

**EA02-025**

**TEXAS INSTRUMENTS, INC.'S**

**9/10/03 ATTACHMENT TO ODI**

**REQUEST #3**

**BOX 5**

**PARTS A - P**

**PART G**

**ENVIRONMENTAL TEST LAB REQUEST FORM**  
(ONE TEST PER REQUEST)

DATE 9/6/91  
 REQUIRED COMPLETION DATE 7/11/91  
 DEVICE 77P56B-1; 77P562-3  
 CHARGE DEPT. NO. 127 I.O. NO. 181060  
 REFERENCE SPEC. NO. ES-P2V6-9P924-AA  
 SOURCE OF TEST SAMPLES Design Lab  
 QUANTITY OF TEST SAMPLES 12

REQUESTED BY Jeffrey DiLorenzo  
 EXTENSION 2174 - 1427  
7/6/91  
 REPORT NO. 0933-091  
 TESTED BY LAB  
 COMPLETION DATE 9-29-91

## TEST REQUIREMENTS: (TO BE FILLED IN BY REQUESTOR)

*Please run humidity test per attached.*

## TEST PERFORMED:

START 9-16-91 16:00 CHAMBER MALFUNCTION (SHUT DOWN) ylf  
 RESTART 9-18-91 0830 HOURS  
 STOP 9-20-91 1630 HOURS

## TEST RESULTS:

EQUIPMENT USED:

CALIBRATION DATE:

NEXT DUE DATE:

Appendix 4.2.7  
Salt Spray

TEST LOT NO.	TEST	DEVICE
TESTED BY		DOC.
APPROVED BY	<b>TEXAS INSTRUMENTS</b>  MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	PAGE 12
DATE 01-05-20		

FORM 5788

**ENVIRONMENTAL TEST LAB REQUEST FORM**  
(ONE TEST PER REQUEST)

DATE 8/6/91 REQUESTED BY Jeffrey D. Domingo  
 REQUIRED COMPLETION DATE 7/16/91 EXTENSION 3142 (NO) 12-29  
 DEVICE 778562-1 ; 778562-3 John Smith 8/6/91  
 CHARGE DEPT. NO. 111 I.O. NO. 101060 REPORT NO. 0934-091  
 REFERENCE SPEC. NO. ES-FJUC-9F124-AA TESTED BY Salv  
 SOURCE OF TEST SAMPLES Passia 624 COMPLETION DATE 9-9-91  
 QUANTITY OF TEST SAMPLES 16

## TEST REQUIREMENTS: (TO BE FILLED IN BY REQUESTOR)

*Please run salt spray Test per attached.*

## TEST PERFORMED:

IN: 1430 9-6-91  
 Out: 1430 9-9-91

## TEST RESULTS:


*to be determined by requestor.*

EQUIPMENT USED:

CALIBRATION DATE:

NEXT DUE DATE:

Appendix 4.2.8  
Light Truck F3TA-9F924-AA Data

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE 50
DATE 31-03-20		

FORM 8386

PRESSURE SWITCH DATA

Form 21605

TEST NO. 157-15-100

DEVICE 771SLJ-3	DATE REQUESTED	REQUESTED BY	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Domenico	DATE STARTED 6/24/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE Ford MY '92 Electronic Speed control deactivate PS			

CUSTOMER: LT

PURPOSE OF TEST:  
Refer to Ford ES

PROCEDURE:

Current leakage

Device	Ac/Rel	W/Disp	10.0mA	10.0mA	10.0mA	Pass	Test
1070/181	201/184	4.5	1.65	1.22	1.64	Good	Fluid Res & Impulse
1071/181	202/184	4.7	1.66	1.21	1.62		Fluid Res & Impulse
1072/181	203/184	4.2	1.60	1.23	1.48		Fluid Res & Impulse
1073/181	204/184	4.6	1.63	1.25	1.47		Fluid Res & Impulse
1074/181	205/184	4.8	1.67	1.21	1.43		Fluid Res & Impulse
1075/181	206/184	6.0	1.60	1.23	1.46		Fluid Res & Impulse
1076/181	207/184	4.0	1.57	1.20	1.47		Fluid Res & Impulse
1077/181	208/184	5.0	1.76	1.23	1.40		Fluid Res & Impulse
1078/181	209/184	4.1	1.54	1.22	1.58		Fluid Res & Impulse
1079/181	210/184	4.7	1.92	1.37	1.50		Fluid Res & Impulse
1080/181	211/184	4.5	1.75	1.26	1.40		Fluid Res & Impulse
1081/181	212/184	3.6	1.76	1.27	1.42		Fluid Res & Impulse
1082/181	213/184	4.8	1.95	1.39	1.53	Good	Fluid Res & Impulse
1083/181	214/184	2.1	2.00	1.52	1.64		Fluid Res & Impulse
1084/181	215/184	4.8	1.90	1.45	1.65		Fluid Res & Impulse
1085/181	216/184	5.2	1.77	1.31	1.50		Fluid Res & Impulse
1086/181	217/184	4.7	1.61	1.31	1.57		Fluid Res & Impulse
1087/181	218/184	5.5	1.76	1.29	1.46		Fluid Res & Impulse
1088/181	219/184	5.2	1.93	1.36	1.48		Fluid Res & Impulse
1089/181	220/184	4.1	1.77	1.29	1.43		Fluid Res & Impulse
1090/181	221/184	4.0	1.93	1.38	1.55		Fluid Res & Impulse
1091/181	222/184	3.4	1.91	1.35	1.50		Fluid Res & Impulse
1092/181	223/184	4.2	1.62	1.27	1.77		Fluid Res & Impulse
1093/181	224/184	4.0	1.65	1.27	1.60		Fluid Res & Impulse
1094/181	225/184	6.4	1.92	1.42	1.50	Good	Fluid Res & Impulse
1095/181	226/184	4.6	1.91	1.42	1.57		Fluid Res & Impulse
1096/181	227/184	4.2	1.64	1.29	1.67		Fluid Res & Impulse

Coastal Leasing

Unit #	Act/Rel	AV Day	to Access	to Lease	to Lease	Proof	Tests
101-102	260/189	5.6	1.92-A	1.36-A	1.54-A	Good	Fluid test & Humidity
78	263/186	4.5	1.76	1.34	1.58		Fluid test & Humidity
11	241/179	6.8	1.79	1.22	1.51		Fluid test & Humidity
27	267/189	6.2	1.76	1.36	1.64		Fluid test & Salt Spray
28	248/171	4.3	1.65	1.23	1.61		Fluid test & Salt Spray
14	267/189	6.2	1.79	1.21	1.64		Fluid test & Salt Spray
17	259/185	5.2	1.75	1.24	1.62		Fluid test & Salt Spray
7	NOT USED						
29	211/187	6.4	1.79	1.32	1.73	Good	Fluid test & Salt Spray
31	148/111	7.7					
38	266/189	2.9	1.67	1.27	1.65	Good	Fluid test & Salt Spray
40	254/184	4.8	1.95	1.52	1.61		Burst
51	259/185	5.6	1.76	1.32	1.65		Burst
52	262/179	4.7	1.69	1.23	1.60		Burst
53	NOT USED						
54	253/175	4.7	1.77	1.38	1.66	Good	Unsett
55	261/185	4.4	1.67	1.27	1.60		Burst
56	261/182	5.0	1.95	1.32	1.67		Burst
75	262/187	6.1	1.72	1.32	1.62		Vibrations
76	264/184	7.5	1.77	1.38	1.63		Vibrations
43	267/181	3.5	1.77	1.35	1.62		Vibrations
44	253/180	11.0	1.90	1.28	1.79		Vibrations
45	NOT USED						
46	248/184	2.1	1.65	1.27	1.54	Good	Vibrations
47	264/181	5.1	1.73	1.31	1.52	Good	Vibrations
48	NOT USED						
49	257/186	5.1	1.78	1.32	1.50	Good	Vacuum
79	255/179	5.5	1.77	1.23	1.49		Vacuum
80	248/182	3.4	1.78	1.26	1.49		Vacuum
15	261/181	7.9	1.80	1.35	1.48		Vacuum
21	256/180	5.0	1.94	1.36	1.44		Vacuum
22	259/182	4.5	1.82	1.29	1.52		Vacuum
61	252/184	3.1	1.82	1.38	1.49		Temp Cycle
62	246/176	6.0	1.92	1.36	1.49		Temp Cycle
11	262/188	4.7	1.85	1.28	1.50		Temp Cycle
12	251/180	5.5	1.88	1.41	1.52		Temp Cycle
13	255/182	4.0	1.89	1.37	1.51		Temp Cycle
48	262/183	4.3	1.91	1.35	1.45		Temp Cycle
63	254/187	2.7	1.80	1.35	1.48		Temp Cycle
64	NOT USED						
65	256/179	5.0	1.82	1.36	1.45	Good	Temp Cycle
66	249/186	4.6	1.80	1.32	1.45		Temp Cycle
67	258/187	4.0	1.82	1.41	1.50		Temp Cycle
70	263/188	8.0	1.83	1.37	1.48		Temp Cycle
71	254/182	5.6	1.81	1.36	1.45		Temp Cycle
72	261/184	4.3	1.86	1.41	1.51		Temp Cycle
73	NOT USED						
74	211/181	7.4	1.94	1.41	1.51	Good	Temp Cycle
75	257/189	5.1	1.76	1.34	1.47		Temp Cycle
76	262/182	3.9	1.78	1.35	1.48		Temp Cycle
77	256/188	5.1	1.89	1.24	1.48		Temp Cycle
78	272/189	4.0	1.78	1.38	1.46		Temp Cycle

