EA02025

TEXAS INSTRUMENTS, INC.'S

9/10/03 ATTACHMENT TO ODI

BOX 4, PARTS A - N

PART N

Ford

PROCESS POTENTIAL AND QUALITY INDEXES SUMMARY DATA SHEET

PART #: F2AC-9E824-AA
SUPPLIER: TEXAS INSTRUMENTS
CODE: T095A
ADDRESS: 34 FOREST ST.
ATTLEBORO,MA 02703
VEHICLE BUILD: EP VP FB OTHER

SUPPLIER CONTACT: JIM WATT
CONTACT PHONE: (508) 699-1719
PART DESCRIPTION: NEXT GENERATION SPEED CONTROL DEACTIVATION SWITCH
SQA CODE:
VEHICLE PROGRAM: PASS CAR EN53

CHARACTERISTIC TYPE

∇ = FORD CRITICAL CHARACTERISTICS

S.C. = FORD OR SUPPLIER SIGNIFICANT CHARACTERISTICS

NUMBER OF CRITICAL AND SIGNIFICANT CHARACTERISTICS:

1:	ACTUATION	TYPE:	SC	Cp =	**	Cpk = **
2:	RELEASE	TYPE:	SC	Cp =	**	Cpk = **
3:	3/8-24UNF-2A THREADS	TYPE:	SC	Cp =	A#	Cpk = A#
4:		TYPE:		Cp =		Cpk =
5:		TYPE:		Cp =		Cpk =
6:		TYPE:		Cp =		Cpk =
7:		TYPE:		Cp =		Cpk =
8:		TYPE:		Cp =		Cpk =
9:		TYPE:		Cp =		Cpk =
10:		TYPE:		Cp =		Cpk =
11:		TYPE:		Cp =		Cpk =
12:		TYPE:		Cp =		Cpk =
13:		TYPE:		Cp =		Cpk =
14:		TYPE:		Cp =		Cpk =
15:		TYPE:		Cp =		Cpk =

PIST = 1833/1833 x 100 = 100 %

$PIPC_{Cp}$ = _____ x 100 = _____ % $PIPC_{Cpk}$ = _____ x 100 _____ %

COMMENTS:

** CALIBRATION CHECK IS DONE 100 PERCENT.PARTS TESTED 300 ; DEFECTIVE 0 PERCENT OF DEFECT 0.

A# THREADS ARE CHECKED ON A GO/NOGO GAGE

PREPARED BY: ELAINE ROSE DATE: 8-19-92

INCORPORATED
MATERIALS AND CONTROLS GROUP

☐ ATTLEBORO, MA 02703 ☐ VERSAILLES, KY 40383
☐ CENTRAL LAKE, MI 49622

DATE:

REF. #: DATE SHIPPED:

SHIPPED VIA: OVERNIGHT

USE (CHECK ONE)

☐ SCRAP SALES
☐ SALE OF ASSETS
☐ OUTSIDE PROCESSING
☐ TRANSFERS BETWEEN TI LOCATIONS
☐ EXPENSE MATERIAL
☒ OTHER, EXPLAIN: CUSTOMER DATA

DIV/ACCT. #: CC:

8708826

SHIP TO:
DANA CORPORATION
WEATHERHEAD DIVISION
203 WEATHERHEAD STREET
ANGOLA, INDIANA 46703

CHARGE TO:

QUANTITY	DESCRIPTION/PART #/PO	UNIT PRICE	TOTAL
6	77965-4 6A0120	n/c	[redacted]
1	IEH 780-	n/c	

Ret
1@
8/19/

GROSS WEIGHT	NO. OF CONTAINERS	ORIGINATOR'S NAME (TYPED)	ORIGINATOR'S SIGNATURE
5	1	BLAINE BOER ext 12-27	Blaine Boer

6481545 1/92

ORIGINATOR COPY

INCORPORATED
MATERIALS AND CONTROLS GROUP

☐ ATTLEBORO, MA 02703 ☐ VERSAILLES, KY 40383
☐ CENTRAL, LABS, MI 48866

REF. # _____ DATE SHIPPED 8-19-

SHIPPED VIA OVERNIGHT TNT 1A

SHIP TO:
DATA CORPORATION
WAREHOUSE DIVISION
189 TECHNOLOGY STREET
ST. THOMAS, ONTARIO
CANADA N5P3G6

USE (CHECK ONE)

7329560555

☐ SCRAP SALES
☐ SALE OF ASSETS
☐ OUTSIDE PROCESSING
☐ TRANSFERS BETWEEN TI LOCATIONS
☐ EXPENSE MATERIAL
☒ OTHER, EXPLAIN DEVELOPMENT DATA

CHARGE TO:

DIV/ACCT. # _____ CC: _____

QUANTITY	DESCRIPTION/PART NO	UNIT PRICE	TOTAL
6	77[illegible] SAMPLES 63.97 ea.	n/c	
1	TEXT FEE.	n/c	

Rets
1@6
8/19/;

GROSS WEIGHT	NO. OF CONTAINERS	ORIGINATOR'S NAME (TYPED)	ORIGINATOR'S SIGNATURE
5	1	ELAINE ROSE ext 12-27	Elaine Rose

ORIGINATOR COPY

TEXAS INSTRUMENTS
INCORPORATED
MATERIALS AND CONTROLS GROUP
☐ ATTLEBORO, MA 02703 ☐ VERSAILLES, KY 40383
☐ CENTRAL LAKE, MI 49622

Shipping Order

DATE: 8/19/92 S.O.# 271328

REF.# _____ DATE SHIPPED: / /

SHIPPED VIA: OVERNIGHT

SHIP TO:
DANA CORPORATION
WEATHERHEAD DIVISION
203 WEATHERHEAD STREET
ANGOLA, INDIANA 46703

CHARGE TO:

USE (CHECK ONE)

- ☐ SCRAP SALES
- ☐ SALE OF ASSETS
- ☐ OUTSIDE PROCESSING
- ☐ TRANSFERS BETWEEN TI LOCATIONS
- ☐ EXPENSE MATERIAL
- ☒ OTHER, EXPLAIN: CUSTOMER DATA

DIV/ACCT.# _____ CC: _____

QUANTITY	DESCRIPTION/PART #/PO	UNIT PRICE	TOTAL
6	7728L3-1 SAMPLES	n/c	
1	ISIR REQ.	n/c	

GROSS WEIGHT	NO. OF CONTAINERS	ORIGINATOR'S NAME (TYPED)	ORIGINATOR'S SIGNATURE
		ELAINE ROSE ms 12-27	

TEXAS INSTRUMENTS
INCORPORATED
MATERIALS AND CONTROLS GROUP
☐ ATTLEBORO, MA 02703 ☐ VERSAILLES, KY 40383
☐ CENTRAL LAKE, MI 49622

Shipping Order

DATE: 8 /19 /92 S.O. # 271329

REF. # _____ DATE SHIPPED / /

SHIPPED VIA: OVERNIGHT

SHIP TO:
DANA CORPORATION
WEATHERHEAD DIVISION
109 INCREMENT STREET
ST.THOMAS,ONTARIO
CANADA N5P3G8

CHARGE TO:

USE (CHECK ONE)

☐ SCRAP SALES
☐ SALE OF ASSETS
☐ OUTSIDE PROCESSING
☐ TRANSFERS BETWEEN TI LOCATIONS
☐ EXPENSE MATERIAL
☒ OTHER, EXPLAIN: CUSTOMER DATA

DIV/AOCT. # _____ CC: _____

QUANTITY	DESCRIPTION/PART #/PO	UNIT PRICE	TOTAL
6	77PSL3-2 SAMPLES @3.97 ea.	n/c	
1	ISIR PKG.	n/c	

GROSS WEIGHT	NO. OF CONTAINERS	ORIGINATOR'S NAME (TYPED)	ORIGINATOR'S SIGNATURE
		ELAINE ROSE ea 12-27	

6 pcs — Canada
Indiana

Customer Information

Checklist Of Required Actions

Part Number: 77PSL3-1 Customer Requested Date: 8/14/92

Action 70 = LAVA Ontario, Canada

		Available/Completed	Status
1.	Manufacturing feasibility	✓	
2.	Design FMEA	✓	
	Process Fmea		
3.	Process Flow Diagram	✓	
4.	Designated characteristics(kpc) (Significant characteristics)	—	
5.	Control Plan	✓	
6.	Gage R & R Studies	✓	
7.	Process Capability Studies (Cpk)	—	
8.	ES testing	✓	
9.	Material Analysis (Date)	✓	
10.	PIPC (Process potential Cp and process capability Cpk on a minimum of 300 switches once the process is stable for significant characteristics.)	✓	
11.	PIST (Includes dimensional requirements on the print and also all engineering specification (ES) test results.	✓	
12.	Available product to accomplish testing/measurement	✓	

13. Comments/negotiations: Need duplicate ISIR copy to Dana Corp. Angola, Ind.

11

Ford

PROCESS POTENTIAL AND QUALITY INDEXES SUMMARY DATA SHEET

PART #: F2AC-9F924-AA
SUPPLIER: TEMIC Fasteners
CODE: T0258
ADDRESS: 34 Forest St. Attleboro, MA.
VEHICLE BUILD: EP VP FB OTHER

SUPPLIER CONTACT: Jim Watt
CONTACT PHONE: (508) 699-1719
PART DESCRIPTION: Next Generation Speed Control Deactivation Switch
BOA CODE:
VEHICLE PROGRAM: Base Car

CHARACTERISTIC TYPE

∇ = FORD CRITICAL CHARACTERISTICS

S.C. = FORD OR SUPPLIER SIGNIFICANT CHARACTERISTICS

NUMBER OF CRITICAL AND SIGNIFICANT CHARACTERISTICS:

1:	Actuation Pressure	TYPE:	SC	Cp =	* *	Cpk = * *
2:	Release Pressure	TYPE:	SC	Cp =	* *	Cpk = * *
3:	3/8-24UNF-2A THD.	TYPE:	SC	Cp =	A *	Cpk = A *
4:		TYPE:		Cp =		Cpk =
5:		TYPE:		Cp =		Cpk =
6:		TYPE:		Cp =		Cpk =
7:		TYPE:		Cp =		Cpk =
8:		TYPE:		Cp =		Cpk =
9:		TYPE:		Cp =		Cpk =
10:		TYPE:		Cp =		Cpk =
11:		TYPE:		Cp =		Cpk =
12:		TYPE:		Cp =		Cpk =
13:		TYPE:		Cp =		Cpk =
14:		TYPE:		Cp =		Cpk =
15:		TYPE:		Cp =		Cpk =

PIST = 1833/1833 x 100 = 100 %

$PIPC_{Cp}$ = _____ x 100 = _____ % $PIPC_{Cpk}$ = _____ x 100 _____ %

COMMENTS:

* & Calibration check is done 100%, Parts tested 300; defective 0, percent of defect 0.

A * Threads are checked on a Go/No Go Gage

PREPARED BY:
Elaine Rose DATE: 8-4-92

TEXAS INSTRUMENTS, INC. ISIR SUBMISSION
TO DANA CORPORATION
FOR PART NUMBER F2AC-9F924-AA (77PSL3-1)

4-21-92

Per Conversation / Matt Sellers:
Rework & Remeasure
2, 3, 4, 6

4-21-92

Reworked + Remeasured

Dim # 3

#2 ~~0.228"~~ 0.310 mm
~~0.418~~ 0.452 mm

#3
0.644 mm
0.425 mm

#4 0.531 mm
0.591 mm

#6 0.635 mm
0.475 mm

Term. Pos. 0.75/0.25 mm

1

TEXAS INSTRUMENTS

ATTLEBORO, MASSACHUSETTS 02703

PAGE 1 OF

SAMPLE REPORT

REASON FOR REPORT		VENDOR		P.O.	PART NO.	REV.
NEW PART					7705L3-1	A
REPLACEMENT TOOL.		REPORT REQ. BY	DATE	INSPECTED BY		DATE
CORRECTED TOOL.		Elaine Rose	4/14/92	Sandy Gilbert		4/
REPAIRED TOOL.						
REVIEW						
OTHER Dim analysis	X					

THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING ACTUAL VALUES FOR ALL CHARACTERICS MEASURED. IN CASES WHERE ACTUAL VALUES DE FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.

	(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS)					DISPOSITION			
	Dimension	1	2	3	4	5	6	Reason for Emission	
1	1.85-2.06	1.933	1.933	1.942	1.956	1.900	1.927	Tmic	
2	Ø 11.05 max	12.697 / 12.356	12.698 / 12.311	12.583 / 12.324	12.757 / 12.693	12.783 / 12.692	12.668 / 12.615	"	
3	.25 - .75	0.593	0.561	0.552	0.522	0.558	0.575	"	
		0.748	0.204	0.752	0.305	0.684	0.167	"	Rem
4	2.79 - 3.10 2 pls	2.90	2.90	2.91	2.92	2.91	2.91	Cal	
		2.91	2.92	2.93	2.94	2.92	2.94	"	
5	19.45 - 19.81	19.65	19.70	19.71	19.73	19.75	19.73	"	
6	11.40 - 11.90	11.794	11.797	11.791	11.790	11.784	11.783	Tmic	
7	16.56 - 16.76	16.623	16.652	16.636	16.654	16.626	16.646	"	
8	2.84 - 3.05	2.936	2.948	2.927	2.924	2.910	2.919	"	
	⌖ 0.1 Ⓜ A	0.035	0.017	0.018	0.006	0.043	0.030	"	
9	1.24 - 1.45	1.241	1.242	1.249	1.260	1.270	1.258	"	
10	11.60 - 11.92	11.864	11.719	11.725	11.681	11.682	11.736	"	
11	1.24 - 1.55	1.384	1.397	1.393	1.397	1.425	1.388	"	
12	57.15 max	55.64	55.65	55.69	55.75	55.75	55.71	Cal	
13	12.59 - 13.11	12.824	12.862	12.914	12.933	12.850	12.906	Tmic NO	
14	11.65 - 12.17	12.023	12.025	12.146	12.126	12.068	12.081	"	
		11.963	11.823	12.056	12.081	12.011	12.057	"	
15	6.60 - 6.81	6.702	6.696	6.690	6.690	6.708	6.702	Tmic	
16	NO Flash or Burrs on this surface	OK	OK	OK	OK	OK	OK	Visual	
17	2.79 - 3.41	3.053	3.164	3.162	3.205	3.187	3.205	Comp	
18	0.68 - 1.30	1.137	1.066	1.153	1.165	1.071	1.117	"	
19	Stamp Date code & Ford PN.	OK	OK	OK	OK	OK	OK	Visual	

REMARKS AND/OR INSTRUCTIONS:

DISPOSITION: TOOL APPROVED FOR PROD.		RESUBMISSION REQ'D
MFG. ENG.:		QRA ENG.:
		PURCH. AGENT:

FORM NO. 50754

TEXAS INSTRUMENTS

ATTLEBORO, MASSACHUSETTS 02703

PAGE 2 OF

SAMPLE REPORT

F2AC-9F924-AA

REASON FOR REPORT		VENDOR		P.O.	PART NO.	REV.
NEW PART					77PS23-1	A
REPLACEMENT TOOL.		REPORT REQ. BY	DATE	INSPECTED BY		DATE
CORRECTED TOOL.		Elaine Rose	4/14/82	Sandy Gilbert		4/6
REPAIRED TOOL.						
REVIEW						
OTHER Dim analysis	X					

THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING ACTUAL VALUES FOR ALL CHARACTERICS MEASURED. IN CASES WHERE ACTUAL VALUES DEV FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.

	(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS) Dimension	1	2	3	4	5	6	DISPOSITION method of inspection
20	3/8-24 unf 2A	OK	OK	OK	OK	OK	OK	PSU32
	.3667-.3739 Ref Diameter	.3715	.3725	.3710	.3715	.3705	.3710	cyl
21	1.10-1.40	1.224			section			Proc Lead meter
22	0.5	OK	.45		section			
23	↗ 0.16 D Datum A B C							
24	41°-43°							Proc
25	40°-50° Cham						46°9'	comp
26	Ø 7.82-8.03						7.920	"
27	152-204						1.713	"
28	9.39-9.66						9.442	2 HD
29	8.12 min						8.284	"
30	14.23 max						13.66	CAI
31	Ø 32.51 max						31.45	"
32	Ø 5.58-5.85						5.699	Proc
33	Ø 7.23-7.37						7.270	"
34	Ø 3.30-3.60						3.403	"
35	Ø 14.80-14.83 H						14.14	CAI
36	0.58-0.68 2p						0.661	Proc
							0.665	"
37	2.59-2.80 2 pl						2.664	"
	⌖ .025 Ⓜ A B						2.638	"
							0.044	"
38	8.30-8.72 2p						0.093	"
							8.348	Comp
39	25°±4° 2 pics						8.388	"
							25°4'	"

Dim #23 ↗ 0.16 D

#1 .0005" = .0127 mm

#2 .0001 = .00254

#3 .001 = .0254

#4 .0004 = .010

#5 .0005 = .0127

#6 .0006 = .01524

REMARKS AND/OR INSTRUCTIO

DISPOSITION: TOOL APPROV

MFG. ENG.:

FORM NO. 3116A

TEXAS INSTRUMENTS
ATTLEBORO, MASSACHUSETTS 02703

SAMPLE REPORT

REASON FOR REPORT		VENDOR		P.O.	PART NO.	REV.
NEW PART					77PSL3-1	/
REPLACEMENT TOOL.		REPORT REQ. BY	DATE	INSPECTED BY		DATE
CORRECTED TOOL.		Elaine Rose	4/14/92	Sandy Gilbert		4/3
REPAIRED TOOL.						
REVIEW						
OTHER Dim analysis	X					

THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING ACTUAL VALUES FOR ALL CHARACTERICS MEASURED. IN CASES WHERE ACTUAL VALUES DEV FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.

	(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS)					DISPOSITION			
	Dimension	1	2	3	4	5	6	REASON OF REJECTION	
39	Cont	24° 21'	23° 36'	23° 42'	23° 47'	24° 28'	23° 46'	Comp	
40	Housing to be	OK	OK	OK	OK	OK	OK	Visual	
	natural in color								
41	(71.5°) 2 pcs	71° 49'	71° 25'	72° 21'	71° 45'	71° 43'	71° 44'	Comp	
		72° 37'	72° 21'	72° 14'	72° 30'	72° 5'	72° 36'	"	

REMARKS AND/OR INSTRUCTIONS:

DISPOSITION: TOOL APPROVED FOR PROD.		RESUBMISSION REQ'D
MFG. ENG.:		QRA ENG.:
		PURCH. AGENT:

FORM NO. 59766

DRAWINGS AVAILABLE UPON REQUEST

TEXAS INSTRUMENTS INCORPORATED
CONTROL PRODUCTS DIVISION
ATTLEBORO, MASSACHUSETTS 02703

QUALITY ASSURANCE WORK ORDER

* INDICATE TYPE OF SERVICE REQUESTED:
- ✓ FIRST ARTICLE INSPECTION
- __ PARTIAL "FAI"
- __ TOOLPROOF
- __ DIMENSIONAL ANALYSIS
- __ MACHINE CAPABILITY
- __ PROCESS CAPABILITY

NOTICE: TWO COPIES OF THE DRAWING MUST BE INCLUDED WITH YOUR REQUEST.

IMPORTANT: SUPPLIER F.A.I. INCLUDED WITH THIS REQUEST: YES/NO * _____

* INDICATE ONE OF THE FOLLOWING REASONS: (▽ FAC-9F924-44)
- ✓ NEW PART / NEW TOOL / MOLD
- __ CORRECTED TOOL / MOLD
- __ OTHER _____

* PART NUMBER: 7TPSL3-1 DRAWING REVISION: A

NUMBER OF CAVITIES / STATIONS 6 TOOL ID: _____

TYPE OF MATERIAL: Noryl PART DESCRIPTION: Pressure Switch

SUPPLIER: _____ SAMPLE / MOLD DATE: _____

---

* DATE SUBMITTED: 4-14-92 DATE REQUIRED: 4/24/92

REQUESTED BY: Elaine Rose M/S: 12-27

COST CENTER: 149 PRODUCT CODE: 88 EXT: 1907

PRIORTY (INDICATE ONE): ✓ URGENT * __ AS DATED

** "URGENT" PRIORTY REQUIRES MANAGERS APPROVAL

APPROVED BY (IF REQUIRED): M Dillon

ENGINEERING SPECIAL INSTRUCTIONS

NOTES

1.) A "FIRST ARTICLE INSPECTION", "PARTIAL F.A.I.", OR A "TOOLPROOF", ALL REQUIRE A "DISPOSITION" FROM THE MATERIALS REVIEW BOARD. INCLUDING ALL APPROPRIATE SIGNATURES. ALSO, THE DISPOSITIONED COPY MUST BE RETURNED TO RECEIVING INSPECTION CC:14A FOR PROPER RECORDING.

2.) RECORDS: A) COPIES OF ALL "FIRST ARTICLE INSPECTIONS" (INCLUDING PARTIALS) WILL BE RETAINED BY RECEIVING INSPECTION FOR SEVEN YEARS.
B) RECORDS OF ALL OTHER ANALYSIS WILL NOT BE RETAINED BY RECEIVING INSPECTION.

3.) "DIMENSIONAL ANALYSIS": ANY REQUEST FOR A DIMENSIONAL ANALYSIS THAT INCLUDES ALL DIMENSIONS, OF ALL "CRITICAL", "MAJOR" DIMENSIONS, WILL BE CONSIDERED A "FIRST ARTICLE INSPECTION" OR A "TOOLPROOF", AND WILL REQUIRE DISPOSITION BY THE MATERIALS REVIEW BOARD. THE APPROVED COPY MUST BE RETURNED TO RECEIVING INSPECTION CC:14A.

