

TRIP Notes - CCPS 10/01/91

John Pelkey

We've completed all ISR requirements for 617. One dimension issue is related to the connector - will be fixed with an addendum to be filed by 10/11. One test issue ^{tasks} which we've attributed to the mating connector.

Discussion

- John agreed with our analysis and he has concluded that the ~~cause of the~~ fluid ingress was due to improper fit - up of the mating connector. He agreed to ~~sign off~~ approve the ISR package once the one dimensional issue is corrected; no other changes to the sketch.

~~Also~~ To flag the potential connector problem, John will write a "concern", which becomes an "alert" once it's approved by his management. The "concern" relates to the ~~existing~~ deficient mating connector and will need to be accepted / refused by the applicable departments. If accepted, ~~a solution~~ a solution needs to be put in place; John is considering the P/C stop on mating connector as an option. (An interesting note we learned later from Mark Scholtz - QA - if ~~that~~ in ~~changing~~ ~~query~~ decides to use a new connector within 16 months / testing, that query needs to be in place

of the original holding. This applies here, we believe.

- my 94 to 20 m/c with assembly of switch at B&A is going to happen. B&A has decided conclude that an external hex design will be okay for semi-automated assembly ~~from not enough~~ ^{proposed} ~~the mat-run-in system that had been~~ ^{considered}. ~~rigorous assembly of the secondary end on the smaller part of the - the connecting element to be~~ (A mat-run-in system had been proposed to using an standard switch - but will not be feasible. (Wrench - end is designed to slip or clear the tubing - or boss in this case - then move vertically upward to engage and turn the hex)

John also gave Joe a contact (Mike Pedone) at Bendix, who will supply a m/c with switch part for my 95 1/4 Range/Explorer.

(Interesting note: both Teves and Bendix have quoted a m/c with attached switch & both were significantly greater than Tokiw's pricing)

Modi has instructed John to get a physical sample and envelope drawing of an external hex hexagonal screw in 30 days

Action: Print/switch to Pellay by 10/31. - Jim

- Discussion 2A/3A regarding issue, John agreed to ~~the~~ promise was that he will notify him a change to the ~~in~~ in our migration to meet the Ans. allowances after plotting. John agreed to look into the implications on his end; he doesn't understand his receiving department's packet.

Action:

Flu with John re: Thread issue - (Jan 10/10)

Mark Scholler

Mark is the J44 engineer who several months ago was given ~~responsibility~~ responsibility for the ~~switch~~ ²³¹¹

Discussion:

Mark's issue

- Related to LIT, Mark's concern is that John Peltrop's concern/alert will translate to a 90 day conditional approval on the switch, which can be resolved by (1) eliminating changing to a p connector that passes the ES (U, P/L) or (2) eliminating salt spray from ES, based on a note on the print. The latter is most likely to happen.

~~When ready,~~
Mark ~~is~~ ^{is} ~~can~~ ^{can} in

TI-NHTSA 003185

Mark is under the impression that we can get paid
for fishing with a conditional approval

Actions

- o f/u with Mark to see if alert should be
written against the 4T mating connection and
not be visible - Schmidt 10/13

Labels

- o per Mark's input, add mating connect Pk
to envelope drawing - Office - ~~next print revision~~

As we know,

- o The switch is a delta item; i.e., it ~~relates to~~ safety,
performance or federal regulation. Delta items
Delta characteristics is - act/rel / threads / B/C change
should be noted w/ the symbol in the spec and
on the envelope drawing. Delta items are supposed
to be assigned to those characteristics ^{as per FMECA} with a severity of
~~Significant characteristics that are not necessary~~
from 9 which have a detection or occurrence ≥ 1 .

Goal is to get occ & det to 1 so delta is no longer req'd.

Sig. char's are not req'd to be noted on the
envelope drawing. They should be covered in a
separate sheet which is developed from an
engineering, resulting from the FMECA. (no exact
guidelines)

- We are agreed to supply a quarterly report of
 Cpt's process capability as it relates to the
 sig. in delta characteristics. includes calibration, ^{etc.}
 Thru switches are 100% tested
- In the spec, ~~the~~ Cpt requirements should reflect
 the reliability #1's as Thru called out in the
 PV, IP table. Rel./confidence reqs.
- General FMEA/Spec philosophy

DFMEA - should be used to ^{generate the} ~~indicate an~~
 PV ~~and~~ requirements, and highlight the delta points
 delta characteristics. It considered on CCP's and HVT & DIMON'S
 to actually be Process FMEA's; I'll need to look into this further.

PFMEA - should be used to develop the control
~~plan~~ plan and IP-1/IP-2 reports. ~~Generally,~~
 The spec should note that an approved control
 plan takes precedence over the IP-1/IP-2 guidelines in the spec.

Mark had some other inputs regarding DIMON'S which
 I'll cover separately.

- Mark generally ^{provided a lot} ~~had a lot to say~~ of positive criticism
 relating to reports improve our quality planning. ~~most~~ all
 of the items he discussed were not with the intent of negativity on Ison
 solution, but rather to give direction improving on that we've
 gotten so far

Gang → why this locⁿ for sw. th?

Gang Berlino, Bruce Pearce, Steve Madoff?

PMY 93 (!) FN10 F type brake switch
with F3-B 5 pin intermittent connect

PMY 93 FN10 will ~~mount~~ ^{mount} the ride ht control switch in ^{approx. 4 in}
a location near the rear half axle, ^{close to the wheel?}
Recently, ~~an~~ ^{an} apparently highly regarded
ABS engineer has recommended the F3-B connect
due to the severity of the location. He cites sizing
problems with the non-intermittent connect.
They've considered a flying lead approach, as but
~~don't~~ ^{don't} prefer it. Because the connect
issue was noted firmly on a "concern" report.
Bruce Madoff's group needs to respond with a
solution immediately for this PMY 93 program. At this
moment, they are very serious about this problem.

THINK

Discussion

They've requested an envelope by ASAP; we've committed
to 2 who n less. Once received, they will ~~issue money~~
~~for a prototype model~~. They will need a
prototype quote ASAP also..

THINK

TI-NHTSA 003188

Timing - 26 weeks from 10/01 to ISA

10/01	
• env. chg	10/01
• prototypes	not TBD
• Release prod. testing	Needs to
• Prod. ^{cont.} hol 20wks	
• Prod. ^{cont.} hol ^{expansion} +	mid-March
• FB Switches	April 01, 1992
• ISA	

• Protos are needed ASAP for durability testing.
We discussed that we'd probably release a
1 cavity prod. model which could be expanded
of add'l cavities later. This is the approach
we'll need to take if we're to meet the ISA thing.

ACTIONS:

• prelim. comp prints	Cj	
• protos quote	Cj/Sw	
• env. chg	Cj	10/07

• Bruce's msg is a reflex action by Ford, in response
to a potential concern. Bruce m. said they don't
know what they have to do to make a switch and the best
comment they have available to them and they may
consider other - less costly approaches in the future - (LPH)

~~He~~ ~~He~~ ~~read~~ ~~details~~.

There was some mention of a Standard Commission ^{Ford} test; nobody at the meeting indicated the details

Also

inman spec for Ron Frazee - School
What is Frazee's redesign of
the ~~old~~ master style meeting connect 2 School

"Turning chart for Gary Berlin's conclusions -
Apr 11/07

See Page 1 Mac 76

P/C validation testing was completed; one dimensional error is being corrected. In fact, the switches failed initially when crimped on the AMI. A re-run, which omitted fluid resist due to timing, showed the manual error.

Cringer produced acceptable diagram. We proposed originally to grant approval based on the same altered test plan (omitted fluid resist) and the manual error cringer.

As a result of our decision, P/C will issue an alert, effective for 90 days, pending of conditional approval, using the manual of fluid crimp.

Full approval will require at least that we conduct the impulsive 24 parts, 12 of which go thru the fluid resistance test. If we correct the issues related to the AMI crimp with 90 days, without major process or design changes, this will be the basis of re-testing cycle.

Discussion.

- We discussed in detail the potential differences in the AMI and H-L processes. Both discuss more fully understand our proposed H-L process and don't have a real concern with it.
- Our H-L process is described as AMI but to the crimp, then fluid crimp in order to the.
- Also discussed how the added crimp travel makes the

P/C ~~is~~ more sensitive to ~~the~~ process variations
that relate to day-to-day life.

- Bruce P. asked for a milestone chart or
action item list on the things we are doing to
resolve the issue. I told him ~~not~~ that at
his request - we'd evaluate the shipping methods
on the H-L and not coming back.

Action - ~~at~~ action item list to ~~be~~
Office / Jan 10/92

- Bruce P and Bruce M. agreed to allow
a color change for the seal (blue)
with single and skirt.

Action: make out sketch for blue
gasket ~~and~~ as an optional
gasket) and submit to
Bruce. Office

- didn't tell about 2A/3A thread name.

Overview

Pelkey will sign off on the task ~~as is~~ We need to ~~approve~~

L/R

Should you
is full approval

Pelkey (Release eng) will sign off on the
ISR based on our conclusion that ~~there is~~
~~but which is~~ a satisfactory anomaly was
related to the mating connector. This
~~is not the case~~. Because of the mating
connector problem, he'll need to write
an alert; ~~or the switch~~ whether it implicates
the switch or is related only to the mating
connector is TBD. SQA's opinion is
that it will give us conditional approval
until ~~we~~ ~~is~~ the connector issue
is resolved or until the salt spray report

is written out of the spec. We need to decide
if we can to avoid implicating the switch in the "alert" process, ~~we~~
have it written against the mating connector instead.

P/C

Pelkey will sign off on issue in 90 day
alert, giving us conditional FOR on
the switch ~~and~~ not fully EIS tested,
and built with a H-C final crimp.
He's asked that we provide an action
plan to address ~~the~~ what we're doing
to resolve the problem. He will not sign
off on full approval because we haven't
satisfied all EIS reports with this interim
process.

57PS w/ F3CB connector

~~On the advice of an ABS~~ On the advice of an ABS engineer
that has had 50 problems of the 50. minute
connector, PFC wants a submagite connector
for M993 T-10. At the moment, they are
very serious about making this happen.

TI-NHTSA 003194

Gave Bruce a #12 group item.

11/4/91 - Mr. J. L. F. N36

Blue printed DC.

Give smile form chart to Bruce

→ Switched tools in AmI/hand. crings

TI-NHTSA 003195

John P

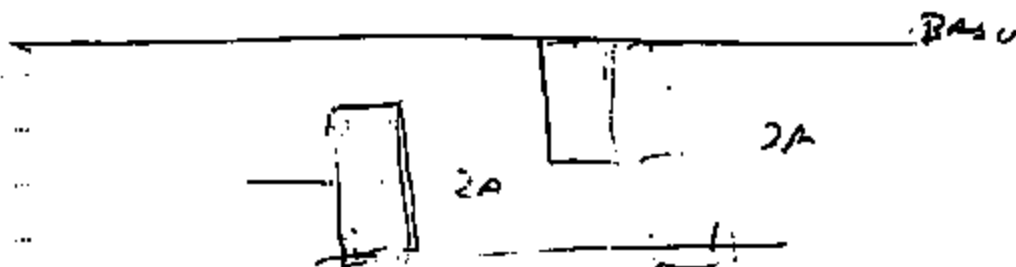
- fix mold
- John will file a "correction"; if all cases or appear something will be changed

• BENDIX - MY95.25 Range/Explosion

- need correct up to date + any change in 30 days
- need an ext. by the end of the month
- need a new record a search / Abstract

Max

Ben to get a gate to m/c a 6' x 10' m/c
for the 10' x 10' m/c



▽ calibration - report Cpr. quantities
also SCS.

Spec - instead of rel spec; also 0 requests

Control plan can waive the II portion of the ES.

DFMEA - if precedes

▽ - So C & S: any req. must be met $\frac{1}{2}$ end.

Case Berlin

FW-10 FC 2 Apr 78; need any data completed

• want prototypes 1/2" 23

→ • want envelope design in 1 wk.

→ give wire case length (max =)

→ • quote a single case:

env. design

10/6/78

1/4" = 20, 21

base th

1/16"

→ 1 cavity plastic mold

Timing chart

Ron Fronts - submission test.

Wick Schiller

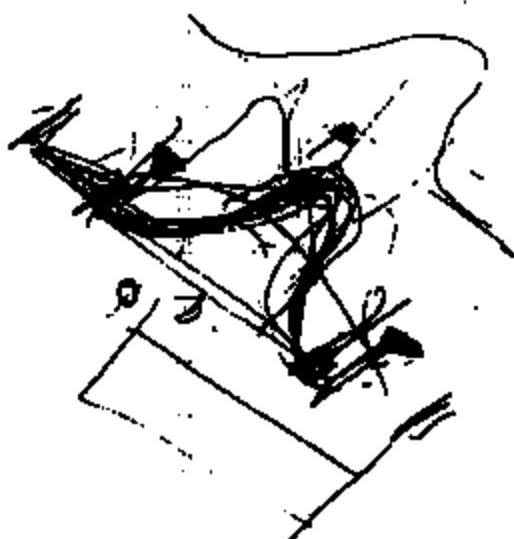
CONCERN - up to 60% time in court

- * add mating connect. pins to 71 pins
- if P/c on other, auto. ins
- 1/2 c/r - remove the call spring only in ES.

7 item : safety, performance of ~~test~~ recognition
- come from that is in the design - mea

no need for SEC on the print; based on the spec - process - dim
that B. may be supplied with
→ need to have a SEC

Need to have a 7 on the 7 part of the spec

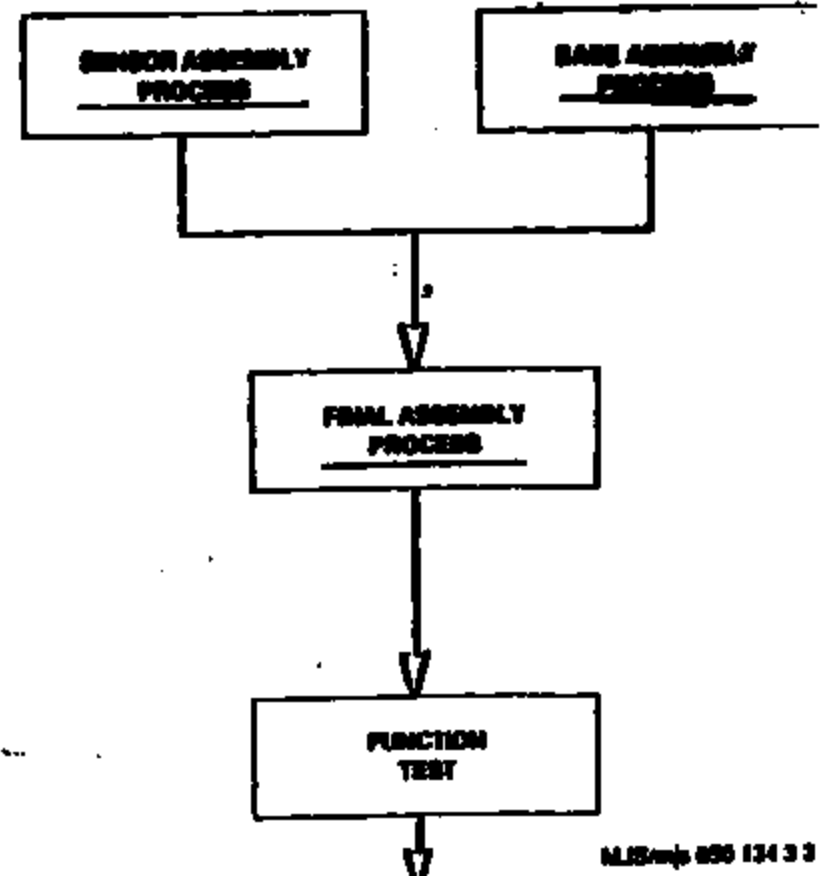
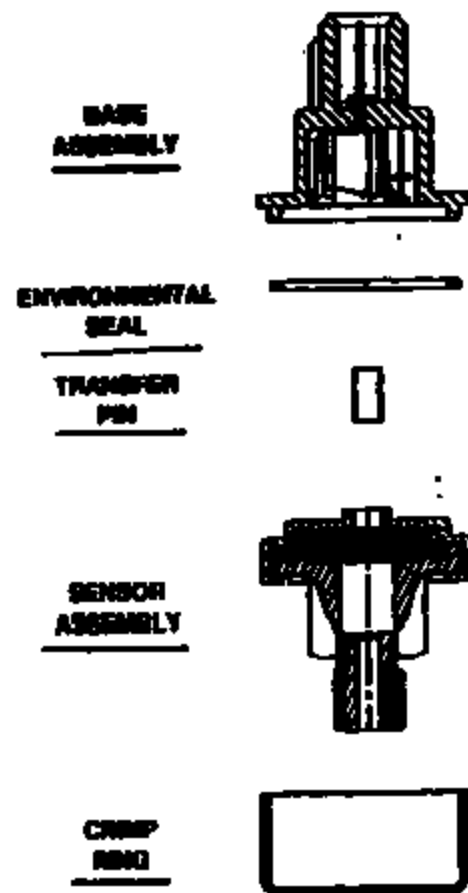