# Final Characterizations

Donor =	TESTS	Proof	Act/Rel	Mo Disp	Conc of Doping	Temp of Doping	Temp of Anneal	Conc of Anneal
157-10-01	Fluid Res 2 Tapeless	OK	237/190	3.5	1.71	1.77	1.77	
02	Fluid Res 3 Tapeless	OK	237/190	4.3	1.61	1.57	1.57	
03	Fluid Res 4 Tapeless	OK	237/193	44.3	1.64	1.57	1.57	
04	Fluid Res 5 Tapeless	OK	241/193	42.3	1.59	1.57	1.57	
05	Fluid Res 6 Tapeless	OK	238/191	2.8	1.73	1.41	1.41	
06	Fluid Res 7 Tapeless	OK	241/190	6.9	1.73	1.44	1.44	
07	Fluid Res 8 Tapeless	OK	251/195	2.5	1.72	1.38	1.38	
08	Fluid Res 9 Tapeless	OK	237/178	2.3	1.48	1.38	1.38	
09	Fluid Res 10 Tapeless	OK	239/190	2.4	1.59	1.35	1.35	
10	Fluid Res 11 Tapeless	OK	240/193	2.2	1.52	1.37	1.37	
11	Fluid Res 12 Tapeless	OK	237/177	2.2	1.47	1.37	1.37	
12	Fluid Res 13 Tapeless	OK	238/177	3.3	1.49	1.37	1.37	
13	NOT USED							
14	Fluid Res 4 Tape Strength	OK	250/180	41	1.66	1.27	1.27	
15	Fluid Res 5 Tape Strength		258/196	41	1.68	1.23	1.23	
16	Fluid Res 6 Tape Strength		256/190	42	1.65	1.41	1.41	
17	Fluid Res 7 Tape Strength		246/186	42	1.65	1.41	1.41	
18	Fluid Res 8 Tape Strength		245/202	40	1.74	1.23	1.23	
19	Fluid Res 9 Tape Strength		258/192	40	1.66	1.39	1.39	
20	Fluid Res 10 Tape Strength		245/190	40	1.74	1.37	1.37	
21	Fluid Res 11 Tape Strength		260/191	40	1.66	1.38	1.38	
22	Fluid Res 12 Tape Strength		258/195	41	1.63	1.39	1.39	
23	Fluid Res 13 Tape Strength		262/197	41	1.75	1.40	1.40	
24	Fluid Res 14 Tape Strength		258/197	40	1.72	1.35	1.35	
25	Fluid Res 15 Tape Strength		257/187	40	1.54	1.31	1.31	
26	Fluid Res 16 Humidity	OK	267/196	6.3	2.13	1.70	1.70	
27	Fluid Res 17 Humidity		261/190	4.8	2.10	1.70	1.70	
28	Fluid Res 18 Humidity		273/200	4.1	2.00	1.61	1.61	
29	Fluid Res 19 Humidity		271/199	6.7	1.66	1.45	1.45	
30	Fluid Res 20 Humidity		277/192	5.9	2.00	1.65	1.65	
31	Fluid Res 21 Humidity		279/177	5.9	2.00	1.65	1.65	
32	Fluid Res 22 Salt Spray		269/194	40	306.00	4.39	4.39	
33	Fluid Res 23 Salt Spray		264/193	40	2.18	1.90	1.90	
34	Fluid Res 24 Salt Spray		260/193	40	310.00	4.40	4.40	
35	Fluid Res 25 Salt Spray		274/205	41	310.00	307.00	307.00	
36	NOT USED							
37	Fluid Res 26 Salt Spray	OK	259/193	40	37.6	37.4	37.4	
38	NOT USED							
39	Fluid Res 27 Salt Spray	OK	257/192	40	307.00	306	306	
40	Fluid Res 28							
41	Fluid Res 29							
42	Fluid Res 30							
43	NOT USED							
44	Fluid Res 31							
45	Fluid Res 32							
46	Fluid Res 33							
47	Fluid Res 34							
48	Fluid Res 35	OK	258/197	11.6	1.53	1.26	1.26	
49	Fluid Res 36	OK	263/199	4.8	1.64	1.40	1.40	
50	Fluid Res 37	OK	245/197	3.7	1.47	1.22	1.22	
51	Fluid Res 38	OK	252/192	10.5	1.37	1.12	1.12	
52	NOT USED							
53	Fluid Res 39	OK	258/189	6.5	1.35	1.14	1.14	
54	Fluid Res 40	OK	262/196	3.2	1.37	1.14	1.14	
55	NOT USED							
56	Fluid Res 41	OK	262/195	2.4	1.34	1.41	1.41	
57	Fluid Res 42	OK	259/193	5.3	1.63	1.41	1.41	
58	Fluid Res 43	OK	253/186	6.3	1.69	1.46	1.46	



Ques	TESTS	Proof	Actual	No. Prop	6.9 (100/100)	100/100	100/100
17-15-59	Vacuum	OK	246/199	9.9	1.69	1.46	1.96
18	Vacuum	OK	248/191	9.3	1.66	1.49	1.94
19	Vacuum	OK	250/170	7.7	1.71	1.47	1.95
21	Temp. Cycle	OK	248/192	5.3	1.58	1.34	1.91
22	Temp. Cycle	OK	246/194	5.2	1.57	1.33	1.76
23	Temp. Cycle	OK	250/187	8.4	1.59	1.37	1.76
24	Temp. Cycle	OK	245/178	6.8	1.66	1.38	1.6
25	Temp. Cycle	OK	245/193	4.9	1.64	1.72	1.7
26	Temp. Cycle	OK	246/192	12.3	1.58	1.34	1.6
27	Temp. Cycle	Pass	250/181	1.9	1.74	1.59	1.5
28	NOT USED						
29	Temp. Cycle	Pass	245/179	3.1	1.53	1.46	1.5
30	Temp. Cycle	Pass	240/181	2.0	1.56	1.42	1.55
31	Temp. Cycle	Pass	242/194	1.9	1.77	1.69	1.7
32	Temp. Cycle	Pass	250/185	2.0	2.01	1.57	2.1
33	Temp. Cycle	Pass	243/196	1.9	2.11	1.72	1.95
34	Temp. Cycle	Pass	247/191	1.9	2.10	1.71	2.0
35	NOT USED						
36	Temp. Cycle	Pass	254/194	1.9	1.49	1.49	1.16
37	Temp. Cycle	Pass	246/188	19.1	1.72	1.36	1.7
38	Temp. Cycle	Pass	248/181	5.3	1.34	1.54	1.7
39	Temp. Cycle	Pass	251/194	1.9	1.98	1.57	1.7
40	Temp. Cycle	Pass	355/114	1.9	592-A	76.8	21



TI-2000

TI-NHT8A 7557

**FA/PRINT**

**TI-NHTSA 7558**




TEXAS  
INSTRUMENTS

TI-NHT8A 7559

ADDENDUM TO:  
 REPORT OF IER TESTING  
 FORD PASSENGER CAR  
 ELECTRONIC SPEED CONTROL  
 DEACTIVATION PRESSURE SWITCH  
 PE/91/49-A

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

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY <i>ASD</i>	 <b>TEXAS INSTRUMENTS</b> MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	DOC.
DATE 02-12-78		PAGE 1

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TEST LOT NO.	TEST	DEVICE
TESTED BY	 <b>TEXAS INSTRUMENTS</b> MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	DOC.
APPROVED BY		PAGE
DATE 11-12-18		2

FORM 0286

1.0 GENERAL

1.1 Customer: Ford Motor Company, Passenger Car Brake Systems Engineering

1.2 TI Part Number: 77P8L2-1

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 : 911210

1.6 Quantity of Units Tested: 48

1.7 Disposition of Tested Units:

1.7.1 All devices are retained under quarantine.

1.8 TI test number: 172-15-24  
173-15-24

1.9 TI Pressure Switch test report number: PS/91/49-A

TEST LOT NO.	TEST	MATERIALS & CONTROL GROUP ATTLEBORO, MA 02703	DEVICE
TESTED BY			DOC.
APPROVED BY	TEXAS INSTRUMENTS 		PAGE
DATE 91-12-10			

FORM 825E

TI-NHTSA 7562

## 2.0 OBJECTIVE

The original battery of tests reported in TI test report number PS/91/49 dated 910920 was performed to demonstrate the ability of TI P/N 77PSL2-1 to conform to customer specifications given in (delta) ES-FZVC-9F924-AA, in fulfillment of the requirements of the Initial Sample Report. During these original tests, problems were noted with diaphragm life during the Impulse test. It was discovered that these problems were related to the automatic pressure sensor assembly crimper, and furthermore that devices assembled on the manually-loaded crimper had no difficulty with diaphragm life. In the interest of meeting strict ISR deadlines, the Impulse portion of the test was successfully re-run using devices assembled on the manually-loaded crimper. However, these devices did not undergo the Fluid Resistance test due to time constraints. A 90-day Alert, # A10166193, was issued on 911002 (see Appendix 4.1). During this 90-day period, efforts to understand and correct the discrepancies of the automatic equipment have been made. The objective of this addendum is to report on the successful completion of the tests (Fluid Resistance and Impulse) which were compromised in the original ISR, using devices built both on the automatic equipment and the manually-loaded equipment. Crimp dies from the manually-loaded equipment were transferred to the automatic equipment in order to produce the successful test devices. The permanent corrective action will be to produce exact duplicates of these crimp dies for the automatic line.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 91-12-18		MATERIALS & CONTROL GROUP ATTLEBORO, MA 02703

FORM 1285



### 3.0 TEST PROCEDURES AND RESULTS

All switches were tested to Ford Engineering Specification (delta) ES-F2VC-9F924-AA, sections III. M. (Fluid Resistance) and E. (Impulse), with initial and final characterizations consisting of III. A. (Calibration), B. (Voltage Drop), C. (Current Leakage), and D. (Proof). Raw data is included in Appendix 4.2 and 4.3.

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
DATE 01-13-78		PAGE 1

FORM 8288

### 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 90 - 160 psig, and release (contacts reclosing) at 20 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 milliamps 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 48 devices tested were found to be within specification.
- 3.1.4 Final Results: All 48 devices tested were found to be within specification.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 11-13-11		MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703

FORM 1233

### 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 4.5 millivolts, and the standard deviation was 1.5. All values are significantly below the specification of 200 millivolts maximum.
- 3.2.3 Final results: The average voltage drop was 14.3 millivolts, and the standard deviation was 22.7. All values are significantly below the specification of 200 millivolts maximum.

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
DATE 81-12-18		PAGE 7

FORM 1288

### 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 less than 2 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. The maximum observed was 2.7 microamps. All values are significantly below the specification of 100 microamps.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 01-13-18		

FORM 0288

**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.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		MATERIALS & CONTROLS GROUP
DATE		ATTLEBORO, MA 02703
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FORM 6288

### 3.5 FLUID RESISTANCE

- 3.5.1 Devices tested: 172-15-01 thru -12  
173-15-01 thru -12.
- 3.5.2 Equipment: Fluids as called out in ES table (frame 12 of 18); appropriate beakers and storage apparatus; vented hood.
- 3.5.3 Results: The 24 devices were subject to the Impulse test following completion of Fluid Resistance.

