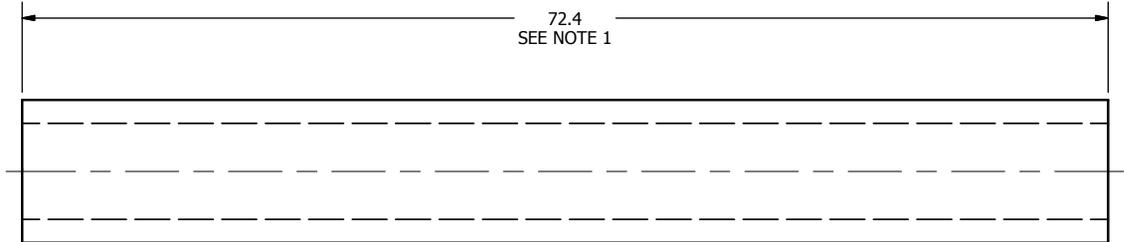
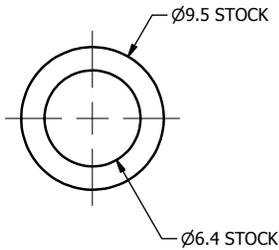
NOTES:
1. FINAL LENGTH TO BE DETERMINED DURING SPRING ASSEMBLY CERTIFICATION.

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.X ±0.2 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.:
SCALE:	3.000			472-2222

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



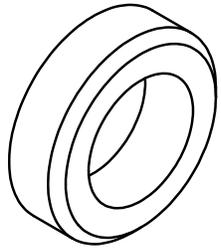
SCALE 1.000



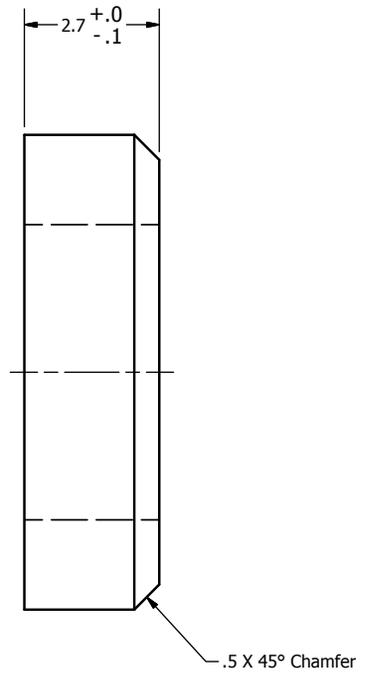
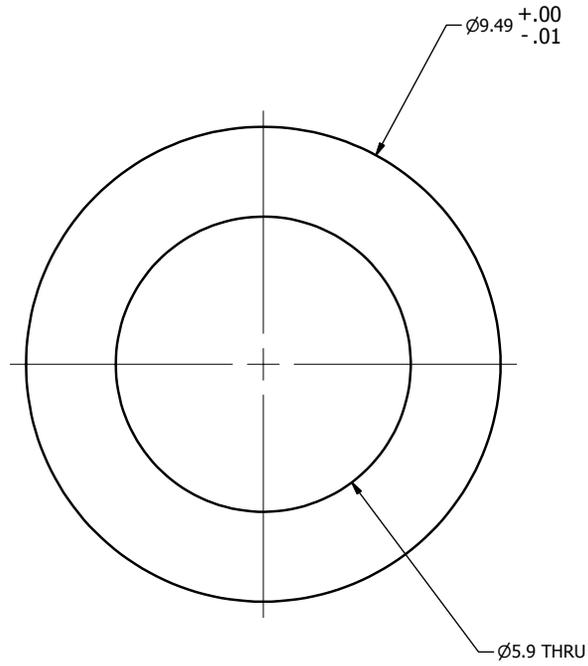
NOTES:

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:
CHECKED BY:	B. KIMES	DATE:	7/28/2011	NECK REAR 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	472-2241



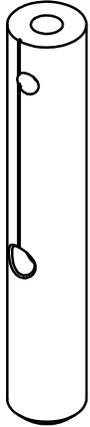
SCALE 5.000



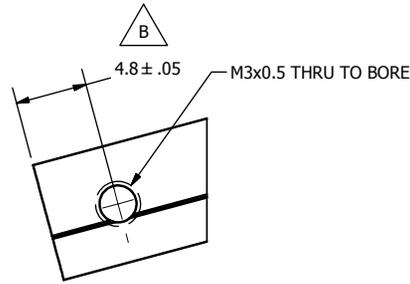
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM214 R07 FOR THOR-M	8/4/11	BK

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 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01		
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: A3
ENGINEER:	J. WANG	DATE:	1/10/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 10.000
				DRAWING NO.:
				472-2204
				REV.:
				A

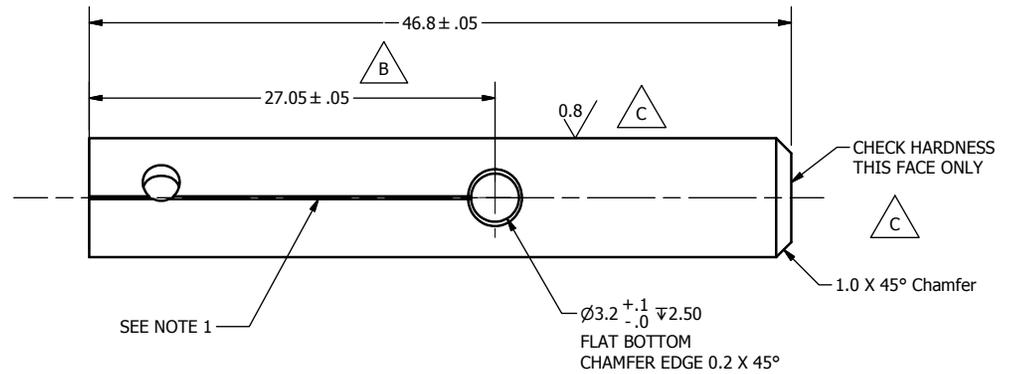
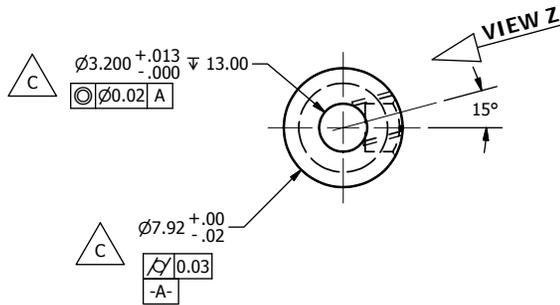
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM013 R01 AND CONVERTED TO METRIC FOR THOR-M	7/29/2011	BK
	B	46.8 WAS 48.8; 27.05 WAS 29.05; 4.80 WAS 6.80	2/7/2012	BK
	C	ADD FINISH MARK, HARDNESS NOTE, FEATURE CONTROL BOXES, DATUM A; Ø3.200+0.013/-0 WAS Ø3.20+0.1/-0; ADD CHAMFER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



SCALE 2.000



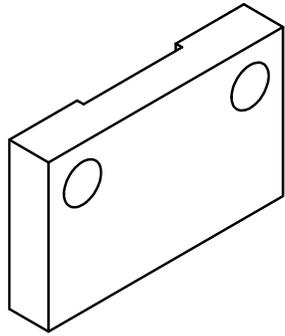
PARTIAL VIEW Z
SCALE 3.000



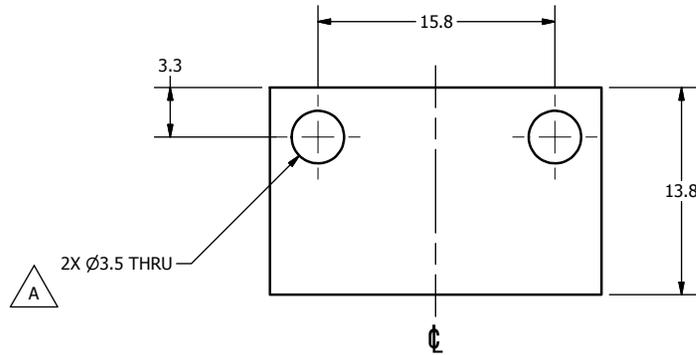
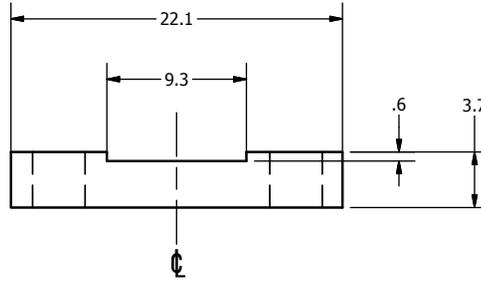
NOTES:

- 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: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.05 0.05 1.6 XX 0.02 0.05 1.6 XXX 0.01 0.05 1.6			
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
DRAWING NO. 472-2011					REV. C



SCALE 3.000



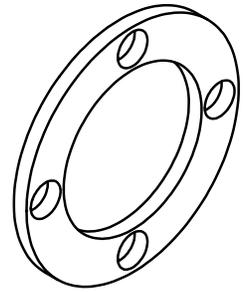
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM014 R05 AND CONVERTED TO METRIC FOR THOR-M; Ø3.5 WAS Ø4.0; REMOVE NOTE 1, RENUMBER NOTES	8/23/2011	BK

NOTES:

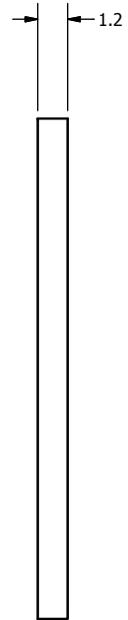
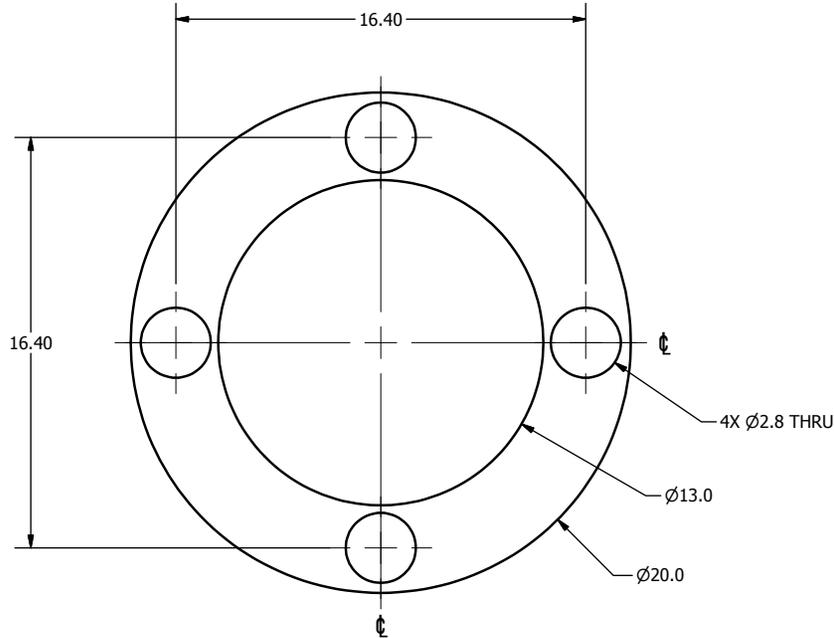


1. DIMENSION SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.

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 1.6 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

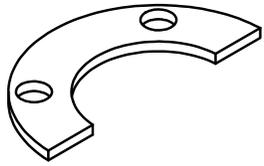


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM053 R01 AND CONVERTED TO METRIC FOR THOR-M	7/30/2011	BK

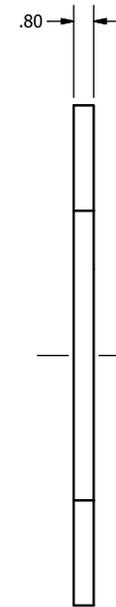
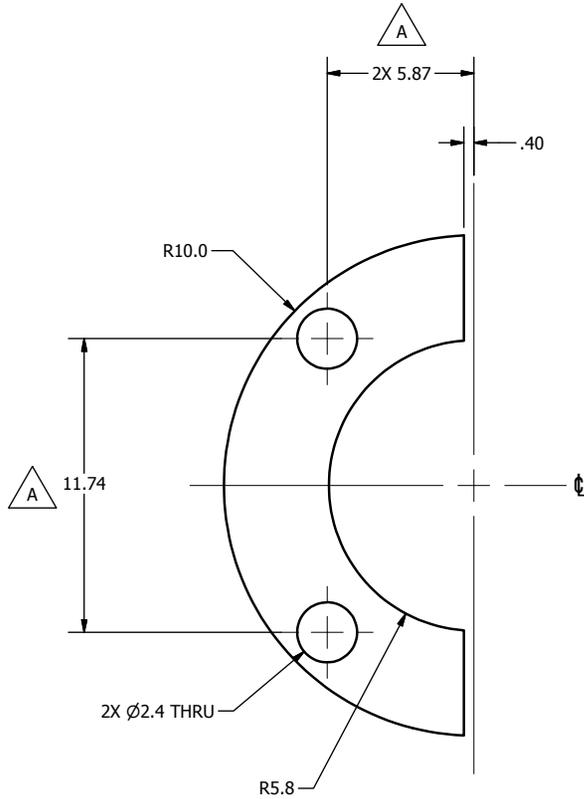
NOTES:

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: ROTARY POTENTIOMETER WASHER, NECK			
DESIGNED BY:	B. KIMES	DATE:	7/28/2011				
CHECKED BY:	J. WANG	DATE:	1/9/2012				
HEAT TREAT:		FINISH:	CLEAR ANODIZE	SIZE: A3 SHEET: 1 OF 1 SCALE: 5.000			
NEXT ASSEMBLY	QTY	TOTAL QTY IN DUMMY	1	DRAWING NO.:	472-2021	REV.:	A



SCALE 3.000

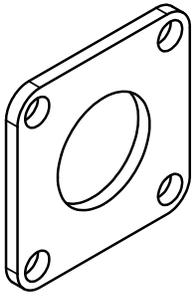


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM052 R01 AND CONVERTED TO METRIC FOR THOR-M; 5.87 WAS 5.80; 11.74 WAS 11.60	8/23/2011	BK

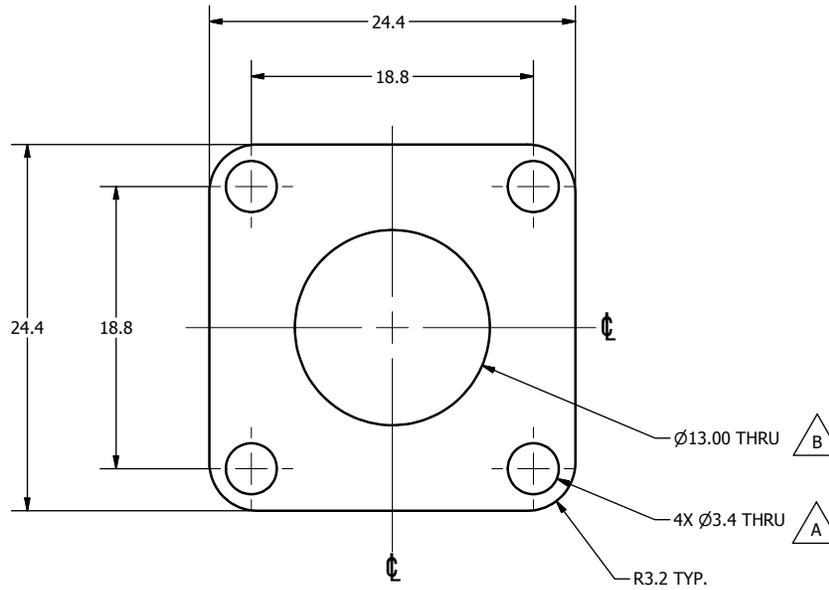
NOTES:

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:
DESIGNED BY:	B. KIMES	DATE:	7/28/2011	ROTARY POTENTIOMETER CLAMP, NECK
CHECKED BY:		HEAT TREAT:		SIZE: SHEET
FINISH:	CLEAR ANODIZE	ENGINEER:	J. WANG	DATE:
TOTAL QTY IN DUMMY	2	DATE:	1/9/2012	SCALE: 5.000
				DRAWING NO. 472-2020 SHEET 1 OF 1 REV. A



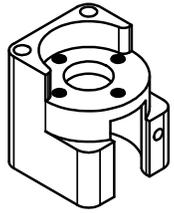
SCALE 2.000



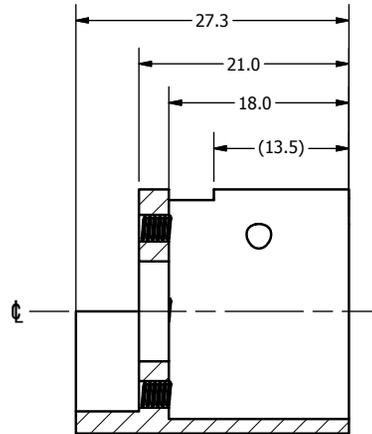
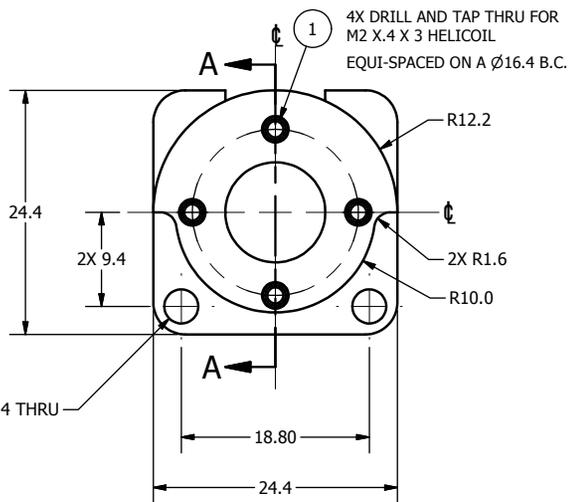
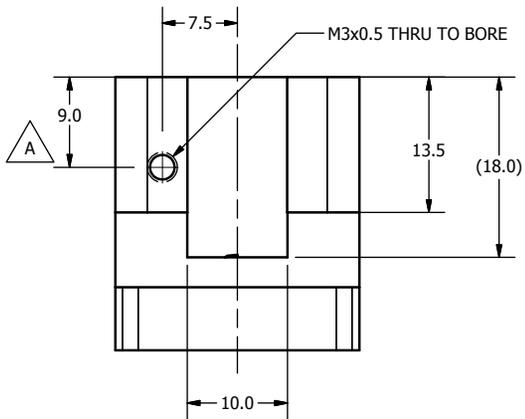
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM018 R12 AND CONVERTED TO METRIC FOR THOR-M; Ø3.4 WAS Ø3.2	7/29/2011	BK
	B	13.00 DIA WAS 6.4	2/8/2012	BK

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

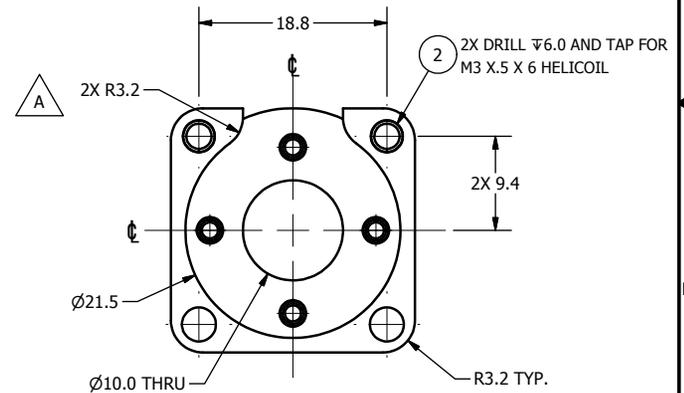
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>Ø .01 ± 0.07 1.6</small> <small>X .02 ± 0.2</small> <small>XX 0.3</small> <small>XXX ± 0.01</small> <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO.:	472-2000	MATERIAL:	6061-T6 ALUMINUM	<small>DESCRIPTION:</small> ROTARY POTENTIOMETER COVER, NECK
CHECKED BY:	B. KIMES	DATE:	7/28/2011	
HEAT TREAT:		FINISH:	CLEAR ANODIZE	<small>SIZE:</small> A3 <small>SHEET:</small> 1 OF 1 <small>SCALE:</small> 3.000
NEXT ASSEMBLY	QTY	ENGINEER:	J. WANG	<small>DRAWING NO.:</small> 472-2014 <small>REV.:</small> B
TOTAL QTY IN DUMMY	1	DATE:	1/9/2012	



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

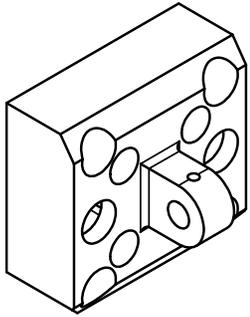
NOTES:

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

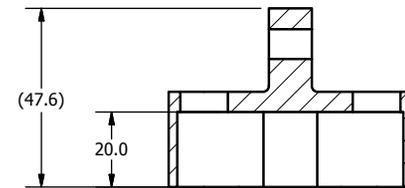
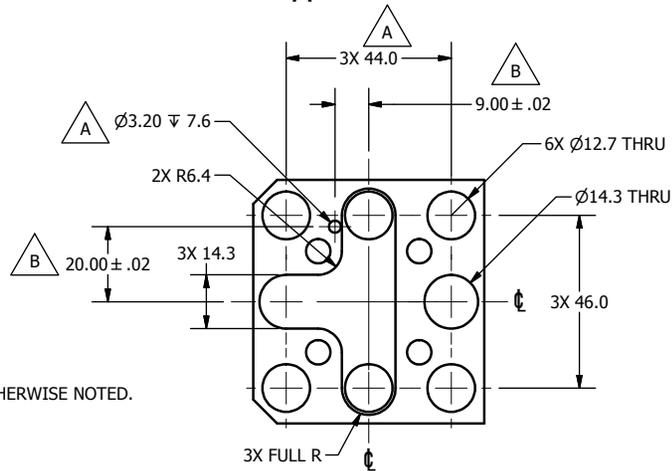
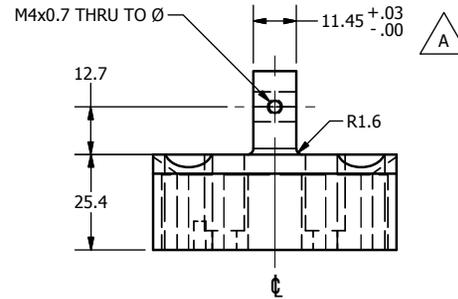
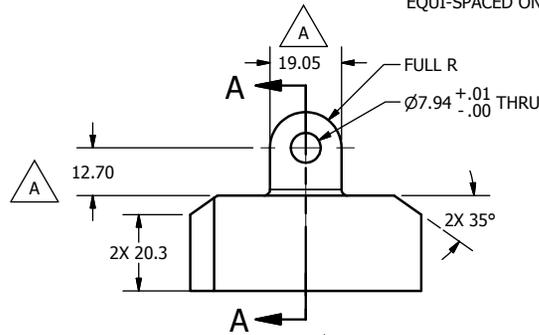
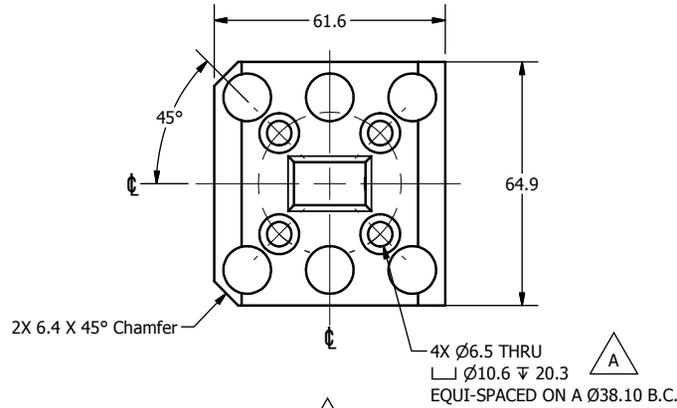
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000333	M3 X 0.5 X 6 LG. HELI-COIL
1	4	5001111	M2 X 0.4 X 3 LG. HELI-COIL

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 16 X .02 16 X .03 16 X .01 16			
PROJECT NO:	472-2000	MATERIAL:	7075-T6 ALUMINUM	DATE:	7/28/2011
DRAWN BY:	B. KIMES	CHECKED BY:	J. WANG	DATE:	1/9/2012
HEAT TREAT:		FINISH:	CLEAR ANODIZE	SCALE:	2.000
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-2013
TOTAL QTY IN DUMMY:	1	REV:	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.
5. WEIGHT: .426 ± 0.03 kg

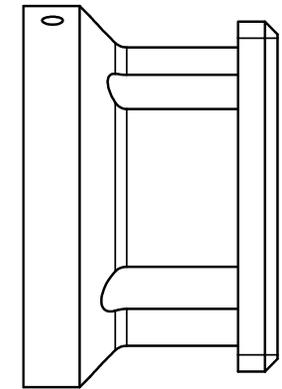
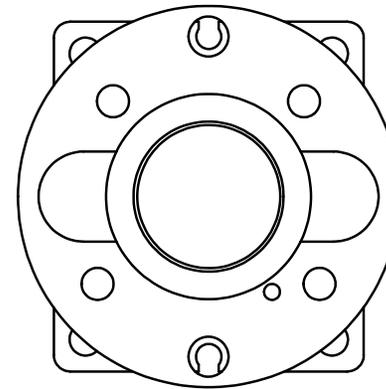
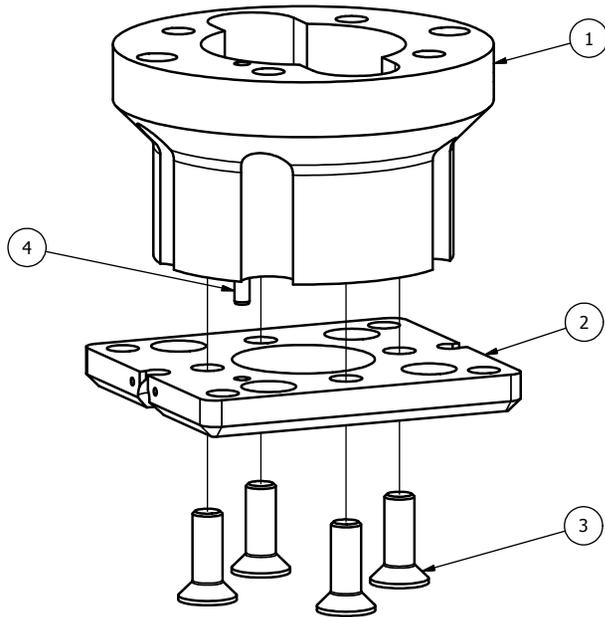
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM700 R02 AND CONVERTED TO METRIC FOR THOR-M; Ø6.5 THRU C'BORE Ø10.6 ± 0.3 EQUI-SPACED ON A Ø38.10 B.C. WAS Ø6.7 THRU C'BORE Ø10.3 ± 0.03 EQUI-SPACED ON A Ø38.1 B.C.; 19.05 WAS 19.10 ± 0.03; 12.70 WAS 12.7 ± 0.03; 44.0 WAS 43.0; 11.45 ± 0.03 WAS 11.40 ± 0.03; 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 ± 0.05 1.6 X .01 ± 0.1 2.5 X .02 ± 0.2 4.0 X .03 ± 0.3 6.3 X .05 ± 0.5 12.5		
PROJECT NO:	472-2000	MATERIAL:	1018 STEEL	DESCRIPTION: UPPER NECK LOAD CELL STRUCTURAL REPLACEMENT
CHECKED BY:	B. KIMES	DATE:	7/28/2011	
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A31 SHEET: 1 OF 1 SCALE: 0.750
TOTAL QTY IN DUMMY	1	FRSH:	SEE NOTES	DRAWING NO.: 472-2700 REV: B

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

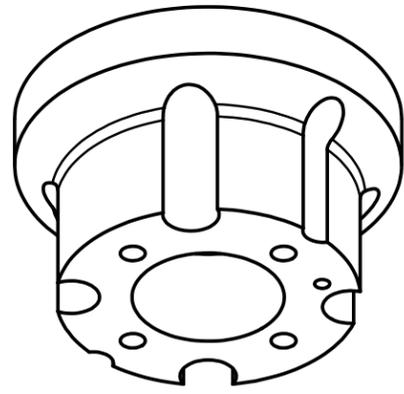


ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	5000934	M3 X 12 LG. DOWEL PIN
3	4	5000108	M6 X 1 X 18 LG. FHCS
2	1	472-2612	BOTTOM PLATE, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
1	1	472-2610	TOP, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT

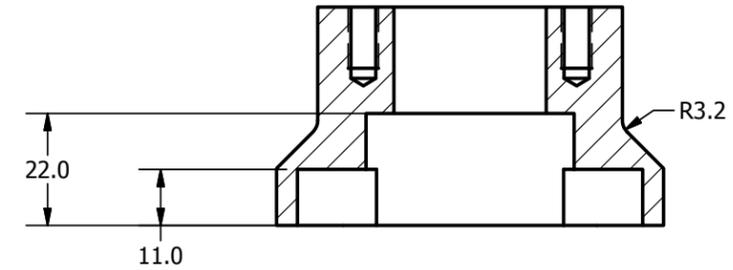
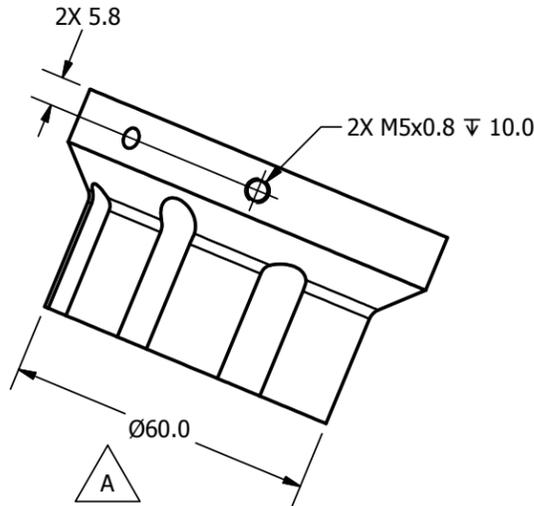
Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 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:	472-2000	DATE:	7/29/2011	DESCRIPTION: LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
MATERIAL:		DRAWN BY:	B. KIMES	
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	SIZE: A3 SHEET: 1 OF 1 SCALE: 1.000
DATE:		FINISH:		DRAWING NO.: 472-2600
TOTAL QTY IN DUMMY	1			REV: B

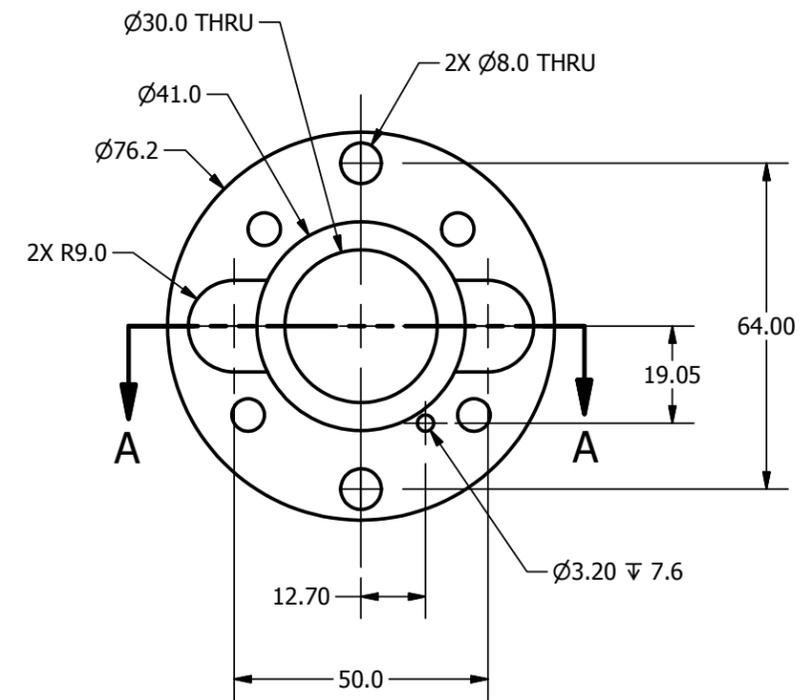
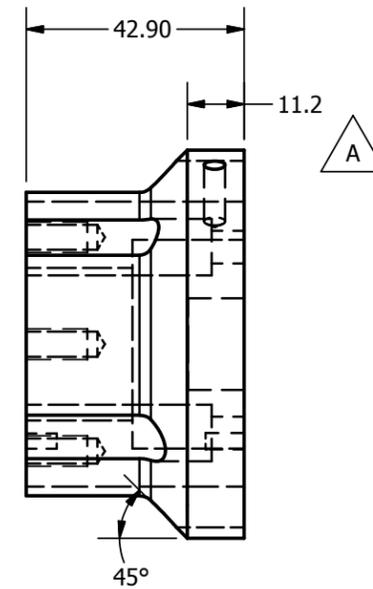
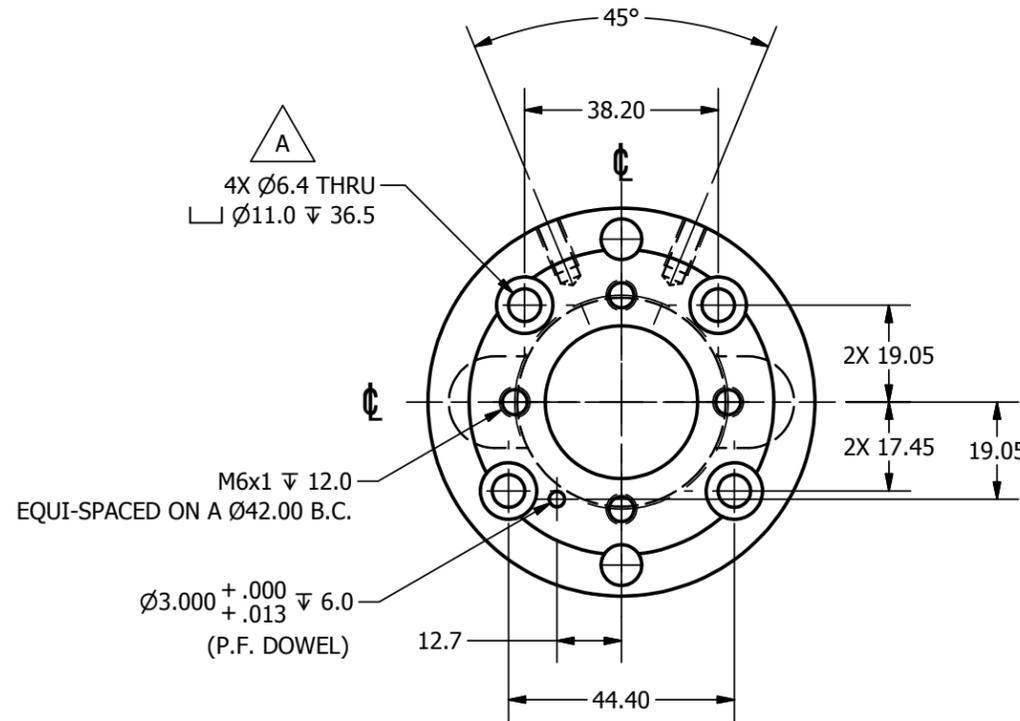
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM610 R05 AND CONVERTED TO METRIC FOR THOR-M; Ø60.0 WAS Ø62.0; 11.0 WAS 11.4; Ø6.4 WAS Ø6.8	7/29/2011	BK



SCALE .750



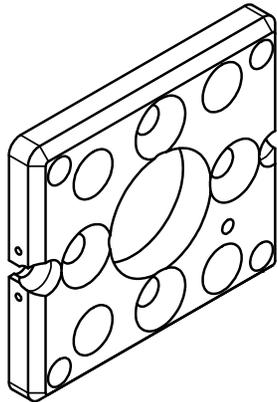
SECTION A-A
SCALE .750



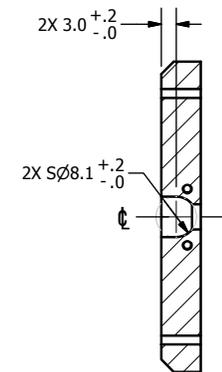
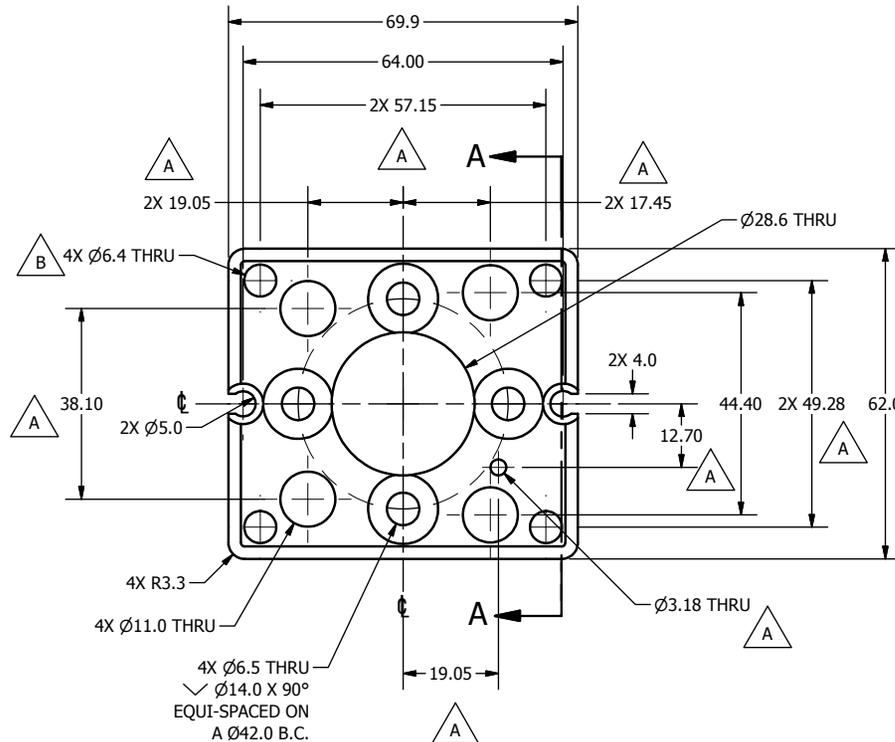
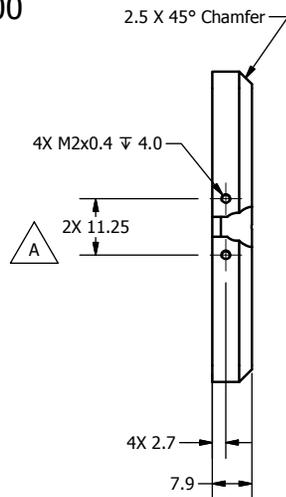
NOTES:

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:
DRAWN BY:	B. KIMES	DATE:	7/28/2011	TOP, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
CHECKED BY:		ENGINEER:	J. WANG	DATE:
HEAT TREAT:		DATE:	1/10/2012	SCALE:
TOTAL QTY IN DUMMY	1	FINISH:	SEE NOTES	SIZE: SHEET
				A31 OF 1
				SCALE: .750
				DRAWING NO.:
				472-2610
				REV:
				A



SCALE 1.000



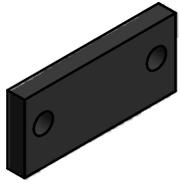
SECTION A-A
SCALE 1.000

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 \varnothing 6.4 WAS \varnothing 5.4	4/25/2012	BK

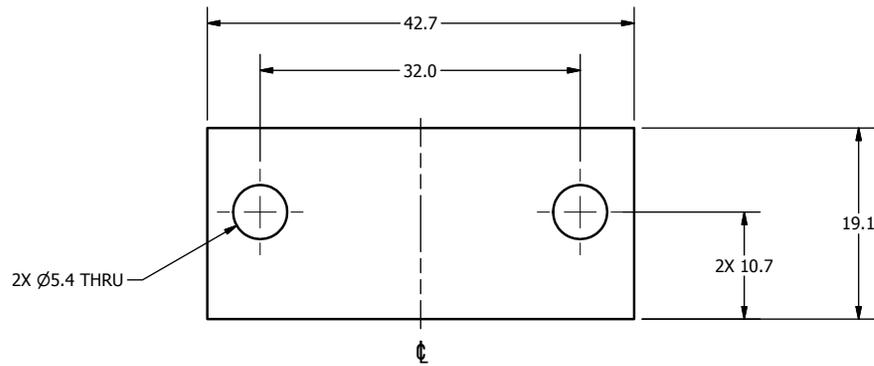
NOTES:

- 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 0.5 \pm 0.5 1.6 X 1 \pm 0.2 \pm 0.5 X 2 \pm 0.3 X 3 \pm 0.4 X 4 \pm 0.5 X 5 \pm 0.6 X 6 \pm 0.8 X 8 \pm 1.0 X 10 \pm 1.2 X 15 \pm 1.6 X 20 \pm 2.0 X 30 \pm 2.5 X 40 \pm 3.2 X 50 \pm 4.0 X 60 \pm 5.0 X 80 \pm 6.3 X 100 \pm 8.0		
PROJECT NO.	472-2600	MATERIAL:	4140 STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	HEAT TREAT:	Rc 35-45	BOTTOM PLATE, LOWER NECK LOAD CELL STRUCTURAL REPLACEMENT
DATE:	7/28/2011	FINISH:	SEE NOTES	SIZE: A3
ENGINEER:	J. WANG	DATE:	1/10/2012	SHEET: 1 OF 1
TOTAL QTY IN DUMMY	1	SCALE:	1.000	DRAWING NO.: 472-2612



SCALE 1.000

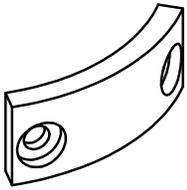


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1NKM025 R05 AND CONVERTED TO METRIC FOR THOR-M	9/7/2011	BK
	B	MATERIAL WAS BUNA-N RUBBER	3/2/2012	TMV

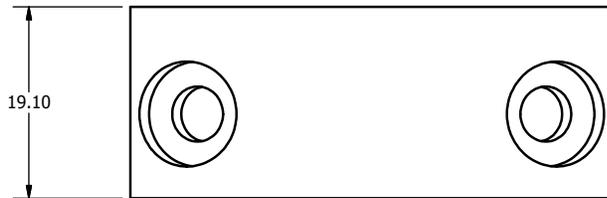
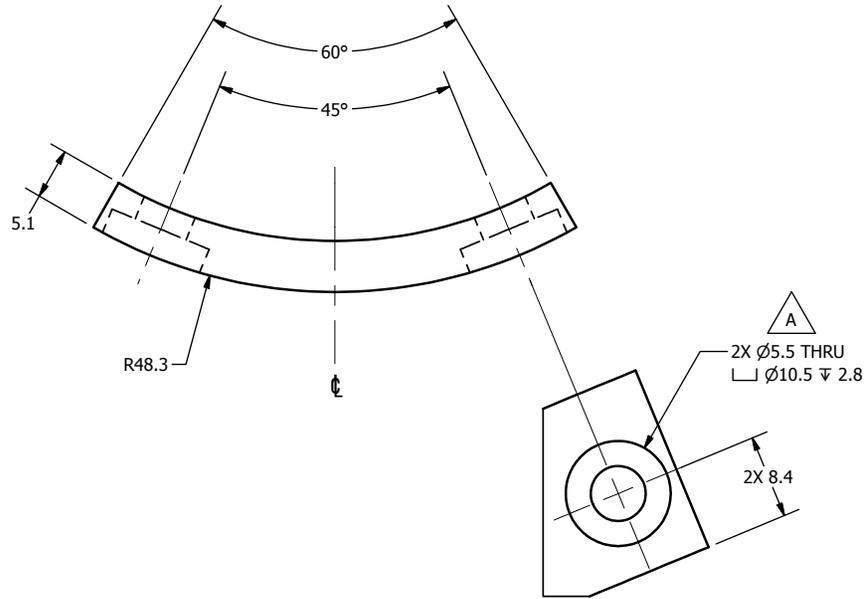
NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. 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 X ±0.5 ±0.5 1.6 XX ±0.2 ±0.5 XXX ±0.3 ±0.5 XXXX ±0.01		
PROJECT NO:	472-2000	MATERIAL:	NATURAL RUBBER	DESCRIPTION:
DESIGNED BY:	B. KIMES	CHECKED BY:	TMV	DATE:
DATE:	9/7/2011	DATE:	3/2/2012	SCALE:
ENGINEER:	J. WANG	DATE:	1/23/2012	SIZE: SHEET
				A3 1 OF 1
DRAWING NO. 472-2002				REV. B



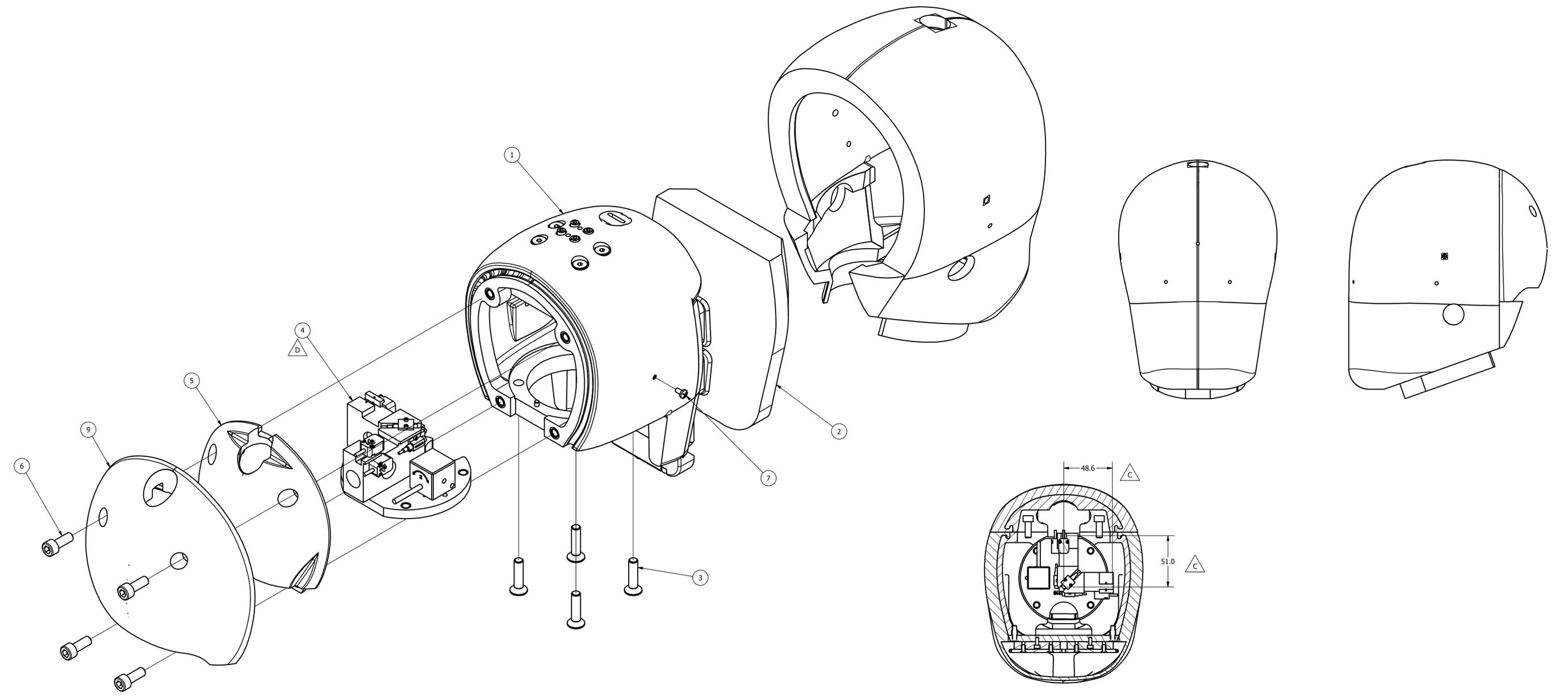
SCALE 1.000



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 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO.:	472-2000	MATERIAL:	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	
FINISH:		DATE:	1/9/2012	DRAWING NO.:	
TOTAL QTY IN DUMMY		1		472-2001	REV: A

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



SCALE .750

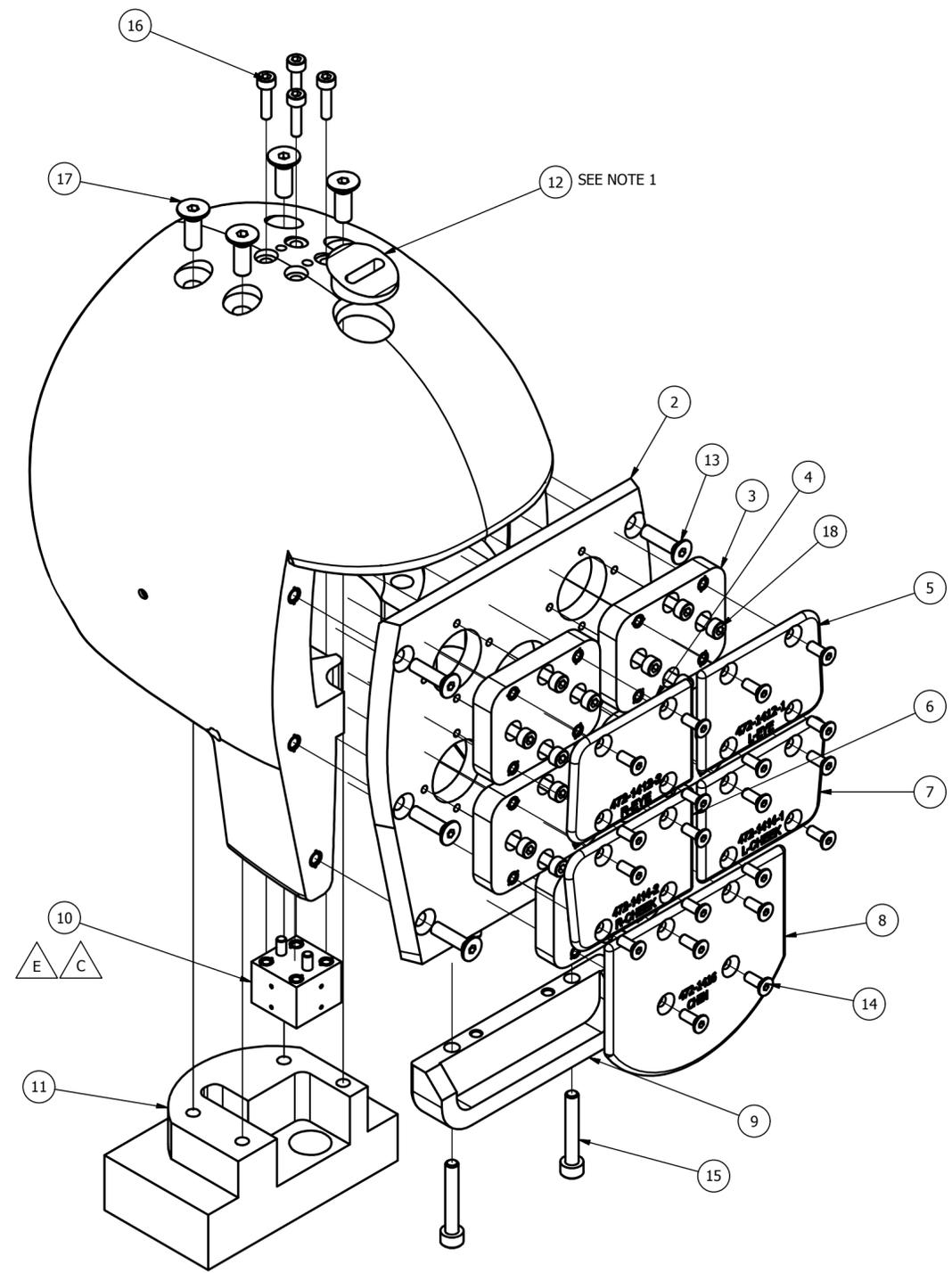
ACCEL LOCATIONS
SCALE 1 / 2

- 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.

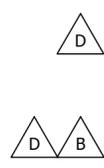
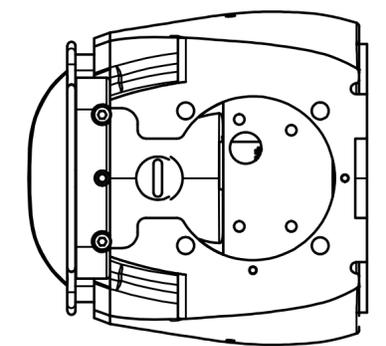
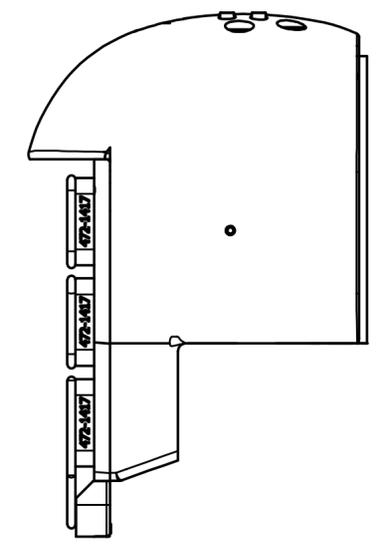
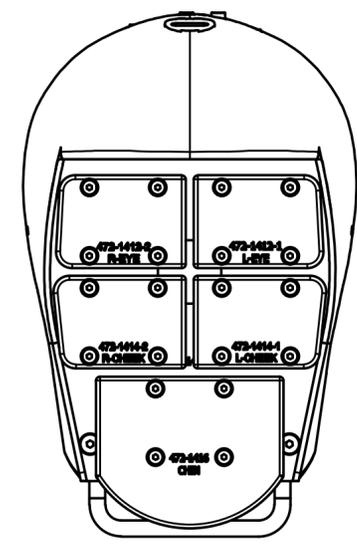
ITEM	QTY	PART NUMBER	DESCRIPTION
9	1	472-1310	CAP SKIN
8	1	472-1320	SKIN ASSEMBLY
7	2	5001116	SCREW, PHILLIPS NYLON M3 X .5 X 6
6	4	5000081	M6 X 1 X 16 LG. SHCS
5	1	472-1110	HEAD CAP
4	1	472-1200	ACCELEROMETER MOUNTING PLATE ASSEMBLY, HEAD
3	4	5000135	M6 X 1 X 25 LG. FHCS
2	1	472-1401	CONFOR FOAM, FACE
1	1	472-1100	SKULL ASSEMBLY

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 HEAD ASSEMBLY, THOR-M
 DATE: 8/31/2011
 DRAWN BY: B. KIMES
 CHECKED BY: J. WANG
 DATE: 1/10/2012
 PART: 472-1000
 SHEET: 11 OF 1
 SCALE: .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



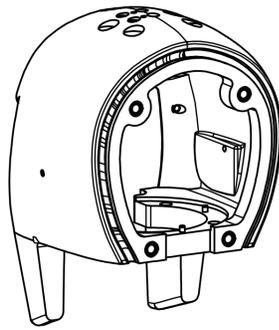
SCALE .750



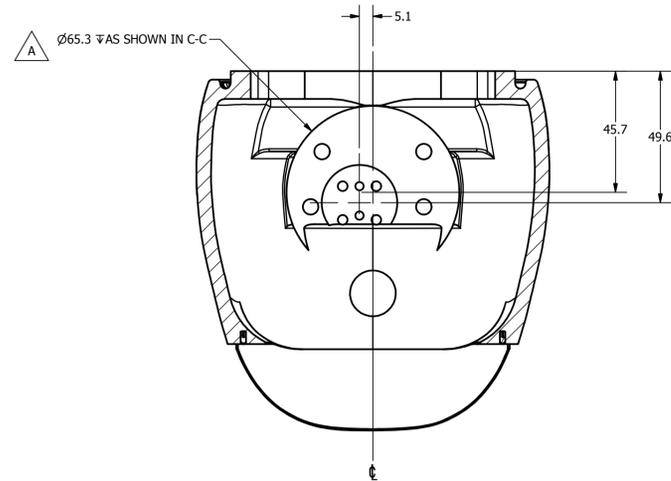
ITEM	QTY	PART NUMBER	DESCRIPTION
18	20	5000388	M3 X 0.5 X 8 LG. SHCS
17	4	5000864	M5 X 0.8 X 14 LG. FHCS
16	4	5001103	M3 X 0.5 X 12 LG. SHCS
15	2	5001117	M4 X 0.7 X 22 LG. SHCS
14	20	5000116	M3 X 0.5 X 8 LG. FHCS
13	6	5001082	M4 X 0.7 X 16 LG. FHCS
12	1	472-1116	PLUG, HEAD
11	1	472-1120	HEAD BALLAST
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

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

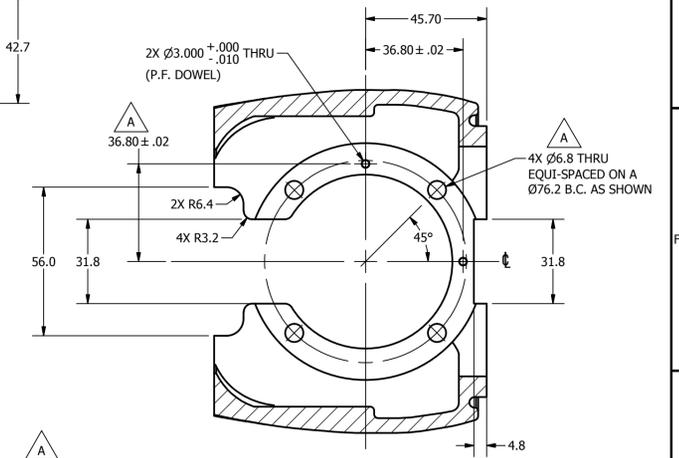
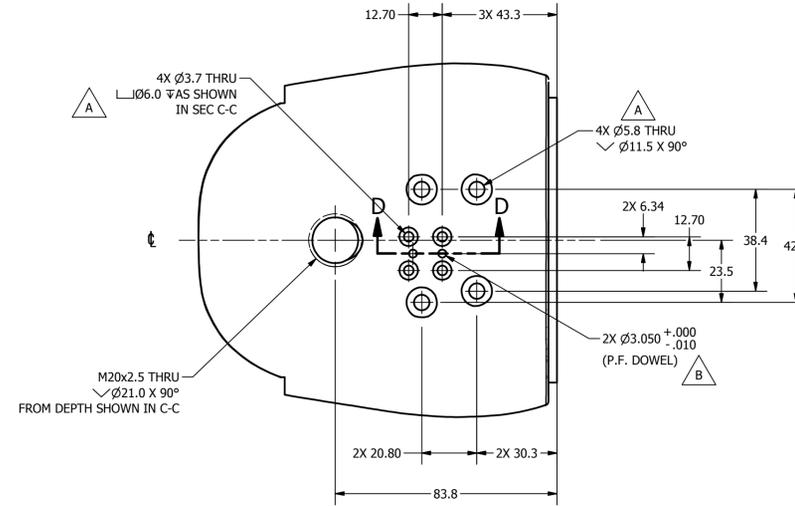
DO NOT SCALE DRAWING		TOLERANCES (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.05		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	THOR-M	DATE:	8/25/2011	DESCRIPTION: SKULL ASSEMBLY SCALE: 1 OF 1 DRAWING NO: 472-1100
MATERIAL:		DESIGNED BY:	B. KIMES	
HEAT TREAT:		CHECKED BY:		
FINISH:		ENGINEER:	J. WANG	
472-1000	1	DATE:	1/10/2012	SCALE: .500
NEXT ASSEMBLY	QTY	DATE:		
TOTAL QTY IN DUMMY	1	DATE:		



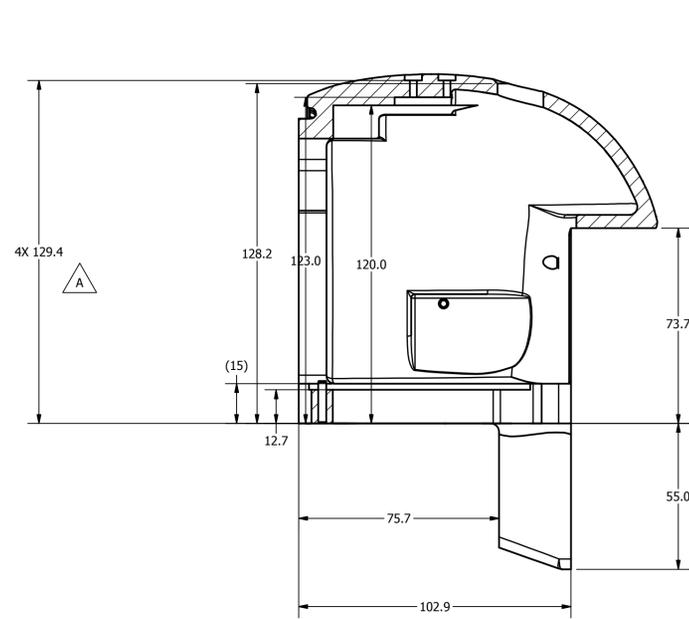
SCALE .500



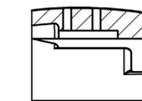
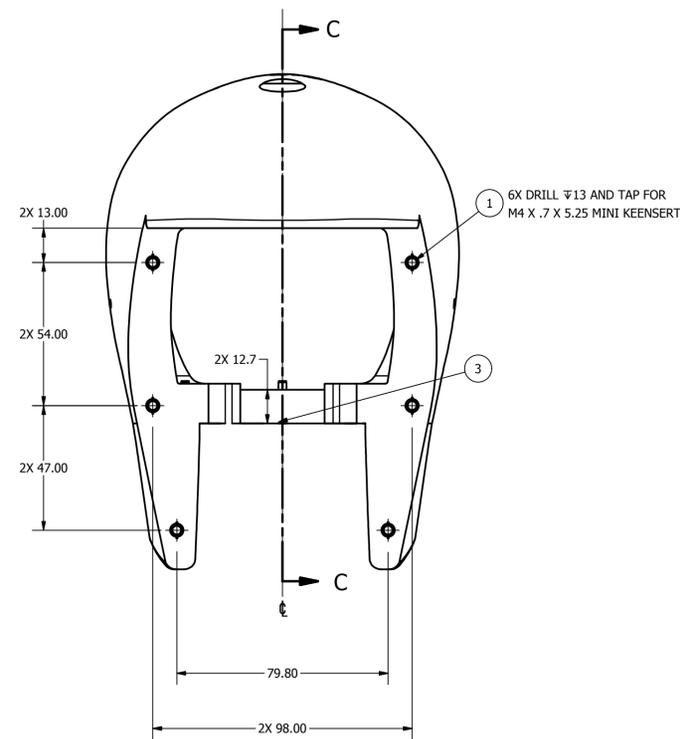
SECTION A-A
SCALE .750



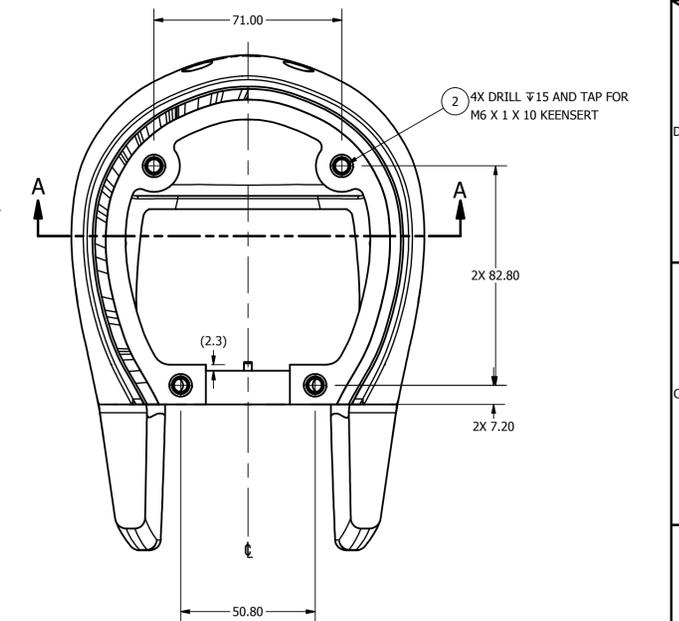
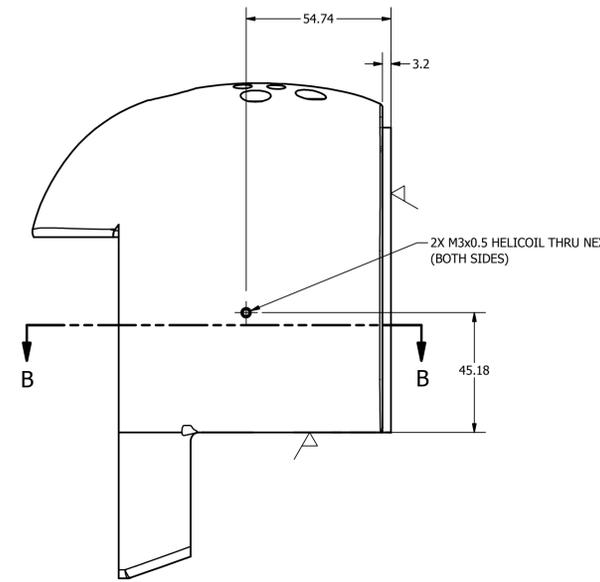
SECTION B-B
SCALE .750



SECTION C-C
SCALE .750



SECTION D-D
SCALE .750



REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM111 Rev A AND CONVERTED TO METRIC FOR THOR-M; DIMENSION Ø65.3 AS SHOWN IN C-C WAS Ø65.3 +0.00/-0.12 TO DEPTH SHOWN; 4X Ø3.5 THRU C'BORE Ø6.0 AS SHOWN IN SEC. C-C WAS (4X) Ø4.8 DEPTH SHOWN Ø3.3 THRU; 4X Ø5.5 THRU C'SINK Ø10.5 X 90° WAS 4X Ø5.1 THRU C'SINK Ø9.8 X 82.0°; 2X Ø2.998 +.000/-0.010 (P.F. DOWEL) WAS 2X Ø3.2 THRU SLIP FIT DOWEL; 36.08 ±.02 WAS 36.08 ±.03; Ø89.40 AS SHOWN WAS Ø89.04 +0.05/-0.00 TO DEPTH SHOWN; 4X Ø6.4 THRU EQUI-SPACED ON A Ø76.2 B.C. AS SHOWN WAS 4X Ø17/64 THRU EQUALLY SPACED ON B.C. Ø76.2; Ø89.40 AS SHOWN WAS Ø89.4 +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

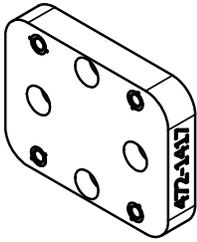
NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.

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

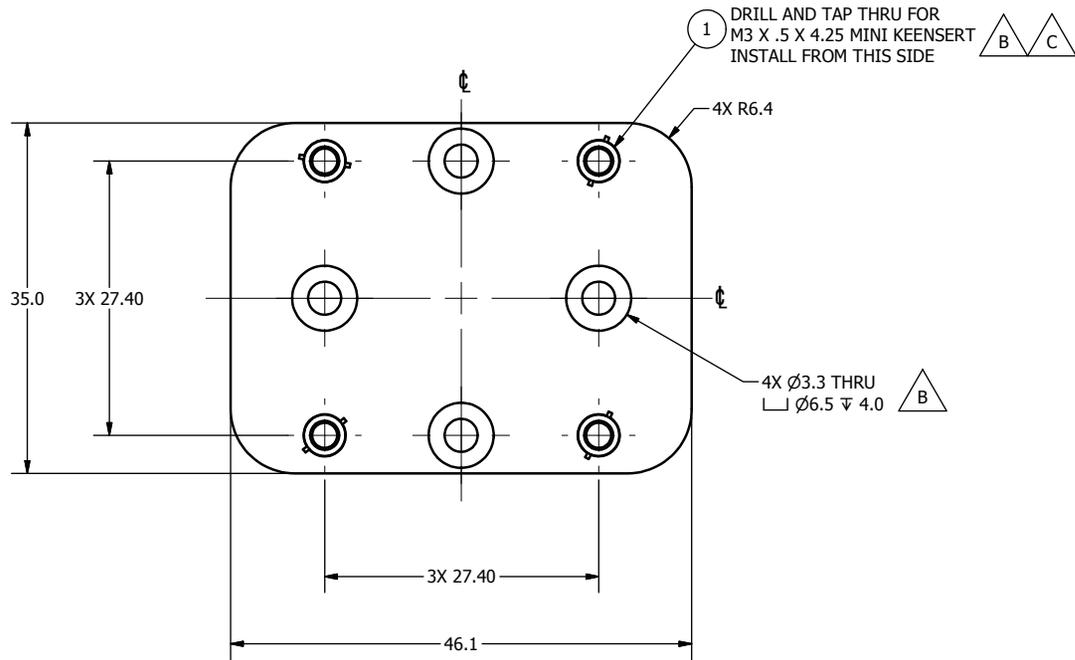
PARTS LIST

472-1100	1	357 CAST ALUMINUM	B. KIMES	8/26/2011	HEAD, MACHINED
NEXT ASSEMBLY	QTY	BY	DATE	APP'D	
TOTAL QTY IN DUMMY	1		J. WANG	1/10/2012	

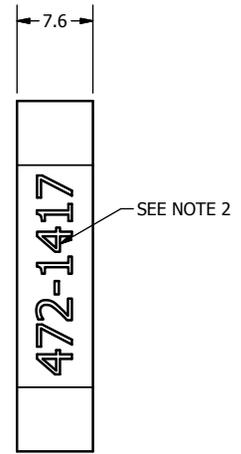
472-1111



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



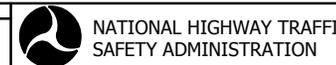
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER (3mm CHARACTERS) WHERE SHOWN. (OPTIONAL)

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	5001107	M3 X 0.5 X 4.25 LG. MINI KEENSERT

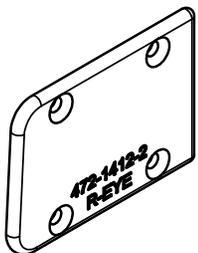
DO NOT SCALE DRAWING		TOLERANCES	
		UNLESS OTHERWISE SPECIFIED:	
		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		X .05 ± 0.5 1.6	
		X.X ± 0.2	
		X.XX ± 0.3	
		X.XXX ± 0.01	
		REMOVE BURRS & BREAK SHARP EDGES	

PROJECT NO.:	472-1100	1	7075-T6 ALUMINUM	CHECKED BY:	B. KIMES	DATE:	8/25/2011
MATERIAL:	7075-T6 ALUMINUM	QTY		HEAT TREAT:			
FINISH:	CLEAR ANODIZE	TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	DATE:	1/10/2012

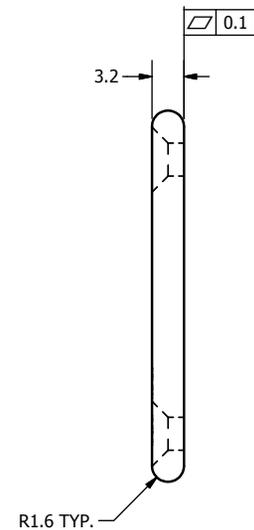
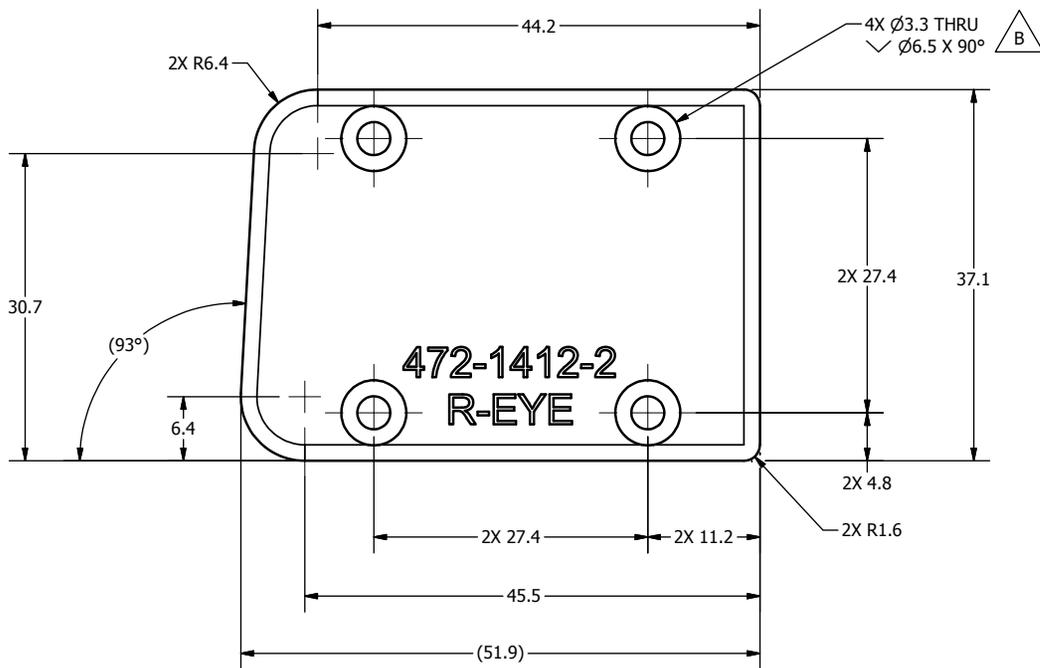
SIZE	SHEET	DRAWING NO.	REV.
A3	1 OF 1	472-1417	C



FACE LOAD CELL, MOCK



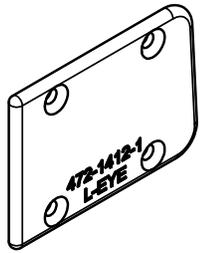
SCALE 1.000



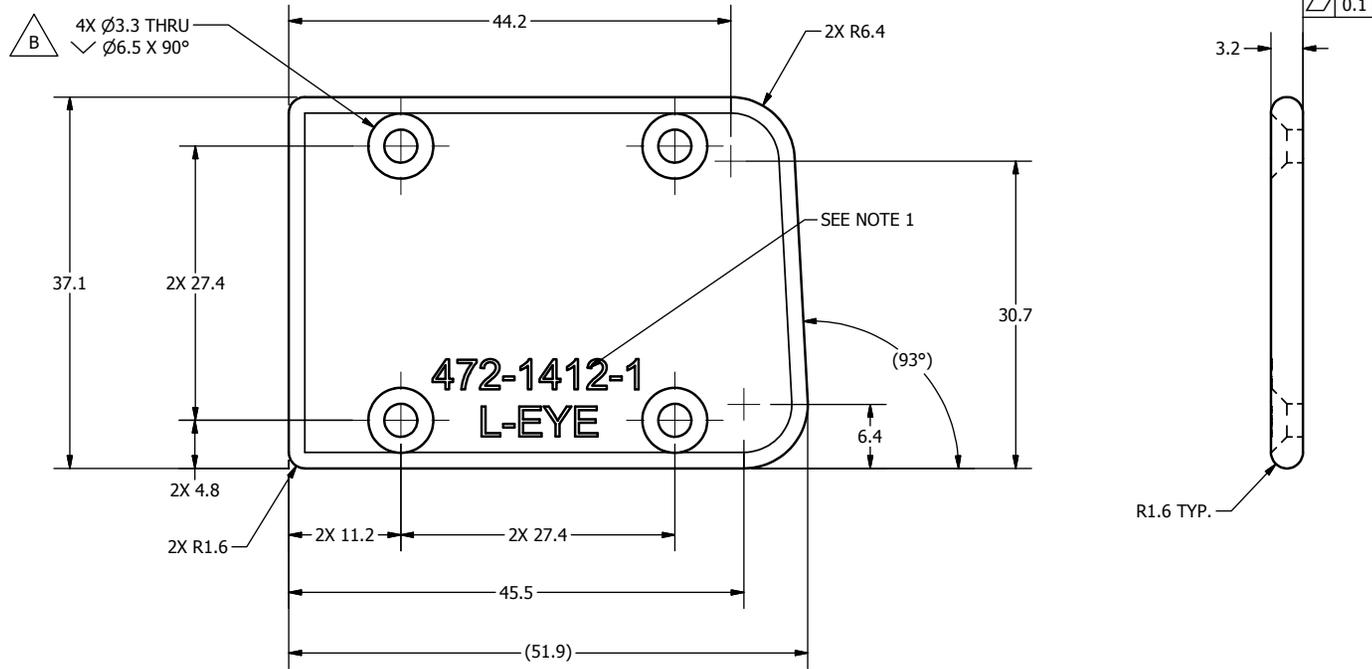
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM112 R06 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82°	5/25/2012	BK

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:
DRIVEN 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

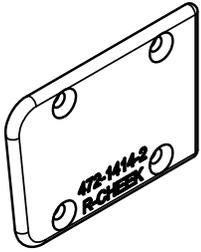


REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM113 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82'	5/25/2012	BK

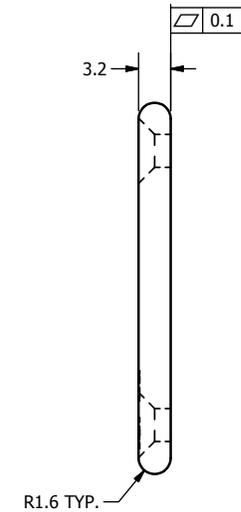
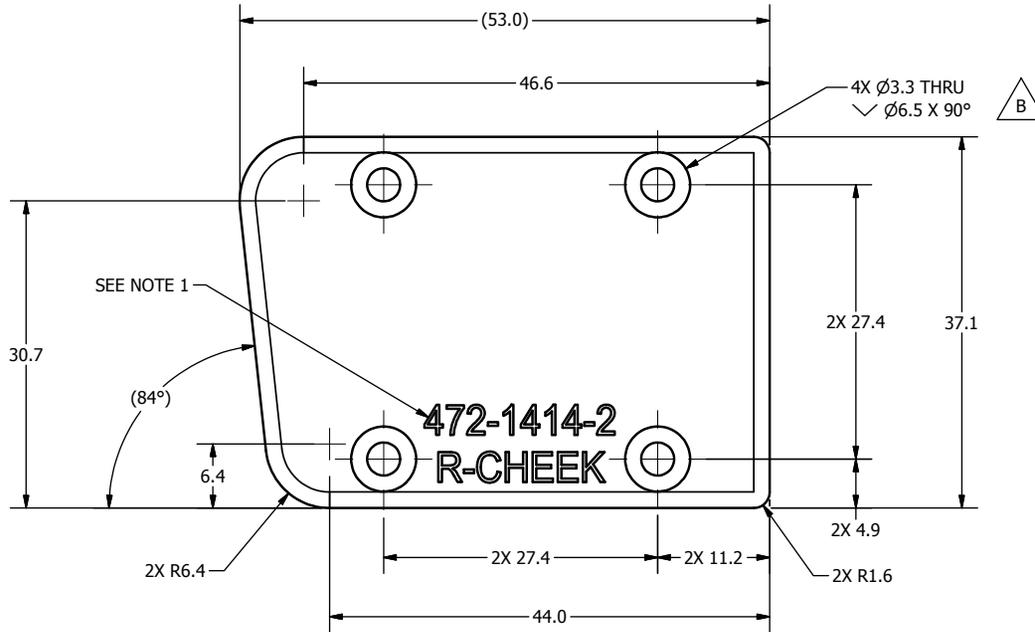
NOTES:

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:
TOTAL QTY IN DUMMY	1	FINISH:		SCALE: 2.000
				SIZE: SHEET: DRAWING NO.:
				A3 1 OF 1 472-1412-1
				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 .005 ± 0.07 1.6 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-1100	MATERIAL:	440C STAINLESS STEEL	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	8/25/2011	RIGHT CHEEK 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:



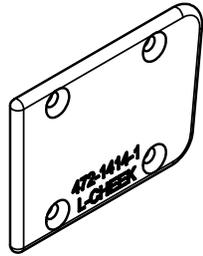
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

RIGHT CHEEK LOAD CELL PLATE

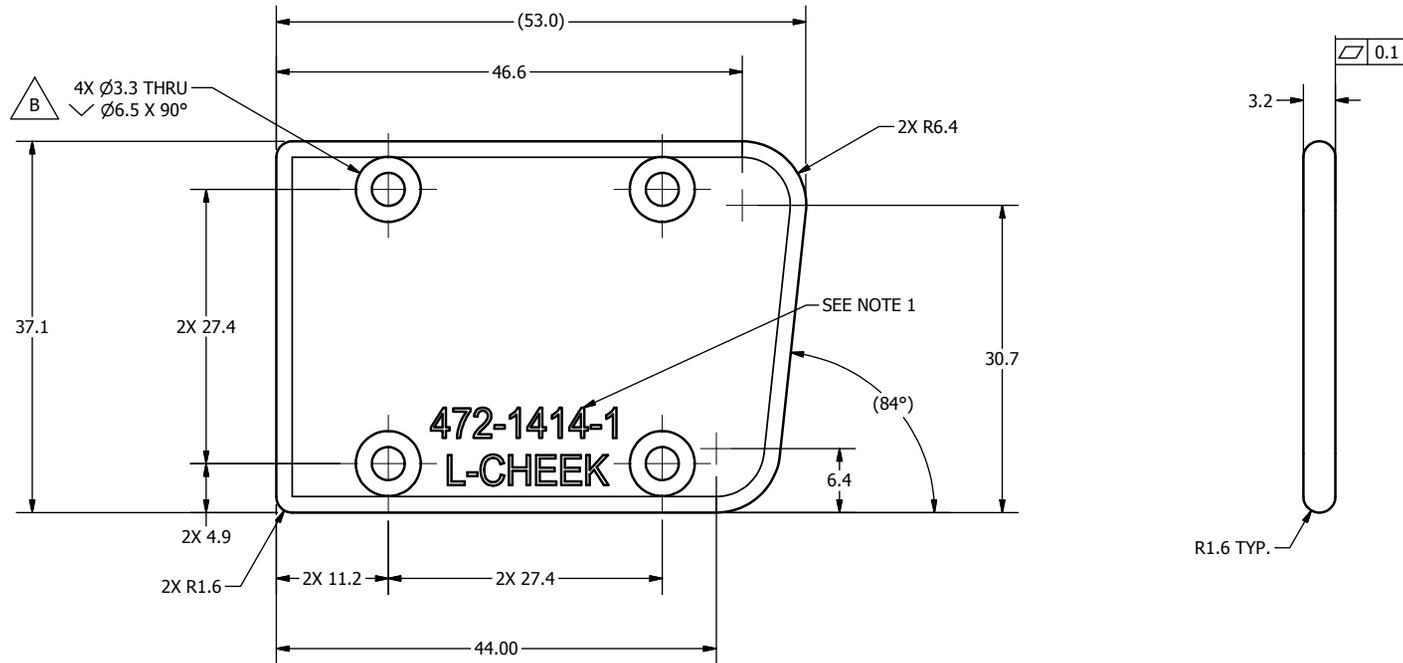
SIZE: A3
SHEET: 1 OF 1
SCALE: 2.000

DRAWING NO.: 472-1414-2

REV: B



SCALE 1.000



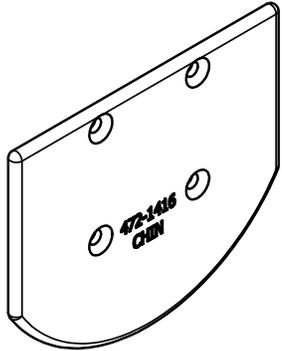
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FCM115 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK
	B	Ø3.3 C'SINK Ø6.5 X 90° WAS Ø3.8 C'SINK Ø7.1 X 82°	5/25/2012	BK

NOTES:

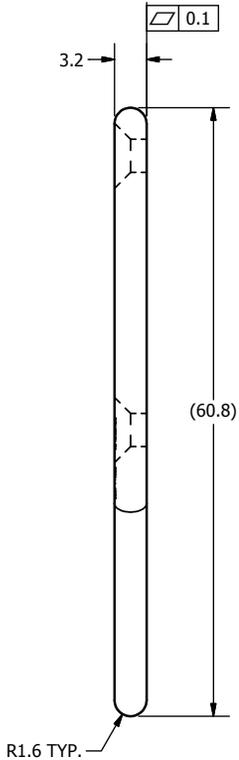
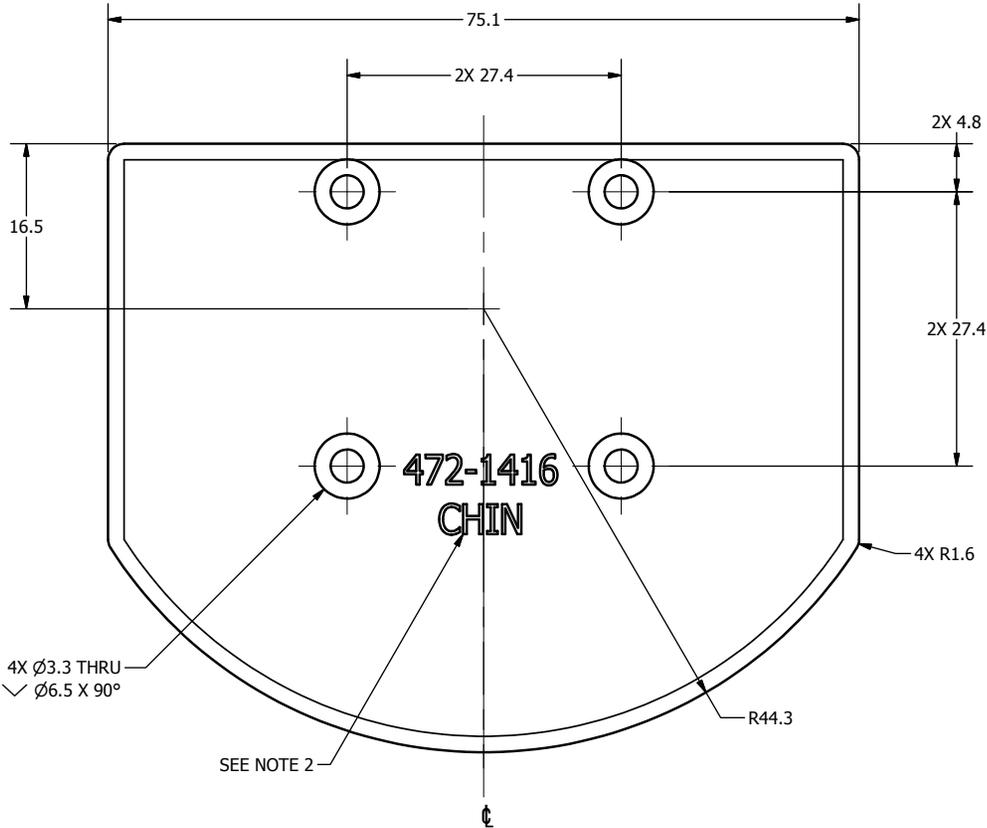
1. STAMP OR ETCH PART NUMBER AND "L-CHEEK" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION: LEFT CHEEK LOAD CELL PLATE	
		DECIMALS ANGLES FINISH			
PROJECT NO.: 472-1100		MATERIAL: 440C STAINLESS STEEL		DRAWING NO.: 472-1414-1	
CHECKED BY: B. KIMES		DATE: 8/25/2011		REVISION: B	
NEXT ASSEMBLY QTY: 1		HEAT TREAT: Rc 55-59		SCALE: 2.000	
TOTAL QTY IN DUMMY: 1		FINISH:		SIZE: A3 1 OF 1	
		ENGINEER: J. WANG		DATE: 1/10/2012	

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



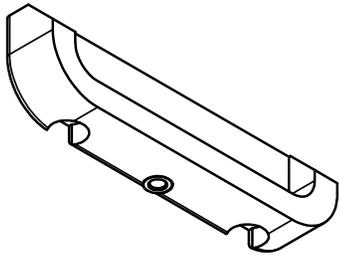
SCALE 1.000



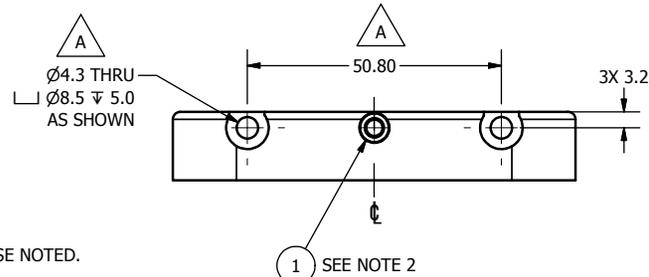
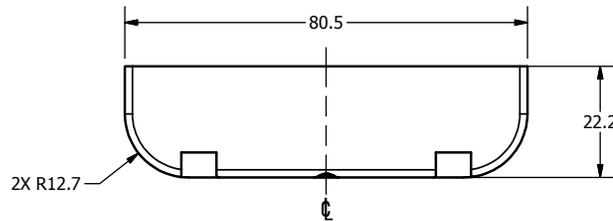
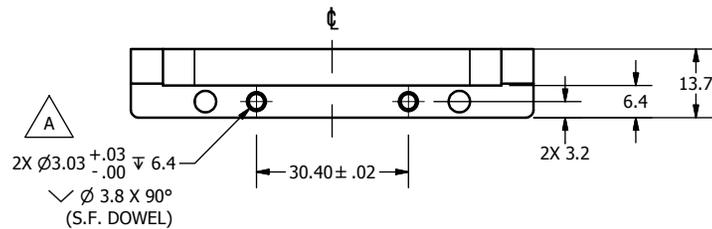
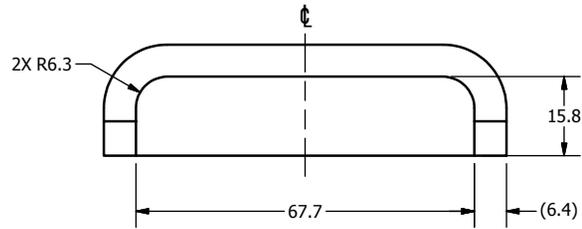
- NOTES:
1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.
 2. STAMP OR ETCH PART NUMBER AND "CHIN" (3mm CHARACTERS) AS SHOWN. (OPTIONAL)

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

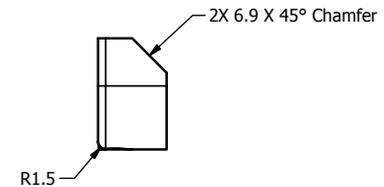
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-1416	REV.:	B
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SCALE 1.000



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:

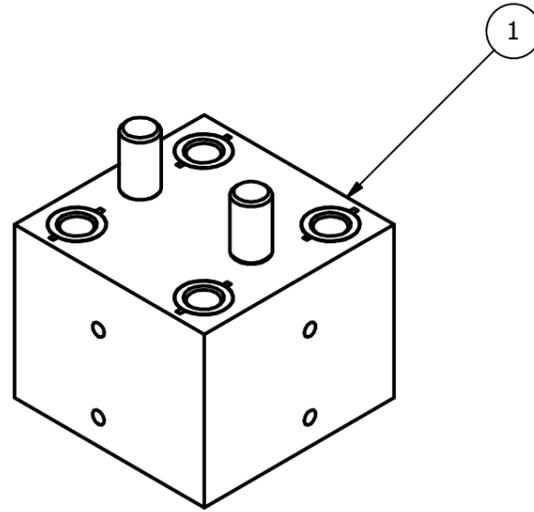
- DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
- DRILL $\phi 5.94 - \phi 5.74$ TAPERED HOLE $\nabla 9.0$, HEAT INSERT WITH SOLDER IRON AND INSERT FLUSH WITH SURFACE. (SEE MANUFACTURER INSTRUCTIONS)

1 SEE NOTE 2

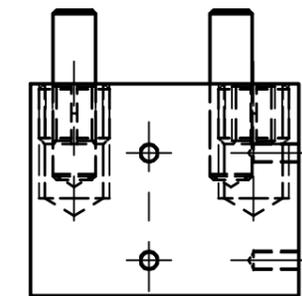
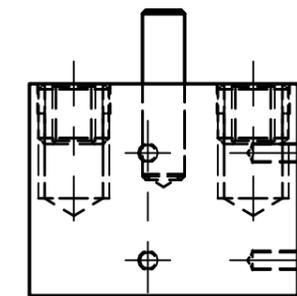
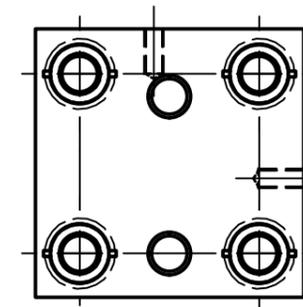
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	5001114	INSERT, M4 X .7 X 4.7 (THERMOSET)

DO NOT SCALE DRAWING		TOLERANCES	
ϕ	∇	UNLESS OTHERWISE SPECIFIED	
THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS	
		DECIMALS ANGLES FINISH	
		F F F	
		X .02 ± .05 1.6	
		X .03 ± .02	
		X .04 ± .03	
		X .05 ± .04	
		X .06 ± .05	
		X .07 ± .06	
		X .08 ± .07	
		X .09 ± .08	
		X .10 ± .09	
		X .12 ± .10	
		X .15 ± .12	
		X .20 ± .15	
		X .25 ± .20	
		X .30 ± .25	
		X .40 ± .30	
		X .50 ± .40	
		X .60 ± .50	
		X .75 ± .60	
		X 1.00 ± .80	
		X 1.25 ± 1.00	
		X 1.50 ± 1.25	
		X 2.00 ± 1.60	
		X 2.50 ± 2.00	
		X 3.00 ± 2.40	
		X 4.00 ± 3.20	
		X 5.00 ± 4.00	
		X 6.00 ± 4.80	
		X 8.00 ± 6.40	
		X 10.00 ± 8.00	
		X 12.50 ± 10.00	
		X 15.00 ± 12.00	
		X 20.00 ± 16.00	
		X 25.00 ± 20.00	
		X 30.00 ± 24.00	
		X 40.00 ± 32.00	
		X 50.00 ± 40.00	
		X 60.00 ± 48.00	
		X 75.00 ± 60.00	
		X 100.00 ± 80.00	
		X 125.00 ± 100.00	
		X 150.00 ± 120.00	
		X 200.00 ± 160.00	
		X 250.00 ± 200.00	
		X 300.00 ± 240.00	
		X 400.00 ± 320.00	
		X 500.00 ± 400.00	
		X 600.00 ± 480.00	
		X 750.00 ± 600.00	
		X 1000.00 ± 800.00	
		X 1250.00 ± 1000.00	
		X 1500.00 ± 1200.00	
		X 2000.00 ± 1600.00	
		X 2500.00 ± 2000.00	
		X 3000.00 ± 2400.00	
		X 4000.00 ± 3200.00	
		X 5000.00 ± 4000.00	
		X 6000.00 ± 4800.00	
		X 7500.00 ± 6000.00	
		X 10000.00 ± 8000.00	
		X 12500.00 ± 10000.00	
		X 15000.00 ± 12000.00	
		X 20000.00 ± 16000.00	
		X 25000.00 ± 20000.00	
		X 30000.00 ± 24000.00	
		X 40000.00 ± 32000.00	
		X 50000.00 ± 40000.00	
		X 60000.00 ± 48000.00	
		X 75000.00 ± 60000.00	
		X 100000.00 ± 80000.00	
		X 125000.00 ± 100000.00	
		X 150000.00 ± 120000.00	
		X 200000.00 ± 160000.00	
		X 250000.00 ± 200000.00	
		X 300000.00 ± 240000.00	
		X 400000.00 ± 320000.00	
		X 500000.00 ± 400000.00	
		X 600000.00 ± 480000.00	
		X 750000.00 ± 600000.00	
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		X 1500000000000000000.00 ± 1200000000000000000.00	
		X 2000000000000000000.00 ± 1600000000000000000.00	
		X 2500000000000000000.00 ± 2000000000000000000.00	

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



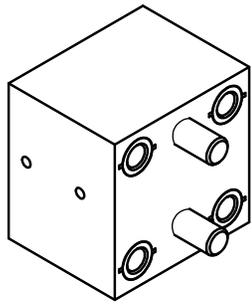
SCALE 2.000



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		BIAXIAL ACCELEROMETER ASSEMBLY, HEAD
MATERIAL:		DRAWN BY: B. KIMES		
HEAT TREAT:		CHECKED BY:		SIZE: A3 SHEET: 1 OF 1 SCALE: 2.000
FINISH:		ENGINEER: J. WANG		DRAWING NO.: 472-1101 REV: C

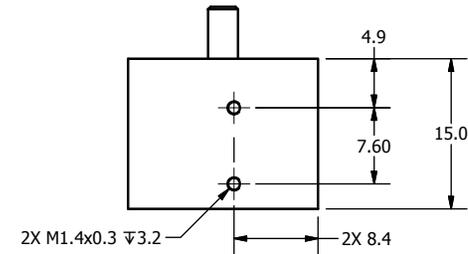
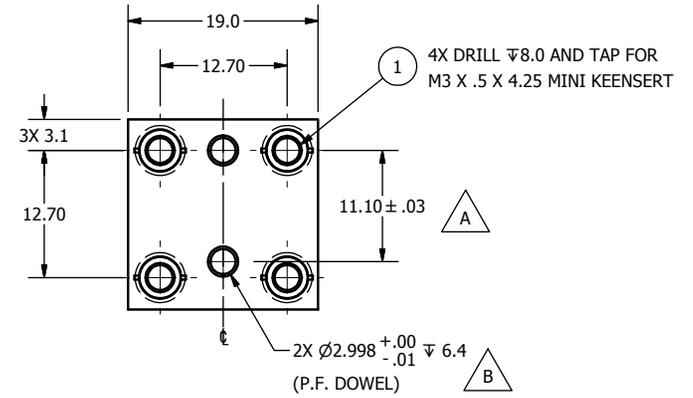
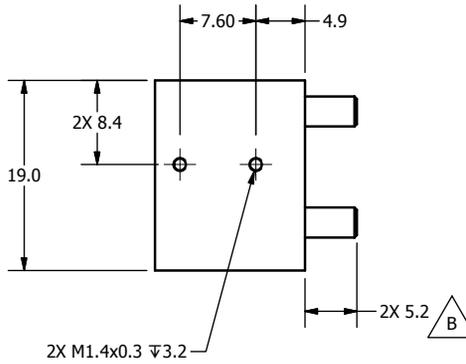
472-1100	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



SCALE 2.000

472-1119

SEE NOTE 2



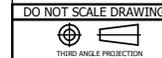
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM119 R02 AND CONVERTED TO METRIC FOR THOR-M; 11.10±.03 WAS 11.10	8/25/2011	BK
	B	ADD 5000183; \varnothing 2.998 $^{+.00}_{-.01}$ ∇ 6.4 (P.F. DOWEL) WAS \varnothing 3.20 $^{+.03}_{-.00}$ ∇ 6.4 (S.F. DOWEL); ADD 2X 5.2	5/21/2012	TMV

NOTES:

- DIMENSIONS SYMMETRIC ACROSS \updownarrow , UNLESS OTHERWISE NOTED.
- 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
X .001 1.6

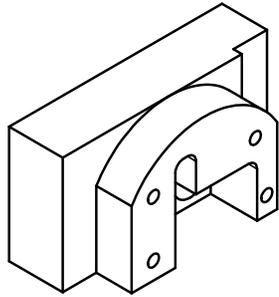


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

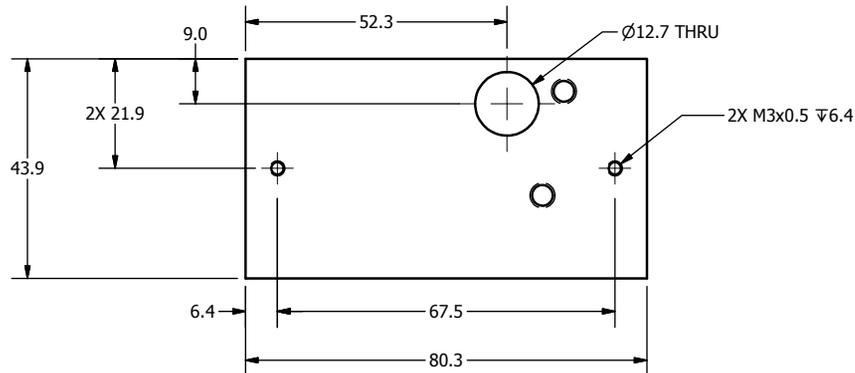
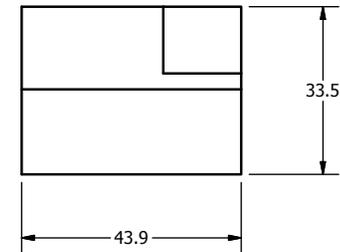
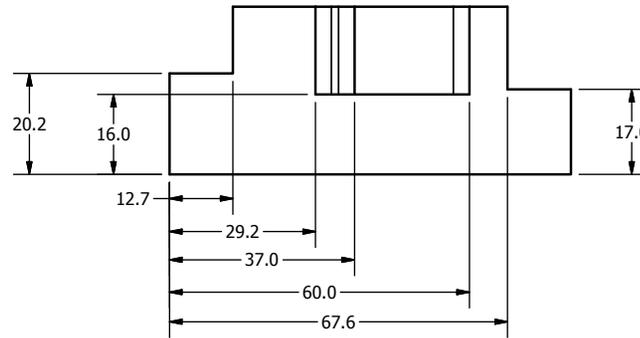
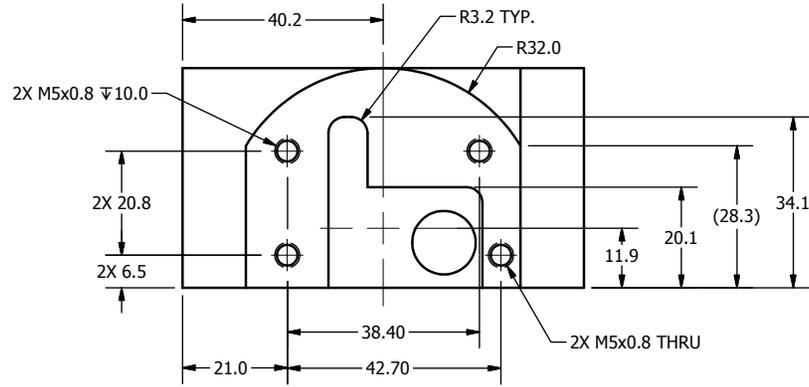
REMOVE BURRS & BREAK SHARP EDGES

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															



SCALE .750



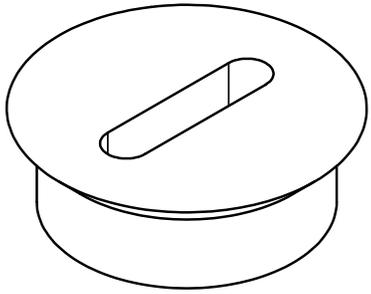
NOTES:

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.

