

**EA02-025**

**TEXAS INSTRUMENTS,  
INC.'S 9/10/03  
ATTACHMENT**

**REQUEST NO. 7**

**BOX 8**

**PART A-U**

**PART G**

-MSG NR= 913059 [REDACTED] SENT=01/06/94 07:20 AM  
ST=C DIV=0050 CD=00134 BY=MJS2 AT=01/06/94 07:20 AM  
TO: ANDRE CHARPENTIER ACHR

CC: BILL SWEET WS4  
DENNIS NATALE DJN1

FR: MATT BELLERS MJS2

RE: 77PS FUNCTION TEST PROGRAMMING

ANDRE,

I'VE REVIEWED YOUR REQUEST FOR CONFIRMATION OF DEVICE PART NUMBERS RUN ON THE 77PS PRESSURE TESTER AND EACH ASSOCIATED O-RING vs. NO O-RING LOGIC.

I FIND THE FOLLOWING, WHICH AGREES WITH WHAT YOU STATED OVER THE PHONE. HOWEVER, SOME ADDITIONS ARE MADE WITH 67PS AND 77PS DEVICES.

IF SOME OF THESE DEVICES LISTED BELOW ARE NOT PRESENTLY ON THE DEFAULT SELECTION SCREEN PLEASE CALL TO CONFIRM SPECIFICATION VALUES FOR THEM.

DEVICE	O-RING PRESENCE?	HEXPORT P/N
57PSL6-1	YES	36917-1
57PSL11-1	YES	36917-1
57PSL11-2	YES	36917-1
57PSF6-1	YES	36917-1
57PSF9-1	YES	36917-1
77PSL6-1	YES	36917-1
67PSL6-1	YES	36917-1
67PSL11-2	YES	36917-1
77PSL2-1	NO	36900-1
77PSL3-1	NO	36900-1
77PSL3-2	NO	36900-1
77PSL3-3	NO	36900-1
77PSL5-2	NO	36997-1

THERE MAY BE DEVICES ON THE DEFAULT SELECTION SCREEN WHICH ARE NOT LISTED ABOVE BECAUSE THEY HAVE DIFFERENT HEXPORTS. THESE DEVICES CAN THEREFORE BE IGNORED BY THE NEW SENSOR.

THANKS & REGARDS,  
MATT

TI-NHTSA 011850

-MSG N# 317744 FR=ACHR TO= [REDACTED] SENT=01/06/94 08:59 AM  
 R#026 ST=C DIV=0050 CC=00929 BT=RCHR AT=01/06/94 08:59 AM

To: Matthew Sellers MJS2  
 William Sweet WS4  
 Dennis Natale DJN1

From: ANDRE CHARPENTIER ACHR

Subject: FWD: 77PS FUNCTION TEST PROGRAMMING

\*\*\*\*\*

Via: MIMI Gateway at msg (TID DA609397 dated Thu, 6 Jan 1994 09:59:35 -0500)  
 From: charpentier@nicky.ac.ti.com (ANDRE CHARPENTIER)  
 To: matthew.sellers@mjs2@mimi, william.sweet@ws4@mimi, dennis.natale@djni@mimi  
 Subject: FWD: 77PS FUNCTION TEST PROGRAMMING  
 X-Vms-To: SMTPX"matthew.sellers@mjs2@msg.itg.ti.com"  
 X-Vms-Cc: CHARPENTIER,  
 smtpX"william.sweet@ws4@msg.itg.ti.com", smtpX"dennis.natale@djni@msg.itg.ti.c  
 om"

TO: MATT BELLERS MJS2

CC: BILL SWEET WS4  
 DENNIS NATALE DJN1

FR: ANDRE CHARPENTIER ACHR

RE: 77PS FUNCTION TEST PROGRAMMING

MATT,

I DO NOT HAVE INFORMATION ON THE FOLLOWING DEVICES. PLEASE SEND THE NECESSARY INFORMATION.

DEVICE	O-RING PRESENCE?	EXPORT P/N
57PSL11-1	YES	36917-1
87PSL11-2	YES	36917-1

THANKS & REGARDS,  
 ANDRE

	ACT		Rel		Diff	
	max	min	max	min	max	min
57PSL11-1	725	575	625	300	525	100
87PSL11-2	500	400	400	300	300	100

Creep 10ms max  
 op 800psi (2)

Subject: (U)

*ELECTRIC MECHANICAL  
FUNCTIONS*

or retransmission call (203)846-1385 reference magno: 017824923

*Mr. Norm  
Proceed Operations*

FROM: Fred G. Hendershot  
Subject: (U)  
Mr. Norm Freder  
Texas Instruments  
39535 Orchard Hill Place Suite 350  
Novi Mich 48375

Dear Norm:

I received an internal letter from Lisa Klein on the NAAO supplier recognition award.

The letter stated:

Vehicle Operations SQE and Powertrain SQE have launched a program to recognize suppliers meeting selected quality criteria. Recipients of the award will receive a certificate of appreciation signed by Mr. Regenlocker.

The criteria for the award are:

- No QR's, AR's or MR's from 12/1/92 through 11/30/93
- No Campaigns for the same period.

Texas Instruments facility at Attleboro supplier code 1095A will receive this award.

I just wanted to be the first to congratulate you for the good work. Your company continues to surpass your competition in quality performance.

Thanks again

Fred Hendershot

Regards,  
Fred G. Hendershot

*ONE WORK IN  
NAAO*

*GRZ VP  
N.A. A.O.*

-MSG M#- 242471 FR-ZIZ TO-ARIE SENT=05/06/94 08:19 AM  
R#-196 ST-C DIV-0061 CC-01646 BY-ZIZ AT=05/06/94 08:11 AM

To: ARIE VAN DER PLOEG                      ARIE  
Copy: DAVID CZARN                              ZARN  
From: AZIZ RAHMAN                              ZIZ

Subj: CYCLE LIFE TEST FOR BRAKE SWITCH

-----  
THE FOLLOWING DATA IS FROM A TEST TO FAILURE ENDURANCE  
TEST PERFORMED ON PRODUCTION 77PEL3-1.

THE TEST PARAMETERS WERE:

PRESSURE	0 - 100 BAR
TEMPERATURE	BRAKE FLUID 135 C
	AMBIENT 107 C
CYCLE RATE	2 Hz

THE FAILURES WERE AT 988K, 1170K, 1206K, 1346K, 1356K AND 1411K CYCLES.  
LET ME KNOW IF YOU NEED ANY ADDITIONAL TEST DATA.

F ARDS  
AZIZ.

TI-NHTSA 011862

-MSG MH= 00638523 FR=CDW3 TO=GAMY SENT=06/20/94 04:21 PM  
R#008 ST=C DIV=0050 CC=00147 BY=CDW3 AT=06/20/94 04:00 PM

To: Matt Sellers	MJS2	Jim Watt	JWO2
Andrew McGuirk	ACM1	Elaine Rose	GAMY
Roger F Boulay	RFB	Gary J. Snyder	GJS1

By: Al Amore	AA1	Bill Sweet	WS4
Steve Arsenault	SFA2	Tom Charboneau	TC
Balinda Varnell	BSYB	Aziz Rahman	ZIZ

From: Chris D. Wagner CDW3

Subj: 77PSL2-1 return from Wixom Assm. Plant, Preliminary Results

One 77PSL2-1 cruise control deactivation switch was received from the Wixom Assembly plant for a no continuity condition on the morning of Monday, June 20. (Note that the device was reported on Friday as a 77PSL3-1 but the return was a 77PSL2-1.)

After being recorded into quality, Ref # 72, the device was confirmed as no continuity at 0 applied pressure. Device X-ray indicated that the contacts were open, and the transfer pin appeared to be in place.

Further X-rays, at longer exposure time, indicate that the disc is either flat or concave in shape. X-ray of a known functional device shows that the disc should be convex in shape.

Pressure testing in the laboratory showed a constant open circuit condition with no snap. The device was retested on the manufacturing pressure tester and found to be out of specification. The category was ZPFL = Zero Pressure Logic Failure.

The next step will be to window the device. (Cut a small hole in the base to view the contacts.) Following that, the base will be removed and the sensor examined via a sensor measurement and PD curve.

Best Regards,  
Chris

TI-NHTSA 011863

-MSG MW= 00635884 FR=JW02 TO=GAMY SENT=06/20/94 03:10 PM  
R#-007 ST=C DIV=0050 CC=00149 BY=JW02 AT=06/20/94 03:10 PM

TO: STEVE ARSENAULT 8FA2 RUSTY STRUBLE RCS2  
MATT SELLERS MJS1 KAZU NAKANISHI KAZN  
NORM FREDA NTF BILL SWEET WS4  
ANDY MCGUIRK PCQA ELAINE ROSE GAMY  
BELINDA YARNELL BSYB VAL EGGERT EGGY  
CHRIS WAGNER CDW3 DAVE CZARN ZARN

CC: GARY SNYDER GJS1 KAZU NAKANISHI KAZN  
BILL CONGDON BCON JOHN PECHONIS JSP1

FM: JIM WATT JW02

SUBJ: WIXOM/HILITE INDUSTRIES 77P3L2-1 INOPERATIVE SWITCH UPDATE

Mr. Habashi, Hilite Industries Quality, called 06/17/94 to notify TI-A that a 77P3L2-1 cruise control brake switch was reportedly inoperative at the Wixom plant (Wixom, MI). The switch reportedly is open circuit where it should be a normally closed pressure switch. Norm Freda confirmed the open circuit switch condition out at Wixom on 06/17/94, and arranged to have the switch returned to TI-Attleboro for analysis and evaluation. A conference call with Hilite Industries was accomplished on 06/17/94 with the following summary:

1. 24 hour to Ford (initial 8-D) requirement.. (Completed) ?
2. Cok data: none but continuity has 400% test (completed)

Wixom Assembly Plant stock certification. (completed)

4. Next updated 8-D to Hilite Industries... 6/23/94
5. Next updated 8-D to Wixom Assembly Plant... 6/24/94
6. Changeout Hilite stock (12,614 pcs).... TBD
7. Scribe 5500 pcs at TI-A with permanent pen.. 6/20/94  
Forward to Hilite Industries 6/21/94 (Tuesday)

"Certify stock" at TI-A with scribe mark...  
Use green "X" approx 3" x 2" x 1/4" thick.

Upon receipt and analysis of the returned switch, we will reconvene the product team.

Regards,

Jim ext 1719 msgid JW02 ms 12-27

TI-NHTSA 011854

-MSG MM# 633042 FR=GAMY TO=GAMY SENT=06/20/94 02:22 PM  
 R#005 ST=C DIV=0050 CC=00149 BY=GAMY AT=06/20/94 02:22 PM  
 TO: VAL-LORIE R. EGGERT EGGY << CUSTOMER ACTION REQUEST >>  
 FR: ELAINE S ROSE GAMY << CUSTOMER # 1 >>  
 TI Internal Data

CC: #PR1A

RE: NEW ACTION REQUEST ADDED (Respond via CARE System)

Action Subject:	CONTINUITY	Action #:	969464
Customer Name:	HILITE IND.	Status:	NEW
Request Date:	06/20/94	Added:	06/20/94 14:22
Priority:	NORMAL	Type:	R/FA
		Org/LBE:	PRECA
		ProdType:	PCSS
		Device:	77PSL2-1

Sender Request by : ELAINE S ROSE Userid: A66877

TI REF # 72 RETURNED FROM WIXOM PLANT !!!