100%

**DRAWINGS AVAILABLE UPON
REQUEST**

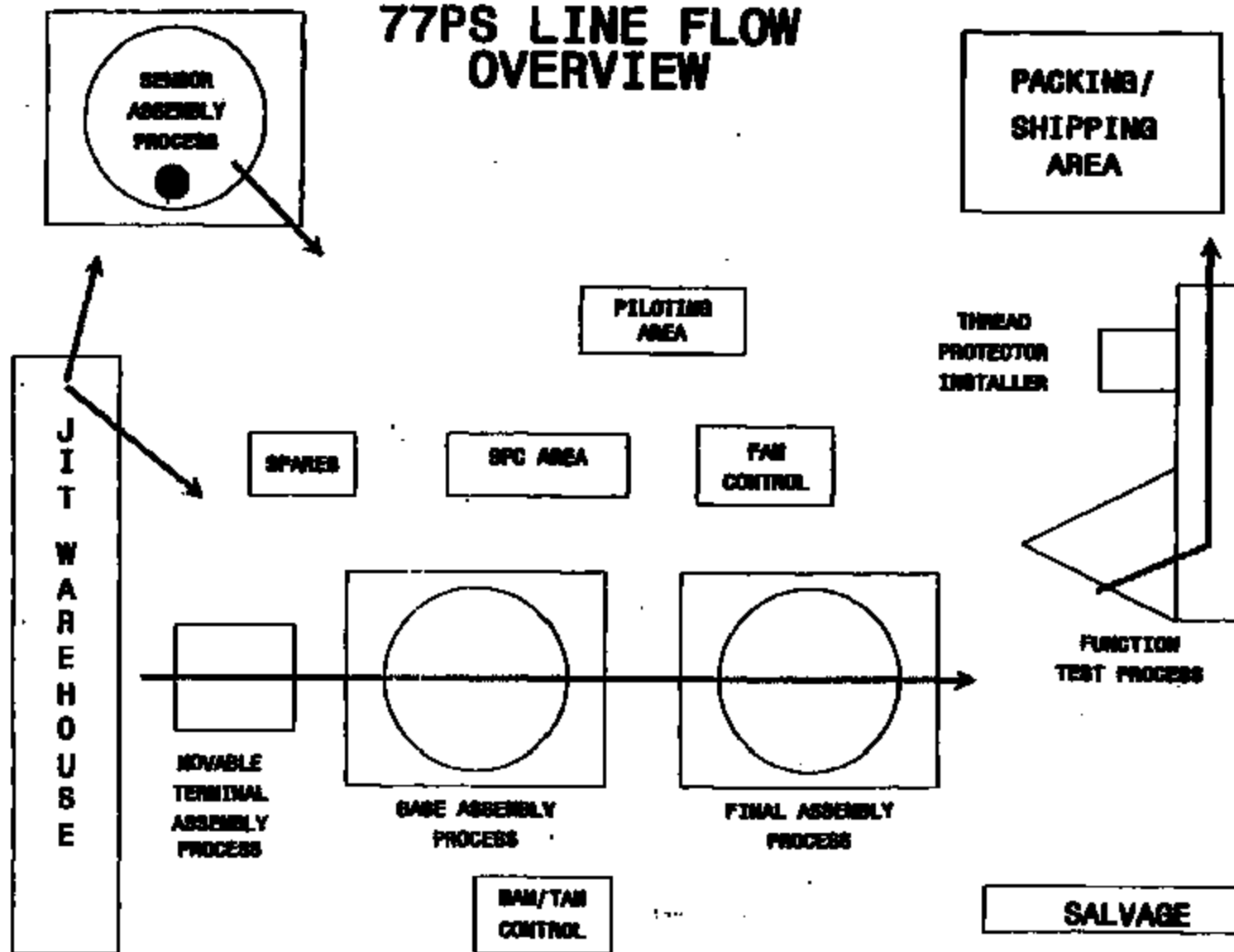
TEXAS INSTRUMENTS, INCORPORATED CRUISE CONTROL PRESSURE SWITCH

77PS SUB-ASSEMBLY DETAIL



TI-NHTBA 003204

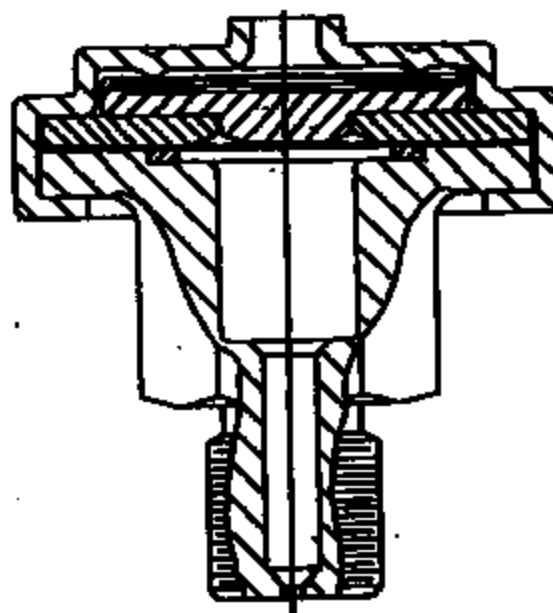
77PS LINE FLOW OVERVIEW



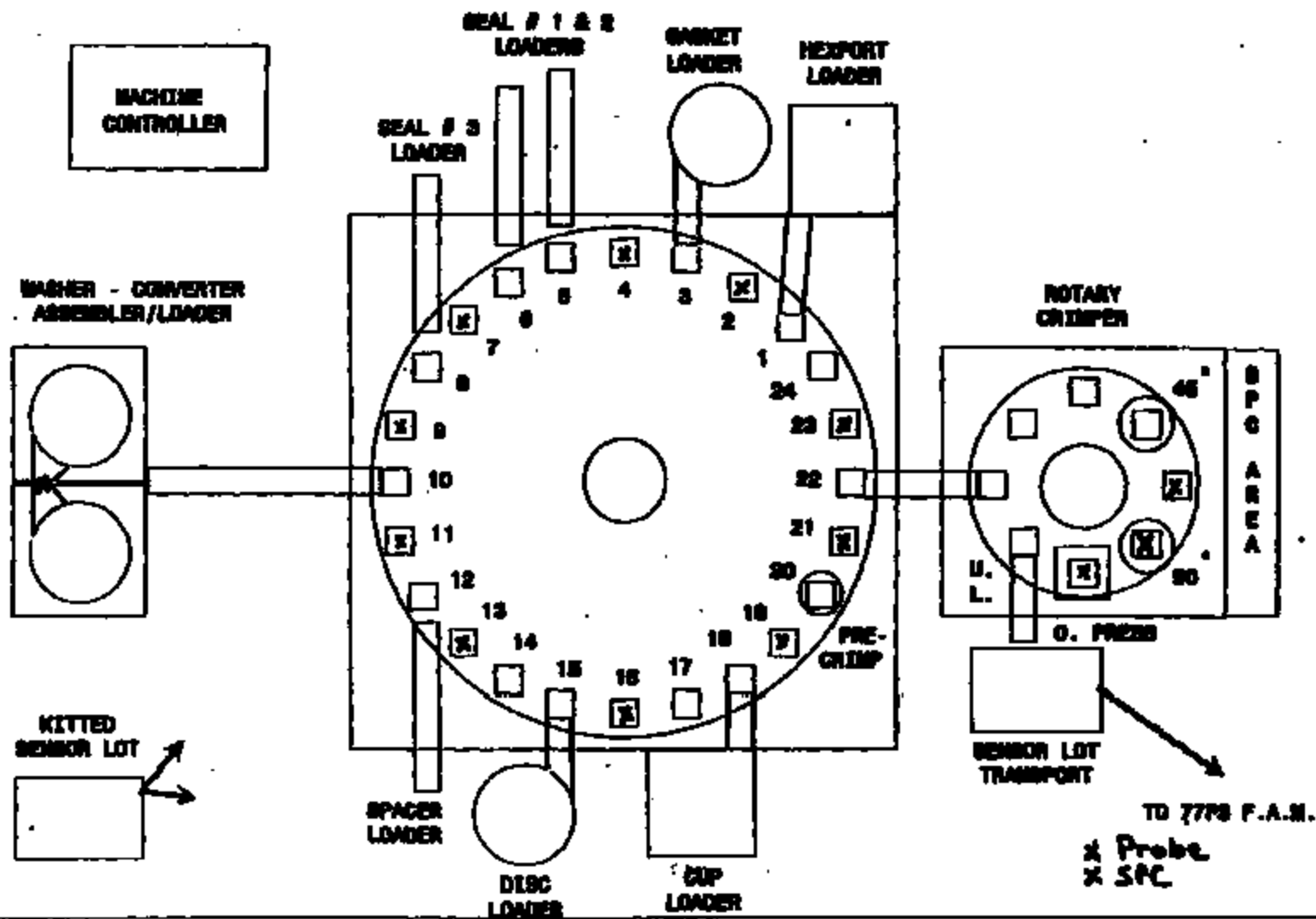
TI-NHTSA 003205

SENSOR ASSEMBLY

- O - CUP
- O - 3/4 FORMED DISC
- O - KAPTON SPACER
- O - CONVERTER
- O - WASHER
- O - KAPTON
- O - GASKET
- O - HEXPORT

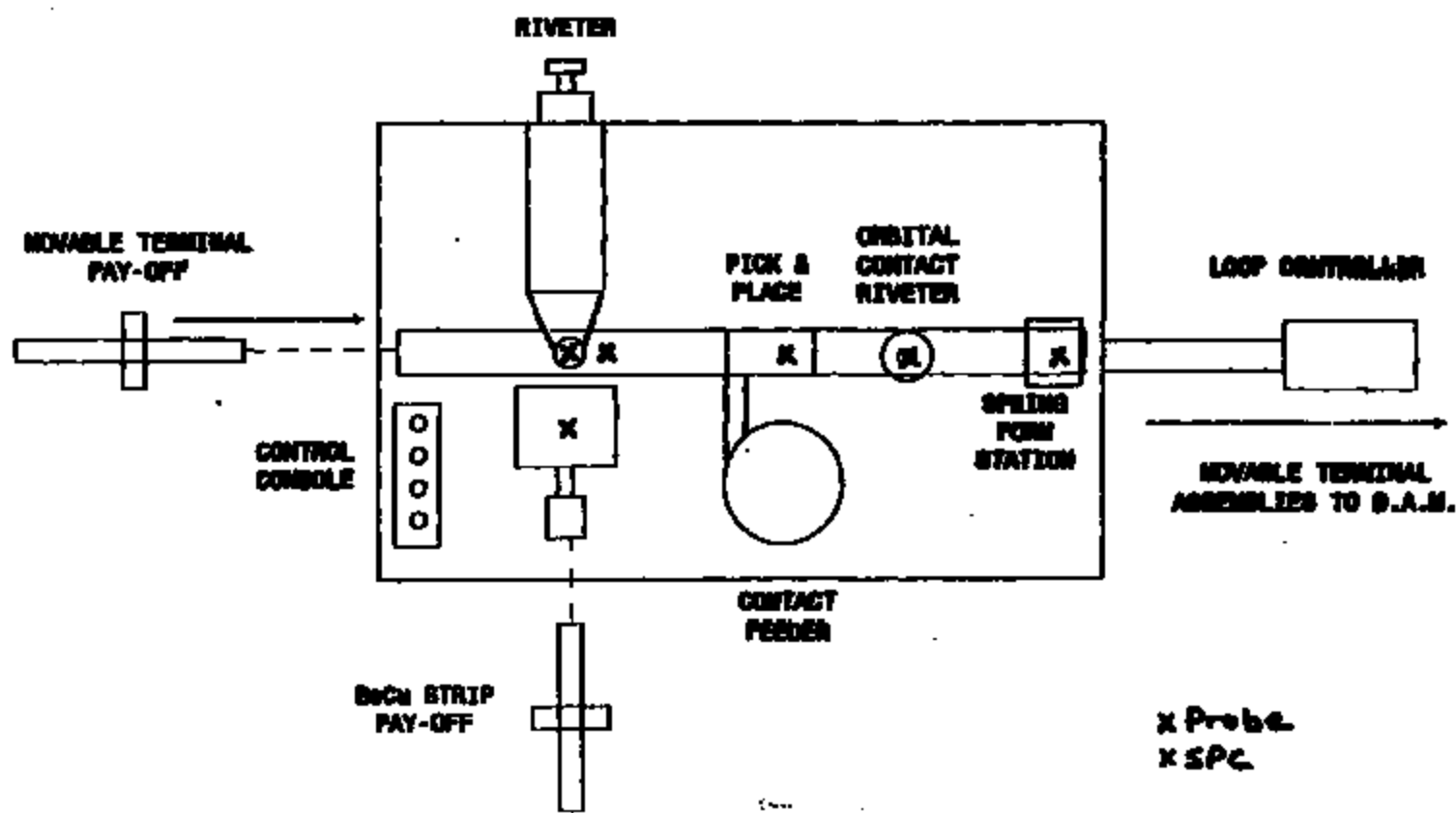


77PS SENSOR ASSEMBLY PROCESS



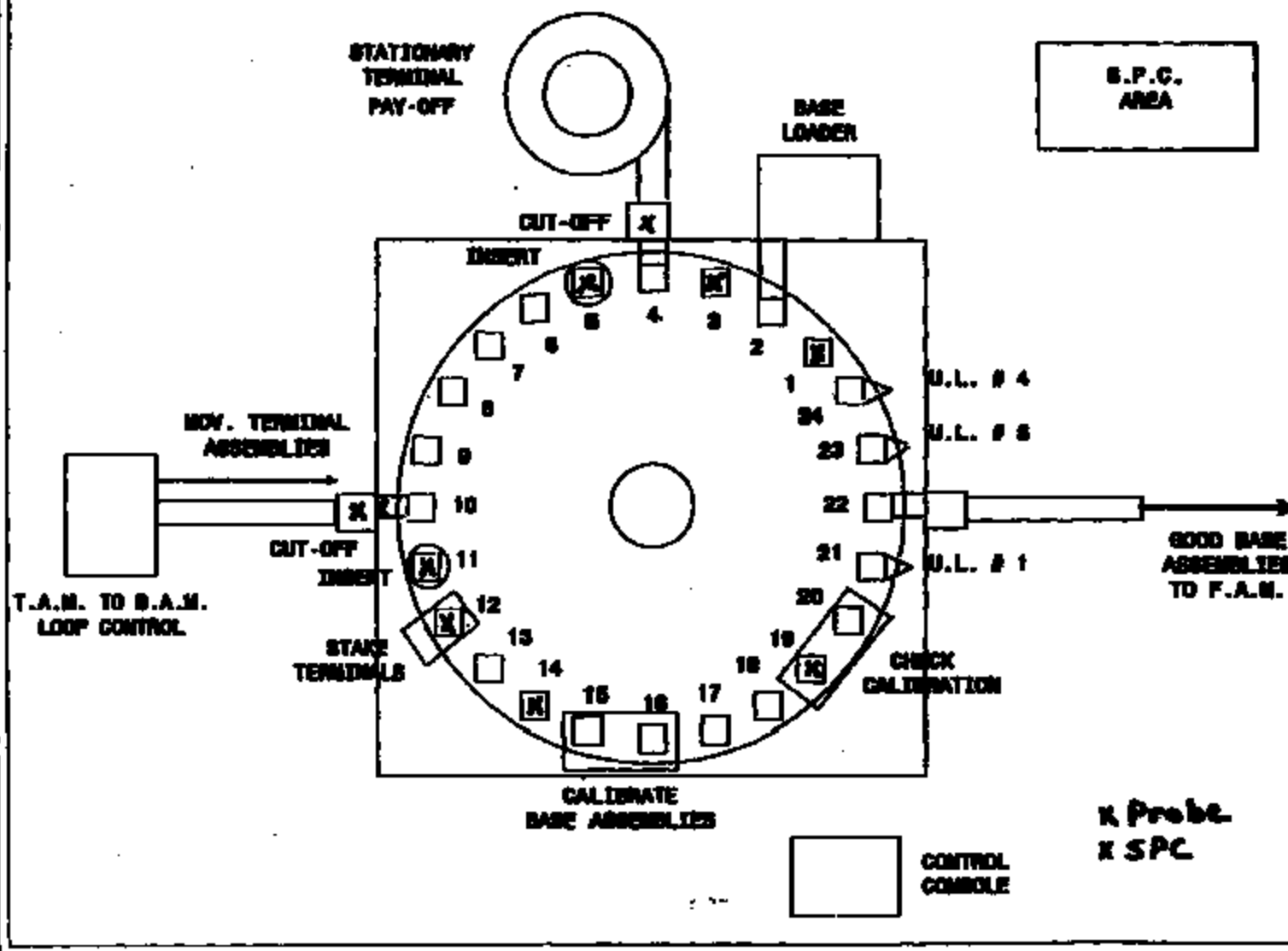
TI-NHTBA 003207

77PS TERMINAL ASSEMBLY PROCESS



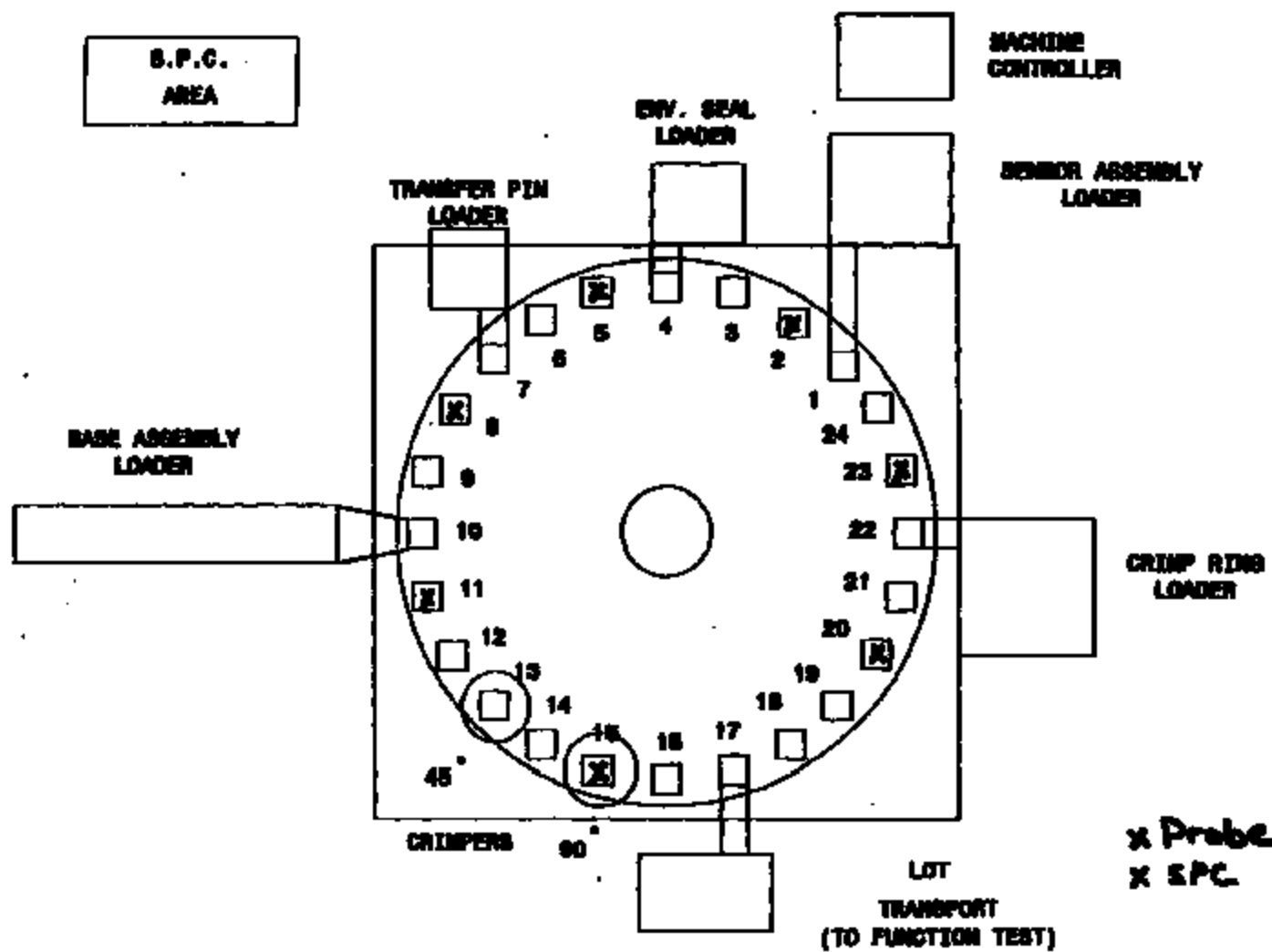
TI-NHTSA 003208

77PS BASE ASSEMBLY PROCESS



TI-NHTSA 003208

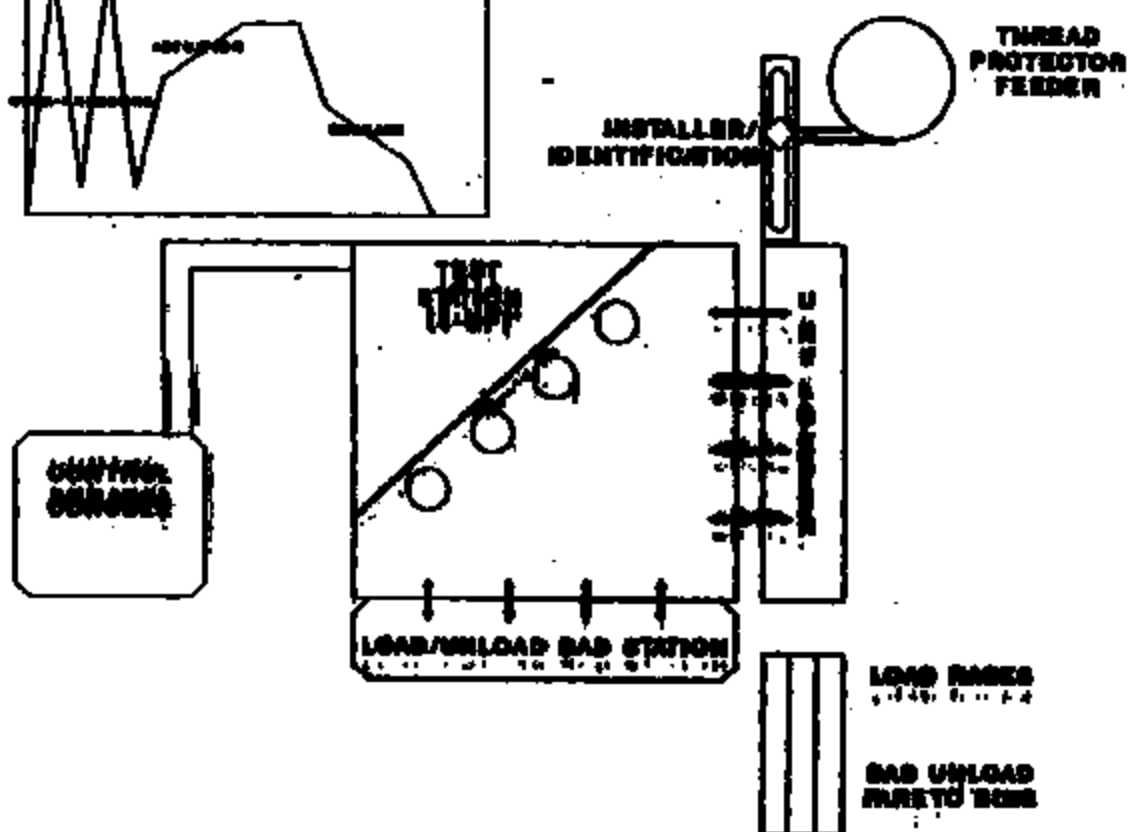
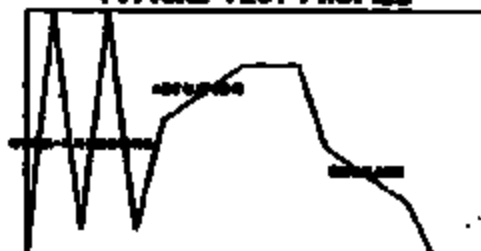
77PS FINAL ASSEMBLY PROCESS



TI-NHTSA 003210

77PS FUNCTION TEST MACHINE

TYPICAL TEST PROFILE



TI-NHTBA 003211

MISC.

TI-NHTSA 003212

ALERT DETAIL

PRINT DATE/TIME: 91/10/83 18:18
PAGE: 1

ALERT NUMBER:
A10166193

1610 ACTIVITY: MCOO CHASSIS PEO (LMCO)
1610 ACTIVITY: PEASE, S. F.
SC: 040605

TYPE: (U) USE PPH
DATE: 91/10/82
PHONE: 32-37959
NOTICE NO:

STATUS: A
LOCATION: RM 3001, BLDG 005
RESOLVING OFFICE:

ELT DESC: PERMIT TEXAS INSTRUMENTS TO SHIP SPEED CONTROL BOUNDARY
DEACTIVATION SWITCH, P2VC-PF924-AS, WITH EXCEPTION TO THE
INTENDED MANUFACTURING/ASSEMBLY PROCESS CONSISTING OF
1992 LINCOLN TOWN CAR, CROWN VICTORIA, GRAND
MARQUIS WITH NEW GENERATION SPEED CONTROL.
CVFA CVFA CVFA
RA17

OBJECTS AFFECTED:

DEL COMES:
ANTC AFFECTED:
B CONCERN CTRL:
DGRAM:

Y:
T INCRN VAN COST: -0.92
T INCRN VNO COST:
IT RESUME:
PP DCS:

TIME: 900
EST INCRN TOOL COST: 0
EST INCRN FAC COST: 0
APPEARANCE:

MODEL YEAR: 92

END CONCERN CTRL:
EFFECTIVE IN:
EMISSION CODE: 000

INVALID:
CMT:
SICP: B
EST INCRN LSN COST:
WT EFFECT: 0.0000

***** AFFECTED PARTS *****

F PART NO:
SC:
T:

040605

INTER:

APP PART DESC:
NOTICE:
SUPPLY/LOCAL:
SUPPLIER:

AVAIL:

REL 100: 0
PENC 2000:

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

SERID: RFP2409

ACTIVITY: MCOO

ENTRY DATE: 91/10/82

ERT DESC:
FIND A MANUALLY LOADING SENSOR CRIMPING MACHINE VERSUS THE
HYDRAULIC IN LINE LOADED CRIMPER. THE AUTOMATIC CRIMPER HAS
BEEN DETERMINED TO HAVE A VET TO BE DEFINED DEFICIENCY THAT
RESULTS IN PART FAILURE TO MEET THE SPECIFIED NUMBER OF CYCLE
IN THE IMPULSE TEST. THE SUPPLIER IS GIVEN A 90 DAY PERIOD
TO RESOLVE THE ISSUE. THE MANUALLY CRIMPED PARTS PASS THE
TEST. THIS DEVIATION PERMITS INCORPORATION OF THE -AS
LEVEL SWITCH AND DELETION OF THE INTERIM -UD SWITCH FOR A
50% REDUCTION OF 0.92. THE -AN SWITCH IS PLA TO END ITEM

SERID: RFP2409

ACTIVITY: MCOO

ENTRY DATE: 91/10/83

ERT DESC:
PORTIONING VALVES P2AC-25091-BA, P2VC-25091-CC, AND
INJECTION BLOCK P2AC-25320-CC.

***** APPROVALS *****

REGION
H
H

DEPARTMENT
K8667
K8667

USERID
RFP2409
JLH1824

ACTIVITY
MCOO
MCOO

APPROVER'S NAME
PEASE, S. F.
STIMONS, J.L.

DATE APPROVED
91/10/82
08/08/83

-NONE-

TI-NHTSA 003213

ALERT DETAIL

PRINT DATE/TIME: 01/10/83 15:15
PAGE: 2

ALERT NUMBER
12 81040193

IGIN ACTIVITY: NC00 CHASER10 PEG (LR00)
IGINATOR: PRAGE, B. F.
SC: 000403

TYPE: (U) NOE PPM
DATE: 01/10/82
PHONE: 22-37935
NOTICE NO:

STATUS: 17A
LOCATION: ON 3001, BLDG
RESOLVING NOTICE

***** APPROVAL *****

IGION	DEPARTMENT	USERID	ACTIVITY	APPROVER'S NAME	DATE APPROVED	APPROVAL
N	K0403	LAI0403	NC00	ZIELINSKI, L.A.	00/00/00	
N	K0407	DJR0368	NC00	HARROFF, B.J.	00/00/00	
N	K0409	V000378	NC00	DEBRALIA, V.S. (DEPT	00/00/00	
N	K0413	AJT06109	NC00	YONAS, B.J.	00/00/00	
N	K0413	NATL	NC00	CHASER10 NATL GATEKEE	00/00/00	
N	K0411	PPH0401	NC00	PPH GATEKEEPER-CHASER	00/00/00	
N	K0407	OFF2400	NC00	PRAGE, B. F.	01/10/83	

TI-NHTSA 003214

END

PRESSURE SWITCH DATA

Form 21605

TEST NO. 166-03-12

DEVICE 77P562-1	DATE REQUESTED 10/4/91	REQUESTED BY Steve Off. 101	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Donnell - 0	DATE STARTED 10/9/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford 17 '92 Electronic Speed Control BractiVole PS			

CUSTOMER:

PURPOSE OF TEST: Experiment with changes in AMT cylinder pressures to see how the effect diaphragm life. These parts built 100% on AMT.

PROCEDURE:

Impulse test: standard parameters. Added to cycles with center at 0.

Device #	Crimp pressures	Cycles to failure	
166-03-01	56/150		
- 02			
- 03			
- 04			
- 05			
- 06	Sensors 9/1/00		
166-03-07	70/60	703K	
- 08			
- 09			
- 10			
- 11	Sensors 9/1/00		
- 12			

Suspended @

740K on 9/1/04

TI-NHT8A 003215

PRESSURE SWITCH DATA

Form 21605

TEST NO. 166-03-12

DEVICE 77PSL2-1	DATE REQUESTED 10/4/91	REQUESTED BY Steve Offley	REQUESTED COMPL. DATE
PERFORMED BY Saffie DiDonato	DATE STARTED 10/4/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford FY 92 Electronic Speed Control Diaphragm PS			

CUSTOMER:

PURPOSE OF TEST: Experiment with changes in AMT cylinder pressures to see how the effect diaphragm life. These parts built 100% on AMT.

PROCEDURE: Inpulse test: standard parameters. Added to cycles with sensor at 0.

Device #	Crimp pressure	Cycles to failure	
166-03-01	50/50		
-02			
-03			
-04			
-05			
-06	Sensor 911007		Suspended @
166-11-07	70/60	7032	740K on 9/11/01
-08			
-09			
-10			
-11	Sensor 911007		
-12			
Refer to test 167-03-36			
for Crimp pressure vs. life			
information			

TI-NHTSA 003216

HIGHLIGHTS
Stephen B. Offler
Week Ending 91-10-04

Handwritten: 10/4/91
7104



FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

INITIAL SAMPLE REPORT (ISR):

Conditional approval has been granted at Pass Car; Bruce Pease has written a 90-day "alert" which means we must complete full ISR in this timeframe. Basically this means correction of the problems which led to early Kapton failures, and a re-run of some (or all) of the ES tests. If the correction is simple and straightforward, then it is likely we'll only need to submit Fluid Resistance and Impulse; whereas if significant process or design changes are made, we'll need to do the whole thing. Timing, of course, is absolutely critical, since our 90-day period (911002 thru 911231) is effectively shortened because it encompasses both holidays. Bruce has asked for a detailed action plan ASAP, which is in the works. Before submittal to Bruce we will review this plan formally with Design, Mfg. Eng., Mfg., Quality, and Mkt. The rough outline shows that regardless of which tests we run, we must have the final parts built on Wed. 911030, three and a half weeks from today.

The Design FMEA was completed on a very high priority basis last weekend for review with Mark Scholler (SQA) during Dave's trip last Tuesday 911001. Apparently our DFMEA technique/approach on this program (and others) is not pure Design; we seem to have a tendency to mix too much process in with it. Mark is being very helpful on this. We need to revamp the DFMEA and resubmit. Weekly FMEA meetings will recommence.

We are now expediting arrival of new, blue-colored environmental seals for Pass Car to replace the current ones, which have only a hard-to-find stripe mark for differentiation. We plan to file an SREA for these, and if all goes well, we'll build the above revalidation parts with these.

KAPTON LIFE:

Diaphragm lifetesting of various experimental lots was suspended last Sat. 910928 due to hydraulic pump failure. The pump was removed from the cyclor and hand-carried to an authorized service center in Warwick, RI. Repair was turned around in two days, and we are in the process of re-installing it in the cyclor. Excellent job by Jeff D., Natalia in Purchasing, and Tri-Power Sales & Service. Since a failure of this nature can set critical testing back by a week minimum, we have decided it is wise to purchase a spare Enerpak unit which will be available for any of the cyclors (not just CCPS) in the event of failure.

We plan to run an experiment to test the hypothesis that air pressure in the AMI crimp beads was insufficient during the original (failed) validation build. We've taken a sample of pre-crimp-only devices directly off the AMI during a production run. The pressures will be turned down to the lower level discovered recently to crimp one test lot; they will be turned up to match the hand-line to crimp the other lot. These will be cycled to failure and analyzed with Weibull techniques for comparison with other test-lots.

HEXPORT:

Thread rejections continue to waste everyone's time. Most are written in-process, and end up being a gaging-technique issue rather than a true rejection. We are attempting to streamline the process by instituting a reaction plan whenever a potential rejection is discovered. Use of the 4.5 in-lb gage torque is the arbitrator if rejected on the GO gage.

TI-NHTSA 003217

HIGHLIGHTS - 911004 - Page 2

We are creating an evaluation plan for the 10B21 hexport samples. These have the potential to solve the thread problem because the thread is significantly harder (per actual DPH measurements) than current 10L10, hence damage during plating should theoretically be lessened. We will look at undergoing tests of strength (burst, stripping torque) and environmental resistance. We'll need to approach Ford with an SREA if all evaluations are positive. Also, we are expecting soon the full-plating-lot of reduced zinc parts (.00015 vs current .0003 min) which have olive-drab chromate to help regain some lost corrosion resistance. These spend significantly less time in the plating bath, and hence they theoretically are damaged less.

At some point, it is conceivable that we'll combine all of our thread efforts to produce a higher quality part. This includes the above 10B21 harder material, with thinner plating and olive-drab chromate, using the ANSI B1.1 gaging technique which allows 3A GO / 2A NOGO on plated parts.

SAMPLES:

Due to the move of the Mechanization equipment, we are presently unable to produce any parts. Efforts have been prioritized by Mfg. Eng. to correct issues with the Eastern Automation movable terminal equipment, then get the base asm. machine up, then last-but-not-least the final asm. This is likely to take about another week, including interim evaluations of the EA progress, cycled on the severe production cycle. This will put us behind schedule in shipping the 300-pc run for Pltts.

I've discovered that the paperwork for the Ford Australia metric hexport samples was lost somewhere between the Model Shop and the CNC Lathe in Bld. 20. We are still a couple of weeks from shipping these samples.

-MSG M#- 30374 FR=SBO1 TO=CPPC SENT=10/04/91 08:12 AM
R#-015 ST=C DIV=0050 CC=00101 BY=SBO1 AT=10/04/91 08:12 AM

TO:	Tom Burks	MFPC	Joe Schuck	WHLZ
	Jeff DiDomenico	ELB	Matt Sellers	PCME
	Charlie Douglas	CPPC	Rusty Struble	RCS2
	Paul Ketch	PRK1	Jim Watt	PCQA

CC: Tom Charboneau (delivered separately)
Dave Czarn

FR: Steve Offiler SBO1

SJ: Weekly Highlights W/E 911004

FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

INITIAL SAMPLE REPORT (ISR):

Conditional approval has been granted at Pass Car; Bruce Pease has written a 90-day "alert" which means we must complete full ISR in this timeframe. Basically this means correction of the problems which led to early Kapton failures, and a re-run of some (or all) of the ES tests. If the correction is simple and straightforward, then it is likely we'll only need to submit Fluid Resistance and Impulse; whereas if significant process or design changes are made, we'll need to do the whole thing. Timing, of course, is absolutely critical, since our 90-day period (911002 thru 911231) is effectively shortened because it encompasses both holidays. Bruce has asked for a detailed action plan ASAP, which is in the works. Before submittal to Bruce we will review this plan formally with Design, Mfg. Eng., Mfg., Quality, and Mkt. The rough outline shows that regardless of which tests we run, we must have the final parts built on Wed. 911030, three and a half weeks from today.

The Design FMEA was completed on a very high priority basis last weekend for review with Mark Scholler (SQA) during Dave's trip last Tuesday 911001. Apparently our DFMEA technique/approach on this program (and others) is not pure Design; we seem to have a tendency to mix too much process in with it. Mark is being very helpful on this. We need to revamp the DFMEA and resubmit. Weekly FMEA meetings will recommence.

We are now expediting arrival of new, blue-colored environmental seals for Pass Car to replace the current ones, which have only a hard-to-find stripe mark for differentiation. We plan to file an SREA for these, and if all goes well, we'll build the above revalidation parts with these.

KAPTON LIFE:

Diaphragm lifetesting of various experimental lots was suspended last Sat. 910928 due to hydraulic pump failure. The pump was removed from the cyclor and hand-carried to an authorized service center in Warwick, RI. Repair was turned around in two days, and we are in the process of re-installing it in the cyclor. Excellent job by Jeff D., Natalia in Purchasing, and Tri-Power Sales & Service. Since a failure of this nature can set critical testing back by a week minimum, we have decided it is wise to purchase a spare Enerpak unit which will be available for any of the cyclors (not just CCPS) in the event of failure.

TI-NHTSA 003219

We plan to run an experiment to test the hypothesis that air pressure in the AMI crimp heads was insufficient during the original (failed) validation build. We've taken a sample of pre-crimp-only devices directly off the AMI during a production run. The pressures will be turned down to the lower level discovered recently to crimp one test lot; they will be turned up to match the hand-line to crimp the other lot. These will be cycled to failure and analyzed with Weibull techniques for comparison with other test-lots.