QUALITY ASSURANCE

DATE REC.: _____

EST. HRS.: _____

COMPLETED: _____

BY: _____

RECEIVING INSPECTION

77PSL3-1 Act. 90-160 psi 6-29-92

Data obtained Apr. 16 '92 Apr. 16

1	129.2		135.9		130.4	*	178.0	127.6	141.4
2	139.4		127.2		132.6		139.2		140.5
3	129.7		123.3		131.2		129.4		130.8
4	134.0		131.2		125.9		131.6		138.7
5	140.5		122.5		140.4		132.5		133.4
6	134.7		133.5		133.8		136.1		121.7
7	130.7		138.9		132.4		130.4		134.6
8	123.3		132.0		139.1		136.1		129.9
9	139.4		120.8		127.6		125.0		128.4
10	124.7		122.5		137.5		130.4		126.5
11	130.4		128.1		131.3		133.2		132.9
12	127.8		135.3		129.0		131.0		126.0
13	133.6		127.1		125.3		127.2		129.9
14	129.1		125.8		133.2		133.2		133.3
15	134.7		136.9		130.4		137.2		136.9
16	127.3		129.3		124.3		129.2		127.2
17	131.0		140.6		132.4		126.7		133.4
18	136.8		135.5		128.1		126.3		125.0
19	136.8		131.3		119.8		128.3		138.7
20	128.3		132.8		132.4		126.5		125.3
21	129.0		134.0		135.2		127.1		134.7
22	128.8		127.4		120.6		123.6		127.5
23	131.6		130.4		128.2		134.0		126.6
24	141.3		122.0	*	(177.8)	143.6	142.9		133.8
25	140.7		122.7		128.5		136.9		132.5
26	133.6		125.9		126.4		134.5		129.9
27	131.7		127.0		125.4		132.2		133.5
28	127.5		126.0		131.2		128.0		126.6
29	132.1		129.3		134.4		131.7		124.9
30	128.3		132.6		131.3		126.3		127.8
31	131.9		127.3		129.5		131.7		126.3
32	132.6		121.7		128.2		128.5		130.2
33	134.5		129.2		137.8		133.1		117.8
34	130.5		131.6		128.7		131.7		128.9
35	128.3		121.6		129.1		123.3		129.3
36	128.7		117.2		127.3		135.3		128.7
37	135.6		130.4		128.1		129.9		126.6
38	131.7		119.8		130.7		132.6		132.4
39	139.6		128.0		132.8		135.8		132.4
40	133.5		133.9		129.9		125.0		126.9
41	134.9		126.1		129.7		128.9		135.2
42	128.4		126.1		118.7		132.4		131.0
43	125.9		132.5		124.4		136.0		126.5
44	131.9		129.3		131.7		133.9		136.0
45	129.9		128.2		132.3		130.6		138.9
46	126.3		125.6		126.6		122.1		130.4
47	129.2		132.4		131.5		138.4		126.4
48	134.0		132.9		128.0		129.8		139.3
49	131.8		133.6		132.2		133.1		126.9
50	133.2		124.6		131.0		132.7		137.5

77PSL3-1 Oct. 6-01-92

Date obtained Oct. 16 '92 pg. 242

1	131.7
2	128.2
3	131.7
4	134.4
5	137.1
6	120.8
7	130.3
8	133.4
9	124.2
10	133.9
11	133.7
12	130.6
13	128.1
14	128.9
15	130.9
16	133.3
17	127.8
18	130.1
19	129.5
20	130.3
21	142.2
22	126.1
23	127.1
24	130.7
25	134.7
26	127.6
27	127.2
28	123.1
29	129.7
30	125.8
31	130.5
32	123.6
33	131.3
34	134.8
35	131.5
36	137.6
37	125.6
38	129.1
39	133.1
40	136.6
41	129.4
42	137.5
43	129.9
44	125.2
45	134.0
46	122.9
47	131.0
48	123.8
49	103.2
50	126.9

6-27-92

77PSL3-1 Rel. 20-120 psi

Data obtained Apr. 16 '92

pg. 14

1	100.0		87.1		95.9	*	140.7	89.5	111.0	
2	104.0		95.2		90.2		97.1		111.0	
3	88.1		92.4		103.8		95.8		100.3	
4	95.6		93.5		91.4		99.9		104.0	
5	111.6		85.6		113.1		99.9		98.3	
6	102.0		98.4		100.6		102.3		102.2	
7	98.1		103.9		94.4		96.6		102.2	
8	84.2		107.9		105.9		97.8		100.9	
9	105.3		87.1		100.8		91.8		97.6	
10	90.3		88.1		104.9		96.6		95.1	
11	97.1		94.5		100.8		99.4		96.3	
12	99.8		101.8		97.0		97.0		94.2	
13	100.0		104.8		92.2		99.3		97.4	
14	92.6		103.3		102.1		95.7		97.4	
15	106.4		104.6		98.2		102.3		104.1	
16	105.3		90.9		93.6		98.3		93.7	
17	95.9		104.6		104.7		93.8		102.5	
18	106.1		104.6		89.9		86.7		92.7	
19	107.7		93.6		98.7		98.1		108.2	
20	98.2		94.5		98.2		90.9		90.3	
21	103.9		102.1		107.8		94.4		103.5	
22	98.4		92.4		93.8		96.7		94.6	
23	93.6		100.1	*	96.0	112.8	100.3		94.6	
24	106.5		94.1		92.6		112.3		101.1	
25	95.3		89.4		96.1		105.3		98.0	
26	98.1		89.4		89.6		100.3		90.3	
27	97.0		91.8		94.1		101.0		105.4	
28	97.0		91.8		94.1		98.4		89.3	
29	99.6		100.7		107.6		97.2		92.3	
30	100.9		107.5		100.8		92.3		98.5	
31	91.0		93.3		97.1		97.7		90.6	
32	95.8		89.8		94.6		96.4		97.1	
33	103.7		94.5		106.1		101.5		82.4	
34	99.5		99.6		96.9		101.1		95.0	
35	99.5		96.7		99.5		90.4		95.0	
36	88.6		83.0		91.8		104.0		96.3	
37	104.5		99.4		103.5		97.6		93.8	
38	98.1		90.8		97.1		102.6		92.7	
39	105.9		96.4		103.5		106.3		99.9	
40	101.9		99.9		93.5		90.4		92.6	
41	94.9		93.8		96.6		95.2		101.3	
42	103.4		92.6		89.2		100.0		99.3	
43	93.4		97.4		88.5		102.9		93.9	
44	100.9		94.9		104.6		98.0		103.0	
45	97.2		103.8		108.9		100.4		104.2	
46	93.8		90.2		95.8		90.6		100.2	
47	96.3		96.9		97.3		102.9		96.4	
48	100.1		102.2		92.4		95.5		108.1	
49	101.4		87.2		102.1		104.1		92.3	
50	98.8		89.9		98.3		101.6		109.8	

77PSL3-1 Rel.

Data obtained Apr. 16 '92

pg. 29

1	102.4									
2	92.3									
3	100.8									
4	99.5									
5	100.8									
6	97.5									
7	95.2									
8	100.1									
9	98.8									
10	101.2									
11	101.4									
12	102.8									
13	92.7									
14	101.4									
15	95.9									
16	101.0									
17	92.5									
18	95.9									
19	93.7									
20	98.5									
21	107.8									
22	94.9									
23	91.1									
24	97.2									
25	104.8									
26	97.2									
27	93.6									
28	89.0									
29	96.1									
30	88.0									
31	100.6									
32	94.8									
33	92.8									
34	100.6									
35	99.6									
36	103.6									
37	89.8									
38	99.6									
39	98.5									
40	101.0									
41	99.6									
42	103.6									
43	95.5									
44	93.0									
45	104.4									
46	97.3									
47	99.1									
48	90.6									
49	97.5									
50	91.8									

17-MAR-1992 09:43:52.33 OPEN DOOR DID NOT CLOSE 1

17-MAR-1992 09:44:12.39 OPEN DOOR STILL DID NOT CLOSE 1

17-MAR-1992 09:44:29.35 TOOL CYCLE TIMEOUT 1

7705 PRESSURE TESTER LOT REPORT

RATING: 7705L2-1
LOT ID: MASTERS
LOT STARTED: 17-APR-1992 09:43:29.56
LOT FINISHED: 17-APR-1992 10:11:04.07

SETUP DATA:
DISC LOT ID: 0.00
DISC MEAN ACT: 23.4 MEAN REL: 12.7
LIMIT (MC)
ACTUATION: 90.0 TO 160.0 PSI
RELEASE: 20.0 TO 120.0 PSI
DIFFERENTIAL: 0.0 TO 160.0 PSI
MAX MILLIVOLT: 500.0 PSI
ACT CREEP TIME: 25.0 PSI
REL CREEP TIME: 150.0 PSI
PRECYCLE PRESS: 900.0 PSI
PRECYCLE COUNT: 2

NOT ENOUGH PARTS FOR REPORT ON FIXTURE 0

SER 1; FIX 1; C= 0000000; BIN=6000 ; MRRU=43.7; MRRD=47.4; LEAK RATE= 2.0
ACT= 129.2; REL= 100.0; DIF= 29.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 2; FIX 2; C= 0000000; BIN=6000 ; MRRU=43.7; MRRD=47.4; LEAK RATE= 2.0
ACT= 139.4; REL= 104.0; DIF= 35.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 3; FIX 3; C= 0000000; BIN=6000 ; MRRU=43.7; MRRD=47.4; LEAK RATE= 2.0
ACT= 129.7; REL= 88.1; DIF= 41.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 4; FIX 4; C= 0000000; BIN=6000 ; MRRU=43.7; MRRD=47.4; LEAK RATE= 2.0
ACT= 134.0; REL= 98.6; DIF= 35.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:11:26.79 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:11:46.79 OPER DOOR STILL DID NOT CLOSE 1

SER 5; FIX 1; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.2; LEAK RATE= 2.0
ACT= 140.5; REL= 111.6; DIF= 28.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 6; FIX 2; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.2; LEAK RATE= 2.0
ACT= 134.7; REL= 102.0; DIF= 32.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 7; FIX 3; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.2; LEAK RATE= 2.0
ACT= 130.7; REL= 98.1; DIF= 32.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 8; FIX 4; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.2; LEAK RATE= 2.0
ACT= 123.3; REL= 84.2; DIF= 39.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:12:34.38 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:12:54.38 OPER DOOR STILL DID NOT CLOSE 1

SER 9; FIX 1; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.1; LEAK RATE= 2.0
ACT= 139.4; REL= 105.3; DIF= 34.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 10; FIX 2; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.1; LEAK RATE= 2.0
ACT= 124.9; REL= 90.2; DIF= 34.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 11; FIX 3; C= 0000000; BIN=6000 ; MRRU=44.1; MRRD=48.1; LEAK RATE= 2.0

ACT= 127.8; REL= 97.4; DIF= 28.0 PSI; ACTOR= 200.0ms; RELOR= 200.0

17-APR-1992 10:22:25.4a OPER DOOR DID NOT CLOSE 1

SER 13; FIX 1; C= 0000000; BIN=0000.; MRRU=44.1; MRRD=47.3; LEAK RATE= 1.9
ACT= 132.6; REL= 100.0; DIF= 33.6 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 14; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.3; LEAK RATE= 1.9
ACT= 129.1; REL= 92.6; DIF= 36.5 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 15; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.3; LEAK RATE= 1.9
ACT= 134.7; REL= 106.4; DIF= 28.3 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 16; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.3; LEAK RATE= 1.9
ACT= 137.3; REL= 105.3; DIF= 32.0 PSI; ACTOR= 200.0ms; RELOR= 200.0

17-APR-1992 10:23:09.05 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:23:29.05 OPER DOOR STILL DID NOT CLOSE 1

SER 17; FIX 1; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=48.1; LEAK RATE= 1.7
ACT= 131.0; REL= 95.9; DIF= 35.1 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 18; FIX 2; C= 0000000; BIN=0000.; MRRU=43.7; MRRD=48.1; LEAK RATE= 1.7
ACT= 136.8; REL= 106.1; DIF= 30.7 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 19; FIX 3; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=48.1; LEAK RATE= 1.7
ACT= 136.8; REL= 107.7; DIF= 29.1 PSI; ACTOR= 200.0ms; RELOR= 200.0

20 SER 20; FIX 4; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=48.1; LEAK RATE= 1.7
ACT= 133.3; REL= 98.2; DIF= 35.1 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 21; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.9
ACT= 139.0; REL= 108.9; DIF= 30.1 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 22; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.9
ACT= 128.8; REL= 98.4; DIF= 30.4 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 24; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.9
ACT= 141.3; REL= 106.5; DIF= 34.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 25; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.5; LEAK RATE= 2.2
ACT= 120.7; REL= 85.3; DIF= 35.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 26; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.5; LEAK RATE= 2.2
ACT= 133.0; REL= 98.1; DIF= 35.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 27; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.5; LEAK RATE= 2.2
ACT= 131.7; REL= 97.0; DIF= 34.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 28; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.5; LEAK RATE= 2.2
ACT= 127.5; REL= 97.0; DIF= 30.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 29; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.2
ACT= 132.1; REL= 99.6; DIF= 32.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

30 SER 30; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.2
ACT= 128.3; REL= 100.9; DIF= 27.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 31; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.2
ACT= 126.9; REL= 91.0; DIF= 35.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 32; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.2
ACT= 132.6; REL= 95.8; DIF= 36.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:25:28.45 OPER DOOR DID NOT CLOSE 1

SER 33; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=48.6; LEAK RATE= 1.9
ACT= 134.5; REL= 103.7; DIF= 30.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 34; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=48.6; LEAK RATE= 1.9
ACT= 130.5; REL= 99.5; DIF= 31.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 36; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.6; LEAK RATE= 1.9
ACT= 123.7; REL= 88.6; DIF= 35.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 37; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=46.4; LEAK RATE= 2.0
ACT= 135.6; REL= 104.5; DIF= 31.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 38; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=46.4; LEAK RATE= 2.0
ACT= 131.7; REL= 98.1; DIF= 33.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 39; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=46.4; LEAK RATE= 2.0
ACT= 139.4; REL= 105.9; DIF= 33.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

40 SER 40; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=46.4; LEAK RATE= 2.0
ACT= 133.5; REL= 101.9; DIF= 31.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:26:35.20 OPER DOOR DID NOT CLOSE 1

SER 41; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 124.9; REL= 94.7; DIF= 30.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 42; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 128.4; REL= 103.4; DIF= 24.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 43; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 125.9; REL= 93.4; DIF= 32.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 44; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 131.9; REL= 100.9; DIF= 31.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:27:06.17 OPER DOOR DID NOT CLOSE 1

SER 45; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.0

SER [illegible]; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.0
ACT= 126.3; REL= 93.8; DIF= 32.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 47; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.0
ACT= 129.2; REL= 96.3; DIF= 32.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 48; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.0
ACT= 134.0; REL= 100.1; DIF= 33.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:27:52.52 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:28:12.52 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 10:28:26.19 TEST CYCLE TIMEOUT 1

SER 49; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.1; LEAK RATE= 1.9
ACT= 131.5; REL= 101.4; DIF= 30.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 50; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.1; LEAK RATE= 1.9
ACT= 133.2; REL= 98.8; DIF= 34.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 51; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.1; LEAK RATE= 1.9
ACT= 125.9; REL= 87.1; DIF= 38.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 52; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.1; LEAK RATE= 1.9
ACT= 127.2; REL= 95.2; DIF= 32.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:31:52.41 OPER DOOR DID NOT CLOSE 1

SER 53; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.7; LEAK RATE= 1.9
ACT= 123.3; REL= 92.4; DIF= 30.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 54; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.7; LEAK RATE= 1.9
ACT= 131.2; REL= 93.5; DIF= 37.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 55; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.7; LEAK RATE= 1.9
ACT= 122.5; REL= 85.6; DIF= 36.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 56; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.7; LEAK RATE= 1.9
ACT= 133.5; REL= 98.4; DIF= 35.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

[illegible]

SER 58; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.5; LEAK RATE= 1.9
ACT= 138.0; REL= 107.9; DIF= 30.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 59; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.5; LEAK RATE= 1.9
ACT= 130.8; REL= 97.1; DIF= 33.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

60 SER 60; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.5; LEAK RATE= 1.9
ACT= 122.5; REL= 88.1; DIF= 34.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:32:03.70 OPER DOOR DID NOT CLOSE 1

SER 61; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.0; LEAK RATE= 2.1
ACT= 128.1; REL= 94.5; DIF= 33.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 62; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.0; LEAK RATE= 2.1
ACT= 135.3; REL= 101.8; DIF= 33.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 63; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.0; LEAK RATE= 2.1
ACT= 137.1; REL= 104.8; DIF= 32.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 64; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.3; MRRD=48.0; LEAK RATE= 2.1
ACT= 135.8; REL= 103.3; DIF= 32.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:33:00.40 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:32:20.40 OPER DOOR STILL DID NOT CLOSE 1

SER 65; FIX 1; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=47.2; LEAK RATE= 1.7
ACT= 136.9; REL= 104.6; DIF= 32.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 66; FIX 2; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=47.2; LEAK RATE= 1.7
ACT= 129.3; REL= 90.9; DIF= 38.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 67; FIX 3; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=47.2; LEAK RATE= 1.7
ACT= 140.6; REL= 104.6; DIF= 36.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 68; FIX 4; C= 0000000; BIN=0000 ; MRRU=43.7; MRRD=47.2; LEAK RATE= 1.7
ACT= 135.5; REL= 104.6; DIF= 30.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 69; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 131.3; REL= 93.6; DIF= 37.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

70 SER 70; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 132.5; REL= 94.5; DIF= 38.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 71; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 134.0; REL= 102.1; DIF= 32.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 72; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 127.4; REL= 92.4; DIF= 35.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:34:29.53 DRER DOOR DID NOT CLOSE 1

SER 73; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.5; LEAK RATE= 2.0
ACT= 130.4; REL= 100.1; DIF= 30.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 74; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.5; LEAK RATE= 2.0
ACT= 122.0; REL= 94.1; DIF= 27.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 75; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.5; LEAK RATE= 2.0
ACT= 122.7; REL= 89.4; DIF= 33.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 76; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.5; LEAK RATE= 2.0
ACT= 125.9; REL= 89.4; DIF= 36.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 77; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.8; MRRD=47.3; LEAK RATE= 2.0
ACT= 127.3; REL= 91.8; DIF= 35.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 78; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.8; MRRD=47.3; LEAK RATE= 2.0
ACT= 126.0; REL= 91.8; DIF= 34.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 79; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.8; MRRD=47.3; LEAK RATE= 2.0
ACT= 129.3; REL= 100.7; DIF= 28.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

80 SER 80; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.8; MRRD=47.3; LEAK RATE= 2.0
ACT= 138.6; REL= 107.5; DIF= 31.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 81; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=46.8; LEAK RATE= 2.0
ACT= 127.3; REL= 93.3; DIF= 34.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 82; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=46.8; LEAK RATE= 2.0
ACT= 121.7; REL= 89.8; DIF= 31.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 83; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=46.8; LEAK RATE= 2.0
ACT= 129.2; REL= 94.5; DIF= 34.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 84; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=46.8; LEAK RATE= 2.0
ACT= 131.0; REL= 97.8; DIF= 32.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:35:46.00 OPEN DOOR DID NOT CLOSE 1

17-APR-1992 10:36:06.00 OPEN DOOR STILL DID NOT CLOSE 1

17-APR-1992 10:36:22.20 TOOL CYCLE TIMEOUT 1

SER 85; FIX 1; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.8; LEAK RATE= 2.1
ACT= 131.6; REL= 96.7; DIF= 34.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 86; FIX 2; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.8; LEAK RATE= 2.1
ACT= 117.2; REL= 83.0; DIF= 34.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 87; FIX 3; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.8; LEAK RATE= 2.1
ACT= 130.4; REL= 99.4; DIF= 31.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 88; FIX 4; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.8; LEAK RATE= 2.1
ACT= 119.8; REL= 90.8; DIF= 28.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:39:56.83 OPEN DOOR DID NOT CLOSE 1

SER 89; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 128.0; REL= 96.4; DIF= 31.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

90 SER 90; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 133.9; REL= 99.9; DIF= 34.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 91; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.8; LEAK RATE= 1.9
ACT= 126.1; REL= 97.5; DIF= 28.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

ACT= 126.1; REL= 92.0; DIF= 33.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:40:40.32 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:41:00.32 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 10:41:17.81 TOOL CYCLE TIMEOUT 1

SER 93; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.8; LEAK RATE= 2.0
ACT= 132.5; REL= 97.4; DIF= 35.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 94; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.8; LEAK RATE= 2.0
ACT= 129.3; REL= 94.9; DIF= 34.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 95; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.8; LEAK RATE= 2.0
ACT= 138.2; REL= 103.8; DIF= 34.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 96; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.8; LEAK RATE= 2.0
ACT= 125.6; REL= 90.2; DIF= 35.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:44:39.32 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:44:59.32 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 10:45:17.91 TOOL CYCLE TIMEOUT 1

SER 97; FIX 1; C= 0000000; BIN=0000 ; MRRU=43.8; MRRD=47.4; LEAK RATE= 1.9
ACT= 132.4; REL= 96.9; DIF= 35.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 98; FIX 2; C= 0000000; BIN=0000 ; MRRU=43.8; MRRD=47.4; LEAK RATE= 1.9
ACT= 132.9; REL= 102.2; DIF= 30.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 99; FIX 3; C= 0000000; BIN=0000 ; MRRU=43.6; MRRD=47.4; LEAK RATE= 1.9
ACT= 125.6; REL= 87.2; DIF= 38.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

100 SER 100; FIX 4; C= 0000000; BIN=0000 ; MRRU=43.6; MRRD=47.4; LEAK RATE= 1.9
ACT= 124.0; REL= 89.7; DIF= 35.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

ACT= 130.4; REL= 95.9; DIF= 34.5 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 102; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.8; LEAK RATE= 1.9
ACT= 132.6; REL= 90.2; DIF= 42.5 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 103; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.8; LEAK RATE= 1.9
ACT= 138.2; REL= 103.8; DIF= 34.4 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 104; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.8; LEAK RATE= 1.9
ACT= 125.9; REL= 91.4; DIF= 34.5 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 105; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.8
ACT= 140.4; REL= 113.1; DIF= 27.4 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 106; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.8
ACT= 133.8; REL= 100.6; DIF= 33.2 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 107; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.8
ACT= 132.4; REL= 94.4; DIF= 38.0 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 108; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.1; MRRD=47.2; LEAK RATE= 1.8
ACT= 139.1; REL= 105.9; DIF= 33.2 PSI; ACTDR= 200.0ms; RELDR= 200.0