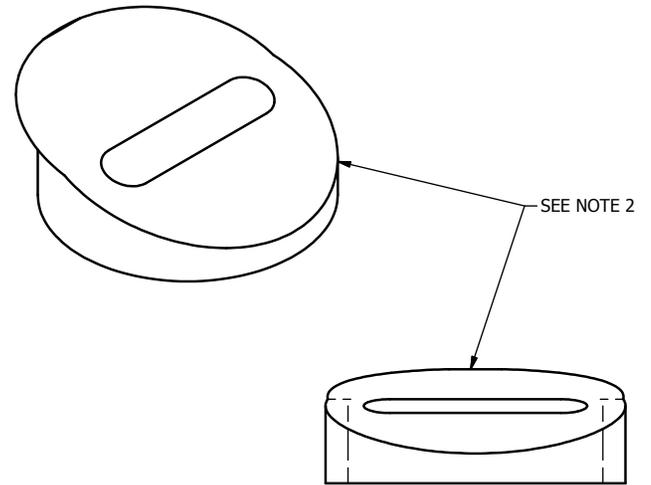
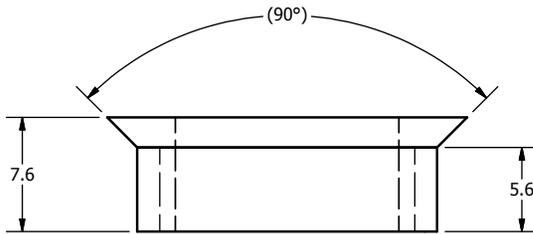
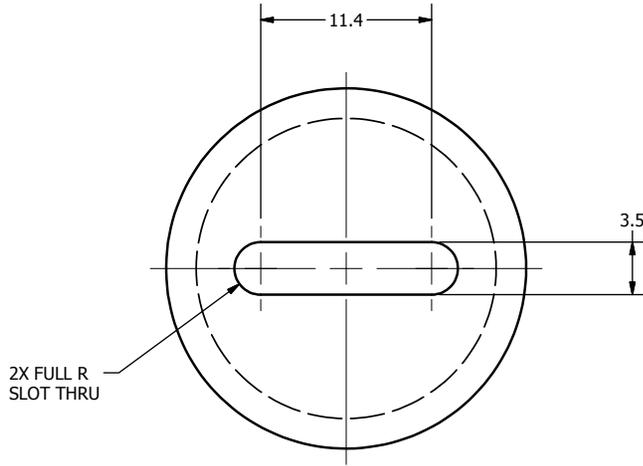
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM120 R05 AND CONVERTED TO METRIC FOR THOR-M	8/25/2011	BK

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 1.6 XX ±0.2 XXX ±0.3 XXXX ±0.51 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-1100	MATERIAL:	1018 STEEL	DESCRIPTION:
DATE:	8/25/2011	DESIGNED BY:	B. KIMES	HEAD BALLAST
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
FRESH:	SEE NOTES	DATE:	1/10/2012	SCALE: 1.000
TOTAL QTY IN DUMMY	1	DRAWING NO.:	472-1120	REV.:
				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

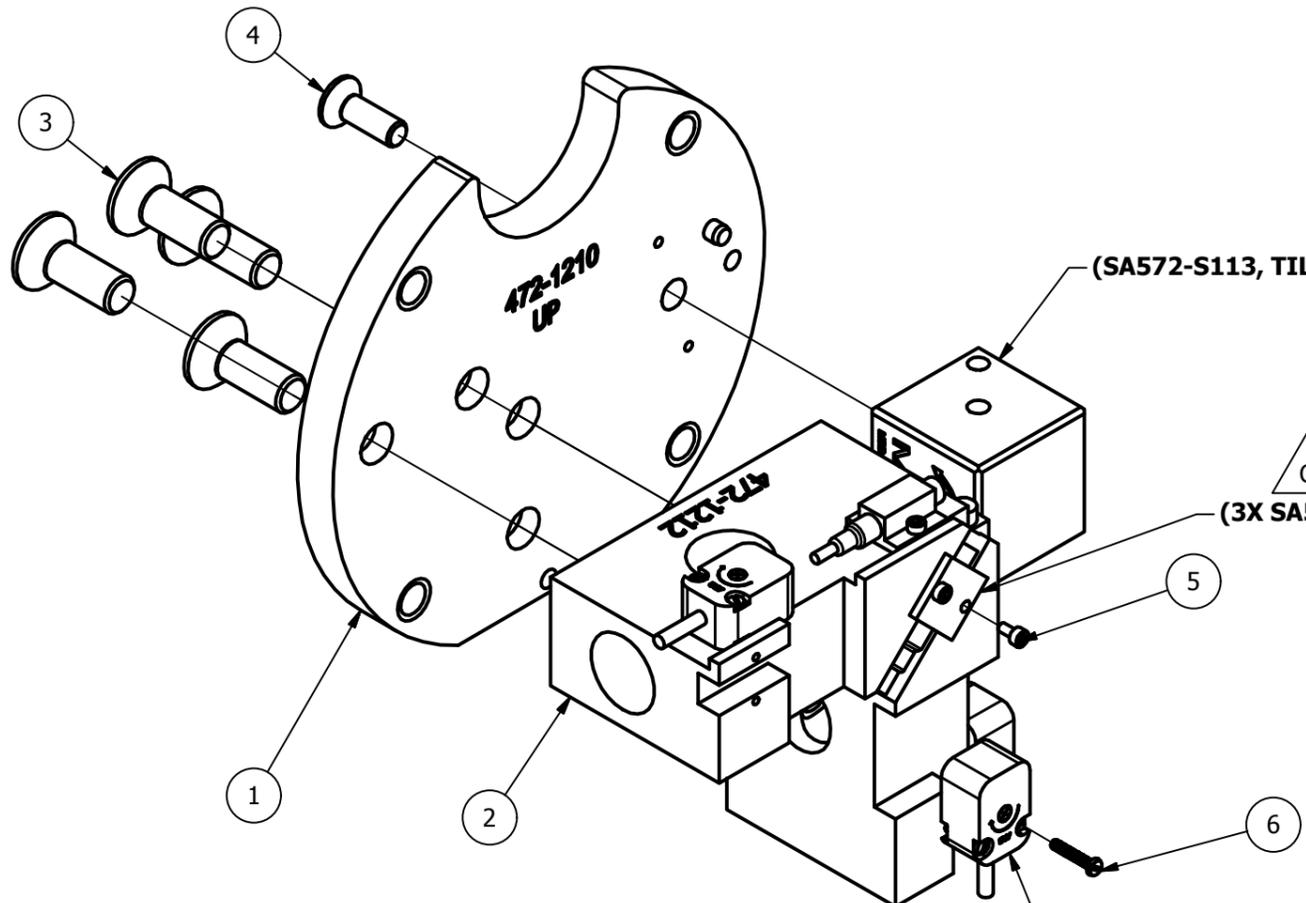


NOTES:

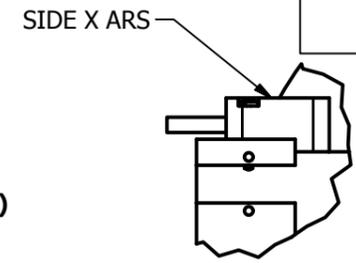
1. MAKE FROM M20 X 2.5 X 40 FHCS (5001115), MODIFY AS SHOWN.
2. PART IS MANUALLY MODIFIED AFTER ASSEMBLING IN SKULL, PROFILE IS GROUND FLUSH WITH OUTER SKULL SURFACE.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .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:	SEE NOTES	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	8/25/2011	PLUG, HEAD
CHECKED BY:		DATE:		
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/10/2012	
TOTAL QTY IN DUMMY		QTY	1	SIZE: SHEET: DRAWING NO. REV:
				A3 1 OF 1 472-1116 A
				SCALE: 3.000

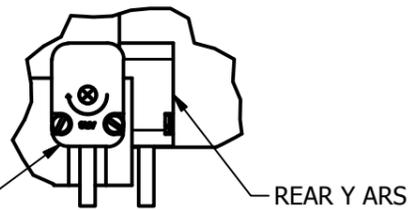
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1HDM200 R12 AND CONVERTED TO METRIC FOR THOR-M	8/31/2011	BK
	B	REORIENT ACCELEROMETERS PER NHTSA PRINT	12/20/2012	BK
	C	CHANGED QUANTITY OF SA572-S4, ACCELEROMETERS TO 3, ADDED ANGULAR RATE SENSORS	5/19/2014	DW



SCALE 1.000

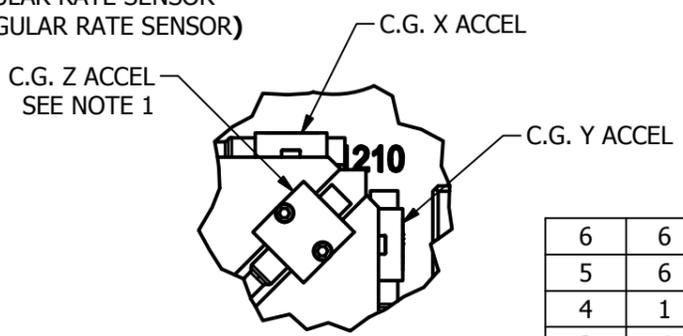


DETAIL A
SCALE 1.000

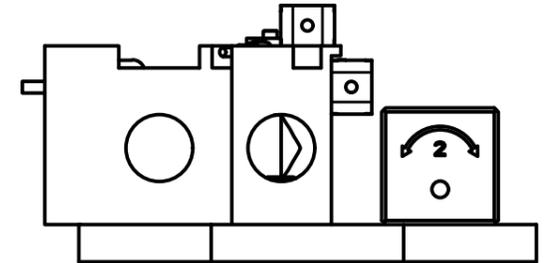
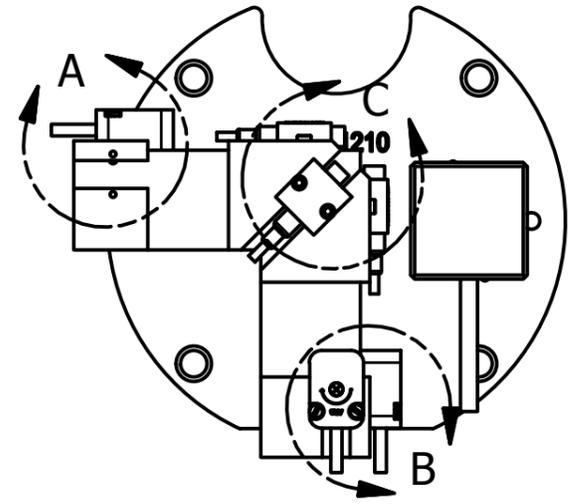


DETAIL B
SCALE 1.000

(3X SA572-S55, ANGULAR RATE SENSOR
OPTIONAL
SA572-S56 ANGULAR RATE SENSOR
SA572-S57 ANGULAR RATE SENSOR
OR SA572-S58 ANGULAR RATE SENSOR)



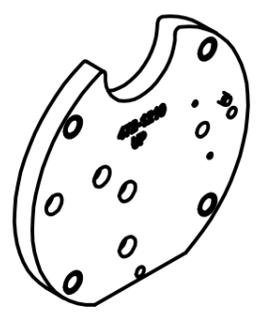
DETAIL C
SCALE 1.000



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

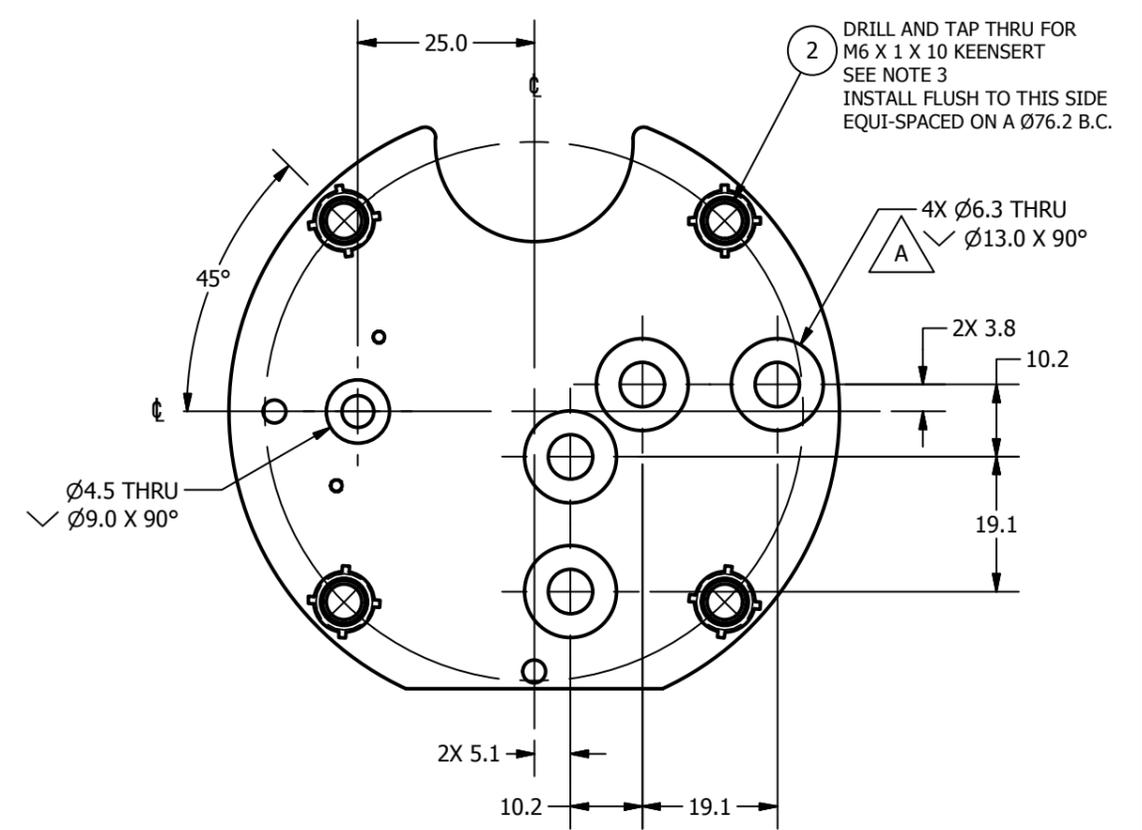
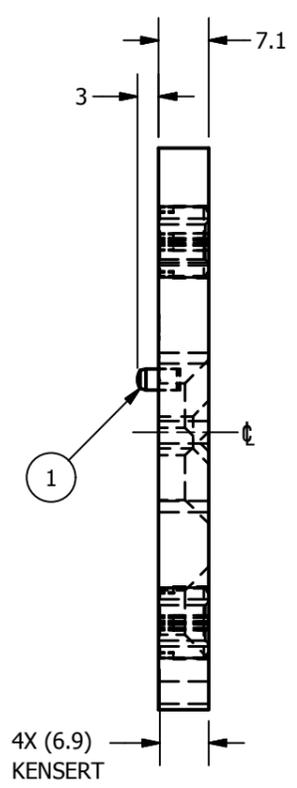
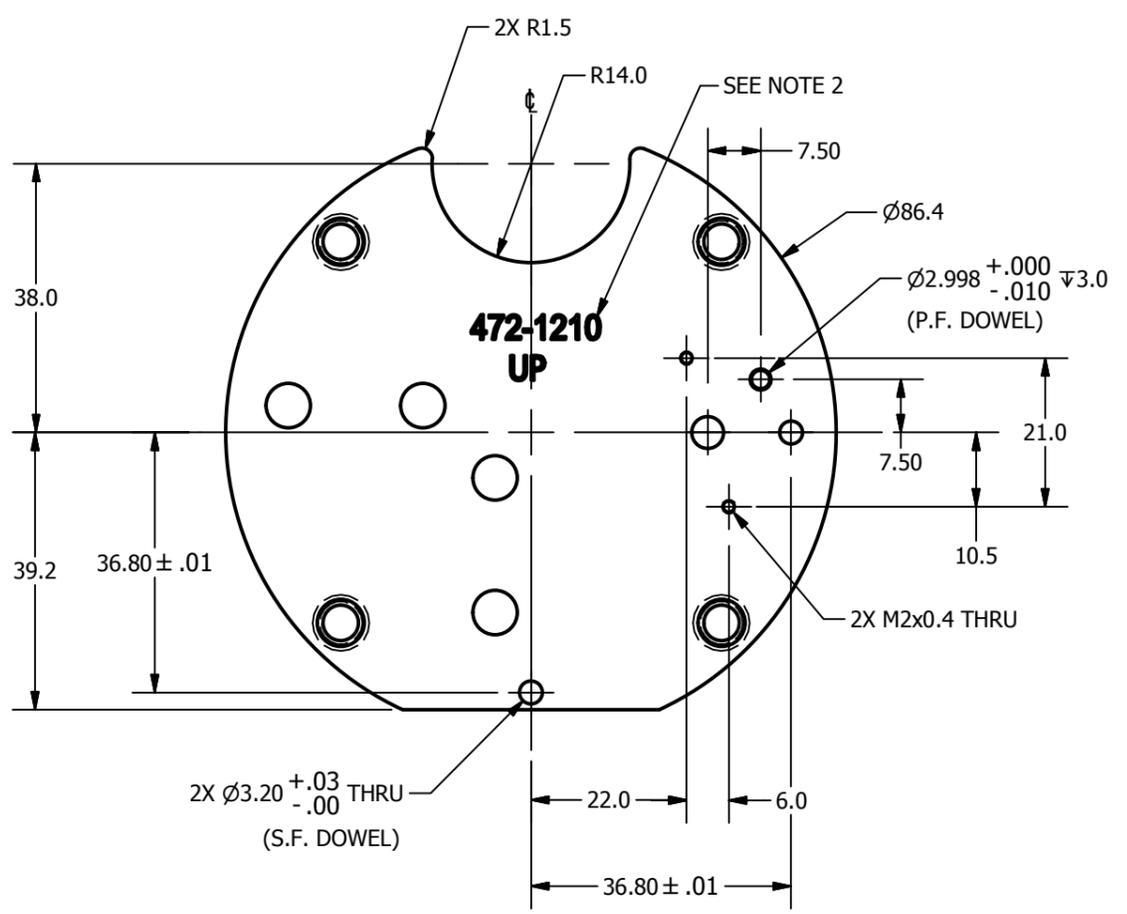
ITEM	QTY	PART NUMBER	DESCRIPTION
6	6	6000000	SCREW, CHESSE HEAD M1.4-0.3 x 8
5	6	5000068	M1.4 X 0.3 X 3 LG. SHCS
4	1	5001086	M4 X 0.7 X 12 LG. FHCS
3	4	5000090	M6 X 1 X 16 LG. FHCS
2	1	472-1212	7 ACCELEROMETER ARRAY FIXTURE
1	1	472-1210	ACCELEROMETER MOUNTING PLATE, HEAD

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 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:	MATERIAL:	REMOVE BURRS & BREAK CHAMP EDGES	DATE:	DESCRIPTION:
472-1000	1	B. KIMES	8/31/2011	ACCELEROMETER MOUNTING PLATE ASSEMBLY, 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: .750
				DRAWING NO.: 472-1200



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 XXX ±0.1 XXXX ±0.01		
PROJECT NO.:	7075-T6 ALUMINUM	ENGINEER:	B. KIMES	DATE:
DATE:	HEAT TREAT:	CHECKED BY:	J. WANG	DATE:
FINISH:	CLEAR ANODIZE	DATE:	1/10/2012	SCALE:
TOTAL QTY IN DUMMY		1		SIZE: A3 1 OF 1
				DRAWING NO.: 472-1210

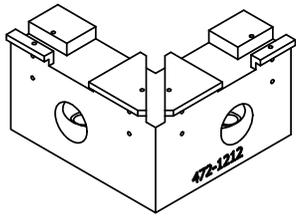
472-1200	1	7075-T6 ALUMINUM	B. KIMES	8/30/2011
NEXT ASSEMBLY	QTY	HEAT TREAT:	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	1	FINISH:	CLEAR ANODIZE	DATE:

DESCRIPTION: ACCELEROMETER MOUNTING PLATE, HEAD

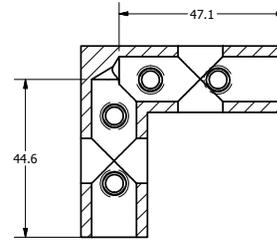
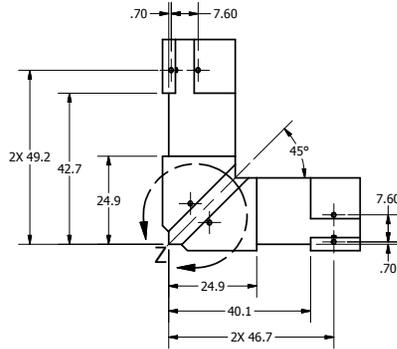
SIZE: A3 1 OF 1

SCALE: 1.000

DRAWING NO.: 472-1210

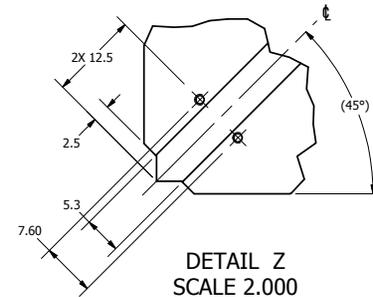
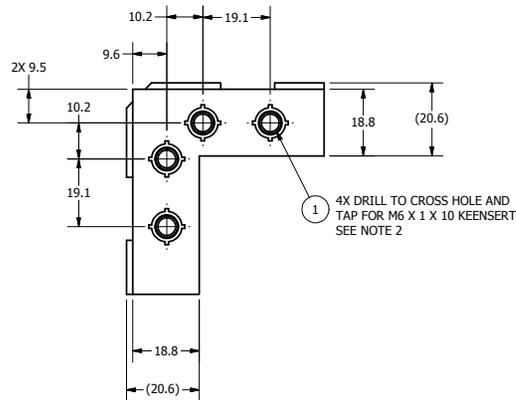
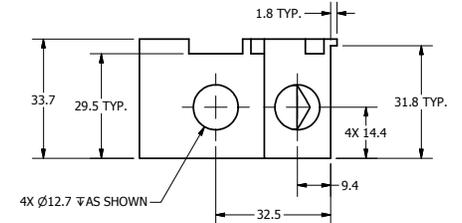
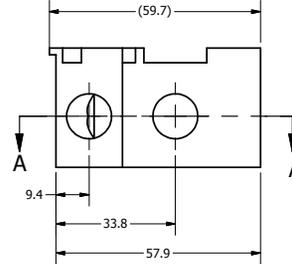
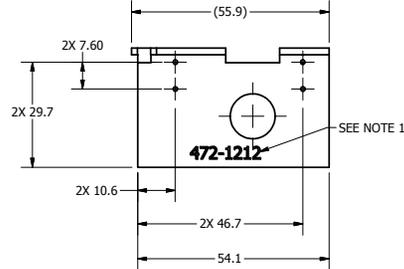
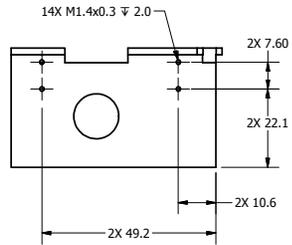


SCALE 1.000



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 t

NOTES:

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

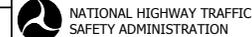
2. (4X) GRIND KEENSERT HEIGHT TO 8.0mm BEFORE INSTALLING. INSTALL AFTER ANODIZE.

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

PARTS LIST

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

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	11/10/2012	



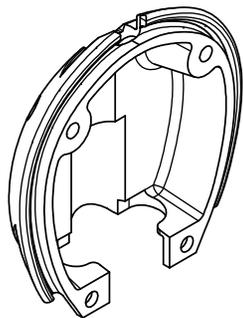
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

7 ACCELEROMETER ARRAY FIXTURE

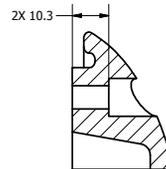
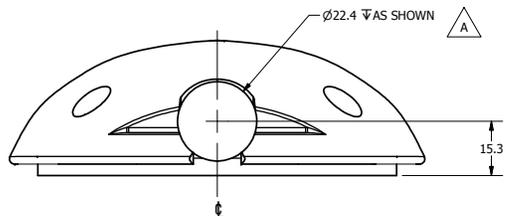
472-1212

A21 of 1

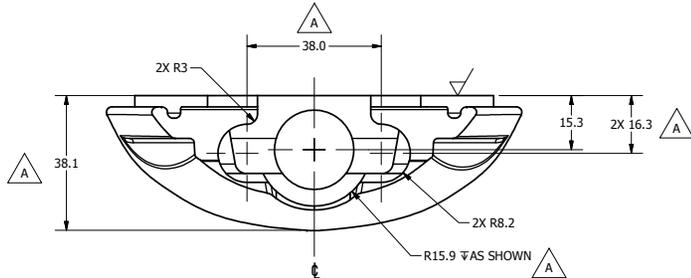
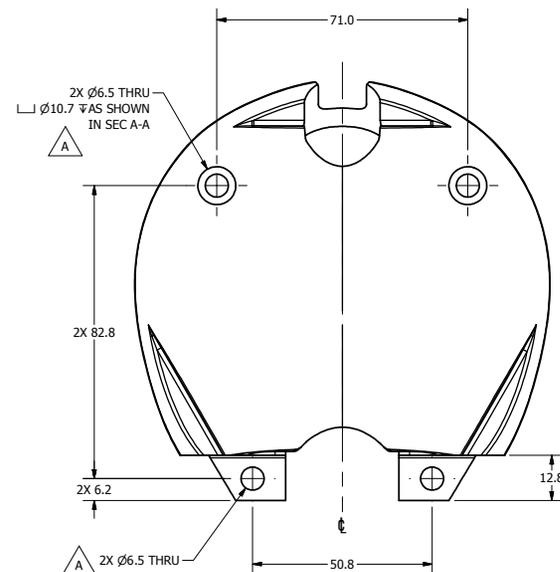
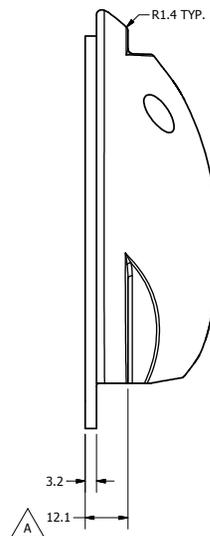
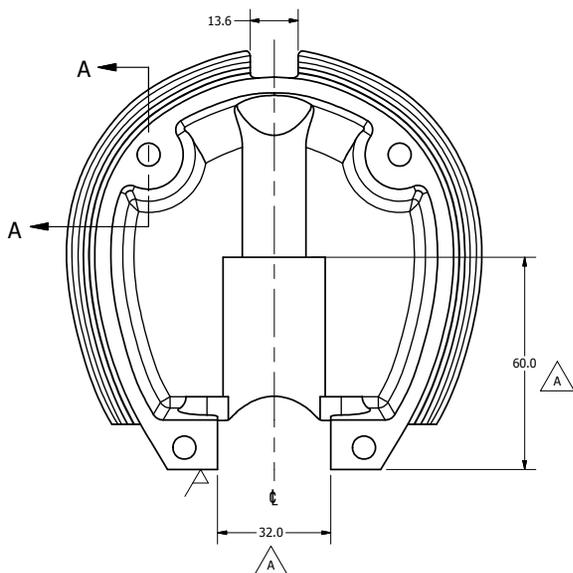
SCALE 1.000



SCALE .750



SECTION A-A
SCALE 1.000



NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϵ , UNLESS OTHERWISE NOTED.

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 \downarrow AS SHOWN WAS Ø30.1 \downarrow 60.7; 2X Ø6.5 THRU WAS 2X Ø6.8 THRU; 2X Ø6.5 THRU C'BORE Ø10.7 \downarrow AS SHOWN IN SEC. A-A WAS 2X Ø6.8 THRU C'BORE Ø10.7 \downarrow 16.3 FROM DATUM A; ADDED DIMENSIONS 60.0, 38.1, 12.0 AND SECTION A-A	8/30/2011	BK

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		FRACTIONAL DECIMALS DIMENSIONS ARE IN MILLIMETERS FRACTIONAL DECIMALS FRACTIONAL DECIMALS FRACTIONAL DECIMALS FRACTIONAL DECIMALS		HEAD CAP	
472-1000	1	357 CAST ALUMINUM	B. KIMES	8/30/2011	
NEXT ASSEMBLY	QTY				
TOTAL QTY IN DUMMY	1		J. WANG	11/10/2012	
				A21 of 1	472-1110
				1.000	

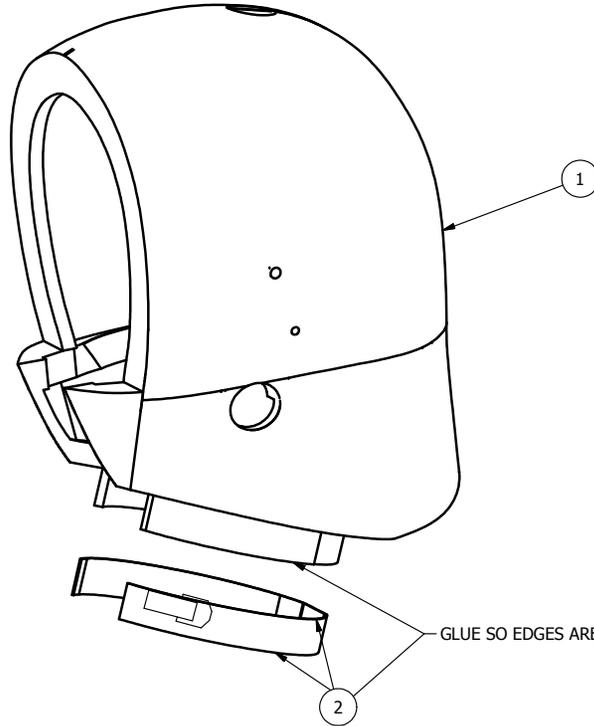
4

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 <small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS: X.X ±0.2 ANGLES: 0.5° ±0.5° FINISH: ✓ X.XX ±0.1 X.XXX ±0.05 <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO: S3744 MATERIAL:		DRAWN BY: SFice DATE: 4/12/2012 CHECKED BY: TMV DATE: 4/13/2012 ENGINEER: J. WANG DATE: 1/23/2012		
DESCRIPTION: SKIN ASSEMBLY THOR			SIZE: B SHEET: 1 OF 1 SCALE: N/A	
DRAWING NO: 472-1320			REV: B	

472-1000	1		
NEXT ASSEMBLY	QTY	N/A	
TOTAL QTY IN DUMMY	1	N/A	

4

3

2

1

B

B

A

A

4

2

1

B

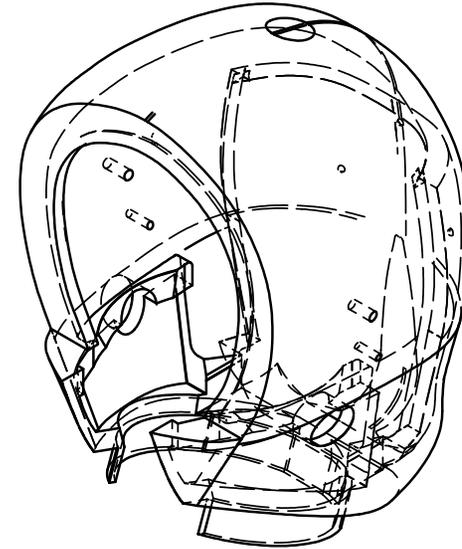
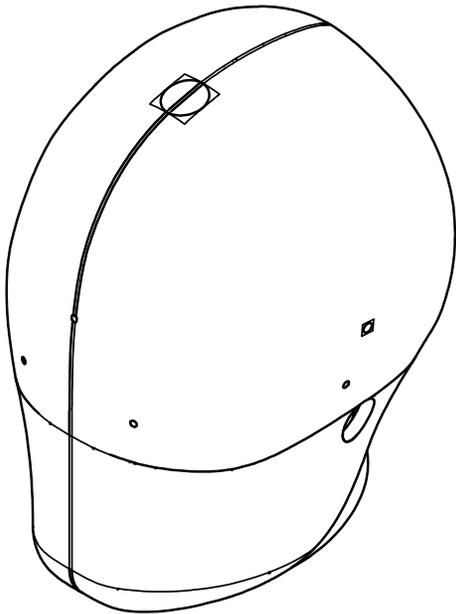
4

3

2

1

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	8	CONVERTED FROM ENGLISH TO METRIC REMOVED VIEWS NOT USED	2/8/10	C. SPADE
	A	RENUMBER FROM T1HDS021 R9 FOR THOR M	11/27/2012	BK
	B	ADDED MATERIAL	4/19/2013	KHS



4

3

2

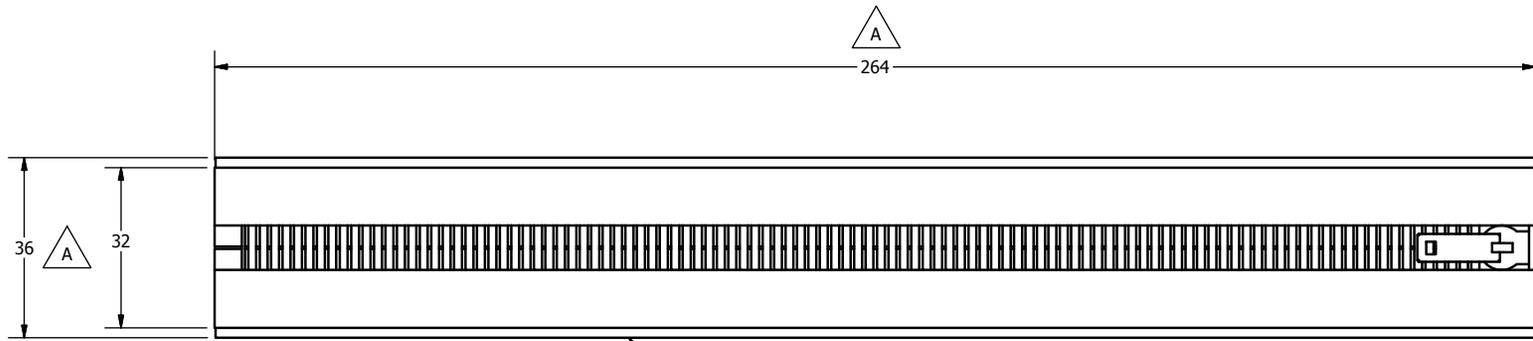
1

<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 ± 0.2 0.5 1.6</p> <p>XX ± 0.1</p> <p>XXX ± 0.08</p> <p>REMOVE BURRS & BREAK SHARP EDGES</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
PROJECT NO:	472-1320	DRAWN BY:	SPICE	DATE:	4/12/2012
MATERIAL:	URETHANE 67±5 "A"	CHECKED BY:	TMV	DATE:	4/24/2013
NEXT ASSEMBLY:	QTY	ENGINEER:	J. WANG	DATE:	1/23/2012
TOTAL QTY IN DUMMY:	1	SIZE:	B	SHEET:	1 OF 1
		SECRET:	N/A	DRAWING NO.:	472-1321

DESCRIPTION: HEAD SKIN, MOLDED THOR

SECRET: N/A

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

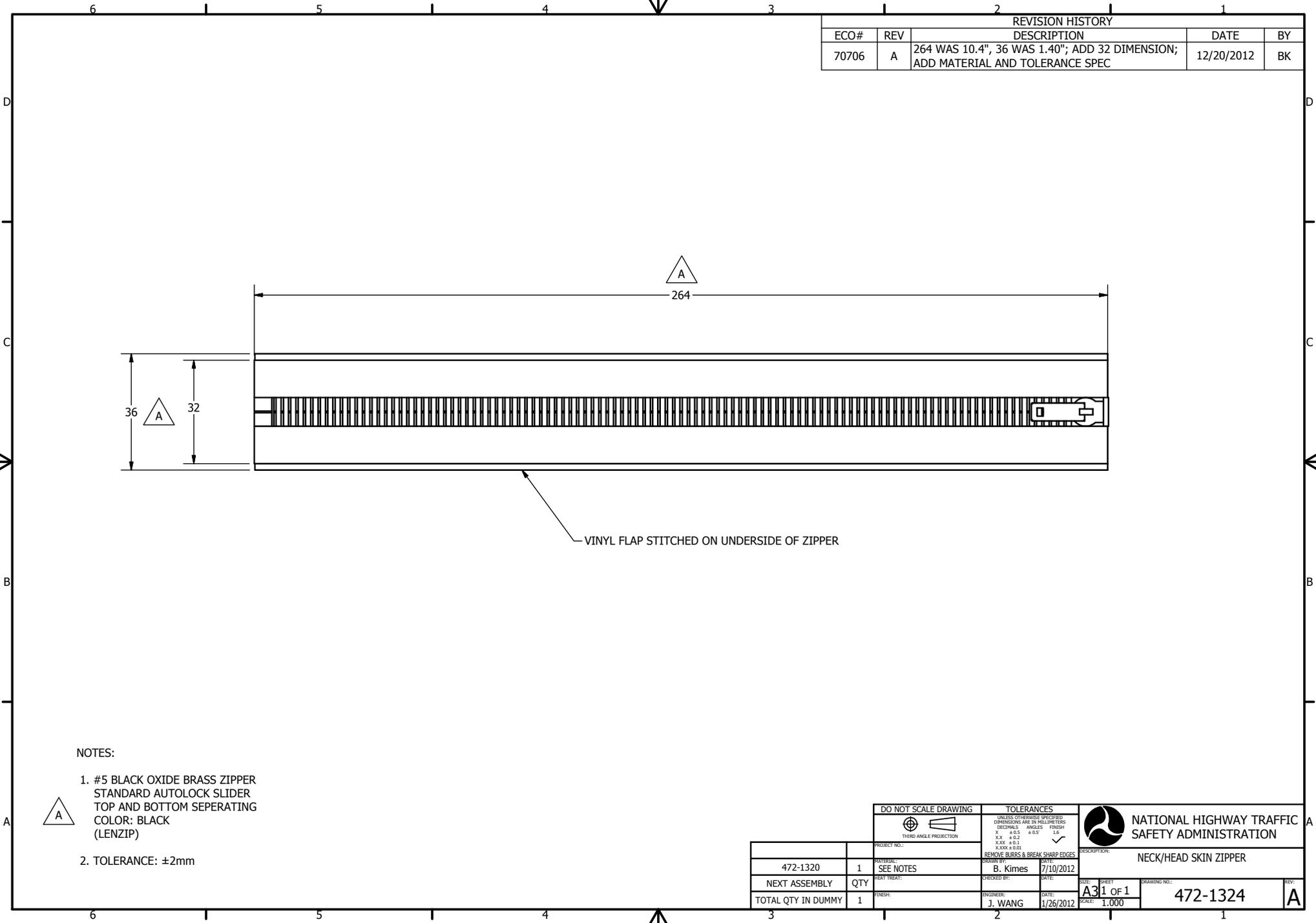
NOTES:

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

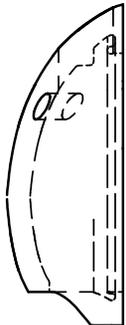
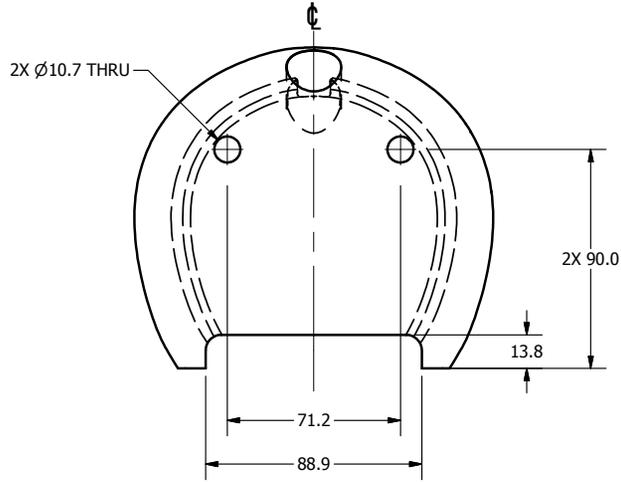
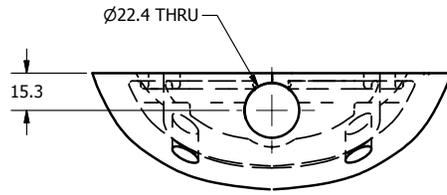
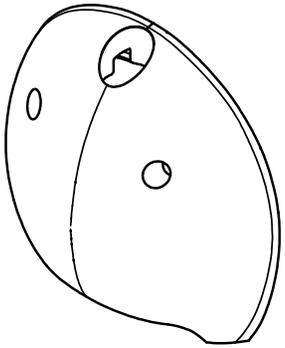
2. TOLERANCE: ±2mm



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



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.

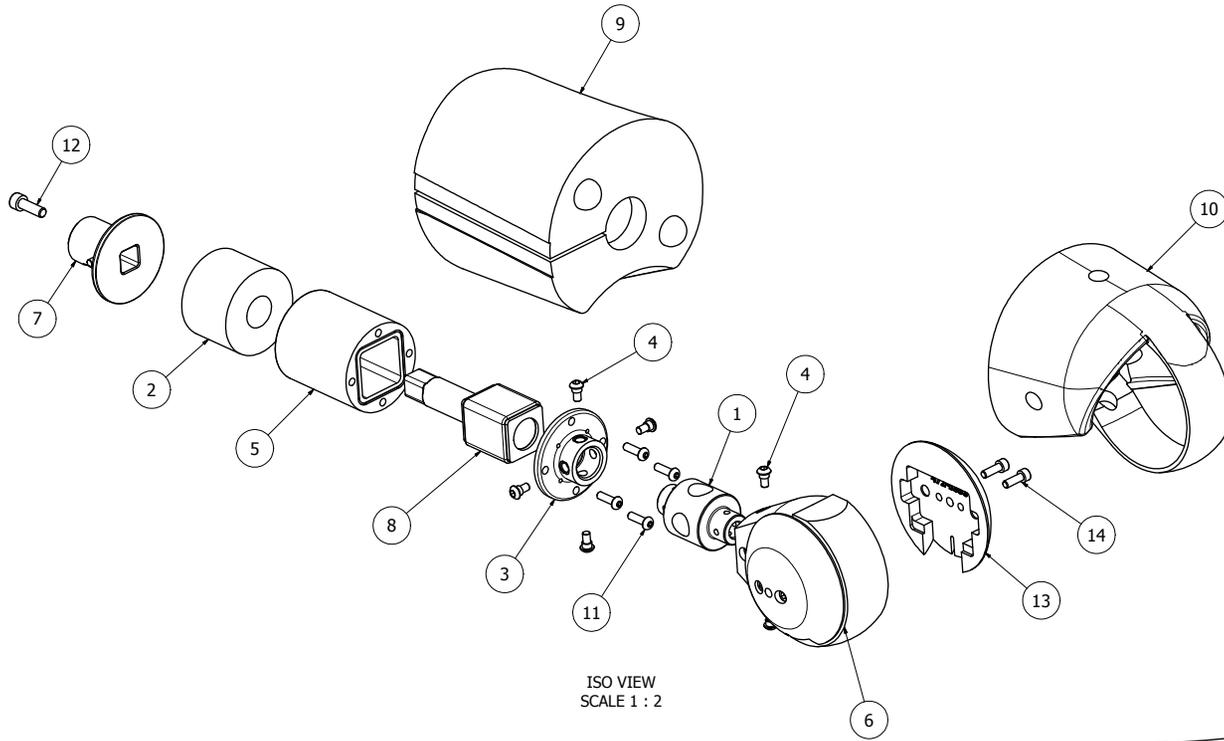
DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.	MATERIAL:	DIMENSIONAL FINISH	DATE:
472-1000	1	X.X ± 0.2	4/13/2012
NEXT ASSEMBLY	QTY	ANGLES FINISH	CHECKED BY:
TOTAL QTY IN DUMMY	1	X.XX ± 0.1	J.WANG
		REMOVE BURRS & BREAK SHARP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

		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
DESCRIPTION:		CAP SKIN THOR	
SIZE:	SHEET	DRAWING NO.:	REV:
B	1 OF 1	472-1310	A
FOR LET:	N/A		

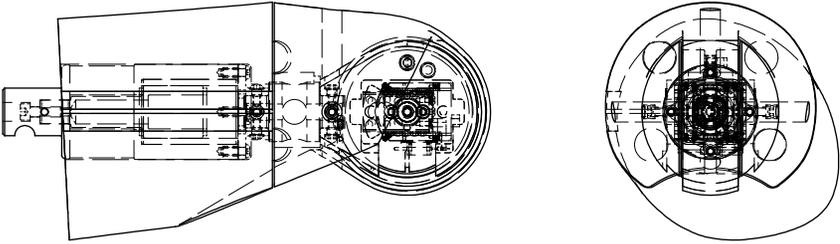
4 | 3 | 2 | 1

4 | 3 | 2 | 1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1PMM001 RD FOR THOR-W; 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



ISO VIEW
SCALE 1 : 2

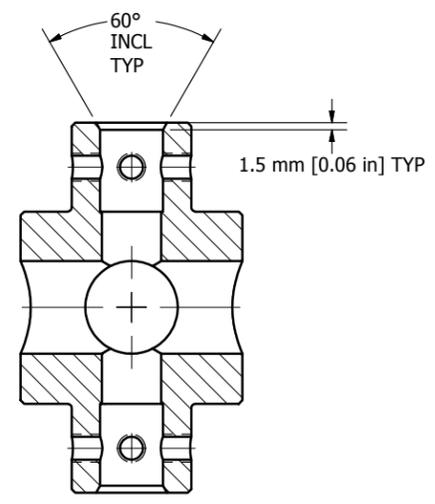
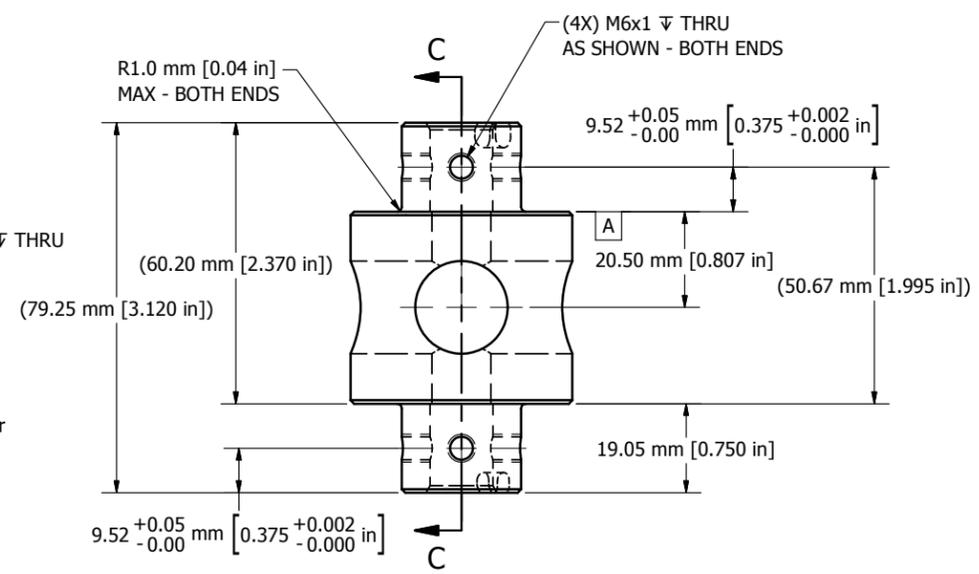
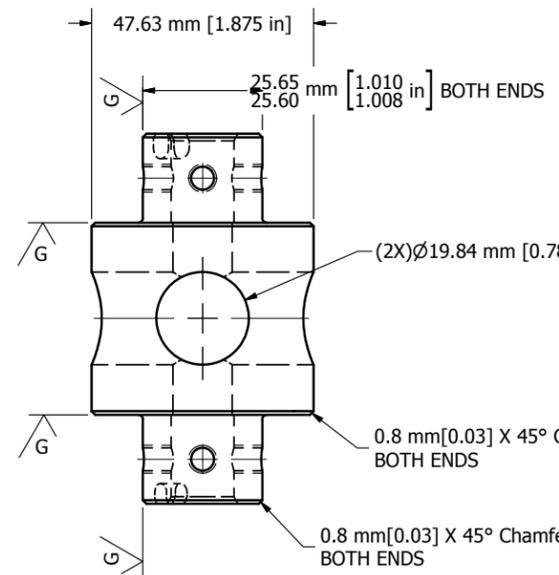
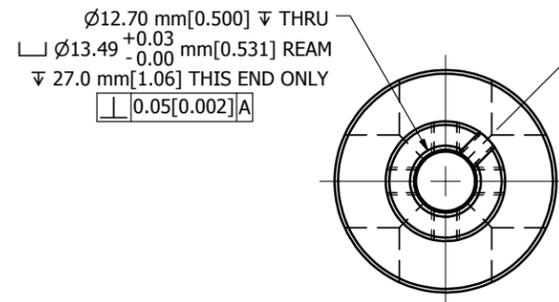
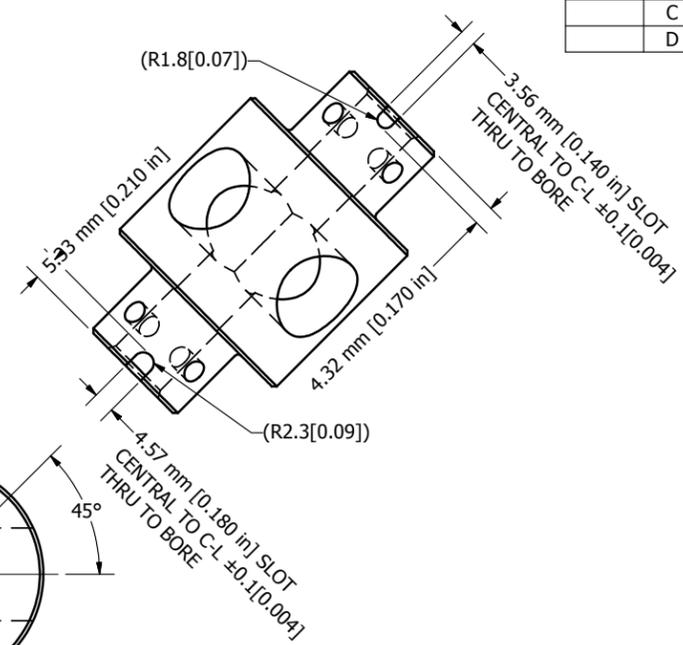
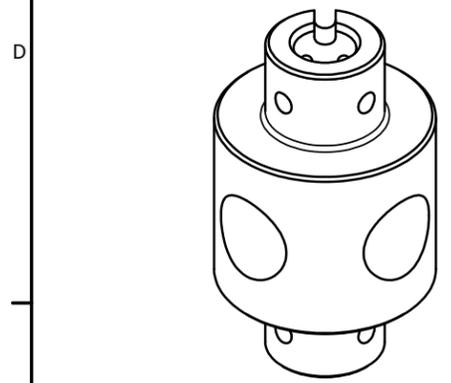


ITEM	QTY	PART NUMBER	DESCRIPTION
14	4	9005217	SHCS M6 X 18 mm
13	2	472-5353	KNEE COVER
12	1	5000037	M8 X 1.25 X 25 LG. SHCS
11	4	5000438	SCREW, BHCS M6-1 X 20mm
10	1	472-5502	KNEE FLESH LEFT/RIGHT (MODIFIED)
9	1	472-5503-2	THIGH FLESH - RIGHT
8	1	472-5420	FEMUR PLUNGER ASSY.
7	1	472-5410	FEMUR BALL ATTACHMENT PLATE ASSY.
6	1	472-5700	KNEE CAP ASSY., RIGHT
5	1	472-5200	FEMUR BUSHING ASSY.
4	8	W50-51062	MOD. BUTON HEAD SHOULDER SCREW
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

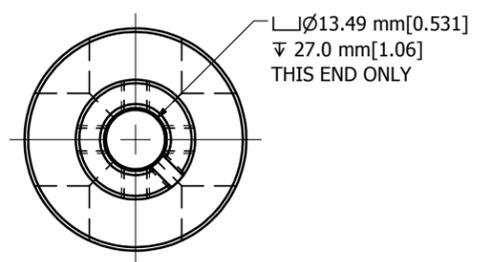
NO TEXT SCALE DRAWING		Partic List	
472-5000-2	1	TKN	8/29/2011
NEXT ASSEMBLY	QTY		
TOTAL QTY IN DRAWING	1	1 NAME	2/14/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 RIGHT UPPER LEG ASSY.
 A11 of 1
 472-5100-2

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



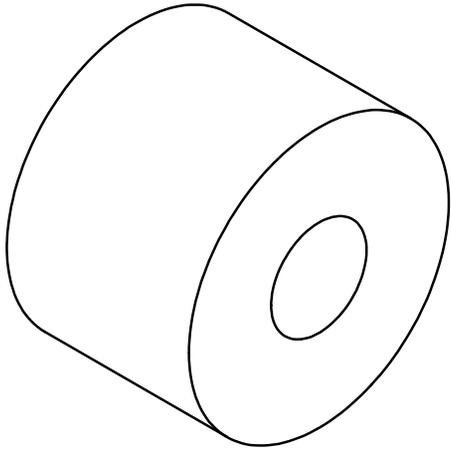
MASS: .467 Kg [1.06 lbs.]

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"

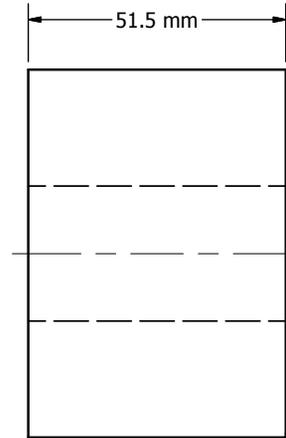
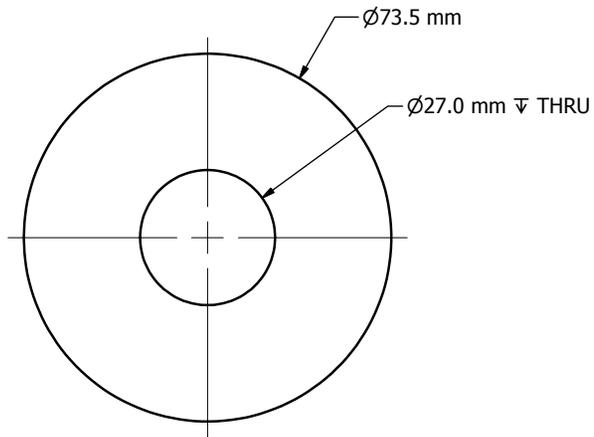
- UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{.16}$ OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS FRACTIONS FINISH XX ±.1 ±.1 125 X.X ±.05 ±.1 125 X.XXX ± 0.005 FRACTIONS 1/64	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION UNIVERSAL LEG L.C. STRUCTURAL REPLACEMENT
PROJECT NO: E00570	DESIGNED BY: BRYAN B	
MATERIAL: 4140 STEEL	CHECKED BY: KSG	DATE: 1/18/2007
FINISH: N/A	DATE: 3/22/2007	SCALE: 1:1
FINISH: .0003 ELECTROLESS NICKEL PLATE	PROJECT NO: W50-51060	REV: D

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

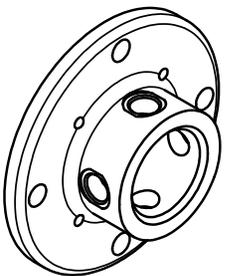


NOTES:

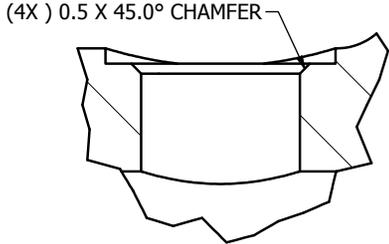
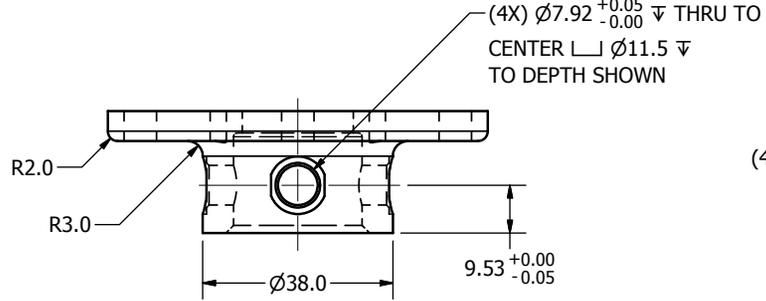
1. MATERIAL: NATURAL RUBBER, 60 ± 5 SHORE "A"
ADJUST DUROMETER TO MEET DYNAMIC PERFORMANCE
2. TOLERANCE ± 0.5 mm ALL DIMENSIONS

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.0 0.5° 1.6 X 0.2 XX 0.3 XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION COMPRESSION ELEMENT-UPPER LEG	
MATERIAL: 472-5100-2	QTY: 1	CHECKED BY: KHS	DATE: 8/17/2011	SIZE: A3	DRAWING NO.: 472-5206
NEXT ASSEMBLY	QTY	HEAT TREAT:	ENGINEER: J. WANG	DATE: 1/26/2012	
TOTAL QTY IN DUMMY	2	FINISH:			

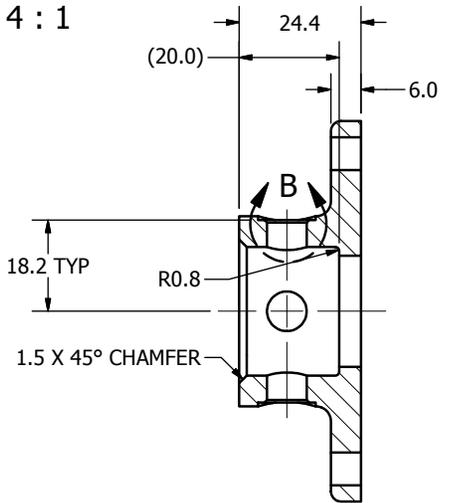
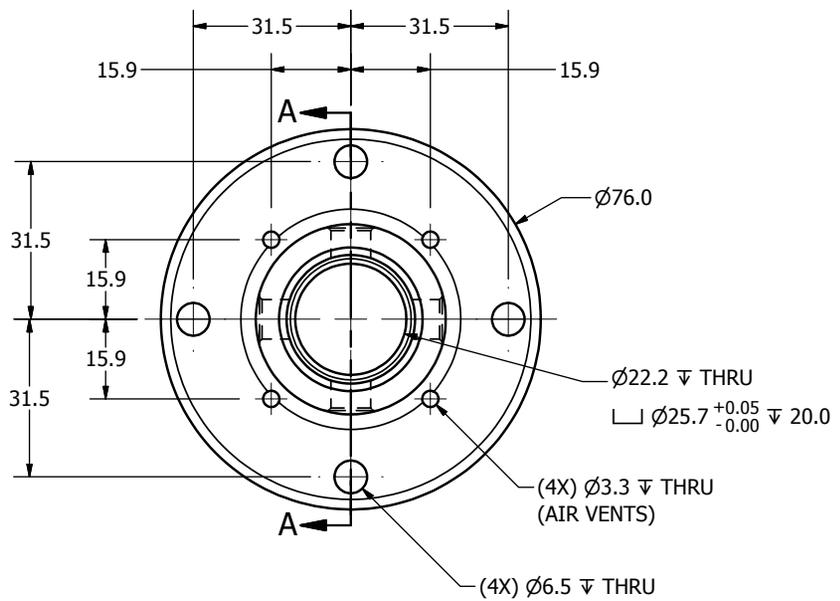
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM203 R0 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



SCALE .750

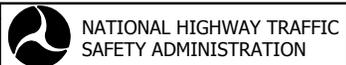


DETAIL B
SCALE 4 : 1



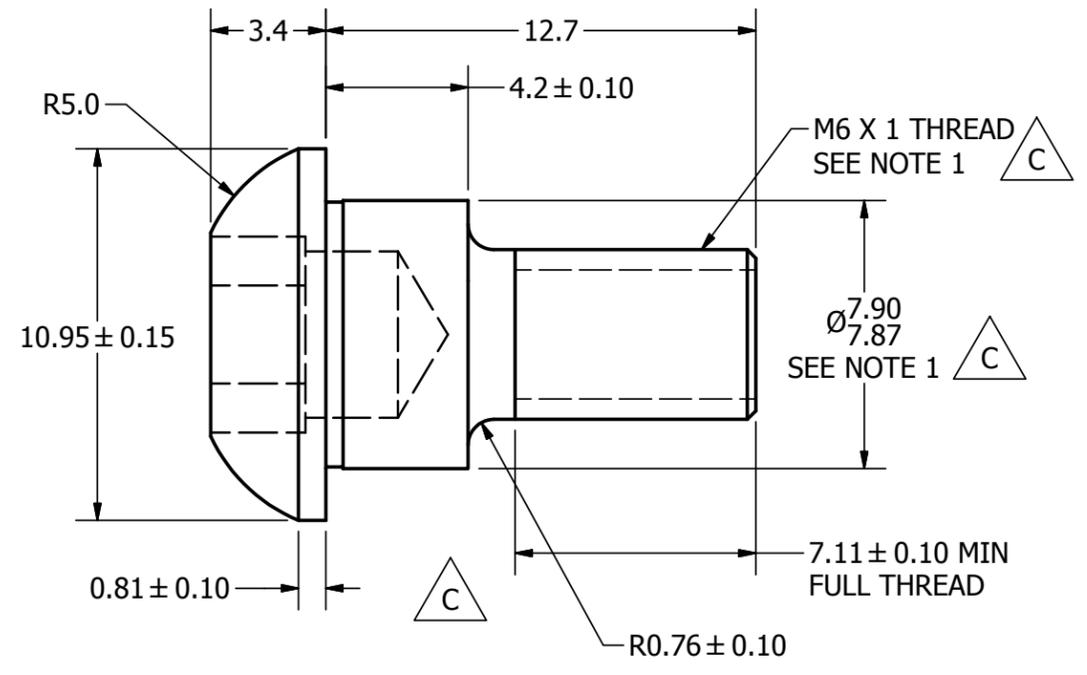
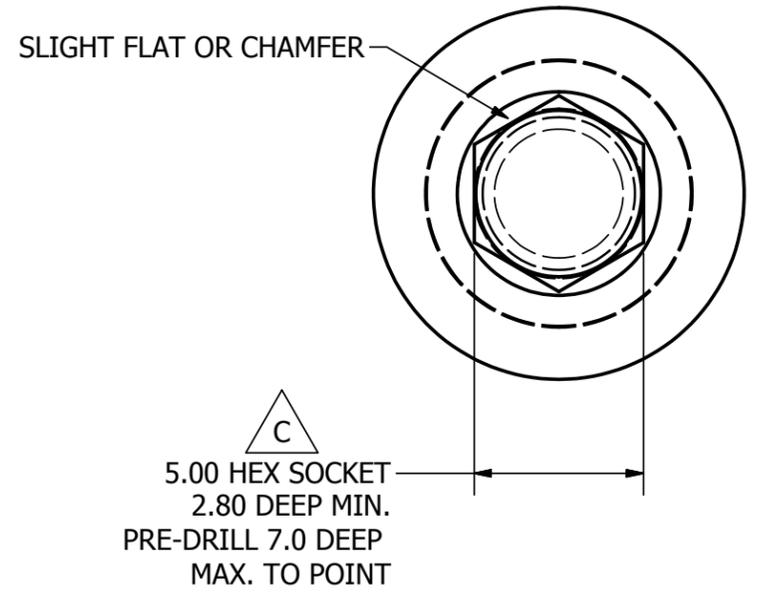
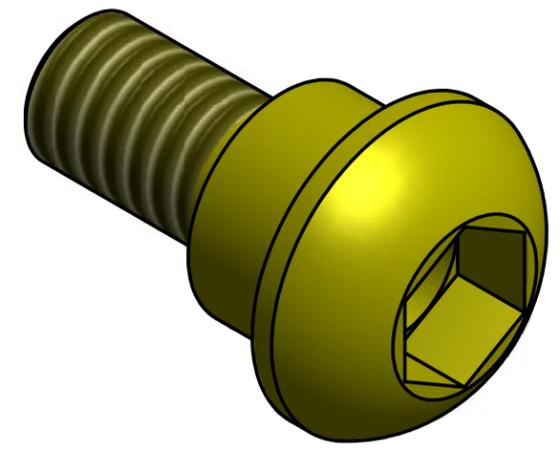
SECTION A-A

DO NOT SCALE DRAWING	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED
	DECIMALS ANGLES FINISH
	X .05 1.6
	X.X .02 1.6
	X.XX .03 1.6
	X.XXX .01 1.6
	REMOVE BURRS & BREAK SHARP EDGES



PROJECT NO.: 472-5100-2	QTY: 1	MATERIAL: Aluminum-7075-T6	DATE: 8/17/2011	SCALE: 1:1	DESCRIPTION: END CAP - FEMUR
HEAT TREAT:	CHECKED BY: TMV	DATE: 9/8/2011	SIZE: A3	SHEET: 1 OF 1	
FINISH: CLEAR ANODIZE	ENGINEER: J. WANG	DATE: 1/26/2012	DRAWING NO.: 472-5203	REV: A	
TOTAL QTY IN DUMMY: 2					

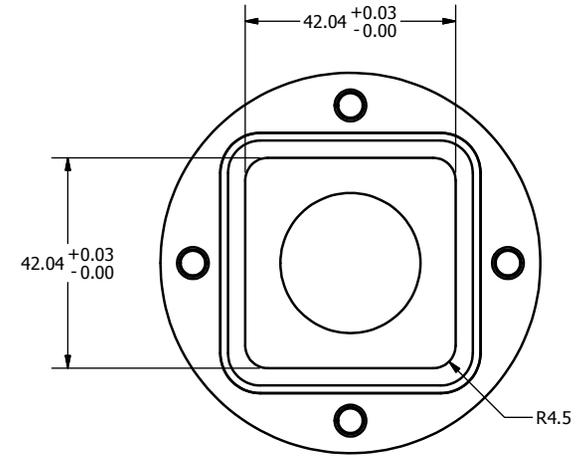
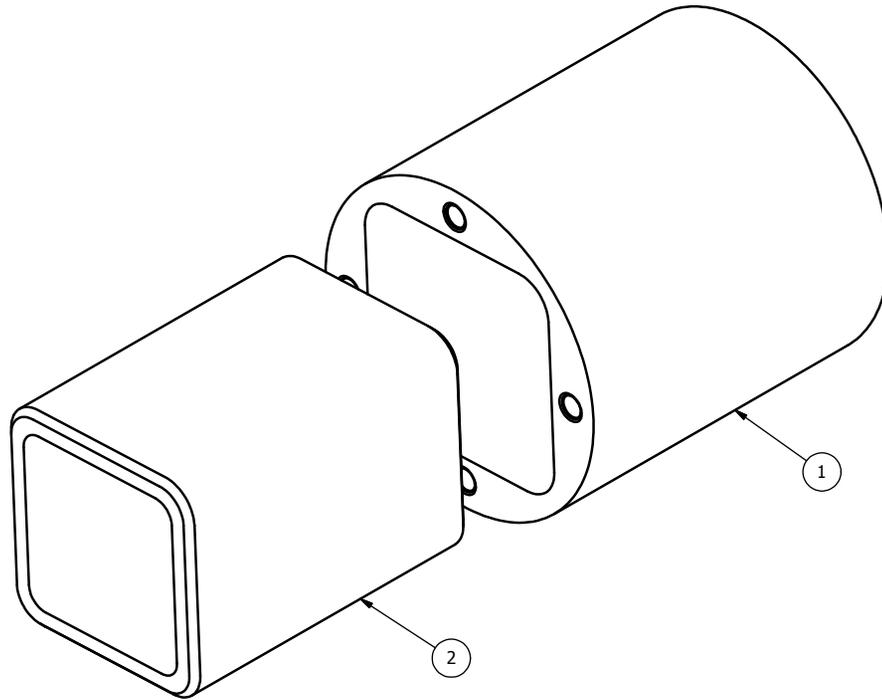
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASE TO PRODUCTION	SP	JWANG	5/24/05
5708	B	CHANGE APPLICATION QTY FROM 16 TO 4	RN		10/31/05
70730	C	REDRAWN IN INVENTOR. .25 RADIUS WAS MIN. UNDERCUT. 2.80 DEEP MIN WAS 3.5 DEEP MIN. ADD REF TO CONCENTRICITY NOTE. REMOVE 'USED ON' TABLE, 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		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.:	MATERIAL:	DRAWN BY:	DATE:	DESCRIPTION:
	4140 STEEL	gbrock	1/14/2013	MODIFIED BHSS M6 THREAD
HEAT TREAT:	FINISH:	CHECKED BY:	DATE:	SIZE: SHEET
Rc 36-42	SEE NOTES			A31 OF 1
		ENGINEER:	DATE:	SCALE: 5 : 1
				DRAWING NO.: W50-61042

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM200 R00 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	JSJ

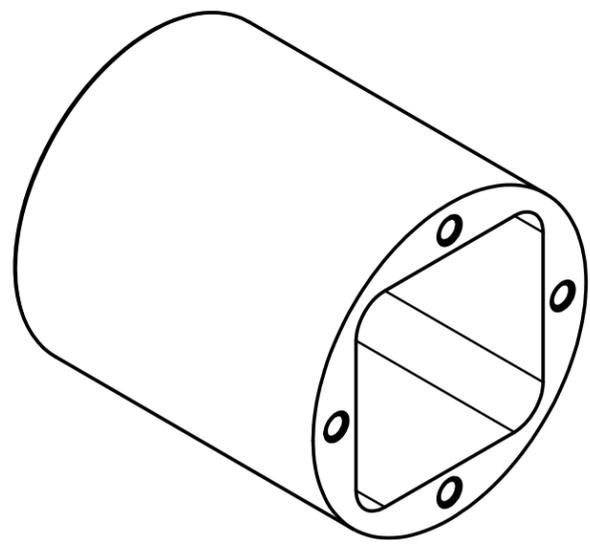


MACHINE AFTER ASSEMBLY

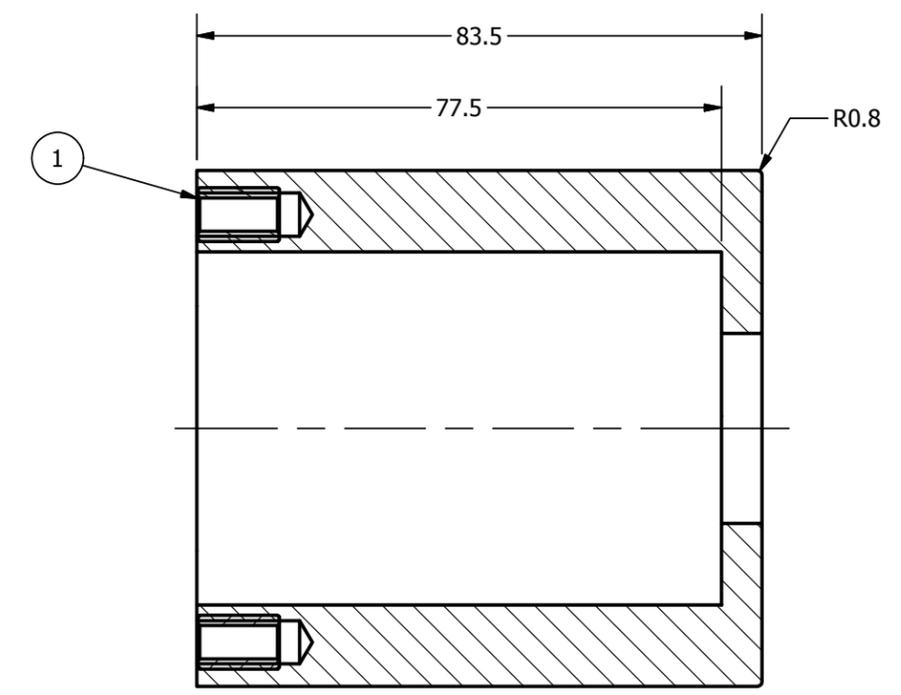
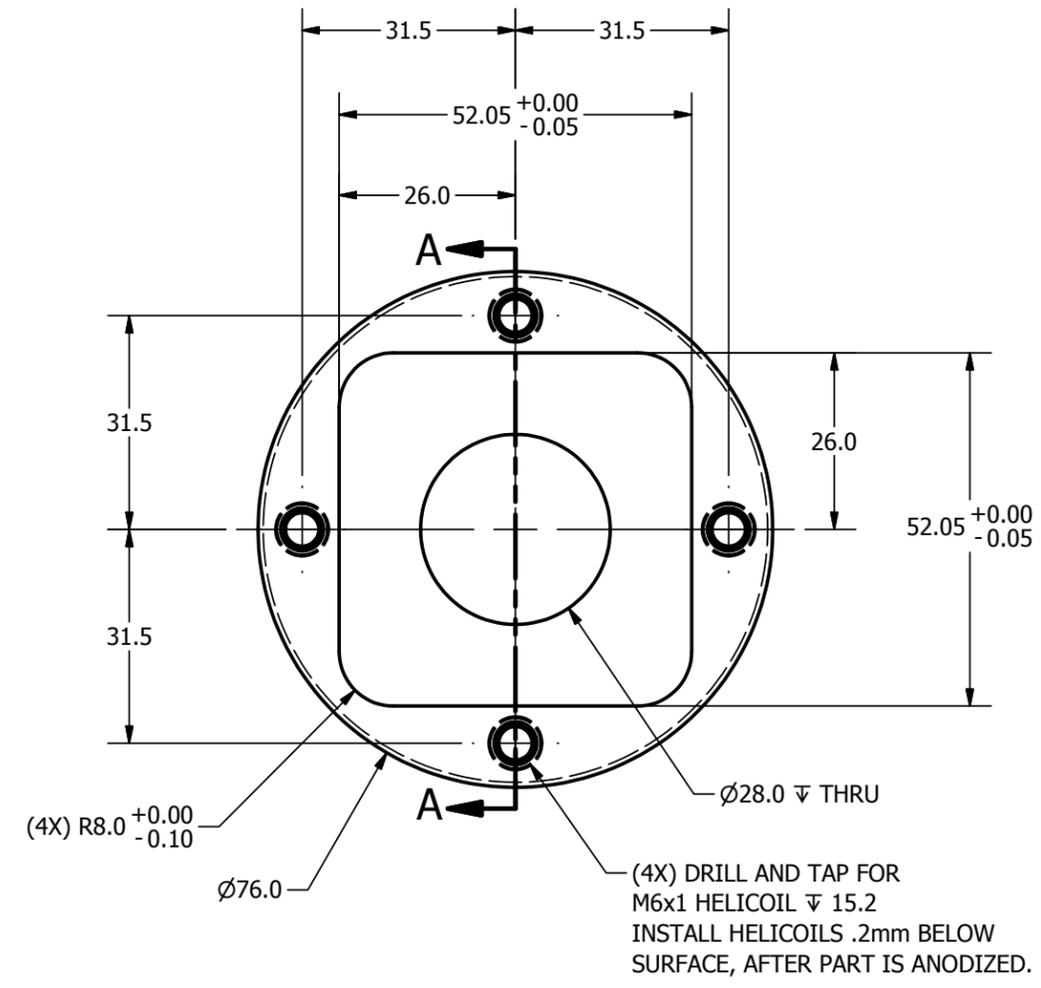
NOTES:
1. BOND ITEM 1 TO ITEM 2 BEFORE FINAL MACHINING.

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		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO:		DATE: 8/17/2011	
MATERIAL:		DRAWN BY: DLW	
NEXT ASSEMBLY QTY:		CHECKED BY: TMV	
TOTAL QTY IN DUMMY: 2		ENGINEER: J. WANG	
		DATE: 9/12/2011	
		DATE: 1/26/2012	
		SCALE: 1:1	
DESCRIPTION: FEMUR BUSHING ASSY.			SIZE: A3
DRAWING NO: 472-5200			SHEET: 1 OF 1
			REV: A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM201 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



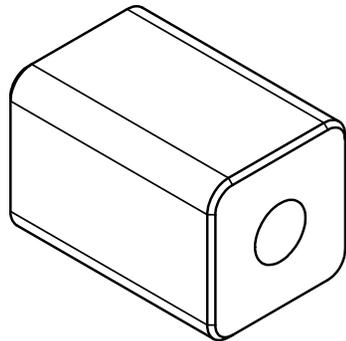
SCALE .750



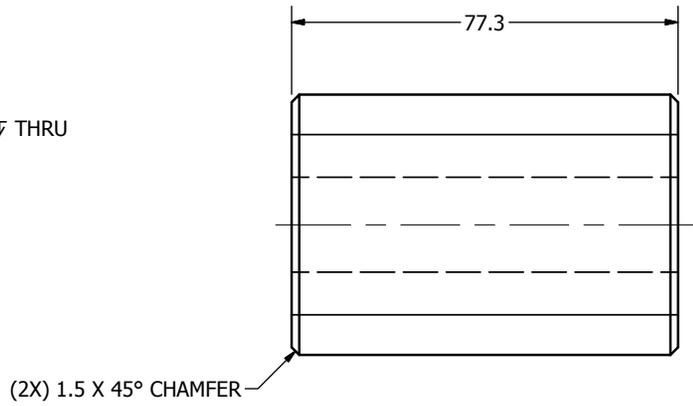
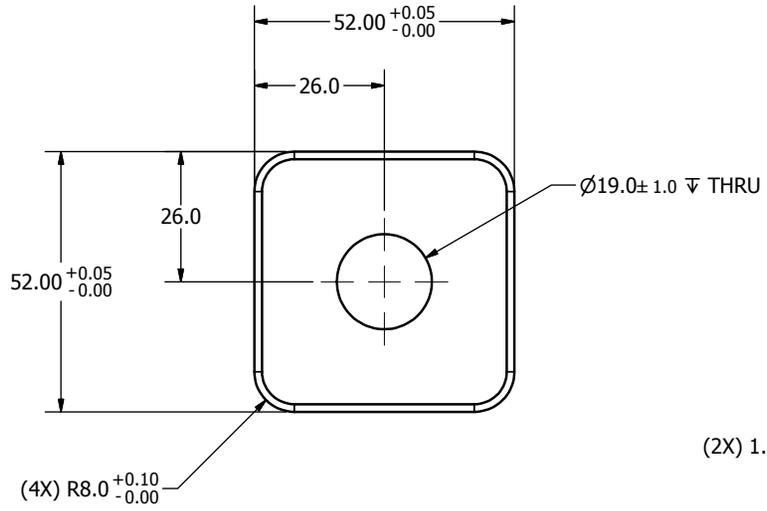
SECTION A-A

4	4	5000422	HELICOIL, M6 X 1 X 12
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 ±0.2 1.6	
		XXX ±0.1 ±0.1 1.6	
		XXXX ±0.01 ±0.01 1.6	
		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:		DRAWN BY:	DATE:
472-5200		1	7075-T6 ALUMINUM
NEXT ASSEMBLY		QTY	TMV
TOTAL QTY IN DUMMY		2	CLEAR ANODIZE
		CHECKED BY:	DATE:
		ENGINEER:	DATE:
		J. WANG	1/26/2012
		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
		DESCRIPTION: FEMUR CUP ASSY.	
		SIZE: A3	SHEET: 1 OF 1
		SCALE: 1:1	DRAWING NO.: 472-5201
			REV: A

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM202 AND CONVERTED TO METRIC FOR THOR-M	8/18/2011	JSJ



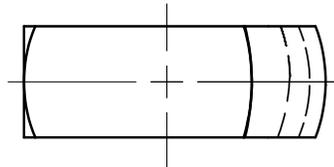
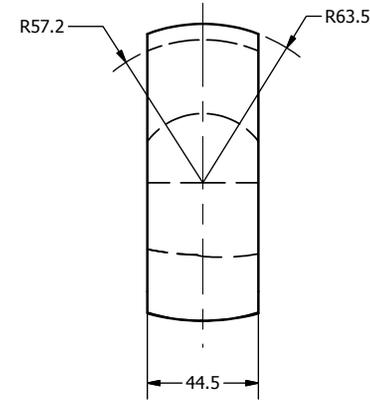
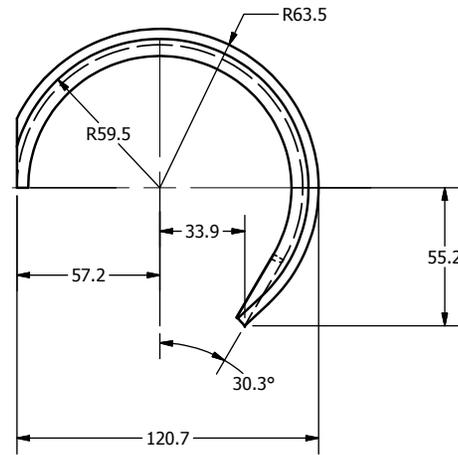
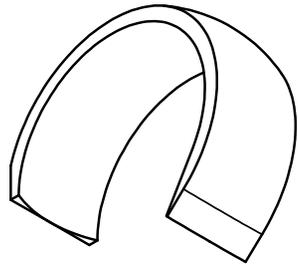
SCALE .750



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 .05 ± 0.5 16 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-5200	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	8/17/2011	CHECKED BY:	KHS	FEMUR BUSHING
DATE:	9/9/2011	ENGINEER:	J. WANG	SIZE: A3
DATE:	1/26/2012	FINISH:		SHEET 1 OF 1
TOTAL QTY IN DUMMY		2		DRAWING NO. 472-5202

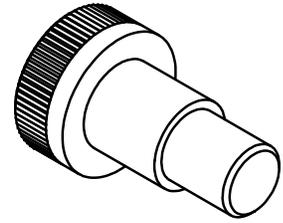
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 78051-27 REV A AND CONVERTED TO METRIC FOR THOR-M	8/29/2011	JSJ



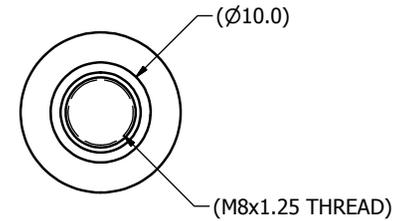
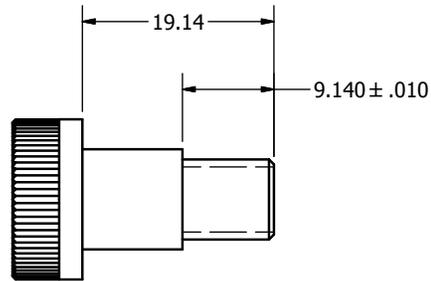
NOTE:

- MATERIAL IS PER SAE J200/ASTM D 2000
 BUTYL 45 DUR.
 4AA725A13 B13K11Z1Z2Z3
 Z1= BUTYL
 Z2= 40 TO 50 DUROMETER
 Z3= KNEE IMPACT TEST

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: KNEE FLESH INSERT-MOLDED	
		DECIMALS ANGLES FINISH X ±0.5 ±0.5° 1.6 XX ±0.2 ±0.5° ✓ XXX ±0.3 ±0.5° XXXX ±0.01			
PROJECT NO:	472-5700	1	DATE:	8/29/2011	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-5301 REV: A
MATERIAL:	472-5300	1	DRAWN BY:	jordan	
HEAT TREAT:	NEXT ASSEMBLY	QTY	CHECKED BY:	TMV	DATE:
FINISH:	TOTAL QTY IN DUMMY	2	ENGINEER:	J. WANG	DATE:
		SCALE:		1:2	



SCALE 2.000



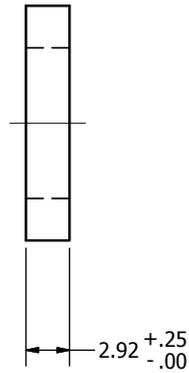
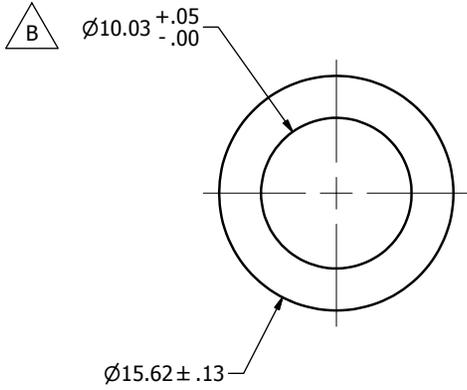
NOTE:

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

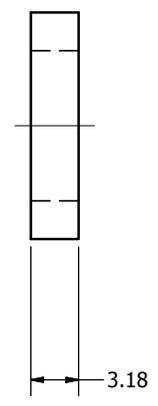
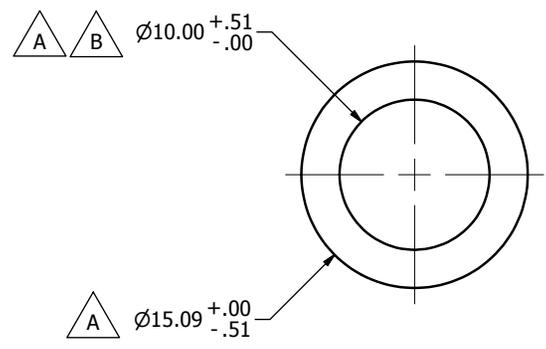
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: BOLT, SHOULDER	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 ± 0.05 1.6 ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓ REMOVE BURRS & BREAK SHARP EDGES			
472-5700	1	PROJECT NO.:	DATE:	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-5302 REV: A	
472-5300	1	MATERIAL: SEE NOTES	8/17/2011		
NEXT ASSEMBLY	QTY	CHECKED BY: TMV	DATE: 9/14/2011	SCALE: 2:1	
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/26/2012		
		ENGINEER: J. WANG	DATE: 1/26/2012		

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



DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION		TOLERANCES		UNLESS OTHERWISE SPECIFIED		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
				DECIMALS	ANGLES	DIMENSIONS ARE IN MILLIMETERS		DESCRIPTION:	
				± 0.1	± 0.5°	REMOVE BURRS & BREAK SHARP EDGES		WASHER, SLIDING KNEE	
				X ± 0.2	✓	DRAWN BY: KSG		DATE: 8/17/2011	
				XX ± 0.3		CHECKED BY:		DATE:	
				XXX ± 0.01		ENGINEER: J. WAMG		DATE: 1/26/2012	
472-5700		1		PROJECT NO.:		SIZE: A3		SHEET: 1 OF 1	
472-5300		1		MATERIAL: 304 Stainless Steel		SCALE: 3.000		DRAWING NO.:	
NEXT ASSEMBLY		QTY		HEAT TREAT:		DRAWING NO.:		472-5303	
TOTAL QTY IN DUMMY		2		FINISH:		DRAWING NO.:		472-5303	

REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 78051-33 REV - AND CONVERTED TO METRIC FOR THOR-M \varnothing 9.53+.51/-.00 WAS \varnothing 10.31, 15.09+.00/-.51 WAS \varnothing 14.28	8/19/2011	JSJ
	B	\varnothing 10.00 WAS \varnothing 9.53	7/19/2012	BK



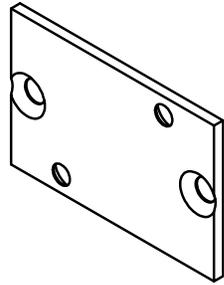
NOTE:

1. DATA SOURCE
MP950
HI-TUFF THERMOSET PRODUCTS

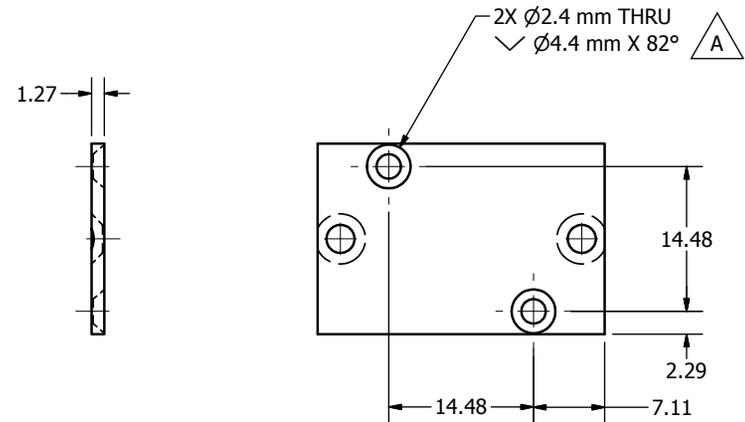
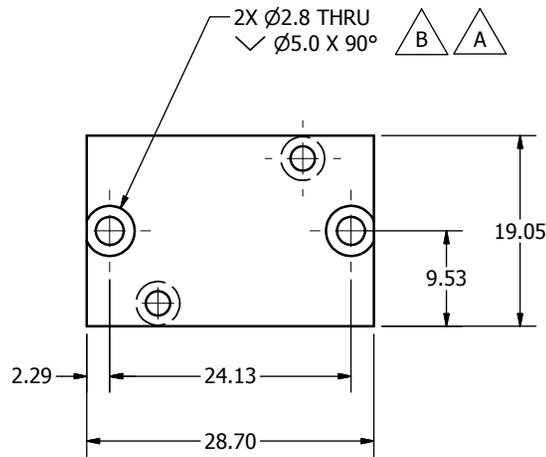
MECHANICAL PROPERTY:

DUROMETER (\pm 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

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 .05 1.6 X.X .02 X.XX .02 X.XXX .01 X.XXX .01		
PROJECT NO:	472-5700	1	DATE:	8/17/2011
MATERIAL:	472-5300	1	SEE NOTES	KSG
HEAT TREAT:	NEXT ASSEMBLY	QTY	CHECKED BY:	J. WANG
FINISH:	TOTAL QTY IN DUMMY	2	DATE:	1/26/2012
DESCRIPTION: WASHER, COMPRESSION				SIZE: A3 SHEET: 1 OF 1 SCALE: 3.000
DRAWING NO: 472-5304				REV: B



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 0.01 ± 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

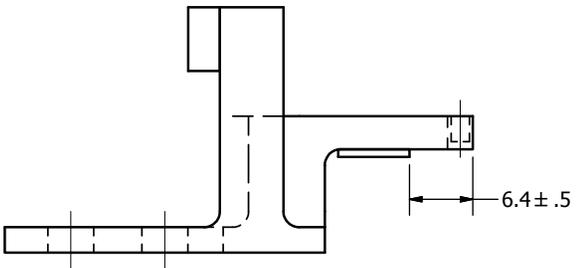
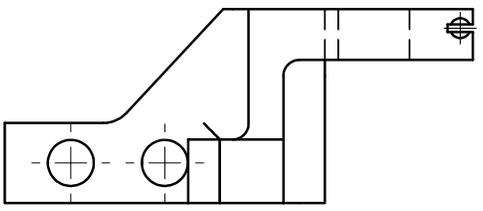
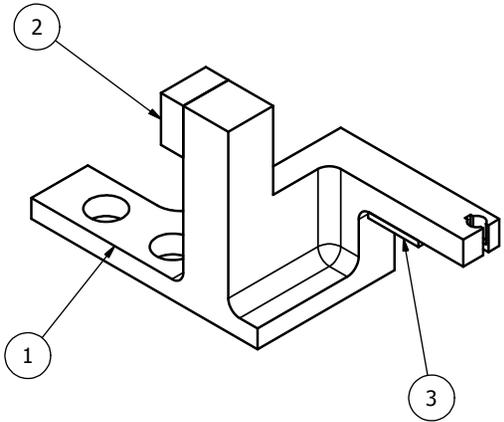
PLATE, MOUNT

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

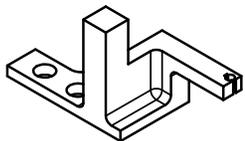
TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DECIMALS ANGLES FINISH
 0.05 ± 0.05 16°
 X.X ± 0.2
 X.XX ± 0.3
 X.XXX ± 0.01

REMOVE BURRS & BREAK SHARP EDGES

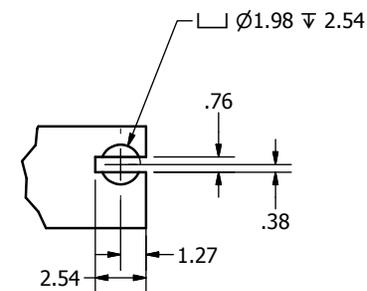
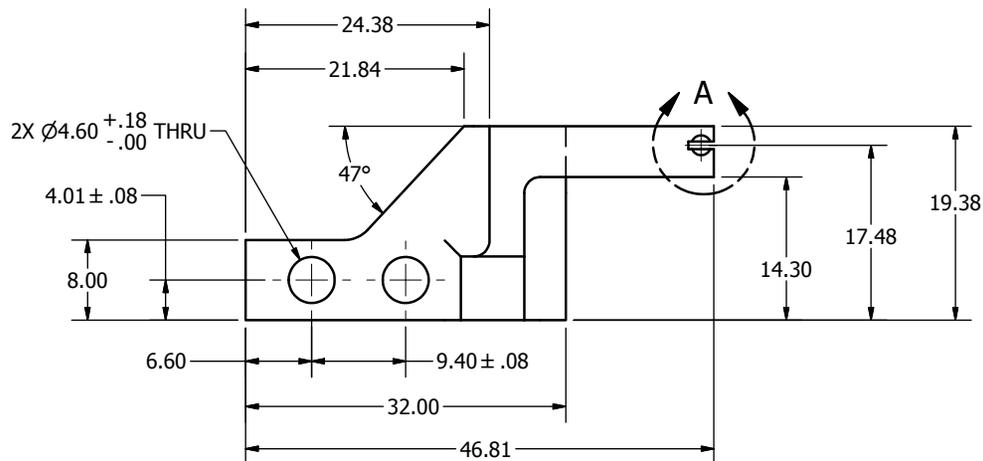
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: ASSEMBLY, POT STRING HOLDER (RIGHT)

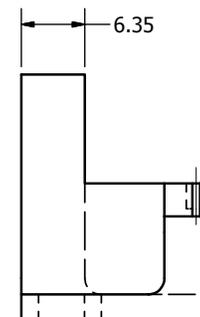
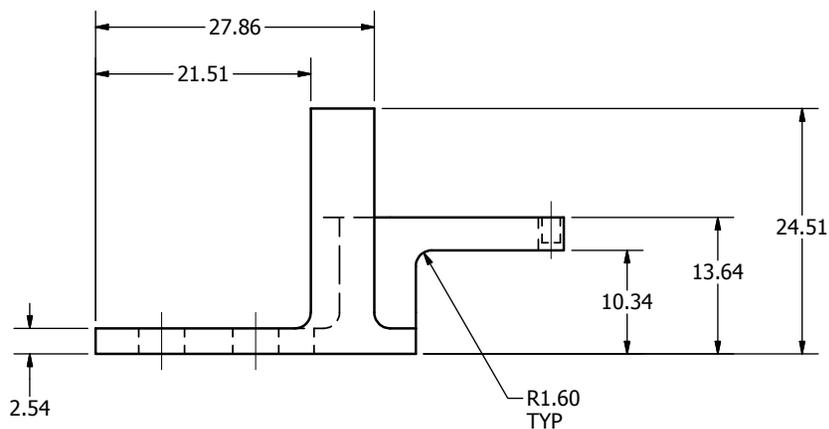
PROJECT NO:	472-5700	QTY:	1	DRAWN BY:	KSG	DATE:	8/17/2011	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-5307	REV.:	A
MATERIAL:		CHECKED BY:	TMV	DATE:	9/18/2011	SCALE:	2:1								
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/27/2012										
TOTAL QTY IN DUMMY:	1														



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
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X .05 1.6
XX .02 1.6
XXX .03 1.6
XXX .01



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

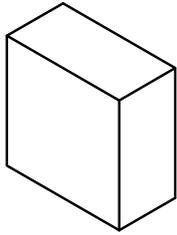
PROJECT NO.: 472-5307	1	MATERIAL: 4140 STEEL	DATE: 8/17/2011	DESCRIPTION: HOLDER, POT STRING (RIGHT)
CHECKED BY: NEXT ASSEMBLY	QTY	HEAT TREAT: RC 42-48	DATE: 9/11/2011	
TOTAL QTY IN DUMMY	1	FINISH: ELECTROLESS NICKEL PLATE .008 MAX	ENGINEER: J. WANG	DATE: 1/28/2012

REMOVE BURRS & BREAK SHARP EDGES

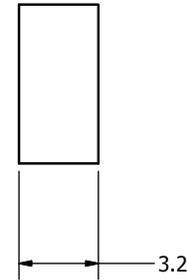
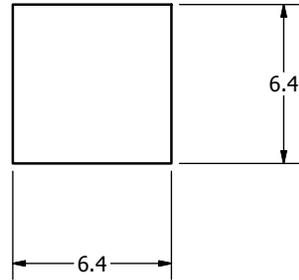
SIZE: A3
SHEET: 1 OF 1
SCALE: 2:1

DRAWING NO.: 472-5737-2

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

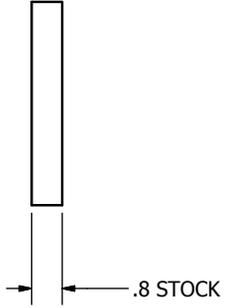
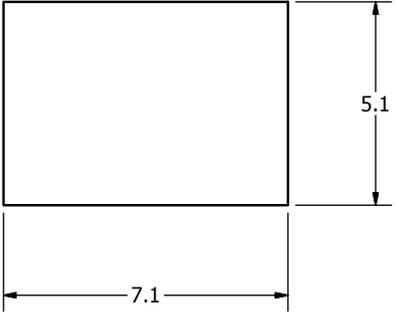
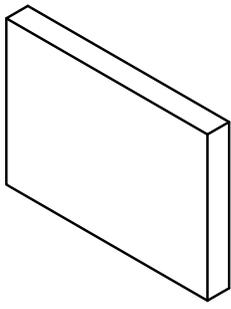


NOTES:

1. MATERIAL: NEOPRENE RUBBER SHORE A 70 ±5.
2. RUBBER DIMENSIONS ±0.5mm, UNLESS OTHERWISE NOTED.

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° ✓ XXX ±0.3 XXXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
472-5307	1	PROJECT NO.:	DATE:	DESCRIPTION: BUMPER, EXTENSION STOP SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-5735 SCALE: 5.000
472-5306	1	MATERIAL: SEE NOTES	8/17/2011	
NEXT ASSEMBLY	QTY	CHECKED BY: TMV	DATE: 9/8/2011	
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/27/2012	REV: A
		ENGINEER: J. WANG		

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

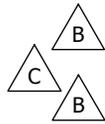
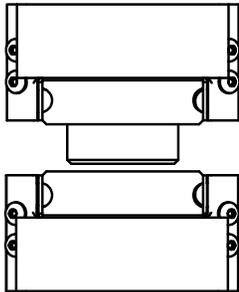
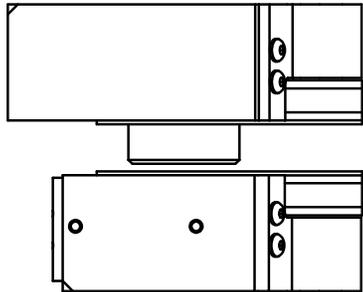
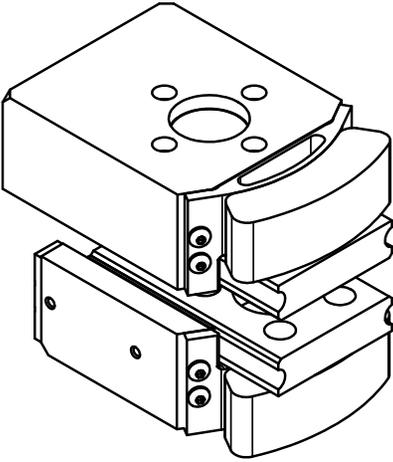
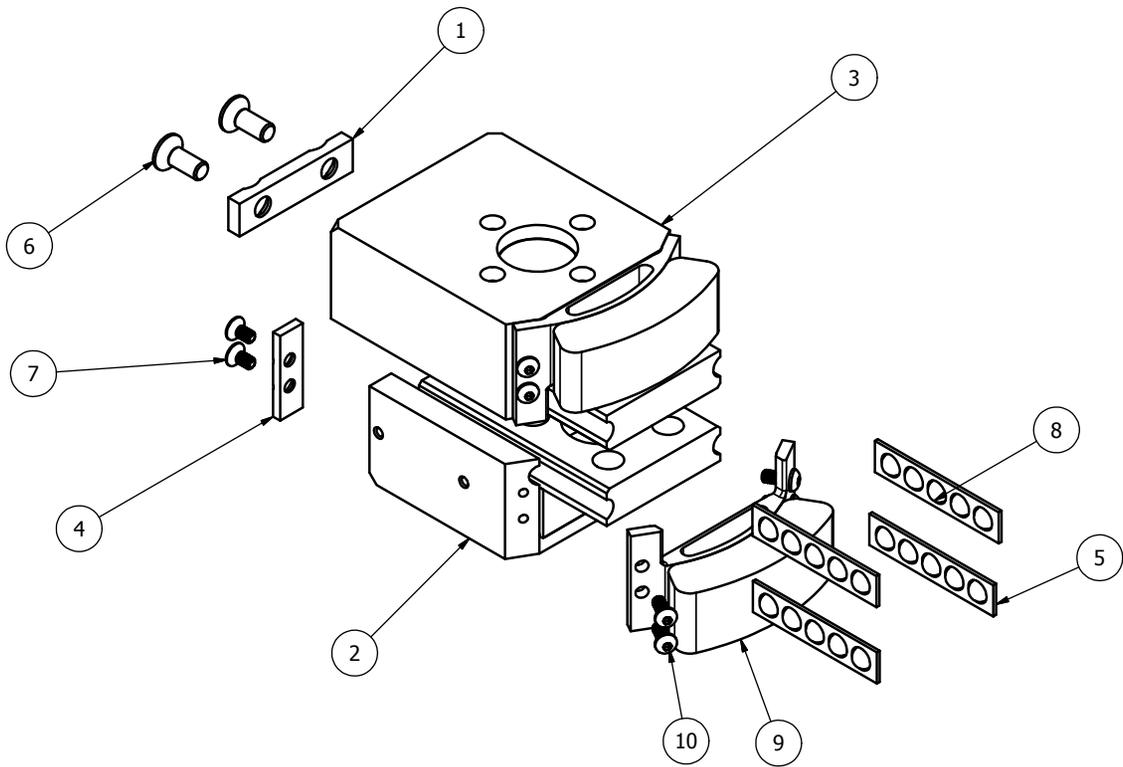


NOTES:

1. MATERIAL: NEOPRENE RUBBER SHORE A 70 ±5.
2. RUBBER DIMENSIONS ±0.5mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH 0.05 16 ✓ X 0.2 ✓ XX 0.3 ✓ XXX 0.01 ✓		
472-5307	1	PROJECT NO.:	DATE:	DESCRIPTION: BUMPER, RETURN STOP
472-5306	1	MATERIAL: SEE NOTES	8/17/2011	
NEXT ASSEMBLY	QTY	CHECKED BY: TMV	DATE: 9/9/2011	
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/27/2012	SIZE: A3 SHEET: 1 OF 1 SCALE: 8:1
		ENGINEER: J. WANG	DATE: 1/27/2012	DRAWING NO.: 472-5736 REV: 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



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
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 S.S. ± 0.1 16 X ± 0.2 XX ± 0.3 XXX ± 0.5 X.XXX ± 0.01
PROJECT NO.: 472-5700	DATE: 8/17/2011
MATERIAL: 472-5300	DESIGNER: HORCHLER
CHECKED BY:	DATE:
HEAT TREAT:	ENGINEER: J. WANG
TOTAL QTY IN DUMMY: 2	DATE: 1/27/2012

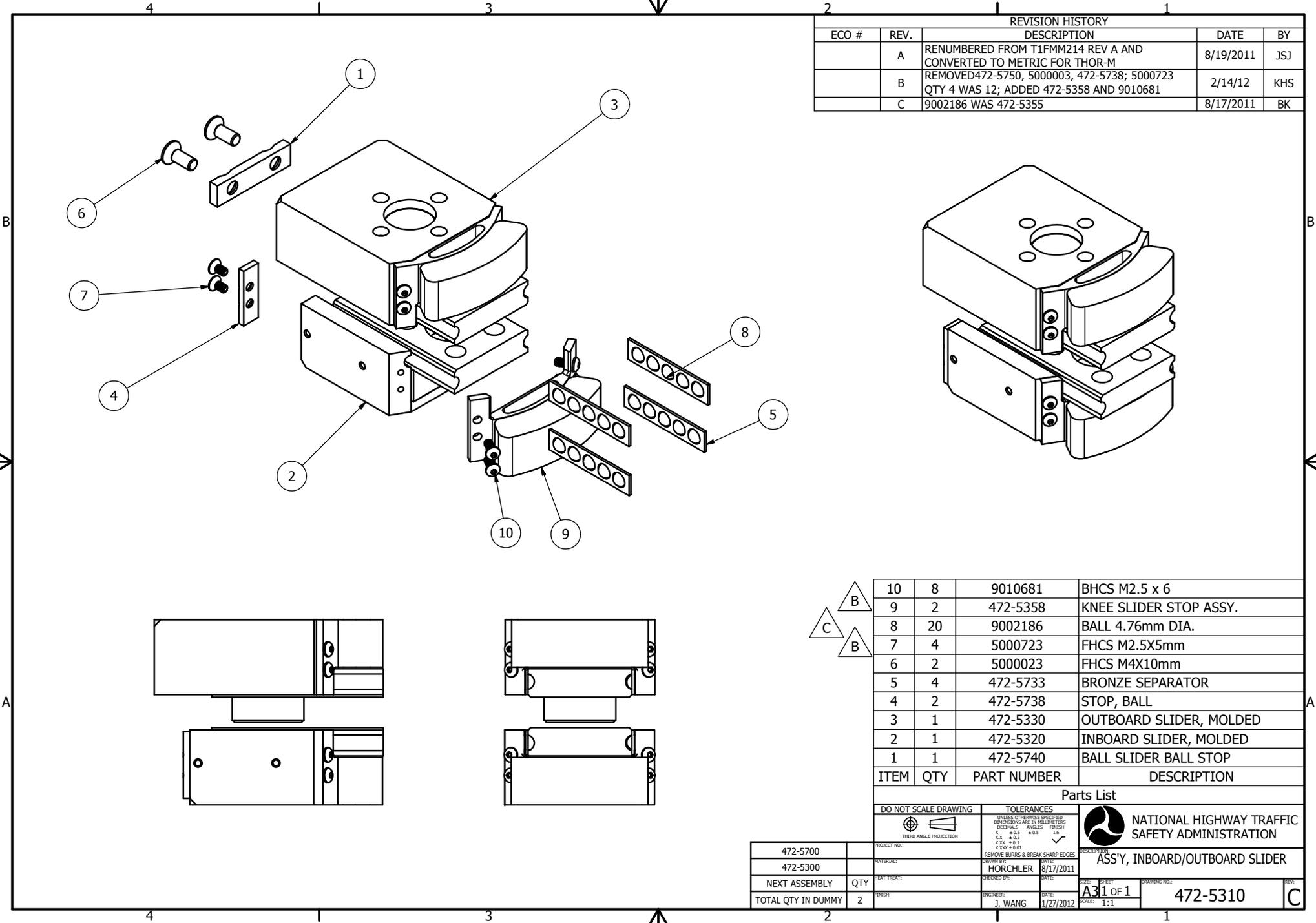
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

ASS'Y, INBOARD/OUTBOARD SLIDER

SIZE: A3
SHEET: 1 OF 1
SCALE: 1:1

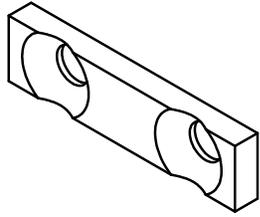
DRAWING NO.: 472-5310

REV: C

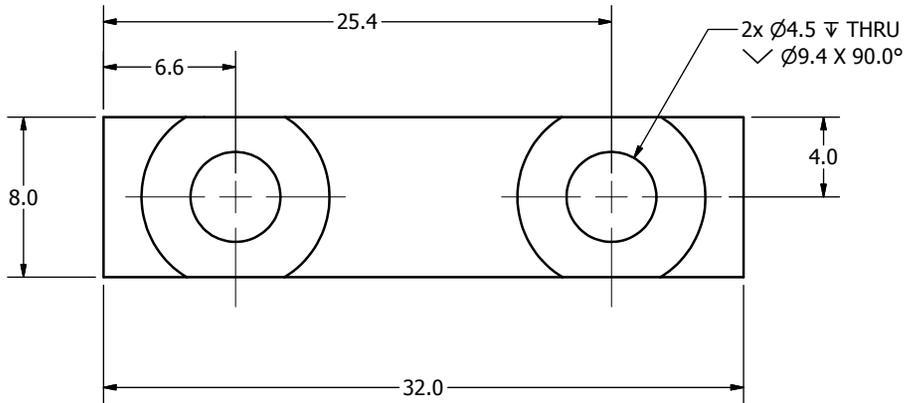
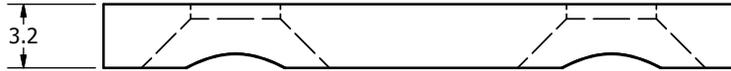


6 5 4 3 2 1

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
THIRD ANGLE PROJECTION

TOLERANCES			
DECIMALS	ANGLES	FINISH	
±0.5	±0.5°	1.6	
±0.2			✓
±0.3			
±0.01			

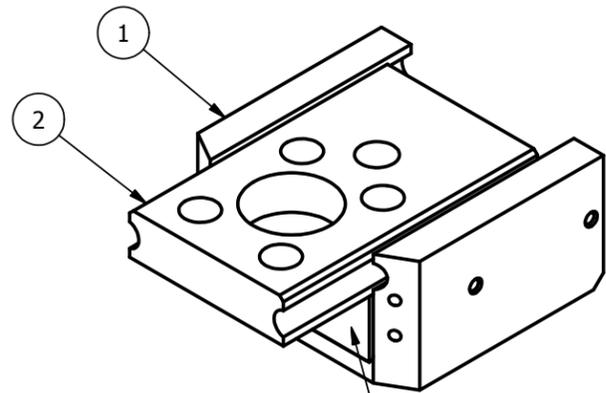


NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

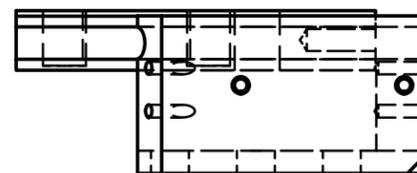
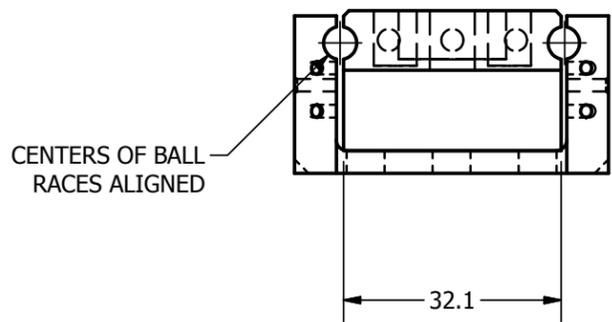
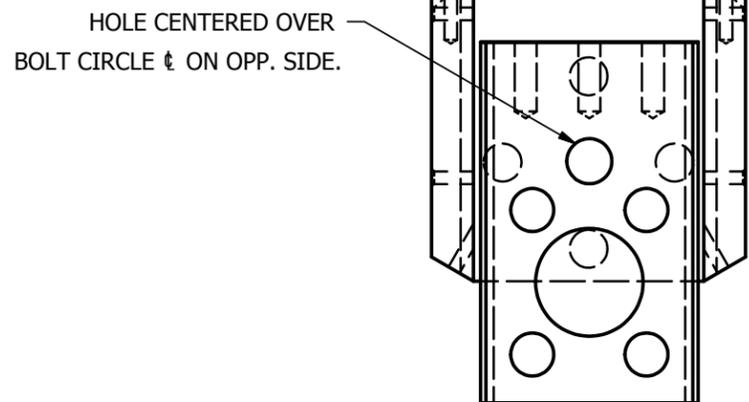
PROJECT NO.: 472-5310	1	MATERIAL: 1095 STEEL	DATE: 8/17/2011	REMOVE BURRS & BREAK SHARP EDGES DRAWN BY: HORCHLER CHECKED BY: TMV ENGINEER: J. WANG	DESCRIPTION: BALL SLIDER BALL STOP SIZE: A3 SHEET: 1 OF 1 SCALE: 4:1	DRAWING NO.: 472-5740	REV.: A
NEXT ASSEMBLY	QTY	HEAT TREAT: Rc 44-48	DATE: 4/23/2010				
TOTAL QTY IN DUMMY	2	FINISH: ELECTROLESS NICKEL .008 MAX	DATE: 1/28/2012				

6 5 4 3 2 1

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM212 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



SEE NOTES 1 & 2



- NOTES:
 1. RUBBER DUROMETER OF 30±5 SHORE "A"
 2. ADJUST DUROMETER FOR DYNAMIC PERFORMANCE.