PARAMETERS

Customer part number	C	F2VC-9F924-AB
TI part number	C	77PSL2-1
Unit price	C	
Mark (S.R.)	C	
Site code/serial number	Q	3363
Reason for return	Q	NO CONTINUITY
Customer count pcs	Q	1
TI count pcs	Q	1
# defective	Q	
Inspection findings	Q	
Returned as received	M	
Rework-return to cust	M	
Rework-return to stock	M	
Return to stock	M	
Replace	M	
Scrap	M	
Hold for disposition	M	
Customer location	C	WIXOM
Customer contact	C	
Phone number	C	
Customer rejection#	C	
Sold to #	C	
Ship to #	C	
Bill to #	C	
P.O. #	C	
TI order #	C	
Date returned	C	06/20/1994
Return type (R/F/D/P)	Q	P
Cust C/A required?(Y/N)	Q	Y
Cust C/A date due	Q	
bot cause	Q	trapped disc
Corrective action	Q	
C/A complete date	Q	
Defect code	Q	
Quality return	Q	
Unjustified return	Q	
Service quality return	Q	
Production return	Q	

TI-NHTSA 011865

**TEXAS INSTRUMENTS INCORPORATED  
CORRECTIVE ACTION REPORT**

Report Number: PSCAR 94.18  
Date Opened: 6/28/94  
Updated: 10/04/94 Closed 10/07/94  
Customer: HILITE INDUSTRIES/ FORD MOTOR CO  
TI p/n (s): 77PSL3-1  
Customer p/n (s): F2VC-9F924-AB  
CAR description: Customer returned switch for no continuity

**(Step 1) Champion and Team Members**

Quality Assurance Engineering:	Jim Watt (Champion)
Manufacturing Engineering:	Matt Sellers
Design Engineering:	Chris Wagner
Manufacturing:	Steve Arsenault
Purchasing:	Jon Mayer
Plating:	Dennis Villard
Supplier:	Rick Bessler
Production Control:	Rusty Struble

**(Step 2) Problem Description**

On Monday, June 20, 1994, TI-Attleboro received one 77PSL3-1 (pn F2VC-9F924-AB) switch from Wixom Assembly Plant, MI reportedly to be inoperative. The FN116 report was inability to engage the cruise control. Norm Freda, TI Field Sales Engineer, checked the switch for electrical continuity on Friday, 6/17/94 at Wixom Assembly Plant and confirmed the no continuity condition.

**(Step 3) Containment and Short Term Corrective Actions**

As an immediate containment action to prevent usage of no continuity switches, Texas Instruments Incorporated are 200% verifying pressure switch electrical continuity by processing 3800 pcs on 06/20/94. The 3800 (pn F2VC-9F924-AB) switches have been verified with no additional discovery of discrepant product. A scribe line has been added using a magic marker to designate these switches. The shipping cartons have also been marked with a green "X". In addition, 5500 pcs of the 77PSL3-1 (pn F2AC-9F924-AA) were also reverified for electrical continuity as this switch is used on both the FN116 Town Car and the EN114 Crown Victoria and Grand Marquis. TI-PSE representative also verified 69 switches in cruise control brake assemblies at Wixom Assembly Plant on 06/17/94; no additional discrepant parts were found.

Additional short term containment actions taken have been as follows:

- a. Converter supplier has screened (06/28/94) 5,750 parts before the converter supplier shutdown for vacation with no defective converter buttons found.
- b. TI-Attleboro completed screening over 50,000 converter buttons; no additional converter discrepancies as noted in the Wixom Assembly Plant returned switch were found.
- c. TI-Attleboro QRA representative completed screening finished switches on proportional valves at Hilite Industries with an electrical continuity check. A total of 7,790 switches were screened with no additional discrepancies found.
- d. Hilite Industries inventory of TI switches are being replaced with certified stock. Certification of returned switches will be annotated with an identification ink scribe mark on the switch, as well as a green "X" marked on the outside of the carton. New switches directly from the production line are certified with the identification physical scribe mark on the plastic connector surface of the switch. A green "X" will continue to be noted on the outside of the shipping carton until 7/15/94. Shipping cartons with pack dates after 7/15/94 will have no "X" on the cartons as all product is normally certified.

**(Step 4) Definition and Verification of Root Cause**

Continuity testing confirmed the open circuit condition. Diagram 1 outlines several possible root causes for this condition. X-ray of the returned device indicated that the contacts were open at 0 applied pressure. Further X-ray photographs, pressure testing, and pressure deflection curves indicated that the pressure sensing disc, which closes the contacts, was not moving over its entire range. Disassembly revealed that the converter button, which slides in the washer hole, was damaged.

The side of the button appears to have been scraped and a deposit of material is present at the base of the button. Wear marks on the metal deposit area indicate contact between the converter and the washer inside diameter. Possible root causes for this defect are presented in Diagram 2. Presence of plating over the scraped area and metal deposit indicates that the defect occurred before plating.

The converter supplier assigned a team to investigate the damaged converter, and concluded that the nonconforming part came in contact with a force that impacted the button configuration .010 in from the button's side, thereby altering the concentricity of the button in relation to the outside diameter of the part. The supplier believes that the force could be the inside diameter edge of the third draw die coming in contact with the misaligned material. Although the supplier's team had not seen this type of nonconformance before, there is a belief that the process root cause of the nonconformance was raw material not properly located within the production die when the power press was cycled. The system root cause is that the nonconforming part was not separated properly by the operator when the assumed misfeed happened.

**(Step 5) Permanent Corrective Actions**

1. Evaluate poke-yoke foolproof opportunity at converter supplier's process.

completed.

(The converters are ejected at a high speed from the tool prohibiting an effective poke-yoke process.)

2. Assess the following auto pressure tester defect code data and fallout for comparison and additional results controls:

- |    | Tester Error code  |
|----|--|
| a. | Zero pressure logic failure(splf) fallout                                      |
| b. | Electrical Continuity fallout  |
| c. | Low transfer pin fallout   |
| d. | Final tester yield reports for 4qtr'93 (discrepant switch date coded Dec 1993) |

(Update Hilti Industries on progress of corrective actions.)

10/04/94

3. The converter supplier has completed revalidating the production tool inspection (misfeed detection probe, die and pilot orientation, and the roll feed) on 06/28/94. (Prevention)

4. The converter supplier has completed a formal review of die setup, material changeover, and misfeed containment procedures on 06/24/94. (Detection)

The converter supplier will conduct periodic audits of the production equipment and operating procedures to verify corrective actions are in place.

**(Step 6) Verification of Permanent Corrective Actions**

PCA 1

Poke-yoke opportunities were limited; will improve supplier's management of misfeed procedure as an alternative.

PCA 2

Assessed effectiveness of resultant controls formulated from xplf, continuity, low transfer pin, .....data.

PCA 3

Confirmed effectivity of converter supplier's prevention actions.

PCA 4

Confirmed effectivity of converter supplier's detection actions.

(Step 7) **Prevent Recurrence**

The probable success of the converter supplier's corrective actions should be high. The converter supplier's pre-production part inspections, control plans, and current SPC practices should verify the tools capability of producing parts to print. The converter supplier's periodic inspection of pressroom equipment should verify equipment, to include rollfeed effectiveness. The converter supplier's training and periodic auditing of the process should greatly increase the probability of success.

(L. Watt, 10/04/94, Rev 4)

TL-NHTSA 011868

SG M# 721697 FR=CDW3 TO=GAMY SENT=06/22/94 03:26 PM  
RW=014 BT=C DIV=0050 CC=00101 BY=CDW3 AT=06/22/94 03:08 PM

To: Steve Arsenault	SFA2	Jim Watt	JW02
Matt Sellers	MJS2	Belinda Yarnell	BSYB
Ccvt: Al Amora	AA1	David Czarn	ZARN
Elaine Rose	GAMY	Andrew McGuirk	ACM1
Bill Sweet	WS4	Norm Freda	NTF
From: Chris D. Wagner	CDW3		

Subj: 77P8L2-1 RDA from Wixom. TI Ref 72, 8D meeting

The final analysis is complete. Disassembly of the sensor has revealed marks on the disc which indicate that the disc was trapped.

We need to fax an 8D to Hilight and to Norm Freda tomorrow. Please join me in the cafeteria at 9:00 AM for the purpose of writing the 8D.

Time 9:00 AM  
Place Cafe  
Day Thursday, June 23, 1994

From our experience of 4 weeks ago, this 8D will need to include:

- Root Cause: Trapped Disc
- Containment at Wixom: New supply of certified stock
- at TI: Resort of product
- Explanation of why we shipped this part.
- How we can ensure that this does not happen again.
- Update the 8 and or dFMEA, if required.

Please let me know ASAP if this causes a conflict.

Regards,  
Chris

TI-NHTSA 011569

-MSG MH= 700040 FR=CDWG TO=GAMY SENT=06/22/94 09:07 AM  
R#013 ST=C DIV=0050 CC=00101 BY=CDWG AT=06/22/94 08:27 AM

To: Matt Sellers	MJS2	Jim Watt	JW02
Andrew McGuirk	ADM1	Roger F Boulay	RFB
Elaine Rose	GAMY	Gary J. Snyder	GJS1
Copy: Al Amore	AA1	Steve Arsenault	SFA2
Bill Sweet	WS4	Aziz Rahman	ZIZ
David Czarn	ZARN	Tom Charbonneau	TC
Belinda Yarnall	BSYB	Norm Freda	NTF
From: Chris D. Wagner	CDWG		

Subj: 77PSL2-1 RDA (TI Ref 72) Further Results

Upon windowing the device, the gap between the contacts was measured to be approximately 4.5 mils.

After disassembly, the pin, sensor, and base were gauged and the preload applied to the arm bump was calculated to be -1.5 mils. This would account for the observed contact gap.

For comparative reasons, a sensor was intentionally assembled with an inverted disc. (To be referred to hereafter as DI sensor.) The X-ray of the DI sensor was similar to the X-ray of the returned sensor, but sensor gauge measurements of the two as well as the PD curves of the two did not match.

The DI and returned sensor were then probed with a dowel pin thru the hole. The disc in the DI sensor did not move, but the disc in the returned sensor began to snap. The returned device was then calibrated in the lab and found to have an actuation of 115 PSig, and a release of 54 PSig with transfer times of 1.3 and 1.7 msec respectively. (For this calibration the original transfer pin and base were used, but the base was held on by hand rather than being re-crimped.)

The sensor gauge measurement had decreased by approximately 7 mils. The PD curve had changed as well and now showed a disc throw and differential.

X-rays are in progress at this writing. The sensor will be disassembled later this morning.

At this point, the evidence indicates that the device was assembled with a trapped disc. The disassembly should show marks on the disc where the converter trapped it.