HEXPORT:

Thread rejections continue to waste everyone's time. Most are written in-process, and end up being a gaging-technique issue rather than a true rejection. We are attempting to streamline the process by instituting a reaction plan whenever a potential rejection is discovered. Use of the 4.5 in-lb gage torque is the arbitrator if rejected on the GO gage.

We are creating an evaluation plan for the 10B21 hexport samples. These have the potential to solve the thread problem because the thread is significantly harder (per actual DPH measurements) than current 10L10, hence damage during plating should theoretically be lessened. We will look at undergoing tests of strength (burst, stripping torque) and environmental resistance. We'll need to approach Ford with an SREA if all evaluations are positive. Also, we are expecting soon the full-plating-lot of reduced zinc parts (.00015 vs current .0003 min) which have olive-drab chromate to help regain some lost corrosion resistance. These spend significantly less time in the plating bath, and hence they theoretically are damaged less.

At some point, it is conceivable that we'll combine all of our thread efforts to produce a higher quality part. This includes the above 10B21 harder material, with thinner plating and olive-drab chromate, using the ANSI B1.1 gaging technique which allows 3A GO / 2A NOGO on plated parts.

SAMPLES:

Due to the move of the Mechanization equipment, we are presently unable to produce any parts. Efforts have been prioritized by Mfg. Eng. to correct issues with the Eastern Automation movable terminal equipment, then get the base asm. machine up, then last-but-not-least the final asm. This is likely to take about another week, including interim evaluations of the EA progress, cycled on the severe production cyler. This will put us behind schedule in shipping the 300-pc run for Pitts.

I've discovered that the paperwork for the Ford Australia metric hexport samples was lost somewhere between the Model Shop and the CNC Lathe in Bld. 20. We are still a couple of weeks from shipping these samples.

Regards,
Steve O.

-MSG :-#- 127111 PR-CERN TO-PCQA SENT-10/08/91 03:11 PM
RF-001 ST-C DIV-0050 CC-00101 BY-CERN AT-10/08/91 03:11 PM

OCTOBER 8, 1991

TO:	RUSTY STRUBLE	RCS2	CC:	TOM CHARBONEAU	TC
	MIKE DeMATTIA	PCQA		JOHN KOURTESIS	NDES
	CHARLIE DOUGLAS	CPPC		STEVE MAJOR	WHLZ
	DICK GARINPY	MFPC		ANDY McGUIRK	PCQA
	PAUL KOTCH	PRK1		ED O'NEILL	BJON
	JOE LASARE	JNL8		JOE SCHUCK	WHLZ
	STEVE OFFILER	SBO1		GARY SNYDER	CPPC
	MATT SELLERS	PCME		MARTHA SULLIVAN	CPPC
	BILL SWEET	PCME		RAY TOURANGEAD	PCME
	JIM WATT	PCQA		BILL CONGDON	MFPC
	TOM BURKE	MFPC		STEVE MCCOBBY	NDES
	CLAIRE BALTHASAR	PEWT		ELAINE ROSE	PCQA
	MARGA GARANITO	MFPC		PAUL WESTERLIND	B511

FR: DAVE CERN ZARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
10/03/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 10/10 (THURSDAY)
TIME: 10:00 - 11:30 AM
PLACE: MARKETING CONFERENCE ROOM

PLEASE CALL ME IF YOU ARE NOT ABLE TO ATTEND

* - ITEMS THAT ARE NEW OR HAVE BEEN REVISED OR COMPLETED
SINCE PREVIOUS MEETING

~~77PS~~ 77PS

	WHO	WHEN
Hexport:		
. REPORT ON ELCO ISSUES FROM 7/22 VISIT	KOTCH	ONGOING
- 10B21 STEEL/.00015" MIN. PLATE/J512 \$		

Environmental Seal:

We've elected to use a different color to differentiate the (thicker) P/C from the L/T environmental seal. P/C has been advised of the proposed change and has agreed to it; therefore, we will submit an SREA to make the gasket color optional. We plan also to include the blue gasket in our follow up testing for P/C.

* RELEASE SAMPLE LOT (1K PCS) OF BLUE P/C SEALS	SELLERS	10/02	ORIG.
* RECEIVE 5K LOT OF BLUE P/C SEALS	SELLERS	10/02	COMP.
* SUBMIT SREA FOR OPTIONAL BLUE GASKET	OFFILER	10/25	
* INCLUDE GASKETS IN P/C RE-VALIDATION	OFFILER	10/17	
		11/01	

77PS

TI-NHTSA 003221

Production Issues:

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHASAR	ONGOING	
. UPDATE PRODUCTION PLANS FOR ALL SWITCHES	DOUGLAS	ONGOING	
. REPORT ON WEEKLY MFG. START-UP MTGS.	SELLERS	ONGOING	
* MATRIX OF SWITCHES THAT ADDRESS SPRING AND CONTACT FAILURES - FWD TO ELAINE	SELLERS	09/27	ORIG.
		10/11	REV.

* IMPULSE TEST SWITCHES FROM ABOVE MATRIX

(EQUIPMENT PROBLEMS PREVENTED COMPLETION OF THE ABOVE ITEMS)

* DEVELOP ASSEMBLY PRINT PACKAGE

SELLERS/ 11/28
OFFILER

Manufacturing Equipment:

. MAKE QC P-TESTER COMPAT. W/77'S

KOURTESIS 10/10

. PRIORITIZE 3rd KAPTON CHK. STA. REDESIGN

SELLERS 10/01

. REVISE 3rd KAPTON CHK. STATION

KOURTESIS 10/??

PV Testing/ISR:

We have conditional approval for 90 days, beginning October 2. The re-submittal date has been set by the team for 12/20 (delivery). Due to the length of the fluid resistance test, all corrective actions for diaphragm life need to be completed by 10/31/91.

* MODIFY BASE MOLD

SELLERS 10/02

* BUILD 300 L2-1'S FOR PITTS FOR THEIR

BURKE/ 10/04

ISR (W/CORRECTED BASES)

SELLERS 10/11

* RECORD PIPC DATA FROM 300 SWITCH LOT

10/11

* GIVE 6 BASES TO JIM FOR FAI'S

SELLERS 10/07

* SUBMIT ADDENDUM TO ISR'S W/CORRECTED

WATT 10/18

BASE DIMENSION - L/T AND P/C (INCLUDE
PIST/PIPC DATA FOR P/C)

Diaphragm Life:

The conditional approval for P/C is based on sensors assembled and pre-crimped on the AMI, with final crimp on the Hand Line. It has been shown that the process differences include crimping pressure. Testing is to be performed with AMI pressures modified to approximate the Hand-Line pressures. We still must identify other design-related changes that would make diaphragm life less dependant on the crimping process. The fix needs to be in place by 10/31/91.

* DOCUMENT PROCEDURE FOR H-L P/C SENSOR
BUILD

SELLERS 09/23
10/10

ORIG.
REV.

* BUILD TEST MATRIX; H-L CRIMP, AMI CRIMP
8 H-L CRIMP PRESSURES, AMI CRIMP - STD.

SELLERS 10/01

* TEST-TO-FAILURE ABOVE MATRIX

OFFILER ONGOING

* HOLD A MEETING TO REVIEW PLAN FOR
DIAPHRAGM LIFE IMPROVEMENT

OFFILER 10/09

* IMPLEMENT SOLUTION TO DIAPHRAGM LIFE

OFFILER 10/31

* BEGIN RE-VALIDATION OF P/C SWITCH

OFFILER 11/--

Miscellaneous:

. IDENTIFY SWITCH MOUNTING LOCATIONS &
SIZE REQTS FOR FUTURE PLATFORMS

SCHUCK 10/10

. 57 TO 77 CONVERSION: PHASE 1 TESTING

HOMOL 05/30

ORIG.

09/--

REV.

* PROVIDE UPDATE ON SMWT FOR 77PS LINE

BURKE 10/10

The partially completed FMEA's have been reviewed with Ford SQA's Mark Schollar. He suggested ways to make the design FMEA read less like a process FMEA; we agreed to re-do as he suggested and resubmit the completed FMEA's ASAP.

* COMPLETE DESIGN FMEA

OFFILER 04/18

ORIG.

10/31

REV.

* COMPLETE PROCESS FMEA

SELLERS 07/01

ORIG.

10/31

REV.

TI-NHTSA 003222

We discussed the gaging issue with John Pelkey (L/T) on 10/01. He agreed to investigate and provide feedback.

* F/U WITH JOHN PELKEY	CZARN	10/10	
* DETERMINE APPROACH FOR 2A/3A THREAD GAGING ISSUE	CZARN/	10/03	ORIG.
	NOGUTAK	10/10	REV.

MILESTONES	PLANNED	ACTUAL
57 L/T ISIR	11/21/90	11/21/90
57 P/C ISIR	01/15/91	01/15/91
77PS ISIR	09/01/91 ORIG.	
	09/20/91 REV.	09/27 - INITIAL
	12/20/91	FINAL
77PS SOP (TI)	10/91	

PRODUCTION PLAN BY MONTH (THOUSANDS)

	P/C 57PSL5-3	L/T 57PSL5-2	P/C 77PSL2-1	L/T 77PSL2-3
AUG	0	2.3	0	0
SEP	25	9.3	0	0
OCT	0	7	15	25-4
NOV	0	0	25	13
DEC	0	0	25	13

REGARDS,
DAVE CZARN 140-FORD

commit to 77's on 10/21/91

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHAZAR	ONGOING
. UPDATE PRODUCTION PLANS FOR ALL SWITCHES	DOUGLAS	ONGOING
. REPORT ON WEEKLY MFG. START-UP MTGS.	SELLERS	ONGOING
* DEVELOP ASSEMBLY PRINT PACKAGE	SELLERS/	11/20
	OFFILER	

Sensor Assembly Machine:

. REVISE 3rd KAPTON CHK. STATION	KOURTESIS	10/??
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Base Assembly Machine:

The equipment issues related to spring arm and contact (terminal) failures have been addressed. Lots built to several calibration settings were cycled to 500K cycles on the production impulse tester without failures.

* MATRIX OF SWITCHES THAT ADDRESS SPRING AND CONTACT FAILURES - FWD TO ELAINE	SELLERS	09/27	ORIG.
		10/11	REV.
		10/10	COMP.
* IMPULSE TEST SWITCHES FROM ABOVE MATRIX	ROSE	10/03	ORIG.
		10/16	REV.
		10/10	COMP.

Final Assembly Machine:

Misc. Manufacturing/QC Equipment:

* MAKE QC P-TESTER COMPAT. W/77'S	KOURTESIS	10/10	ORIG.
		10/17	REV.

PV Testing/ISR:

The re-submittal date has been set by the team for 12/20 (delivery). The team has developed a plan for corrective actions to be completed by 10/31/91.

The first pass at modifying the base mold was unsuccessful; the dimensions were still at the high end of the spec on 3 cavities and out of spec on the fourth. L/T changeover to 77PS needs to happen during the w/o 10/21, so the second mold revision needs a top priority.

* MODIFY BASE MOLD - second iteration	SELLERS	10/14	
. BUILD 300 L2-1'S FOR PITTS FOR THEIR ISR (W/CORRECTED BASES)	BURKE/	10/04	ORIG.
	SELLERS	10/11	REV.
. RECORD PIPC DATA FROM 300 SWITCH LOT	ROSE	10/11	
* GIVE 6 BASES TO JIM FOR FAI'S	SELLERS	10/07	ORIG.
		10/14	REV.
. SUBMIT ADDENDUM TO ISR'S W/CORRECTED BASE DIMENSION - L/T AND P/C (INCLUDE PIST/PIPC DATA FOR P/C)	WATT	10/18	
* BEGIN RE-VALIDATION OF P/C SWITCH	OFFILER	11/01	
* COMPLETE PV TESTING & REPORT	OFFILER	12/20	

Diaphragm Life:

Status of failure testing of two AMI sensor lots:
 Pressure = 50/60 psig 0/6 failures @ 640K cycles (control grp.)
 Pressure = 70/60 psig 0/6 failures @ 640K cycles

* DOCUMENT PROCEDURE FOR H-L P/C SENSOR BUILD	SELLERS	09/23	ORIG.
		10/10	REV.
		10/10	COMP.

* BUILD TEST MATRIX; H-L CRIMP, AMI CRIMP	SELLERS	10/01	ORIG.
* H-L CRIMP PRESSURES, AMI CRIMP - STD.		10/01	COMP.
* TEST-TO-FAILURE ABOVE MATRIX	OFFILER	ONGOING	
* HOLD A MEETING TO REVIEW PLAN FOR	OFFILER	10/09	ORIG.
DIAPHRAGM LIFE IMPROVEMENT		10/09	COMP.
* IMPLEMENT SOLUTION TO DIAPHRAGM LIFE	OFFILER	10/31	

Miscellaneous:

. IDENTIFY SWITCH MOUNTING LOCATIONS & SIZE REQTS FOR FUTURE PLATFORMS	SCHUCK	10/10	ORIG.
. 57 TO 77 CONVERSION: PHASE 1 TESTING	HOMOL	10/17	REV.
		05/30	ORIG.
		09/11	REV.
* PROVIDE UPDATE ON SHWT FOR 77PS LINE	BURKE	10/10	ORIG.
		10/17	REV.
. COMPLETE DESIGN FMEA	OFFILER	04/18	ORIG.
		10/31	REV.
. COMPLETE PROCESS FMEA	SELLERS	07/01	ORIG.
		10/31	REV.
* F/U WITH JOHN PELKEY	CZARN	10/10	ORIG.
		10/17	REV.
* DETERMINE APPROACH FOR 2A/3A THREAD GAGING ISSUE	CZARN/	10/03	ORIG.
	MCGUIRK	10/17	REV.

MILESTONES	PLANNED	ACTUAL
57 L/T ISIR	11/21/90	11/21/90
57 P/C ISIR	01/15/91	01/15/91
77PS ISIR	09/01/91 ORIG.	
	09/20/91 REV.	09/27 - INITIAL
	12/20/91	FINAL
77PS SOP (TI)	10/91	

PRODUCTION PLAN BY MONTH (THOUSANDS)

	P/C 57PSLS-3	L/T 57PSLS-2	P/C 77PSL2-1	L/T 77PSL2-3
AUG	0	2.3	0	0
SEP	25	9.3	0	0
OCT	0	7	15	12.4
NOV	0	0	25	13
DEC	0	0	25	13

REGARDS,
DAVE CZARN

141-FORD

10K/100
15 NOV
10 DEC

25K Nov
DANA only

3K/wk - Nov
8K total in Dec

1.5M
3500

-MSG H#- 203386 FR-CERN TO-PCQA SENT-10/10/91 05:22 PM
R#-091 ST-C DIV-0050 CC-00101 BY-CERN AT-10/10/91 05:22 PM

OCTOBER 10, 1991

TO: RUSTY STRUBLE	RCS2	CC: TON CHARBONEAU	TC
MIKE DeMATTIA	PCQA	JOHN KOURTESIS	NDES
CHARLIE DOUGLAS	CPPC	STEVE MAJOR	WHL2
DICK GARIEPY	MFPC	ANDY McGUIRK	PCQA
PAUL KOTCH	PRK1	ED O'NEILL	EJON
JOE LAHARE	JNL8	JOE SCHUCK	WHL2
STEVE OFFILER	SBO1	GARY SNYDER	CPPC
MATT SELLERS	PCME	MARTHA SULLIVAN	CPPC
BILL SWEET	PCNE	RAY TOURANGEAU	PCME
JIM WATT	PCQA	BILL CONGDON	MFPC
TOM BURKE	MFPC	STEVE MCCOOLEY	NDES
CLAIRE BALTHAZAR	PSWT	ELAINE ROSE	PCQA
TERRY RODRIGUES	MFPC	PAUL WESTERLIND	B511

FR: DAVE CERN EARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
10/10/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 10/17 (THURSDAY)
TIME: 10:00 - 11:30 AM
PLACE: MARKETING CONFERENCE ROOM

PLEASE CALL ME IF YOU ARE NOT ABLE TO ATTEND

* - ITEMS THAT ARE NEW OR HAVE BEEN REVISED OR COMPLETED
SINCE PREVIOUS MEETING

77PS

Haxport:

. REPORT ON ELCO ISSUES FROM 7/22 VISIT KOTCH ONGOING
- 10B21 STEEL/.00015" MIN. PLATE/J512 \$
* COMPLETE STRIP-OUT/BURST ON 10B21 MAT'L OFFILER 10/24

Environmental Seal:

We've elected to use a different color to differentiate the
(thicker) P/C from the L/T environmental seal. P/C has been
advised of the proposed change and has agreed to it; therefore, we
will submit an SREA to make the gasket color optional. We plan
also to include the blue gasket in our follow up testing for P/C.

* RECEIVE 5K LOT OF BLUE P/C SEALS	SELLERS	10/25
* SUBMIT SREA FOR OPTIONAL BLUE SEAL	OFFILER	10/17
* INCLUDE GASKETS IN P/C RE-VALIDATION	OFFILER	11/01

Production Issues:

Terry has rejoined the team (...welcome back Terry). She will be
responsible for supporting the line during start-up and training
the members of the SMWT. Also, Claire is now a manufacturing
engineering technician (...congratulations Claire); she will be
spending part of her time supporting production start-up as well.

TI-NHTSA 003226

* IMPULSE TEST SWITCHES FROM ABOVE MATRIX ~~XXXXXX~~ ✓

10.7.91
10/03 ORIG.
10/15 REV.

#5 5.22
#087
.092
.090

(EQUIPMENT PROBLEMS PREVENTED COMPLETION OF THE ABOVE ITEMS)

* DEVELOP ASSEMBLY PRINT PACKAGE

SELLERS/ 11/28
OFFILER

Manufacturing Equipment:

. MAKE QC P-TESTER COMPAT. W/77'S

KOURTESIS 10/10

. PRIORITIZE 3rd KAPTON CHK. STA. REDESIGN

SELLERS 10/01

. REVISE 3rd KAPTON CHK. STATION

KOURTESIS 10/??

PV Testing/ISR:

We have conditional approval for 90 days, beginning October 2. The re-submittal date has been set by the team for 12/20 (delivery). Due to the length of the fluid resistance test, all corrective actions for diaphragm life need to be completed by 10/31/91.

* MODIFY BASE MOLD

SELLERS 10/02

* BUILD 300 L2-1'S FOR PITTS FOR THEIR

BURKE/ 10/04

ORIG.

ISR (W/CORRECTED BASES)

SELLERS 10/11

REV.

* RECORD PIPC DATA FROM 300 SWITCH LOT

* ~~DOSE~~ 10/11

* GIVE 6 BAMES TO JIN FOR FAI'S devices

SELLERS 10/07

* SUBMIT ADDENDUM TO ISR'S W/CORRECTED

WATT 10/18

BASE DIMENSION - L/T AND P/C (INCLUDE

PIST/PIPC DATA FOR P/C)

Diaphragm Life:

The conditional approval for P/C is based on sensors assembled and pre-crimped on the AMI, with final crimp on the Hand Line. It has been shown that the process differences include crimping pressure. Testing is to be performed with AMI pressures modified to approximate the Hand-Line pressures. We still must identify other design-related changes that would make diaphragm life less dependant on the crimping process. The fix needs to be in place by 10/31/91.

* DOCUMENT PROCEDURE FOR H-L P/C SENSOR

SELLERS 09/23

ORIG.

BUILD

10/10

REV.

* BUILD TEST MATRIX; H-L CRIMP, AMI CRIMP

SELLERS 10/01

@ H-L CRIMP PRESSURES, AMI CRIMP - STD.

* TEST-TO-FAILURE ABOVE MATRIX

OFFILER ONGOING

* HOLD A MEETING TO REVIEW PLAN FOR

OFFILER 10/09

DIAPHRAGM LIFE IMPROVEMENT

* IMPLEMENT SOLUTION TO DIAPHRAGM LIFE

OFFILER 10/31

* BEGIN RE-VALIDATION OF P/C SWITCH

OFFILER 11/--

Miscellaneous:

. IDENTIFY SWITCH MOUNTING LOCATIONS &

SCHUCK 10/10

SIZE REQMTS FOR FUTURE PLATFORMS

. 57 TO 77 CONVERSION: PHASE 1 TESTING

HOMOL 05/30

ORIG.

09/--

REV.

* PROVIDE UPDATE ON SMNT FOR 77PS LINE

BURKE 10/10

The partially completed FMEA's have been reviewed with Ford SQA's Mark Scholler. He suggested ways to make the design FMEA read less like a process FMEA; we agreed to re-do as he suggested and resubmit the completed FMEA's ASAP.

* COMPLETE DESIGN FMEA

OFFILER 04/18

ORIG.

10/31

REV.

* COMPLETE PROCESS FMEA

SELLERS 07/01

ORIG.

10/31

REV.

TI-NHTSA 003227

We discussed the gaging issue with John Pelkey (L/T) on 10/01. He agreed to investigate and provide feedback.

* F/U WITH JOHN PELKEY	CZARN	10/10	
* DETERMINE APPROACH FOR 2A/3A THREAD	CZARN/	10/03	ORIG.
GAGING ISSUE	MCGUIRK	10/10	REV.

MILESTONES	PLANNED	ACTUAL
57 L/T ISIR	11/21/90	11/21/90
57 P/C ISIR	01/15/91	01/15/91
77PS ISIR	09/01/91	09/01/91 ORIG.
	09/20/91	09/27 - INITIAL
	12/20/91	FINAL
77PS SOP (TI)	10/91	

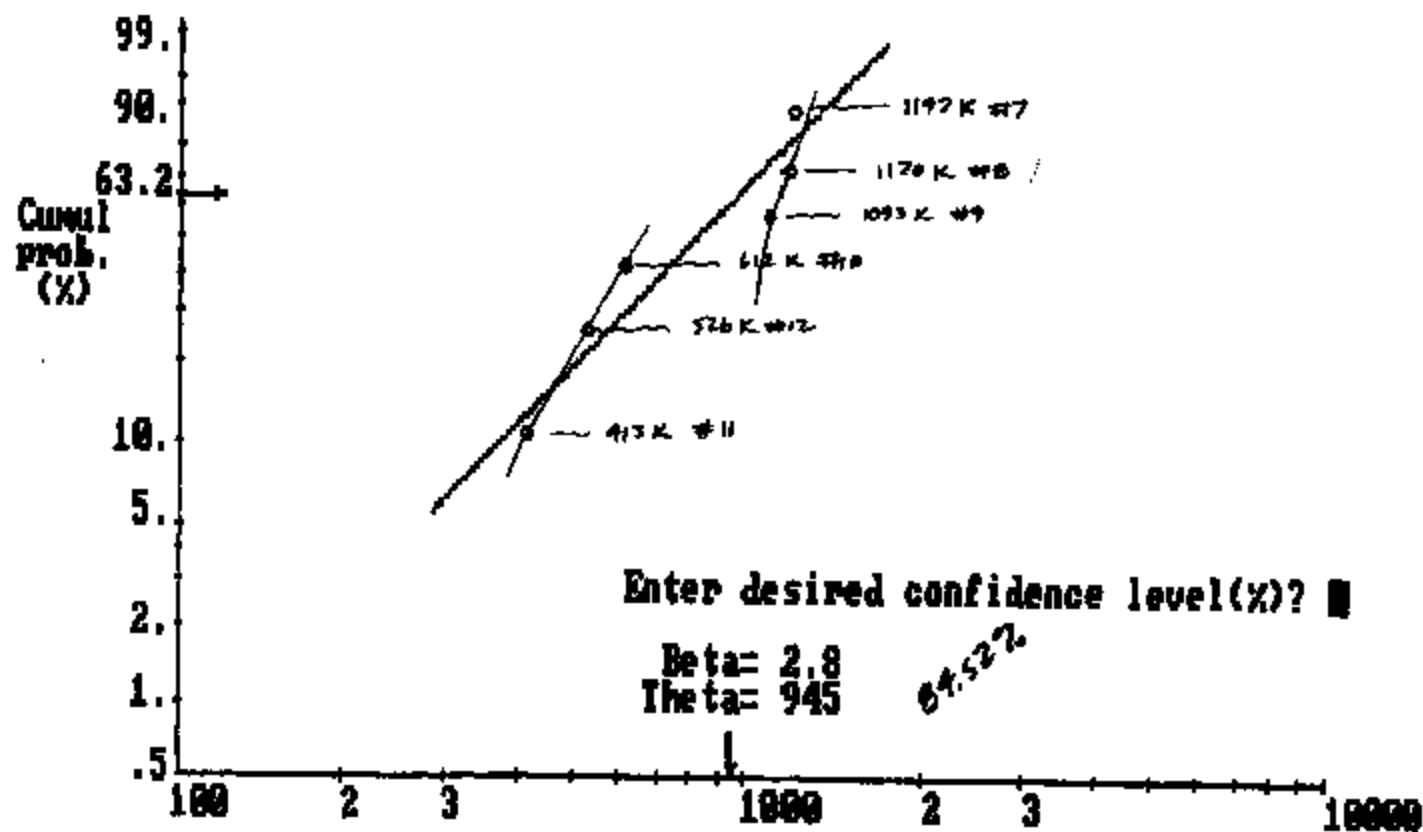
PRODUCTION PLAN BY MONTH (THOUSANDS)

	P/C 57PSL3-3	L/T 57PSL5-2	P/C 77PSL2-1	L/T 77PSL2-3
AUG	0	2.3	0	0
SEP	25	9.3	0	0
OCT	0	7	25	22.4
NOV	0	0	25	13
DEC	0	0	25	13