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
DATE 61-12-18		ATTLEBORO, MA 02703

FORM 1284

### 3.6 IMPULSE

- 3.6.1 Devices tested: 172-15-01 thru -24  
173-15-01 thru -24.
- 3.6.2 Procedure: 172-15-13 thru -24 and 173-15-13 thru -24 were run together on the Impulse test per the ES. Devices 172-15-01 thru -12 and 173-15-01 thru -12 were subject to the Fluid resistance test first, then run together on the Impulse test.
- 3.6.3 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. 12-station inductive load bank, per the schematic found in the ES (frame 18 of 18; figure 4.) used in the last 25K cycles.
- 3.6.4 Results: All devices passed.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		MATERIALS & CONTROL GROUP
DATE 81-12-14		ATTLEBORO, MA 02703
		PAGE 11

FORM 5285





# Product Quality Documentation CERTIFICATE OF COMPLIANCE

BASE PN 46515-3

Order Number 50000001	Customer Part Number 12700-497	GE Part Number 1070001	Material Grade and Color NORL	GT7830 111
Lot Number N41145	Qty Shipped 2,500	U.S. Origin LS	Origin From MSI SELKIRK	Date Shipped 09/02/94
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 NORL	Shipper's Number 0204198

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  
NORL

Specification Comments

TEST	REFERENCE	REQUIREMENT	ACTUAL	(REMARKS)
<b>LOT DATA:</b>				
HOT DEGA PSI - 1/4"	ASTM D646	450.0 DEG F MINIMUM	457.0 DEG F	298 DEG C
NOTCHED IZOD IMPACT-1/8"	ASTM D256	1.5 FT-LB/IN MINIMUM	2.0 FT-LB/IN	107.0 J/M
% ELONGATION	ASTM D888	4 % MINIMUM	12 %	
TENSILE YIELD	ASTM D888	20,000 PSI MINIMUM	25,620 PSI	162.7 MPA
TENSILE MODULUS	ASTM D790	1,000,000 PSI MINIMUM	1,196,000 PSI	8,240.4 MPA
FLEXURAL STR II YIELD	ASTM D790	28,000 PSI MINIMUM	37,470 PSI	258.2 MPA
FILTERED GLASS ANALYSIS	ASH/N-RM	27.00-39.00 %	28.50 %	
SPECIFIC GRAVITY	ASTM D792	1.31-1.35 G/CC		1.32 G/CC

**PRODUCT RUBIT DATA:**

FLAMMABILITY, .100" THICK FASE-302 4.00 DAVEN MAXIMUM

% MOISTURE CONTENT KFE. FISCHER 0.50 % MAXIMUM

DATE OF LAST AUDIT: 07/94

SELF-EXTINGUISHING WIND BLW RATE 0.06 %

Post-It Fax Note 7871	Date 10-5-94
To Elaine Ross	From Ron Ditzelke
On/Dept	On/Dept
Phone 1	Phone 2
Fax 1 3153	Fax 2 3141



ROBERT D. MATTHEWS  
Quality Manager

BARRY GIBBS  
Manufacturing Manager

If you have any questions concerning this, please contact:  
GARY CHICHESTER  
1-818-475-6865

TEMS INSTRUMENTS  
MAY 15 & CONTROLS WAREHOUSE  
CROFT & FORBES INDUST'L PARK  
BLOS 15, BOOR 18 SUFFOLK ROAD  
MANFIELD WA 02048 1105

May 10, 1993

To: Elaine Rose 12-27

From: Beth Kil 10-16

Subject: GP-3 Material Confirmation  
TSL Request # 110664

**Sample Description:**

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

**Results:**

	P/N 36888-1	Spec. CDA 260
Cu (wt%)	70.8%	68.5 - 71.5%
Fe	0.017	0.05 max
Pb	0.008	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

May 10, 1993

To: Elaine Rose 12-27

From: Beth Kill 10-16

Subject: GP-3 Material Confirmation  
TSL Request # 110884

**Sample Description:**

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

**Results:**

	P/N 36887-1	Spec. CDA 260
Cu (wt%)	71.3%	68.5 - 71.5%
Fe	0.026	0.05 max
Pb	0.008	0.07 max
Zn	balance	balance
Hardness	82.5 RB	60 - 77 RB

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

Regards,

Beth X3069

**BIGELOW COMPONENTS CORPORATION**  
74 DIAMOND ROAD  
SPRINGFIELD, NEW JERSEY 07081-3190  
201-467-2100 FAX: 201-912-9397

**MATERIAL CERTIFICATION/CONFORMANCE**

Texas Instruments, Inc.  
Materials & Controls  
34 Forest Street  
Attleboro, MA 02703-2481

Shipped to: Component Whse Bldg 16  
Suffolk Rd - M&C Door 16  
Mansfield, MA 02048-1105

Your P.O. No.	-	500127521
Your Part No.	-	74916-1 Rev. F
Quantity Shipped	-	275,000
Shipment Date	-	09-29-94

We certify that all the items shipped on this order meet the requirements of the Texas Instruments purchase order and Texas Instruments drawing specifications.

We certify that the parts shipped were made of CDA 260 Brass material in accordance with Texas Instruments drawing specifications.

Sincerely,



C. Brett Harman  
CBH:es

**TI-NHT8A 7575**

# BRUSHWELLMAN

ENGINEERED MATERIALS

BRUSH WELLMAN INC. 180 PASSAIC AVE FAIRFIELD NJ 07004

201-227-2552

## CERTIFICATE OF MATERIAL QUALITY

TEXAS INSTRUMENT  
MATERIALS AND CONTROLS  
COMPONENTS WAREHOUSE BLDG. 16  
SUFFERLICK ROAD DOOR 16  
MANSFIELD MA 02048

OUR ORDER NO. FA6712 CUSTOMER NO. B97852  
OUR ITEM NO. 01 SHIPMENT NO. 015  
YOUR P.O. NO. S00019587 OR/18/94  
YOUR SPEC NO. YOUR PART NO. 27716-1 REV.B

5572808 STRIP 190 HM 27576 0.005 +0.0002 -0.0002 THICK  
17200 TM04 0.183 +0.002 -0.002 WIDTH  
COIL

SHIPMENT NBR 015 = 95.0 LBS  
HEAT NUMBER 27576 = 95.0 LBS

XXXX CHEMICAL COMPOSITION ( PERCENT ) XXXX

1.91 BE .22 CO .06 NI .03 FE .10 SI .03 AL  
.009 SN (.01 ZN .005 CR .003 PB

REMAINDER: CU

XXXX AS SHIPPED PROPERTIES XXXX

TENSILE (KSI) 142.7 - 144.8  
YIELD (KSI) 121.8 - 125.0  
ELONGATION % IN 2" 13.0 - 13.0  
HARDNESS-1 HV 302.0 - 305.0  
DUCTIVITY % IACS 19.6  
GRAIN SIZE (MM) .015 - .015

XXXXXX PC / LOT OR COIL NUMBER XXXXXXX

95- B

P = PASSED F = FAILED

*Paul J. Freund*  
QUALITY ASSURANCE MANAGER

8/18  
DATE

TI-NHTSA 7576

The  
MILFORD GROUP  
857 Bridgeport Avenue  
Milford Connecticut 06460  
Phone : 203-878-4631  
Fax : 203-878-5071

ATTENTION QUALITY ASSURANCE

CERTIFICATE OF COMPLIANCE

The Milford Group Certifies that the Purchase Order referenced on the packing slip for the part number and quantity called out on the same packing slip was processed in accordance with, and to conform to, your part number, revision, material, and process specifications as called out by your Purchase Order.

THE MILFORD GROUP

Customer : TEXAS INSTRUMENT  
Date : 09/23/94  
Part # : 800016798  
Part : 74408-1 REV  
Material : 20.9  
Finish : COPPER  
501 PLAIN

November 1, 1994

To: Elaine Rose 12-27

From: Beth Kili 10-16

Subject: Material Confirmation  
TSL Request # 110995

Sample Description:

P/N 38900-1 Hexport C10L10 Steel  
Zinc plate with chromate

Results:

	P/N 38900-1	Spec. C10L10 Steel
C (wt%)	0.110%	0.08 - 0.13% max.
Mn	0.494	0.30 - 0.60
P	0.014	0.040 max.
S	0.019	0.050 max.
Pb	0.190	0.15 - 0.35

Plate Thickness	Hex 0.000377	Per spec. 0.0003 inches min.
-----------------	-----------------	---------------------------------

Results show the case to be made of C10L10 Steel. The plating is confirmed as zinc with chromate at the specified thickness.

Regards,

Beth X3089

77429218

TEXAS INSTRUMENTS, INC.  
BUILDING 11-16  
34 FOREST STREET  
ATLANTA, GA 30303

PARKER HANIFIN CORPORATION  
JEL DIVISION  
WEST CROFT CIRCLE  
SPARTANBURG, S.C. 29302  
TELEPHONE (803) 573-7322

J.B.L. Division of Parker Seal certifies that the material used to produce the product in this shipment, namely EPDM/E7184. Conforms to TI drawing and TI purchase order requirements.

PART TITLE... GASKET

CUST P/N... 74333-1

REV B

DATE SHIPPED

P/O... 500008079

J.B.L. P/N... 20215E

L/N... 20256

9-9-84

COMPOUND... N7104

QUANTITY... 60,400

J.B.L. Division

HAROLD C. SIEGER LAB MANAGER  
DENNIS T. JOHNSON Q.A.

PREPARED BY

*William G. Johnson*

TI-NHTSA 7579



VALENTINE TOOL & STAMPING, INC.

171 WEST MAIN ST. NORTON, MASS. 02766  
(508) 285-8911

MATERIAL CERTIFICATION

DATE : TUESDAY SEPTEMBER 27, 1994

CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO : 505219617

SUPPLIER INVOICE NO. : 86914

PART DESCRIPTION : 27713-1 CUP REV.D

SUPPLIER FJO NO. : 19823

QUANTITY SHIPPED : 44,000

SHIPMENT DATE : 09/27/94

WE CERTIFY THAT THE MATERIAL USED  
TO PRODUCE THE PRODUCT IN THIS  
SHIPMENT, NAMELY  
( C1004 )  
CONFORMS TO T.I. DRAWINGS AND  
T.I. PURCHASE ORDER REQUIREMENTS.

SIGNED

  
Supplier Representative

Jeanne Lafienne Quality Assurance Manager

FORM 7000 (REV. 11/80)  
MATERIAL CERTIFICATE



E. I. DU PONT DE NEMOURS & COMPANY  
CIRCLEVILLE, OHIO 43113

NO: KC-11  
Effective Date: 04/15/83  
Page 1 of 1

MATERIAL CERTIFICATION

DATE: September 20, 1994

CUSTOMER: TEXAS INSTRUMENTS, ATLEBORO

CUSTOMER ORDER NO. 500016923-1

CUSTOMER PART NO. & REV. 27225-1 (REV. B)

QUANTITY THIS SHIPMENT 67.40

SHIPMENT DATE September 20, 1994

We certify that the material used to produce the product in this shipment, namely 500FN131 Kapton®, 3/4" wide, conforms to TI drawing and TI purchase order requirements on file with the HPV Group of the Dupont Company.