Best Regards,  
Chris

TI-NHTSA 011870

-MSG M# 00764298 FR=CDW3 TO=CDW3 SENT=06/23/94 03:59 PM  
S# 128 ST=C DTV=0050 CC=00101 BY=CDW3 AT=06/23/94 09:17 PM

To: David Czarn	ZARN	Tom Charboneau	TC
Al Amora	AA1		
Copy: Gary J. Sawyer	GJS1	Dennis J Natale	DJN1
Jim Watt	JW02	Matt Sellers	MJS2
Elaine Rose	GAMY	Roger F Boulay	RFB
From: Chris D. Wagner	CDW3		

Subj: Highlight for Week Ending June 23, 1994

Quality Issues

\*\*\*\*\*

Work has progressed on the two main quality concerns facing our team on the 57/77 line. First, an 8D for the returned 77P9L2-1 open circuit switch was sent to Norm Freda on Thursday. We will present to Wixom on Friday Morning. The root cause of the failure was washer converter binding caused by the converter button damage. The button was scraped and a deposit of material resulting from this scrape was deposited at the base of the button and caused binding with the washer.

Plating on the scrape and material deposit indicate the damage was done prior to plating. Severity of the damage points to a stamping error. Tom Hill has the part and will approach Bassler tomorrow. Bassler's quick response will be crucial since the 8D will most likely need to be updated next week.

The other major quality issue facing us is the misaligned contact arm on 57PSF devices. Dennis Natale and I met on Thursday to brainstorm possible solutions to this issue. Removal of the terminal interference tabs, redimensioning of the base, and rivet of the spring to movable arm were identified as possible areas to consider. In parallel, a close scrutiny of the dimensional stack up will be done to help identify potential causes.

Regards,  
Chris

TI-NHT8A 011871

-MSG M#: 1301433 FR=JW02 TO=GAMY SENT=06/24/94 01:20 PM  
R#:016 ST=C DIV=0030 CC=00149 BY=JW02 AT=06/24/94 01:20 PM

TO: STEVE ARSENAULT SFA2 AL AMORE AA1  
MATT SELLERS MJB1 CHRIS WAGNER CDW3  
ANDY MCGUIRK PCQA ELAINE ROSE GAMY  
BELINDA YARNELL BSYB KEN ALVES KAA1

CC: GARY SNYDER GJS1 KAZU NAKANISHI KAZN  
BILL CONSDON BCON JOHN PETCHONIS JSP1  
DAVE CZARN ZARN BILL SWEET WS4  
NORM FREDA NTF ED ONEILL EJON  
RUSTY STRUBLE RCS2 VAL EGGERT EGGY

FM: JIM WATT JW02

SUBJ: WIXOM/HILITE INDUSTRIES 77PSL2-1 INOPERATIVE SWITCH UPDATE

Next meeting: Tuesday, 06/28/94, 9:00 a.m. cafeteria

1. 24 hour to Ford (initial S-D) requirement. 6/17/94  
(completed)
2. Wixom Assembly Plant stock certification. (completed)
3. Convene product team to update S-D (completed)
4. Forward updated S-D to Hilite Industries  
6/23/94 (completed)
5. Forward updated S-D to Wixom Assembly Plant  
6/24/94 (completed)
6. Changeout Hilite stock (12,614 pcs). (06/21/94)  
need update (Rusty Struble/Steve Arsenault)
7. Scribe 5500 pcs 77PSL3-1 at TI-A with permanent marker pen for  
6/21/94 immediate shipment (completed)

(note: another 3900 pcs 77PSL2-1 switches were retested during this timeframe and certified for shipment).

"Certify stock" at TI-A with scribe mark...  
Use green "X" approx 5" x 2" x 1/4" thick.

need update (Steve Arsenault)

8. Receipt and analysis of the returned switch showed washer/converter binding, caused by converter button damage, to be causing the switch erratic performance. The button was scraped and a deposit of material resulting from this scrape was deposited at the base of the button and caused binding with the washer. Chris Wagner  
6/23/94 (completed)

a. The scribe mark on the returned switch could not be readily seen. Need to add sharpening of the scribe working edge to R & M preventive maintenance schedule (monthly).

6/21/94 (completed)

(Need to audit effectivity of R & M on improvement)

- b. Further analysis of the converter button damage indicates that

TI-NHTSA 011872

the damage was done prior to plating. Need to get K.F. Basseler (converter supplier) in quickly to review the damaged component, and provide an 8-D corrective action response.

6/24/94

(Rick Basseler reviewed the damaged component and is currently assessing his process for potential process failure modes that may have contributed to the damaged converter button). follow-up on progress  
(Jim Watt)

c. Need to review zolf(zero pressure logic failure) defect code, continuity defect code, and low pin fallout switches for potential damaged converter...6/24/94

(Ken Alves)

d. Need to review/analyze final tester yield reports for 4qtr'94 through the present for the above categories for potential trends

Steve Arsenault (6/24/94)

e. Need any information on warranty claims for 77PBL3-1 and 77PBL2-1 series switches.

Norm Freda (6/24/94)

Regards,

Jim ext 1719 msgid JN02 ms 12-27

TI-NHTSA 011673

SG MW= 861545 FR=JW02 TO=GAMY SENT=06/27/94 04:00 PM  
R#=#017 BT=C DIV=0050 CC=00149 BY=JW02 AT=06/27/94 04:00 PM

TO: STEVE ARSENAULT SFA2 AL AMORE AA1  
MATT SELLERS MJB1 CHRIS WAGNER CDW3  
ANDY MCGUIRK PCQA ELAINE ROSE GAMY  
BELINDA YARNELL BSYB KEN ALVES KAA1  
ROGER BOLLAY RFB

CC: GARY SNYDER GJS1 KAZU NAKANISHI KAZN  
BILL CONGDON BC0N JOHN PECHONIS JSP1  
DAVE CZARN ZARN BILL SWEET WBA  
NORM FREDA NTF ED ONEILL EJON  
RUSTY STRUBLE RCS2 VAL EGGERT EGOY

FM: JIM WATT JW02

SUBJ: WIXOM/MILITE INDUSTRIES 77PBL2-1 INOPERATIVE SWITCH UPDATE

Next meeting: Tuesday, 06/28/94, 3:00 a.m. cafeteria

6. Changeout Milite stock (12,614 pcs). (06/21/94)  
need update (Rusty Struble/Steve Arsenault)

Scribe 5500 pcs 77PBL3-1 at TI-A with permanent marker pen for  
21/94 immediate shipment (completed)

(note: another 3800 pcs 77PBL2-1 switches were retested during this  
timeframe and certified for shipment).

"Certify stock" at TI-A with scribe mark...  
Use green "X" approx 3" x 2" x 1/4" thick.  
need update (Steve Arsenault)

9. The button was scraped and a deposit of material resulting from this  
scrape was deposited at the base of the button and caused binding with  
the washer. Chris Wagner 6/23/94 (completed)

a. The scribe mark on the returned switch could not be readily  
seen. Need to add sharpening of the scribe working edge to R & M  
preventive maintenance schedule (monthly).  
6/21/94 (completed)  
(Need to audit effectivity of R & M an improvement)

b. Further analysis of the converter button damage indicate that  
the damage was done prior to plating. Need to get K.F. Basseler  
(converter supplier) in quickly to review the damaged component, and  
provide an 8-D corrective action response.

6/24/94

(Rick Basseler reviewed the damaged component and is currently assessing  
a process for potential process failure modes that may have  
contributed to the damaged converter button). follow-up on progress  
(Jim Watt)

Basseler to provide data results of 5,000 pcs (100% sort)

6/27/94

TI-NHTSA 011874

continuity defect code, and low pin fallout switches for potential  
damaged converter...6/24/94

(Ken Alves)

d. Need to review/analyze final tester yield reports for 4otr'94  
through the present for the above categories for potential trends  
Steve Arsenault (6/24/94)

(completed 6/24/94)

e. Need any information on warranty claims for 77PSL3-1 and  
77PSL2-1 series switches. Norm Freda (6/24/94)

Norm's recommendation is that we do not pursue the warranty claims  
information as the data is probably unfavorable due to the Ford  
Econoline (77PSL3-3 washer/converter binding issue in the 4th qtr'93).

Regards,

Jim ext 1719 msgidl JW02 ms 12-27

TI-NHTSA 011875

MSG M# 943671 FR=SUE4 TO=ALRA SENT=06/29/94 02:29 PM  
 R#027 ST=C DIV=0050 CC=00176 BY=SUE4 AT=06/29/94 02:29 PM  
 TO: ELAINE S ROSE BAMY << CUSTOMER ACTION REQUEST >>  
 FR: LINDA E BARBOZA BOZA << CUSTOMER # 1 >>  
 TI Internal Data

CT: #PR1A

RE: NEW ACTION REQUEST ADDED (Respond via CARE System)

Action Subject: STOCK BEING REPLACED	Action #: 977346
Customer Name: PITTS INDUSTRIES	Status: NEW
Request Date: 06/29/94	Added: 06/29/94 14:29
Priority: NORMAL	Type: R/FA
	Org/LBE: PRECA
	ProdType: PC98
	Device: 77PSL3-1

Sender Request by : LINDA E BARBOZA Userid: A802027

STOCK BEING REPLACED

PARAMETERS

Customer part number	C	21006064951
TI part number	C	77PSL3-1
Unit price	C	2.36
Mark (S.R.)	C	N/A
* Date code/serial number	Q	NIXE0 COOP
Reason for return	Q	
Customer count pcs	Q	1934
* TI count pcs	Q	19957
* defective	Q	724
* Inspection findings	Q	
Returned as received	M	
Rework-return to cust	M	
Rework-return to stock	M	
Return to stock	M	
Replace	M	
Scrap	M	
Hold for disposition	M	
Customer location	C	
Customer contact	C	
Phone number	C	
Customer rejection#	C	
Sold to #	C	616128
Ship to #	C	616136
Bill to #	C	616128
P.O. #	C	
TI order #	C	
Date returned	C	
Return type (R/F/D/P)	Q	
Cust C/A required?(Y/N)	Q	
Cust C/A date due	Q	
Root cause	Q	
Corrective action	Q	
C/A complete date	Q	
Defect code	Q	
Quality return	Q	
Unjustified return	Q	
Service quality return	Q	
Marketing return	Q	
Document type	C	

*T.I. Ref # B5*

*LR50*

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

TI-NHTSA 011876

INCOMING MATERIALS  
REJECTED MATERIAL REPORT

4458

DATE 6-29-94

PART NO 5948

DESCRIPTION Pressure Switch

QUANTITY RECEIVED 5712

SAMPLE SIZE 100%

QUANTITY REJECTED 5712

SUPPLIER NAME Texas Instruments

REASON FOR REJECTION Parts received without certification to previous defective switches - Without Green X on box and without blue dot on switches

REJECTED BY Albert S. Sautel (Inspector)

DISPOSITION RTB 6/29/94 (Old Manager)

Delit. Ship lot colored RMA# 977337  
per India Due Back 7/8

ACKNOWLEDGED:

(Manufacturing Manager)

**Milite Industries, Inc.**

DIVISION  
P.O. BOX 6480 • DALLAS, TEXAS 75206-6480 • (214) 343-8710

*John Jordan*  
(Manufacturing Agent)

T.I.  
Ref: B4

TI-NHTSA 011877

-MSG F.#= 943333 FR=SUE4 TO=GAMY SENT=06/29/94 02:22 PM  
R#=026 ST=C DIV=0050 CC=00176 BY=SUE4 AT=06/29/94 02:22 PM  
TO: ELAINE S ROSE GAMY << CUSTOMER ACTION REQUEST >>  
FR: LINDA E BARBOZA SOZA << C U S T O M E R # 1 >>  
TI Internal Data

CC: \*PRIA

RE: NEW ACTION REQUEST ADDED (Respond via CARE System)

Action Subject: STOCK BEING REPLACED  
Customer Name : PITTS INDUSTRIES  
Request Date : 06/29/94  
Priority : NORMAL

Action #: 977337  
Status: NEW  
Added: 06/29/94 14:22  
Type: R/FA  
Org/LBE: PRECA  
ProdType: PC99  
Device: 77P8L2-1

Sender Request by : LINDA E BARBOZA

Userid: AS02027

STOCK BEING REPLACED.