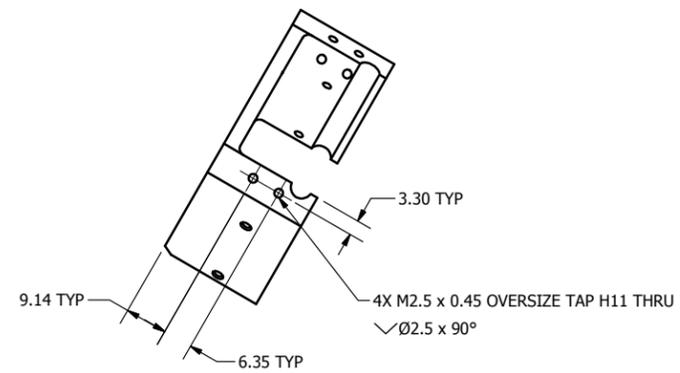
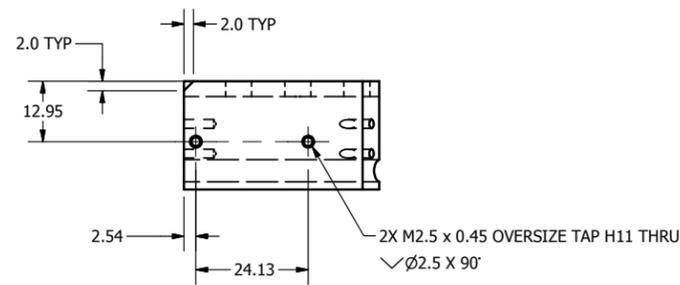
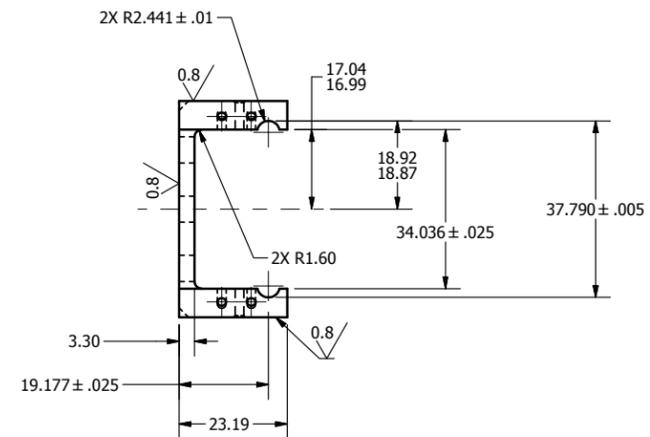
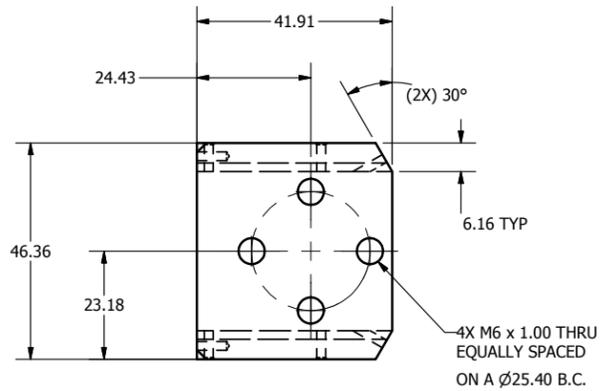
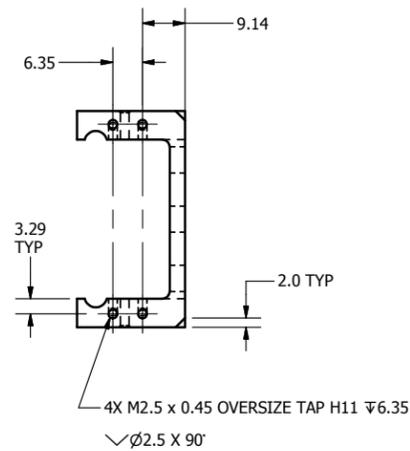
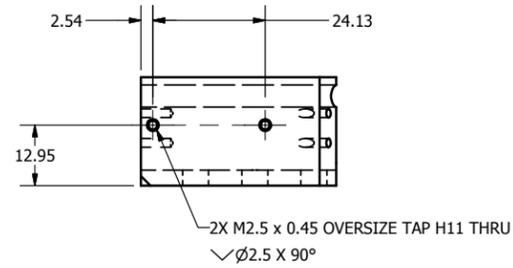
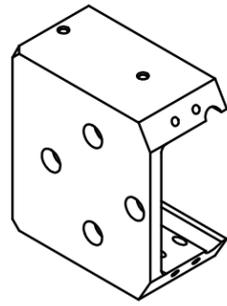
ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-5322	RACE, INNER
1	1	472-5321	RACE, OUTER

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 X.XX ±0.1 X.XXX ±0.01		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: INBOARD SLIDER, MOLDED
DRAWN BY: HORCHLER		DATE: 8/17/2011		SIZE: A3
CHECKED BY: TMV		DATE: 9/19/2011		SHEET 1 OF 1
ENGINEER: J. WANG		DATE: 1/27/2012		DRAWING NO.: 472-5320
SCALE: 1:1				REV: A

472-5310	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

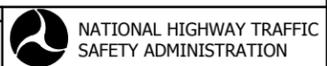
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1639 REV D AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	ADD HEAT TREAT NOTE; ↓ 6.35 WAS THRU	4/12/2012	BK



- NOTES:
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

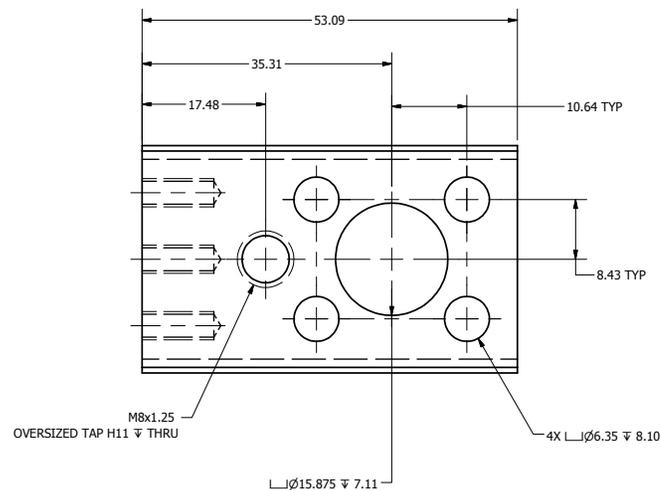
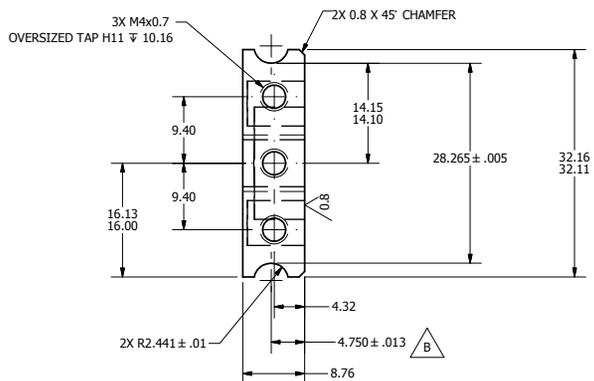
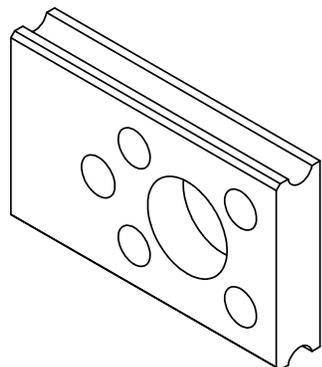
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMAL FRACTIONS FRACTIONS



PROJECT NO:	472-5320	DATE:	8/17/2011
MATERIAL:	4140 STEEL	DRAWN BY:	KSG
REVISION:	SEE NOTES	CHECKED BY:	
TOTAL QTY IN DUMMY:	2	ENGINEER:	J. WANG
		DATE:	1/27/2012
		SCALE:	1:1

RACE, OUTER
C 1 OF 1
472-5321

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:

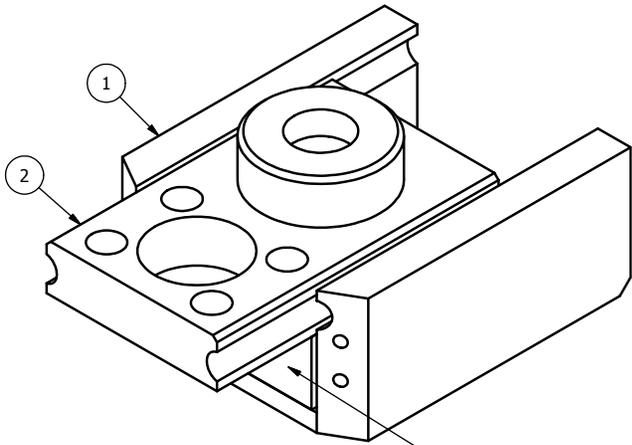
1. HEAT TREAT:

- 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



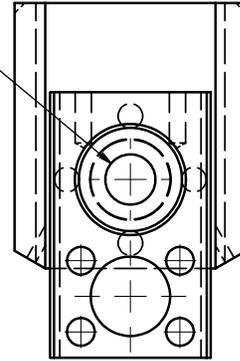
DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DRAWN BY: RACE, INNER	
FRACTIONS SHALL BE IN DECIMALS		FRACTIONS SHALL BE IN DECIMALS		DATE: 8/17/2011	
SHOW HIDDEN & BREAK SHARP EDGES		SHOW HIDDEN & BREAK SHARP EDGES		PROJECT: 472-5322	
472-5320	1	4140 STEEL	KSG	8/17/2011	RACE, INNER
NEXT ASSEMBLY	QTY	SEE NOTES	PREPARED BY:	DATE:	APPROVED BY:
TOTAL QTY IN DUMMY	2		J. WANG	1/27/2012	A21 of 1
				2:11	472-5322

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
		RENUMBERED FROM T1FMM213 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

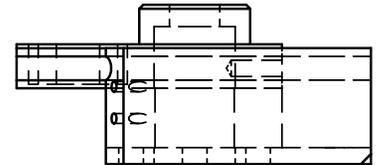
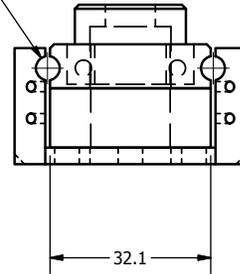


SCALE 1.500

HOLE CENTERS OF
INNER/OUTER RACES
ALIGNED



CENTER OF BALL
RACES ALIGN

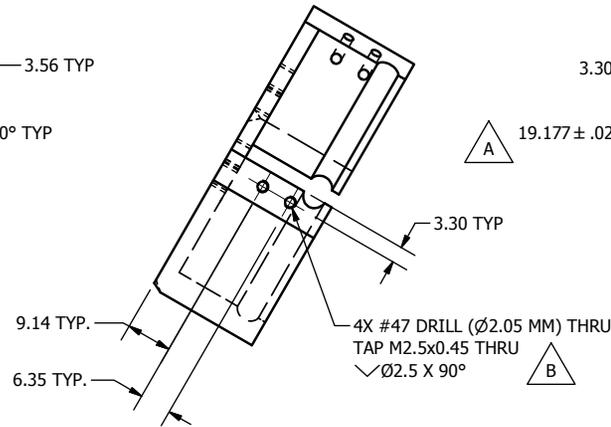
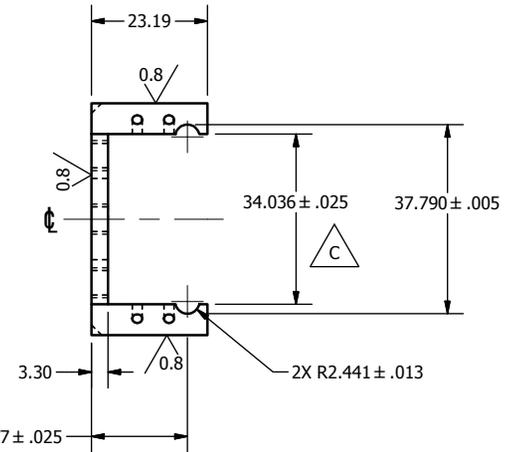
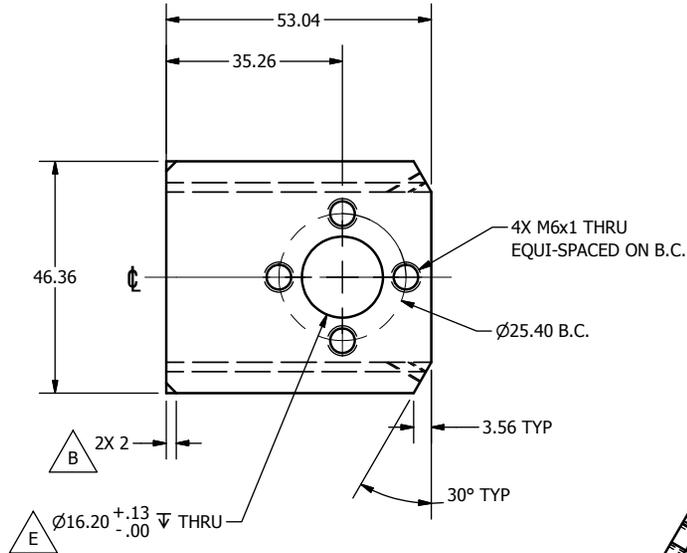
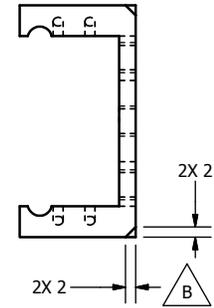
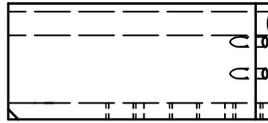
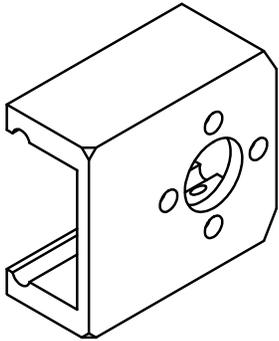


- NOTES:
 1. RUBBER DUROMETER OF 30±5 SHORE "A"
 2. ADJUST DUROMETER FOR DYNAMIC PERFORMANCE.

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		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.:	MATERIAL:	DRAWN BY:	DATE:	DESCRIPTION:
472-5310		HORCHLER	8/17/2011	OUTBOARD SLIDER, MOLDED
CHECKED BY:	HEAT TREAT:	ENGINEER:	DATE:	SIZE: SHEET
TMV		J. WANG	9/20/2011	A31 OF 1
TOTAL QTY IN DUMMY	QTY	FINISH:	SCALE:	DRAWING NO.:
2	2		1:1	472-5330

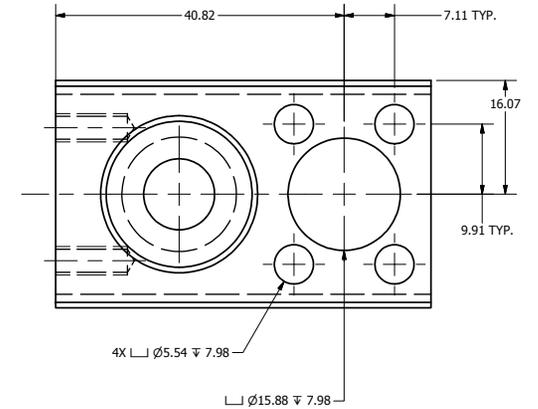
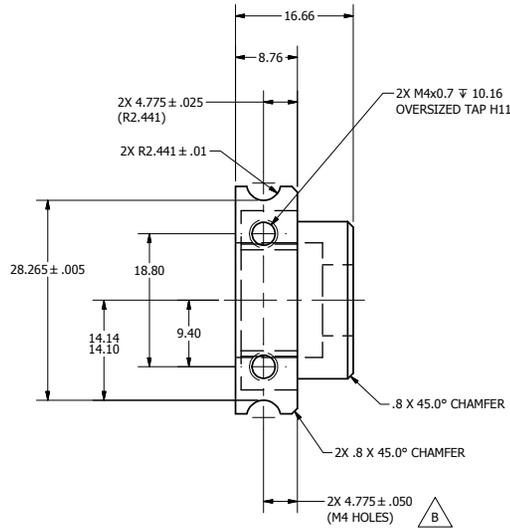
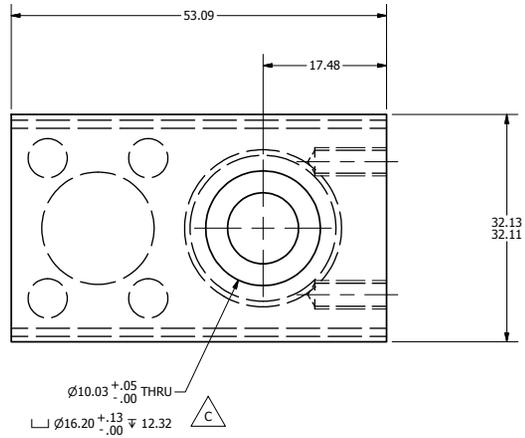
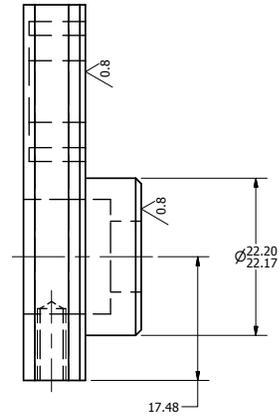
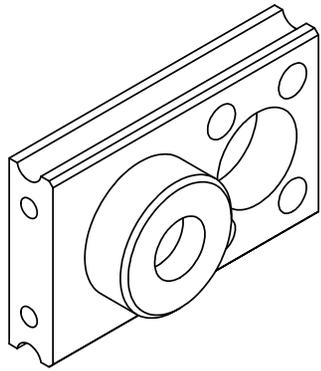


- NOTES:
- △ C 1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
 - △ D 2. HEAT TREAT:
 - MASK ENTIRE PART EXCEPT THE PATHWAYS
 - CARBURIZE PART @ 1700°F FOR 6 HOURS
 - FURNACE COOL, DO NOT QUENCH
 - REHARDEN @ 1520°F AND OIL QUENCH
 - TEMPER @ 350°F FOR 2 HOURS
 - SURFACE HARDNESS IN PATHWAYS SHOULD BE Rc 60-65

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

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED		
PROJECT NO.: 472-5330		MATERIAL: 4140 STEEL		DESCRIPTION: RACE, OUTER
QTY: 1		FINISH: SEE NOTES		
TOTAL QTY IN DUMMY: 2		DATE: 8/17/2011		SCALE: 1:1
CHECKED BY: J. WANG		DATE: 2/1/2012		SIZE: A31 OF 1
DRAWING NO.: 472-5331		REV: E		

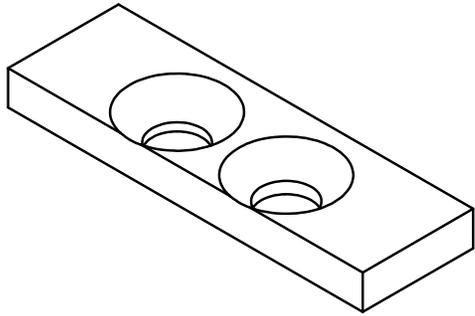
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1643 REV F AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
	B	ADD HEAT TREAT NOTE; ADD 2X 4.775+/- .050	4/12/2012	BK
	C	Ø10.03+ .05/-0 C'BORE Ø16.2+ .13/-0 12.32 DEEP WAS Ø9.550+ .050/-0 C'BORE Ø15.875+ .127/-0 12.319+/- .127 DEEP	7/19/2012	BK



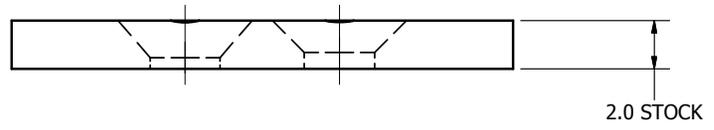
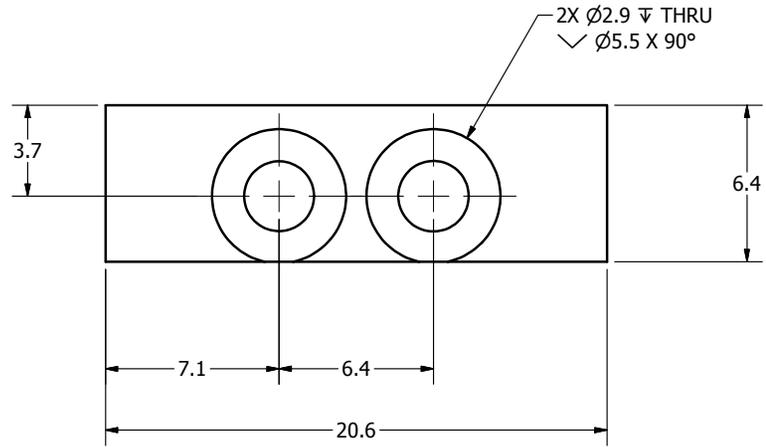
NOTES:

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

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS		OUTBOARD SLIDER, INNER RACE	
DRAWN BY: KSG		DATE: 8/17/2011		DRAWN BY: J. WANG	
CHECKED BY: J. WANG		DATE: 12/27/2012		DATE: 12/27/2012	
PART NO: 472-5330		QTY: 1		TOTAL QTY IN DUMMY: 2	
NEXT ASSEMBLY: SEE NOTES		MATERIAL: 4140 STEEL		REV: 2:1	
TOTAL QTY IN DUMMY: 2		DATE: 12/27/2012		PART NO: 472-5330	



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	TOLERANCES
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS
	DIMENSIONAL FINISH
	DECIMALS ANGLES FINISH
	X .02 0.5 1.6
	X.X 0.1 0.2
	X.XX 0.05 0.1
	X.XXX 0.025 0.05
	REMOVE BURRS & BREAK SHARP EDGES
PROJECT NO:	DRAWN BY:
472-5310	KSG
6	DATE:
C1075 ANNEALED	8/17/2011
CHECKED BY:	DATE:
TMV	9/12/2011
ENGINEER:	DATE:
J. WANG	1/28/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: STOP, BALL

SIZE: B

SHEET: 1 of 1

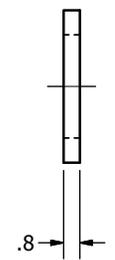
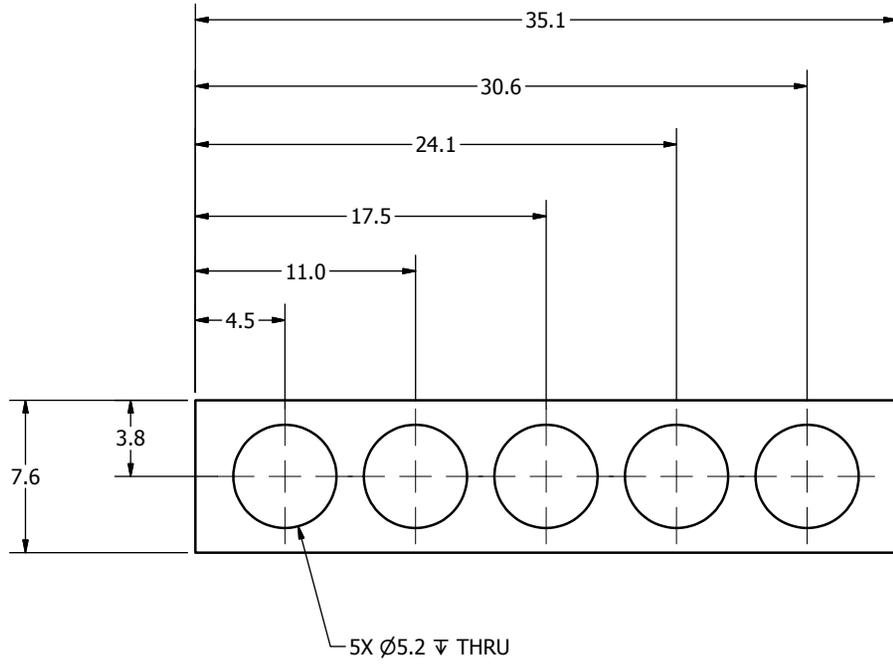
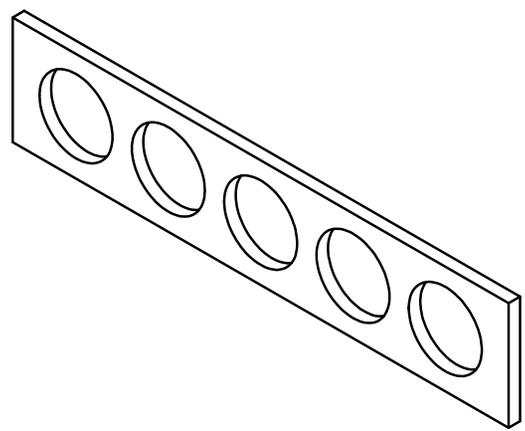
DRAWING NO.: 472-5738

SCALE: 4:1

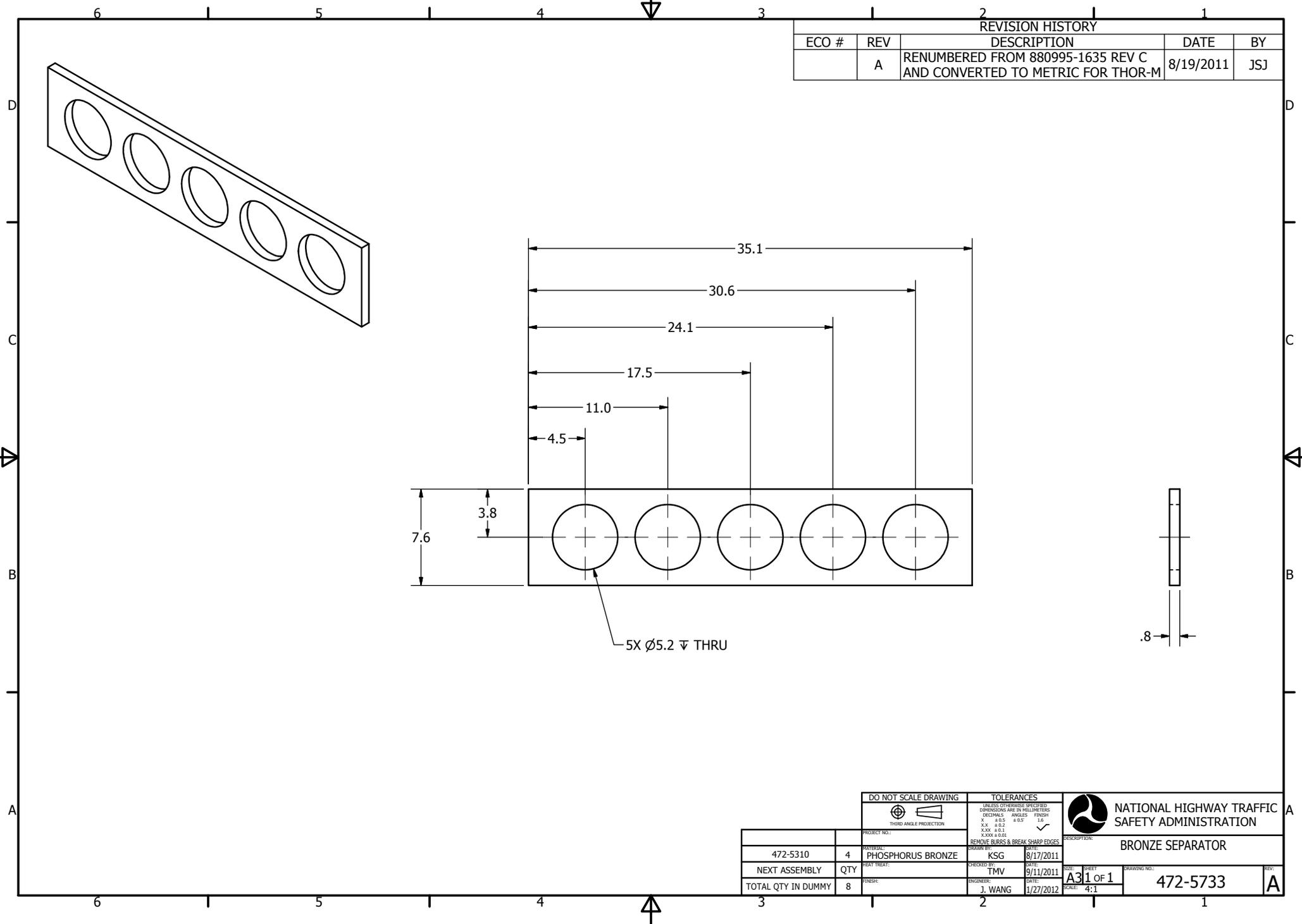
REV: A

PROJECT NO:	472-5310
QTY:	6
NEXT ASSEMBLY:	QTY
TOTAL QTY IN DUMMY:	12
MATERIAL:	C1075 ANNEALED
FINISH:	.008 ELECTROLESS NICKEL

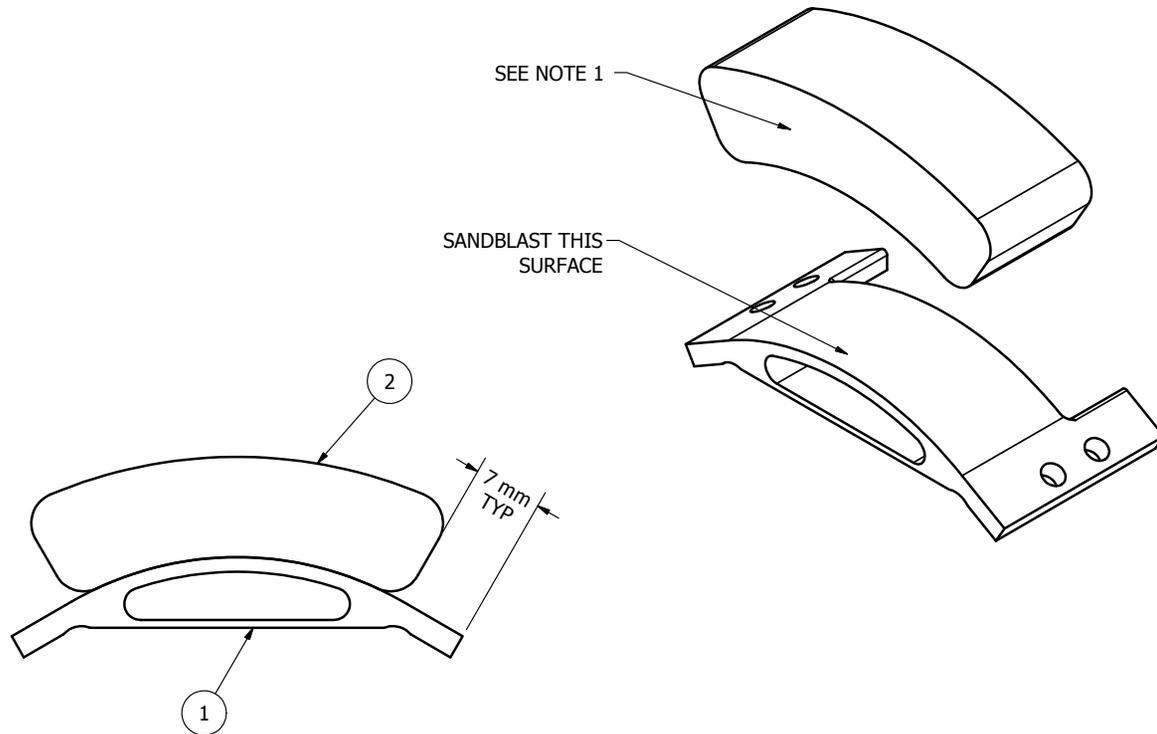
REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 880995-1635 REV C AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



DO NOT SCALE DRAWING		TOLERANCES		 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 0.05 1.6</small> <small>0.1 0.2</small> <small>0.3</small> <small>0.01</small>		
PROJECT NO.: 472-5310	REV: 4	MATERIAL: PHOSPHORUS BRONZE	DATE: 8/17/2011	<small>DESCRIPTION:</small> BRONZE SEPARATOR
NEXT ASSEMBLY	QTY: 8	CHECKED BY: TMV	DATE: 9/11/2011	
TOTAL QTY IN DUMMY	8	ENGINEER: J. WANG	DATE: 1/27/2012	
			<small>SIZE: A3</small> <small>SHEET: 1 OF 1</small> <small>SCALE: 4:1</small>	<small>DRAWING NO.:</small> 472-5733



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.X 0.0 0.0 1.6 X.XX 0.01 X.XXX 0.001		
PROJECT NO.		DRAWN BY: KHS		DATE: 1/12/2012
MATERIAL:		CHECKED BY:		DATE:
HEAT TREAT:		ENGINEER: J. WANG		DATE: 1/23/2012
FINISH:		SCALE: 2:1		DESCRIPTION: KNEE SLIDER STOP ASSY.
TOTAL QTY IN DUMMY		SIZE: B		SHEET: 1 OF 1
		DRAWING NO.: 472-5358		REV: A

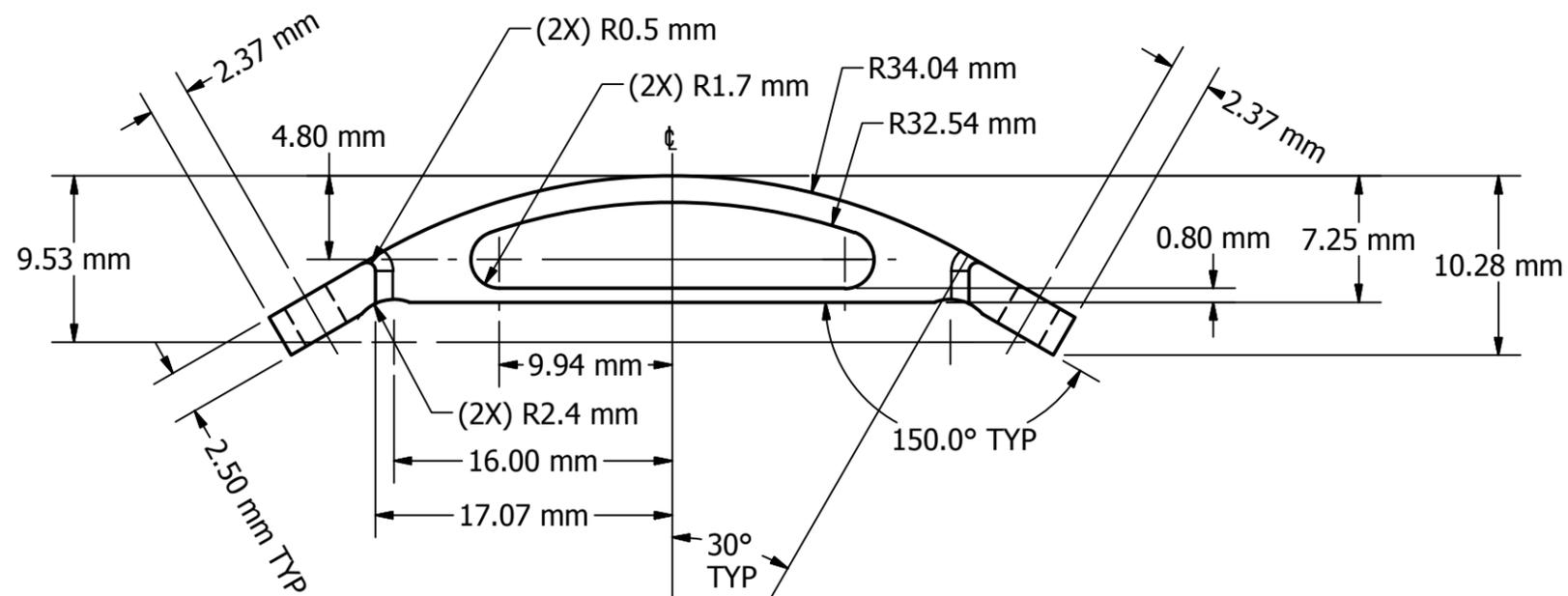
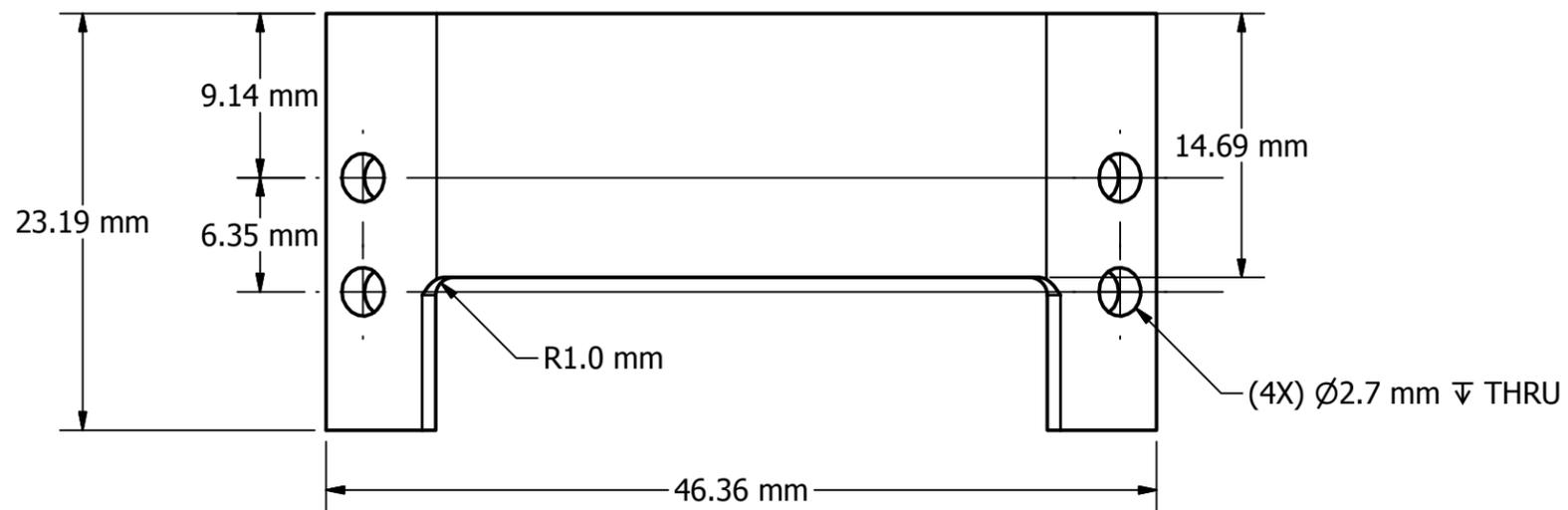
4

3

2

1

REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	HEAT TREAT WAS Rc 42 +/- 5	2/14/2012	KHS



PART IS SYMMETRIC ABOUT CENTERLINE

(A)

DO NOT SCALE DRAWING		TOLERANCES	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS	
PROJECT NO.:	MATERIAL:	DECIMALS	ANGLES
472-5358	4140 STEEL	X ±0.5	±0.5
NEXT ASSEMBLY	HEAT TREAT:	X.X ±0.2	1.6
QTY	N/A	X.XX ±0.1	✓
TOTAL QTY IN DUMMY	FINISH:	X.XXX ±0.01	
1	ELECTROLESS NICKEL .008 MAX.	REMOVE BURRS & BREAK SHARP EDGES	
		DRAWN BY:	DATE:
		KHS	1/12/2012
		CHECKED BY:	DATE:
		TMV	2/16/2012
		ENGINEER:	DATE:
		J. WANG	1/26/2012

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION: STOP - SLIDER

SIZE: SHEET **B 1 OF 1** DRAWING NO.: 472-5356 REV: **A**

SCALE: 2.5:1

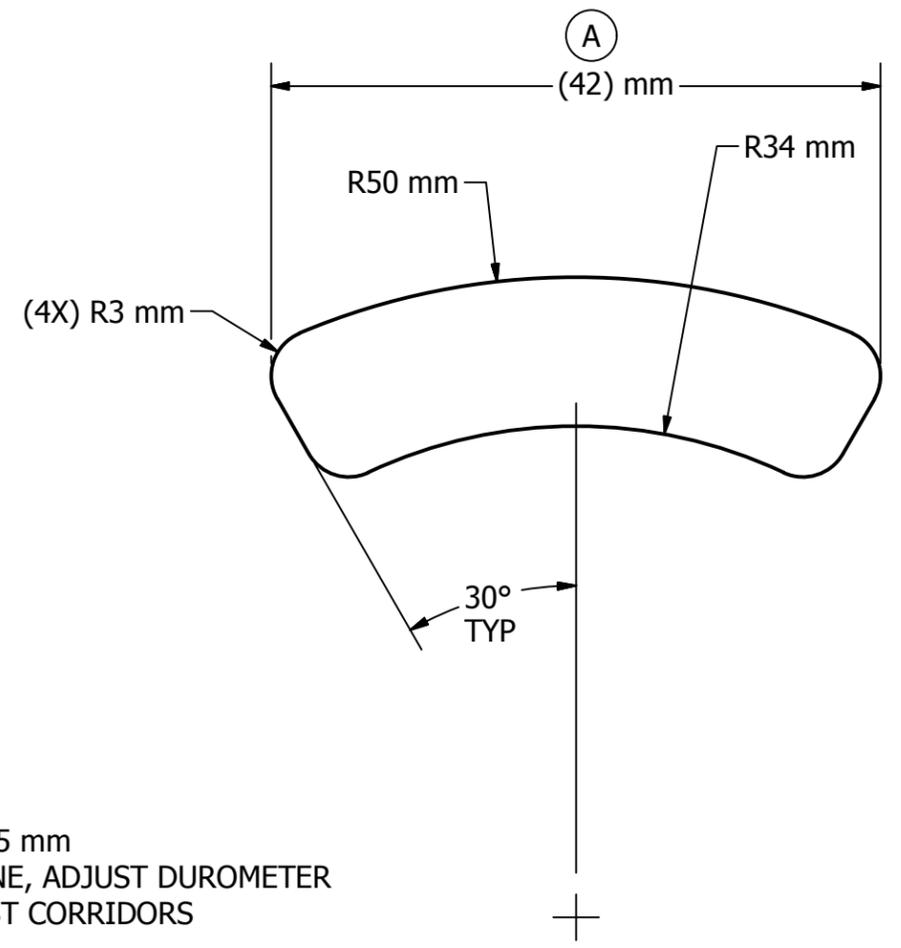
4

3

2

1

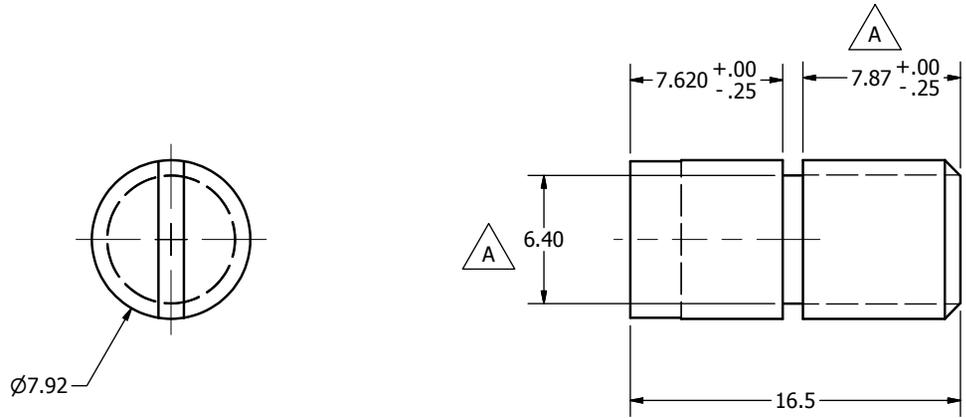
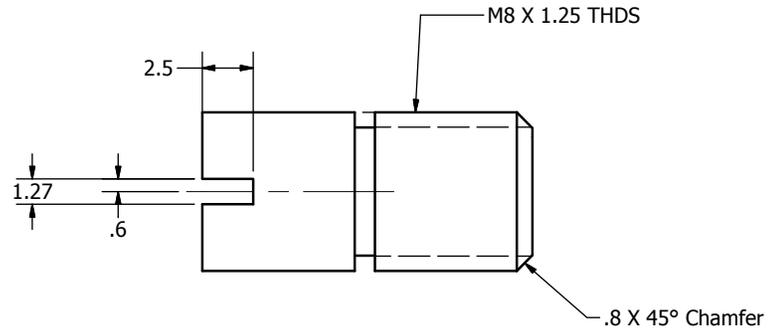
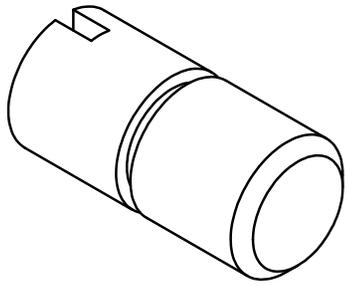
REVISION HISTORY				
REV	ZONE	DESCRIPTION	DATE	BY
A	GLOBAL	ADDED NOTES; MATERIAL WAS RUBBER; (42) mm WAS (48) mm	2/14/2012	KHS



(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		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		BUMPER - SLIDER	
PROJECT NO.: 472-5358		REMOVE BURRS & BREAK SHARP EDGES		DRAWING NO.: 472-5357	
MATERIAL: SEE NOTES		DRAWN BY: KHS		REV: A	
HEAT TREAT: N/A		DATE: 1/12/2012		SHEET: 1 OF 1	
FINISH: N/A		CHECKED BY: TMV		SCALE: 2:1	
TOTAL QTY IN DUMMY: 1		ENGINEER: J. WANG		DATE: 2/16/2012	
		DATE: 1/26/2012			

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



DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

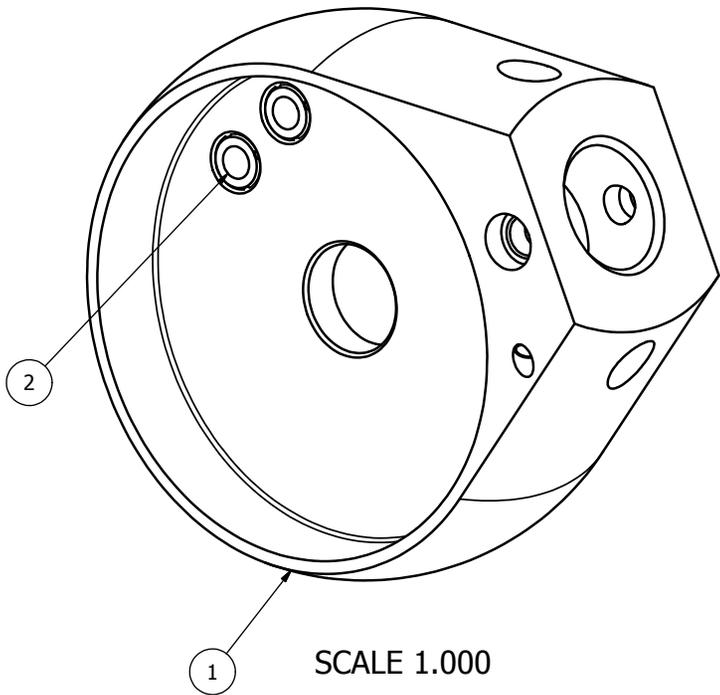
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DECIMALS ANGLES FINISH
0.05 ± 0.05 1.6
X.X ± 0.2
X.XX ± 0.3
X.XXX ± 0.01



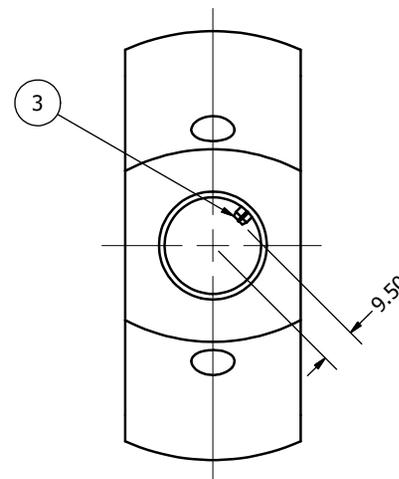
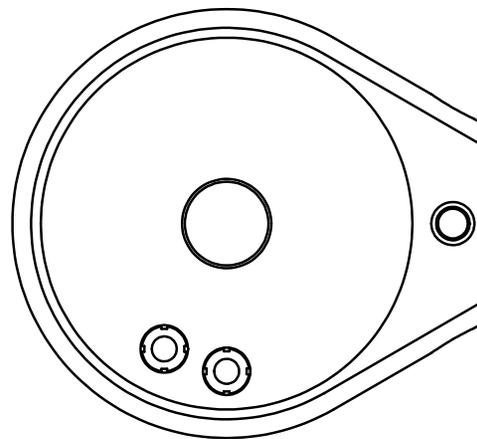
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

472-5700	1	PROJECT NO.:	DATE:	SIZE: A3	SHEET: 1 OF 1	DRAWING NO.:	REV.:
472-5300	1	MATERIAL: 4140 STEEL	9/6/2011				
NEXT ASSEMBLY	QTY	CHECKED BY: TMV	DATE: 9/21/2011	DESCRIPTION: PIN, KNEE STOP			
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/28/2012				
		FINISH: ELECTROLESS NICKEL PLATE .008 MAX.	ENGINEER: J. WANG	SCALE: 4:1			

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



3	1	5000182	PIN, ROLL M4 X 10mm
2	2	472-5762	THREADED INSERT, MODIFIED
1	1	472-5351	KNEE CAP
ITEM	QTY	PART NUMBER	DESCRIPTION

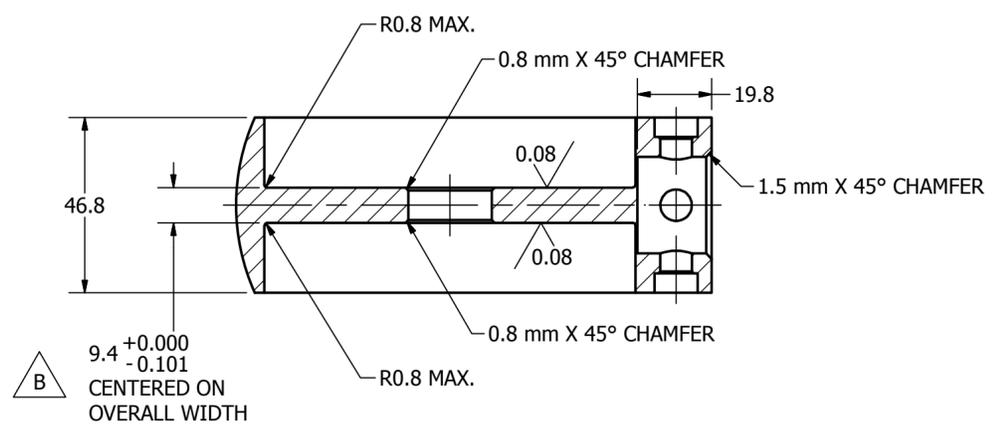
Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 1.0 1.6 X.X ±0.2 X.XX ±0.3 X.XXX ±0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-5700	1	DATE:	9/20/2011
MATERIAL:	472-5300	1	DESIGNED BY:	jordan
CHECKED BY:	TMV	QTY	DATE:	5/23/2012
ENGINEER:	J. WANG	2	DATE:	1/27/2012
DESCRIPTION:				KNEE CAP ASSY
SIZE: SHEET				A3 1 OF 1
DRAWING NO:				472-5350

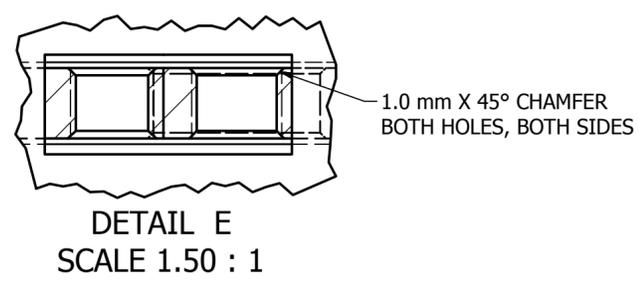
472-5700	1
472-5300	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2

B

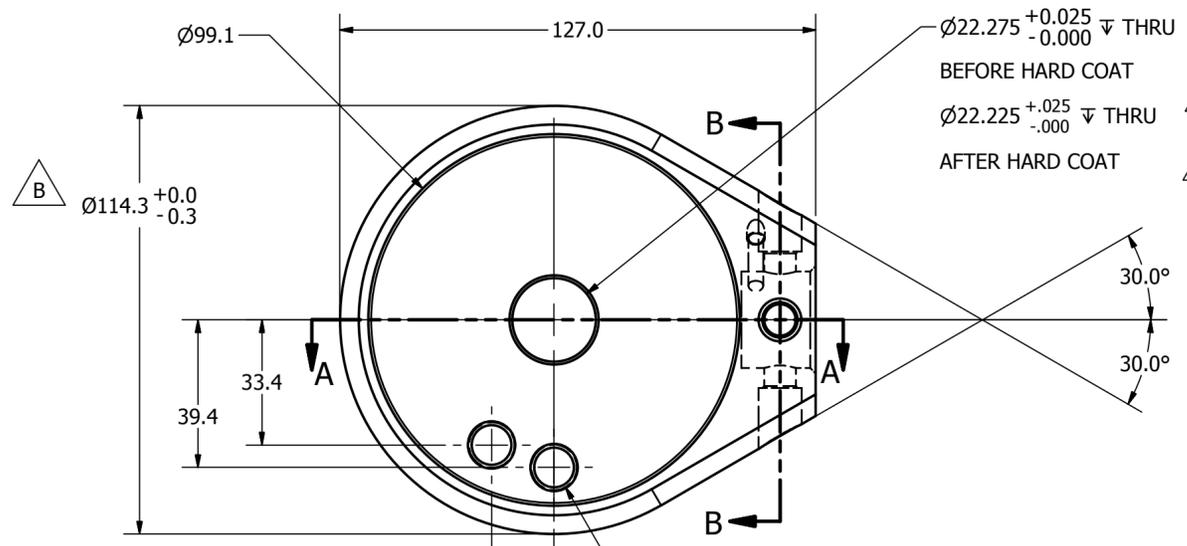
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
78027	A	RENUMBERED FROM T1FMM208 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ
10483	B	REVISED/ADDED DIMENSIONS	5/16/2012	JSJ
10490	C	REVISED M12X1.75 TO M12X1.25 THREAD	5/22/2012	JSJ
10532	D	INCREASED PRECISION ON DIMENSIONS TO 3 PLACE	7/2/2012	JSJ
70244	E	Ø8.4 WAS Ø7.92 +0.05 / -0.00	12/18/2012	DW



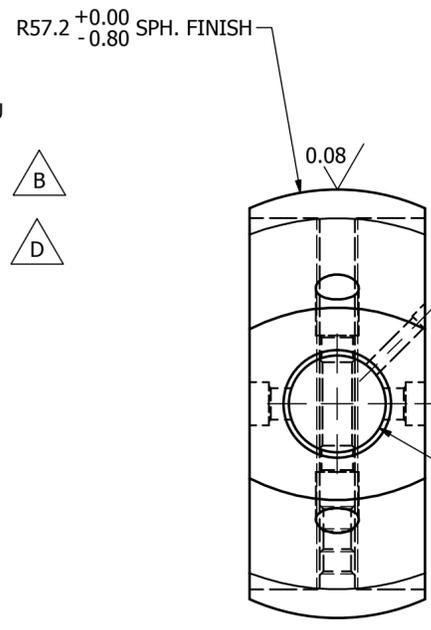
SECTION A-A



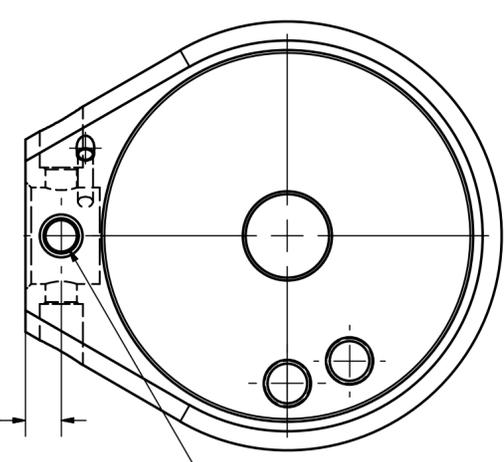
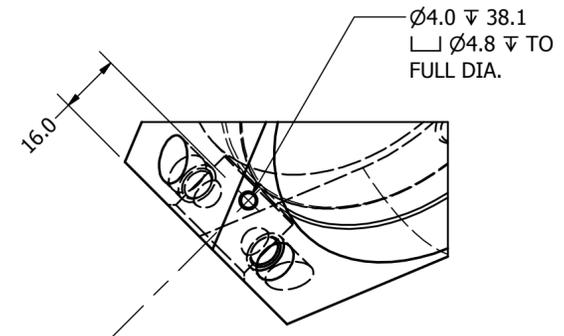
DETAIL E
SCALE 1.50 : 1



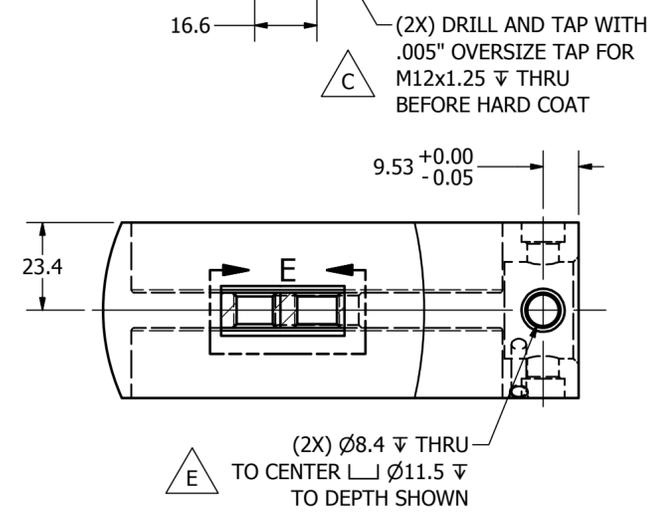
B



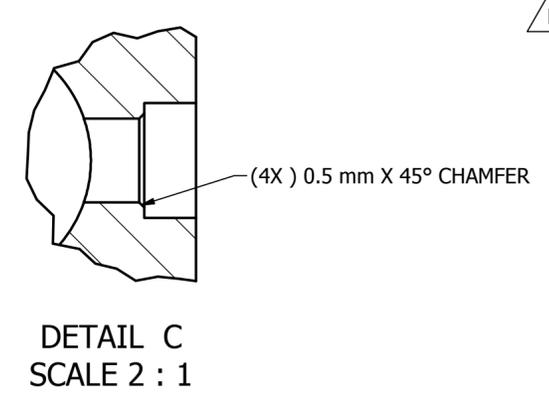
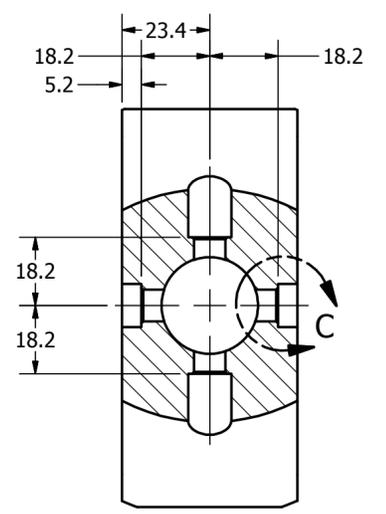
SECTION B-B



(2X) Ø8.4 ∇ THRU TO CENTER
Ø11.5 ∇ TO DEPTH SHOWN



(2X) Ø8.4 ∇ THRU TO CENTER
Ø11.5 ∇ TO DEPTH SHOWN



DETAIL C
SCALE 2 : 1

NOTES:
1. ALL DIMENSIONS AFTER HARDCOAT EXCEPT WHERE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-5350	1	Aluminum-7075-T6	8/16/2011	KNEE CAP	
NEXT ASSEMBLY	QTY	HARDCOAT ANODIZE	1/27/2012	472-5351	
TOTAL QTY IN DUMMY	2			E	

4

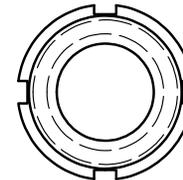
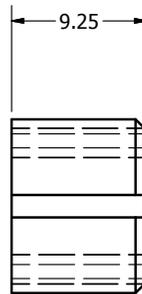
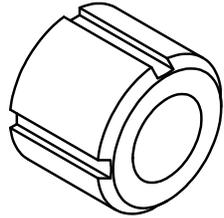
3

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

THIRD ANGLE PROJECTION

TOLERANCES
 UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN MILLIMETERS
 DECIMALS ANGLES FINISH
 X.X 0.05 0.5 1.6
 X.XX 0.1
 X.XXX 0.05

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 REMOVE BURRS & BREAK SHARP EDGES
 DESCRIPTION: THREADED INSERT, MODIFIED

PROJECT NO.	472-5350	DATE:	9/2/2011
DRAWN BY:	jjordan	CHECKED BY:	TMV
DATE:	9/14/2011	ENGINEER:	J. WANG
DATE:	1/28/2012	DATE:	1/28/2012

SIZE: B 1 OF 1
 SHEET: 3:1
 DRAWING NO.: 472-5762
 REV: A

4

3

2

1

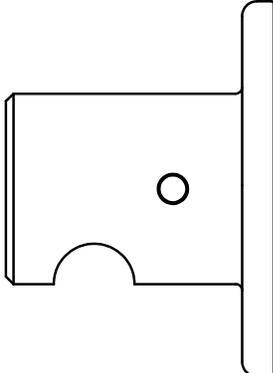
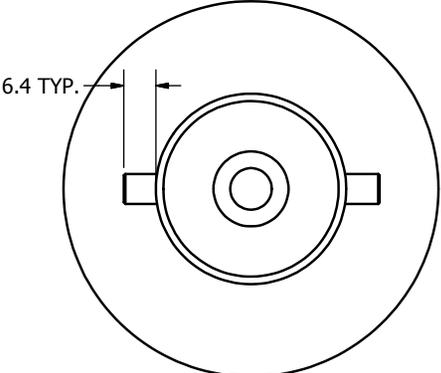
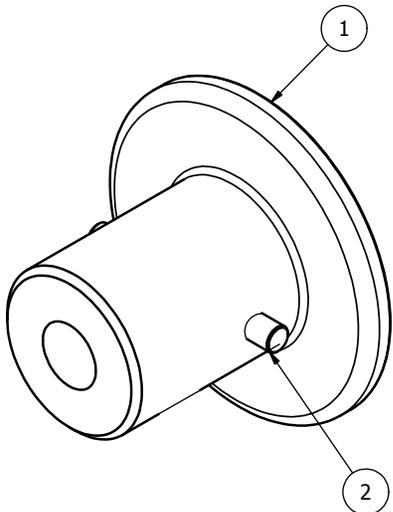
B

B

A

A

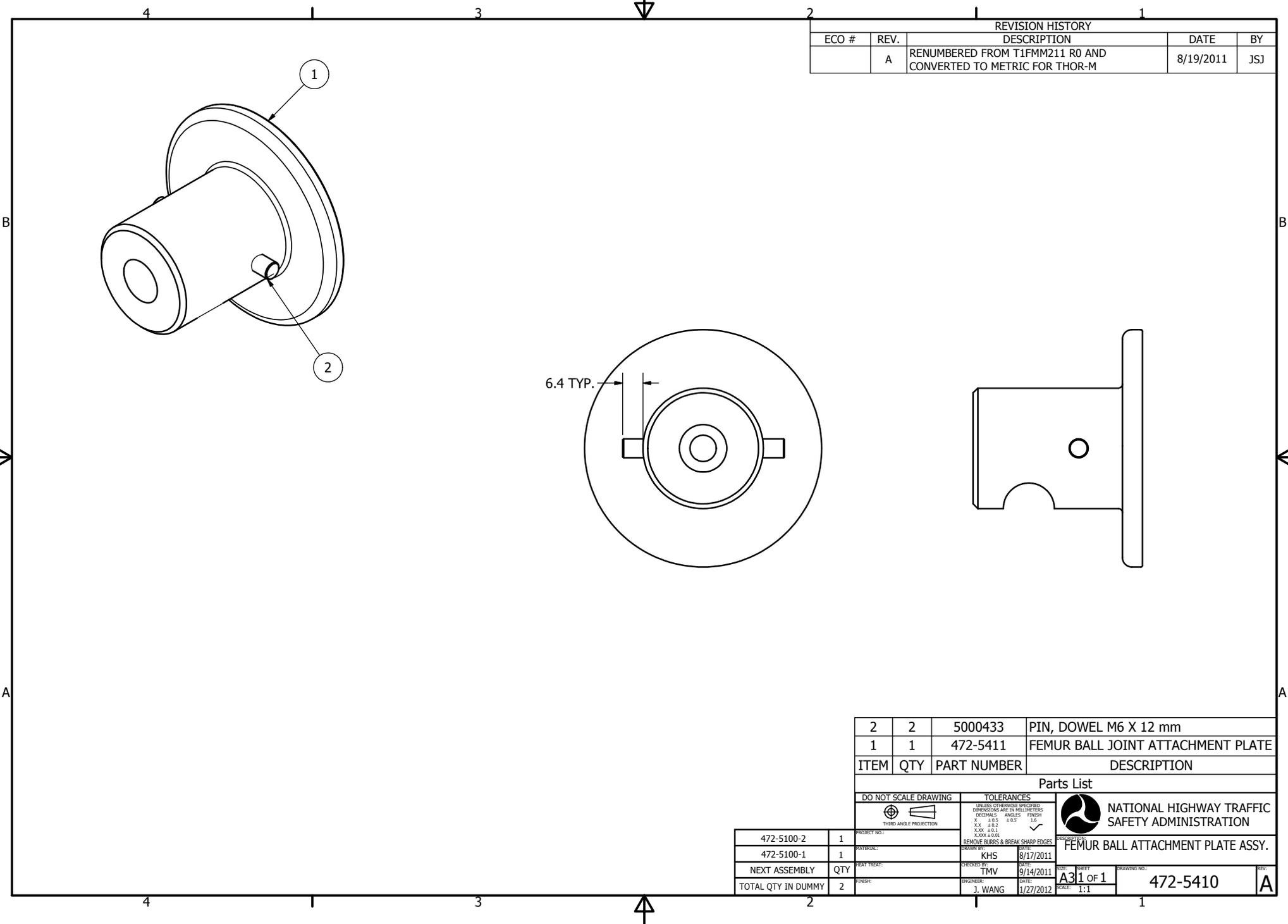
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM211 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ



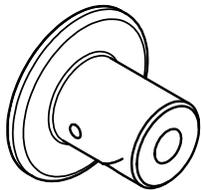
ITEM	QTY	PART NUMBER	DESCRIPTION
2	2	5000433	PIN, DOWEL M6 X 12 mm
1	1	472-5411	FEMUR BALL JOINT ATTACHMENT PLATE

Parts List

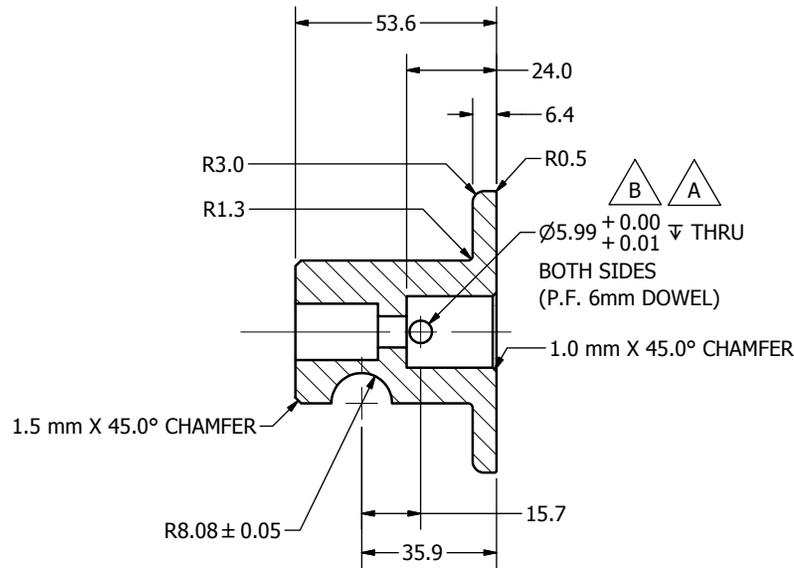
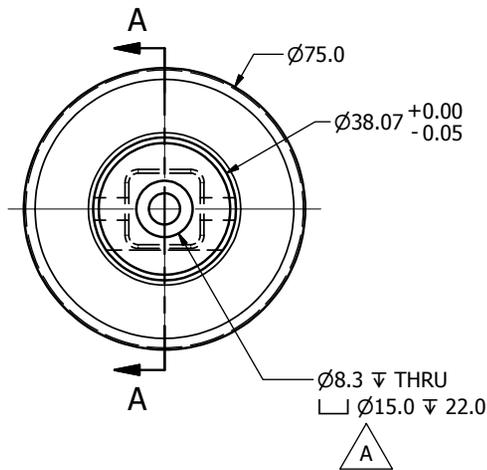
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 0.05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-5100-2	1	DATE:	8/17/2011
MATERIAL:	472-5100-1	1	CHECKED BY:	KHS
HEAT TREAT:			DATE:	9/14/2011
ENGINEER:			DATE:	1/27/2012
TOTAL QTY IN DUMMY:	2		SCALE:	1:1
DESCRIPTION:				FEMUR BALL ATTACHMENT PLATE ASSY.
DRAWING NO.:				472-5410
SHEET:				A31 OF 1



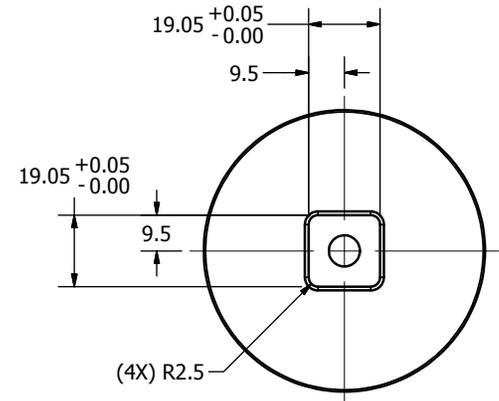
REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM205 R0 AND CONVERTED TO METRIC FOR THOR-M; Ø8.3 WAS Ø8.2, C'BORE Ø15.0 WAS Ø13.0; Ø6.000 WAS Ø6.337	8/19/2011	JSJ
	B	Ø5.99+0/-0.01 WAS Ø6.000+/-0.005	5/29/2012	KHS



SCALE .500



SECTION A-A



NOTES:

1. ALL DIMENSIONS APPLY AFTER NICKEL PLATE.

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 .1 ± 0.1 2.0 X .2 ± 0.2 2.5 X .3 ± 0.3 3.0 X .5 ± 0.5 4.0 X .7 ± 0.5 4.0 X 1.0 ± 0.5 4.0 X 1.5 ± 0.5 4.0 X 2.0 ± 0.5 4.0 X 3.0 ± 0.5 4.0 X 4.0 ± 0.5 4.0 X 6.0 ± 0.5 4.0 X 8.0 ± 0.5 4.0 X 10.0 ± 0.5 4.0 X 15.0 ± 0.5 4.0 X 20.0 ± 0.5 4.0 X 30.0 ± 0.5 4.0 X 40.0 ± 0.5 4.0 X 50.0 ± 0.5 4.0 X 60.0 ± 0.5 4.0 X 80.0 ± 0.5 4.0 X 100.0 ± 0.5 4.0		REMOVE BURRS & BREAK SHARP EDGES		DESCRIPTION: FEMUR BALL JOINT ATTACHMENT PLATE	
PROJECT NO.: 472-5410	QTY: 1	MATERIAL: 4140 STEEL	CHECKED BY: KHS	DATE: 8/17/2011	SIZE: A3		
NEXT ASSEMBLY:	QTY:	HEAT TREAT:	ENGINEER: TMV	DATE: 9/12/2011	SHEET: 1 OF 1		
TOTAL QTY IN DUMMY: 2	FINISH: ELEC. NICKEL .008 MAX.	ENGINEER: J. WANG	DATE: 1/27/2012	SCALE: 1:1	DRAWING NO.: 472-5411		

4

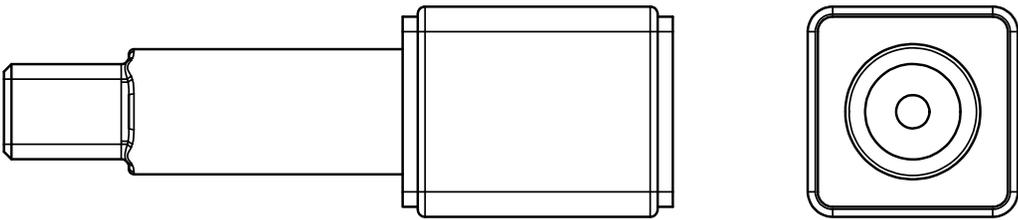
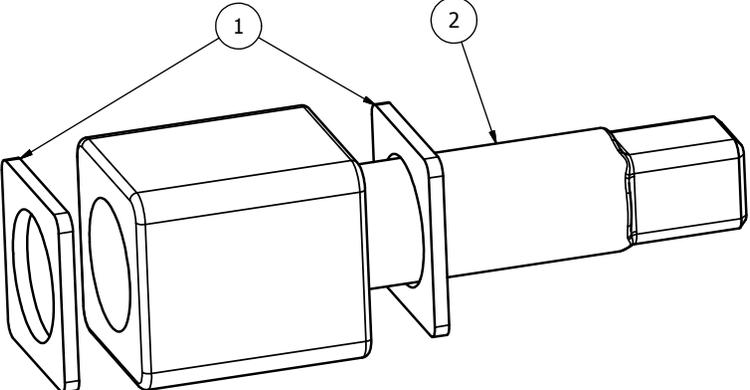
3

2

1

B

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

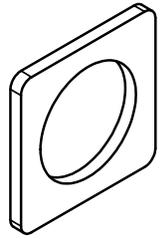
Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		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:	472-5100-2	DATE:	8/17/2011	DESCRIPTION: FEMUR PLUNGER ASSY.
MATERIAL:	472-5100-1	DRAWN BY:	DLW	
CHECKED BY:	TMV	DATE:	9/14/2011	SIZE: A3 SHEET: 1 OF 1 SCALE: 1:1
HEAT TREAT:		ENGINEER:	J. WANG	
DATE:	1/27/2012	DATE:	1/27/2012	DRAWING NO.: 472-5420
TOTAL QTY IN DUMMY:	2	FINISH:		REV: B

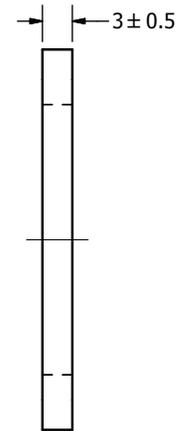
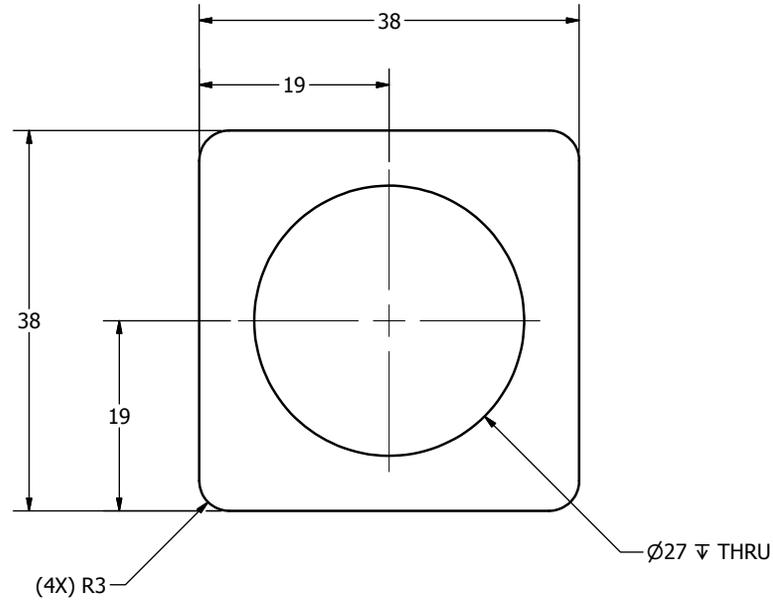
472-5100-2	1
472-5100-1	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	2



NOTES:
 1. BOND ITEM 1 TO ITEM 2 USING LOCTITE 401 OR EQUIVALENT.



SCALE 1.000

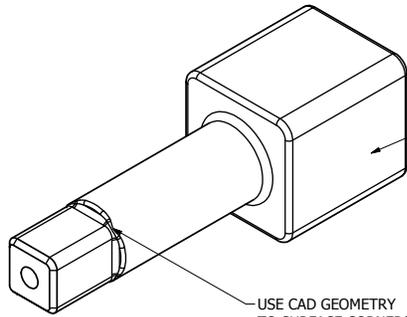


REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM204 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	JSJ

MATERIAL: URETHANE, 42±5 SHORE "A"
 COLOR: BLACK

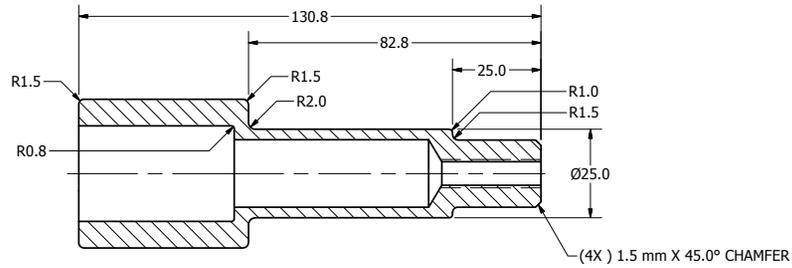
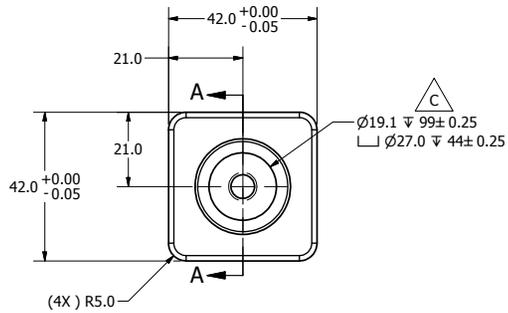
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 X.X ± 0.2 X.XX ± 0.3 X.XXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-5420	MATERIAL:	BJB F-42 URETHANE	DESCRIPTION:
DRAWN BY:	KHS	DATE:	8/17/2011	END STOP
CHECKED BY:	TMV	DATE:	9/9/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
TOTAL QTY IN DUMMY:	4	FINISH:		472-5421
				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

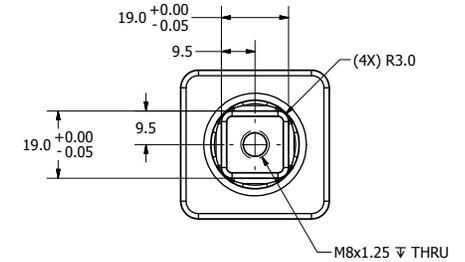


CHECK FOR HARDNESS
THIS SURFACE ONLY $\triangle B$

USE CAD GEOMETRY
TO SURFACE CORNERS
OR HAND FILE

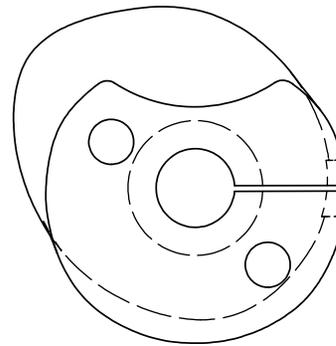
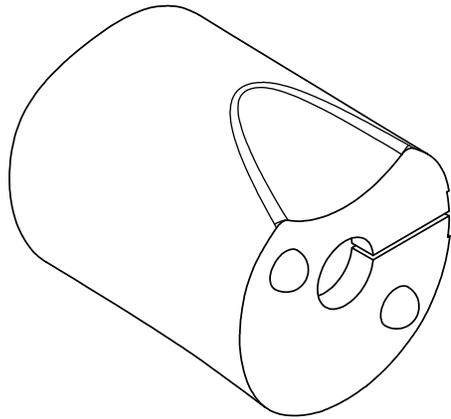


SECTION A-A

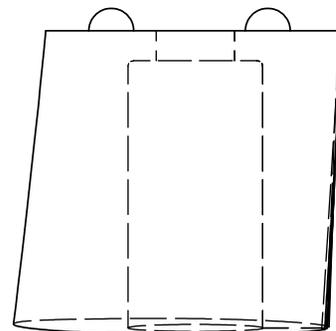
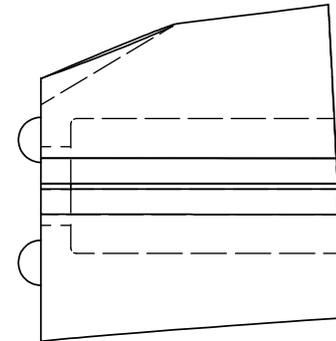


DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO 0.05		SHOW HIDDEN & BREAK SHARP EDGES		PLUNGER - FEMUR	
472-5420	1	Stainless Steel, 440C	KHS	8/17/2011	A21 of 1 11
NEXT ASSEMBLY	QTY	Re: 57 +/- 5	TMV	9/8/2011	
TOTAL QTY IN DUMMY	2		J. WANG	11/27/2012	
					472-5422

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMS010 R2 AND CONVERTED TO METRIC FOR THOR-M	8/22/2011	J5J



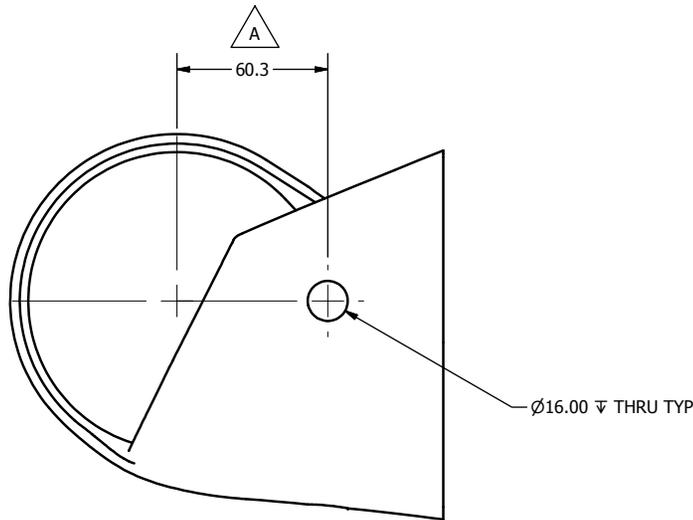
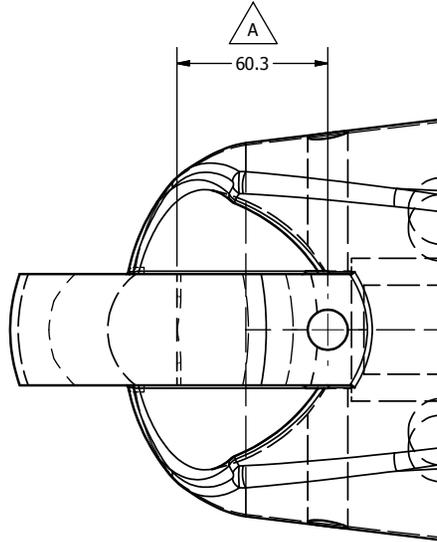
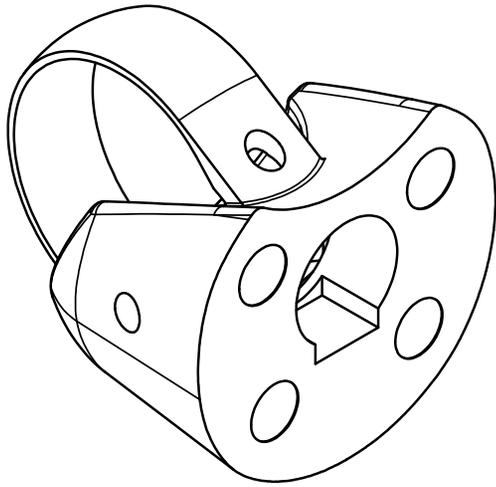
CLOSURE DIRECTION →



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
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE TO BE USED FRACTIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED THIS DRAWING IS TO BE USED AS SHOWN		FRACTIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED THIS DRAWING IS TO BE USED AS SHOWN		
472-5100-2	1	SEE NOTES	S. RICE	8/17/2011
NEXT ASSEMBLY	QTY		TMV	9/12/2011
TOTAL QTY IN DUMMY	2		J. WANG	11/27/2012
			THIGH FLESH - RIGHT	
			A21 of 1	
			472-5503-2	

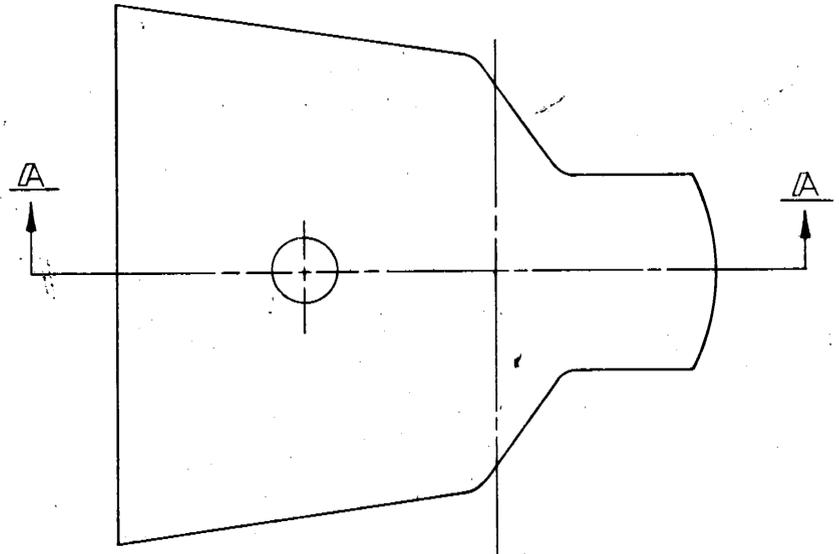


REVISION HISTORY				
ECO #	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1KNS010 R7 AND CONVERTED TO METRIC FOR THOR-M; 60.3 WAS 60	8/23/2011	JSJ

- NOTES:
 1. REFERENCE HYBRID III 50TH KNEE FLESH 78051-5
 2. TRIM FLAP SKIN FROM INSIDE KNEE

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION DESCRIPTION: KNEE FLESH LEFT/RIGHT (MODIFIED)
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 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
472-5100-2	1	PROJECT NO.:	DATE:	SIZE: SHEET A3 1 OF 1 SCALE: 1:2
472-5100-1	1	MATERIAL: FLESH VINYL	DATE: 8/23/2011	
NEXT ASSEMBLY	QTY	CHECKED BY: jordan	DATE: 9/19/2011	DRAWING NO. 472-5502
TOTAL QTY IN DUMMY	2	HEAT TREAT:	DATE: 1/27/2012	
		ENGINEER: J. WANG	DATE: 1/27/2012	REV. A

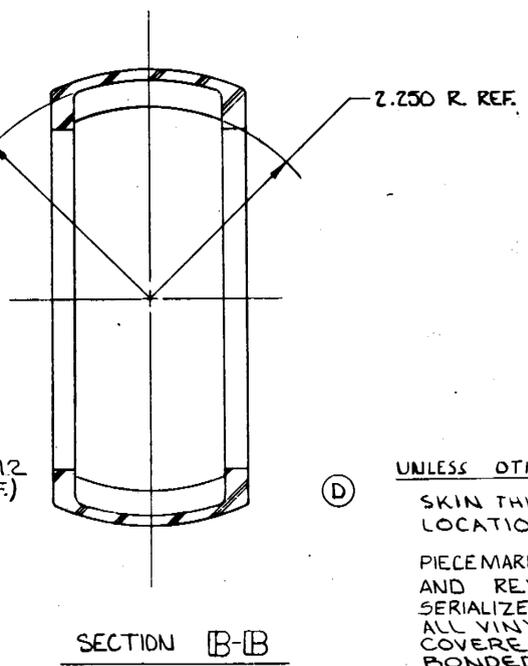
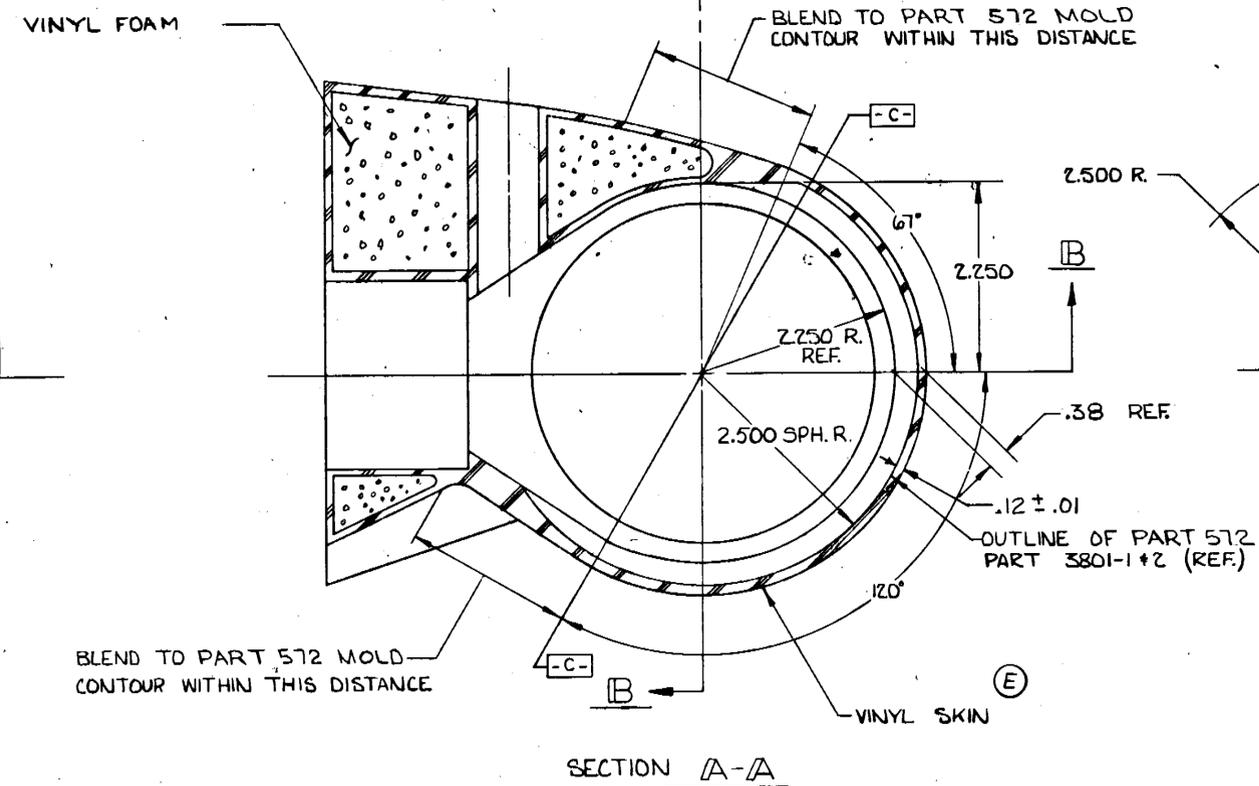
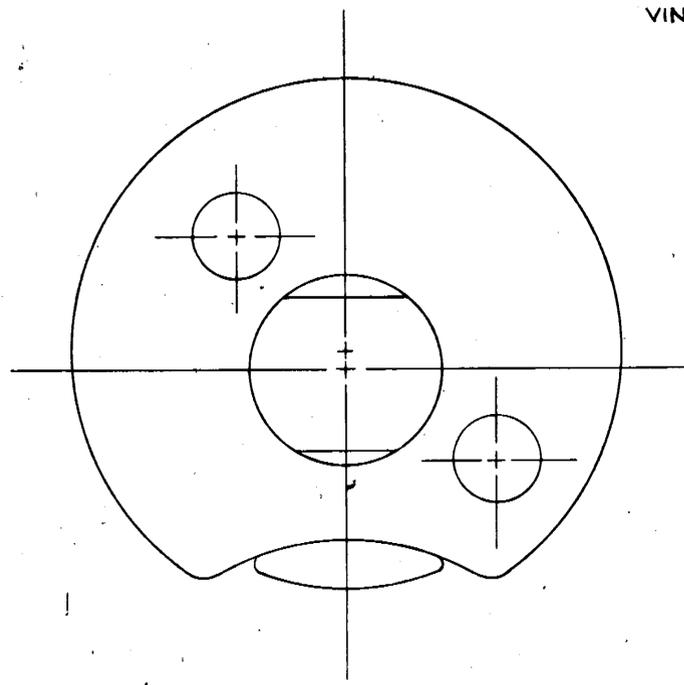
REVISION RECORD			
DATE	LET	CHANGES	BY
7-24-78	A	SKIN MATERIAL WAS-NHTSA-PT3	KLT
7-24-78	B	FOAM MATERIAL WAS-AVIP-	KLT
7-24-78	C	NOTES CHANGED	KLT
7-24-78	D	NOTES REMOVED	KLT
7-24-78	E	NHTSA-PT3 REMOVED	KLT



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

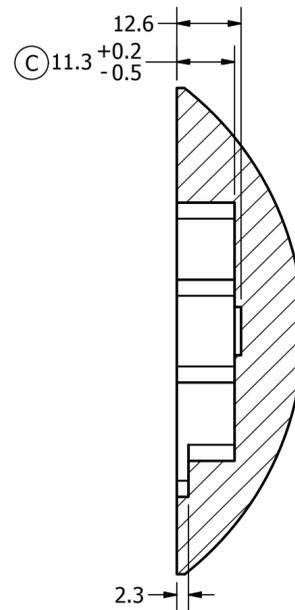
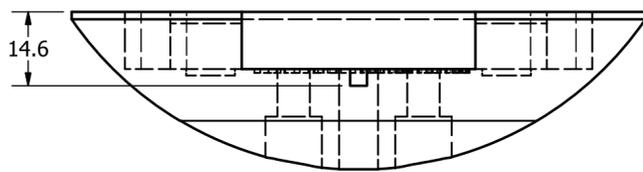
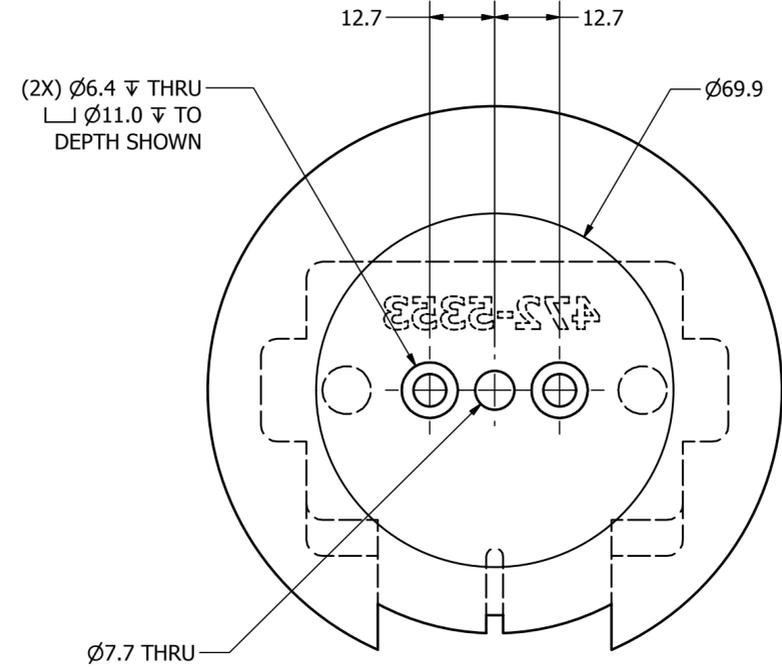
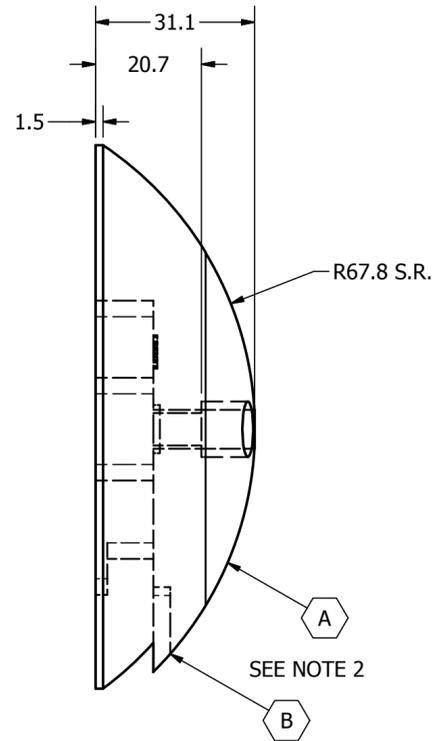
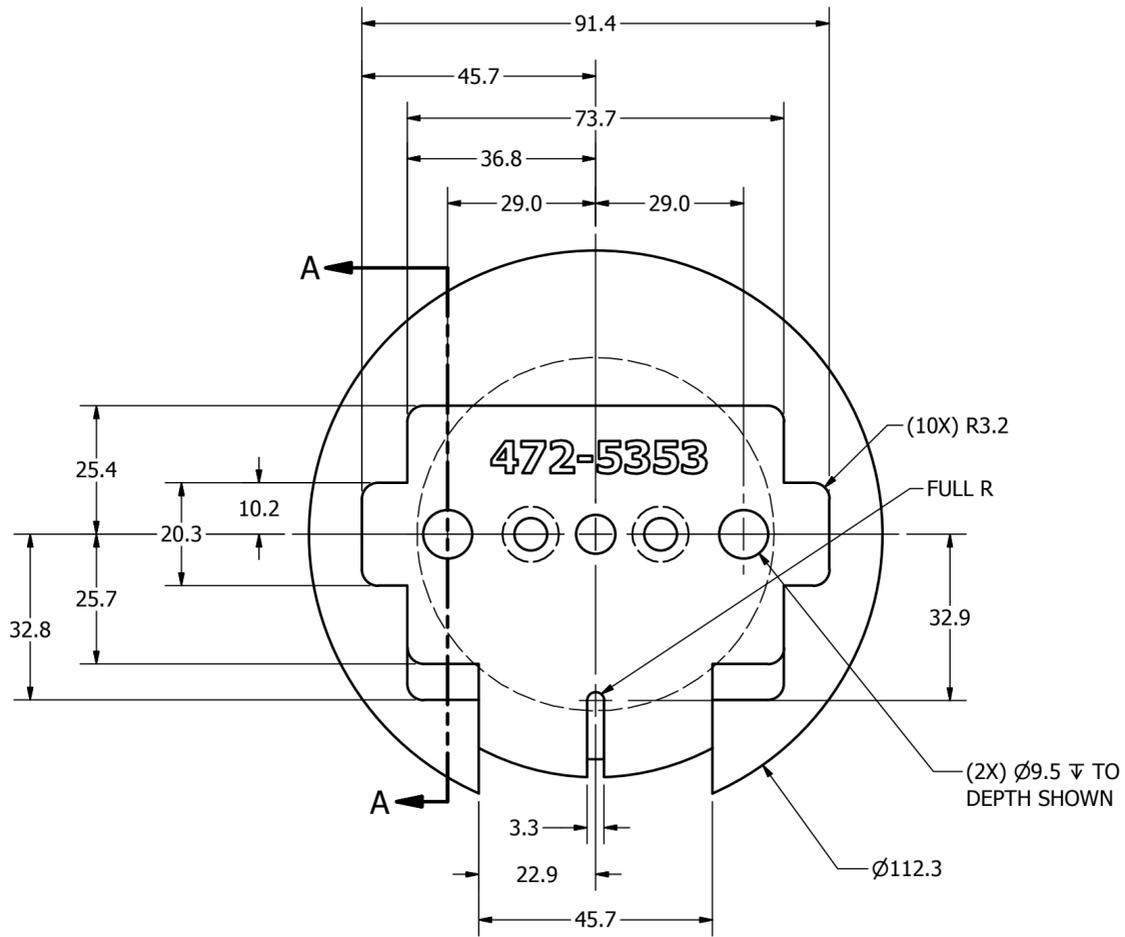


(D) **UNLESS OTHERWISE SPECIFIED:**
SKIN THICKNESS AT ANY LOCATION TO BE 0.06 ± 0.03-
PIECEMARK USING PART NUMBER AND REVISION LETTER-
SERIALIZE WITH HOT IRON-
ALL VINYL FOAM TO BE COVERED BY & SECURELY BONDED TO VINYL SKIN-
ASSY WEIGHT: 1.54 ± 0.10 LBS

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.: 78-105-103 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

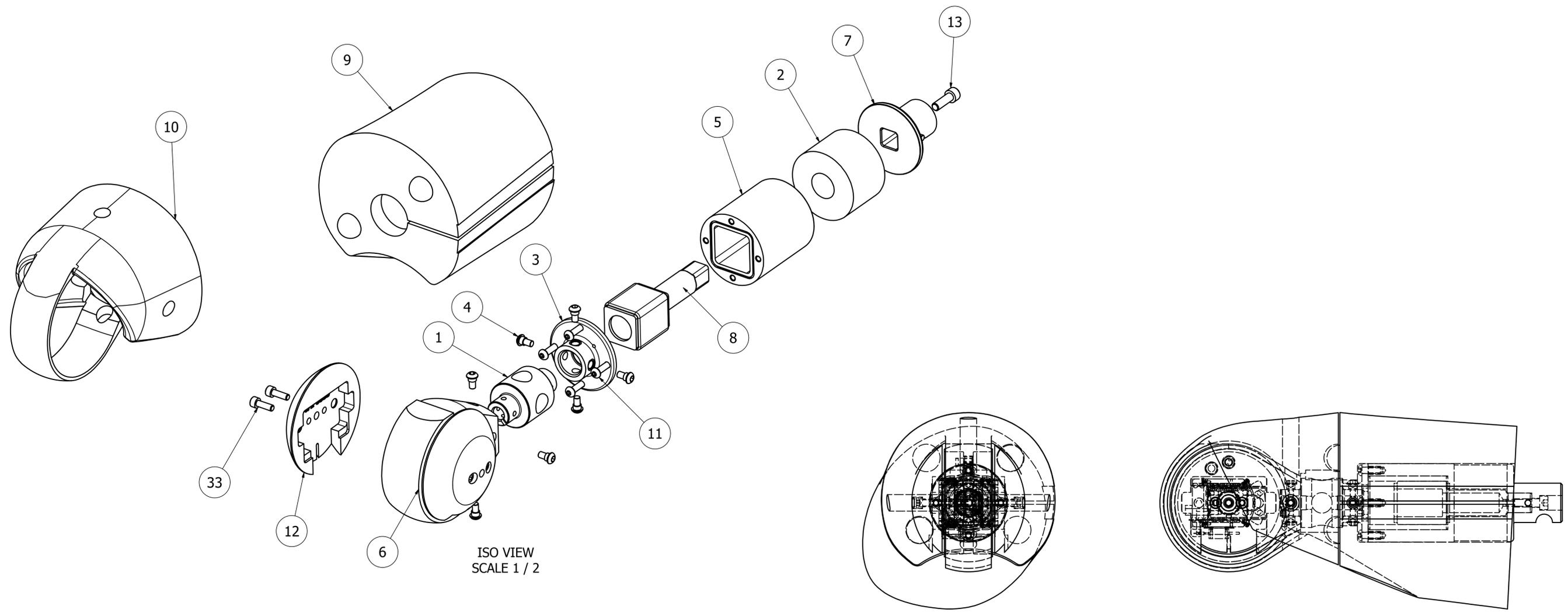


SECTION A-A

NOTE:
 1. TOLERANCE ALL DIMENSIONS: ±.5 mm
 2. MATERIAL A: URETHANE 37 ± 5 SHORE A
 MATERIAL B: URETHANE 65 ± 5 SHORE D

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH		DESCRIPTION: KNEE COVER	
PROJECT NO: 472-5600		MATERIAL: 2 SEE NOTES		DRAWN BY: KHS DATE: 9/7/2011	
NEXT ASSEMBLY QTY		FINISH: 4		CHECKED BY: DATE: 1/26/2012	
TOTAL QTY IN DUMMY		ENGINEER: J. WANG		DATE: 1/26/2012	
SIZE: C		SHEET: 1 OF 1		DRAWING NO: 472-5353	
SCALE: 1:1				REV: C	

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



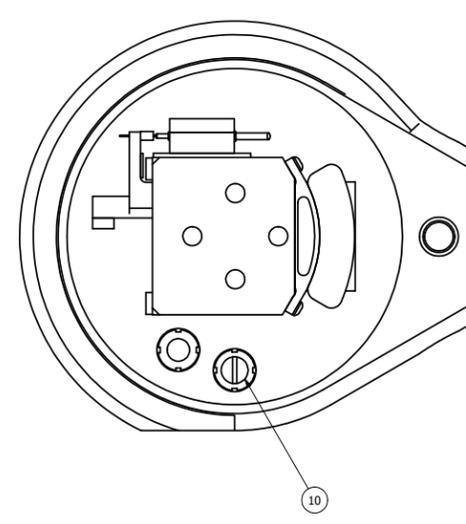
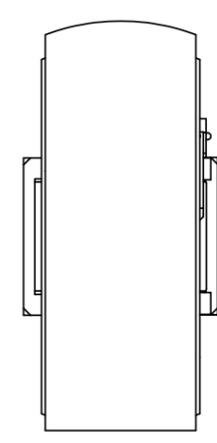
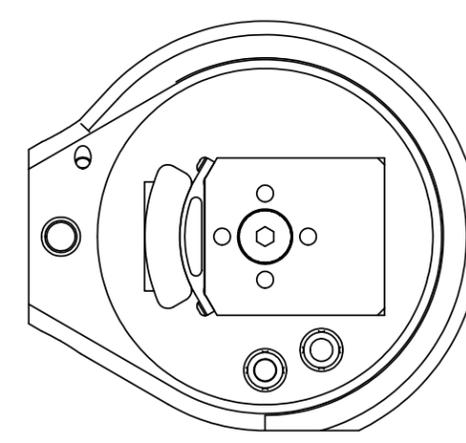
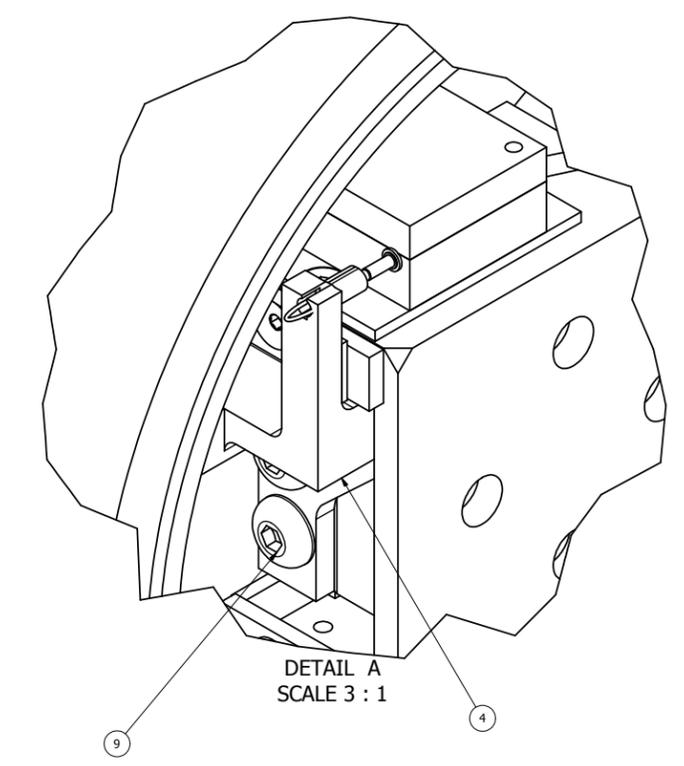
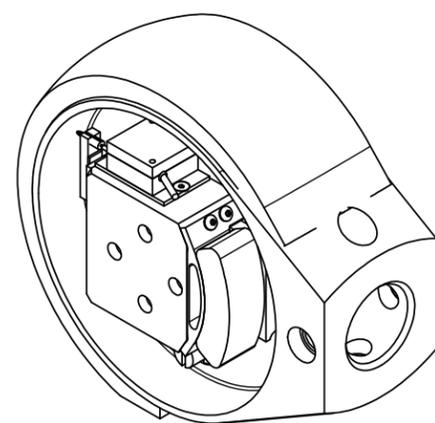
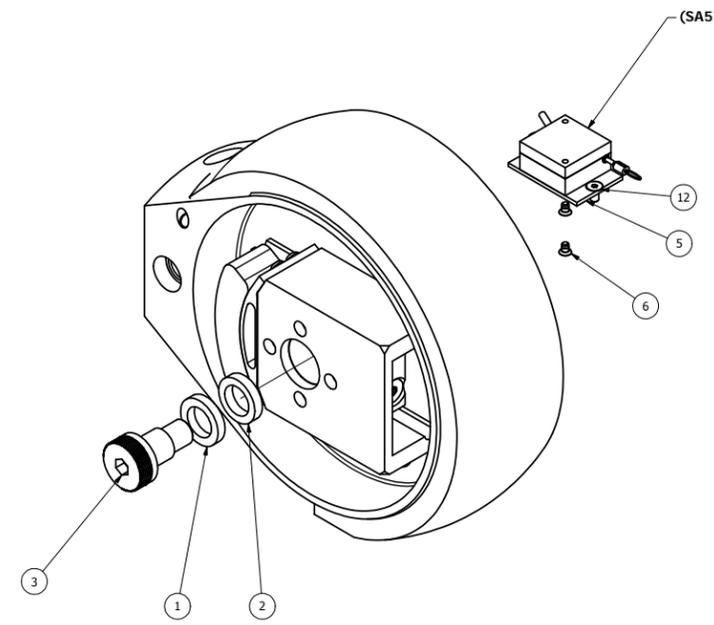
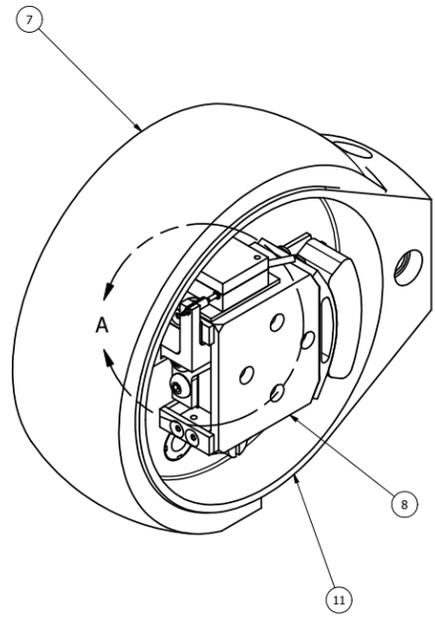
ISO VIEW
SCALE 1 / 2

ITEM	QTY	PART NUMBER	DESCRIPTION
33	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. S. R. BODY

Parts List
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

472-5000-1		1	THANH	8/29/2011	LEFT UPPER LEG ASSY.
NEXT ASSEMBLY		QTY	BY	DATE	DESCRIPTION
TOTAL QTY IN DUMMY		1	J. WANG	1/28/2012	472-5100-1

REVISION HISTORY				
ECO #	REV.	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1FMM209 R0 AND CONVERTED TO METRIC FOR THOR-M	8/19/2011	J5J
	B	5000723 WAS 5000595	7/19/2012	BK



ITEM	QTY	PART NUMBER	DESCRIPTION
12	2	5000723	M2.5 X 0.45 X 5 LG. FHCS
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
 FRACTIONS DECIMALS
 .0001 .0002 .0005 .0010 .0015 .0020 .0030 .0040 .0050 .0060 .0070 .0080 .0090 .0100 .0150 .0200 .0300 .0400 .0500 .0600 .0700 .0800 .0900 .1000 .1500 .2000 .3000 .4000 .5000 .6000 .7000 .8000 .9000 1.0000 1.5000 2.0000 3.0000 4.0000 5.0000 6.0000 8.0000 10.0000

Parts List

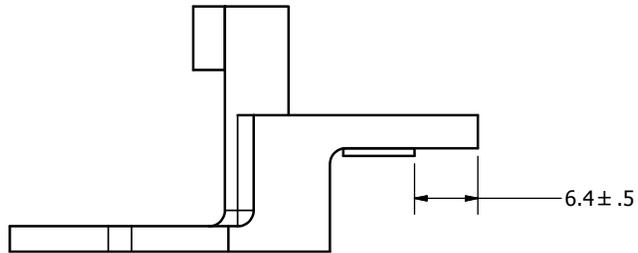
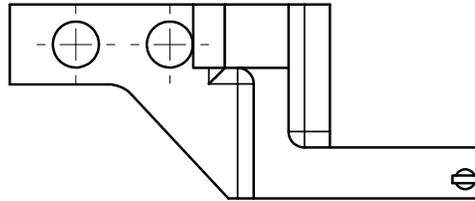
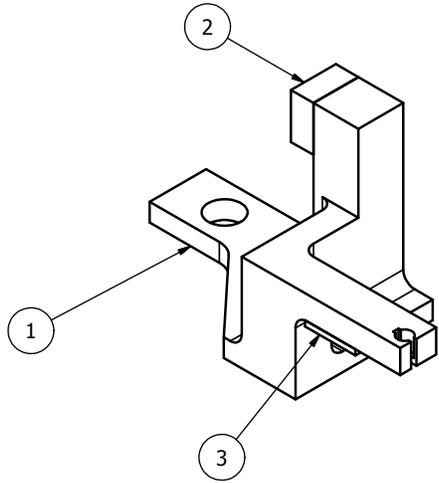
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

KNEE CAP ASSY., LEFT

472-5100-1	1	REVISED	BY: J. WANG	DATE: 1/26/2012
NEXT ASSEMBLY	QTY	REVISED	BY: J. WANG	DATE: 1/26/2012
TOTAL QTY IN DUMMY	1	REVISED	BY: J. WANG	DATE: 1/26/2012

11 OF 1
472-5300

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



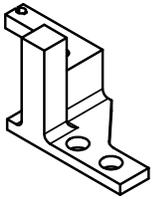
NOTES:
 BONDING INSTRUCTIONS:
 1. SAND SURFACES TO BE BONDED.
 2. CLEAN SURFACES WITH MEK.
 3. CLEAN SURFACES WITH ALCOHOL.
 4. APPLY LOCTITE 411, OR EQUIVALENT, TO ONE SURFACE.
 5. PRESS PARTS TOGETHER AND APPLY PRESSURE FOR 30 SECONDS AFTER ADHESIVE BECOMES TACKY.

