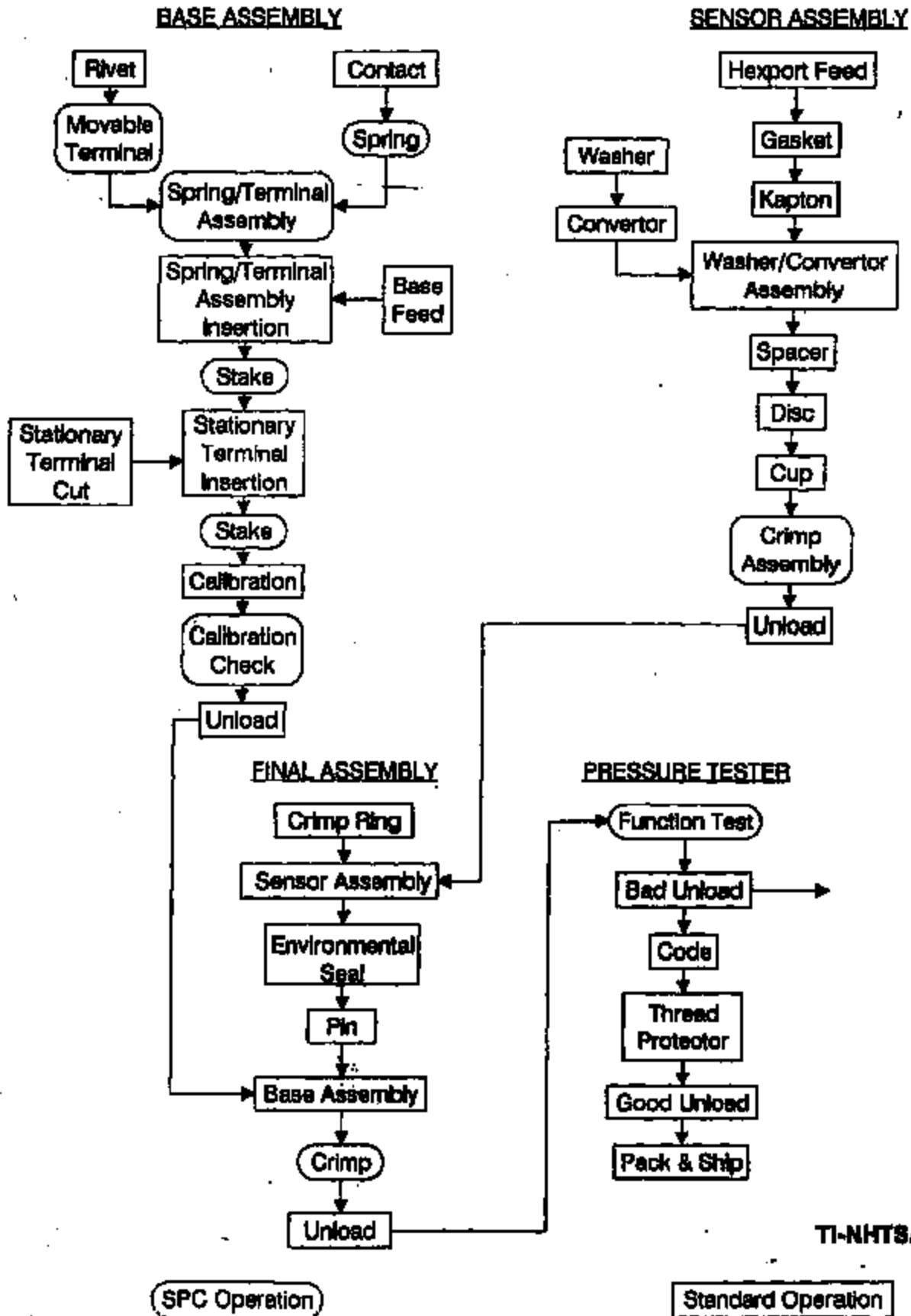




TI-NHTSA 002780

FORD NEXT GENERATION SPEED CONTROL

PROCESS FLOW CHART 77PSL2-1/2-3



TI-NHTSA 002791

MD 05/22/91

FORD NEXT GENERATION SPEED CONTROL (77PS) MANUFACTURING CONTROL PLAN

<u>PROCESS STEP DESCRIPTION</u>	<u>PRODUCT CHARACTERISTICS</u>	<u>EVALUATION METHOD</u>	<u>CONTROL METHOD</u>	<u>FREQUENCY OF TEST</u>	<u>REACTION PLAN</u>
BASE ASSEMBLY (AMI AUTOMATION)	TERMINAL HEIGHT	DIAL INDICATOR	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	TERMINAL PUSHOUT	FORCE GAGE/ DIAL INDICATOR	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	TERMINAL SEPERATION/ ALIGNMENT	PLUG GAGE	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	SPRING CONTACT WIDTH	CALIPERS	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	SPRING TORQUE	FORCE GAGE	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	SPRING BUMP HEIGHT	DIAL INDICATOR	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	RIVET HEIGHT	DIAL INDICATOR	X/R	5Pc/ Hr.	SORT SINCE LAST CHECK
	CALIBRATION DEFORMATION	CUSTOM CONTINUITY SYSTEM	X/R	6pc/ Hr.	SORT SINCE LAST CHECK
	VISUAL QUALITY	VISUAL	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	CRIMP DIAMETER	CALIPERS	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
SENSOR ASSEMBLY	CRIMP HEIGHT	CALIPERS	X/R	5pc/ Hr.	SORT SINCE LAST CHECK
	VISUAL QUALITY	VISUAL	P	5pc/ Hr.	SORT SINCE LAST CHECK

24 September 1991 MJB/cnr 055-0134

TI-NHTSA 002792

FORD NEXT GENERATION SPEED CONTROL (77PS) MANUFACTURING CONTROL PLAN

PROCESS STEP DESCRIPTION	PRODUCT CHARACTERISTICS	EVALUATION METHOD	CONTROL METHOD	FREQUENCY OF TEST	REACTION PLAN
FINAL ASSEMBLY (AMI AUTOMATION)	CRIMP DIAMETER	CALIPER	X/ R	5pc/ Hr.	SORT SINCE LAST CHECK
	CRIMP HEIGHT	CALIPER	X/ R	5pc/ Hr.	SORT SINCE LAST CHECK
	BASE TORQUE	TORQUE GAGE	X/ R	5pc/ Hr.	SORT SINCE LAST CHECK
FUNCTION TESTER (CUSTOM)	ACTUATION/ RELEASE POINTS	MASTERS	X/ R	EACH SHIFT	TOOL ROOM / ENGINEERING EVALUATIONS
	ACTUATION/ RELEASE POINTS	RAMP THROUGH PRESSURE RANGE	X/ R	100%	YIELD TRACKING/ SCRAP CONTROL
Q.C. AUDITS	FUNCTION TESTING DURABILITY TESTING ELEVATED TEMP TESTING ENVELOP DIMENSIONAL CHECKS				

24 September 1991 MLJ/car 080-0134

TL-NHTSA 002793

TI-NHTSA 002794

GM GAGE STUDY FOR REPEATABILITY AND REPRODUCIBILITY (LONG METHOD)
 24-Sep-91
 7PS PRESSURE TEST
 SITUATION

NUMBER OF OPERATORS	3	MIN SPEC	90
NUMBER OF PARTS	4	MAX SPEC	160
NUMBER OF TRIALS	2	TOLERANCE	70

DATA SUMMARY

OPERATOR	AVERAGE	RANGE
1	114.7875	1.025
2	113.9375	0.775
3	113.025	0.45
4	NA	NA
5	NA	NA
6	NA	NA
7	NA	NA
8	NA	NA
9	NA	NA
10	NA	NA
AVERAGE	113.9166	0.75

MIN XBAR 113.025
 MAX XBAR 114.7875
 BARDIFF 1.7625

	MEASUREMENT UNIT ANALYSIS	%TOLERANCE
REPEATABILITY:	3.424202	4.89%
REPRODUCIBILITY:	4.595500	6.57%
RPT & REPR (R&R):	5.730949	8.19%

NOTE: ALL CALCULATIONS BASED ON 3.15 SIGMA (99%)

ENTER STUDY TITLES IN CELLS A8,A9,A10, MIN/MAX SPEC IN B12, B13
 7PS PRESSURE TEST
 ACTUATION

MIN SPEC : 90
 MAX SPEC : 160
 TOLERANCE : 70

DATA FOR OPERATOR 1

PART	1	2	TRIAL 3	4	5	AVG	RANGE
1	120.8	121.6				121.2	0.8
2	123.8	123.5				123.65	0.3
3	107.9	106.4				107.15	1.5
4	107.9	106.4				107.15	1.5
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 114.7875 AVG RANGE: 1.025
 UCL FOR INDIVIDUAL RANGES: 2.45025

DATA FOR OPERATOR 2

PART	1	2	TRIAL 3	4	5	AVG	RANGE
1	120.1	120.9				120.5	0.8
2	122.2	122.9				122.55	0.7
3	107	107.5				107.25	0.5
4	106	104.9				105.45	1.1
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 113.9375

AVG RNGE: 0.775

UCL FOR INDIVIDUAL RANGES

2.45025

DATA FOR OPERATOR 3

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	121.9	123				122.45	1.1
2	118.1	117.8				117.95	0.3
3	107	106.8				106.9	0.2
4	104.9	104.7				104.8	0.2
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 113.025

AVG RANGE: 0.45

UCL FOR INDIVIDUAL RANGES 2.45025

GM GAGE STUDY FOR REPEATABILITY AND REPRODUCIBILITY (LOND METHOD)
 24-Sep-91
 77PB PRESSURE TEST
 RELEASE

NUMBER OF OPERATORS 3
 NUMBER OF PARTS 4
 NUMBER OF TRIALS 2

MIN SPEC 20
 MAX SPEC 160
 TOLERANCE 140

DATA SUMMARY

OPERATOR	AVERAGE	RANGE
1	47.725	0.4
2	46.4875	0.475
3	46.9625	0.425
4	NA	NA
5	NA	NA
6	NA	NA
7	NA	NA
8	NA	NA
9	NA	NA
10	NA	NA
AVERAGE	47.05833	0.433333

MIN XBAR 46.4875
 MAX XBAR 47.725
 XBAR DIFF 1.2375

	MEASUREMENT UNIT ANALYSIS	%TOLERANCE
REPEATABILITY:	1.978427	1.41%
REPRODUCIBILITY:	3.262574	2.33%
RPT & REPR (R&R):	3.815369	2.73%

NOTE: ALL CALCULATIONS BASED ON 3.15 SIGMA (99%)

ENTER STUDY TITLES IN CELLS A8,A9,A10, MIN/MAX SPEC IN B12, B13
 77PS PRESSURE TEST
 RELEASE

MIN SPEC 20
 MAX SPEC 160
 TOLERANCE 140

DATA FOR OPERATOR 1

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	44.1	43.6				43.85	0.5
2	57.8	57.6				57.7	0.2
3	44	44.2				44.1	0.2
4	45.6	44.9				45.25	0.7
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 47.725

UCL FOR INDIVIDUAL RANGES

AVG RND: 0.4

1.4157

DATA FOR OPERATOR 2

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	43.4	43.7				43.55	0.3
2	56	54.9				55.45	1.1
3	43.1	42.9				43	0.2
4	44.1	43.8				43.95	0.3
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 44.4875

AVG RANGE: 0.475

UCL FOR INDIVIDUAL RANGES

1.4157

TI-NHTSA 002801

DATA FOR OPERATOR 3

PART	1	2	TRIAL 3	4	5	AVG	RANGE
1	43.2	43				43.1	0.2
2	56	57.1				57.55	0.9
3	43.6	43.1				43.35	0.5
4	43.8	43.9				43.85	0.1
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 46.9625

AVG RANGE: 0.425

UCL FOR INDIVIDUAL RANGES

1.4157

GM GAGE STUDY FOR REPEATABILITY AND REPRODUCIBILITY (LONG METHOD)

24-Sep-91

DIAL INDICATOR #14508

MOVEABLE TERMINAL

NUMBER OF OPERATORS	2	MIN SPEC	0.459
NUMBER OF PARTS	10	MAX SPEC	0.479
NUMBER OF TRIALS	2	TOLERANCE	0.2

DATA SUMMARY

OPERATOR	AVERAGE	RANGE
1	0.46925	0.0003
2	0.46925	0.0003
3	NA	NA
4	NA	NA
5	NA	NA
6	NA	NA
7	NA	NA
8	NA	NA
9	NA	NA
10	NA	NA

AVERAGE	0.46925	0.0003
---------	---------	--------

MIN XBAR	0.46925
MAX XBAR	0.46925
XBAR DIFF	0

	MEASUREMENT UNIT ANALYSIS	%TOLERANCE
REPEATABILITY:	0.001369	0.68%
REPRODUCIBILITY:	0	0.00%
RPT & REPR (R&R):	0.001369	0.68%

NOTE: ALL CALCULATIONS BASED ON 5.15 SIGMA (99%)

*Note: Same fixturing / dial indicator
used for Stationary Terminal.*

DATA FOR OPERATOR 2

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	0.469	0.469				0.469	0
2	0.467	0.468				0.4675	0.001
3	0.469	0.469				0.469	0
4	0.469	0.469				0.469	0
5	0.47	0.469				0.4695	0.001
6	0.469	0.469				0.469	0
7	0.47	0.47				0.47	0
8	0.469	0.47				0.4695	0.001
9	0.471	0.471				0.471	0
10	0.469	0.469				0.469	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 0.46925 AVG RANGE: 0.0003
 UCL FOR INDIVIDUAL RANGES 0.000980

ENTER STUDY TITLES IN CELLS A8,A9,A10, MIN/MAX SPEC IN B12, B13
 7DIAL INDICATOR #14509
 MOVEABLE TERMINAL

MIN SPEC 0.459
 MAX SPEC 0.479
 TOLERANCE 0.2

DATA FOR OPERATOR 1

PART	1	2	TRIAL 3	4	5	AVG	RANGE
1	0.468	0.469				0.4685	0.001
2	0.468	0.468				0.468	0
3	0.469	0.469				0.469	0
4	0.469	0.469				0.469	0
5	0.47	0.47				0.47	0
6	0.469	0.47				0.4695	0.001
7	0.47	0.47				0.47	0
8	0.469	0.469				0.469	0
9	0.47	0.471				0.4705	0.001
10	0.469	0.469				0.469	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 0.46925 AVG RANGE: 0.0003
 UCL FOR INDIVIDUAL RANGES 0.000990

Test Reports

TI-NHTSA 002806



TI-NHTSA 002807

F2VC-9F924-AB

MATERIAL ANALYSIS

PARTS LIST

	PART NAME	PART #	CERTIFIED
1	BASE	46515-2	YES
2	STA. TERM.	36868-1	YES
3	MOVE. CONTACT	74408-1	YES
4	RIVET	74171-1	YES
5	MOVE. TERM.	36887-1	YES
6	SPRING ARM	36889-1	YES
7	J512 HEXPORT	36900-1	YES
8	GASKET	74353-1	YES
9	CUP	27713-1	YES
10	SEAL	74176-1	YES
11	KAPTON STRIP	27225-1	YES
12	WASHER	27689-1	YES
13	CONVERTER	27406-1	YES
14	KAPTON TAPE	74224-1	YES
15	SPACER	73958-2/-3	YES
16	CRIMP RING	74797-1	YES
17	TRANSFER PIN	74078-6EL	YES
18	ENVIO. SEAL	74247-2	YES
19	THREAD CAP	74179-2	YES

SENT COPY of -4
1-9-12

TI-NHTSA 002808

August 28, 1991

To: Donna Moynihan 12-27

From: Beth Kill 10-16

Subject: GP-3 Material Confirmation
TSL Request # 110822

Sample Description:

P/N 46515-2 Thermoplastic Polyester
Celanex 4300

Results:

	P/N 46515-2	Spec.
Glass Fill	32%	30%

TGA results confirm the base contains slightly high glass fill. DSC results confirm the base material to be a thermoplastic polyester with a melting point at 223 -225 deg. C., and a glass transition at 50 - 60 deg. C., consistent with Celanex 4300.

Regards,

Beth X3069

**DRAWINGS AVAILABLE UPON
REQUEST**



Product Quality Documentation

CERTIFICATE OF COMPLIANCE

Customer Order Number 1E/535 F13E	Customer Part Number	GE Specification Number 12345678	Material, Grade and Color MT-61
Lot Number 102711	Qty. Shipped 100	U.S.A. LB	Shipped From HOSE SERVICE INC
		Date Shipped 04/05/97	Shipper's Number 01328195

It is hereby certified that the product indicated above conforms to our standard internal specifications for the designated material. This certification is subject to our standard conditions of sale applying to products sold by the General Electric Company.

Specification
Specification Originator
Specification Comments

TEST	REFERENCE	REQUIREMENT	(ENGLISH)	(METRIC)
LOT DATA:				
HOT 9864 PSI - 1/4"	ASTM D648	450.0 DEG F MINIMUM	450.0 DEG F	238 DEG C
NOTCHED 1200 IMPACT-1/8"	ASTM D256	1.5 FT-LB/IN MINIMUM	2.0 FT LB/IN	107.0 J/M
Z ELONGATION	ASTM D638	4 % MINIMUM	8 %	
TENSILE YIELD	ASTM D638	25,000 PSI MINIMUM	25,000 PSI	170.9 MPa
FLEXURAL MODULUS	ASTM D790	1,000,000 PSI MINIMUM	1,265,000 PSI	8,715.8 MPa
FLEXURAL STR @ YIELD	ASTM D790	25,000 PSI MINIMUM	37,000 PSI	251.8 MPa
SPECIFIC GRAVITY	ASTM D792	1.31-1.35 G/CC		1.33 G/CC
WATER CONTENT	ASTM F527	0.50 % MAXIMUM	0.05 %	

PRODUCT AUDIT DATA:

FLAMMABILITY, 100" THICK FWSS-302 4.00 IN/IN MAXIMUM

DATE OF LAST AUDIT: 05/91

SELF-EXTINGUISHING W/NO BLUM RATE

ROBERT D. KATHENS
Quality Manager

TOMAS REEPS
Manufacturing Manager

If you have any questions concerning this, please contact:

GEORGE BRIDGEMAN

1-810-478-8888

TEXAS INSTRUMENTS INC.
ACCOUNTS PAYABLE DEPT
PO BOX 669
ATLANTA, GA 30308-0669
Attn: JIM KRAEMER

TI-NHTSA 002812

August 20, 1991

TO: Donna Moynihan 12-27

From: Beth Kill 10-16

Subject: GP-3 Material Confirmation
TSL Request # 110823

Sample Description:

P/N 36888-1 Stationary Terminal CDA 260 Brass
1/2 Hard

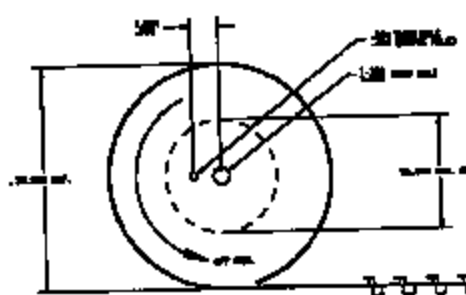
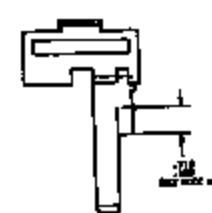
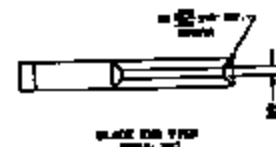
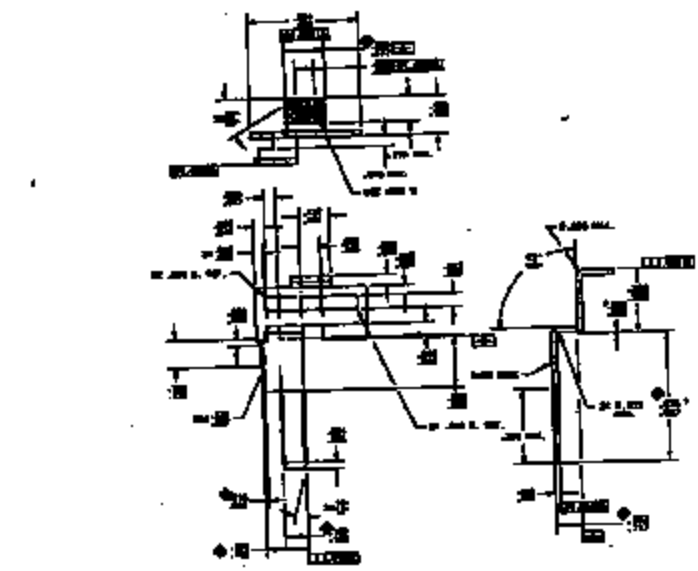
Results:

	P/N 36888-1	Spec. CDA 260
Cu (wt%)	68.5%	68.5 - 71.5%
Fe	0.030	0.05 max
Pb	0.010	0.07 max
Zn	balance	balance
Hardness	73 RB	60 - 77 RB

Results confirm the terminal is made of CDA 260 brass,
1/2 hard.

Regards,

Beth X3069



1. The system is adapted.
2. The system is adapted.
3. The system is adapted.
4. The system is adapted.
5. The system is adapted.
6. The system is adapted.
7. The system is adapted.
8. The system is adapted.
9. The system is adapted.
10. The system is adapted.