PARAMETERS

Customer part number C 21006059481  
TI part number C 77P8L2-1  
Unit price C 2.21  
Mark (S.R.) C N/A  
Date code/serial number Q  
Reason for return Q  
Customer count pcs Q 5712  
TI count pcs Q  
# defective Q  
Inspection findings Q  
Returned as received M  
Rework-return to cust M  
Rework-return to stock M  
Return to stock M  
Replace M  
Scrap M  
Hold for disposition M  
Customer location C  
Customer contact C  
Phone number C  
Customer rejection# C  
Sold to # C  
Ship to # C  
Bill to # C  
P.O. # C  
TI order # C  
Date returned C  
Return type (R/F/D/P) Q  
Cust C/A required?(Y/N) Q  
Cust C/A date due Q  
Root cause Q  
Corrective action Q  
C/A complete date Q  
Defect code Q  
Quality return Q  
Unjustified return Q  
Service quality return Q  
Marketing return Q  
Document type C

T.I. REF.  
# 134

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

TI-NHTSA 011878

ROUTE TO \_\_\_\_\_

**TEXAS INSTRUMENTS**  
ATTLEBORO, MASSACHUSETTS 01915

**REPORT OF DISCREPANT  
IN-PROCESS MATERIAL**

No. 018071

DRG NO. & NAME <b>TI 362-1</b>	<input type="checkbox"/> <b>NEW</b>	REV. _____	INSPECTION	DATE <b>7/16/94</b>	Qty. Supplied <b>5,712</b>	Qty. Received
SOURCE <b>W. L. Instruments</b>	DEV. _____	PROD. CODE <b>383</b>	QTY.	QTY.	QTY.	QTY.

ITEM	ATTRIBUTE/REQUIREMENT	ACTUAL	REWORK	RE	SCRP
	<b>Case # 977333/14</b>	<b>R/W Reopen Product</b>			
		<b>OPEN CIR CUIT / INTERMITTENT</b>			

**MATL/PROD. CONTROL**

CHECK INVENTORY AT LOCATION \_\_\_\_\_

PARTS/INTERNAL IN SHORT SUPPLY \_\_\_\_\_

PROPERTY \_\_\_\_\_

**COMMENTS:**

PLANNER \_\_\_\_\_ DATE \_\_\_\_\_

**MRB ENGINEERING DISPOSITION:**

RETURN TO SUPPLIER

REWORK AT TI

SCRP AT TI

SCRAP

DEVOTE N/A E.

**COMMENTS:** *7795...*

**MRB SIGNATURES:**

ENGINEER \_\_\_\_\_

QA ENGINEER \_\_\_\_\_

MRB ENGINEER \_\_\_\_\_

QA ENGINEER \_\_\_\_\_

**NETWORK PROCEDURE:**

**REWORK COMPLETE:**

DATE \_\_\_\_\_

BY \_\_\_\_\_

**MRB CORRECTIVE ACTION:**

**TI**

- CHANGE DRAWINGS
- USE ENCLOSED SAMPLES
- OTHER (EXPLAIN)

**SUPPLIER**

- PROVIDE CORRECTIVE ACTION PLAN
- SUBMIT INSPECTION DATA WITH PROBLEM COMMENTS
- CONDUCT CAPABILITY STUDY AND SUBMIT TO ENGINEERING
- OTHER (EXPLAIN)

**RECEIVING INSPECTION:**

SEQUENCE NO. \_\_\_\_\_ DRG. CODE \_\_\_\_\_

REWORK VALIDATION \_\_\_\_\_

DATE \_\_\_\_\_

**PROCUREMENT ASSURANCE:**

FOR IPO ONLY - SUPPLIER

EXTERNAL C.A.R.

FOR IPO ONLY - INTERNAL

INTERNAL D.A.R.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

FORM 8898

TI-NHTSA 011879

# Hill Industries, Inc.

DIVISIONS  
 P.O. BOX 8900 • DALLAS, TEXAS 75281-4900 • (214) 343-1111

**SOLD TO**  
 TEXAS INSTRUMENTS, INC.  
 74 Forest St.  
 Attleboro, MA. 02703

**SHIPPED TO**  
 SAME

*Received on  
 7/6/94  
 Sent to line with  
 from.*

DATE	TERMS	PACKING SLIP NO.	TAX CODE
5-29-94			
CUSTOMER ORDER NO.	SHIPPED VIA AND DATE	FRT. COLLECT.	
	5-29-94		

DESCRIPTION	QUANTITY ORDERED	QUANTITY BACK ORDERED	QUANTITY RETURNED	PRICE	TOTAL
PART #6495 on PO#56849 RMA#977346	19,934		19,934		
PART #6948 on PO#56395 RMA#977337	5,712		5,712		
<i>77 PSL B-1</i>					
SH/JJ	1230-112				

WE HEREBY CERTIFY THAT THESE GOODS WERE PRODUCED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT, AS AMENDED

White Copy Shipping Order - Yellow Copy Picking Slip

INCOMING MATERIALS  
REJECTED MATERIAL REPORT

4459

DATE 6-29-94

PART NO. 6495 DESCRIPTION Pressure Switch

QUANTITY RECEIVED 19934 SAMPLE SIZE 100% QUANTITY REJECTED 19934

SUPPLIER NAME TEXAS Instrument P.O. NO. 56849

REASON FOR REJECTION Parts received without certification to previous defective switches - Without Green X on box and without blue dot on switch

REJECTED BY: Albert Jimenez (Inspector) ACKNOWLEDGED: [Signature] (P.O. Manager)

DISPOSITION RTV Delit, ship for collect RMAT# 972346 for Linda Dueback 7/8

DATE \_\_\_\_\_ (Buyer)  
ACKNOWLEDGED: \_\_\_\_\_ (Manufacturing Manager)

[Signature]  
Purchasing Agent

**Milite Industries, Inc.**  
DIVISIONS

PTTB • SURFACE  
PO BOX 9448 • DALLAS TEXAS 75209 • (214) 944-1113

FORM 4918-1

T.I.  
Ref # B5  
[Signature]

TI-NHTSA 011881

RAR

already entered:

①

7762-1

(2100605948)

②

7762-1

(2100606048)

-MSO M# 943671 FR=SUE4 TO=GAMY SENT=06/29/94 02:29 PM  
F#=027 ST=C DIV=0050 CC=00176 BY=SUE4 AT=06/29/94 02:29 PM  
TO: ELAINE S ROSE GAMY << CUSTOMER ACTION REQUEST >>  
FR: LINDA E BARBOZA HQZA << C U S T O M E R # 1 >>  
TI Internal Data

CT: \*PRIA

RE: NEW ACTION REQUEST ADDED (Respond via CARE System)

Action Subject: STOCK BEING REPLACED  
Customer Name : PITTS INDUSTRIES  
Request Date : 06/29/94  
Priority : NORMAL

Action #: 977346  
Status: NEW  
Added: 06/29/94 14129  
Type: R/FA  
Org/LBE: PRECA  
ProdType: PC68  
Device: 77PSL3-1

Sender Request by : LINDA E BARBOZA

Userid: A902027

STOCK BEING REPLACED

PARAMETERS

Customer part number C 21006064951  
TI part number C 77PSL3-1  
Unit price C 2.36  
Mark (S.R.) C N/A  
Date code/serial number Q  
Reason for return Q  
Customer count pcs @ 19,934  
TI count pcs Q  
# defective Q  
Inspection findings Q  
Returned as received M  
Rework-return to cust M  
Rework-return to stock M  
Return to stock M  
Replace M  
Scrap M  
Hold for disposition M  
Customer location C  
Customer contact C  
Phone number C  
Customer rejection# C  
Sold to # C 616128  
Ship to # C 616136  
Bill to # C 616128  
P.O. # C  
TI order # C  
Date returned C  
Return type (R/F/D/P) Q  
Cust C/A required?(Y/N) Q  
Cust C/A date due Q  
Root cause Q  
Corrective action Q  
C/A complete date Q  
Defect code Q  
Quality return Q  
Unjustified return Q  
Service quality return Q  
Marketing return Q  
Document type C

*T.I. REF #85*

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

TI-NHTSA 011883



TEXAS INSTRUMENTS, INC.  
 Forest St.  
 Mclborno, A. 02733

SHIPPED TO SAME

*Received on 7/6/94  
 Sent to Jim Smith  
 from.*

8-29-94 8-29-94 FRT. COLLECT.

DESCRIPTION	QUANTITY ORDERED	QUANTITY EACH ORDERED	QUANTITY RETURNED	PRICE	TOTAL
PART #6495 on PD#56849 RMA#977346	19,934		19,934		
PART #5948 on PD#56395 RMA#977337	5,712		5,712		
<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;">           17 BCL 3-1         </div>					
SH/JJ	1230-072				

WE HEREBY CERTIFY THAT THESE GOODS WERE PRODUCED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE FAIR LABOR STANDARDS ACT AS AMENDED  
 White Copy Shipping Order - Yellow Copy Packing Slip

.SO M# 941459 FR=EGGY TO=GAMY SENT=06/29/94 01150 PM  
R#024 ST=C DIV=0050 CC=00176 BY=EGGY AT=06/29/94 01150 PM  
TO: ELAINE S ROSE GAMY << CUSTOMER ACTION REQUEST >>  
FR: VAL-LORIE R EGGERT EGGY << C U S T O M E R # 1 >>  
TI Internal Data  
CCI ELAINE S ROSE GAMY #PRIA

RE: ACTION REQUEST REASSIGNED TO NEW RECEIVER(Respond VIA CARE System)

Action Subject: CONTINUITY	Action #: 969464
Customer Name : HILITE IND.	Status: NEW
Request Date : 06/20/94	Added: 06/20/94 14122
Priority : NORMAL	Type: R/FA
	Org/LBE: PRECA
	ProdType: PCBB
	Device: 77PSL2-1

Sender Request by 1 ELAINE S ROSE Userid: A66877

TI REF # 72 RETURNED FROM WIXOM PLANT !!!