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)

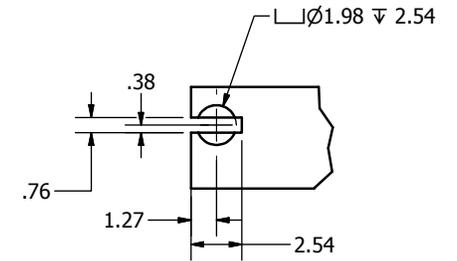
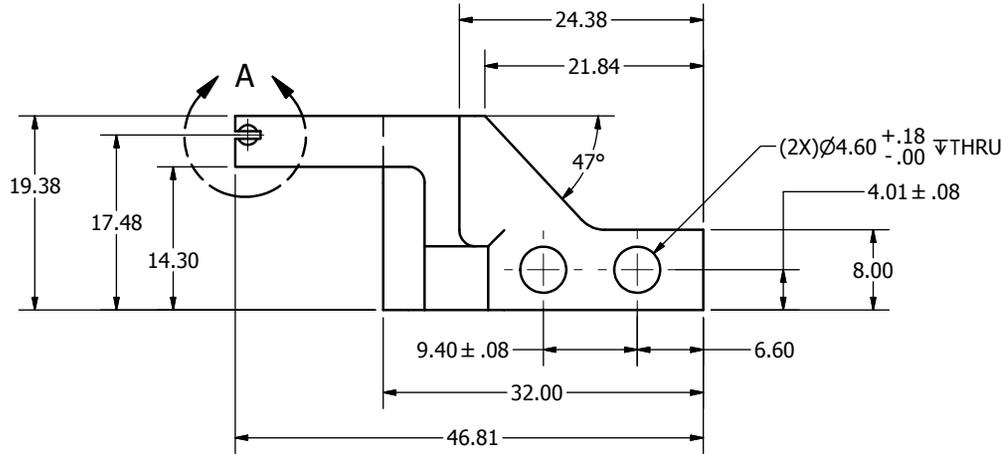
Parts List

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO:	472-5300	MATERIAL:	1	DESCRIPTION: ASSEMBLY, POT STRING HOLDER (LEFT)	
DRAWN BY:	KSG	DATE:	8/17/2011		
CHECKED BY:	TMV	DATE:	9/14/2011		
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/27/2012
TOTAL QTY IN DUMMY	1	FINISH:		SCALE:	2:1

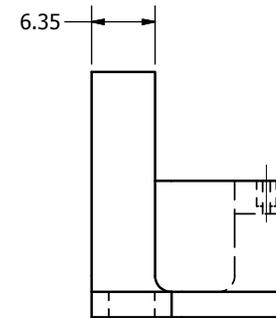
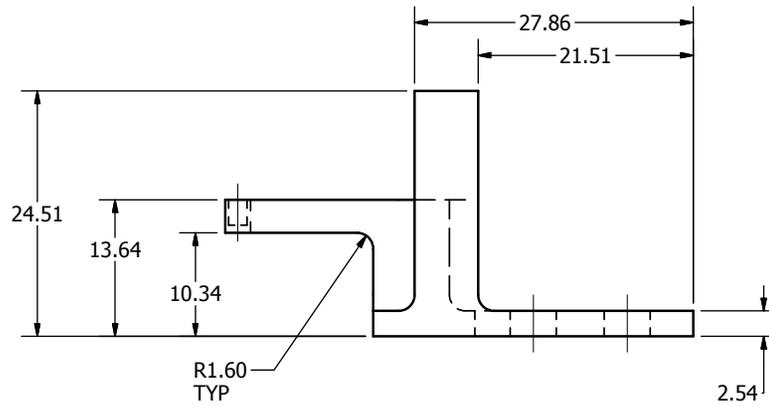
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-5306	REV.:	A
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SCALE 1.000



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 HOLDER, POT STRING (LEFT)
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 1.6 XX .02 0.05 XXX .01 0.01 XXXX 0.01		
PROJECT NO:	472-5306	MATERIAL:	4140 STEEL	DATE:
DATE:	8/17/2011	HEAT TREAT:	Rc 42-48	ENGINEER:
CHECKED BY:	KSG	FINISH:	ELECTROLESS NICKEL PLATE .008 MAX	SCALE:
DATE:	9/12/2011	ENGINEER:	J. WANG	SCALE:
DATE:	1/278/2012	ENGINEER:		SCALE:

PROJECT NO:	472-5306	QTY	1
DATE:	8/17/2011	QTY	1
CHECKED BY:	KSG	QTY	1
DATE:	9/12/2011	QTY	1
ENGINEER:	J. WANG	QTY	1
DATE:	1/278/2012	QTY	1



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

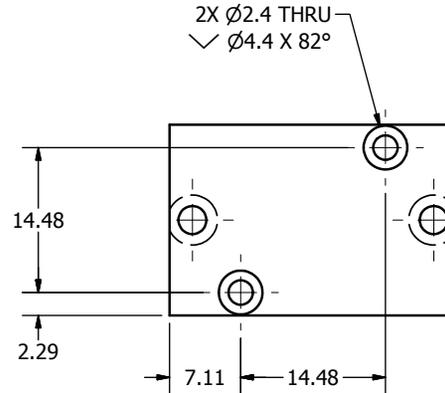
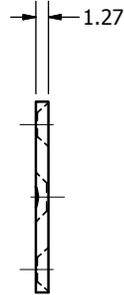
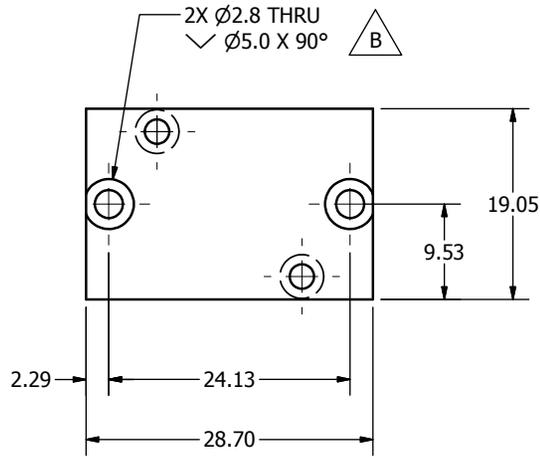
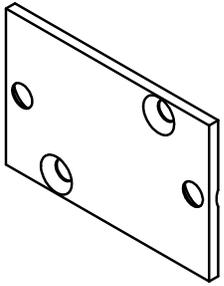
HOLDER, POT STRING (LEFT)

A31 OF 1

472-5737-1

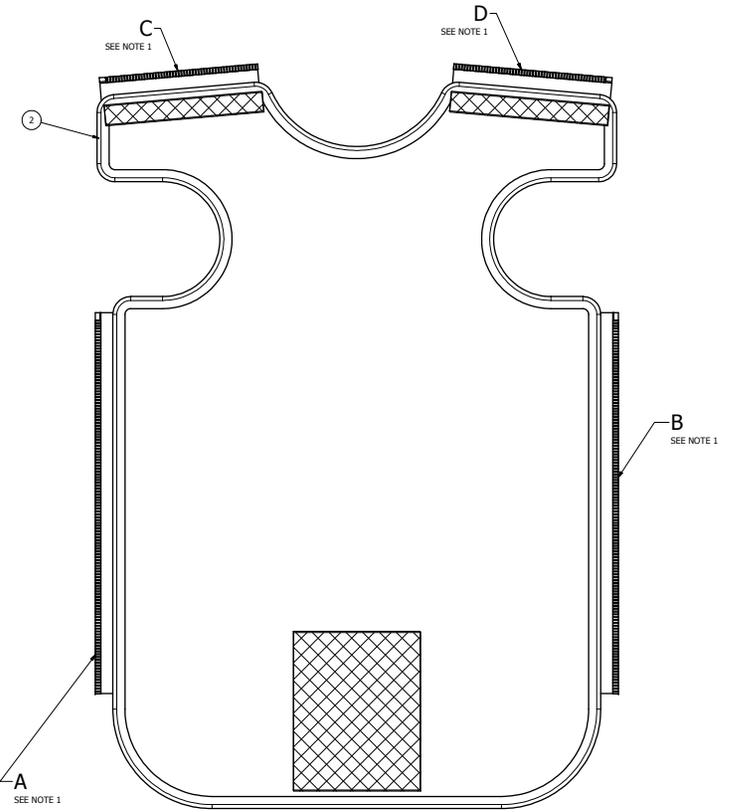
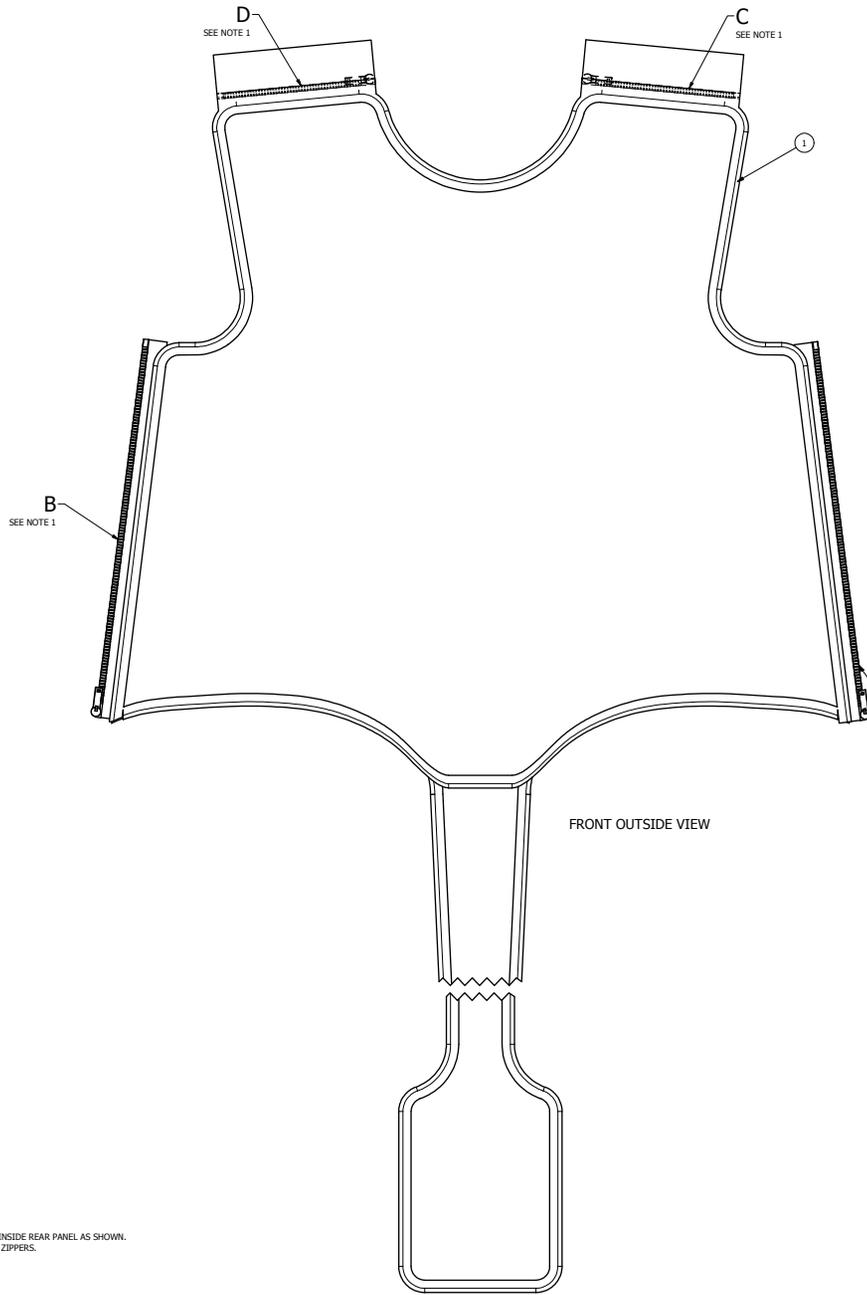
A

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° ✓ X.X ± 0.2 ✓ X.XX ± 0.3 ✓ X.XXX ± 0.01 ✓					
PROJECT NO.:	472-5300	MATERIAL:	Aluminum-6061-T6	DESCRIPTION: PLATE, MOUNT			
DATE:	8/17/2011	HEAT TREAT:					
ENGINEER:	J. WANG	FINISH:	CLEAR ANODIZE				
DATE:	1/26/2012	SCALE:	2:1	SIZE: SHEET A3 1 OF 1			
TOTAL QTY IN DUMMY		1		DRAWING NO.:	472-5305	REV.:	B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JW000 RB1 AND CONVERTED TO METRIC FOR THOR-M	12/13/2011	BK
	B	UPDATE VIEWS TO SHOW CORRECTED ZIPPER DIRECTION	6/21/2012	BK



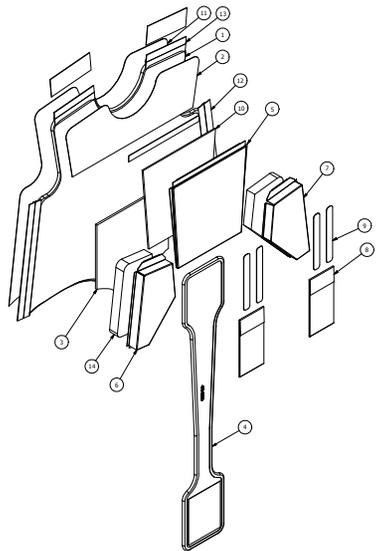
NOTES:
 1. REMOVE ZIPPER HALF AND SEW TO THE INSIDE REAR PANEL AS SHOWN.
 LETTERS INDICATE MATCHING SIDES OF ZIPPERS.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-3951	REAR PANEL ASSEMBLY, JACKET
1	1	472-3910	FRONT PANEL ASSEMBLY, JACKET

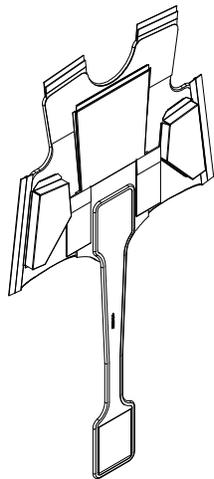
PARTS LIST	
472-0000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN SUPPLY	1

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 472-3900
 A11 of 1
 300

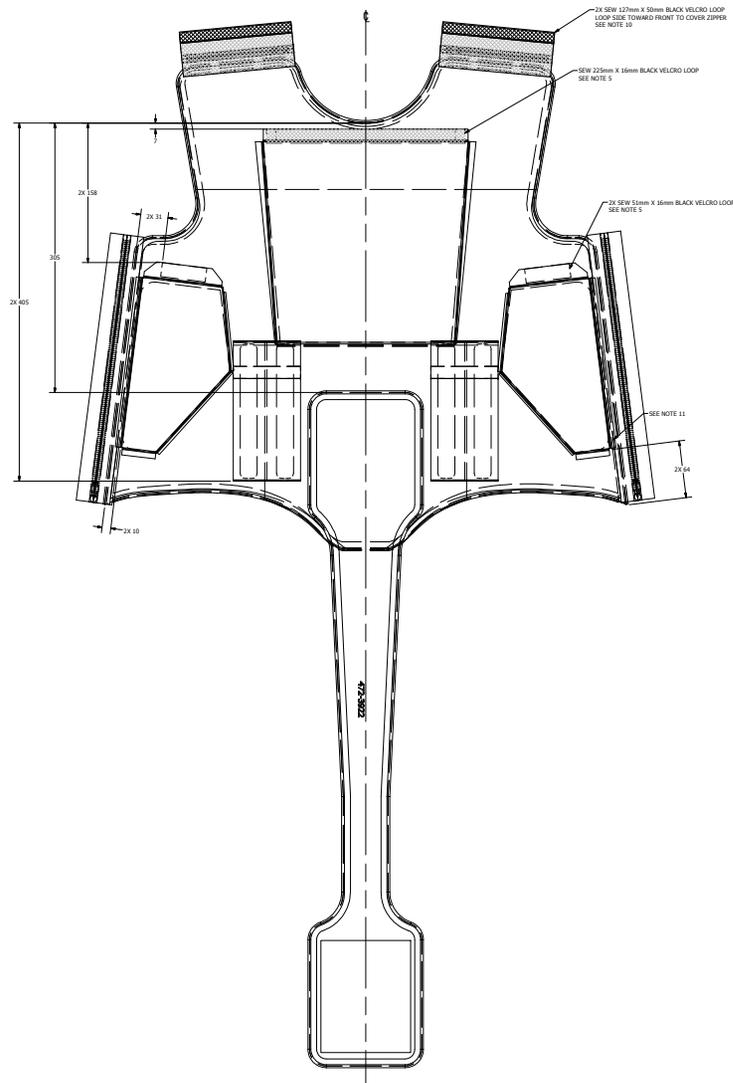
DATE	REV	DESCRIPTION	DATE	BY
	1	TO SHOP FOR		
	2	RENDERED FROM PHOTO REF AND CONVERTED TO METERS FOR THEM	12/12/2013	BA
	3	SHOW ZIP DIRECTION AND ZIP DETAIL	2/2/2014	BA
	4	SHOW ZIP DIRECTION ZIPPING TO DOWNWARD DIRECTION	6/15/2014	BA



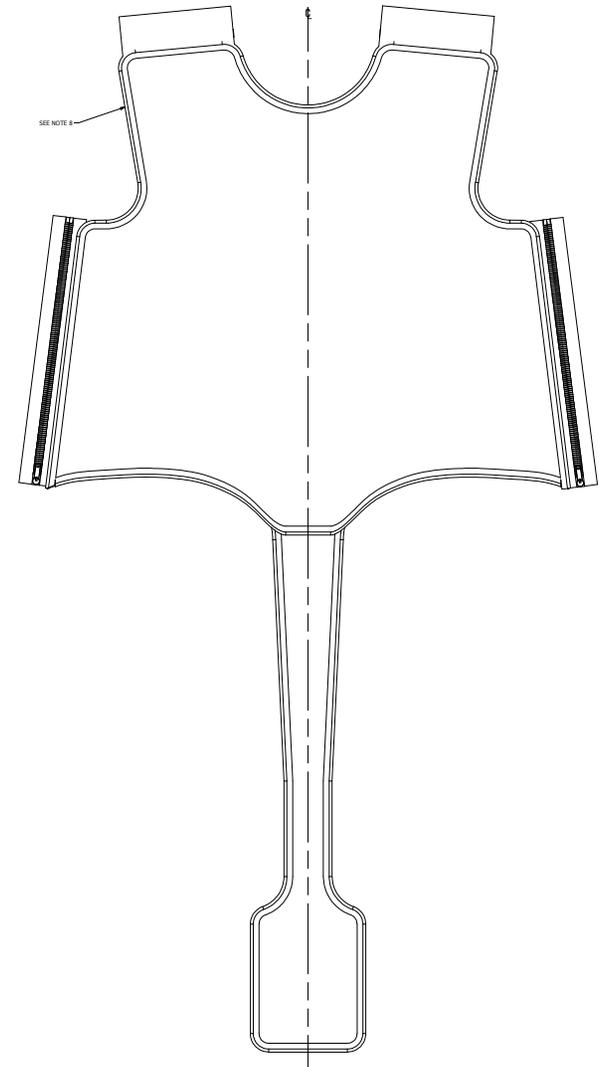
SCALE .250



SCALE .250



REAR VIEW



FRONT VIEW

NOTES:

1. SEW COMPONENTS TO NEOPRENE WITH THE DARK (WINE COLOR) SIDE UP.
2. COORDUA COMPONENTS ARE SEW WITH THE LAMINATED SIDE FACING DOWN.
3. SEW ABOBORN IN PLACE ALIGNED WITH BOTTOM EDGE AND CENTERED, 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.
6. SEW CHEST POCKET, LEFT & RIGHT FOAM POCKETS, AND LEFT & RIGHT STIFFENER POCKETS INTO PLACE AS SHOWN.
7. SEW ASSEMBLED NEOPRENE TO FRONT COORDUA PANEL, STRETCH NEOPRENE WHERE NECESSARY.
8. TRIM EDGES WITH BIAS TAPE.
9. SEW ZIPPERS THRU ENTIRE ASSEMBLY MAKING SURE ZIPPER CLOSURE DIRECTION IS DOWNWARDS.
10. SEW VELCRO FLAPS AS NOTED.
11. INSERT SIDE FOAM, STEEL STIFFENERS, AND WEIGHTED RIB.

ITEM	QTY	PART NUMBER	DESCRIPTION
14	2	472-3919	UPPER SLICE FOAM
13	2	472-3917	FRONT PANEL SHOULDER ZIPPER, JACKET
12	2	472-3918	FRONT PANEL ZIPPER, JACKET
11	1	472-3912	FRONT OUTER PANEL PATTERN (COORDUA)
10	1	472-3920	WEIGHTED RIB, JACKET
9	4	472-3928	STEEL STIFFENER, JACKET
8	2	472-3913	STIFFENER POCKET, JACKET
7	1	472-3915	UPPER RIGHT FOAM POCKET
6	1	472-3915-1	UPPER LEFT FOAM POCKET
5	1	472-3914	CHESL FOAM POCKET
4	1	472-3922	CRITCH STRAP ASSEMBLY, JACKET
3	1	472-3923	FRONT INTERIOR ABSORBER PATCH, JACKET
2	1	472-3927	FRONT INTERIOR SHOULDER PATCH
1	1	472-3911	FRONT INSIDE PANEL PATTERN (NEOPRENE)

ITEM	QTY	PART NUMBER	DESCRIPTION
PANEL LIST			
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION			
FRONT PANEL ASSEMBLY, JACKET			
472-3920	1		
FRONT ASSEMBLY	QTY		
TOTAL QTY IN BOMBY	1		

REV#	REV	DESCRIPTION	DATE	BY
A		RECALCULATED FROM 12/17/11 SET AND CONVERTED TO METRIC FOR THIS IN-ADD TOLERANCE AND DIMENSIONS TO NOTE, INDICATED WITH SMALLER THAN COORDINATE PANEL, SIZE: 6mm SMALLER	12/19/2011	BK
B		BLACK AND WHITE, REMOVE COLOR NUMBER IN NEOPRENE MATERIALS	6/28/2012	BK

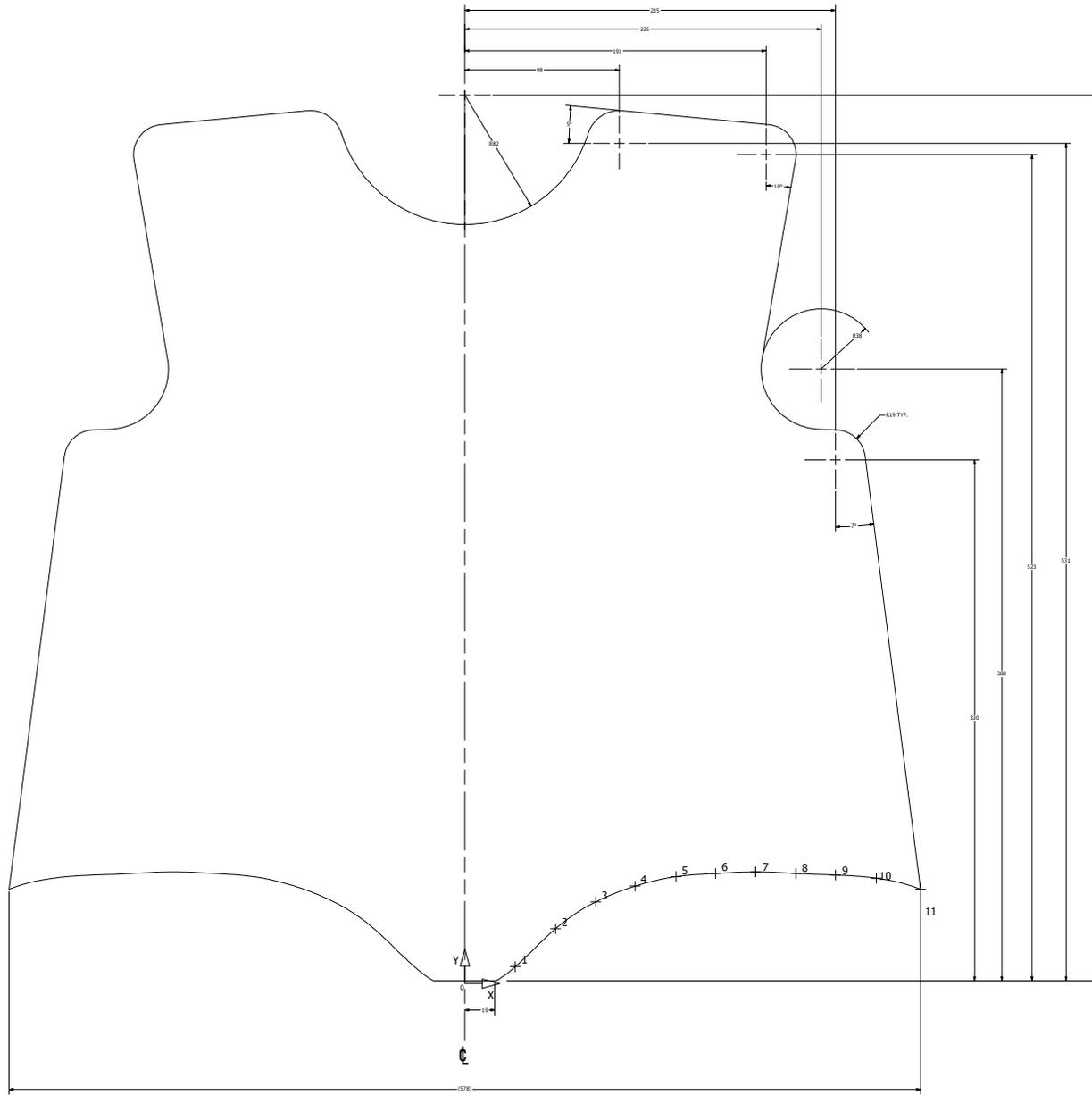


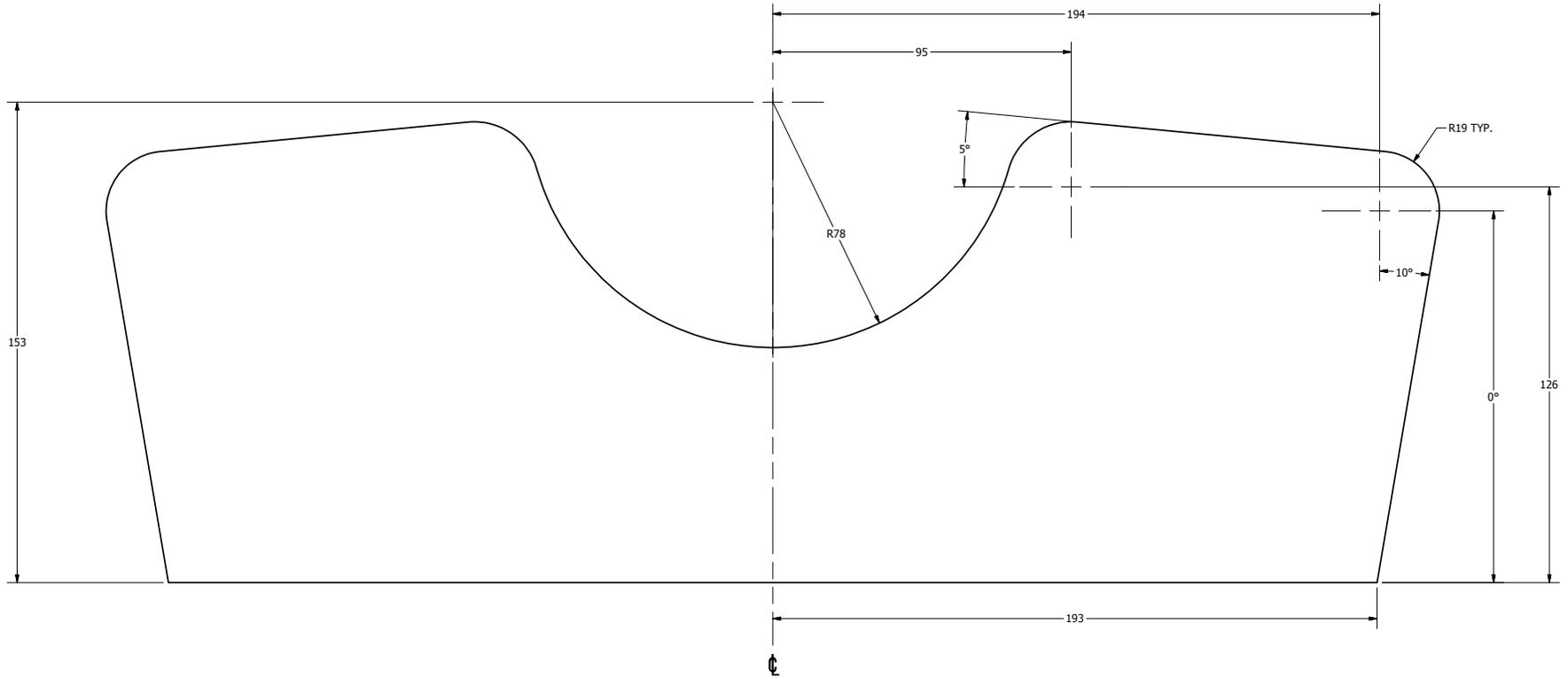
TABLE 1

POINT	X (+/- 0.5mm)	Y (+/- 0.5mm)
1	37	0
2	37	33
3	83	52
4	100	62
5	135	62
6	135	68
7	182	68
8	225	68
9	225	77
10	283	68
11	283	62

- NOTES:
1. MATERIAL: NEOPRENE G-221-N 3/16" (4.8mm) THICK WITH 2 SIDES OF NYLON (N-2-S), COLORS BLACK AND RED.
 2. PATTERN IS SYMMETRIC ABOUT Y.
 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 COLORED SIDE.

472-3911 472-3911 472-3911	472-3911 472-3911 472-3911	472-3911 472-3911 472-3911	472-3911 472-3911 472-3911	472-3911 472-3911 472-3911	472-3911 472-3911 472-3911
NEXT ASSEMBLY DATE:		REV. NO.:		REV. DATE:	
TOTAL QTY IN BOMBY: 1		472-3911		472-3911	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	12/9/2011	BK

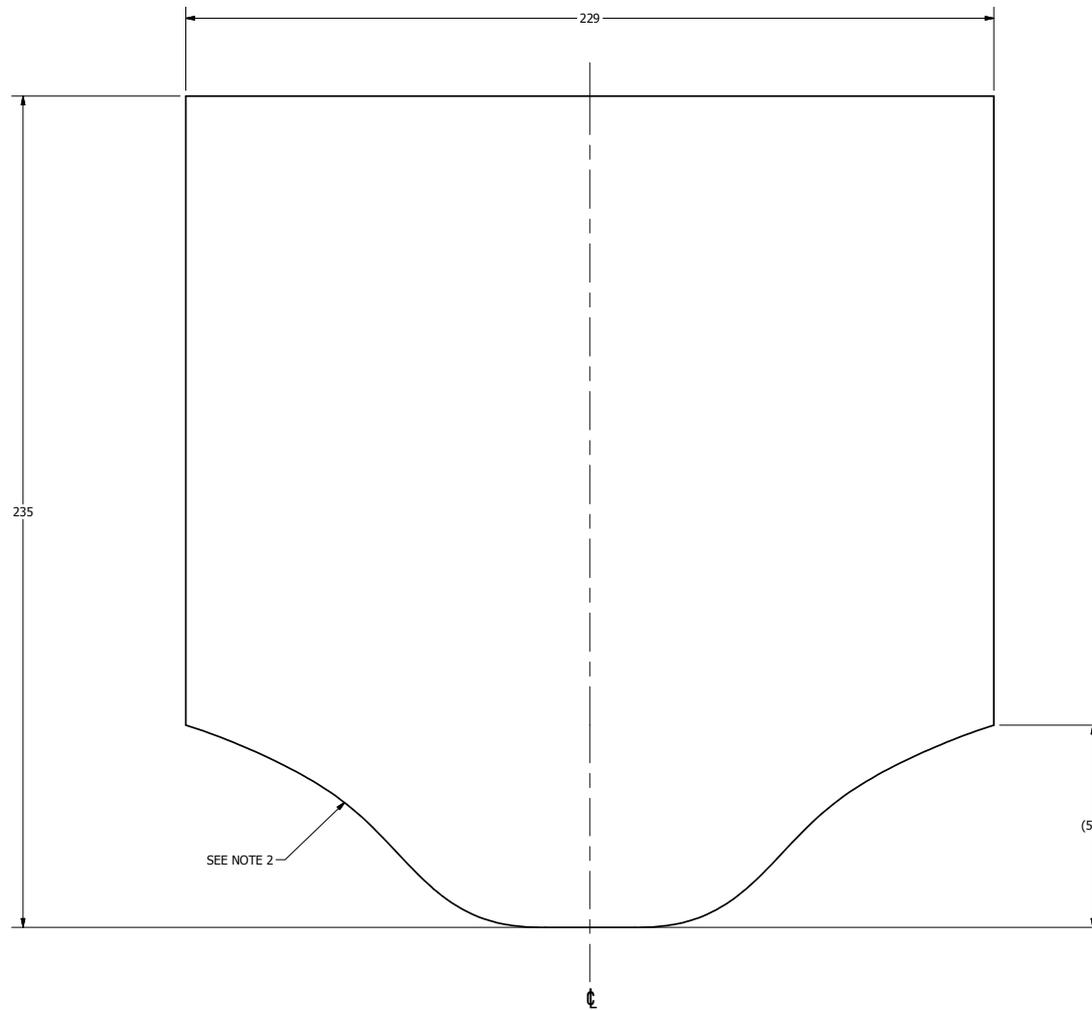


NOTES:

1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED.
2. PATTERN IS SYMMETRIC ABOUT ϕ .
3. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.
4. CUT THIS PATTERN WITH THE RED COLOR SURFACE FACING UPWARDS.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		FRONT INTERIOR SHOULDER PATCH	
ECO#	REV	DATE	BY	ECO#	REV
472-3910	1	12/9/2011	B. KIMES	A21	1 of 1
NEXT ASSEMBLY	QTY	DATE	BY	SCALE	1:000
TOTAL QTY IN DUMMY	1	11/11/2012	J. WANG	472-3927	A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF120 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 3	11/30/2011	BK

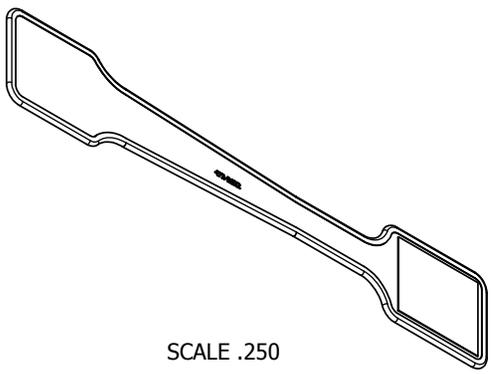


- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. SEE DRAWING 472-3912, TABLE 1, FOR RADIUS OF CURVATURE.
 3. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.

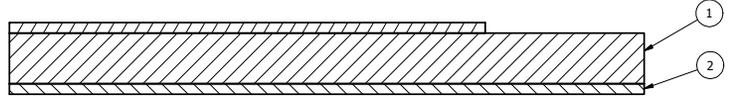
A

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> <small>FINISHES: 1. ALL DIMENSIONS TO CENTER UNLESS OTHERWISE SPECIFIED</small> <small>2. ALL DIMENSIONS TO SURFACE UNLESS OTHERWISE SPECIFIED</small> <small>3. UNLESS OTHERWISE SPECIFIED</small>			
472-3910	1	SEE NOTES	B. KIMES	11/30/2011	FRONT INTERIOR ABDOMEN PATCH, JACKET
NEXT ASSEMBLY	QTY	DATE	BY	DATE	BY
TOTAL QTY IN DUMMY	1		J. WANG	11/11/2012	
				A2	1 of 1
				1.000	472-3921

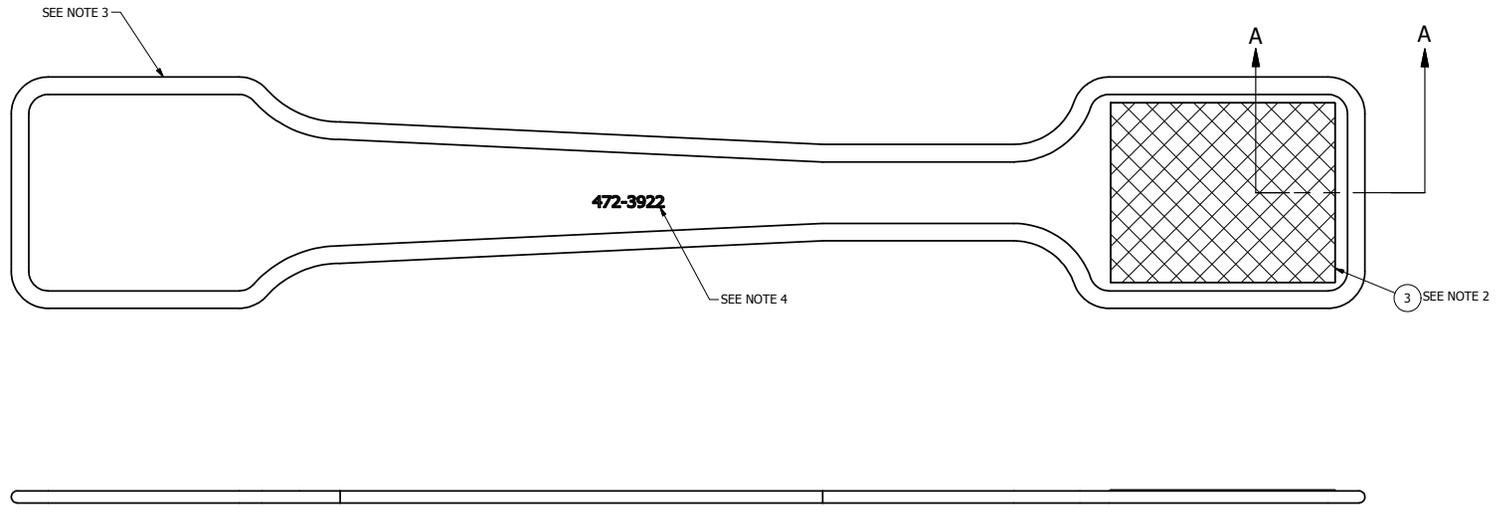
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF130 RB1 AND CONVERTED TO METRIC FOR THOR-M; REMOVE NOTES 4,5 AND RENUMBER	11/29/2011	BK



SCALE .250



SECTION A-A
BIAS TAPE NOT SHOWN
SCALE 3.000



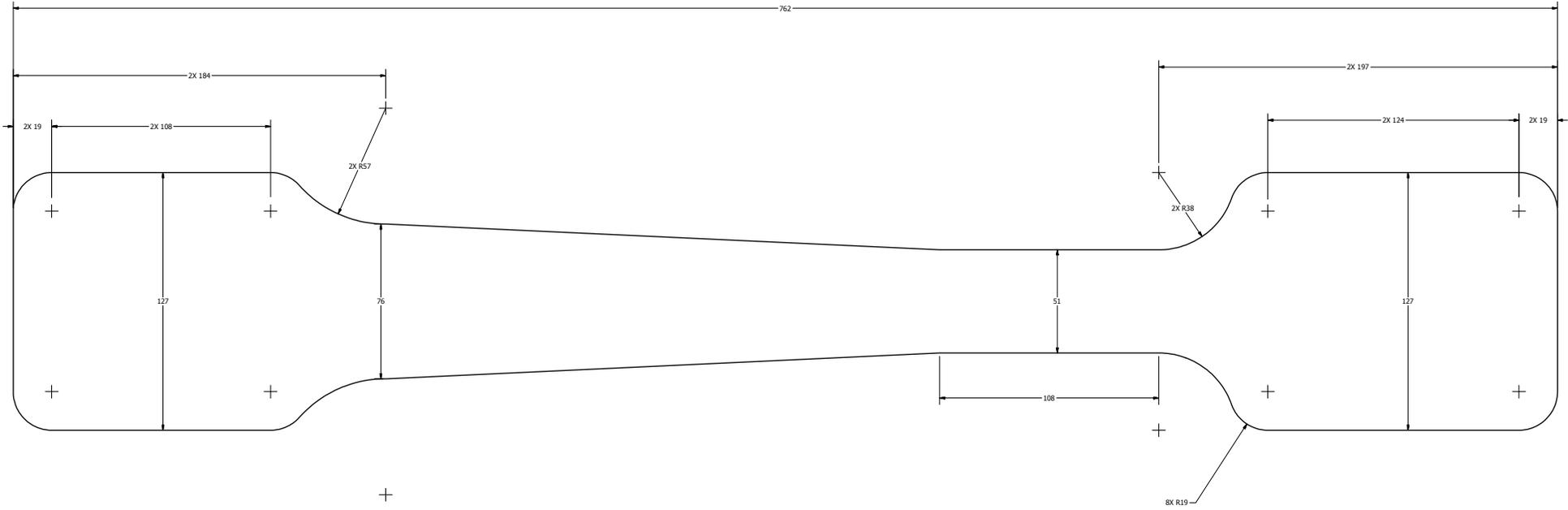
- NOTES:
- PATTERN IS SHOWN WITH INSIDE (NEOPRENE) UP.
 - SEW VELCRO LOOP, CENTERED AT AREA SHOWN, DIRECTLY TO NEOPRENE ONLY.
 - CORDURA AND NEOPRENE LAYERS ARE SEWN TOGETHER AND LINED WITH RED BIAS TAPE. NEOPRENE IS TO BE STRETCHED TO 711mm DURING SEWING.
 - MARK PART NUMBER (6.4mm CHARACTERS MIN.) WITH PERMANENT MARKER, WHERE SHOWN.

ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	472-3925	REAR CROTCH STRAP HOOK VELCRO
2	1	472-3924	OUTER CROTCH STRAP PATTERN, JACKET
1	1	472-3923	INNER CROTCH STRAP PATTERN, JACKET

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS 0.1 1/16 0.25 1/4 0.5 1/2 1.0 1 2.0 1/2 5.0 1		SHOW DIMENSIONS & BREAK DIMENSIONS DRAWN BY: B. KIMES DATE: 11/29/2011 CHECKED BY: J. WANG DATE: 1/11/2012		
PART NUMBER: 472-3910 QTY: 1 NEXT ASSEMBLY: QTY: 1 TOTAL QTY IN DUMMY: 1		PART NUMBER: 472-3922 QTY: 1 NEXT ASSEMBLY: QTY: 1 TOTAL QTY IN DUMMY: 1		CROTCH STRAP ASSEMBLY, JACKET A21 of 1 SCALE: .500

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JNF131 R81 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



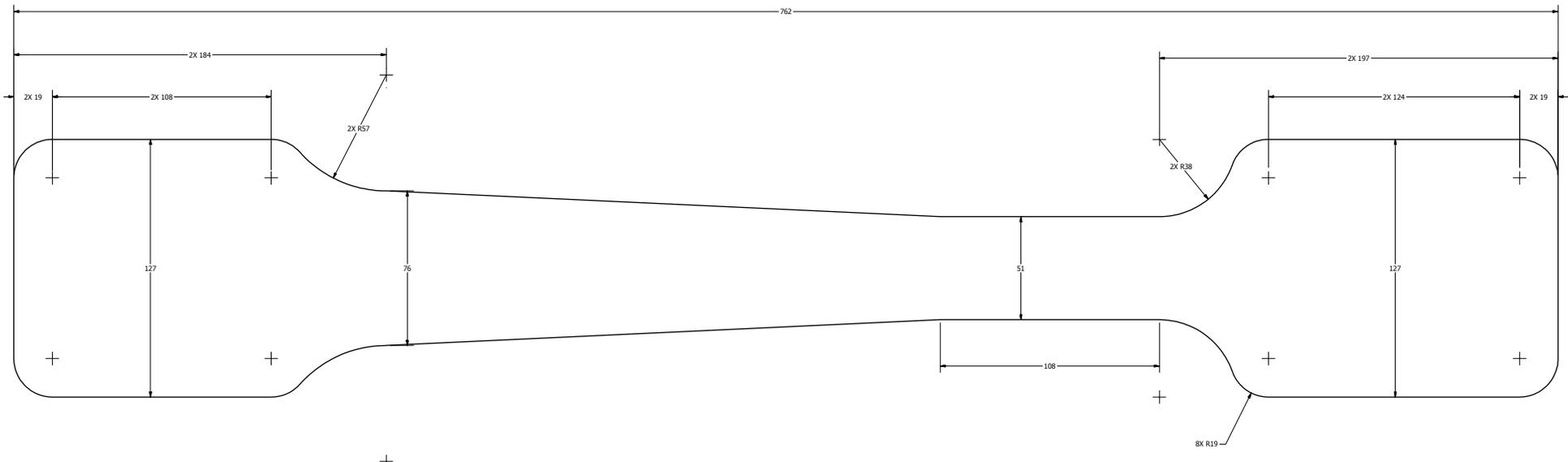
NOTES:

1. MATERIAL: NEOPRENE G-231-N 3/16" (4.8mm) THICKNESS, WITH 2 SIDES OF NYLON (N-2-S); COLORS BLACK AND RED.

2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

472-3922		1	SEE NOTES	B. KIMES	11/29/2011	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
NEXT ASSEMBLY		QTY				
TOTAL QTY IN DRAWING		1		J. WANG	6/12/2012	1 of 1 472-3923

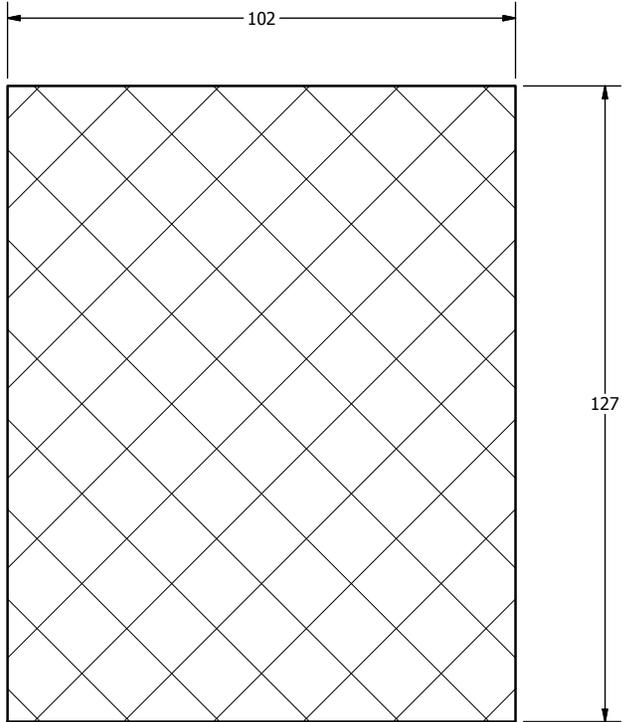
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM 11JWF132 R81 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/29/2011	BK



NOTES:
 1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3924		1 SEE NOTES		B. KIMES 11/29/2011	
NEXT ASSEMBLY		QTY		A11 of 1	
TOTAL QTY IN DRAWING		1		472-3924	
		J. WANG 11/29/2011		1:000	

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



NOTES:

1. MATERIAL: BLACK NYLON LOOP VELCRO, SHEAR STRENGTH 17 PSI.
2. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.



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 .005 0.05 1.6 XX 0.02 0.05 1.6 XXX 0.03 0.05 1.6 XXX 0.01		
PROJECT NO:	472-3922	MATERIAL:	SEE NOTES	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	11/29/2011	REAR CROTCH STRAP HOOK VELCRO
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
FINISH:		DATE:	1/11/2012	SCALE:
SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:
TOTAL QTY IN DUMMY:	1	SCALE:	1.000	472-3925



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

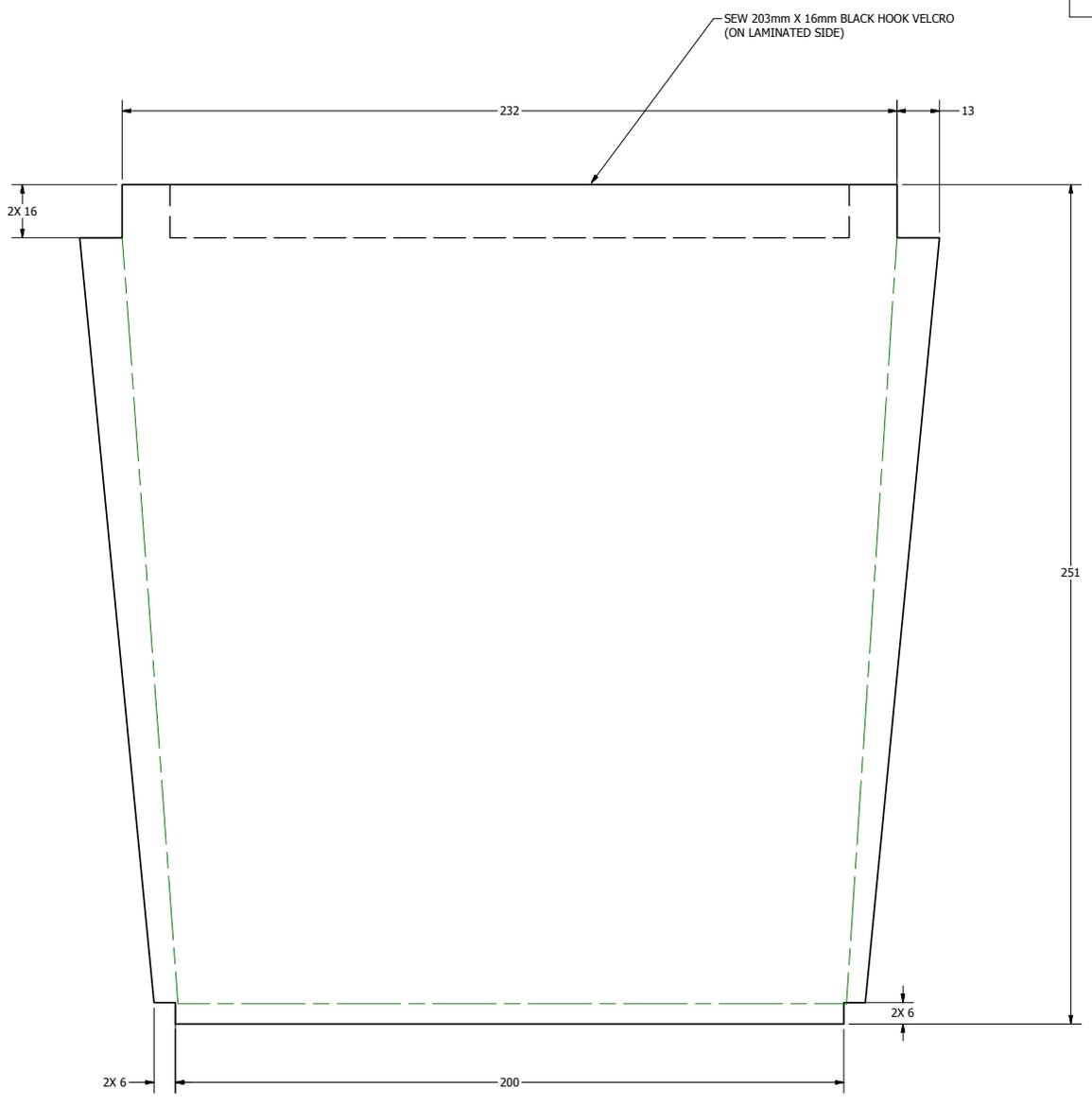
REAR CROTCH STRAP HOOK VELCRO

SIZE: A3
SHEET: 1 OF 1

DRAWING NO.: 472-3925

REV: A

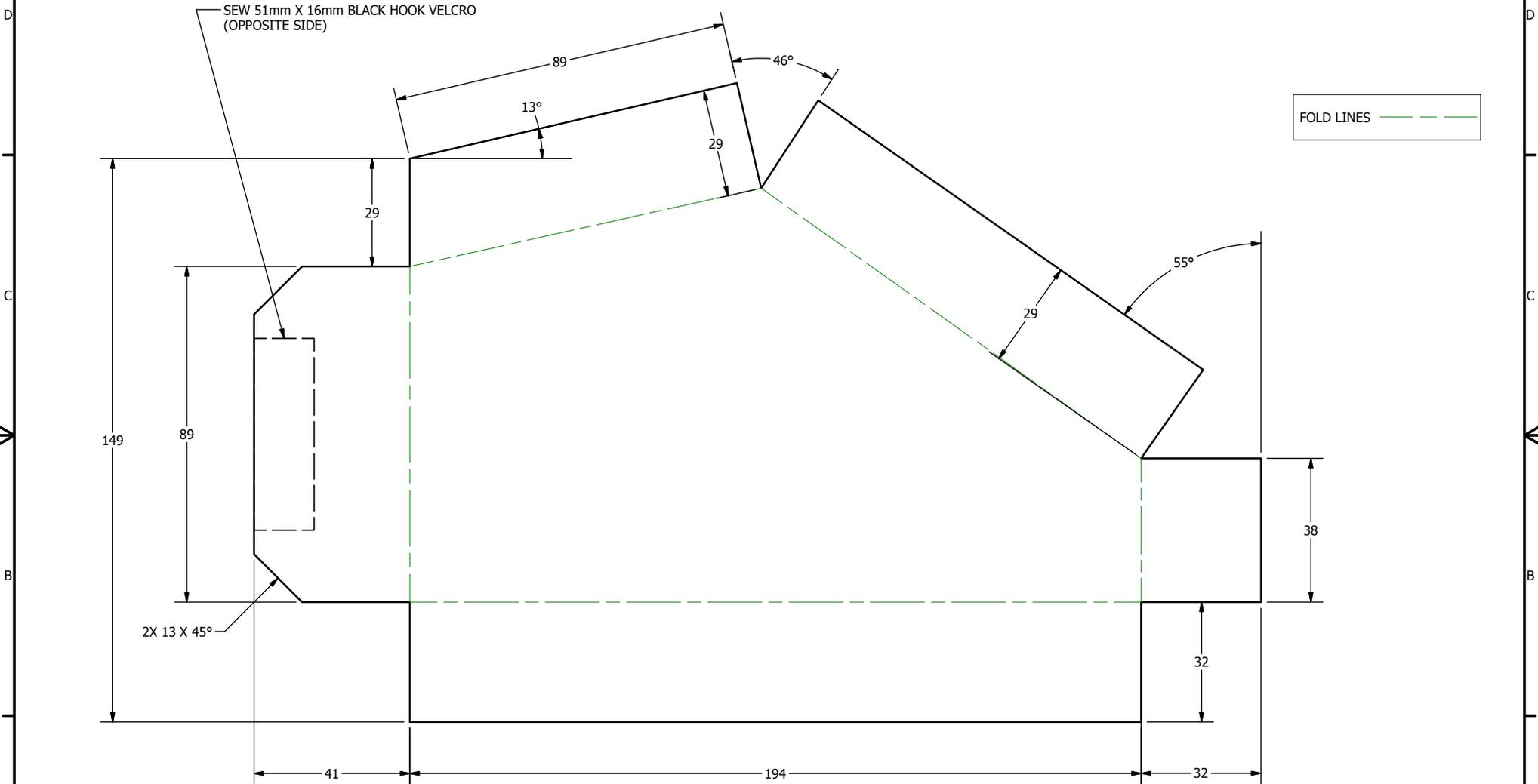
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF113 RB1 AND CONVERTED TO METRIC FOR THOR-M; REMOVE 2X VELCRO PATCH; 251 WAS 270 (TO MATCH ACTUAL PART)	11/30/2011	BK



- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING		TOLERANCES		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
472-3910		SEE NOTES		CHEST FOAM POCKET	
NEXT ASSEMBLY	QTY	DESIGNED BY	DATE	SCALE	QUANTITY
TOTAL QTY IN DUMMY	1	DESIGNED BY	DATE	SCALE	QUANTITY
		J. WANG	11/11/2012	A21 of 1	1,000
					472-3914

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF115 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 3	11/30/2011	BK



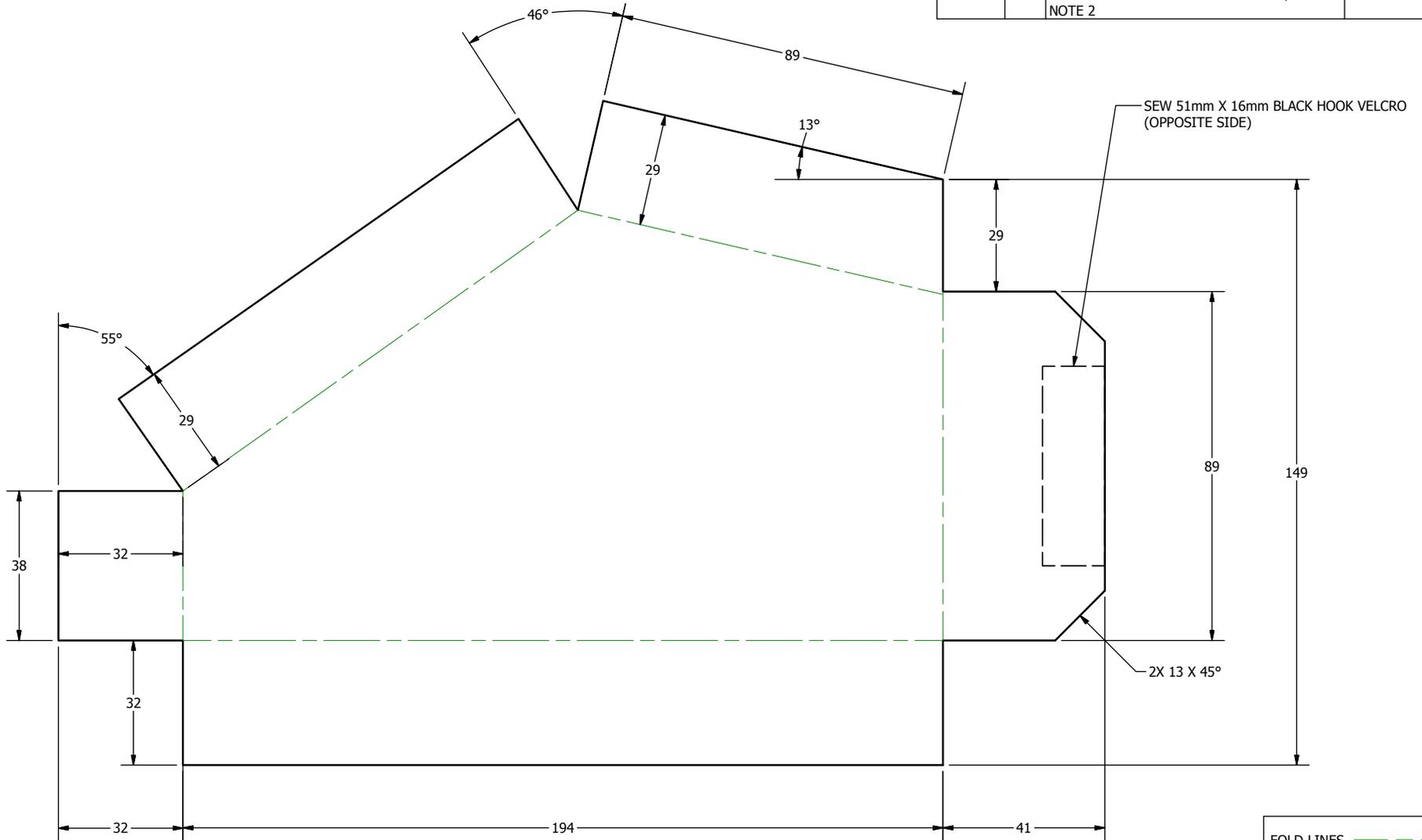
- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. CUT WITH LAMINATED SIDE DOWNWARDS.
 3. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

DO NOT SCALE DRAWING	TOLERANCES
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.: 472-3910	DATE: 11/30/2011	DESCRIPTION: UPPER LEFT FOAM POCKET
MATERIAL: SEE NOTES	DESIGNED BY: B. KIMES	
HEAT TREAT:	CHECKED BY:	DATE: 1/11/2012
TOTAL QTY IN DUMMY: 1	ENGINEER: J. WANG	DATE: 1/11/2012
	SCALE: 1:000	SIZE: A3 1 OF 1
		DRAWING NO.: 472-3915-1
		REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF114 RB1 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK

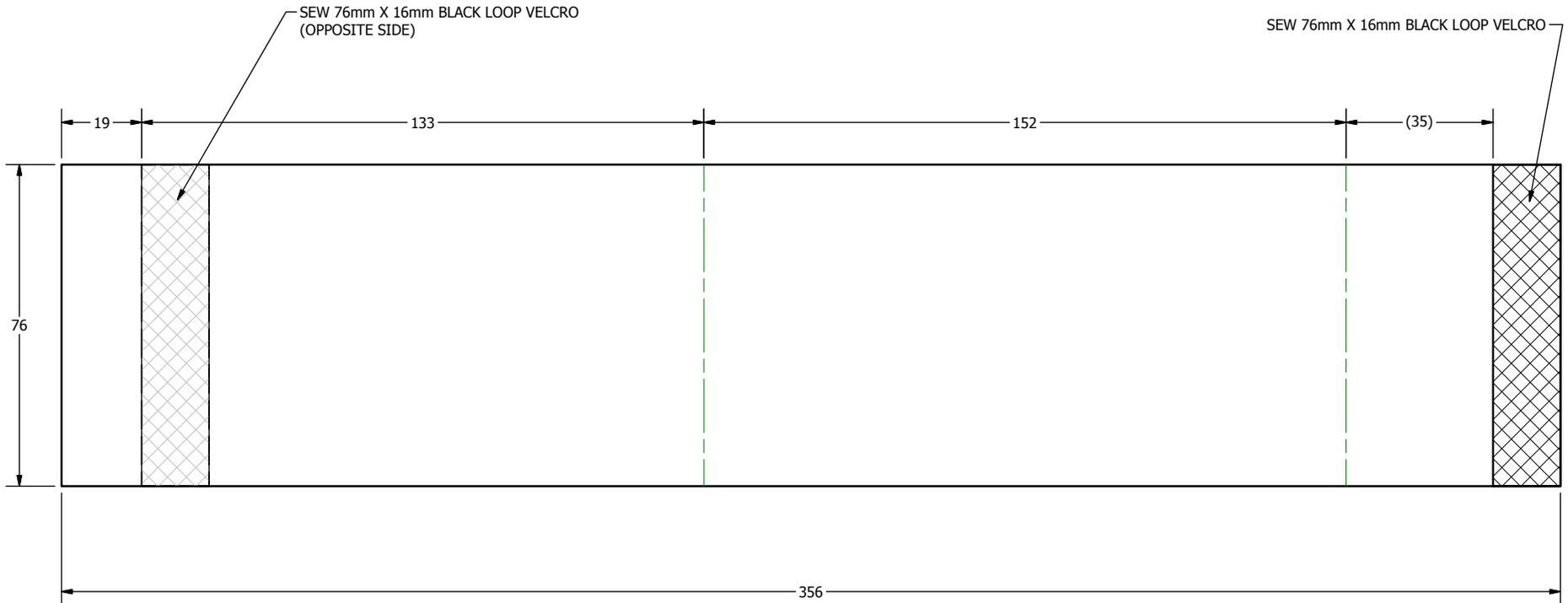


- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. CUT WITH LAMINATED SIDE DOWNWARDS.
 3. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .001 X .001 1.6 X.X X .02 X .02 X.XX X .03 X .03 X.XXX X .01 X .01		
PROJECT NO.:	472-3910	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	11/30/2011	DESIGNED BY:	B. KIMES	UPPER RIGHT FOAM POCKET
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A31 OF 1
DATE:	1/11/2012	SCALE:	1:000	DRAWING NO.:
TOTAL QTY IN DUMMY	1	FINISH:		472-3915-2

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF112 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK

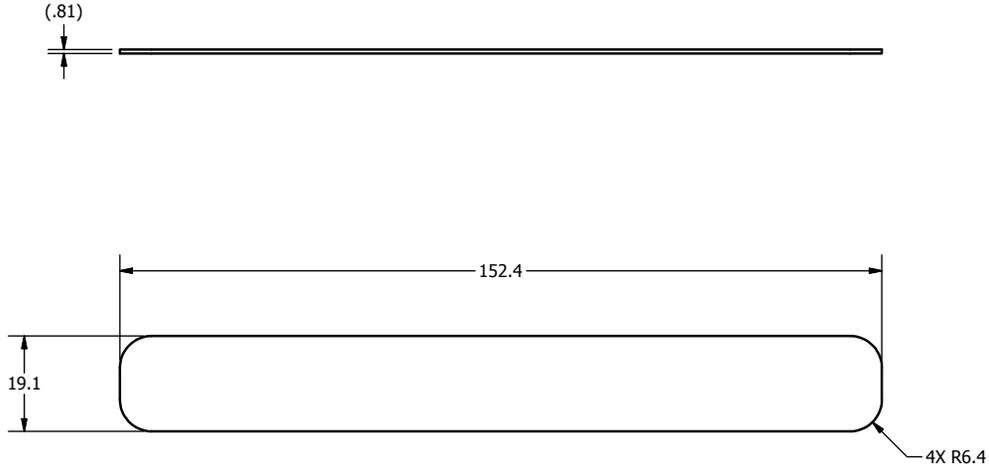
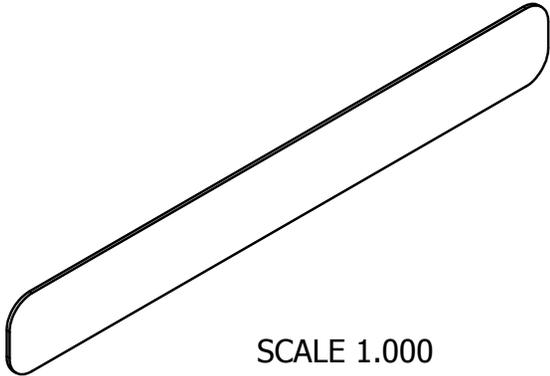


FOLD LINES

- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. TOLERANCE ± 3 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 .05 1.6 X.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	472-3910	MATERIAL:	SEE NOTES	DESCRIPTION:
CHECKED BY:	B. KIMES	DATE:	11/30/2011	STIFFENER POCKET, JACKET
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:		SCALE:	1.000	SIZE: SHEET
QTY:	2	TOTAL QTY IN DUMMY:	2	A31 OF 1
				DRAWING NO.:
				472-3913
				REV.:
				A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKM010 R2 AND CONVERTED TO METRIC FOR THOR-M; REMOVE NOTES 2,3 AND RENUMBER	11/29/2011	BK



NOTES:

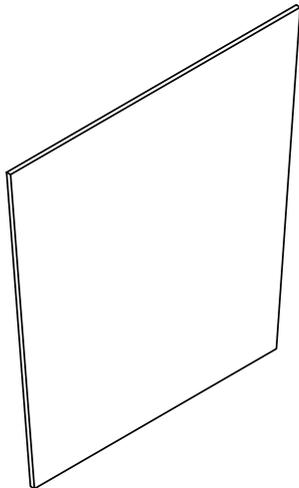
1. MATERIAL: BLUE TEMPERED SPRING STEEL SHIM STOCK (GRADE 1095 Rc 48-51).
2. APPLY POLYOLEFIN THIN WALLED TUBING (SHRINK WRAP) AROUND SHIM. (I.D 12.7mm)



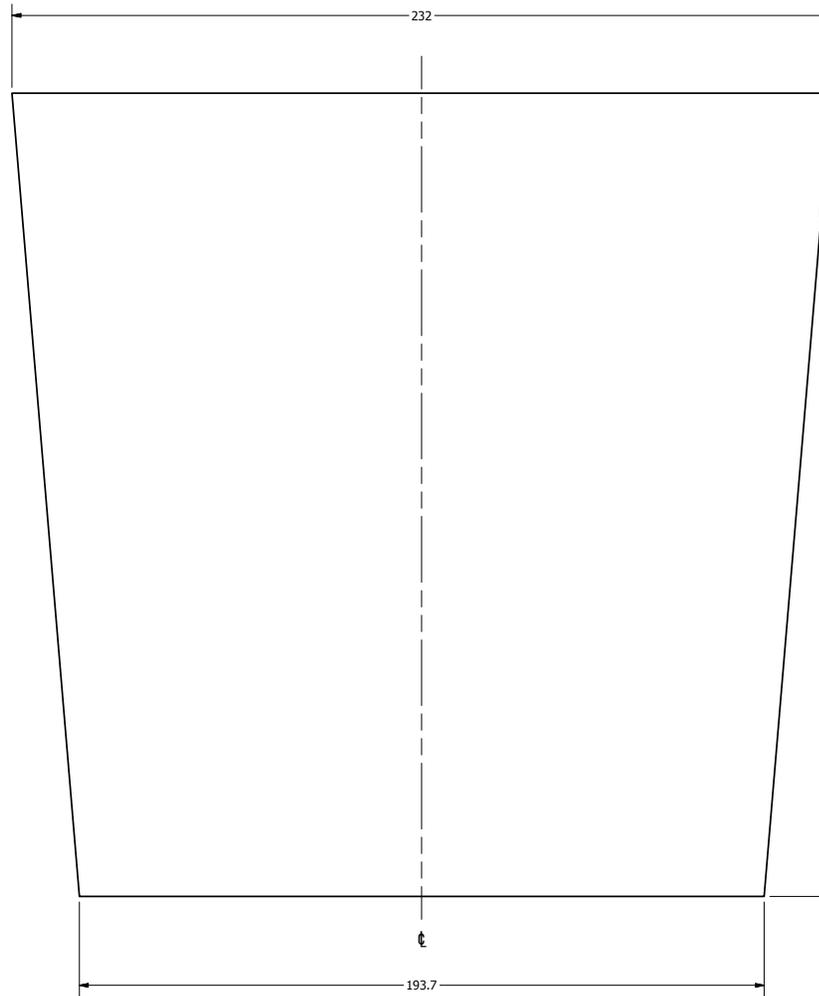
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 ± 0.07 1.6 XX ± 0.2 XXX ± 0.3 XXXX ± 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-3910	MATERIAL:	SEE NOTES	DESCRIPTION: STEEL STIFFNER, JACKET
CHECKED BY:	B. KIMES	DATE:	11/29/2011	SIZE: A3
HEAT TREAT:		ENGINEER:	J. WANG	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	4	DATE:	1/11/2012	DRAWING NO: 472-3926
		FINISH:		SCALE: 1.000

REV: A

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 .500



SEE NOTE 2

227

- NOTES:
1. MATERIAL: WEIGHTED ACOUSTICAL SOUND CONTROL MATTING.
3.2±.5mm (1/8") THICK WITH 6.4mm THICK OPEN CELL FOAM BACKING.
 2. REMOVE AND DISCARD 6.4mm FOAM BACKING FROM MATTING.
 3. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

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 FRACTIONS ARE TO BE USED UNLESS OTHERWISE SPECIFIED UNLESS OTHERWISE SPECIFIED UNLESS OTHERWISE SPECIFIED		
472-3910	1	SEE NOTES	B. KIMES	11/29/2011
NEXT ASSEMBLY	QTY	DATE	BY	DATE
TOTAL QTY IN DUMMY	1	DATE	J. WANG	11/11/2012

WEIGHTED BIB, JACKET

A21 of 1

1.000

472-3920

REV#	REV	DESCRIPTION	DATE	BY
A		RENUMBERED FROM TYP 1111111 AND CONVERTED TO METRIC FOR THOR-PL ADD TOLERANCE AND CHANGE TO NOTE	11/30/2011	BK

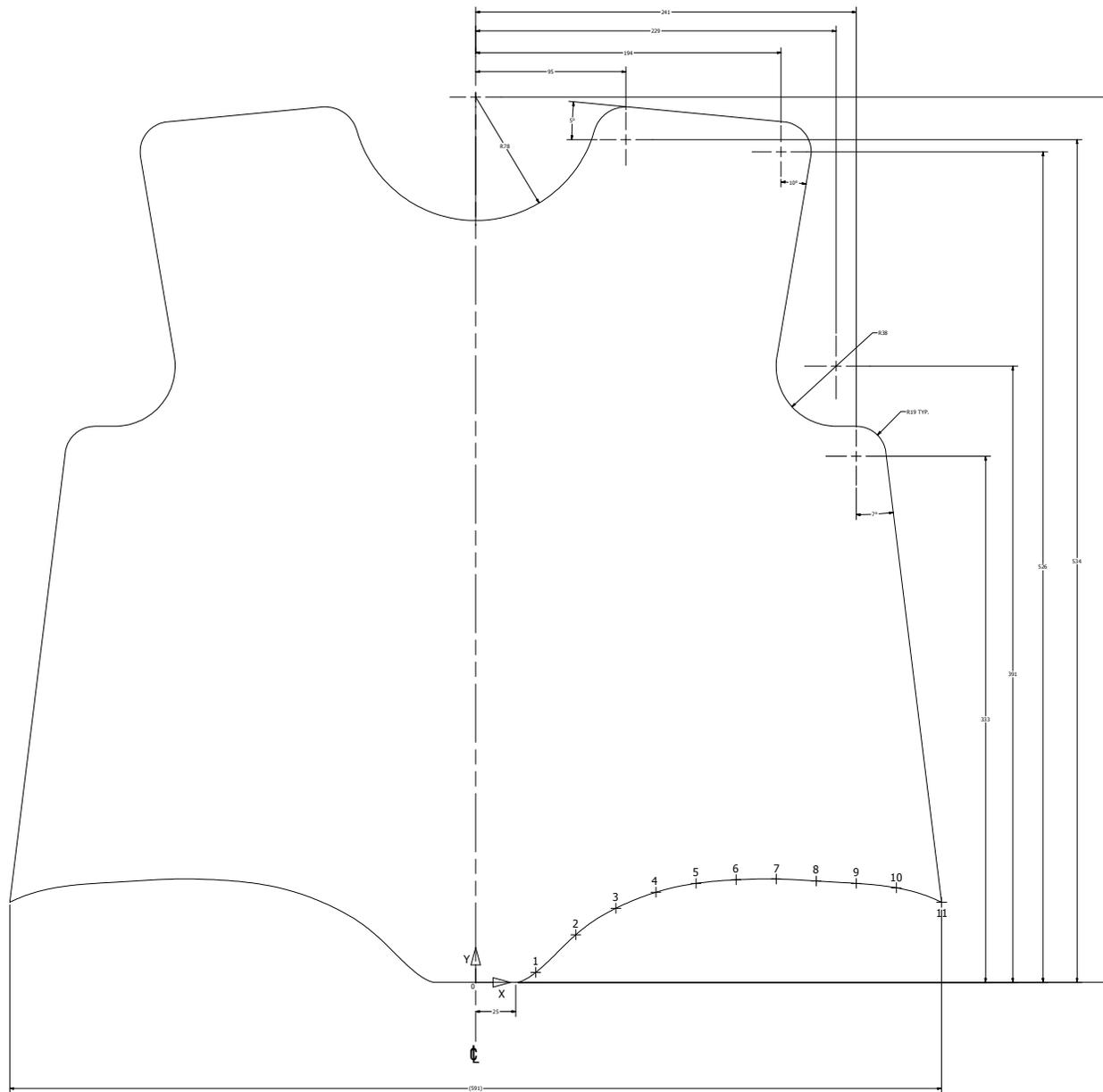


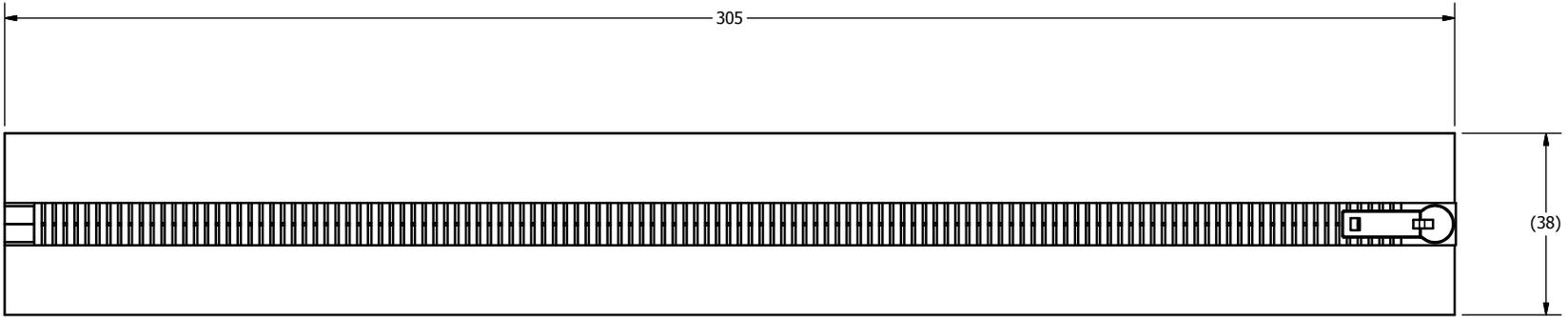
TABLE 1

POINT	X (+/- 0.5mm)	Y (+/- 0.5mm)
1	95	6
2	83.8	35
3	82	47
4	112	57
5	150	57
6	185	55
7	192.5	52.5
8	215	44
9	241	33
10	262	26
11	262	11

- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. PATTERN IS SYMMETRIC ABOUT \bar{C} .
 3. TOLERANCE $\pm 0.3mm$, UNLESS OTHERWISE NOTED.

DATE: 11/30/2011 TIME: 10:00 AM USER: BK PROJECT: 472-3912	NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION TRAFFIC SIGN PANEL PATTERN (CORDURA) 472-3912

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF117 RB2 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK



NOTES:

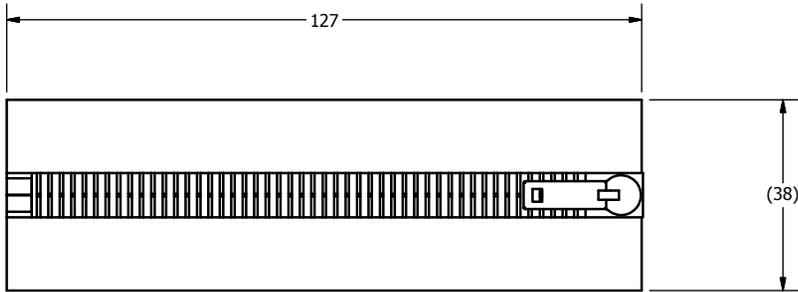
- 304.8 (12"), BLACK, BRASS ZIPPER
YKK, MODEL #MGM0L-106 DA G 3/4 OR EQUIVALENT.
- TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .005 1/2 1.6 XX .012 1/2 1.6 XXX .025 1/2 1.6 XXXX .051 1/2 1.6		
PROJECT NO.:	472-3910	MATERIAL:	SEE NOTES	DESCRIPTION:
DESIGNED BY:	B. KIMES	DATE:	11/30/2011	FRONT PANEL ZIPPER, JACKET
CHECKED BY:	J. WANG	DATE:	1/11/2012	SIZE: A3
HEAT TREAT:		FINISH:		SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	2	SCALE:	1:000	DRAWING NO.:
				472-3918

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF116 RB2 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	11/30/2011	BK



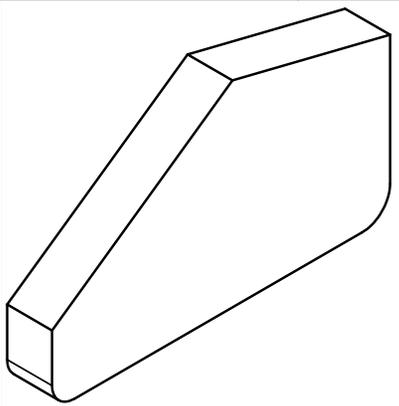
NOTES:

1. 127.0 (5"), BLACK, BRASS ZIPPER
YKK, MODEL #MGM0L-106 DA G 3/4 OR EQUIVALENT.
2. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.

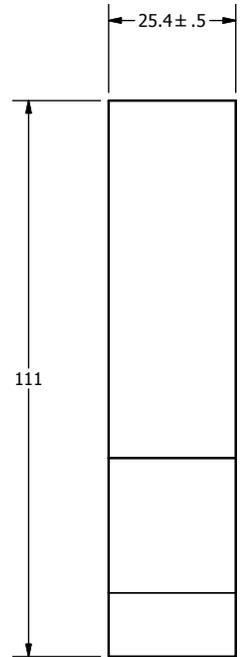
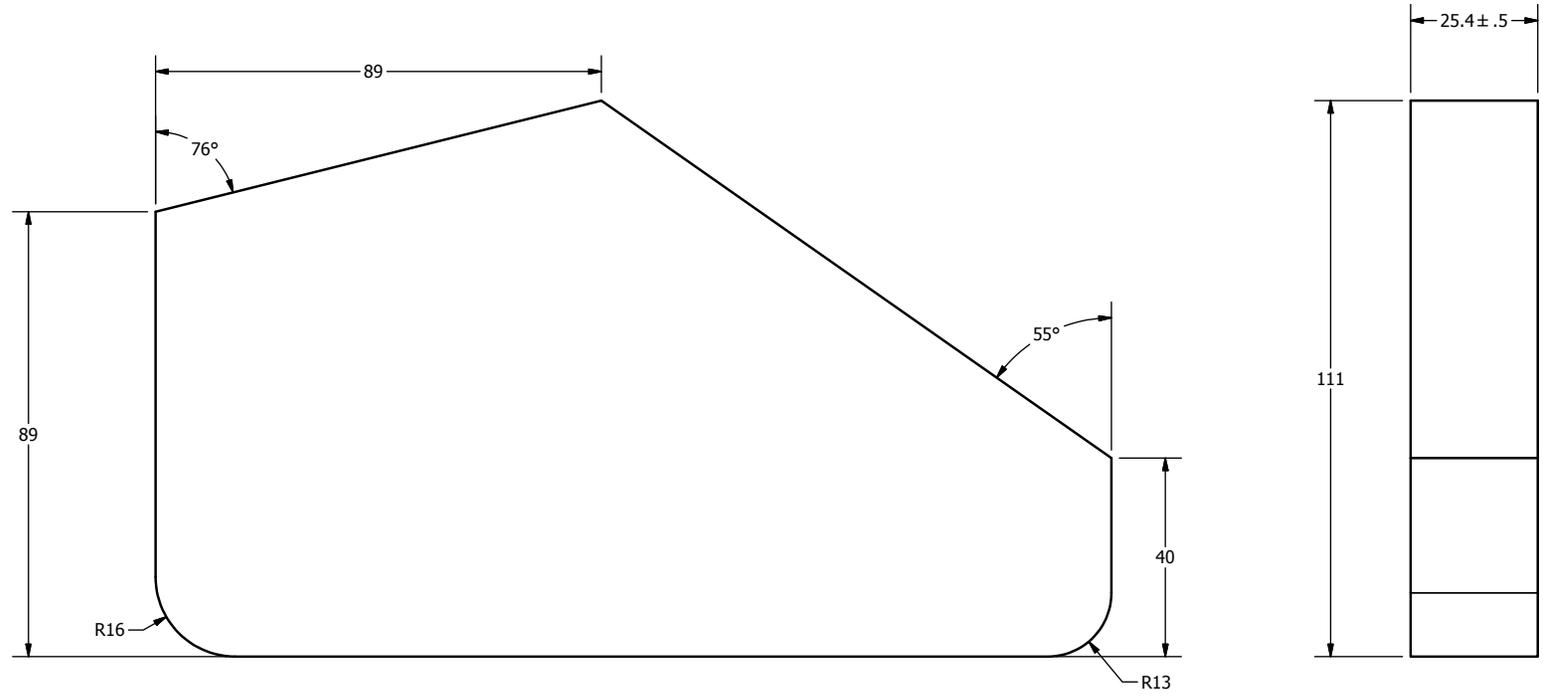
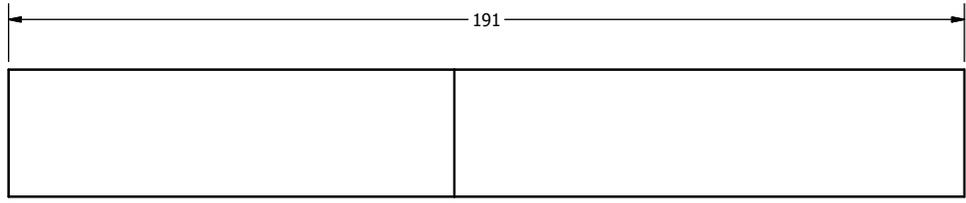


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> <small>DECIMALS ANGLES FINISH</small> <small>F ±0.2 ±0.5° 1.6</small> <small>XX ±0.2</small> <small>XXX ±0.3</small> <small>XXX ±0.01</small> <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO.:	472-3910	MATERIAL:	SEE NOTES	<small>DESCRIPTION:</small> FRONT PANEL SHOULDER ZIPPER, JACKET
CHECKED BY:	B. KIMES	DATE:	11/30/2011	
HEAT TREAT:		ENGINEER:	J. WANG	<small>SIZE:</small> A3 <small>SHEET:</small> 1 OF 1 <small>SCALE:</small> 1.000
TOTAL QTY IN DUMMY	2	FINISH:		<small>DRAWING NO.:</small> 472-3917 <small>REV.:</small> A

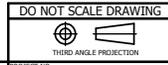
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF118 RB2 AND CONVERTED TO METRIC FOR THOR-M; REMOVE RADIUS AND OBSOLETE -1/-2 VERSIONS; ADD NOTE 2	2/8/2012	BK



SCALE .500



- NOTES:
1. MATERIAL: #6 CHARCOAL POLYESTER FOAM OR EQUIVALENT.
 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.



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



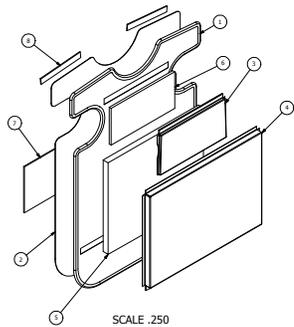
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO:	472-3910
MATERIAL:	SEE NOTES
HEAT TREAT:	
FINISH:	
QTY	2
TOTAL QTY IN DUMMY	2

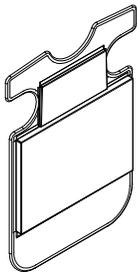
PROJECT NO:	472-3910
MATERIAL:	SEE NOTES
HEAT TREAT:	
FINISH:	
QTY	2
TOTAL QTY IN DUMMY	2

DESCRIPTION:	UPPER SIDE FOAM
SCALE:	1.000
DRAWING NO:	472-3919
REV:	A

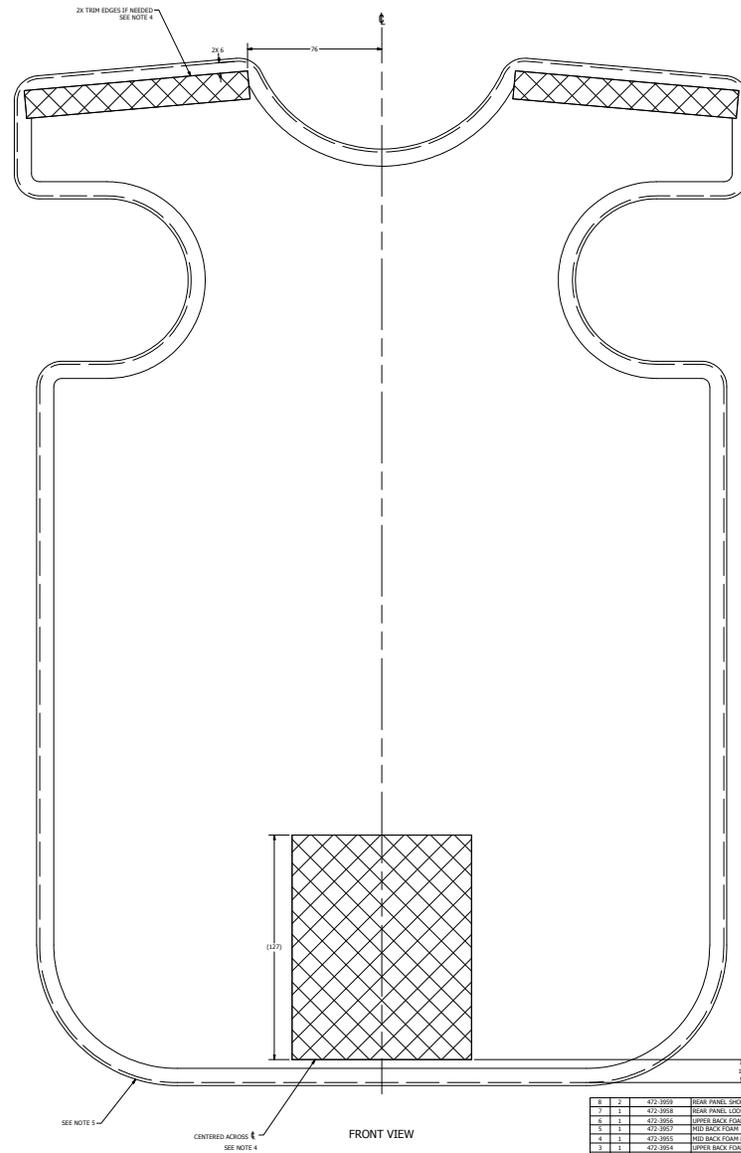
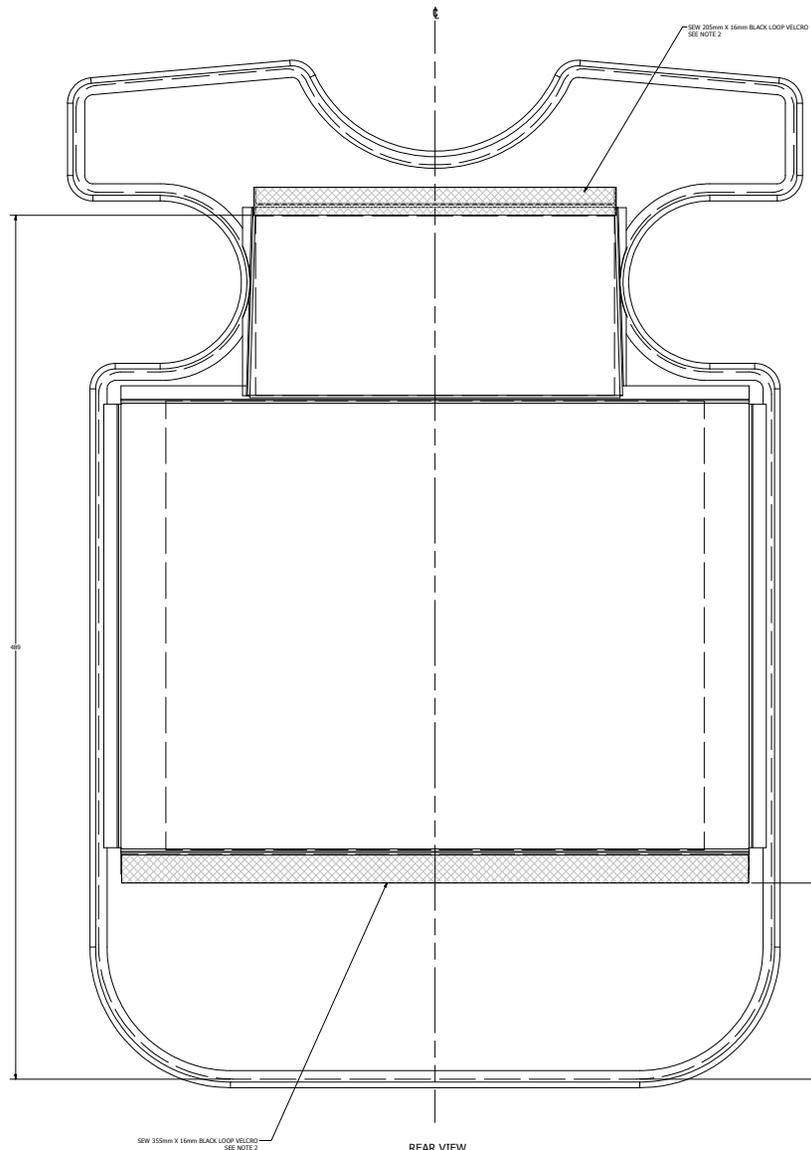
SIZE: A3
SHEET: 1 OF 1



SCALE .250



SCALE .250

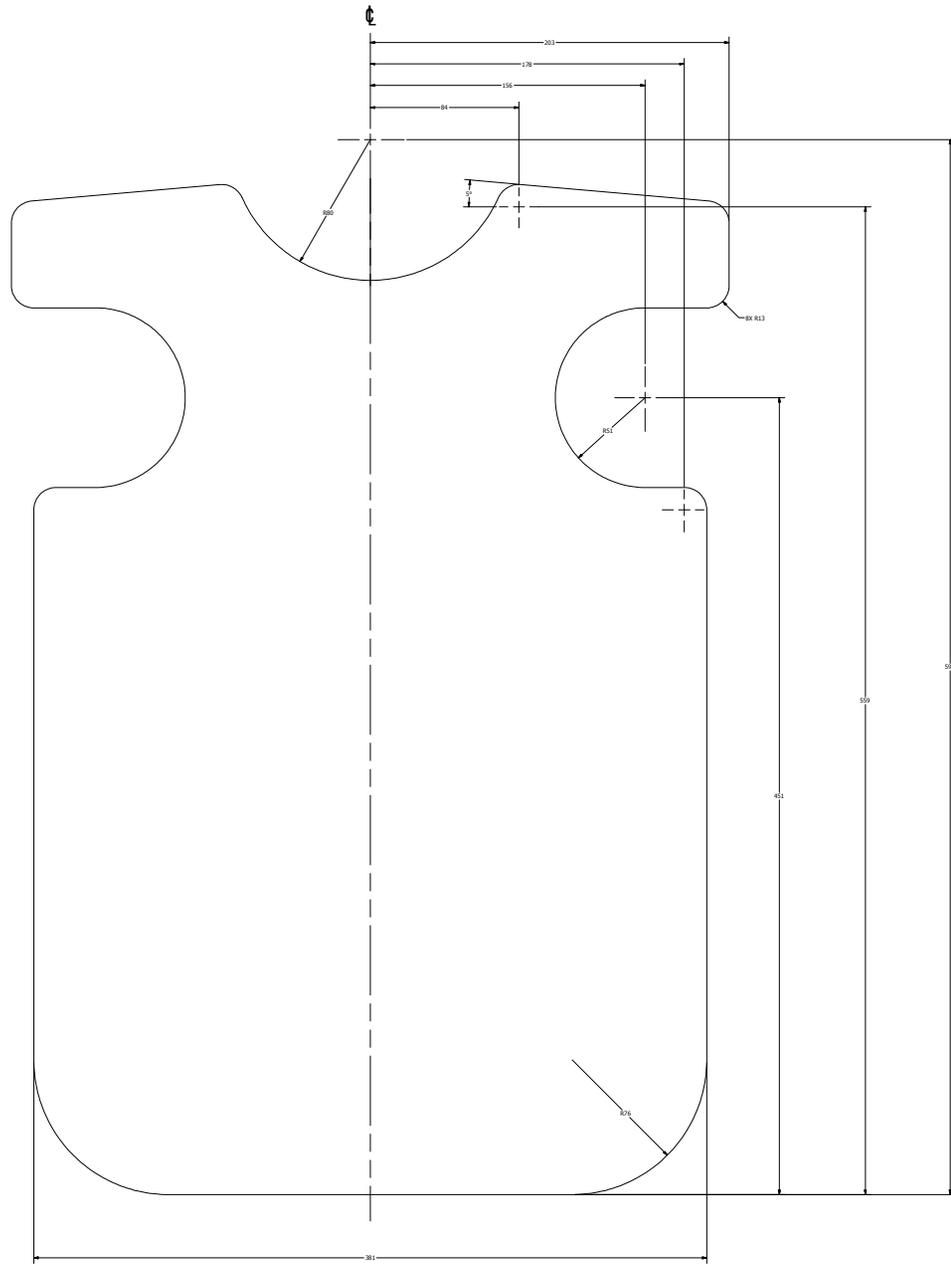


- NOTES:
- JACKET PATTERNS SHOWN WITH INSIDE (DARK SIDE) FACING UP.
 - SEW INSIDE VELCRO STRIPS AS NOTED.
 - SEW POCKETS AS SHOWN, WITH LAMINATED SIDE FACING DOWN.
 - SEW VELCRO TO FRONT COROURA PANEL BEFORE SEWING PANEL TO NEOPRENE.
 - AFTER SEWING VELCRO AND POCKETS, ASSEMBLE OUTSIDE COROURA PANEL ON THE OUTER SURFACE (BRIGHT SIDE) OF THE NEOPRENE WITH LAMINATED SIDE DOWN, STRETCH NEOPRENE TO COLOURA PROFILE, AND SEW ALONG EDGE WITH 60/20 BIAS TAPE.
 - DIMENSIONS ARE BEFORE BIAS TAPE IS SEWN IN, FROM NEOPRENE PANEL.
 - AFTER SEWING, INSERT FOAM PANELS INTO POCKETS.

ITEM	QTY	PART NUMBER	DESCRIPTION
8	2	472-3959	REAR PANEL SHOULDER HOOK VELCRO
7	2	472-3958	REAR PANEL LOOP VELCRO
6	1	472-3956	UPPER BACK FOAM
5	1	472-3957	MID BACK FOAM
4	1	472-3955	LOWER BACK FOAM
3	1	472-3954	UPPER BACK FOAM POCKET
2	1	472-3953	LOWER BACK FOAM POCKET
1	1	472-3952	INSIDE REAR PANEL PATTERN

PARTS LIST		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
QTY	DESCRIPTION	QTY	DESCRIPTION
1	REAR PANEL ASSEMBLY	1	REAR PANEL ASSEMBLY, JACKET
1	TOTAL QTY IN BOMBY	1	472-3951

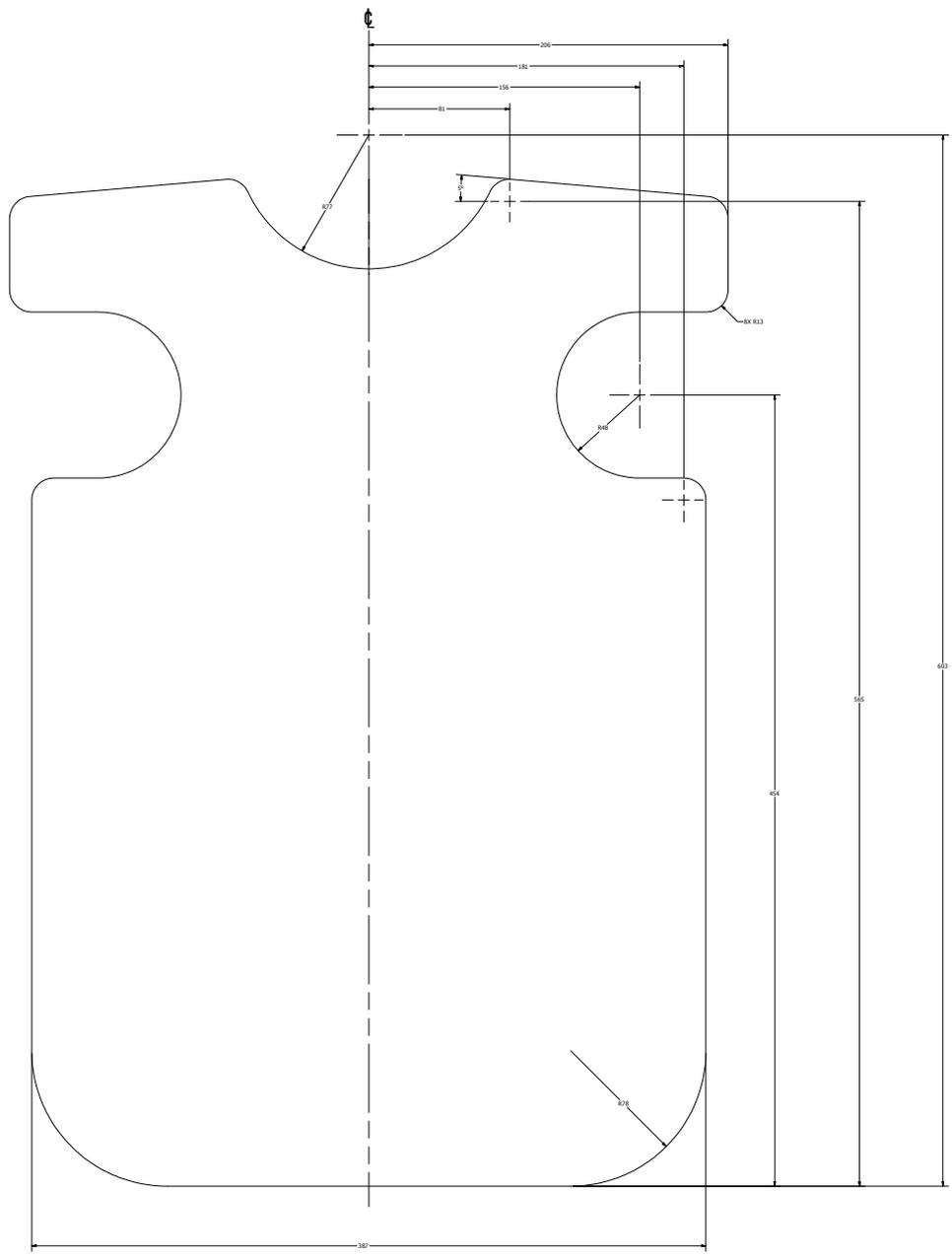
REVISION HISTORY		DATE	BY
REV	DESCRIPTION		
A	REPLACED FROM 11/07/01 SET AND CONVERTED TO METRIC FOR THOR-96 ADD TOLERANCE AND DIMENSION NOTE	11/06/2013	BK
B	BLACK HAS WERE, REMOVE COLOR NUMBER IN NEOPRENE MATERIALS.	6/12/2012	BK



- NOTES:
1. MATERIAL: NEOPRENE G-231, 4.8mm THICK, WITH 2 SIDES OF PLYER (NO-S), COLOR: BLACK AND RED.
 2. PATTERN IS SYMMETRIC ABOUT C.
 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 COLORED SIDE.

PROJECT INFORMATION		TRANSMISSION		NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
REV	DATE	REV	DATE	REV	DATE
001	08/20/03	001	08/20/03	001	08/20/03
REV	DATE	REV	DATE	REV	DATE
002	08/20/03	002	08/20/03	002	08/20/03
003	08/20/03	003	08/20/03	003	08/20/03
004	08/20/03	004	08/20/03	004	08/20/03
005	08/20/03	005	08/20/03	005	08/20/03
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098	08/20/03	098	08/20/03	098	08/20/03
099	08/20/03	099	08/20/03	099	08/20/03
100	08/20/03	100	08/20/03	100	08/20/03
101	08/20/03	101	08/20/03	101	08/20/03
102	08/20/03	102	08/20/03	102	08/20/03
103	08/20/03	103	08/20/03	103	08/20/03
104	08/20/03	104	08/20/03	104	08/20/03
105	08/20/03	105	08/20/03	105	08/20/03
106	08/20/03	106	08/20/03	106	08/20/03
107	08/20/03	107	08/20/03	107	08/20/03
108	08/20/03	108	08/20/03	108	08/20/03
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111	08/20/03	111	08/20/03	111	08/20/03
112	08/20/03	112	08/20/03	112	08/20/03
113	08/20/03	113	08/20/03	113	08/20/03
114	08/20/03	114	08/20/03	114	08/20/03
115	08/20/03	115	08/20/03	115	08/20/03
116	08/20/03	116	08/20/03	116	08/20/03
117	08/20/03	117	08/20/03	117	08/20/03
118	08/20/03	118	08/20/03	118	08/20/03
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120	08/20/03	120	08/20/03	120	08/20/03
121	08/20/03	121	08/20/03	121	08/20/03
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149	08/20/03	149	08/20/03	149	08/20/03
150	08/20/03	150	08/20/03	150	08/20/03
151	08/20/03	151	08/20/03	151	08/20/03
152	08/20/03	152	08/20/03	152	08/20/03

REV	DESCRIPTION	DATE	BY
A	RENDERED FROM 11 INCH SET AND CONVERTED TO METRIC FOR THO-M; ADD TOLERANCE AND DIMENSION NOTES; CORRECT MATERIAL & DIMENSIONS	12/6/2011	BK

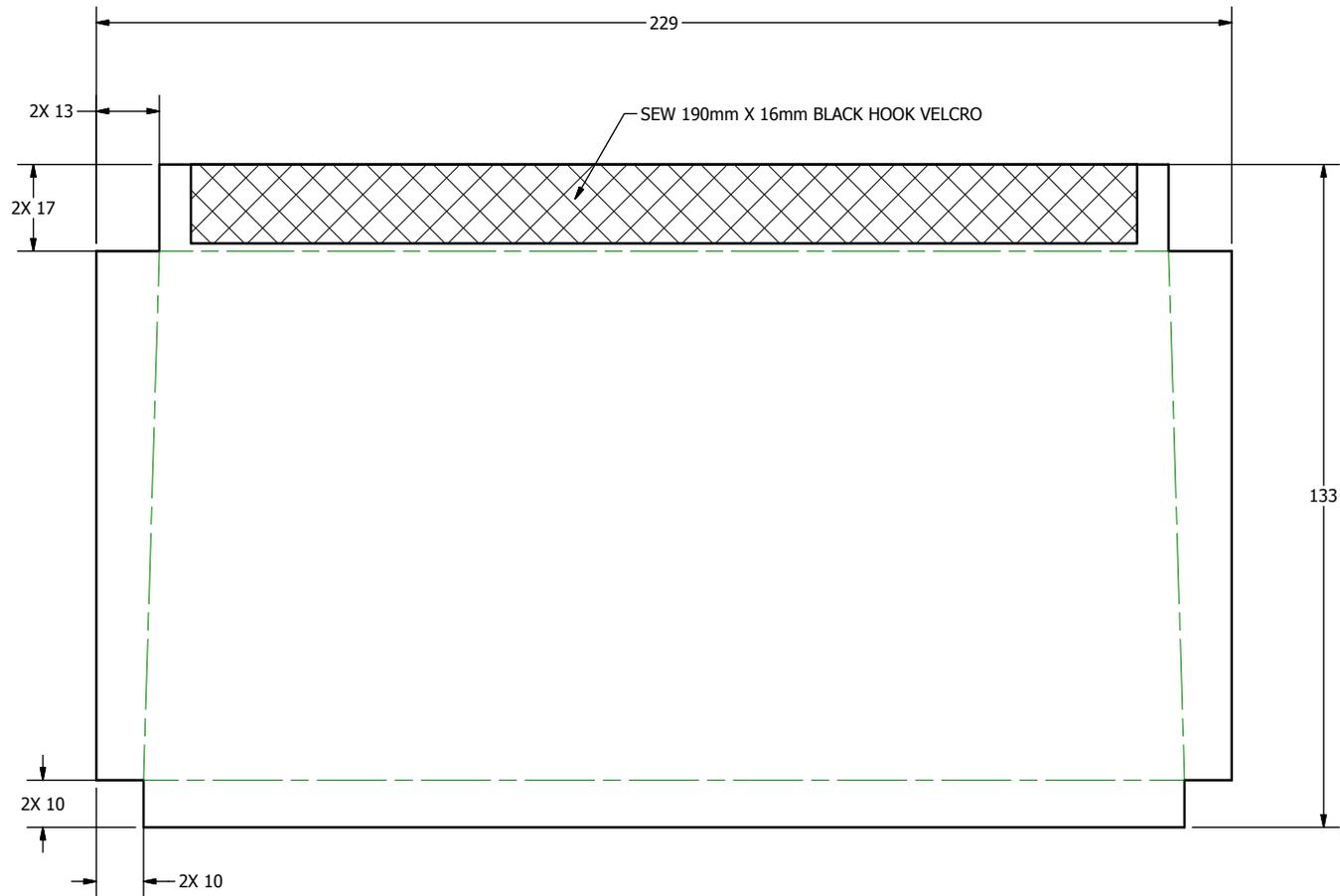


- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. PATTERN IS SYMMETRIC ABOUT ϕ .
 3. TOLERANCE $\pm 3\text{mm}$, UNLESS OTHERWISE NOTED.
 4. MARK PART NUMBER WITH PERMANENT MARKER ON LAMINATED SIDE.

REV	DESCRIPTION	DATE	BY
A	RENDERED FROM 11 INCH SET AND CONVERTED TO METRIC FOR THO-M; ADD TOLERANCE AND DIMENSION NOTES; CORRECT MATERIAL & DIMENSIONS	12/6/2011	BK

472-3953	472-3953	472-3953	472-3953
1	1	1	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



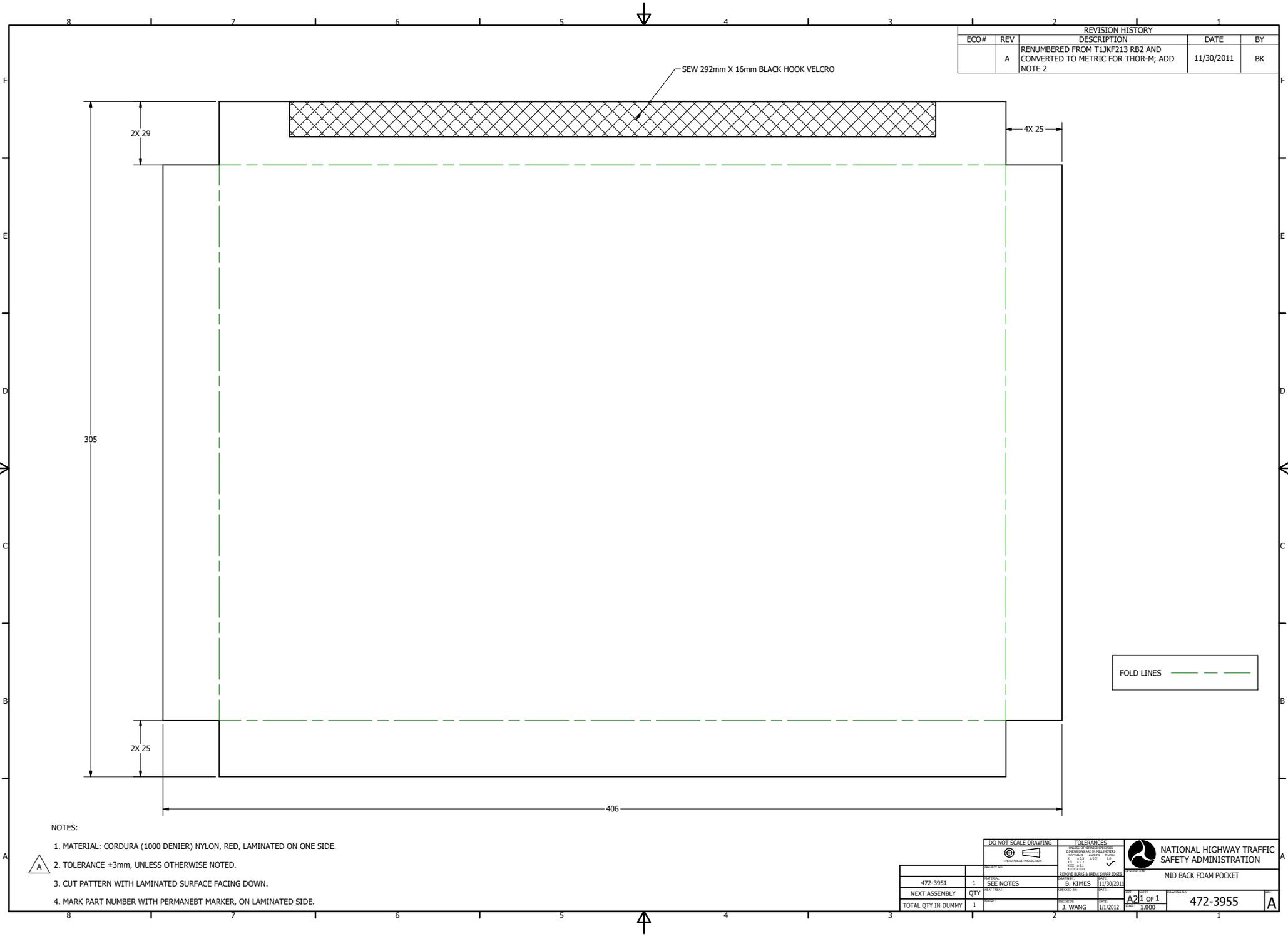
FOLD LINES

- NOTES:
1. MATERIAL: CORDURA (1000 DENIER) NYLON, RED, LAMINATED ON ONE SIDE.
 2. TOLERANCE ± 3 mm, UNLESS OTHERWISE NOTED.
 3. MARK PART NUMBER WITH PERMANENT MARKER, ON LAMINATED SIDE.