Khadijah Smith  
SUPPLIER REPRESENTATIVE  
ENGINEER - QUALITY CONTROL - TITLE

TI-NHTSA 7581

Charting a Course for Excellence

FORM 7000 (REV. 11/80)

DIEMASTERS MANUFACTURING, INC.

MATERIAL CERTIFICATION

DATE: 09.23.94

CUSTOMER: TEXAS INSTRUMENTS

SUPPLIER PURCHASE ORDER: BL-4762

CUSTOMER PURCHASE ORDER: 500016962-01

PART NUMBER: 27639-1 REV/ECO: D

PART DESCRIPTION: WASHER

QUANTITY THIS SHIPMENT: 67,000

SHIPMENT DATE: 09.23.94

TRACEABLE LOT NUMBER: TI. 297

HEAT NUMBER: DPA016

TYPE OF MATERIAL: CRS 1050

\*\*\*\*\*

WE CERTIFY THAT THE MATERIAL USED TO PRODUCE THE PRODUCT IN THIS SHIPMENT, NAMELY (SPECIFIC NAME/NUMBER OF MATERIAL), CONFORMS TO TI DRAWING AND TI PURCHASE ORDER REQUIREMENTS.

\*\*\*\*\*

SIGNED: *Allen Green*  
QUALITY ASSURANCE REPRESENTATIVE

TITLE: *Q/A Inspector*

TEST NO. 129251

TECHNICAL SERVICE LABS

LOG NO. W 545

TEST NO. 129251

REPORT OF RESULTS

- 1. 516-529-551 =
- 2. 548-553-577 =
- 3. 557-561-588 =
- 4. 584-588-595 =
- 5. 569-554-573 =
- 6. 538-538-542 =
- 7. 527-540-540 =
- 8. 572-575-571 =
- 9. 496-501-491 =
- 10. 575-568-568 =
- 11. 550-558-587 =
- 12. 512-517-522 =
- 13. 581-584-594 =

RECEIVED  
OCT 2 1994

Amc  
552 = PC 50-51

DATE RECEIVED 9/29/94

DATE OUT 9/30/94 *Amc*

TECHNICIAN			
HOURS WORKED			
PROCEDURE USED			

\*PCG I.D.

- MC-325
- PC-127
- VERB-168
- AFCC-483
- IMD-490
- TM-431
- WIRE-432
- EPD-021
- PEP-022
- C9D-036
- CLKE-122
- CAN-054
- AD DEV-288
- EMCD-077
- FACIL-514
- FACIL-521
- FACIL-691
- STAFF-056

DISTRIBUTION: White and Yellow - Lab Pink - Requestor



REV. 10-88

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

45 John Willem St. • Attleboro, MA 02703 • (508) 228-1081 • Fax (508) 228-1805

ELEMENT: 4.8 (Product Identification and Traceability) Page 1 of 1

TITLE: Material Certification FORM: 3.0 REVISION:

CUSTOMER: TEXAS INSTRUMENTS INC. (ATTEN:)

CUSTOMER ORDER NO.: 505223534

CUSTOMER PART NO.: 27406-1

PART REVISION: F

QUANTITY THIS SHIPMENT: 23,000

LOT NO(S). THIS SHIPMENT: 253

SHIPMENT DATE: 8-26-94

K.F. Bassler Co., Inc. certifies that the material used to produce the product in this shipment, namely, AK 1009 CES, conforms to 715 drawing and purchase order requirements.

AUTHORIZED SIGNATURE: *Kathleen A. Penkala*  
 Kathleen A. Penkala  
 Customer Service Manager





NO: KC-13  
 Effective Date: 3/06/92  
 Expiration Date: 3/06/93  
 Page 1 of 1

CIRCLEVILLE PLANT  
 P.O. Box 89  
 Circleville, OH 43113

MATERIAL CERTIFICATION

DATE: 2-16-93

CUSTOMER: TEXAS INSTRUMENTS, ATTLEBORO

CUSTOMER ORDER NO. 5000 85060

CUSTOMER PART NO. & REV. 74224-1 (REV. F)

QUANTITY THIS SHIPMENT 54.10 #

SHIPMENT DATE 2-16-93

We certify that the material used to produce the product in this shipment, namely 200HN Kapton<sup>®</sup>, 15/16" wide, conforms to TI drawing and TI purchase order requirements on file with the RPP Group of the Dupont Company.

*[Signature]*  
 SUPPLIER REPRESENTATIVE  
 ENGINEER - QUALITY CONTROL - TITLE

dkh/smart no. 389

VALENTINE TOOL & STAMPING, INC.

171 WEST MAIN ST. WENTON, MASS. 02766  
(508) 253-6111

MATERIAL CERTIFICATION

DATE : MONDAY OCTOBER 7, 1994

CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO : 505212250

SUPPLIER INVOICE NO.: 86944

PART DESCRIPTION : 74757-1 CRIMP RING REV.B

SUPPLIER FJO NO. : 19779

QUANTITY SHIPPED : 25,200

SHIPMENT DATE : 10/03/94

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 ) *SL*

Jeanne Lafamme Quality Assurance Manager

*Paratech, Inc.*

MINIATURE TECHNICAL CERAMICS

15940 MINNESOTA AVENUE • P.O. BOX 718 • PARAMOUNT, CALIFORNIA 90723  
TELEPHONE (213) 632-2048 • FAX (213) 632-6907

MATERIAL CERTIFICATION

DATE: 9-26-94

TEXAS INSTRUMENTS, INC.

ORDER NO.: 505219626

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

QUANTITY THIS SHIPMENT: 34,000

SHIPMENT DATE: 9-26-94

PART DESCRIPTION: PIN

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

  
\_\_\_\_\_  
PRODUCTION MANAGER



73220300

TRIAS INDUSTRIES, INC.  
MATERIALS & CONTROLS COMP DEPT  
BENTLEY ROAD W & C DOOR 10  
MANCHESTER NH 03103-1106

PARKER HANIFIN CORPORATION  
JUL DIVISION  
WEST COAST CIRCLE  
SPARTANBURG, S.C. 29024  
TELEPHONE (803) 673-7330

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

PART TITLE... ENVIRONMENTAL SEAL

CHEST P/N... 14217-4 REV J

DATE SHIPPED

P/O... 500177018

J.R.L. P/N... 303005

8-20-91

W/O... 31217-74247

SILICONE COMPONENTS... STYL

QUANTITY... 100,000

HAROLD C. HENRY LAB MANAGER  
BRENTS T. JOHNSON Q.A. MANAGER

J.R.L. Division

PREPARED BY

*Harold C. Henry*

P.V. TESTS

TI-NHTSA 7589

REPORT OF PARTIAL ISR TESTING  
 FORD PASSENGER CAR  
 ELECTRONIC SPEED CONTROL  
 DEACTIVATION PRESSURE SWITCH  
 - PS/92/62

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

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY <i>ALP</i>	 <b>TEXAS INSTRUMENTS</b>	DOC.
DATE 8-24-62		PAGE 1

FORM 5288

TI-NHT8A 7580

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3.0 TEST PROCEDURES AND RESULTS ..... 3

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    3.2 VOLTAGE DROP ..... 4

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    3.4 TERMINAL STRENGTH ..... 6

4.0 APPENDICES

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    4.2 Data # 242 ..... 11

    4.3 Data # 241 ..... 13

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 82-84-13		MATERIALS & CONTROL GROUP ATTLEBORO, MA 02708

1.0 GENERAL

1.1 Customer: Ford Motor Company, Passenger Car Brake Systems Engineering

1.2 TI Part Number: 77PSL3-1

1.3 Customer Part Number: F2AC-9F924-AA

1.4 Specifications: Ford Engineering Specification number (delta) ES-F2VC-9F924-AA

1.5 Date of Completion : 920413

1.6 Quantity of Units Tested: 36

1.7 Disposition of Tested Units:

1.7.1 All devices are retained under quarantine.

1.8 TI test number: 241-11-12  
242-03-24

1.9 TI Pressure Switch test report number: PB/92/62

2.0 OBJECTIVE

See Memorandum in Appendix 4.1 which explains the scope, extent, and intention of this partial ISR. A full battery of ES tests is planned in the near future to complete a full ISR submission.

3.0 TEST PROCEDURES AND RESULTS

All switches were tested to Ford Engineering Specification (delta) ES-F2VC-9F924-AA, sections III. E. and J., with initial and final characterizations consisting of III. A. Raw data is included in Appendix 4.2 and 4.3.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b>  MATERIALS & CONTROLS GROUP ATTLEBORO, MA 01922	DOC.
APPROVED BY		PAGE
DATE 02-04-62		

FORM 9248

TI-NHTSA 7592

### 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 90 - 160 psig, and release (contacts reclosing) at 20 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 milliamps 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 36 devices tested were found to be within specification.
- 3.1.4 Final Results: All 36 devices tested were found to be within specification.

### 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.
- 3.2.3 Final results: Performed on the Impulse devices only, as a check of degradation of the electrical contacts during the powered portion of the Impulse cycles. All values are significantly below the specification of 200 millivolts maximum.

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	TEXAS INSTRUMENTS 	DOC.
DATE 92-06-14		MATERIALS & CONTROLS GROUP ATTLESBORO, MA 01709

FORM 5286

TI-NHTSA 7593

### 3.3 IMPULSE

3.3.1 Devices tested: 242-03-01 thru -24

3.3.2 Procedure: Twenty four devices were run on the Impulse test as specified in the ES, with the exception that no devices were run on the Fluid Resistance test due to time constraints. The cycle rate used was actually 163 cycles per minute, again due to time constraints. All other parameters were as specified in the ES.

3.3.3 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. 12-station inductive load bank, per the schematic found in the ES (frame 18 of 18; figure 4.) used in the last 25K cycles.

3.3.4 Results: All devices passed.

TEST LOT NO.	TEST	DEVICE
TESTED BY	 TEXAS INSTRUMENTS	DOC.
APPROVED BY		MATERIALS & CONTROL GROUP ATTLEBORO, MA 01705
DATE 11-24-11		PAGE 5

FORM 1006

**3.4 TERMINAL STRENGTH**

3.4.1 Devices tested: 241-11-01 thru -12

3.4.2 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.

3.4.3 Results: All twelve devices passed the acceptance criteria found in the ES.

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 02-06-13		MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703



Appendix. 4.1  
Memorandum

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
DATE 02-06-13		PAGE 7

FORM 8298

**M E M O R A N D U M**

9 April 1992 - Page 1 of 3

To: Bruce Maeroff                      Ford Motor Co. Fax: 313-323-1924

CC: Dave Czarn                      TI Design Eng. Supv.  
Norm Freda                      TI Field Sales Fax: 313-553-1673  
Elaine Rose                      TI QRA

Fr: Steve Offiler                      TI Design Eng.