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

TI-NHTSA 011888

1994 RMR'S

TI REF#	PART #	CUSTOMER	DATE RTN	REASON	REPLY DATE	CLOSED DATE
13-14	52PBL7-1	EXEMPLAR	6/18/94	INOPERATIVE FOR CREDIT		
15-23	52PBL7-1	GM ARLINGTON	6/30/94	THREADS		
1	57PBL7-1	CHRYSLER	1/11/94	1900 MI EVALUATION		
9	57PBL7-1	CHRYSLER	2/29/94	ANALYSIS	11-18-94	
16-21	57PBL11-2	PTG/ALMELO	4/4/94	LEAKERS/O-RINGS		
22	57PBF3-3	FORD/LITE	8/18/94	INOPERATIVE (TYPOT)	8/27/94	
24	57PBF3-6	FORD/LITE	8/27/94	INOPERATIVE (TYPOT)	8/30/94	
25-59	57PBL3-2	TRW/AUSTRALIA	9/27/94	LEAKERS		
72	77PBL3-1	HILITE	8/20/94	CONTINUTY		
61-5	87PBL3-3	KELSEY HAYES	8/13/94	THREADS		
7	87PBL3-2	PT/INDIANA	8/16/94	WRONG REPORT		
99-10	88PBF2-1	ZUA	7/19/94	DAMAGED		
11-16	88PBF2-2	ZUA	7/19/94	PRESSURE TEST FAILURE		
61-3	88PBL3-1	HONDA/CHRYSLER	8/2/94	CRACKED BASES	8/7-8/10/94	
4-34	88PBL3-1	HONDA/CHRYSLER	8/23/94	BROKEN REPORT	9-28-94	
61-3	88PBL3-1	EXEMPLAR	8/23/94	INOPERATIVE (TYP)		
4-38	88PBL3-1	EXEMPLAR	8/10/94	INOPERATIVE (TYP)		
29-41	88PBL3-1	EXEMPLAR	8/10/94	INOPERATIVE		
					08/19-30-94	

### BULK RETURNS 1994

#B1	52PBL7-1	GM ARLINGTON	5/10/94	WRONG PARTS		
	714 PCS.					
#B1	57PBL7-1	TRW	2/22/94	RETEST/SPEC CHNG'D		
	549 PCS.					
B2	57PSP9-1	T.J.HOLLAND	3/31/94	STEEL CRIMP RING		
	714 PCS.					
B8	57PBR8-5	PITTSBLITE	6/9/94	FAILED HYPOT per PETE		
	686 PCS.					
#B1	77PBL3-3	TRICO	1/8/94	THREADS		
	290 PCS.					
B2	77PBL3-3	FORD MOTOR CO.	2/25/94	SHIPPING ERROR		
	238 PCS.					
B9	77PBL3-3	ALLIED SIGNAL	5/25/94	WRONG REV-ON LABEL		
	714 PCS.					
B4	77PBL2-1	PITTS BLITE	6/28/94	UNCERTIFIED TEST RESULTS		
	2812 PCS.					
B5	77PBL9-1	PITTS BLITE	6/28/94	UNCERTIFIED TEST RESULTS		
	19887 PCS.					
#B1	80PSP2-3	TTA	1/17/94	RECALL/DMG'D PISTONS		
	2500 PCS.					
B2	80PSP2-1	ZJA	6/28/94	CALIBRATION		
	118 PCS.					
#B1	90PBL2-1	EXEMPLAR	2/22/94	SUSPECT WASHERS		

F.I. REF.#	P/N:	CUSTOMER	DATE (TND)	Reason:	Reply Date	ISSUE CLOSED DATE
13-14	1 53P	Exemplar	6-16-94	Swap / Pac. Cost		
15-23	2 53PSL1-1	GM Delinsh, Tex.	6-30-94	Threads		
	3					
#1	4 51P:11-1	Chrysler	1-11-94	1800 mi Eval.		
#7	5 51P:11-1	Chrysler	2-9-94	Analysis		
16-21	6 51P:11-2	PTG / Almed	4-4-94	Leakes/Leaks		
32	7 51P:FE2-2	Ford / HiLite	5-18-94	INoperative	Hypert 5-27-94	
34	8 51P:FE3-5	Ford / HiLite	5-27-94	TEMPERATIVE	DEWIS 6-3-94	TOD
25-58	9 51P:SL2-2	TRU / Aust.	9-27-94	Leakes		
#12	10 11P:12-1	HiLite	6-20-94	Continuity		?
	11					
#1-5	12 81P:12-3	Kelsey Hayes	6-13-94	Threads		?
7	13 81P:12-2	PTG / Indiana	9-16-94	wrong Hexmet		?
	14					
9-10	15 81P:FE2-1	ZUA	7-19-94	DAMAGED		
11-15	16 81P:FE2-2	ZUA	7-19-94	PTF		
	17					
#1-2	18 80PSL2-1	Honda / Michiel	9-2-94	Cracked BASES	9-7-94 / 9-16-94	
11-21	19 80PSL2-1	Honda / Michiel	9-22-94	Broken Hexmet		?
	20					
#1-3	21 90P:12-1	Exemplar	2-23-94	INoperative (TNE)		?
4-28	22 90P:12-1	Exemplar	5-10-94	TEMPERATIVE (TNE)		?
27-44	23 90P:12-1		6-16-94	"		
	24					
	25					
	26					
	27					
	28					

TI-NHTSA 011889

OPERATING UNIT:

PREPARED BY:

DATE:

FIRE BULK RETURNS:		Customer	Date Rtn'd	Reason:	Reply Date	Issue Closed Date	
# B1	1	52PSL7-1	714ps	GPI Helington	5-12-94	Wrong parts	
	2						
	3						
# B1	4	57PSL7-1	543ps	TRW	2-23-94	Refest/Spec limits ok mail	
B2	5	57PSF9-1	714ps	T.E. Holland	3-31-94	Steel Crimp Ring	
B3	6	57PSF3-5	148ps	PITTS-Hilite	6-6-94	Failed Hyant per Patc	
	7						
# B1	8	77PSL3-3	210ps	Takico	1-6-94	Threads	
B2	9	77PSL3-3	222 "	Ford Motor Co.	2-28-94	Shipping Error	
B3	10	77PSL3-3	714 "	Allied Signal	5-26-94	Wrong Rev. on Ship label	
B4	11	77PSL2-1	3212 "	PITTS Hilite	6-29-94	Uncertified Test Results	
B5	12	77PSL3-1	1997 "	" "	" "	" "	
	13						
# B1	14	89PSF2-3	2500ps	T T A	1-17-94	Recall/Damaged Pistons	
B2	15	89PSF2-1	118 "	T T A	6-22-94	Calibration	
	16						
# B1	17	90PSL2-1	507ps	Exemptee	2-22-94	Suspect Washers	
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						

TNHTSA 011890

OPERATING UNIT:

PREPARED BY:

DATE:

**Highlights for Chris D. Wagner  
June 17 to July 1, 1994**

**General**

**52PSL 7-1 TIR For Cracked Disc**

GM has had our report for a week and so far has accepted our explanation of how the cracked disc may have occurred. The further findings that the crack may have been caused by contamination was not discovered until after the report was sent. At this point we have no plans to update the TIR report unless asked by GM.

**Brake O-ring Identification**

Acushnet, Parker, and Wynn's Precision have all been approached for colored ethylene propylene compound information. Parker and Wynn's do not offer a purple material in 70 diameter and recommend black due to better mechanical properties. Acushnet will provide compound information today. The best plan today is to convert to black with a permanent color code. This is being coordinated with the Honda effort of adding a paint dot to the 52/57 PS power steering O-ring.

**Issues**

**77PSL 2-1 Washer Converter Binding**

Rick Bassler has agreed that the converter damage occurred at his plant and has reacted extremely well to the problem by learning the 8D process, writing, and updating his report in less than a week. He has identified a misfire as the root cause and attributed the release of the part to human error. Better operator training is his initial corrective action.

The team has suggested a poka-yoke fixture be implemented so that no more damaged converters get shipped, but the nature of the defect make this difficult. Low level of occurrence may not warrant such an action.

Rick claims that this is indeed a low level defect, and data to date support this. Sorting of 10K converters at KFB, our inspection of converters over the past year for washer converter binding, a sort of 20K converters on the line, and history of the component all support this argument. Analysis of line fall out and returned devices is underway as well. The results of this effort, expected early next week, will determine if it is logical to push Ford for no more corrective action than what Rick has already done.

**77PSL3-1 Returns from Hillite Ind.**

A total of 15 switches were returned from Hillite industries, 11 for a reported low release and 4 as "good" devices. One device (of the 11 reported low release) demonstrated intermittent continuity upon release. Switch windowing revealed contact contamination which has been identified as mineral oil and cardboard. The other 14 devices function tested good and will be windowed as needed. The team is tracking this issue via an 8D. To date, no sorting of customer stock has been required.



-MSG M# 854964 FR=GAMY TO=COPY SENT=08/29/94 09:24 AM  
 ST=C DIV=0050 CC=00149 BY=GAMY AT=08/29/94 09:24 AM  
 TO: LINDA E BARBOZA BOZA << CUSTOMER ACTION REQUEST >>  
 FRI ELAINE S ROSE GAMY << C U S T O M E R # 1 >>  
 TI Internal Data

CC: \*PRIA

RE: ACTION COMPLETED - SEE RESPONSE

Action Subject: STOCK BEING REPLACED  
 Customer Name : PITTS INDUSTRIES  
 Request Date : 06/29/94  
 Priority : NORMAL

Action #1 977346  
 Status: COMP  
 Added: 06/29/94 14:29  
 Type: R/FA  
 Org/LBE: PRECA  
 ProdType: PCB8  
 Device: 77PSL3-1

Sender Request by : LINDA E BARBOZA

Userid: A902027

STOCK BEING REPLACED

Receiver Response by: ELAINE S ROSE

Userid: A66877

Quality: C

CLOSE OUT

**BS**

PARAMETERS

Customer part number	C 21006064951
TI part number	C 77PSL3-1
Unit price	C 2.36
Mark (S.R.)	C N/A
Date code/serial number	Q MIXED
Reason for return	Q PARTS RECEIVED WITHOUT CERTIFICATION TO PREVIOUS DEFECTIVE SWITCHES
Customer count pcs	Q 19934
TI count pcs	Q 19937
# defective	Q 724
Inspection findings	Q
Returned as received	M 0
Rework-return to cust	M 0
Rework-return to stock	M 0
Return to stock	M 0
Replace	M 0
Scrap	M 0
Hold for disposition	M 0
Customer location	C CARROLLTOWN, TX
Customer contact	C N/A
Phone number	C N/A
Customer rejection#	C QC REQUEST
Sold to #	C 616128
Ship to #	C 616136
Bill to #	C 616128
P.O. #	C VARIOUS
TI order #	C 0
Date returned	C 07/06/1994
Return type (R/F/D/P)	Q P
Cust C/A required?(Y/N)	Q Y
Cust C/A date due	Q 07/31/1994
Root cause	Q POSSIBLE WASHER/CONVERTOR BINDING
Corrective action	Q WORKING WITH CONVERTOR SUPPLIER
C/A complete date	Q
Defect code	Q D07
Quality return	Q 0
Unjustified return	Q 0
Service quality return	Q 0
Marketing return	Q 0

TI-NHTSA 011894

Document type

L A

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

TI-NHTSA 011896

-MSJ M# 855052 FR=GAMY TO=COPY SENT=08/29/94 09:25 AM  
ST=C DIV=0050 CC=00149 BY=GAMY AT=08/29/94 09:25 AM  
TO: LINDA E BARBOZA BOZA << CUSTOMER ACTION REQUEST >>  
FR: ELAINE S ROSE GAMY << CUSTOMER # 1 >>  
TI Internal Data