17-APR-1992 10:49:40.16 OPER DOOR DID NOT CLOSE 1

SER 109; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.9; LEAK RATE= 2.0
ACT= 127.6; REL= 100.8; DIF= 26.8 PSI; ACTDR= 200.0ms; RELDR= 200.0

110 SER 110; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.9; LEAK RATE= 2.0
ACT= 137.5; REL= 104.9; DIF= 32.6 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 111; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.9; LEAK RATE= 2.0
ACT= 131.3; REL= 100.8; DIF= 30.5 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 112; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.9; LEAK RATE= 2.0
ACT= 129.0; REL= 97.0; DIF= 32.0 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 113; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.2; LEAK RATE= 2.0
ACT= 125.3; REL= 92.2; DIF= 33.1 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 114; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.2; LEAK RATE= 2.0
ACT= 133.2; REL= 102.1; DIF= 31.1 PSI; ACTDR= 200.0ms; RELDR= 200.0

ACT= 130.4; REL= 98.2; DIF= 32.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 116; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.2; LEAK RATE= 2.0
ACT= 124.3; REL= 93.6; DIF= 30.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 117; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.1
ACT= 132.4; REL= 104.7; DIF= 27.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 118; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.1
ACT= 123.1; REL= 89.9; DIF= 33.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 119; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.1
ACT= 119.8; REL= 88.7; DIF= 31.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

120 SER 120; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.9; LEAK RATE= 2.1
ACT= 132.4; REL= 98.2; DIF= 34.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 121; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.8; LEAK RATE= 2.0
ACT= 130.2; REL= 107.8; DIF= 27.4 PSI; ACTCR= 200.0ms; RELCR= 122.3

SER 122; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.8; LEAK RATE= 2.0
ACT= 130.6; REL= 93.8; DIF= 36.7 PSI; ACTCR= 200.0ms; RELCR= 15.0

SER 123; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.8; LEAK RATE= 2.0
ACT= 128.2; REL= 96.0; DIF= 32.2 PSI; ACTCR= 200.0ms; RELCR= 38.4

124 SER 124; FIX 4; C= 0020002; BIN=CONT ; MRRU=44.1; MRRD=47.8; LEAK RATE= 2.0
ACT= 177.6; REL= 92.6; DIF= 85.2 PSI; ACTCR= 200.0ms; RELCR= 0.6

17-APR-1992 10:51:29.58 DPER DOOR DID NOT CLOSE 1

SER 125; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.3; LEAK RATE= 2.4
ACT= 128.6; REL= 96.1; DIF= 32.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 126; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.3; LEAK RATE= 2.4
ACT= 123.4; REL= 89.6; DIF= 33.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 127; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.3; LEAK RATE= 2.4
ACT= 125.4; REL= 94.1; DIF= 31.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 128; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.3; LEAK RATE= 2.4
ACT= 131.2; REL= 94.2; DIF= 37.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:52:23.86 OPER DOOR STILL DID NOT CLOSE 1

SER 129; FIX 1; C= 0000000; BIN=GOOD ; MRPU=44.1; MRRD=47.6; LEAK RATE= 2.2
ACT= 134.4; REL= 107.0; DIF= 26.8 PSI; ACTOR= 200.0ms; RELOR= 200.0

130 SER 130; FIX 2; C= 0000000; BIN=GOOD ; MRPU=44.1; MRRD=47.6; LEAK RATE= 2.2
ACT= 131.8; REL= 100.3; DIF= 31.4 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 131; FIX 3; C= 0000000; BIN=GOOD ; MRPU=44.1; MRRD=47.6; LEAK RATE= 2.2
ACT= 129.5; REL= 97.1; DIF= 32.4 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 132; FIX 4; C= 0000000; BIN=GOOD ; MRPU=44.1; MRRD=47.6; LEAK RATE= 2.2
ACT= 128.2; REL= 94.6; DIF= 33.6 PSI; ACTOR= 200.0ms; RELOR= 200.0

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17-APR-1992 10:53:00.20 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:53:20.20 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 10:53:37.62 TOOL CYCLE TIMEOUT 1

SER 133; FIX 1; C= 0000000; BIN=GOOD ; MRPU=44.5; MRRD=47.1; LEAK RATE= 1.8
ACT= 137.2; REL= 106.1; DIF= 31.1 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 134; FIX 2; C= 0000000; BIN=GOOD ; MRPU=44.5; MRRD=47.1; LEAK RATE= 1.8
ACT= 128.7; REL= 96.9; DIF= 31.7 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 135; FIX 3; C= 0000000; BIN=GOOD ; MRPU=44.5; MRRD=47.1; LEAK RATE= 1.8
ACT= 125.1; REL= 99.5; DIF= 25.6 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 136; FIX 4; C= 0000000; BIN=GOOD ; MRPU=44.5; MRRD=47.1; LEAK RATE= 1.8
ACT= 127.3; REL= 91.8; DIF= 35.5 PSI; ACTOR= 200.0ms; RELOR= 200.0

17-APR-1992 10:54:52.26 OPER DOOR DID NOT CLOSE 1

[illegible]

SER 138; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.2; LEAK RATE= 2.0
ACT= 130.7; REL= 97.1; DIF= 33.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 139; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.2; LEAK RATE= 2.0
ACT= 132.8; REL= 103.5; DIF= 29.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

140 SER 140; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.2; LEAK RATE= 2.0
ACT= 129.9; REL= 93.5; DIF= 36.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 141; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.5; LEAK RATE= 2.0
ACT= 127.7; REL= 96.6; DIF= 31.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 142; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.5; LEAK RATE= 2.0
ACT= 118.7; REL= 87.2; DIF= 31.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 143; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.5; LEAK RATE= 2.0
ACT= 124.4; REL= 88.5; DIF= 35.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 144; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=47.5; LEAK RATE= 2.0
ACT= 131.7; REL= 104.6; DIF= 27.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 145; FIX 1; C= 0000000; BIN=0000 ; MRRU=43.6; MRRD=47.1; LEAK RATE= 2.2
ACT= 133.3; REL= 106.9; DIF= 29.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 146; FIX 2; C= 0000000; BIN=0000 ; MRRU=43.8; MRRD=47.1; LEAK RATE= 2.2
ACT= 125.8; REL= 95.8; DIF= 30.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 147; FIX 3; C= 0000000; BIN=0000 ; MRRU=43.8; MRRD=47.1; LEAK RATE= 2.2
ACT= 131.5; REL= 97.3; DIF= 34.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 148; FIX 4; C= 0000000; BIN=0000 ; MRRU=43.8; MRRD=47.1; LEAK RATE= 2.2
ACT= 128.0; REL= 92.4; DIF= 35.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 149; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.1; LEAK RATE= 2.2
ACT= 132.2; REL= 102.1; DIF= 30.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 150; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.1; LEAK RATE= 2.2
ACT= 131.0; REL= 98.3; DIF= 32.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 151; FIX 3; C= 0020012; BIN=CONT ; MRRU=44.2; MRRD=47.1; LEAK RATE= 2.2
ACT= 178.0; REL= 140.7; DIF= 37.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 152; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.1; LEAK RATE= 2.2
ACT= 139.2; REL= 97.1; DIF= 42.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 153; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.5; LEAK RATE= 1.9
ACT= 129.4; REL= 95.8; DIF= 33.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 154; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.5; LEAK RATE= 1.9
ACT= 131.6; REL= 99.9; DIF= 31.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 155; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.5; LEAK RATE= 1.9
ACT= 132.5; REL= 99.9; DIF= 32.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 156; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.5; LEAK RATE= 1.9
ACT= 136.1; REL= 102.3; DIF= 33.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 157; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=47.6; LEAK RATE= 1.9
ACT= 130.4; REL= 96.6; DIF= 33.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 158; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=47.6; LEAK RATE= 1.9
ACT= 134.1; REL= 97.8; DIF= 36.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 159; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=47.6; LEAK RATE= 1.9
ACT= 135.0; REL= 91.8; DIF= 33.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 160; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=47.6; LEAK RATE= 1.9
ACT= 130.4; REL= 96.6; DIF= 33.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 10:57:25.69 DOOR DOOR OPEN NOT CLOSED 1

SER 161; FIX 1; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.6; LEAK RATE= 1.9
ACT= 133.2; REL= 99.4; DIF= 33.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 162; FIX 2; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.8; LEAK RATE= 1.9
ACT= 131.0; REL= 97.0; DIF= 34.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 163; FIX 3; C= 0000000; BIN=GOOD ; MRRU=43.9; MRRD=47.6; LEAK RATE= 1.9

ACT= 138.2; REL= 95.7; DIF= 37.5 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 165; FIX 1; C= 0000300; BIN=GOOD ; MRAU=44.1; MRRD=47.7; LEAK RATE= 2.0
ACT= 137.2; REL= 103.5; DIF= 34.7 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 166; FIX 2; C= 0000000; BIN=GOOD ; MRAU=44.1; MRRD=47.7; LEAK RATE= 2.0
ACT= 129.3; REL= 98.3; DIF= 31.0 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 167; FIX 3; C= 0000000; BIN=GOOD ; MRAU=44.1; MRRD=47.7; LEAK RATE= 2.0
ACT= 126.7; REL= 93.2; DIF= 33.5 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 168; FIX 4; C= 0000000; BIN=GOOD ; MRAU=44.1; MRRD=47.7; LEAK RATE= 2.0
ACT= 125.3; REL= 86.7; DIF= 38.7 PSI; ACTDR= 200.0ms; RELDR= 200.0

17-APR-1992 10:58:22.59 OPER DOOR DID NOT CLOSE 1

17-APR-1992 10:58:42.59 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 10:59:00.61 TOOL CYCLE TIMEOUT 1

SER 169; FIX 1; C= 0000000; BIN=GOOD ; MRAU=44.2; MRRD=47.7; LEAK RATE= 2.1
ACT= 128.3; REL= 96.1; DIF= 30.2 PSI; ACTDR= 200.0ms; RELDR= 200.0

170 SER 170; FIX 2; C= 0000000; BIN=GOOD ; MRAU=44.2; MRRD=47.7; LEAK RATE= 2.1
ACT= 126.5; REL= 90.9; DIF= 35.6 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 171; FIX 3; C= 0000000; BIN=GOOD ; MRAU=44.2; MRRD=47.7; LEAK RATE= 2.1
ACT= 127.1; REL= 94.4; DIF= 32.6 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 172; FIX 4; C= 0000000; BIN=GOOD ; MRAU=44.2; MRRD=47.7; LEAK RATE= 2.1
ACT= 123.6; REL= 96.7; DIF= 26.9 PSI; ACTDR= 200.0ms; RELDR= 200.0

17-APR-1992 11:00:50.06 OPER DOOR DID NOT CLOSE 1

17-APR-1992 11:01:13.08 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 11:01:29.10 TOOL CYCLE TIMEOUT 1

SER 173; FIX 1; C= 0000000; BIN=GOOD ; MRAU=44.0; MRRD=47.0; LEAK RATE= 2.2
ACT= 134.0; REL= 100.3; DIF= 33.7 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 174; FIX 2; C= 0000000; BIN=GOOD ; MRAU=44.0; MRRD=47.0; LEAK RATE= 2.2
ACT= 142.9; REL= 112.3; DIF= 30.6 PSI; ACTDR= 200.0ms; RELDR= 200.0

SER 175; FIX 3; C= 0000000; BIN=GOOD ; MRAU=44.0; MRRD=47.0; LEAK RATE= 2.2

ACT= 134.6; REL= [illegible] DIF= 34.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:03:27.36 OPEN DOOR DID NOT CLOSE 1

SER 177; FIX 1; C= 0000000; BIN=GOOD ; MRRU=43.7; MRRD=47.4; LEAK RATE= 1.9
ACT= 132.2; REL= 101.0; DIF= 31.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 178; FIX 2; C= 0000000; BIN=GOOD ; MRRU=43.7; MRRD=47.4; LEAK RATE= 1.9
ACT= 128.0; REL= 98.4; DIF= 29.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 179; FIX 3; C= 0000000; BIN=GOOD ; MRRU=43.7; MRRD=47.4; LEAK RATE= 1.9
ACT= 131.7; REL= 97.2; DIF= 34.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

180 SER 180; FIX 4; C= 0000000; BIN=GOOD ; MRRU=43.7; MRRD=47.4; LEAK RATE= 1.9
ACT= 126.3; REL= 92.3; DIF= 33.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:03:52.53 OPEN DOOR DID NOT CLOSE 1

SER 181; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.5; LEAK RATE= 2.0
ACT= 131.7; REL= 97.7; DIF= 34.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 182; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.5; LEAK RATE= 2.0
ACT= 126.5; REL= 94.4; DIF= 32.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 183; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.5; LEAK RATE= 2.0
ACT= 133.1; REL= 101.5; DIF= 31.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 184; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.5; LEAK RATE= 2.0
ACT= 131.7; REL= 101.1; DIF= 30.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:04:18.31 OPEN DOOR DID NOT CLOSE 1

ACT= [illegible]; REL= [illegible]; DIF= [illegible] PSI; ACTOR= [illegible]; RELOR= [illegible]

SER 186; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.6; LEAK RATE= 2.0
ACT= 135.3; REL= 104.0; DIF= 31.3 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 187; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.6; LEAK RATE= 2.0
ACT= 129.9; REL= 97.6; DIF= 32.4 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 188; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.6; LEAK RATE= 2.0
ACT= 132.6; REL= 102.6; DIF= 30.0 PSI; ACTOR= 200.0ms; RELOR= 200.0

17-APR-1992 11:04:44.23 OPER DOOR DID NOT CLOSE 1

SER 189; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=48.5; LEAK RATE= 1.8
ACT= 135.8; REL= 106.3; DIF= 29.5 PSI; ACTOR= 200.0ms; RELOR= 200.0

190 SER 190; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=48.5; LEAK RATE= 1.8
ACT= 125.0; REL= 90.4; DIF= 34.6 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 191; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=48.5; LEAK RATE= 1.8
ACT= 128.7; REL= 95.2; DIF= 33.4 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 192; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.5; MRRD=48.5; LEAK RATE= 1.8
ACT= 132.4; REL= 100.0; DIF= 32.5 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 193; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 2.0
ACT= 136.6; REL= 104.5; DIF= 32.1 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 194; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 2.0
ACT= 133.3; REL= 98.0; DIF= 35.3 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 195; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 2.0
ACT= 130.6; REL= 100.4; DIF= 30.2 PSI; ACTOR= 200.0ms; RELOR= 200.0

SER 196; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 2.0
ACT= 122.1; REL= 90.6; DIF= 31.5 PSI; ACTOR= 200.0ms; RELOR= 200.0

ACT= 133.4; REL= 101.4; DIF= 32.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 198; FIX 2; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.2
ACT= 129.8; REL= 95.5; DIF= 34.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 199; FIX 3; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.2
ACT= 133.1; REL= 104.1; DIF= 29.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

200 SER 200; FIX 4; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.5; LEAK RATE= 2.2
ACT= 132.7; REL= 101.6; DIF= 31.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 201; FIX 1; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.2; LEAK RATE= 2.3
ACT= 141.4; REL= 111.0; DIF= 30.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 202; FIX 2; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.2; LEAK RATE= 2.3
ACT= 140.5; REL= 111.0; DIF= 29.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 203; FIX 3; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.2; LEAK RATE= 2.3
ACT= 130.8; REL= 100.3; DIF= 30.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 204; FIX 4; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.2; LEAK RATE= 2.3
ACT= 138.7; REL= 104.0; DIF= 34.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:06:27.81 OPER DOOR DID NOT CLOSE 1

SER 205; FIX 1; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.0; LEAK RATE= 2.1
ACT= 133.4; REL= 98.3; DIF= 35.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 206; FIX 2; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.0; LEAK RATE= 2.1
ACT= 131.7; REL= 102.2; DIF= 29.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 207; FIX 3; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.0; LEAK RATE= 2.1
ACT= 134.6; REL= 102.2; DIF= 32.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 208; FIX 4; D= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=46.0; LEAK RATE= 2.1
ACT= 129.9; REL= 100.9; DIF= 29.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:07:09.87 OPER DOOR DID NOT CLOSE 1

17-APR-1992 11:07:29.87 OPER DOOR STILL DID NOT CLOSE 1

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SER  209; FIX 1;  C= 0000000;  BIN=BOOD ;  MRAU=44.2;  MRRD=47.4;  LEAK RATE= 1.9
ACT=  128.4;  REL=   97.6;  DIF=  30.8 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  210; FIX 2;  C= 0000000;  BIN=BOOD ;  MRRU=44.2;  MRRD=47.4;  LEAK RATE= 1.9
ACT=  126.5;  REL=   95.1;  DIF=  31.4 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  211; FIX 3;  C= 0000000;  BIN=BOOD ;  MRRU=44.2;  MRRD=47.4;  LEAK RATE= 1.9
ACT=  132.9;  REL=   96.3;  DIF=  36.6 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  212; FIX 4;  C= 0000000;  BIN=BOOD ;  MRRU=44.2;  MRRD=47.4;  LEAK RATE= 1.9
ACT=  126.3;  REL=   94.2;  DIF=  31.8 PSI;  ACTOR=  200.0ms;  RELOR=  200.0
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SER  213; FIX 1;  C= 0000000;  BIN=BOOD ;  MRRU=44.5;  MRRD=47.5;  LEAK RATE= 2.1
ACT=  129.8;  REL=   97.4;  DIF=  32.4 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  214; FIX 2;  C= 0000000;  BIN=BOOD ;  MRRU=44.5;  MRRD=47.5;  LEAK RATE= 2.1
ACT=  133.3;  REL=   97.4;  DIF=  35.9 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  215; FIX 3;  C= 0000000;  BIN=BOOD ;  MRRU=44.5;  MRRD=47.5;  LEAK RATE= 2.1
ACT=  136.9;  REL=  104.0;  DIF=  32.9 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  216; FIX 4;  C= 0000000;  BIN=BOOD ;  MRRU=44.5;  MRRD=47.5;  LEAK RATE= 2.1
ACT=  127.2;  REL=   98.7;  DIF=  28.5 PSI;  ACTOR=  200.0ms;  RELOR=  200.0
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17-MAR-1992 11:15:18.03  USER CODE DID NOT CLOSE        1

SER  217; FIX 1;  C= 0000000;  BIN=BOOD ;  MRRU=44.3;  MRRD=47.6;  LEAK RATE= 2.0
ACT=  133.4;  REL=  102.5;  DIF=  30.9 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  218; FIX 2;  C= 0000000;  BIN=BOOD ;  MRRU=44.3;  MRRD=47.6;  LEAK RATE= 2.0
ACT=  125.0;  REL=   92.7;  DIF=  32.3 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  219; FIX 3;  C= 0000000;  BIN=BOOD ;  MRRU=44.3;  MRRD=47.6;  LEAK RATE= 2.0
ACT=  139.7;  REL=  108.2;  DIF=  31.5 PSI;  ACTOR=  200.0ms;  RELOR=  200.0

SER  220; FIX 4;  C= 0000000;  BIN=BOOD ;  MRRU=44.3;  MRRD=47.6;  LEAK RATE= 2.0
ACT=  125.3;  REL=   90.3;  DIF=  35.0 PSI;  ACTOR=  200.0ms;  RELOR=  200.0
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17-APR-1992 11:16:51.42 OPER DOOR DID NOT CLOSE 1

SER 221| FIX 1| C= 0000000| BIN=6000 | MRRU=44.1| MRRD=47.7| LEAK RATE= 1.9
ACT= 134.7| REL= 103.0| DIF= 31.2 PSI| ACTOR= 200.0ms| RELOR= 200.0

SER 222| FIX 2| C= 0000000| BIN=6000 | MRRU=44.1| MRRD=47.7| LEAK RATE= 1.9
ACT= 127.5| REL= 94.8| DIF= 32.7 PSI| ACTOR= 200.0ms| RELOR= 200.0

SER 223| FIX 3| C= 0000000| BIN=6000 | MRRU=44.1| MRRD=47.7| LEAK RATE= 1.9
ACT= 126.8| REL= 94.8| DIF= 32.0 PSI| ACTOR= 200.0ms| RELOR= 200.0

SER 224| FIX 4| C= 0000000| BIN=6000 | MRRU=44.1| MRRD=47.7| LEAK RATE= 1.9
ACT= 133.8| REL= 101.1| DIF= 32.7 PSI| ACTOR= 200.0ms| RELOR= 200.0

17-APR-1992 11:16:56.88 OPER DOOR DID NOT CLOSE 1

SER 225| FIX 1| C= 0000000| BIN=6000 | MRRU=44.3| MRRD=46.7| LEAK RATE= 1.9
ACT= 132.5| REL= 98.0| DIF= 34.5 PSI| ACTOR= 200.0ms| RELOR= 200.0

SER 226| FIX 2| C= 0000000| BIN=6000 | MRRU=44.3| MRRD=46.7| LEAK RATE= 1.9
ACT= 129.9| REL= 90.3| DIF= 39.6 PSI| ACTOR= 200.0ms| RELOR= 200.0

SER 227| FIX 3| C= 0000000| BIN=6000 | MRRU=44.3| MRRD=46.7| LEAK RATE= 1.9
ACT= 133.5| REL= 105.4| DIF= 28.1 PSI| ACTOR= 200.0ms| RELOR= 200.0

SER 228| FIX 4| C= 0000000| BIN=6000 | MRRU=44.3| MRRD=46.7| LEAK RATE= 1.9
ACT= 128.0| REL= 87.3| DIF= 37.3 PSI| ACTOR= 200.0ms| RELOR= 200.0

17-APR-1992 11:17:28.27 OPER DOOR DID NOT CLOSE 1

SER 229| FIX 1| C= 0000000| BIN=6000 | MRRU=44.2| MRRD=47.5| LEAK RATE= 1.6
ACT= 134.9| REL= 92.3| DIF= 32.6 PSI| ACTOR= 200.0ms| RELOR= 200.0