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 ✓		
PROJECT NO.:	472-3951	MATERIAL:	SEE NOTES	DESCRIPTION: UPPER BACK FOAM POCKET
PROVED BY:	B. KIMES	DATE:	11/30/2011	SIZE: A3
CHECKED BY:		DATE:		SHEET: 1 OF 1
ENGINEER:	J. WANG	DATE:	1/11/2012	DRAWING NO.: 472-3954
HEAT TREAT:		SCALE:	1:000	REV: A
TOTAL QTY IN DUMMY:	1	FINISH:		

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.



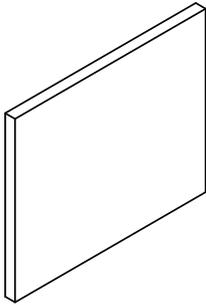
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
DIMENSIONS SHOWN ARE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS 0.1 1/16 0.25 1/4 0.5 1/2 1.0 1 2.0 1/2 5.0 1		DIMENSIONS SHOWN ARE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS FRACTIONS DECIMALS FRACTIONS 0.1 1/16 0.25 1/4 0.5 1/2 1.0 1 2.0 1/2 5.0 1		
472-3951	1	SEE NOTES	B. KIMES	11/30/2011
NEXT ASSEMBLY	QTY	BY	DATE	
TOTAL QTY IN DUMMY	1			

MID BACK FOAM POCKET

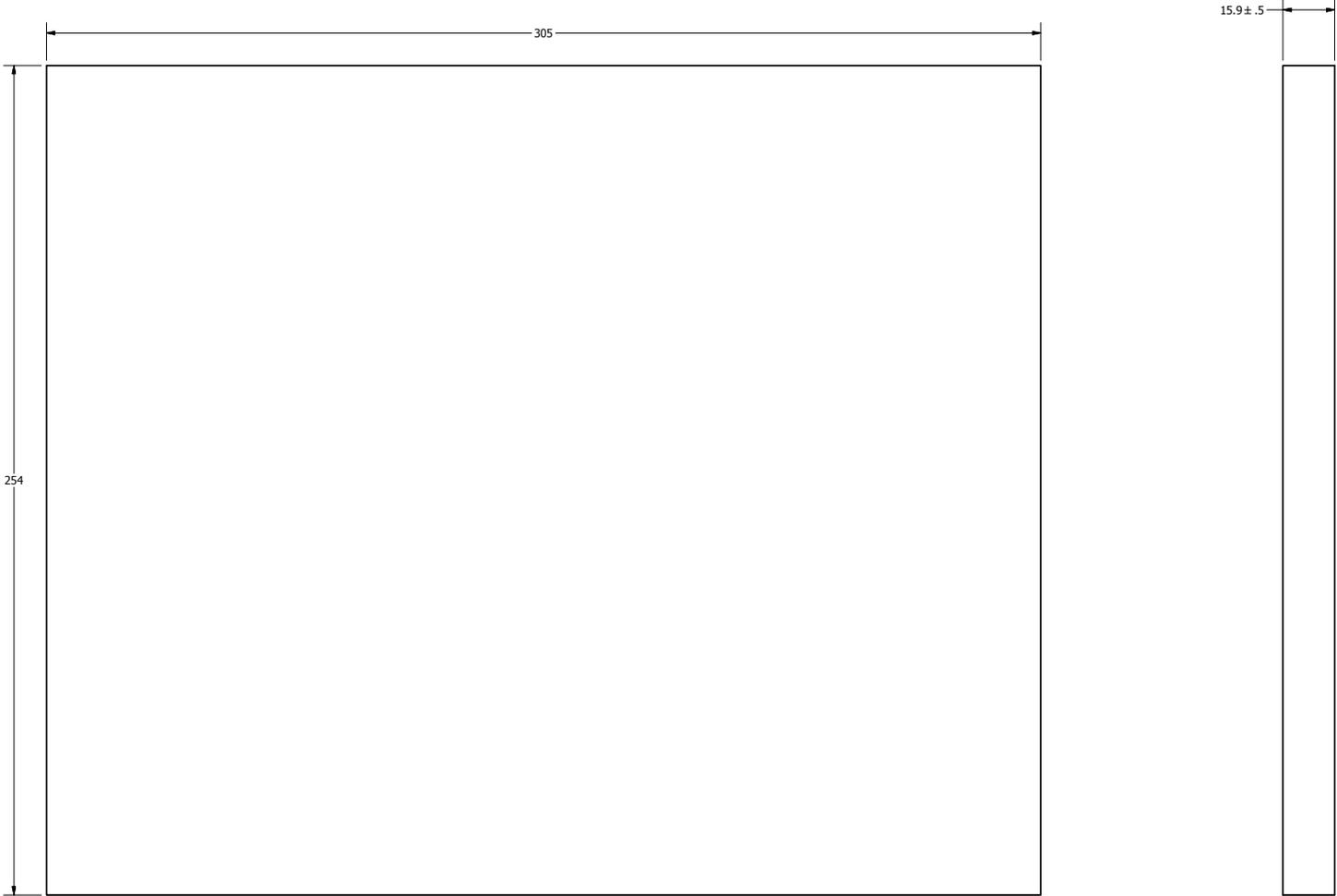
A21 of 1
1.000

472-3955

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	REMOVE R13 TYP.	3/15/2012	BK



SCALE .250

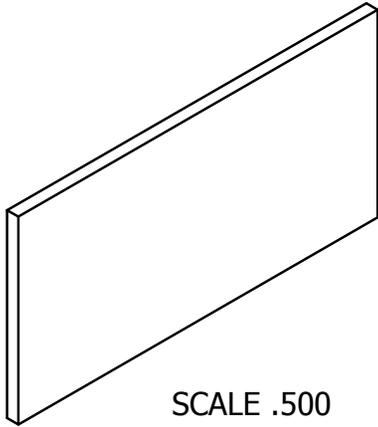


- NOTES:
1. MATERIAL: #6 CHARCOAL POLYESTER FOAM.
 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.

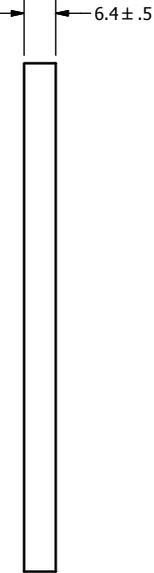
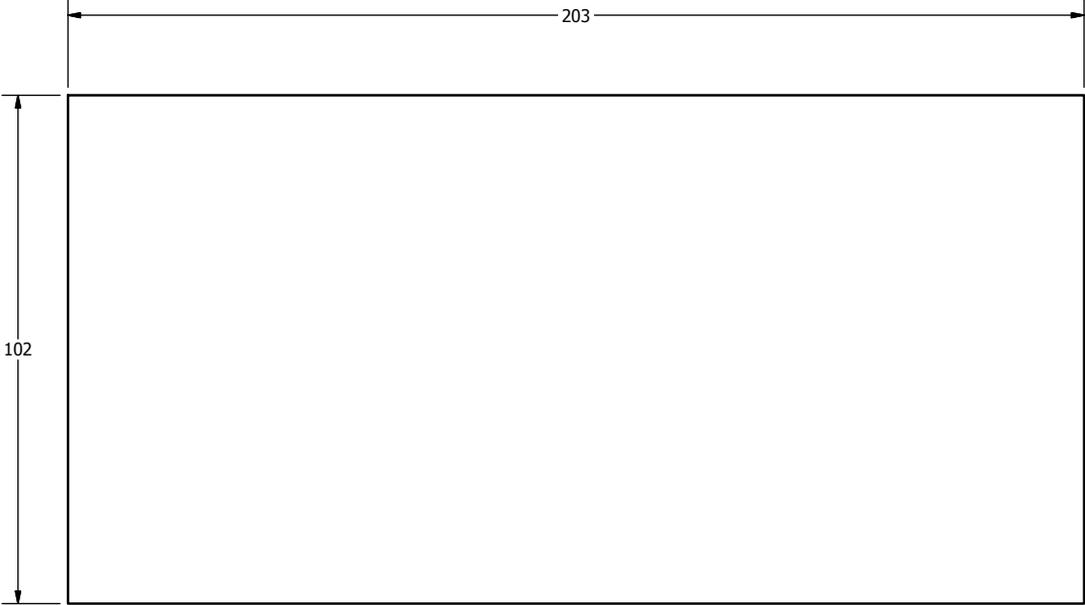


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 THIRD ANGLE PROJECTION		DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN MILLIMETERS FRACTIONS ARE IN 16THS OF AN INCH UNLESS OTHERWISE SPECIFIED		
472-3951	1	SEE NOTES	11/29/2011	MID BACK FOAM
NEXT ASSEMBLY	QTY	BY	DATE	REV
TOTAL QTY IN DUMMY	1	J. WANG	1/11/2012	A21 of 1
			1.000	472-3957

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 .500



- NOTES:
1. MATERIAL: #6 CHARCOAL POLYESTER FOAM.
 2. TOLERANCE ±3mm, UNLESS OTHERWISE NOTED.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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:	472-3951	MATERIAL:	SEE NOTES	DESCRIPTION:
DRAWN BY:	B. KIMES	DATE:	11/29/2011	UPPER BACK FOAM
CHECKED BY:	J. WANG	DATE:	1/11/2012	SIZE: A3
HEAT TREAT:		FINISH:		SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	SCALE:	1:000	DRAWING NO.: 472-3956

6 5 4 3 2 1

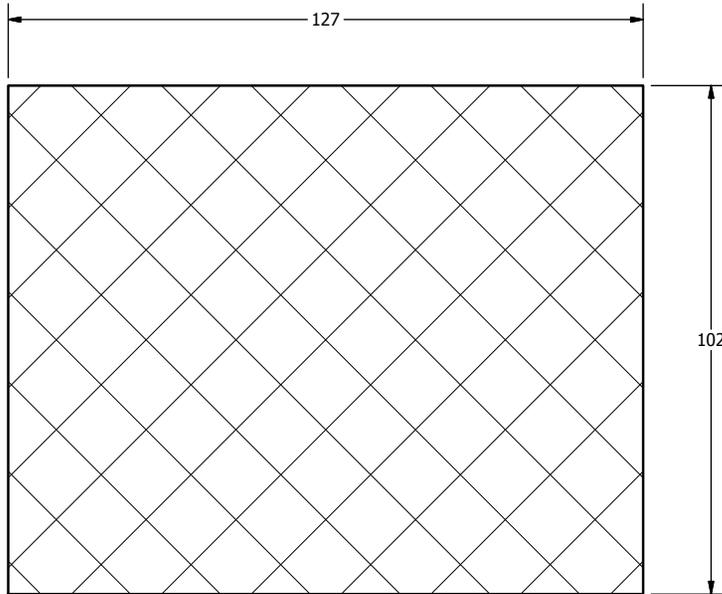
6 5 4 3 2 1

D
C
B
A

D
C
B
A

A

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.

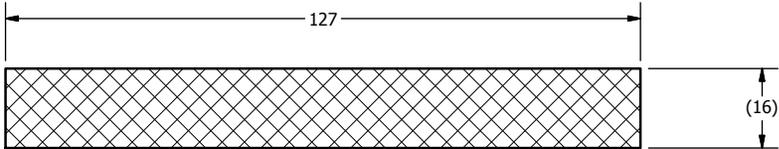


DO NOT SCALE DRAWING 		TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X 0.0 0.05 16 XX 0.2 XXX 0.3 XXX 0.01			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES			
PROJECT NO. 472-3951	QTY 1	MATERIAL SEE NOTES	DATE 12/2/2011	DESCRIPTION REAR PANEL LOOP VELCRO	
CHECKED BY J. WANG	HEAT TREAT	ENGINEER J. WANG	DATE 1/11/2012	SIZE A3	SHEET 1 OF 1
TOTAL QTY IN DUMMY 1		SCALE 1:000		DRAWING NO. 472-3958	

A

A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM T1JKF217 RB0 AND CONVERTED TO METRIC FOR THOR-M; ADD NOTE 2	12/2/2011	BK



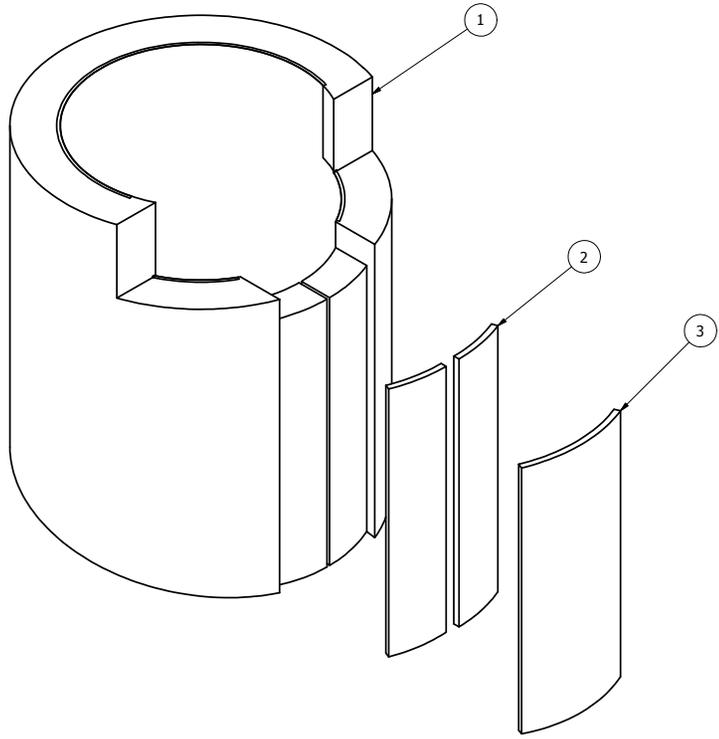
NOTES:

1. MATERIAL: 16mm, BLACK POLYPROPYLENE HOOK VELCRO, SHEAR STRENGTH 17 PSI.
2. TOLERANCE ± 3 mm, UNLESS OTHERWISE NOTED.



DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION REAR PANEL SHOULDER HOOK VELCRO
 THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.0 0.0 16 X 0.2 0.5 XX 0.3 1.0 XXX 0.01		
PROJECT NO.:	472-3951	MATERIAL:	SEE NOTES	DRAWN BY: B. KIMES DATE: 12/2/2011 CHECKED BY: J. WANG DATE: 1/11/2012 FINISH:
NEXT ASSEMBLY	QTY	HEAT TREAT:		
TOTAL QTY IN DUMMY	1			
SIZE: A3		SHEET: 1 OF 1		DRAWING NO.:
SCALE: 1.000		472-3959		REV: A

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:

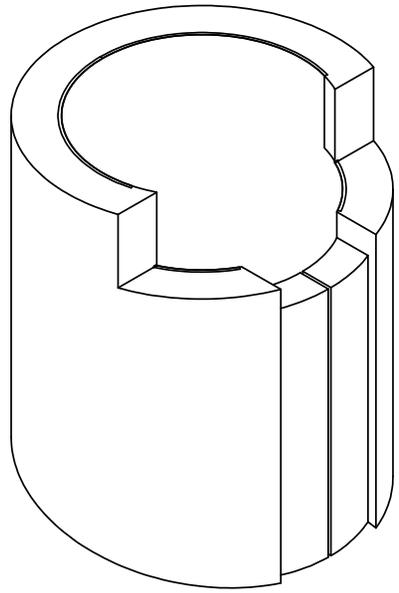
- 1. THE VELCRO HOOK PIECES (472-2913) ARE GLUED TO THE OUTER FRONT EDGES OF THE FOAM SKIN USING A HIGH STRENGTH CONTACT CEMENT.
- 2. THE VELCRO LOOP (472-2914) IS USED TO SECURE THE NECK TOGETHER AFTER BEING PLACED AROUND THE NECK ASSEMBLY.
- 3. REVISION "B" SKIPPED.

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

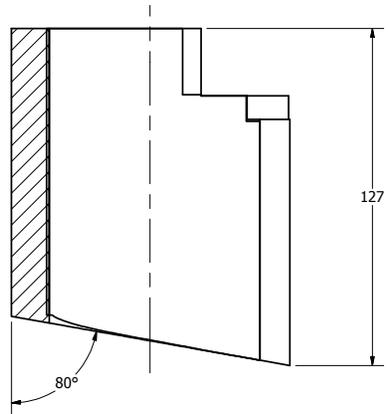
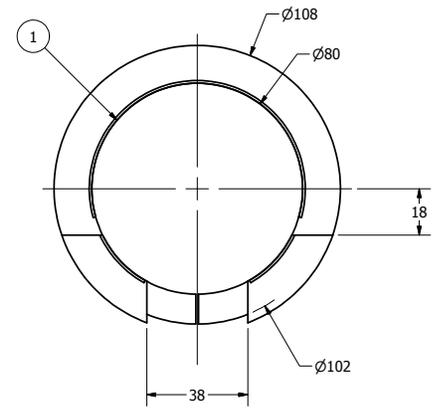
PARTS LIST

<p>DO NOT SCALE DRAWING</p> <p>THIRD ANGLE PROJECTION</p>		<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS DECIMALS ANGLES DEGREES X.XX .001 .010 X.X .001 .010 X.XX .001 .010 X.X .001 .010 X.XX .001 .010</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p>	
<p>472-0000</p> <p>1</p>		<p>DESIGNED BY: B. Kimes</p> <p>DATE: 7/6/2012</p>		<p>NECK FOAM ASSEMBLY</p>	
<p>NEXT ASSEMBLY</p> <p>QTY</p>		<p>APPROVED BY: J. WANG</p> <p>DATE: 10/3/2012</p>		<p>Sheet 1 of 1</p> <p>Part 111</p>	
<p>TOTAL QTY IN DUMMY</p> <p>1</p>		<p>DATE: 10/3/2012</p>		<p>472-2900</p>	

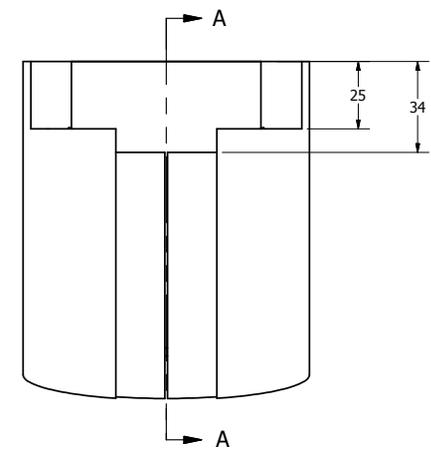
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED FROM TINKS110 FOR THOR M	7/9/2012	BK
	C	REPOSITION REINFORCEMENT MESH PER MANUFACTURING PROCESS; 75g WAS 70 g; CHANGE DIMENSION DECIMAL PLACE TO 0; ADD NOTE 5	10/3/2012	BK



SCALE 1.000



SECTION A-A
SCALE .750



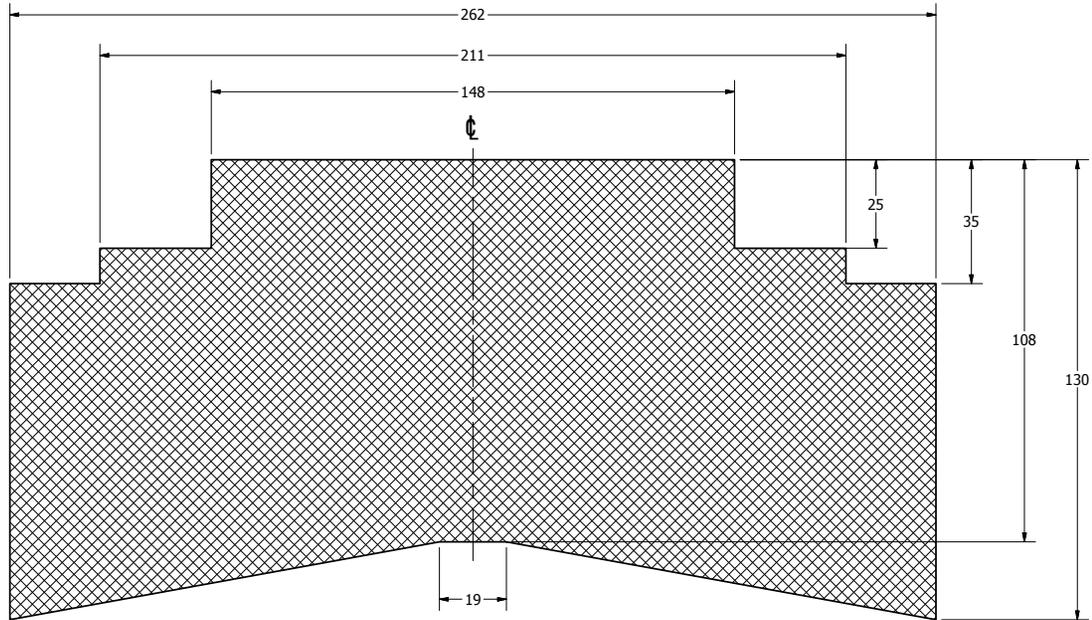
- NOTES:
- MATERIAL: 5lb/CU FT POLYURETHANE FOAM.
 - REINFORCEMENT MESH IS CAST INTO URETHANE FOAM.
 - PART WEIGHT: 75g ±10g
 - FOAM TOLERANCE: ±2mm.
 - REVISION "B" SKIPPED.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	472-2912	FOAM REINFORCEMENT MESH

PARTS LIST			
472-2900	1	NECK FOAM	
TOTAL QTY IN DUMMY		1	472-2910

<p>DO NOT SCALE DRAWING</p> <p>THIS ANGLE PROJECTION</p>	<p>TOLERANCES</p> <p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</p> <p>DECIMALS FRACTIONS HOLE</p> <p>0.1 1/16 .125</p> <p>0.25 1/8 .125</p> <p>0.5 1/4 .125</p> <p>1.0 1/2 .125</p> <p>2.0 1 .125</p> <p>5.0 2 .125</p> <p>10.0 4 .125</p> <p>20.0 8 .125</p> <p>40.0 16 .125</p> <p>80.0 32 .125</p> <p>160.0 64 .125</p> <p>320.0 128 .125</p> <p>640.0 256 .125</p> <p>1280.0 512 .125</p> <p>2560.0 1024 .125</p> <p>5120.0 2048 .125</p> <p>10240.0 4096 .125</p> <p>20480.0 8192 .125</p> <p>40960.0 16384 .125</p> <p>81920.0 32768 .125</p> <p>163840.0 65536 .125</p> <p>327680.0 131072 .125</p> <p>655360.0 262144 .125</p> <p>1310720.0 524288 .125</p> <p>2621440.0 1048576 .125</p> <p>5242880.0 2097152 .125</p> <p>10485760.0 4194304 .125</p> <p>20971520.0 8388608 .125</p> <p>41943040.0 16777216 .125</p> <p>83886080.0 33554432 .125</p> <p>167772160.0 67108864 .125</p> <p>335544320.0 134217728 .125</p> <p>671088640.0 268435456 .125</p> <p>1342177280.0 536870912 .125</p> <p>2684354560.0 1073741824 .125</p> <p>5368709120.0 2147483648 .125</p> <p>10737418240.0 4294967296 .125</p> <p>21474836480.0 8589934592 .125</p> <p>42949672960.0 17179869184 .125</p> <p>85899345920.0 34359738368 .125</p> <p>171798691840.0 68719476736 .125</p> <p>343597383680.0 137438953472 .125</p> <p>687194767360.0 274877906944 .125</p> <p>1374389534720.0 549755813888 .125</p> <p>2748779069440.0 1099511627776 .125</p> <p>5497558138880.0 2199023255552 .125</p> <p>10995116277760.0 4398046511104 .125</p> <p>21990232555520.0 8796093022208 .125</p> <p>43980465111040.0 17592186044416 .125</p> <p>87960930222080.0 35184372088832 .125</p> <p>175921860444160.0 70368744177664 .125</p> <p>351843720888320.0 140737488355328 .125</p> <p>703687441776640.0 281474976710656 .125</p> <p>1407374883553280.0 562949953421312 .125</p> <p>2814749767106560.0 1125899906842624 .125</p> <p>5629499534213120.0 2251799813685248 .125</p> <p>11258999068426240.0 4503599627370496 .125</p> <p>22517998136852480.0 9007199254740992 .125</p> <p>45035996273704960.0 18014398509481984 .125</p> <p>90071992547409920.0 36028797018963968 .125</p> <p>180143985094819840.0 72057594037927936 .125</p> <p>360287970189639680.0 144115188075855872 .125</p> <p>720575940379279360.0 288230376151711744 .125</p> <p>1441151880758558720.0 576460752303423488 .125</p> <p>2882303761517117440.0 1152921504606846976 .125</p> <p>5764607523034234880.0 2305843009213693952 .125</p> <p>11529215046068469760.0 4611686018427387904 .125</p> <p>23058430092136939520.0 9223372036854775808 .125</p> <p>46116860184273879040.0 18446744073709551616 .125</p> <p>92233720368547758080.0 36893488147419103232 .125</p> <p>184467440737095516160.0 73786976294838206464 .125</p> <p>368934881474191032320.0 147573952589676412928 .125</p> <p>737869762948382064640.0 295147905179352825856 .125</p> <p>1475739525896764129280.0 590295810358705651712 .125</p> <p>2902958103587056517120.0 1180591620717411303424 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REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
78681	A	RENUMBERED FROM TINKS112 FOR THOR M	7/9/2012	BK
70259	B	REDESIGNED PART; DIMENSION DECIMAL PLACES TO 0	11/8/12	KHS

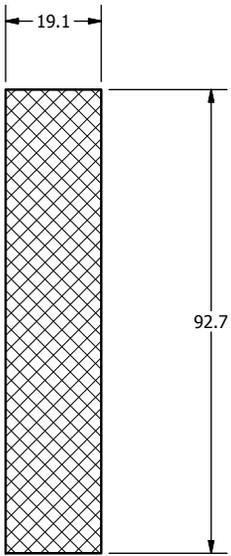


NOTES:

1. DIMENSIONS SYMMETRIC ABOUT ϕ , UNLESS OTHERWISE NOTED.
2. TOLERANCE $\pm 2\text{mm}$.

DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION FOAM REINFORCEMENT MESH
 THIRD ANGLE PROJECTION		DIMENSIONS SHOWN IN PARENTHESES ARE IN MILLIMETERS DIMENSIONS ARE IN INCHES DECIMALS ARE TO BE KEPT FRACTIONS ARE TO BE KEPT UNLESS OTHERWISE SPECIFIED		
472-2910	1	COTTON MESH	7/9/2012	
NEXT ASSEMBLY	QTY	N/A		
TOTAL QTY IN DUMMY	1	N/A		
		DESIGNED BY: J. WANG	DATE: 7/25/2012	
		SHEET NO. 1 OF 1 TOTAL SHEETS: 1.000		472-2912 B

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM T1NKS113 FOR THOR M; ADD NOTES	7/9/2012	BK



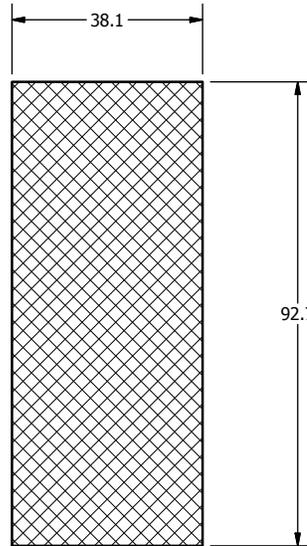
NOTES:

1. MAKE FROM BLACK HOOK VELCRO AND CUT AS SHOWN.
2. TOLERANCE $\pm 2\text{mm}$.



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.:	472-2900	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	7/9/2012	DESIGNED BY:	B. Kimes	VELCRO HOOK, NECK SKIN
CHECKED BY:		DATE:		SIZE: SHEET
HEAT TREAT:		ENGINEER:	J. WANG	A3 1 OF 1
TOTAL QTY IN DUMMY:	2	DATE:	7/25/2012	SCALE: 1.000
				DRAWING NO. 472-2913
				REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM TINKS114 FOR THOR M; ADD NOTES	7/9/2012	BK



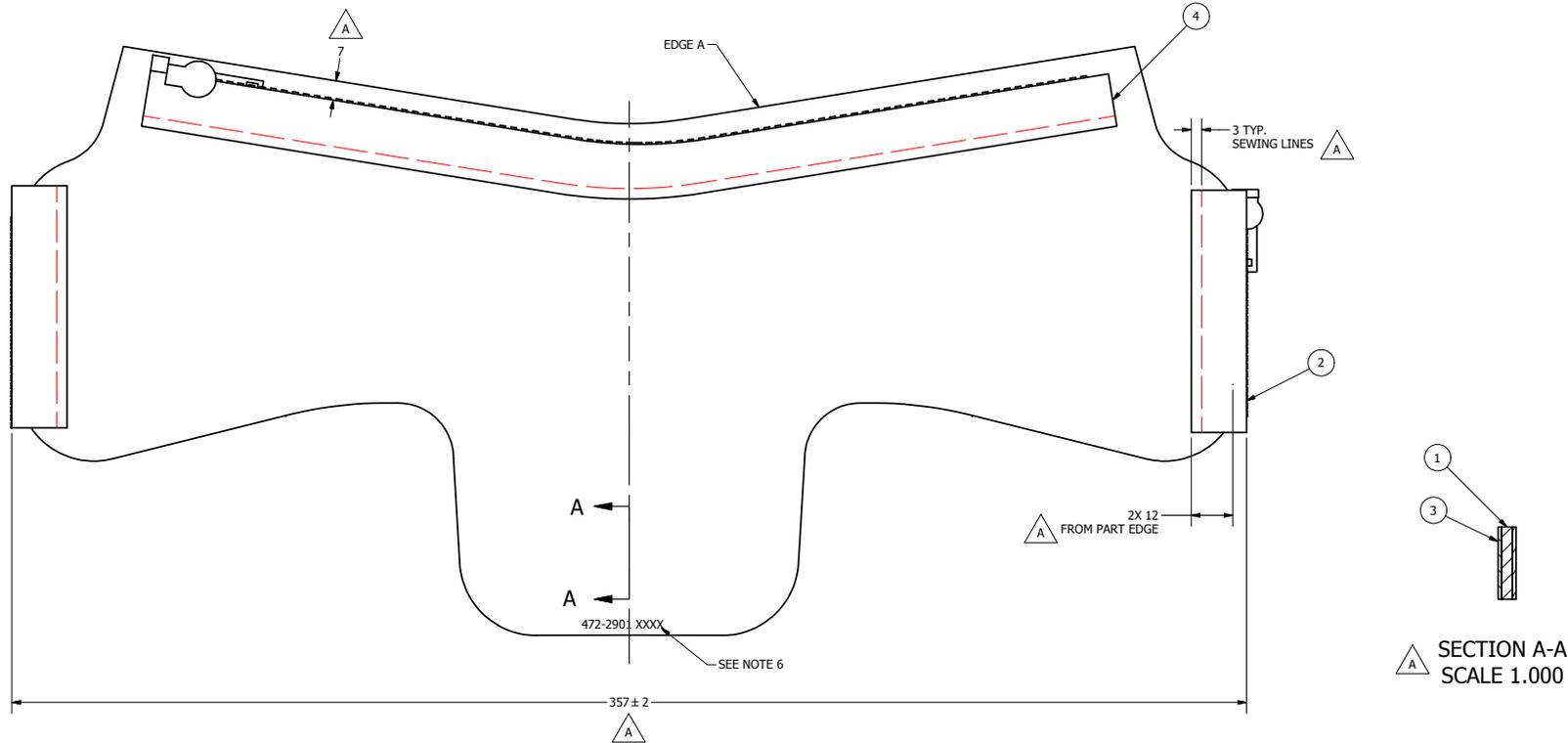
NOTES:



1. MAKE FROM BLACK LOOP VELCRO AND CUT AS SHOWN.
2. TOLERANCE $\pm 2\text{mm}$.

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 0.05 1.6</small> <small>X 0.2</small> <small>XX 0.3</small> <small>XXX 0.01</small> <small>REMOVE BURRS & BREAK SHARP EDGES</small>		
PROJECT NO.:	472-2900	MATERIAL:	SEE NOTES	<small>DESCRIPTION:</small> VELCRO LOOP, NECK SKIN
CHECKED BY:	B. Kimes	DATE:	7/9/2012	
HEAT TREAT:		ENGINEER:	J. WANG	<small>SIZE SHEET</small> A3 1 OF 1
TOTAL QTY IN DUMMY	1	DATE:	7/25/2012	<small>DRAWING NO.:</small> 472-2914
		SCALE:	1.000	<small>REV.:</small> A

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.

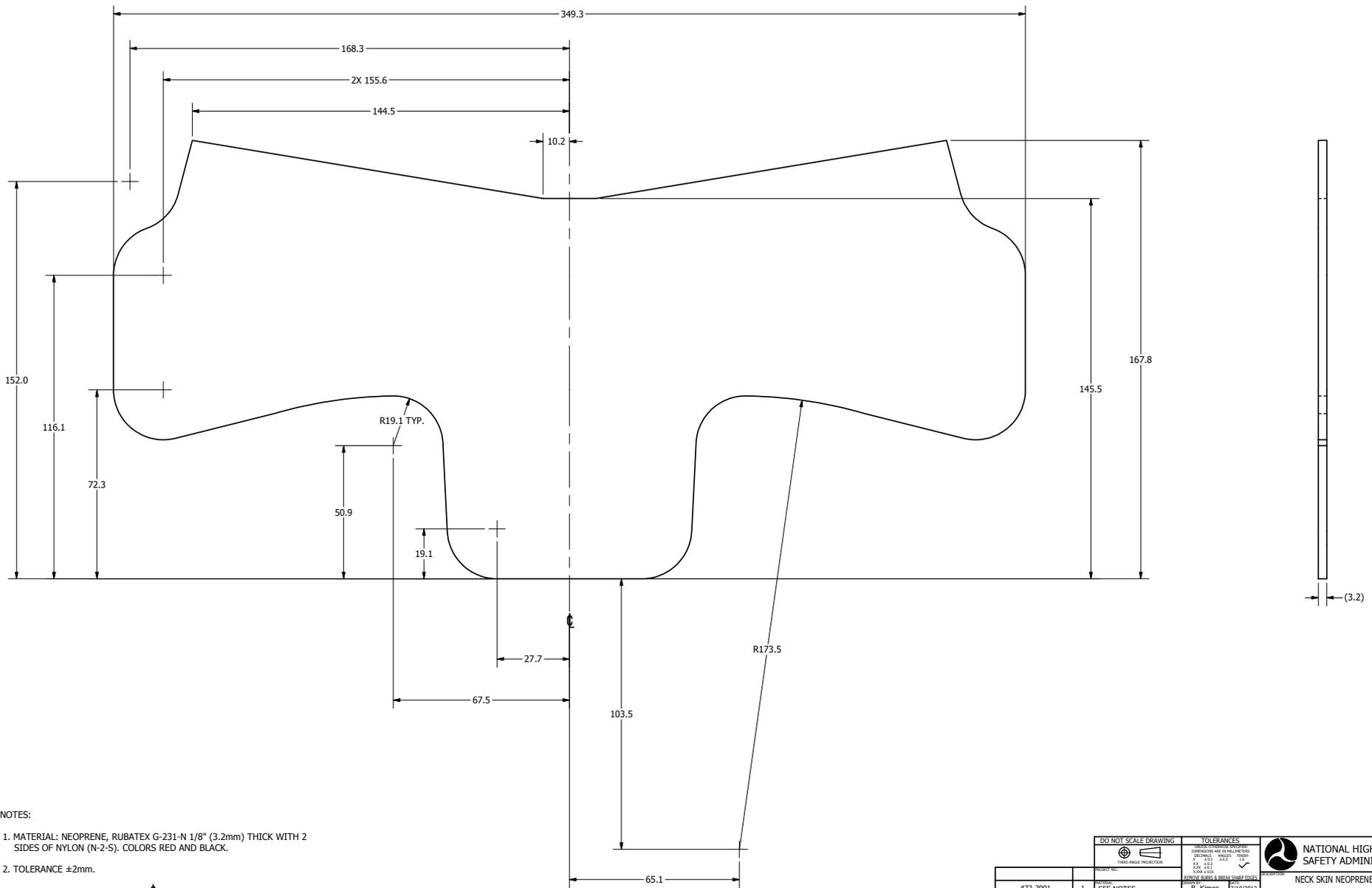
ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-2920	NECK/HEAD SKIN ZIPPER
3	1	472-2922	NECK SKIN CORDURA PATTERN (OUTER/INNER)
2	1	472-2921	REAR ZIPPER, NECK
1	1	472-2923	NECK SKIN NEOPRENE PATTERN

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 KEPT		NECK SKIN ASSEMBLY	
DRAWN BY: B. KIRMS		CHECKED BY: J. WANG		DATE: 7/27/2012	
NEXT ASSEMBLY		TOTAL QTY IN DUMMY		472-2901	
QTY: 1		QTY: 1		SCALE: 1.000	

472-0000	1	DATE: 7/27/2012	BY: J. WANG	SCALE: 1.000	472-2901
NEXT ASSEMBLY			TOTAL QTY IN DUMMY		
QTY: 1			QTY: 1		

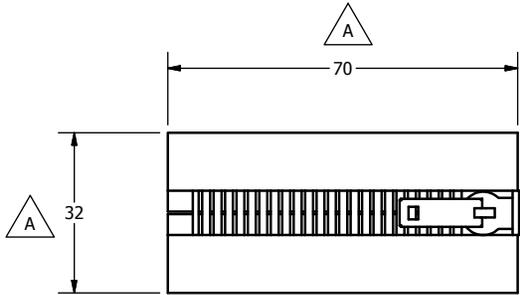
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBERED AND REDESIGNED FROM T1NKS214 FOR THOR M; ADD NOTES 2, 3; REMOVE PATTERN CUT NOTE	7/10/2012	BK



- 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		B. Kimes		NECK SKIN NEOPRENE PATTERN	
NEXT ASSEMBLY		J. WANG		A21 of 1	
TOTAL QTY IN DUMMY		7/25/2012		472-2923	

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM TINKS211 AND CONVERT TO METRIC FOR THOR M; 70 WAS 63.5; 32 WAS 38.1; ADD NOTE 2	7/10/2012	BK



NOTES:

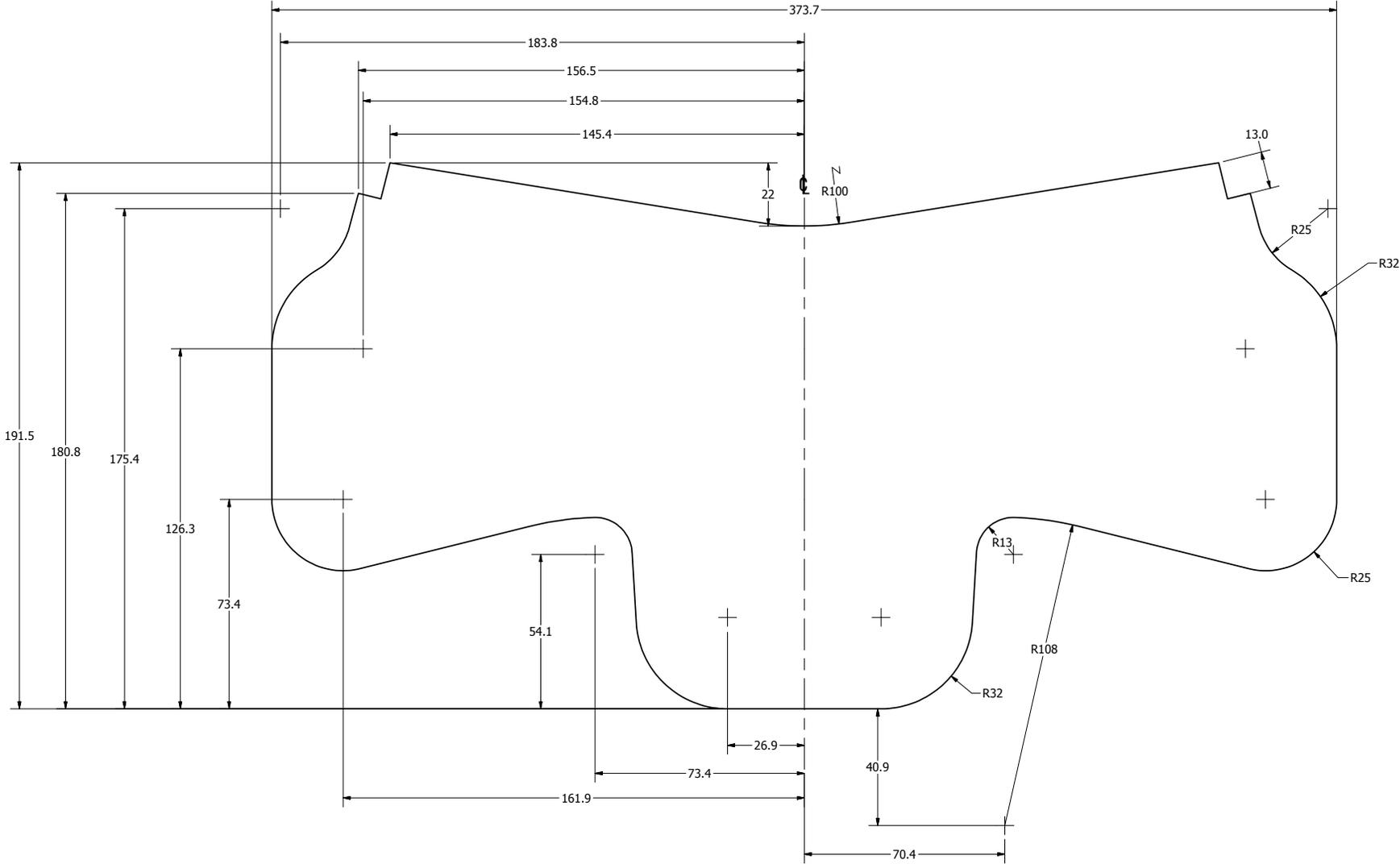
- #5 BLACK OXIDE BRASS ZIPPER STANDARD AUTOLOCK SLIDER TOP AND BOTTOM SEPERATING COLOR: BLACK (LENZIP)

- TOLERANCE: +/- 2mm

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 0.2 0.2 1.6 XXX 0.3 0.3 1.6 XXXX 0.01		
PROJECT NO:	472-2901	MATERIAL:	SEE NOTES	DESCRIPTION:
DATE:	7/10/2012	DESIGNED BY:	B. Kimes	NECK SKIN REAR ZIPPER
CHECKED BY:		DATE:		SIZE: A3
HEAT TREAT:		ENGINEER:	J. WANG	SHEET: 1 OF 1
TOTAL QTY IN DUMMY:	1	DATE:	7/25/2012	DRAWING NO.: 472-2921
		FINISH:		SCALE: 1.000

A

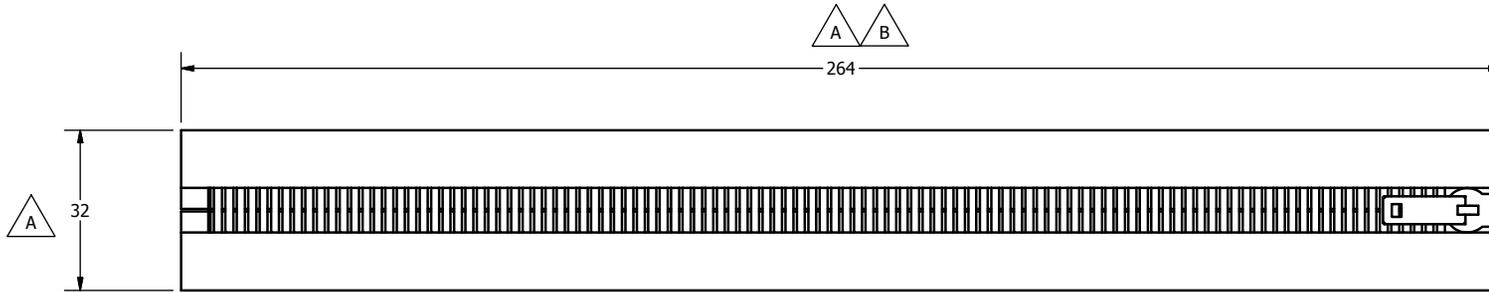
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	7/27/2012	BK



- 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>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ARE IN PARENTHESES</small>		<small>SHOW HIDDEN & BREAK DIMENSIONS</small>		
PART NO: 472-2901 QTY: 2 NEXT ASSEMBLY: NEXT ASSEMBLY TOTAL QTY IN DUMMY: 2	DESCRIPTION: RED CORDURA QTY: 2 DATE: 7/27/2012 DRAWN BY: J. WANG	DESIGNED BY: B. Kimes DATE: 7/27/2012 CHECKED BY: J. WANG DATE: 7/25/2012	TITLE: NECK SKIN CORDURA PATTERN (OUTER/INNER) SHEET: A21 of 1 SCALE: 1:000	472-2922 A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RENUMBER FROM TINKS210 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:

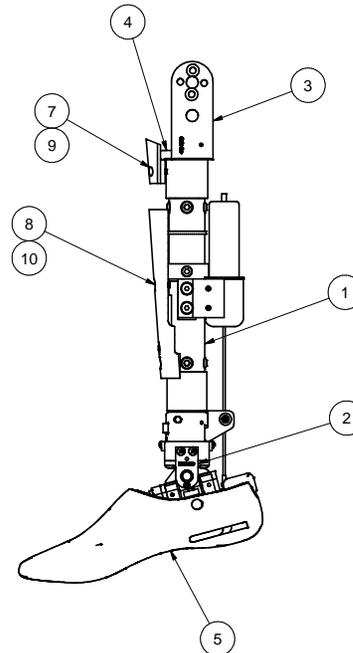
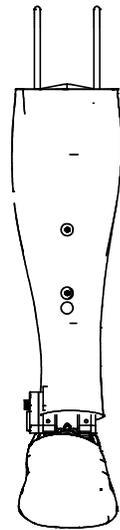
1. #5 BLACK OXIDE BRASS ZIPPER
STANDARD AUTOLOCK SLIDER
TOP AND BOTTOM SEPERATING
COLOR: BLACK
(LENZIP)

2. 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 0.0 0.05 1.6 XX 0.2 XXX 0.3 XXXX 0.01		
PROJECT NO.:	472-2901	MATERIAL:	SEE NOTES	DESCRIPTION:
CHECKED BY:	B. Kimes	DATE:	7/10/2012	NECK/HEAD SKIN ZIPPER
HEAT TREAT:		ENGINEER:	J. WANG	DATE:
DATE:	7/25/2012	SCALE:	1.000	SIZE: SHEET
TOTAL QTY IN DUMMY	1	FINISH:		A31 OF 1
				DRAWING NO. 472-2920
				REV. B

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW



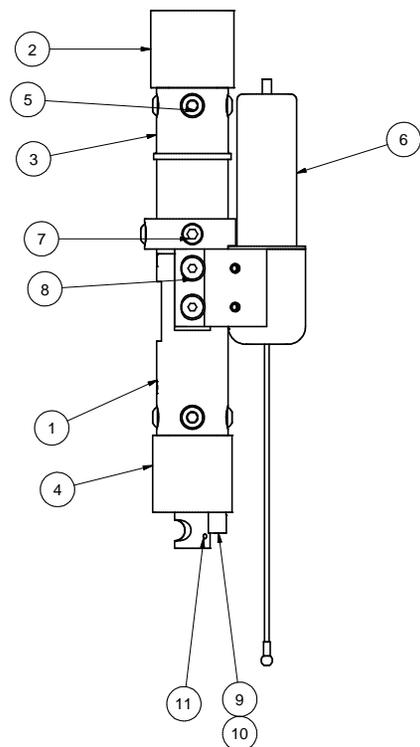
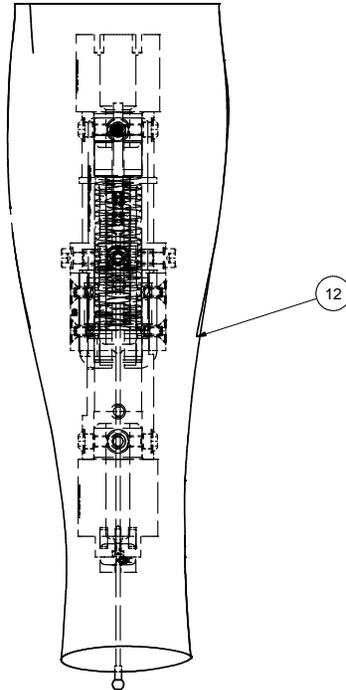
ITEM	QTY	PART NUMBER	DESCRIPTION
10	2	9010453	SCREW, BHCS M6 X 1.0 X 16
9	2	9003042	SCREW, BHCS M5 X 10
8	1	472-7115	TIBIA GUARD
7	1	472-7110	KNEE BUMPER, MOLDED
6	4	9000826	Screw, FHCS M6 x 1.0 x 16mm
5	1	472-7700-1	FOOT ASSY, LEFT
4	4	9000852	SHCS, M6 X 1.0 X 16mm LONG
3	1	472-7200	KNEE CLEVIS WELDMENT
2	1	472-7500-1	ANKLE ASSEMBLY
1	1	472-7300-1	LOWER LEG MECHANICAL ASSY

Parts List

DO NOT SCALE DRAWING	TOLERANCES DIMENSIONS: 0.10, 0.25, 0.50, 1.00, 1.50, 3.00, 6.00 ANGLES: 0.5, 1.0, 1.5, 3.0, 4.5, 9.0, 13.5, 18.0, 22.5, 27.0, 31.5, 36.0, 45.0, 60.0, 75.0, 90.0, 105.0, 120.0, 135.0, 150.0, 165.0, 180.0	DEPARTMENT OF TRANSPORTATION NHTSA
PROJECT NO: E00609	DESIGNED BY: B.WADE	DATE: 12/5/2008
REVISED BY: N/A	REVISED DATE: N/A	REVISED DATE: N/A
TITLE: COMPLETE ASSY, LEFT THOR-LX SHEET NO: C 1 OF 1 PART NO: 472-7000-1 SCALE: 1/4		DEPARTMENT OF TRANSPORTATION NHTSA TITLE: COMPLETE ASSY, LEFT THOR-LX SHEET NO: C 1 OF 1 PART NO: 472-7000-1 SCALE: 1/4

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW



ITEM	QTY	PART NUMBER	DESCRIPTION
12	1	472-7370-1	LOWER LEG FLESH, LEFT
11	1	9010447	SCREW, SET M3 X 0.5 X 3
10	1	9000058	SCREW, SHCS M3 X 12
9	1	472-7330	Z ROTATION WEDGE ASSY
8	5	9001445	SCREW, FHCS M6 X 12mm LONG
7	2	472-7335	PLUNGER RETAINING BOLT
6	1	472-7350	Achilles Spring Tube Mechanical Assembly
5	9	W50-61042	MOD. BUTTON HEAD SHOULDER SCREW
4	1	472-7325	BLANK, LOAD CELL - LOWER TIBIA
3	1	472-7315	TIBIA COMPLIANT BUSHING ASSY.
2	1	472-7320	BLANK, LOAD CELL - UPPER TIBIA
1	1	472-7310	LOWER TIBIA TUBE ASSEMBLY

Parts List			
DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION	
	DECIMALS ANGLES	NHTSA	
	± 0.13 ± 0.06 ± 0.01	LOWER LEG ASSY, LEFT	
PROJECT NO. E00609	DESIGNED BY B.WADE	DATE 12/5/2008	TITLE THOR-LX
REVISED BY N/A	APPROVED BY N/A	DATE	FIG. NO. C 1 OF 1
			PART NO. 472-7300-1
			SCALE 1/2

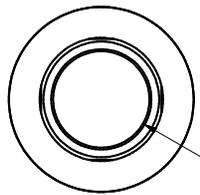
UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

4

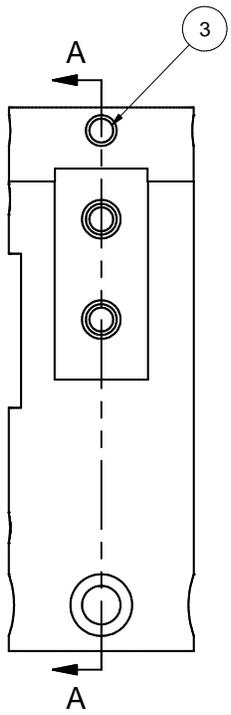
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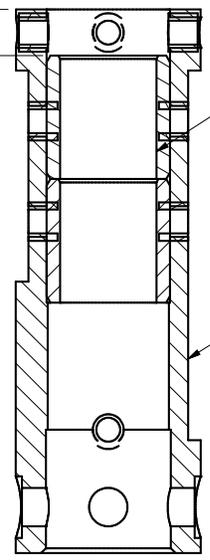
1



Ø19.84 ^{+0.02} / _{-0.00} mm ∇ 76 mm



9.5 mm



REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REMOVED NOTES 4, 5 AND 6; REMOVED DIMENSION; .38 WAS .375; ADD MACHINING/ASSEMBLY NOTES	7/30/2008	KHS
E00609	B	CHANGE TO METRIC HELICOILS	10/14/2008	BLW
E00609	B	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW

MACHINING/ ASSEMBLY NOTES:

1. FOR HELICOILS INSTALLED INTO FLATS ON PART, REMOVE 2 3/4 THREADS 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 1.000" HOLE IN TOP CENTER OF PART.
4. INSTALL BEARINGS AFTER INSTALLATION OF HELICOILS.
5. REAM CENTER OF BEARINGS TO SPECIFIED DIMENSION.

B

3	10	9010437	HELICOIL, M6 X 1 X 6
2	2	9010423	IGUS GLIDE J BEARING, 1" OD X 3/4" ID X 1" LG (PART # JSI-1216-16)
1	1	472-7311	TUBE, LOWER TIBIA - LOWER EXTREMITY
ITEM	QTY	PART NUMBER	DESCRIPTION

**SECTION A-A
SCALE 1 : 1**

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
		DECIMALS	ANGLES
		X ± 0.5	° ± 0.5
		XX ± 0.1	
		XXX ± 0.05	
PROJECT NO: E00609		DRAWN BY: B.WADE	DATE: 11/19/2008
REV/TREAT: N/A		CHECKED BY:	DATE:
P/S: N/A		DEPARTMENT OF TRANSPORTATION NHTSA	
		TITLE: LOWER TIBIA TUBE ASSY THOR-LX	
		SIZE: B	DRAWING NO.:
		1 OF 1	
		SCALE: 1:1	472-7310

4

3

2

1

B

B

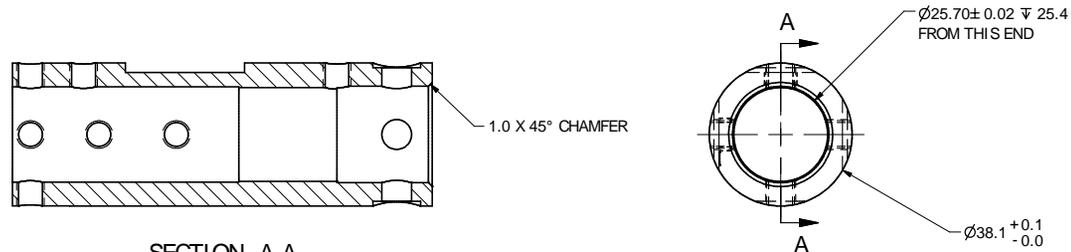
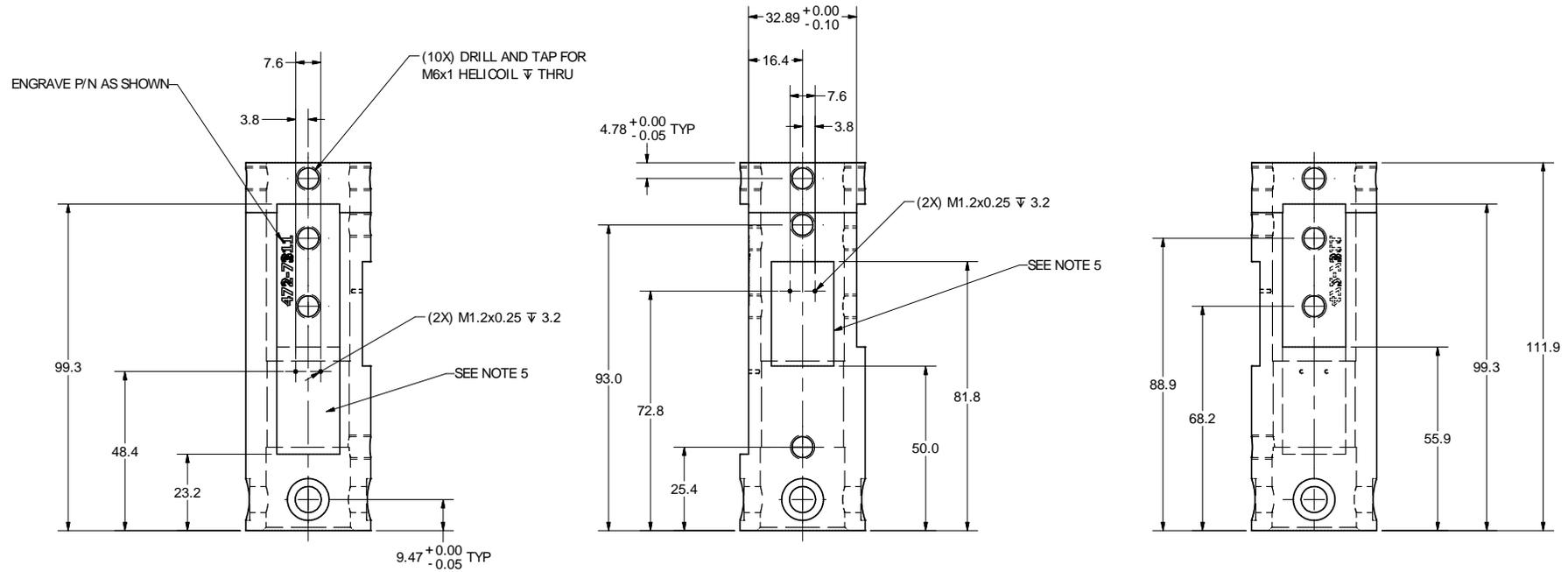
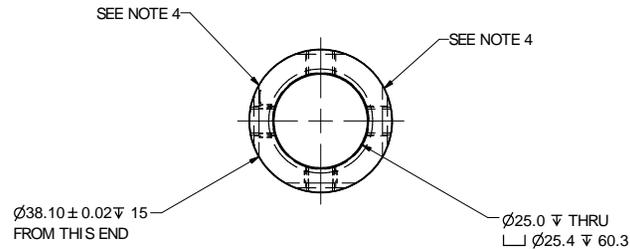
A

A

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C

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	HOLE WAS .984 THRU; 1.500+ .005/- .000 WAS 1.500	7/29/2008	KHS
E00609	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
E00609	C	CHANGE TO METRIC HARDWARE	10/14/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING, REMOVE .06 X 23 CHAMFER, SECTION A-A, DETAIL B	11/20/2008	BLW

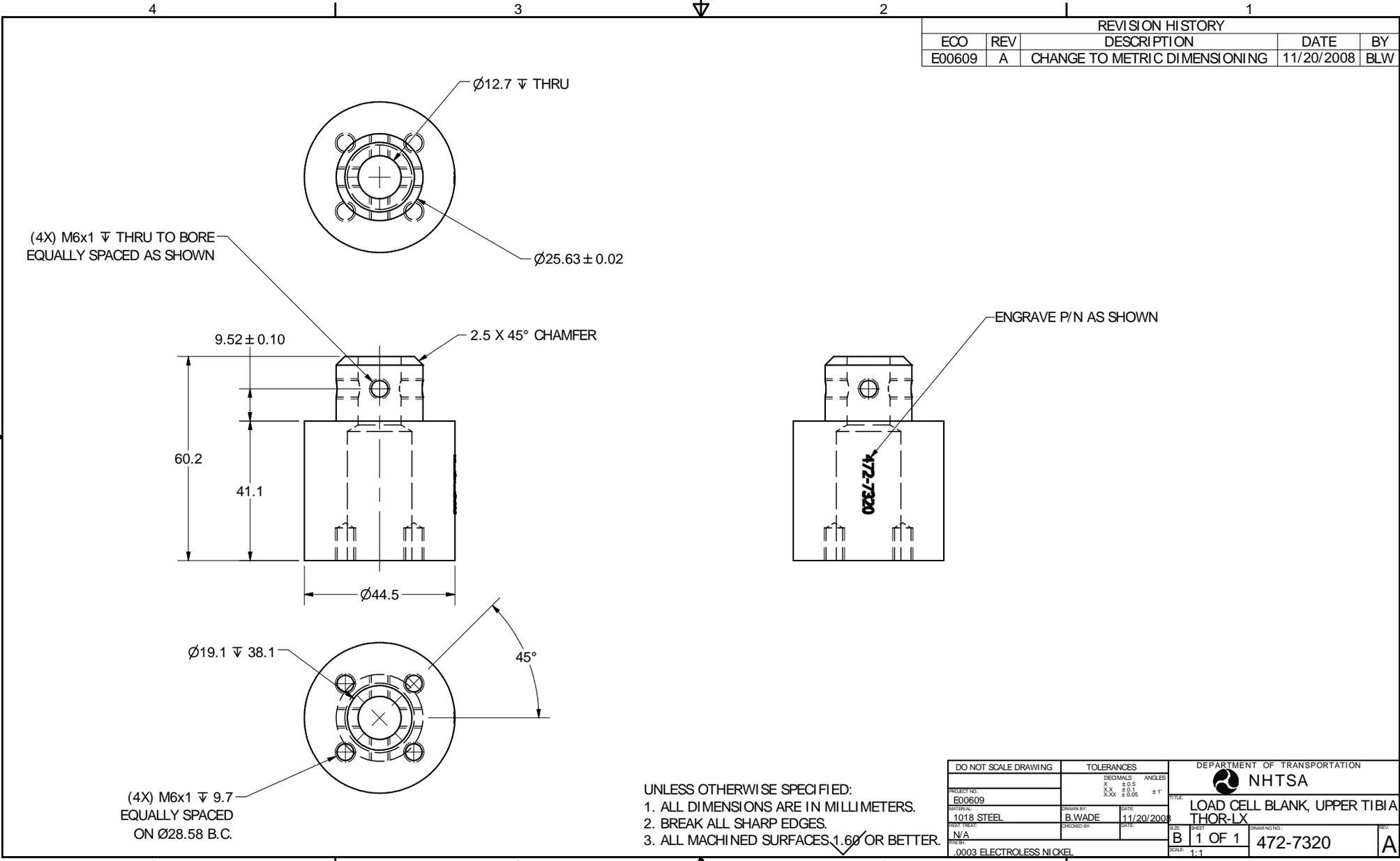


4. BREAK EDGES OF MILLED FLAT AREA TO
BLEND WITH TUBE.
5. INDICATED SURFACES MUST BE FLAT AND
DEBURRED FOR INSTRUMENTATION MOUNTING.

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\nabla 1.60$ OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DIGITALS ANGLES 2'S 10'S 10'S 3'S 10'S 10'S	NHTSA
DESIGNED BY E00609	DATE 11/20/2008	TITLE LOWER TIBIA TUBE THOR-LX
MATERIAL Aluminum-7075-T6	DESIGNED BY B.WADE	PROJECT NO. 472-7311
FINISH N/A	DATE 11/20/2008	REV C 1 OF 1
OTHER BLUE ANODIZE		SCALE 1:1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION NHTSA	
PROJECT NO: E00609	DECIMALS X ± 0.5 XX ± 0.1 XXX ± 0.05	ANGLES ± 1°	TITLE LOAD CELL BLANK, UPPER TIBIA THOR-LX
MATERIAL 1018 STEEL	DRAWN BY B.WADE	DATE 11/20/2008	DRAWING NO. 472-7320
FINISH N/A	CHECKED BY	DATE	SCALE 1:1
.0003 ELECTROLESS NICKEL			SIZE B SHEET 1 OF 1 REF A

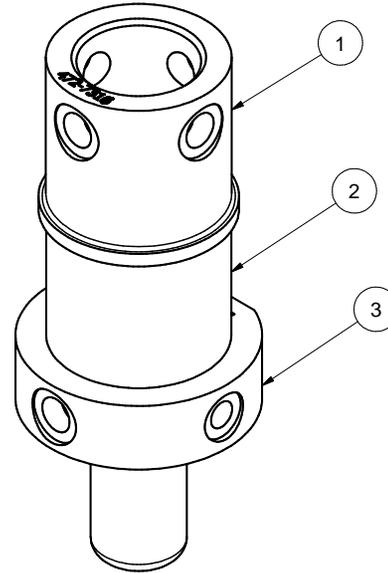
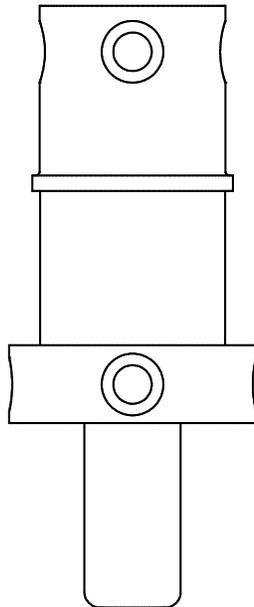
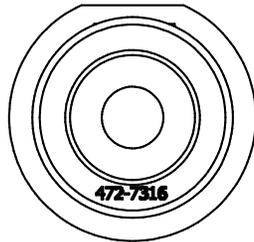
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3

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	FLANGE, LOWER
2	1	472-7318	BUSHING, COMPLIANT
1	1	472-7316	PLUNGER-COMPLIANT BUSHING

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
		X ±0.5		TITLE	
		XX ±0.1		TIBIA COMPLIANT BUSHING	
		XXX ±0.05		ASSY - THOR-LX	
PROJECT NO.	DRAWN BY	DATE	DRAWING NO.		
E00609	B.WADE	11/20/2008	472-7315		
REV/TREAT	CHECKED BY	DATE	SHEET	OF	REV
N/A			B	1	A
FINISH			SCALE		
N/A			1:1		

- BOND ASSEMBLY WITH LORD 305 ADHESIVE. HOLES IN ITEM 1 MUST HAVE SAME ANGULAR ORIENTATION ABOUT CENTER AXIS AS HOLES IN ITEM 3.
- METAL AND RUBBER SURFACES MUST BE SANDBLASTED & CLEANED WITH SOLVENT PRIOR TO BONDING.
- CYCLE ASSEMBLY THROUGH TEN 50% COMPRESSION LOADING CYCLES PRIOR TO ASSMBLY TO LEG.

- UNLESS OTHERWISE SPECIFIED:
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BREAK ALL SHARP EDGES.
 - ALL MACHINED SURFACES 1.60 OR BETTER.

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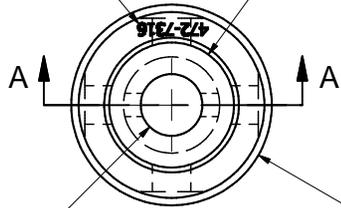
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1

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	B	CHANGED TO METRIC DIMENSIONING	11/20/2008	BLW

ENGRAVE P/N AS SHOWN

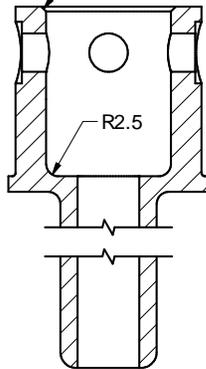
$\varnothing 25.70^{+0.00}_{-0.50} \sqrt{35}$
 $\varnothing 25.70 \pm .02 \sqrt{19}$



$\varnothing 41.3$

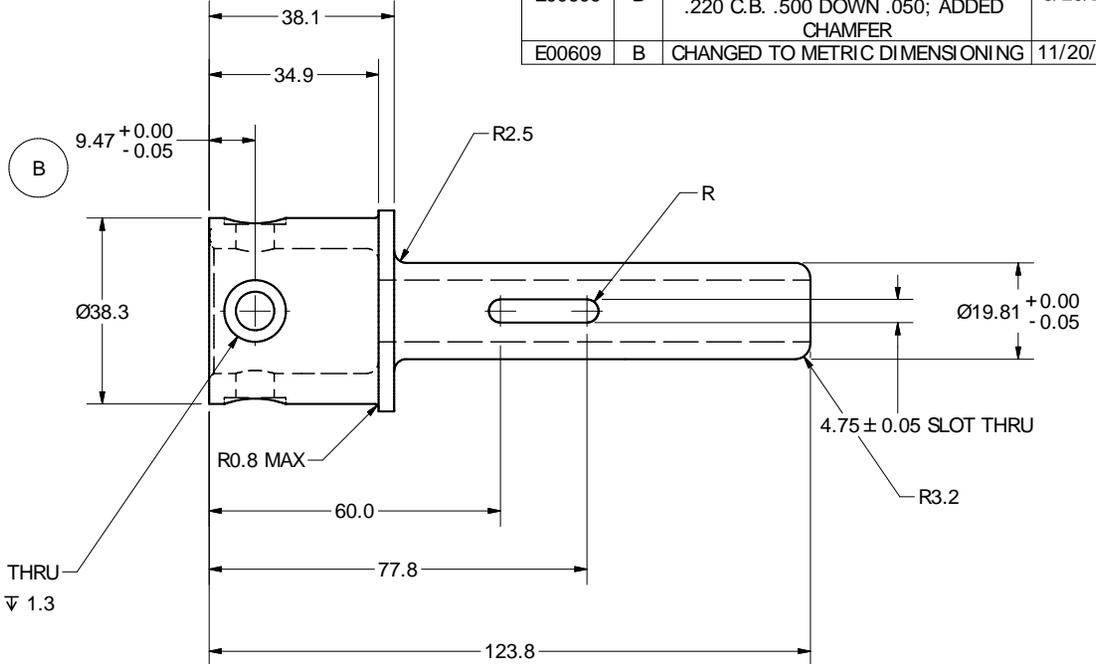
$\varnothing 12.7 \sqrt{\text{THRU}}$

1.0 X 45° CHAMFER



$(4X) \varnothing 7.92^{+0.05}_{-0.00} \sqrt{\text{THRU}}$
 $\varnothing 12.7 \sqrt{1.3}$

SECTION A-A
SCALE 1 : 1



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.60 \sqrt{\text{OR BETTER}}$.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	NHTSA	
PROJECT NO. E00609		X ± 0.5	± 1'	TITLE: PLUNGER, COMPLIANT BUSHING THOR-LX	
MATERIAL: Stainless Steel, 440C		XX ± 0.1		DRAWN BY: B.WADE DATE: 11/20/2008	
FINISH: Rc 57 +/- 5		XXX ± 0.05		CHECKED BY: DATE:	
P/N: N/A				SIZE: B SHEET: 1 OF 1 DRAWING NO.: 472-7316	
				SCALE: 1:1	

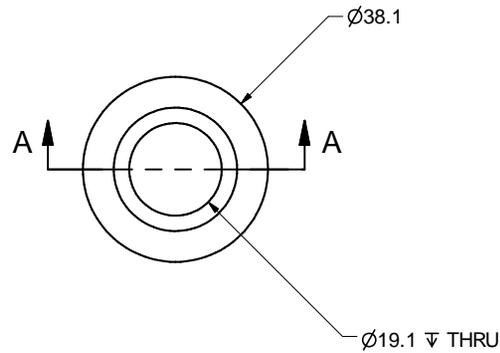
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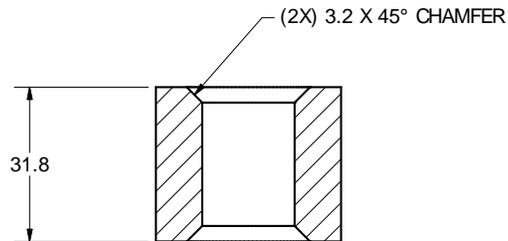
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	C	REDRAWN IN INVENTOR	7/19/2007	KSG
E00609	D	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW



STATIC COMPRESSION TEST RESULTS (0.5 mm/sec)

COMPRESSION (mm)	FORCE RANGE (N)
7.9 (25%)	1270-1550
15.9 (50%)	2750-3370



SECTION A-A
SCALE 1 : 1

PERFORM (3) BREAK IN TESTS AT 50% COMPRESSION
 FLAT RIGID SURFACES ON BOTH SIDES. ALL TESTING AT 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.

- 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:
- ALL DIMENSIONS ARE IN MILLIMETERS.
 - BREAK ALL SHARP EDGES.
 - ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
PROJECT NO. E00609		X ±0.5 XX ±0.1 XXX ±0.05		TITLE BUSHING, COMPLIANT THOR-LX	
MATERIAL SEE NOTE 4		DRAWN BY B.WADE	DATE 11/20/2008	DRAWING NO. 472-7318	
FINISH N/A		CHECKED BY	DATE	SHEET 1 OF 1	
FINISH N/A				SCALE 1:1	

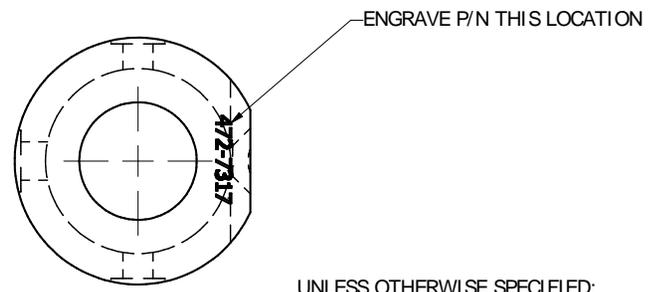
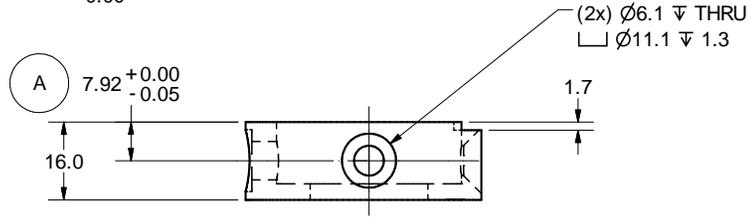
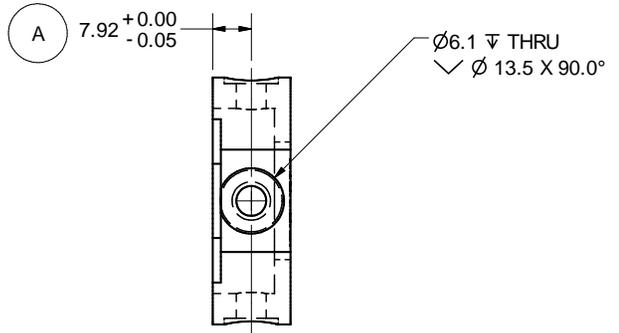
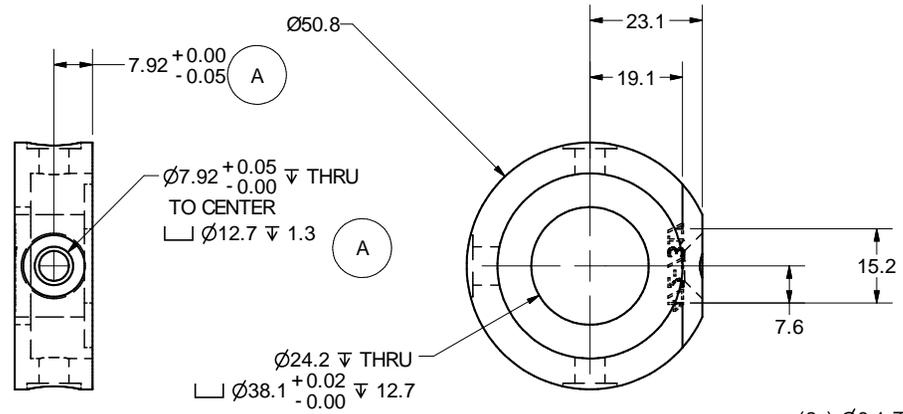
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2

1

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



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.6 \mu\text{m}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 1°		
PROJECT NO:	E00609	MATERIAL:	Aluminum-6061-T6	DRAWN BY:	B.WADE
DATE:	11/20/2008	CHECKED BY:		DATE:	11/20/2008
TITLE: FLANGE, LOWER THOR-LX				SIZE: B	SHEET: 1 OF 1
DRAWING NO.: 472-7317				SCALE: 1:1	REV: C

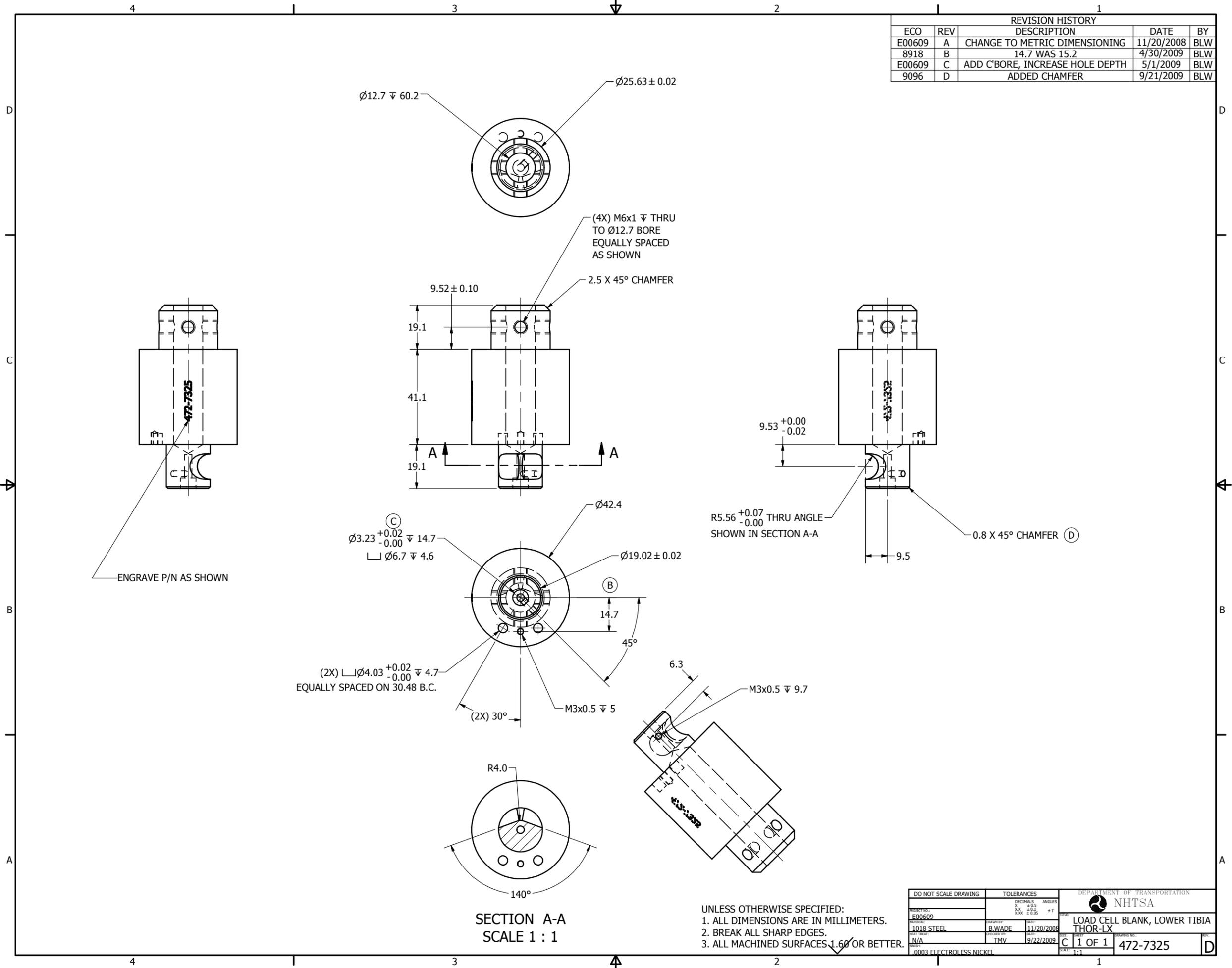
4

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



ENGRAVE P/N AS SHOWN

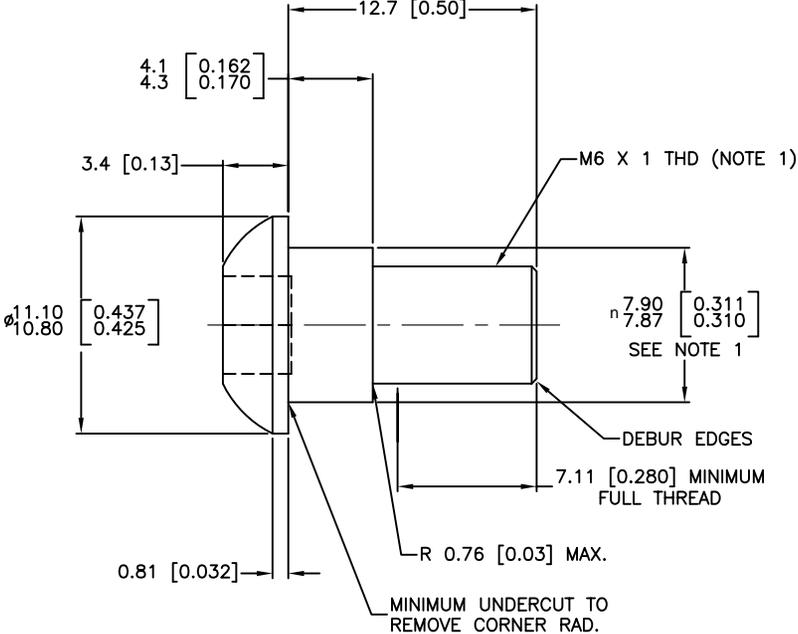
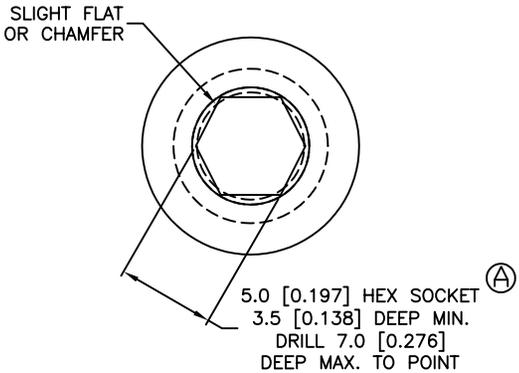
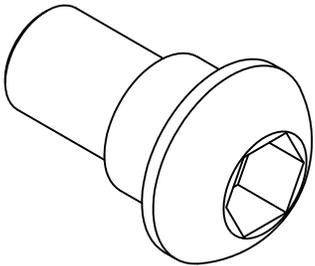
$\varnothing 12.7 \pm 60.2$
 $\varnothing 25.63 \pm 0.02$
 (4X) M6x1 ∇ THRU TO $\varnothing 12.7$ BORE EQUALLY SPACED AS SHOWN
 2.5 X 45° CHAMFER
 9.52 ± 0.10
 19.1
 41.1
 19.1
 A
 A
 $\varnothing 42.4$
 $\varnothing 19.02 \pm 0.02$
 14.7
 45°
 (2X) $\nabla \varnothing 4.03 \pm 0.02 \nabla 4.7$ EQUALLY SPACED ON 30.48 B.C.
 (2X) 30°
 M3x0.5 $\nabla 5$
 R4.0
 140°
 6.3
 M3x0.5 $\nabla 9.7$
 R5.56 $\begin{smallmatrix} +0.07 \\ -0.00 \end{smallmatrix}$ THRU ANGLE SHOWN IN SECTION A-A
 0.8 X 45° CHAMFER (D)
 9.53 $\begin{smallmatrix} +0.00 \\ -0.02 \end{smallmatrix}$
 9.5

SECTION A-A
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.6 μ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
PROJECT NO.	MATERIAL	DECIMALS	ANGLES	NHTSA	
E00609	1018 STEEL	X X.X X.XX	± T ± T ± T	LOAD CELL BLANK, LOWER TIBIA THOR-LX	
DESIGNED BY: N/A	DRAWN BY: B.WADE	DATE: 11/20/2008	DATE: 9/22/2009	REV: C	1 OF 1
FINISH: .0003 ELECTROLESS NICKEL	DATE: 9/22/2009	DATE: 9/22/2009	DATE: 9/22/2009	REV: C	1 OF 1
				472-7325	D

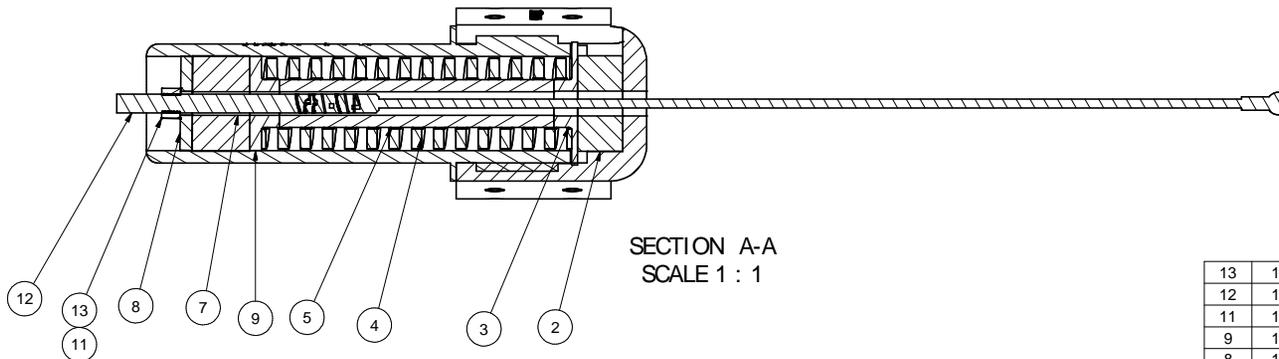
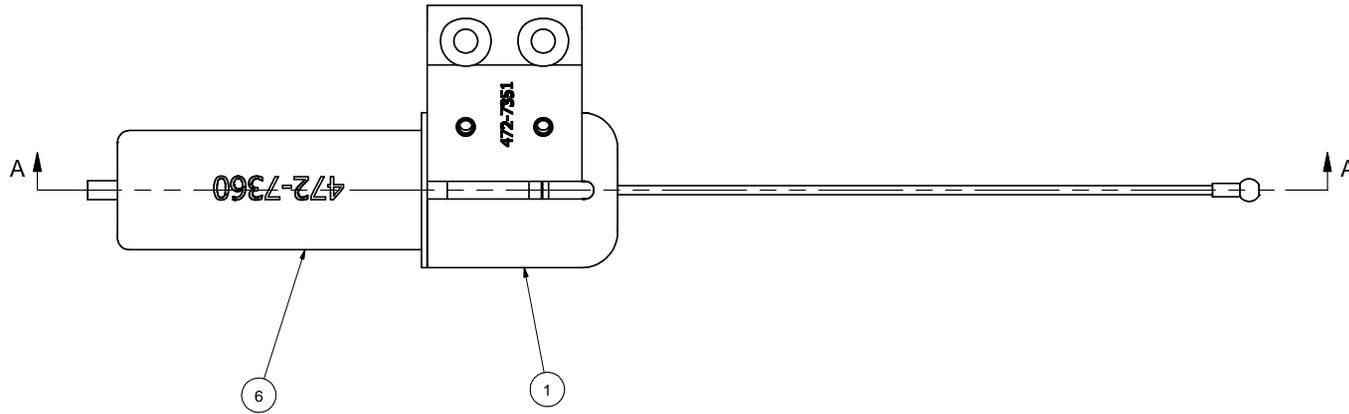
REV.	DESCRIPTION	DATE	APP.
A	CHG HEX DEPTH 3.5 WAS 5.0, ADD MAX DRILL DEPTH	03JAN03	
	CHANGE FINISH FROM BLACK OXIDE TO YELLOW ZINC		



- NOTES:
- SHOULDER TO BE CONCENTRIC TO AXIS OF THREAD WITHIN 0.02 MM [0.001"] TOTAL INDICATOR READING.
 - FINISH: 0.002-0.008 [0.0001"-0.0003"] ZINC PER SIDE YELLOW DICHROMATE

	DIMENSIONS IN: mm SCALE: 4 : 1	DRAWN: PJD/rd	WorldSID ROBERT A. DENTON, INC.	
<u>INCH TOLERANCES</u>	TOLERANCES FRACTIONS ± 1/16	CHECKED BY: HORCHLER	TITLE: MODIFIED BUTTON HEAD SHOULDER SCREW	
DEC. X ± 0.039	DEC. X± 1	DATE: 28APR00	SHEET 1 OF 1	
DEC. X.X ± 0.019	DEC. X.X± 0.5	QUANTITY:	DRAWING NO. W50-61042	
DEC. X.XX ± 0.0039	DEC. X.XX± 0.1	MATERIAL: SAE 4140 STEEL HT RC 36-42	FINISH: SEE NOTE 2	
ANGLES X' ± 1'	ANGLES '± 1.0	DO NOT SCALE DRAWING		
RA DENTON No.:				

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/21/2008	BLW



SECTION A-A
SCALE 1 : 1

ITEM	QTY	PART NUMBER	DESCRIPTION
13	1	472-7353	RETAINING NUT, ACHILLES CABLE
12	1	472-7352	ACHILLES CABLE ASSEMBLY
11	1	9010447	SCREW, SET M3 X 0.5 X 3
9	1	472-7355	CAP, SPRING
8	1	472-7354	WASHER, PRIMARY LOAD
7	1	472-7358	COMPRESSION ELEMENT
6	1	472-7360	TUBE, SPRING
5	1	472-7357	SPRING, ELASTOMERIC
4	1	9000540	COMPRESSION SPRING
3	1	472-7356	CAP, SPRING BASE
2	1	472-7359	MOCK ACHILLES LOAD CELL
1	1	472-7351	TUBE BASE, ACHILLES SPRING

Parts List

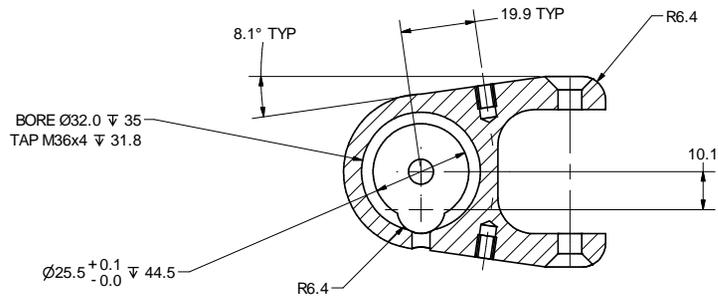
4. ADJUST NUT AS DESCRIBED IN THOR-LX / HYBRID III VERSION 2.0 USER'S MANUAL.
 5. SPRING RATE LISTED AT NOMINAL 24 N/mm
 NOMINAL SPRING RATE IS SUPERCEDED BY STATIC TESTING REQUIREMENTS:
 SPRING RATE: 25.0± 1.3N/mm
 MAX DEFLECTION TO SOLID HEIGHT MUST EXCEED 46mm.

UNLESS OTHERWISE SPECIFIED:

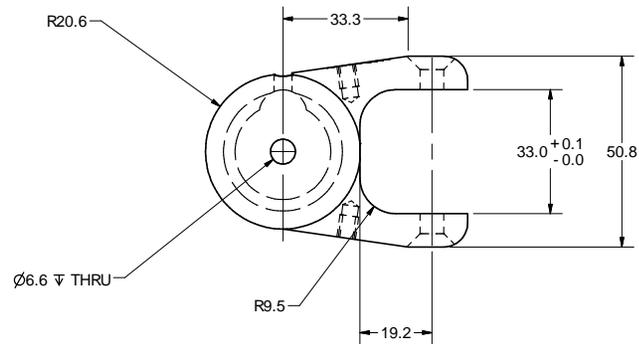
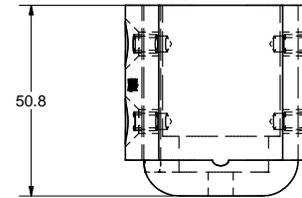
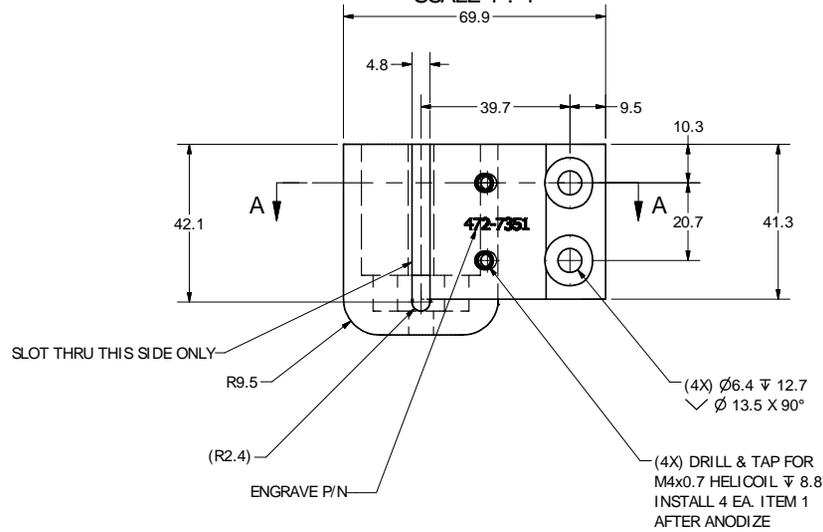
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60R OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
	± 0.13 ± 0.06 ± 0.01	
PROJECT NO. E00609	DESIGNED BY B.WADE	DATE 11/21/2008
DRAWN BY N/A	CHECKED BY N/A	FILE
		ACHILLES SPRING TUBE MECHANICAL ASSY - THOR-LX
		1 OF 1
		472-7350
		1-1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/21/2008	BLW



SECTION A-A
SCALE 1 : 1

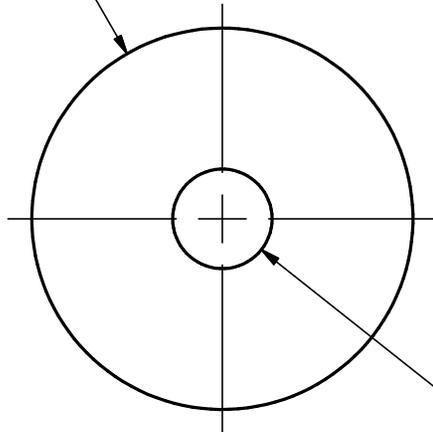


ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	9009073	HELICOIL, M4 X 0.7 X 6MM
Parts List			
DO NOT SCALE DRAWING		TOLERANCES	DEPARTMENT OF TRANSPORTATION
		DECIMALS ANGLES	NHTSA
E00609		7075-T6 ALUMINUM	TUBE BASE, ACHILLES SPRING THOR-LX
N/A		DATE	11/21/2008
BLUE ANODIZE		REV	C
		1 OF 1	472-7351

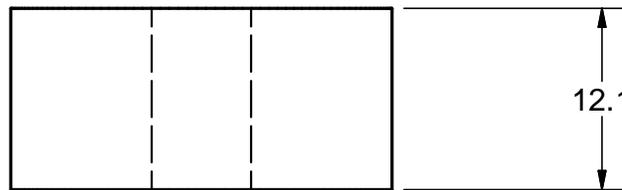
- UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

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

(F) $\varnothing 25.4^{+0.0}_{-0.2}$



$\varnothing 6.6 \nabla$ THRU



12.1

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.60 \checkmark$ OR BETTER.