RE: EW53 PARTIAL ISR / VALIDATION PLAN FOR F2AC-9F924-AA

Bruce, it is my understanding that we'll be pulling together an ISR package for your perusal during your visit to our plant on Monday, 13 April. This package will be essentially based upon similarity to the F2VC-9F924-AB ISR, since only two components will be changing. Those two components are the pressure-sensing disc and the molded plastic base (switch housing). The base will undergo a First Article Inspection (FAI) which is a detailed study of all print dimensions, and material certifications from the manufacturer will be included. Below you will find detail of the ES tests which will/will not be completed for the Partial ISR (from ES F2VC-9F924-AA):

III. A. Calibration, B. Voltage Drop, C. Current Leak, D. Proof.

Only the Calibration test will be performed on the 24 devices undergoing the Impulse test (E.) below.

III. E. Impulse.

A complete 500,000 cycle Impulse test will be performed per the ES, with the exception that no devices will undergo the Fluid Resistance Test (M.) beforehand. The Impulse test is an excellent test of the ability of the entire device to withstand mechanical (pressure) cycles combined with electrical loads at elevated temperatures, and is a key test to validate the pressure-sensing disc.

TI-NHTSA 7597

MEMORANDUM

9 April 1992 - Page 2 of 3

III. F. Burst.

Changes to the base and disc should have no effect on burst performance.

III. G. Humidity, M. Fluid Resistance.

The new base material, General Electric Noryl GTX 830, has been tested previously by TI per Ford ES F3AH-19D594-AA along with a host of other engineering plastics. This CCD ES includes Humidity, and Fluid Resistance tests which are similar to the tests called out in ES F2VC-9F924-AA. Noryl was found to pass all tests.

III. H. Salt Spray.

It has been deemed unlikely that changes to the base and disc would have any effect on salt spray performance. Bear in mind that the Fluid Resistance test invoked above included a saturated salt solution, helping to prove that chemical attack will not be an issue; furthermore the environmental sealing system has not been changed in any way providing confidence that salt ingress during salt spray testing will not be an issue either.

III. I. Vibration.

Changes to the base and disc should have no effect on vibration performance.

III. J. Terminal Strength.

The terminal strength test will be performed per the ES, with the exception that no devices will undergo the Fluid Resistance Test (M.) beforehand.

III. K. Vacuum.

Changes to the base and disc should have no effect on vacuum performance.

MEMORANDUM

9 April 1992 - Page 3 of 3

III. L. Temperature Cycle.

Extensive thermal characterizations have been performed on several materials recently, including the Celanex 4300 FBT material presently used on FZVC-9F924-AB, as well as Uitem, Noryl, and Fortron. While these results are presently undocumented officially, the consistently higher performance of Noryl in terms of dimensional stability relative to Celanex during these tests gives high confidence that changes to the base should have no effect on Thermal Cycle performance.

*AS* 920409

Appendix 4.2  
Data # 242

TEST LOT NO.	TEST	MATERIALS & CONTROLS GROUP ATTLBORO, MA 02703	DEVICE
TESTED BY			DOC.
APPROVED BY	<b>TEXAS INSTRUMENTS</b> 	PAGE 11	
DATE 12-04-11			

FORM 8888

PRESSURE SWITCH DATA

Form 21605

TEST NO. 742-03-24

DEVICE 77PSL3-1	DATE REQUESTED 9/20/10	REQUESTED BY Steve Off. 1st	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Domercq	DATE STARTED 9/20/10	DATE COMPLETED 9/20/10	APPROVED BY

PROJECT TITLE: Speed Control

CUSTOMER:

PURPOSE OF TEST: Partial ISR of 77PSL3-1

PROCEDURE: Impulse test, per Ford ES, of 29 production devices.

Device ID	Exit Act-Rel		Part Act-Rel	ms drop
24-03-01	109-102	I	92-109	15.3
-02	112-119		106-110	3.6
-03	116-101	"	114-102	5.6
-04	115-114	P	117-110	2.6
-05	120-116	h	121-117	25.9
-06	122-102	f	123-102	3.7
-07	126-115		124-109	0.7
-08	127-112	3	126-110	22.5
-09	128-118	c	124-107	0.5
-10	129-122		122-102	26.7
-11	130-121	f	120-114	7.5
-12	132-108	g	120-105	4.2
-13	133-119	3	126-108	3.2
-14	131-107	f	125-107	10.3
-15	132-109		127-106	9.7
-16	129-102		122-111	3.8
-17	129-110		121-111	3.7
-18	135-110		127-109	4.0
-19	131-102		115-107	5.6
-20	130-103		125-107	2.0
-21	135-113		140-112	6.4
-22	135-102		132-109	15.1
-23	132-102		120-102	6.6
-24	137-101		129-107	6.1

Appendix 4.3  
Data # 241

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE 14
DATE 02-06-12		MATERIALS & CONTROL GROUP ATTLEBORO, MA 01915

TI FORM 8000

**PRESSURE SWITCH DATA**

Form 21605

TEST NO. 24-11-12

DEVICE <u>77 PS</u>	DATE REQUESTED <u>920409</u>	REQUESTED BY <u>57100 OFF/104</u>	REQUESTED COMPL. DATE
FORMED BY <u>Rich Demers</u>	DATE STARTED <u>920409</u>	DATE COMPLETED <u>920410</u>	APPROVED BY

PROJECT TITLE: Speed Control

CUSTOMER:

PURPOSE OF TEST: Part of Neryl base/silent disc validation

PROCEDURE: Production build 77PS with natural Neryl bases and 1st "P" silent discs. Characterize in pressure tester. Run standard terminal strength tests per Ford ES and recharacterize.

Device #	203 Act/Act	203 Act/Act						
24-11-08124-100	100	100	100					
- 01 127-95	95	110	95					
- 02 127-95	95	107	95					
- 07 124-100	100	105	101					
- 05 124-95	95	116	97					
- 06 121-101	101	120	102					
- 02 122-101	101	122	103					
- 08 120-97	97	129	98					
- 09 121-102	102	127	107					
- 10 124-97	97	125	102					
- 11 125-95	95	128	100					
- 12 121-101	101	121	100					



Appendix 4.1  
Alert

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 01-13-10	MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	10

FORM 829E

ALERT DETAIL  
\*\*\*\*\*

PRINT DATE/TIME: 91/10/11 09:30  
PAGE: 1

ALERT NUMBER  
A10166193

ORIGIN ACTIVITY: NCOB CHASSIS PGO (LHCS) - TYPE: (U) UDB PPK  
ORIGINATOR: PEASE, R. F. DATE: 91/10/02  
CPEC: 060605 PHONE: 32-37933  
NOTICE NO: STATUS: A  
LOCATION: RM 1011, BLDG 5, 0  
RESOLVING OFFICE:

ALERT DESC: PERMIT TEXAS INSTRUMENTS TO SHIP SPEED CONTROL REDUNDANT DEACTIVATION SWITCH, P2VC-07024-AD, WITH EXCEPTION TO THE ISTANDARD MANUFACTURING/ASSEMBLY PROCESS CONSISTING OF 1992 LINCOLN TOWN CAR, CROWN VICTORIA, GRAND MARQUIS WITH NEW REGULATION SPEED CONTROL.  
MODEL CORES: CVFA CVFH CVVH MODEL YEAR: 92  
PLANTS AFFECTED: NA17  
RSH CONCERN CTRL: ENH CONCERN CTRL:  
PROGRAM: EFFECTIVE IN:  
QTY: TIME: 900 EMISSION CODE: 000  
EST INCRM VAE COST: -0.92 EST INCRM TOOL COST: 0  
EST INCRM VMO COST: EST INCRM FAE COST: 0  
UNIT MEASURE: APPEARANCE: WT EFFECT: 0.000  
SUPP DOC:

\*\*\*\*\* AFFECTED PARTS \*\*\*\*\*

APP PART NO:	060605	APP PART DESC:	REL INH: N
CPEC:		NOTICE:	
ACT:	INTER	SUPPLY/LOCAL:	FUNC RECD:
		SUPPLIER:	
		AVAIL:	

\*\*\*\*\* FURTHER DESCRIPTION/ALERT RESOLUTION/REASON FOR REJECTION ETC. \*\*\*\*\*

USERID: RFP2409 ACTIVITY: NCOB ENTRY DATE: 91/10/02  
ALERT DESC: USING A MANUALLY LOADING SENSOR CRIMPING MACHINE VERSUS THE AUTOMATIC IN LINE LOADED CRIMPER. THE AUTOMATIC CRIMPER HAS BEEN DETERMINED TO HAVE A TIE TO BE DEFINED DEFICIENCY THAT RESULTS IN PART FAILURE TO MEET THE REQUIRED NUMBER OF CYCLE IN THE IMPULSE TEST. THE SUPPLIER IS GIVEN A 90 DAY PERIOD TO RESOLVE THE ISSUE. THE MANUALLY CRIMPED PARTS PASS THE RS TEST. THIS DEVIATION PERMITS INCORPORATION OF THE -AD LEVEL SWITCH AND DELETION OF THE INTERSN -BU SWITCH FOR A COST REDUCTION OF 0.92. THE -AD SWITCH IS P1A TO END ITEM

USERID: RFP2409 ACTIVITY: NCOB ENTRY DATE: 91/10/03  
ALERT DESC: PROPORTIONING VALVES FZAC-28091-BA, P2VC-28091-CC, AND JUNCTION BLOCK FZAC-2C320-CB.