REGARDS,
DAVE CZARN 140-FORD

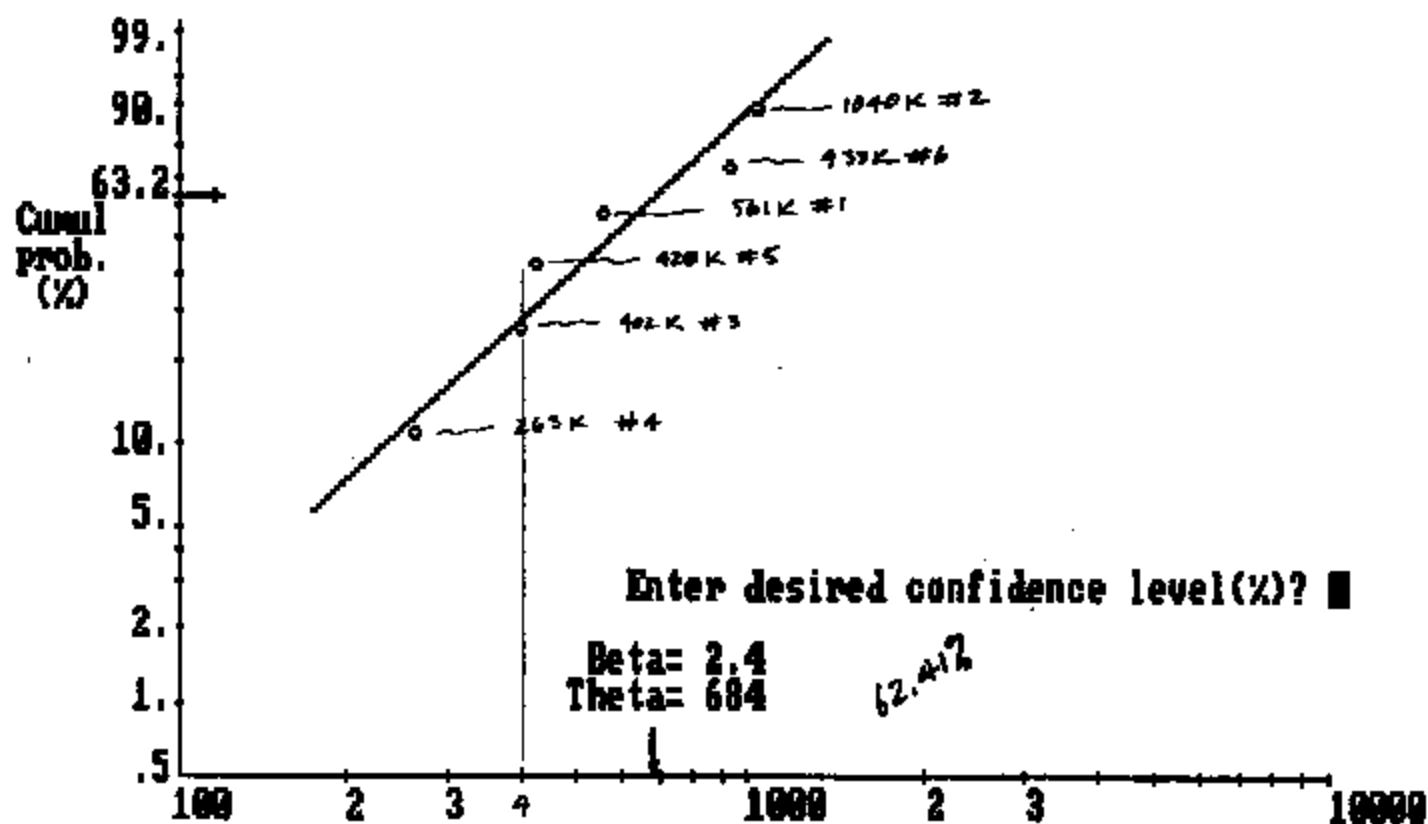
convert to 77's on 10/21/91

CONTROL GROUP FOR MOD KAPTON CLAMP (.003 STEP ON HEX)
TEST 160



MOD KAPTON CLAMP w/ .003" STEP ON HEX
TEST 160

711007



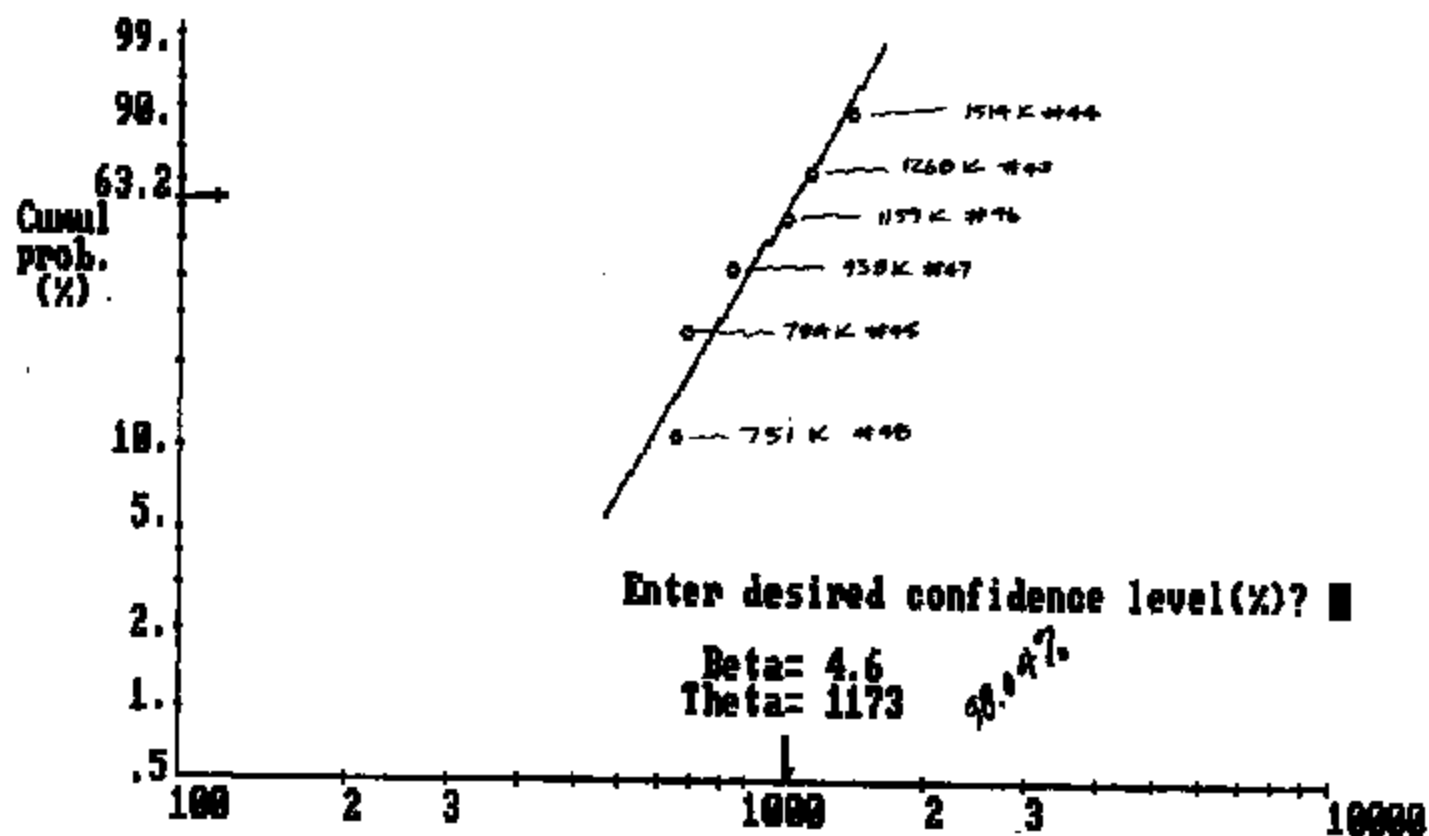
TI-NHTSA 003230

CENTER LOT FOR MODIFIED-TRAVEL PARTS

BUILD DT 910905 AM1 , NO HRE-CR

SENSOR-ONLY

TEST 160 .

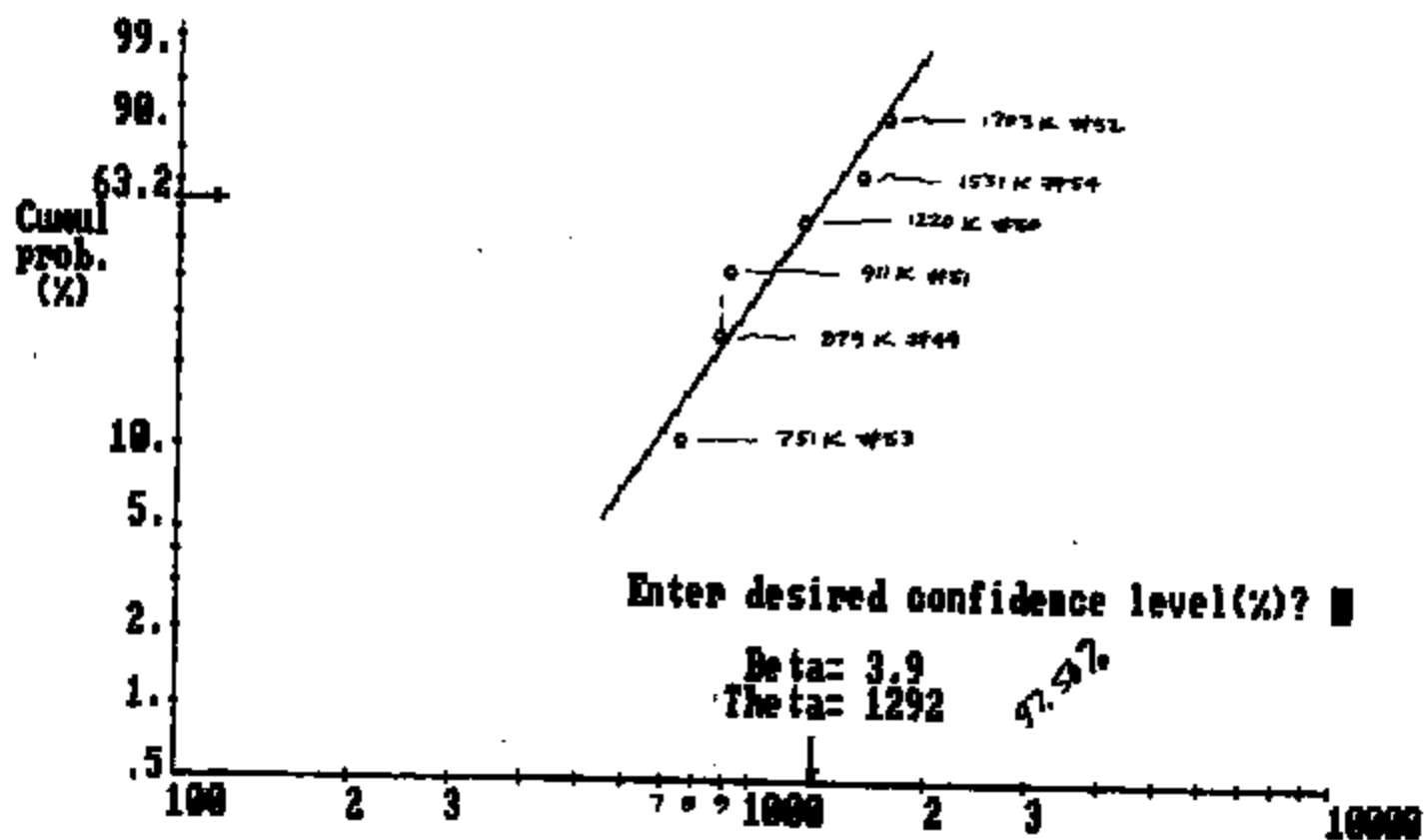


71-NHTBA 003231

.006" REDUCED WASH DE THK.

TEST 160

7/10/87



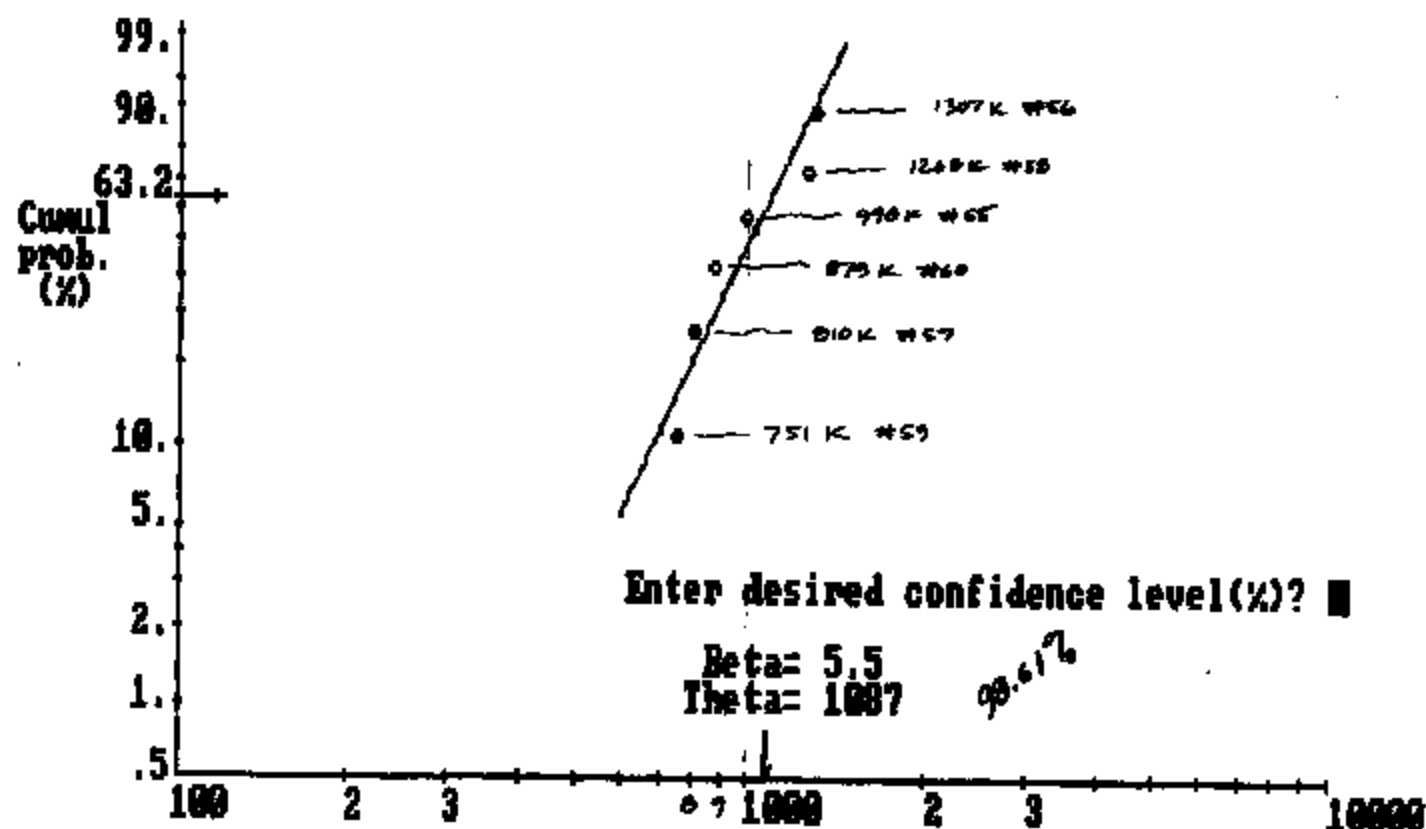
TI-NHTSA 003232

.005 WASHER STEP, PRELOAD DISC, REDUCE CONV. TRAVEL

BUILD DT 910905 AMT, NO RE-CR

SENSOR-ONLY

TEST 160



TI-NHTSA 003233

-MSG HQ- 142877 FR-SBO1 TO-PCQA SENT-10/09/91 08:02 AM
RQ-012 ST-C DIV-0030 CC-00101 BT-SBO1 AT-10/09/91 08:02 AM

TO: Tom Burke AFPC Dave Paripoli PCNE
Dave Charn SAMS Joe Schuck WELS
Jeff DiDomenico ELS Matt Sellars PCNE
Charlie Douglas CPFC Bill Sweet PCNE
Hank Griffin NAPA Jim Watt PCQA
Beth Kili EKIL

CC: Tom Charboneau TC Andy McGuirk PCQA
Mike DeMattia PCQA Gary Snyder CPFC
Dick Gariopy AFPC Martha Sullivan CPFC
Steve Major WELS Ray Tourangeau PCNE

FR: Steve Offiler SBO1

SJ: Ford Pass Car 77PS ISR Completion

Bruce Pease at Pass Car Brake Engineering has given us only conditional approval of the 77PS Initial Sample Report, and written an alert which grants us 90 days to complete the work needed for unconditional approval. This 90 day period runs from Oct 2 to Dec 31. Approval is conditional because of difficulties with Rapton diaphragm life during the original test, which we've determined is related to the sensor crimp process. The following schedule outlines the actions that will be required to meet the Dec 31 deadline.

Please plan to attend a brief meeting today, Wednesday Oct 9 at 3:00pm in the Cafeteria, to discuss details of this schedule.

(Joe - please wait until we discuss this before you share it with Bruce. I will contact you as soon as possible.)

(ongoing) Efforts to determine root cause of diaphragm failures - Steve, Jeff

Fri Oct 4 Begin failure test of two ANI sensor lots: one crimped at 56/50 psi; other crimped at 70/60 psi (selected to represent standard ANI pressures and standard 57PS manual-line pressures respectively) - Jeff, Dave P.

Fri Oct 11 Begin failure test of multiple (four to six, TBD) ANI sensor lots, crimped at a variety of pressures selected to allow determination of diaphragm life versus crimp pressure - Steve, Matt, Jeff, Dave P.

Mon Oct 14 Approx. end of two-lot failure test

Mon Oct 21 Approx. end of multi-lot failure test. Life vs. crimp pressures determined here will dictate add'l process controls to assure pressures remain in acceptable range - Matt

Tue Oct 23 Drop-dead date to complete implementation of process controls - Matt, Dave P.

Wed Oct 30 Drop-dead date to build devices to undergo ISR testing - Tom B.

Fri Nov 1 Complete pre-test characterizations - Jeff

Mon Nov 4 Deliver 12 devices to Chen Lab for Fluid Resistance test - Jeff

Mon Nov 4 Begin impulse testing of 12 non-Fluid Res. parts. (Starting this test ASAP, before Nov 4, say expose unanticipated

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problems and allow time for correction before critical Fluid Resistance test begins.) - Jeff

Tue Nov 5 Begin Fluid Resistance test - Chem Lab
Thu Nov 7 Complete impulse testing of non-Fluid Res. parts - Jeff
Thu Dec 12 Receive finished Fluid Res. test parts from Chem Lab - Jeff
Thu Dec 12 Begin impulse testing of 12 Fluid Res. parts - Jeff
Mon Dec 16 Complete " " " " " " " " - Jeff
Wed Dec 18 Complete post-test characterizations - Jeff
Fri Dec 20 Complete writeup of addendum to IER test report, ship - Steve

Regards,
Steve G.

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1453 PM 10/09/91 FA=SB01 TO=IARN SENT=10/09/91 03:57 PM
 Rev:108 ST=C DIV=J056 CO=J101 BY=SB01 AT=10/09/91 03:57 PM

Tom Burke	WFO	Dave Paripoli	PCME
Dave O'Keefe	ZARK	Joe Schuck	WHLZ
Jeff DiDomenico	KLB	Matt Sellers	PCMI
Charlie Douglas	CFPC	Bill Sweet	PCME
Wank Griffin	WAPA	Jim Watt	PCQA
Beth Hill	KRL		

10: Tom Charbonneau	TC	Andy McGuirk	PCQA
Mike DeMatteis	PCQA	Gary Snyder	CFPC
Dick Serapay	WFO	Martha Sullivan	CFPC
Steve Taylor	WHLZ	Ray Toudrasseau	PCME

TH: Steve Officer BBO:

SS: Ford Pass Car 77PS ISE Completion

Following is the finalized version of the schedule we are following to complete the corrections to the automatic sensor assembly process and subsequently complete outstanding ISE tests.

(Joe - please share this with Bruce Tease.)

(ongoing) Efforts to determine root cause of diaphragm failures - Steve, Jeff

Fri Oct 4 Begin failure test of two AMI sensor lots: one crimped at 56/50 psi; other crimped at 70/60 psi (selected to represent standard AMI pressures and standard 57PS manual-line pressures respectively) - Jeff, Dave P.

Fri Oct 11 Begin failure test of six AMI sensor lots, crimped at a variety of pressures (45/40, 50/44, 55/48, 60/52, 65/56, and 70/60) to determine diaphragm life versus crimp pressure - Steve, Matt, Jeff, Dave P.

Mon Oct 14 Approx. end of two-lot failure test

Wed Oct 16 Begin failure test of sensor lots with a variety of internal component configurations (washer edge contour, plating) to determine secondary effects on diaphragm life - Steve, Matt, Jeff

Mon Oct 21 Approx. end of multi-lot failure test. Life vs. crimp pressure determined here will dictate add'l process controls to ensure pressures remain in acceptable range - Matt

Wed Oct 23 Drop-lead data to build devices to undergo ISE testing, using production intent process controls - Tom B.

Fri Nov 1 Complete pre-test characterizations - Jeff

Mon Nov 4 Caliber 12 devices to Chap Lab for Fluid Resistance test - Jeff

Mon Nov 4 Begin Ingress testing of 12 Non-Fluid Res. parts. (Starting this test ASAP, before Nov 4, may expose unanticipated problems and allow time for correction before critical fluid resistance test begins.)

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PRESSURE SWITCH DATA

FORM 21605

TEST NO. 168-01-c1

DEVICE 77652-1 Special	DATE REQUESTED 10/19/91	REQUESTED BY Steve off-lee	REQUESTED COMPL. DATE
PERFORMED BY Taffey B. Dorey	DATE STARTED 10/19/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford MY 1971 Electronic Speed Control Deactivate PS			

CUSTOMER:

PURPOSE OF TEST: Silent Pass-car samples for
Tia Andersen. No charge

PROCEDURE:

Revised 2nd Ed/Ed
118-01-01 12/1/91
-01 11/1/95

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77 P/C Base

B1 1.99

B2 1.97

C1 2.02

C2 2.025

D1 1.92

D2 1.95

4/T

"H 1.92

1.93

Metric.

2.06

1.85

10.7.11

7785
~~7785~~ 7785 TESTER LOG REPORT

RATING: 77PM2-1
 LOT ID: L2-1
 LOT STARTED: 10-OCT-1991 12:19:34.69
 LOT FINISHED: 10-OCT-1991 14:05:10.12

SETUP DATA:
 LIMIT (AC)

ACTUATION: 90.0 TO 160.0 PSI
 RELEASE: 20.0 TO 160.0 PSI
 DIFFERENTIAL: 0.0 TO 160.0 PSI
 MAX MILLIVOLT: 200.0 PSI
 CREEP TIME: 10.0 PSI
 PRECYCLE PRESS: 800.0 PSI
 PRECYCLE COUNT: 2

NUMBER OF PIECES TESTED: 292
 NUMBER OF PIECES GOOD: 218
 YIELD: 85.51 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	21	51.76 %
ACCR	1	2.94 %
ACLG	0	0.00 %
ACNE	0	0.00 %
FLMI	0	0.00 %
PLLO	7	20.59 %
DFLO	0	0.00 %
RLSR	5	14.71 %
DFMI	0	0.00 %

STATISTICS	MEAN	STDEV	CPK
ACTUATION:	120.6	4.67	2.11
RELEASE:	28.9	3.12	0.45
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	93.5	7.82	2.62

HISTOGRAM OF ACTUATION PRESSURE

10 20 30 40 50 60 70 80 90 100

TI-NHT8A 003240

th

1 300 pc run 213 good ship out of 300 pc run

1st run 86.51%

2nd 86.61%

3rd 77.27%

sorted good pcs. - chipped bases
bad stat state - contamination
from sensor bowl

- 1 SER 14 FIA 11 C4 00000001 BIN#00001 MFR# 0.01 MFR#11.51 LEAK RATE= 1.4
ACT= 118.41 REL= 30.11 DIP= 88.3 PSI ACTOR= 0.1mm RELOR= 0.3
- 2 SER 14 FIA 21 C4 00000001 BIN#00001 MFR# 0.01 MFR#11.51 LEAK RATE= 1.4
ACT= 118.41 REL= 34.01 DIP= 84.4 PSI ACTOR= 0.8mm RELOR= 1.0
- 3 SER 14 FIA 31 C4 00000001 BIN#00001 MFR# 0.01 MFR#11.51 LEAK RATE= 1.4
ACT= 125.21 REL= 31.01 DIP= 82.2 PSI ACTOR= 1.0mm RELOR= 0.5
- 4 SER 14 FIA 41 C4 00000001 BIN#00001 MFR# 0.01 MFR#11.51 LEAK RATE= 1.4
ACT= 122.51 REL= 27.21 DIP= 87.3 PSI ACTOR= 0.2mm RELOR= 0.0
- 5 SER 14 FIA 51 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 124.81 REL= 21.01 DIP= 81.7 PSI ACTOR= 1.0mm RELOR= 0.4
- 6 SER 14 FIA 61 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 0.7mm RELOR= 0.3
- 7 SER 14 FIA 71 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 1.0mm RELOR= 0.3
- 8 SER 14 FIA 81 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 1.0mm RELOR= 0.4
- 9 SER 14 FIA 91 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 1.0mm RELOR= 0.3
- ~~SER 14 FIA 101 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 1.0mm RELOR= 0.3~~
- 10 SER 14 FIA 111 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 1.0mm RELOR= 0.3
- 11 SER 14 FIA 121 C4 00000001 BIN#00001 MFR#11.51 MFR#11.51 LEAK RATE= 1.4
ACT= 120.01 REL= 25.01 DIP= 84.0 PSI ACTOR= 1.0mm RELOR= 0.3

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~~SER 13; FIX 1; C= 0000000; BIN=8000; WFRU=100.0; WFRD=10.7; LEAK RATE= 1.3
ACT= 78.8; REL= 0.0; DIF= 78.8 PSI; ACTOR= 200.0mm; RELOR= 200.0~~

12 SER 14; FIX 2; C= 0000000; BIN=8000; WFRU=100.0; WFRD=10.7; LEAK RATE= 1.3
ACT= 117.7; REL= 34.1; DIF= 83.5 PSI; ACTOR= 0.0mm; RELOR= 0.0

13 SER 15; FIX 3; C= 0000000; BIN=8000; WFRU=100.0; WFRD=10.7; LEAK RATE= 1.3
ACT= 125.5; REL= 24.0; DIF= 101.5 PSI; ACTOR= 0.0mm; RELOR= 0.0

14 SER 16; FIX 4; C= 0000000; BIN=8000; WFRU=100.0; WFRD=10.7; LEAK RATE= 1.3
ACT= 128.8; REL= 23.0; DIF= 105.6 PSI; ACTOR= 0.0mm; RELOR= 0.0

15 SER 17; FIX 1; C= 0000000; BIN=8000; WFRU=77.1; WFRD=11.5; LEAK RATE= 1.5
ACT= 116.8; REL= 31.7; DIF= 85.1 PSI; ACTOR= 0.0mm; RELOR= 0.3

16 SER 18; FIX 2; C= 0000000; BIN=8000; WFRU=77.1; WFRD=11.5; LEAK RATE= 1.5
ACT= 122.7; REL= 25.2; DIF= 97.6 PSI; ACTOR= 0.0mm; RELOR= 0.3

17 SER 19; FIX 3; C= 0000000; BIN=8000; WFRU=77.1; WFRD=11.5; LEAK RATE= 1.5
ACT= 126.9; REL= 30.3; DIF= 96.7 PSI; ACTOR= 0.0mm; RELOR= 0.1

18 SER 20; FIX 4; C= 0000000; BIN=8000; WFRU=77.1; WFRD=11.5; LEAK RATE= 1.5
ACT= 125.8; REL= 29.0; DIF= 96.6 PSI; ACTOR= 0.0mm; RELOR= 0.5

19 SER 21; FIX 1; C= 0000000; BIN=8000; WFRU=95.4; WFRD=11.4; LEAK RATE= 1.3
ACT= 125.3; REL= 24.8; DIF= 100.5 PSI; ACTOR= 0.7mm; RELOR= 0.1

20 SER 22; FIX 2; C= 0000000; BIN=8000; WFRU=95.4; WFRD=11.4; LEAK RATE= 1.3
ACT= 132.2; REL= 28.1; DIF= 104.1 PSI; ACTOR= 0.7mm; RELOR= 1.1

21 SER 23; FIX 3; C= 0000000; BIN=8000; WFRU=95.4; WFRD=11.4; LEAK RATE= 1.3
ACT= 130.1; REL= 30.8; DIF= 99.4 PSI; ACTOR= 0.7mm; RELOR= 0.0

22 SER 24; FIX 4; C= 0000000; BIN=8000; WFRU=95.4; WFRD=11.4; LEAK RATE= 1.3
ACT= 120.4; REL= 29.0; DIF= 91.4 PSI; ACTOR= 0.0mm; RELOR= 0.2

14-201-1991 14447207.37 OPEN DOOR AND NOT CLOSE

23 SER 25; FIX 1; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 120.7; REL= 30.3; DIF= 87.3 PSI; ACTOR= 0.0mm; RELOR= 0.1

24 SER 26; FIX 2; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 111.8; REL= 26.3; DIF= 85.3 PSI; ACTOR= 0.0mm; RELOR= 1.1

25 SER 27; FIX 3; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 124.7; REL= 33.8; DIF= 90.7 PSI; ACTOR= 0.0mm; RELOR= 0.1

26 SER 28; FIX 4; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 121.5; REL= 27.4; DIF= 94.1 PSI; ACTOR= 0.0mm; RELOR= 0.4