230 SER 230| FIX 2| C= 0000000| BIN=6000 | MRRU=44.2| MRRD=47.5| LEAK RATE= 1.6
ACT= 127.2| REL= 93.5| DIF= 33.7 PSI| ACTOR= 200.0ms| RELOR= 200.0

[illegible]

SER 232; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.5; LEAK RATE= 1.6
ACT= 130.8; REL= 97.1; DIF= 33.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:17:52.80 VPEN DOOR DID NOT CLOSE

SER 233; FIX 1; C= 0000000; BIN=GOOD ; MRRU=43.8; MRRD=47.6; LEAK RATE= 1.9
ACT= 117.2; REL= 82.4; DIF= 34.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 234; FIX 2; C= 0000000; BIN=GOOD ; MRRU=43.8; MRRD=47.6; LEAK RATE= 1.9
ACT= 128.9; REL= 95.6; DIF= 33.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 235; FIX 3; C= 0000000; BIN=GOOD ; MRRU=43.8; MRRD=47.6; LEAK RATE= 1.9
ACT= 129.3; REL= 95.0; DIF= 34.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 236; FIX 4; C= 0000000; BIN=GOOD ; MRRU=43.8; MRRD=47.6; LEAK RATE= 1.9
ACT= 128.7; REL= 96.3; DIF= 32.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 237; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.9; LEAK RATE= 1.7
ACT= 126.6; REL= 93.8; DIF= 32.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 238; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.9; LEAK RATE= 1.7
ACT= 132.4; REL= 98.7; DIF= 33.7 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 239; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.9; LEAK RATE= 1.7
ACT= 132.4; REL= 99.9; DIF= 32.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

240 SER 240; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.1; MRRD=47.9; LEAK RATE= 1.7
ACT= 133.4; REL= 99.0; DIF= 34.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 241; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=47.9; LEAK RATE= 1.8
ACT= 135.2; REL= 100.2; DIF= 35.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 243| FIX 3| C= 0000000| BIN=GOOD | MRRU=44.3| MRRD=47.5| LEAK RATE= 1.8
ACT= 126.5| REL= 93.9| DIF= 32.6 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 244| FIX 4| C= 0000000| BIN=GOOD | MRRU=44.3| MRRD=47.5| LEAK RATE= 1.8
ACT= 136.0| REL= 103.0| DIF= 33.0 PSI| ACTCR= 200.0ms| RELCR= 200.0

17-APR-1992 11:19:27.88 OPEN DOOR DID NOT CLOSE 1

17-APR-1992 11:19:27.88 OPEN DOOR STILL DID NOT CLOSE 1

17-APR-1992 11:19:46.19 TOOL CYCLE TIMEOUT 1

SER 245| FIX 1| C= 0000000| BIN=GOOD | MRRU=44.3| MRRD=47.4| LEAK RATE= 1.8
ACT= 138.9| REL= 104.2| DIF= 34.7 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 246| FIX 2| C= 0000000| BIN=GOOD | MRRU=44.3| MRRD=47.4| LEAK RATE= 1.8
ACT= 130.4| REL= 100.2| DIF= 30.3 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 247| FIX 3| C= 0000000| BIN=GOOD | MRRU=44.3| MRRD=47.4| LEAK RATE= 1.8
ACT= 126.4| REL= 96.4| DIF= 30.0 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 248| FIX 4| C= 0000000| BIN=GOOD | MRRU=44.3| MRRD=47.4| LEAK RATE= 1.8
ACT= 139.3| REL= 108.1| DIF= 31.2 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 249| FIX 1| C= 0000000| BIN=GOOD | MRRU=44.2| MRRD=47.0| LEAK RATE= 2.1
ACT= 126.4| REL= 92.3| DIF= 34.1 PSI| ACTCR= 200.0ms| RELCR= 200.0

250 SER 250| FIX 2| C= 0000000| BIN=GOOD | MRRU=44.2| MRRD=47.0| LEAK RATE= 2.1
ACT= 127.5| REL= 101.2| DIF= 26.3 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 251| FIX 3| C= 0000000| BIN=GOOD | MRRU=44.2| MRRD=47.0| LEAK RATE= 2.1
ACT= 132.1| REL= 102.4| DIF= 29.4 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 252| FIX 4| C= 0000000| BIN=GOOD | MRRU=44.2| MRRD=47.0| LEAK RATE= 2.1
ACT= 128.2| REL= 92.3| DIF= 35.9 PSI| ACTCR= 200.0ms| RELCR= 200.0

17-APR-1992 11:21:27.92 OPEN DOOR DID NOT CLOSE 1

17-APR-1992 11:21:47.92 OPEN DOOR STILL DID NOT CLOSE 1

SER 253| FIX 1| C= 0000000| BIN=GOOD | MRRU=44.2| MRRD=47.0| LEAK RATE= 2.0
ACT= 131.7| REL= 100.8| DIF= 30.9 PSI| ACTCR= 200.0ms| RELCR= 200.0

SER 254| FIX 2| C= 0000000| BIN=GOOD | MRRU=44.2| MRRD=47.0| LEAK RATE= 2.0
ACT= 134.4| REL= 99.5| DIF= 34.9 PSI| ACTCR= 200.0ms| RELCR= 200.0

[illegible]

SER 256; FIX 4; C= 0A00000; BIN=GOOD ; MRRU=44.2; MRRD=47.0; LEAK RATE= 2.0
ACT= 120.6; REL= 87.5; DIF= 33.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:23:22.97 OPER DOOR DID NOT CLOSE 1

17-APR-1992 11:23:42.47 OPER DOOR STILL DID NOT CLOSE 1

17-APR-1992 11:23:57.21 TOOL CYCLE TIMEOUT 1

SER 257; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.6; MRRD=47.8; LEAK RATE= 1.8
ACT= 130.2; REL= 95.2; DIF= 35.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 258; FIX 2; C= 0A00000; BIN=GOOD ; MRRU=44.6; MRRD=47.8; LEAK RATE= 1.8
ACT= 132.4; REL= 100.1; DIF= 33.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 259; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.6; MRRD=47.8; LEAK RATE= 1.8
ACT= 124.2; REL= 98.8; DIF= 25.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

260 SER 260; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.6; MRRD=47.8; LEAK RATE= 1.8
ACT= 133.9; REL= 101.2; DIF= 32.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:30:18.24 OPER DOOR DID NOT CLOSE 1

SER 261; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=48.1; LEAK RATE= 2.1
ACT= 133.7; REL= 101.4; DIF= 32.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 262; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=48.1; LEAK RATE= 2.1
ACT= 130.1; REL= 102.8; DIF= 27.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 263; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=48.1; LEAK RATE= 2.1
ACT= 128.1; REL= 92.7; DIF= 35.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 264; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.2; MRRD=48.1; LEAK RATE= 2.1
ACT= 128.9; REL= 101.4; DIF= 27.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 265; FIX 1; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.7; LEAK RATE= 2.3
ACT= 130.8; REL= 95.8; DIF= 35.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 266; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.7; LEAK RATE= 2.3
ACT= 133.3; REL= 101.0; DIF= 32.3 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 267; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.7; LEAK RATE= 2.3
ACT= 127.2; REL= 92.6; DIF= 34.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 268; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.4; MRRD=47.7; LEAK RATE= 2.3
ACT= 130.8; REL= 95.9; DIF= 35.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 269; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.3; LEAK RATE= 2.0
ACT= 129.5; REL= 91.7; DIF= 35.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

270 SER 270; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.3; LEAK RATE= 2.0
ACT= 130.3; REL= 98.5; DIF= 31.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 271; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.3; LEAK RATE= 2.0
ACT= 142.6; REL= 107.8; DIF= 34.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 272; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.0; MRRD=47.3; LEAK RATE= 2.0
ACT= 128.1; REL= 94.9; DIF= 33.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 273; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.7; LEAK RATE= 1.5
ACT= 123.1; REL= 91.1; DIF= 36.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 274; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.7; LEAK RATE= 1.5
ACT= 130.7; REL= 97.2; DIF= 33.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 275; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.7; LEAK RATE= 1.5
ACT= 134.7; REL= 104.8; DIF= 29.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 276; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.2; MRRD=47.7; LEAK RATE= 1.5
ACT= 127.6; REL= 97.2; DIF= 30.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-AUG-1992 11:32:05.07 OPEN DOOR DID NOT CLOSE 1

SER 277; FIX 1; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.0; LEAK RATE= 1.8
ACT= 127.2; REL= 93.6; DIF= 33.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 278; FIX 2; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.0; LEAK RATE= 1.8
ACT= 123.1; REL= 89.0; DIF= 34.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 279; FIX 3; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.0; LEAK RATE= 1.8
ACT= 129.9; REL= 96.1; DIF= 33.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

280 SER 280; FIX 4; C= 0000000; BIN=0000 ; MRRU=44.4; MRRD=48.0; LEAK RATE= 1.8

17-MAR-1992 11:32:33.64 OPER DOOR DID NOT CLOSE   1

SER 281; FIX 1; C= XXXXXX; BIN=BOOD ; MPRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 130.5; REL= 100.4; DIF= 29.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 282; FIX 2; C= 000000; BIN=BOOD ; MPRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 163.4; REL= 93.2; DIF= 30.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 283; FIX 3; C= 000000; BIN=BOOD ; MPRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 121.3; REL= 86.8; DIF= 34.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 284; FIX 4; C= 000000; BIN=BOOD ; MPRU=44.1; MRRD=47.7; LEAK RATE= 1.9
ACT= 134.2; REL= 100.6; DIF= 33.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-MAR-1992 11:33:01.26 OPER DOOR DID NOT CLOSE   1

17-MAR-1992 11:33:21.28 OPER DOOR STILL DID NOT CLOSE   1

17-MAR-1992 11:33:37.11 TOOL CYCLE TIMEOUT   1

SER 285; FIX 1; C= 000000; BIN=BOOD ; MPRU=44.3; MRRD=48.7; LEAK RATE= 2.1
ACT= 131.5; REL= 99.6; DIF= 32.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 286; FIX 2; C= 000000; BIN=BOOD ; MPRU=44.3; MRRD=48.7; LEAK RATE= 2.1
ACT= 137.6; REL= 103.6; DIF= 34.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 287; FIX 3; C= 000000; BIN=BOOD ; MPRU=44.3; MRRD=48.7; LEAK RATE= 2.1
ACT= 122.4; REL= 87.5; DIF= 35.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 288; FIX 4; C= 000000; BIN=BOOD ; MPRU=44.3; MRRD=48.7; LEAK RATE= 2.1
ACT= 129.1; REL= 97.6; DIF= 29.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-MAR-1992 11:42:46.51 OPER DOOR DID NOT CLOSE   1

17-MAR-1992 11:43:06.51 OPER DOOR STILL DID NOT CLOSE   1

SER 289; FIX 1; C= 000000; BIN=BOOD ; MPRU=44.1; MRRD=48.0; LEAK RATE= 2.0
ACT= 133.1; REL= 98.5; DIF= 34.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 291; FIX 4; CY 0000000; BIN=0000 ; MAXU=44.1; MAXD=46.0; LEAK RATE= 2.0
ACT= 129.4; RELA= 99.0; DIF= 29.8 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 292; FIX 4; CY 0000000; BIN=0000 ; MAXU=44.1; MAXD=46.0; LEAK RATE= 2.0
ACT= 137.5; RELA= 103.0; DIF= 33.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:43:52.41 OPEN DOOR DID NOT CLOSE 1

SER 293; FIX 1; CY 0000000; BIN=0000 ; MAXU=44.3; MAXD=47.6; LEAK RATE= 2.0
ACT= 129.0; RELA= 95.6; DIF= 34.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 294; FIX 2; CY 0000000; BIN=0000 ; MAXU=44.3; MAXD=47.6; LEAK RATE= 2.0
ACT= 125.4; RELA= 93.0; DIF= 32.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 295; FIX 3; CY 0000000; BIN=0000 ; MAXU=44.3; MAXD=47.6; LEAK RATE= 2.0
ACT= 134.0; RELA= 104.4; DIF= 29.5 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 296; FIX 4; CY 0000000; BIN=0000 ; MAXU=44.3; MAXD=47.6; LEAK RATE= 2.0
ACT= 122.9; RELA= 87.3; DIF= 35.6 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:44:31.13 OPEN DOOR DID NOT CLOSE 1

SER 297; FIX 1; CY 0000000; BIN=0000 ; MAXU=44.2; MAXD=47.2; LEAK RATE= 1.9
ACT= 131.1; RELA= 99.1; DIF= 31.9 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 298; FIX 2; CY 0000000; BIN=0000 ; MAXU=44.2; MAXD=47.2; LEAK RATE= 1.9
ACT= 123.8; RELA= 90.6; DIF= 33.2 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 299; FIX 3; CY 0000000; BIN=0000 ; MAXU=44.2; MAXD=47.2; LEAK RATE= 1.9
ACT= 123.8; RELA= 97.5; DIF= 26.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

300 * SER 300; FIX 4; CY 0000000; BIN=0000 ; MAXU=44.2; MAXD=47.2; LEAK RATE= 1.9
ACT= 126.1; RELA= 91.0; DIF= 35.1 PSI; ACTCR= 200.0ms; RELCR= 200.0

17-APR-1992 11:45:31.54 OPEN DOOR DID NOT CLOSE 1

17-APR-1992 11:45:31.54 OPEN DOOR STILL DID NOT CLOSE 1

17-APR-1992 11:45:46.25 TOOL CYCLE TIMEOUT 1

124 ACT= 143.3; REL= 112.6; DIF= [illegible]; ACTCR= 200.0mm; RELCR= 200.0

151 SER 302; FIX 2; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 1.9
ACT= 127.6; REL= 89.5; DIF= 38.1 PSI; ACTCR= 200.0mm; RELCR= 200.0

SER 303; FIX 3; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 1.9
ACT= 129.6; REL= 103.2; DIF= 26.7 PSI; ACTCR= 200.0mm; RELCR= 200.0

SER 304; FIX 4; C= 0000000; BIN=GOOD ; MRRU=44.3; MRRD=47.7; LEAK RATE= 1.9
ACT= 135.4; REL= 101.8; DIF= 33.6 PSI; ACTCR= 200.0mm; RELCR= 200.0

17-MAR-1992 11:46:16.11 OPER= DOOR DID NOT CLOSE

TI-S PRESSURE TESTER LOT REPORT

[illegible]
LOT ID:1-A-3107
LOT STARTED:17-MAR-1992 10:11:04.02
LOT FINISHED:17-MAR-1992 11:46:42.95

SETUP VALUES
DISC LOT ID: 0.00
DISC MEAN ACT: 23.4 MEAN REL: 13.7
LIMIT (PSI)
ACTUATION: 90.0 TO 180.0 PSI
RELEASE: 20.0 TO 120.0 PSI
DIFFERENTIAL: 0.0 TO 150.0 PSI
MAX VOLTAGE: 500.0 PSI
ACT CREEP TIME: 25.0 PSI
REL CREEP TIME: 150.0 PSI
PRECYCLE PRESS: 500.0 PSI
PRECYCLE COUNT: 2

NUMBER OF PIECES TESTED: 304

[illegible]	[illegible]	[illegible]
CENT	0	0.00 %
CONT	2	100.00 %
ACCR	0	0.00 %
ACCL	0	0.00 %
ACR1	0	0.00 %
RLR2	0	0.00 %
RLL2	0	0.00 %
DR_D	0	0.00 %
RLCR	0	0.00 %
CAN2	0	0.00 %

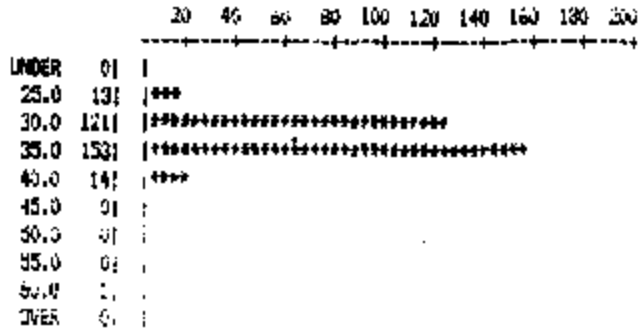
STATISTICS	MEAN	SIGMA	CRK
ACTUATION:	[illegible]	4.69	1.00
RELEASE:	47.7	5.45	1.25
RELATIVE:	9.0	0.00	0.00
DIFFERENTIAL:	32.7	3.15	3.44

HISTOGRAM OF ACTUATION PRESSURE

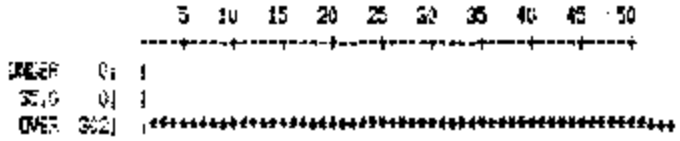
		10 20 30 40 50 60 70 80 90 100
UNDER	0	
117.5	3	
120.0	5	
122.5	17	
125.0	29	
127.5	54	
130.0	56	
132.5	54	
135.0	32	
137.5	21	
140.0	14	
142.5	5	
OVER	0	

HISTOGRAM OF RELEASE PRESSURE

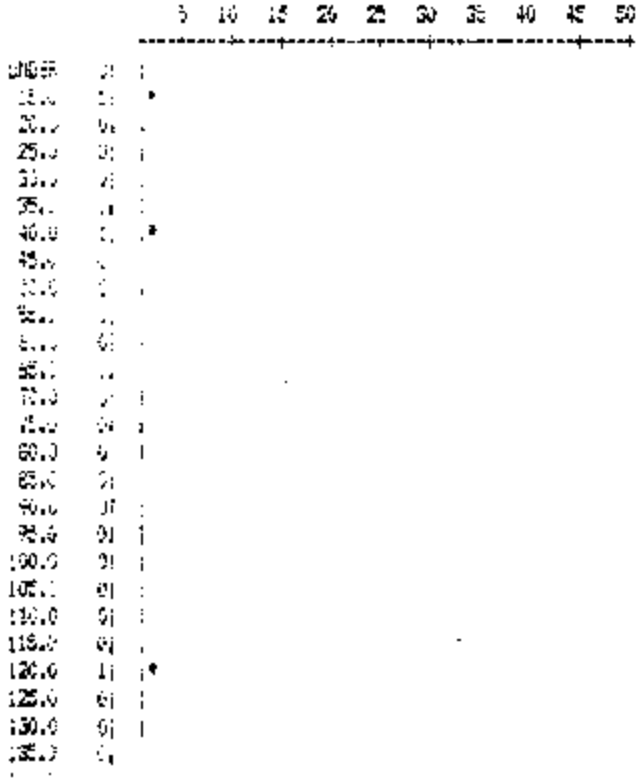
		10 20 30 40 50 60 70 80 90 100
UNDER	0	
70.0	1	
80.0	1	
85.0	10	
90.0	40	
95.0	91	
100.0	91	
105.0	45	
110.0	15	
115.0	2	
OVER	0	



HISTOGRAM OF ACTUATION CREEP



HISTOGRAM OF RELEASE CREEP



17-APR-1992 11:46:54.31 OPEN DOOR DID NOT CLOSE

17-APR-1992 11:47:14.31 OPEN DOOR STILL DID NOT CLOSE

17-APR-1992 11:47:30.04 TOOL CYCLE TIMEOUT

INITIAL SAMPLE WARRANT

No. 360068

PART INFORMATION

Part Name NEXT GENERATION SPEED CONTROL DEACTIVATION SWITCH Part Number F2AC-9F924-AA

Control Item ☐ Yes ☒ No Engineering Change Level _____ Date _____

Engineering Change Authorization _____ Date _____

Shown on Drawing No. F2AC-9F924-AA Part Weight .062 kg

Reason for Initial Sample:

☒ Initial Submission
☐ Engineering Change(s)
☐ Tooling Transfer
☐ Other — Please Specify _____
☐ Change in Optional Construction or Material
☐ Additional, Replacement, or Refurbished Tooling
☐ Correction of Discrepancy (Resubmission No. ____)
☐ Process Change
☐ Change in Subcontractor or Source
☐ Parts Produced at Additional Location

SUPPLIER INFORMATION (Manufacturing Location)

Supplier Name TEXAS INSTRUMENTS INC. Street Address 34 FOREST STREET

City ATTLEBORO State MA. Postal Code 02703 Country USA

Supplier Mfg. Location Code — DUNS T095A/7325814 Customer Assigned _____

CUSTOMER INFORMATION

Customer Name DANA CORPORATION Buyer GRANT SIMMONS Buyer Code _____

Purchase Order Number _____ Sample Acceptance Level _____

Application NEXT GENERATION SPEED CONTROL DEACTIVATION SWITCH

RESULTS

The results for dimensional measurements ☒, material tests ☒, and functional (ES) tests ☒ meet all drawing and specification requirements ☒ Yes ☐ No

Submission Checklist

☑ Checked Print
☐ Auxiliary Drawings/Sketches
☑ Correct Number of Samples
☑ Dimensional Results
☑ Material Test Results
☑ Certifications
☑ Functional (ES) Test Results
☐ Product Engineering Approval
☑ Control Plan
☑ Process Capability Results
☑ Process Flow Diagram
☑ Gage (Measurement) Studies

Supporting data for all requirements are available upon request.

COMMENTS:

_____

_____

DECLARATION

I affirm that the samples represented by this warrant are representative of our parts and have been made to the applicable customer drawings and specifications from specified materials, on regular production tooling with no operations other than the regular production process.