STATIONARY TERMINAL	
DATE	TIME
82847	36888

TI-NHTSA 002814

**DRAWINGS AVAILABLE UPON
REQUEST**

ACME MILFORD
857 BRIDGEPORT AVE.
MILFORD, CONNECTICUT 06460

TEL 203-878-4631 * FAX 203-878-3071

TO: TEXAS INSTRUMENTS

CERTIFICATE OF COMPLIANCE

ACME MILFORD CERTIFIES THAT:

P.D. NUMBER: 500011076
ACME/MILFORD CONTROL NUMBER: 17642
ACME/MILFORD P/N: 6254-A
QUANTITY: 915425

WAS PROCEEDED TO CONFORM TO THE FOLLOWING

PART NUMBER: 74408-1
PART REVISION: D
MATERIAL: COPPER CDA 102

HEAT NUMBER:
TENSILE AFTER LIGHT DRAW:
FINISH: .0011-.0024 SILVER PLATE
 : (.0007 MIN OVER VENT)

SIGNED:

DATE: 09-06-91

JOHN MICHAUD
TITLE: QUALITY CONTROL MANAGER

SWORN TO AND SUBSCRIBED BEFORE ME THIS/____ DAY ____ MONTH ____ YEAR

NOTARY PUBLIC _____

TI-NHTSA 002816

RADCLIFF WIRE INC.

FLAT, SQUARE AND CHAMFER WIRE
Plastic Insulation - Steel - Stainless Steel

RONZO ROAD • P.O. BOX 803 • BRISTOL, CONNECTICUT 06010
TELEPHONE: 203 / 583-1305 • FAX: 203 / 583-8553

ORDER NUM
5320

MATERIAL CERTIFIC

SOLD
TO

ACRE MILFORD
857 BRIDGEPORT AVENUE
MILFORD, CT 06460

SHIP TO

VIA BUNTINGS

YOUR ORDER NO. 347-2	DATE ENTERED 6/28/91	DATE WANTED 7/29/91	DATE PROMISED	F.O.B. Bristol
QTY/WEIGHT ORDERED 300 lbs.	SIZE/TOLERANCE .0575 p/w .0005 Dia.			SHAPE Round
TEMPER	MATERIAL ETP 110 Copper		EDGE	FINISH
SPECS	TENSILE 45-55,000 PSI			
SPECIAL CONDITIONS CERTS/MATL.				SPOOL CODE

SHIPPING RECORD

DATE	QUANTITY	PACKAGING	TEST
7/16/91	323#	1 Barrel	46,000 PSI

HEAT	C	MN	SI	S	P	Cr	Ni	Cu	B	Fe	Al
HARDNESS	TI	CS + TA	Co	MO	V	Mg	Ca	N	Zn	Pb	
TENSILE STR.	ZA	CB	TA	Sn	Be						
46,000 PSI											

*This is to certify that the above wire was produced from raw material and was found to be in compliance with the specifications of your po#347-2.

TI-NHTSA 002817

RADCLIFF WIRE, INC.

Claire Boucher
AUTHORIZED SIGNATURE
Claire Boucher Quality Control Inspector



AMERICAN ELECTRO PRODUCTS INC.
1355 THOMASTON AVENUE
WATERBURY, CT 06704
(203) 756-7061

Certificate of Compliance

NO. 21-04327
SLS 1

MILFORD STREET & HIGH
837 BRIDGEPORT AVE

MILFORD CT 06460

DATE 06/28/91

YOUR ORDER NO. 133021

SHIPPED VIA UNITED P. S.

This is to verify that parts and/or your material furnished against your purchase order number shown above, have been manufactured in accordance with requirements and specification as required.

PART NO.	DESCRIPTION	QUANTITY
4254A	SILVER 0.001100-0.002000 IN	725-925.0

Tests to substantiate this have been performed in our plant (or have been performed by our suppliers) and are available upon request from us/or our suppliers.

Very truly yours,

AMERICAN ELECTRO PRODUCTS, INC.

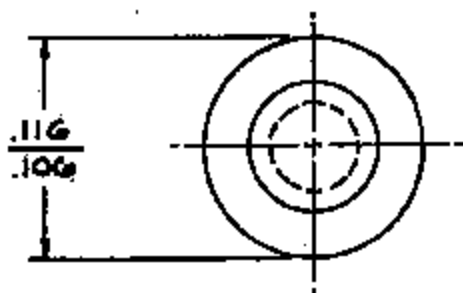
Signed by:

Indy Sullivan
Q.C. Inspector

TITLE
MOVABLE CONTACT

金匯豐
D

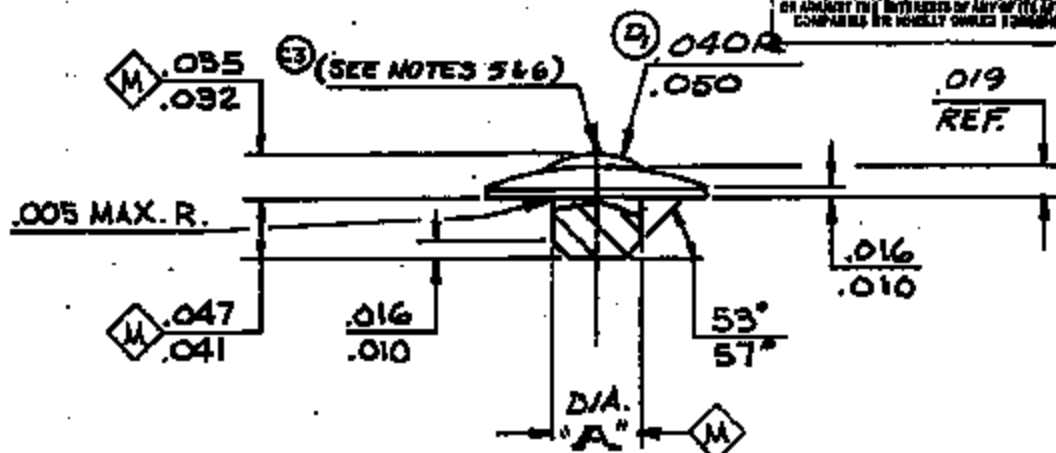
74408



CERTIFIED PRINT
Parts Made To This Print Must Conform To
ENG. STD. E9898 REV. E

Date JUL 1 1991

NEITHER THIS POINT NOR THE INFORMATION CONTAINED THEREIN SHOULD BE USED AS A BASIS FOR THE ISSUANCE OF TRADING INSTRUMENTS OR FOR ANY OTHER ACTION IN THE INTERESTS OF ANY OF THE ISSUING COMPANIES OR SOCIETY OF INVESTMENT BANKERS.



NOTES:

1. PARTS MUST BE STORED IN PLASTIC BAGS THROUGH ALL SHIPPING AND HANDLING PROCESSES.
2. MATERIAL & PLATING THICKNESS CERTIFICATION REQUIRED WITH EACH SHIPMENT.
3. DIMENSIONS APPLY AFTER PLATING.
4. MEASURE PLATING THICKNESS BY MOUNTING & CROSS-SECTIONING PART.
5. PLATING THICKNESS APPLIES AT THE INDICATED LOCATION ONLY.
6. TOOL VENT MARK ON .040-.050 R ALLOWED. DIMENSIONS MAY NOT EXCEED .001 IN HEIGHT AND .003 IN WIDTH. THERE MUST BE NO VOID IN PLATING IN THIS AREA. .032-.035 DIMENSION MAY MEASURE .036 OVER THIS MARK.
7. PLATING THICKNESS OF .0007 MINIMUM ALLOWED ABOVE TOOL VENT MARK ONLY. ADJACENT AREAS MUST MEET "FINISH" REQUIREMENTS.

TI-NHTSA 002818

74408-1		COPPER	SILVER PLT. .0011/.0024 THK (SEE NOTE #5)	.0605-.0635
PART NO.		MATERIAL	FINISH	DIA. "FL"
BY T. Drail 1-6-83		TEXAS INSTRUMENTS INCORPORATED ATLLENORO, MASS., U.S.A.		KILXON CENTRAL PRODUCTS DIVISION
CH. R. Parker 1-13-86		PARTS LIST		74408
ENG. Ben Barber 1-13-86				

ACME MILFORD
857 BRIDGEPORT AVE.
MILFORD, CONNECTICUT 06460
TEL\ 203-878-4631 * FAX 203-878-5071

TO: TEXAS INSTRUMENTS

CERTIFICATE OF COMPLIANCE

ACME MILFORD CERTIFIES THAT:

P.O. NUMBER: 500011502
ACME/MILFORD CONTROL NUMBER: 19095
ACME/MILFORD P/N: 6051-A
QUANTITY: 99,995

WAS PROCESSED TO CONFORM TO THE FOLLOWING

PART NUMBER: 74171-1
PART REVISION: B
MATERIAL: BRASS CDA 260

HEAT NUMBER:
TENSILE AFTER LIGHT DRAW:
FINISH: PLAIN FINISH

SIGNED: John Michaud 
JOHN MICHAUD
TITLE\ QUALITY CONTROL MANAGER

DATE: 05-30-91

SWORN TO AND SUBSCRIBED BEFORE ME THIS/____ DAY____ MONTH____ YEAR

NOTARY PUBLIC_____



SEYMOUR SPECIALTY WIRE COMPANY

(An Employee Owned Company)

15 Franklin Street

Seymour, Connecticut 06483

(203) 888-8775

ANALYSIS REPORT

Customer	Milford Rivet & Machine Co.	Date	December 21, 1967
Address	P.O. Box 4018	Customer P.O.	37309
City	Ellyria, OH 44035	Seymour	S-54738-1
Material	CDM 260 Wire	Date Shipped	12-15-67
Size	.060" Rd.	Weight	985 lbs.
Specification	U.S. 56/63,000 PSI GR #13 Heavy Duty Coar Conforms to UNS# C26000		

CHEMICAL ANALYSIS:

COPPER	70.03
LEAD	*.01
IRON	*.01
ZINC	Bal.
TIN	
SILICON	
MANGANESE	
PHOSPHOROUS	
NICKEL	
ALUMINUM	

* Less Than

PHYSICAL ANALYSIS:

TENSILE STRENGTH PSI	65,000
YIELD STRENGTH PSI	
ELONGATION, % in.	20%
ROCKWELL	
BEND TEST	
GRAIN SIZE, AVERAGE	
RESISTIVITY ohms/cm	
INDUCTIVITY	

TI-NHTBA 002821

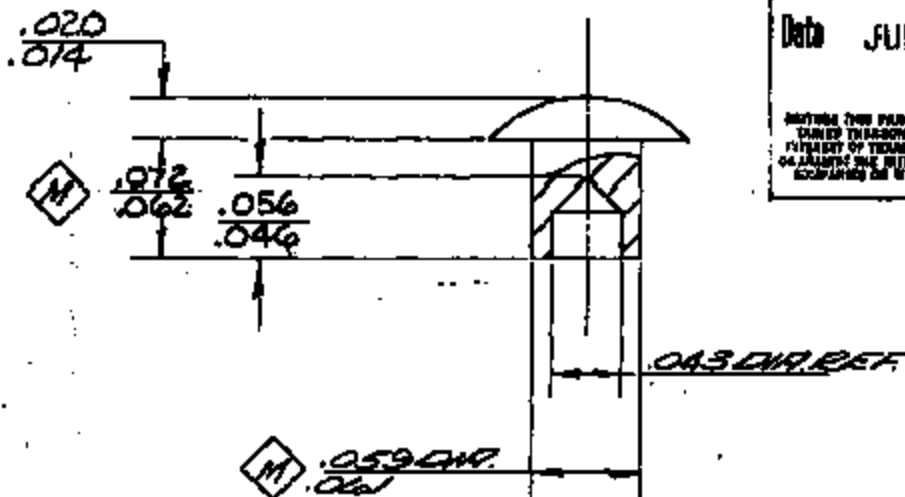
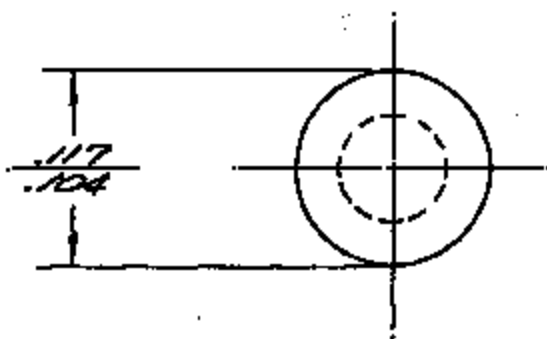
74171

TITLE

RIVET

REV.
B

74171



CERTIFIED PRINT
Parts Made To This Print Must Conform To
ENG. STD. E9898 REV. E
Date JUL 1 1991
WHEN THIS PRINT USE THE INFORMATION SUP-
PLIED THEREON IS TO BE USED FOR THE
PURPOSE OF THESE DIMENSIONS, THE USER
OR FABRICATOR SHALL BE RESPONSIBLE FOR
OBTAINING THE NECESSARY INFORMATION
ACCOMPANYING THE SPECIALLY ORDERED DIMENSIONS.

NOTE:
1. PARTS MUST BE STORED IN PLASTIC BAGS THRU ALL
SHIPPING AND HANDLING PROCESSES

TI-NHT8A 002822

INT. ISSUE SYMBOL
REV. 2-1-84
REV. 2-1-84
REV. 2-1-84
REV. 2-1-84

74171-1

CDR # 26009955

B

PART NO.

MATEBENK

REV.

BY

CH

ENG.

2-1-84

K.H. Wayne

2/13/84



TEXAS INSTRUMENTS
(INCORPORATED)
ATTLEBORO, MASS. U.S.A.

KILION
CONTROL PRODUCTS
DIVISION

DRG.
SIZE
A

DWS. NO.

74171

VS: QB-101-14211-1001 P371 P372 P373 P374

EACC99 EIS -- CREATE ELECTRONIC ECN 92/04/01 12:31
 FUNCTION: _ INQ _ ADD _ CHG _ ASSIGN CCB
 PASSWORD: PROJECT: 3423 CCB: 002
 ECN: M06167 DWG PFX: _ DWG NUM: 36887 REV: _C CLASS: 425 SZ: D
 1ST ISSUE FOR: PRESSURE SWITCH DT NEEDED: 920221
 STOCK DISP - FIN DEV: USE PART/SUBS: USE
 ORIGINATOR: STEPHEN B OFFILER EDIT
 DESCRIPTION OF CHANGE: IN ZONE A6, PLEASE CHANGE .815-.829 TO .810-.826

 EDIT OPTIONS: A-AFTER B-BEFORE C-COPY D-DELETE M-MOVE
 REASON FOR CHANGE CORRECTION

 REV DESCRIPTION CHG..815-.829 TO .810-.826
 NEXT INQUIRY: <F4> FOR CC2, CC3, CC10, CC11, CN5
 EIS50301 NO FUNCTION SPECIFIED - DEFAULT TO INQUIRE
 EIS1000I INQUIRE COMPLETE
 914C/O 361 1 4 13 ADAIMC a Printing

TI-NHT8A 002823

August 20, 1991

To: Donna Moynihan 12-27

From: Beth Kili 10-16

Subject: GP-3 Material Confirmation
TSL Request # 110824

Sample Description:

P/N 36887-1 Moving Terminal CDA 260 Brass
1/2 Hard

Results:

	P/N 36887-1	Spec. CDA 260
Cu (wt%)	68.7%	68.5 - 71.5%
Fe	0.020	0.05 max
Pb	0.010	0.07 max
Zn	balance	balance
Hardness	80.5 RB	60 - 77 RB

Results confirm the terminal is made of CDA 260 brass,
and slightly above 1/2 hard.

Regards,

Beth X3069

TI-NHTSA 002824

August 20, 1991

To: Donna Moynihan 12-27

From: Beth Kill 10-16

Subject: GP-3 Material Confirmation
TSL Request # 110825

Sample Description:

P/N 36889-1 Spring C17200 Beryllium Copper

Results:

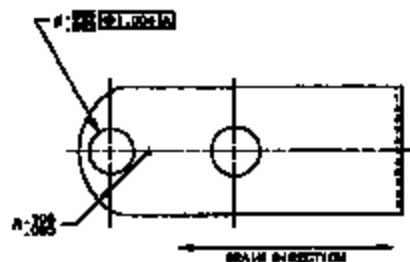
	P/N 36889-1	Spec. C17200
Be (wt%)	1.87%	1.80 - 2.00%
Fe	0.089	
Ni	0.068	[Fe + Ni + Co <0.6%]
Co	0.220	[Ni + Co >0.2%]
Hardness	300 DPH	285 - 343 DPH

Results confirm the spring is made of C17200 beryllium copper at the specified hardness.

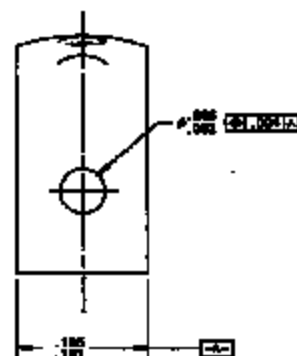
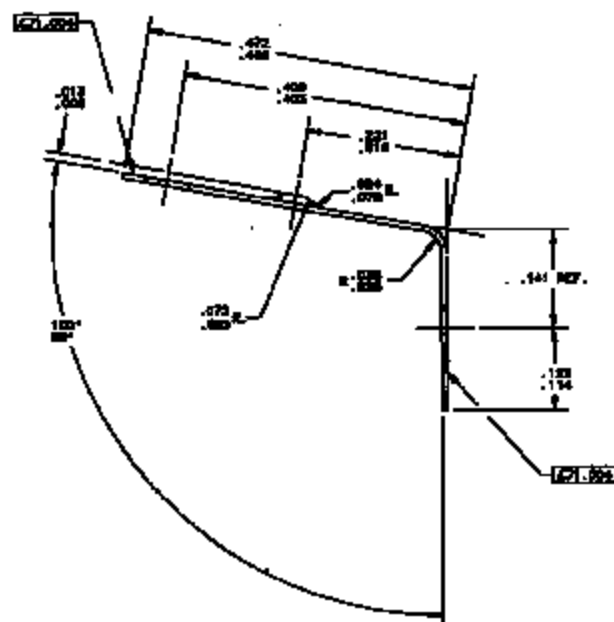
Regards,

Beth X3069

NAME FROM 87716-1 NAME		CR007135, Co	DATE 11/27/99
NAME FROM 87716			



1. SURFACE MUST BE FREE OF TOOL MARKS AFTER FORMING.
2. MAXIMUM .004 BURN ALLOWED.

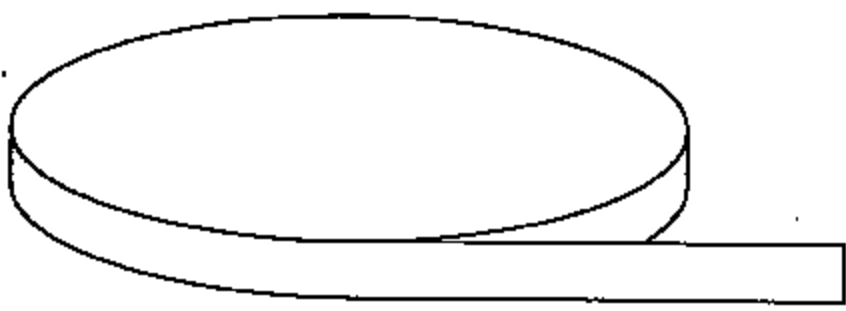


TI-NHTSA 002827

PART 10,	MACE PERS

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		BY T. HERTZBERG	DATE 12-14-68	J.C. TEXAS INSTRUMENTS ATLANTA, GEORGIA 30303		DRAWING MAG. 1000 2000	
TOLERANCE ON FRACTIONS DECIMALS ANGLES		CH.		TITLE			
		ENG.		SPRING ARM			
REVISION		APPROVED <i>[Signature]</i>	Sketch	SIZE	DATE SENT NO.		
				C	82647	36889	
				SCALE - MAX		SHEET 1 OF 1	

5 4 3 2 1



REVISIONS				
ZONE	LTD	DESCRIPTION	DATE	APPROVED
1		NOTE 4 EDGE WING DIB, 2, ADDED NOTES 5, 6, AND 7	1-24-81	
2		OF		

NOTES:

1. MATERIAL CERTIFICATION INCLUDING TENSILE STRENGTH AND HARDNESS DATA REQUIRED WITH EACH SHIPMENT.
2. EACH REEL TO BE LABELED WITH T.I. PART NUMBER ON INSIDE OF CORE.
3. MAX. ALLOWABLE BURR .001.
4. ROLLS SLITTED FROM EDGE OF MASTER COIL NOT ACCEPTABLE.
5. MAX. WEIGHT PER REEL IS 30 LBS.
MIN. WEIGHT PER REEL IS 10 LBS.
6. ROLL TO BE PANCAKE STYLE.
12" TO 18" ID.
34" MAX. OD.
3/4" DRIVE HOLE
7. NO SPLICES ALLOWED.

27716-1	BERYLLIUM COPPER C17200, MILL HARDENED (BRUSH WELLMAN ALLOY 180 TBS)	135-180	285-345	.0005 ±.0002	.181-.185	TBD
PART NO	MATERIAL	TENSILE STRENGTH (KSI)	HARDNESS DPH	THICKNESS (IN)	STRIP WIDTH	PAD PUT UP (15) (00)

DESIGN SPECIFICATION SPECIFIED CONFORMANCE AND IN SERIES		BY T. WILKINSON	DATE 11-14-80	TEXAS INSTRUMENTS ATLANTA, MISSISSAUGA, DALLAS		6/3/81-3
VARIANCE OR FRACTURE DIMENSION ANALYSIS		BY J. L. L. L.	DATE 1-21-81	CONTROL PRODUCTS DIVISION		
PARTIAL		BY T. WILKINSON	DATE 11-14-80	TITLE SPRING MATERIAL STRIP SPECIFICATION		
APPROVED A. J. J. J.		DATE 1-21-81	WOL B	CODE IDENT NO. 82647	27716SH1	
			SCALE	SHEET		

THIS DRAWING SUPERSEDES 27716SH1 REV. A DATED: 11-14-80

TI-NHTSA 002828

ELCO INDUSTRIES, INC.