27 SER 29; FIX 1; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 123.4; REL= 27.5; DIF= 95.9 PSI; ACTOR= 0.0mm; RELOR= 1.1

28 SER 30; FIX 2; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 126.5; REL= 32.7; DIF= 94.0 PSI; ACTOR= 0.0mm; RELOR= 1.1

~~SER 31; FIX 3; C= 0000000; BIN=8000; WFRU=105.3; WFRD=11.6; LEAK RATE= 1.5
ACT= 124.5; REL= 31.7; DIF= 92.8 PSI; ACTOR= 0.0mm; RELOR= 1.1~~

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~~SER 31: FIX 1; C= 0000000; BIN=GOOD; MFRU=107.1; MFRD=14.7; LEAK RATE= 1.3
 ACT= 121.3; REL= 0.0; DIF= 121.3 PSI; ACTCR= 0.000; RELCR= 0.0~~

30 SER 34: FIX 2; C= 0000000; BIN=GOOD; MFRU=109.1; MFRD=14.7; LEAK RATE= 1.3
 ACT= 124.0; REL= 29.4; DIF= 95.5 PSI; ACTCR= 0.000; RELCR= 0.3

~~SER 35: FIX 3; C= 0022004; BIN=CONT; MFRU=109.1; MFRD=14.7; LEAK RATE= 1.3
 ACT= 114.1; REL= 0.0; DIF= 114.1 PSI; ACTCR= 0.000; RELCR= 200.0~~

~~SER 36: FIX 4; C= 0022004; BIN=CONT; MFRU=109.1; MFRD=14.7; LEAK RATE= 1.3
 ACT= 123.4; REL= 0.0; DIF= 123.4 PSI; ACTCR= 0.000; RELCR= 200.0~~

31 SER 37: FIX 1; C= 0000000; BIN=GOOD; MFRU=117.5; MFRD=10.9; LEAK RATE= 1.2
 ACT= 127.1; REL= 30.4; DIF= 96.7 PSI; ACTCR= 0.100; RELCR= 0.2

32 SER 38: FIX 2; C= 0000000; BIN=GOOD; MFRU=117.5; MFRD=10.9; LEAK RATE= 1.2
 ACT= 128.3; REL= 27.4; DIF= 100.9 PSI; ACTCR= 0.200; RELCR= 0.3

~~SER 39: FIX 3; C= 0000000; BIN=GOOD; MFRU=117.5; MFRD=10.9; LEAK RATE= 1.2
 ACT= 128.4; REL= 17.3; DIF= 105.1 PSI; ACTCR= 0.100; RELCR= 0.0~~

33 SER 40: FIX 4; C= 0000000; BIN=GOOD; MFRU=117.5; MFRD=10.9; LEAK RATE= 1.2
 ACT= 120.4; REL= 30.1; DIF= 90.3 PSI; ACTCR= 0.300; RELCR= 0.1

34 SER 41: FIX 1; C= 0000000; BIN=GOOD; MFRU=103.8; MFRD=10.7; LEAK RATE= 1.4
 ACT= 129.4; REL= 36.7; DIF= 89.7 PSI; ACTCR= 0.600; RELCR= 0.1

~~SER 42: FIX 2; C= 0022005; BIN=CONT; MFRU=103.8; MFRD=10.7; LEAK RATE= 1.4
 ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTCR= 200.000; RELCR= 200.0~~

~~SER 43: FIX 3; C= 0023005; BIN=CONT; MFRU=103.8; MFRD=10.7; LEAK RATE= 1.4
 ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTCR= 200.000; RELCR= 200.0~~

~~SER 44: FIX 4; C= 0023005; BIN=CONT; MFRU=103.8; MFRD=10.7; LEAK RATE= 1.4
 ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTCR= 200.000; RELCR= 200.0~~

14-SEP-199; 10:45:11.56 OPEN DOOR DID NOT CLOSE

Dummies

63PS SWITCH TESTER LOT REPORT

RATINGS: 77PSL2-1
 LOT ID: L2-1
 LOT STARTED: 10-OCT-1991 12:19:34.69
 TIME PRINTED: 10-OCT-1991 14:01:12.09

SETUP DATA:

LIMIT (NC)

ACTUATION: 90.0 TO 160.0 PSI
 RELEASE: 20.0 TO 160.0 PSI
 DIFFERENTIAL: 0.0 TO 160.0 PSI
 MAX MILLIVOLT: 200.0 PSI
 CREEP TIME: 10.0 PSI
 PRECYCLE PRESS: 800.0 PSI
 PRECYCLE COUNT: 2

NUMBER OF PIECES TESTED: 252
 NUMBER OF PIECES GOOD: 218
 YIELD: 86.51 %

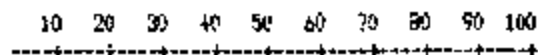
REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	21	61.76 %
ACCR	1	2.94 %
ACLD	0	0.00 %
ACMI	0	0.00 %
RLHI	0	0.00 %
RLLO	7	20.59 %
DFLO	0	0.00 %
RLCR	5	14.71 %
DFMI	0	0.00 %

STATISTICS

	MEAN	SIGMA	CPK
ACTUATION:	120.8	4.87	2.11
RELEASE:	26.9	5.12	0.45
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	93.9	7.82	2.82

HISTOGRAM OF ACTUATION PRESSURE



TI-NHT8A 003244

107.5	31	***
110.0	21	*
112.5	121	*****
115.0	261	*****
117.5	311	*****
120.0	461	*****
122.5	511	*****
125.0	311	*****
127.5	191	*****
130.0	51	***
132.5	41	**
135.0	01	
137.5	11	*
OVER	01	

HISTOGRAM OF RELEASE PRESSURE

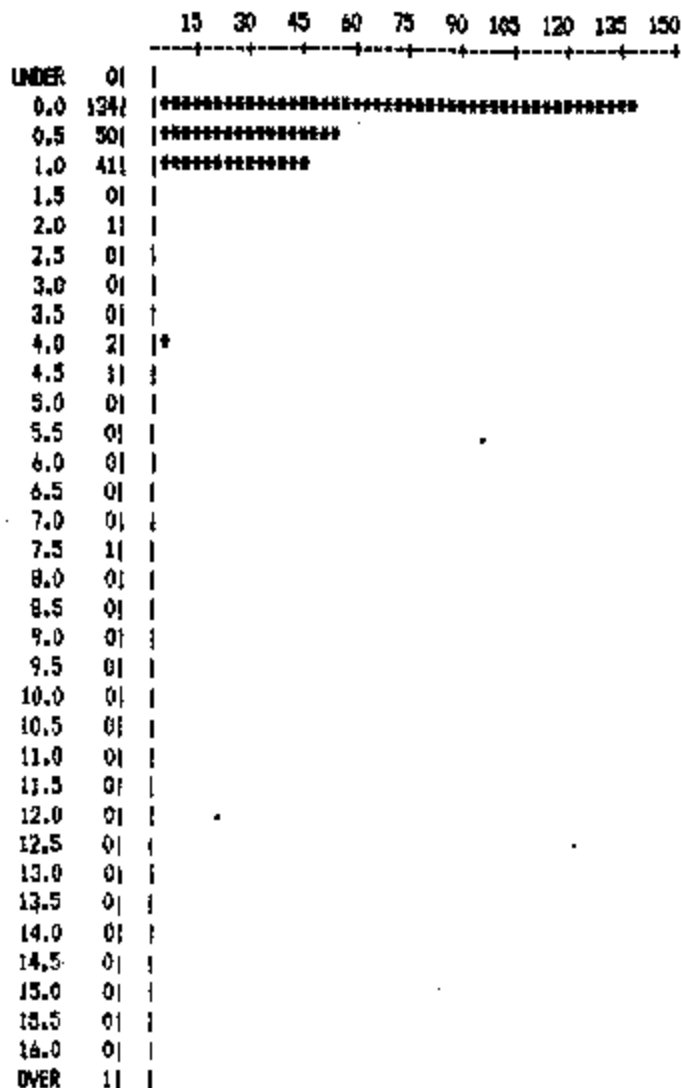
			15	30	45	60	75	90	105	120	135	150
UNDER	01											
0.0	41	*										
5.0	01											
10.0	01											
15.0	01											
20.0	151	*****										
25.0	1111	*****										
30.0	811	*****										
35.0	191	*****										
40.0	11											
OVER	01											

HISTOGRAM OF DIFFERENTIAL PRESSURE

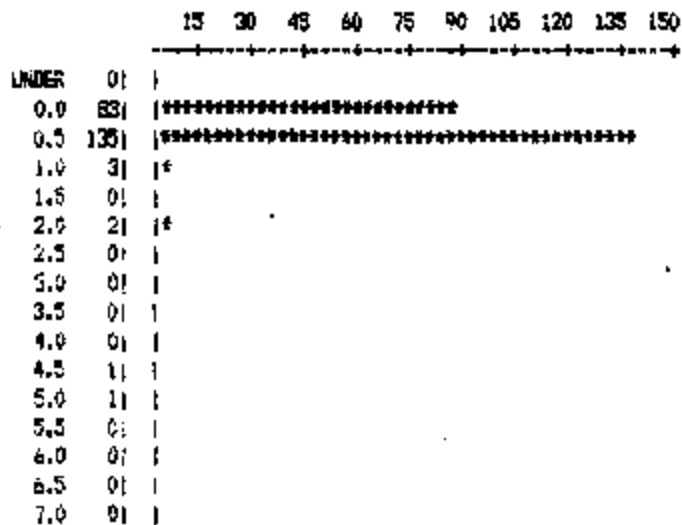
			10	20	30	40	50	60	70	80	90	100
UNDER	01											
70.0	11	*										
75.0	21	*										
80.0	101	****										
85.0	321	*****										
90.0	441	*****										
95.0	831	*****										
100.0	391	*****										
105.0	111	*****										
110.0	51	***										
115.0	01											
120.0	11	*										
125.0	21	*										
130.0	11	*										
OVER	01											

TI-NHTSA 003245

HISTOGRAM OF ACTUATION GREEF



HISTOGRAM OF RELEASE CREEP



TI-NHTSA 003248

8.0	01	1
8.5	01	1
9.0	01	1
9.5	01	1
10.0	01	1
10.5	01	1
11.0	01	1
11.5	01	1
12.0	01	1
12.5	01	1
13.0	01	1
13.5	01	1
14.0	01	1
14.5	01	1
15.0	01	1
15.5	01	1
16.0	01	1
OVER	81	122

FIXTURE POSITION 1

NUMBER OF PIECES TESTED: 63
NUMBER OF PIECES GOOD: 53
YIELD: 84.13 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	7	70.00 %
ACCR	0	0.00 %
ACLO	0	0.00 %
ACHI	0	0.00 %
RLHI	0	0.00 %
RLLO	1	10.00 %
DFLO	0	0.00 %
RLCR	2	20.00 %
DFHI	0	0.00 %

STATISTICS	MEAN	STDEV	CPK
ACTUATION:	120.5	4.36	2.33
RELEASE:	27.6	3.88	0.65
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	93.0	3.33	4.04

FIXTURE POSITION 2

NUMBER OF PIECES TESTED: 63
NUMBER OF PIECES GOOD: 54
YIELD: 85.71 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	5	55.56 %
ACCR	0	0.00 %
ACLO	0	0.00 %
ACHI	0	0.00 %
RLHI	0	0.00 %
RLLO	2	22.22 %
DFLO	0	0.00 %

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DPHI 0 0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	120.8	4.42	2.32
RELEASE:	28.8	5.13	0.44
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	94.0	7.59	2.90

FIXTURE POSITION 3

NUMBER OF PIECES TESTED: 63
NUMBER OF PIECES GOOD: 56
YIELD: 88.89 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	4	57.14 %
ACCR	0	0.00 %
ACLD	0	0.00 %
ACH	0	0.00 %
RLMI	0	0.00 %
RLLD	2	28.57 %
DFLO	0	0.00 %
RLEP	1	14.29 %
DPHI	0	0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	120.6	5.38	1.90
RELEASE:	28.6	4.88	0.45
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	94.0	8.22	2.67

FIXTURE POSITION 4

NUMBER OF PIECES TESTED: 63
NUMBER OF PIECES GOOD: 55
YIELD: 87.30 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	5	62.50 %
ACCR	1	12.50 %
ACLD	0	0.00 %
ACH	0	0.00 %
RLMI	0	0.00 %
RLLD	2	25.00 %
DFLO	0	0.00 %
RLEP	0	0.00 %
DPHI	0	0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	121.3	5.30	1.97
RELEASE:	28.8	5.30	0.36
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	94.6	9.45	2.31

TI-NHTSA 003248

SER 1; FIX 1; C= 0000000; BIN=GOOD ; MFRU=46.0; MFRD=31.3; LEAK RATE= 1.0
ACT= 125.6; REL= 25.9; DIF= 99.7 PSI; ACTCR= 0.0ms; RELCR= 0.5

SER 2; FIX 2; C= 0000000; BIN=GOOD ; MFRU=46.0; MFRD=31.3; LEAK RATE= 1.0
ACT= 122.3; REL= 24.3; DIF= 97.7 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 3; FIX 3; C= 0000000; BIN=GOOD ; MFRU=46.0; MFRD=31.3; LEAK RATE= 1.0
ACT= 123.6; REL= 24.3; DIF= 97.3 PSI; ACTCR= 0.1ms; RELCR= 0.0

SER 4; FIX 4; C= 0000000; BIN=GOOD ; MFRU=44.0; MFRD=31.3; LEAK RATE= 1.0
ACT= 116.6; REL= 27.6; DIF= 89.0 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 5; FIX 1; C= 0000000; BIN=GOOD ; MFRU=46.1; MFRD=31.8; LEAK RATE= 1.3
ACT= 108.3; REL= 30.3; DIF= 78.0 PSI; ACTCR= 0.0ms; RELCR= 0.0

SER 6; FIX 2; C= 0000000; BIN=GOOD ; MFRU=46.1; MFRD=31.8; LEAK RATE= 1.3
ACT= 115.1; REL= 30.3; DIF= 84.9 PSI; ACTCR= 0.8ms; RELCR= 0.2

SER 7; FIX 3; C= 0000000; BIN=GOOD ; MFRU=46.1; MFRD=31.8; LEAK RATE= 1.3
ACT= 126.5; REL= 26.4; DIF= 100.0 PSI; ACTCR= 0.6ms; RELCR= 0.1

SER 8; FIX 4; C= 0000000; BIN=GOOD ; MFRU=46.1; MFRD=31.8; LEAK RATE= 1.3
ACT= 123.4; REL= 27.1; DIF= 96.3 PSI; ACTCR= 0.8ms; RELCR= 0.2

SER 9; FIX 1; C= 0000000; BIN=GOOD ; MFRU=46.5; MFRD=29.2; LEAK RATE= 1.0
ACT= 130.8; REL= 25.8; DIF= 105.1 PSI; ACTCR= 0.0ms; RELCR= 0.3

~~SER 10; FIX 2; C= 0000000; BIN=GOOD ; MFRU=46.5; MFRD=29.2; LEAK RATE= 1.0
ACT= 73.4; REL= 0.0; DIF= 73.4 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 11; FIX 3; C= 0000000; BIN=GOOD ; MFRU=46.5; MFRD=29.2; LEAK RATE= 1.0
ACT= 117.6; REL= 32.9; DIF= 84.1 PSI; ACTCR= 0.0ms; RELCR= 0.5

~~SER 12; FIX 4; C= 0000000; BIN=GOOD ; MFRU=46.5; MFRD=29.2; LEAK RATE= 1.0
ACT= 73.4; REL= 0.0; DIF= 73.4 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 13; FIX 1; C= 0000000; BIN=GOOD ; MFRU=45.9; MFRD=30.9; LEAK RATE= 0.9
ACT= 129.0; REL= 28.3; DIF= 100.7 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 14; FIX 2; C= 0000000; BIN=GOOD ; MFRU=45.9; MFRD=30.9; LEAK RATE= 0.9
ACT= 128.0; REL= 28.4; DIF= 99.6 PSI; ACTCR= 0.8ms; RELCR= 0.1

SER 15; FIX 3; C= 0000000; BIN=GOOD ; MFRU=45.9; MFRD=30.9; LEAK RATE= 0.9
ACT= 119.5; REL= 29.1; DIF= 90.4 PSI; ACTCR= 0.0ms; RELCR= 0.0

SER 16; FIX 4; C= 0000000; BIN=GOOD ; MFRU=45.9; MFRD=30.9; LEAK RATE= 0.9
ACT= 125.5; REL= 23.1; DIF= 102.5 PSI; ACTCR= 0.7ms; RELCR= 0.3

SER 17; FIX 1; C= 0000000; BIN=GOOD ; MFRU=46.4; MFRD=31.2; LEAK RATE= 0.0

TI-NHTSA 003249

SER 18; FIX 2; C= 0000000; BIN=8000; MRRU=46.4; MRRD=31.2; LEAK RATE= 0.8
ACT= 124.8; REL= 23.9; DIF= 100.9 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 19; FIX 3; C= 0000000; BIN=8000; MRRU=46.4; MRRD=31.2; LEAK RATE= 0.8
ACT= 116.6; REL= 26.6; DIF= 90.0 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 20; FIX 4; C= 0000000; BIN=8000; MRRU=46.4; MRRD=31.2; LEAK RATE= 0.8
ACT= 123.4; REL= 34.1; DIF= 89.3 PSI; ACTCR= 0.8ms; RELCR= 0.3

29-OCT-1991 11:24:54.73 OPER DOOR DID NOT CLOSE 1

29-OCT-1991 11:25:14.73 OPER DOOR STILL DID NOT CLOSE 1

SER 21; FIX 1; C= 0000000; BIN=8000; MRRU=46.0; MRRD=30.5; LEAK RATE= 1.1
ACT= 122.4; REL= 25.3; DIF= 97.1 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 22; FIX 2; C= 0000000; BIN=8000; MRRU=46.0; MRRD=30.5; LEAK RATE= 1.1
ACT= 124.7; REL= 22.9; DIF= 101.7 PSI; ACTCR= 0.7ms; RELCR= 0.8

SER 23; FIX 3; C= 0000000; BIN=8000; MRRU=46.0; MRRD=30.5; LEAK RATE= 1.1
ACT= 109.3; REL= 37.7; DIF= 71.6 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 24; FIX 4; C= 0000000; BIN=8000; MRRU=46.0; MRRD=30.5; LEAK RATE= 1.1
ACT= 127.7; REL= 24.3; DIF= 103.4 PSI; ACTCR= 0.6ms; RELCR= 0.4

29-OCT-1991 11:25:44.26 OPER DOOR DID NOT CLOSE 1

29-OCT-1991 11:26:04.26 OPER DOOR STILL DID NOT CLOSE 1

29-OCT-1991 11:26:21.14 TOOL CYCLE TIMEOUT 1

SER 25; FIX 1; C= 0000000; BIN=8000; MRRU=45.9; MRRD=31.3; LEAK RATE= 1.0
ACT= 124.4; REL= 25.2; DIF= 99.2 PSI; ACTCR= 0.9ms; RELCR= 0.4

SER 26; FIX 2; C= 0000000; BIN=8000; MRRU=45.9; MRRD=31.3; LEAK RATE= 1.0
ACT= 122.4; REL= 24.6; DIF= 97.8 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 27; FIX 3; C= 0000000; BIN=8000; MRRU=45.9; MRRD=31.3; LEAK RATE= 1.0
ACT= 117.9; REL= 31.3; DIF= 86.6 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 28; FIX 4; C= 0000000; BIN=8000; MRRU=45.9; MRRD=31.3; LEAK RATE= 1.0
ACT= 120.7; REL= 29.2; DIF= 91.5 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 29; FIX 1; C= 0000000; BIN=8000; MRRU=46.7; MRRD=31.6; LEAK RATE= 1.1
ACT= 127.7; REL= 26.8; DIF= 101.1 PSI; ACTCR= 0.1ms; RELCR= 0.1

SER 30; FIX 2; C= 0000000; BIN=8000; MRRU=46.7; MRRD=31.6; LEAK RATE= 1.1
ACT= 121.4; REL= 27.4; DIF= 94.0 PSI; ACTCR= 0.1ms; RELCR= 0.2

SER 31; FIX 3; C= 0000000; BIN=8000; MRRU=46.7; MRRD=31.6; LEAK RATE= 1.1
ACT= 119.5; REL= 25.2; DIF= 94.3 PSI; ACTCR= 0.1ms; RELCR= 0.4

SER 32; FIX 4; C= 0000000; BIN=8000; MRRU=46.7; MRRD=31.6; LEAK RATE= 1.1
ACT= 119.5; REL= 44.0; DIF= 75.5 PSI; ACTCR= 0.0ms; RELCR= 0.4

TI-NHT8A 003250

NRU= 117.0; REL= 24.0; DIF= 70.7 PSI; ACTCR= 0.0ms; RELCR= 0.0

SER 34; FIX 2; C= 0000000; BIN=GOOD; NRU=45.9; NRD=31.1; LEAK RATE= 1.5
ACT= 125.6; REL= 24.3; DIF= 101.3 PSI; ACTCR= 0.7ms; RELCR= 0.3

SER 35; FIX 3; C= 0000000; BIN=GOOD; NRU=45.9; NRD=31.1; LEAK RATE= 1.5
ACT= 120.9; REL= 28.8; DIF= 92.1 PSI; ACTCR= 0.8ms; RELCR= 0.3

SER 36; FIX 4; C= 0000000; BIN=GOOD; NRU=45.9; NRD=31.1; LEAK RATE= 1.5
ACT= 126.5; REL= 24.8; DIF= 101.6 PSI; ACTCR= 0.7ms; RELCR= 0.1

SER 37; FIX 1; C= 0000000; BIN=GOOD; NRU=46.1; NRD=29.2; LEAK RATE= 1.1
ACT= 125.3; REL= 55.6; DIF= 69.7 PSI; ACTCR= 0.0ms; RELCR= 0.2

~~SER 38; FIX 2; C= 0000000; BIN=GOOD; NRU=45.1; NRD=29.2; LEAK RATE= 1.1
ACT= 131.8; REL= 18.1; DIF= 113.7 PSI; ACTCR= 0.0ms; RELCR= 1.0~~

SER 39; FIX 3; C= 0000000; BIN=GOOD; NRU=46.1; NRD=29.2; LEAK RATE= 1.1
ACT= 107.4; REL= 38.4; DIF= 69.0 PSI; ACTCR= 0.7ms; RELCR= 0.5

~~SER 40; FIX 4; C= 0000000; BIN=GOOD; NRU=46.1; NRD=29.2; LEAK RATE= 1.1
ACT= 73.7; REL= 0.0; DIF= 73.7 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

29-OCT-1991 12:02:41.01 OPER DOOR DID NOT CLOSE 1

29-OCT-1991 12:03:01.01 OPER DOOR STILL DID NOT CLOSE 1

SER 41; FIX 1; C= 0000000; BIN=GOOD; NRU=45.7; NRD=32.0; LEAK RATE= 1.1
ACT= 118.0; REL= 27.0; DIF= 91.5 PSI; ACTCR= 0.0ms; RELCR= 0.5

SER 42; FIX 2; C= 0000000; BIN=GOOD; NRU=45.9; NRD=32.0; LEAK RATE= 1.1
ACT= 114.7; REL= 27.8; DIF= 86.9 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 43; FIX 3; C= 0000000; BIN=GOOD; NRU=45.9; NRD=32.0; LEAK RATE= 1.1
ACT= 116.7; REL= 27.8; DIF= 88.9 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 44; FIX 4; C= 0000000; BIN=GOOD; NRU=45.9; NRD=32.0; LEAK RATE= 1.1
ACT= 120.5; REL= 25.9; DIF= 94.6 PSI; ACTCR= 0.7ms; RELCR= 0.6

SER 45; FIX 1; C= 0000000; BIN=GOOD; NRU=46.0; NRD=31.8; LEAK RATE= 1.0
ACT= 128.6; REL= 26.6; DIF= 102.0 PSI; ACTCR= 0.7ms; RELCR= 0.2

SER 46; FIX 2; C= 0000000; BIN=GOOD; NRU=46.0; NRD=31.8; LEAK RATE= 1.0
ACT= 121.4; REL= 28.8; DIF= 92.6 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 47; FIX 3; C= 0000000; BIN=GOOD; NRU=46.0; NRD=31.8; LEAK RATE= 1.0
ACT= 119.8; REL= 49.2; DIF= 70.3 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 48; FIX 4; C= 0000000; BIN=GOOD; NRU=46.0; NRD=31.8; LEAK RATE= 1.0
ACT= 124.8; REL= 27.7; DIF= 97.1 PSI; ACTCR= 4.1ms; RELCR= 0.4

29-OCT-1991 12:04:23.98 OPER DOOR DID NOT CLOSE 1

SER 49; FIX 1; C= 0000000; BIN=GOOD; NRU=46.1; NRD=30.7; LEAK RATE= 1.2
ACT= 119.0; REL= 26.4; DIF= 93.6 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 50; FIX 2; C= 0000000; BIN=GOOD; NRU=46.1; NRD=30.7; LEAK RATE= 1.2
ACT= 127.1; REL= 22.4; DIF= 104.7 PSI; ACTCR= 0.7ms; RELCR= 0.2

TI-NHTSA 003251

SER 51; FIX 3; C= 0000000; BIN=GOOD; MRRU=46.1; MRRD=30.7; LEAK RATE= 1.2
ACT= 130.7; REL= 27.9; DIF= 102.8 PSI; ACTCR= 0.7ms; RELCR= 0.6

SER 52; FIX 4; C= 0000000; BIN=GOOD; MRRU=46.1; MRRD=30.7; LEAK RATE= 1.2
ACT= 120.9; REL= 29.0; DIF= 91.9 PSI; ACTCR= 0.1ms; RELCR= 0.5

SER 53; FIX 1; C= 0000000; BIN=GOOD; MRRU=46.4; MRRD=31.8; LEAK RATE= 1.1
ACT= 124.9; REL= 34.6; DIF= 90.3 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 54; FIX 2; C= 0000000; BIN=GOOD; MRRU=46.4; MRRD=31.8; LEAK RATE= 1.1
ACT= 127.9; REL= 37.7; DIF= 70.2 PSI; ACTCR= 0.8ms; RELCR= 0.4

SER 55; FIX 3; C= 0000000; BIN=GOOD; MRRU=46.4; MRRD=31.8; LEAK RATE= 1.1
ACT= 120.8; REL= 28.9; DIF= 91.9 PSI; ACTCR= 0.7ms; RELCR= 0.0

SER 56; FIX 4; C= 0000000; BIN=GOOD; MRRU=46.4; MRRD=31.8; LEAK RATE= 1.1
ACT= 122.4; REL= 26.4; DIF= 96.0 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 57; FIX 1; C= 0000000; BIN=GOOD; MRRU=46.3; MRRD=29.2; LEAK RATE= 1.1
ACT= 116.2; REL= 33.2; DIF= 82.9 PSI; ACTCR= 0.7ms; RELCR= 0.7

SER 58; FIX 2; C= 0000000; BIN=GOOD; MRRU=46.3; MRRD=29.2; LEAK RATE= 1.1
ACT= 127.7; REL= 24.5; DIF= 103.3 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 59; FIX 3; C= 0000000; BIN=GOOD; MRRU=46.3; MRRD=29.2; LEAK RATE= 1.1
ACT= 127.7; REL= 22.2; DIF= 105.6 PSI; ACTCR= 0.1ms; RELCR= 0.3