Authorized Signature J. Matt Fops QI Date 8/19/92

Print Name JIM MATT Title QRA ENGINEER Phone No. (508)699-1719

APPROVAL (when required by customer procedure) ☐ Approved ☐ Rejected

Signature _____ Date _____

Ford

PROCESS POTENTIAL AND QUALITY INDEXES SUMMARY DATA SHEET

PART #: F2AC-9E924-AA
SUPPLIER: TEXAS INSTRUMENTS
CODE: 7095A
ADDRESS: 34 FOREST ST.
ATTLEBORO,MA 02703
VEHICLE BUILD: EP VP FB OTHER

SUPPLIER CONTACT: JIM WATT
CONTACT PHONE: (508) 699-1719
PART DESCRIPTION: NEXT GENERATION SPEED CONTROL DEACTIVATION SWITCH
SQA CODE:
VEHICLE PROGRAM: PASS CAR EN53

CHARACTERISTIC TYPE

∇ = FORD CRITICAL CHARACTERISTICS

S.C. = FORD OR SUPPLIER SIGNIFICANT CHARACTERISTICS

NUMBER OF CRITICAL AND SIGNIFICANT CHARACTERISTICS:

1:	ACTUATION	TYPE:	SC	Cp =	**	Cpk = **
2:	RELEASE	TYPE:	SC	Cp =	**	Cpk = **
3:	3/8-24UNF-2A THREADS	TYPE:	SC	Cp =	A&	Cpk = A&
4:		TYPE:		Cp =		Cpk =
5:		TYPE:		Cp =		Cpk =
6:		TYPE:		Cp =		Cpk =
7:		TYPE:		Cp =		Cpk =
8:		TYPE:		Cp =		Cpk =
9:		TYPE:		Cp =		Cpk =
10:		TYPE:		Cp =		Cpk =
11:		TYPE:		Cp =		Cpk =
12:		TYPE:		Cp =		Cpk =
13:		TYPE:		Cp =		Cpk =
14:		TYPE:		Cp =		Cpk =
15:		TYPE:		Cp =		Cpk =

PIST = 1833/1833 x 100 = 100 %

$PIPC_{Cp}$ = _____ x 100 = _____ % $PIPC_{Cpk}$ = _____ x 100 _____ %

COMMENTS:

** CALIBRATION CHECK IS DONE 100 PERCENT.PARTS TESTED 300 ; DEFECTIVE 0 PERCENT OF DEFECT 0.

A& THREADS ARE CHECKED ON A GO/NOGO GAGE

PREPARED BY: ELAINE ROSE DATE: 8-19-92

PROCESS POTENTIAL AND QUALITY INDEXES SUMMARY DATA SHEET

PART #: E2AC-9B923-AA
SUPPLIER: TEXAS INSTRUMENTS
CODE: T095A
ADDRESS: 34 FOREST ST.
ATTLEBORO,MA 02703
VEHICLE BUILD: EP VP PB OTHER

SUPPLIER CONTACT: JIM WATT
CONTACT PHONE: (508) 699-1719
PART DESCRIPTION: NEXT GENERATION SPEED CONTROL DEACTIVATION SWITCH
SQA CODE:
VEHICLE PROGRAM: PASS CAR EN53

CHARACTERISTIC TYPE

∇ = FORD CRITICAL CHARACTERISTICS

S.C. = FORD OR SUPPLIER SIGNIFICANT CHARACTERISTICS

NUMBER OF CRITICAL AND SIGNIFICANT CHARACTERISTICS:

1: ACTUATION	TYPE: SC	Cp = **	Cpk = **
2: RELEASE	TYPE: SC	Cp = **	Cpk = **
3: 3/8-24UNF-2A THREADS	TYPE: SC	Cp = A#	Cpk = A#
4:	TYPE:	Cp =	Cpk =
5:	TYPE:	Cp =	Cpk =
6:	TYPE:	Cp =	Cpk =
7:	TYPE:	Cp =	Cpk =
8:	TYPE:	Cp =	Cpk =
9:	TYPE:	Cp =	Cpk =
10:	TYPE:	Cp =	Cpk =
11:	TYPE:	Cp =	Cpk =
12:	TYPE:	Cp =	Cpk =
13:	TYPE:	Cp =	Cpk =
14:	TYPE:	Cp =	Cpk =
15:	TYPE:	Cp =	Cpk =

PIST = 1833/1833 x 100 = 100 %

$PIPC_{Cp}$ = _____ x 100 = _____ % $PIPC_{Cpk}$ = _____ x 100 _____ %

COMMENTS:

** CALIBRATION CHECK IS DONE 100 PERCENT.PARTS TESTED 300 ; DEFECTIVE 0 PERCENT OF DEFECT 0.

A# THREADS ARE CHECKED ON A GO/NOGO GAGE

PREPARED BY: ELAINE ROSE

DATE: 8-19-92

PRESSURE SWITCH DATA Form 21605 TEST NO. 319-13-20

DEVICE	DATE REQUESTED	REQUESTED BY	REQUESTED COMPL. DATE
77psc3-1	9-11-92	DALE SOPER	9-30-92
PERFORMED BY	**DATE STARTED**	**DATE COMPLETED**	**APPROVED BY**

PROJECT TITLE: EVALUATION OF HIGH AMCENT ON PROD LINE FOR ACT CAMP (25-30%)

CUSTOMER: FORD

PURPOSE OF TEST: DETERMINE IF THESE ARE ACTUALLY ACT CAMP OR IF THEY ARE LOOP. IF IT IS ANOTHER ITEM WE CAN SHIP ITEM # CONSIDER DISCHARGING THE ACT CAMP CHECK ON THE FINAL TEST

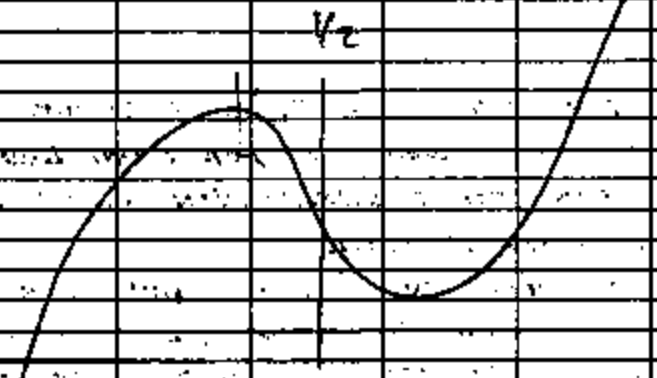
PROCEDURE: THERE ARE TWO LOTS (LOT 119, HIGH AMCENT) & LOT 132 PILOT AMCENT. TEST FOUR FROM EACH LOT FOR SAME LEVEL, THEN TEST THE SAME PIECES FOR FORCE DEFLECTION WITH ELECTRICAL SIGNAL TO DETERMINE WHERE CONTACT OPENS.

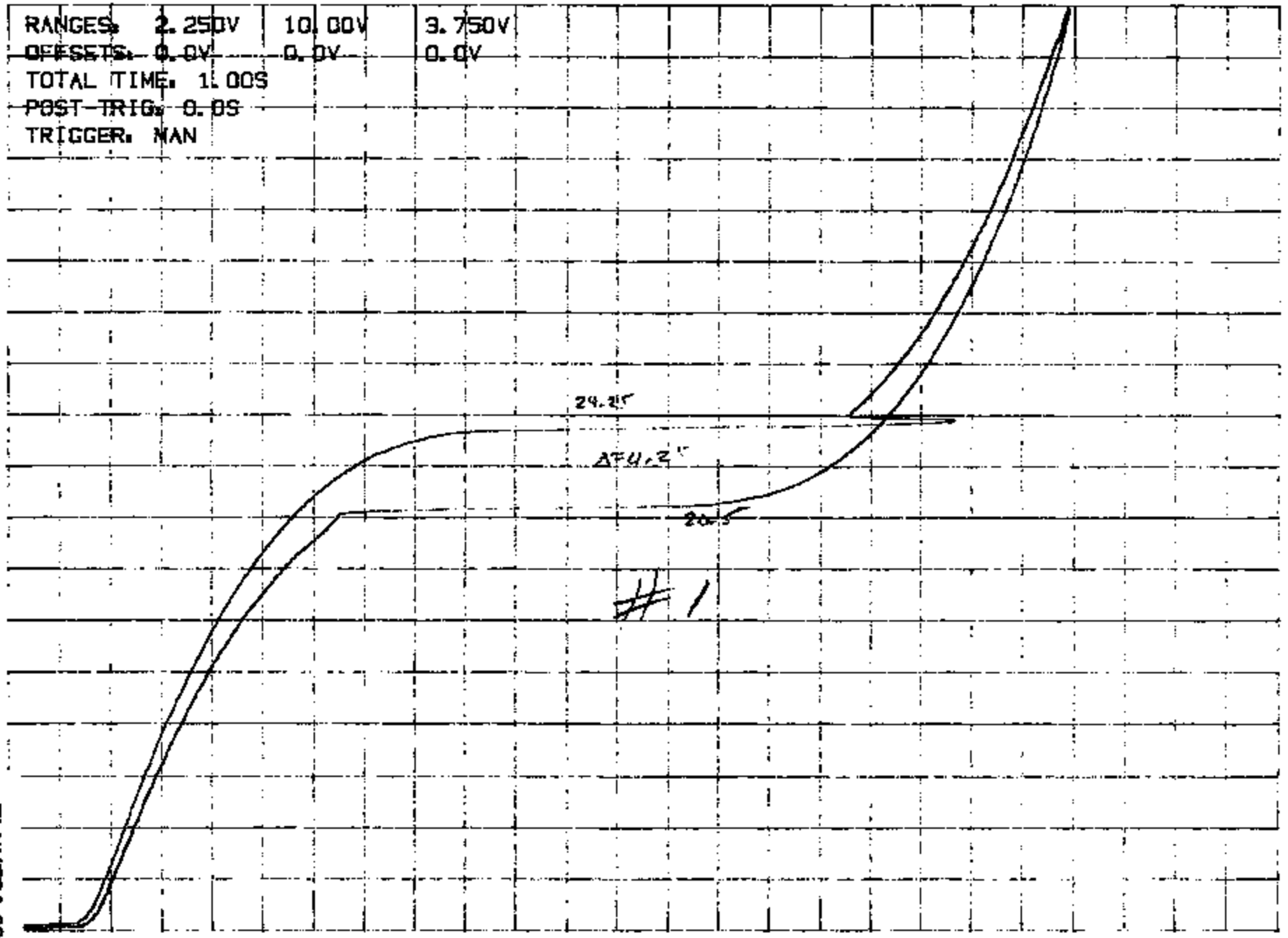
CONCLUSION: THEY ARE NOISY. THE LIMITS 30mV. THE SENSOR CURVES DO NOT SUGGEST ANYTHING WRONG WITH THE SWITCH ASSEMBLY. LATER ANALYSIS DETERMINED THAT THE HIGH LOTS WERE BAD. THE DISCS USED TO HAVE A DIFFERENTIAL BEFORE HEAT TREAT.

Device #	Signal pulse height								
119-1	DEAD								
2	DEAD								
3	-160mV								
4	-170mV								
5	-75mV								
6	-35								
7	-56								
8	-110								
9	-95								
10	-210	-10-5psi							
132-1	-150mV								
2	-310mV								
3	-150mV								
4	-220								
5	-60								
6	-20								
7	-110								
8	-65								
9	-180								
10	-80								

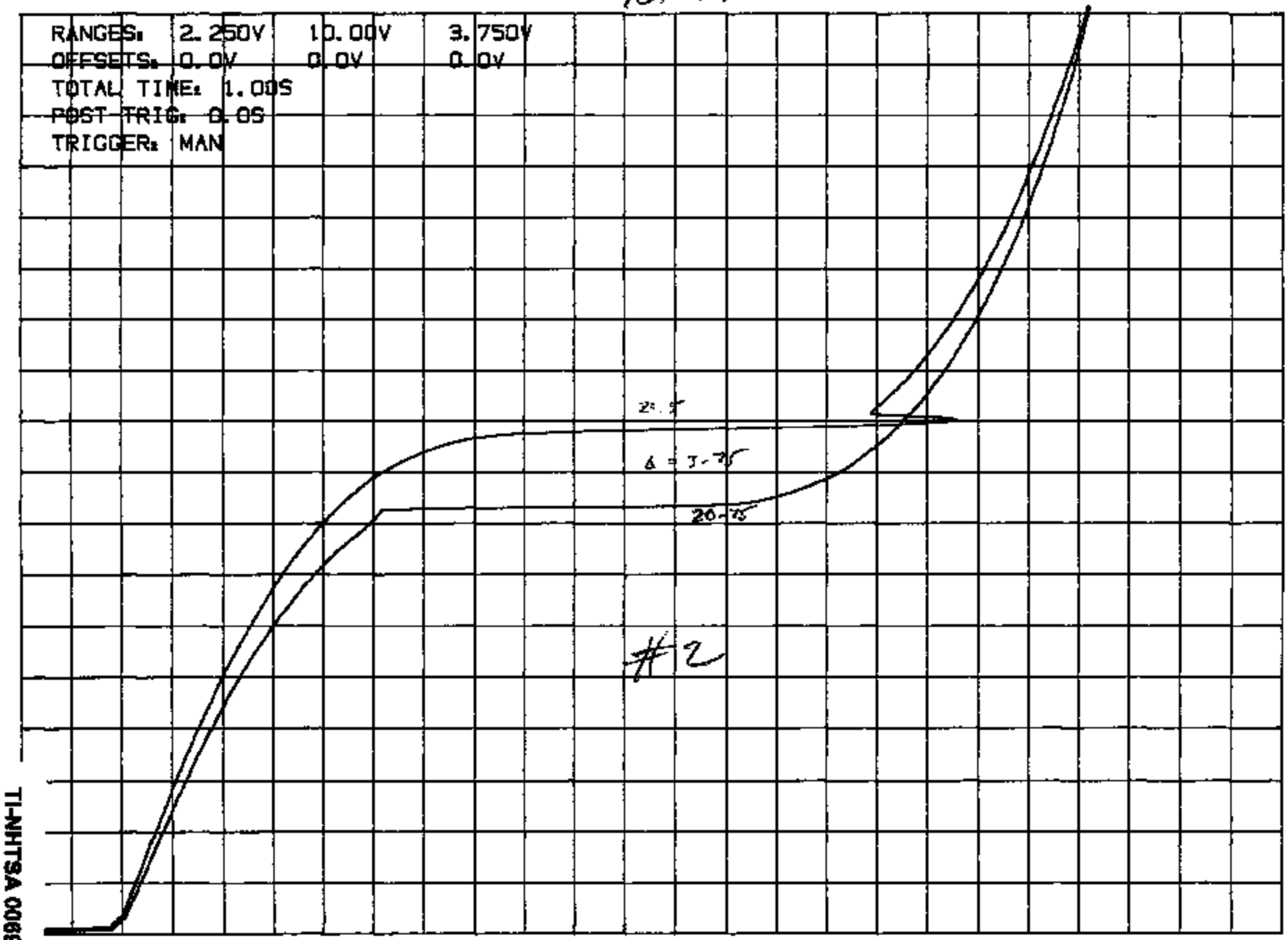
TI-NHTSA 006990

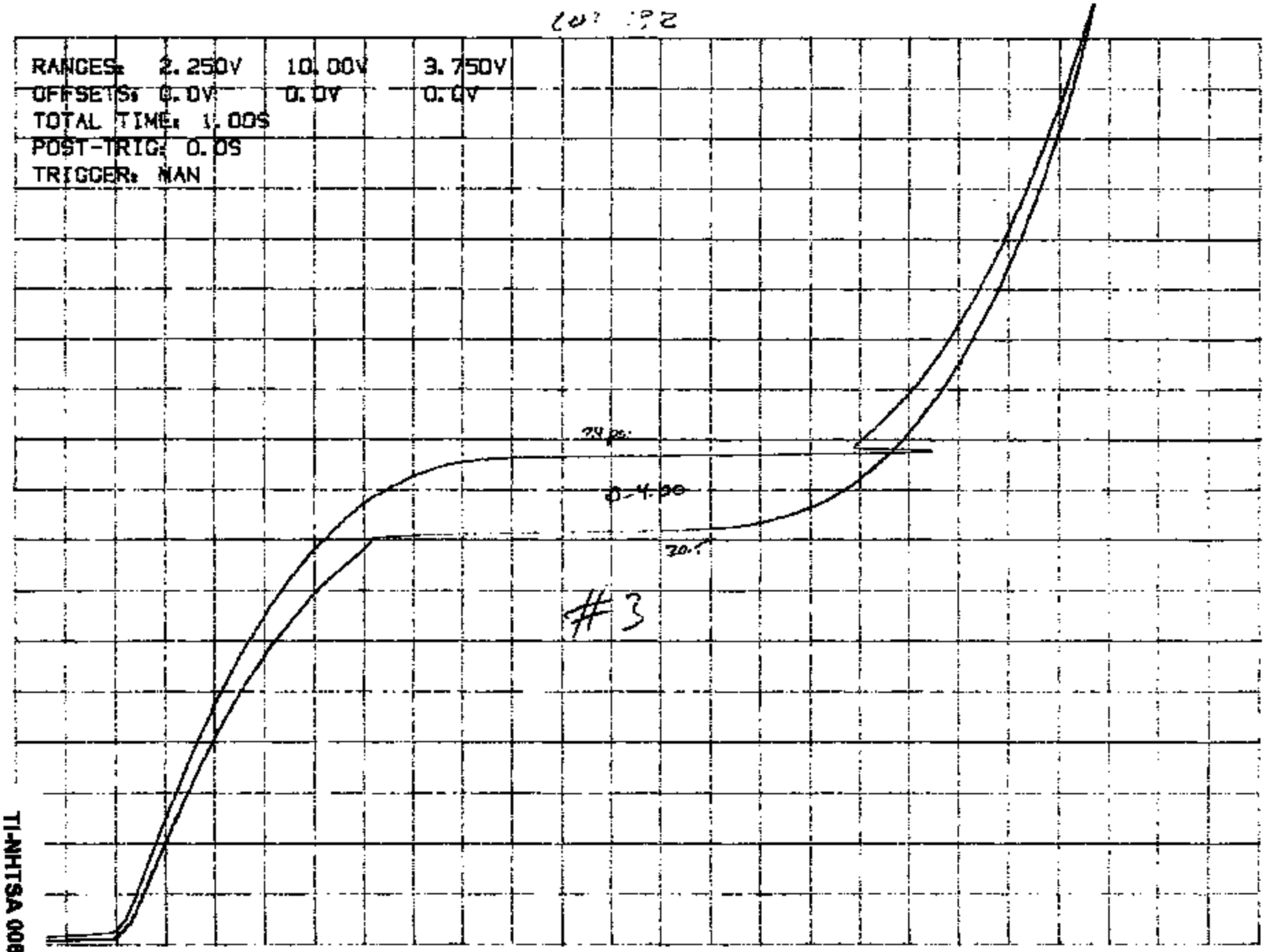
(OVER)