PRECISION FORMING DIVISION

1111 Semutawin Road • P.O. Box 7000

Rockford, Illinois 61105-0000

Phone 815/397-8101 • Fax 815/397-8105 Ext. 740

CERTIFICATION

May 18, 1991

TEXAS INSTRUMENTS INC
ACCTS PAYABLE DEPT
P.O. BOX 666
ATTLEBORO, MA 02703

This is to certify the parts furnished on your purchase order have been produced in accordance with specifications listed on your purchase order and/or blueprint.

MATERIAL CERTIFICATION, FINAL INSPECTION AND SAMPLES SENT

Records covering material used and the tests and inspection conducted are on file, subject to examination.

Purchase Order No. 500016567
Register No. 78825
Part No. 36900-1
Description 3/8-24 X .81
Quality Control No. A9341-S
Quantity 8.735

36900-1

CERTIFICATION

The times call for quality. Elco quality.

Julius A. Stigler

Authorized Signature
Quality Coordinator

P-51

TI-NHTSA 002829

COMPANY LIMITED

Type & Grade

SC-3898

AISI10L10 SAF

36 100-1

Po#

03462

40410#

Chemical Composition Of Steel	Heat No.	Coil No.	C % × 100	Mn % × 100	Si % × 100	P % × 1000	S % × 1000	Cu % × 100	Ni % × 100	Cr % × 100	As % × 100	Sb % × 100	Bi % × 10,000
	C78314	0001 - 0018	10	41	6	5	21	1	1	3			PB EX100 22
Physical Properties	Nominal Diameter		Tolerance of Diameter				Tensile Strength		Decarburization				
	in	mm	in	mm	1,000 psi	kg/mm ²	Dec-T	Dec-F					
	0.585	14.351	+ 0.0040	+ 0.1016	68.9 MAX	48.5 MAX			MAX				
Packing	Coil Weight												
	ABT. 2.272LBS (ABT. 1.033KGS)												
	WRAPPED WITH POLYPROPYLENE SHEET.												

Test Results

Sample No.	Diameter mm	Tensile Strength kg/mm ²	Tensile Strength 1,000psi	Sample No.	Diameter mm	Tensile Strength kg/mm ²	Tensile Strength 1,000psi
0001	14.36	33.7	47.9				
0002	14.38	33.7	47.9				
0003	14.37	32.7	46.5				
0004	14.41	33.7	47.9				
0005	14.36	32.3	45.9				
0006	14.38	32.9	46.8				
0007	14.37	33.3	47.4				
0008	14.37	33.8	48.1				
0009	14.36	33.1	47.1				
0010	14.36	34.7	49.4				
0011	14.36	33.1	47.1				
0012	14.36	32.7	46.5				
0013	14.38	34.3	48.8				
0014	14.38	33.8	48.1				
0015	14.37	34.2	48.6				
0016	14.38	35.5	50.5				
0017	14.38	35.5	50.5				
0018	14.38	34.2	48.8				

TI-NHT8A 002830

INSPECTION HARDNESS TESTING RESULTS

Rockwell SCALE USED: B PART NO.: 28200-1
73 (10)

SAMPLE NO.:	RESULTS:
1	72.3
2	72.5
3	72.7
4	72.8
5	72.9
6	73.5
7	73.9
8	74.1
9	74.1
10	74.9

AVERAGE 72.9

MAXIMUM 73.9

MINIMUM 71.0

4470 36900-1 5725 (034) 407 TECHNICAL SERVICE LABS

TEST NO. 109407

127	STATE YOUR PROBLEM SAMPLE DESCRIPTION	INFORMATION DESIRED: Please section and 1775 measure 410-430 per attached drawing. Thank you, Sandy
146		
060		
Sandy		
11-11		
3021		
ATQC		
5/23/91		
5/24/91	36900-1	
3		

REPORT OF RESULTS:

- ① 415 - 41
- ② 42 - 41
- ③ 41 - 41

DATE RECEIVED

5/24/91

DATE OUT

5/29/91, 300010

TECHNICIAN			
HOURS WORKED			
PROCEDURE USED			

*PCC I.D.

MC-325
PC-127
VERB-188
AFCC-483
IMD-430

TM-431
WIRE-432
EPD-821
PEP-822
CSD-635

JOCY-128
CLKE-122
CAN-854
AO DEV-288
EMCO-877

FACIL-814
FACIL-821
FACIL-831
STAFF-866

DISTRIBUTION: White and Yellow - Lab Pink - Requestor

TI-NHTSA 002832

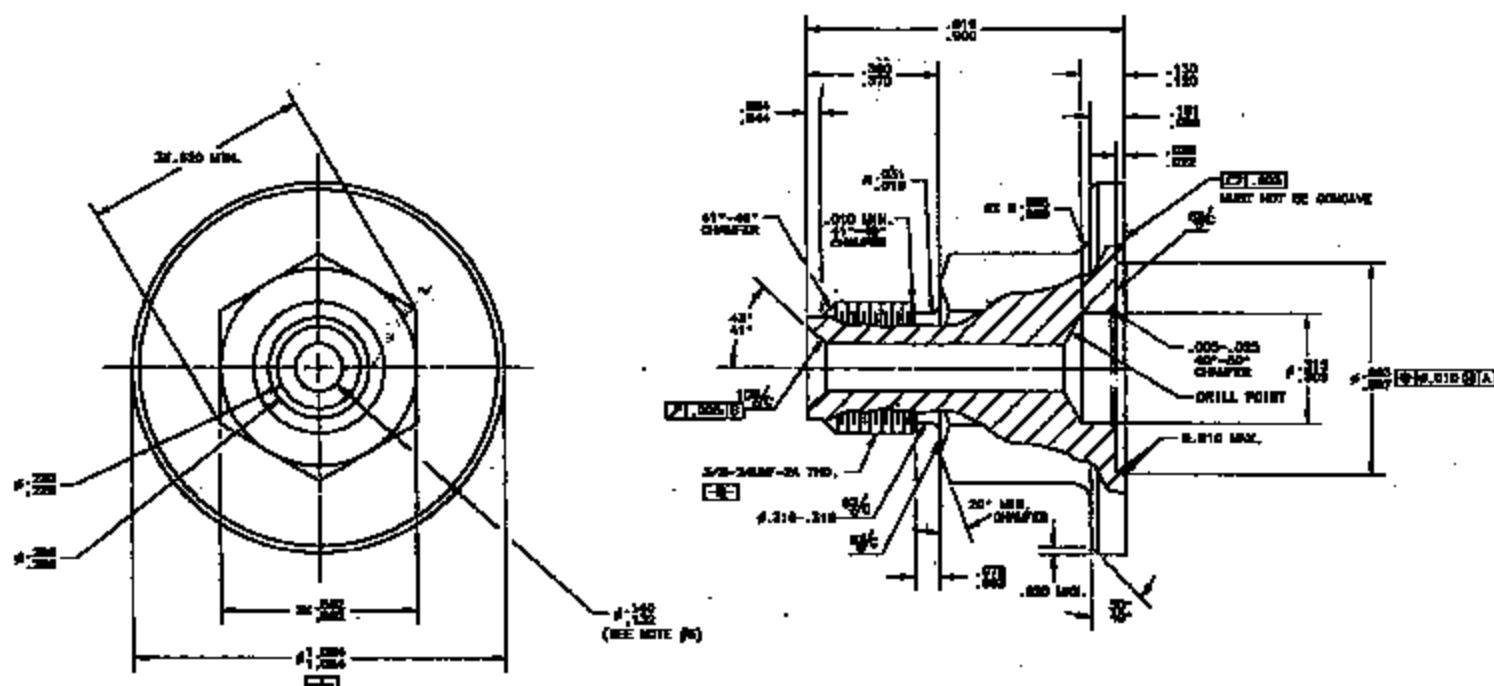
4

3

2

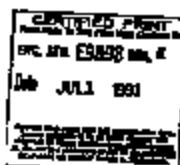
1

ZONE/LTR		REVISIONS			DATE	APPROVED
		DESCRIPTION				
A		1ST. ISSUE	7708	OK 1004-08	J.B.N.	12-10-80
						As Shown



NOTE:

1. DIMENSIONS APPLY AFTER PLATING.
2. PARTS TO BE SHIPPED, ISSUED, AND STORED IN SOLAR PLASTIC BAGS.
3. FINISHED PART PLANE NUMBERS TO BE CORRELL B-70 HIRSHMAN.
4. THREAD MUST CONFORM TO FORD SPEC. - J512-2000-0100(1.0 IN-LG MAX. LENGTH ON SIDE CASE).
5. .015" MAX. MINORITY ALLOWABLE IN 1.130 - .140 THROUGH HOLE WHEN DRILLED FROM BOTH SIDE OF PART.



J512-01	C42.10 STD.	21RD PLATING, 1000 MIN. THICK WITH YELLOW DISCREPANCY.
PART NO.	MATERIAL	FINISH

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		BY J.B. MOULI	DATE 12-10-80	TEXAS INSTRUMENTS CORPORATION		REVISION REVISION
TOLERANCE ON FRACTIONS DECIMALS ANGLES		CHK BNC		TITLE MODIFIED SAE J512 HEX PORT		
MATERIAL		APPROVED <i>[Signature]</i>	3/1/81	REV C	CODE SENT NO. 82647	36900
				SCALE	SHEET	

TI-NHTSA 002833

**DRAWINGS AVAILABLE UPON
REQUEST**

July 29, 1991

To: Donna Moynihan 12-27
From: Beth Kili 10-16
Subject: GP-3 Material Confirmation
TSL Request # 110831

Sample Description:

#110831	P/N 74353-1	Gasket	Ethylene propylene rubber
---------	-------------	--------	------------------------------

Results:

Akron Rubber Development Laboratory Inc. has analyzed the above component. The material conforms to specification. See the enclosed report.

Regards,

Beth X3069



AKRON RUBBER DEVELOPMENT LABORATORY, INC.

300 KENMORE BOULEVARD • AKRON, OHIO 44301
Office (216) 434-6664 Telex (216) 434-8668

July 24, 1991

Ms. Elisabeth Kill
Texas Instruments
34 Forest St.
MS 10-16
Attleboro, MA 02703

SUBJECT: Chemical analysis on sample submitted by the above company.
PO# 500066978

RECEIVED: One sample identified as; #110831 Ethylene Propylene JHL compound
E-7104-70.

POLYMER IDENTIFICATION: ASTM D 3577
Pyrolysis method

SAMPLE

#110831

POLYMER IDENTIFICATION

Ethylene-Propylene Rubber

Janis Seifert
Janis Seifert
Senior Chemical Technician
AKRON RUBBER DEVELOPMENT LABORATORY, INC.

Thomas M. Knowles
Thomas M. Knowles
Vice President, Chemical Services

PN# 11726 INV# 31172601

tk



50

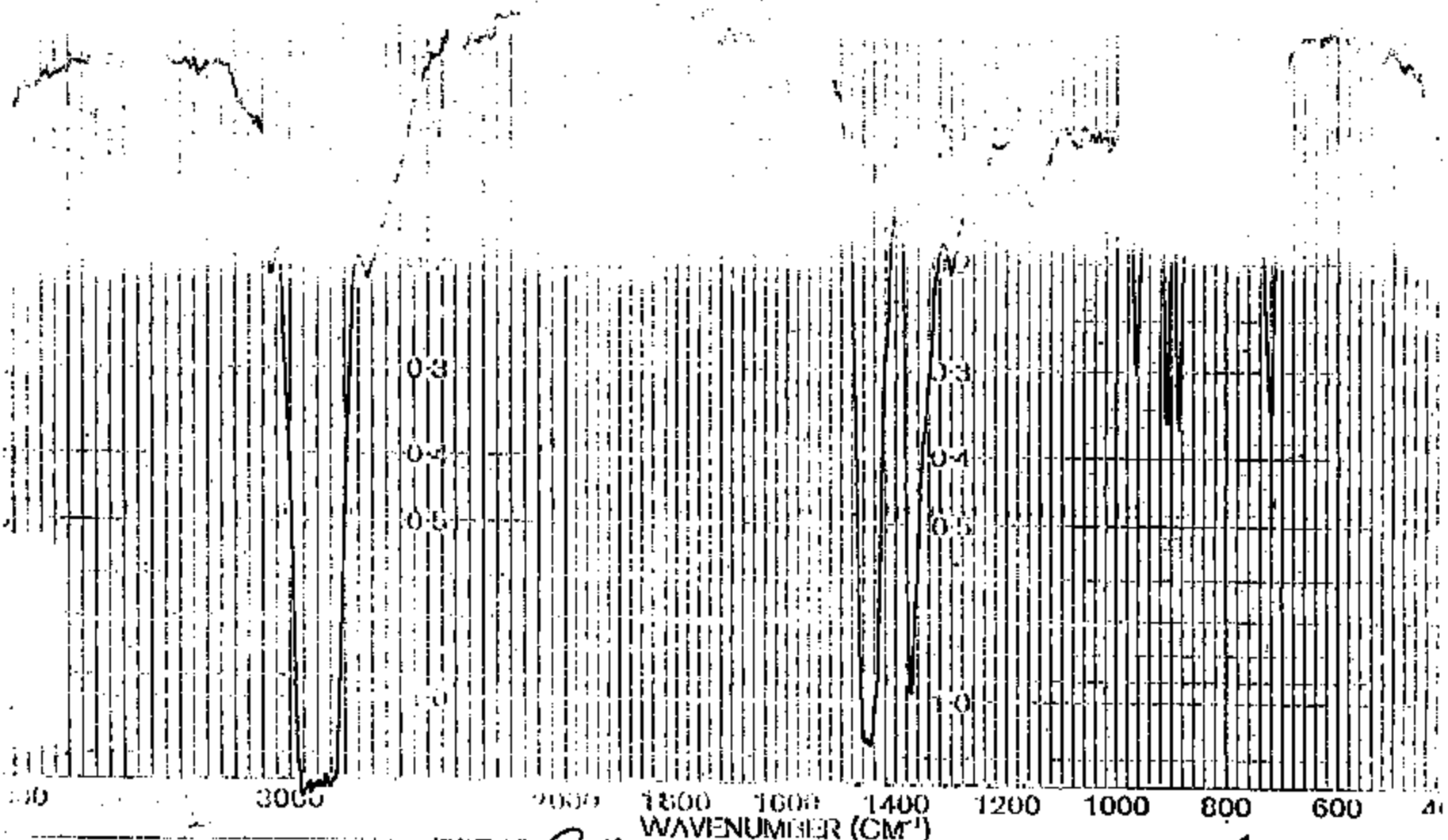
5

7-0

3

3

16 20



TIANHTSA 002838

SAMPLE

Ethylene Propylene Rubber

SOLVENT

CONC.

CELL PATH

REFLECT

TRANSMIT

SCAN

SLE

OPERATOR

LOAD

PART NO. 100-1001

SINGLE B.

TD. SPEED

OIL EXP.

I. CONST

REF. No.

REMARKS

APOL
Control

74353

~~Date - JUL 1 - 1991~~

WITHIN THIS POINT HOW THE INFORMATION CAN
TAMPER THEREON IS TO BE USED AGAINST THE
INTERESTS OF THE UNITED STATES AND THE
OF SUCH THAT THE INTERESTS OF ANY OF THE UNITED
NATIONS OR WOULD COVER SUCH INTERESTS

H" DIA

A

2-EEA

SEE NOTE 6

1. PARTS MUST BE PURCHASED FROM T.I. ENGINEERING'S APPROVED VENDORS, LISTED BELOW.

2. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.

3. MATERIAL TO BE COMPATIBLE WITH FREON-12 & REFRIGERANT OIL

4. PARTS TO BE SHIPPED, ISSUED, & STORED IN SEALED PLASTIC BAGS.

AND 30,000 PARTS PER BAG MAX.

5. ALL CONTAINERS OF PARTS MUST BE MARKED TO REFLECT ANY MATERIAL LOT, TOOL OR PROCESS CHANGE.

5. DASH 1(-1) AND DASH 4(-4) GASKET MUST HAVE FOUR (4) WHITE STRIPING INK MARKS, EQUALLY SPACED AROUND THE CIRCUMFERENCE, AND NOT LESS THAN 1/8 INCH WIDE. NO INK IS ALLOWED ON ANY OTHER SURFACE.

74353-4	ETHYLENE PROPYLENE JBL COMPOUND E-7104-70 JBL PART NO. 6197E	70	BLACK	.670-.662	.030-.036	.063
74353-3	ETHYLENE PROPYLENE JBL COMPOUND E-7059	70	WHITE	.670-.662	.030-.036	.063
74353-2	ETHYLENE PROPYLENE JBL COMPOUND E-7059	70	WHITE	.599-.591	.030-.036	.063
74353-1	ETHYLENE PROPYLENE JBL COMPOUND E-7104-70 JBL PART NO. 6197E	70	BLACK	.599-.591	.030-.036	.063

PART NO.	MATERIAL	DIMETER	COLOR	A	M	B	M	C
----------	----------	---------	-------	---	---	---	---	---

BY: T. Dai 3/18/85

CH. 100-3-109

END



TEXAS INSTRUMENTS
INCORPORATED

ATTLEBORO, MASS., U.S.A.

KLIXON

CONTROL PRODUCTS
MANUFACTURING

● 中国书画函授大学肇庆分校

NEW
RICE
A

PARTS LIST
74353

CONFIDENTIAL No. 82647

TI-NHTSA 002839

TEST NO. 110831

TECHNICAL SERVICE LABS

TEST NO. 110831



REPORT OF RESULTS:

DATE RECEIVED

7/11/91

DATE OUT

7/29/91 EKiD

TECHNICIAN			
HOURS WORKED			
PROCEDURE USED			

*PCC LD.

MC-325
PC-127
VERS-168
AFCC-463
MD-430

TM-431
WIRE-492
EPD-821
PEP-822
OSD-838

JOCY-126
CLKE-122
CAN-854
AD DEV-288
EMCO-877

FACIL-814
FACIL-521
FACIL-531
STAFF-836

DISTRIBUTION: White and Yellow - Lab Pink - Requestor

TI-NHTSA 002840

VALENTINE TOOL & STAMPING, INC.

171 WEST MAIN ST. NORTON, MASS. 02766
(508) 285-6811

MATERIAL CERTIFICATION

DATE : FRIDAY JUNE 14, 1991
CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO : 506063392 SUPPLIER INVOICE NO.: 79580
PART DESCRIPTION : 2T713-1 CUP REV.A
SUPPLIER FJO NO. : 18571
QUANTITY SHIPPED : 1,085
SHIPMENT DATE : 06/14/91

WE CERTIFY THAT THE MATERIAL USED
TO PRODUCE THE PRODUCT IN THIS
SHIPMENT, NAMELY
(C1008)
CONFORMS TO T.I. DRAWINGS AND
T.I. PURCHASE ORDER REQUIREMENTS.

SIGNED *Jeanne Laflamme*
(Supplier Representative)

Jeanne Laflamme Quality Control Manager

TI-NHTSA 002841

VALENTINE TOOL & STAMPING, INC.

171 WEST MAIN ST. NORTON, MASS. 02766
(508) 285-0911 226-0940

CERTIFICATE OF CONFORMANCE

DATE : FRIDAY JUNE 14, 1991
CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO : 505063382 SUPPLIER INVOICE NO.: 79680
PART DESCRIPTION : 27713-1 CUP REV.A
SUPPLIER FJO NO. : 18571
QUANTITY SHIPPED : 1,085
SHIPMENT DATE : 06/14/91

WE CERTIFY THAT ALL ITEMS SHIPPED ON THIS ORDER MEET THE REQUIREMENTS
OF THE PURCHASE ORDER AND APPLICABLE DRAWINGS/SPECIFICATIONS. RESULTS
OF REQUIRED MECHANICAL, VISUAL, FUNCTIONAL AND CHEMICAL TESTS ARE ON
FILE IN OUR QUALITY CONTROL DEPARTMENT.

SIGNED *Jeanne Leflemme*
Jeanne Leflemme
Quality Control Manager

TI-NHTSA 002842

00121A
315-3381
315-3365
223-3128

ROME STRIP STEEL
530 HENRY ST. BOX 180
ROME, NEW YORK 13440

SALES CODE
502010

27718

01000000

DATE	INVOICE NO
07/26/91	02740

VOICE TO: VALENTINE TOOL & STAMPING, INC.
171 W MAIN ST
NORTON, MA 02766

SHIP TO: VALENTINE TOOL & STAMPING, INC.
171 W MAIN ST
NORTON, MA

ATTN: JEANNE LAPLAPME, Q.C. MGR.

CITY (CDS)	NO. CTS	NO. SHDS OR BLS	PARTIAL COMPLETE	SHIPPED BY
15,154	040	06	CMP	K S S

HT NO.	C	MM	P	S	SE	NI	CR	MO
466709	07	34	012	006	01			
AL	WH	CB	CA					

S REQUIREMENTS OF:
ORDER NO. 13428

COLOR CODE

02MM X 50.80MM

MILL NO
62450
PREPAID COLLECT
PREPAID

STRAPPING

PAPER WRAP

BOIS

CPATES

ROE

04000 Y 2.0000

TEMPER

CONS OR CH

SHDS

SHD SIZE

PKG. INT

WASTERS

CORER

RANGE

R 50 MAX

COIL

440 LBS

3000

RUNNERS

SPACING

SHWUP

BOARDS

LAM

101 -001 +005 -005

EDGE

LENGTH SPEC

220 PIN 16 36

3/4"

SHR

CANBER

FLATNESS

OIL

T-PCS

125 -025MM +127 -127MM

CLASS	MPI NO.
ALUM KILD	C-1006

TEST REPORT

Certificate of Compliance

TEST: 07205 34 030291

Notary Public, Oneida County
My commission expires 12/31/92

DATE 2/27/91

I certify that the above figures are a true and correct copy of those contained in the records of this corporation.

A. Zingulone
ROME STRIP STEEL CO., INC.

TI-NHTSA 002843

920.5

**DRAWINGS AVAILABLE UPON
REQUEST**

September 25, 1991

To: Donna Moynihan 12-27
From: Beth Kill 10-16
Subject: Material Confirmation
TSL Request # 110892

Sample Description:

P/N 74176-1 Seal Teflon and Kapton

Results:

DSC results confirm the presence of Teflon by the characteristic melt point at 316 - 319 degrees C.