~~SER 60; FIX 4; C= 0023005; BIN=CONT; MRRU=46.3; MRRD=29.2; LEAK RATE= 1.1
ACT= 120.4; REL= 0.0; DIF= 73.6 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 61; FIX 1; C= 0000000; BIN=GOOD; MRRU=45.8; MRRD=31.1; LEAK RATE= 1.2
ACT= 120.8; REL= 26.7; DIF= 92.2 PSI; ACTCR= 0.7ms; RELCR= 2.5

SER 62; FIX 2; C= 0000000; BIN=GOOD; MRRU=45.8; MRRD=31.1; LEAK RATE= 1.2
ACT= 127.9; REL= 24.0; DIF= 103.9 PSI; ACTCR= 0.7ms; RELCR= 0.7

SER 63; FIX 3; C= 0000000; BIN=GOOD; MRRU=45.8; MRRD=31.1; LEAK RATE= 1.2
ACT= 122.1; REL= 33.5; DIF= 88.6 PSI; ACTCR= 0.7ms; RELCR= 0.3

SER 64; FIX 4; C= 0000000; BIN=GOOD; MRRU=45.8; MRRD=31.1; LEAK RATE= 1.2
ACT= 126.9; REL= 26.8; DIF= 100.1 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 65; FIX 1; C= 0000000; BIN=GOOD; MRRU=45.9; MRRD=31.4; LEAK RATE= 1.1
ACT= 116.9; REL= 26.7; DIF= 90.2 PSI; ACTCR= 0.1ms; RELCR= 0.5

SER 66; FIX 2; C= 0000000; BIN=GOOD; MRRU=45.9; MRRD=31.4; LEAK RATE= 1.1
ACT= 121.2; REL= 31.8; DIF= 89.5 PSI; ACTCR= 4.1ms; RELCR= 0.4

SER 67; FIX 3; C= 0000000; BIN=GOOD; MRRU=45.9; MRRD=31.4; LEAK RATE= 1.1
ACT= 128.3; REL= 25.1; DIF= 103.2 PSI; ACTCR= 0.0ms; RELCR= 0.1

SER 68; FIX 4; C= 0000000; BIN=GOOD; MRRU=45.9; MRRD=31.4; LEAK RATE= 1.1
ACT= 118.1; REL= 26.4; DIF= 91.7 PSI; ACTCR= 0.7ms; RELCR= 0.5

29-OCT-1991 12:04:31.43 OPER DOWN DIL NOT CLOSE

29-OCT-1991 12:04:43.38 POWER OFF

TI-NHTSA 003252

29-OCT-1991 12:23:30.15 POWER OFF 1

29-OCT-1991 13:25:33.99 POWER ON 1

29-OCT-1991 13:27:17.44 UNLOAD STELRON NOT HOME 1

29-OCT-1991 13:27:17.52 BRIPPER ALREADY ENABLED 1

29-OCT-1991 13:27:47.72 UNLOAD STELRON DID NOT FINISH INDEX 1

29-OCT-1991 13:27:57.73 UNLOAD STELRON DID NOT FINISH INDEX 1

300 PW
mm

SER 69; FIX 1; C= 0022004; BIN=CONT; MFRU=46.5; MFRD=42.3; LEAK RATE= 1.2
ACT= 121.2; REL= 0.0; DIF= 121.2 PSI; ACTCR= 0.0ms; RELCR= 200.0

~~SER 70; FIX 2; C= 0023005; BIN=CONT; MFRU=46.5; MFRD=42.3; LEAK RATE= 1.2
ACT= 73.3; REL= 0.0; DIF= 73.3 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 71; FIX 3; C= 0000000; BIN=GOOD; MFRU=46.5; MFRD=42.3; LEAK RATE= 1.2
ACT= 124.2; REL= 30.8; DIF= 93.4 PSI; ACTCR= 0.1ms; RELCR= 0.4

~~SER 72; FIX 4; C= 0000004; BIN=GOOD; MFRU=46.5; MFRD=42.3; LEAK RATE= 1.2
ACT= 123.5; REL= 0.0; DIF= 123.5 PSI; ACTCR= 0.1ms; RELCR= 0.1~~

29-OCT-1991 13:30:15.83 OPER DOOR DID NOT OPEN 1

SER 73; FIX 1; C= 0000000; BIN=GOOD; MFRU=46.4; MFRD=31.3; LEAK RATE= 1.2
ACT= 115.6; REL= 27.1; DIF= 88.5 PSI; ACTCR= 0.1ms; RELCR= 0.5

SER 74; FIX 2; C= 0000000; BIN=GOOD; MFRU=46.4; MFRD=31.3; LEAK RATE= 1.2
ACT= 123.1; REL= 31.0; DIF= 92.0 PSI; ACTCR= 0.0ms; RELCR= 0.5

SER 75; FIX 3; C= 0000000; BIN=GOOD; MFRU=46.4; MFRD=31.3; LEAK RATE= 1.2
ACT= 126.9; REL= 25.2; DIF= 101.7 PSI; ACTCR= 0.7ms; RELCR= 0.3

SER 76; FIX 4; C= 0000000; BIN=GOOD; MFRU=46.4; MFRD=31.3; LEAK RATE= 1.2
ACT= 117.5; REL= 28.0; DIF= 89.5 PSI; ACTCR= 0.7ms; RELCR= 0.1

SER 77; FIX 1; C= 0000000; BIN=GOOD; MFRU=46.6; MFRD=30.7; LEAK RATE= 1.0
ACT= 121.9; REL= 27.2; DIF= 94.7 PSI; ACTCR= 0.0ms; RELCR= 1.0

SER 78; FIX 2; C= 0000000; BIN=GOOD; MFRU=46.6; MFRD=30.7; LEAK RATE= 1.0
ACT= 125.7; REL= 30.6; DIF= 94.9 PSI; ACTCR= 0.9ms; RELCR= 0.1

SER 79; FIX 3; C= 0000000; BIN=GOOD; MFRU=46.6; MFRD=30.7; LEAK RATE= 1.0
ACT= 128.5; REL= 23.8; DIF= 104.6 PSI; ACTCR= 0.7ms; RELCR= 0.5

SER 80; FIX 4; C= 0000000; BIN=GOOD; MFRU=46.6; MFRD=30.7; LEAK RATE= 1.0
ACT= 120.8; REL= 27.2; DIF= 93.6 PSI; ACTCR= 0.1ms; RELCR= 0.3

29-OCT-1991 13:31:11.25 OPER DOOR DID NOT CLOSE 1

TI-NHTSA 003253

-MSG #4- 203386 FR-CERN TO-PCQA SENT-10/10/91 05:22 PM
R#-091 ST-C DIV-0050 CC-00101 BY-CERN AT-10/10/91 05:22 PM

OCTOBER 10, 1991

TO: RUSTY STRUBLE	RCS2	CC: TOM CHARBONEAU	TC
MIKE DeMATTIA	PCQA	JOHN KOURTESIS	NDES
CHARLIE DOUGLAS	CPPC	STEVE MAJOR	WHLZ
DICK GARIEPY	MFPC	ANDY McGUIRK	PCQA
PAUL KOTCH	PRK1	ED O'NEILL	EJON
JOE LAZARE	JNL8	JOE SCHUCK	WHLZ
STEVE OFFILER	SBO1	GARY SNYDER	CPPC
MATT SELLERS	PCME	MARTHA SULLIVAN	CPPC
BILL SWEET	PCME	RAY TOURANGEAU	PCME
JIM WATT	PCQA	BILL CONGDON	MFPC
TOM BURKE	MFPC	STEVE MCCOBBY	NDES
CLAIRE BALTHAZAR	PSWT	ELAINE ROSE	PCQA
TERRY RODRIGUES	MFPC	PAUL WESTERLIND	B511

FR: DAVE CERN ZARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
10/10/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 10/17 (THURSDAY)
TIME: 10:00 - 11:30 AM
PLACE: MARKETING CONFERENCE ROOM

PLEASE CALL ME IF YOU ARE NOT ABLE TO ATTEND

* = ITEMS THAT ARE NEW OR HAVE BEEN REVISED OR COMPLETED
SINCE PREVIOUS MEETING

77PS

Export:

* REPORT ON ELCO ISSUES FROM 7/22 VISIT KOTCH ONGOING
- 10B21 STEEL/.00015" MIN. PLATE/J512 \$
* COMPLETE STRIP-OUT/BURST ON 10B21 MAT'L OFFILER 10/24

Environmental Seal:

We've elected to use a different color to differentiate the (thicker) P/C from the L/T environmental seal. P/C has been advised of the proposed change and has agreed to it; therefore, we will submit an SREA to make the gasket color optional. We plan also to include the blue gasket in our follow up testing for P/C.

* RECEIVE 5K LOT OF BLUE P/C SEALS	SELLERS	10/25
* SUBMIT SREA FOR OPTIONAL BLUE SEAL	OFFILER	10/17— P.D.
* INCLUDE GASKETS IN P/C RE-VALIDATION	OFFILER	11/01

Production Issues:

Terry has rejoined the team (...welcome back Terry). She will be responsible for supporting the line during start-up and training the members of the SHWT. Also, Claire is now a manufacturing engineering technician (...congratulations Claire); she will be spending part of her time supporting production start-up as well.

TI-NHTSA 003254

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHAZAR	ONGOING
. UPDATE PRODUCTION PLANS FOR ALL SWITCHES	DOUGLAS	ONGOING
. REPORT ON WEEKLY MFG. START-UP MTGS.	SELLERS	ONGOING
* DEVELOP ASSEMBLY PRINT PACKAGE	SELLERS/	11/28
	OFFILER	

Sensor Assembly Machine:

. REVISE 3rd KAPTON CHK. STATION	KOURTESIS	10/??
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Base Assembly Machine:

The equipment issues related to spring arm and contact (terminal) failures have been addressed. Lots built to several calibration settings were cycled to 500K cycles on the production impulse tester without failures.

* MATRIX OF SWITCHES THAT ADDRESS SPRING AND CONTACT FAILURES - FWD TO ELAINE	SELLERS	09/27	ORIG.
		10/11	REV.
		10/10	COMP.
* IMPULSE TEST SWITCHES FROM ABOVE MATRIX	ROSE	10/03	ORIG.
		10/16	REV.
		10/10	COMP.

Final Assembly Machine:

Misc. Manufacturing/QC Equipment:

* MAKE QC P-TESTER COMPAT. W/77'S	KOURTESIS	10/10	ORIG.
		10/17	REV.

PV Testing/ISR:

The re-submittal date has been set by the team for 12/20 (delivery). The team has developed a plan for corrective actions to be completed by 10/31/91.

The first pass at modifying the base mold was unsuccessful; the dimensions were still at the high end of the spec on 3 cavities and out of spec on the fourth. L/T changeover to 77PS needs to happen during the w/o 10/21, so the second mold revision needs a top priority.

* MODIFY BASE MOLD - second iteration	SELLERS	10/14	
. BUILD 300 L2-1'S FOR PITTS FOR THEIR ISR (W/CORRECTED BASES)	BURKE/	10/04	ORIG.
. RECORD PIPC DATA FROM 300 SWITCH LOT	SELLERS	10/11	REV.
* GIVE 6 BASES TO JIM FOR PAI'S	ROSE	10/11	
	SELLERS	10/07	ORIG.
		10/14	REV.
. SUBMIT ADDENDUM TO ISR'S W/CORRECTED BASE DIMENSION - L/T AND P/C (INCLUDE PIST/PIPC DATA FOR P/C)	WATT	10/18	
* BEGIN RE-VALIDATION OF P/C SWITCH	OFFILER	11/01	
* COMPLETE PV TESTING & REPORT	OFFILER	12/20	

Diaphragm Life:

Status of failure testing of two AMI sensor lots:
 Pressure = 50/60 psig 0/6 failures @ 640K cycles (control grp.)
 Pressure = 70/60 psig 0/6 failures @ 640K cycles

* DOCUMENT PROCEDURE FOR H-L P/C SENSOR BUILD	SELLERS	09/23	ORIG.
		10/10	REV.
		10/10	COMP.

* BUILD TEST MATRIX; H-L CRIMP, AMI CRIMP	SELLERS	10/01	ORIG.
* E-L CRIMP PRESSURES, AMI CRIMP - STD.		10/01	COMP.
* TEST-TO-FAILURE ABOVE MATRIX	OFFILER	ONGOING	
* HOLD A MEETING TO REVIEW PLAN FOR	OFFILER	10/09	ORIG.
DIAPHRAGM LIFE IMPROVEMENT		10/09	COMP.
* IMPLEMENT SOLUTION TO DIAPHRAGM LIFE	OFFILER	10/31	

Miscellaneous:

. IDENTIFY SWITCH MOUNTING LOCATIONS & SIZE REQTS FOR FUTURE PLATFORMS	SCHUCK	10/10	ORIG.
. 57 TO 77 CONVERSION: PHASE 1 TESTING	HONOL	10/17	REV.
		05/30	ORIG.
* PROVIDE UPDATE ON SMWT FOR 77PS LINE	BURKE	09/--	REV.
		10/10	ORIG.
. COMPLETE DESIGN FMEA	OFFILER	10/17	REV.
		04/18	ORIG.
. COMPLETE PROCESS FMEA	SELLERS	10/31	REV.
		07/01	ORIG.
* F/U WITH JOHN PELKEY	CEARN	10/31	REV.
		10/10	ORIG.
* DETERMINE APPROACH FOR 2A/3A THREAD GAGING ISSUE	CEARN/	10/17	REV.
	MCGUIRK	10/03	ORIG.
		10/17	REV.

<u>MILESTONES</u>	<u>PLANNED</u>	<u>ACTUAL</u>
57 L/T ISIR	11/21/90	11/21/90
57 P/C ISIR	01/15/91	01/15/91
77PS ISIR	09/01/91 ORIG.	
	09/20/91 REV.	09/27 - INITIAL
	12/20/91	FINAL
77PS SOP (TI)	10/91	

10/21 D.D. Date

PRODUCTION PLAN BY MONTH (THOUSANDS)

	P/C 57PSL5-3	L/T 57PSL5-2	P/C 77PSL2-1	L/T 77PSL2-3
AUG	0	2.3	0	0
SEP	25	9.3	0	0
OCT	0	7	15	12.4
NOV	0	0	25	13
DEC	0	0	25	13

10K/Oct.
15 NOV
10 DEC.

2.2 Press
25K Nov.
Dave only

3K/WK - Nov.
8K total in Dec.

REGARDS,
DAVE CEARN
141-FORD

TI-NHTSA 003258

10-10-91

- CCPS -

*** Put tab dimensions on format
to submit to Forder ASAP
Wait for "A" cavity (submit data on A/C.)
* Blue envidial(-5) for mat. anal. (P/C)

TI-NHTSA 003257

15/1/21

ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED

STATUS: A
LOCATION: SW 7001, EL PASO, N
RESOLVING NOTICE:

WFEERID: AL31824 ACTIVITY: MCHB ENTRY DATE: 01/10/07
 ALERT DESC: # 1100000 ID: 37976
 NOTED

REGION	DEPARTMENT	USERID	ACTIVITY	APPROVER'S NAME	DATE APPROVED	APPROVAL
N	E0447	BPPT409	NC00	PEARL B. F.	01/10/84	
S	E0447	JLW1834	NC00	ELWOOD, J.L.	01/10/84	Y
E	E0447	LAT0444	NC00	ZILKHAJI, L.A.	01/10/84	Y
M	E0447	RJH3344	NC00	HATSOFF, B.J.	01/10/84	Y
M	E0448	WSD0175	NC00	BEHRELL, U.S. (DEPT	01/10/84	
M	E0415	LPT4180	NC00	FINCH, A.J.	01/10/84	Y
M	E0413	MAT1	NC00	CHARLES MATL GATHEE	01/10/84	
M	E0411	PPM4407	NC00	DRN HATKESON-CHAS	01/10/84	Y
M	E0447	BPPT409	NC00	PEARL B. F.	01/10/84	
M	E0470	JWV1044	NC00	VANDERKAM, J.A. (R	01/10/84	

TI-NHTSA 003259

MSG # 216038 FR-SBO1 TO-PCQA SEPT-10/11/91 08:52 AM
R#-095 ST-C DIV-0050 CC-00101 BY-SBO1 AT-10/11/91 08:52 AM

TO: Tom Burke MFPC Joe Schuck WHLZ
Jeff DiDomenico ELB Matt Sellers PCNE
Charlie Douglas CPPC Rusty Struble RCS2
Paul Kotch PRK1 Jim Watt PCQA

CC: Tom Charboneau (delivered separately)
Dave Czarn

FR: Steve Offiler SBO1

SJ: Weekly Highlights

*Donna M. / Elaine R.
FYE / Jm*

FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

INITIAL SAMPLE REPORT (ISR):

We have completed the detailed action plan for correction of outstanding ISR issues, and sent it via MSG (#165560) to Joe Schuck for relay to Bruce Pease. We have good confidence that the Kapton life can be improved via minor process upgrades/controls, since over the course of Kapton life testing we have seen numerous "control" lots which have demonstrated excellent life. The challenge remains to isolate the cause and eliminate/control it, and progress is being made.

KAPTON DIAPHRAGM LIFE:

Crimp pressures (i.e. the air pressure in each of the two crimp stages) remain the suspected primary cause of poor Kapton life. We are running a test of six lots of devices, built on AMI with known, consistent components, and crimped over a range of pressures from about 45/40 to 70/60. These will be cycled to failure beginning today and analyzed with Weibull techniques for comparison with previous test lots. This test should identify the correct crimp pressures to use.

We are also investigating secondary influences, specifically the washer. Of all internal components directly or indirectly affecting the Kapton, the washer is the only one which is built on several different tools and is therefore known to have the potential for geometric differences. Furthermore, we have learned from production operators that significant shifts in device characteristics can be obtained by changing washer lots. They sometimes use this fact to help control piloting. Parts hand-built by Jeff typically have no control over washer lot, so we plan to go back through our past experimental lots to check washers. Pending results of this investigation, we'll likely produce another set of test lots, varying only washer lot, with the inclusion of a Ni-plated lot. These will be crimped at a pressure which produces poor life, in the interest of obtaining comparative results more quickly.

Given our experiences with cycler failures during the course of this investigation, we are looking into spare parts to allow rapid repair in the future. Jeff has discovered that the Enerpak hydraulic pump unit is around \$2300, and the Moog servovalve is around \$2500. The alternative to purchase of spare parts is to comprehend potential downtime delays. Failure of either causes a minimum delay of 4-5 days, potentially longer.

CUSTOMER ISSUES:

Tim Andresen (Pass Car Brake Eng.) has requested a couple of silent 77's. We happen to have a couple of spare switches of this configuration already built. These will be shipped N/C to Joe for

hand delivery to Tim.

We had a brief meeting with Dave Poirier of GM Powertrain Eng. They were here on APT business, but during the course of the meeting Dave learned of our switch capabilities and realized he had a potential application. Cadillac (Northstar) is working on an engine torque management safety system (an offshoot of traction control) which will reduce engine power if sensors determine the driver is on the brake and gas simultaneously. They are unsure as to the pressure range, but Dave's gut feel is that a typical cruise-control-deactivate level is appropriate. During the informal 77PS line tour, he was particularly impressed by our base calibration technique requiring only one pin length.

Regards,
Steve O.

TI-NHTSA 003261

TO: Bill
FM: Matt
ST: Highlights w/E 10/11/91
77PS

46515 Base mold . . . Corrections to the base mold on the .075-.079 dimension were done incorrectly. EDM removed too much of the welded surface - essentially undoing what was done. Fortunately, we were able to sort out sufficient quantities of good bases to allow build of 300 pass car IIR sample devices. AFCC has quoted a turn-around of next Tuesday for re-submission. Equipment de-bug activities are extremely limited without good components.

AMI Crimp Experiments . . . A matrix of test devices are being built today on the AMI to evaluate crimp pressure impact on diaphragm life. Once these devices are built - design will impulse cycle to failure. It is expected that although this experiment will supply additional confidence in use of the AMI to build pass car sensor, further testing with alternate component combinations will be required. Schedule is to put on test today.

Calibrator experiments . . . Efforts to improve calibrator signals are under way in a big way. Close with Steve Rodkey to assist in gaining information that will help us design experiments was completed this week. Once components are available in quantity we will proceed with priority on fine tuning this process.

Chrysler

ISIR . . . Build of 700 P.V. Build continues .
The build was stalled earlier this week due to
problems receiving the stationary terminals.
Expected completion today. Dave P. is Coordinating
with manufacturing to complete hand Assembly.

Equipment . . . Still trying to come up for Air
to work on tooling detail. This is not due
for a few weeks, but must be completed
for ISIR submission package.

-MSG N#- 216038 FR-SBO1 TO=CPFC SENT=10/11/91 08:52 AM
R#-134 ST=C DIV=0030 CC=00101 BY-SBO1 AT=10/11/91 08:52 AM

TO:	Tom Burke	MFPC	Joe Schuck	WHLZ
	Jeff DiDomenico	ELB	Matt Sellers	PCME
	Charles Douglas	CPFC	Rusty Struble	RCS2
	Paul Ketch	PRK1	Jim Watt	PCQA

CC: Tom Charboneau (delivered separately)
Dave Czarn

FR: Steve Offiler SBO1

SJ: Weekly Highlights

FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

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Given our experiences with cycler failures during the course of this investigation, we are looking into spare parts to allow rapid repair in the future. Jeff has discovered that the Enerpak hydraulic pump unit is around \$2300, and the Moog servovalve is around \$2500. The alternative to purchase of spare parts is to comprehend potential downtime delays. Failure of either causes a

TI-NHTSA 003264

SAMPLE REPORT

REASON FOR REPORT	VENDOR	P.O.	PART NO.	REV.
NEW PART			77P512-1	C2
REPLACEMENT TOOL.	REPORT REQ BY	DATE	INSPECTED BY	DATE
CORRECTED TOOL.	E. Resc	10/11/91	ELAINE GRANCI	10/29/91
REPAIRED TOOL.				
REVIEW				
OTHER <u>DIM. ANALYSIS</u>	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING THE ACTUAL VALUES FOR ALL CHARACTERISTICS MEASURED. IN CASES WHERE ACTUAL VALUES DEVIATE FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION FOR EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.			

(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS)						DISPOSITION	
		1A	2C	3C	4D	5D	6D
1	19.45-19.81	19.55	19.61	19.52	19.56	19.57	19.52 CAL
2	16.56-16.76	16.65	16.67	16.63	16.59	16.61	16.59 CAL
3	12.80-13.21	12.974	12.851	12.835	12.844	12.878	12.844 TM
4	11.40-11.90	11.789	11.808	11.775	11.773	11.758	11.765 TM
5	2.84-3.05	2.93	2.92	2.92	2.92	2.93	2.93 CAL
6	0.10-0.12	0.104	0.103	0.103	0.103	0.103	0.103 TM
7	11.60-11.92	11.57	11.57	11.57	11.57	11.57	11.57 CAL
8	1.24-1.45	1.252	1.250	1.250	1.250	1.250	1.255 TM
9	1.24-1.55	1.402	1.397	1.400	1.389	1.397	1.397 TM
10	1.85-2.06	2.004	1.974	1.996	1.984	1.994	1.986 TM
11	13.43-13.85	13.772	13.693	13.700	13.686	13.686	13.500 TM
12	31.52	30.84	30.53	31.0	30.84	30.83	30.84 TM
13	2.79-3.10 2X	2.88	2.88	2.88	2.88	2.88	2.88 CAL
14	0.25-0.75	0.571	0.580	0.572	0.571	0.571	0.571 TM
15	0.05-0.26 2X	0.103	0.103	0.103	0.103	0.103	0.103 TM
16	19.05 MAX.	18.80	18.87	18.88	18.87	18.87	18.87 CAL
17	57.15 MAX.	55.65	55.70	55.71	55.70	55.69	55.69 CAL
18	12.59-13.11	12.735	12.711	12.707	12.707	12.710	12.707 TM
19	11.65-12.17	11.787	11.783	11.784	11.780	11.784	11.782 TM
20	14.23 MAX.	13.81	13.85	13.87	13.85	13.85	13.85 CAL
21	9.89-9.66	9.83	9.82	9.82	9.83	9.82	9.82 TM
22	8.12 MIN.	8.253	8.242	8.25	8.247	8.242	8.242 TM
23	1.52-2.04	2.040	1.732	1.723	1.727	1.721	1.721 TM
24	7.82-8.03	7.94	7.94	7.97	7.97	7.98	7.96 CAL
25	6.60-6.81	6.640	6.688	6.673	6.647	6.645	6.642 TM

REMARKS AND/OR INSTRUCTIONS:

DISPOSITION: TOOL APPROVED FOR PROG.

RESUBMISSION REQ'D

PG. ENG.1

QRA ENG.1

PURCH. AGENT:

TI-NHTSA 003266

SAMPLE REPORT

REASON FOR REPORT	VENDOR	P.O.	PART NO.	REV.
NEW PART			772562-1	C2
REPLACEMENT TOOL	REPORT REQ. BY	DATE	INSPECTED BY	DATE
CORRECTED TOOL				10/23/91
REPAIRED TOOL	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING THE ACTUAL VALUES FOR ALL CHARACTERISTICS MEASURED. IN CASES WHERE ACTUAL VALUES DEVIATE FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION FOR EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.			
REVIEW				
OTHER				

CIRCLE ALL OUT OF TOLERANCE DIMENSIONS						DISPOSITION		
		10	20	30	40	50	60	
24A	29° ± 2° 4X	29° 54'						TA
		30° 57'						
		30° 24'						
		30° 41'						
25	1.80-2.218 2X	1.842	1.842	1.842	1.842	1.842	1.842	ROUNDED
26	7.23-7.75	7.739	7.521	7.529	7.539	7.554	7.531	TM
26A	NO FLASH OR BURRS	OK	OK	FLASH	OK	OK	FLASH	
	WAXED ON SURFACE							
27	2.79-3.41	3.145	3.092	3.160	3.159	3.119	3.082	TM
28	0.68-1.30	1.115	1.162	1.179	1.142	1.161	1.153	
28A	STAMP DATE CODE AND	V has been omitted.						
	WAXED ON SURFACE							
29	0.25 MIN. X	Threads have been added						
	40°-50° chamfer							
30	3/8-24 UNF-2.8 THL	OK						2 SKD
31	1.10-1.40	1.216						TM
32	2 0.16 D	0.051	0.042	0.042	0.002	0.030	0.056	2 SKD
33	2.5 5/8	OK						2 SKD
34	41-43°	41° 21'						2 SKD
35	40°-50° Chamfer	Threads have been added						
36	32.37 MAX.	31.24	31.42	31.74	31.47	31.42	31.47	2 SKD
37	14.02-14.53 H	14.44	14.44	14.11	14.11	14.11	14.11	2 SKD
38	3.30-3.60	3.437	3.437	3.437	3.437	3.437	3.437	ROUNDED
39	7.23-7.37	7.289	7.332	7.323	7.324	7.324	7.324	TM
40	5.57-5.25	5.612	5.679	5.682	5.682	5.682	5.682	TM
41	(71.5 ± 2°) 2X	72° 30'	72° 14'	72° 55'	72° 37'	72° 11'	72° 36'	2 SKD

REMARKS AND/OR INSTRUCTIONS: #38 MAX plug accepted on 40-50 135 max plug accepted on 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100. #93 Separate sample of hex part OK, other damaged when doing circular runout.