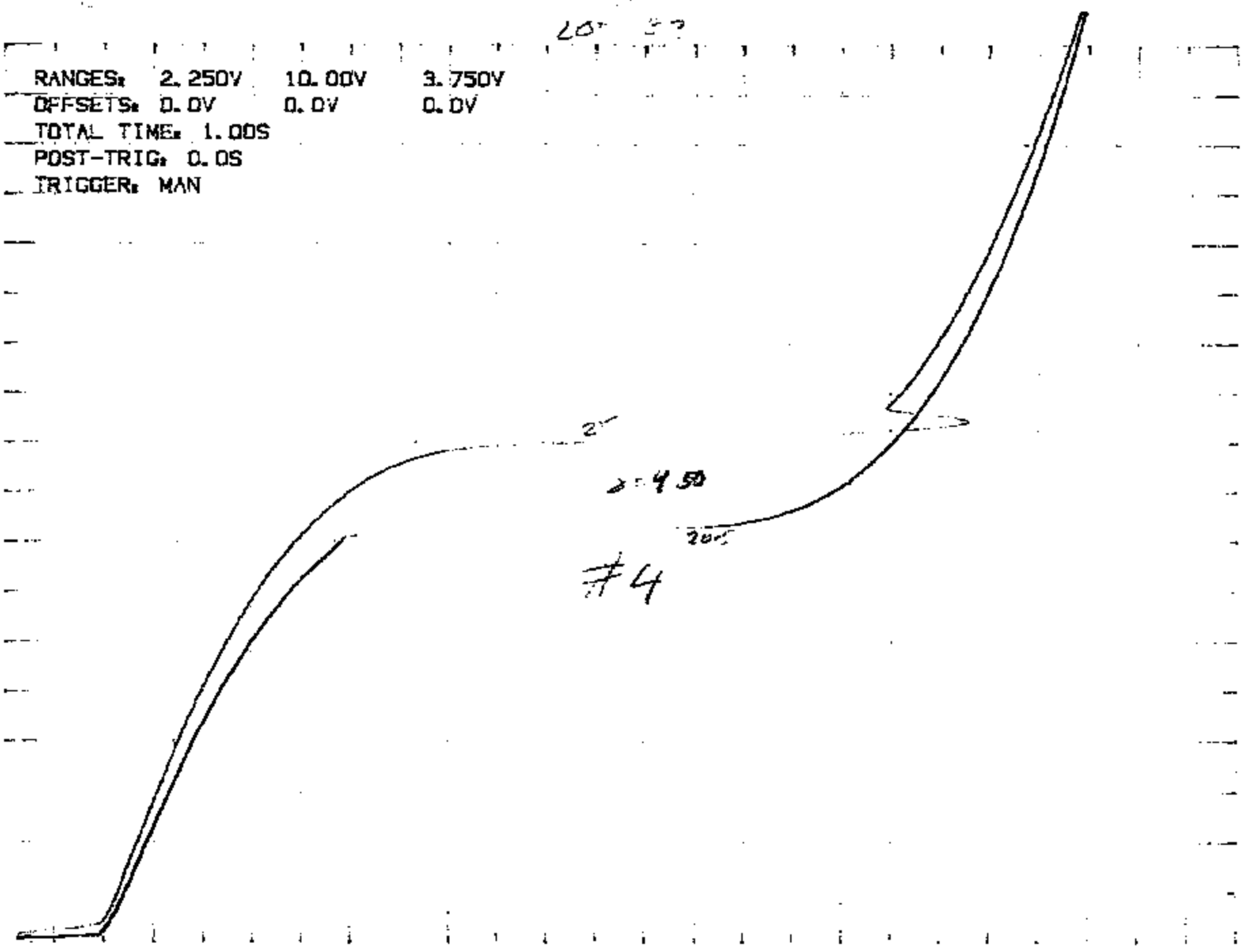


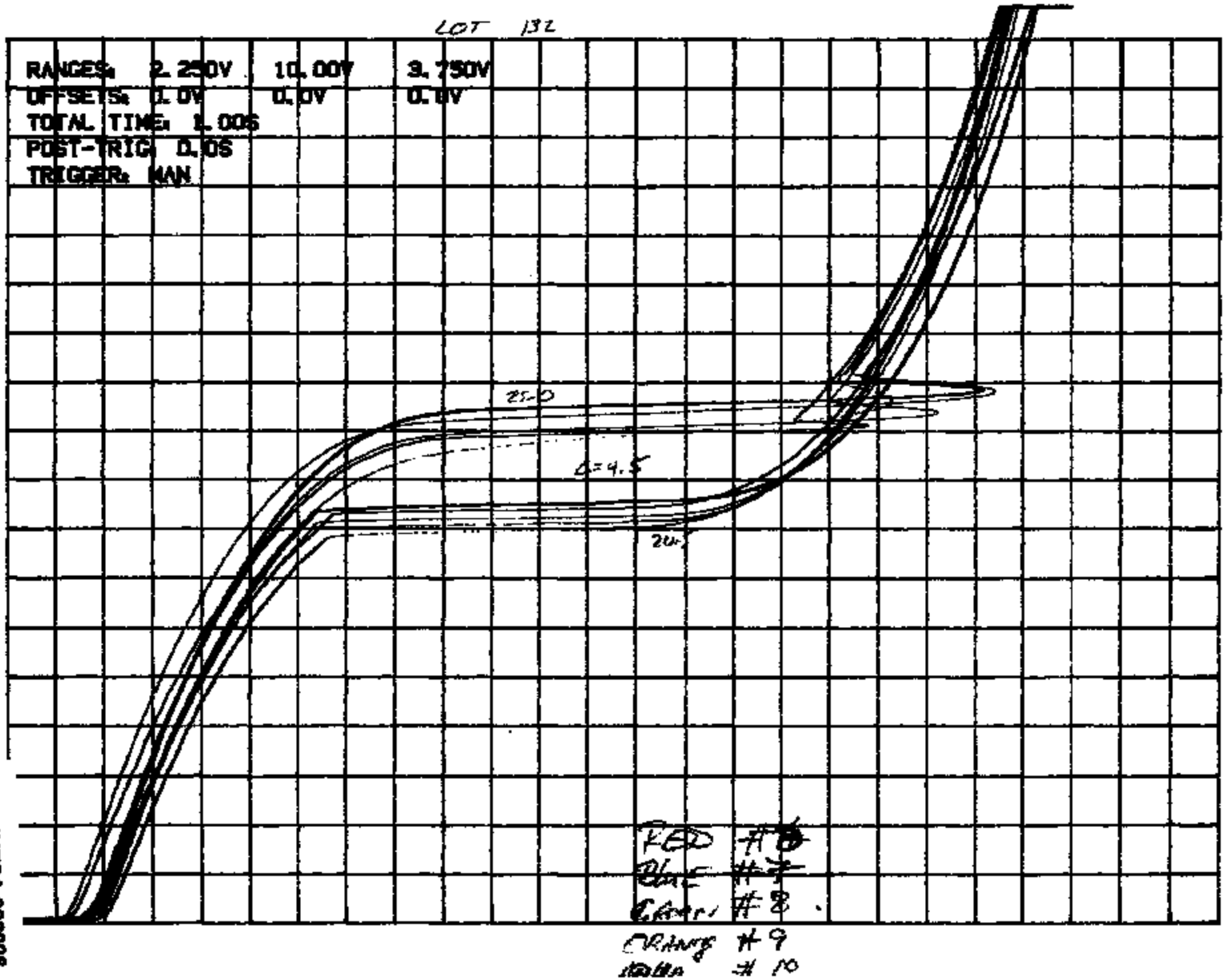


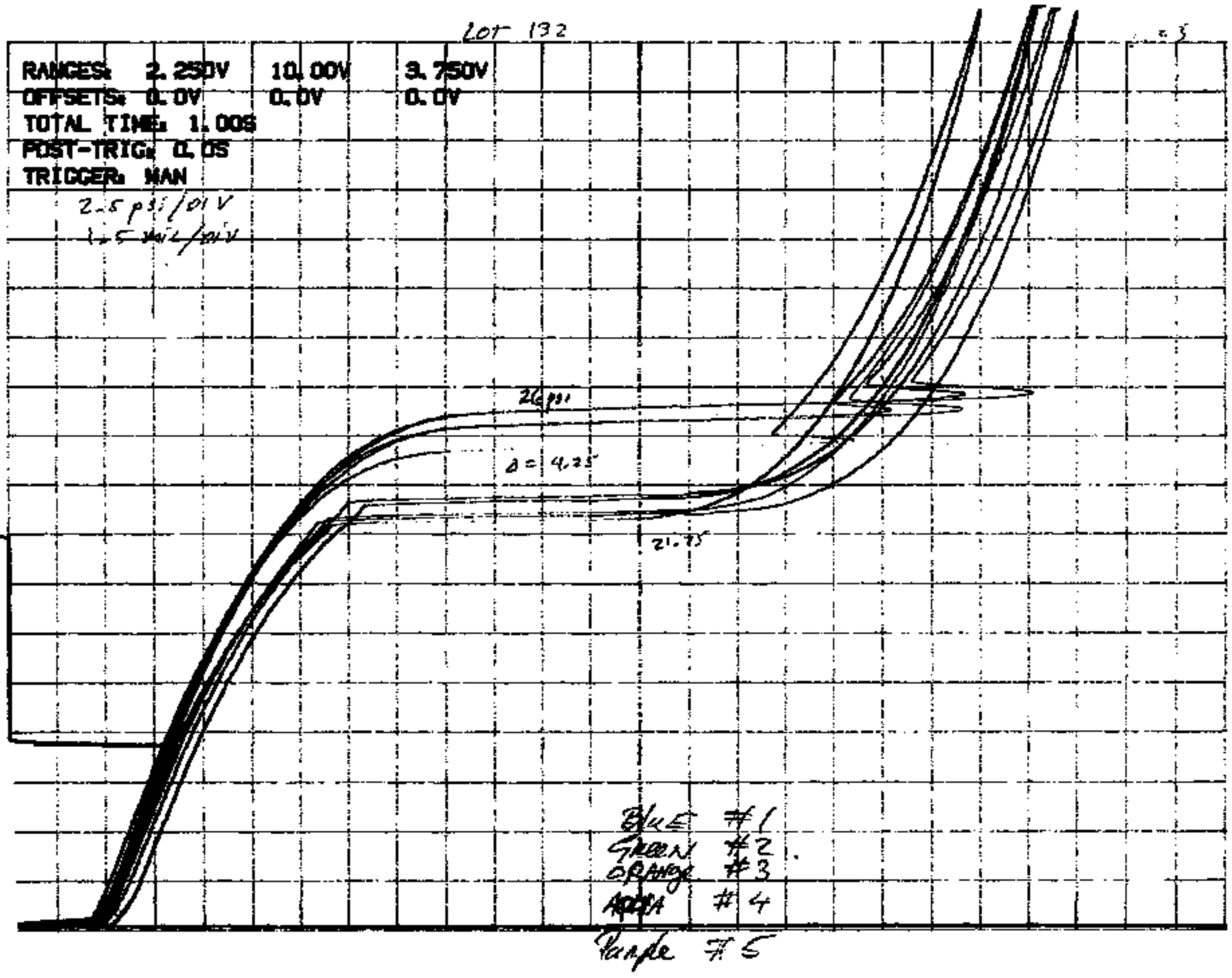
101 119











M RETEST

°F - ½ HOUR

PART NO. 76652-35

DATE 8/21

CLOCK NO. 08404

QTY. 2400

LOT NO. # 132

REEL NO. 4

S.S. 2

MIC. SETTINGS

A.

R.

FREE DISC PRESSURES					
B. H. T.		4TH READING			
ACTUATION	RELEASE	ACTUATION	RELEASE	ACTUATION	RELEASE
	1	Yes	? / 385	* No	No
	2	No	No	? No	No
	3	Yes	No	8 Yes / 385	? 385/445
	4	No	No	9 385/445	No
	5	No	No	11 No	12

MAT'L I.D. NO. 80449 A-2-Y

FORM 21133

TEXAS INSTRUMENTS

Dana Corporation
Weatherhead Division
109 Increment Street
St. Thomas, Ontario
Canada M5P3G8

August 20, 1992

Attn: Mr. Jerry Garber
Quality Manager

Subj: Part Number F2AC-9F924-AA (Pressure Switch)
TI Part Number 77PSL3-1

Dear Jerry,

Enclosed, please find the ISIR for the F2AC-9F924-AA pressure switch. An identical ISIR package has also been forwarded to the Dana Angola, Indiana facility.

Please let me know if you have any questions or if I may be of any further assistance.

Regards,

Jim Watt
QRA Engineer
Precision Controls Department
Control Products Division

cc: Dave Czarn, MS 12-29; Steve Offiler, MS 12-29
Rick Conlin, MS 12-33; Gary Snyder, MS 12-33
Andy McGuirk, MS 12-27
Grant Simmons, Dana Purchasing Dept., Ontario, Canada
Norm Freda, TI Farmington Hills, Michigan

encl: ISIR submission F2AC-9F924-AA

original pkg.
to
Canada

TI-NHTSA 006999

TEXAS INSTRUMENTS

Dana Corporation
Weatherhead Division
203 Weatherhead Street
Angola, Indiana 46703

August 28, 1989

Attn: Mr. Lynn Johnson
Quality Manager

Subj: Part Number F2AC-9F924-AA (Pressure Switch)
TI Part Number 77PSL3-1

Dear Lynn,

Enclosed, please find a copy of the ISIR for the F2AC-9F924-AA pressure switch. The original ISIR package has been forwarded to Dana Ontario, Canada facility.

Please let me know if you have any questions or if I may be of any further assistance.

Regards,

Jim Watt
QRA Engineer
Precision Controls Department
Control Products Division

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encl: ISIR submission F2AC-9F924-AA

copy of pkg. sent to Indiana

TI-NHTSA 007000

REPORT OF ISR TESTING
FORD PASSENGER CAR
ELECTRONIC SPEED CONTROL
DEACTIVATION PRESSURE SWITCH
PS/92/82

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

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	TEXAS INSTRUMENTS — MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	DOC.
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1.0 GENERAL

1.1 Customer: Ford Motor Company P.I.A. from Dana-Weatherhead

1.2 Part Numbers:

1.2.1 Ford P/N: F2AC-9F924-AA

1.2.2 Dana P/N: 120-55046

1.2.3 TI P/N: 77PSL3-1

1.3 Engineering Specification: (inv delta) ES-F2VC-9F924-AA

1.4 Date of Completion: 920811

1.5 Quantity of Units Tested: 72

1.6 Disposition of Tested Units: All devices are presently retained under quarantine, completely separate from any production devices, to be destroyed per the EA at a later date after full IER approval is obtained.

1.7 TI test series number: 245-15-129

1.8 TI Pressure Switch test report number: PS/92/82

2.0 OBJECTIVE

This testing was performed to demonstrate the ability of 77PSL3-1 to conform to customer specifications given in (inv 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 per (Ford Engineering Specification (inv 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 requires elaboration, a complete explanation of the procedure is presented. For all tests, raw data is included in Appendix 4.2.

3.1 CALIBRATION

3.1.1 Devices tested: 245-15-01 thru 72

3.1.2 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 approx. 10% above actuation pressure and back to approx. 10% below release pressure. The change in continuity is measured while conducting 750 +/- 50 milliamps at 13.0 +/- 1.0 volts DC.

3.1.3 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.

3.1.4 Initial Results: Prior to proof testing, the average actuation was found to be 126 psi with a sigma of 6.2; after proof the average actuation was 131 psi with a sigma of 4.9. The average shift is 4%. Prior to proof testing, the average release was found to be 113 psi with a sigma of 6.5; after proof the average release was 119 psi with a sigma of 5.7. The average shift is 5%.

3.1.5 Final Results: Prior to proof testing, the average actuation was found to be 130 psi with a sigma of 5.4; after proof the average actuation was 129 psi with a sigma of 5.3. The average shift is -0.8%. Prior to proof testing, the average release was found to be 108 psi with a sigma of 7.7; after proof the average release was 108 psi with a sigma of 6.6. The average shift is 0.

3.2 VOLTAGE DROP

3.2.1 Devices tested: 245-15-01 thru 72

3.2.2 Procedure: Voltage drop is checked simultaneously with Calibration (see 3.1.2). The measurement is taken at room temperature using ambient air as the pressure medium. For the purpose of stabilization, data is 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 approx. 10% above actuation pressure and back to approx. 10% below release pressure. The voltage drop is measured while conducting 750 +/- 50 milliamps at 13.0 +/- 1.0 volts DC.

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3.2.3 Equipment: Fluke Model 8020B Digital Multimeter, calibrated quarterly, used in conjunction with the continuity equipment in 3.1.3.

3.2.4 Initial results: Values for all devices fell below the specification of 200 millivolts maximum by close to two orders of magnitude; no specific statistics calculated for this reason.

3.2.5 Final results: With the exception of parts undergoing Impulse testing (devices 245-15-01 thru 12 and 37 thru 48), all final results were compatable with initial results. The Impulse parts experience an increase in the voltage drop reading due to the specified 25,000 cycles run at full electrical load, which causes a certain amount of normal erosion of the contact surfaces. All 24 Impulse devices still fell significantly below 200 mV maximum, and statistics show a Cpk of 2.53.

3.3 CURRENT LEAKAGE

3.3.1 Devices tested: All 245-15-01 thru 72.

3.3.2 Procedure: Per the ES section III. C. This test is conducted as a pass/fail.

3.3.3 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%).

3.3.4 Initial results: All devices passed.

3.3.5 Final results: All devices passed.

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3.4 PROOF

3.4.1 Devices tested: 245-15-01 thru 72

3.4.2 Procedure: Per the ES section III. D. This test is conducted as a pass/fail. The test pressure specified on the part drawing is 3000 psi.

3.4.3 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.

3.4.4 Initial Results: All devices passed.

3.4.5 Final Results: All devices passed.

3.5 IMPULSE

3.5.1 Devices tested: 245-15-01 thru 12 and -37 thru 48

3.5.2 Procedure: Per the ES section III. E.

3.5.3 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 (figure 4) used in the last 25K cycles.

3.5.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.6 BURST

3.6.1 Devices tested: 245-15-67 thru 72.

3.6.2 Procedure: Per the ES section III. F. After holding 7000 psi for 30 seconds as specified, the devices were inadvertently pressurized to approx. 7600 psi.

3.6.3. Equipment: Same as 3.4.3, with the addition of Enerpak gauge reading to 10,000 psig with 100 psi increments, resolvable to 50 psi, calibrated quarterly.

3.6.4. Results: All six devices passed 30 seconds at 7000 psig without evidence of fluid leakage or seepage from the switch or threads.

At 7600 psi, one device (-70) displayed evidence of fluid seepage.

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3.7 **HUMIDITY**

3.7.1 Devices tested: 245-15-25 thru -30.

3.7.2 Procedure: Per the ES section III. G. Please note that performing a full characterization per the ES consists of measurement of actuation, release, voltage 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 (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.

3.7.3 Equipment: Humidity chamber RK model 5S.

3.7.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.8 **SALT SPRAY**

3.8.1 Devices tested: 245-15-31 thru -36.

3.8.2 Procedure: Per the ES section III. H.

3.8.3 Equipment: Harshaw salt spray chamber.

3.8.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.9 **VIBRATION**

3.9.1 Devices tested: 156-15-61 thru 66.

3.9.2 Procedure: Per the ES section III. I.

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3.9.3 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; 160 psig * 1.1 = 176 psi minimum.

3.9.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.10 TERMINAL STRENGTH

3.10.1 Devices tested: 245-19-13 thru -24.

3.10.2 Procedure: Per the ES section III. J.

3.10.3 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.

3.10.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.11 VACUUM

3.11.1 Devices tested: 245-15- 55 thru 60.

3.11.2 Procedure: Per the ES section III. K.

3.11.3 Equipment: Kinney vacuum pump. Sensotec pressure transducer range 0-25 psia calibrated quarterly, with Fluke model 8020B Digital Multimeter readout, calibrated quarterly.

3.11.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.12 TEMPERATURE CYCLE

3.12.1 Devices tested: 245-15-49 thru 54

3.12.2 Procedure: Per the ES section III. L.

3.12.3 Equipment: Same as 3.5.3.

3.12.4 Results: All devices passed the acceptance requirements of the ES (sections A, B, C, D).

3.13 FLUID RESISTANCE

3.13.1 Devices tested: 245-15-01 thru -36.

3.13.2 Procedure: Per the ES section III. M.

3.13.3 Equipment: Fluids as called out in ES table in III. M. 1. c. plus appropriate beakers and storage apparatus/ vented hood.

3.13.4 Results: The 36 devices were divided into groups as follows for subsequent testing. Results of these tests are reported in the section indicated.

3.13.4.1 Impulse (3.5), -01 thru -12

3.13.4.2 Terminal Strength (3.10), -13 thru -24.

3.13.4.3 Humidity (3.7), -25 thru -30.

3.13.4.4 Salt Spray (3.8), -31 thru -36.

3.14 NOISE

In certain vehicle applications, the brake pressure switch action has been shown to be transmitted to the passenger compartment as audible noise and corresponding tactile feel in the brake pedal. A "silent" device has been developed by Texas Instruments in order to address this concern. At the same time, a means of quantifying the noise/feel was explored. The hypothesis was that a sudden motion of pressure-sensing components within the switch caused a pressure wave to propagate from the switch. Characterization of this effect using high-speed pressure transducers showed that "noisy" devices produce a large negative pressure spike at the point of switch activation, and supported the hypothesis. The "silent" devices produce little or no spike. See Appendix 4.3 for a pressure trace of a typical silent device.

Ultimately (inv delta) ES-F2VC-9F924-AA will be updated to include a section on noise testing, to be applicable only to devices designated as silent. For this validation, in lieu of an officially finalized noise specification, a total of 12 devices (6 from this test and 6 similar devices) were initially characterized for noise, then run through Impulse or Thermal Cycle testing, then recharacterized for noise at the end.

3.14.1 Devices tested:

77PSL3-1	Impulse:	245-15-37, 38, 39
77PSL3-1	Thermal Cycle:	245-15-49, 50, 51
77PSL5-2	Impulse:	245-15-81, 82, 83
77PSL5-2	Thermal Cycle	245-15-105, 106, 107

3.14.2 Procedure: The device under test is installed on the test manifold. Air is evacuated via a vacuum pump. The manifold is filled with the test fluid. Pressure to 300 psi is applied and the signal from the high-speed transducer is captured on a digital oscilloscope.

3.14.3 Equipment: Custom TI designed and built equipment, utilizing a single-port test manifold within a protective enclosure. The manifold is evacuated by a Piab H-125 pneumatic vacuum pump. DOT 3 Brake Fluid is introduced via a fluid reservoir. Pressure is applied via pressurized air which is introduced to an air-over-oil chamber which connects to the test manifold. The dynamic pressure signal during switch actuation is measured with a Kistler High-Frequency Dynamic Pressure Transducer model 606A (SN C46154) with a Kistler 5004 Charge Amplifier whose output connects to channel A of a dual-channel Nicolet 4094A Digital Oscilloscope. The electrical switching action of the device under test is recorded simultaneously on channel B using a 5-volt source and a 1K ohm load resistor.

3.14.4 Initial results: All twelve test devices produced zero pressure spike.

3.15.5 Final results: All twelve test devices produced zero pressure spike.

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

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Ford **Engineering Specification**

PART NAME	PART NUMBER
SWITCH ASSEMBLY - SPEED CONTROL DEACTIVATE	▽ E9-F2C-9F924-AA

LET																		
2A																		
LET																		
PR																		

DATE	LET	PR	REVISIONS	BR	CK
	A		ADDED DATA TO COMPLETE SPEC. & REVISED NCODE(6079776002		
11JUL90					

PREPARED/APPROVED BY
W. Tee 9/10/90

CHECKED BY | DETAILED BY

CONCURRENCE/APPROVAL SIGNATURES

DESIGN ENGINEERING SUPERVISOR
K. Tilden 9/10/90

DESIGN ENGINEERING MGT.

MANUFACTURING ENGRG.

QUALITY CONTROL
R. J. Ryan 9/10/90

PURCHASING

SUPPLIER QUALITY ASSURANCE
C. R. Kenney 9/10/90

ELECTRONICS DIVISION
[illegible] 9/10/90

▽ CONTROL ITEM - THE ▽ SYMBOL ALSO IDENTIFIES PRODUCT SCREENING USED WITH CRITICAL CHARACTERISTIC SYMBOL AND ADDITIONAL CRITICAL CHARACTERISTICS IDENTIFIED BY PROCESS ENGRG. MUST APPEAR ON THE D-901 CONTROL PLAN FOR WHICH REQUIRE PRODUCT SCREENING APPROVAL

TI-NHTSA 007015

Engineering Specification

SWITCH ASSEMBLY - SPEED CONTROL DEACTIVATE

I. General

This specification covers the test requirements for the speed control deactivate switch -9F924- used in the electronic speed control system. Design changes on the switch assembly or its components shall not be made without compliance to Section V of this specification and written approval from the releasing Production Engineering Office.

This engineering specification is a supplement to the released drawing on the above part, and all requirements herein must be met in addition to all other requirements of the part drawing. Minimum measures necessary for demonstrating compliance to these requirements are given in each section.

The engineering tests, sample sizes, and test frequencies contained within this engineering specification reflect the minimum requirements established to provide a regular evaluation of conformance to design intent. The engineering test program is intended as a supplement to normal material inspections, dimensional checking and in-process controls, and should in no way adversely influence other inspection operations.

QI suppliers may implement different test sample sizes and frequencies providing these changes have been included in an alternate Control Plan approved by the design responsible Product Engineering Office and concurred in by SQA.