CC: \*PRIA

RE: ACTION COMPLETED - SEE RESPONSE

Action Subject: STOCK BEING REPLACED  
Customer Name : PITTS INDUSTRIES  
Request Date : 06/29/94  
Priority : NORMAL

Action #: 977337  
Status: COMP  
Added: 06/29/94 14:22  
Type: R/FA  
Org/LBE: PRECA  
ProdType: P698  
Device: 77PSL2-1

Sender Request by : LINDA E BARBOZA

Userid: A602027

STOCK BEING REPLACED

Receiver Response by: ELAINE S ROSE

Userid: A66877

Quality: C

CLOSE OUT

PARAMETERS

Customer part number C 21006059481  
TI part number C 77PSL2-1  
Unit price C 2.21  
Mark (S.R.) C N/A  
Date code/serial number Q MIXED  
Reason for return Q PARTS RECEIVED WITHOUT CERTIFICATION TO PREVIOUS SWITCHES  
Customer count pcs Q 5712  
TI count pcs Q 3812 - 1900  
# defective Q 43  
Inspection findings Q  
Returned as received M 0  
Rework-return to cust M 0  
Rework-return to stock M 0  
Return to stock M 0  
Replace M 0  
Scrap M 0  
Hold for disposition M 0  
Customer location C CARROLLTON, TX  
Customer contact C N/A  
Phone number C N/A  
Customer rejection# C QC REQUEST  
Sold to # C 616128  
Ship to # C 616136  
Bill to # C 616128  
P.O. # C VARIOUS  
TI order # C 0  
Date returned C 07/06/1994  
Return type (R/F/D/P) Q P  
Cust C/A required?(Y/N) Q Y  
Cust C/A date due Q 07/31/1994  
Root cause Q POSSIBLE WASHER/CONVERTOR BINDING  
Corrective action Q WORKING WITH SUPPLIER OF CONVERTORS  
C/A complete date Q  
Defect code Q D07  
Quality return Q 0  
Unjustified return Q 0  
Service quality return Q 0  
Marketing return Q 0

BY

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

-MSG MH# 943333 FR=SUE4 TO=AURA SENT=06/29/94 02:22 PM  
 RN=026 ST=C DIV=0050 CC=00176 BY=SUE4 AT=06/29/94 02:22 PM  
 TO: ELAINE S ROSE GARY << CUSTOMER ACTION REQUEST >>  
 FR: LINDA E BARBOZA BOZA << CUSTOMER # 1 >>  
 TI Internal Data

\*PRIA

RE: NEW ACTION REQUEST ADDED (Respond via CARE System)

Action Subject: STOCK BEING REPLACED  
 Customer Name : PITTS INDUSTRIES  
 Request Date : 06/29/94  
 Priority : NORMAL

Action #: 977337  
 Status: NEW  
 Added: 06/29/94 14:22  
 Type: R/FA  
 Org/LBE: PRECA  
 ProdType: PCB8  
 Device: 77PSL2-1

*BOZA*

Sender Request by : LINDA E BARBOZA

Userid: A802027

STOCK BEING REPLACED

PARAMETERS

Customer part number	C	21006059481
TI part number	C	77PSL2-1
Unit price	C	2.21
Mark (S.R.)	C	N/A
* Date code/serial number	Q	Mixed
Reason for return	Q	
Customer count pcs	Q	5712
* TI count pcs	Q	3812
* Defective	Q	45
* Inspection findings	Q	
Returned as received	M	
Rework-return to cust	M	
Rework-return to stock	M	
Return to stock	M	
Replace	M	
Scrap	M	
Hold for disposition	M	
Customer location	C	
Customer contact	C	
Phone number	C	
Customer rejection#	C	
Sold to #	C	1684
Shio to #	C	1904
Bill to #	C	160
P.O. #	C	3730
TI order #	C	
Date returned	C	
Return type (R/F/D/P)	Q	
Cust C/A required?(Y/N)	Q	
Cust C/A date due	Q	
Root cause	Q	
Corrective action	Q	
C/A complete date	Q	
Defect code	Q	
Quality return	Q	
Unjustified return	Q	
Service quality return	Q	
Marketing return	Q	
Document type	C	

*TI Ref # 81*

3767  
 45  
 3712

*Set total count add to total*  
 1992

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

TI-NHTSA 011898

**TEXAS INSTRUMENTS INCORPORATED  
CORRECTIVE ACTION REPORT**

Report Number: PSCAR 9418  
Date Opened: 6/20/94  
Updated: 10/04/94 Closed 10/07/94  
Customer: HILITE INDUSTRIES/ FORD MOTOR CO  
TI p/n (s): 77P8L3-1  
Customer p/n (s): F2VC-9F924-AB  
CAR description: Customer returned switch for no continuity

**(Step 1) Champion and Team Members**

Quality Assurance Engineering:	Jim West (Champion)
Manufacturing Engineering:	Matt Sellers
Design Engineering:	Chris Wagner
Manufacturing:	Steve Arsenault
Purchasing:	Jon Mayer
Pricing:	Dennis Villard
Supplier:	Rick Bassler
Production Control:	Rusty Struble

**(Step 2) Problem Description**

On Monday, June 20, 1994, TI-Antleboro received one 77P8L3-1 (pn F2VC-9F924-AB) switch from Winson Assembly Plant, MI reportedly to be inoperative. The FN116 report was inability to engage the cruise control. Norm Frada, TI Field Sales Engineer, checked the switch for electrical continuity on Friday, 6/17/94 at Winson Assembly Plant and confirmed the no continuity condition.

**(Step 3) Containment and Short Term Corrective Actions**

As an immediate containment action to prevent usage of no continuity switches, Texas Instruments Incorporated are 200% verifying pressure switch electrical continuity by processing 3800 pcs on 06/20/94. The 3800 (pn F2VC-9F924-AB) switches have been verified with no additional discovery of discrepant product. A scribe line has been added using a magic marker to designate these switches. The shipping cartons have also been marked with a green "X". In addition, 5500 pcs of the 77P8L3-1 (pn F2AC-9F924-AA) were also reverified for electrical continuity as this switch is used on both the FN116 Town Car and the EN114 Crown Victoria and Grand Marquis. TI-FSE representative also verified 69 switches in cruise control brake assemblies at Winson Assembly Plant on 06/17/94; no additional discrepant parts were found.

Additional short term containment actions taken have been as follows:

- a. Converter supplier has screened (06/28/94) 5,750 parts before the converter supplier shutdown for vacation with no defective converter buttons found.
- b. TI-Antleboro completed screening over 50,000 converter buttons; no additional converter discrepancies as noted in the Winson Assembly Plant returned switch were found.
- c. TI-Antleboro QRA representative completed screening finished switches on proportional valves at Hilite Industries with an electrical continuity check. A total of 7,790 switches were screened with no additional discrepancies found.
- d. Hilite Industries inventory of TI switches are being replaced with certified stock.

Certification of returned switches will be annotated with an identification ink scribe mark on the switch, as well as a green "X" marked on the outside of the carton. New switches directly from the production line are certified with the identification physical scribe mark on the plastic connector surface of the switch. A green "X" will continue to be noted on the outside of the shipping cartons until 7/15/94. Shipping cartons with pack dates after 7/15/94 will have no "X" on the cartons as all product is normally certified.

TI-NHTSA 011899

#### **(Step 4) Definition and Verification of Root Cause**

Continuity testing confirmed the open circuit condition. Diagram 1 outlines several possible root causes for this condition. X-ray of the returned device indicated that the contacts were open at 0 applied pressure. Further X-ray photographs, pressure testing, and pressure deflection curves indicated that the pressure sensing disc, which closes the contacts, was not moving over its entire range. Disassembly revealed that the converter button, which slides in the washer hole, was damaged.

The side of the button appears to have been scraped and a deposit of material is present at the base of the button. Wear marks on the metal deposit area indicate contact between the converter and the washer inside diameter. Possible root causes for this defect are presented in Diagram 2. Presence of plating over the scraped area and metal deposit indicates that the defect occurred before plating.

The converter supplier assigned a team to investigate the damaged converter, and concluded that the nonconforming part came in contact with a force that impacted the bottom configuration .010 in from the button's side, thereby altering the concentricity of the button in relation to the outside diameter of the part. The supplier believes that the force could be the inside diameter edge of the third draw die coming in contact with the misaligned material. Although the supplier's team had not seen this type of nonconformance before, there is a belief that the process root cause of the nonconformance was raw material not properly located within the production die when the power press was cycled. The system root cause is that the nonconforming part was not separated properly by the operator when the assumed misfeed happened.

#### **(Step 5) Permanent Corrective Actions**

1. Evaluate poke-yoke foolproof opportunity at converter supplier's process.

(The converters are ejected at a high speed from the tool prohibiting an effective poke-yoke process.)  
completed

2. Assess the following auto pressure tester defect code data and fallout for comparison and additional resultant controls:

- |    | Tester Error code  |
|----|--|
| a. | Zero pressure logic failure(xpif) fallout                                      |
| b. | Electrical Continuity fallout  |
| c. | Low transfer pin fallout   |
| d. | Final tester yield reports for 4qtr'93 (discrepant switch date coded Dec 1993) |

(Update Hillite Industries on progress of corrective actions.)  
10/04/94

3. The converter supplier has completed revalidating the production tool inspection (misfeed detection probe, die and pilot orientation, and the roll feed) on 06/28/94. (Prevention)

4. The converter supplier has completed a formal review of die setup, material changeover, and misfeed containment procedures on 06/24/94. (Detection)

The converter supplier will conduct periodic audits of the production equipment and operating procedures to verify corrective actions are in place.

#### **(Step 6) Verification of Permanent Corrective Actions**

PCA 1

Poke-yoke opportunities were limited; will improve supplier's management of misfeed procedure as an alternative.

PCA 2

Assessed effectiveness of resultant controls formulated from xplf, continuity, low transfer pin, .....data.

**PCA 3**

Confirmed effectivity of converter supplier's prevention actions.

**PCA 4**

Confirmed effectivity of converter supplier's detection actions.

**(Step 7) Prevent Recurrence**

The probable success of the converter supplier's corrective actions should be high. The converter supplier's pre-production part inspections, control plans, and current SPC practices should verify the tools capability of producing parts to print. The converter supplier's periodic inspection of pressroom equipment should verify equipment, to include rollfeed effectiveness. The converter supplier's training and periodic auditing of the process should greatly increase the probability of success.