DISPOSITION: TOOL APPROVED FOR PROD.	REVISIONS REQ'D
APG. ENG.:	ORA ENG.:
	PURCH. AGENT:

TI-NHTSA 003267

TEXAS INSTRUMENTS

ATLANTIC CITY, NEW JERSEY 08401

PAGE 3 OF 3

SAMPLE REPORT

REASON FOR REPORT	VENDOR	P.O.	PART NO.	REV.
NEW PART			77P562-1	
REPLACEMENT TOOL	REPORT #20 BY	DATE	INSPECTED BY	DATE
CORRECTED TOOL				10/29/91
REPAIRED TOOL	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING THE ACTUAL VALUES FOR ALL CHARACTERISTICS MEASURED. IN CASES WHERE ACTUAL VALUES DEVIATE FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION FOR EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.			
REVIEW				
OTHER				

		CIRCLE ALL OUT OF TOLERANCE DIMENSIONS				DISPOSITION			
		1B	2C	3C	4D	5D	6D		
42	1.42-1.63 2X	1.623	1.633	1.582	1.633	1.603	1.572	TM	Round
		1.623	1.633	1.622	1.585	1.572	1.572		"
43	0.35-0.66 4X	0.660	0.572	0.574	0.572	0.574	0.574	TM	
		0.645	0.577	0.602	0.577	0.572	0.577		
		0.574	0.592	0.579	0.587	0.584	0.549		
		0.578	0.557	0.574	0.557	0.554	0.557		V
44	2.30-2.72 2X	2.460	2.460	2.409	2.409	2.409	2.409	TM	"
45	2.15-2.42 2X	2.135	2.177	2.304	2.195	2.164	2.227	TM	
		2.014	2.015	2.146	2.162	2.182	2.161		
46	2.5-2.2 2X	2.506	2.446	2.446	2.446	2.446	2.446	TM	
47	TRANS. BRONZ	48.47	48.47	48.47	48.47	48.47	48.47		V
48	45-2 4X	45.15	45.15	45.15	45.15	45.15	45.15	TM	
		45.15	45.15	45.15	45.15	45.15	45.15		
49	0.86-1.17 4X	0.925	0.925	0.925	0.925	0.925	0.925	TM	Round
		0.925	0.925	0.925	0.925	0.925	0.925		
		0.925	0.925	0.925	0.925	0.925	0.925		
50	0.35-0.66 4X	0.660	0.572	0.574	0.572	0.574	0.574	TM	
		0.645	0.577	0.602	0.577	0.572	0.577		
		0.574	0.592	0.579	0.587	0.584	0.549		
51	2.57-2.80 2X	2.785	2.710	2.703	2.713	2.710	2.734		
	⊕ 0.2 @ AC	2.393	2.499	2.572	2.482	2.457	2.515		
	⊕	0.072	0.034	0.113	0.017	0.008	0.050		
	2.57-2.80	2.695	2.703	2.715	2.703	2.695	2.710		
	⊕ 0.2 @ AC	2.499	2.522	2.390	2.377	2.427	2.449		
	⊕	0.034	0.057	0.085	0.028	0.030	0.022		
52	1.3-1.9 2X	1.903	1.903	1.903	1.903	1.903	1.903		
53	0.66-0.87	0.798	0.715						
54	0.10-0.31	0.262	0.274						
55	0.57-0.87	0.822	0.660						

REMARKS AND/OR INSTRUCTIONS:

DISPOSITION: TOOL APPROVED FOR PROD.

RESUBMISSION REQ'D

MFG. ENG.:

QRA ENG.:

PURCH. AGENT:

TI-NHTSA 003208

PRESSURE SWITCH DATA

Form 21605

TEST NO. 167-02-36

DEVICE 77 PS Sensor	DATE REQUESTED 10/1/91	REQUESTED BY Steve Offiler	REQUESTED COMPL. DATE
PERFORMED BY J. O'Donnell	DATE STARTED 10/1/91	DATE COMPLETED	APPROVED BY

PROJECT TITLE: Ford 1979 Electronic Speed Control Deactivate PS

CUSTOMER:

PURPOSE OF TEST: Determine Relative of Gage pressure to diaphragm
Life. Cap: 27717

PROCEDURE: Top and bottom haptors are almost in same orientation

Device #	Initial pressure	Initial temp	Cycles to failure	Washer	Replac	Detn / Notes
167-02-01	95/90	91/101	450K	cut off	3	4.6/677
-02			716K			7820 501
-03			Suspended 972K			
-04			Suspended 972K			
-05			470K	cut off	?	
-06			570K			
167-02-07	50/44		577K			5.4/672
-08			716K			9170
-09			761K			
-10			740K			
-11			726K			
-12			409K	cut off	3	
167-02-13	65/52		585K			1.9/659
-14			605K			7370
-15			Suspended 972K			
-16			767K	cut off	?	
-17			Suspended 972K			
-18			592K			
167-02-19	60/52		399K	cut off	3	1.8/764
-20			Suspended 972K			7770
-21			756K			
-22			377K	cut off	3	
-23			835K			
-24			Suspended 972K			

TI-NHTSA 003269

CRIMP PRESSURE EXPERIMENT

TEST 167-03-36

JAD 12/11/91

DEVICE #	CRIMP PRESSURE	BUILD DATE	CYC. TO FAILURE	CYC. TO SUSPEND
167-03-01	45 / 40	911011	450K	
167-03-02	45 / 40	911011	712K	
167-03-03	45 / 40	911011		872K
167-03-04	45 / 40	911011		872K
167-03-05	45 / 40	911011	470K	
167-03-06	45 / 40	911011	570K	
167-03-07	50 / 44	911011	547K	
167-03-08	50 / 44	911011	726K	
167-03-09	50 / 44	911011	561K	
167-03-10	50 / 44	911011	740K	
167-03-11	50 / 44	911011	726K	
167-03-12	50 / 44	911011	408K	
167-03-13	55 / 48	911011	585K	
167-03-14	55 / 48	911011	605K	
167-03-15	55 / 48	911011		872K
167-03-16	55 / 48	911011	363K	
167-03-17	55 / 48	911011		872K
167-03-18	55 / 48	911011	542K	
167-03-19	60 / 52	911011	398K	
167-03-20	60 / 52	911011		872K
167-03-21	60 / 52	911011	726K	
167-03-22	60 / 52	911011	377K	
167-03-23	60 / 52	911011	835K	
167-03-24	60 / 52	911011		872K
167-03-25	65 / 56	911011		872K
167-03-26	65 / 56	911011	490K	
167-03-27	65 / 56	911011	490K	
167-03-28	65 / 56	911011	542K	
167-03-29	65 / 56	911011	447K	
167-03-30	65 / 56	911011	835K	
167-03-31	70 / 60	911011	740K	
167-03-32	70 / 60	911011	857K	
167-03-33	70 / 60	911011	363K	
167-03-34	70 / 60	911011	542K	
167-03-35	70 / 60	911011	445K	
167-03-36	70 / 60	911011	585K	

TI-NHTSA 003271

Device #	Circuit Number	Run Date	Cycles to Failure	Washer	Repeats	Rate / ...
47-0-25	65/56	9/10/11	Suspended 872K			4.7/...
-26			490K			737K
-27			490K			
-28			542K			
-29			747K	Cut #	3	
-30			735K			
47-0-31	70/60		796K			7.6/643
-32			857K			679K
-33			363K	Cut #	3	
-34			542K			
-35			745K	Cut #	3	
-36			595K			

DEVICE #	CRIMP PRESSURE	BUILD DATE	CYC. TO FAILURE	CYC. TO SUSPEND
167-03-01	45 / 40	911011	450K	
167-03-02	45 / 40	911011	712K	
167-03-03	45 / 40	911011		872K
167-03-04	45 / 40	911011		872K
167-03-05	45 / 40	911011	470K	
167-03-06	45 / 40	911011	570K	
167-03-07	50 / 44	911011	547K	
167-03-08	50 / 44	911011	726K	
167-03-09	50 / 44	911011	561K	
167-03-10	50 / 44	911011	740K	
167-03-11	50 / 44	911011	726K	
167-03-12	50 / 44	911011	408K	
167-03-13	55 / 48	911011	585K	
167-03-14	55 / 48	911011	605K	
167-03-15	55 / 48	911011		872K
167-03-16	55 / 48	911011	363K	
167-03-17	55 / 48	911011		872K
167-03-18	55 / 48	911011	542K	
167-03-19	60 / 52	911011	398K	
167-03-20	60 / 52	911011		872K
167-03-21	60 / 52	911011	726K	
167-03-22	60 / 52	911011	377K	
167-03-23	60 / 52	911011	835K	
167-03-24	60 / 52	911011		872K
167-03-25	65 / 56	911011		872K
167-03-26	65 / 56	911011	490K	
167-03-27	65 / 56	911011	490K	
167-03-28	65 / 56	911011	542K	
167-03-29	65 / 56	911011	447K	
167-03-30	65 / 56	911011	835K	
167-03-31	70 / 60	911011	740K	
167-03-32	70 / 60	911011	857K	
167-03-33	70 / 60	911011	363K	
167-03-34	70 / 60	911011	542K	
167-03-35	70 / 60	911011	445K	
167-03-36	70 / 60	911011	585K	

PRESSURE SWITCH DATA

FORM 21605

TEST NO. 167-03-38

DEVICE 77 PS Sensor	DATE REQUESTED 10/11/91	REQUESTED BY Steve Offiler	REQUESTED COMPL. DATE
PERFORMED BY J. D. Danner, CO	DATE STARTED 10/11/91	DATE COMPLETED	APPROVED BY

PROJECT TITLE: Ford (1991) Electronic Speed Control Deactivate PS

CUSTOMER:

PURPOSE OF TEST: Determine Reliability of Crimp pressure to diaphragm
Life. Cap: 27717

OBSERVATIONS: Top and bottom diaphragms are placed in same orientation

Device #	Crimp pressure	Build Date	Cycles to failure	Washer	Keyloc	Actn / Photo
167-03-01	95/90	9/10/11	4 CRK	cut 0	3	9.6 / 677
-02			712K			722K del
-03			Suspended 972K			
-04			Suspended 972K			
-05			972K	cut 0	3	
-06			572K			
167-03-07	50/44		597K			6.4 / 672
-08			712K			9/70
-09			712K			
-10			792K			
-11			972K			
-12			402K	cut 0	3	
167-03-13	65/73		585K			1.9 / 669
-14			605K			7270
-15			Suspended 972K			
-16			762K	cut 0	3	
-17			Suspended 972K			
-18			742K			
167-03-19	60/51		319K	cut 0	3	1.8 / 714
-20			Suspended 972K			7170
-21			712K			
-22			371K	cut 0		
-23			835K			
-24			Suspended 972K			

TI-NHTSA 003272

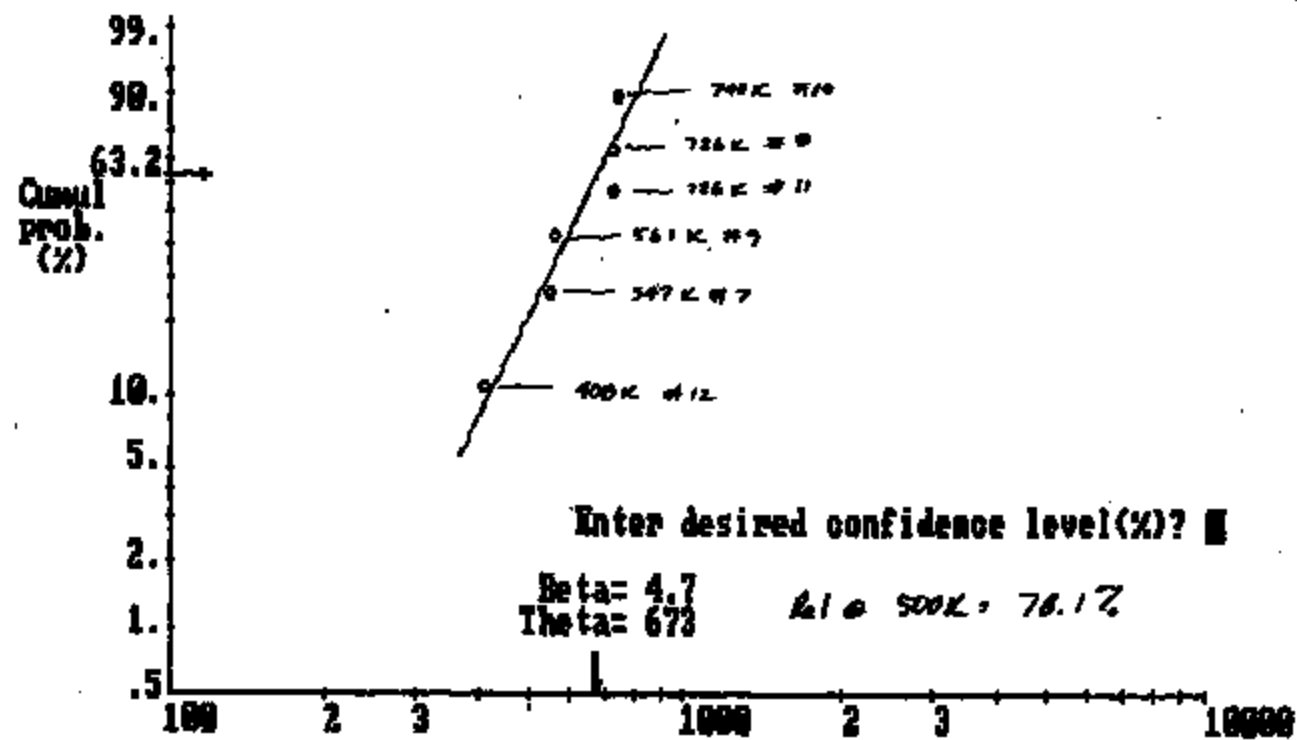
Device #	Crash Remarks	Build Date	Cycles to Failure	Washer	Knobs	Actn/H
42-01-35	AS/SC	7/10/01	Submerged 9728			9.97/63
-36			490K			7.8726
-37			490K			
-38			542K			
-39			447K	cut	3	
-40			935K			
117-01-31	20/60		780K			7.67/63
-32			857K			5790
-33			362K	cut	3	
-34			542K			
-35			445K	cut	3	
-36			595K			

TI-NHTSA 003273

CRIMP MEASURE 52/44

ALD DT 911011

TEST 167



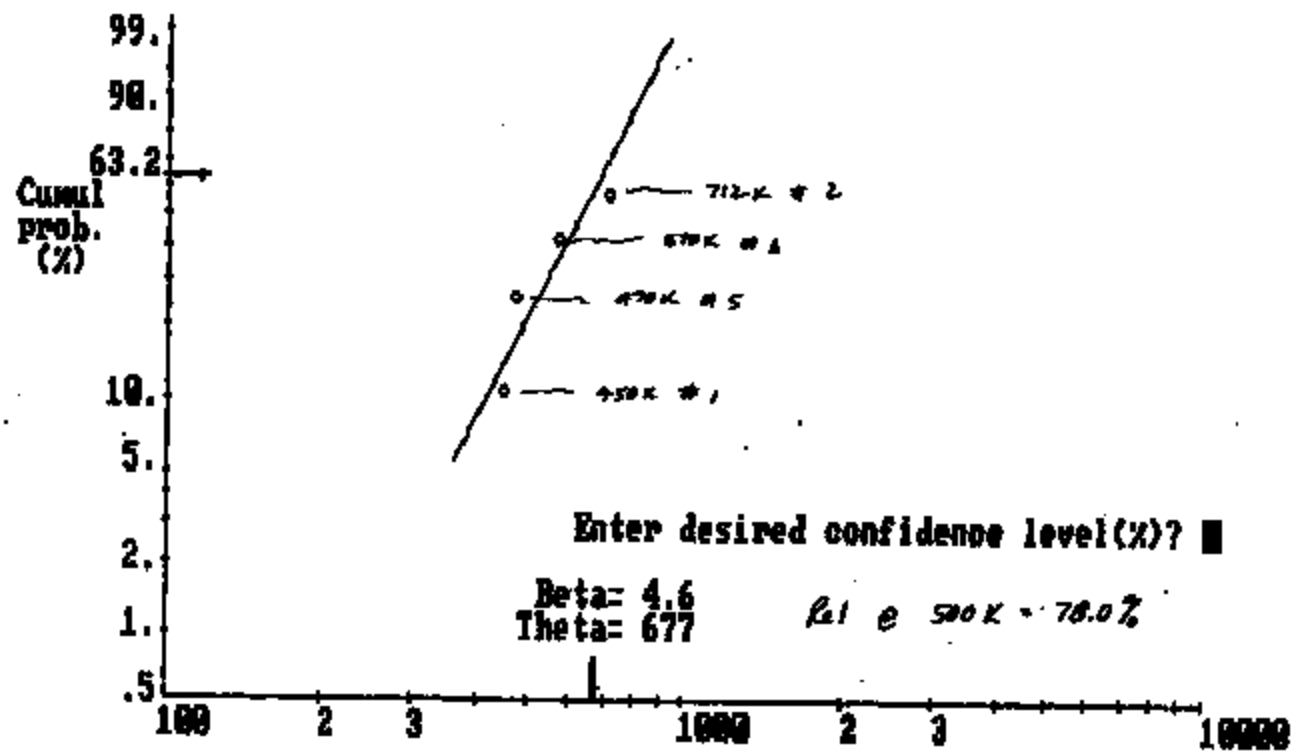
TI-NHTSA 003274

CRIMP PRESSURE 45/40

BLD DT 911011

TEST 167

#3 & #4 SUP @ 872 K



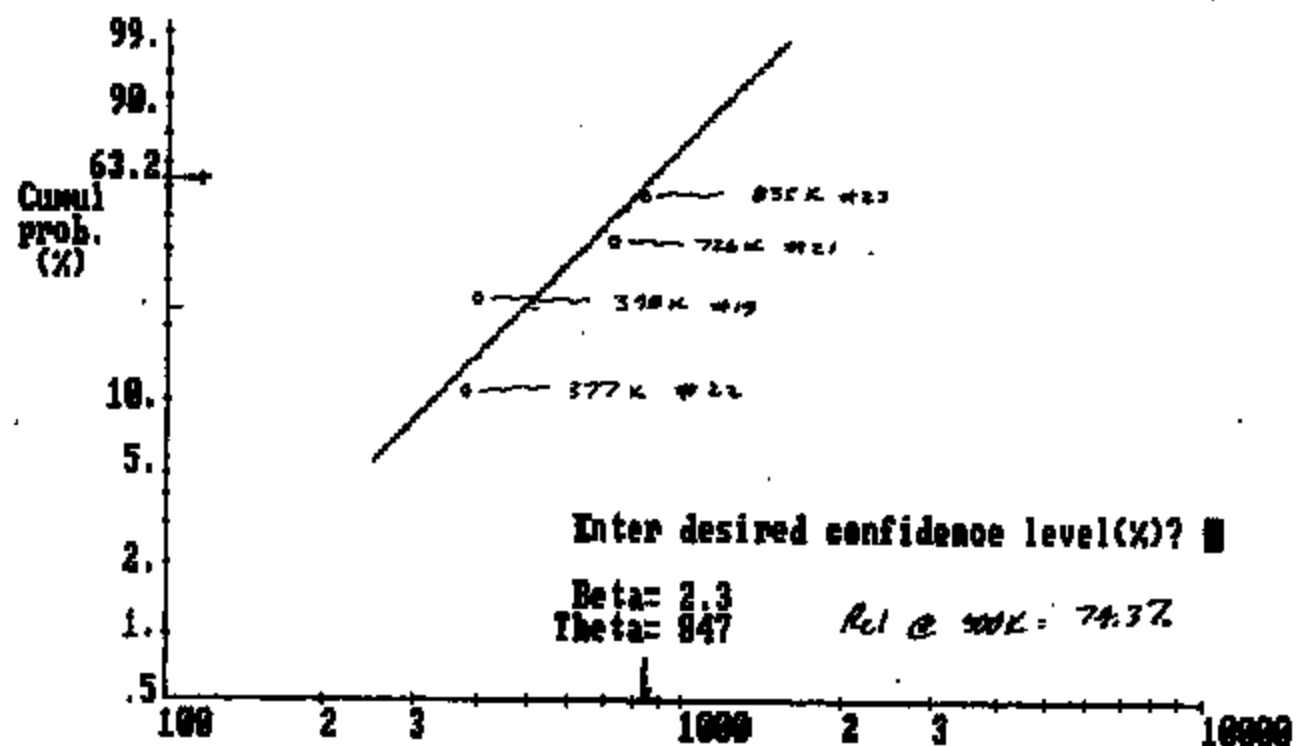
TI-NHTSA 003276

CRIMP PRESSURE 60/52

BLD AT 711011

TEST 167

20 & #24 SUSP @ 872K



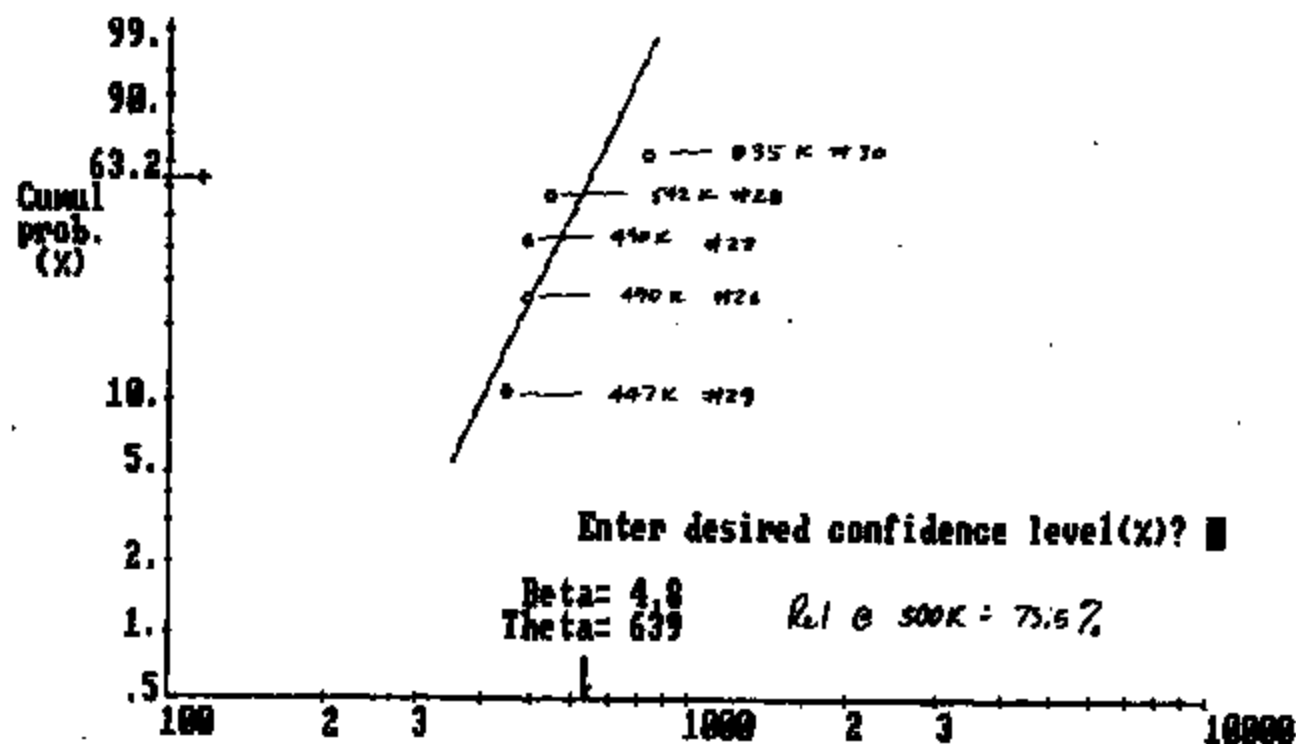
TI-NHTSA 003276

CRIMP PRESSURE 65/56

SLD DT 911011

TEST 167

#25 5031 @ 872K

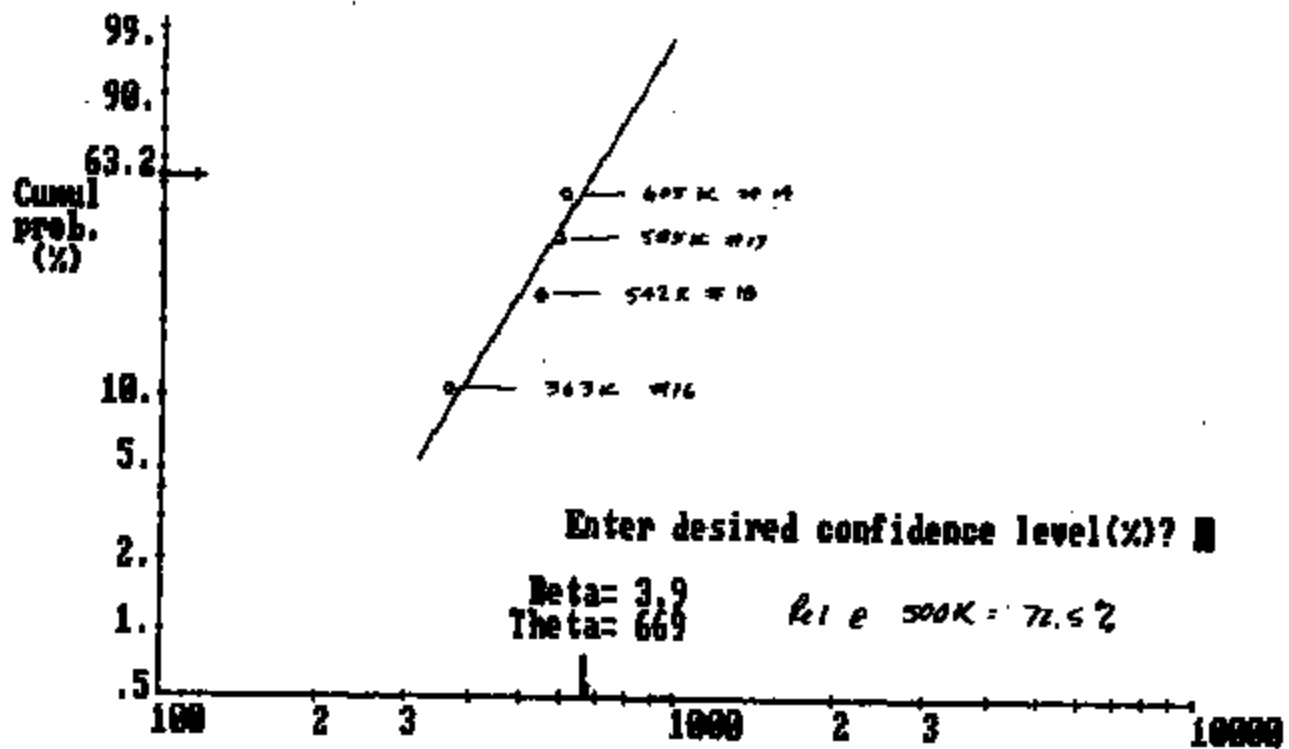


TI-NHT8A 003277

CRIMP PRESSURE 55/48

ALD OT 911011

#15 & #17 SUSP @ 872K

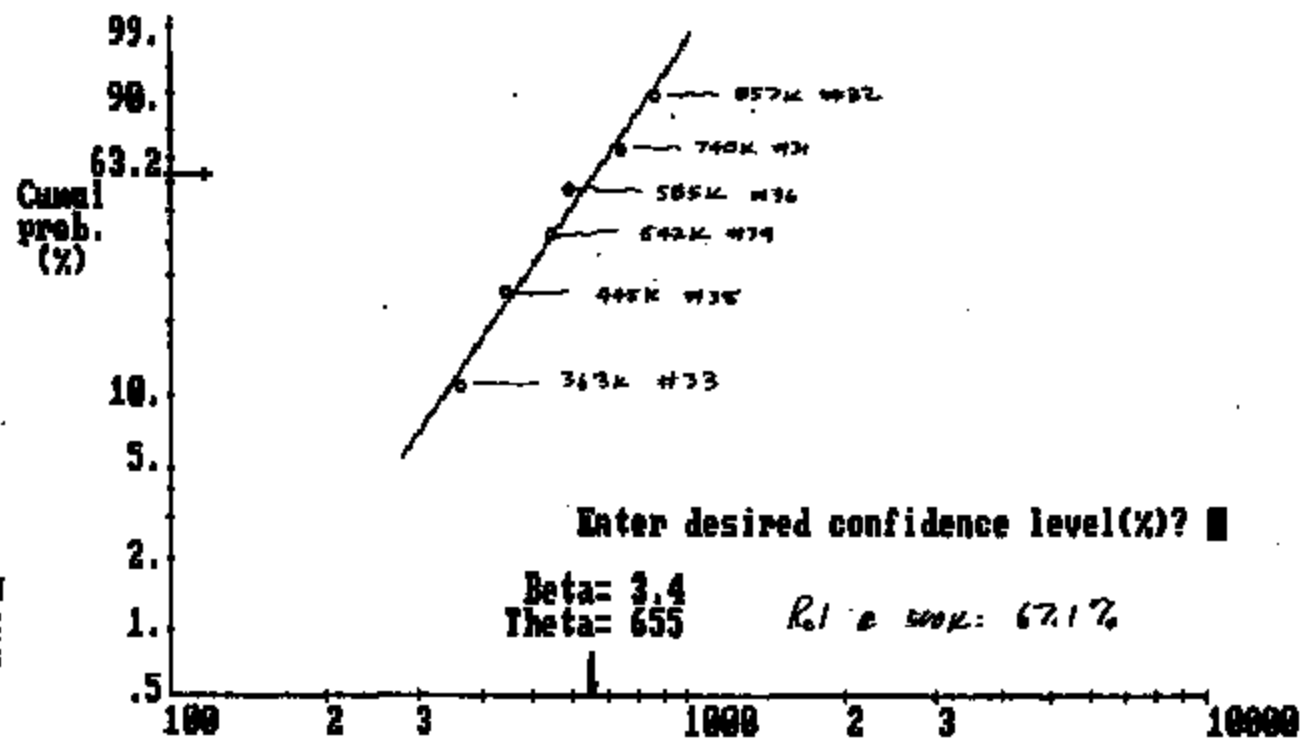


TI-NHTBA 003276

CRIMP PRESSURE 70/60

BLD OT 711011

TEST 167



TI-NHT8A 003279

HIGHLIGHTS

Stephen B. Offiler
Week Ending 91-10-11

Jeff
9/10/91



FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

INITIAL SAMPLE REPORT (ISR):

We have completed the detailed action plan for correction of outstanding ISR issues, and sent it via MSG (#165560) to Joe Schuck for relay to Bruce Pease. We have good confidence that the Kapton life can be improved via minor process upgrades/controls, since over the course of Kapton life testing we have seen numerous "control" lots which have demonstrated excellent life. The challenge remains to isolate the cause and eliminate/control it, and progress is being made.