Kapton is confirmed in the seal by the IR scan. It shows the same characteristic absorbances exhibited by the sample known to be Kapton. See the enclosed scan.

Finally, the Teflon is confirmed to be on the surface of both sides of the seal by EDAX analysis.

Regards,

Beth X3069

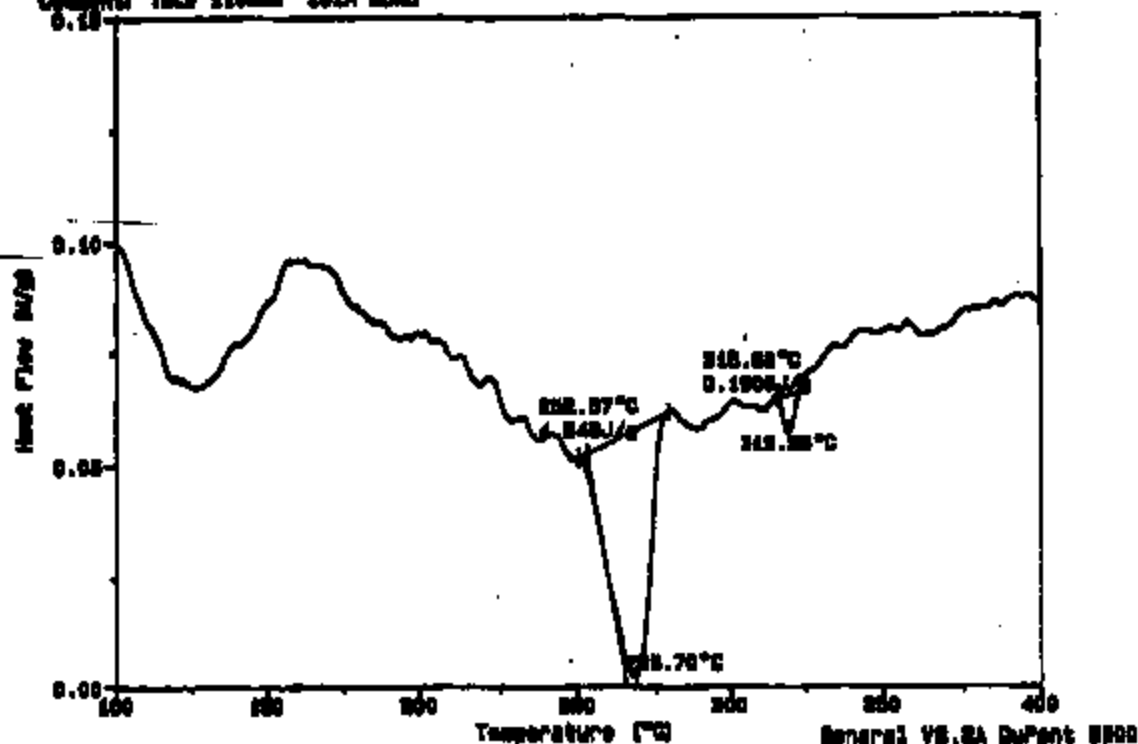
08.25.01 10:37 AM

P07

Sample: 78476-1 KAPTON TAPE
Size: 3.8000 mg
Method: KAPTON
Comment: TML 110828 32IN BML

DSC

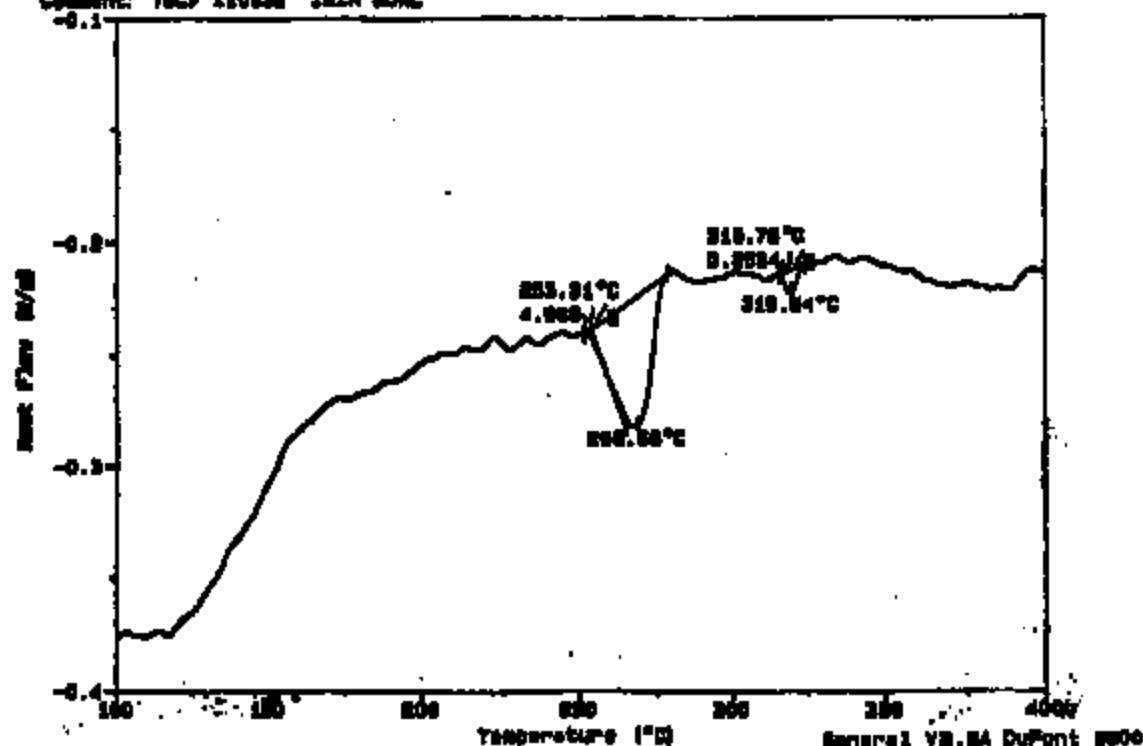
File: DKAPTON.08
Operator: K ROSE
Run Date: 08/23/01 08:18



Sample: 78476-1 KAPTON TAPE
Size: 3.8000 mg
Method: KAPTON
Comment: TML 110828 32IN BML

DSC

File: DKAPTON.08
Operator: K ROSE
Run Date: 08/23/01 08:18

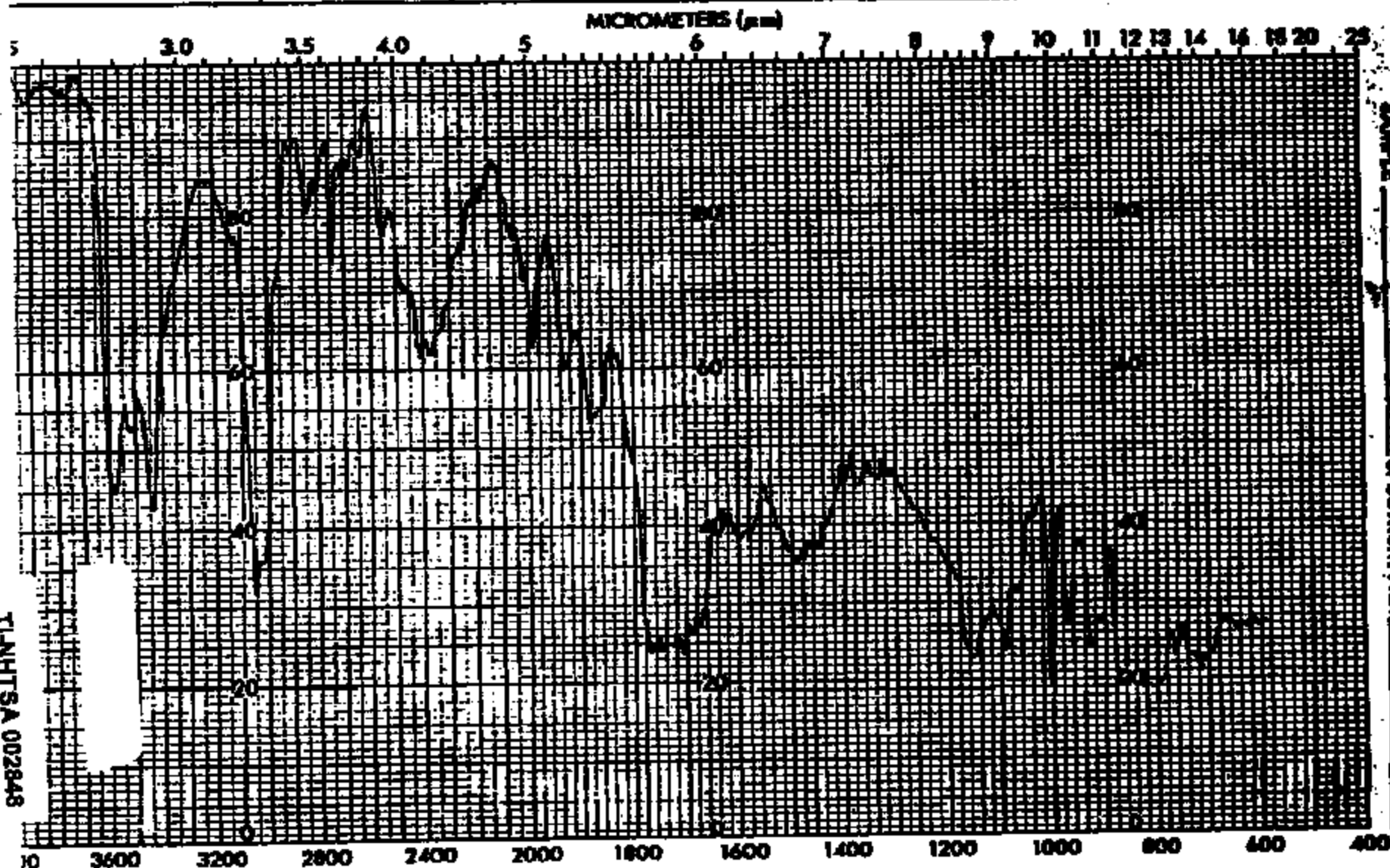


TI-NHTSA 002847

NO. 007-1493

PERKIN-ELMER

CONCENTRATION _____	SCAN MODE	ACCY. ☐	SURVEY ☐	SPECTRUM NO. _____
THICKNESS _____		HI ENERGY ☐	CAL ☐	SAMPLE <u>110732</u>
PHASE _____		RESOLUTION ☒		<u>Kapton - Teflon</u>
REMARKS _____	OPERATOR <u>EK</u>	DATE <u>9/23/91</u>	ORIGIN _____	



09 25 91

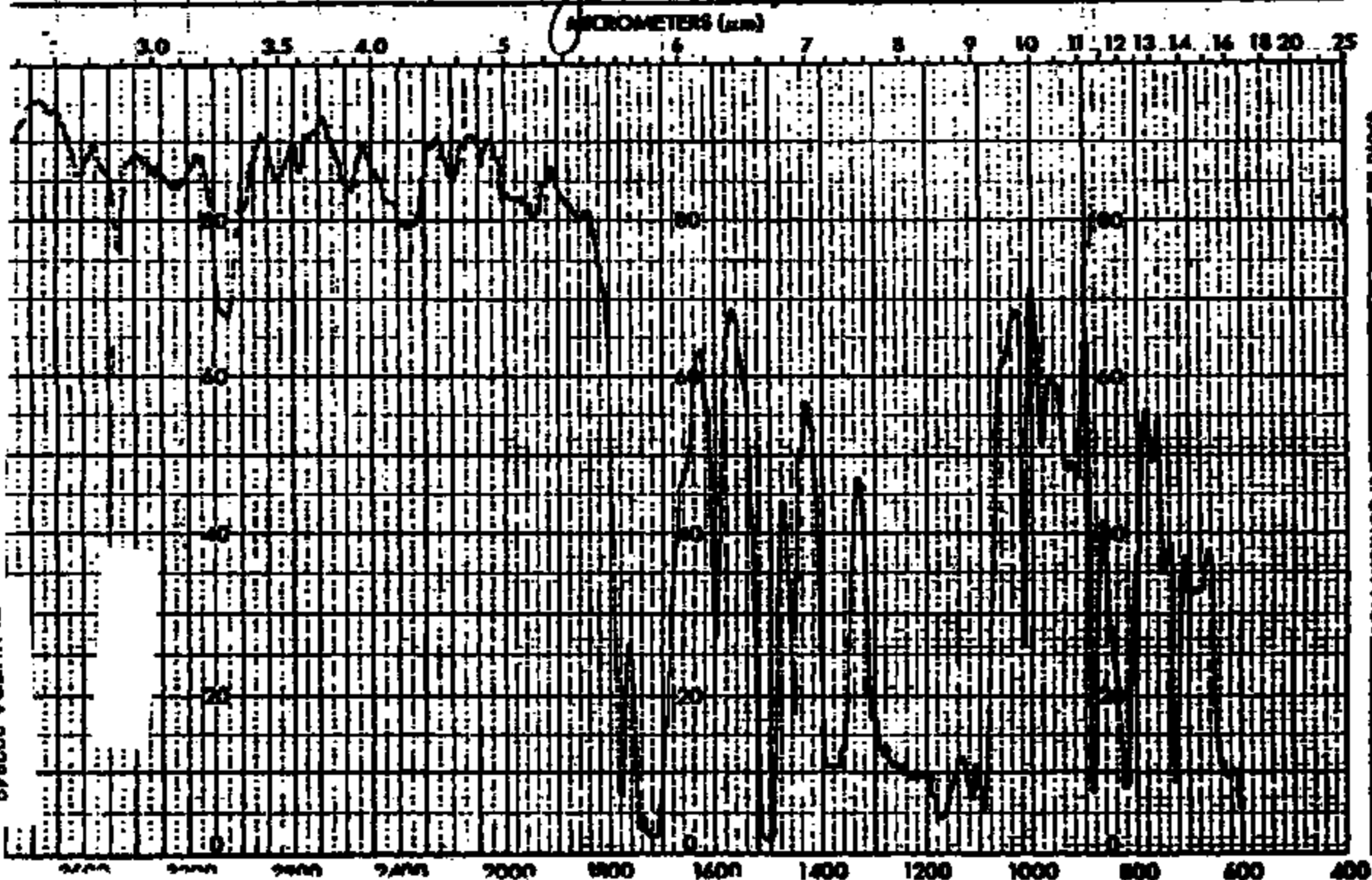
10:37 AM

SAMPLE

SPECTRUM NO.

P08

CONCENTRATION _____	SCAN MODE	ACCY. ☐	SURVEY ☐	SPECTRUM NO. _____
THICKNESS _____		HI ENERGY ☐	CAL ☐	SAMPLE <u>DUPONT KAPTON</u>
AGE _____		RESOLUTION ☒		<u>100EN099</u>
NAME _____	OPERATOR <u>S</u>	DATE <u>3/1/77</u>		ORIGIN _____



TI-NHTSA 002849

SAMPLE

SPECTRUM NO.

08.25.91 10:37 AM

P08

74176

74116

234
766

$$\frac{1232}{200}$$
$$\begin{array}{r} .0055 \\ \underline{.0045} \\ .0010 \end{array}$$

NOTE:
1.001 MAX. BURR ALLOWED

CERTIFIED PRINT
Parts Made To This Print: **MINI CONFORM 20**
ENG. STD. E9898 REV. E
Date JUL 1 1991

BEFORE THIS PRINT FOR THE INFORMATION CON-
TAINED HEREIN IS IN AGREEMENT WITH THE
APPROVED FOR RELEASE BY THE NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION ON JULY 1, 1991. IT IS
STANDARD OF QUALITY CONTROL BY THE NATIONAL

MS. 1331E 5795L
C0 98 P22 2-1-2064. AS
B225 WWS 2723 1-1-1917
CR 9524 2 4-24-25

74176-1

MAKE FROM 27225-1 (STRIP)

PRET NO.

MATERIAL

DATE				
BY	JLB 2-1-84			
CH	K.H. Wilson 2-13-84			
END	D. Street 2/19/84			



**TEXAS INSTRUMENTS
INCORPORATED
ATLANTIC, MASS., U.S.A.**

NIXON
CENTRAL INTELLIGENCE
DIVISION

১৯৭৭
 ১৯৭৮
 ১৯৭৯

DATE: 11/11/2011

74176

TI-NHTSA 002850

5

4

3

2

1

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
N		ADDED "CORE MATERIAL" COLUMN. 27225-1 & -2 "NO PUT (P)" I.D. WAS "3" CL. 15-9008, OF	5-8-90	C. J. M.

STRIP
WIDTH

NOTES:

1. STRIP TO BE INSPECTED FOR TEFLON COATING, THICKNESS, DEFORMITIES, BUBBLES, AND LAMINATE SEPARATION.
2. EACH KAPTON STRIP ROLL MUST BE LABELED WITH T.I. PART NO. ON INSIDE OF CORE.
3. NO MORE THAN 2 SPLICES PER COIL PERMITTED. SPLICES TO BE CLEARLY MARKED WITH YELLOW MYLAR.
4. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.
5. ROLLS SLITTED FROM END OF MASTER COIL NOT ACCEPTABLE.
6. BUCKLING OF THE CORE ALLOWED UP TO 1/4" MEASURED RADIALLY AWAY FROM THE CORE.
7. DENT RIP OR JAGGED EDGES ON MATERIAL NOT ALLOWED.
8. ROLLS ARE TO BE SHIPPED WITH PROTECTIVE INSERT CORES IN THE PACKING BOX.

THIS DWG. SUPERSEDES 27225 REV. "A" DATED 12-13-88

CERTIFIED PRINT
Print Made in the USA Under License to
EWS, STD. E9898 REV. E
Date JUL 1 1991

WARNING: THIS DRAWING AND THE INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE. IT IS THE POLICY OF THE U.S. GOVERNMENT TO MAKE AVAILABLE TO THE PUBLIC INFORMATION THAT IS NOT OTHERWISE RESTRICTED BY LAW.

27225-3	DUPONT 300 FR625	3 x .4 MILS	0.5	2	0.5	.002-.004	3 x 8 1/2	PLASTIC (WHITE)	
27225-3	DUPONT 300 FR131	3 x .8 MILS	1	3	1	.002-.004	8 x 8 1/2	CARDBOARD	
27225-1	DUPONT 300 FR131	3 x .8 MILS	1	3	1	.734-.798	8 x 8 1/2	CARDBOARD	
PART NO.	MATERIAL	THICKNESS (MILS)	SPLICE CONSTRUCTION (MILS) (SEE NOTE 2)	KAPTON TYPE A (A)	KAPTON TYPE B (B)	TEFLON TYPE C (C)	STRIP WIDTH (IN.)	RAD. PUT. UP (I.D., O.D., (IN.))	CORE MATERIAL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		BY TON DALL	DATE 11-1-88	TEXAS INSTRUMENTS DALLAS, TEXAS 75243-9999		KULXON CENTRAL PRODUCTION DIVISION	
TOLERANCES ON FRACTIONS DECIMALS ANGLES		CHK. C. J. M.	DATE 5-22-90	TITLE KAPTON STRIP SPECIFICATION			
REVISIONS		APPROVED		SEA B		CODE IDENT NO. 82647	
				SHEET		OF 1	

TI-NHTSA 002651

**DRAWINGS AVAILABLE UPON
REQUEST**

DIEMASTERS

CERTIFICATE OF CONFORMANCE

SHIP TO:

**TEXAS
INSTRUMENTS**



FROM
Diemasters Manufacturing, Inc.

757 Industrial Drive
Elmhurst, Illinois 60126

DATE SHIPPED: 6/18/91

PURCHASE ORDER #: 50000088

SHIPPING OR INVOICE NUMBER: 00184

MATERIAL TRACE NUMBER (P.O. # HEAT, LOT, OR ROUTE SHEET NUMBER): 65-7196

QUANTITY SHIPPED: 75,790

PART NUMBER: 27639-1

REVISION: D

PART DESCRIPTION: WASHER

OPERATION PERFORMED: MANUFACTURING

SPECIFICATION: 27639-1

REVISION: D

THE MATERIAL DESCRIBED ABOVE WAS PROCESSED, INSPECTED AND FOUND TO CONFORM TO THE DRAWING(S) AND SPECIFICATION(S) LISTED.

Quality Control
QUALITY CONTROL

08-14-91
DATE

ENCLOSURES: ☒ CERTIFICATE OF RAW MATERIAL

TRACEABLE LOT# 79

☐ INDEPENDENT LABORATORY TEST REPORT OF RAW MATERIAL

☐ INSPECTION REPORT(S)

☒ SUB ^{HEAT-TREAT} ~~PLATING~~ SUPPLIER'S CERTIFICATION(S) OF CONFORMANCE

☐ FORM _____ NON-CONFORMANCE RELEASED BY: _____

TI-NHTSA 002853

☐ REWORK EXPLANATION

RIVERDALE PLATING & HEAT TREATING, INC.

690 West 134th Street Riverdale, Illinois 60827-1184

TELEPHONES

(708) 849-2050

(312) 588-2400

DIEMASTERS MANUFACTURING, INC.

747 INDUSTRIAL DR

ELMHURST

TEL 60126-1525

27639-1

JUN - 3 1991

THIS IS TO CERTIFY THAT THE PARTS, FURNISHED AGAINST THE LISTED
PURCHASE ORDER, WERE PROCESSED IN ACCORDANCE TO SPECIFICATION.

DISPOSITION	CONTRACT NUMBER	ITEM DESCRIPTION	QTY. ORDERED	UNIT PRICE	DATE ORDERED
133431	108657	AUSTEMPER TO R/C 40-55	74,515	1,559	5/29/91
133431	108657	ZINC .0002 - .0006	74,515	1,559	5/29/91

Subscribed and sworn to before me

THIS 27 DAY OF MAY, 1991

Leonard O. Brynteson
Notary Public

"OFFICIAL SEAL"
Leonard O. Brynteson
Notary Public, State of Illinois
My Commission Expires 7/26/92

RIVERDALE PLATING & HEATING TREATING, INC.