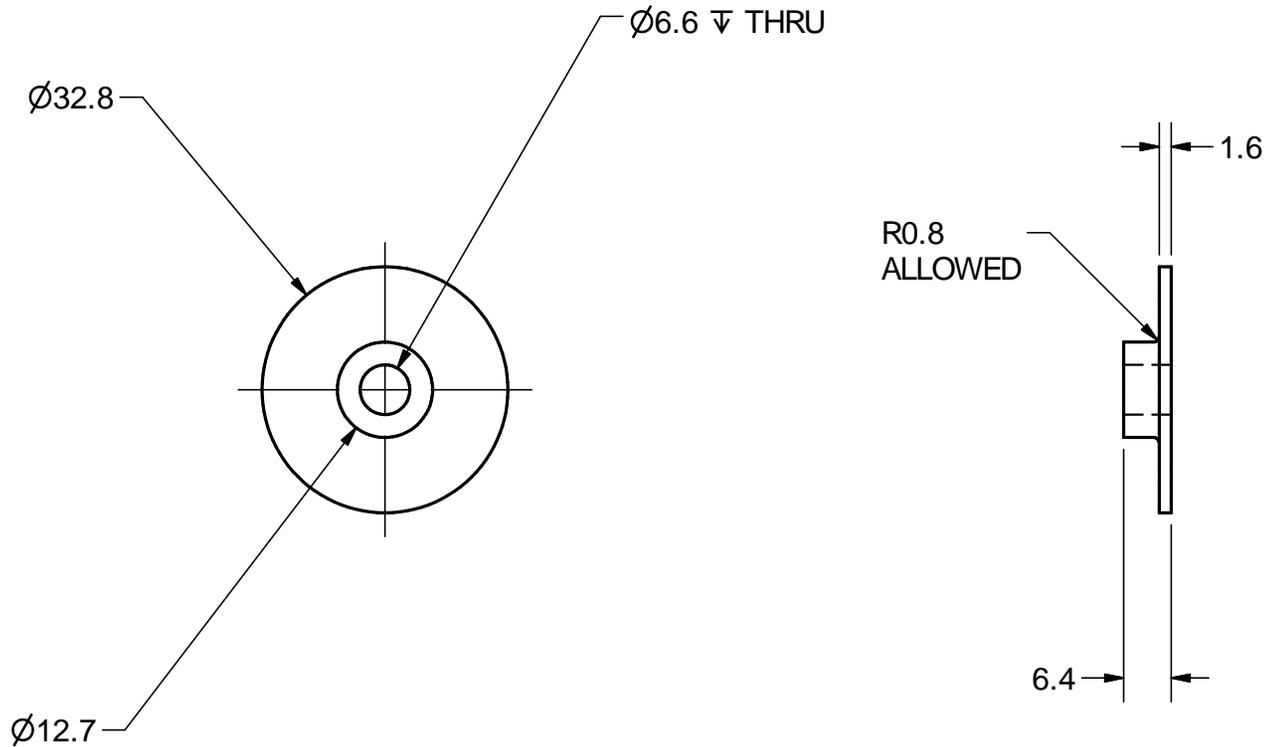
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05 ± 1°		 NHTSA TITLE: MOCK LOAD CELL, ACHILLES THOR-LX	
PROJECT NO.: E00609		DRAWN BY: B.WADE			
MATERIAL: Aluminum-6061-T6		CHECKED BY:		DATE:	
HEAT TREAT: N/A		FINISH: BLUE ANODIZE		SIZE: A	SHEET: 1 OF 1
				SCALE: 2:1	DRAWING NO.: 472-7359
					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

B



A



B



A

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05 ± 1°		 NHTSA TITLE: SPRING BASE CAP, ACHILLES THOR-LX	
PROJECT NO.: E00609		DRAWN BY: B.WADE			
MATERIAL: Stainless Steel, 440C		CHECKED BY:		DATE:	
HEAT TREAT: N/A		FINISH: N/A		SIZE: A SHEET: 1 OF 1 DRAWING NO.: 472-7356 REV.: D	
		SCALE: 1:1			

2



1

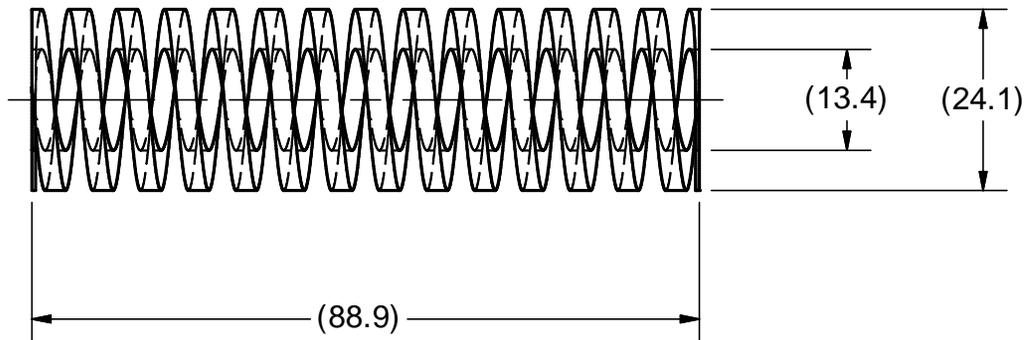
2



1

B

B



SPRING RATE: 24 N/mm

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA TITLE: COMPRESSION SPRING THOR-LX	
PROJECT NO.: E00609		DRAWN BY: B.WADE	DATE: 1/9/2009		
MATERIAL: Steel		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
HEAT TREAT: N/A				DRAWING NO.: 9000540	
FINISH: N/A				SCALE: 1:1	

A

A

2



1

2

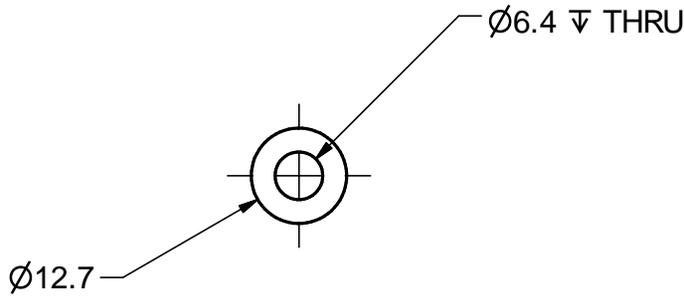


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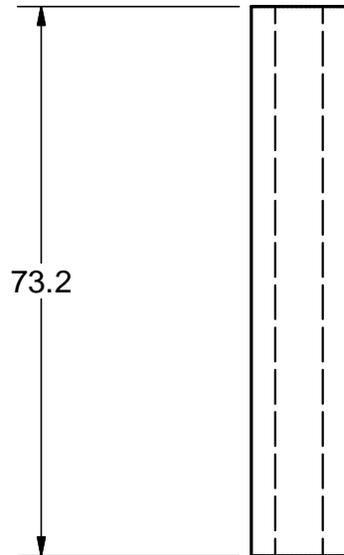
REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/19/2007	KSG
E00609	C	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW

B



B



A

A

MATERIAL: BUNA-N/SBR RUBBER HOSE (1/2"OD X 1/4"ID)

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DATE: 12/1/2008			
MATERIAL: SEE ABOVE		DRAWN BY: B. WADE		TITLE: ELASTOMERIC SPRING ELEMENT THOR-LX	
HEAT TREAT: N/A		CHECKED BY:		DRAWING NO.: 472-7357	
FINISH: N/A				SCALE: 1:1	
				SIZE: SHEET A 1 OF 1	
				REV: C	

2



1

4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	F	REDRAWN IN INVENTOR	7/19/2007	KSG
8294	G	REDRAWN TO PREVIOUS NHTSA REVISION	6/16/2008	TF
E00609	H	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW

B

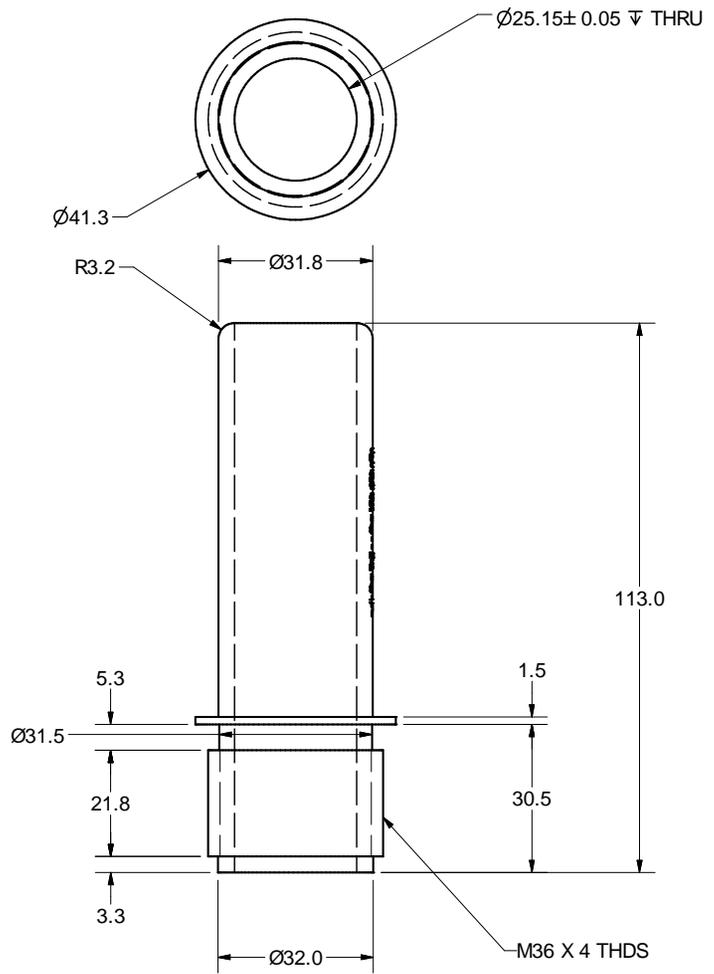
B

A

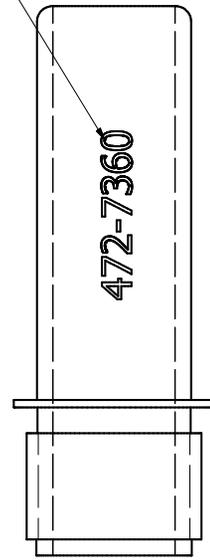
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A

A



ENGRAVE P/N



- UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
PROJECT NO: E00609		X ±0.5 XX ±0.1 XXX ±0.05		TITLE: TUBE, ACHILLES SPRING THOR-LX	
MATERIAL: Aluminum-6061-T6		DRAWN BY: B.WADE		DATE: 12/1/2008	
FINISH: N/A		CHECKED BY:		DATE:	
BLUE ANODIZE		SIZE: B		SHEET: 1 OF 1	
		SCALE: 1:1		DRAWING NO.: 472-7360	
				REV: H	

4

3

2

1

A

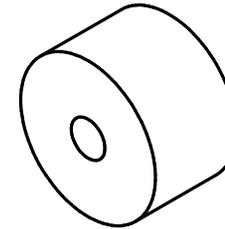
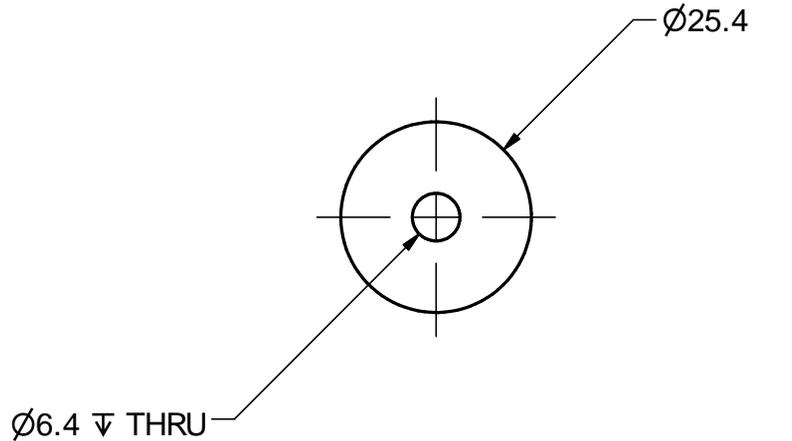
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1

REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	C	REDRAWN IN INVENTOR	7/19/2007	KSG
8290	D	ADDED +/- .03	6/17/2008	TF
E00609	E	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DATE: 12/1/2008			
MATERIAL: POLYURETHANE FOAM		DRAWN BY: B. WADE		TITLE: FOAM COMPRESSION ELEMENT THOR-LX	
HEAT TREAT: N/A		CHECKED BY:			
FINISH: N/A		DATE:		SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7358
		SCALE: 1:1		REV: E	

2



1

B



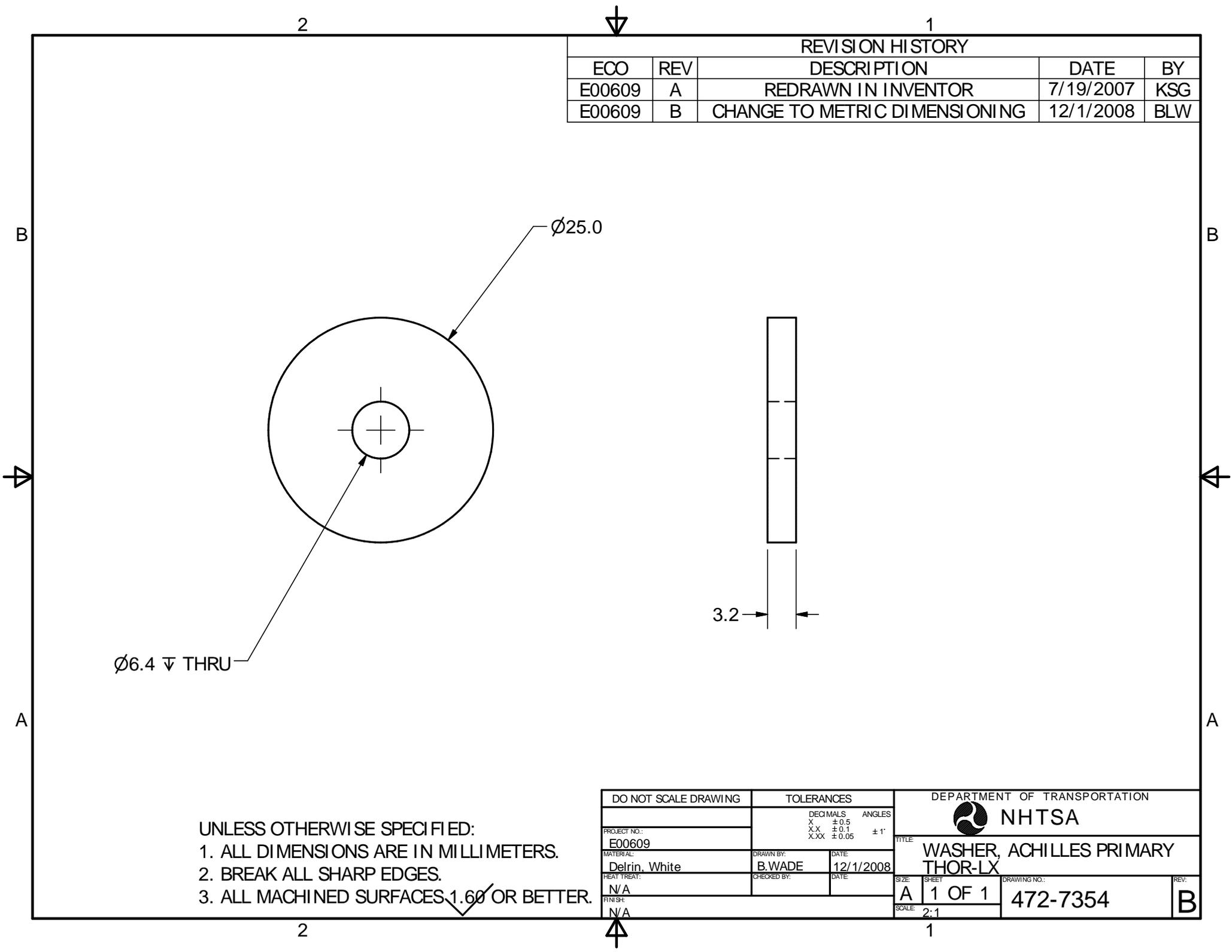
A

B



A

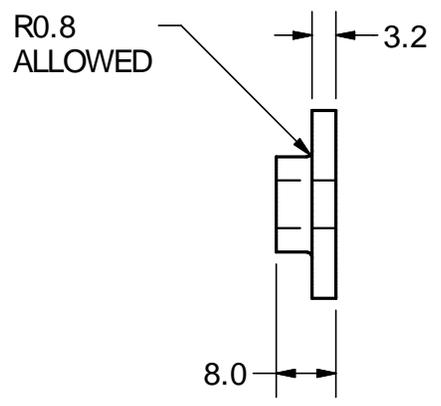
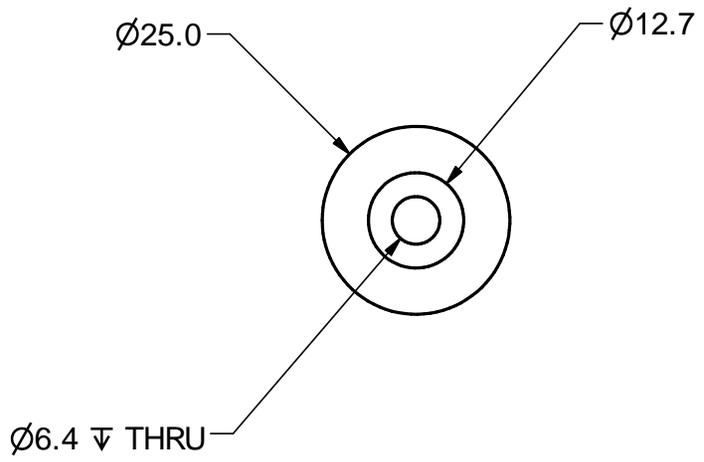
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/19/2007	KSG
E00609	B	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DRAWN BY: B. WADE			
MATERIAL: Delrin, White		CHECKED BY:		DATE:	
HEAT TREAT: N/A		FINISH: N/A		SIZE: A	SHEET: 1 OF 1
				SCALE: 2:1	DRAWING NO.: 472-7354
					REV.: B

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



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
PROJECT NO.:		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 1°		
MATERIAL: Delrin, White		DRAWN BY: B. WADE	DATE: 12/1/2008	TITLE: SPRING CAP, ACHILLES THOR-LX	
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
FINISH: N/A				SCALE: 1:1	DRAWING NO.: 472-7355

B
A

B
A

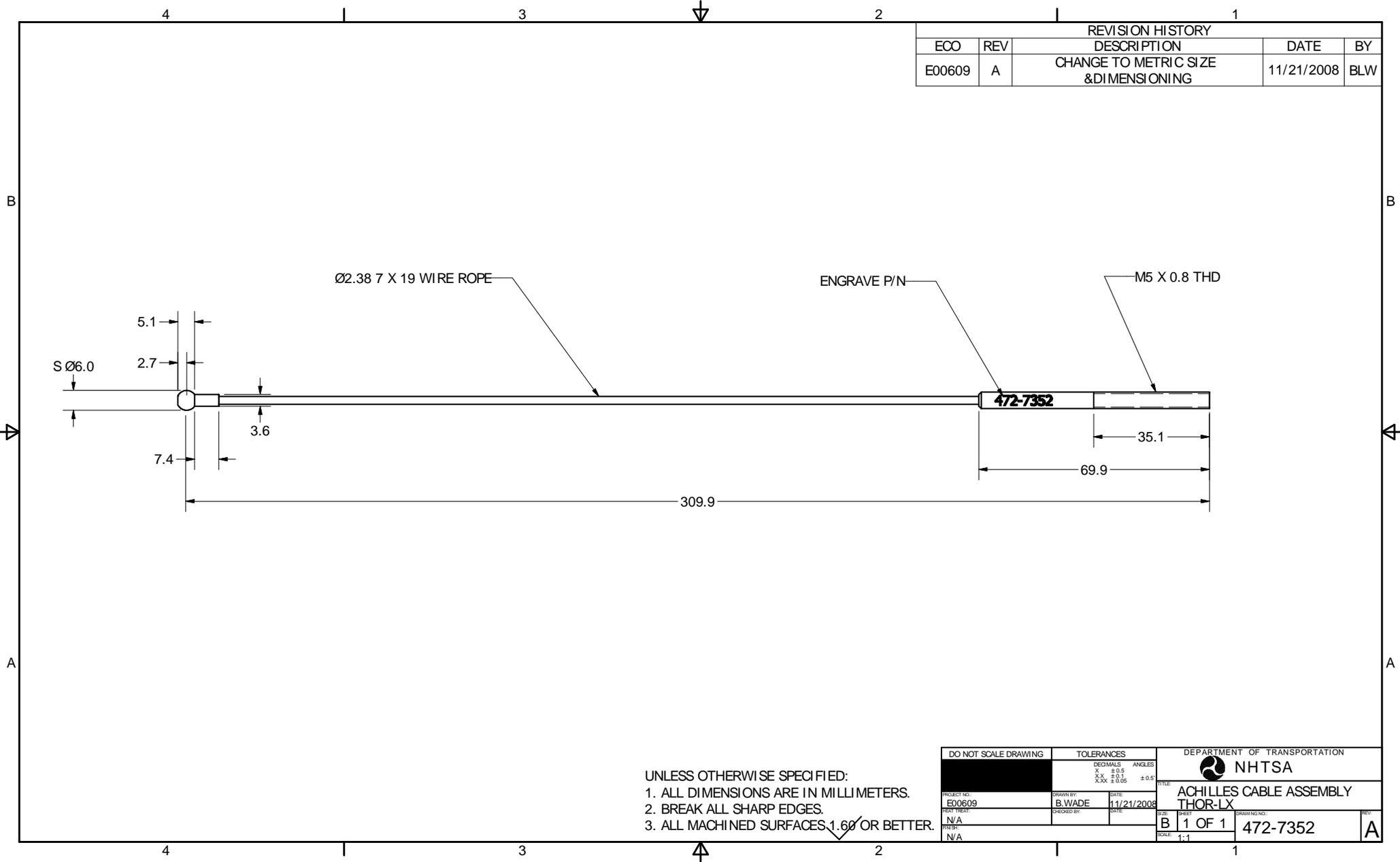
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1

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC SIZE & DIMENSIONING	11/21/2008	BLW



UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
		X ± 0.5		TITLE	
		XX ± 0.1		ACHILLES CABLE ASSEMBLY	
		XXX ± 0.05		THOR-LX	
PROJECT NO. E00609	DRAWN BY B.WADE	DATE 11/21/2008		DRAWING NO. 472-7352	
REV. TREAT N/A	CHECKED BY	DATE		SHEET 1 OF 1	
REV. BY N/A				SCALE 1:1	

2

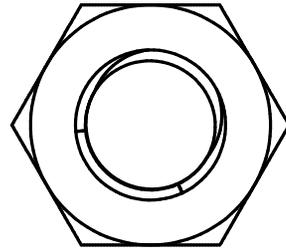


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REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW

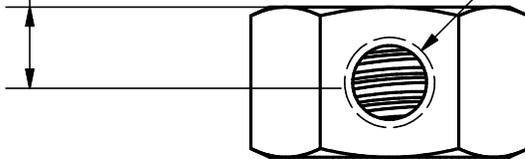
B



B

M3x0.5 ∇ THRU
TO M5 THREADS

2.7



NOTE: MAKE FROM M5 X 0.8 HEX NUT

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

2



1

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA TITLE: RETAINING NUT THOR-LX	
PROJECT NO.: E00609		DRAWN BY: B. WADE			
MATERIAL: Steel		CHECKED BY:		DRAWING NO.: 472-7353	
HEAT TREAT: N/A		DATE:		SCALE: 4:1	
FINISH: N/A		DATE:		SHEET: 1 OF 1	
				REV: A	

2



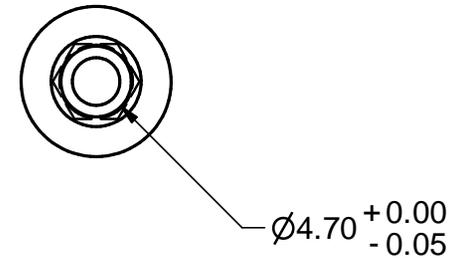
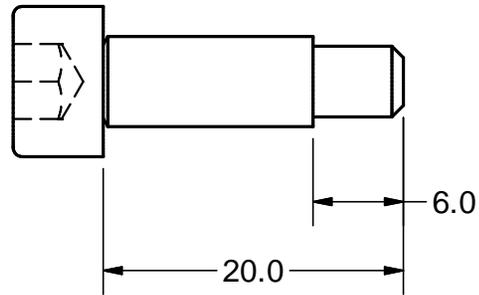
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REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	A	.185+ .000/- .002 WAS .186	7/25/2008	KHS
E00609	B	CHANGE TO METRIC HARDWARE	10/10/2008	BLW
E00609	C	CHANGE TO METRIC DIMENSIONING	11/21/2008	BLW

B

B



NOTE: MAKE FROM M6 X 1.0 X 20mm SHCS

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DATE: 11/21/2008			
MATERIAL: SEE NOTE		DRAWN BY: B. WADE		DRAWING NO.:	
HEAT TREAT: N/A		CHECKED BY:		SCALE: 1:1	
FINISH: N/A				472-7335	
				A 1 OF 1	
				C	

A

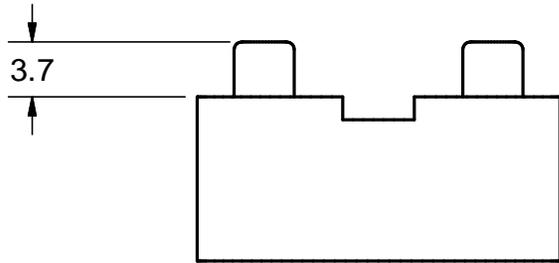
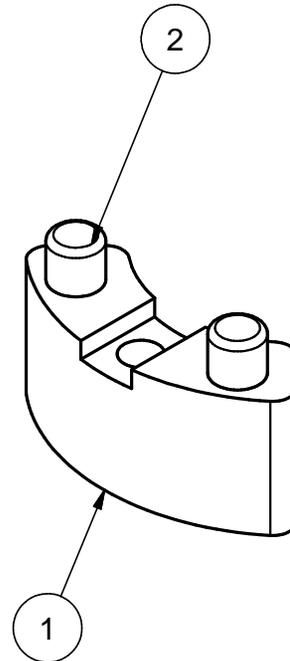
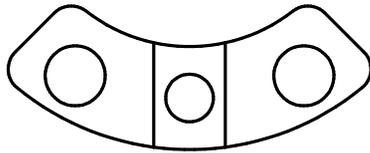
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2



1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW



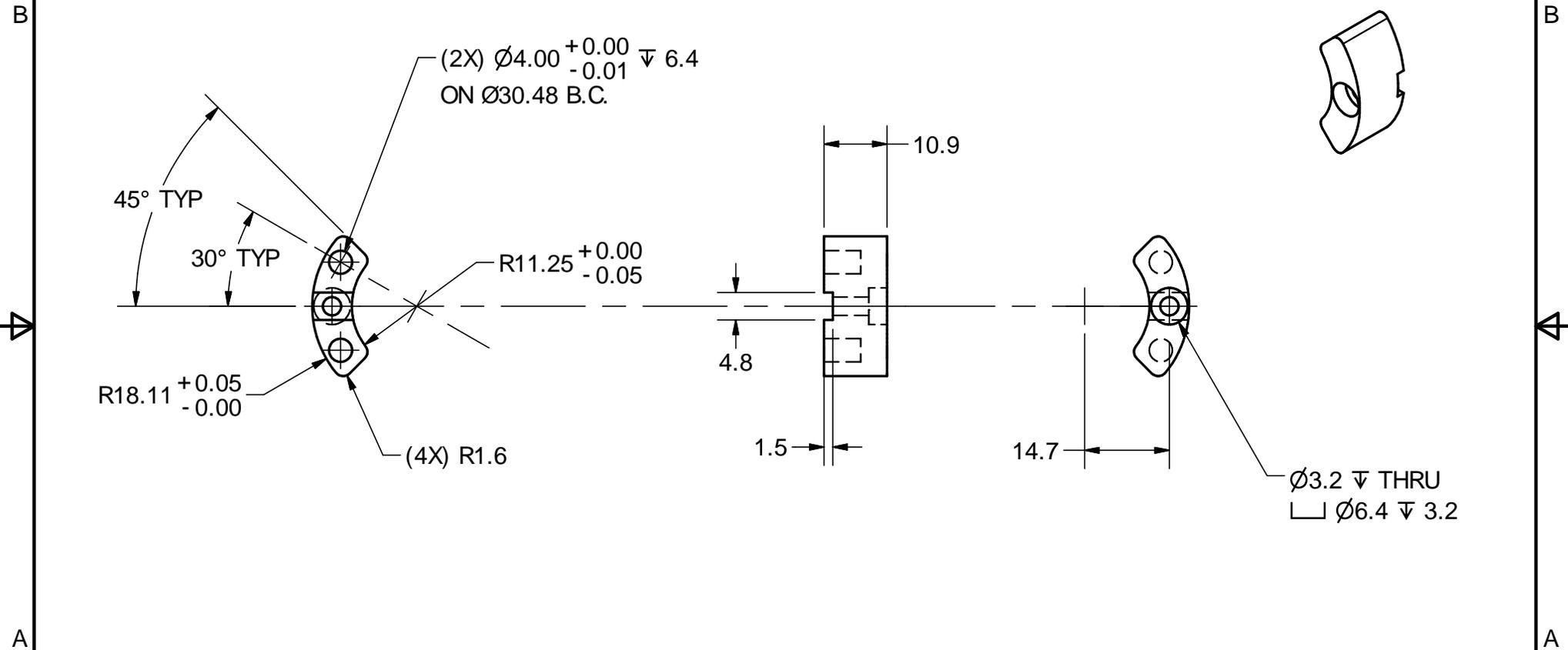
2	2	9010459	DOWEL PIN 4mm X 18mm
1	1	472-7331	Z ROTATION - WEDGE 1
ITEM	QTY	PART NUMBER	DESCRIPTION

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 0.5°		
		XX ± 0.1		TITLE: Z ROTATION WEDGE ASSY	
		XXX ± 0.05		THOR-LX	
PROJECT NO.:	DRAWN BY:	DATE:	SIZE:	SHEET:	DRAWING NO.:
E00609	B.WADE	11/20/2008	A	1 OF 1	472-7330
HEAT TREAT:	CHECKED BY:	DATE:	SCALE:		REV:
N/A			2:1		A
FINISH:					
N/A					

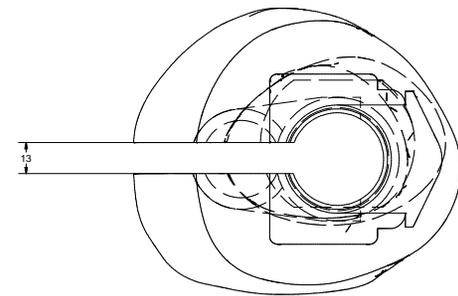
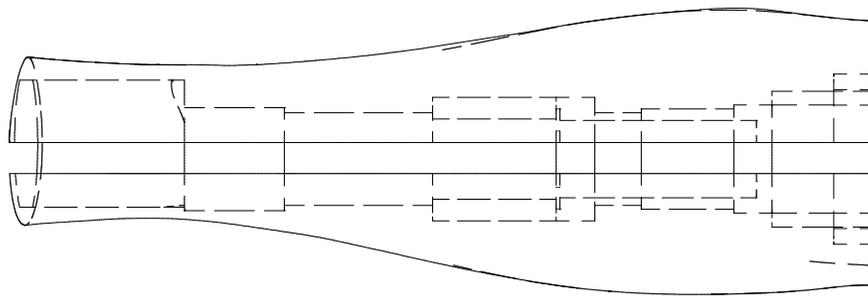
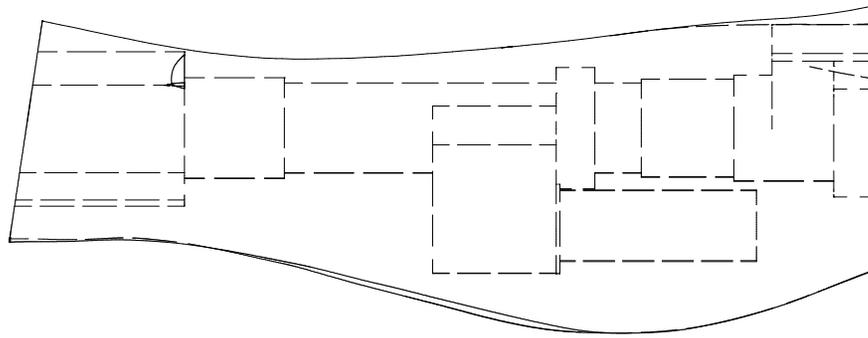
- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/20/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.60 \checkmark$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA	
PROJECT NO.: E00609		X ± 0.5	± 1°		
MATERIAL: aluminum bronze		DRAWN BY: B. WADE	DATE: 11/20/2008	TITLE: Z ROTATION WEDGE THOR-LX	
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7331
FINISH: N/A				SCALE: 1:1	REV: A

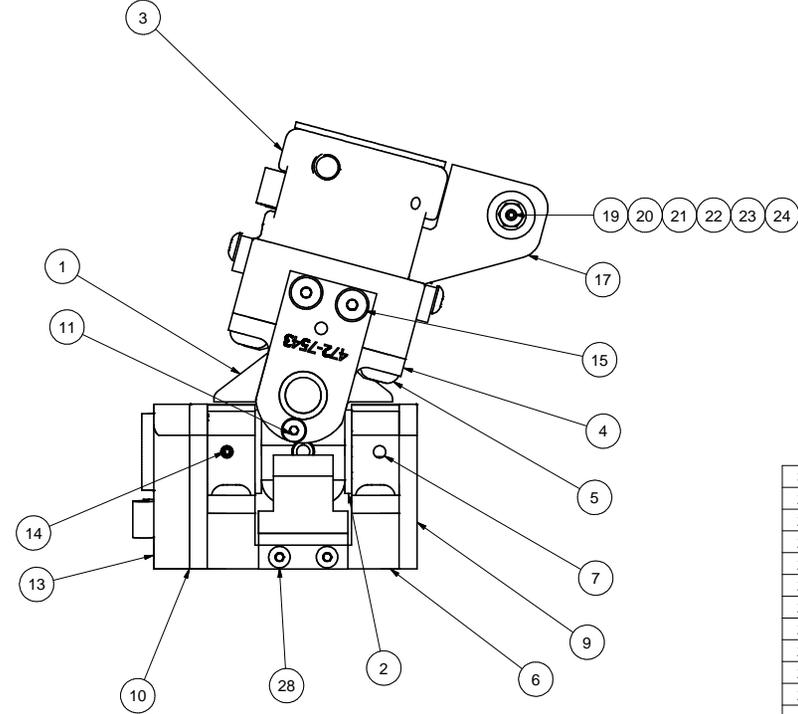
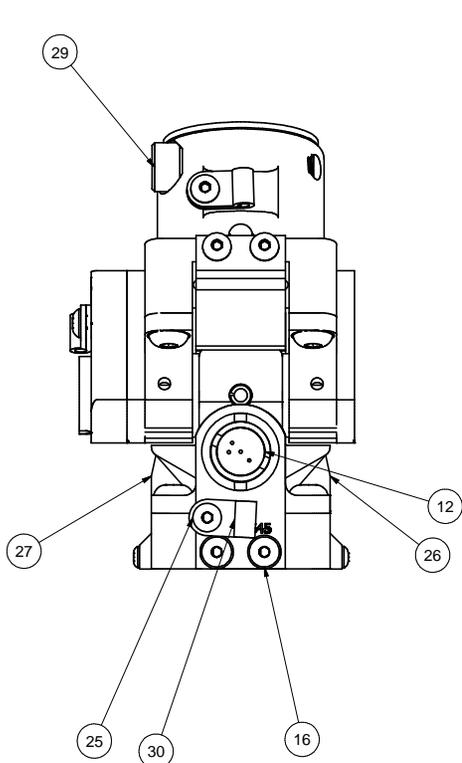


- 4. PART TO BE MOLDED VINYL AND URETHANE FOAM.
- 5. TOTAL MASS: 63 ± .05 KG
- 6. ATTACH ZIPPER TO CLOSE FLESH AT BACK
- 7. EXTERNAL SHAPE DEFINED BY UMTRI 50TH PERCENTILE LOWER LEG.

- UNLESS OTHERWISE SPECIFIED:
- 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 - 2. BREAK ALL SHARP EDGES.
 - 3. ALL MACHINED SURFACES \sqrt{R} OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	FRACTIONS WITH DENOMINATOR 10, 20, 32, 64	NHTSA
PROJECT	DATE	LOWER LEG FLESH, LEFT THORAX
DESIGNER	DATE	11/9/2001
BY	DATE	11/9/2001
APP'D	DATE	11/9/2001
		1 OF 1 472-7370-1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/25/2007	KSG
E00609	C	CHANGE TO METRIC HARDWARE	10/14/08	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW
	E	PART NUMBER SA572-S114 WAS 472-7550, 472-7585 WAS 472-7545 & 472-7580 WAS 472-7520 AND DESCRIPTION WAS "BASE, TOP TORQUE"	9/15/2014	DW



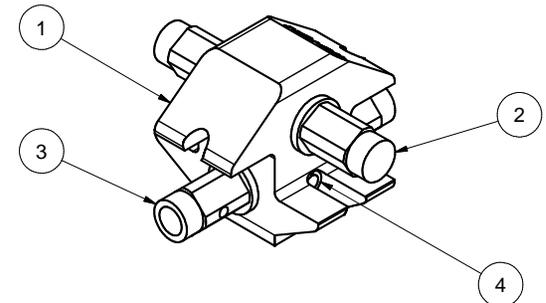
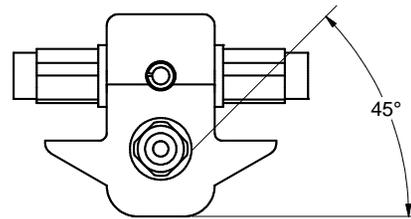
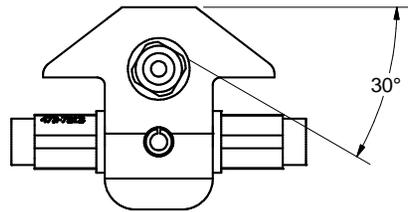
ITEM	QTY	PART NUMBER	DESCRIPTION
30	3	9005135	CLAMP, NYLON LOOP
29	1	472-7563	BOLT & SLEEVE ASSEMBLY-ANKLE
28	4	9010332	SCREW, BHCS M3 X 0.5 X 8
27	1	472-7534	STOP ASSEMBLY, INVERSION
26	1	472-7533	STOP ASSEMBLY, EVERSION
25	7	9003049	SCREW, BHCS M4 X 0.7 X 8
24	2	9010450	NUT, NYLOCK M3 X 0.5
23	1	472-7562	PULLEY, ACHILLES CABLE
22	2	9000510	WASHER, # 4
21	2	9000508	WASHER
20	2	9000509	BEARING, NEEDLE ROLLER
19	1	472-7561	SHAFT, ACHILLES CABLE PULLEY
18	2	9010449	SCREW, FHCS M3 X 0.5 X 12
17	1	472-7560	BRACKET, ACHILLES PULLEY
16	4	9010448	SCREW, FHCS M4 X 0.7 X 20
15	4	9000873	SCREW, FHCS M4 X 0.7 X 12
14	2	9010447	SCREW, SET M3 X 0.5 X 3
13	2	472-7585	RETAINER, POTENTIOMETER
12	3	SA572-S114	ROTARY POTENTIOMETER
11	4	9010446	SCREW, FHCS M3 X 0.5 X 16
10	2	472-7541	BUSHING PLATE ASSEMBLY-ANKLE
9	2	472-7540	ANKLE BUSHING PLATE ASSEMBLY
8	2	472-7530	STOP ASSEMBLY, DORSI-PLANTAR
7	18	472-7524	CYLINDER, TORQUE-ANKLE
6	1	472-7523	BASE, TORQUE-BOTTOM
5	8	9010445	SCREW, BHCS M6 X 1.0 X 12
4	4	472-7522	CAP, BASE-ANKLE TORQUE
3	1	472-7580	BASE, TORQUE-ANKLE TOP
2	4	472-7515	WASHER, RETAINING-TORQUE CYLINDER
1	1	472-7510	CENTER BLOCK ASSEMBLY-ANKLE

△ E
△ E
△ E

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLI METERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

Parts List			
DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION	
	DECIMALS ANGLES	NHTSA	
	±.012 ±.015 ±.030 ±.075	AKLE ASSEMBLY, LEFT THOR-LX	
PROJECT NO. E00609	DESIGNED BY B.WADE	DATE 12/8/2008	ISSUED BY C
REVISED BY N/A	APPROVED BY N/A	DATE	1 OF 1
			472-7500-1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	INCORPORATE METRIC HARDWARE	10/06/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



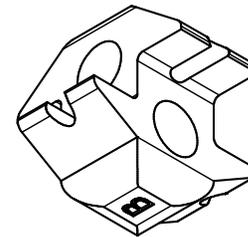
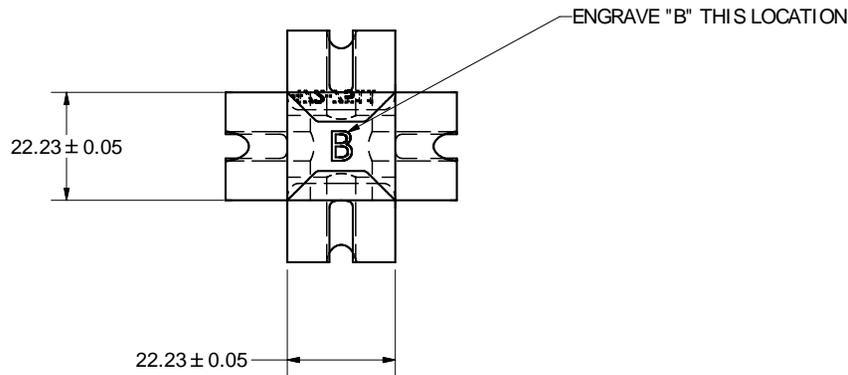
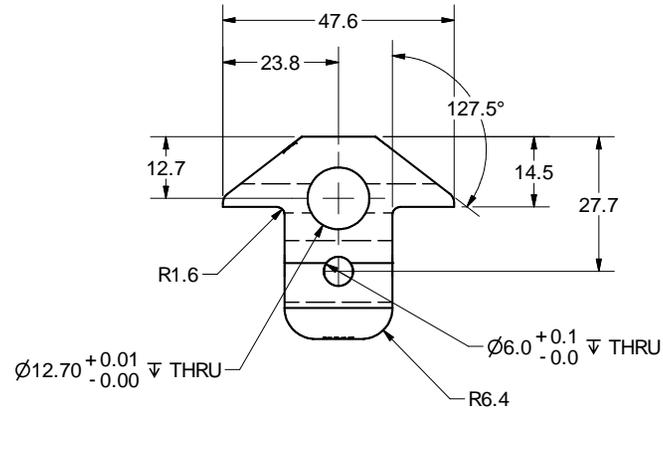
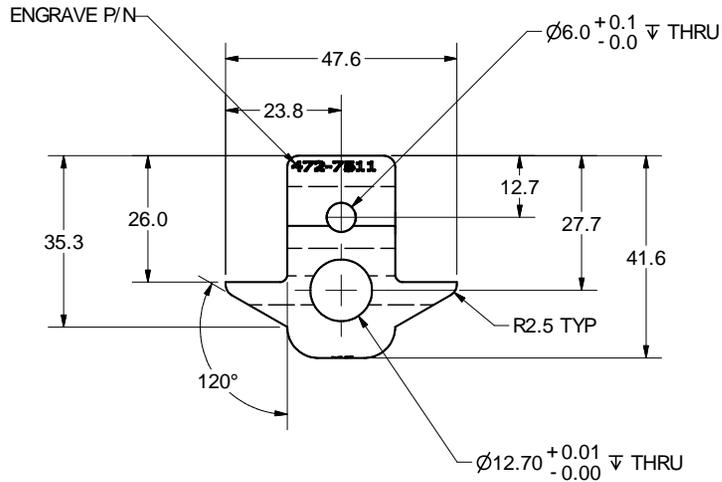
ITEM	QTY	PART NUMBER	DESCRIPTION
4	2	9010444	PIN, SPRING 6MM X 22MM
3	1	472-7513	SHAFT, TORQUE- LOWER ANKLE
2	1	472-7512	SHAFT, TORQUE- UPPER ANKLE
1	1	472-7511	BLOCK, CENTER - ANKLE

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
		X ±0.05		TITLE	
		XX ±0.1		ANKLE CENTER BLOCK ASSY	
		XXX ±0.05		THOR-LX	
PROJECT NO:	DRAWN BY:	DATE:	SIZE:	SHEET:	DRAWING NO.:
E00609	B.WADE	12/1/2008	B	1 OF 1	472-7510
REV. TREAT:	CHECKED BY:	DATE:	SCALE:		
N/A			1:1		
FINISH:					
N/A					

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

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	CHANGE TO METRIC DIMENSIONING	12/1/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
				 NHTSA	
PROJECT NO. E00609		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05		TITLE BLOCK, CENTER - ANKLE THOR-LX	
MATERIAL Aluminum-6061		DRAWN BY B.WADE		DATE 12/1/2008	
FINISH N/A		CHECKED BY		DATE	
BLUE ANODIZE		SIZE B		SHEET 1 OF 1	
		SCALE 1:1		DRAWING NO. 472-7511	
				REV D	

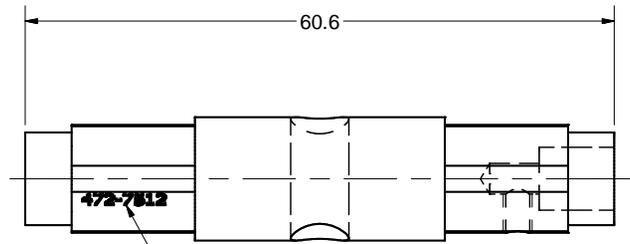
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3

2

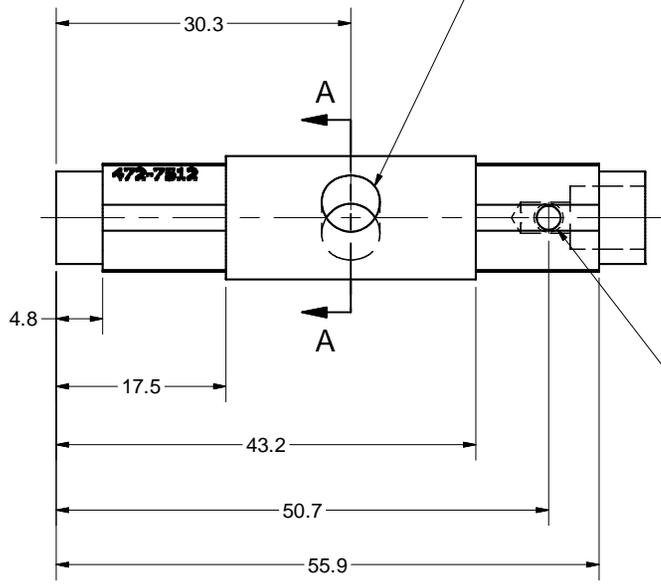
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REDIM FOR METRIC HARDWARE	10/6/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/2/2008	BLW



ENGRAVE P/N

$\varnothing 6.0^{+0.1}_{-0.0}$ ∇ THRU



A

A

M3x0.5 ∇ THRU TO BORE

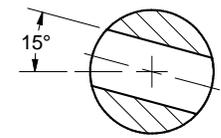
9.5 SQ. BOTH ENDS

$\varnothing 11.1$ BOTH ENDS

$\varnothing 3.18^{+0.02}_{-0.00}$ ∇ 12.8
 $\llcorner \varnothing 6.5 \nabla 7.7$

$\varnothing 12.70^{+0.00}_{-0.01}$

$\varnothing 9.53^{+0.00}_{-0.01}$ BOTH ENDS



SECTION A-A
SCALE 2 : 1

- UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60μ OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
PROJECT NO: E00609	X ±0.5 XX ±0.1 XXX ±0.05	TITLE: SHAFT, TORQUE-UPPER ANKLE THOR-LX
MATERIAL: Stainless Steel, 440C	DRAWN BY: B.WADE	DATE: 12/2/2008
HARDNESS: 57-61 Rc	CHECKED BY:	DATE:
FINISH: N/A		
	SIZE: B	SHEET: 1 OF 1
	SCALE: 2:1	DRAWING NO.: 472-7512
		REV: D

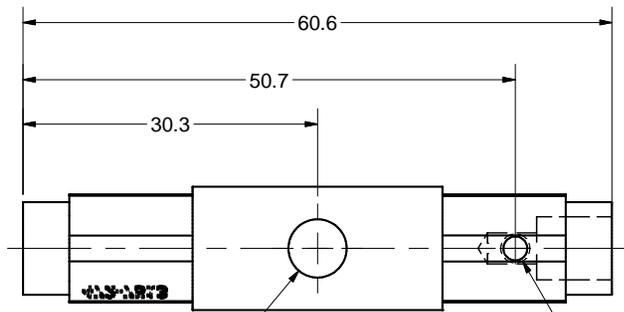
4

3

2

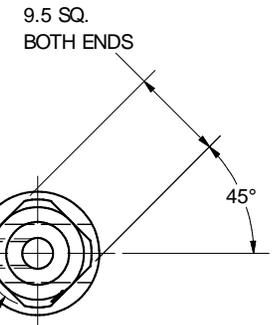
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REDIM FOR METRIC HARDWARE	10/6/2008	E00609
E00609	D	CHANGE TO METRIC DIMENSIONING	12/2/2008	BLW



$\varnothing 6.0^{+0.1}_{-0.0}$ ∇ THRU

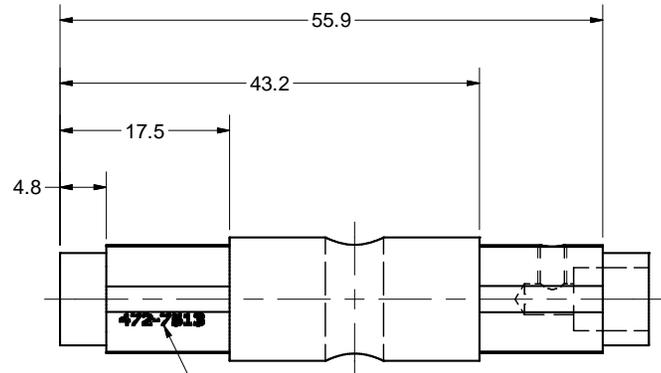
M3x0.5 ∇ THRU TO BORE



9.5 SQ. BOTH ENDS

45°

$\varnothing 11.1$ BOTH ENDS



ENGRAVE P/N

$\varnothing 12.70^{+0.00}_{-0.01}$

$\varnothing 3.18^{+0.02}_{-0.00}$ ∇ 12.8
 $\llcorner \varnothing 6.5 \nabla 7.7$

$\varnothing 9.53^{+0.00}_{-0.01}$ BOTH ENDS

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60μ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
PROJECT NO. E00609		X ± 0.5	± 1°	TITLE: SHAFT, TORQUE-LOWER ANKLE THOR-LX	
MATERIAL: Stainless Steel, 440C		XX ± 0.1		DRAWING NO. 472-7513	
REV: 001		XXX ± 0.05		DRAWN BY: B.WAIDE DATE: 12/2/2008	
P/N: N/A				CHECKED BY: DATE:	
				SCALE: 2:1	
				SHEET: 1 OF 1	
				REV: D	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	B	REVI SE THICKNESS	10/6/2008	BLW
E00609	C	CHANGE TO METRIC DIMENSIONING	12/2/2008	BLW

B

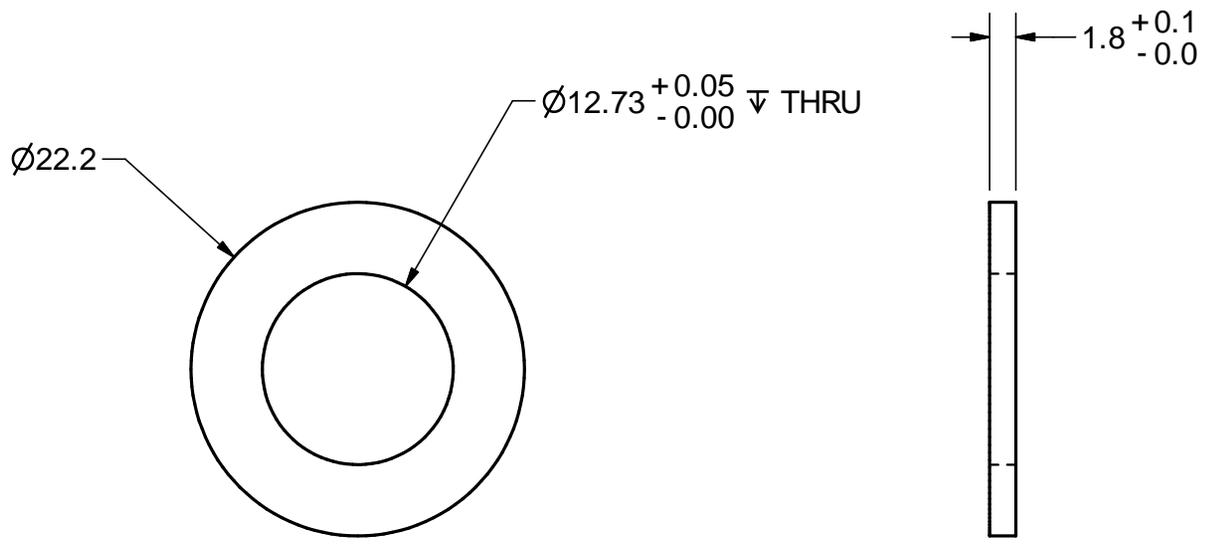
B

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A

A



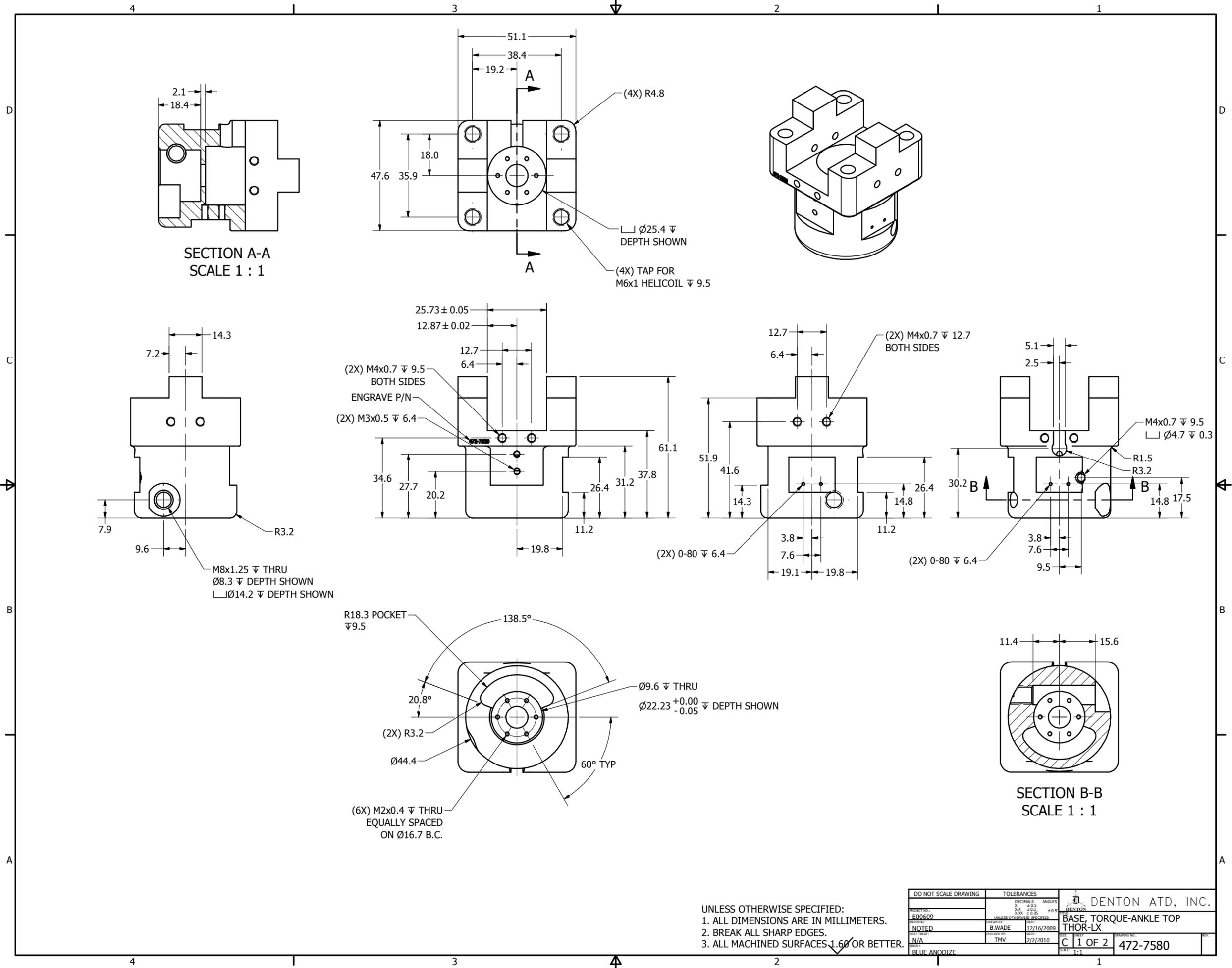
- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
PROJECT NO.: E00609		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA TITLE: WASHER, RETAINING THOR-LX	
MATERIAL: Delrin, White		DRAWN BY: B.WADE	DATE: 12/2/2008		
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
FINISH: N/A		SCALE: 2:1		DRAWING NO.: 472-7515	
				REV: C	

2

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1

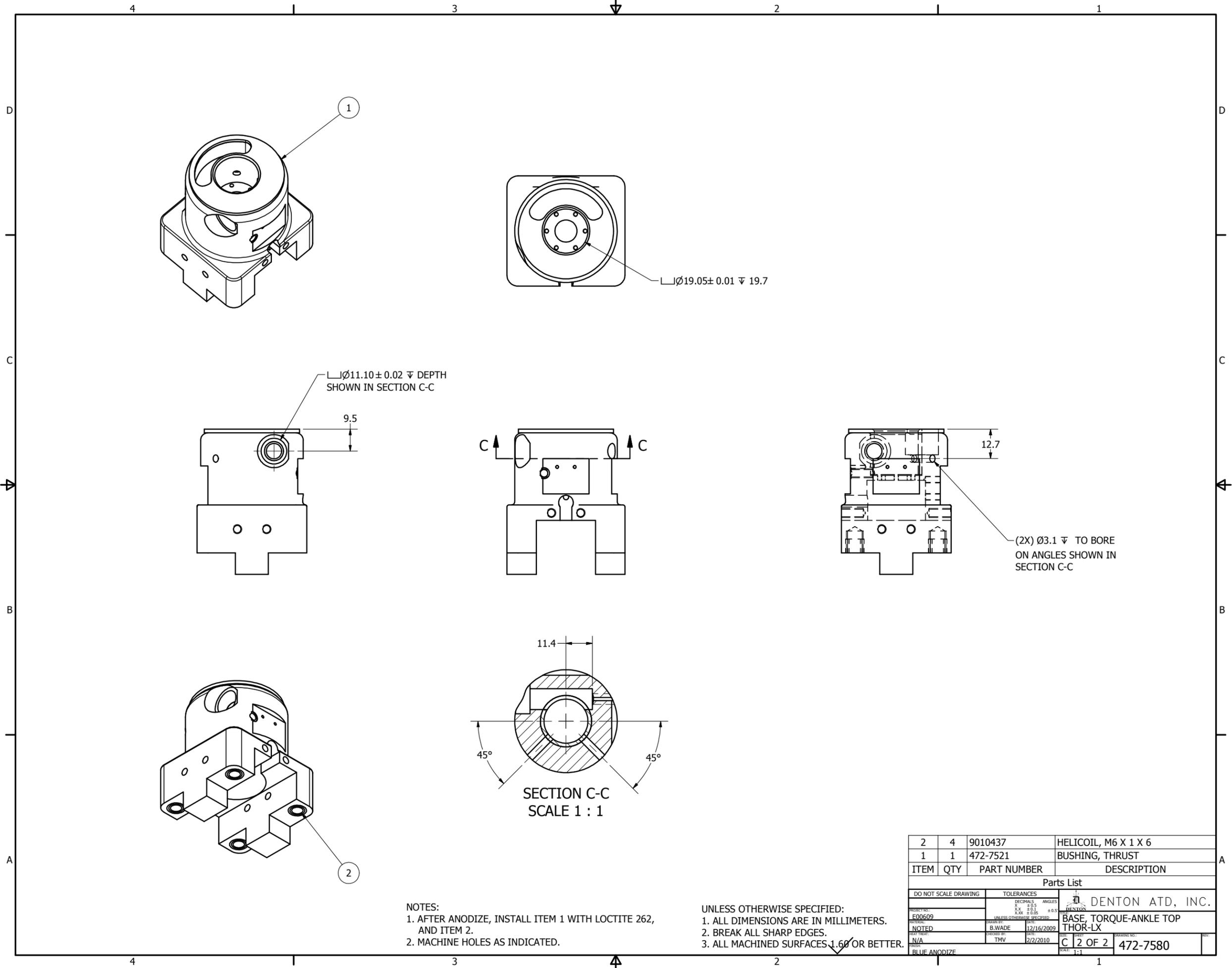


SECTION A-A
SCALE 1 : 1

SECTION B-B
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DENTON ATD, INC.	
PROJECT NO:	E00609	DECIMALS	ANGLES	DENTON	
MATERIAL:	NOTED	X .X ± 0.1	X.X ± 0.1	BASE TORQUE-ANKLE TOP THOR-LX	
DATE:	12/16/2009	UNLESS OTHERWISE SPECIFIED		DRAWING NO:	
DESIGNED BY:	B. MADE			C 1 OF 2	
CHECKED BY:	TMV			472-7580	
DATE:	2/2/2010			SCALE: 1:1	
FINISH:	BLUE ANODIZE				

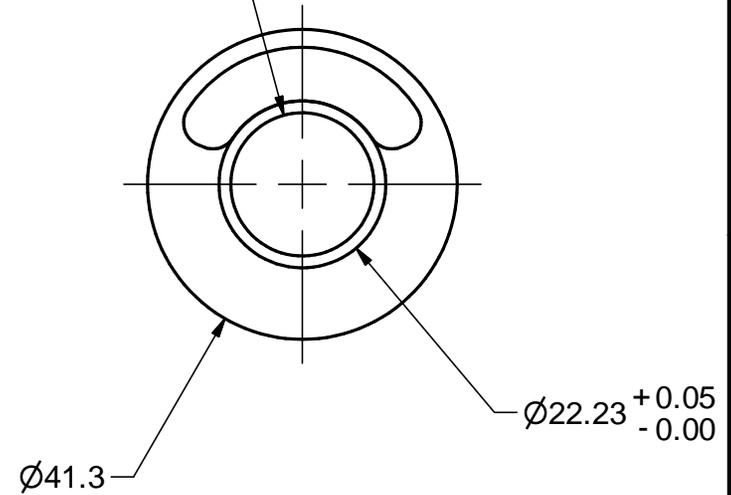
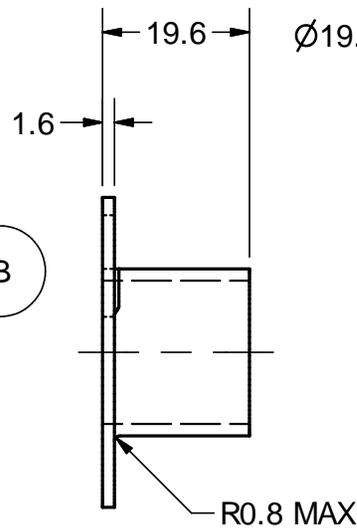
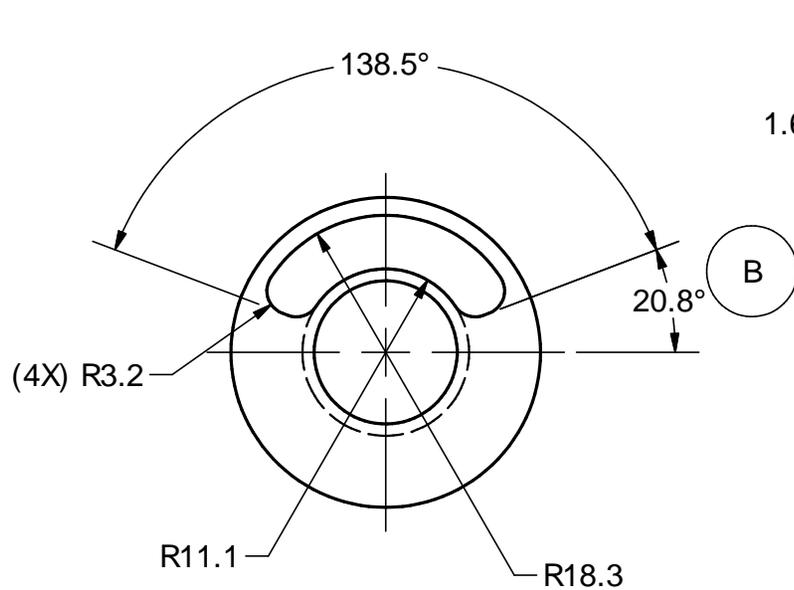


NOTES:
 1. AFTER ANODIZE, INSTALL ITEM 1 WITH LOCTITE 262, AND ITEM 2.
 2. MACHINE HOLES AS INDICATED.

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

2	4	9010437	HELICOIL, M6 X 1 X 6
1	1	472-7521	BUSHING, THRUST
ITEM	QTY	PART NUMBER	DESCRIPTION
Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
		DECIMALS	ANGLES
		X ± 0.1	± 0.5
		XX ± 0.1	± 0.5
		XXX ± 0.05	± 0.5
		UNLESS OTHERWISE SPECIFIED	
PROJECT NO:	E00609	DRAWN BY:	B.WADE
MATERIAL:	NOTED	DATE:	12/16/2009
REVISED:	N/A	CHECKED BY:	TMV
DATE:		DATE:	2/2/2010
BLUE ANODIZE		SCALE:	1:1
			DENTON ATD, INC. BASE, TORQUE-ANKLE TOP THOR-LX DRAWING NO: 472-7580 PAGE: 1

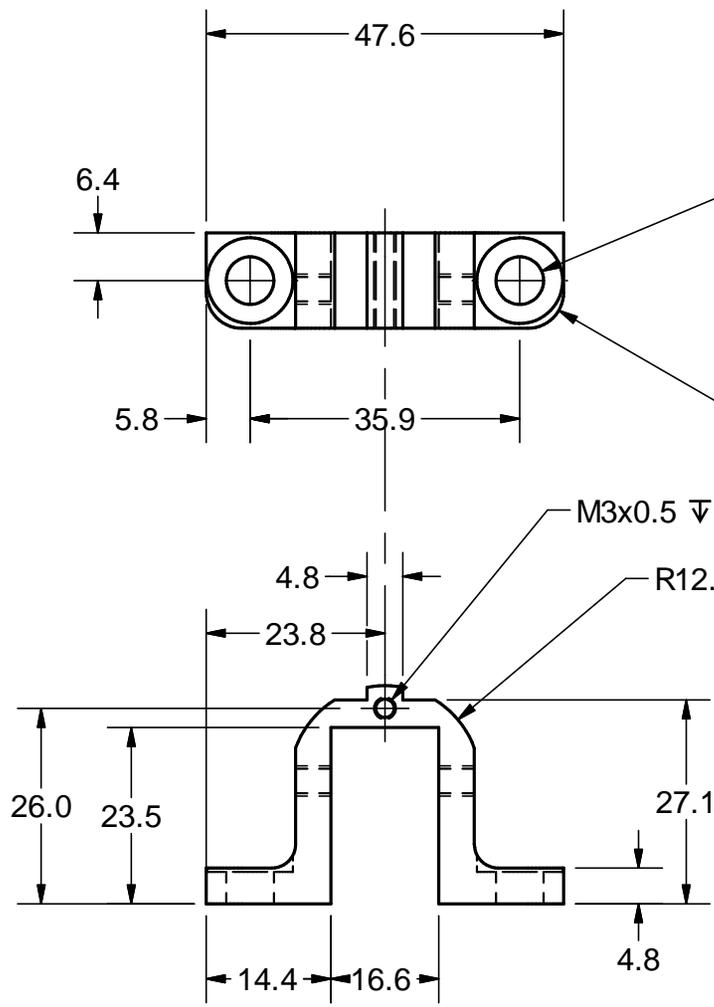
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	B	ADDED SLOT	10/3/2008	BLW
E00609	C	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA	
PROJECT NO.: E00609		X ± 0.5	± 1°		
MATERIAL: Delrin, White		DRAWN BY: B. WADE	DATE: 12/3/2008	TITLE: BUSHING, THRUST THOR-LX	
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7521
FINISH: N/A				SCALE: 1:1	REV: C

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	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



(2X) $\varnothing 6.4 \nabla$ THRU
 $\square \varnothing 11.4 \nabla 0.5$

R4.7

M3x0.5 ∇ THRU

R12.7

M4x0.7 ∇ THRU

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA	
PROJECT NO.: E00609		X ± 0.5	± 1°		
MATERIAL: Aluminum-6061-T6		DRAWN BY: B.WADE	DATE: 12/3/2008	TITLE: CAP, BASE-TORQUE THOR-LX	
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
FINISH: BLUE ANODIZE				SCALE: 1:1	DRAWING NO.: 472-7522
					REV: D

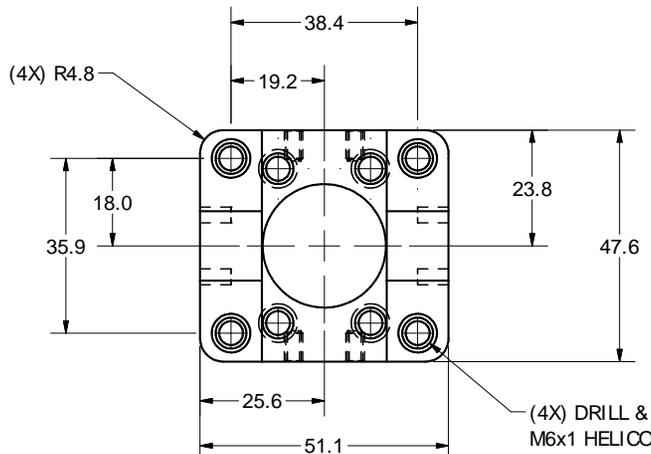
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3

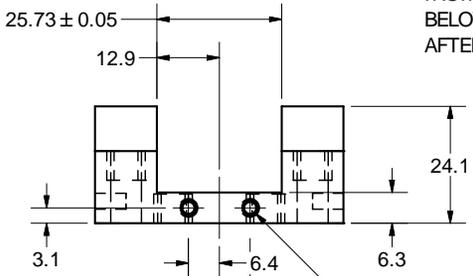
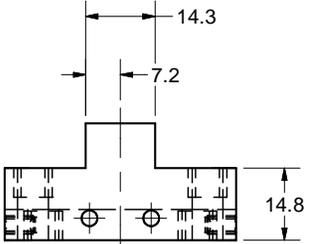
2

1

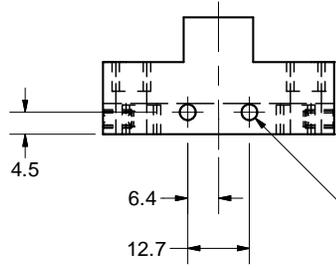
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	C	REDRAWN IN INVENTOR; DRILL & TAP FOR 6-32 HELICOIL WAS 6.32 TAP	7/23/2007	KSG
E00609	D	CHANGE TO METRIC HARDWARE, REV DIM	9/30/2008	BLW
E00609	E	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



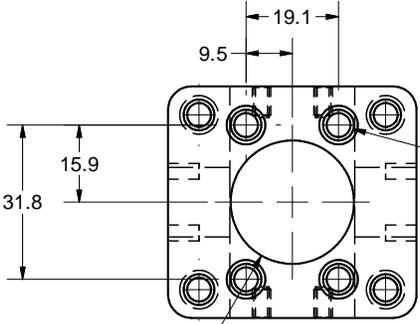
(4X) DRILL & TAP FOR M6x1 HELICOIL ∇ THRU INSTALL 4 EA. ITEM 1 BELOW THIS SURFACE AFTER ANODIZE



(2X) DRILL & TAP FOR M3x0.5 HELICOIL ∇ 6.4 BOTH SIDES INSTALL 4 EA. ITEM 2 AFTER ANODIZE



(2X) M4x0.7 ∇ 6.4 BOTH SIDES



(4X) DRILL & TAP FOR M6x1 HELICOIL ∇ THRU INSTALL 4 EA. ITEM 1 AFTER ANODIZE

\varnothing 25.4 ∇ THRU

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	4	9005208	HELI-COIL, M3x0.5 X 6 LG SST
1	8	9010437	HELI-COIL, M6 X 1 X 6

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
PROJECT NO. E00609		X 2.05 X.X 2.05 X.XX 2.05		TITLE: BASE, TORQUE-BOTTOM THOR-LX	
MATERIAL: ALUMINUM 6061-T6		DRAWN BY: B.WADE DATE: 12/3/2008		DRAWING NO. 472-7523	
FINISH: N/A		CHECKED BY:		SCALE: 1:1	
BLUE ANODIZE				SHEET 1 OF 1	

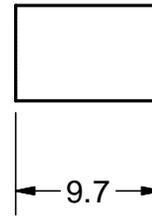
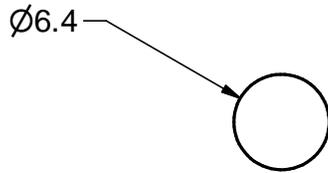
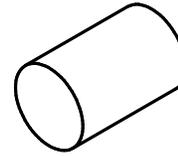
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1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



MATERIAL: MAKE FROM ROSTA VIBRATION BLOCK
MODEL DR-S 11 X 50

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 ± 1° X.X ± 0.1 X.XX ± 0.05		 NHTSA TITLE: CYLINDER, TORQUE THOR-LX	
PROJECT NO.: E00609		DATE: 12/3/2008			
MATERIAL: SEE ABOVE		DRAWN BY: B. WADE		DRAWING NO.: 472-7524	
HEAT TREAT: N/A		CHECKED BY:		SCALE: 2:1	
FINISH: N/A				SIZE: SHEET A 1 OF 1	
				REV: C	

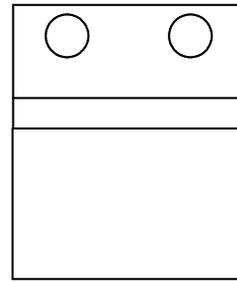
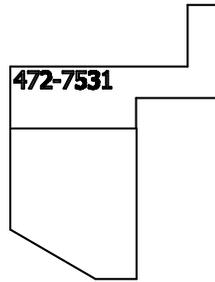
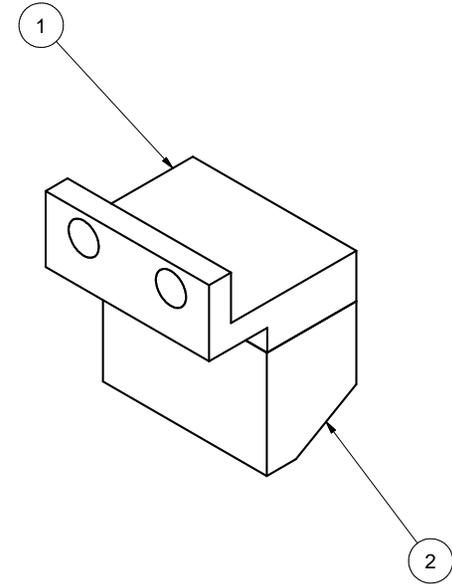
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE METRIC DIMENSIONING	12/3/2008	BLW



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7532	FRONT STOP, SOFT-DORSI/PLANTAR
1	1	472-7531	BRACKET, FRONT SOFT STOP-DORSI/PLANTAR

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
		X ±0.5		TITLE	
		XX ±0.1		STOP ASSEMBLY - DOSI	
		XXX ±0.05		THOR-LX	
PROJECT NO:	DRAWN BY:	DATE:	DRAWING NO:		
E00609	B.WADE	12/3/2008	472-7530		
REV/TREAT:	CHECKED BY:	DATE:	SIZE:	SHEET:	REV:
N/A			B	1 OF 1	A
FINISH:			SCALE:		
N/A			2:1		

- 4. SANDBLAST ITEM 1 & CLEAN WITH MEK.
- 5. ABRABE ITEM 2 WITH SANDPAPER & CLEAN WITH MEK & ALCOHOL.
- 6. BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

- UNLESS OTHERWISE SPECIFIED:
- 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 - 2. BREAK ALL SHARP EDGES.
 - 3. ALL MACHINED SURFACES $1.60 \mu\text{m}$ OR BETTER.

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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

B

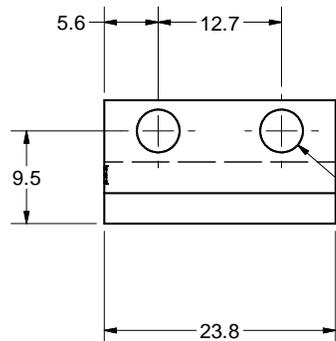
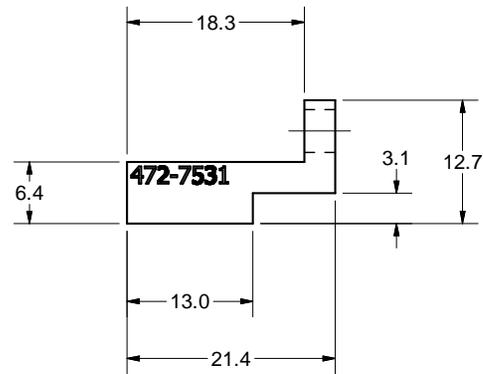
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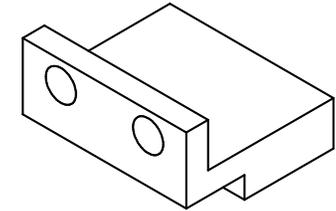
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(2X) Ø4.4 ∇ THRU



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES ∇ 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
PROJECT NO: E00609		X ±0.5 XX ±0.1 XXX ±0.05		TITLE: BRACKET, FRONT THOR-LX	
MATERIAL: Aluminum-6061-T6		DRAWN BY: B.WADE		DATE: 12/3/2008	
FINISH: N/A		CHECKED BY:		DATE:	
BLUE ANODIZE		SIZE: B		SHEET: 1 OF 1	
		SCALE: 2:1		DRAWING NO.: 472-7531	

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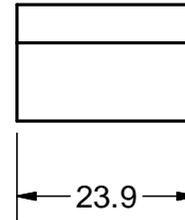
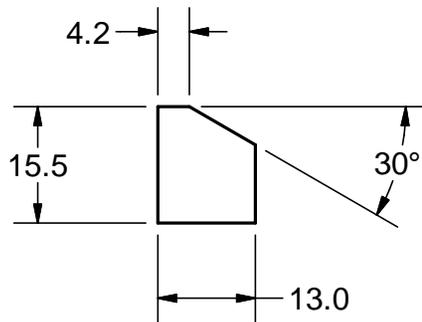
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REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW

B

B



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DATE: 12/3/2008			
MATERIAL: NEOPRENE SHORE A		DRAWN BY: B. WADE		TITLE: FRONT STOP, SOFT THOR-LX	
HEAT TREAT: N/A		CHECKED BY:			
FINISH: N/A		DATE:		SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7532
		SCALE: 1:1		A	

2

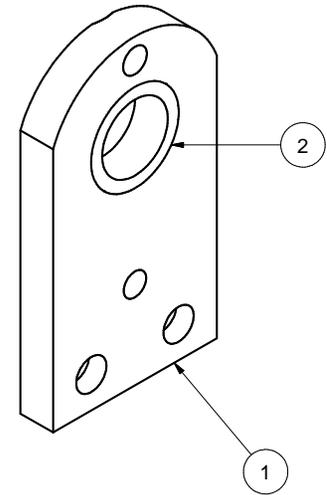
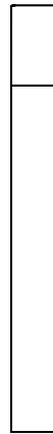
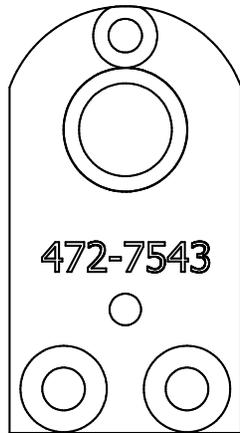


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A

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7542	BUSHING, ANKLE
1	1	472-7543	PLATE, BUSHING - END COVER

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA	
		X ±0.5 XX ±0.1 XXX ±0.05			
PROJECT NO:	DRAWN BY:	DATE:	TITLE:		
E00609	B.WADE	12/3/2008	ANKLE BUSHING PLATE ASSY		
REV. TREAT:	CHECKED BY:	DATE:	THOR-LX		
N/A			SIZE:	DRAWING NO.:	REV:
N/A			B	1 OF 1	B
			SCALE:	472-7540	
			2:1		

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

4

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1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REDIM FOR METRIC HARDWARE	10/1/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW

B

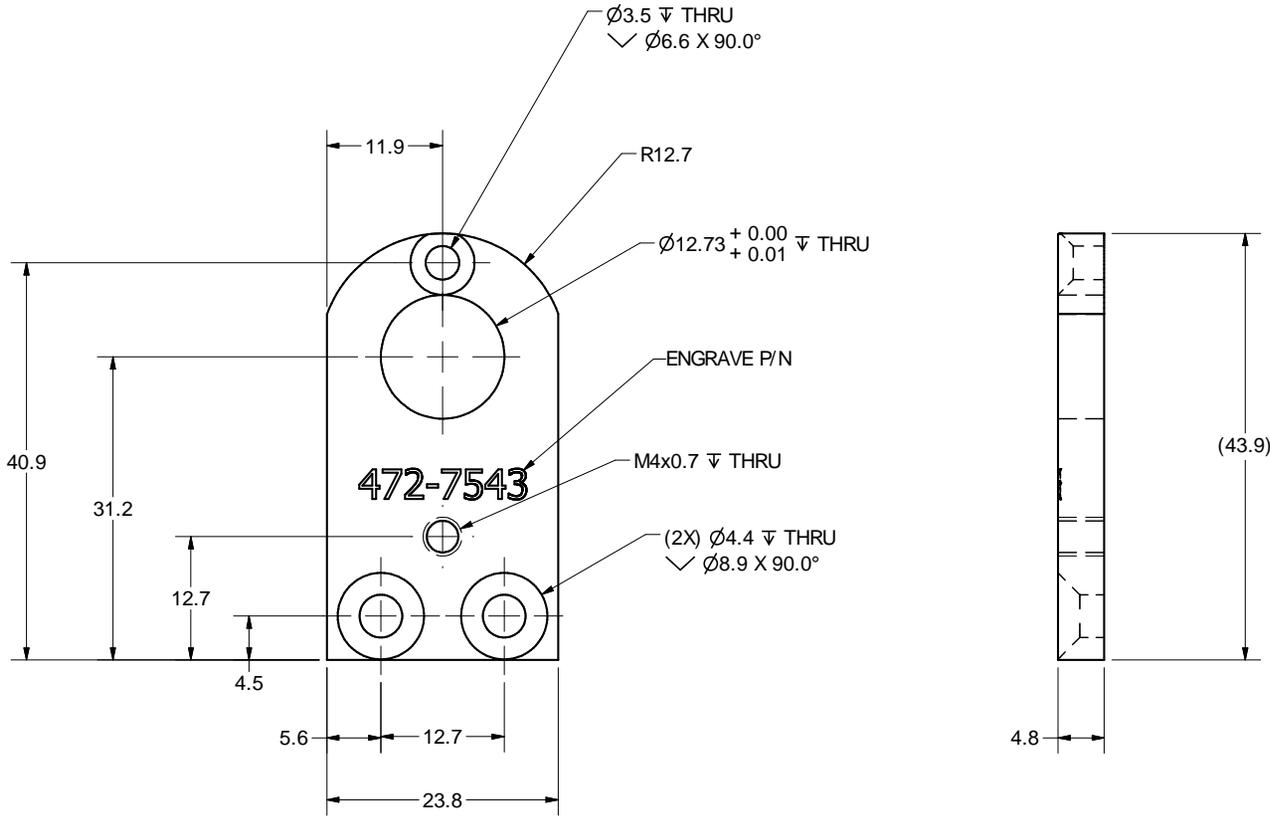
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- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
				NHTSA	
PROJECT NO: E00609		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05		TITLE COVER, END-BUSHING PLATE THOR-LX	
MATERIAL Aluminum-6061		DRAWN BY B.WADE		DATE 12/4/2008	
FINISH N/A		CHECKED BY		DATE	
FINISH BLUE ANODIZE		SIZE B		SHEET 1 OF 1	
		SCALE 2:1		DRAWING NO. 472-7543	
				REV D	

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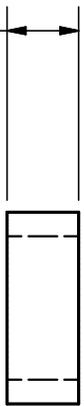
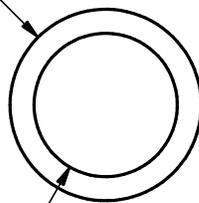
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REV DIMS TO MATCH RAW MATERIAL	10/2/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW

B

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$\varnothing 12.75^{+0.02}_{-0.00}$

$4.8^{+0.0}_{-0.1}$



$\varnothing 9.55^{+0.02}_{-0.00}$ THRU

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- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA TITLE: BUSHING, ANKLE THOR-LX	
PROJECT NO.: E00609		DRAWN BY: B. WADE	DATE: 12/3/2008		
MATERIAL: Default		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
HEAT TREAT: N/A		FINISH: N/A	DRAWING NO.: 472-7542	SCALE: 2:1	REV: D

2

1

2

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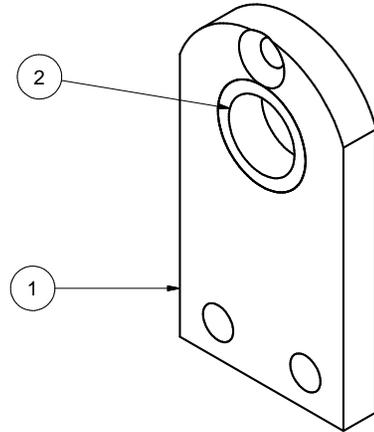
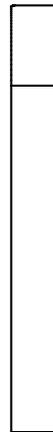
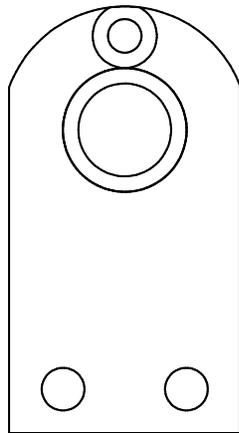
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1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW
	C	472-7583 WAS 472-7544 AND DESCRIPTION WAS "PLATE, ANKLE BUSHING - POT END"	9/16/2014	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7542	BUSHING, ANKLE
1	1	472-7583	PLATE, ANKLE BUSHING

Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
		DECIMALS	ANGLES
		X ± 0.5	° ± 0.5
		XX ± 0.1	
		XXX ± 0.05	
PROJECT NO: E00609		DRAWN BY: B.WADE	DATE: 12/3/2008
REV/TREAT: N/A		CHECKED BY:	DATE:
FINISH: N/A		SCALE: 2:1	

DEPARTMENT OF TRANSPORTATION NHTSA	
TITLE: ANKLE BUSHING PLAT ASSY THOR-LX	
SIZE: B	SHEET: 1 OF 1
DRAWING NO.: 472-7541	

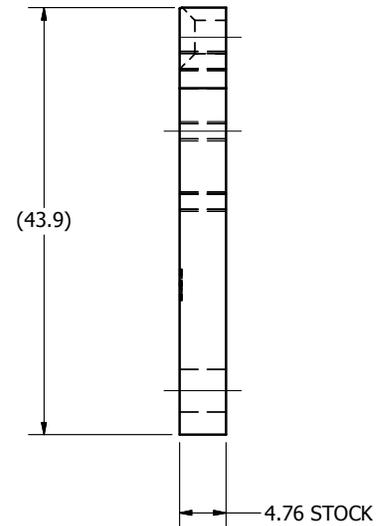
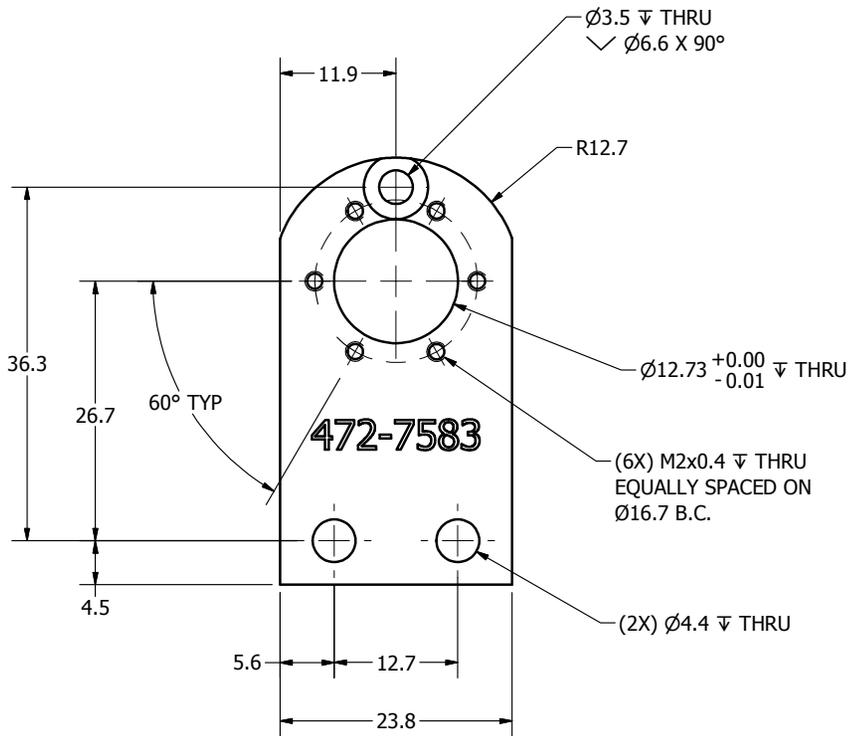
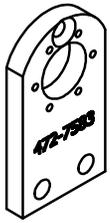
UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

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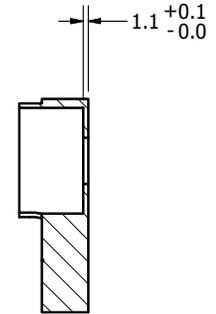
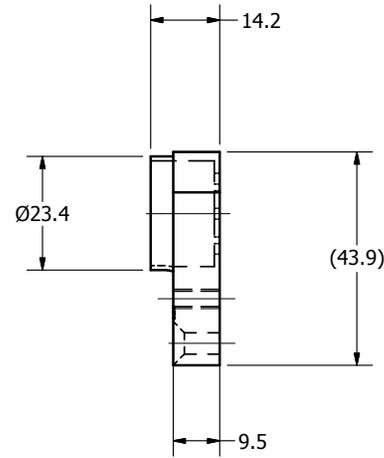
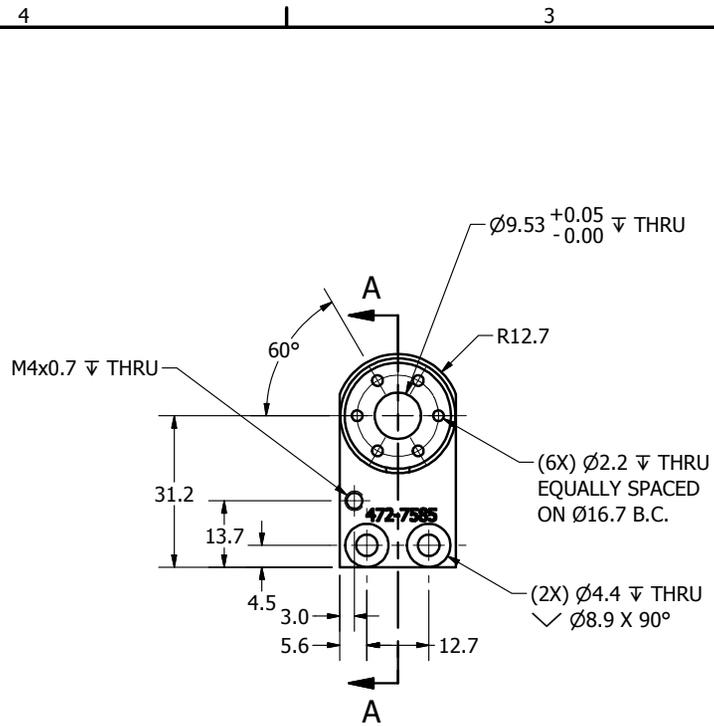
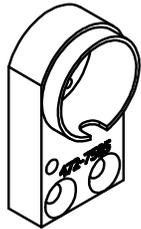
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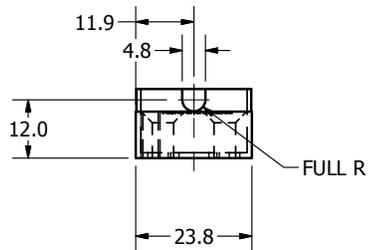


- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DENTON ATD, INC. PLATE, ANKLE BUSHING THOR-LX
PROJECT NO: E00609 MATERIAL: Aluminum-6061 FINISH: BLUE ANODIZE	DECIMALS ANGLES X ± 0.5 X-X ± 0.1 ± 0.5 X-XX ± 0.05 UNLESS OTHERWISE SPECIFIED DRAWN BY: B.WADE DATE: 12/16/2009 CHECKED BY: DATE:	
SIZE: SHEET B 1 OF 1 SCALE: 2:1		DRAWING NO.: 472-7583 REV:



SECTION A-A
SCALE 1 : 1



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\surd 1.60$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DENTON ATD, INC.	
		DECIMALS	ANGLES	DENTON	
		X ± 0.5	X ± 0.5	RETAINER, POTENTIOMETER	
		X-X ± 0.1	X-X ± 0.5	THOR-LX	
		UNLESS OTHERWISE SPECIFIED		DRAWING NO:	
PROJECT NO:	E00609	DRAWN BY:	B.WADE	DATE:	12/16/2009
MATERIAL:	Delrin, White	CHECKED BY:		DATE:	
REVISION:	N/A			SIZE:	SHEET
FINISH:	N/A			B	1 OF 1
				SCALE:	1:1
				DRAWING NO:	472-7585
				REV:	

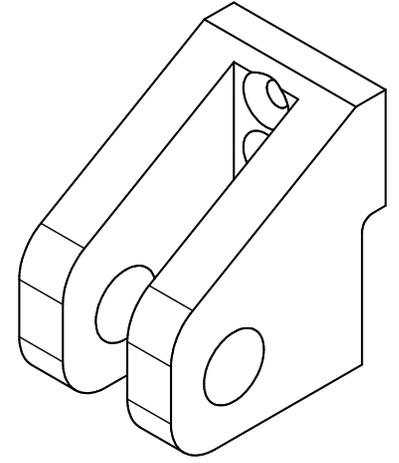
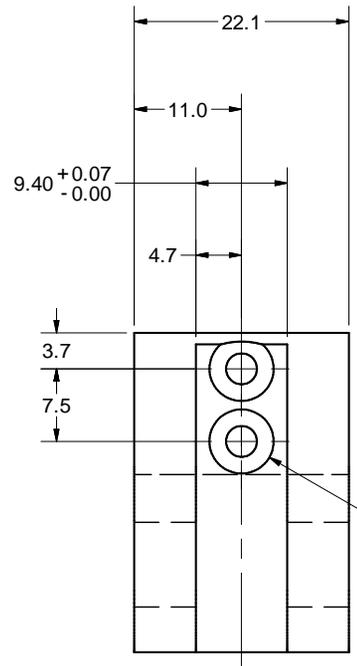
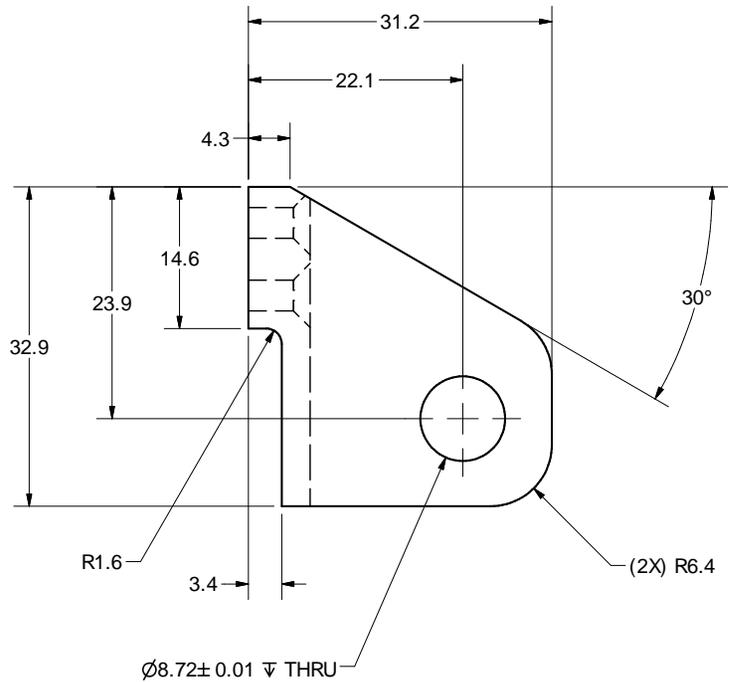
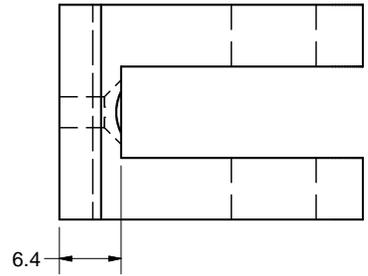
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2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



(2X) $\varnothing 3.2 \nabla$ THRU
 $\nabla \varnothing 6.6 \times 90^\circ$

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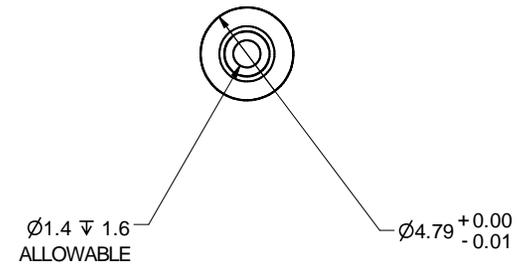
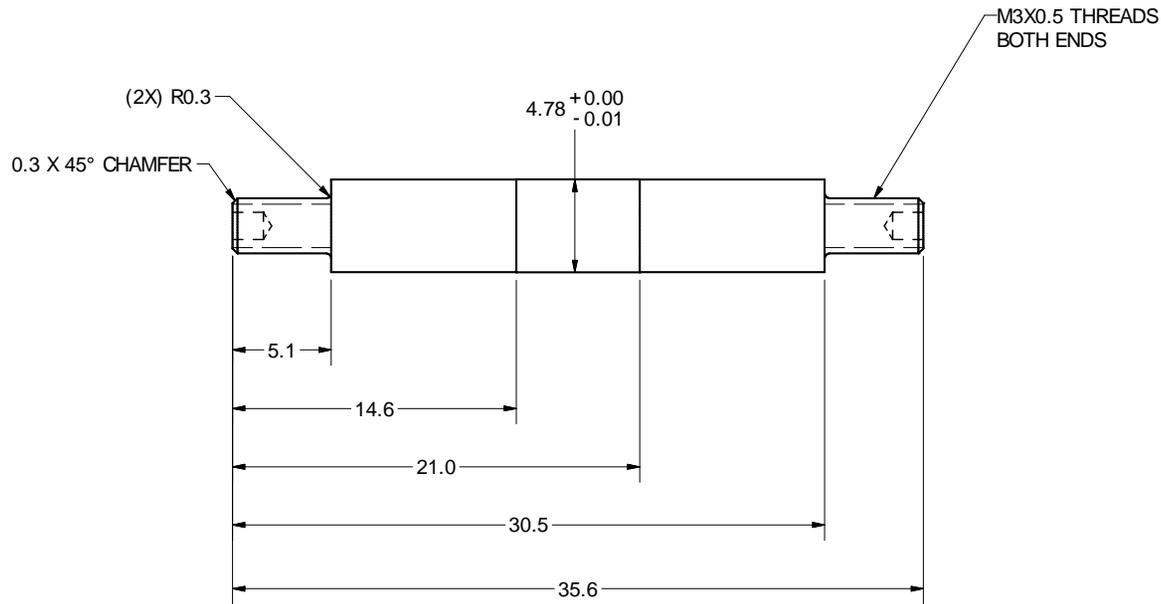
2

1

- UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.6μ OR BETTER.

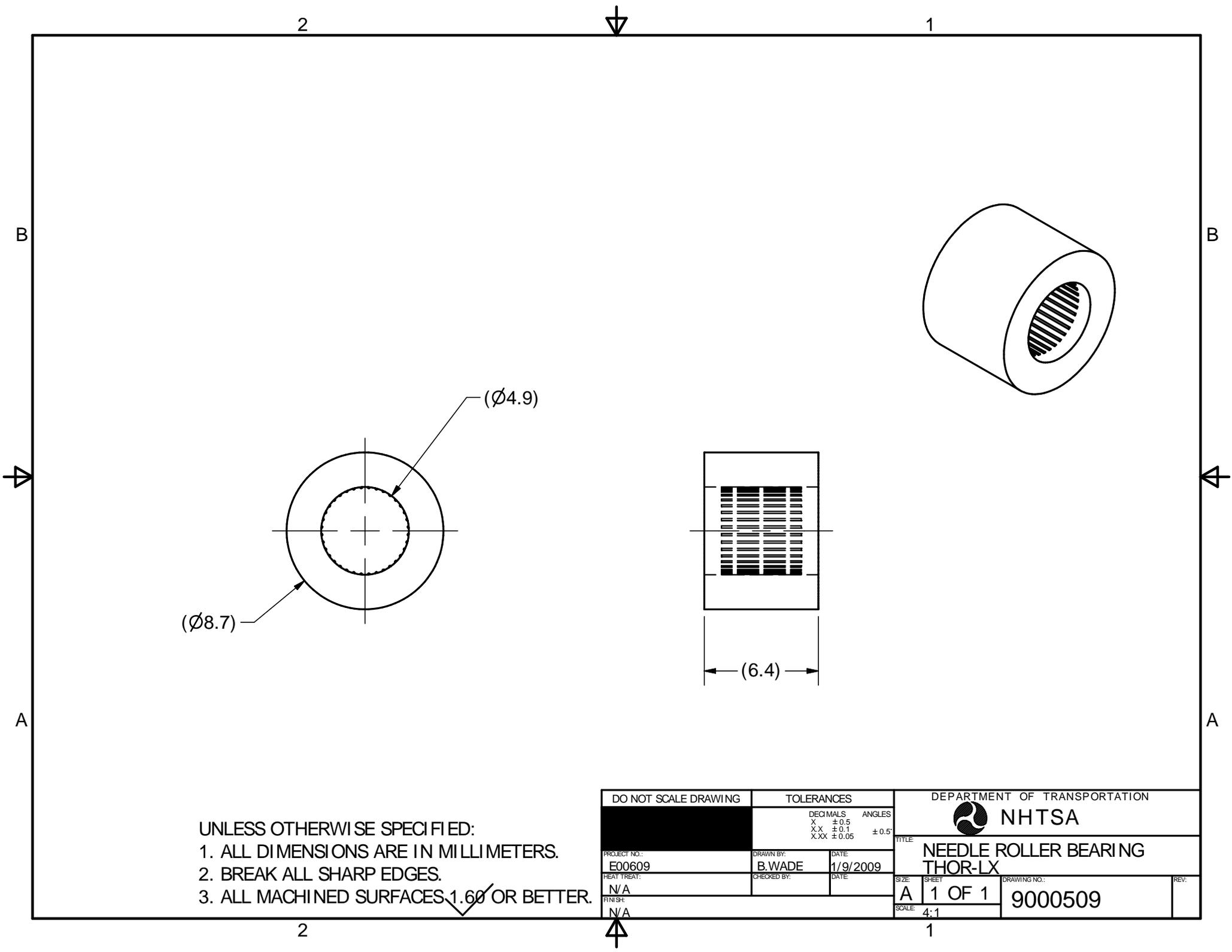
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 1°		
PROJECT NO:	E00609	MATERIAL:	Aluminum-7075-T6	DRAWN BY:	B.WAIDE
DATE:	12/4/2008	CHECKED BY:		DATE:	12/4/2008
TITLE:		BRACKET, ACHILLES PULLEY		DRAWING NO:	
		THOR-LX		472-7560	
SCALE:		2:1		SHEET:	
				1 OF 1	
				A	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.6μ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA	
		X ± 0.5	± 1'		
PROJECT NO. E00609		DRAWN BY B.WADE	DATE 12/4/2008	TITLE SHAFT, ACHILLES CABLE PULLEY THOR-LX	
MATERIAL ETD 150 STEEL		CHECKED BY		SIZE B	SHEET 1 OF 1
REV. TREAT N/A				SCALE 4:1	DRAWING NO. 472-7561
FINISH N/A					REV. A



UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 0.5°		
PROJECT NO.: E00609		DRAWN BY: B. WADE	DATE: 1/9/2009	TITLE: NEEDLE ROLLER BEARING THOR-LX	
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
FINISH: N/A				SCALE: 4:1	DRAWING NO.: 9000509

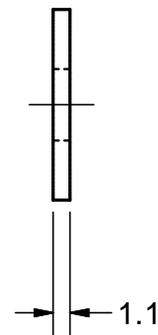
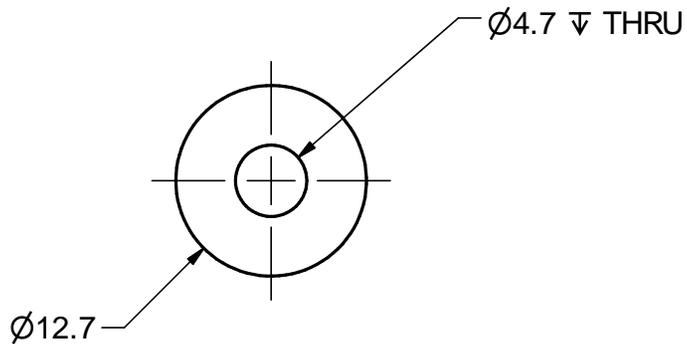
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1

B

B



A

A

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

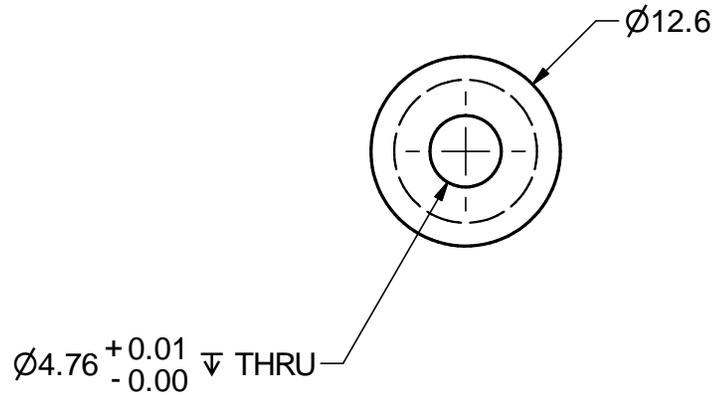
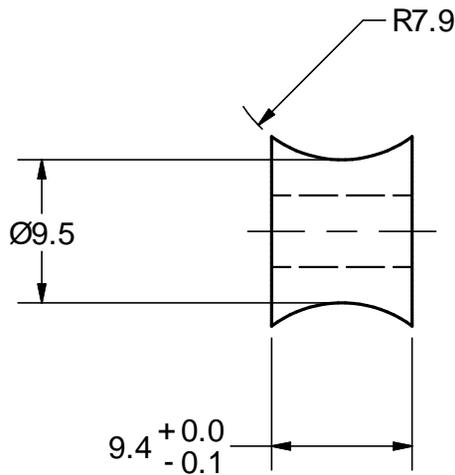
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA TITLE: WASHER	
PROJECT NO.: E00609		DRAWN BY: B. WADE	DATE: 1/9/2009		
MATERIAL: PTFE TEFLON		CHECKED BY:	DATE:	SIZE: A	SHEET: 1 OF 1
HEAT TREAT: N/A				DRAWING NO.: 9000508	
FINISH: N/A				SCALE: 2:1	

2



1

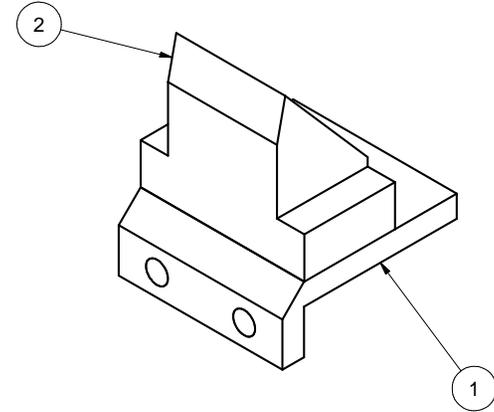
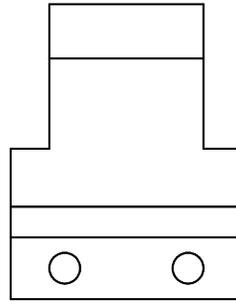
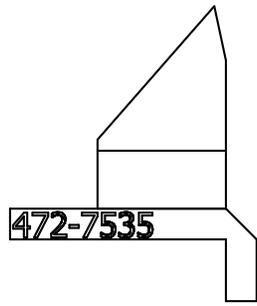
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/10/2007	KSG
E00609	C	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION		
	DECIMALS ANGLES	 NHTSA		
	X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1'			
PROJECT NO.: E00609	DRAWN BY: B.WADE	DATE: 12/4/2008	TITLE: PULLEY, ACHILLES CABLE THOR-LX	
MATERIAL: aluminum bronze	CHECKED BY:	DATE:	SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7562
HEAT TREAT: N/A			SCALE: 2:1	REV: C
FINISH: N/A				

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



4. SANDBLAST ITEM 1 & CLEAN WITH MEK.
5. ABRABE ITEM 2 WITH SANDPAPER & CLEAN WITH MEK & ALCOHOL.
6. BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

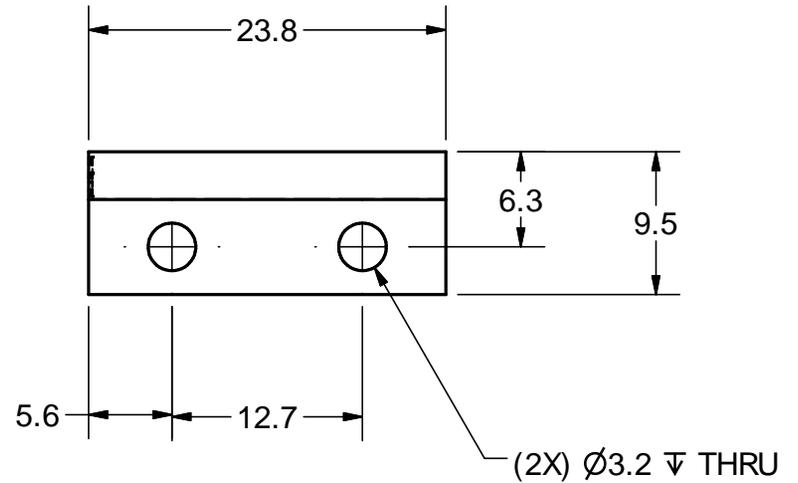
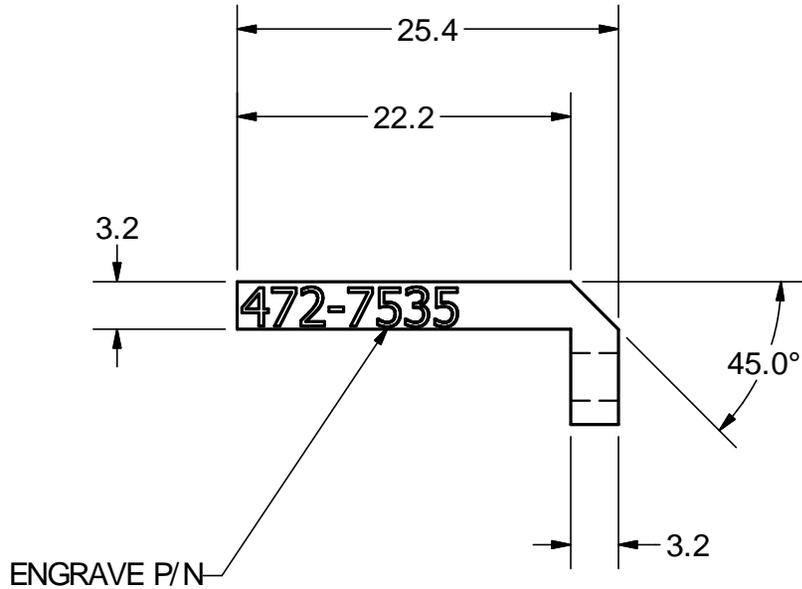
- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7536	STOP, EVERSION SOFT
1	1	472-7535	BRACKET, SOFT STOP-LOWER

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION	
	DECIMALS	 NHTSA	
	ANGLES		
	X ± 0.5		
	XX ± 0.1	TITLE	
	XXX ± 0.05	STOP ASSEMBLY-EVERSION	
PROJECT NO.	DRAWN BY	DATE	THOR-LX
E00609	B.WADE	12/3/2008	
REV/TREAT	CHECKED BY	DATE	SIZE
N/A			B
FINISH			SHEET
N/A			1 OF 1
			DRAWING NO.
			472-7533
			REV
			A

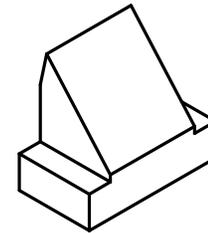
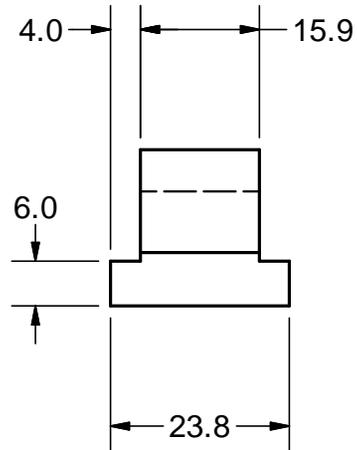
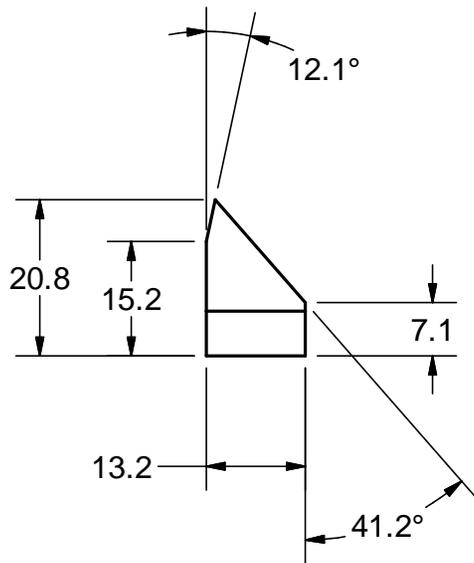
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	REDIM FOR METRIC HARDWARE	10/2/2008	BLW
E00609	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DRAWN BY: B.WADE		DATE: 12/3/2008	
MATERIAL: Aluminum-6061-T6		CHECKED BY:		DATE:	
HEAT TREAT: N/A		FINISH: BLUE ANODIZE		TITLE: BRACKET, SOFT STOP - LOWER THOR-LX	
SIZE: A		SHEET: 1 OF 1		DRAWING NO.: 472-7535	
SCALE: 2:1				REV: B	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	ADDED DUROMETER SPEC	10/8/2008	BLW
E00609	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



MATERIAL: NEOPRENE 75-85 SHORE A

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
PROJECT NO.: E00609		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05 ± 1°		 NHTSA TITLE: STOP, EVERSION SOFT THOR-LX	
MATERIAL: Rubber		DRAWN BY: B.WADE			
HEAT TREAT: N/A		CHECKED BY:		DATE:	
FINISH: N/A		SCALE: 1:1		DRAWING NO.: 472-7536	
		SIZE: A		SHEET: 1 OF 1	
				REV: B	

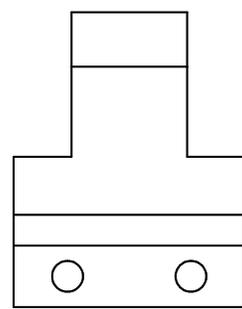
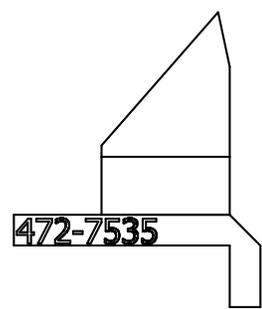
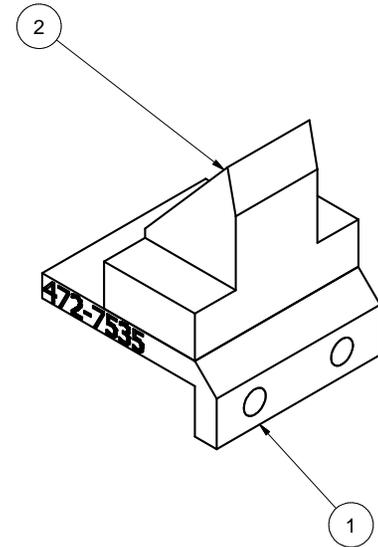
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3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	472-7537	STOP, EVERSION SOFT
1	1	472-7535	BRACKET, SOFT STOP-LOWER

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		NHTSA	
		X ±0.05		TITLE	
		XX ±0.1		STOP ASSEMBLY - INVERSION	
		XXX ±0.05		THOR-LX	
PROJECT NO:	DRAWN BY:	DATE:	DRAWING NO:		
E00609	B.WADE	12/3/2008	472-7534		
REV/TREAT:	CHECKED BY:	DATE:	SIZE:	SHEET:	REV:
N/A			B	1 OF 1	A
FINISH:			SCALE:		
N/A			2:1		

- 4. SANDBLAST ITEM 1 & CLEAN WITH MEK.
- 5. ABRABE ITEM 2 WITH SANDPAPER & CLEAN WITH MEK & ALCOHOL.
- 6. BOND PARTS UNDER PRESSURE USING LORD 305 EPOXY ADHESIVE.

- UNLESS OTHERWISE SPECIFIED:
- 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 - 2. BREAK ALL SHARP EDGES.
 - 3. ALL MACHINED SURFACES 1.60 OR BETTER.

4

3

2

1

2



1

REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	BY
E00609	A	ADDED DUROMETER SPEC	10/8/2008	BLW
E00609	B	CHANGE TO METRIC DIMENSIONING	12/3/2008	BLW

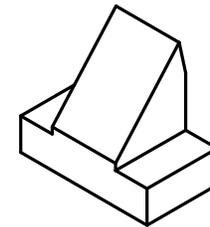
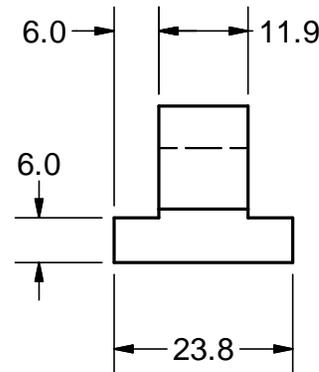
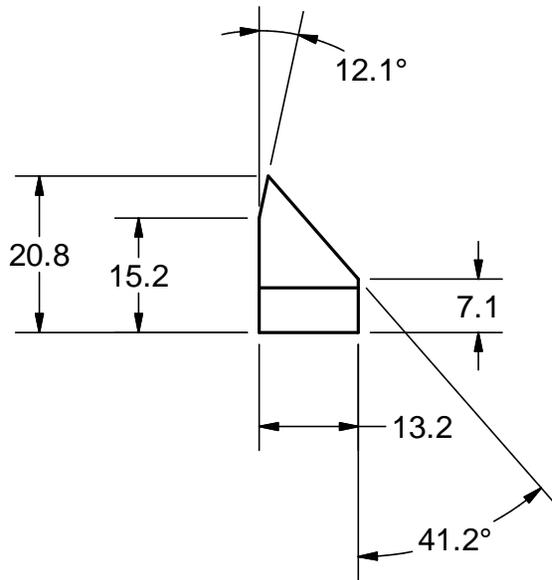
B

B



A

A



MATERIAL: NEOPRENE 65-75 SHORE A

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

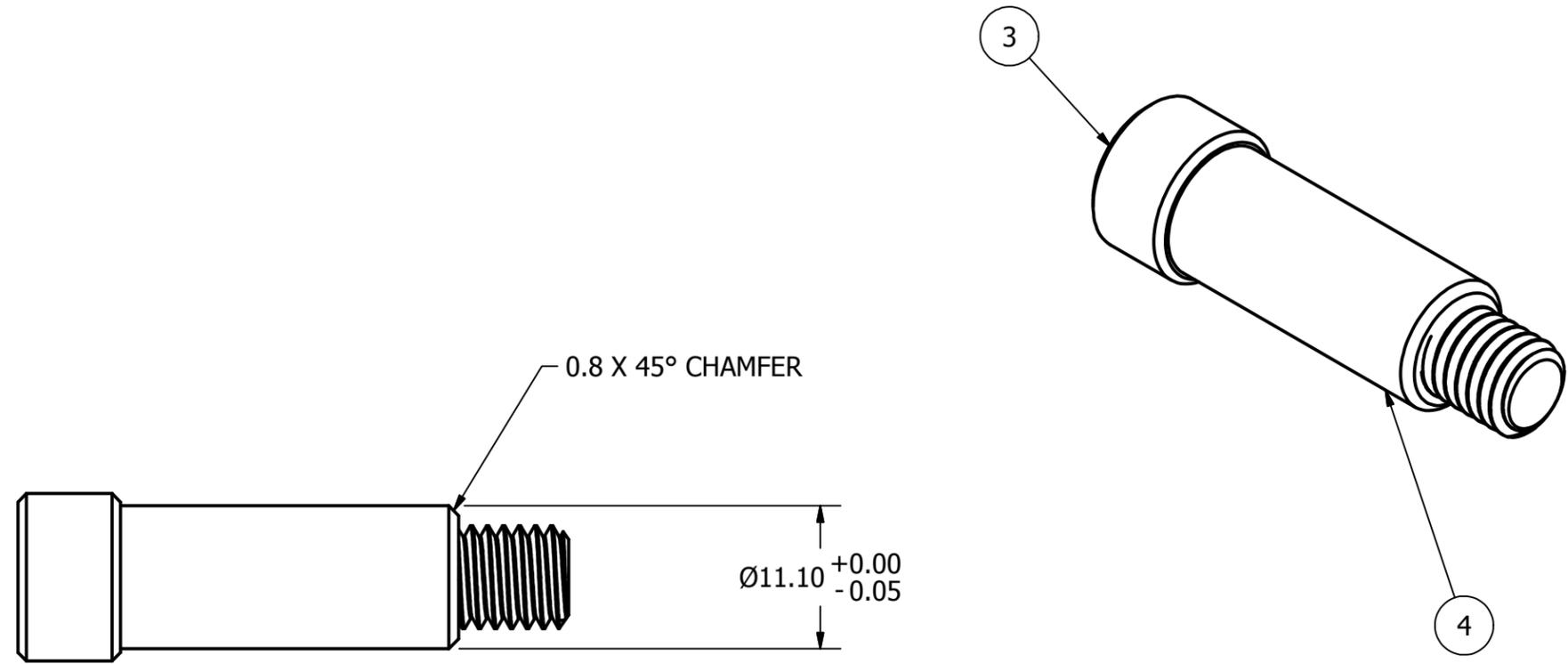
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DATE: 12/3/2008			
MATERIAL: SEE ABOVE		DRAWN BY: B. WADE		TITLE: STOP, INVERSION SOFT THOR-LX	
HEAT TREAT: N/A		CHECKED BY:			
FINISH: N/A		DATE:		SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7537
		SCALE: 1:1		REV: B	

2



1

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	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



4. REMOVE OIL FROM ITEM 2 WITH SOLVENT.
5. APPLY LOCTITE 262 TO THREADS AND ASSEMBLE ITEMS 1 & 2.
6. MACHINE OD AND CHAMFER AS NOTED.