**(J. Wat. 10/04/94, Rev 4)**



INSTRUMENT GAUGE STUDY FOR REPEATABILITY AND REPRODUCIBILITY (LONG METHOD)  
 20-JUN-94  
 SITUATION

NUMBER OF OPERATORS	3	MIN SPEC	300
NUMBER OF PARTS	4	MAX SPEC	400
NUMBER OF TRIALS	2	TOLERANCE	100

DATA SUMMARY

OPERATOR	AVERAGE	RANGE
1	331.325	1.15
2	330.75	0.05
3	331.2375	0.325
4	NA	NA
5	NA	NA
6	NA	NA
7	NA	NA
8	NA	NA
9	NA	NA
10	NA	NA
AVERAGE		331.1041 0.508333

MIN XBAR 330.75  
 MAX XBAR 331.325  
 RARDIFF 0.575

	MEASUREMENT UNIT ANALYSIS	%TOLERANCE
REPEATABILITY:	2.320849	2.32%
REPRODUCIBILITY:	1.315456	1.32%
RPT & REPR (R&R):	2.667725	2.67%

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

00000000

ENTER STUDY TITLES IN CELLS A8,A9,A10. MIN/MAX SPEC IN B12, F13  
SITUATION

MIN SPEC 300  
MAX SPEC 400  
TOLERANCE 100

DATA FOR OPERATOR 1

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	329.2	330.2				329.7	1
2	326.4	326.4				326.4	0
3	339.9	336.9				338.4	3
4	331.1	330.5				330.8	0.6
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 331.325      AVG RANGE: 1.15  
UCL FOR INDIVIDUAL RANGES 1.660725

LOGS DATA FOR OPERATOR 2

PART	1	2	TRIAL 3	4	5	AVG	RANGE
1	328.9	328.9				328.9	0
2	325.7	325.7				325.7	0
3	337.1	337				337.05	0.1
4	331.3	331.4				331.35	0.1
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 330.75      AVG RANGE: 0.05  
 UCL FOR INDIVIDUAL RANGES 1.640725

K00u010B

DATA FOR OPERATOR S

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	329.2	329.2				329.2	0
2	325.5	325				325.25	0.5
3	339.4	339.8				339.6	0.4
4	330.7	331.1				330.9	0.4
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 331.2375

AVG RANGE: 0.325

UCL FOR INDIVIDUAL RANGES

1.660725

QUESTIONS ON GAGE STUDY FOR REPEATABILITY AND REPRODUCIBILITY (LONG METHOD)  
 20-Jun-94  
 PLEASE

NUMBER OF OPERATORS	3	MIN SPEC	120
NUMBER OF PARTS	4	MAX SPEC	350
NUMBER OF TRIALS	2	TOLERANCE	230

DATA SUMMARY

OPERATOR	AVERAGE	RANGE
1	180.3875	0.325
2	180.0375	0.475
3	179.8875	0.075
4	NA	NA
5	NA	NA
6	NA	NA
7	NA	NA
8	NA	NA
9	NA	NA
10	NA	NA
<hr/>		
AVERAGE	180.1041	0.291666

MIN XBAR 179.8875  
 MAX XBAR 180.3875  
 RARDIFF 0.5

	MEASUREMENT UNIT ANALYSIS	X TOLERANCE
REPEATABILITY	1.331634	0.58%
REPRODUCIBILITY	1.263289	0.55%
RPT & RPR (R&R)	1.895524	0.80%

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



00000008 DATA FOR OPERATOR 2

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	186.3	186				186.15	0.3
2	179.5	179.3				179.4	0.2
3	174.5	179.6				174.25	1.3
4	180.3	180.4				180.35	0.1
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG:180.0375      AVG RANGE: 0.475  
 LCL FOR INDIVIDUAL RANGES 0.952875

40000000

DATA FOR OPERATOR 3

PART	TRIAL					AVG	RANGE
	1	2	3	4	5		
1	186.1	186.2				186.15	0.1
2	178.9	179.1				179	0.2
3	174.1	174.1				174.1	0
4	180.3	180.3				180.3	0
5						NA	0
6						NA	0
7						NA	0
8						NA	0
9						NA	0
10						NA	0
11						NA	0
12						NA	0
13						NA	0
14						NA	0
15						NA	0
16						NA	0
17						NA	0
18						NA	0
19						NA	0
20						NA	0
21						NA	0
22						NA	0
23						NA	0
24						NA	0
25						NA	0

GRND AVG: 179.8875

AVG RANGE: 0.075

UCL FOR INDIVIDUAL RANGES

0.952875

# Hi Temp Crimp Relaxation

8/6/94

Device #	Pre Torque	Post Torque	$\Delta$ Torque	Pre HT	Post HT	$\Delta$ HT
1	17	9	-8	538	538	—
2	20	12	-8	536	537	+0.001
3	19	10	-9	536	537	+0.001
4	16	7	-9	538	538	—
5	13	8	-5	537	537	—
6	16	11	-5	536	538	+0.002
7	17	13	-4	537	537	—
8	16	11	-5	540	540	—
9	17	13	-4	539	538	—
10	17	15	-2	541	540	—
AVG	16.8	10.9	-5.9			

All Devices Hand Twist

**DRAWINGS AVAILABLE UPON  
REQUEST**

**MECHANICAL WORK ORDER**

SHT.      OF     

- Proposal
- Design
- Build

Date Requested \_\_\_\_\_

Requested By (Print)

MATT JELLERS

Date 11-4-93 Mail Sta. 12-24 Tel. Ext. 1245

Approved By

B. Hunt

VI-49

DEPARTMENT

57FS/PRECISION

Date Entered

11-4-93

By Mechanization

FORM 202

Project No.

CP6502.000

Product Code

088

CC 997

REQ'D. PRODUCT PRINT NOS.  
SUPPLIED LIST

1	<u>VE BUILD</u>
2	<u>VE BUILD</u>
3	<u>VE BUILD</u>
4	<u>VE BUILD</u>
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	

PROJECT DESCRIPTION

BUILD ORDER FOR 57 FS UPGRADE  
CONVERSION

MECH. TITLE 57 PS CONVERSION BUILD

MECHANICAL	EST. HRS.	ELECTRICAL	EST. HRS.
PROJ. MGR. <u>EKAD</u>		PROJ. MGR. <u>I</u>	
ENG. <u>EKAD</u>		ENG. <u>A. CHA</u>	
DES. <u>DRAU</u>		TECH/DRAFT <u>CRD</u>	
BUILD EST. HRS.		BUILD EST. HRS.	
BUILD CC <u>155</u>		BUILD CC <u>154</u>	
DESIGN REVIEW	DATE <u>11-19-93</u>	DATE <u>11-19-93</u>	
DWG. SIGN OFF	DATE _____	DATE <u>107493</u>	
DESIGN CLOSED TO BUILD	DATE <u>NOTED</u>	BY <u>RV</u>	
ORDER CLOSED	DATE _____	BY _____	
GEN. ASSY. DWG. NO. ASSIGNED	DATE <u>NOTED</u>		
BUILD CLOSED	DATE <u>4-6-94</u>		

ADDITIONAL REMARKS, INFORMATION, SKETCH

REF PROP # 253060218  
DESIGN # 253060284

TINHTSA 011016

CP 6502.000  
107493

**MECHANIZATION WORK ORDER**

SHT. 1 OF 1

FORM 3022

Date Entered

By MECHANIZATION

Project No.

Product Code 088

003534

DS1088072

- Proposal
- Design
- Build

Date Requested

ASAP

Requested By (print)

M. Saller

Date

4/25/91

Approved By

B. Jansen

4/25/91

DEPARTMENT

Proc

REQ'D. PRODUCT PRINT NOB.  
SUPPLIED LIST

1	
2	
3	
4	
5	
6	
7	
8	
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10	
11	
12	
13	
14	

**PROJECT DESCRIPTION**

Budgetary estimate to install a laser based Coding System to the 77PS Final pressure Tester. System to code customer info on Odenex base. System must be automatically programmed through tester input display.

**ADDITIONAL REMARKS, INFORMATION, SKETCH**

MECH. TITLE _____	
MECHANICAL _____	EST. HRS. _____
ELECTRICAL _____	EST. HRS. _____
PROJ. MGR. _____	PROJ. MGR. _____
ENG. _____	ENG. _____
DES. _____	TECH/DRAFT _____
BUILD EST. HRS. _____	BUILD EST. HRS. _____
BUILD CC _____	BUILD CC _____
DATE _____	DATE _____
DESIGN REVIEW <input type="checkbox"/> DATE _____	TI-NHTSA 011917
DWG. SIGN OFF <input type="checkbox"/> DATE _____	
DESIGN CLOSED TO BUILD DATE _____ BY _____	
ORDER CLOSED DATE _____ BY _____	
GEN. ASSY. DWG. NO. ASSIGNED _____	
BUILD CLOSED DATE _____	

## 57PS PRESSURE TESTER UPGRADE

## CORRELATION

## PROCEDURE:

1. IDENTIFY AND SERIALIZE 20 PCS EACH OF 77PSLS-3 (QUIET) AND 87PSL2-2
2. TEST USING DEFAULT LIMITS IN 77PS TESTER. RECORD DATA FOR ACTUATION AND RELEASE.
3. REPEAT STEP 2 USING 57PS TESTER.

## 77PSLS-3 QUIET

DEVICE #	ACTUATION			RELEASE		
	77PS TESTER	57PS TESTER	DELTA	77PS TESTER	57PS TESTER	DELTA
1	266.7	263.1	-3.6	165.7	169.5	3.8
2	255.8	255.9	0.4	171.3	170.8	-1.3
3	272.7	271.2	-1.5	184.3	181.9	-2.5
4	278.5	269.8	-8.7	180.0	186.4	6.4
5	257.2	268.7	11.5	181.8	174.7	-7.1
6	266.1	268.8	2.7	170.0	168.8	-1.2
7	269.2	268.1	-1.1	177.6	175.2	-2.4
8	268.0	269.2	1.2	185.4	183.8	-1.6
9	266.0	268.3	2.3	175.6	174.0	-1.6
10	252.3	252.9	0.6	178.5	172.2	-6.3
11	263.7	264.7	1.0	182.5	180.5	-2.0
12	263.3	258.0	-5.3	173.8	169.2	-4.6

## 87PSL2-2

DEVICE #	ACTUATION			RELEASE		
	77PS TESTER	57PS TESTER	DELTA	77PS TESTER	57PS TESTER	DELTA
1	311.4	312.4	1.0	169.2	169.5	-2.7
2	326.1	324.8	-1.3	178.0	174.8	-3.4
3	329.9	329.1	-0.8	170.8	168.4	-2.4
4	318.1	316.5	-1.6	165.9	162.8	-2.5
5	314.8	314.4	-0.4	148.2	144.4	-3.8
6	353.2	345.4	-7.8	160.1	178.4	18.3
7	329.7	328.8	-0.9	165.2	163.8	-1.4
8	317.0	316.2	-0.8	168.2	166.8	-1.4
9	312.7	311.5	-1.2	160.2	168.1	7.9
10	327.6	328.4	0.8	171.2	170.3	-0.9
11	309.0	309.0	0.0	163.5	160.5	-3.0
12	321.3	321.1	-0.2	161.0	158.7	-2.3

-MSG NO= 511937 TO=ALBZ TS=COPY SENT=03/08/94 02:04 PM  
ST=C DIV=0050 CC=00134 BY=MJS2 AT=03/08/94 02:04 PM  
TO: ANDRE CHARPENTIER ACHR

CC: BILL SWEET W54  
DENNIS NATALE DJN1  
LOU ROCHA MAYR  
BTEVE ARSENAULT SFA2  
77PS SHWT MFPC

FR: MATT SELLERS MJS2

RE: 77PS FUNCTION TEST PROGRAMMING  
=====

ANDRE,

WE EXPECTED THAT THE O-RING PRESENCE VS. NO PRESENCE SENSOR INSTALLED ON THE 77PS TESTER LAST MONTH WOULD BE PROGRAMMED AUTOMATICALLY INTO THE DEFAULT SELECTION SCREEN. WHEN THE OPERATOR SELECTS A DEVICE FROM THE DEFAULTS, THE O-RING SENSOR SHOULD BE AUTOMATICALLY PROGRAMMED TO INSPECT FOR EITHER PRESENCE OR NO PRESENCE DEPENDING ON WHICH DEVICE IS SELECTED. CURRENTLY THIS IS NOT THE CASE. THERE ARE TWO MAJOR ISSUES WITH THIS NEW STATION:

- 1.0) THE OPERATOR MUST PROGRAM THE O-RING INSPECTION STATION MANUALLY. IT IS NOT PROGRAMMED AS PART OF THE DEFAULT SELECTION PORTFOLIO.
- 2.0) THE SENSOR APPARENTLY IS NOT WORKING TO SENSE O-RING ABSENCE WHEN ABSENCE IS THE DESIRED CONDITION. FOR EXAMPLE, THE 77PSL3-3 DOES NOT GET AN O-RING AND THIS STATION SHOULD AUTOMATICALLY PROGRAM TO LOOK FOR AN O-RING - CALLING A DEVICE BAD IF IT HAS ONE.