Arvid K. Nelson
Vice President

TI-NHTSA 002854

that material meets ordered specification

Bally Diameters
TEXAS INSTR.
27639-1
QUALITY CONTROL
APR 30 1991
L. BALLO

Specification
Size
1 3/8 x 0.085
PO Number
021540
AIN Number
62276

Heat						AIN			Rockwell		
657196						C-105			B 7/78		
%C	%Mn	%P	%S	%Si	%Ni	%Cr	%Mo	%Al	%Cu	%V	%Nb
52	78	0.15	008	23							
Tensile Strength (psi)				2% Yield Strength (psi)				% Elongation in 2"			
Surface		Inclusion Rating		Grain Size							
J											
Decarburization				Microstructure							
Cold Bend											
Parallel to the rolling direction over a						Radius Bend					
Perpendicular to the rolling direction over a						Radius Bend					
Hardenability						Miscellaneous					

I certify that the above data is correct

J. D. [Signature] Date 4/24/91

Notary Public, State of New York, County of Onondaga

My commission expires 5/1/92

ROME STRIP STEEL

530 Henry St.
Rome, NY 13440

315-336-5500
FAX 315-336-5510

TI-NHTSA 002855

**DRAWINGS AVAILABLE UPON
REQUEST**



EST. 1940

K. F. BASSLER COMPANY, INC.
PRECISION TOOLING & METAL STAMPINGS

45 John William St. • Attleboro, MA 02703 • (508) 222-1061 • Fax: (508) 228-1605

MATERIAL CERTIFICATION

CUSTOMER: Texas Instruments Inc. - Attleboro
CUSTOMER ORDER NO.: 505047078
CUSTOMER PART NO.: 27406-1
REVISION: F
QUANTITY THIS SHIPMENT: 21,000
LOT NO. THIS SHIPMENT: 143
SHIPMENT DATE: 6.25.91

WE CERTIFY THAT THE MATERIAL USED TO PRODUCE THE PRODUCT IN THIS SHIPMENT, NAMELY, AK 1008 CES, CONFORMS TO TI's DRAWING AND PURCHASE ORDER REQUIREMENTS.

AUTHORIZED SIGNATURE:


Kathleen A. Penkala
Inside Sales Specialist



TI-NHTSA 002858

TELEX 001214
FAX 578-300-2010
PHONE 315-338-8500
CUM 223-3130

ROME STRIP STEEL COMPANY, INC.
530 HENRY ST. BOX 180
ROME, NEW YORK 13440

COMPLIANCE

27900-1

SALIN CODE
00072016

0 1 0 0 0 0 0 0

DATE	INVOICE NO.
02/28/91	02786

INVOICE TO: K. F. BASSLER CO., INC.
P. O. BOX 995
ATTLEBORO, MA

02703

SHIP TO: K. F. BASSLER CO., INC.
13TH-JOHN WILLIAM STS
ATTLEBORO, MA

QUANTITY (LBS)	NO. C45	NO. SKDS OR BOLS	PARTIAL COMPLETE
19,636	135	13	PART

SHIPPED BY
PAUL H

HT. NO	C	RH	P	B	SI	W	CH	NO
466700	07	36	014	000	01			

MEETS REQUIREMENTS OF:
CST. ORDER NO. 14474

COLOR CODE

17MM X 25.40MM

MILL NO.
58100

PREPAID COLLECT
PREPAID

STRAPHAS

PAPER WRAP

BOLLS

CRATES

BOX

.04600 X 1.0000

TEMPER

COILS OR CUT

200 LBS

SKINS

REID SIZE

REC. BY

WASTERS

CORES

TOLERANCE

EDGE

LENGTH SPEC

1600

RUNNERS

SPACERS

21 HI MAX

BRIDLES

BOARDS

CAPS

+00050-00050+005 -005

N03 SLIT

200 PIN 16 34

BEAM

CAMBER

FLATNESS

OIL

T-PCS

+013 -013MM +127 -127MM

ALUM KILD C-1000

500/096

TEST REPORT

(8,907 KG)

19,636

Certificate of Compliance

ATTEST:

052-06750-13 030291

Notary Public, Oneida County
My commission expires 7/1/92

DATE

3/1/91

I certify that the above figures are a true and correct copy of those contained in the records of this corporation.

A. Zingales
ROME STRIP STEEL CO., INC.

TI-NHTSA 002858

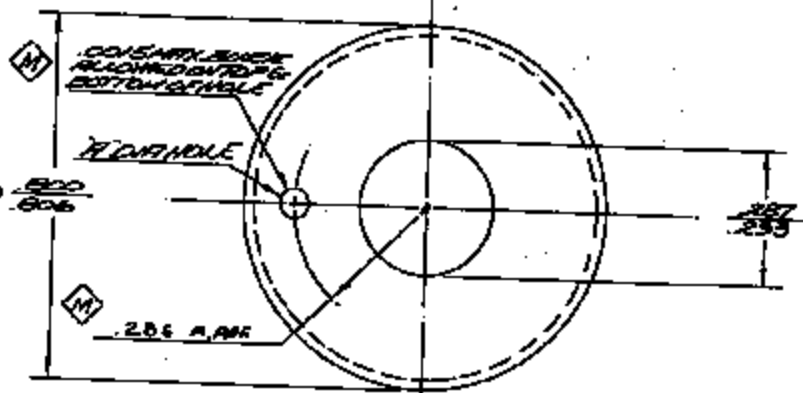
5

4

3

2

1

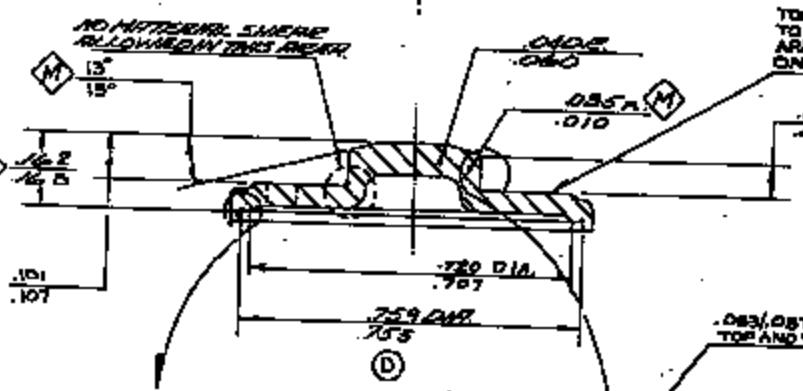


57406-1		REVISIONS		
ZONE	LTR	DESCRIPTION	DATE	APPROVED
1	A	1ST ISSUE DTPS	2-2-86	17
2	B	PHILIP'S CHG TOL.	1-24-86	17
3	C	ADDED NOTE #8	8-25-87	17
4	D	755.75 WAS CHG TO 755.75 OR MORE AS	12-7-87	17
5	E	ADDED NOTE & DIMENSION FROM PAGE 1	8-25-88	17
6	F	SEE CN	8-25-88	17

NOTE:

1. DIAMETERS MUST BE CONCENTRIC TO EXTEND TO WITHIN .008 T.I.C.
2. PARTS TO BE SAMPLED ASSIGNED AND STORED IN SEALED PLASTIC BAGS AFTER PLATING.
3. DUPLICATE DRAWING THROUGH REV. B SEE DWG. 27321.
4. THIS PART IS LOT CONTROLLED. ANY CHANGE TO THE FORMING RING PUNCH OR DIE WILL SIGNIFY THE START OF A NEW LOT. A MINIMUM LOT SIZE OF 6000 PIECES WILL BE THE ONLY EXCEPTION. ANY LOT SIZE UNDER 6000 PIECES WILL BE LARGED AND RECORDED ALONG WITH THE DATE ON EACH BOX. EACH LOT WILL HAVE ITS OWN PACKING SLIP WITH LOT IDENTIFICATION.
5. STAINS ON PRODUCT DUE TO PLATING ARE ACCEPTABLE. PARTS MUST BE ABLE TO BE PLATED PER TIS CURRENT PROCESS.

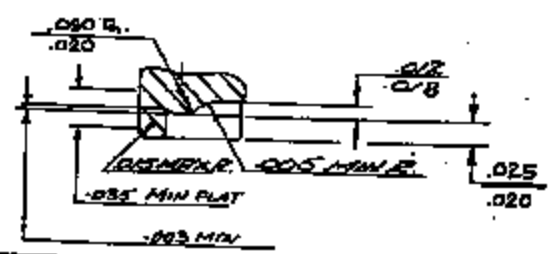
CERTIFIED PRINT
THIS PART HAS BEEN CHECKED BY
THE QUALITY CONTROL DEPARTMENT
AND FOUND TO BE CONFORMANT
WITH THE REQUIREMENTS OF THE
DRAWING AND THE TIS PROCESS
JUL 1 1991



TOOL MARKS & RING FORM NEEDED TO PRODUCE INTERNAL DETAIL ARE ALLOWED ON THIS SURFACE ONLY.

.083/.087 TO BE MEASURED AT TOP AND VERTICAL TANGENT.

.015 RADIUS



27406-1	ADD OR 1010 C.R. STEEL	065 REF.	ZINC PLATING .0002-.0004 THK
PART NO.	ARTISERIAL	75 DIA	PLATING
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	BY	DATE	10/25/87
TOLERANCE ON FINISHING DIMENSIONS	OL	DATE	1/2/88
MATERIAL	5/2/88	DATE	1/2/88
APPROVED		TITLE	CONVERTER
REV	CODE	REV NO.	27406
B	82647		
SCALE	4/1	SHEET	1 OF 1

**DRAWINGS AVAILABLE UPON
REQUEST**



PLASTIC FABRICATORS DIVISION
155 NO. MAIN STREET, FRANKLIN, N.H. 03235
603-884-2770

CERTIFICATE OF CONFORMANCE

TO: TEXAS INSTRUMENTS

DATE: JUN 3 1991

ATT: QUALITY CONTROL SUP.

THIS CERTIFIES THAT:

SHIPMENT # 159462

PART # 29958-1 REVISION 6

QUANTITY 122,000

MAT'L DESC. 6.0250 H0

IS IN CONFORMANCE WITH THE REQUIREMENTS, SPECIFICATIONS, AND DRAWINGS
ON YOUR ORDER # 004169200A2R

BY: INSULFAB PLASTICS
FRANKLIN, NH 03235

And Vignier
QUALITY CONTROL MANAGER

TI-NHTSA 002862

QUALITY CONTROL
HARLITE
MELAMINE
TRICONE
EPOXY

DISTRIBUTION AND FABRICATORS OF
TEFLON FEP TONE PLEKOLAS POLYSTYRENE
NYLON LCP/PA/PEEK NYLON

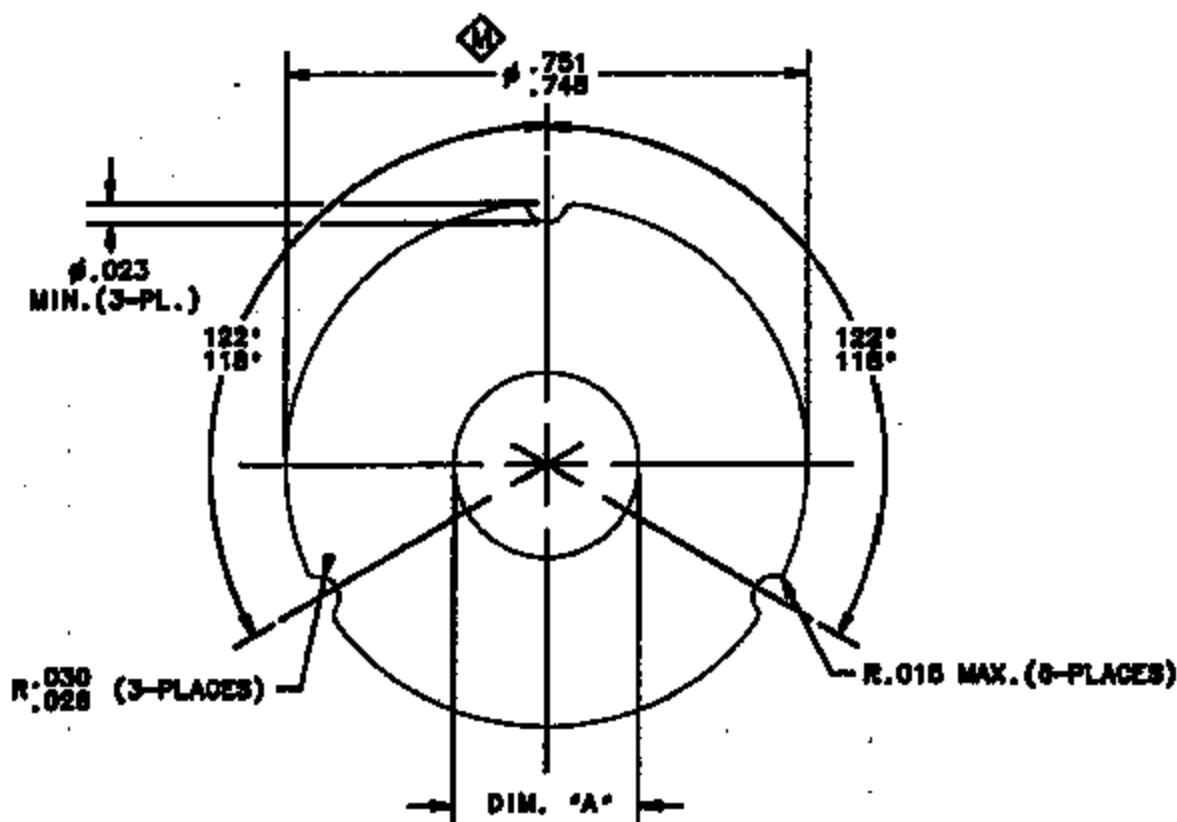
73958

TITLE

SPACER

REV.
Q

73958



NOTES:

1. .001 MAX. BURR ALLOWABLE.
2. PARTS TO BE SHIPPED, ISSUED, AND STORED IN SEALED PLASTIC BAGS.
3. ALL CONTAINERS OF PARTS MUST BE DATE CODED. DATE CODE IS TO REFLECT ANY MATERIAL LOT, TOOL OR PROCESS CHANGE. CERTIFIED PRINT
3. MATERIAL CERTIFICATION REQUIRED WITH EACH LOT.

ENG. STD. E9898 REV. E

Date JUL 1 1991

NEITHER THIS PART NOR THE INFORMATION CONTAINED HEREIN IS TO BE USED IN ANY MANNER THAT MAY BE IN VIOLATION OF FEDERAL, STATE, OR LOCAL LAWS, REGULATIONS, OR ORDINANCES, OR THAT MAY BE IN VIOLATION OF ANY OTHER APPLICABLE LAWS, REGULATIONS, OR ORDINANCES.

73958-3	MADE FROM 74224-1 (KAPTON TAPE)	NO HOLE
73958-2	DUPONTS, KAPTON 200H, .0017 - .0023 THICK	NO HOLE
73958-1	KAPTON .0017 - .0023 THICK	.250/.270
PART NO.	MATERIAL	DIM 'A'

THIS DWG. SUPERSEDES 73958 REV. 'F' DATED 10-14-88

BY TON DALL 10-10-88

CH.

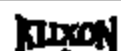
ENG. Han Hong 10/16/90

MANUFACTURE



TEXAS INSTRUMENTS

ATLANTIS, MASSACHUSETTS 02152



CONTROL PRODUCTS DIVISION

Q13 Q1 M21 P37-31P35
Q13 Q1 M21 P37-31P35
A

73958

COPY INVENT No. 002863

TI-NHTSA 002863

74224

WYLE

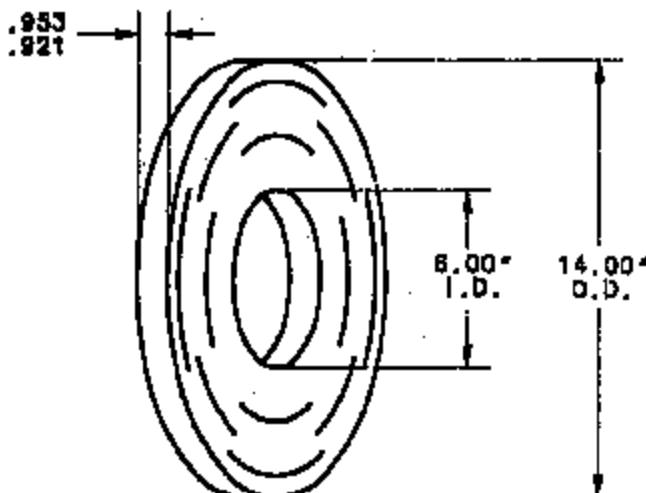
KAPTON TAPE

REV.
F

74224

NOTES:

1. ROLLS SLITTED FROM ENDS OF MASTER COIL NOT ACCEPTABLE.
2. BUCKLING OF THE CORE ALLOWED UP TO 1/4" MEASURED RADIALLY AWAY FROM THE CORE.
3. DENTS, RIPS, OR JAGGED EDGES ON MATERIAL NOT ALLOWED.
4. ROLLS ARE TO BE SHIPPED WITH PROTECTIVE INSERT CORES IN THE PACKING BOX.



CERTIFIED PRINT

Parts Made to This Print Must Conform To

ENG. STD. E9898 REV. E

Date NOV 28 1991

WHETHER THIS PRINT AND THE INFORMATION HEREON
 TANGIBLE PROPERTY IS TO BE USED AND NOT FOR
 PURPOSES OF TRADE INVENTION OR PATENT
 OR ANY OTHER RIGHTS OF ANY OF ITS OWNERS
 OR INVENTORS OR ANY OTHER RIGHTS OF ANY OF ITS OWNERS

ADDED MATERIAL BOX
 CR-100371, 10-18-80 CR

74224-1	DUPONTS, KAPTON 200H	.0017/.0023
PART NUMBER	MATERIAL	THICKNESS

TI-NHTSA 002864

THIS DWG. SUPERSEDES 74224 REV. "E" DATED 10-14-88

BY TOM DALL 10-14-88	TEXAS INSTRUMENTS ATTLEBORO, MASSACHUSETTS 01703	KLUXON CONTROL PRODUCTS DIVISION	REV. NO.	74224
CH.			A	
ENG. <i>Stan Koval</i> 10-16-90	DATE 10-16-90 MAKEPEACE			

CASE 1087 MA 00047

VALENTINE TOOL & STAMPING, INC.

171 WEST MAIN ST. MORTON, MASS. 02766
(508) 285-6811

MATERIAL CERTIFICATION

DATE : TUESDAY APRIL 30, 1991

CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO : 525052716

SUPPLIER INVOICE NO.: 79819

PART DESCRIPTION : 74797-1 CRIED RING REV.B

SUPPLIER FJO NO. : 18573

QUANTITY SHIPPED : 20,448

SHIPMENT DATE : 04/30/91

WE CERTIFY THAT THE MATERIAL USED
TO PRODUCE THE PRODUCT IN THIS
SHIPMENT, NAMELY
[5052 AL]
CONFORMS TO T.I. DRAWINGS AND
T.I. PURCHASE ORDER REQUIREMENTS.

SIGNED

Jeanne Lafamme
(Supplier Representative)

Jeanne Lafamme Quality Control Manager

TI-NHTSA 002865

VALENTINE TOOL & STAMPING, INC.

511 WEST MAIN ST. BOSTON, MASS. 02186
(508) 285-6811 226-0040

CERTIFICATE OF CONFORMANCE

DATE : TUESDAY APRIL 30, 1991

CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO : 505063716

SUPPLIER INVOICE NO.: 19319

PART DESCRIPTION : 74787-1 CRIMP RING REV.6

SUPPLIER P.O. NO. : 18573

QUANTITY SHIPPED : 20,449

SHIPMENT DATE : 04/30/91

WE CERTIFY THAT ALL ITEMS SHIPPED ON THIS ORDER MEET THE REQUIREMENTS
OF THE PURCHASE ORDER AND APPLICABLE DRAWINGS/SPECIFICATIONS. RESULTS
OF REQUIRED MECHANICAL, VISUAL, FUNCTIONAL AND CHEMICAL TESTS ARE ON
FILE IN OUR QUALITY CONTROL DEPARTMENT.