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.60 \sqrt{\text{R}}$ OR BETTER.

ITEM	QTY	PART NUMBER	DESCRIPTION
4	1	472-7564	SLEEVE, BOLT - ANKLE
3	1	9010164	SCREW, SHCS M8 X 35

Parts List

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 0.5		
		XX ± 0.1	± 0.5		
		XXX ± 0.05	± 0.5	TITLE: ANKLE BOLT & SLEEVE ASSY THOR-LX	
PROJECT NO.: E00609	DRAWN BY: B.WADE	DATE: 12/4/2008	SIZE: SHEET B 1 OF 1		
HEAT TREAT: N/A	CHECKED BY: TMV	DATE: 12/12/2008	DRAWING NO.: 472-7563		
FINISH: N/A			SCALE: 2:1	REV: D	

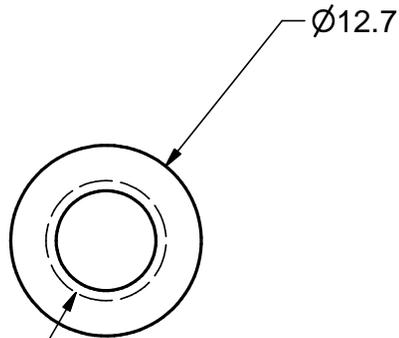
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/23/2007	KSG
E00609	C	REDIM FOR METRIC HARDWARE	10/6/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW

B

B

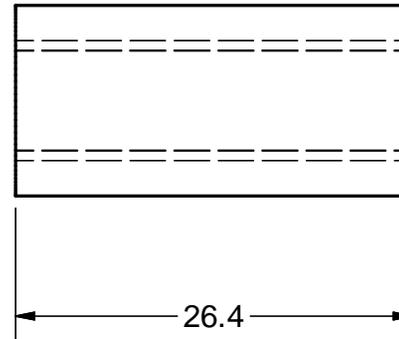
A

A



M8x1.25 THRU

Ø12.7



26.4

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
PROJECT NO.: E00609		DECIMALS	ANGLES	 NHTSA TITLE: SLEEVE, BOLT - ANKLE THOR-LX	
MATERIAL: Delrin, White		X ± 0.5	± 1°		
HEAT TREAT: N/A		DRAWN BY: B. WADE	DATE: 12/4/2008	SIZE: A	SHEET: 1 OF 1
FINISH: N/A		CHECKED BY:	DATE:	SCALE: 2:1	DRAWING NO.: 472-7564
				REV: D	

2

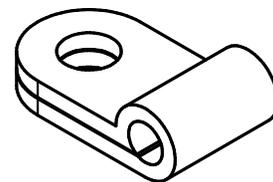
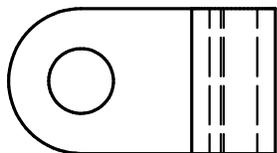
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2

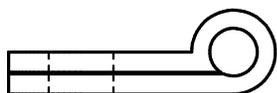


1

B



B



A

MCMASTER P/N : 8876T11

A

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{1.60}$ OR BETTER.

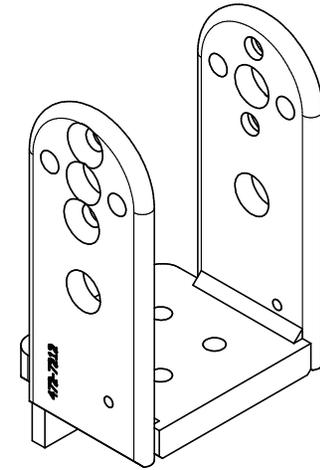
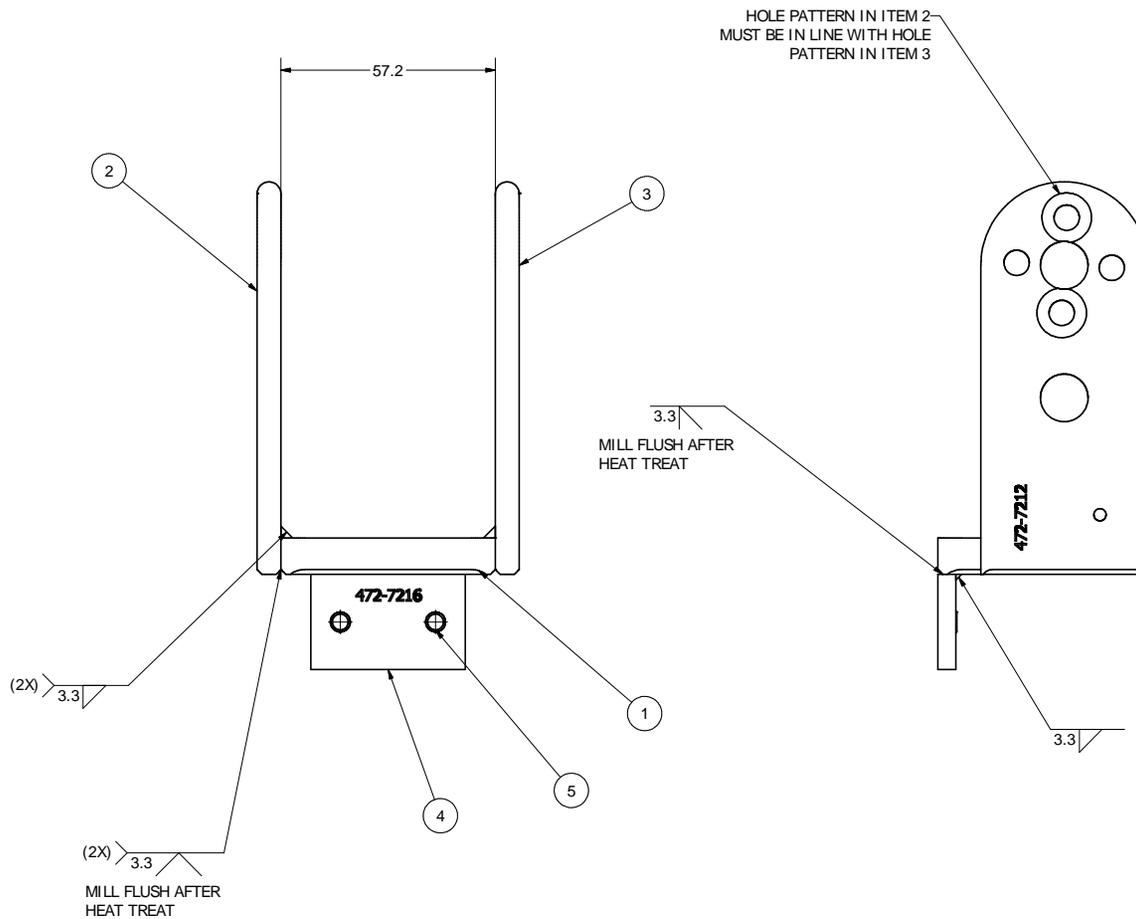
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA TITLE: CLAMP, NYLON LOOP	
PROJECT NO.: E00609		DRAWN BY: B.WADE	DATE: 1/12/2009		
MATERIAL: Nylon-6/6		HEAT TREAT: N/A	CHECKED BY:	DATE:	SIZE: A
FINISH: N/A		SCALE: 2:1	SHEET: 1 OF 1		DRAWING NO.: 9005135
					REV:

2



1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW



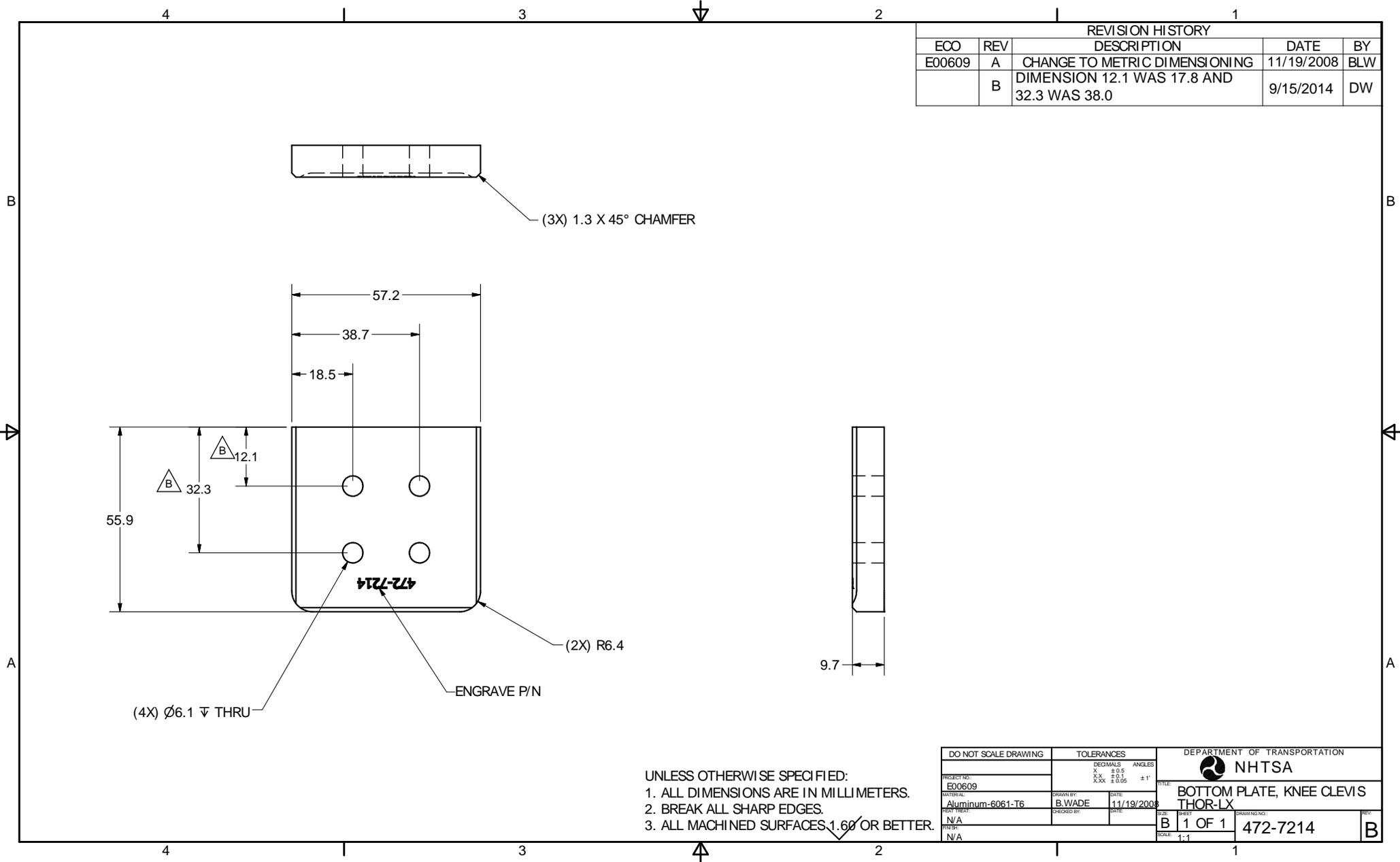
ITEM	QTY	PART NUMBER	DESCRIPTION
5	2	9010040	HELI-COIL, M5x0.8 X 5 LG SST
4	1	472-7216	STIFFENER, KNEE BUMPER
3	1	472-7212	CLEVIS, KNEE - LEFT
2	1	472-7210	CLEVIS, KNEE - RIGHT
1	1	472-7214	BOTTOM PLATE, KNEE CLEVIS

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DIMENSIONS: 3X, 10% ANGLES: 3X, 10% HOLE: 3X, 10%	NHTSA
PROJECT: E00609	DESIGNER: B.WADE	DATE: 11/19/2008
TITLE: THOR-LX	REV: C	1 OF 1
MATERIAL: HARDCOAT ANODIZE	SCALE: 1:1	PART NUMBER: 472-7200

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLI METERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{25}$ OR BETTER.
 4. HEAT TREAT AFTER WELDING
 5. ANODIZE AFTER HEAT TREAT
 6. INSTALL ITEM 5 AFTER ANODIZE

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	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



UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.60 \mu\text{m}$ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ± 0.5	± 1'		
PROJECT NO:	E00609	DRAWN BY:	B.WADE	DATE:	11/19/2008
MATERIAL:	Aluminum-6061-T6	CHECKED BY:		DATE:	
POST-TREAT:	N/A			TITLE: BOTTOM PLATE, KNEE GLEVIS THOR-LX	
FINISH:	N/A			SIZE: B SHEET: 1 OF 1 SCALE: 1:1	DRAWING NO.: 472-7214 REV: B

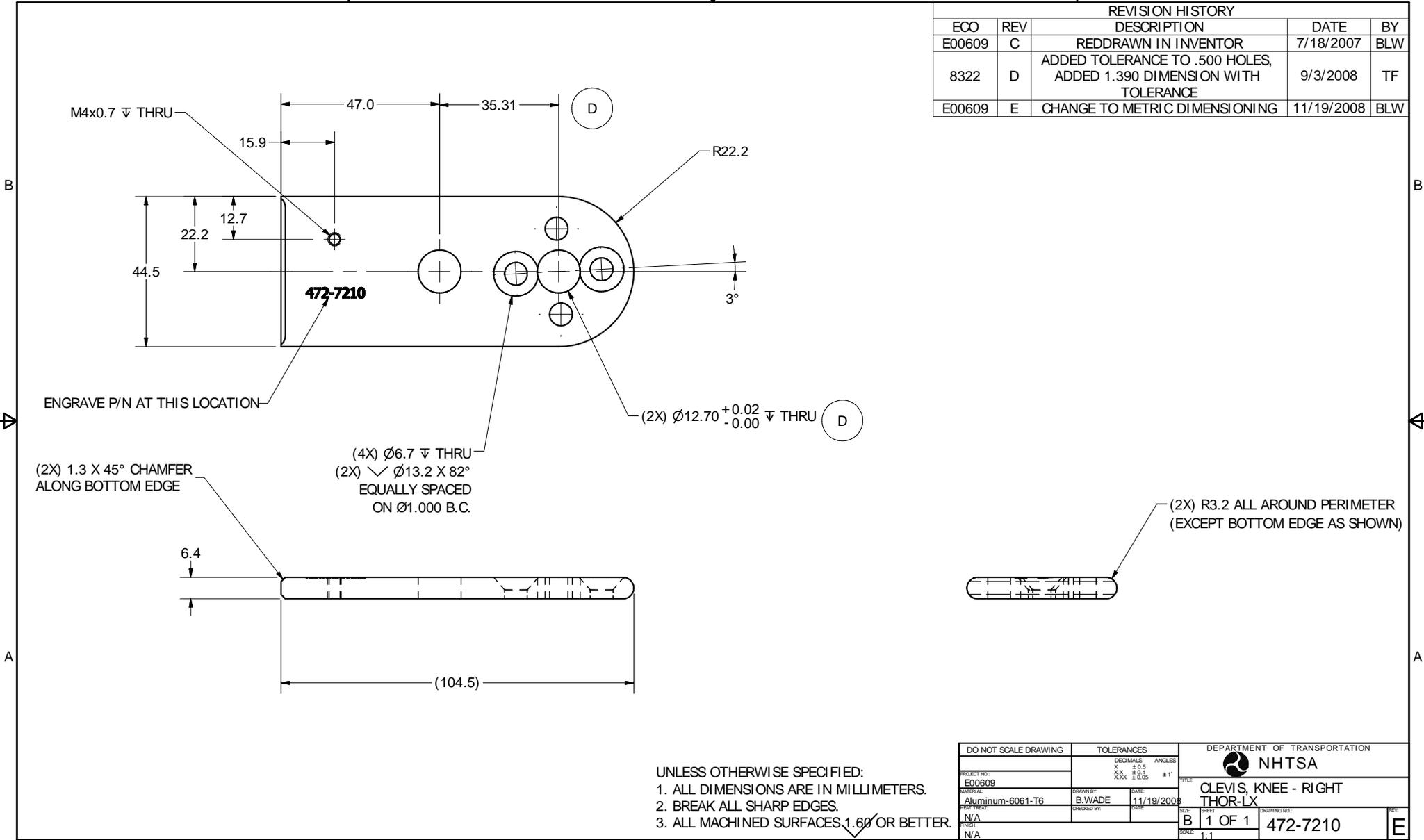
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REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	C	REDDRAWN IN INVENTOR	7/18/2007	BLW
8322	D	ADDED TOLERANCE TO .500 HOLES, ADDED 1.390 DIMENSION WITH TOLERANCE	9/3/2008	TF
E00609	E	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES ∇ 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
				 NHTSA	
PROJECT NO: E00609	MATERIAL: Aluminum-6061-T6	DRAWN BY: B.WADE	DATE: 11/19/2008	TITLE: CLEVIS, KNEE - RIGHT THOR-LX	
REV. TREAT: N/A	FINISH: N/A	CHECKED BY:	DATE:	SIZE: B	SHEET: 1 OF 1
				SCALE: 1:1	DRAWING NO.: 472-7210
					REV: E

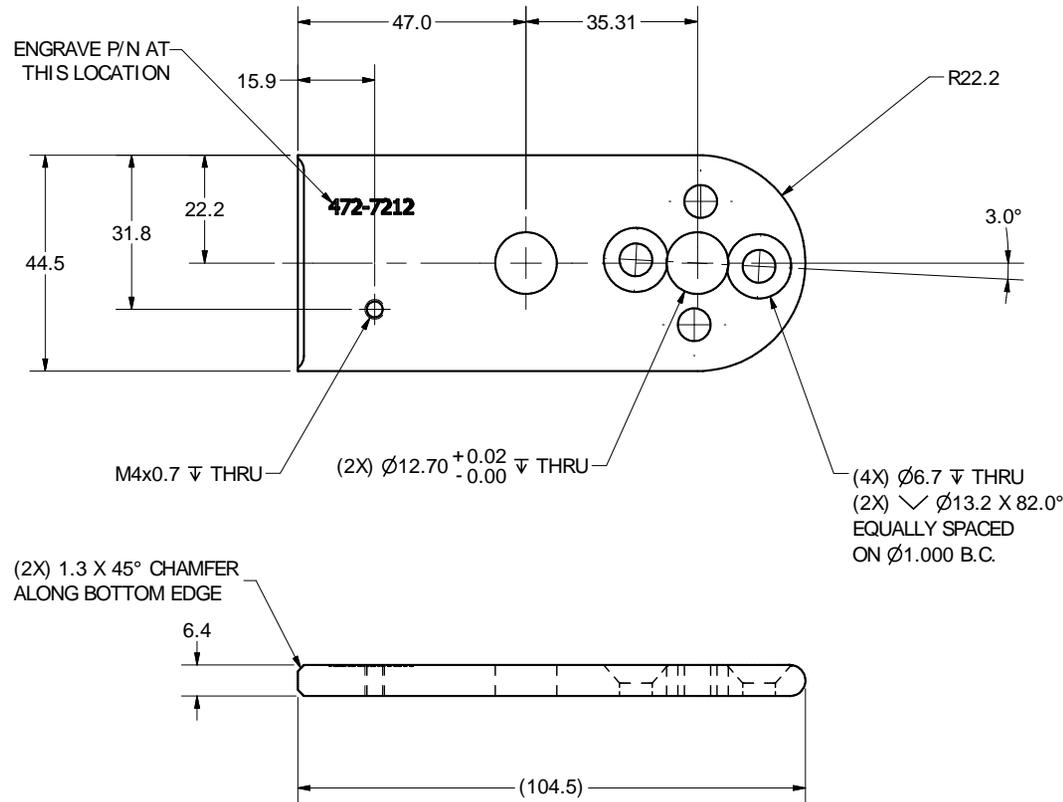
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2

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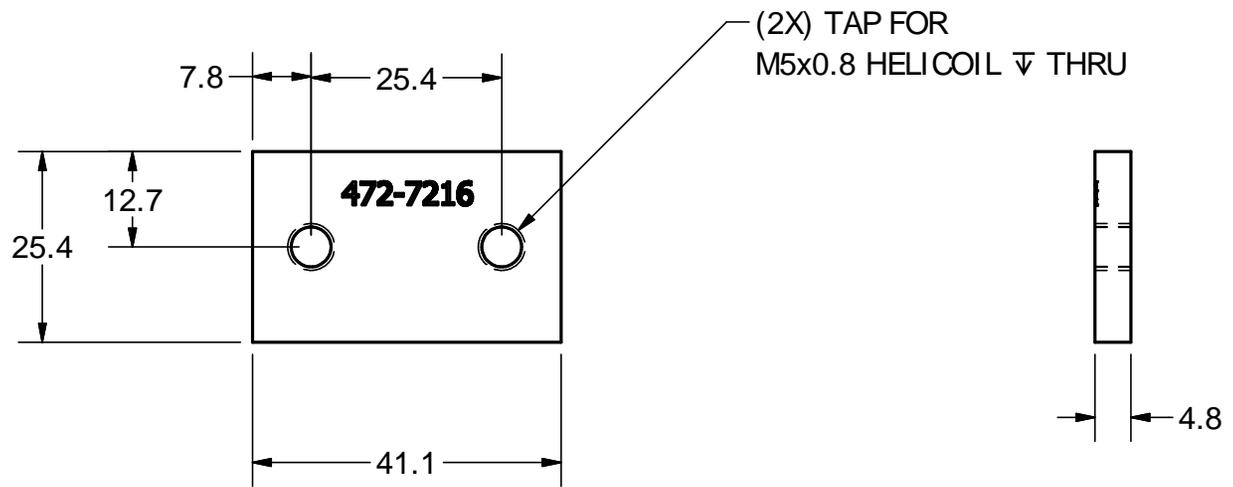
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	C	REDRAWN IN INVENTOR	7/18/2007	KSG
8274	D	ADDED CHAMFER TO BOTTOM, R.125 AROUND PERI METER, .520 WAS .438	6/11/2008	TF
8322	E	ADDED TOLERANCE TO .500 HOLES, ADDED 1.390 DIMENSION WITH TOLERANCE	9/3/2008	TF
E00609	F	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	 NHTSA	
		X ±0.5	±1°		
PROJECT NO.	E00609	MATERIAL	Aluminum-6061-T6	DRAWN BY	B.WADE
DATE	11/19/2008	CHECKED BY		DATE	11/19/2008
TITLE	CLEVIS, KNEE - LEFT				THOR-LX
DRAWING NO.	472-7212				REV
SCALE	1:1				F

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES X ± 0.5 X.X ± 0.1 X.XX ± 0.05 ± 1°		 NHTSA	
PROJECT NO.: E00609		DATE: 11/19/2008			
MATERIAL: Aluminum-6061-T6		DRAWN BY: B. WADE		DRAWING NO.: 472-7216	
HEAT TREAT: N/A		CHECKED BY:		SCALE: 1:1	
FINISH: N/A				SIZE: SHEET A 1 OF 1	

2

1

B

B

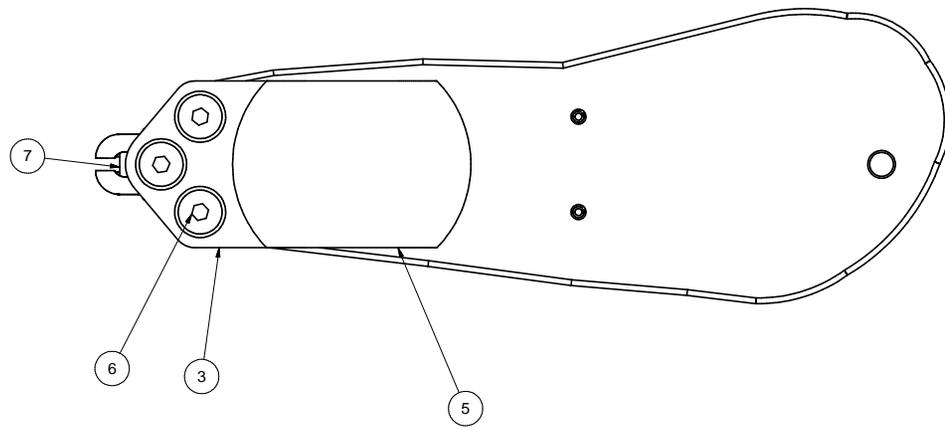
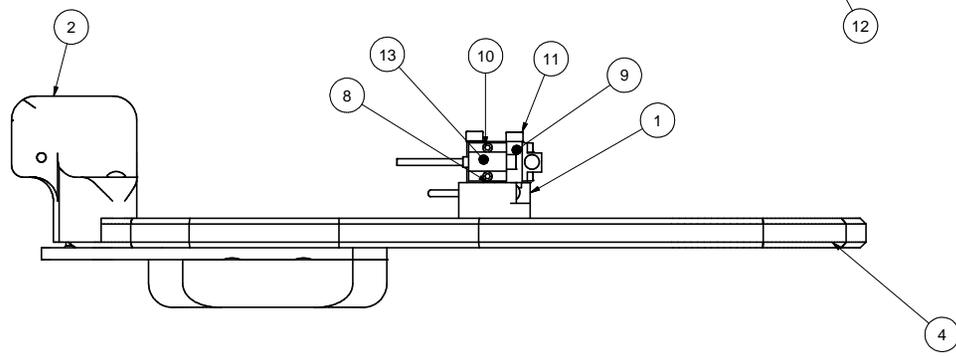
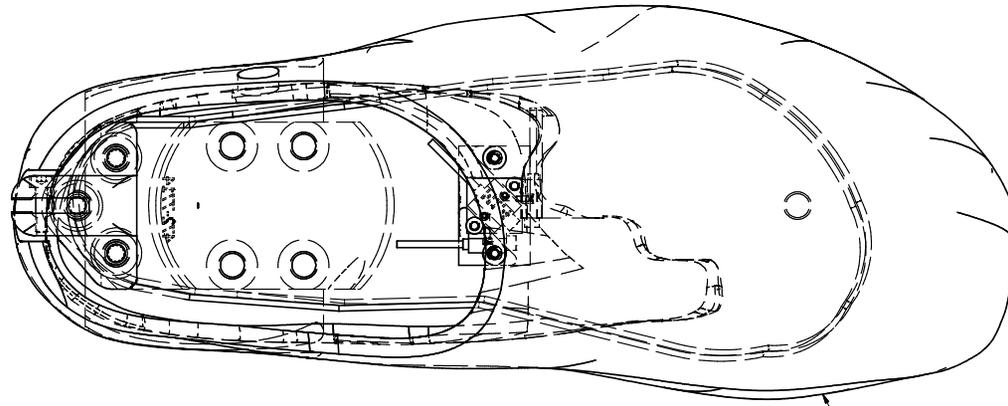
A

A

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW
	B	SA572-S80M WAS 7264-AM AND DESCRIPTION WAS MOUNTING BLOCK, 7264, 7364C-2000	9/16/2014	DW



ITEM	QTY	PART NUMBER	DESCRIPTION
13	3	SA572-S4	ACCELEROMETER, UNIAXIAL PIEZORESISTIVE
12	1	472-7725-1	FOOT FLESH, LEFT
11	2	9000863	SHCS, M2.5 X 16mm LONG
10	6	9010407	SCREW, SHCS M1.4 x 0.3 x 3
9	1	SA572-S80M	S4 TRIAXIAL ACCELEROMETER MOUNTING BLOCK
8	2	9010446	SCREW, FHCS M3 X 0.5 X 16
7	1	9000058	SCREW, SHCS M3 X 12
6	3	9001443	SCREW, FHCS M6 X 1.0 X 20
5	1	472-7717	PADDING, HEEL
4	1	472-7716	SOLE PLATE ASSY, LEFT
3	1	472-7714	BRACKET, MOUNTING-HEEL/ACHILLES
2	1	472-7712	MOUNTING POST, LOWER ACHILLES
1	1	472-7710	PLATE, MOUNTING - FOOT 7264 TRI-PACK ACCELEROMETER

△ B

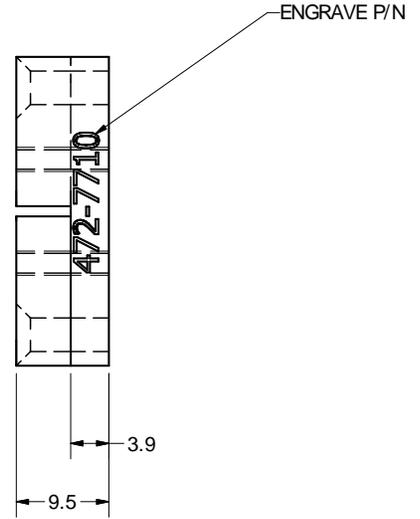
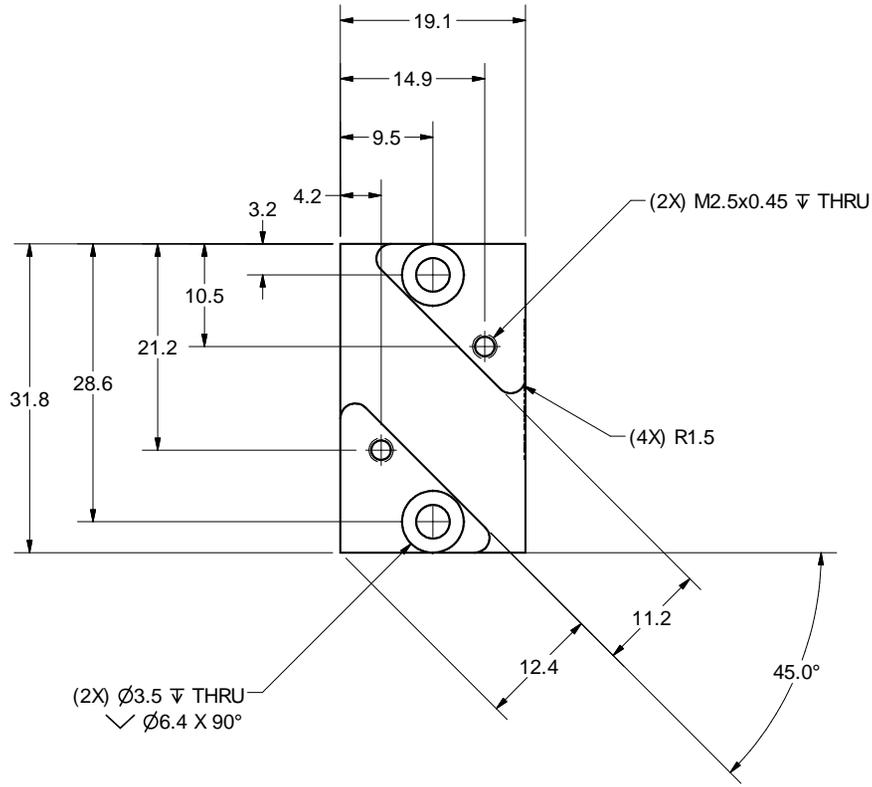
Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	ORIGINALS ANGLES ± 0.15 ± 0.06	NHTSA
ECO: E00609	DATE: 12/5/2008	FOOT ASSY, LEFT THOR-LX
REV: N/A	BY: B.WADE	1 OF 1
APP: N/A	TMV	472-7700-1

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.
 4. FLESH NOT VISIBLE FOR CLARITY.

4 | 3 | 2 | 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW

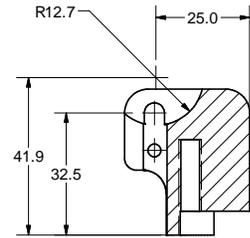


UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

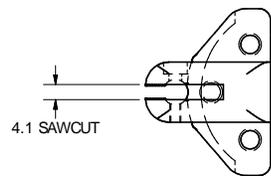
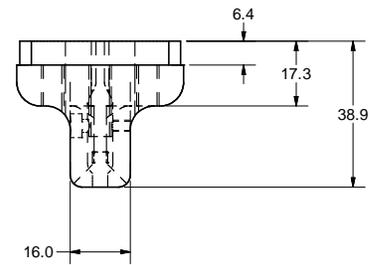
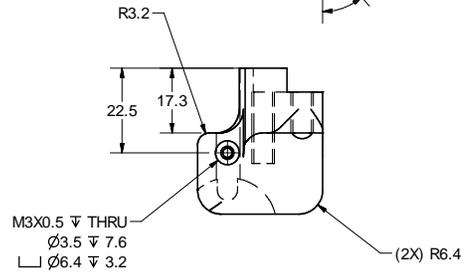
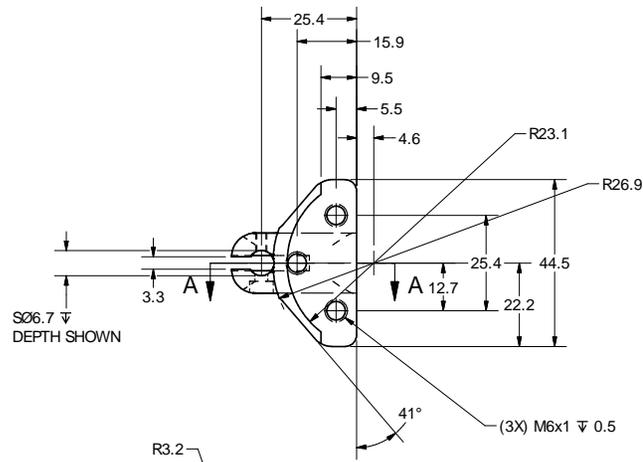
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA MOUNTING PLATE, FOOT THOR-LX	
PROJECT NO: E00609		X ±0.5	±1°		
MATERIAL: Aluminum-6061-T6		XX ±0.1		DATE: 12/4/2008	
FINISH: N/A		XXX ±0.05		CHECKED BY:	
FINISH: BLUE ANODIZE				DRAWING NO.: 472-7710	
		SIZE: B		SHEET: 1 OF 1	
		SCALE: 2:1		REV: A	

4 | 3 | 2 | 1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



SECTION A-A
SCALE 1 : 1



UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DIGITALS 0.10 0.05 0.03 0.02	NHTSA
DESIGNED BY E00609	DRAWN BY B.WADE	TITLE MOUNTING POST, LOWER THOR-LX
MATERIAL Aluminum-6061-T6	DATE 12/4/2008	FIG. NO. C 1 OF 1
FINISH N/A	PROCESSOR	PROJECT NO. 472-7712
POST-PROCESS BLUE ANODIZE	SCALE 1:1	

4

3

2

1

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW

B

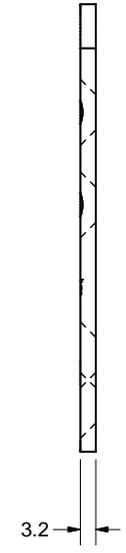
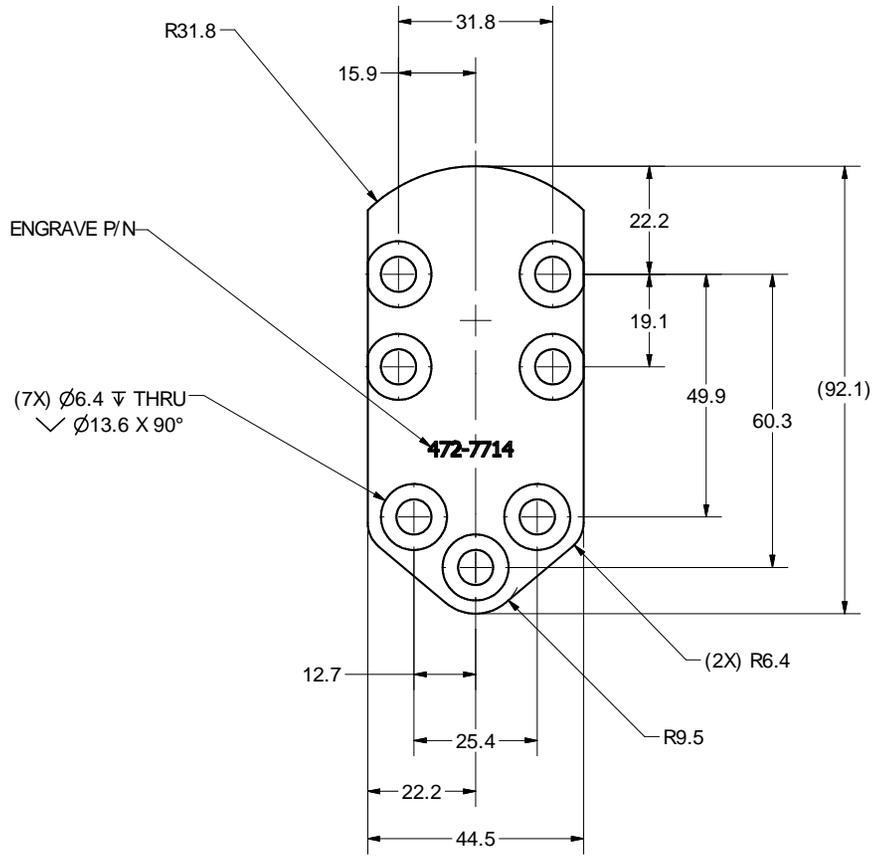
B

A

A

A

A



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.6μ OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS ANGLES		 NHTSA	
		X ± 0.5 XX ± 0.1 XXX ± 0.05			
PROJECT NO: E00609	DRAWN BY: B.WADE	DATE: 12/4/2008	TITLE: MOUNTING BRKT, HEEL/ACHILLES THOR-LX		
MATERIAL: Aluminum-6061-T6	CHECKED BY:	DATE:	DRAWING NO.: 472-7714		
REV. TREAT: N/A			SHEET: 1 OF 1		
FINISH: BLUE ANODIZE			SCALE: 1:1		

4

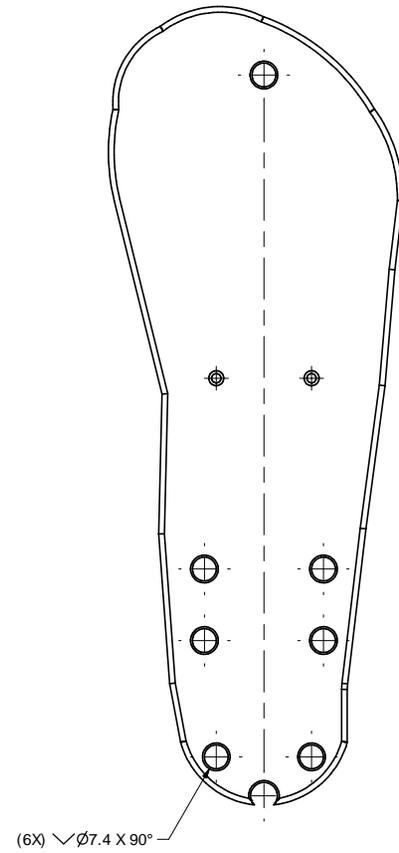
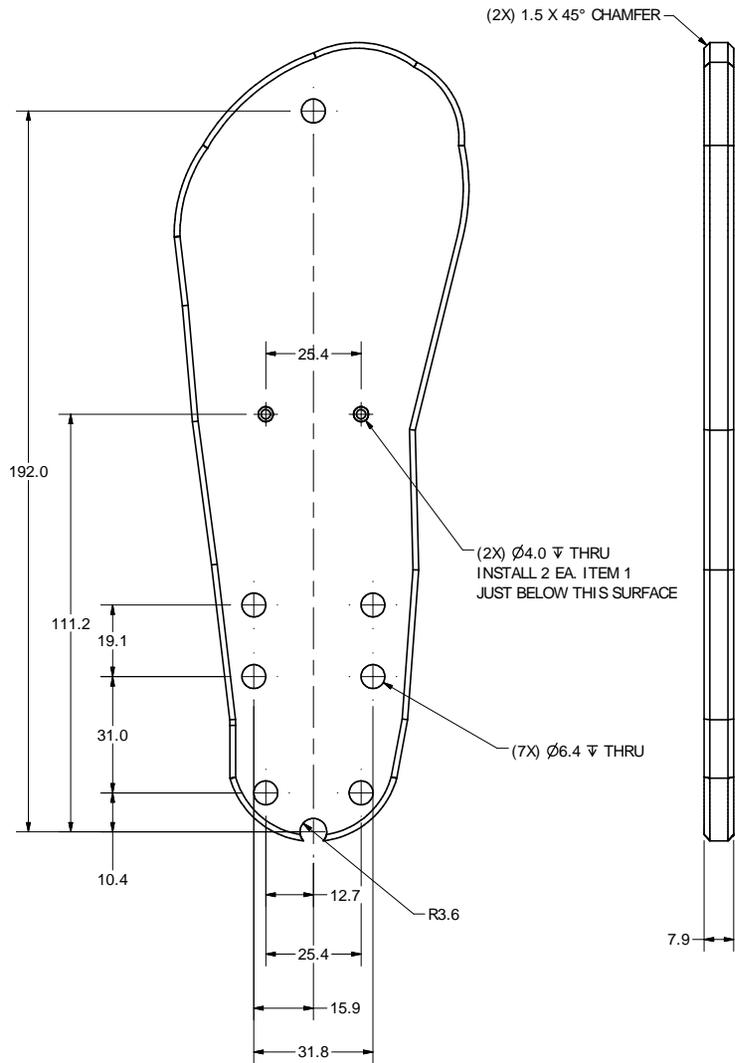
3

2

1

A

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



NOTES:
 CARBON CLOTH - 3K, 2 X 2 TWILL WEAVE 5.7 oz/sq. yd.
 .012" THICK (SOURCE: FIBRE GLAST) FG# 1069-B

EPOXY - 2000 EPOXY RESIN SYSTEM BY FIBRE GLAST
 2000 EPOXY RESIN AND 2020 EPOXY HARDENER
 FG# 2000-A AND 2020-A

EPOXY MIX RATIO PER FOOT LAY-UP
 100 g - EPOXY RESIN (2000)
 23 g - EPOXY HARDENER (2020)

LAY-UP SCHEDULE:
 [45/45/90/90/45/45/90/90/45/45/90/90]S

25 PLYS OF CARBON CLOTH TOTAL
 LAYUP IS SYMMETRIC ABOUT THREE CENTRAL 0-90 PLYS
 45 INDICATES A PLY WITH +/- 45° FIBER ORIENTATION
 RELATIVE TO THE LONG AXIS OF THE FOOT PLATE
 90 INDICATES A PLY WITH 0° & 90° FIBER ORIENTATION
 RELATIVE TO THE LONG AXIS OF THE FOOT PLATE.

MOLDING PROCEDURE:
 PLYS ARE HAND LAID INTO AN EPOXY MOLD USING
 WET-LAYUP TECHNIQUES.
 MOLD IS COATED WITH PART-ALL PASTE WAX (FG#1016)
 AND REN RP78-2 SILICONE RELEASE AGENT (CIBI-GIEGY)
 PLYS ARE LAID INTO MOLD AND BRUSHED WITH EPOXY
 RESIN AND COMPLETELY WET-OUT.
 MOLD IS TOPPED WITH POLYESTER PEEL PLY AND FOUR
 LAYERS OF BREATHER MATERIAL.
 VACUUM BAG AT 350°F FOR 3 HOURS AT 20 in-Hg

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

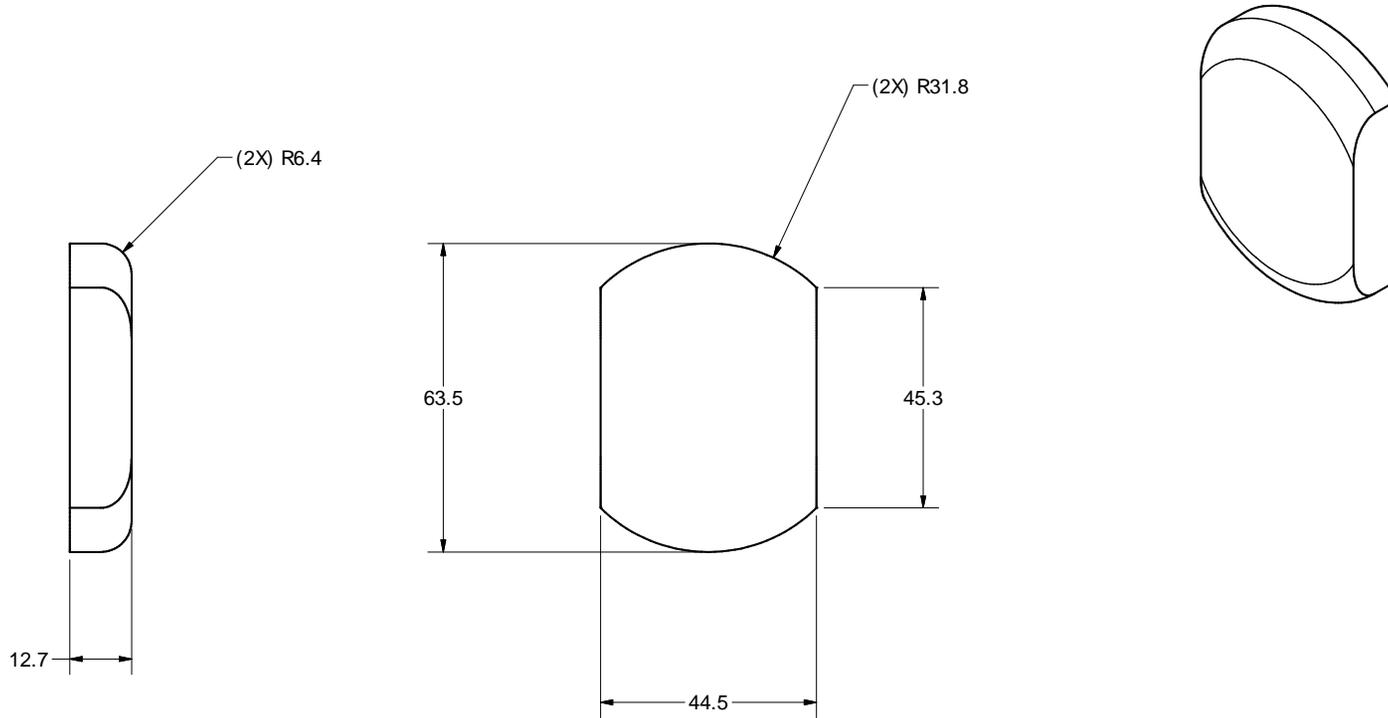
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	9010451	INSERT, M3 KNURLED THREADED PRESS

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
	2X, 10.0% 4.0°	
PROJECT NO. E00609	DESIGNED BY B. WADE	DATE 12/4/2008
DRAWN BY N/A	CHECKED BY N/A	DATE
ISSUED BY N/A	REVISED BY	DATE

FIGURE NO. C	OF 1	472-7716
PAGE NO. 1-1		

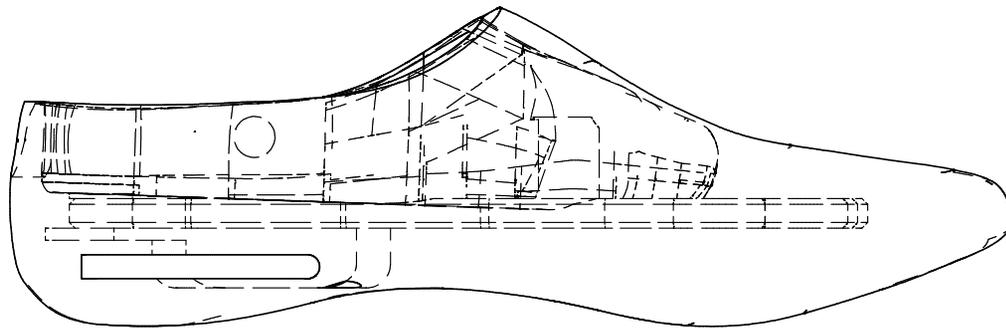
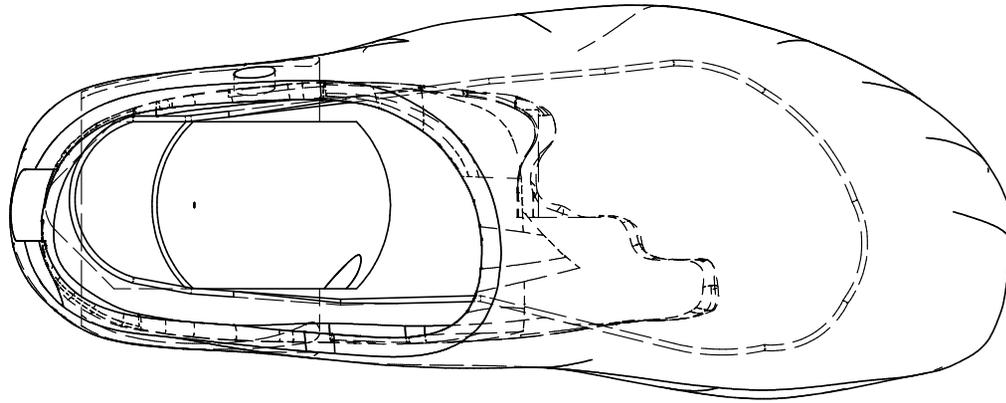
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	D	REDRAWN IN INVENTOR	7/10/2007	KSG
E00609	E	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



4. MATERIAL: NEOPRENE RUBBER 50A±5
5. STATIC HEEL PAD RESPONSE SPECIFICATIONS:
COMPRESSION 3.5mm
FORCE RANGE: 4770 TO 5830N.
6. DUROMETER SPECIFICATION CAN BE SUPERCEDED BY
DYNAMIC HEEL IMPACT RESPONSE SPECIFICATION.

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
PROJECT NO: E00609	X ±0.5 XX ±0.1 XXX ±0.05	TITLE: PADDING, HEEL THOR-LX
MATERIAL: SEE NOTE 4	DRAWN BY: B.WAIDE	DATE: 12/4/2008
REV. TREAT: N/A	CHECKED BY:	DATE:
FINISH: N/A		
	SIZE: B	SHEET: 1 OF 1
	SCALE: 1:1	DRAWING NO.: 472-7717
		REV: E



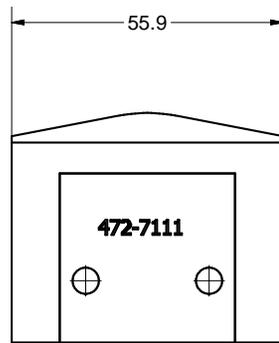
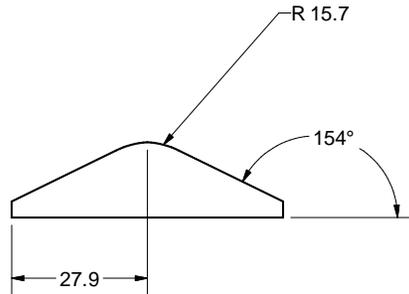
4. MATERIAL: SELF SKINNING URETHANE FOAM
5. TOTAL MASS: .57±.02 KG.
6. EXTERNAL SHAPE DEFINED BY 78051-600.

UNLESS OTHERWISE SPECIFIED:

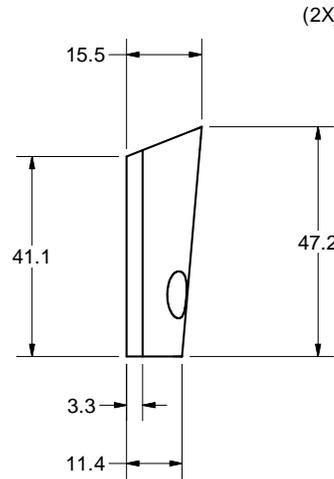
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. BREAK ALL SHARP EDGES.
3. ALL MACHINED SURFACES 1.60° OR BETTER.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
IDENTIFIED	DECIMALS	ANGLES	NHTSA		
ED0609	0.125	0.1°			
REVISION	DATE	DATE	TITLE FOOT FLESH, LEFT		
SEE NOTE 4	B.WADE	10/19/2007	THOR-LX		
PROJECT	DATE	DATE	FIGURE C 1 OF 1		
N/A			PART NUMBER 472-7725-1		
N/A			SCALE 1:1		

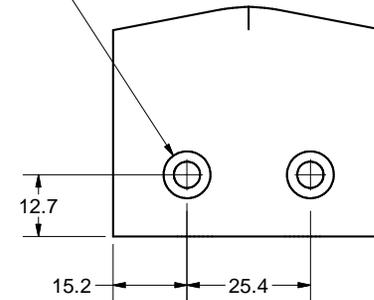
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	11/19/2008	BLW



1



(2X) Ø 9.6 THRU TO ITEM 1

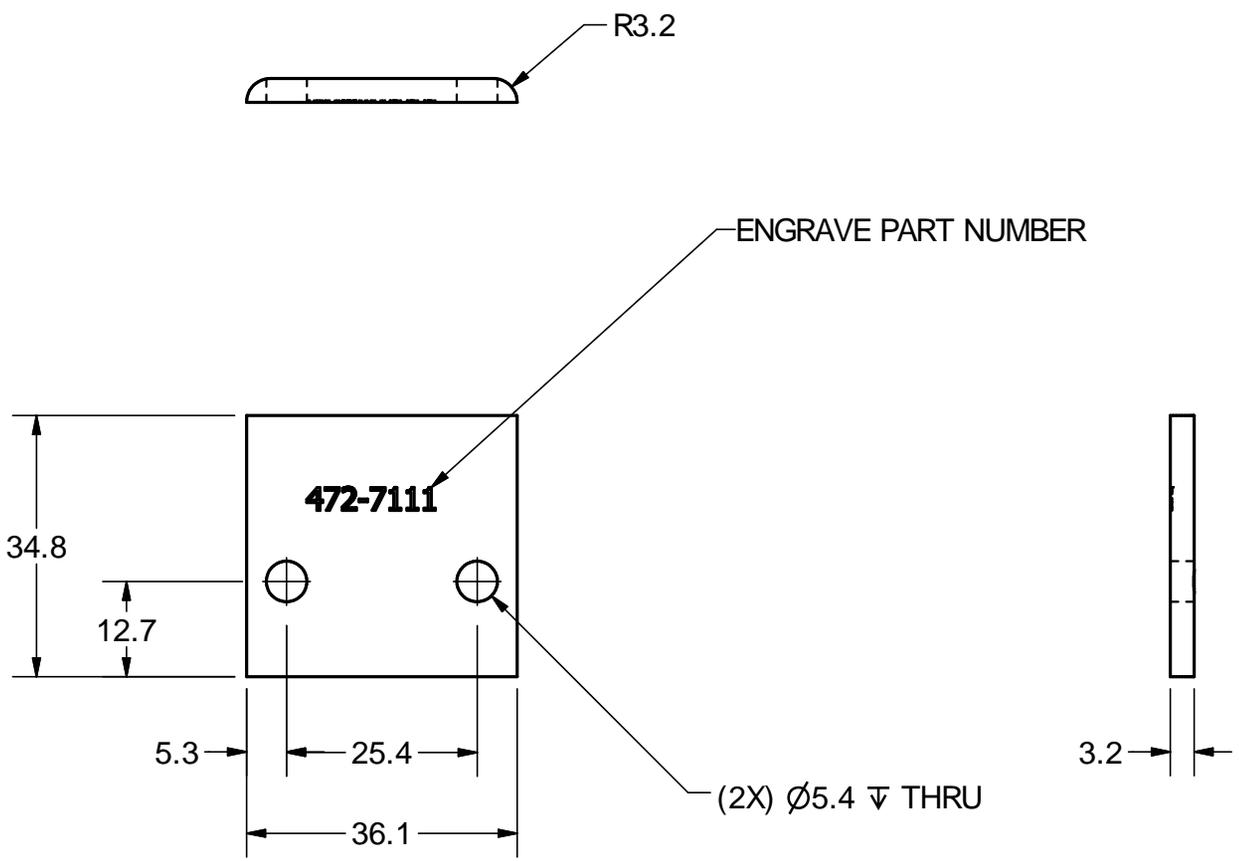


4. MATERIAL: URETHANE 37±5 SHORE A
5. SANDBLAST AND CLEAN WITH SOLVENT
SIDE OF ITEM 1 TO BE BONDED TO URETHANE

- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

1	1	472-7111	PLATE, BACK - MOLDED KNEE BUMPER
ITEM	QTY	PART NUMBER	DESCRIPTION
Parts List			
DO NOT SCALE DRAWING		TOLERANCES	
		DECIMALS ANGLES X ± 0.5 XX ± 0.1 XXX ± 0.05	
PROJECT NO: E00609		DEPARTMENT OF TRANSPORTATION NHTSA	
DRAWN BY: B.WADE		DATE: 11/19/2008	
CHECKED BY:		TITLE: KNEE BUMPER, MOLDED THOR-LX	
REVISED:		DRAWING NO.: 472-7110	
REVISED:		SCALE: 1:1	
REVISED:		SHEET: 1 OF 1	
REVISED:		BY: A	

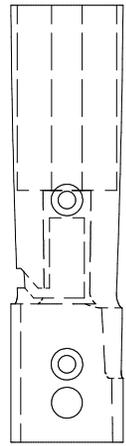
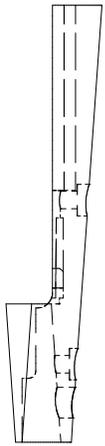
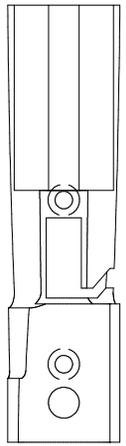
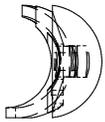
REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TOMETRIC DIMENSIONING	11/19/2008	BLW



- UNLESS OTHERWISE SPECIFIED:
1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $1.60 \sqrt{\text{OR BETTER}}$.

DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
UNITS ARE MILLIMETERS		DECIMALS	ANGLES	 NHTSA	
PROJECT NO.: E00609		X ± 0.5	± 1°		
MATERIAL: 1018 STEEL		DRAWN BY: B. WADE	DATE: 11/19/2008	TITLE: BACK PLATE, MOLDED BUMPER THOR-LX	
HEAT TREAT: N/A		CHECKED BY:	DATE:	SIZE: SHEET A 1 OF 1	DRAWING NO.: 472-7111
FINISH: N/A		SCALE: 1:1		REV: A	

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW

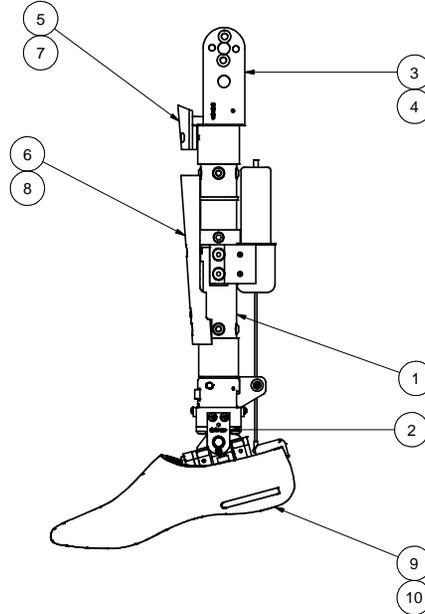
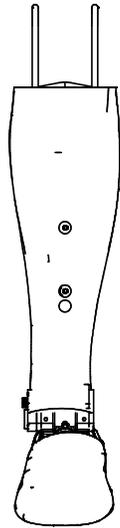


4. MATERIAL: URETHANE 85±5 SHORE A
 5. GEOMETRY SPECIFIED BY 3-D MODEL NO. 472-7115.

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES $\sqrt{0.8}$ OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	FRACTIONAL DECIMAL MILLI	NHTSA
	0.125 0.250 0.500 1.000 2.000 4.000	
PROJECT: E00609	DATE: 12/5/2008	SHIN GUARD
DRAWN BY: BLW	DESIGNED BY: BLW	THORLIX
SCALE: N/A		211 OF 1 472-7115

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/8/2008	BLW



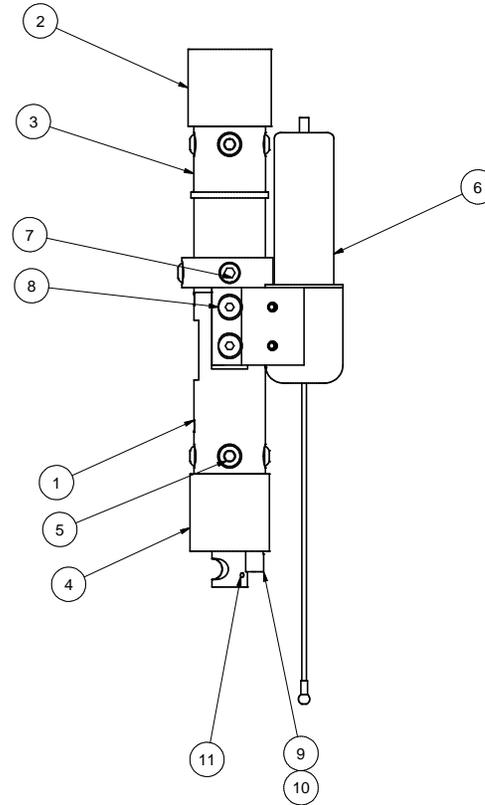
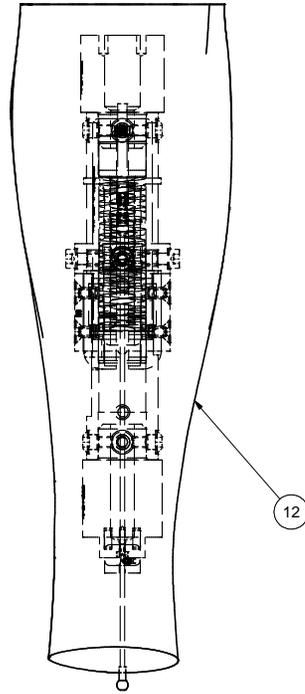
ITEM	QTY	PART NUMBER	DESCRIPTION
10	4	9000826	Screw, FHCS M6 x 1.0 x 16mm
9	1	472-7700-2	FOOT ASSY, RIGHT
8	2	9010453	SCREW, BHCS M6 X 1.0 X 16
7	2	9003042	SCREW, BHCS M5 X 10
6	1	472-7115	TIBIA GUARD
5	1	472-7110	KNEE BUMPER, MOLDED
4	4	9000852	SHCS, M6 X 1.0 X 16mm LONG
3	1	472-7200	KNEE CLEVIS WELDMENT
2	1	472-7500-2	ANKLE ASSEMBLY
1	1	472-7300-2	LOWER LEG MECHANICAL ASSY

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
	± .015 ±.030 ±.015	
	±.015 ±.030 ±.015	
PROJECT NO. E00609	DESIGNED BY B.WADE	DATE 12/8/2008
REVISED BY N/A	CHECKED BY N/A	DATE
PART NUMBER		DESCRIPTION
472-7000-2		COMPLETE ASSY, RIGHT THOR-LX
PAGE 1 OF 1		REV. 1/4

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/8/2008	BLW

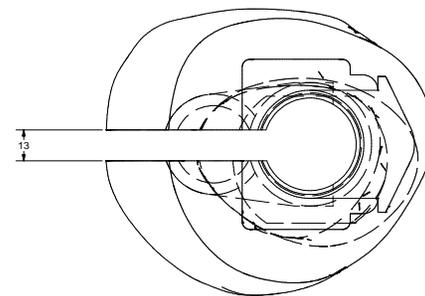
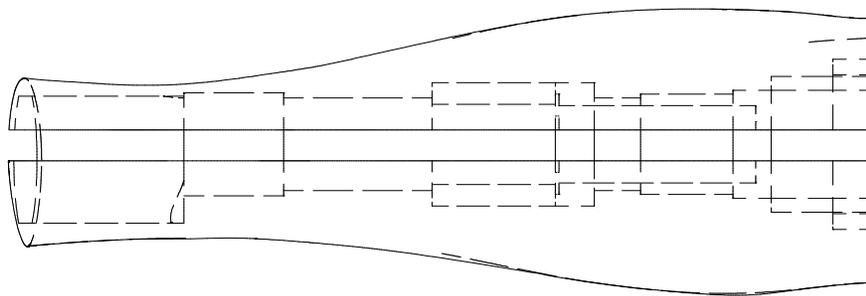
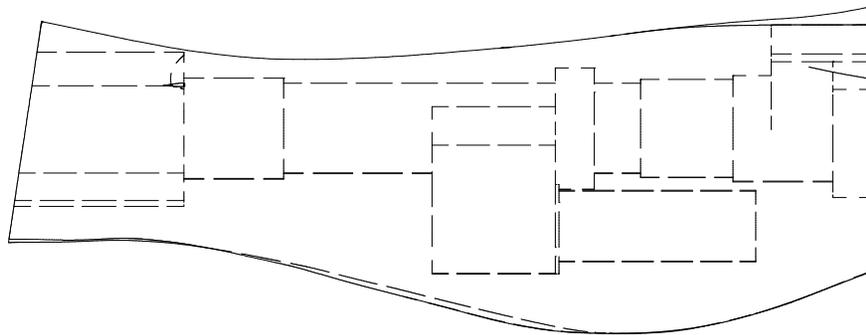


ITEM	QTY	PART NUMBER	DESCRIPTION
12	1	472-7370-2	LOWER LEG FLESH, RIGHT
11	1	9010447	SCREW, SET M3 X 0.5 X 3
10	1	9000058	SCREW, SHCS M3 X 12
9	1	472-7330	Z ROTATION WEDGE ASSY
8	5	9001445	SCREW, FHCS M6 X 12mm LONG
7	2	472-7335	PLUNGER RETAINING BOLT
6	1	472-7350	Achilles Spring Tube Mechanical Assembly
5	9	W50-61042	MOD. BUTTON HEAD SHOULDER SCREW
4	1	472-7325	BLANK, LOAD CELL - LOWER TIBIA
3	1	472-7315	TIBIA COMPLIANT BUSHING ASSY.
2	1	472-7320	BLANK, LOAD CELL - UPPER TIBIA
1	1	472-7310	LOWER TIBIA TUBE ASSEMBLY

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DENTON ATD, INC.	
	DECIMALS ANGLES	LOWER LEG ASSY, RIGHT	
	±0.05 ±0.025 ±0.015 ±0.01	THOR-LX	
PROJECT NO. E00609	DESIGNED BY B. WADE	DATE 12/8/2008	
REVISED BY N/A	APPROVED BY N/A		
SHEET 1 OF 1		PART NO. 472-7300-2	

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

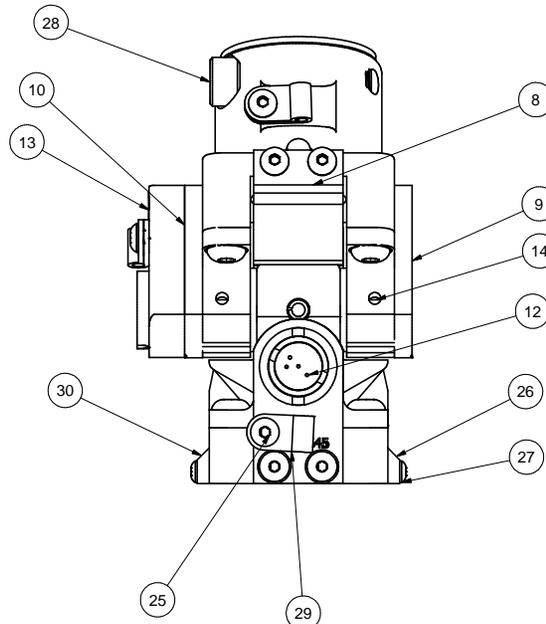
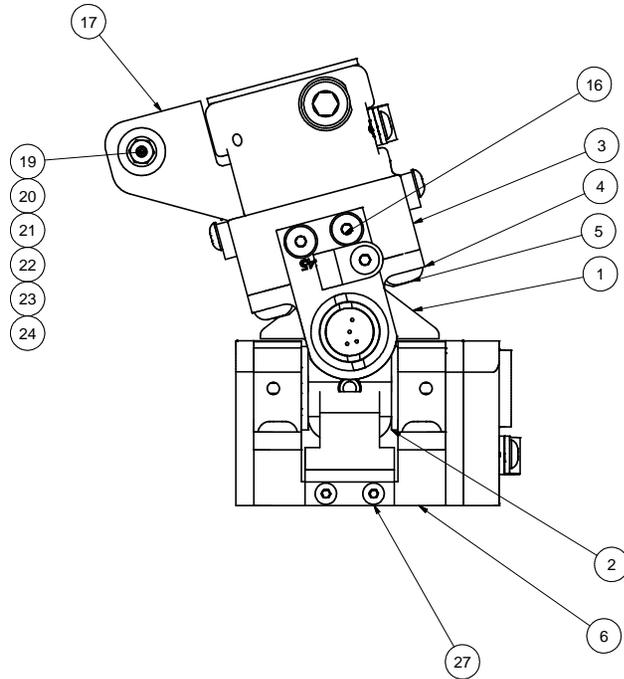


- 4. PART TO BE MOLDED VINYL AND URETHANE FOAM.
- 5. TOTAL MASS: 43 ± 05 KG
- 6. ATTACH ZIPPER TO CLOSE FLESH AT BACK.
- 7. EXTERNAL SHAPE DEFINED BY UMTRI 50TH PERCENTILE LOWER LEG.

- UNLESS OTHERWISE SPECIFIED:
- 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 - 2. BREAK ALL SHARP EDGES.
 - 3. ALL MACHINED SURFACES \sqrt{R} OR BETTER.

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	FRACTIONS WITH DENOMINATOR 10, 20, 32, 64	NHTSA
FORM 89	UNLESS SPECIFIED	LOWER LEG FLESH, RIGHT THOR
REVISED	DATE	11/9/2001
DATE	11/9/2001	1 OF 1
472-7370-2		

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	B	REDRAWN IN INVENTOR	7/25/2007	KSG
E00609	C	CHANGE TO METRIC HARDWARE	10/14/2008	BLW
E00609	D	CHANGE TO METRIC DIMENSIONING	12/5/2008	BLW
	E	PART NUMBER SA572-S114 WAS 472-7550, 472-7585 WAS 472-7545 & 472-7580 WAS 472-7520 AND DESCRIPTION WAS "BASE, TOP TORQUE"	9/15/2014	DW



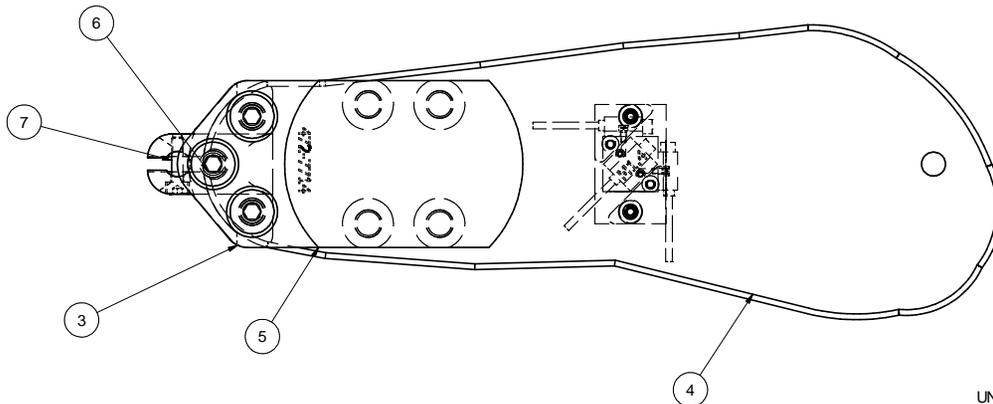
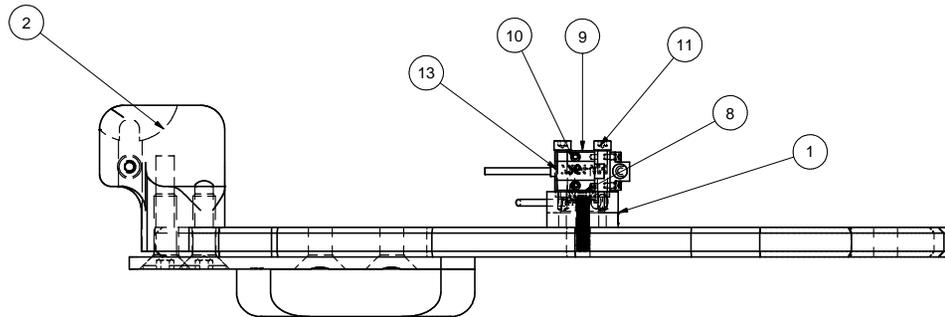
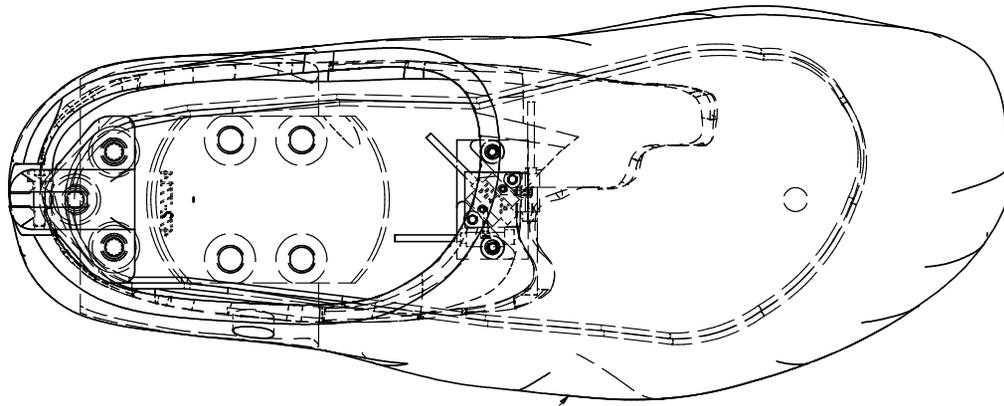
ITEM	QTY	PART NUMBER	DESCRIPTION
30	1	472-7533	STOP ASSEMBLY, EVERSION
29	3	9005135	CLAMP, NYLON LOOP
28	1	472-7563	BOLT & SLEEVE ASSEMBLY-ANKLE
27	4	9010332	SCREW, BHCS M3 X 0.5 X 8
26	1	472-7534	STOP ASSEMBLY, INVERSION
25	7	9003049	SCREW, BHCS M4 X 0.7 X 8
24	2	9010450	NUT, NYLOCK M3 X 0.5
23	1	472-7562	PULLEY, ACHILLES CABLE
22	2	9000510	WASHER, # 4
21	2	9000508	WASHER
20	2	9000509	BEARING, NEEDLE ROLLER
19	1	472-7561	SHAFT, ACHILLES CABLE PULLEY
18	2	9010449	SCREW, FHCS M3 X 0.5 X 12
17	1	472-7560	BRACKET, ACHILLES PULLEY
16	4	9010448	SCREW, FHCS M4 X 0.7 X 20
15	4	9000873	SCREW, FHCS M4 X 0.7 X 12
14	2	9010447	SCREW, SET M3 X 0.5 X 3
13	2	472-7585	RETAINER, POTENTIOMETER
12	3	SA572-S114	ROTARY POTENTIOMETER
11	4	9010446	SCREW, FHCS M3 X 0.5 X 16
10	2	472-7541	BUSHING PLATE ASSEMBLY-ANKLE
9	2	472-7540	ANKLE BUSHING PLATE ASSEMBLY
8	2	472-7530	STOP ASSEMBLY, DORSI-PLANTAR
7	18	472-7524	CYLINDER, TORQUE-ANKLE
6	1	472-7523	BASE, TORQUE-BOTTOM
5	8	9010445	SCREW, BHCS M6 X 1.0 X 12
4	4	472-7522	CAP, BASE-ANKLE TORQUE
3	1	472-7580	BASE, TORQUE-ANKLE TOP
2	4	472-7515	WASHER, RETAINING-TORQUE CYLINDER
1	1	472-7510	CENTER BLOCK ASSEMBLY-ANKLE

E
E
E

Parts List			
DO NOT SCALE DRAWING	TOLERANCES	UNITS	SCALE
	DECIMALS ANGLES F. F.F. 0.006 0.006 0.006 0.006	MM DEG	1:1
PROJECT NO. E00609	DESIGNED BY B.WADE	DATE 12/8/2008	DRAWN BY DW
REVISED BY N/A	REVISED DATE N/A	REVISED BY N/A	REVISED DATE N/A
DENTON ATD, INC.			1 OF 1
ANKLE ASSEMBLY, RIGHT THOR-LX			472-7500-2

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/8/2008	BLW
	B	SA572-S80M WAS 7264-AM AND DESCRIPTION WAS MOUNTING BLOCK, 7264, 7364C-2000	9/16/2014	DW



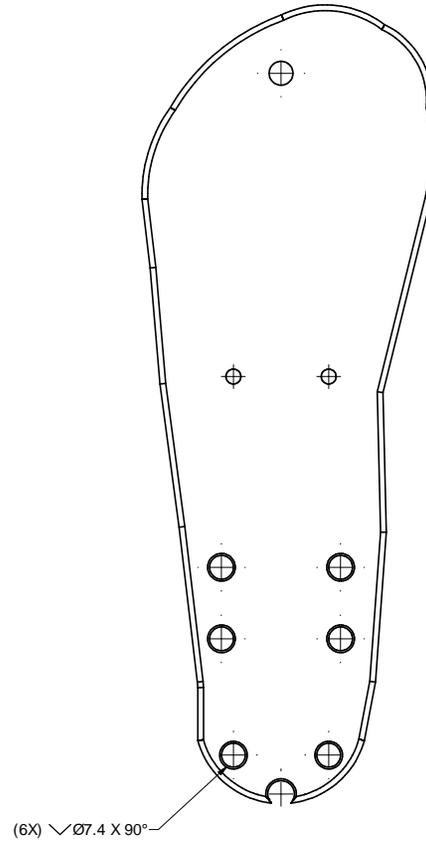
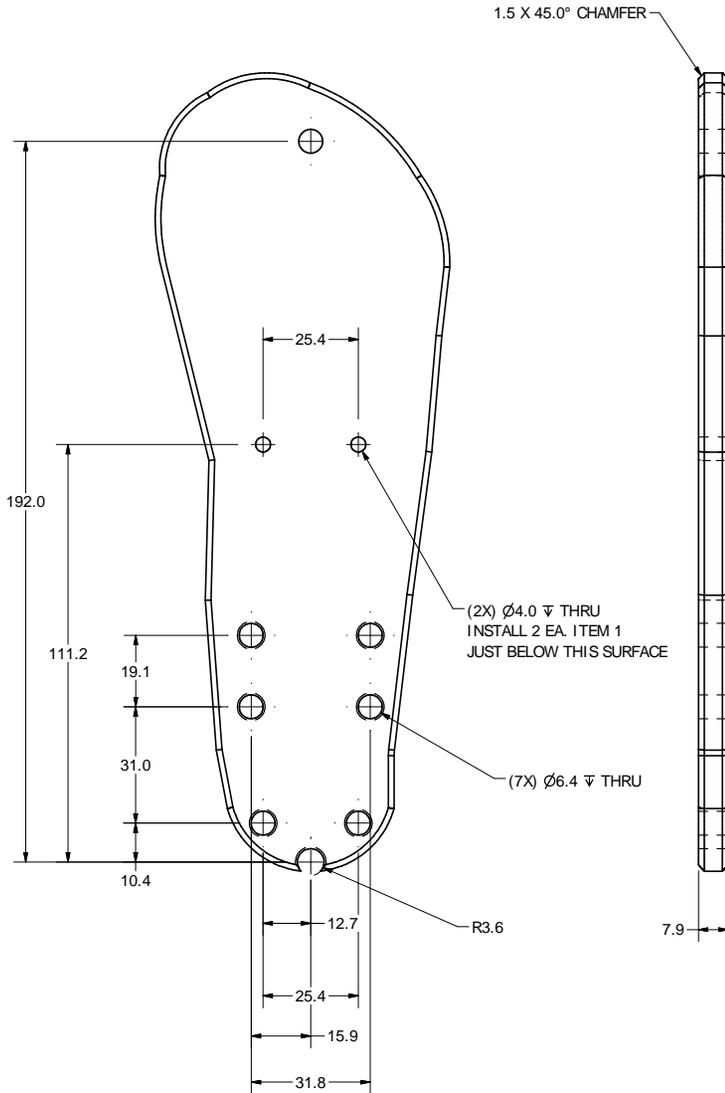
13	3	SA572-S4	ACCELEROMETER, UNIAXIAL PIZORESISTIVE
12	1	472-7725-2	FOOT FLESH, RIGHT
11	2	9000863	SHCS, M2.5 X 16mm LONG
10	6	9010407	SCREW, SHCS M1.4 x 0.3 x 3
9	1	SA572-S80M	S4 TRIAXIAL ACCELEROMETER MOUNTING BLOCK
8	2	9010446	SCREW, FHCS M3 X 0.5 X 16
7	1	9000058	SCREW, SHCS M3 X 12
6	3	9001443	SCREW, FHCS M6 X 1.0 X 20
5	1	472-7717	PADDING, HEEL
4	1	472-7718	SOLE PLATE ASSY, RIGHT
3	1	472-7714	BRACKET, MOUNTING-HEEL/ACHILLES
2	1	472-7712	MOUNTING POST, LOWER ACHILLES
1	1	472-7710	PLATE, MOUNTING - FOOT 7264 TRI-PACK ACCELEROMETER
ITEM	QTY	PART NUMBER	DESCRIPTION

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
	±.015 ±.006 ±.002	
PROJECT: E00609	DESIGNED BY: B.WADE	DATE: 12/8/2008
REVISED: N/A	TRAINED BY: TMV	DATE: 12/12/2008
ISSUED: N/A		
FOOT ASSY, RIGHT THOR-LX		1 OF 1
472-7700-2		

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

REVISION HISTORY				
ECO	REV	DESCRIPTION	DATE	BY
E00609	A	CHANGE TO METRIC DIMENSIONING	12/4/2008	BLW



NOTES:
 CARBON CLOTH - 3K, 2 X 2 TWILL WEAVE 5.7 oz/sq. yd.
 .012" THICK (SOURCE: FIBRE GLAST) FG# 1069-B

EPOXY - 2000 EPOXY RESIN SYSTEM BY FIBRE GLAST
 2000 EPOXY RESIN AND 2020 EPOXY HARDENER
 FG# 2000-A AND 2020-A

EPOXY MIX RATIO PER FOOT LAY-UP
 100 g - EPOXY RESIN (2000)
 23 g - EPOXY HARDENER (2020)
LAY-UP SCHEDULE:
 [45/45/90/90/45/45/45/90/90/45/45/90/90]S

25 PLYS OF CARBON CLOTH TOTAL
 LAYUP IS SYMMETRIC ABOUT THREE CENTRAL 0-90 PLYS
 45 INDICATES A PLY WITH +/- 45° FIBER ORIENTATION
 RELATIVE TO THE LONG AXIS OF THE FOOT PLATE
 90 INDICATES A PLY WITH 0° & 90° FIBER ORIENTATION
 RELATIVE TO THE LONG AXIS OF THE FOOT PLATE.

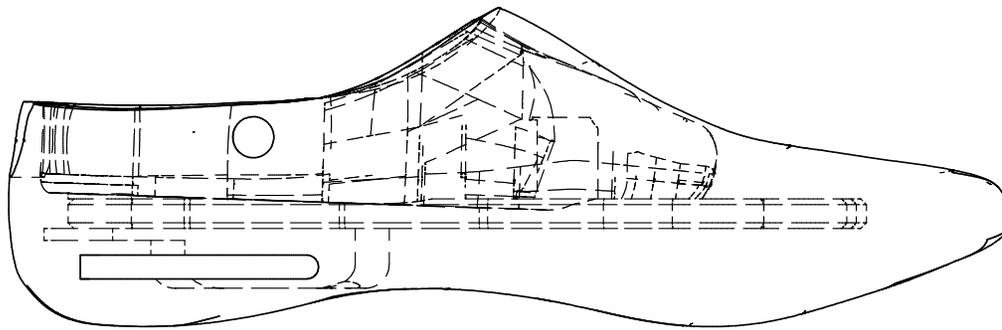
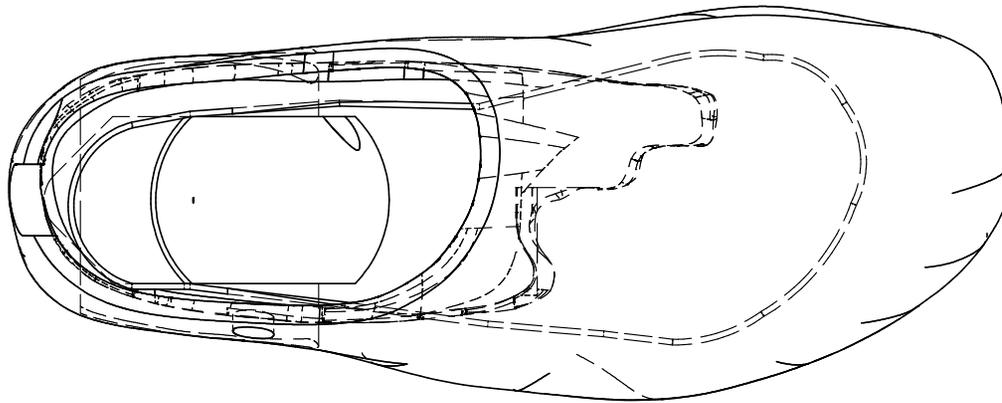
MOLDING PROCEDURE:
 PLYS ARE HAND LAID INTO AN EPOXY MOLD USING
 WET-LAYUP TECHNIQUES.
 MOLD IS COATED WITH PART-ALL PASTE WAX (FG#1016)
 AND REN RP78-2 SILICONE RELEASE AGENT (CIBI-GIEGY)
 PLYS ARE LAID INTO MOLD AND BRUSHED WITH EPOXY
 RESIN AND COMPLETELY WET-OUT.
 MOLD IS TOPPED WITH POLYESTER PEEL PLY AND FOUR
 LAYERS OF BREATHER MATERIAL.
 VACUUM BAG AT 350°F FOR 3 HOURS AT 20 in-Hg

UNLESS OTHERWISE SPECIFIED:
 1. ALL DIMENSIONS ARE IN MILLIMETERS.
 2. BREAK ALL SHARP EDGES.
 3. ALL MACHINED SURFACES 1.60 OR BETTER.

ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	9010451	INSERT, M3 KNURLED THREADED PRESS

Parts List

DO NOT SCALE DRAWING	TOLERANCES	DEPARTMENT OF TRANSPORTATION
	DECIMALS ANGLES	NHTSA
	±.012 ±.006 ±.004 ±.002	
PROJECT NO. E00609	DRAWN BY B.WADE	DATE 12/4/2008
REVISED BY N/A	APPROVED BY N/A	
PAGE 1 OF 1		472-7718



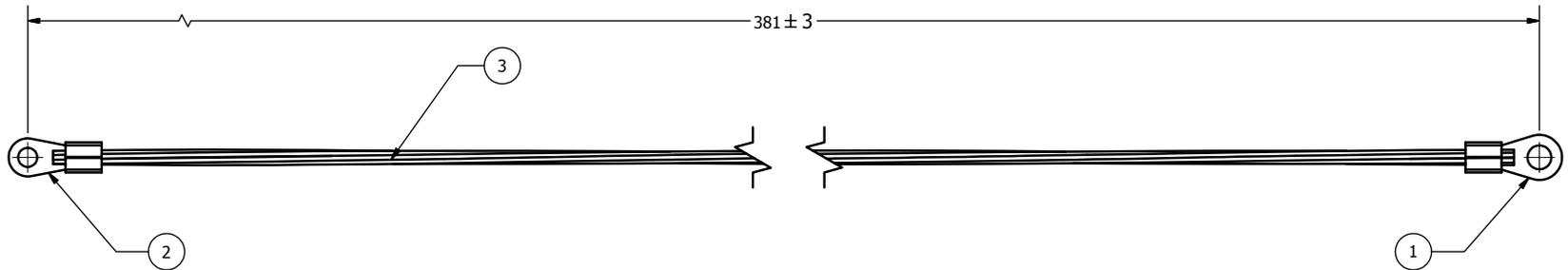
- 4. MATERIAL: SELF SKINNING URETHANE FOAM
- 5. TOTAL MASS: .57±.02 KG.
- 6. EXTERNAL SHAPE DEFINED BY 78051-601.

UNLESS OTHERWISE SPECIFIED:

- 1. ALL DIMENSIONS ARE IN MILLIMETERS.
- 2. BREAK ALL SHARP EDGES.
- 3. ALL MACHINED SURFACES $1.60\sqrt{R}$ OR BETTER.

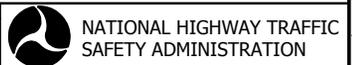
DO NOT SCALE DRAWING		TOLERANCES		DEPARTMENT OF TRANSPORTATION	
		DECIMALS	ANGLES	NHTSA	
		0.125	0.1°		
IDENTIFIED	ED00609	DESIGNED BY	B.WADE	DATE	1/19/2008
REVISION	SEE NOTE 4	APPROVED BY		DATE	
MATERIAL	N/A	FINISH		FIG. NO.	C 1 OF 1
TEST	N/A	QUANTITY		PROJECT NO.	472-7725-2
				SCALE	1:1

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



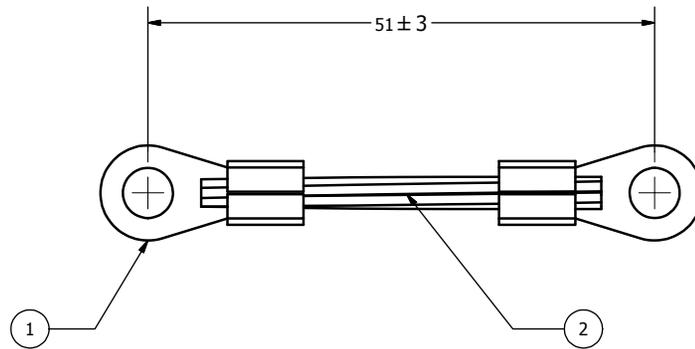
ITEM	QTY	PART NUMBER	DESCRIPTION
3	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
2	1	6002978	METRIC RING TERMINAL M4 NON-INSULATED
1	1	6002979	METRIC RING TERMINAL M5 NON-INSULATED

PARTS LIST			
DO NOT SCALE DRAWING		TOLERANCES	
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		
THIRD ANGLE PROJECTION		REMOVE BURRS & BREAK SHARP EDGES	
PROJECT NO.:	DATE:	DESCRIPTION:	
472-0000	2/7/2012	INSTRUMENT GROUND STRAP, HEAD/NECK	
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:
TOTAL QTY IN DUMMY	1	J. WANG	1/23/2012



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
 INSTRUMENT GROUND STRAP, HEAD/NECK
 SIZE: A3
 SHEET: 1 OF 1
 SCALE: 1.000
 DRAWING NO.: 472-8700
 REV: B

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

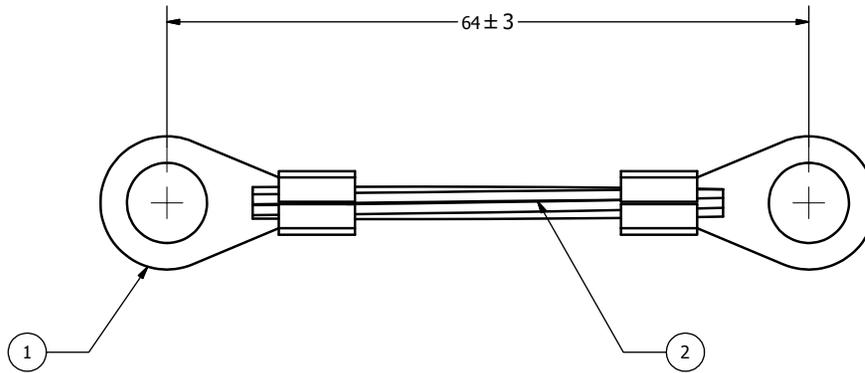
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X ±0.5 ±0.5 1.6
XX ±0.2 ±0.5 1.6
XXX ±0.3 ±0.5 1.6
XXX ±0.01



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO:	472-0000	1	DATE:	2/7/2012	SIZE:	A3	SHEET:	1 OF 1	DRAWING NO.:	472-8701	REV.:	B
MATERIAL:	472-0000	1	CHECKED BY:	skantola	SCALE:	2.000	DESCRIPTION: INSTRUMENT GROUND STRAP, MID STERNUM MID STERNUM					
HEAT TREAT:	472-0000	1	ENGINEER:	J. WANG	DATE:	1/23/2012						
TOTAL QTY IN DUMMY:	472-0000	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		<small>UNLESS OTHERWISE SPECIFIED</small> <small>DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X 0.0 0.05 1.6 XX 0.2 XXX 0.3 XXXX 0.01		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	INSTRUMENT GROUND STRAP, THORACIC SPINE THORACIC SPINE 472-8702
472-0000	1	skantola	2/7/2012	
NEXT ASSEMBLY	QTY	CHECKED BY:	DATE:	
TOTAL QTY IN DUMMY	1	J. WANG	1/23/2012	
		SCALE:	2.000	SIZE: A3 SHEET: 1 OF 1

PROJECT NO.:	
472-0000	1
NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

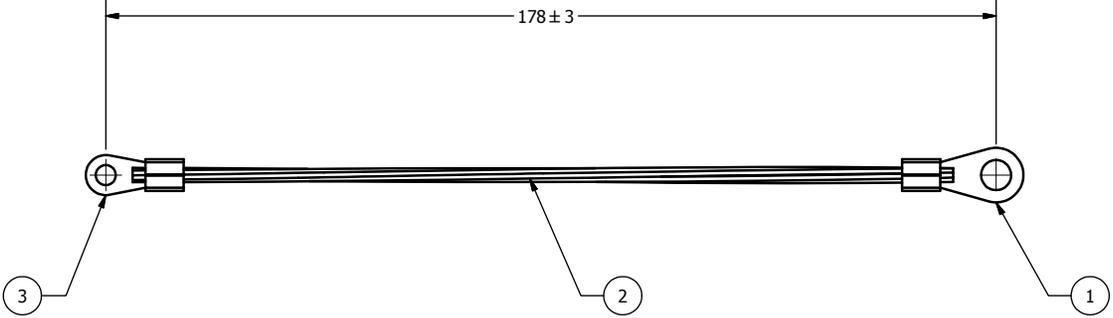
INSTRUMENT GROUND STRAP, THORACIC SPINE
THORACIC SPINE

472-8702

A3 1 OF 1
SCALE: 2.000

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		 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 ± 0.5 ± 0.5 1.6 XX ± 0.2 ± 0.5 1.6 XXX ± 0.3 ± 0.5 1.6 XXX ± 0.01		
PROJECT NO.:	472-0000	DATE:	2/7/2012	<small>DESCRIPTION:</small> INSTRUMENT GROUND STRAP, LUMBAR SPINE LUMBAR SPINE
MATERIAL:		DESIGNED BY:	skantola	
HEAT TREAT:		CHECKED BY:	skantola	
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG	<small>SCALE:</small> 1.000 <small>SIZE:</small> A3 <small>SHEET:</small> 1 OF 1 <small>DRAWING NO.:</small> 472-8703

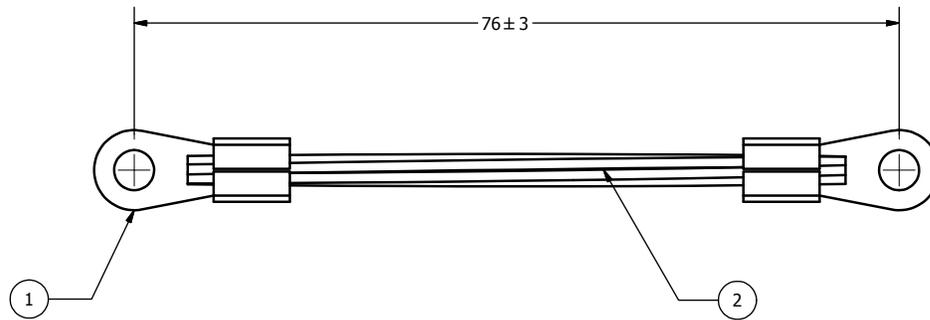
PROJECT NO.:	472-0000	DATE:	2/7/2012
MATERIAL:		DESIGNED BY:	skantola
HEAT TREAT:		CHECKED BY:	skantola
TOTAL QTY IN DUMMY	1	ENGINEER:	J. WANG

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DESCRIPTION:
INSTRUMENT GROUND STRAP, LUMBAR SPINE
LUMBAR SPINE

SCALE: 1.000
SIZE: A3
SHEET: 1 OF 1
DRAWING NO.: 472-8703

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



ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	6002273	BRAID, TINNED COPPER TUBULAR 1/8"
1	2	6002978	METRIC RING TERMINAL M4 NON-INSULATED

PARTS LIST

DO NOT SCALE DRAWING
THIRD ANGLE PROJECTION

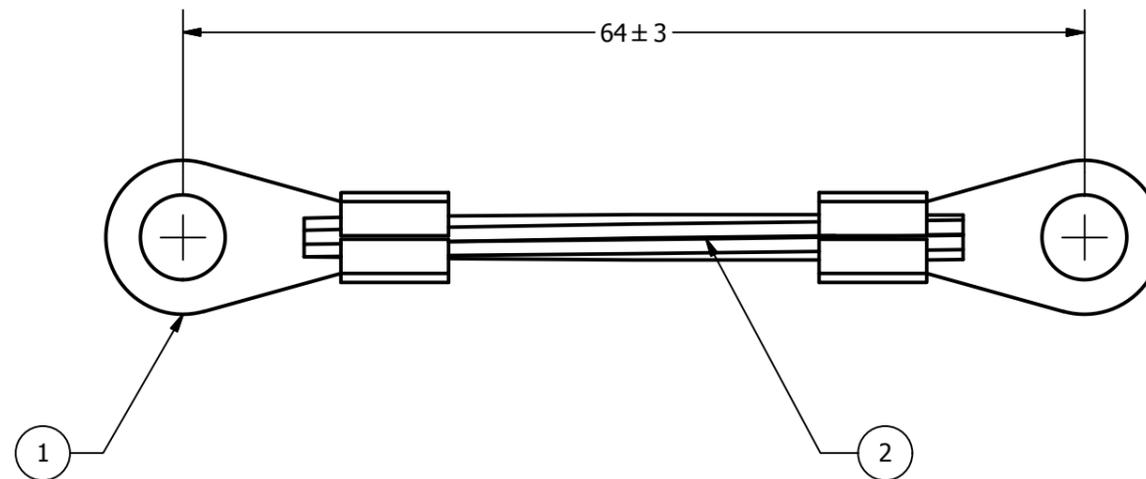
TOLERANCES
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN MILLIMETERS
DECIMALS ANGLES FINISH
X .05 ± 0.05 1.6
X.X ± 0.2
X.XX ± 0.3
X.XXX ± 0.01



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

PROJECT NO:	472-0000	QTY	2	DATE:	2/7/2012	SIZE	A3	SHEET	1 OF 1	DRAWING NO.	472-8704	REV.	B
MATERIAL:		CHECKED BY:	skantola	DATE:		SCALE:	2.000	DESCRIPTION:		INSTRUMENT GROUND STRAP, FEMUR			
HEAT TREAT:		ENGINEER:	J. WANG	DATE:	1/23/2012								
TOTAL QTY IN DUMMY	2												

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

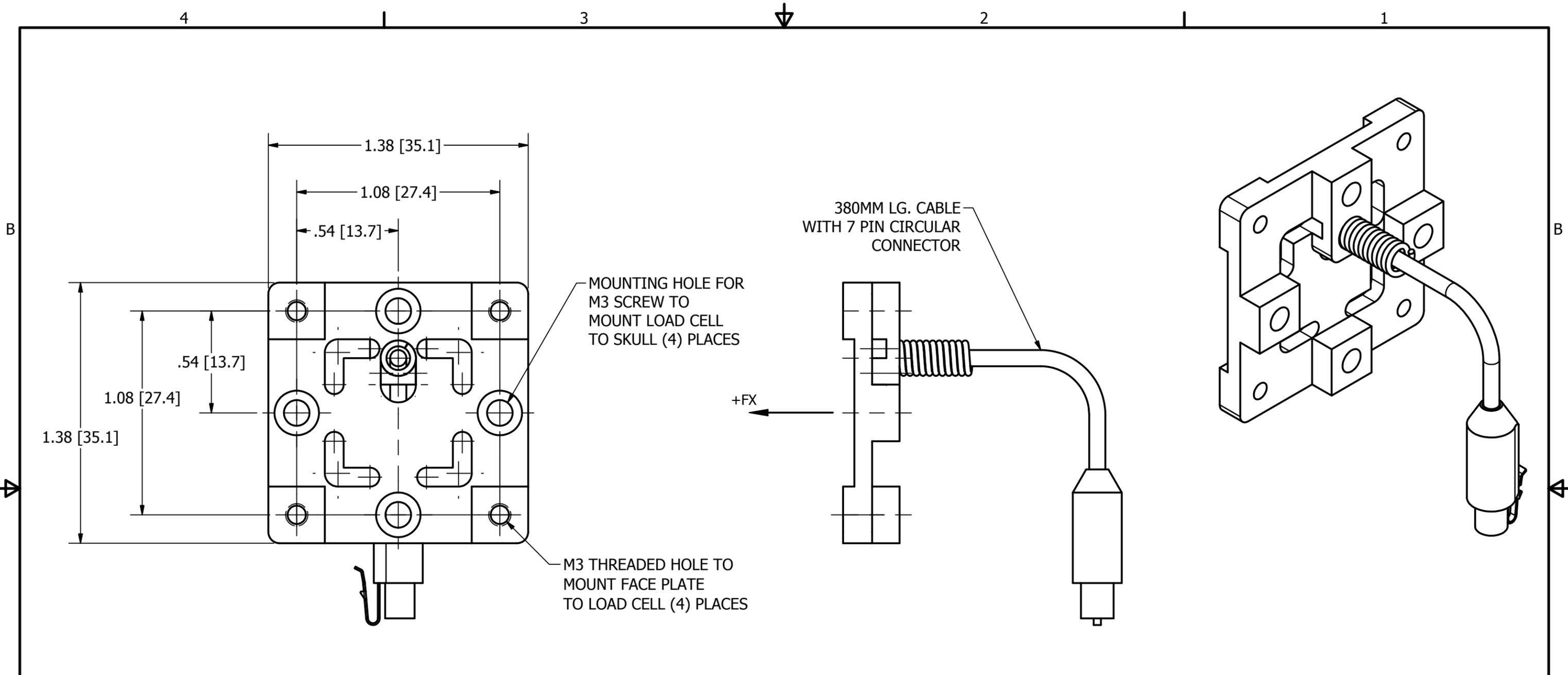


B

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		 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 ± 0.2 1.6 X.XX ± 0.1 ± 0.1 1.6 X.XXX ± 0.01 ± 0.01 1.6		
PROJECT NO.:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION: INSTRUMENT GROUND STRAP, TIBIA TIBIA
MATERIAL:		skantola	DATE:	
HEAT TREAT:			DATE:	
FINISH:		ENGINEER:	DATE:	SIZE: A3 SHEET: 1 OF 1 SCALE: 2.000
472-0000	2		1/23/2012	DRAWING NO.:
NEXT ASSEMBLY	QTY			472-8705
TOTAL QTY IN DUMMY	2			



SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	4.45 KN	1000 LBF.	1.3 mV/V	350
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	26 GRAMS ~ LESS CABLE			
DO NOT SCALE DRAWING		TOLERANCES		
 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.:		REMOVE BURRS & BREAK SHARP EDGES	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
MATERIAL:		DRAWN BY: M.FINK	DATE: 7/27/2011	DESCRIPTION: FACE LOAD CELL THOR (METRIC) DRAWING NO.: SA572-S124
NEXT ASSEMBLY	QTY	CHECKED BY: CJT	DATE: 7/27/2011	
TOTAL QTY IN DUMMY	5	ENGINEER: M.FINK	DATE: 7/3/12	
		SCALE: NONE	SIZE: SHEET B 1 OF 1	REV: A

380MM LG. CABLE
WITH 7 PIN CIRCULAR
CONNECTOR

Ø.850 [21.6]

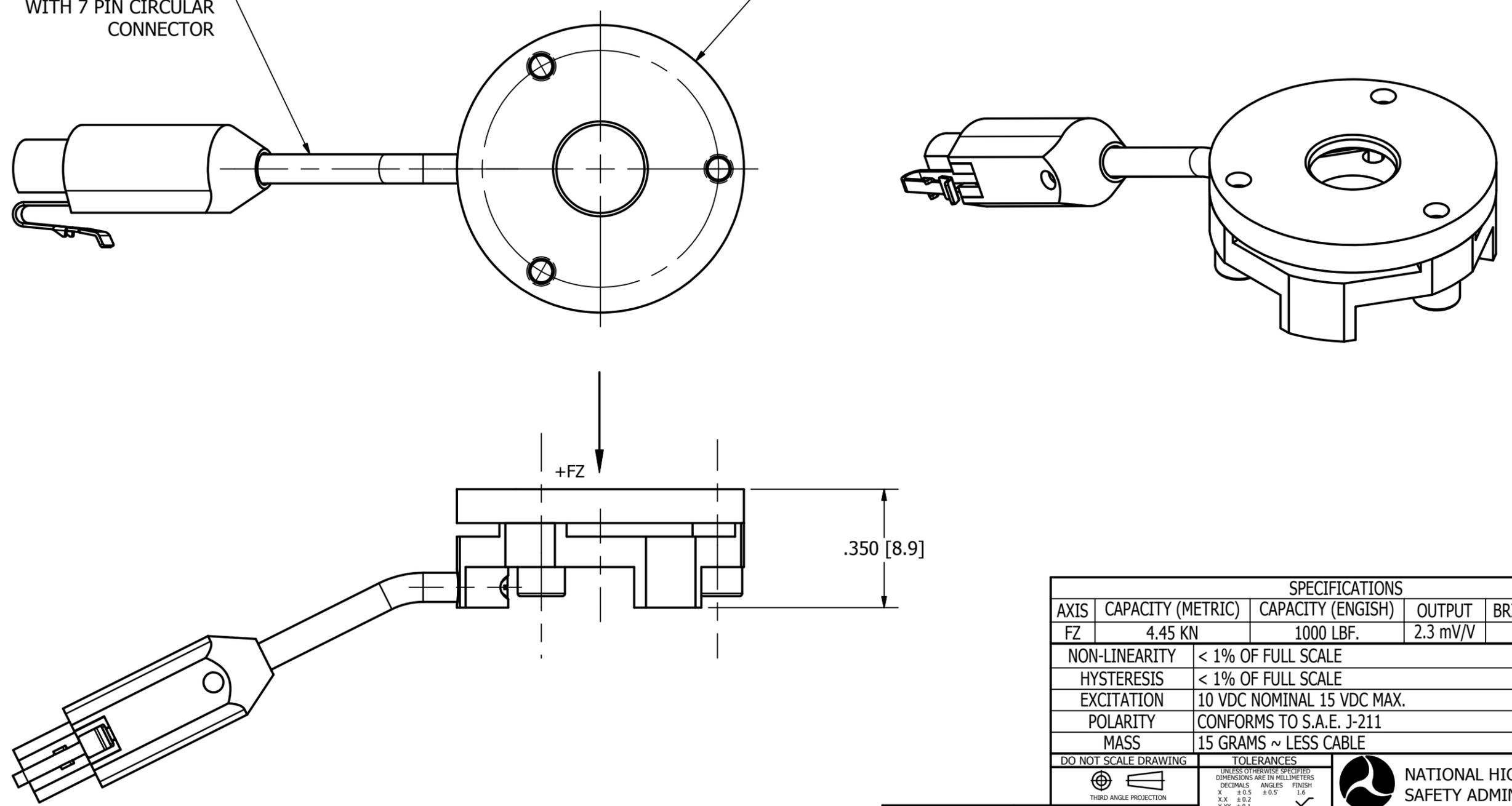
.350 [8.9]

+FZ

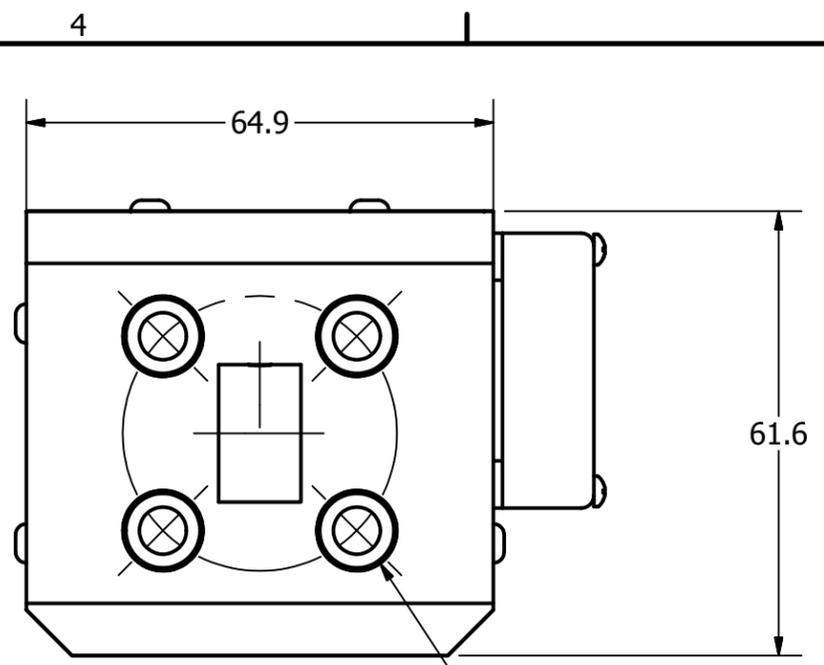
SPECIFICATIONS				
AXIS	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FZ	4.45 KN	1000 LBF.	2.3 mV/V	1050 OHM
NON-LINEARITY	< 1% OF FULL SCALE			
HYSTERESIS	< 1% OF FULL SCALE			
EXCITATION	10 VDC NOMINAL 15 VDC MAX.			
POLARITY	CONFORMS TO S.A.E. J-211			
MASS	15 GRAMS ~ LESS CABLE			
DO NOT SCALE DRAWING		TOLERANCES		
 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.:		REMOVE BURRS & BREAK SHARP EDGES		
MATERIAL:		DRAWN BY: M.FINK		DATE: 8/11/2011
HEAT TREAT:		CHECKED BY: CJT		DATE: 7/3/2012
FINISH:		ENGINEER: M.FINK		DATE: 7/3/12
NEXT ASSEMBLY		QTY	SCALE: 3:1	SIZE: SHEET B 1 OF 1
TOTAL QTY IN DUMMY		2	DRAWING NO.: SA572-S112	

 NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

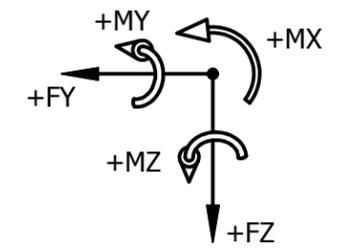
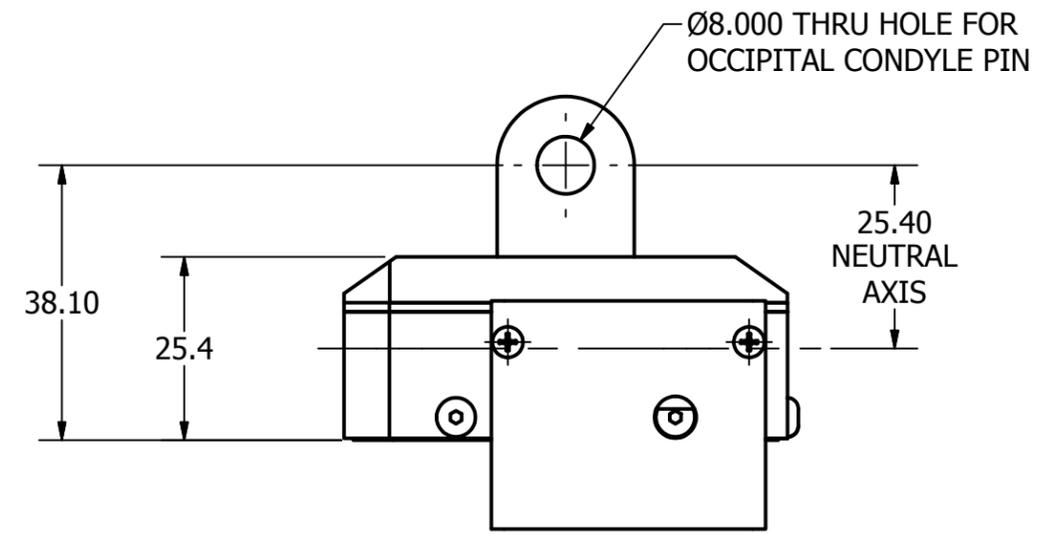
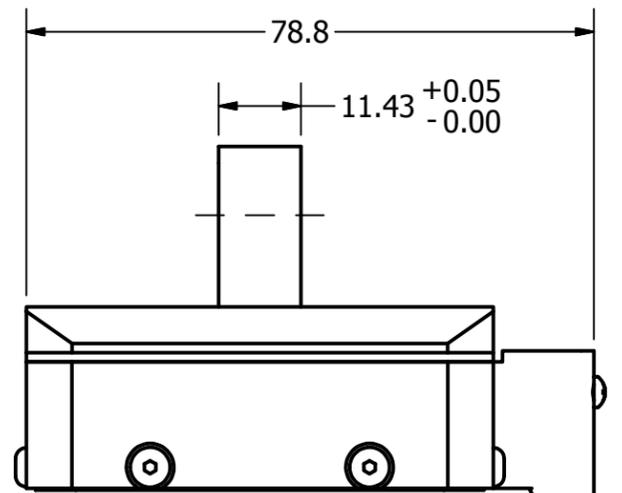
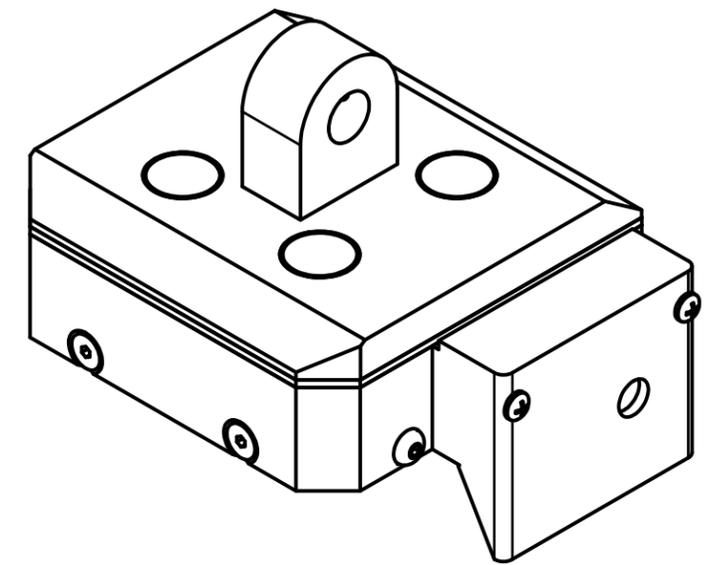
DESCRIPTION:
Ø .850 SKULL SPRING LOAD CELL
THOR (METRIC)



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.