PLEASE REVIEW THIS SITUATION ASAP. IF YOU ARE UNCLEAR ABOUT WHAT THE INTENT OF THIS SENSOR IS, PLEASE CONTACT ME ASAP.

I'LL LIST BELOW THE MATRIX OF DEVICES WE WANT TO DETECT O-RING PRESENCE OR NO PRESENCE ON WITH THIS STATION.

DEVICE =====	O-RING PRESENCE? =====	HEXPORT P/N =====
57PSL8-1	YES	36917-1
57PSL11-1	YES	36917-1
57PSL11-2	YES	36917-1
57PSF6-1	YES	36917-1
57PSF9-1	YES	36917-1
77PSL6-1	YES	36917-1
87PSL8-1	YES	36917-1
87PSL11-2	YES	36917-1
77PSL2-1	NO	36900-1
77PSL3-1	NO	36900-1
77PSL3-2	NO	36900-1
77PSL3-3	NO	36900-1
77PSL5-2	NO	36997-1

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THERE MAY BE DEVICES ON THE DEFAULT SELECTION SCREEN WHICH ARE NOT LISTED ABOVE BECAUSE THEY HAVE DIFFERENT HEXPORTS. THESE DEVICES CAN THEREFORE BE IGNORED BY THE NEW SENSOR.

THANKS & REGARDS,  
MATT

TI-NHTSA 011820



-MSG #=- 00343912 FR=GAMY TO=GAMY SENT=11/08/94 01:22 PM  
 #=-135 ST=C DIV=0050 CC=00149 BY=GAMY AT=11/08/94 01:22 PM  
 TO: LINDA S BARBOZA BOZA << CUSTOMER ACTION REQUEST >>  
 R: ELAINE S ROSE GAMY << CUSTOMER # 1 >>  
 TI Internal Data

CC: \*PRIA

RE: NEW ACTION REQUEST ADDED (Respond via CARE System)

Action Subject: ELECTRICAL RETEST Action #: 1103464  
 Customer Name : FITTS Status: NEW  
 Request Date : 11/08/94 Added: 11/08/94 13:22  
 Priority : NORMAL Type: R/FA  
 Org/LSE: PRECA  
 ProdType: PC88  
 Device: 77PEL3-1

Sender Request by : ELAINE S ROSE

Userid: A56677

TI REF # B6

HAVE BEEN LOST IN A WAREHOUSE SOMEWHERE !!!

PARAMETERS

Customer part number C 21006064951/F2AC-9F924-AA  
 TI part number C 77PEL3-1  
 Unit price C  
 Mark (S.R.) C  
 Date code/serial number Q 4160A  
 Reason for return Q ELECTRICAL RETEST; POSSIBLE WASHER/CONVERTER  
 BINDING ISSUE  
 (16 BOXES @ 238 EA)  
 Customer count pcs Q 3808  
 TI count pcs Q 3808  
 # defective Q 0  
 Inspection findings Q  
 Returned as received M  
 Rework-return to cust M  
 Rework-return to stock M  
 Return to stock M  
 Replace M  
 Scrap M  
 Hold for disposition M  
 Customer location C  
 Customer contact C  
 Phone number C  
 Customer rejection# C  
 Sold to # C  
 Ship to # C  
 Bill to # C  
 P.O. # C  
 TI order # C  
 Date returned C 10/27/1994  
 Return type (R/F/D/P) Q F  
 Cust C/A required?(Y/N) Q Y SEE CAR 94\_18 DOC. DATED 6/21/94  
 Just C/A date due Q  
 Root cause Q  
 Corrective action Q  
 C/A complete date Q  
 Defect code Q  
 Quality return Q

TI-NHTSA 011922

Unjustified return    Q  
Service quality return  Q  
Marketing return       Q  
document type          C

\*\*\*\*\* END OF MESSAGE \*\*\*\*\*

Completed  
12-19-94

ROUTE TO \_\_\_\_\_

**TEXAS INSTRUMENTS**  
ATTN: CPO, WASHINGTON, D.C. 20548

**REPORT OF DISCREPANT  
INSPECTED MATERIAL**

**No. 018817**

QWV NO. & REV. **77PSL3-1**  QTY.  REV.  INSPECTOR  **Qty. Supervision Review**  
 SOURCE **HILITE Industries** DEVICE \_\_\_\_\_ PROD. CODE \_\_\_\_\_ QUANTITY **3570** **S. J. Farrell**

ITEM	ATTRIBUTE/REQUIREMENT	REMARKS	GROUP	AO	RE	DCSP
(3079)	Switches	Washer/Connector				
(10 boxes)	Returned For	Binding				
		possibly caused by				
		Damaged connector				
		part number 2746				
		Cham E. Smith				

**MATL/PROD. CONTROL**

CHECK INVENTORY AT LOCATION \_\_\_\_\_  FREQUENT  0:0:0  
 PARTS MATERIAL IN SHORT SUPPLY

**COMMENTS:**

PLANNED \_\_\_\_\_ SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

MFRS REQUIREMENTS DISPOSITION	COMMENTS:	MFRS SIGNATURES	DATE
<input type="checkbox"/> RETURN TO SUPPLIER	Please follow "operation changed notice" dated 11-9-94 to the RmB	MFRS SIGNATURE	1/10/94
<input checked="" type="checkbox"/> RETURN AT TI		CHK SIGNATURE	1/10/94
<input type="checkbox"/> SORT AT TI		MFRS SIGNATURE	
<input type="checkbox"/> SCRAP		CHK SIGNATURE	
<input type="checkbox"/> REPAIR (U.A.)		CHK SIGNATURE	

NOTE: MORE THAN ONE MFRS - MFRS CORRECTIVE ACTION MUST BE COMPLETED

**WORK PROCEDURE (MFRS/REQ.)**  
 1) Retest #/people count at 5 people  
 per change note attached -  
 2) Hold Fallout for 10 days - 3) Will need Final count  
 ESTIMATED TIME \_\_\_\_\_  
 BY \_\_\_\_\_  
 APPROVAL, ETC. NUMBER \_\_\_\_\_  
 GOOD FOR NUMBER \_\_\_\_\_

INSPECTION AFTER REMARK	DATE	INSPECTION	DATE	CHK SIGNATURE	DATE
16/94					

**MFRS CORRECTIVE ACTION**

TI — CHANGE DRAWINGS/PCB (COMMON MUST BE ATTACHED) — USE ENCLOSED SAMPLES AS ACCEPTABLE VISUAL STANDARDS — OTHER (EXPLAIN)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<b>COMMENTS:</b>   
SUPPLIER — PROVIDE CORRECTIVE ACTION WITH FORMAL RESPONSE — SUBMIT INSPECTION DATA WITH FUTURE SHIPMENTS — CONDUCT CAPABILITY STUDY AND SUBMIT TO ENGINEERING — OTHER (EXPLAIN)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

**RECEIVING INSPECTION**

RECEIVING INSP.	DISP. CODE	QTY	LOCATION	ACTION TAKEN TO PREVENT REOCCURRENCE

REPORT VALIDATION

DATE	DATE	DATE	DATE

**PROCUREMENT ASSURANCE** DO NOT WRITE BELOW THIS LINE

FOR INFO ONLY - SUPPLIER  
 INTERNAL C.A.R.  
 FOR INFO ONLY - INTERNAL  
 INTERNAL C.A.R.

-MSG #= 300064 FR=BSYB TO=JW02 SENT=11/07/94 03:03 PM  
R#-188 ST=C DIV=0050 CC=00127 BY=BSYB AT=11/07/94 03:03 PM

To: "Wagner, Chris CDW3" (CDW3@mimi)  
"Watt, Jim JW02" (JW02@mimi)  
"Sellers, Matthew MJS2" (MJS2@mimi)  
"Spooner, Timothy TRS1" (TRS1@mimi)

Copy: "Arsenault, Stephen SFA2" (SFA2@mimi)

From: "Yarnell, Belinda" BSYB (byarnell@klixon.sc.ti.com)

Subj: RMR 77PSL3-1

WE HAVE 15 BOXES OF 77PSL3-1-8 (JUNE/JULY RMR) THAT HAVE BEEN IN LIMBO AND RETURNED TO US RECENTLY. I WOULD LIKE FOR US TO MEET FOR A SHORT MEETING TO GO OVER THE PROCEDURE FOR THE RMR THAT WE DID FOR THESE DEVICES BACK IN JULY SO THAT WE CAN CERTIFY THE PARTS AND GET THEM OUT OF HERE.

TUESDAY AT 10AM CAFETERIA SOUND OK? SHOULD ONLY TAKE ~15 MINUTES.

THANKS,  
BELINDA

RMR

washer/commenter  
finding

-MSG N#- 300064 FR-JW02 TO-COPY SENT-11/08/94 06:37 AM  
ST-C DIV-0050 CC-00149 BY-BSYB AT-11/07/94 03:03 PM

To: "Wagner, Chris CDW3" (CDW3@mimi)  
"Watt, Jim JW02" (JW02@mimi)  
"Sellers, Matthew MJS2" (MJS2@mimi)  
"Spoonar, Timothy TRS1" (TRS1@mimi)

Copy: "Arsenault, Stephen SFA2" (SFA2@mimi)

From: "Yarnell, Belinda" BSYB (byarnell@klixon.nc.ti.com)

Subj: RMR-77PSL3-1

<sup>16</sup>  
WE HAVE 25 BOXES OF 77PSL3-1'S (JUNE/JULY RMR) THAT HAVE BEEN IN LIMBO AND RETURNED TO US RECENTLY. I WOULD LIKE FOR US TO MEET FOR A SHORT MEETING TO GO OVER THE PROCEDURE FOR THE RMR THAT WE DID FOR THESE DEVICES BACK IN JULY SO THAT WE CAN CERTIFY THE PARTS AND GET THEM OUT OF HERE.

TUESDAY AT 10AM CAFETERIA SOUND OK? SHOULD ONLY TAKE ~15 MINUTES.

THANKS,  
BELINDA

D.C. 41604

see: CAR 94-18 Dec. DATED 6-21-94

Revised  
as BS

Case# 1103464

T.I. Ref # B6

TI-NHTSA 011926