SIGNED

Jeanne Lafamme
Jeanne Lafamme
Quality Control Manager

TI-NHTSA 002866

UNITED ALUMINUM CORPORATION

100 UNITED DRIVE • NORTH HAVEN, CONNECTICUT 06473 • (203) 238-8881



9281

VALENTINE TOOL & STAMPING, INC.
171 WEST MAIN STREET
NORTON, MA 02766-0469
ATTN: DICK WHITNEY

DATE 4/18/91
P.O. # 13876
SHIPPED 4/19/91
UA ORDER # 161499

THIS IS TO CERTIFY THAT THE MATERIAL LISTED BELOW CONFORMS WITH THE CHEMICAL COMPOSITION LIMITS OF QQA-250/8F AND THE FOLLOWING ARE THE LIMITS:

AA 5052

CHEMICAL COMPOSITION

	MIN.	MAX.
SILICON		0.25
IRON		0.40
COPPER		0.1
MANGANESE		0.1
MAGNESIUM	2.2	2.8
CHROMIUM	0.15	0.35
ZINC		0.1
TITANIUM		
OTHER ELEMENTS (EACH)		.05
OTHER ELEMENTS (TOTAL)		.15
ALUMINUM	REMAINDER	

MECHANICAL PROPERTIES

TENSILE STRENGTH	28.3 KSI
ELONGATION IN 2"	20%

.032

2.312

5052-0

UNITED ALUMINUM CORPORATION

67237-1

7/7/91

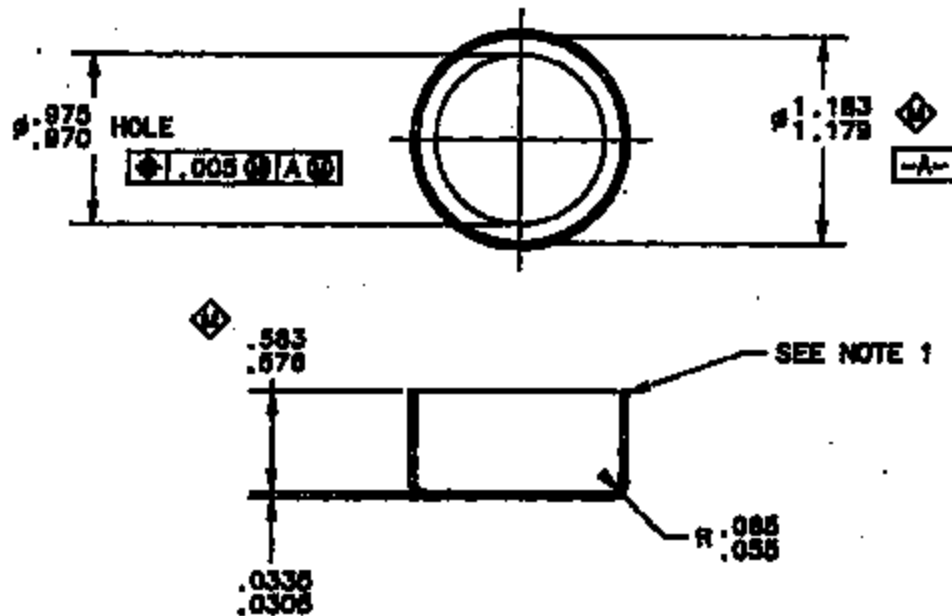
TI-NHTSA 002867

CRIMP RING

REV.
B

74797

74797



NOTES:

1. PINCH OFF RADIUS ALLOWED.
2. .002 MAX. BURR ALLOWED.
3. PARTS TO BE SHIPPED, ISSUED, AND STORED IN SEALED PLASTIC BAGS.
4. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.



SUPERSEDES DNG. 74797 REV. A DATED 11-2-90

TI-NHTSA 002868

74797-1	ALUMINUM 5052	
PART NO.	MATERIAL	FINISH

BY: GUS FLEURY 11-2-90
CH: 1-30-91
ENG: *[Signature]* 11-2-90
MAKEPLACE

TEXAS INSTRUMENTS
ATTLEBORO, MASSACHUSETTS 01735

KIDSON
CONTACT PRODUCTS
DIVISION

PL3 PL1 PL2 PL3-3 PL3-5
A 74797

Paratech, Inc.

A DIVISION OF JERRY PARK CO. INC.
MINIATURE TECHNICAL CERAMICS

15840 MINNESOTA AVENUE • P.O. BOX 718 • PARAMOUNT, CALIFORNIA 90723
TELEPHONE (213) 633-2045 • FAX (213) 633-6607

MATERIAL CERTIFICATION

DATE: 4-22-91

TEXAS INSTRUMENTS, INC.

ORDER NO.: 505049981

PART NO : 74078-146 REV. NO.: F

QUANTITY THIS SHIPMENT: 75,000

SHIPMENT DATE: 4-22-91

PART DESCRIPTION: PIN

WE CERTIFY THAT THE MATERIAL USED TO PRODUCE THE PRODUCT IN THIS
SHIPMENT, NAMELY PIN / STEATITE - L3, CONFORMS TO T.I.
DRAWING AND T.I. PURCHASE ORDER REQUIREMENTS.



PRODUCTION MANAGER

TI-NH73A 002869

74078



PART NO.	QTY.
74078-155	.155
74078-210	.210

NOTES:

1. FINISHED PARTS TO BE SHIPPED, ISSUED AND STORED IN SEALED PLASTIC BAGS. SEALED PLASTIC BAGS TO CONTAIN 20,000 PINS (OR LESS FOR PARTIAL BAGS). BAGS MUST BE CLEARLY LABELED WITH THE PART NO. AND THE QUANTITY OF PARTS IDENTIFIED ON THE OUTSIDE OF EACH BAG.
2. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.

MATERIAL: L-3 GRADE STEATITE (DC-10E5) OR
L-3 GRADE STEATITE (DC-144E) []

CURE PER SPEC.----- 50502-2

SHRINKAGE SPEC.----- 50501-1

CERTIFIED PRINT
 Parts Made To This Print Must Conform To
ENG. STD. E9898 REV. E
 Date **JUL 1 1991**
 NEITHER THIS PRINT NOR THE INFORMATION CONTAINED HEREIN IS TO BE USED IN ANY MANNER THAT MAY BE IN VIOLATION OF ANY APPLICABLE LAWS OR REGULATIONS OR THAT MAY BE IN VIOLATION OF ANY PATENT RIGHTS OR TRADE SECRET RIGHTS OR THAT MAY BE IN VIOLATION OF ANY OTHER RIGHTS OR INTERESTS OF ANY PARTY.

THIS DMO. SUPERSEDES 74070 REV. 'E' DATED 8-4-88

KEY											P13	P1	M21P37-3	P35
NY TOM DALL AD-17-88	 TEXAS INSTRUMENTS ATLANTIC, MASSACHUSETTS 02703						 CENTRAL PRODUCTS DIVISION		DWG. NO. A	DWG. NO. 74078				
CH.														
ENG. A. H. B. C. 10-2-81														

CODR IDENT No. 82847

Y52-8042

TEXAS INSTRUMENTS, INC.
BUILDING 11-16
34 FOREST STREET
ATTLEBORO, MA 02703

PARKER HANWORTH CORPORATION
JBL DIVISION
WEST CROFT CIRCLE
SPARTANBURG, S.C. 29302
TELEPHONE (803) 573-7332

J.B.L. Division of Parker Seal certifies that the material used to produce the product in this shipment, namely SILICONE/ 57424. Conforms to TI drawing and TI purchase order requirements.

PART TITLE... ENVIRONMENTAL SEAL

CUST P/N... 74247 2

J.B.L. P/N... 08042S

SILICONE COMPOUND... 57424

REV D

DATE SHIPPED

8-28-91

P/O...

R/N...

QUANTITY...

SENT/Original #9.
REPLACED with BLUE - 4 SEAL

Very Truly Yours,
J.B.L. Division

Dennis T. Johnson

DENNIS T. JOHNSON
Quality Control Manager

DTJ/MS

DTJ

TI-NHTSA 002871

73210721

TEXAS INSTRUMENTS, INC.
P.O. BOX 646
ATLEDORF, MI 42703

PARKER MANUFACT CORPORATION
JAL DIVISION
WEST CROFT CIRCLE
SPRINGDALE, S.C. 29742
TELEPHONE (843) 573-7332

J.S.L. Division of Parker Seal certifies that the material used to produce the product
in this shipment, namely SILICONE/ 87819. Conforms to TI drawing and TI purchase
order requirements.

PART TITLE... ENVIRONMENTAL SEAL

COST P/N... 74247 4 REV 3

DATE SHIPPED

P/O... 300033192

J.S.L. P/N... 207318

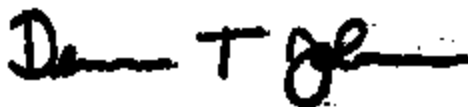
10-21-81

R/N... 11449-1

SILICONE COMPOUND... 87819

QUANTITY... 3,000

Very Truly Yours,
J.S.L. Division



DENNIS T. JOHNSON
Quality Control Manager

BTJ/mh



TI-NHTSA 002872

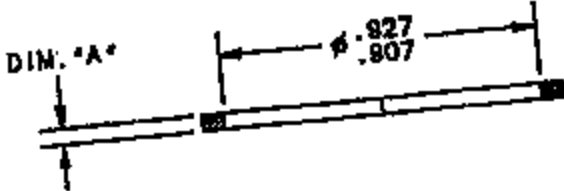
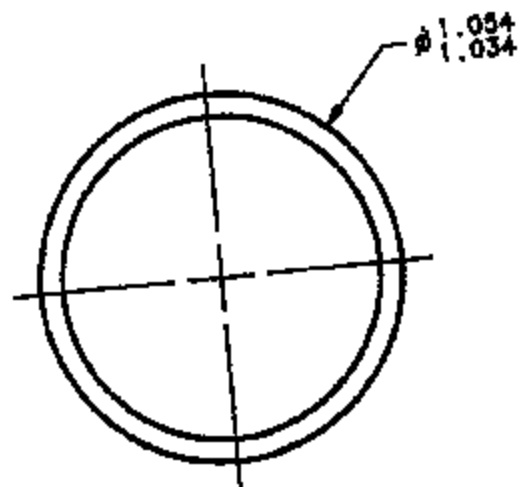
74247
 DEVICE # 52/57PS
 PROJ. # 3355

TITLE

ENVIRONMENTAL SEAL

REV
 E

74247



CERTIFIED PRINT
 Parts Made To This Print Must Conform To
 ENG. STD. E9898 REV. E
 Date NOV 22 1991
 BETWEEN THIS PRINT AND THE INFORMATION WITH
 WHICH IT IS USED, THE USER ASSUMES ALL
 LIABILITY FOR ANY DAMAGE OR INJURY TO
 PERSONS OR PROPERTY, OR FOR ANY
 CONSEQUENCES OF ANY MANNER OF
 NEGLIGENCE OR OTHER FAULT.

- NOTES:
1. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.
 2. 74247-3 IS TO BE RED IN COLOR WITH 3 BLACK MARKS ON THE EXTERNAL CIRCUMFERENCE AT 120° INTERVALS.

THIS DWG. SUPERSEDES 74247 REV. "D" DATED 10-14-88

PART NO.	MATERIAL	DURUMETER	COLOR	DIM. "A"
74247-4	SILICONE JBL (T-B-D)	55 - 85	BLUE	.045-.055
74247-3	SILICONE JBL S7424-8	55 - 85	SEE NOTE 2	.045-.055
74247-2	SILICONE JBL S7424-8	55 - 85	RED	.040-.060
74247-1	BUNA N JBL N7014-50	50 - 60	BLACK	.040-.050

1. ADDED -3, -4 AND NOTE 2.
 2. ADDED DIM. "A" TO TABLE.
 CR. 10/26/91, 10-1-91 CM

BY TOM DALL 8-18-91



TEXAS INSTRUMENTS
 ARLINGTON, MASSACHUSETTS 02763

KALIXON
 CONTROL PRODUCTS
 DIVISION

A

74247

TI-NHTSA 002

70220721

TEXAS INDUSTRIES, INC.
P.O. BOX 644
ATLANTA, GA 30303

POWELL INDUSTRIES CORPORATION
JUL. DIVISION
NEW CROFT CIRCLE
SPARTANBURG, S.C. 29302
TELEPHONE (803) 577-7332

J.B.L. Division of Powell Industries certifies that the material used to produce the product in this shipment, namely SILICONE/ 87819. Conforms to T2 drawing and T2 purchase order requirements.

PART TITLE... ENVIRONMENTAL SEAL

CART P/N... 74047 4 REV 8

DATE SHIPPED

P/N... 300023012

J.B.L. P/N... 207718

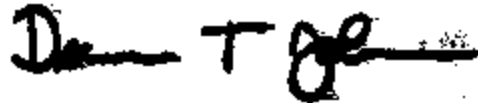
10-21-71

S/N... 91449-1

SILICONE COMPOUND... 87819

QUANTITY... 4,000

Very Truly Yours,
J.B.L. Division



ROBERT T. JOHNSON
Quality Control Manager

STG/MS



TI-NHTSA 002874

11. 21. 81 5:25 PM P02

DEVICE # 52/57PS
PROJ. # 3355

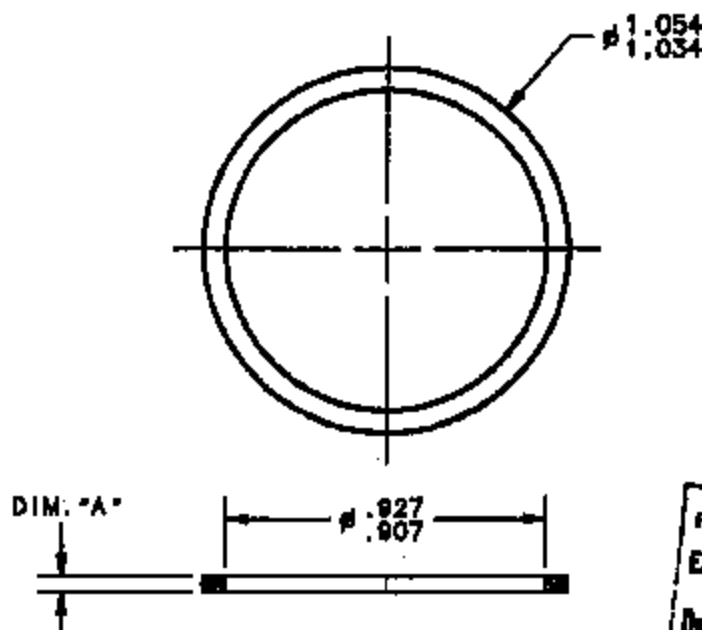
TITLE

ENVIRONMENTAL SEAL

REV
E

74247

74247



NOTES:

1. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.
2. 74247-3 IS TO BE RED IN COLOR WITH 3 BLACK MARKS ON THE EXTERNAL CIRCUMFERENCE AT 120° INTERVALS.

THIS DWG. SUPERSEDES 74247 REV. 'D' DATED 10-14-88

TI-NHTSA 002875

74247-4	SILICONE JBL (T-B-D)	55 - 65	BLUE	.045-.055
74247-3	SILICONE JBL S7424-8	55 - 65	SEE NOTE 2	.045-.055
74247-2	SILICONE JBL S7424-8	55 - 65	RED	.040-.050
74247-1	BUNA N JBL N7014-50	50 - 60	BLACK	.040-.050
PART NO.	MATERIAL	DUROMETER	COLOR	DIM. 'A'

ADDED -3, -4 AND NOTE 2.
ADDED DIM. 'A' TO TABLE.
CR. M0887, 10-1-91 CH

REV
TOM DALL 8-19-91



TEXAS INSTRUMENTS
ATTLEBORO, MASSACHUSETTS 01763

KLIXON
CONTROL PRODUCTS
DIVISION

REV
A

74247

CODE IDENT NO. 82647

TS2-8042

TEXAS INSTRUMENTS, INC.
BUILDING 11-18
34 PONDST STREET
ATLANTON, GA 30270

PARKER HANNIFIN CORPORATION
JAL DIVISION
WEST CROFT CIRCLE
SPARTANBURG, S.C. 29302
TELEPHONE (803) 579-7332

J.B.L. Division of Parker Seal certifies that the material used to produce the product
in this shipment, namely SILICONE/ 57424. Conforms to TI drawing and TI purchase
order requirements.

PART TITLE... ENVIRONMENTAL SEAL

CUST P/N... 74247 2 REV D

DATE SHIPPED

P/O... 500023131

J.B.L. P/N... 880425

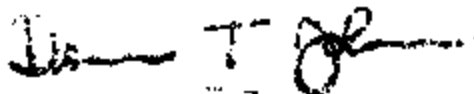
6-26-81

R/N... 17108

SILICONE COMPOUND... 57424

QUANTITY... 23,550

Very Truly Yours,
J.B.L. Division



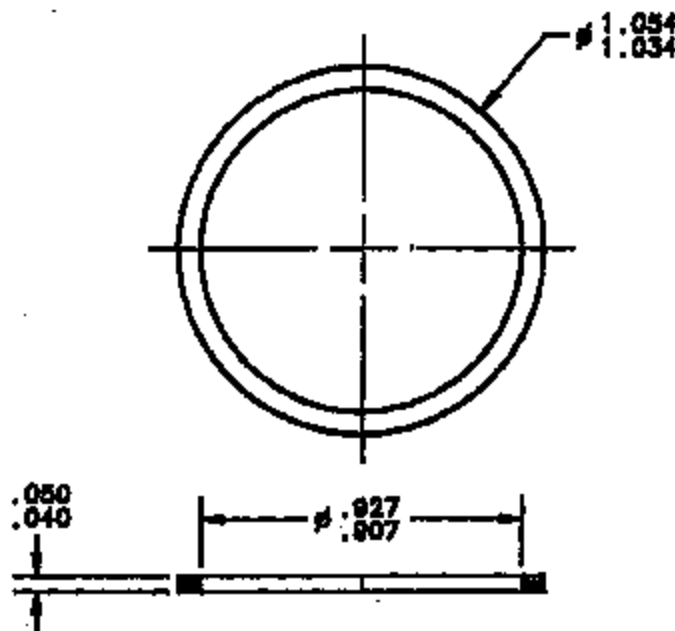
DENNIS T. JOHNSON
Quality Control Manager

DTJ/MS

DTJ

TI-NHT8A 002876

74247



CERTIFIED PRINT
Parts Made To This Print Must Conform To
ENG. STD. E9898 REV. E
Date JUL 1 1991
NEITHER THIS PRINT NOR THE INFORMATION CONTAINED THEREIN IS TO BE USED AGAINST THE INTERESTS OF TEXAS INSTRUMENTS CORPORATION OR ANY OF ITS SUBSIDIARIES OR AFFILIATES OR ANY OF THEIR EMPLOYEES OR AGENTS OR ANY OF THEIR SUBSIDIARIES OR AFFILIATES OR ANY OF THEIR EMPLOYEES OR AGENTS.

NOTES:

1. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.

THIS DWG. SUPERSEDES 74247 REV. "C" DATED 9-20-85

TI-NHTSA 002877

PART NO.	MATERIAL	DURUMETER	COLOR
74247-2	SILICONE JBL S7424-8	55 - 65	RED
74247-1	BUNA N JBL N7014-50	50 - 60	BLACK

BY TOM DALL 10-14-88

CH.

ENG. G. McKeown 11-10-88

MANUFACTURE



TEXAS INSTRUMENTS
ATTLEBORO, MASSACHUSETTS 01733

KIDCON

CONTACT PRODUCTS
DIVISION

DWG. NO. A

REV. NO.

74247

CONF. IDENT. NO. 92847

Cap

CERTIFICATE OF CONFORMANCE

TO: TEXAS INSTRUMENTS
ATTLEBORO, MASSACHUSETTS

PURCHASE ORDER NUMBER: 500023184

CUSTOMER PART NUMBER: 74179-2

PART DESCRIPTION: .343 - 3/8" THICK CAP

OUR JOB NUMBER: 168505-1

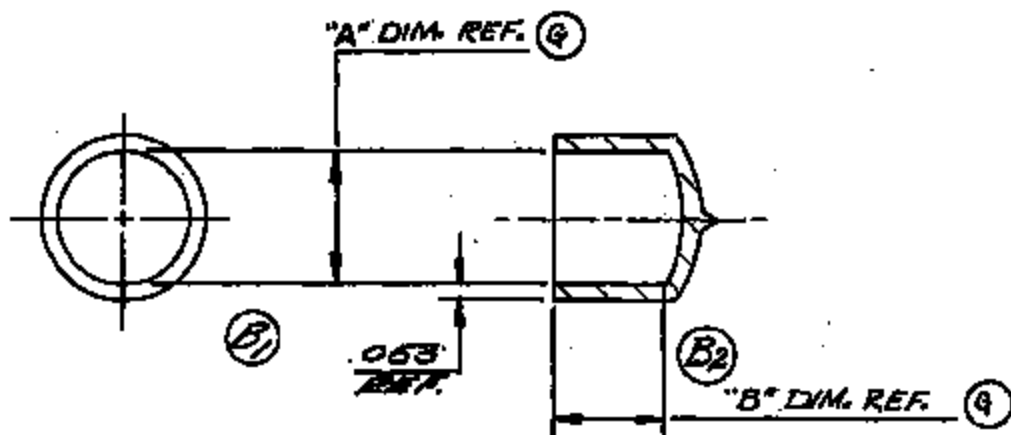
The supplier hereby certifies that adequate data is on file showing that all components and materials used in the article furnished comply with the physical and chemical properties required by our firm.

Roger J. Bankus 5-31-91
Roger J. Bankus
Quality Assurance Manager

THREAD CAP

74179

74179



NOTE:
IDENTIFICATION MEMO MUST ACCOMPANY EACH
SHIPMENT STATING THE FOLLOWING:
SINCLAIR KUSH SEC 0.343-6 (1/8" IL) TH 701-1A

(H)



TI-NHTSA 002880

74179-2	VINYL	.333/.343	.313/.438	SINCLAIR & RUSH	RED
74179-1	VINYL	.355/.365	.281/.343	MOCAP	RED
PART NOS.	MATERIAL	DIM."A"	DIM."B"	VENDOR	COLOR

BY <i>Tom Dail</i> 2/3/84	TEXAS INSTRUMENTS INCORPORATED ATLANTA, MASS., U.S.A.	KIDON CONTROL FREQUENCY EQUIPMENT	A	74179
CH. <i>R. H. W. 2/17/84</i>				
ENG. <i>D. H. 2/17/84</i>				

Case Inst. No. 02677

Engineering Specification

PRODUCTION VALIDATION FLOW CHART

72 TEST SAMPLES

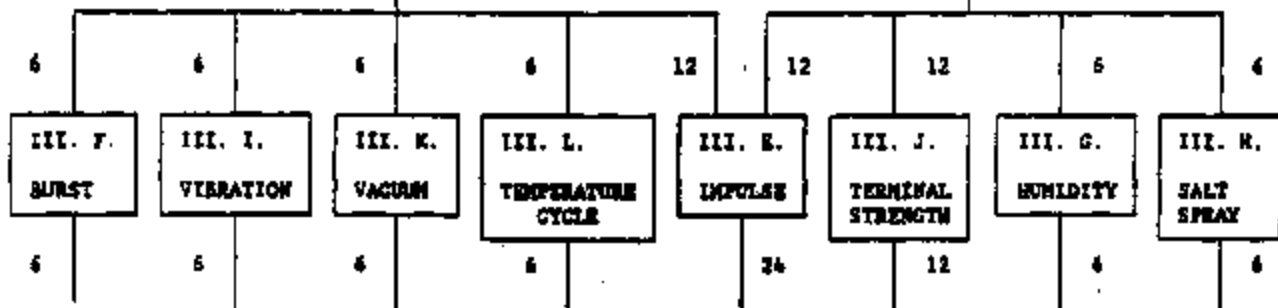
III. A. CALIBRATION
B. VOLTAGE DROP
C. CURRENT LEAKAGE
D. PROOF TEST

72

36

III. M. FLUID RESISTANCE

36



ALL MUST PASS

III. A. CALIBRATION
B. VOLTAGE DROP
C. CURRENT LEAKAGE
D. PROOF TEST

65

ALL MUST PASS

660 Tests

FRAME	OF 16	REVISED	YES-PTVC-97924-11
			NUMBER

MAY 1966 PD 3947-82 (Previous editions may NOT be used)

TI-NHTSA 002881

Ford PKG. P/C

P V Test

PIST/PIPE

ES Tests: * 660

Ford
FAI: 60

REPEAT Imp. 12

90

" FL Resist. 36

65+2

" Imp. 12

125+1

720

135+2

+Print

"Ban Dim."