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)

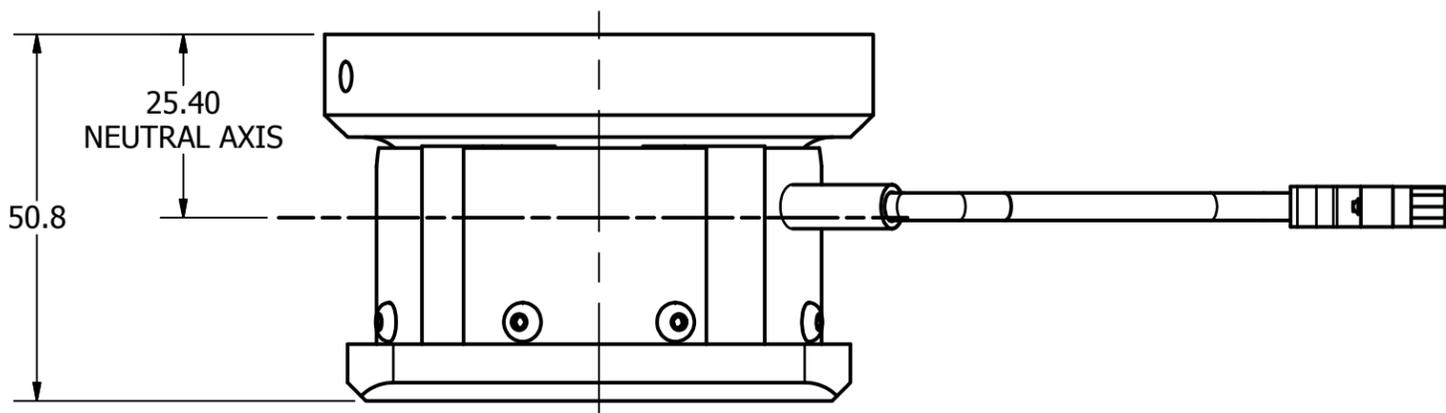
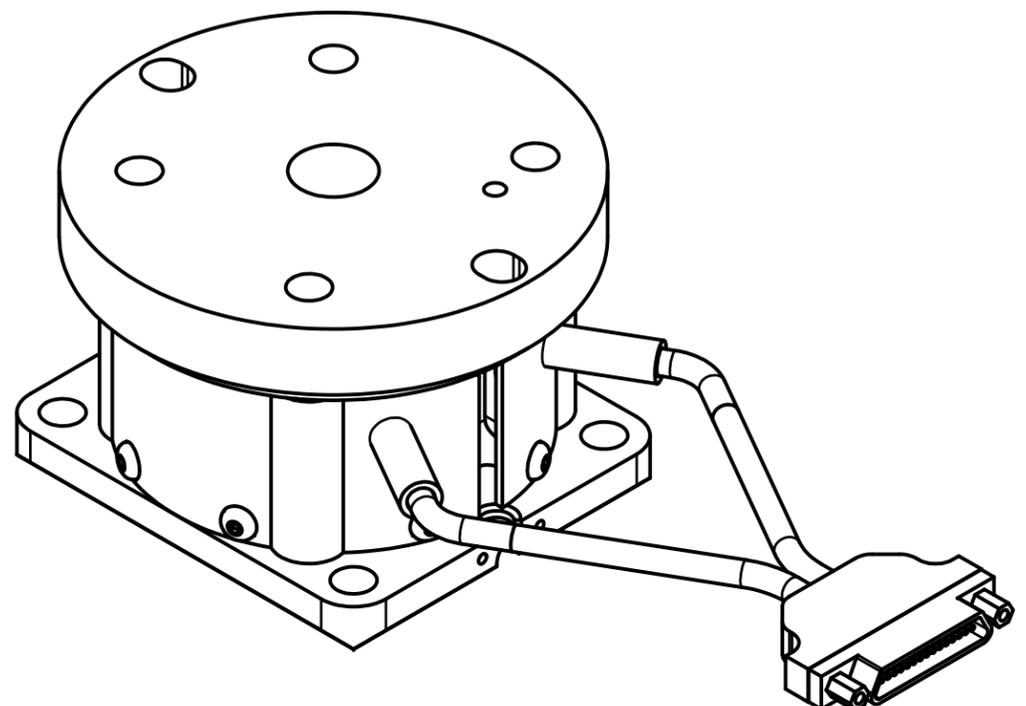
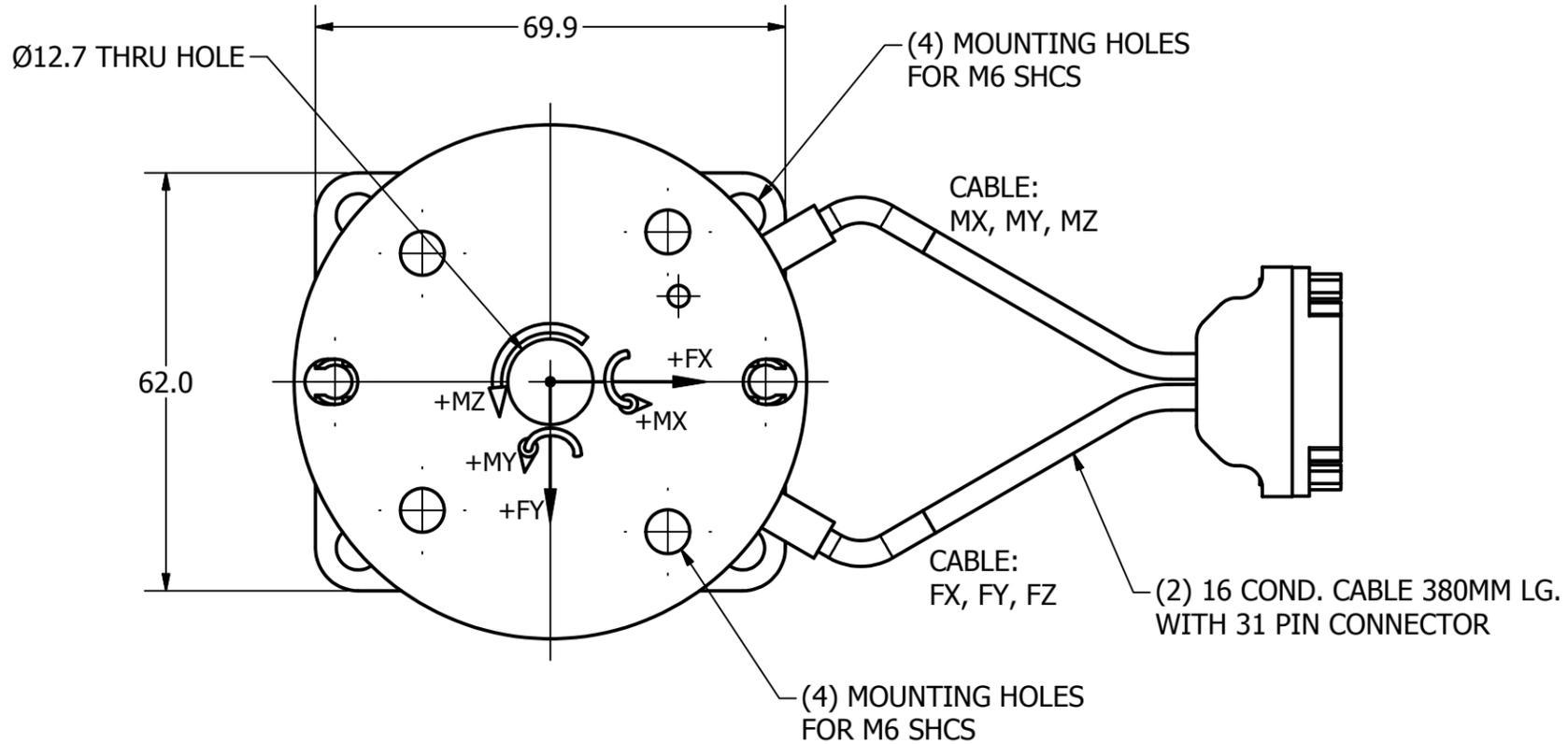
SIZE: SHEET B 1 OF 1

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

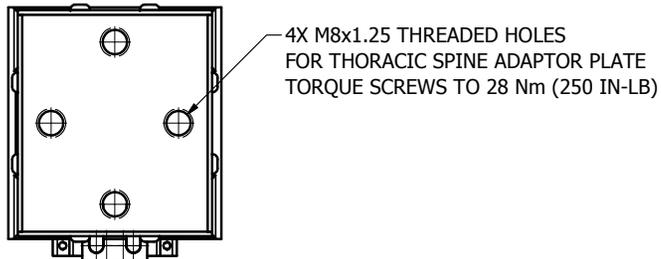
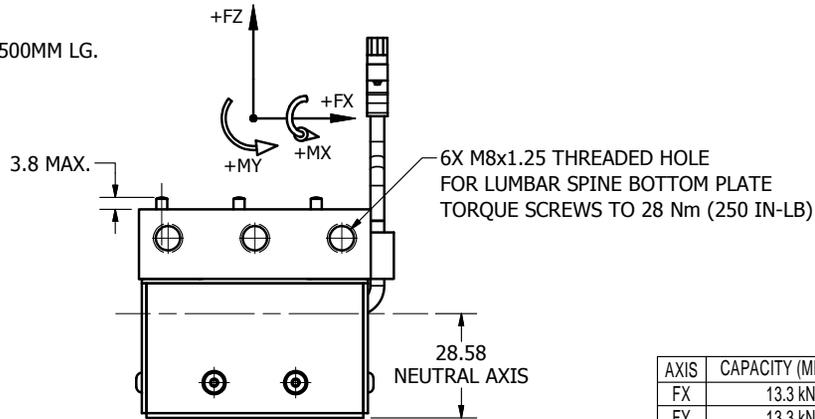
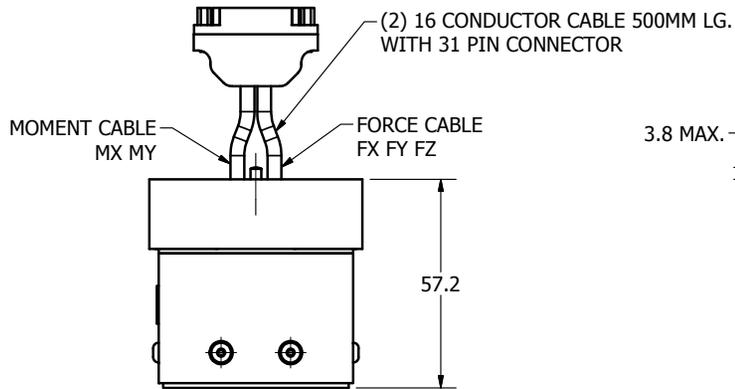
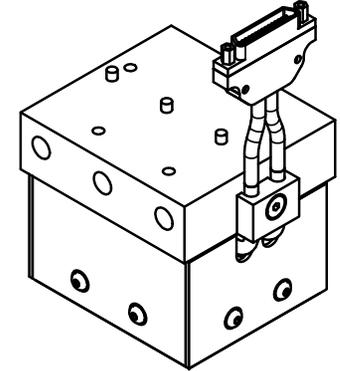
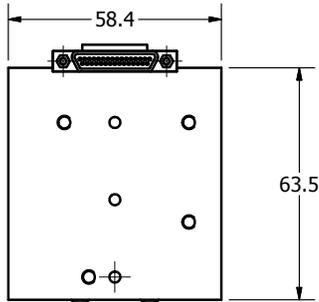
NON-LINEARITY	< 1% OF FULL SCALE
HYSTERESIS	< 1% OF FULL SCALE
CROSSTALK	< 5% OF FULL SCALE
EXCITATION	10 VDC NOMINAL 15 VDC MAX.
POLARITY	CONFORMS TO S.A.E. J-211
MASS	800 GRAMS (1.76 LBS.)

 THIRD ANGLE PROJECTION	TOLERANCES <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	 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
PROJECT NO.: MATERIAL: HEAT TREAT: FINISH:	DRAWN BY: M.FINK CHECKED BY: C TORCHALA ENGINEER: M.FINK DATE: 8/24/2011 DATE: 9/9/2011 DATE: 7/3/12	
NEXT ASSEMBLY QTY TOTAL QTY IN DUMMY 1	REMOVE BURRS & BREAK SHARP EDGES SCALE: 1:1	DESCRIPTION: LOWER NECK LOAD CELL THOR (METRIC) DRAWING NO.: SA572-S111 SHEET: 1 OF 1

NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	DESCRIPTION: LOWER NECK LOAD CELL THOR (METRIC) DRAWING NO.: SA572-S111 SHEET: 1 OF 1 SCALE: 1:1
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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

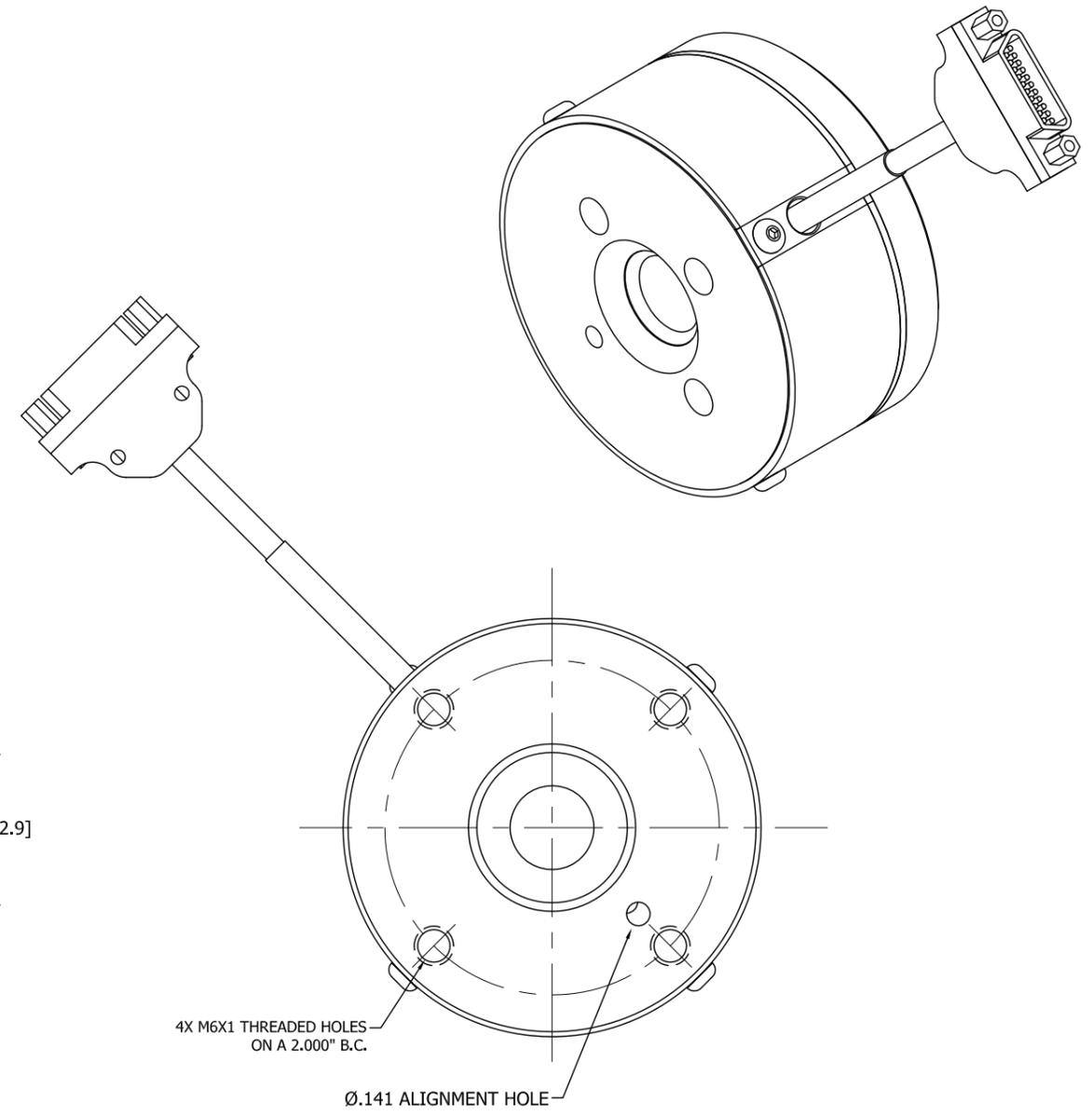
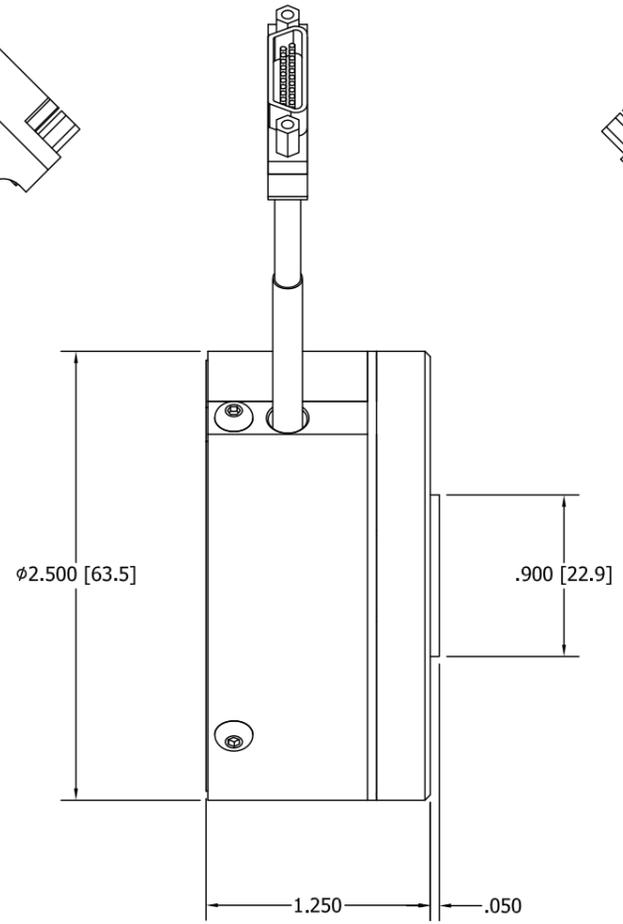
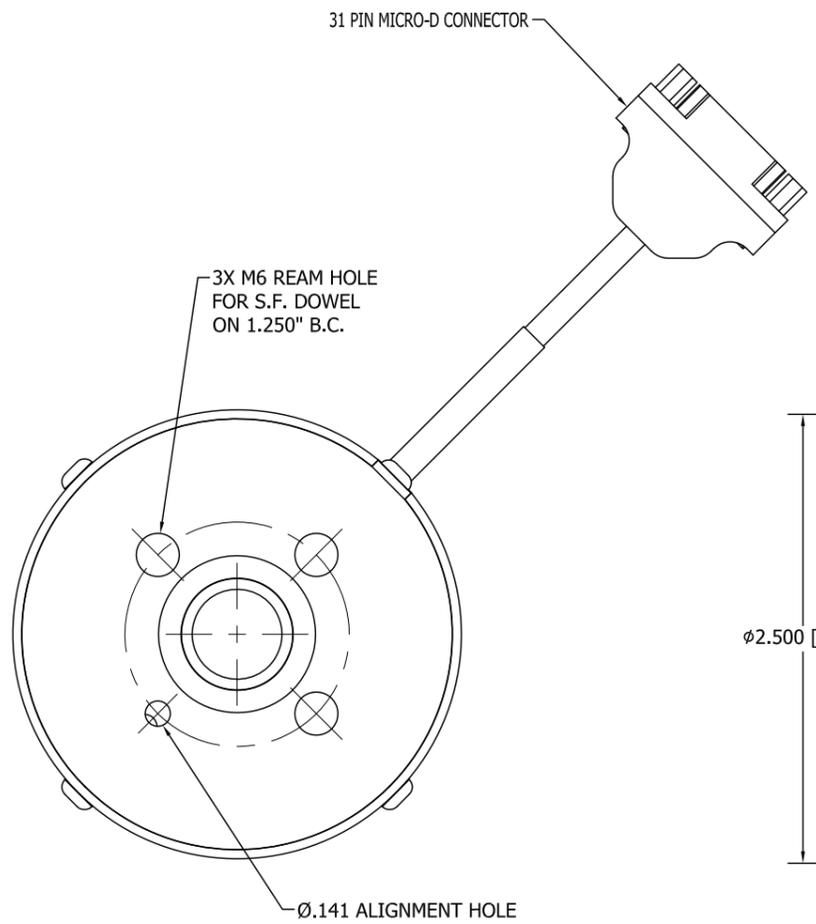
NON-LINEARITY	< 1% OF FULL SCALE
HYSTERESIS	< 1% OF FULL SCALE
CROSSTALK	< 5% OF FULL SCALE
EXCITATION	10 VDC NOMINAL 15 VDC MAX.
POLARITY	CONFORMS TO S.A.E. J-211
MASS	1.03 kg (2.27 LBS) ~ LESS CABLES & CONNECTOR

<p>DO NOT SCALE DRAWING</p>	<p>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>5.XXX ±0.05</p> <p>REMOVE BURRS & BREAK SHARP EDGES</p>	<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p> <p>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>DESCRIPTION:</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	1
TOTAL QTY IN DUMMY	1	1

REVISION HISTORY				
REV.	ZONE	DESCRIPTION	DATE	BY
1			10/19/2007	



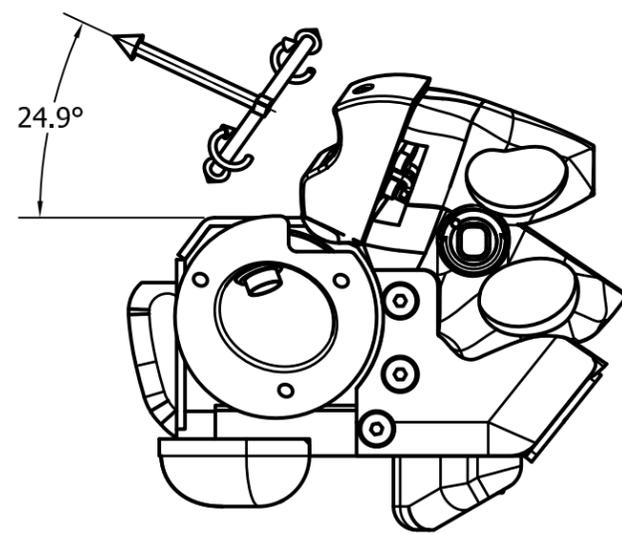
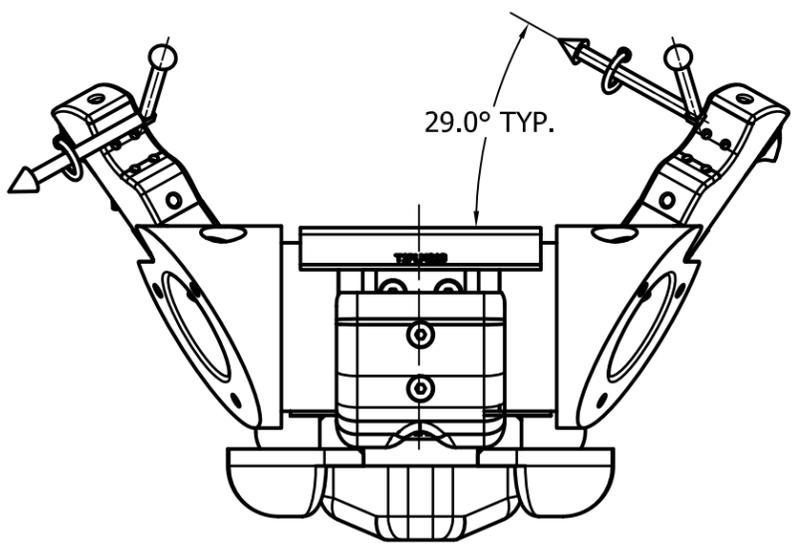
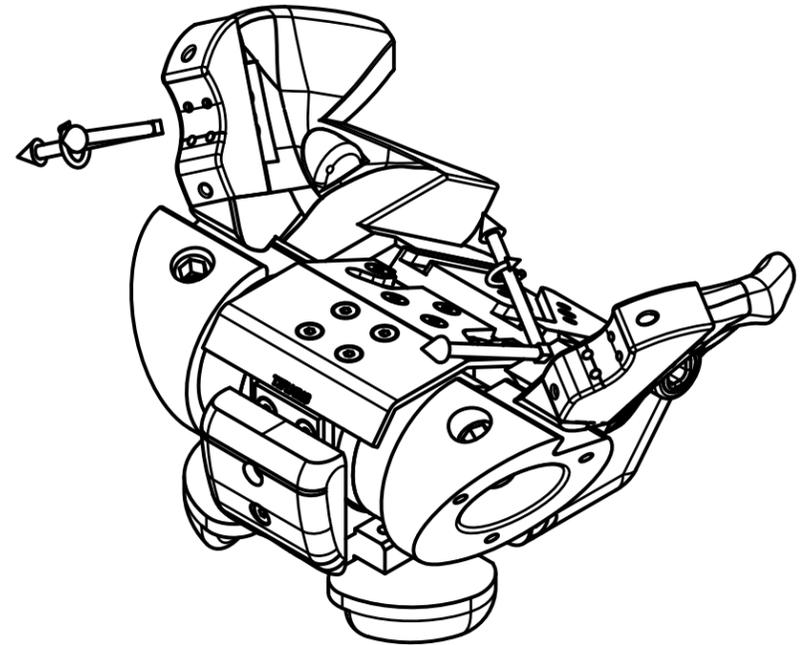
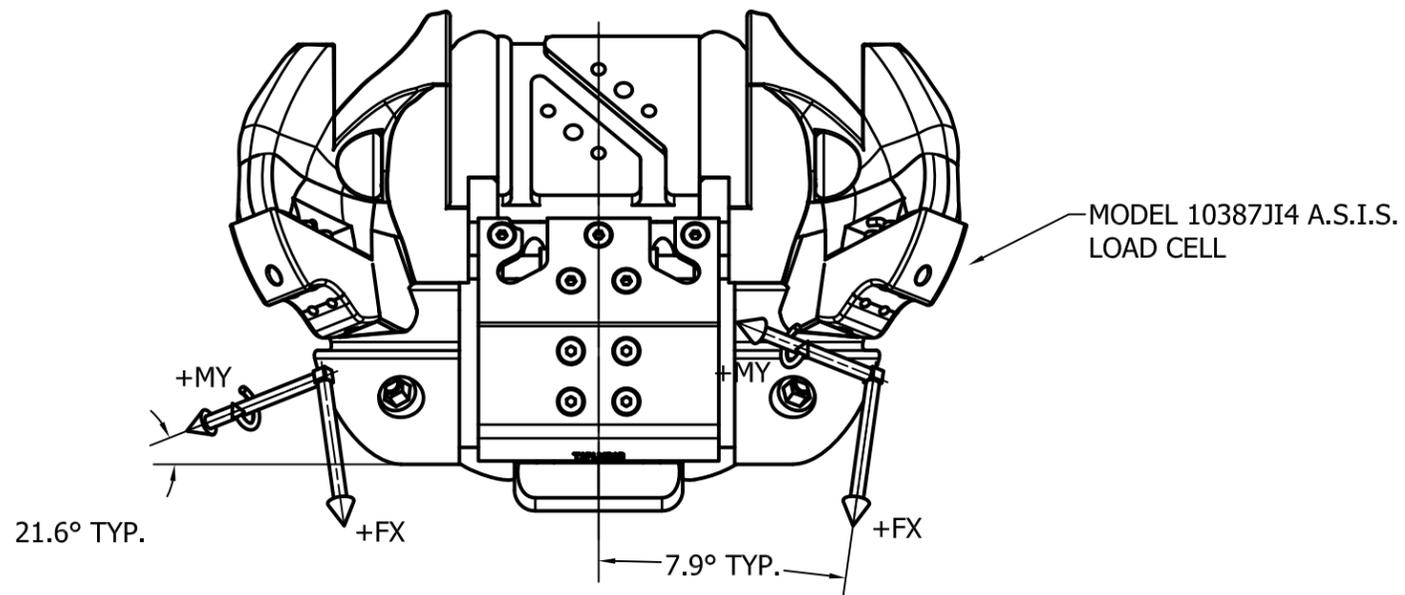
SPECIFICATIONS				
CH.	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTA
FX	22.24 kN	5000 LBF.	2.4 mV/V	350
FY	13.34 kN	3000 LBF.	0.8 mV/V	700
FZ	13.34 kN	3000 LBF.	2.0 mV/V	350
NON-LINEARITY		< 1% OF FULL SCALE		
HYSTERESIS		< 1% OF FULL SCALE		
CROSSTALK		< 5% OF FULL SCALE		
EXCITATION		10 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:	
THIRD ANGLE PROJECTION		CHECKED: M.FINK	DATE: 10/18/11	HEAT TREAT:	
DEBUR AND BREAK ALL SHARP EDGES			QTY./ASSEMBLY:	DRAWING TITLE:	
SCALE:	SIZE:	REVISION:	QTY./DUMMY:	ACETABULUM LOAD CELL ASS'Y, LEFT	
A3		1	1	DRAWING NUMBER: SA572-S128	
				Page:	1 of 1

UNLESS OTHERWISE SPECIFIED:
ALL MACHINED SURFACES 1.60 OR BETTER.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A
B
C
D
E
F
G
H
J
K
L
M



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
 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.:	REMOVE BURRS & BREAK SHARP EDGES	DESCRIPTION:
MATERIAL:	DRAWN BY: M.FINK	DATE: 8/5/2011
HEAT TREAT:	CHECKED BY: CRM	DATE: 8/18/2011
FINISH:	ENGINEER:	DATE:
NEXT ASSEMBLY QTY TOTAL QTY IN DUMMY	SCALE: B 1 of 1	DRAWING NO.: SA572-S119

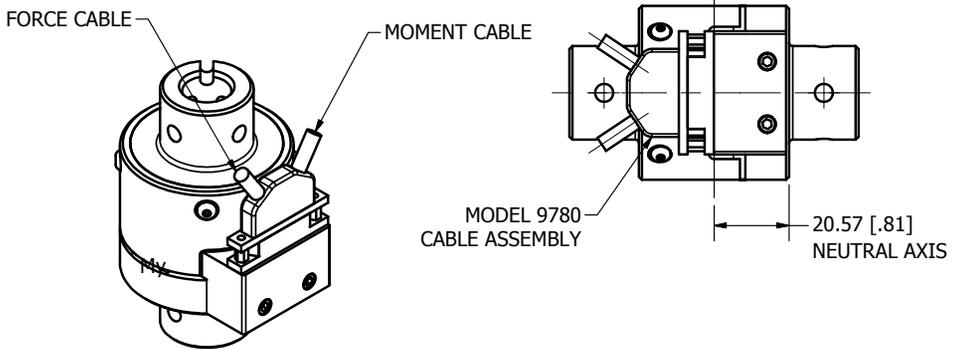
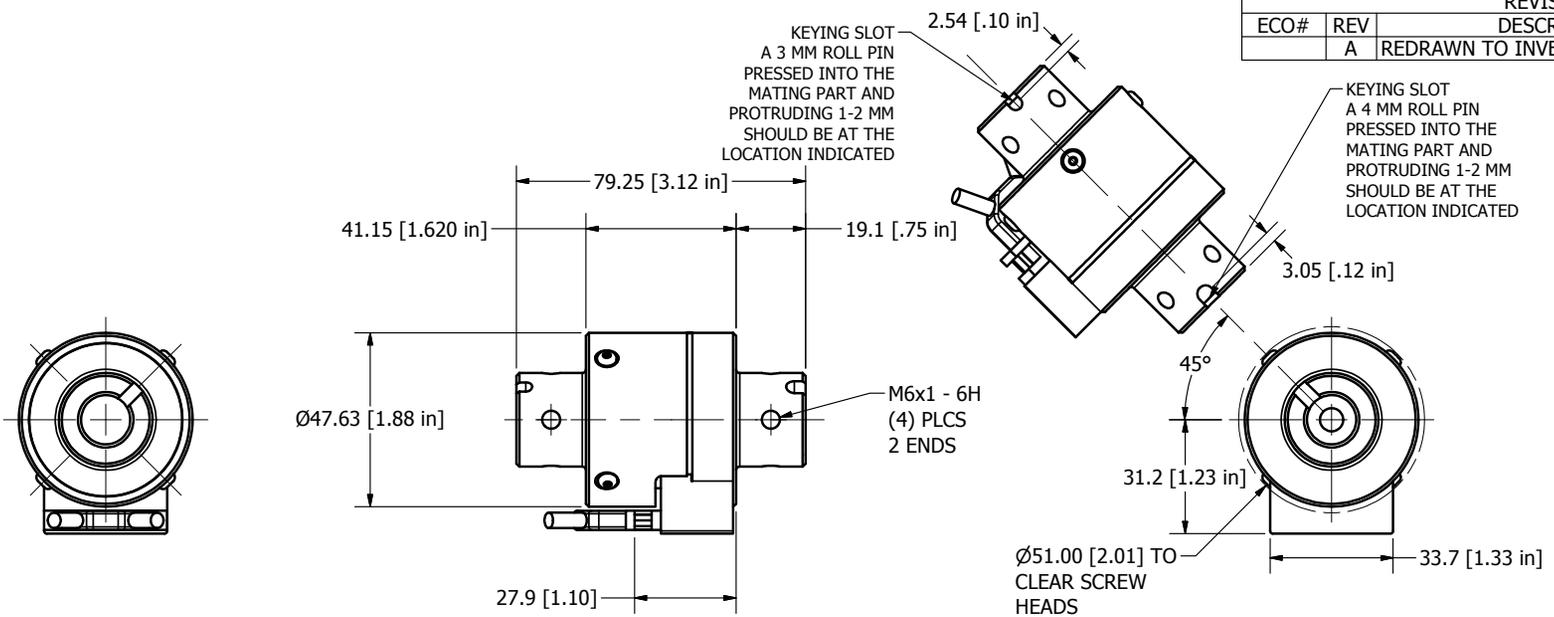
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4 | 3 | 2 | 1

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	1.6	✓	
X.XX ±0.1			
X.XXX ±0.05			
REMOVE BURRS & BREAK SHARP EDGES			
MATERIAL:	DRAWN BY:	DATE:	
	mccormor	7/12/2011	
HEAT TREAT:	CHECKED BY:	DATE:	
FINISH:	ENGINEER:	DATE:	

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

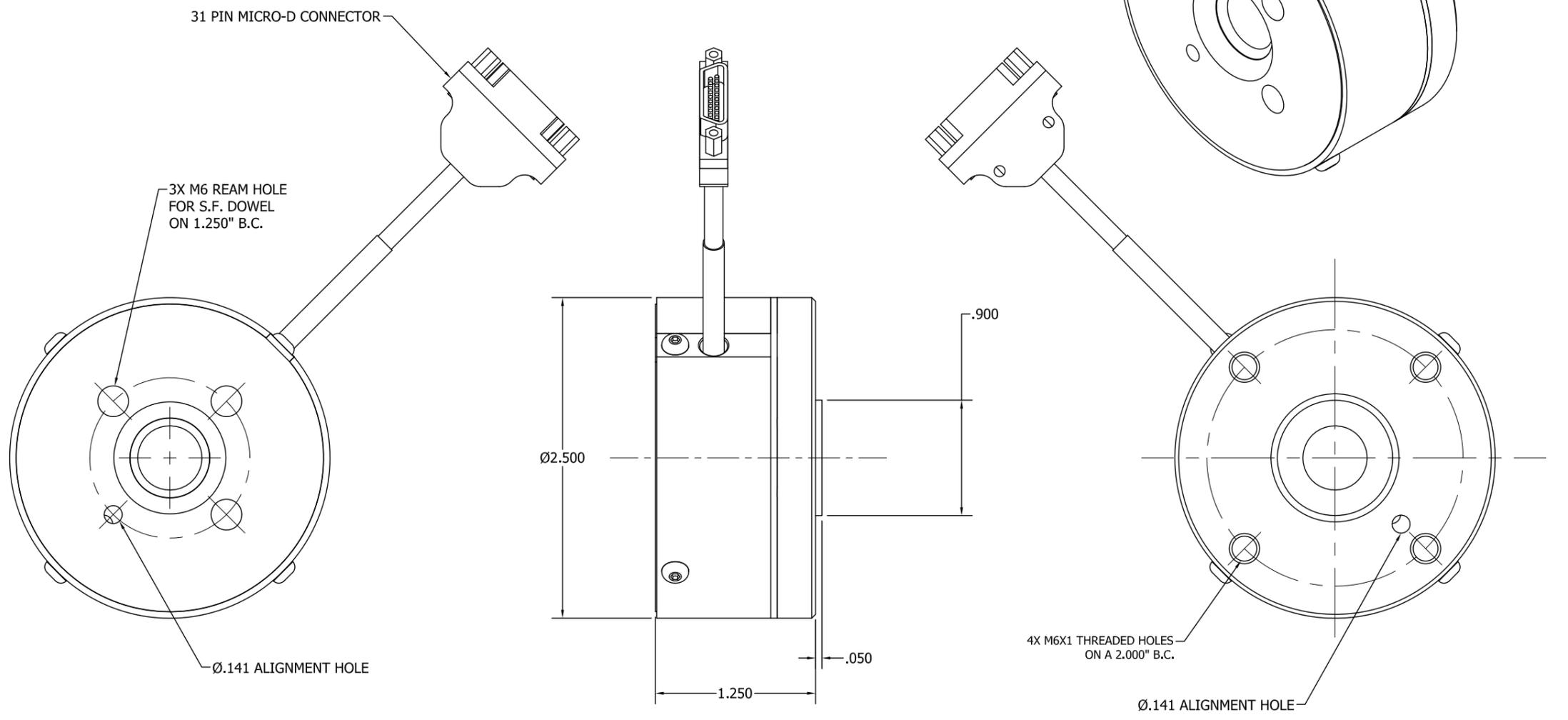
THOR FEMUR LOAD CELL

SIZE: B 1 OF 1
SCALE: .75 : 1

DRAWING NO.: SA572-S120

4 | 3 | 2 | 1

REVISION HISTORY				
REV.	ZONE	DESCRIPTION	DATE	BY
1			10/19/2007	

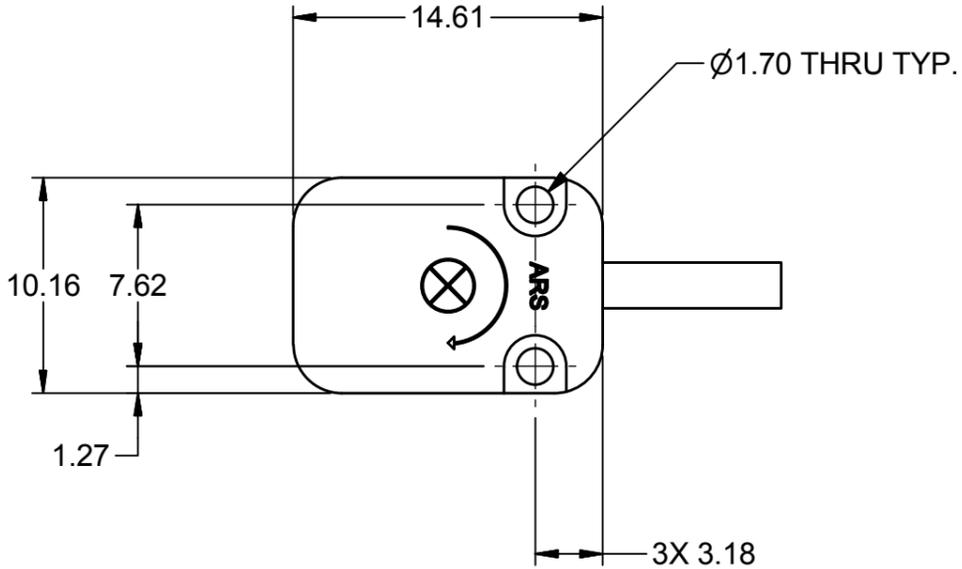
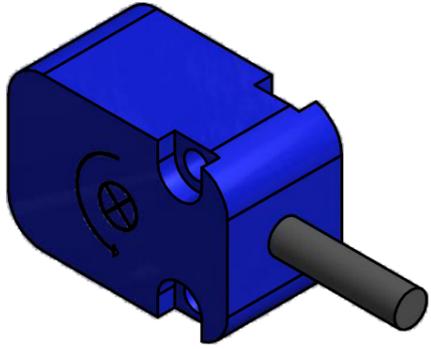


SPECIFICATIONS				
CH.	CAPACITY (METRIC)	CAPACITY (ENGLISH)	OUTPUT	BRIDGE RESISTANCE
FX	22.24 kN	5000 LBF.	2.4 mV/V	350
FY	13.34 kN	3000 LBF.	0.8 mV/V	700
FZ	13.34 kN	3000 LBF.	2.0 mV/V	350
NON-LINEARIT	< 1% OF FULL SCALE			
HYSTERESIS	< 1% OF FULL SCALE			
CROSSTALK	< 5% OF FULL SCALE			
EXCITATION	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 ANGLES ±.5° DECIMALS X ±1 mm X.X ±0.1 mm * DO NOT SCALE DRAWING *	ENGINEERED: L.BENFANT	DATE: 10/18/2011	MATERIAL:	DEPARTMENT OF TRANSPORTATION
	DRAWN: L.BENFANT	DATE: 10/19/2007	FINISH:	
	CHECKED: M.FINK	DATE: 10/19/12	HEAT TREAT:	
	DEBUR AND BREAK ALL SHARP EDGES		QTY./ASSEMBLY:	DRAWING TITLE: ACETABULUM LOAD CELL ASSY, RIGHT
THIRD ANGLE PROJECTION	SCALE:	SIZE: A3	REVISION: 1	QTY./DUMMY: 1
				DRAWING NUMBER: SA572-S129
				Page: 1 of 1

UNLESS OTHERWISE SPECIFIED:
ALL MACHINED SURFACES 1.60 OR BETTER.

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



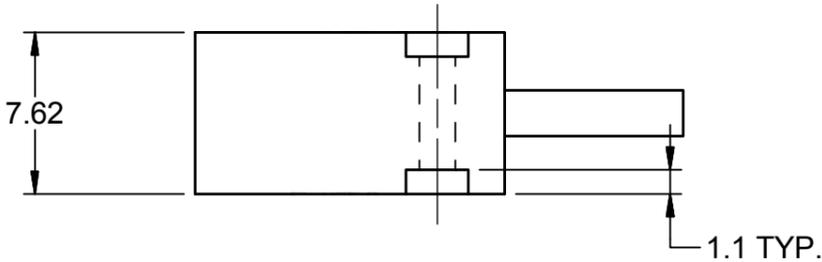
Test Procedure:

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.

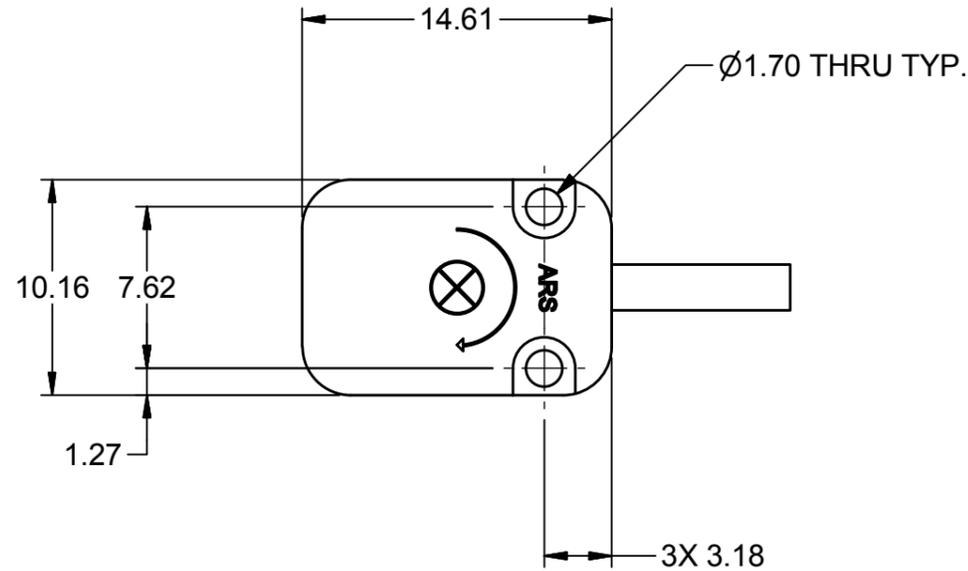
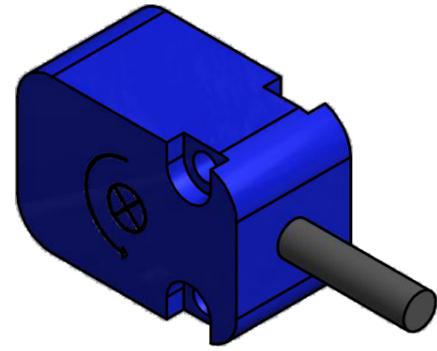


SPECIFICATIONS:

MASS: 3g
 RANGE: ± 1500 DEG/SEC
 BANDWIDTH: 0-1000 Hz (DC RESPONSE)
 NOISE: <0.15% (RMS FULL SCALE)
 EXCITATION: 4.9-14.0 VDC
 CURRENT: 6mA NOMINAL
 ZERO OUTPUT: ± 200 mV
 FULL SCALE OUTPUT: ± 2 V NOMINAL

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	ANGULAR RATE SENSOR-1500	
		DRAWN abarchock	4/30/2013	INSTRUMENTATION	
		CHECKED		SIZE A3	DRAWING NUMBER SA572-S55
		ENG		SCALE: 3:1	REV B
		APPROVED		SHEET 1 OF 1	
		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		5/20/2014



Test Procedure:

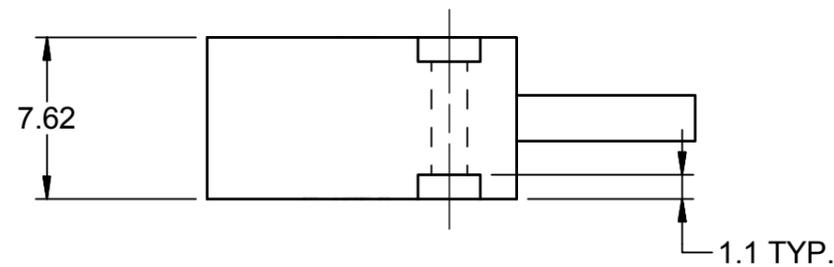
1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.

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.

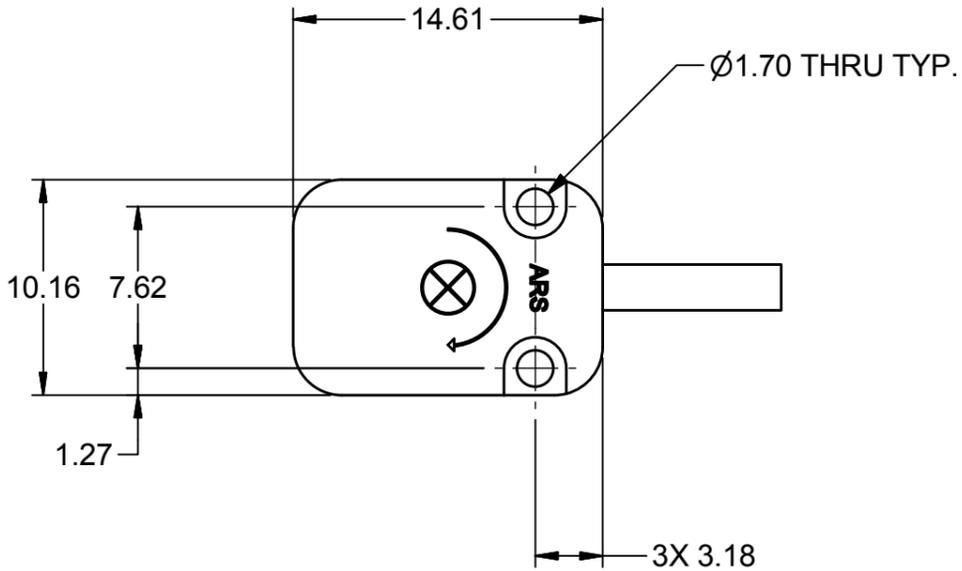
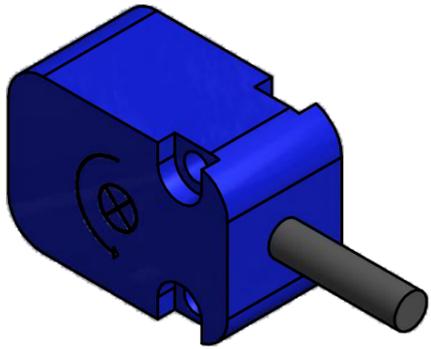


SPECIFICATIONS:

MASS: 3g
 RANGE: ± 8000 DEG/SEC
 BANDWIDTH: 0-300 Hz OR 0-600 Hz (DC RESPONSE)
 NOISE: <0.15% (RMS FULL SCALE)
 EXCITATION: 4.9-14.0 VDC
 CURRENT: 6mA NOMINAL
 ZERO OUTPUT: ± 200 mV
 FULL SCALE OUTPUT: ± 2 V NOMINAL

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-8K	
DRAWN abarchock		5/1/2013		INSTRUMENTATION	
CHECKED				DRAWING NUMBER	
MATERIAL		ENG		SA572-S56	
HEAT TREAT		APPROVED		REV B	
FINISH				SHEET 1 OF 1	
		SCALE: 3:1			

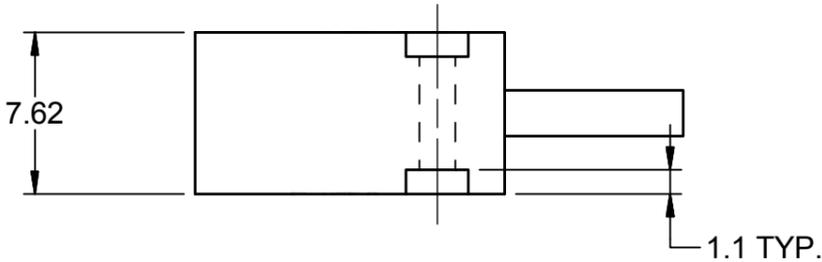
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENG'R.	DATE
	A	RELEASED TO PRODUCTION	AB		04/30/2013
	B	ADDED NHTSA TITLE BLOCK, ADDED AXIS OF ROTATION SYMBOL	DW		5/21/2014



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.

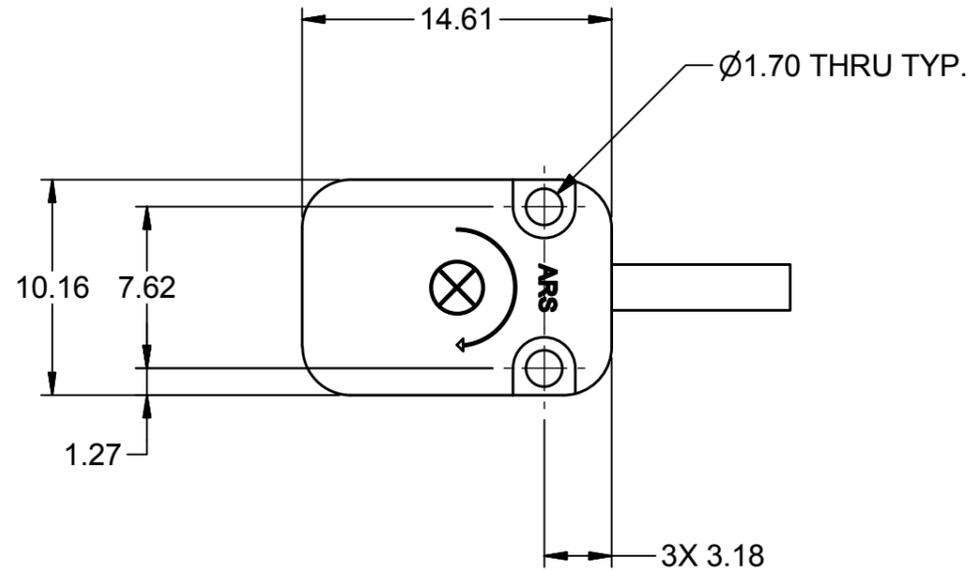
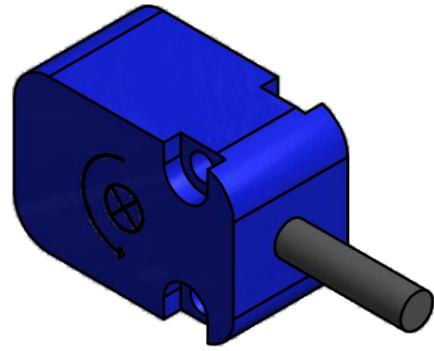


SPECIFICATIONS:

MASS: 3g
 RANGE: ± 12000 DEG/SEC
 BANDWIDTH: 0-1650 Hz (DC RESPONSE)
 NOISE: <0.25% (RMS FULL SCALE)
 EXCITATION: 4.9-14.0 VDC
 CURRENT: 6mA NOMINAL
 ZERO OUTPUT: ± 200 mV
 FULL SCALE OUTPUT: ± 2 V NOMINAL

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		ANGULAR RATE SENSOR-12K	
DRAWN abarchock		5/1/2013		INSTRUMENTATION	
CHECKED				DRAWING NUMBER	
MATERIAL		ENG		SA572-S57	
HEAT TREAT		APPROVED		REV B	
FINISH				SHEET 1 OF 1	
		SCALE: 3:1		SIZE A3	

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



Test Procedure:

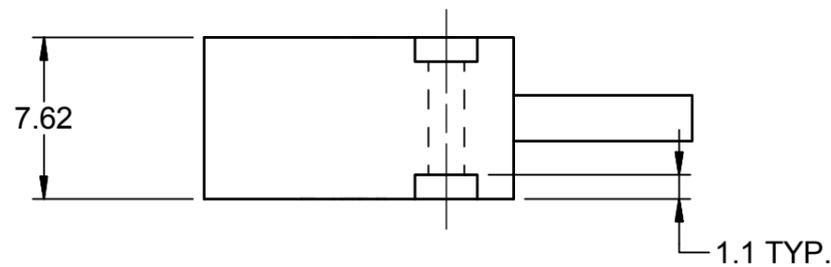
1) Mount the ARS unit to the shock anvil such that the axis of rotation of ARS is parallel to the axis of the imparted shock pulse.

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.

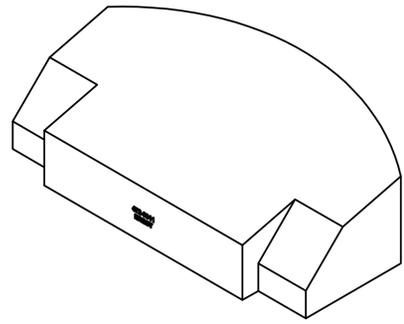


SPECIFICATIONS:

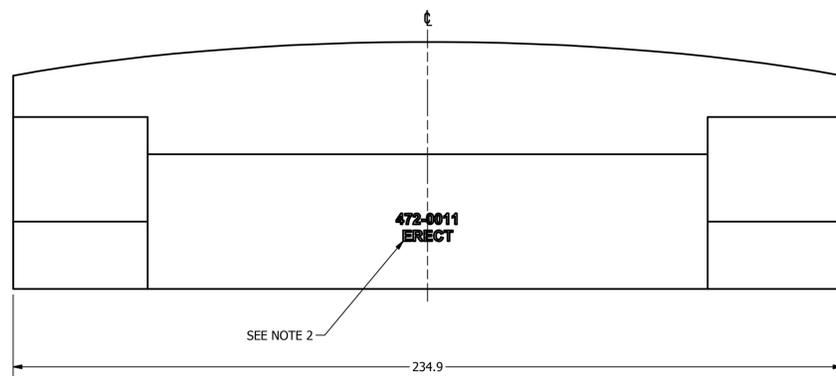
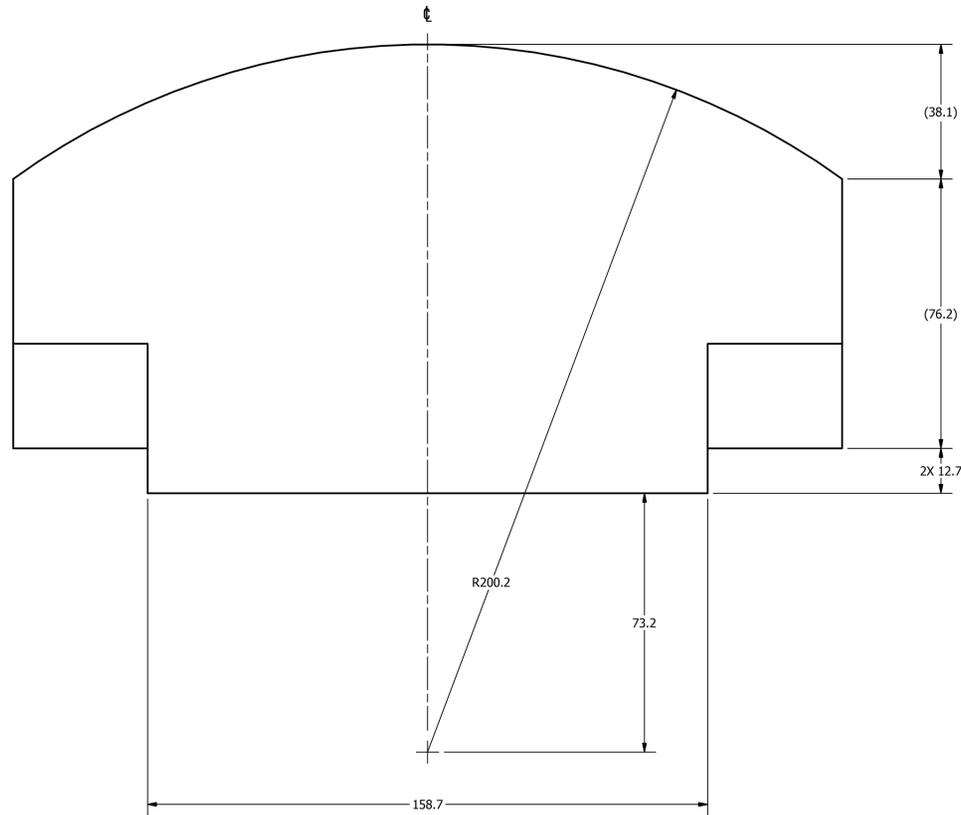
MASS: 3g
 RANGE: ± 18000 DEG/SEC
 BANDWIDTH: 0-300 Hz OR 0-2000 Hz(DC RESPONSE)
 NOISE: $< 1.5\%$ DEG/SEC $\sqrt{\text{Hz}}$
 EXCITATION: 4.9-14.0 VDC
 CURRENT: 6mA NOMINAL
 ZERO OUTPUT: ± 200 mV
 FULL SCALE OUTPUT: ± 2 V NOMINAL

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-18K	
DRAWN abarchock		5/1/2013		INSTRUMENTATION	
CHECKED				DRAWING NUMBER	
MATERIAL		ENG		SA572-S58	
HEAT TREAT		APPROVED		REV B	
FINISH				SHEET 1 OF 1	
		SCALE: 3:1			

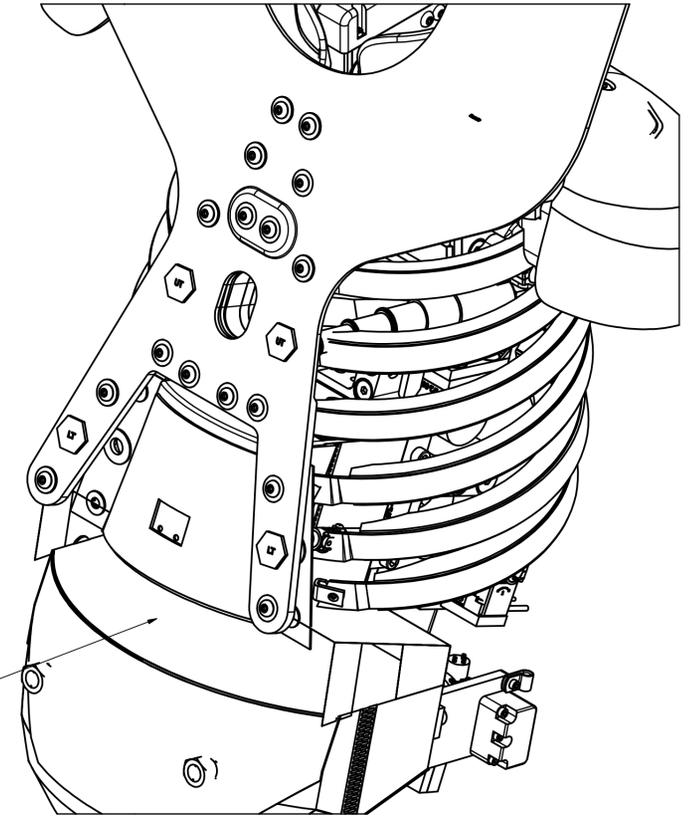
REVISION HISTORY					
ECO#	REV	DESCRIPTION	BY	ENGR.	DATE
70717	A	RENUMBERED FROM T1FDM011 AND CONVERTED TO METRIC FOR THOR M; ADD NOTE 3; REMOVE VENDOR DATA FROM NOTE 1; REDIMENSION ACROSS CL; ADD REFERENCE VIEW	BK	JW	1/28/2013



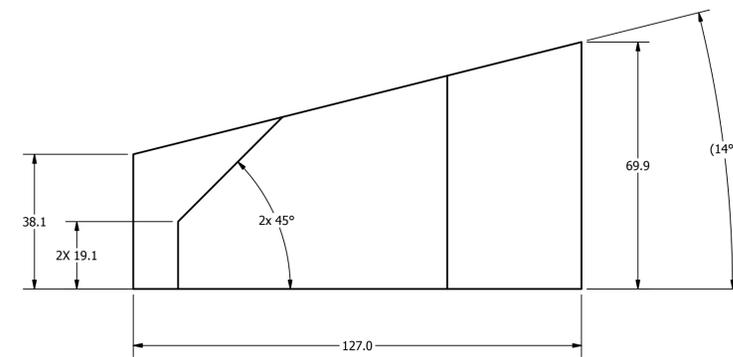
SCALE 1 / 2



472-0011 SLIDES INTO LOWER ABDOMEN POCKET (BETWEEN UPPER AND LOWER ABDOMEN) FOR DUMMY AT ERECT POSITION



FOAM LOCATION REFERENCE VIEW SCALE 1 / 2

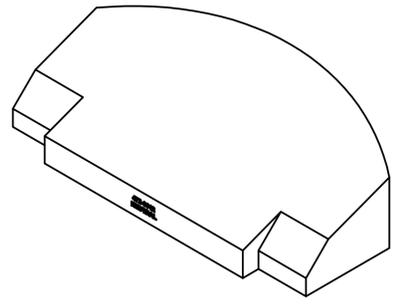


NOTES:

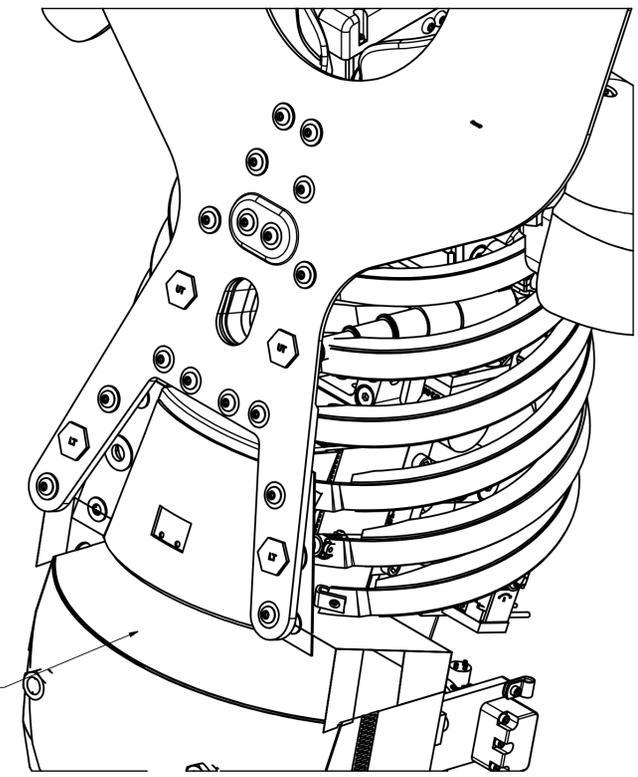
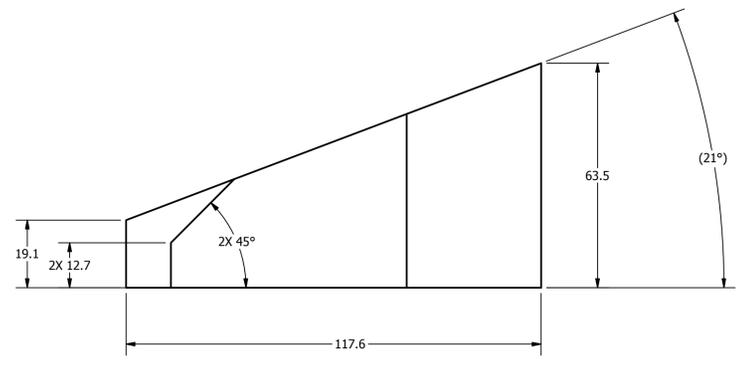
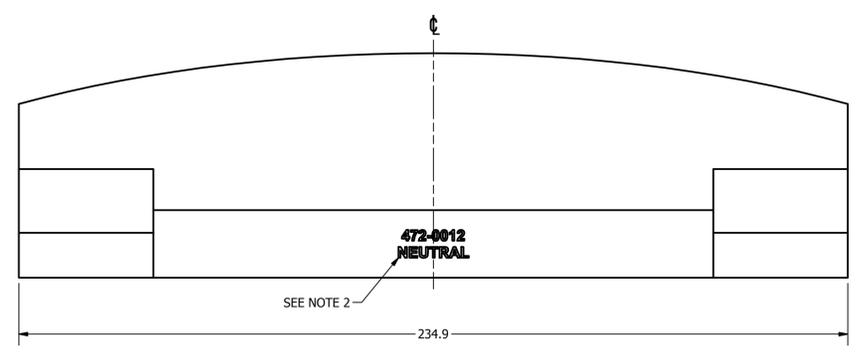
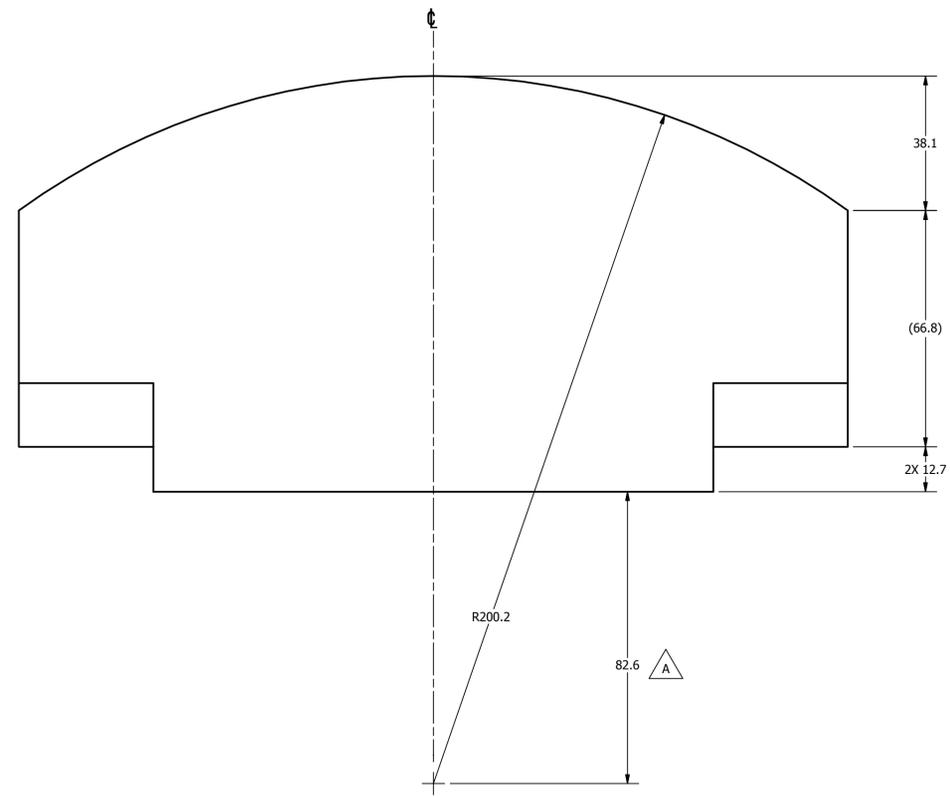
- 1. MATERIAL: 6 LB. CHARCOAL ESTER FOAM.
- 2. MARK PART NUMBER AND "ERECT" WHERE SHOWN.
- 3. FOAM TOLERANCE: ±1mm, UNLESS OTHERWISE NOTED.

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



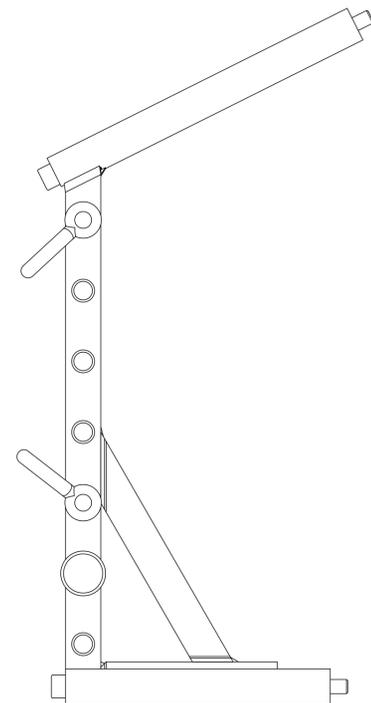
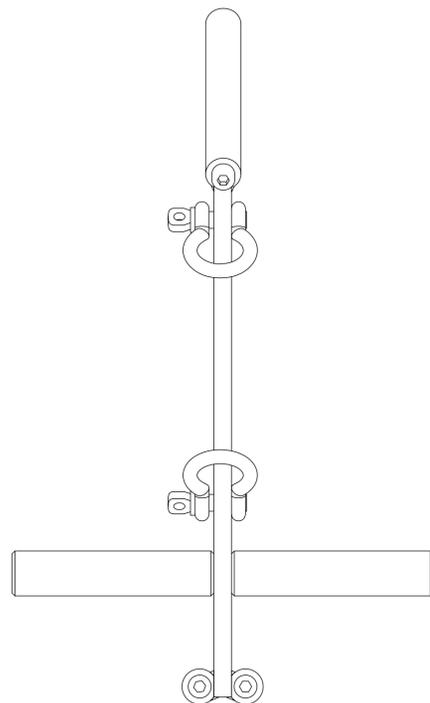
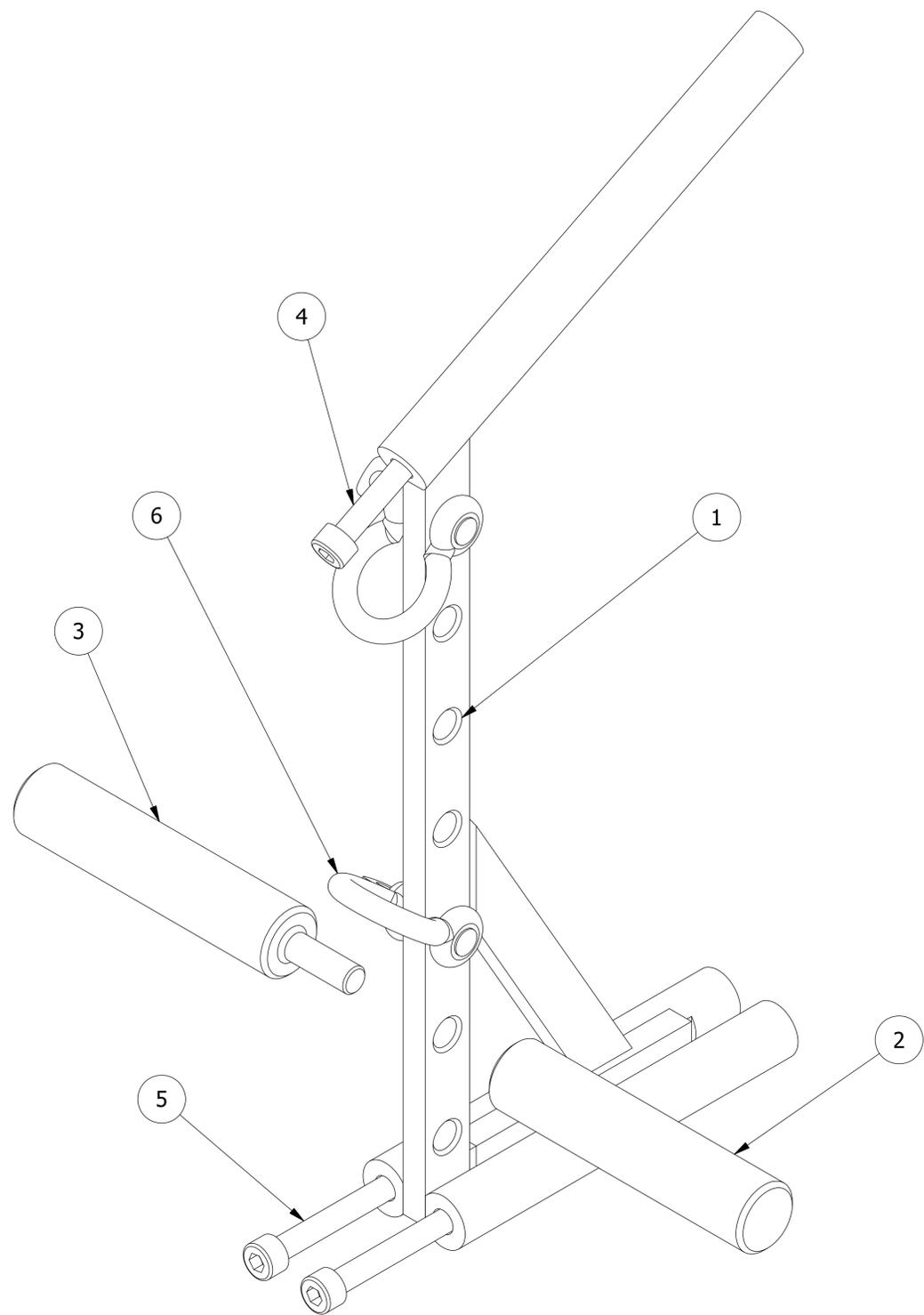
472-0012 SLIDES INTO LOWER ABDOMEN POCKET (BETWEEN UPPER AND LOWER ABDOMEN) FOR DUMMY AT NEUTRAL POSITION

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		SEE NOTES		LOWER ABDOMEN NEUTRAL POSITION FOAM	
DESIGNED BY	DATE	DESIGNED BY	DATE	SCALE	FIG. NO.
B. Kimes	1/28/2013	B. Kimes	1/28/2013	A11	1 OF 1
CHECKED BY	DATE	CHECKED BY	DATE	SCALE	FIG. NO.
J. WANG	2/4/2013	J. WANG	2/4/2013	FULL	472-0012
QTY	1	TOTAL QTY IN DUMMY	1		

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW
	B	MOVED HANDLE POSITIONS	12/16/2011	DW



SCALE 0.5

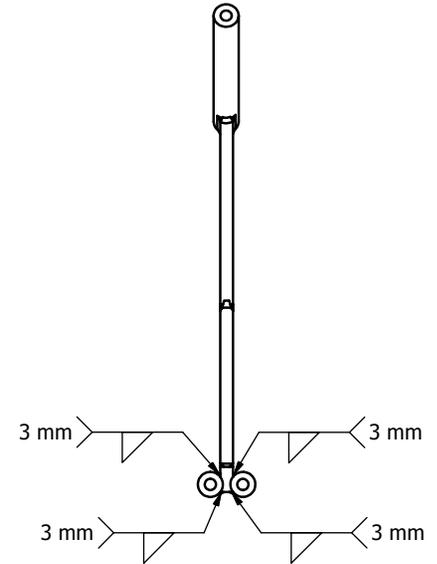
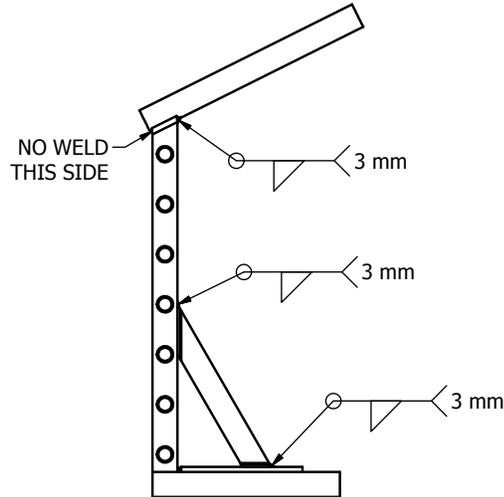
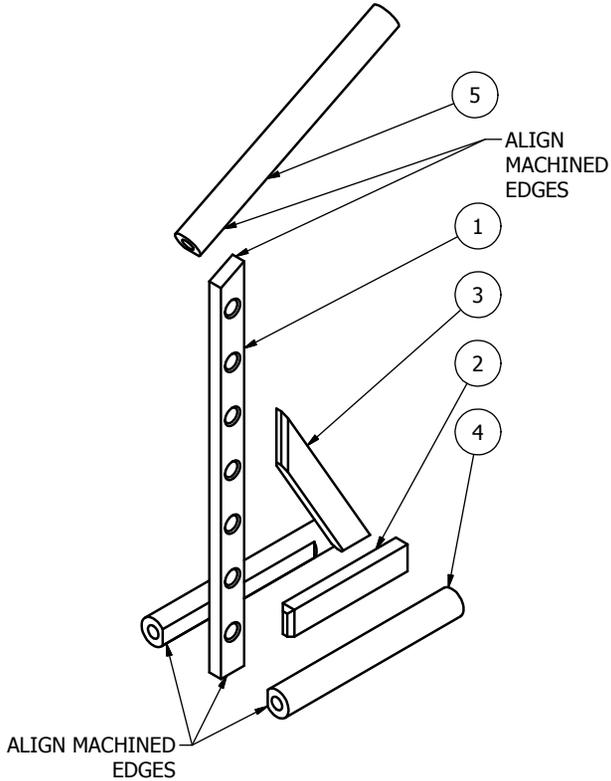
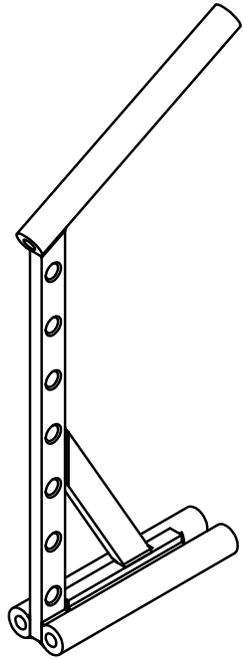
6	2	9002905	SHACKLE, W/ SCREW PIN 3/8"
5	2	5001120	M8 X 1.25 X 160 LG. SHCS
4	1	5001121	M8 X 1.25 X 200 LG. SHCS
3	1	W50-84106	HANDLE, THREADED ROD
2	1	W50-84104	HANDLE, THREADED HOLE
1	1	472-8101	LIFTING BRACKET WELDMENT
ITEM	QTY	PART NUMBER	DESCRIPTION

PARTS LIST

DO NOT SCALE DRAWING		TOLERANCES UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION	
THIRD ANGLE PROJECTION		DECIMALS ANGLES 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: LIFTING BRACKET ASSEMBLY, THOR	
DRAWN BY: dwashenko		DATE: 11/2/2011		SIZE: SHEET A11 of 1	
MATERIAL:		CHECKED BY: BJS		DRAWING NO.:	
HEAT TREAT:		DATE: 2/13/2012		472-8100	
FINISH:		ENGINEER: D. WASHENKO		SCALE: .25 : 1	
DATE: 2/10/2012		DATE: 2/10/2012		REV: B	

NEXT ASSEMBLY	QTY
TOTAL QTY IN DUMMY	1

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	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 PLATE .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

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.X 0.2 X.XX 0.3 X.XXX 0.01 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO.:	DATE:	CHECKED BY:	DATE:	SIZE: SHEET
472-8100	11/2/2011	dwashenko	11/2/2011	A31 OF 1
NEXT ASSEMBLY:	QTY:	DESIGNED BY:	DATE:	SCALE: .33 : 1
TOTAL QTY IN DUMMY:	1	SEE NOTES	11/2/2011	

DESCRIPTION: LIFTING BRACKET WELDMENT

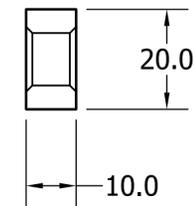
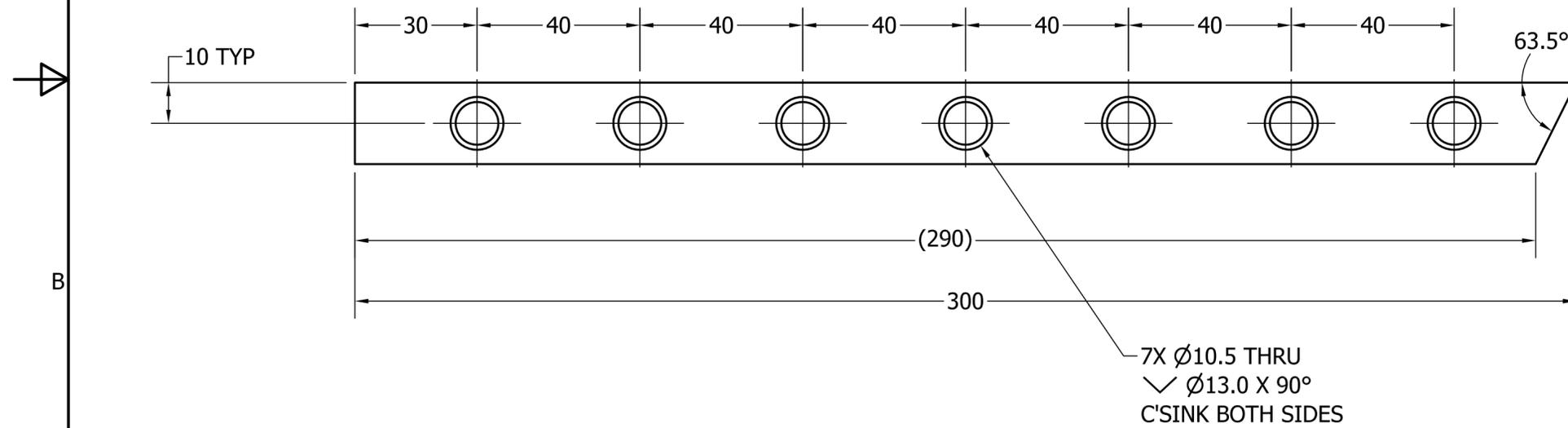
472-8101

REV: A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW

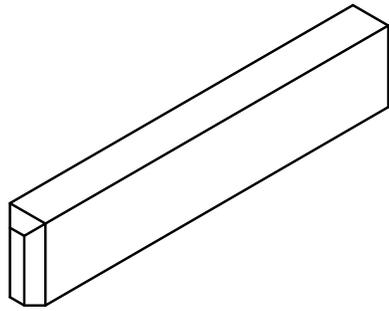


SCALE .250



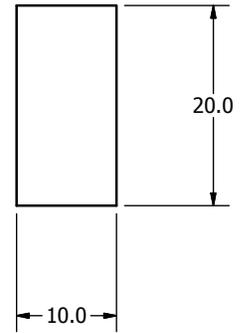
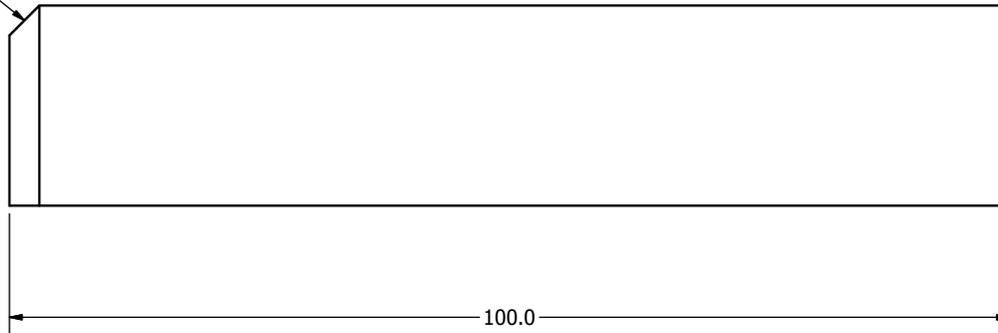
DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		<small>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS</small> DECIMALS ANGLES FINISH X ± 0.5 ± 0.5 1.6 XX ± 0.2 XXX ± 0.1 XXXX ± 0.01		
PROJECT NO:		REMOVE BURRS & BREAK SHARP EDGES	DATE:	DESCRIPTION: MAIN BAR
MATERIAL:	1018 STEEL	DRAWN BY:	dwashenko	
HEAT TREAT:		CHECKED BY:	BJS	DATE:
FINISH:		ENGINEER:	D. WASHENKO	DATE:
472-8101	1	PROJECT NO:		DATE:
NEXT ASSEMBLY	QTY	HEAT TREAT:		DATE:
TOTAL QTY IN DUMMY	1	FINISH:		DATE:
		SIZE:	A21	SHEET
		SCALE:	.75 : 1	OF 1
				DRAWING NO.:
				472-8102
				REV:
				A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW



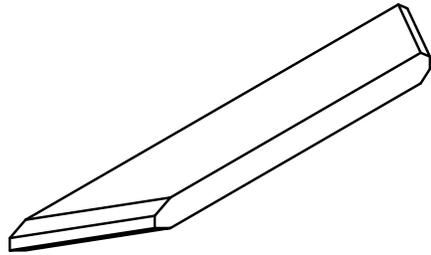
SCALE 1.000

3.0 X 45° Chamfer
3 PLACES

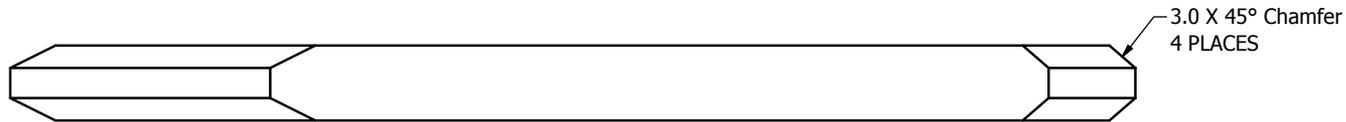
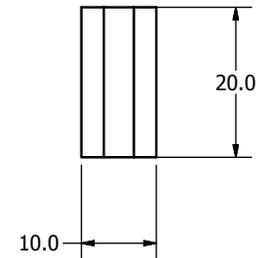
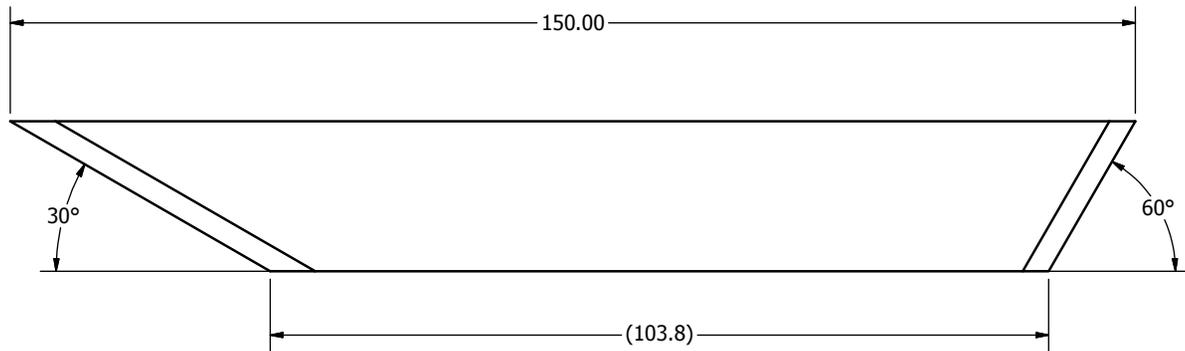


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH 0.05 16 X 0.2 XX 0.3 XXX 0.51 REMOVE BURRS & BREAK SHARP EDGES		
PROJECT NO:	472-8101	MATERIAL:	1018 STEEL	DESCRIPTION:
DESIGNED BY:	dwashenko	DATE:	11/2/2011	LOWER BAR
CHECKED BY:	BJS	DATE:	11/2/2011	SIZE: SHEET
HEAT TREAT:		ENGINEER:	D. WASHENKO	A3 1 OF 1
TOTAL QTY IN DUMMY:	1	FINISH:		SCALE: 2.0 : 1
				DRAWING NO. 472-8103
				REV. A

REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW

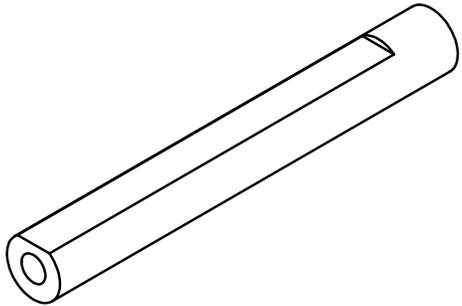


SCALE .750

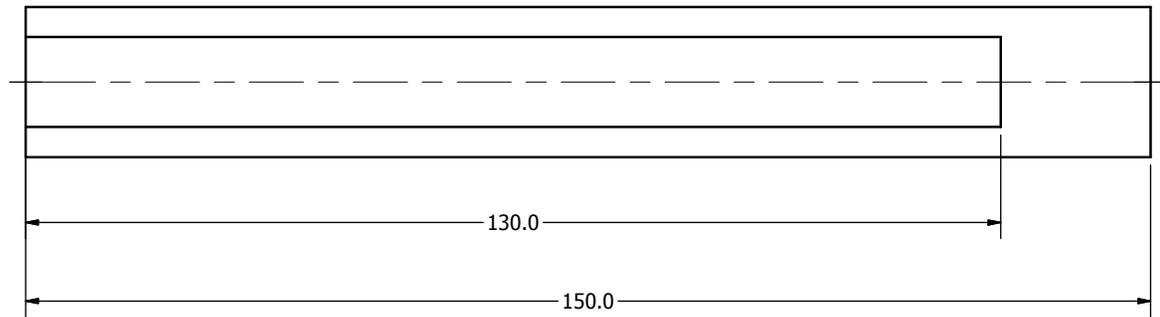
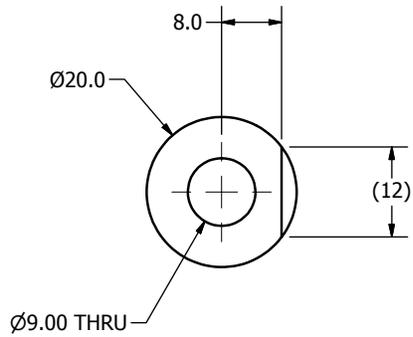


DO NOT SCALE DRAWING		TOLERANCES		 NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS DECIMALS ANGLES FINISH X .05 ± 0.5 16 X.X ± 0.2 ✓ X.XX ± 0.3 X.XXX ± 0.01		
PROJECT NO:	472-8101	MATERIAL:	1018 STEEL	DESCRIPTION:
DESIGNED BY:	dwashenko	HEAT TREAT:		SUPPORT BAR
CHECKED BY:	BJS	DATE:	11/2/2011	SIZE: SHEET
ENGINEER:	D. WASHENKO	DATE:	11/2/2011	A3 1 OF 1
SCALE:	1.5 : 1	DRAWING NO.:	472-8104	REV.:
TOTAL QTY IN DUMMY	1	FINISH:		A

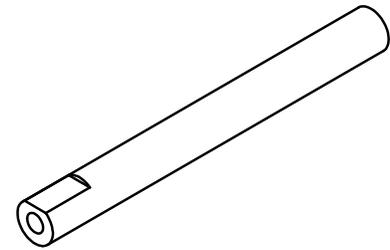
REVISION HISTORY				
ECO#	REV	DESCRIPTION	DATE	BY
	A	RELEASE TO PRODUCTION	11/2/2011	DW



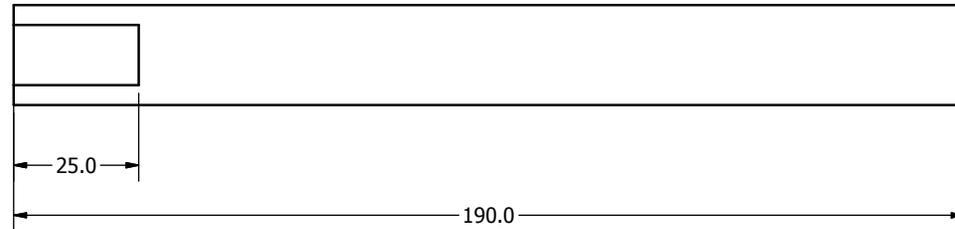
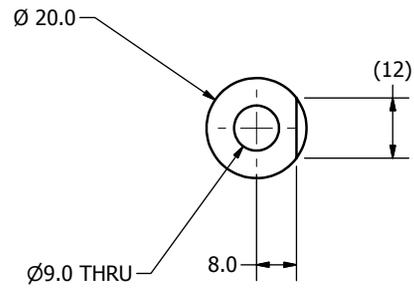
SCALE .750



DO NOT SCALE DRAWING		TOLERANCES			NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION LOWER ROD
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	DESIGNER:	472-8105 A31 OF 1 SCALE: 1.5 : 1
DRIVEN BY:	dwashenko	CHECKED BY:	BJS	DATE:	
DATE:	11/2/2011	DATE:	11/2/2011	DATE:	
HEAT TREAT:		ENGINEER:	D. WASHENKO	DATE:	11/2/2011
FINISH:		QTY:	2	TOTAL QTY IN DUMMY:	2



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 SCALE: 1.0 : 1
DRIVE BY:	dwashenko	CHECKED BY:	BJS	
DATE:	11/2/2011	DATE:	11/2/2011	
HEAT TREAT:		ENGINEER:	D. WASHENKO	SIZE: A3 SHEET: 1 OF 1 DRAWING NO.: 472-8106 REV: A
TOTAL QTY IN DUMMY:	1	FINISH:		

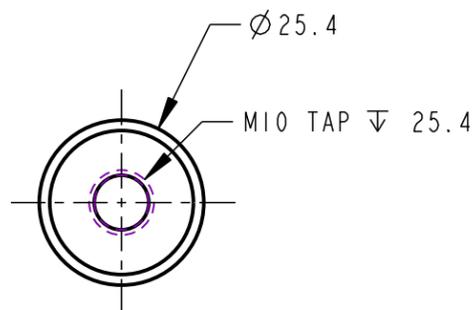
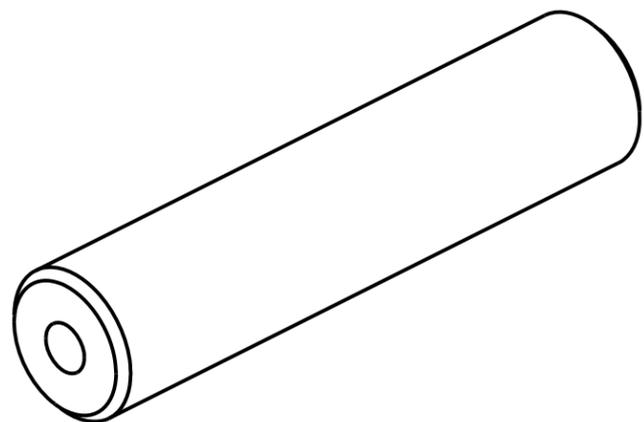
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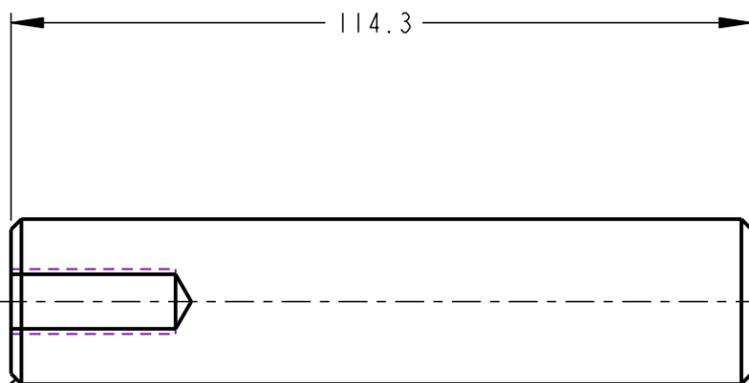
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REVISIONS				
ECO/ECR#	REV.	DESCRIPTION	DATE	CHANGED BY
	A	RELEASE TO PRODUCTION	1/20/03	JS
80027	B	UPDATED TITLE BLOCK FOR MACHINE FINISH	8/9/12	BTH



2X 1.6x45° CHAMF.



NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.

ITEM NO.	QTY	PART NO.	DESCRIPTION
PART LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMALS: ANGLES: MACHINED: X ± 0.5 ±0.5° 1.6 X.X ± 0.1 X.XX ± 0.05 ASME Y14.5M - 1994		STANDARD BUILD LEVEL: NA	
DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION	
MATERIAL CRS 1018		APPROVALS	DATE
HEAT TREAT		J. WANG	09-Aug-12
FINISH NICKEL PLATE		CHECKED	
		PROD. ENG.	
<p>TOTAL QUALITY CHECK</p>		SIZE A3	DWG NO. W50-84104
		SCALE 1.000	REV B
APPLICATION		SHEET	1 OF 1



W50-84100	1	W50-00000
NEXT ASSEMBLY	QTY	USED ON
APPLICATION		



NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

HANDLE, THREADED HOLE

FORMAT: SHEET-A3 REV.: A DOCUMENT 1 OF 2

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D

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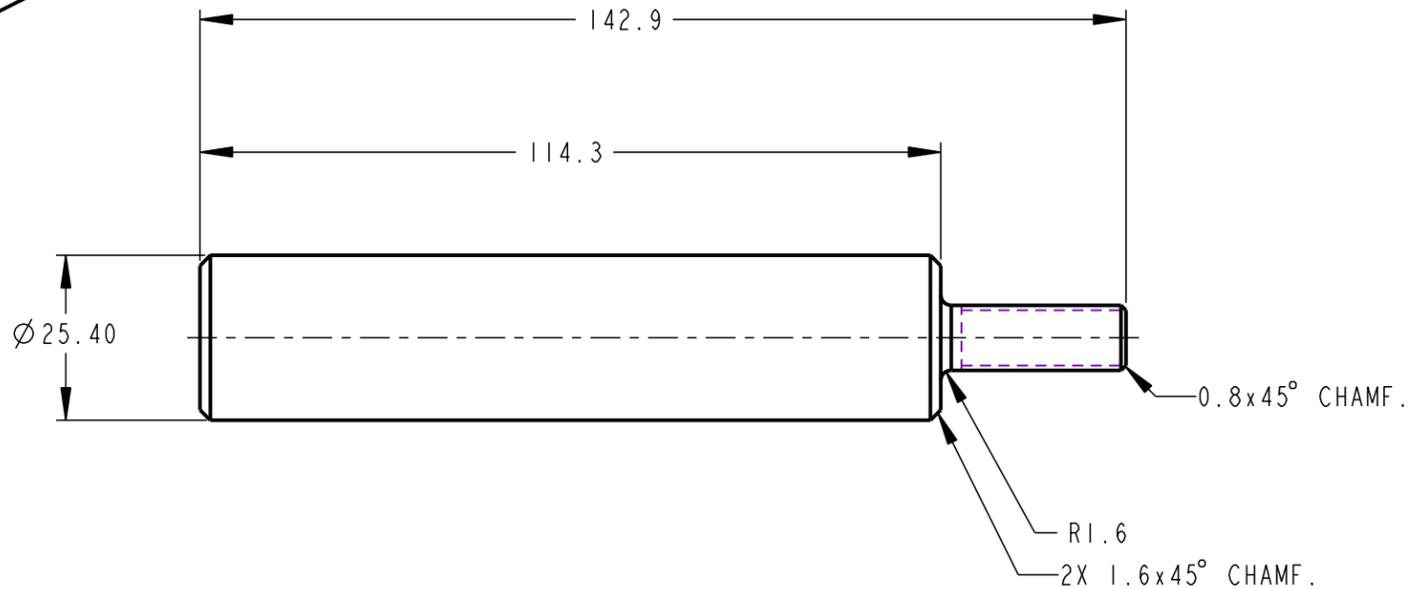
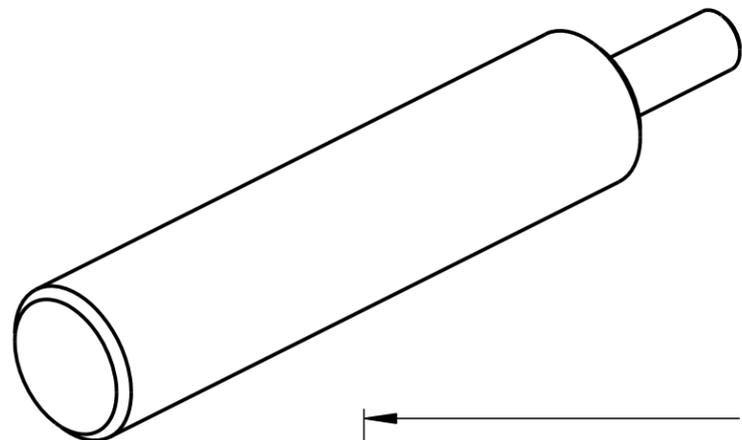
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REVISIONS				
ECO/ECR#	REV.	DESCRIPTION	DATE	CHANGED BY
	A	RELEASE TO PRODUCTION	1/20/03	JS
80027	B	UPDATED TITLE BLOCK FOR MACHINE FINISH	8/9/12	BTH



NOTES:

1. REMOVE BURRS AND BREAK SHARP EDGES.

ITEM NO.	QTY	PART NO.	DESCRIPTION															
PART LIST																		
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS TOLERANCES ARE: DECIMALS: ANGLES: MACHINED: X ± 0.5 ± 0.5° 1.6 X.X ± 0.1 X.XX ± 0.05 ASME Y14.5M - 1994		STANDARD BUILD LEVEL: NA																
DO NOT SCALE DRAWING		THIRD ANGLE PROJECTION																
MATERIAL: CRS 4140/4130		APPROVALS: J. WANG	DATE: 09-Aug-12															
HEAT TREAT:		CHECKED:																
FINISH: NICKEL PLATE		PROD. ENG.:																
<table border="1"> <tr> <td>W50-84100</td> <td>1</td> <td>W50-00000</td> </tr> <tr> <td>NEXT ASSEMBLY</td> <td>QTY</td> <td>USED ON</td> </tr> <tr> <td colspan="3" style="text-align: center;">APPLICATION</td> </tr> </table>		W50-84100	1	W50-00000	NEXT ASSEMBLY	QTY	USED ON	APPLICATION			<table border="1"> <tr> <td>SIZE: A3</td> <td>DWG NO.: W50-84106</td> <td>REV: B</td> </tr> <tr> <td>SCALE: 1.000</td> <td colspan="2">SHEET 1 OF 1</td> </tr> </table>		SIZE: A3	DWG NO.: W50-84106	REV: B	SCALE: 1.000	SHEET 1 OF 1	
W50-84100	1	W50-00000																
NEXT ASSEMBLY	QTY	USED ON																
APPLICATION																		
SIZE: A3	DWG NO.: W50-84106	REV: B																
SCALE: 1.000	SHEET 1 OF 1																	
<p>TOTAL QUALITY CHECK</p>		<p>NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION</p> <p>HANDLE, THREADED ROD</p>																

FORMAT: SHEET-A3 REV.: A DOCUMENT 1 OF 2

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