II. PRODUCTION VALIDATION AND IN-PROCESS TESTS

- Production Validation (PV) Tests must be completed satisfactorily with parts from production tooling (and processes where possible) before IPTS approval and authorization for shipment of production parts can be effected. Parts must be revalidated completely, or per Section V whenever any change is made which could possibly affect part function or performance.

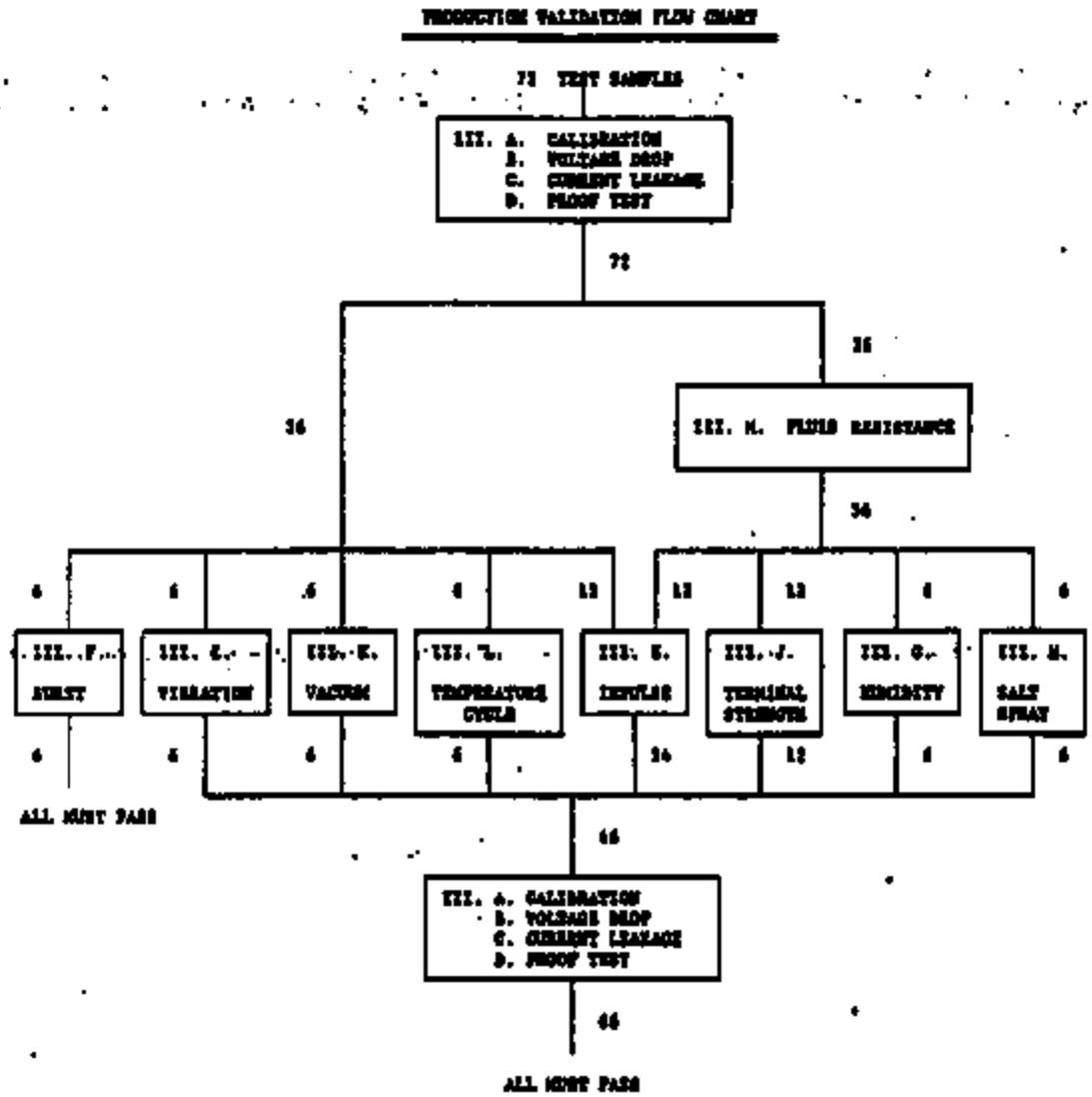
- In-Process Test Phase 1 (IP-1) - IP-1 tests are used to demonstrate process capability and must be completed using initial production parts from production tooling and processes prior to first production shipment approval. IP-1 tests are to continue in effect until process capability is demonstrated.

- In-Process Tests Phase 2 (IP-2) - IP-2 test program may be implemented only after process capability has been established. Tests must be completed with production parts on a continuing basis. Samples for these tests must be selected on a random basis to represent the entire production population as much as possible. In the event that any of the requirements in these tests is not met, the reaction plan specified in Ford Q101 Sect. 3.5, "Engineering Specification (ES) Test Performance Requirements" shall be invoked.

SECTION III. TABLE OF TESTS

Item	Test Name Functional Tests	PRODUCTION VALIDATION Minimum Sample Size	PRODUCTION VALIDATION Statistical Test Acceptance Criteria	IN-PROCESS IP-1 Minimum Sample Size	IN-PROCESS IP-1 Statistical Test Acceptance Criteria	IN-PROCESS IP-2 Minimum Sample Size	IN-PROCESS IP-2 Statistical Test Acceptance Criteria
III.							
A	Calibration	72	P90-.95	100%	All Must Pass	100%	All Must Pass
B	Voltage Drop	72	P90-.95	12/Mo.	P90-.84	4/Lot	" " "
C	Current Leakage	72	P90-.95	3/Mo.	P90-.56	4/Lot	" " "
D	Proof Test	72	P90-.95	12/Mo.	P90-.84	4/Lot	" " "
F	Burst	6	P90-.72	3/Mo.	P90-.56	4/Lot	" " "
I	Vibration	6	P90-.72	3/Mo.	P90-.56	6/6 Mo.	P90-.72
J	Terminal Strength	12	P90-.84	6/Mo.	P90-.72	4/Lot	All Must Pass
K	Vacuum	6	P90-.72	3/Mo.	P90-.56	6/6 Mo.	P90-.72
L	Temperature Cycle	6	P90-.72	3/Mo.	P90-.56	6/6 Mo.	P90-.72
M	Fluid Resistance	36	P90-.94	36/12Mo	P90-.94	36/12Mo.	P90-.94
	Durability Tests						
III.							
B	Impulse	24	P90-.90	12/Mo.	P90-.84	3/3 Mo.	P90-.56
C	Humidity	6	P90-.72	3/Mo.	P90-.56	6/6 Mo.	P90-.72
H	Salt Spray	6	P90-.72	3/Mo.	P90-.56	6/6 Mo.	P90-.72

Engineering Specification



III. TEST PROCEDURES AND REQUIREMENTS

∇ H. Calibration

1. Test Requirements

a. Switch calibration is to be checked at room temperature (16°C-35°C) using ambient air or equivalent.

b. Calibration settings shall be specified on the part drawing with the settings checked after 2 or more pressure cycles with ambient air, or equivalent. Pressure cycle range is to be determined by the manufacturer to insure switch calibration stability. The cut-in and differential set points are to be measured while conducting 750 ± 50 milliamperes while 13.0 ± 1.0 volts D.C. is applied. The cut-in point is to be checked with increasing pressure.

c. The cut-out point is to be checked with decreasing pressure, and the differential set point is to be calculated using the cut-in pressure minus the cut-out pressure.

2. Acceptance Requirements

a. Nonconformance is defined as any switch point which falls outside the tolerance band specified on the part drawing.

I. Voltage Drop

1. Test Requirements

a. Voltage drop is to be measured after 2 or more cycles with ambient air or equivalent from 0 to 10,000 ± 172 KPa (1450 ± 25 PSI) while conducting 750 ± 50 milliamps and 13.0 ± 1.0 volts D.C. is applied to the switch. Under these conditions with the switch closed the voltage drop is to be measured. Millivolt connection interface at terminals to be less than 10 millivolts.

2. Acceptance Requirements

a. Nonconformance is defined as a voltage drop in excess of 200 millivolts.

III. TEST PROCEDURES AND REQUIREMENTS (cont'd)

C. Current Leakage

1. Test Requirements

a. Current leakage is to be checked with 500 volts, 60 Hz alternating current.

b. Current leakage is to be checked:

(1) Between the switch leads with the contacts open.
(2) Between the lead and the switch housing with contacts closed.
(3) Between either lead and switch housing with the contacts open.

2. Acceptance Requirements

a. Nonconformance is defined as any leakage current in excess of one hundred (100) microamperes.

D. Proof Test

1. Test Requirements

a. Subject sample switches to Section A to establish their initial switching pressures.

b. Proof test is to be conducted using brake fluid or equivalent as the pressure medium. Test pressure shall be as specified on the part drawing. Test pressure shall be isolated from pressure source and held for not less than 30 seconds.

c. Recheck the switches to Section A.

2. Acceptance Requirements

a. No evidence of fluid leakage, seepage, or drop in test pressure greater than 430 KPa.(62 PSI) is permitted.

b. A change in cut-in and cut-out pressures greater than ± 5% from the initial value is not permitted.

c. The test samples must be destroyed after testing.

III. TEST PROCEDURES AND REQUIREMENTS (cont'd)

E. Impulse

1. Test Requirements

a. Test the switch for a total of 500,000 cycles. Cycle pressure between (low) 0-276 KPa (0-40 psi), and (high) 10,000 ± 345 KPa (1450 ± 50 psi).

1) 0 - 475,00 cycles: 13 ± 1 volts, trace current to monitor function.

2) 475,001 - 500,000 cycles: 13 ± 1 volts D.C., 750 ± 50 ma., per figure 4.

b. Brake fluid temperature to be 135 ± 14°C and ambient temperature to be 107°C min.

c. Cycle rate is to be 110-130 cycles per minute.

d. Switch must open and close each cycle.

2. Acceptance Requirements

a. After impulse test check to sections A, B, C, & D using the procedure established in each section.

b. Nonconformance is defined as any switch not meeting the criteria in sections A, B, C, & D.

c. Samples used for this test must be destroyed after all testing is completed.

F. Burst

1. Test Requirement

a. Burst strength is to be checked using brake fluid or equivalent as the pressure medium.

b. Pressurize the switch to 48.3 MPa (7000 PSI) minimum and hold for 30 seconds minimum.

2. Acceptance Requirements

a. Nonconformance is defined as any evidence of fluid leakage or seepage from the switch or threads. Samples used for this test must be destroyed after testing is completed.

III. TEST PROCEDURES AND REQUIREMENTS (CONT'D)

G. Humidity

1. Test Requirements

a. Mount the switch in the test port in a humidity chamber. Currently released mating electrical connector must be installed before start of test.

b. Subject the switch to ten (10) continuous humidity cycles as follows:

(1) Raise temperature to 65 +10/-2 °C over 2.5 hours; at 90-98% relative humidity.

(2) Hold 3 hours at 65 +10/-2 °C at 90-98% relative humidity.

(3) Lower temperature to 25 +10/-2 °C over 2.5 hours; at 80-98% relative humidity.

2. Acceptance Requirements

a. Within 15 minutes after completion of the tenth humidity cycle check the switch to sections A, B, C, D, using the procedure established in each section.

b. Nonconformance is defined as any switch not meeting the criteria in sections A, B, C, or D.

H. Salt Spray

1. Test Requirements

a. Mount the switch in the test port in a salt spray chamber. The currently released mating electrical connector and wiring must be installed prior to start of test.

b. Expose the switch assembly to 72 hours of salt spray per ASTM B-117.

2. Acceptance Requirements

a. After exposure, check the switch to sections A, B, C, D, using the procedure established in each section.

b. Nonconformance is defined as any switch not meeting the criteria in sections A, B, C, or D. Samples used for this test must be destroyed after all testing is completed.

III. TEST PROCEDURES AND REQUIREMENTS (cont'd)

I. Vibration

1. Test Requirements

a. Mount the switch in the test part and attach the currently released mating electrical connector before start of test.

b. Switches are to be vibrated in all 3 planes with electrical continuity being monitored during the entire test. See Figure 1 for switch orientation in the 3 planes. Vibration tests are to be conducted at room temperature using brake fluid, ambient air, or equivalent as the pressure medium.

c. Internal pressure shall be maintained at 0 KPa G. when the switch is in the closed position and 1.1 times max actuation pressure shown on print when the switch is in the open position.

d. Vibrate the switch at 1.5 mm displacement (peak-to-peak) while varying the frequency uniformly from 5 to 50 to 5 Hz over a 5 minute period.

e. Vibrate the switch in alternate one-hour periods in the open and closed positions for a total of 8 hours in each plane. (Total test time is 24 hours).

2. Acceptance Requirements

a. After the entire vibration sequence check the switches to sections A, B, C, or D using the procedure established in each section.

b. Nonconformance is defined as any evidence of leakage or any change in electrical continuity/discontinuity during the vibration cycles, or any switch not meeting the criteria in sections A, B, C, or D. Samples used for this test must be destroyed after all testing is completed.

III. Test Procedures and Requirements (cont'd)

J. Terminal Strength

1. Test Requirements

a. Mount the switch in the test port.

(1) Apply a 89 ± 9 N axial force to each terminal.

(2) With a pendulum apply a 45 ± 5 N impact force to the switch housing at the connector end, perpendicular to the centerline axis of the switch. See Figure 2 for force application point and direction.

2. Acceptance Requirements

a. Check the switch to sections A, B, C, and D using the procedures established in each section.

b. Nonconformance is defined as any terminal or housing fracture, or any switch not meeting the criteria in sections A, B, C, or D.

K. Vacuum

1. Test Requirements

a. Mount the switch in the test port. Vacuum tests are to be conducted at room temperature using ambient air as the pressure medium.

b. Subject the switch to 5 cycles of vacuum from atmospheric pressure (760 mm Hg) to an absolute pressure of 3-6 mm Hg. Maintain the vacuum for a minimum of 60 seconds.

2. Acceptance Requirements

a. Check the switch to sections A, B, C, and D using the procedure established in each section.

b. Nonconformance is defined as any switch not meeting the criteria in sections A, B, C, and D.

III. TEST PROCEDURES AND REQUIREMENTS (cont'd)

L. Temperature Cycle

1. Test Requirements

a. Mount switches in test ports; test to be run using currently released brake fluid.

b. Repeat the following procedure 25 times.

(1) Lower the switch and fluid temperature to at least -40°C.

(2) Cycle the switches ten times at 10 seconds/cycles. One cycle consists of a pressure variation from 0 - 276 KPa.G (0-40 psi) to 10,000 ± 345 KPa.G (1450 ± 50 PSI). Note: Switch must open and close each cycle.

(3) Raise switch and fluid temperature to 38°C minimum.

(4) Repeat Step 2.

c. At completion of Step b, check switches per sections A, B, C, and D.

2. Acceptance Requirements

a. Nonconformance is defined as any evidence of switch fluid leakage, damage, or not meeting the criteria of sections A, B, C, and D.

M. Fluid Resistance

1. Test Requirements

a. Mount the switch in the test port and orient as installed in the vehicle.

b. Install the currently released mating electrical connector (with wire leads) to the switch.

c. Sequentially, immerse the switch into each of the specified fluids, at a temperature of 23 ± 2 °C, for 5 ± 1 second. Remove the switch and drain and store the switch for the specified time at room temperature, prior to immersing into the next fluid.

III. TEST PROCEDURES AND REQUIREMENTS (cont'd)

Fluid	Drain Time	Storage Time
Reference Fuel C ASTM D471	60 ± 5 min.	none
10W40 Engine Oil	24 ± 1 hour	14 days
Ethylene Glycol/ Water 50/50 by Volume	24 ± 1 hour	24 ± 1 hour
Brake Fluid DOT 3	24 ± 1 hour	48 ± 1 hour
Automatic Transmission/ Power Steering Fluid (same) ESP-M1C138-CJ	24 ± 1 hour	14 days
Isopropyl Alcohol/ Water 50/50 by Volume	24 ± 1 hour	none
Reference Fuel C, ASTM D471 with Methyl Alcohol 85/15 by Volume	24 ± 1 hour	none

d. For the Flow Chart, subject the prescribed number of immersed switches to the post immersion tests specified below:

III. E. Impulse
III. G. Humidity
III. H. Salt Spray
III. J. Terminal Strength

Acceptance Requirements

a. Switches must fully meet the requirements of the specified post immersion test.

b. Nonconformance is defined as any switch not meeting the criteria in sections A, B, C, or D. Samples used for this test must be destroyed after all testing is completed.

IV. STATISTICAL ANALYSIS METHODS

A. For PV, VP-1 and VP-2 tests, all samples tested must pass. Having all the required sample size pass will provide data to support the conclusion that the switch has a minimum reliability R, at a given confidence of C. The notation Pa-R is interpreted as minimum reliability equal to R, at a confidence C; thus P90-.80 means a minimum reliability of 80% at 90% confidence.

B. All samples must pass is the statistical test acceptance criteria stated for tests with 100% frequency; or samples from lots, which could have a variable size.

V. REVALIDATION REQUIREMENTS

A. No change in design, material, process or component supplier shall be made without prior approval from the releasing Product Engineering Office. As part of approving a change, the releasing Product Engineering Office will establish the portion of the Product Validation tests required to be run to revalidate the switch. The following table is to be used as a guide in determining the type of tests required for revalidation requirements.

EXISTING CHANGE REVALIDATION

Component	Process or Material Change or New Supplier
1. Terminals, Contacts, or Connector	III, B, C, E, G, H,I, J, L, M.
2. Case or Housing	All Tests
3. Disc or Diaphragm	III, A,D,E,F,I,K,L.
4. Fitting or Fluid Connection	III, D, E, F, H, I, M.

B. Annual revalidation is not required on carryover switches.

VI. LOT DEFINITION

A lot is defined as no more than eight (8) hours of production up to 4,000 pieces. If shifts extend beyond eight (8) hours, or more than 4,000 pieces are produced in a shift, the product must be separated into at least two lots.

VII. RECORD RETENTION

A. Recording and record retention shall conform with Ford Q-101.

B. Production Validation test results and analysis are to be forwarded to the releasing Product Engineering Office before approval for shipment of production parts can be granted.

C. In-Process test results shall be available at the supplier's manufacturing facility for the releasing Product Engineering Office and Ford SQA or its representative to review on request.

VIII. INSTRUCTIONS AND NOTES

All switches are to be identified with the Ford part number, supplier identification, and a date code indicating final assembly.

All test equipment and test procedures for testing to this specification must be approved by the releasing Product Engineering Office and no change in equipment or procedure may be made without their written concurrence.

Test port configuration is shown in Figure 3.

O-rings, if used in the design, shall be free from cuts, nicks, abrasions or any other damage which would result in a fluid leak.

All switches must have a shipping cap installed over the port threads to prevent contamination. All shipping caps must be approved by the releasing Product Engineering Office prior to production incorporation.

All switches that do not pass the calibration test are to either be readjusted and rechecked, or scrapped. (Salvage of component parts permitted with 100% reinspection).

If product nonconformance occurs for test Sections III. B, C, D, E, F, and J, production shall be stopped and the problems corrected. All production lots shall be sorted 100% prior to shipment. Suspected nonconformance of any shipped parts shall be reported immediately to the releasing Product Engineering Office.

If nonconformance of the statistical acceptance criteria occurs for test Sections III. G, H, I, K, L and M, a cause to recall the subject weeks production and to stop production may result.

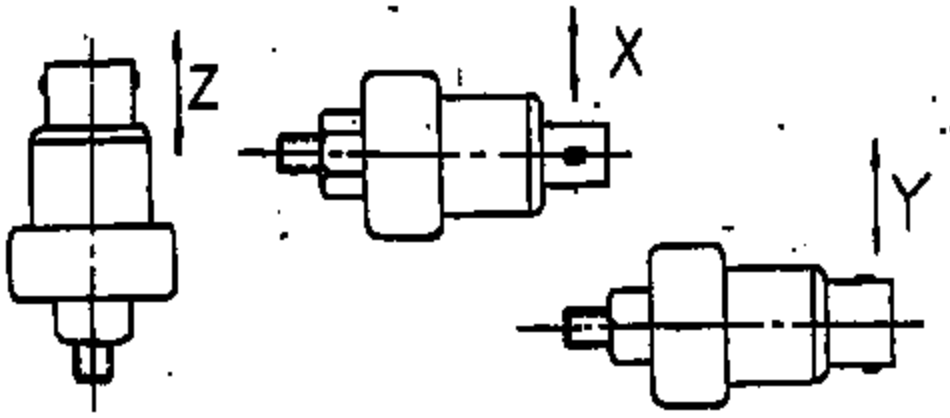
IX. COMPILATION OF REFERENCE DOCUMENTS

ASTM B-117, Salt Spray Testing

Ford Q-101, Quality System Standard - 1990 Edition

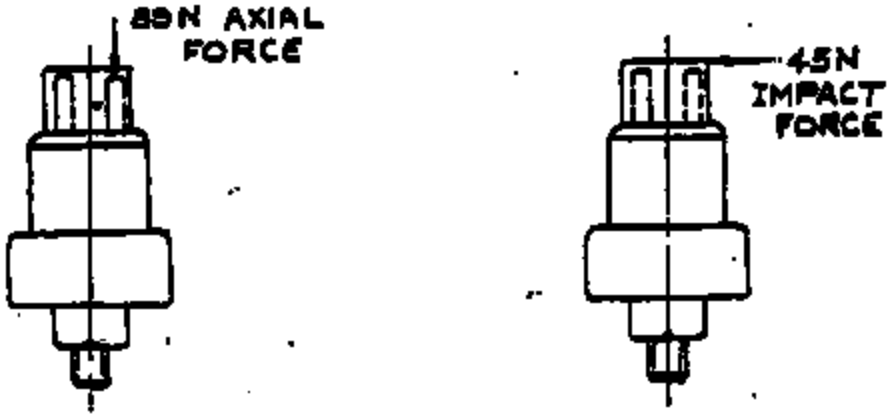
ES-F0ZB-14A464-AA, Specification - SLV Assy - Wire Connector

ES-F2VF-9C939-AA, Specification - Servo Assembly Speed Control



VIBRATION TEST - SWITCH ORIENTATION

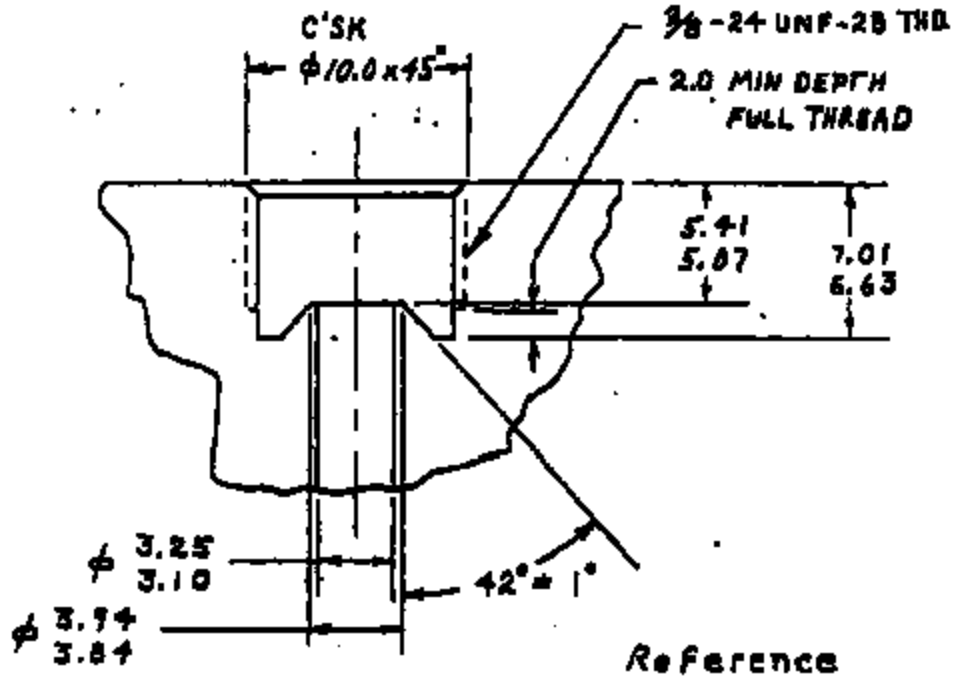
FIGURE 1.