K-H FAI: 520-15 Det of Sp.

TEXAS INSTRUMENTS



Ford P/C
FAI DATA

DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-9F924-AB

NOTE: MARKED PRINT DENOTES CAVITY # 1A

	BLUEPRINT SPEC	CAVITY # 2A ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4C ACTUAL	CAVITY # 5B ACTUAL	CAVITY # 6C ACTUAL	COMMENTS
1	11.92 - 11.60	11.68	11.69	11.69	11.70	11.69	
2	1.45 - 1.24	1.42	1.29	1.33	1.26	1.31	
3	19.81 - 19.45	19.62	19.64	19.64	19.60	19.66	
4	16.76 - 16.56	16.62	16.64	16.64	16.64	16.65	
5	2.55 - 2.34	2.91	2.91	2.91	2.91	2.95	
6	11.90 - 11.40	11.78	11.79	11.79	11.77	11.76	
7	2.10 - 2.79	2.84 2.85	2.93 2.94	2.84 2.95	2.96 2.89	2.89 2.85	
8	8.30 - 9.72	8.43 8.36	8.54 8.57	8.45 8.31	8.31 8.35	8.38 8.34	
9	COLOR: BROWN	OK	OK	OK	OK	OK	
10	2.95 - 1.85	2.695	2.685	2.660	2.705	2.685	TOOL TO BE CORRECTED

THE PASS CAR (F2VC-9F924-AB) AND LIGHT TRUCK (F3A-9F24-AA) SWITCHES ARE PRODUCED OFF OF THE SAME PRODUCTION TOOLING.

THE (F3A-9F24-AA) FULL DIMENSIONAL ANALYSIS FOLLOWS. DIMENSIONS # 1-10 LISTED ABOVE PERTAIN TO THE POLARITY KEY FEATURE WHICH IS DIFFERENT ON THE (F2VC-9F924-AB) SWITCH.

60
correct
dim's #1
marked on
print

60
90

OUT OF SPEC.

65
125
135

+ P/C = 12

+ 4/T = 99

= 111

586

TEXAS INSTRUMENTS INCORPORATED • 54 FORBET STREET • AUSTIN, TEXAS • 78708

800-488-2800 • TELETEX 28-7708 TWX 710-348-0888 • CABLE TEXINS

TI-NHTSA 002853

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F3TA-9F924-AA

NOTE: MARKED PRINT DENOTES CAVITY # A1

	BLUEPRINT SPEC	CAVITY # A2 ACTUAL	CAVITY # C3 ACTUAL	CAVITY # C4 ACTUAL	CAVITY # D5 ACTUAL	CAVITY # D6 ACTUAL	COMMENTS
1	13.43-13.85	13.692	13.623	13.602	13.719	13.646	
2	31DEG +/- 2DEG 90DEG 56MIN 131DEG 01MIN 30DEG 49MIN 32DEG 10MIN 32DEG 27MIN						
3	1.82 - 2.06	2.690	2.669	2.667	2.699	2.692	TOOL TO BE CORRECTED
4	18.05 MAX	18.685	18.663	18.691	18.677	18.636	
5	0.25-0.26 2PL	.199 .137	.206 .194	.245 .197	.225 .176	.169 .161	
6	0.50 +/- 0.25	.583 .510	.513 .453	.419 .347	.392 .353	.429 .596	
7	2.75-3.10 2PL	2.900 2.896	2.896 2.896	2.896 2.900	2.902 2.891	2.867 2.899	
8	19.45-19.81	19.60	19.52	19.61	19.57	19.61	
9	16.56-16.76	16.566	16.608	16.585	16.585	16.625	
10	12.80-13.21	13.040	13.036	13.033	12.978	12.956	
11	11.40-11.90	11.770	11.810	11.788	11.790	11.777	
12	2.84 - 3.05	2.925	2.917	2.923	2.920	2.923	
	0.1 A	.094	.013	.019	.004	.032	
13	1.24 - 1.45	1.397	1.294	1.292	1.328	1.326	
14	11.60-11.92	11.742	11.672	11.745	11.688	11.737	(90)

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F3TA-9F924-AA

	BLUEPRINT SPEC	CAVITY # A2 ACTUAL	CAVITY # C3 ACTUAL	CAVITY # C4 ACTUAL	CAVITY # D5 ACTUAL	CAVITY # D6 ACTUAL	COMMENTS
15	1.24 - 1.35	1.348	1.334	1.337	1.334	1.332	
16	6.60 - 6.81	6.679	6.678	6.680	6.665	6.667	
17	NO FLASH/DARR	OK	OK	OK	OK	OK	
18	7.22 - 7.75	7.549	7.646	7.639	7.454	7.425	
19	2.76 - 3.41	3.10	3.10	3.10	3.07	3.07	
20	0.87 - 1.50	1.096	1.096	1.102	1.112	1.141	
21	DATE & PARTS	OK	OK	OK	OK	OK	
22	0.229 IN 40-50 IDEE CHAMFER	UNABLE TO MEASURE	BECAUSE	BECAUSE	THREADS ARE ALREADY IN		
23	3/8-24UNF-2A	OK	OK	OK	OK	OK	
24	1.10 - 1.40	1.220	1.213	1.220	1.224	1.320	
25	2.5 C	.20	.20	.20	.20	.20	
26	0.16 D	.020	.036	.008	.023	.025	
27	14100 - 43000 MEASURED ON CROSS SECTIONED PIECE						
28	14000 - 50000 MEASURED ON CROSS SECTIONED PIECE						
29	7.82 - 8.03	7.96 7.91	7.90 7.89	7.89 7.93	7.89 7.88	7.86 7.90	
30	1.50 - 2.04	1.754	1.857	1.831	1.887	1.887	

65 +2

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F31A-9F924-BA

	BLUEPRINT SPEC	CAVITY # A2 ACTUAL	CAVITY # C3 ACTUAL	CAVITY # C4 ACTUAL	CAVITY # D5 ACTUAL	CAVITY # D6 ACTUAL	COMMENTS
31	9.35 - 9.68	9.55	9.58	9.50	9.50	9.58	
32	8.12 - 8.34	9.22	9.14	9.19	9.22	9.14	
33	14.23 MAX	13.64	13.62	13.56	13.67	13.66	
34	57.13 MAX	55.60	55.60	55.55	55.58	55.52	
35	12.85-13.11	12.83	12.83	12.83	12.80	12.83	
36	11.65-12.17	11.79	11.84	11.89	11.91	11.89	11.89
37	1.90-2.02 2PL	1.83	2.02	1.82	1.90	1.80	INERSIDE W/O KEY
38	12DEG --- 2DEG (401) MEASURED ON SEPARATE PAGE - GROBE SECTIONED						
39	35.51 MAX	31.61	31.62	32.97	31.72	31.65	31.73
40	14.02-14.53	14.231	14.221	14.225	14.222	14.221	
41	3.30 - 3.60	3.420	3.413	3.441	3.429	3.435	3.450
42	7.23 - 7.87	7.299	7.281	7.340	7.352	7.294	7.284
43	5.58 - 5.83	5.604	5.585	5.641	5.662	5.594	5.583
44	171.5DEG +/- 2DEG	172DEG 23MIN	172DEG 50MIN	172DEG 30MIN	172DEG 54MIN	172DEG 29MIN	
	(2 PL)	172DEG 24MIN	172DEG 36MIN	171DEG 33MIN	172DEG 43MIN	171DEG 44MIN	
45	1.42-1.63 2PL	1.595	1.572	1.610	1.581	1.541	1.544
46	0.35 - 0.66	.571	.557	.545	.575	.550	.573
	(4 PL)	.582	.568	.583	.583	.562	.564

1055
+1

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F3TA-9F924-AA

	BLUEPRINT SPEC	CAVITY # A2 ACTUAL	CAVITY # C3 ACTUAL	CAVITY # C4 ACTUAL	CAVITY # B5 ACTUAL	CAVITY # D6 ACTUAL	COMMENTS
47	2.59 - 2.80	L 2.681	L 2.705	L 2.687	L 2.697	L 2.709	
	(2 PL)	R 2.702	R 2.698	R 2.705	R 2.721	R 2.684	
	0.2 ± A C	L.021 R.015	L.000 R.075	L.076 R.061	L.061 R.030	L.011 R.134	
	2.463	2.444 2.450	2.465 2.390	2.399 2.384	2.394 2.495	2.476 2.311	
48	0.35 - 0.64	.463 .458	.559 .530	.571 .492	.508 .483	.476 .504	
	(4 PL)	.494 .538	.474 .505	.449 .514	.511 .509	.491 .509	
49	0.86 - 1.17	.985 .995	.959 .962	.968 .989	.990 .953	.967 .953	
	(4 PL)	.943 .952	.996 .959	.975 .923	.933 .954	.960 .974	
50	145DEG +/- 20DEG	144DEG 45MIN	143DEG 50MIN	143DEG 39MIN	143DEG 26MIN	143DEG 38MIN	
	(4 PL)	144DEG 47MIN	144DEG 45MIN	144DEG 05MIN	144DEG 39MIN	145DEG 56MIN	
		145DEG 13MIN	144DEG 37MIN	144DEG 11MIN	143DEG 12MIN	143DEG 54MIN	
		145DEG 04MIN	145DEG 20MIN	144DEG 44MIN	144DEG 23MIN	146DEG 20MIN	
51	18.30-18.72	2PL 18.392	8.450 18.352	8.423 18.364	8.499 18.345	8.429 18.509	8.392
52	12.15-12.42	2PL 12.100	2.220 12.198	2.153 12.169	2.219 12.161	2.170 12.149	2.194
53	125DEG +/- 20DEG	124DEG 22MIN	124DEG 10MIN	124DEG 47MIN	124DEG 17MIN	123DEG 37MIN	
	(2 PL)	123DEG 32MIN	123DEG 41MIN	123DEG 50MIN	123DEG 04MIN	123DEG 39MIN	
54	COLOR: BLACK	OK	OK	OK	OK	OK	
55	113-190DEG 2PL	ON CROSS	SECTIONED	PART ON	PRINT		
56	0.66 - 0.87	ON CROSS	SECTIONED	PART ON	PRINT		
57	0.10 - 0.31	.252 .278	.287 .251	.276 .260	.287 .260	.280 .257	
58	0.58 - 0.68	.625 .646	.646 .621	.648 .622	.636 .622	.644 .626	

TEXAS INSTRUMENTS INCORPORATED 5400 WEST 17TH STREET DALLAS TEXAS 75244

505-694-0800 • TELEX 98-7788 TWX 710-344-0803 • CABLE TEXINS

TI-NHTSA 002887

PIST

$$72 \times 4 = 288$$

36

36

36

$$66 \times 4 = 264$$

660

- ES Tests

**REPORT OF ICE TESTING
FORD PASSENGER CAR
ELECTRONIC SPEED CONTROL
DEACTIVATION PRESSURE SWITCH
PS/91/49**

91-09-20

1

TI-NHTSA 002889

TEXAS INSTRUMENTS INCORPORATED
CONTROL PRODUCTS DIVISION
PRECISION CONTROLS DEPARTMENT
34 FOREST STREET
ATTLEBORO, MA 02703

91-09-20

2

TI-NHT8A 002890

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1.0 GENERAL

- 1.1 Customer:** Ford Motor Company, Passenger Car Brake Systems Engineering
- 1.2 TI Part Number:** 77PSL2-1
- 1.3 Customer Part Number:** F2VC-9F924-AB
- 1.4 Specifications:** Ford Engineering Specification number (Delta) ES-F2VC-9F924-AA
- 1.5 Date of Completion:** 910920
- 1.6 Quantity of Units Tested:** 104
- 1.7 Disposition of Tested Units:**
 - 1.7.1** Devices 156-15-37 thru -42 were destroyed in Burst testing (3.5)
 - 1.7.2** All other devices are retained under quarantine.
- 1.8 TI test series number:** 156-15-104
- 1.9 TI Pressure Switch test report number:** PS/91/49

2.0 OBJECTIVE

This battery of tests was performed to demonstrate the ability of 77PSL2-1 to conform to customer specifications given in (delta) ES-F2VC-9F924-AA, in fulfillment of the requirements of the Initial Sample Report. Units tested were built using fully qualified production components and production assembly equipment.

3.0 TEST PROCEDURES AND RESULTS

All switches were tested to Ford Engineering Specification (delta) ES-F2VC-9F924-AA. A copy of this ES is included in Appendix 4.1. Procedural details are therefore omitted from the presentation of results in most cases. In those instances where the ES procedure methodology is modified, a complete explanation of the actual procedure is presented. For all tests, raw data is included in Appendix 4.2.1.

A flow chart is included in the ES (frame 4 of 18), as follows: All test devices are to be subject to an initial characterization consisting of Calibration, Voltage Drop, Current Leakage, and Proof. Devices are then divided into groups per the flow chart and subject to the indicated tests in the indicated order. Finally, devices are subject to a final characterization. However, it became necessary to deviate from this exact procedure as described below. We believe that this alternate procedure still meets the intent of the ES.

During the first phase of Impulse (3.10) testing (12 virgin devices) it was discovered that the pressure-sensing assemblies were improperly built, resulting in a reduction in life of the diaphragm. During investigation of the root cause of diaphragm problems, it was learned that the final crimp station on the automatic assembly equipment experiences this problem only on this particular part; all other devices built on this equipment are not subject to this. Witness the good results obtained with the Light Truck (F3TA-9F924-AA) version of this test (see data in Appendix 4.2.7), built on the automatic assembly equipment, as supporting evidence.

3.0 TEST PROCEDURES AND RESULTS, CONTINUED

While analysis and permanent corrective actions are ongoing, it was also learned that the manual assembly equipment which performs the final crimp produces pressure-sensing assemblies which have acceptable life. This equipment was used 4Q90 during validation of F2VC-9F924-BB (TI P/N 57PSLS-3) which uses exactly the same pressure sensing assembly, as well as to produce the rebuilt Impulse devices (157-15-81 thru -104) and will continue to be used until such time as the permanent corrective actions are in place on the automatic equipment and re-validation is completed.

To expedite completion of the switch validation, 12 of the rebuilt parts were not subjected to the Fluid Resistance test (3.9). However, this will not affect the results of the Impulse test in any way, since the various fluids do not come into contact with the diaphragm. Invoking similarity with the Light Truck (F3TA-9F924-AA) version of this test which was run simultaneously, all devices undergoing Fluid Resistance in this test easily passed their subsequent Impulse test.

3.1 CALIBRATION

- 3.1.1 Procedure: Calibration is checked at room temperature using ambient air as the pressure medium. Calibration settings, as specified on the part drawing, are actuation (electrical contacts opening) at 200 - 300 psig, and release (contacts reclosing) at 40 psig minimum. For the purpose of stabilization, actuation values are recorded on the sixth cycle, after subjecting the switch to two (2) pressure cycles to 800 psig minimum and back to zero, followed by three (3) cycles to 1.1 times actuation pressure minimum and back to zero. The change in continuity is measured while conducting 750 +/- 50 milliamperes at 13.0 +/- 1.0 volts DC.
- 3.1.2 Equipment: Custom TI designed and built pressure check station, using Heise Model CM96365 pressure gage calibrated on a regular quarterly schedule. Continuity change measured on custom TI designed and built equipment meeting the above electrical parameters.
- 3.1.3 Initial Results: All 72 original devices tested were found to be within specification.
- 3.1.4 Final Results: 42 surviving original devices were found to be within specification. 6 were destroyed in Burst (3.5), 24 were aborted from Impulse (3.10). 24 additional devices which underwent Impulse but had no initial characterization were also found to be within specification at the completion of testing.

3.2 VOLTAGE DROP

- 3.2.1 Equipment:** Fluke Model 8020B Digital Multimeter, calibrated quarterly, used in conjunction with the continuity equipment in 3.1.2.
- 3.2.2. Initial results:** The average voltage drop was 4.9 millivolts, and the standard deviation was 1.9. All values are significantly below the specification of 200 millivolts maximum.
- 3.2.3 Final results:** The average voltage drop was 6.4 millivolts, and the standard deviation was 3.5.

3.3 CURRENT LEAKAGE

- 3.3.1 Equipment: Associated Research Hypot test unit used as power source for 500 VAC, 60 Hz test circuit. Fluke Model 8020B Digital Multimeter, calibrated quarterly, used to measure voltage drop across a series resistance of one megohm (+/- 5%).
- 3.3.2 Initial results: Measuring terminals to case with switch closed; measuring terminals to case with switch open; and measuring between the terminals: the maximum current leakage observed was 2.3 microamps. All values are significantly below the specification of 100 microamps.
- 3.3.3. Final results: Same three measurements per device as 3.3.2. All current leakage values were consistent with initial results. All values are significantly below the specification of 100 microamps.

3.4 PROOF

- 3.4.1 Procedure: Calibration readings were recorded only after proof testing. Test pressure was 3000 psi per the part drawing.
- 3.4.1 Equipment: Enerpak model P-392 hydraulic hand pump using Enerpak hydraulic fluid as the pressure medium. Hydraulic fluid is removed from the devices using a combination of vacuum and residue-free solvent Sprayon(TM) Hi-Tech 02002 TF Electrical Contact Cleaner. US Gauge #33714 reading to 5000 psig with 100 psi increments, resolvable to 50 psi., calibrated quarterly. Custom TI designed and built safety enclosure.
- 3.4.2 Initial Results: No evidence of fluid leakage and no drop in test pressure was observed on any device.
- 3.4.3 Final Results: No evidence of fluid leakage and no drop in test pressure was observed on any device.

3.5 BURST

3.5.1 Devices tested: 156-15-37 thru -42.

3.5.2 Procedure: A pressure of 7000 psig was applied and held for 30 seconds minimum. Pressure was then increased slowly until failure. Failure is typically signalled by a sudden drop in test pressure of several hundred psi, which corresponds with the first point at which some internal component reaches irreversible plastic deformation and causes an increase in internal volume. The peak pressure attained as this occurs is defined as the bursting point.

3.5.3. Equipment: same as 3.4.1., with the addition of Enerpak gauge reading to 10,000 psig with 100 psi increments, resolvable to 50 psi., calibrated quarterly.

3.5.4. Results: All six devices passed 30 seconds at 7000 psig without evidence of fluid leakage or drop in test pressure. The failure point defined in 3.5.2 was recorded, and a Weibull plot generated. See data section 4.2.2. Using the statistical acceptance criteria from the ES (frame 3 of 18), a minimum Weibull slope (beta) of 31.5 and a minimum Characteristic Life (theta) of 7680.7 psi was calculated at 90% confidence. The 0.72 reliability at 90% confidence is 7414 psi. Thus, the parts exceed the burst specification of 7000 psig by 414 psi at the Ford-specified confidence and reliability levels.

3.6 VIBRATION

- 3.6.1 Devices tested: 156-15-43 thru -48.
- 3.6.2 Equipment: Vibration table, Ling, model A395 with Hewlett-Packard model 5427 controls. Air tank with 350 psig minimum pressurized Nitrogen used to actuate devices with at least 1.1 times maximum actuation specification on part drawing; $300 \text{ psig} \times 1.1 = 330 \text{ psi}$ minimum.
- 3.6.3 Results: All six switches met the acceptance criteria in the ES (frame 9 of 18; section III. I. 2.).

3.7 VACUUM

- 3.7.1 Devices tested: 156-15-49, -50, -52 thru -55.
- 3.7.2 Equipment: Kinney vacuum pump. Sensotec pressure transducer range 0-25 psia calibrated quarterly, with Fluke model 8020B Digital Multimeter readout, calibrated quarterly.
- 3.7.3 Results: All six devices met the acceptance criteria in the ES (frame 10 of 18; section III. K. 2.).

3.8 TEMPERATURE CYCLE

3.8.1 Devices tested: 156-15-56 thru -61.

3.8.2 Equipment: Thermotron model S-4 Mini-Max environmental chamber capable of -55 C to +200 C, humidity uncontrolled. Custom TI designed and built cycler, utilizing Enerpak integrated hydraulic pressure source, TI315 Programmable Logic Controller, Moog servovalve and controller, Simpson signal generator, and opposing-piston fluid isolators, to produce a hydraulic-fluid flow-type primary with a brake-fluid dead-end-type secondary terminated with a 24-station manifold equipped with internal heaters. Capability to 5 Hz at 0-1450 psig cycle. Custom TI designed and built 24 station Switch Monitor Circuit which automatically stops the cycler in the event of abnormal switch action, defined as continuity change which does not track the signal from the signal generator. Thermocouple readouts calibrated quarterly.