USERID: LA20606 ACTIVITY: NCOB ENTRY DATE: 91/10/04  
ALERT DESC: OK. SUPPLY. APPROVAL REQ'D. IF FMUSE IS AFFECTED. LAZ

USERID: BJMS368 ACTIVITY: NCOB ENTRY DATE: 91/10/04  
ALERT DESC:

- MORE -

TI-NHTSA 7805

ALERT DETAIL  
\*\*\*\*\*

PRINT DATE/TIME: 01/10/11 09:30  
PAGE: 2

ALERT NUMBER  
A1014493

ORIGIN ACTIVITY: NCOB CHARLES PER (LNCS) TYPE: (U) USN PPN  
ORIGINATOR: PEACE, B. F. DATE: 01/10/02  
CPC: 060001 PPHONE: 32-37975 NOTICE NO: STATUS: 1A  
LOCATION: RM 3001, ALBES, B  
RESOLVING OFFICE:

\*\*\*\*\* FURTHER DESCRIPTION/ALERT RESOLUTION/REASON FOR REJECTION ETC. \*\*\*\*\*

USERID: DJN5368 ACTIVITY: NCOB ENTRY DATE: 01/10/04  
ALERT DESC: FROMS NOT AFFECTED PAM

USERID: JLS1224 ACTIVITY: NCOB ENTRY DATE: 01/10/07  
ALERT DESC: J SIMMONS 32-37976  
NOTE:


\*\*\*\*\* APPROVALS \*\*\*\*\*

REGION	DEPARTMENT	USERID	ACTIVITY	APPROVER'S NAME	DATE APPROVED	APPROVAL
N	K0447	BFP2400	NCOB	PEACE, B. F.	01/10/02	
N	K0447	JLS1224	NCOB	SIMMONS, J.L.	01/10/07	Y
N	K0447	LAT0480	NCOB	ZIELINSKI, L.A.	01/10/04	Y
N	K0447	DJN5368	NCOB	HAEROFF, B.J.	01/10/04	Y
N	K0447	VSD0370	NCOB	DEGRASIA, V.S. (DEPT	01/10/00	Y
N	K0473	AJY6187	NCOB	THAS, A.J.	01/10/04	Y
N	K0473	MATL	NCOB	CHARLES MATL MATKES	01/10/04	Y
N	K0473	PPH1117	NCOB	PPH GATKUSPER-CHAUN	00/00/00	
N	K0447	BFP2400	NCOB	PEACE, B. F.	01/10/02	
N	K0470	JBY6144	NCOB	VAREKEDOI, J.G. (B	00/00/00	

TI-NHTSA 7606

-END-

Appendix. 4.2  
Data # 172

TEST LOT NO.	TEST	DEVICE
TESTED BY	<b>TEXAS</b> <b>INSTRUMENTS</b> 	DOC.
APPROVED BY		PAGE
DATE 01-15-18		18

FORM 8288

PRESSURE SWITCH DATA

Form 31605

TEST NO. 122-11-20

DEVICE 77 PSL 2-9	DATE REQUESTED 11/1/51	REQUESTED BY Steve C. J. Jay	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Brennan	DATE STARTED 11/1/51	DATE COMPLETED	APPROVED BY

PROJECT TITLE: Ford MT '51 Electronic Speed Control Description IS

CUSTOMER:

PURPOSE OF TEST: Review of Validation testing which showed the first time

PROCEDURE: Sample and Fluid Res/Regulator test per Ford ES parts Cramped or hood-hed

Device	Qty	Date	Mo. Temp	A	B	C	Flow	
122-11-20	7000	11/1/51	5.9	1.50-A	1.50-A	1.66-A	Flow	
21		11/1/51	6.0	1.55	1.56	1.67		Hand Test
22		11/1/51	6.4	1.53	1.49	1.68		
24		11/1/51	4.6	1.51	1.46	1.63		
1		11/1/51	4.7	1.52	1.47	1.70		
17		11/1/51	4.2	1.52	1.57	1.71		
12		11/1/51	5.4	1.55	1.51	1.70		
18		11/1/51	3.1	1.57	1.47	1.70		
19		11/1/51	5.6	1.50	1.45	1.71		
1		11/1/51	5.7	1.51	1.49	1.74		
1		11/1/51	4.3	1.51	1.48	1.71		
12		11/1/51	3.5	1.51	1.47	1.71		
122-11-20	9100	11/1/51	2.7	1.58	1.39	1.79	Flow	
14		11/1/51	4.5	1.61	1.37	1.77		Sample
15		11/1/51	2.7	1.78	1.33	1.71		
16		11/1/51	4.4	1.53	1.33	1.83		
17		11/1/51	2.7	1.58	1.36	1.86		
18		11/1/51	3.1	1.67	1.41	1.85		
19		11/1/51	2.9	1.65	1.37	1.88		
20		11/1/51	3.1	1.67	1.38	1.96		
21		11/1/51	3.6	1.80	1.40	1.95		
22		11/1/51	3.2	1.63	1.41	1.99		
23		11/1/51	4.1	1.75	1.42	1.89		
24		11/1/51	3.4	1.74	1.45	1.79		

(OVER)

# Final Clay

Proof	Net/Ret	St. Ref	A	B	C
172-11-01	103/54	12.2	1.61	1.25	1.92
172-11-02	104/57	2.4	1.63	1.35	1.60
172-11-03	106/56	11.6	1.60	1.65	2.72
172-11-04	107/56	9.9	1.65	1.37	1.63
172-11-05	107/55	1.6	1.65	1.40	1.72
172-11-06	107/57	19.8	1.52	1.37	1.75
172-11-07	107/55	2.1	1.52	1.32	1.72
172-11-08	107/56	1.7	1.60	1.34	1.75
172-11-09	107/56	2.9	1.63	1.36	1.91
172-11-10	109/58	2.5	1.62	1.39	1.74
172-11-11	106/60	1.4	1.57	1.33	1.90
172-11-12	109/56	2.3	1.61	1.35	1.69
172-11-13	109/59	4.9	1.50	1.25	1.68
172-11-14	110/57	1.1	1.48	1.24	1.66
172-11-15	110/58	3.9	1.47	1.25	1.82
172-11-16	111/58	4.2	1.52	1.27	1.75
172-11-17	112/59	6.7	1.57	1.27	1.90
172-11-18	116/60	4.7	1.52	1.28	1.65
172-11-19	116/57	5.7	1.64	1.36	1.74
172-11-20	117/62	3.2	1.72	1.37	1.68
172-11-21	121/59	2.8	1.71	1.39	1.75
172-11-22	116/56	5.9	1.59	1.34	1.65
172-11-23	107/57	7.4	1.63	1.32	1.69
172-11-24	116/58	5.2	1.59	1.32	1.64

Appendix 4.3  
Data # 173

TEST LOT NO.	TEST	MATERIALS & CONTROL GROUP ATTLEBORO, MA 01701	DEVICE
TESTED BY			DOC.
APPROVED BY	<b>TEXAS</b> <b>INSTRUMENTS</b> 	PAGE 10	
DATE 01-13-88			

FORM 8288

PRESSURE SWITCH DATA

Form 21605

TEST NO. 173-15-24

DEVICE 778562-1	DATE REQUESTED 11/11/51	REQUESTED BY Steve Offler	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Draper, SA	DATE STARTED 11/11/51	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford 1951 Electronic Speed Control Distributor P			

CUSTOMER:

PURPOSE OF TEST: Reason of Validation testing which failed the first time

PROCEDURE: Impulse test and Fluid Gas Engage for Ford 1951 E.S. All parts coated in ATF.

Dev. #	QTY	Part/Alt	Mod/Qty	A	B	C	Part
123-15-11	9/11/51	121/57	3.7	1.98	1.58	1.72	Fluid Gas
-12		118/57	6.3	1.92	1.47	1.72	
-13		113/52	5.3	1.84	1.52	1.72	
-14		123/57	4.3	1.86	1.54	1.72	
-15		118/56	3.6	1.86	1.52	1.72	
-16		120/49	4.1	1.82	1.50	1.72	
-17		121/59	4.7	1.83	1.51	1.75	
-18		125/59	4.1	1.72	1.48	1.74	
-19		127/52	4.3	1.84	1.50	1.75	
-20		123/57	5.0	1.86	1.51	1.75	
-21		121/54	4.9	1.88	1.52	1.75	
-22		118/53	6.2	1.82	1.50	1.72	
124-15-17	9/11/51	121/57	3.7	1.78	1.46	1.72	Impulse
-18		122/57	3.4	1.70	1.44	1.76	
-19		118/61	4.3	1.60	1.36	1.81	
-20		125/61	4.0	1.75	1.46	1.84	
-21		122/55	7.1	1.70	1.41	1.69	
-22		115/50	3.7	1.44	1.24	1.82	
-23		128/57	4.5	1.67	1.40	1.82	
-24		121/62	2.9	1.67	1.40	1.82	
-25		121/55	3.7	1.57	1.38	1.79	
-26		121/51	4.2	1.74	1.44	1.75	
-27		121/50	3.7	1.57	1.39	1.82	
-28		119/52	7.8	1.53	1.33	1.70	

(OVER)



Final Clor

Year	A. / B. / C.	Std Dev	Carry-over			
			A	B	C	
1971-1972	Pass	10/60	6.3	2.0424	1.53	1.67
		11/58	2.3	1.55	1.29	1.76
		12/57	2.0	1.97	1.91	2.64
		1/58	1.8	1.60	1.37	1.67
		2/60	5.3	1.71	1.42	1.61
		3/55	3.0	1.75	1.75	1.61
		4/62	21.5	1.86	1.81	1.65
		5/57	1.9	1.57	1.60	1.69
		6/57	4.2	1.58	1.77	1.61
		7/57	23.7	1.88	1.55	1.71
		8/56	4.5	1.60	1.74	1.68
		9/57	7.6	1.64	1.35	1.78
1975-1976	Pass	10/57	2.0	1.60	1.37	1.75
		11/60	39.2	1.67	1.42	1.54
		12/58	1.5	1.61	1.27	1.90
		1/54	43.6	1.45	1.25	1.96
		2/55	37.4	1.58	1.35	1.71
		3/57	21.3	1.53	1.39	1.83
		4/59	92.1	1.77	1.38	1.77
		5/61	1.8	1.58	1.31	1.79
		6/58	31.4	1.77	1.47	1.78
		7/55	47.2	1.58	1.44	1.75
		8/56	40.2	1.75	1.48	1.70
		9/55	35.1	1.61	1.39	1.69

Appendix 4.4  
Fluid Resistance

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	<b>TEXAS</b> <b>INSTRUMENTS</b> 	DOC.
DATE 8-12-13		MATERIALS & CONTROL GROUP ATTLESBORO, MA 01702

FORM 1296

TEST NO. 109832

TECHNICAL SERVICE LABS

TEST NO. 109832

FORM NO.	127	STATE YOUR PROBLEM SAMPLE DESCRIPTION	INFORMATION DESIRED:
RESEARCH CITY CENTER	101	SAMPLES ARE 77PS MEASURE SWITCHES LEADS & END PLUGS	PLEASE PERFORM BLOW RESISTANCE - TEST FOR HARD MOUNT TO SEE 65-82VE-9F930-AA (ATTACHED)
PHONE NO.	860		
REMARKS	S. OFFICER		
RELEASED	12-29		
OFFICER	1382		
LAB NO.	5804		
DATE RECEIVED	91-11-09		
DATE SHIPPED	91-12-12		
NO. OF SAMPLES	24		
COMPOSITION	MIXED		

REPORT OF RESULTS:

DATE RECEIVED 11/3/91 DATE OUT 12-12

TECHNICIAN			
HOURS WORKED			
TECHNICIAN'S NAME			

\*POC ID.