TERMINAL STRENGTH - LOAD ORIENTATION

FIGURE 2.

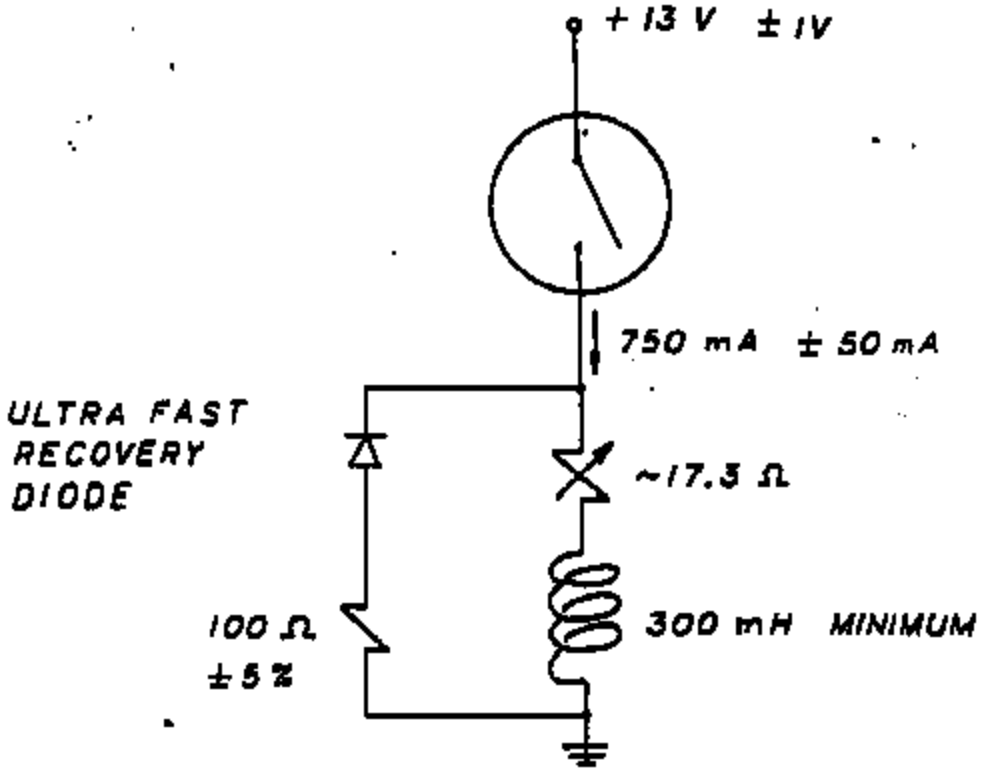
Engineering Specification



TEST FIXTURE PORT CONFIGURATION

FIGURE 3

FRAME 17 OF 18	REVISED		▽ 88-B210-B792A-AA NUMBER



DEACTIVATE SWITCH
TEST SET UP

FIGURE 4

Appendix. 4.2
Data

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	TEXAS INSTRUMENTS MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	DOC.
DATE 92-08-17		PAGE 33

PRESSURE SWITCH DATA Form 21605 TEST NO. 245-15-127

DEVICE	DATE REQUESTED	REQUESTED BY	REQUESTED COMPL. DATE
77PSL 2-1, 77PSL 2-2	9/04/13	Steve Offiler	
PERFORMED BY	**DATE STARTED**	**DATE COMPLETED**	**APPROVED BY**
Jeffrey DeBoer	9/04/13		

PROJECT TITLE: Speed Control

CUSTOMER:

PURPOSE OF TEST: Production Validation

PROCEDURE: ▽ ES-E2VC-9F924-AA : Full ISR

Natural Nor'l Poses

ultra-low diff discs.

Act 90-160

Rel 20 cycles

TI-NHTSA 007034

77PSL 3-1

INITIAL characterizations

Device #	Act	Rel	Hy Drop	Current Leak	Pressure Proof	Act	Rel	Test	Complete	Test	Complete
245-15-01	137	102	4.1	✓	✓	140	107	Fluid Ing	✓	Impulse	✓
-02	127	95	4.1	✓	✓	128	113		✓		✓
-03	138	111	5.8	✓	✓	140	115		✓		✓
-04	131	115	5.7	✓	✓	131	117		✓		✓
-05	133	117	4.1	✓	✓	126	115		✓		✓
-06	124	108	4.7	✓	✓	124	113		✓		✓
-07	125	117	4.5	✓	✓	121	113		✓		✓
-08	125	107	4.8	✓	✓	119	103		✓		✓
-09	130	102	4.5	✓	✓	122	107		✓		✓
-10	131	115	3.8	✓	✓	127	116		✓		✓
-11	130	114	4.9	✓	✓	125	113		✓		✓
-12	136	107	4.3	✓	✓	130	104		✓	Time Trouble	✓
-13	134	116	3.8	✓	✓	128	109		✓		✓
-14	107	92	4.8	✓	✓	118	95		✓		✓
-15	129	111	3.4	✓	✓	125	111		✓		✓
-16	129	111	4.1	✓	✓	126	111		✓		✓
-17	125	108	3.9	✓	✓	122	101		✓		✓
-18	136	116	3.7	✓	✓	127	116		✓		✓
-19	128	110	5.3	✓	✓	123	112		✓		✓
-20	123	111	3.1	✓	✓	127	109		✓		✓
-21	134	121	3.9	✓	✓	131	118		✓		✓
-22	121	105	3.8	✓	✓	122	115		✓		✓
-23	124	110	2.7	✓	✓	123	120		✓		✓
-24	119	98	3.6	✓	✓	123	107		✓		✓
-25	124	110	3.1	✓	✓	122	110		✓	Hardware	✓
-26	119	108	3	✓	✓	125	113		✓		✓

Device #	Act	Rel	% Drop	Connect Socket	Complete Report	Act	Rel	Test	Complete	Test	Complete
JHT-EC-29	124	114	3.3	✓	✓	120	110	Pull Test	✓	Humidity	✓
- 10	114	106	3.3	✓	✓	126	116		✓	↓	✓
- 11	109	104	2.9	✓	✓	101	115		✓	Salt Spray	✓
- 12	123	115	2.6	✓	✓	132	120		✓	↓	✓
- 13	114	104	8.9	✓	✓	115	105		✓		✓
- 14	106	104	1.9	✓	✓	128	118		✓		✓
- 15	118	109	2.9	✓	✓	125	115		✓		✓
- 16	122	117	2.9	✓	✓	127	115	↓	✓	↓	✓
- 17	121	119	3.1	✓	✓	120	110	Taped	✓	none	✓
- 18	123	113	2.6	✓	✓	126	115		✓	↓	✓
- 19	134	125	2.6	✓	✓	125	115		✓		✓
- 20	114	110	2.7	✓	✓	129	120		✓		
- 21	125	113	2.8	✓	✓	127	117		✓		
- 22	116	106	2.7	✓	✓	130	117		✓		
- 23	117	106	2.7	✓	✓	127	117		✓		
- 24	120	101	2.7	✓	✓	131	121		✓		
- 25	134	124	2.7	✓	✓	130	121		✓		
- 26	114	114	2.7	✓	✓	130	120		✓		
- 27	119	117	2.7	✓	✓	122	112		✓		
- 28	116	107	2.7	✓	✓	127	120	↓	✓		
- 29	124	114	2.7	✓	✓	127	115	T-Cycle	✓	none	✓
- 30	132	121	2.9	✓	✓	125	115		✓	↓	✓
- 31	112	101	3.0	✓	✓	120	110		✓		
- 32	127	121	3.0	✓	✓	130	120		✓		
- 33	127	121	3.0	✓	✓	129	119		✓		
- 34	121	112	3.0	✓	✓	125	115	↓	✓		
- 35	128	115	3.0	✓	✓	127	117	Vacuum	✓		
- 36	126	114	2.9	✓	✓	125	115		✓		
- 37	127	117	2.7	✓	✓	130	120		✓		
- 38	128	111	3.0	✓	✓	130	120		✓		
- 39	123	113	3.1	✓	✓	125	115		✓		
- 40	131	117	3.4	✓	✓	135	121	↓	✓		
- 41	127	119	3.6	✓	✓	134	120	Vibration	✓		
- 42	127	117	2.7	✓	✓	131	121		✓		
- 43	129	119	2.6	✓	✓	132	122		✓		
- 44	129	119	3.5	✓	✓	130	120		✓		
- 45	121	113	2.8	✓	✓	126	116		✓		
- 46	119	109	2.7	✓	✓	127	115		✓		
- 47	132	123	2.9	✓	✓	134	124	Burst	Pass		
- 48	126	116	2.9	✓	✓	132	122		Pass		
- 49	123	113	2.7	✓	✓	130	120		Pass		
- 50	119	109	2.9	✓	✓	129	119		Burst 7600		
- 51	121	110	2.7	✓	✓	132	122		Pass		
- 52	125	115	2.8	✓	✓	136	126		Pass		
- 53	125	120	2.5	✓	✓	139	129	Not used			
- 54	124	114	2.9	✓	✓	138	128				
- 55	119	112	3.4	✓	✓	126	117				
- 56	118	108	3.4	✓	✓	121	111				
- 57	120	109	3.1	✓	✓	126	116				
- 58	111	101	3.4	✓	✓	125	115				
- 59	112	103	2.9	✓	✓	127	117				
- 60	131	121	2.9	✓	✓	136	126				

PRESSURE SWITCH DATA Form 21605 **TEST NO.** _____

DEVICE	DATE REQUESTED	REQUESTED BY	REQUESTED COMPL. DATE
PERFORMED BY	DATE STARTED	DATE COMPLETED	APPROVED BY

PROJECT TITLE:

CUSTOMER:

PURPOSE OF TEST:

PROCEDURE:

77/543-1

Final Clamp for: suit #5

Device #	Set	Reset	Max Resp	Functional Test	Incr. Proof	Hi - Lo
	131	104	39.6	✓	✓	128-100
	122	97	29.4	✓	✓	120-105
	110	103	20.6	✓	✓	109-108
	129	104	39.0	✓	✓	129-104
	135	108	25.2	✓	✓	132-110
	117	95	22.1	✓	✓	117-99
	130	103	45.6	✓	✓	128-108
	124	99	17.2	✓	✓	122-103
	124	96	34.3	✓	✓	123-105
	122	108	26.5	✓	✓	120-101
	127	99	28.8	✓	✓	126-105
	125	103	36.2	✓	✓	125-105
	138	109	4.3	✓	✓	138-118
	124	92	2.2	✓	✓	119-98
	135	109	2.3	✓	✓	136-115
	136	111	2.9	✓	✓	136-120
	134	107	3.6	✓	✓	133-116
	131	99	2.2	✓	✓	131-105
	133	99	2.7	✓	✓	132-115
	132	97	3.3	✓	✓	129-111
	142	80	4.7	✓	✓	140-122
	132	107	5.1	✓	✓	132-112
	133	109	3.9	✓	✓	125-112
	135	103	2.5	✓	✓	136-114
	131	105	4.0	✓	✓	131 116
	124	112	5.0	✓	✓	125 109

[illegible]	[illegible]	M. Amp	[illegible]	[illegible]	[illegible]
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- 10	129 97	[illegible]	/	✓	131 110
[illegible]	132 [illegible]	2.9	/	✓	130 112
[illegible]	151 153	[illegible]	/	✓	[illegible] 106
[illegible]	11[illegible] 99	6.4	/	✓	130 97
[illegible]	121 119	[illegible]		✓	127 119
[illegible]	130 106	2.8	/	✓	[illegible] 98
[illegible]	133 101	3.1	/	✓	128 1[illegible]
[illegible]	125-112	8.6	✓	✓	123-102
[illegible]	130-114	6.8	✓	✓	127-105
[illegible]	124-112	9.9	✓	✓	126-108
[illegible]	131-113	8.0	✓	✓	122-110
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[illegible]	126-112	5.6	✓	✓	126-107
[illegible]	127-113	5.7	✓	✓	124-108
- 44	126-111	5.5	✓	✓	102-79
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[illegible]	133-116	7.0	✓	✓	132-105
[illegible]	131-117	8.0	✓	✓	127-105
[illegible]	126-112	7.5	✓	✓	128-105
[illegible]	127-98	8	-	-	116 98
[illegible]	129-100	5.6	-	-	127 100
[illegible]	126-109	2.6	-	-	127 98
[illegible]	130-105	1.7	-	-	120 101
[illegible]	130-102	2.9	-	-	128 104
[illegible]	125-108	1.1	-	-	125 97
[illegible]	138-117	1.9	✓	✓	135-110
[illegible]	133-120	1.2	✓	✓	130-115
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[illegible]	135-121	1.7	✓	✓	131-113
[illegible]	130-118	2.7	✓	✓	127-114
[illegible]	140-125	1.7	✓	✓	136-120
[illegible]	129-117	1.5	✓	✓	134-120
[illegible]	131-124	2.8	✓	✓	130-114
[illegible]	137-115	2.1	✓	✓	135-120
[illegible]	135-109	2.6	✓	✓	132-113
[illegible]	127-107	2.8	✓	✓	130-104
[illegible]	128-105	3.1	✓	✓	128-110

Appendix 4.3
Noise Pressure Trace

TEST LOT NO.	TEST	DEVICE
TESTED BY		
APPROVED BY	TEXAS INSTRUMENTS MATERIALS & CONTROLS GROUP ATTLEBORO, MA 02703	DOC.
DATE 93-08-17		PAGE 38

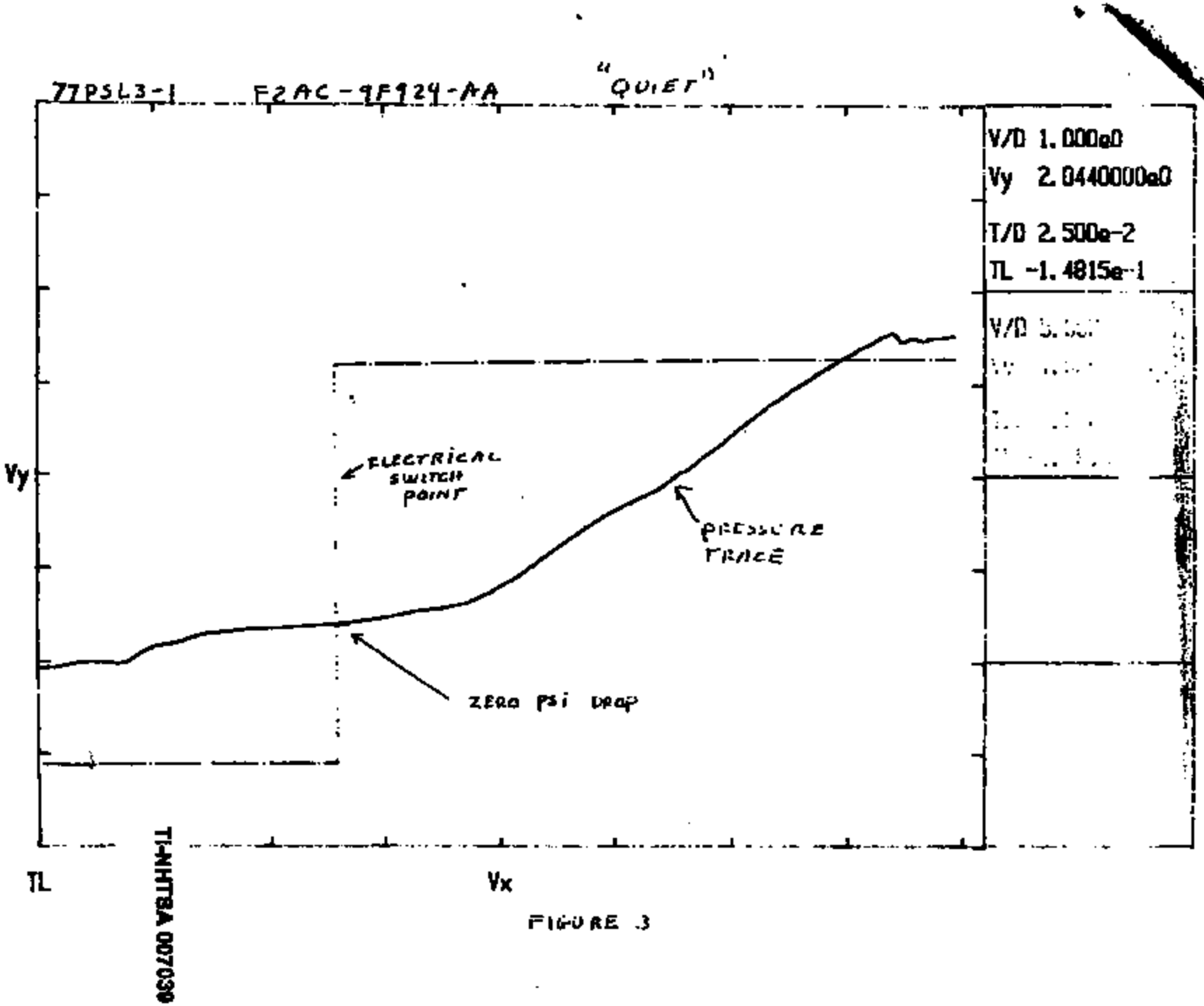
77PSL3-1
F2AC-9F929-AA
"QUIET"
V/D 1.000e0
Vy 2.0440000e0
T/D 2.500e-2
TL -1.4815e-1
Vy
ELECTRICAL SWITCH POINT
PRESSURE TRACE
ZERO PSI DROP
TL
Vx
T-HHTBA 007039

FIGURE 3

4 21781

TEXAS INSTRUMENTS

CERTIFICATION OF COMPLIANCE TEST

CUSTOMER: DANA CORPORATION

CUSTOMER ORDER NO.:	TI ORDER NO.:

CUSTOMER PART NO.:	TI PART NO.:
F2AC-9F924-AA	77PSL3-1

CUSTOMER SPEC: _____ TI SR: _____

QUANTITY: 6 pcs DATE SHIPPED: 8/20/92

IT IS HEREBY CERTIFIED THAT THE GOODS SPECIFIED ABOVE CONFORM TO THE TI ORDER SHOWN ABOVE, AS REVISED BY MUTUALLY AGREED WRITTEN AMENDMENTS, IF ANY. Further, component parts utilized have been scrutinized and do not violate Ford Engineering Materials Specifications WSS-M99P9999-A1/A2/A3 restrictions.

J. Watt, QCA Engr.
PRECISION CONTROLS QUALITY CONTROL

DATED: 8/20/92

v 91781

TEXAS INSTRUMENTS

CERTIFICATION OF COMPLIANCE TEST

CUSTOMER: DANA CORPORATION

CUSTOMER ORDER NO.:	TI ORDER NO.:

CUSTOMER PART NO.:	TI PART NO.:
F2AC-9F924-AA	77P8L3-1

CUSTOMER SPEC: _____ TI SR: _____

QUANTITY: 6 pcs DATE SHIPPED: 8/20/92

IT IS HEREBY CERTIFIED THAT THE GOODS SPECIFIED ABOVE CONFORM TO THE TI ORDER SHOWN ABOVE, AS REVISED BY MUTUALLY AGREED WRITTEN AMENDMENTS, IF ANY. Further, component parts utilized have been scrutinized and do not violate Ford Engineering Materials Specifications WSS-M99P9999-A1/A2/A3 restrictions.

[signature], QA Engr.
PRECISION CONTROLS QUALITY CONTROL

DATED: 8/20/92

F2AC-9F924-AA

MATERIAL ANALYSIS

PARTS LIST

	PART NAME	PART #	CERTIFIED
1	BASE	46515-3	YES
2	STA.TERM.	36889-1	YES
3	MOVE.CONTACT	74408-1	YES
4	RIVET	74171-1	YES
5	MOVE.TERM.	36887-1	YES
6	SPRING ARM	36869-1	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	27639-1	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-SEL	YES
18	ENVIO.SEAL	74247-4	YES