3.8.3 Results: All six devices met the acceptance criteria in ES (frame 11 of 18; section III. L. 2.). Data sheet in section 4.2.4 shows actual fluid and ambient temperatures attained at each cycle.

3.9 FLUID RESISTANCE

- 3.9.1 Devices tested: 156-15-01 thru -36.
- 3.9.2 Equipment: Fluids as called out in ES table (frame 12 of 18); appropriate beakers and storage apparatus; vented hood.
- 3.9.3 Results: The 36 devices were divided into groups as follows for subsequent testing. Results of these tests are reported below.
 - 3.9.3.1 Impulse (3.10), -01 thru -12
 - 3.9.3.2 Terminal Strength (3.11), -13 thru -24.
 - 3.9.3.3 Humidity (3.12), -25 thru -30.
 - 3.9.3.4 Salt Spray (3.13), -31 thru -36.

3.10 IMPULSE

- 3.10.1 Devices tested: 156-15-81 thru -104.
- 3.10.2 Procedure: 24 virgin devices were run as opposed to 12 virgins and 12 from Fluid Resistance. This is discussed in detail in section 3.0. The parameters given in the ES (frame 7 of 18, section III. E. 1.) are followed explicitly.
- 3.10.3 Equipment: same as 3.8.2 with the addition of a 12-station inductive load bank, per the schematic found in the ES (frame 18 of 18; figure 4.) used in the last 25K cycles.
- 3.10.4 Results/Discussion: Pre-characterization was not performed. After completion of the 500K cycles, all 24 devices passed the acceptance criteria found in the ES (frame 7 of 18, section III. E. 2).

This test may be regarded as the one of the most rigorous. This test is run at elevated temperature (135 C fluid), elevated pressure (1450 psig, 2 Hz), and total cycles (applying brakes 5 times per mile for 100,000 miles) which exceed conditions typically found in actual motor vehicles.

3.11 TERMINAL STRENGTH

- 3.11.1 Devices tested: 156-15-13 thru -24.**
- 3.11.2 Equipment: Custom TI designed and built fixtures for gaging terminal movement after force application and for application of impact via a pendulum. This equipment is regularly used on the 57PS/77PS assembly lines in testing to TI Quality Assurance Specifications.**
- 3.11.3 Results: All twelve devices passed the acceptance criteria found in the ES (frame 10 of 18; section III. J. 2.).**

3.12 HUMIDITY

3.12.1 Devices tested: 156-15-25 thru -30.

3.12.2 Equipment: Humidity chamber RK model 55.

3.12.3 Results/Discussion: Please note that performing a full characterization per the ES consists of actuation, release, millivolt drop, current leakage, and proof. This battery of tests when performed on six (6) devices takes approximately 2 hours to complete. Therefore "Within 15 minutes..." called out in the ES (frame 8 of 18, section III. G. 2. a.) is an acceptance requirement that is physically impossible to meet. Every effort is made to complete final characterization within the two hour period stated above.

All six devices passed the acceptance criteria found in the ES (frame 8 of 18; section III. G. 2.).

3.13 SALT SPRAY

3.13.1 Devices tested: 156-15-31 thru -36.

3.13.2 Equipment: Harshaw salt spray chamber.

3.13.3 Results: All six devices passed the acceptance criteria found in the ES (frame 8 of 18, section III. H. 2.).

Appendix 4.1
Ford Engineering Specification
(delta) ES-F2VC-9F924-AA

ES Testing

72 devices tested

6 - destroyed in Burst

66 - PASSED

72 - CAL.

72 MVD

72 current leakage

72 Prog

$396 + 66 \times 4 = 396 + 264 = 660$

see flow
chart

in test
pkg.

Do not count
#29 + 35 in
PIST data.

Make note that
these need to
be done on
blanked hex
before threads

18
12

Dim's

$$38 \times 6 = 228 + 2 = 230$$

$$7 \times 6 = 42 + 5 = 47$$

$$12 \times 6 = 72 + 13 = 85$$

$$31 \times 6 = \quad + 10 = \underline{196}$$

558

~~22~~

PIST

77 PC ISR

TI-NHT8A 002813

✓ A 1 .. P 46

✓ A 52 .. P 95

✓ A 101 .. P 144

✓ A 150 .. P 195

✓ A 202 .. P 251

MODIFIED INITIAL SAMPLE REPORT -- DIMENSIONAL

PART NUMBER: FFXH 19D394 AA

Page 2 of 3

SERIAL NO. 11 ☐[illegible]

Directions are in M-Trackers

TI-NHTSA 002914

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-9F924-48

FAI
K-H P/C DATA

	BLUEPRINT SPEC	CAVITY # 1B ACTUAL	CAVITY # 2C ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4D ACTUAL	CAVITY # 5D ACTUAL	CAVITY # 6D ACTUAL	COMMENTS
1	19.45 - 19.81	19.58	19.61	19.58	19.56	19.57	19.57	
2	16.56 - 16.76	16.59/16.58	16.62/16.64	16.62/16.63	16.58/16.59	16.54/16.56	16.59/16.59	18
3	11.80 - 13.21	12.974	13.051	13.038	13.043	13.078	12.946	
4	11.40 - 11.90	11.788	11.808	11.775	11.773	11.756	11.753	
5	2.84 - 3.05	2.99	2.92	2.92	2.92	2.93	2.98	18
	0.1 A	1.859/0.041	1.920/0.020	1.935/0.003	1.949/0.031	1.895/0.015	1.987/0.013	
6	11.60 - 11.92	11.68/11.71	11.67/11.71	11.72/11.68	11.60/11.63	11.63/11.67	11.65/11.65	24
7	1.24 - 1.45	1.252	1.250	1.280	1.280	1.290	1.266	
8	1.24 - 1.55	1.402	1.397	1.400	1.389	1.397	1.397	
9	1.85 - 2.06	2.004	1.974	1.956	1.984	1.954	1.986	
10	13.43 - 13.85	13.772	13.693	13.800	13.686	13.666	13.556	24
11	31DEG +/- 2DEG 30DEG 3MIN	29DEG 53MIN	31DEG	29DEG 04MIN	29DEG 03MIN	30DEG 08MIN		
12	2.79 - 3.10 2X	2.90/2.89	2.90/2.90	2.90/2.90	2.90/2.90	2.89/2.89	2.90/2.94	18
13	0.25 - 0.75	0.508/0.641	0.480/0.800	0.442/0.673	0.498/0.671	0.490/0.744	0.460/0.757	OUT OF SPEC. 18
14	0.05 - 0.26 2X	0.051/0.089	0.074/0.127	0.140/0.076	0.127/0.135	0.133/0.168	0.0711/0.036	1.2 -3
		0.140/0.147	0.092/0.089	0.066/0.114	0.048/0.081	0.038/0.013	0.137/0.165	
15	0 19.05 MAX	18.64	18.56/18.57	18.66/18.54	18.66/18.60	18.77/18.63	18.71/18.61	18.67
								3/6

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-9F924-08

	BLUEPRINT SPEC	CAVITY # 13 ACTUAL	CAVITY # 2C ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4D ACTUAL	CAVITY # 5D ACTUAL	CAVITY # 6D ACTUAL	COMMENTS
16	57.15 MAX	55.65	55.70	55.71	55.70	55.69	55.68	
17	12.59 - 13.11	12.74/12.86	12.72/12.84	12.77/12.76	12.76/12.77	12.75/12.81	12.73/12.80	
18	11.65 - 12.17	11.66/11.79	11.85/11.64	11.73/11.79	11.86/11.84	11.78/11.86	11.73/11.88	32
19	14.23 MAX	13.66	13.65	13.67	13.65	13.65	13.66	
20	9.39 - 9.64	9.59/9.63	9.61/9.66	9.57/9.64	9.49/9.62	9.58/9.74	9.55/9.67	OUT OF SPEC. 18 - 2
21	8.12 MIN	8.98/9.29	9.13/9.54	9.12/9.18	8.98/9.56	9.14/9.22	9.11/9.14	
22	1.52 - 2.04	2.040	1.732	1.783	1.727	1.781	1.796	
23	0 7.82-8.03	7.94/7.50	7.94	7.97/7.99	7.97	7.98	7.96	
24	6.60 - 6.81	6.640	6.698	6.693	6.647	6.665	6.642	
24A	29DEG +/- 200 47 29DEG 54MIN	30DEG 24MIN	MEASURED	ON A CROSS	SECTIONED	PART		
		30DEG 57MIN	28DEG 46MIN					34
25	1.86-2.21R 2X	1.84-1.84	1.84-1.84	1.84-1.84	1.84-1.84	1.84-1.84	1.84-1.84	
26	7.23-7.75	7.74	7.52	7.53	7.54	7.55	7.53	
26A	NO FLASH OR	OK	OK	FLASH	OK	OK	FLASH	24 - 2
	BURRS ALLOWED							
	ON SURFACE							
27	2.79-3.41	3.145	3.093	3.160	3.150	3.119	3.107	
28	0.68-1.90	1.115	1.168	1.179	1.148	1.161	1.153	12

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-PF924-RB

	BLUEPRINT SPEC	CAVITY # 1B ACTUAL	CAVITY # 2C ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4D ACTUAL	CAVITY # 5D ACTUAL	CAVITY # 6D ACTUAL	COMMENTS
28A	STAMP DATE	INVERTED	DELTA	OMITTED.	HAS SINCE	BEEN	INCLUDED	6 -6
	CODE & PART#	IN CODING	OPERATION.					
29	10.25MIN ± 40 -	N/A THREADS	HAVE BEEN	ADDED				N/A
	50DEG CHAMFER							
30	13/8-24UNF-2A	OK	OK	OK	OK	OK	OK	
31	1.10-1.40	1.316	MEASURED	ON A CROSS	SECTIONED	PART		
32	0.16 D	0.051	0.048	0.048	0.008	0.030	0.056	
33	2.5 ±	OK	MEASURED	ON A CROSS	SECTIONED	PART		
34	41DEG - 49DEG	41DEG 21MIN	MEASURED	ON A CROSS	SECTIONED	PART		15
35	40-50DEG CHAMF	N/A THREADS	HAVE BEEN	ADDED				N/A
36	32.51 MAX	31.64 31.62	31.46 31.48	31.45 31.46	31.50 31.47	31.46 31.48	31.58 31.58	
37	14.02-14.53HEX	14.11	14.11	14.11/14.13	14.11/14.13	14.12/14.15	14.11/14.12	
38	3.30-3.60	3.45 - 3.46	3.45 - 3.43	3.43 - 3.42	3.45 - 3.46	3.44 - 3.47	3.45 - 3.45	
39	7.22-7.37	7.27 7.28	7.35 7.32	7.33 7.33	7.31 7.37	7.32 7.30	7.37 7.37	46
40	5.58-5.85	5.61 5.68	5.72-5.68	5.64-5.66	5.67-5.70	5.60-5.66	5.61-5.63	
41	171.5DEG +/-	172DEG 30MIN	172DEG 11MIN	172DEG 12MIN	172DEG 24MIN	171DEG 56MIN	172DEG 10MIN	
	2DEG 2X	172DEG 30MIN	172DEG 14MIN	172DEG 50MIN	172DEG 37MIN	172DEG 11MIN	172DEG 36MIN	24

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-WF924-AB

	BLUEPRINT SPEC	CAVITY # 1B ACTUAL	CAVITY # 2C ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4D ACTUAL	CAVITY # 5D ACTUAL	CAVITY # 6D ACTUAL	COMMENTS
42	1.42-1.63 2X	1.62-1.62	1.63-1.63	1.58-1.63	1.63-1.60	1.60-1.59	1.60-1.57	
43	0.35-0.66 4X	1.66-0.65	0.57-0.59	0.57-0.60	0.58-0.58	0.58-0.57	0.57-0.59	
		0.57-0.59	0.59-0.58	0.58-0.57	0.59-0.56	0.56-0.55	0.55-0.56	
44	8.30-8.72 2X	8.43-8.46	8.51-8.44	8.41-8.44	8.42-8.42	8.59-8.43	8.42-8.56	
45	2.15-2.42 2X	2.13-2.21	2.18-2.22	2.30-2.15	2.20-2.16	2.16-2.18	2.23-2.16	#1 OUT OF SPEC 20-1
46	25DEG +/- 2 2X	24DEG 36MIN	24DEG 41MIN	23DEG 14MIN	23DEG 35MIN	23DEG 09MIN	23DEG 34MIN	
		22DEG 06MIN	23DEG 49MIN	24DEG 31MIN	23DEG 53MIN	23DEG 58MIN	24DEG 24MIN	
47	HOUSING: BROWN	BROWN	BROWN	BROWN	BROWN	BROWN	BROWN	18
48	45DEG +/- 2 4X	44DEG 36MIN	44DEG 47MIN	44DEG 09MIN	45DEG 08MIN	45DEG 37MIN	43DEG	
		45DEG 46MIN	45DEG 19MIN	49DEG 20MIN	45DEG 04MIN	44DEG 11MIN	44DEG 05MIN	
		44DEG 43MIN	45DEG 46MIN	44DEG 46MIN	45DEG 16MIN	44DEG 07MIN	44DEG 01MIN	
		45DEG 12MIN	45DEG 23MIN	45DEG 39MIN	44DEG 48MIN	45DEG 34MIN	44DEG 34MIN	24
49	0.86-1.17 4X	0.96-0.95	0.98-1.03	0.97-1.02	0.99-1.02	0.99-1.03	0.99-1.03	
		0.95-0.93	0.96-0.97	0.96-1.00	0.93-1.00	0.97-0.97	0.95-0.96	24
50	0.35-0.66 4X	0.54-0.54	0.45-0.44	0.46-0.48	0.46-0.50	0.45-0.54	0.51-0.49	
		0.46-0.51	0.49-0.52	0.54-0.53	0.52-0.52	0.50-0.54	0.51-0.44	24

**TEXAS
INSTRUMENTS**



DIMENSIONAL ANALYSIS ON PART NUMBER

F24C-9F924-AB

[illegible]

TEXAS INSTRUMENTS INCORPORATED • 24 FOREST STREET • ATTLEBORO, MA 01915
603-882-8800 • TELEX 98-7768 TWX 710-846-0006 • CABLE TEXONE

TI-NHTSA 002919

#29 435 N/A

**DRAWINGS AVAILABLE UPON
REQUEST**

-MSG N#- 98893 FR=ELB3 TO=PCQA SENT=12/16/91 12:39 PM
R#-169 ST=C DIV=0050 CC=00101 BY=ELB3 AT=12/16/91 12:39 PM

DECEMBER 16, 1991

TO: JIM WATT PCQA
CC: CHARLIE DOUGLAS CPPC
STEVE OFFILER SBO1
FR: DAVE CHARN EARN
SJ: 77PSL2-1 ISR SUBMISSION (CCPS P/C SWITCH)

*cc: Elmiral
FYI / PEST / PZPC?
data*

Jim,
As you know from the start-up meetings, we plan to send to Ford and the Tiar 1's the information required to gain full production approval. We've agreed that this information would be sent out on Friday, 12/20/91.

*great
12/16/91*

Steve Offiler will give a completed test report to you on Friday.

Please determine what else must accompany the report in order to gain approval, and have it prepared for Friday shipment. This will at least need to include a cover letter that describes what we're submitting. The cover letter should state that the test report qualifies both the partially and fully automated production processes. I'd like you to get Charlie and Steve's inputs with regard to the letter.

Thanks,
Dave Charn
/dt

TI-NHTSA 002821

-MSG N#- 122733 FR-EARN TO-PCQA SENT=12/17/91 08:26 AM
R#-193 ST-C DIV-0050 CQ-00101 BY-EARN AT=12/17/91 08:26 AM

DECEMBER 17, 1991

TO: RUSTY STRUBLE	RCS2	CC: TOM CHARBONEAU	TC
MIKE DeMATTIA	PCQA	JOHN KOURTESIS	MDES
CHARLIE DOUGLAS	CPPC	STEVE MAJOR	WHL3
DICK GARIEPY	NFFC	ANDY McGUIRK	PCQA
PAUL KOTCH	PRK1	ED O'NEILL	KJON
JOE LAZARE	JNL8		
STEVE OFFILER	SBO1	GARY SNYDER	CPPC
MATT SELLERS	PCME	MARTHA SULLIVAN	CPPC
BILL SWEET	PCME	RAY TOURANGEAU	PCME
JIM WATT	PCQA	BILL CONGDON	NFFC
CLAIRE BALTHAZAR	PSWT	STEVE MCCOONEY	MDES
TERRY RODRIGUEZ	NFFC	WILLIAM ROSE	PCQA

FR: DAVE CZARN EARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
12/12/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 12/19 (THURSDAY)
TIME: 10:00 - 11:30 AM
PLACE: CAFETERIA CUBE *****PLEASE NOTE CHANGE*****

77PS

Export:

Elco indicated a number of weeks ago that their J512 gage had unacceptable R&R. Matt will follow up to determine where the problem lies and what can be done to improve it.

. REPORT ON ELCO ISSUES FROM 7/22 VISIT KOTCH ONGOING
- 10B21 STEEL/.00015" MIN. PLATE/J512 \$
. CORRECT ELCO'S J512 GAGE R&R ISSUE SELLERS 1/23

Environmental Seal:

Blue seal material has been approved by Ford; seals are included in P/C validation testing. Striped seals will be purged from the line when the blue seals - of the same thickness - are received.

INCLUDE GASKETS IN P/C RE-VALIDATION OFFILER ONGOING
SUBMIT CHANGE NOTICES TO TIER 1'S DOUGLAS 12/12
* ENSURE THAT P/N 74247-4 IS ORDERED FOR LAZARE COMP.
77PSL2-1 WHEN NEXT ORDER IS PLACED
* REMOVE -3 AS ALTERNATE FROM P/L OFFILER 1/30 TI-NHTSA 002922

Production Issues:

. MAINTAIN RUNNING TOTAL OF L/T (L2-3) STRUBLE ONGOING
SWITCHES LEADING TO LOOK FOR AMORTIZATION 8092 ps.

1/6/92 } Release
1/13/92 } 6900
} Build
} 4K

Status Date
Dec. 12

Total Shipped
8089

- UPDATE PRODUCTION PLANS FOR ALL SWITCHES DOUGLAS ONGOING
- UPDATE PRODUCTION COMPONENT AND ASM. OFFILER 2/13
- DRAWINGS TO CURRENT DESIGN LEVEL
- CHANGE FREQUENCY OF RING GAGE CALIB. GARIEPY 1/09
- FROM ONCE/6 WEEKS TO ONCE/QTR; KEEP LOG TO DETERMINE IF GAGES ARE OUR OF CAL.

Sensor Assembly Machine:

Automated washer/converter assembly tooling effectivity runs are underway. Attachment to AMI has been delayed to early next year.

- INSTALL WASHER/CONV. STATION ON AMI SELLERS (DATE ?)
- CALL MTG. TO REVIEW AMI#2 UPGRADE PLANS SELLERS 12/19

Base Assembly Machine:

Final Assembly Machine:

Misc. Manufacturing/QC Equipment:

- MAKE QC P-TESTER COMPAT. W/77'S WATT/ROCHA COMP.
- MAKE QC CURR. LKG. TESTER COMPAT. W/77'S WATT/ROCHA COMP.

PV Testing/ISR:

Test report will be completed on Friday. Jim will prepare any additional information that is required and will ship out all information on Friday, 12/20.

- SUBMIT ADDENDUM TO PC ISR W/CORRECTED BASE DIMENSION & PIST/PIPC DATA WATT 10/18 ORIG.
- STATUS OF L/T APPROVAL DOUGLAS 12/20 REV.
- COMPLETE PV TESTING & REPORT OFFILER 11/28 ORIG.
- SEND SECOND ISR SUBMISSION TO FORD AND TIER 1'S WATT 12/19 REV.

Diaphragm Life:

- IMPLEMENT SOLUTION TO DIAPHRAGM LIFE OFFILER/SELLERS ONGOING
- SET UP MTG TO REVIEW RESULTS OF CRIMP/DIAPHRAGM LIFE STUDIES OFFILER 1/09

Miscellaneous:

- 57 TO 77 CONVERSION: PHASE 1 TESTING OFFILER/SELLERS 12/19
- COMPLETE DESIGN FMEA OFFILER 04/18 ORIG.
- DETERMINE APPROACH FOR 2A/3A THREAD CSARN/ 02/14 REV.
- GAGING ISSUE MCGUIRK 10/03 ORIG.
- 11/21 REV.

The team resolved this issue; Jim/Dave will draft a letter which will be sent to the appropriate Ford (and GM) personnel, along with

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*Labels REV
truck B
p/c A*

*If rev.
Changes.
pre-printed pkg. labels
must be
scrapped!
Rev letter
is reflective
of Ford
print*

*must use man. line dies
on AMI for sensor build*

*See Jeff
for report*

*don't
report
Cok*

the Tier 1's. The intent of the letter is to advise that we're invoking the ANSI std. in our inspection; the approved (L/T) SREA will be referenced where Ford and their Tier 1's are involved.

*SEND LETTERS TO FORD/GM AND TIER 1'S	WATT/ CHARN	1/30
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PUT SYSTEM IN PLACE TO REPORT CPK TO WAIT 12/19
FORD QUARTERLY; DETERMINE WHAT TO REPORT

Discussion: Will Ford SOA allow P chart data for calibration ??

PRODUCTION PLAN BY MONTH (THOUSANDS)

	P/C 77PSL2-1	L/T 77PSL2-3
NOV	6.4	13.6
DEC	35	9

<u>MILESTONES</u>	<u>PLANNED</u>	<u>ACTUAL</u>
77PS ISIR	09/01/91 ORIG. 09/20/91 REV. 12/20/91	09/27 - INITIAL FINAL
77PS SOP (TI)	10/91	10/91

REGARDS,
DAVE CEARN 145-FORD

REPEAT TESTING

12 Imp. / fluid resistance followed by 12 Imp = 36