- |          |         |            |           |
|----------|---------|------------|-----------|
| MC-325   | TN-431  | JOCY-128   | FACL-614  |
| PO-127   | WFE-482 | CLKE-122   | FACL-621  |
| VERB-168 | EPD-621 | CAN-864    | FACL-631  |
| APCC-483 | PEP-622 | AD DEV-285 | STAFF-655 |
| IND-430  | CSD-636 | GMCD-677   |           |

DISTRIBUTION: White and Yellow - Lab Pink - Requestor

-MBC M#- 174460 FR-GAMY TO-COPY SENT=11/03/94 09:13 AM  
ST-C DIV=0050 CC=00149 BY-GAMY AT=11/03/94 09:06 AM

To: SHAWN MURDOCH

From: Elaine Rose

Subj: CAPABILITY STUDIES

THE FOLLOWING PAGES ARE ON THE BARE LOCKING TABS "SC" DIM.  
8.30-8.72 2X. PLEASE NOTICE HALFWAY DOWN THE PAGE IS A NOTE SECTION,  
IN IT I HAVE IDENTIFIED THE CAVITY LETTER AND WHETHER IT IS THE GATE  
OR THE VENT SIDE OF EACH.

I HOPE THIS EXPLAINS EVERYTHING, PLEASE FEEL FREE TO CALL ME IF  
YOU HAVE ANY QUESTIONS ON THESE.

REGARDS,

ELAINE ROSE  
(508) 236-1907

TI-NHTSA 7815

---

-MSG M#- 174460 FR=GAMY TO=GAMY SENT=11/03/94 09:13 AM  
R#-194 ST=C DIV=0050 CC=00149 BY=GAMY AT=11/03/94 09:06 AM

To: SHAWN MURDOCH

From: Elaine Rose GAMY

Subj: CAPABILITY STUDIES

THE FOLLOWING PAGES ARE ON THE BASE LOCKING TABS "SC" DIM.  
B.30-8.72 2X. PLEASE NOTICE HALFWAY DOWN THE PAGE IS A NOTE SECTION,  
IN IT I HAVE IDENTIFIED THE CAVITY LETTER AND WHETHER IT IS THE GATE  
OR THE VENT SIDE OF EACH.

I HOPE THIS EXPLAINS EVERYTHING, PLEASE FEEL FREE TO CALL ME IF  
YOU HAVE ANY QUESTIONS ON THESE.

REGARDS,

ELAINE ROSE  
(508) 236-1907

TI-NHTSA 7616

MSG N# 460590 FR=ISKW TO=KERN SENT=10/14/94 06:43 AM  
R#=197 ST=C DIV=0050 CC=00102 BY=ISKW AT=10/14/94 06:43 AM

To: ~~XXXXXXXXXXXX~~

From: SWALTERS iskw

Subj: CAPABILITY STUDY

-MSG N# 192270 FR=GAMY TO=ISKW SENT=10/06/94 10:25 AM  
R#=011 ST=C DIV=0050 CC=00102 BY=GAMY AT=10/06/94 10:18 AM

To: Steve Walters ISKW

Copy: Jim Watt JMO2 Andrew McGuirk ACM1

From: Elaine Rose GAMY

Subj: CAPABILITY STUDY

DUE TO THE FACT THAT THE LOCKING TAB IS CONSIDERED A SIGNIFICANT  
CHARACTERISTIC TO FORD, COULD YOU PLEASE PROVIDE ME WITH THE FOLLOWING:

BASE # 46515-3 SPEC. .327-.343

50 Pcs. PER CAVITY 2X EACH

I WILL NEED THIS BY 10/21/94.

THANK YOU  
REGARDS,  
ELAINE

R:1907

ms 12-27

TI-NHTSA 7617



**SAMPLE REPORT**

REASON FOR REPORT	VENDOR	P.O.	PART NO. <b>46515-3</b>	REV. <b>F</b>
NEW PART	REPORT REQ. BY <b>ELAINE ROSE</b>	DATE	INSPECTED BY <b>67210</b>	DATE <b>10-18-94</b>
REPLACEMENT TOOL.	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING THE ACTUAL VALUES FOR ALL CHARACTERISTICS MEASURED. IN CASES WHERE ACTUAL VALUES DEVIATE FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION FOR EACH NON-COMFORMANCE IN THE APPROPRIATE COLUMN.			
CORRECTED TOOL.				
REPAIRED TOOL.				
REUSE				
OTHER <b>G- Q.A.T.E.</b> <b>V- VERT</b>	<b>SPECIAL VERNIER</b>			

	CIRCLE ALL OUT OF TOLERANCE DIMENSIONS				DISPOSITION			
	<u>10</u> G	<u>11</u> V	<u>12</u> G	<u>13</u> V	<u>14</u> G	<u>15</u> V	<u>16</u> G	<u>17</u> V
1	.937	.936	.937	.936	.937	.934	.935	.935
2	.935	.937	.936	.937	.935	.936	.935	.936
3	.934	.935	.934	.937	.936	.936	.936	.937
4	.936	.937	.936	.938	.936	.938	.935	.935
5	.937	.936	.937	.936	.935	.937	.935	.936
6	.936	.938	.935	.935	.936	.937	.934	.935
7	.934	.936	.936	.938	.936	.936	.935	.935
8	.935	.939	.935	.937	.937	.938	.936	.935
9	.936	.935	.935	.937	.935	.937	.936	.934
10	.936	.936	.935	.938	.935	.937	.935	.936
11	.935	.937	.934	.936	.935	.937	.937	.937
12	.937	.935	.934	.935	.936	.938	.938	.936
13	.936	.938	.936	.938	.935	.935	.935	.936
14	.935	.937	.934	.934	.937	.936	.935	.936
15	.937	.936	.935	.937	.935	.936	.935	.935
16	.935	.937	.937	.936	.935	.936	.936	.937
17	.936	.937	.937	.936	.935	.935	.936	.937
18	.938	.937	.934	.936	.935	.936	.935	.936
19	.937	.935	.936	.937	.936	.938	.934	.938
20	.935	.938	.935	.937	.936	.939	.934	.936
21	.936	.937	.936	.937	.936	.937	.934	.936
22	.934	.938	.936	.938	.936	.937	.936	.938
23	.937	.935	.937	.936	.938	.937	.936	.938
24	.937	.937	.935	.936	.938	.936	.936	.937
25	.936	.937	.935	.936	.936	.939	.935	.934

REMARKS AND/OR INSTRUCTIONS:

DISPOSITION: TOOL APPROVED FOR PROD.	RESUBMISSION REQ'D
WFO. ENG. I	ORA ENG. I
	PURCH. AGENT I

FORM NO. 20718

**SAMPLE REPORT**

<b>REASON FOR REPORT</b>	<b>VENIER</b>	<b>P.O.</b>	<b>PART NO.</b>	<b>REV.</b>
NEW PART			4655-3	F
REPLACEMENT TOOL	<b>REPORT REQ. BY</b>	<b>DATE</b>	<b>INSPECTED BY</b>	<b>DATE</b>
CORRECTED TOOL	ELIZABETH ROSE		67210	10-18-59
REPAIRED TOOL	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINISHES REGARDING THE ACTUAL VALUES FOR ALL CHARACTERISTICS MEASURED. IN CASES WHERE ACTUAL VALUES DEVIATE FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION FOR EACH NON-COMFORMANCE IN THE APPROPRIATE COLUMN.			
REVIEW	SPECIAL VERNIERS			
OTHER				

	(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS)				DISPOSITION			
	1.527-343	Chk X E V	Chk B E V	Chk C E V	Chk D E V	Chk E E V	Chk F E V	Chk G E V
26		.335	.337	.337	.336	.334	.336	.337
27		.336	.337	.334	.335	.335	.335	.338
28		.334	.336	.335	.337	.337	.337	.338
29		.336	.338	.335	.337	.337	.336	.336
30		.337	.338	.336	.337	.337	.337	.335
31		.335	.337	.336	.335	.335	.336	.337
32		.333	.335	.335	.335	.338	.339	.336
33		.336	.336	.336	.337	.336	.336	.338
34		.336	.338	.336	.336	.336	.337	.337
35		.334	.334	.336	.336	.337	.339	.336
36		.335	.336	.335	.336	.337	.339	.336
37		.336	.338	.336	.338	.335	.337	.336
38		.336	.336	.333	.335	.337	.337	.336
39		.337	.337	.335	.336	.337	.336	.338
40		.336	.336	.334	.336	.336	.336	.337
41		.335	.335	.336	.337	.336	.337	.335
42		.335	.337	.335	.335	.334	.335	.337
43		.336	.336	.337	.337	.337	.336	.335
44		.335	.337	.335	.335	.337	.336	.336
45		.335	.337	.334	.336	.337	.335	.337
46		.336	.337	.335	.336	.336	.336	.336
47		.337	.336	.334	.336	.337	.338	.337
48		.336	.338	.336	.337	.337	.337	.338
49		.335	.337	.336	.335	.335	.337	.338
50		.335	.338	.334	.335	.335	.336	.335

REMARKS AND/OR INSTRUCTIONS:

<b>DISPOSITION:</b> TOOL APPROVED FOR PROD.	<b>REURMISSION REQ'D</b>
<b>IFG. ENG.:</b>	<b>GRA ENG.:</b>
	<b>PURCH. AGENT:</b>



### PART SETTINGS

PART, CHR. CHR CODE

1 1 101

CHR CODE 101

48515-3

1 1

101	1	0.335
101	2	0.338
101	3	0.334
101	4	0.338
101	5	0.337
101	6	0.338
101	7	0.334
101	8	0.335
101	9	0.336
101	10	0.336
101	11	0.335
101	12	0.337
101	13	0.336
101	14	0.335
101	15	0.337
101	16	0.335
101	17	0.336
101	18	0.337
101	19	0.336
101	20	0.335
101	21	0.335
101	22	0.335
101	23	0.335
101	24	0.335
101	25	0.335

Q6 101

0.335

101 25 0.335

### CHARACTERISTICS

48515-3

101	1	0.335
101	2	0.338
101	3	0.334
101	4	0.338
101	5	0.337
101	6	0.335
101	7	0.333
101	8	0.338
101	9	0.336
101	10	0.334
101	11	0.335
101	12	0.338
101	13	0.338
101	14	0.337
101	15	0.338
101	16	0.335
101	17	0.335
101	18	0.336
101	19	0.337
101	20	0.336
101	21	0.335
101	22	0.335
101	23	0.335
101	24	0.335
101	25	0.335

CHR CODE 101

48515-3

SUBGROUP NO.

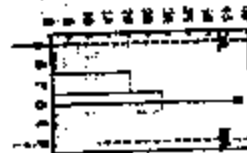
1-2

MAXIMUM

0.338

MINIMUM

0.333



LSL

0.32700

X

0.33588

USL

0.34300

A	0.3314	0
B	0.3315	1
C	0.3335	28
D	0.3355	29
E	0.3375	3
F	0.3395	0
TOTAL		61

CHR CODE 101

48515-3

CENTRAL COUNT

MAXIMUM

MINIMUM

RANGE

MEAN

DEVIATION

RANGE

MEAN

DEVIATION

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

C<sub>p</sub>

PART SETTINGS

PART, CHR, CHR CODE  
1 2 101-102

CHR CODE 102

[ 1 ] 1

102 1 0.338  
102 2 0.337  
102 3 0.338  
102 4 0.338  
102 5 0.338  
102 6 0.338  
102 7 0.338  
102 8 0.338  
102 9 0.338  
102 10 0.337  
102 11 0.338  
102 12 0.335  
102 13 0.337  
102 14 0.338  
102 15 0.337  
102 16 0.337  
102 17 0.337  
102 18 0.338  
102 19 0.338  
102 20 0.337  
102 21 0.338  
102 22 0.338  
102 23 0.338  
102 24 0.338  
102 25 0.338

CHR 102

\*  
R

TI-NHTSA 7621

46515-3

2

0.338  
0.337  
0.338  
0.338  
0.338  
0.337  
0.335  
0.338  
0.338  
0.338  
0.338  
0.337  
0.338  
0.337  
0.338  
0.337  
0.337  
0.337  
0.338  
0.338  
0.337  
0.338

0.33872  
0.33498  
0.33128

CHR CODE 102

46515-3

SUBGROUP NO.

1- 2

MAXIMUM

0.339

MINIMUM

0.334



LSL

0.32708

X

0.33609

USL

0.34308

A	0.3324	0
B	0.3325	1
C	0.3345	19
D	0.3365	29
E	0.3385	1
F	0.3405	0
TOTAL		58

46515-3

2

CHR CODE 102

SUBGROUP NO.

1- 2

MAXIMUM

0.339

MINIMUM

0.334

LSL

0.32708

X

0.33609

USL

0.34308

A

0.3324

B

0.3325

C

0.3345

D

0.3365

E

0.3385

F

0.3405

TOTAL

58

0.33872

0.33498

0.33128

PART SETTINGS

PART, CHR, CHR CODE

1 3 100-300

CHR CODE 100

100	1	
100	2	
100	3	
100	4	
100	5	
100	6	
100	7	
100	8	
100	9	
100	10	
100	11	
100	12	
100	13	
100	14	
100	15	
100	16	
100	17	
100	18	
100	19	
100	20	
100	21	
100	22	
100	23	
100	24	
100	25	

CHR 100

\* 0.33500

TIME 02/28/84 09:32

100  
48515-3

0.337
0.334
0.338
0.335
0.338
0.338
0.335
0.338
0.338
0.338
0.335
0.336
0.333
0.335
0.334
0.338
0.335
0.337
0.335
0.334
0.335
0.334
0.336
0.338
0.334

0.33524  
0.00400  
/ 94 05:32

CHR CODE 100

SUBGROUP NO.

MAXIMUM

MINIMUM



LA

0.33500

R

0.33500

U

0.33500

0.3324

0.3323

0.3385

0.3301

0.3385

TOTAL 50

TI-NHTSA 7622

PART SETTINGS

PART, CHR, CHR CODE  
1 4 104-100

CHR CODE 104

( 1 )

- 104 1
- 104 2
- 104 3
- 104 4
- 104 5
- 104 6
- 104 7
- 104 8
- 104 9
- 104 10
- 104 11
- 104 12
- 104 13
- 104 14
- 104 15
- 104 16
- 104 17
- 104 18
- 104 19
- 104 20
- 104 21
- 104 22
- 104 23
- 104 24
- 104 25

CHR 104

TIME 10/26/04

104

48515-3

2

- 0.338
- 0.335
- 0.337
- 0.337
- 0.337
- 0.335
- 0.335
- 0.337
- 0.336
- 0.338
- 0.338
- 0.338
- 0.335
- 0.338
- 0.338
- 0.337
- 0.335
- 0.337
- 0.335
- 0.336
- 0.338
- 0.337
- 0.335
- 0.335

0.33804

0.00300

0-54 18-08

CHR CODE 104

SUBGROUP NO.

MAXIMUM

MINIMUM



LSL

0.32700

X

0.33050

USL

0.34300

A

0.3304

B

0.3304

C

0.3304

D

0.3304

E

0.3304

TOTAL

0.3304

CHR CODE 104

48515-3

CONTROL SHEET

DATE

TIME

25

1-2

DATA

50

MINIMUM

0.338

MINIMUM

0.334

MAX

0.004

MINIMUM

0.33830

RELATION (R)

0.00009

MINIMUM

2.995

MINIMUM

2.509

MINIMUM

2.880

MINIMUM

2.244

MINIMUM

0.000

MINIMUM

0.000

PART SETTINGS

PART, CHR, CHR CODE  
1 5 101-105

CHR CODE 105

48515-3

( 11 1

105	1	0.334
105	2	0.335
105	3	0.337
105	4	0.337
105	5	0.337
105	6	0.335
105	7	0.336
105	8	0.337
105	9	0.335
105	10	0.337
105	11	0.336
105	12	0.336
105	13	0.334
105	14	0.337
105	15	0.337
105	16	0.337
105	17	0.336
105	18	0.337
105	19	0.337
105	20	0.335
105	21	0.335
105	22	0.335
105	23	0.335
105	24	0.335
105	25	0.335

CHR 105

X 0.33572

TIME 18/20/94 10:27

CHR 105  
48515-3  
2

0.334
0.335
0.337
0.337
0.337
0.335
0.338
0.338
0.338
0.337
0.337
0.335
0.337
0.337
0.336
0.337
0.336
0.337
0.335
0.335

0.33520  
0.00400  
18/20/94 10:27

CHR CODE 105

48515-3

SUBGROUP NO.

MAXIMUM

MINIMUM



LSL

0.32700

X

0.33500

USL

0.34300

A	0.3314	0
B	0.3315	1
C	0.3335	17
D	0.3355	29
E	0.3375	9
F	0.3395	0
TOTAL		56

CHR CODE 105

48515-3

CONTROL CHART

R-R

SAMPLE SIZE

25

NUMBER OF

2

NUMBER OF DATA

58

MAXIMUM

0.338

MINIMUM

0.333

LSL

0.327

USL

0.343

MEAN

0.335

STDEV

0.004

CP

2.049

CPK

2.452

PPM

2.158

DEFECT (X)

0.000

ESTYDEFECT (X)

0.000

PART SETTINGS

PART, CHR, CHR CODE

1 0 101

CHR CODE 100

[ 31 ]

10	1	
11	2	
12	3	
13	4	
14	5	
15	6	
16	7	
17	8	
18	9	
19	10	
20	11	
21	12	
22	13	
23	14	
24	15	
25	16	
26	17	
27	18	
28	19	
29	20	
30	21	
31	22	
32	23	
33	24	
34	25	
35	26	
36	27	
37	28	
38	29	
39	30	
40	31	

CHR 100

TIME 10/20/54 10:40

40515-3

2

- 0.338
- 0.335
- 0.338
- 0.337
- 0.338
- 0.336
- 0.338
- 0.339
- 0.338
- 0.337
- 0.337
- 0.336
- 0.337
- 0.336
- 0.338
- 0.335
- 0.338
- 0.337
- 0.338
- 0.336

0.33888  
0.00400  
/54 10:40

CHR CODE 100

SUBGROUP NO.

MAXIMUM

MINIMUM



LSL

USL

0.338
0.337
0.338
0.337
0.338
0.336
0.338
0.337
0.338
0.336
TOTAL

PART SETTINGS

PART, CHR, CHR CODE  
 1 7 181-187

CHR CODE 187

13

187	1	0.337
187	2	0.335
187	3	0.337
187	4	0.338
187	5	0.337
187	6	0.338
187	7	0.338
187	8	0.336
187	9	0.336
187	10	0.336
187	11	0.336
187	12	0.337
187	13	0.337
187	14	0.337
187	15	0.338
187	16	0.338
187	17	0.338
187	18	0.337
187	19	0.337
187	20	0.337
187	21	0.337
187	22	0.336
187	23	0.336
187	24	0.336
187	25	0.336
187	26	0.336
187	27	0.336
187	28	0.336
187	29	0.336
187	30	0.336
187	31	0.336
187	32	0.336
187	33	0.336
187	34	0.336
187	35	0.336
187	36	0.336
187	37	0.336
187	38	0.336
187	39	0.336
187	40	0.336
187	41	0.336
187	42	0.336
187	43	0.336
187	44	0.336
187	45	0.336
187	46	0.336
187	47	0.336
187	48	0.336
187	49	0.336
187	50	0.336
187	51	0.336
187	52	0.336
187	53	0.336
187	54	0.336
187	55	0.336
187	56	0.336
187	57	0.336
187	58	0.336
187	59	0.336
187	60	0.336
187	61	0.336
187	62	0.336
187	63	0.336
187	64	0.336
187	65	0.336
187	66	0.336
187	67	0.336
187	68	0.336
187	69	0.336
187	70	0.336
187	71	0.336
187	72	0.336
187	73	0.336
187	74	0.336
187	75	0.336
187	76	0.336
187	77	0.336
187	78	0.336
187	79	0.336
187	80	0.336
187	81	0.336
187	82	0.336
187	83	0.336
187	84	0.336
187	85	0.336
187	86	0.336
187	87	0.336
187	88	0.336
187	89	0.336
187	90	0.336
187	91	0.336
187	92	0.336
187	93	0.336
187	94	0.336
187	95	0.336
187	96	0.336
187	97	0.336
187	98	0.336
187	99	0.336
187	100	0.336

CHR 187

X  
R

TIME 10/20/94

187  
48515-3  
2

CHR CODE 187

SUBGROUP NO

MAXIMUM

MINIMUM

LSL

X

USL

A  
B  
C  
D  
E

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

TOTAL

48515-3

48515-3

48515-3

48515-3

48515-3

48515-3

48515-3

48515-3

48515-3

48515-3

48515-3

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48515-3

48515-3

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48515-3

48515-3

48515-3

48515-3



PART SETTINGS

PART, CHR, CHR CODE  
 8 181-189

CHR CODE 189

11

181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200

CHR 189

X

11/18/94

189  
48315-3

2

0.337  
0.338  
0.339  
0.338  
0.335  
0.337  
0.338  
0.338  
0.337  
0.338  
0.338  
0.337  
0.336  
0.337  
0.335  
0.338  
0.337  
0.337  
0.338  
0.338  
0.335

0.33688  
0.88300

11/18/94

CHR CODE 189

SUBGROUP NO.

MAXIMUM

MINIMUM



LR

X

USL

A	0.337
B	0.338
C	0.338
D	0.337
E	0.335
TOTAL	