KAPTON DIAPHRAGM LIFE:

Crimp pressures (i.e. the air pressure in each of the two crimp stages) remain the suspected primary cause of poor Kapton life. We are running a test of six lots of devices, built on AMI with known, consistent components, and crimped over a range of pressures from about 45/40 to 70/60. These will be cycled to failure beginning today and analyzed with Weibull techniques for comparison with previous test lots. This test should identify the correct crimp pressures to use.

We are also investigating secondary influences, specifically the washer. Of all internal components directly or indirectly affecting the Kapton, the washer is the only one which is built on several different tools and is therefore known to have the potential for geometric differences. Furthermore, we have learned from production operators that significant shifts in device characteristics can be obtained by changing washer lots. They sometimes use this fact to help control piloting. Parts hand-built by Jeff typically have no control over washer lot, so we plan to go back through our past experimental lots to check washers. Pending results of this investigation, we'll likely produce another set of test lots, varying only washer lot, with the inclusion of a Ni-plated lot. These will be crimped at a pressure which produces poor life, in the interest of obtaining comparative results more quickly.

Given our experiences with cycler failures during the course of this investigation, we are looking into spare parts to allow rapid repair in the future. Jeff has discovered that the Enerpak hydraulic pump unit is around \$2300, and the Moog servovalve is around \$2500. The alternative to purchase of spare parts is to comprehend potential downtime delays. Failure of either causes a minimum delay of 4-5 days, potentially longer.

CUSTOMER ISSUES:

Tim Andresen (Pass Car Brake Eng.) has requested a couple of silent 77's. We happen to have a couple of spare switches of this configuration already built. These will be shipped N/C to Joe for hand delivery to Tim.

We had a brief meeting with Dave Poirier of GM Powertrain Eng. They were here on APT business, but during the course of the meeting Dave learned of our switch capabilities and realized he had a potential application. Cadillac (Northstar) is working on an engine torque management safety system (an offshoot of traction control) which will reduce engine power if sensors determine the driver is on the brake and gas simultaneously. They are unsure as to the pressure range, but Dave's gut feel is that a typical cruise-control-deactivate level is appropriate. During the informal 77PS line tour, he was particularly impressed by our base calibration technique requiring only one pin length.

TI-NHTSA 003280

-MSG NM= 216038 FR=SB01 TO=PCQA SEP=10/11/91 08:52 AM
RF=095 ST=C DIV=0050 CC=00101 BT=SB01 DT=10/11/91 08:52 AM

TO: Tom Burke MFPC Joe Schuck WHE
Jeff DiDomenico HLB Matt Sellers PCHE
Charlie Douglas CPFC Marty Struble ACSE
Paul Kotch PRK1 Jim Watt PCQA

CC: Tom Charboneau (delivered separately)
Dave Csarn

FR: Steve Offiler SB01

SJ: Weekly Highlights

*cc: Deanna M. / Elaine K.
FYE / SW*

FORD NY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

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Regards,
Steve O.

TI-NHTSA 003282

Part of 300 pc
Run

11-OCT-1991 13:08:14.22 OPER DOOR DID NOT CLOSE

1

35 SER 1; F11 1; C= 0000000; BIN=8000; WPRU=107.6; WPRD=10.7; LEAK RATE= 1.3
ACT= 127.6; REL= 27.0; DIP= 100.6 PSI; ACTOR= 0.0mm; RELCR= 0.4

~~SER 2; F11 2; C= 0000000; BIN=8000; WPRU=107.6; WPRD=10.7; LEAK RATE= 1.3
ACT= 28.4; REL= 0.0; DIP= 28.4 PSI; ACTOR= 200.0mm; RELCR= 200.0~~

36 SER 3; F11 3; C= 0000000; BIN=8000; WPRU=107.6; WPRD=10.7; LEAK RATE= 1.3
ACT= 116.3; REL= 28.7; DIP= 57.6 PSI; ACTOR= 0.1mm; RELCR= 0.3

37 SER 4; F11 4; C= 0000000; BIN=8000; WPRU=107.6; WPRD=10.7; LEAK RATE= 1.3
ACT= 132.4; REL= 21.2; DIP= 131.2 PSI; ACTOR= 0.0mm; RELCR= 0.6

38 SER 5; F11 5; C= 0000000; BIN=8000; WPRU=95.4; WPRD=11.3; LEAK RATE= 1.5
ACT= 120.5; REL= 30.2; DIP= 30.3 PSI; ACTOR= 0.0mm; RELCR= 0.2

39 SER 6; F11 6; C= 0000000; BIN=8000; WPRU=95.4; WPRD=11.3; LEAK RATE= 1.5
ACT= 133.3; REL= 26.6; DIP= 44.5 PSI; ACTOR= 0.1mm; RELCR= 0.1

40 SER 7; F11 7; C= 0000000; BIN=8000; WPRU=95.4; WPRD=11.3; LEAK RATE= 1.5
ACT= 129.3; REL= 24.1; DIP= 105.0 PSI; ACTOR= 4.1mm; RELCR= 0.6

41 SER 8; F11 8; C= 0000000; BIN=8000; WPRU=95.4; WPRD=11.3; LEAK RATE= 1.5
ACT= 135.4; REL= 34.6; DIP= 104.8 PSI; ACTOR= 0.9mm; RELCR= 0.4

42 SER 9; F11 9; C= 0000000; BIN=8000; WPRU=85.3; WPRD=11.3; LEAK RATE= 1.4
ACT= 124.3; REL= 30.5; DIP= 30.5 PSI; ACTOR= 0.0mm; RELCR= 0.1

43 SER 10; F11 10; C= 0000000; BIN=8000; WPRU=85.3; WPRD=11.3; LEAK RATE= 1.4
ACT= 120.3; REL= 33.1; DIP= 100.4 PSI; ACTOR= 0.0mm; RELCR= 0.1

44 SER 11; F11 11; C= 0000000; BIN=8000; WPRU=85.3; WPRD=11.3; LEAK RATE= 1.4
ACT= 131.3; REL= 30.1; DIP= 30.1 PSI; ACTOR= 0.0mm; RELCR= 0.1

45 SER 12; F11 12; C= 0000000; BIN=8000; WPRU=85.3; WPRD=11.3; LEAK RATE= 1.4
ACT= 126.3; REL= 34.4; DIP= 34.4 PSI; ACTOR= 0.0mm; RELCR= 0.1

11-OCT-1991 13:08:14.22 OPER DOOR DID NOT CLOSE

1

TI-NHTSA 003283

46 SER 116.2; REL= 33.7; DIP= 82.5 PSI; ACTCR= 0.0ms; RELCR= 0.2

47 SER 14; FIX 2; C= 0000000; BIN=8000; MRRU=96.7; MRRD=11.3; LEAK RATE= 1.3
ACT= 119.0; REL= 23.0; DIP= 96.0 PSI; ACTCR= 0.7ms; RELCR= 0.4

48 SER 15; FIX 3; C= 0000000; BIN=8000; MRRU=96.7; MRRD=11.3; LEAK RATE= 1.3
ACT= 118.3; REL= 22.5; DIP= 95.9 PSI; ACTCR= 0.7ms; RELCR= 0.4

49 SER 16; FIX 4; C= 0000000; BIN=8000; MRRU=96.7; MRRD=11.3; LEAK RATE= 1.3
ACT= 120.1; REL= 27.7; DIP= 92.4 PSI; ACTCR= 0.5ms; RELCR= 0.2

50 SER 17; FIX 1; C= 0001000; BIN=8000; MRRU=93.6; MRRD=11.4; LEAK RATE= 1.6
ACT= 125.3; REL= 26.8; DIP= 98.6 PSI; ACTCR= 54.8ms; RELCR= 0.4

51 SER 18; FIX 2; C= 0000000; BIN=8000; MRRU=93.6; MRRD=11.4; LEAK RATE= 1.6
ACT= 128.5; REL= 29.4; DIP= 99.1 PSI; ACTCR= 0.8ms; RELCR= 0.1

52 SER 19; FIX 3; C= 0000000; BIN=8000; MRRU=93.6; MRRD=11.4; LEAK RATE= 1.6
ACT= 125.3; REL= 24.5; DIP= 100.8 PSI; ACTCR= 0.0ms; RELCR= 0.2

53 SER 20; FIX 4; C= 0000000; BIN=8000; MRRU=93.6; MRRD=11.4; LEAK RATE= 1.6
ACT= 117.3; REL= 25.7; DIP= 91.6 PSI; ACTCR= 0.1ms; RELCR= 0.2

54 SER 21; FIX 1; C= 0000000; BIN=8000; MRRU=104.3; MRRD=11.3; LEAK RATE= 1.1
ACT= 125.6; REL= 21.4; DIP= 104.3 PSI; ACTCR= 0.0ms; RELCR= 0.2

55 SER 22; FIX 2; C= 0000000; BIN=8000; MRRU=104.3; MRRD=11.3; LEAK RATE= 1.1
ACT= 121.7; REL= 32.9; DIP= 88.8 PSI; ACTCR= 0.0ms; RELCR= 0.2

56 SER 23; FIX 3; C= 0000000; BIN=8000; MRRU=104.3; MRRD=11.3; LEAK RATE= 1.1
ACT= 122.7; REL= 24.4; DIP= 96.3 PSI; ACTCR= 0.1ms; RELCR= 0.6

57 SER 24; FIX 4; C= 0000000; BIN=8000; MRRU=104.3; MRRD=11.3; LEAK RATE= 1.1
ACT= 124.8; REL= 22.1; DIP= 102.5 PSI; ACTCR= 2.4ms; RELCR= 0.1

58 SER 25; FIX 1; C= 0000000; BIN=8000; MRRU=0.0; MRRD=11.5; LEAK RATE= 2.1
ACT= 119.2; REL= 26.5; DIP= 92.7 PSI; ACTCR= 0.4ms; RELCR= 0.1

59 SER 26; FIX 2; C= 0000000; BIN=8000; MRRU=0.0; MRRD=11.5; LEAK RATE= 2.1
ACT= 119.1; REL= 28.9; DIP= 90.2 PSI; ACTCR= 0.0ms; RELCR= 0.2

60 SER 27; FIX 3; C= 0000000; BIN=8000; MRRU=0.0; MRRD=11.5; LEAK RATE= 2.1
ACT= 124.1; REL= 26.4; DIP= 95.7 PSI; ACTCR= 0.7ms; RELCR= 0.4

61 SER 28; FIX 4; C= 0000000; BIN=8000; MRRU=0.0; MRRD=11.5; LEAK RATE= 2.1
ACT= 123.8; REL= 24.2; DIP= 99.1 PSI; ACTCR= 0.0ms; RELCR= 0.3

62 SER 29; FIX 1; C= 0000000; BIN=8000; MRRU=106.1; MRRD=10.6; LEAK RATE= 1.5
ACT= 121.5; REL= 25.5; DIP= 97.3 PSI; ACTCR= 0.0ms; RELCR= 0.5

~~SER 29; FIX 1; C= 0000000; BIN=8000; MRRU=106.1; MRRD=10.6; LEAK RATE= 1.5
ACT= 121.5; REL= 25.5; DIP= 97.3 PSI; ACTCR= 0.0ms; RELCR= 0.5~~

63 SER 30; FIX 2; C= 0000000; BIN=8000; MRRU=106.1; MRRD=10.6; LEAK RATE= 1.5
ACT= 121.7; REL= 23.8; DIP= 98.2 PSI; ACTCR= 0.0ms; RELCR= 0.5

~~SER 30; FIX 2; C= 0000000; BIN=8000; MRRU=106.1; MRRD=10.6; LEAK RATE= 1.5
ACT= 121.7; REL= 23.8; DIP= 98.2 PSI; ACTCR= 0.0ms; RELCR= 0.5~~

~~SER 30; FIX 2; C= 0000000; BIN=8000; MRRU=106.1; MRRD=10.6; LEAK RATE= 1.5
ACT= 121.7; REL= 23.8; DIP= 98.2 PSI; ACTCR= 0.0ms; RELCR= 0.5~~

TI-NHTSA 003284

65 SER 34; FIA 2; C= 0000000; BIN=8000; NFRU=95.6; NFRD=10.6; LEAK RATE= 1.5
ACT= 115.6; REL= 33.5; DIF= 82.0 PSI; ACTCR= 0.0ms; RELCR= 0.2

65 SER 35; FIA 3; C= 0000000; BIN=8000; NFRU=95.6; NFRD=10.6; LEAK RATE= 1.5
ACT= 119.5; REL= 29.2; DIF= 90.4 PSI; ACTCR= 0.7ms; RELCR= 0.0

65 SER 36; FIA 4; C= 0000000; BIN=8000; NFRU=95.6; NFRD=10.6; LEAK RATE= 1.5
ACT= 125.6; REL= 24.9; DIF= 100.7 PSI; ACTCR= 0.0ms; RELCR= 0.5

69 SER 37; FIA 1; C= 0000000; BIN=8000; NFRU=105.3; NFRD=11.5; LEAK RATE= 1.3
ACT= 119.3; REL= 26.0; DIF= 93.3 PSI; ACTCR= 0.0ms; RELCR= 0.1

68 SER 38; FIA 2; C= 0000000; BIN=8000; NFRU=105.3; NFRD=11.5; LEAK RATE= 1.3
ACT= 122.6; REL= 30.5; DIF= 92.1 PSI; ACTCR= 0.7ms; RELCR= 0.7

68 SER 39; FIA 3; C= 0000000; BIN=8000; NFRU=105.3; NFRD=11.5; LEAK RATE= 1.3
ACT= 117.2; REL= 33.2; DIF= 84.1 PSI; ACTCR= 0.0ms; RELCR= 0.4

76 SER 40; FIA 4; C= 0000000; BIN=8000; NFRU=105.3; NFRD=11.5; LEAK RATE= 1.3
ACT= 129.3; REL= 24.5; DIF= 104.8 PSI; ACTCR= 0.7ms; RELCR= 0.2

77 SER 41; FIA 1; C= 0000000; BIN=8000; NFRU=117.5; NFRD=10.6; LEAK RATE= 1.4
ACT= 123.4; REL= 28.8; DIF= 94.5 PSI; ACTCR= 0.2ms; RELCR= 0.1

78 SER 42; FIA 2; C= 0000000; BIN=8000; NFRU=117.5; NFRD=10.6; LEAK RATE= 1.4
ACT= 120.5; REL= 31.5; DIF= 88.0 PSI; ACTCR= 0.1ms; RELCR= 0.7

~~SER 43; FIA 3; C= 0020000; BIN=8000; NFRU=117.5; NFRD=10.6; LEAK RATE= 1.4
ACT= 128.6; REL= 24.0; DIF= 104.6 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

73 SER 44; FIA 4; C= 0000000; BIN=8000; NFRU=117.5; NFRD=10.6; LEAK RATE= 1.4
ACT= 115.1; REL= 31.1; DIF= 83.9 PSI; ACTCR= 0.1ms; RELCR= 1.8

73 SER 45; FIA 1; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.6; LEAK RATE= 1.3
ACT= 121.0; REL= 25.1; DIF= 94.5 PSI; ACTCR= 0.0ms; RELCR= 0.2

75 SER 46; FIA 2; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.6; LEAK RATE= 1.3
ACT= 123.0; REL= 26.0; DIF= 97.0 PSI; ACTCR= 0.7ms; RELCR= 0.1

76 SER 47; FIA 3; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.6; LEAK RATE= 1.3
ACT= 123.0; REL= 28.3; DIF= 94.8 PSI; ACTCR= 0.6ms; RELCR= 0.1

79 SER 48; FIA 4; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.6; LEAK RATE= 1.3
ACT= 122.2; REL= 25.1; DIF= 97.1 PSI; ACTCR= 1.2ms; RELCR= 0.3

78 SER 49; FIA 1; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.3; LEAK RATE= 1.6
ACT= 117.2; REL= 27.8; DIF= 89.5 PSI; ACTCR= 0.0ms; RELCR= 0.3

78 SER 50; FIA 2; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.3; LEAK RATE= 1.6
ACT= 121.2; REL= 27.3; DIF= 93.9 PSI; ACTCR= 0.0ms; RELCR= 0.2

80 SER 51; FIA 3; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.3; LEAK RATE= 1.6
ACT= 123.2; REL= 27.2; DIF= 96.0 PSI; ACTCR= 0.0ms; RELCR= 0.2

81 SER 52; FIA 4; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.3; LEAK RATE= 1.6
ACT= 129.2; REL= 24.2; DIF= 105.0 PSI; ACTCR= 0.0ms; RELCR= 0.0

82 SER 53; FIA 1; C= 0000000; BIN=8000; NFRU=99.2; NFRD=11.3; LEAK RATE= 1.3
ACT= 120.2; REL= 28.2; DIF= 91.0 PSI; ACTCR= 0.0ms; RELCR= 0.3

TI-NHTSA 003285

83 SER 54; FIA 2; C= 0000000; BIN=8000; MRU=84.7; MRD=11.3; LEAK RATE= 1.3
ACT= 117.6; REL= 22.7; DIP= 94.9 PSI; ACTOR= 0.0mm; RELCR= 0.1

84 SER 55; FIA 3; C= 0000000; BIN=8000; MRU=84.7; MRD=11.3; LEAK RATE= 1.3
ACT= 131.0; REL= 24.5; DIP= 106.5 PSI; ACTOR= 0.0mm; RELCR= 0.0

85 SER 56; FIA 4; C= 0000000; BIN=8000; MRU=84.7; MRD=11.3; LEAK RATE= 1.3
ACT= 112.7; REL= 24.8; DIP= 87.8 PSI; ACTOR= 6.7mm; RELCR= 1.7

11-OCT-1991 13116145.99 TOOL CYCLE TIMEOUT 1

86 SER 57; FIA 1; C= 0000000; BIN=8000; MRU=117.5; MRD=11.6; LEAK RATE= 1.7
ACT= 123.2; REL= 27.9; DIP= 95.3 PSI; ACTOR= 0.8mm; RELCR= 0.0

87 SER 58; FIA 2; C= 0000000; BIN=8000; MRU=117.5; MRD=11.6; LEAK RATE= 1.7
ACT= 128.4; REL= 30.1; DIP= 98.3 PSI; ACTOR= 0.8mm; RELCR= 0.4

88 SER 59; FIA 3; C= 0000000; BIN=8000; MRU=117.5; MRD=11.6; LEAK RATE= 1.7
ACT= 110.6; REL= 25.4; DIP= 84.6 PSI; ACTOR= 0.7mm; RELCR= 0.2

89 SER 60; FIA 4; C= 0000000; BIN=8000; MRU=117.5; MRD=11.6; LEAK RATE= 1.7
ACT= 123.2; REL= 26.6; DIP= 96.6 PSI; ACTOR= 0.7mm; RELCR= 0.3

~~SER 61; FIA 1; C= 0000000; BIN=8000; MRU=105.3; MRD=10.6; LEAK RATE= 1.6
ACT= 78.2; REL= 0.2; DIP= 79.2 PSI; ACTOR= 300.0mm; RELCR= 200.0~~

90 SER 62; FIA 2; C= 0000000; BIN=8000; MRU=105.3; MRD=10.6; LEAK RATE= 1.6
ACT= 113.9; REL= 28.3; DIP= 85.6 PSI; ACTOR= 0.0mm; RELCR= 0.4

91 SER 63; FIA 3; C= 0000000; BIN=8000; MRU=105.3; MRD=10.6; LEAK RATE= 1.6
ACT= 111.9; REL= 24.9; DIP= 87.0 PSI; ACTOR= 0.0mm; RELCR= 0.3

92 SER 64; FIA 4; C= 0000000; BIN=8000; MRU=105.3; MRD=10.6; LEAK RATE= 1.6
ACT= 125.0; REL= 27.5; DIP= 103.7 PSI; ACTOR= 0.0mm; RELCR= 0.5

11-OCT-1991 13116159.00 LEAK SOAK DID NOT CLOSE 1

93 SER 65; FIA 1; C= 0000000; BIN=8000; MRU=79.4; MRD=11.3; LEAK RATE= 1.6
ACT= 129.0; REL= 25.2; DIP= 94.8 PSI; ACTOR= 0.1mm; RELCR= 0.4

94 SER 66; FIA 2; C= 0000000; BIN=8000; MRU=79.4; MRD=11.3; LEAK RATE= 1.6
ACT= 124.1; REL= 29.1; DIP= 95.0 PSI; ACTOR= 0.9mm; RELCR= 0.2

95 SER 67; FIA 3; C= 0000000; BIN=8000; MRU=79.4; MRD=11.3; LEAK RATE= 1.6
ACT= 117.0; REL= 22.3; DIP= 94.6 PSI; ACTOR= 0.1mm; RELCR= 0.1

96 SER 68; FIA 4; C= 0000000; BIN=8000; MRU=79.4; MRD=11.3; LEAK RATE= 1.6
ACT= 124.1; REL= 27.4; DIP= 96.2 PSI; ACTOR= 2.1mm; RELCR= 0.1

97 SER 69; FIA 1; C= 0000000; BIN=8000; MRU=87.6; MRD=11.7; LEAK RATE= 1.0
ACT= 136.1; REL= 31.1; DIP= 111.1 PSI; ACTOR= 1.5mm; RELCR= 0.0

~~SER 70; FIA 2; C= 0000000; BIN=8000; MRU=87.6; MRD=11.7; LEAK RATE= 1.0
ACT= 136.1; REL= 31.1; DIP= 111.1 PSI; ACTOR= 1.5mm; RELCR= 0.0~~

98 SER 71; FIA 3; C= 0000000; BIN=8000; MRU=87.6; MRD=11.7; LEAK RATE= 1.0
ACT= 136.1; REL= 31.1; DIP= 111.1 PSI; ACTOR= 1.5mm; RELCR= 0.0

99 SER 72; FIA 4; C= 0000000; BIN=8000; MRU=87.6; MRD=11.7; LEAK RATE= 1.0
ACT= 136.1; REL= 31.1; DIP= 111.1 PSI; ACTOR= 1.5mm; RELCR= 0.0

TI-NHTSA 003286

102 SER 73; FIA 1; C= 0000000; SIN=8000; WFLU= 0.0; WFRD=11.4; LEAK RATE= 1.3
ACT: 124.4; REL= 27.5; DIP= 97.1 PSI; ACTOR= 0.7mm; RELCR= 0.0

101 SER 74; FIA 2; C= 0000000; SIN=8000; WFLU= 0.0; WFRD=11.4; LEAK RATE= 1.3
ACT: 121.4; REL= 31.1; DIP= 90.5 PSI; ACTOR= 0.7mm; RELCR= 0.2

~~SER 75; FIA 3; C= 0023005; SIN=CONT; WFLU= 0.0; WFRD=11.4; LEAK RATE= 1.3
ACT: 79.5; REL= 0.0; DIP= 79.3 PSI; ACTOR= 200.0mm; RELCR= 200.0~~

~~SER 76; FIA 4; C= 0000000; SIN=8000; WFLU= 0.0; WFRD=11.4; LEAK RATE= 1.3
ACT: 124.4; REL= 17.8; DIP= 107.2 PSI; ACTOR= 0.9mm; RELCR= 0.7~~

103 SER 77; FIA 1; C= 0000000; SIN=8000; WFLU=134.8; WFRD=10.7; LEAK RATE= 1.4
ACT: 115.5; REL= 25.2; DIP= 94.3 PSI; ACTOR= 0.0mm; RELCR= 0.2

105 SER 78; FIA 2; C= 0000000; SIN=8000; WFLU=134.8; WFRD=10.7; LEAK RATE= 1.4
ACT: 124.4; REL= 24.8; DIP= 101.8 PSI; ACTOR= 0.9mm; RELCR= 0.5

~~SER 79; FIA 3; C= 0023005; SIN=CONT; WFLU=134.8; WFRD=10.7; LEAK RATE= 1.4
ACT: 70.7; REL= 0.0; DIP= 70.7 PSI; ACTOR= 200.0mm; RELCR= 200.0~~

~~SER 80; FIA 4; C= 0023005; SIN=CONT; WFLU=134.8; WFRD=10.7; LEAK RATE= 1.4
ACT: 70.7; REL= 0.0; DIP= 70.7 PSI; ACTOR= 200.0mm; RELCR= 200.0~~

104 SER 81; FIA 1; C= 0000000; SIN=8000; WFLU=93.1; WFRD=11.3; LEAK RATE= 1.6
ACT: 117.7; REL= 27.3; DIP= 90.4 PSI; ACTOR= 0.8mm; RELCR= 0.5

05 SER 82; FIA 2; C= 0000000; SIN=8000; WFLU=93.1; WFRD=11.3; LEAK RATE= 1.6
ACT: 117.7; REL= 27.3; DIP= 88.6 PSI; ACTOR= 0.6mm; RELCR= 0.2

106 SER 83; FIA 3; C= 0000000; SIN=8000; WFLU=93.1; WFRD=11.3; LEAK RATE= 1.6
ACT: 129.4; REL= 25.3; DIP= 106.6 PSI; ACTOR= 0.7mm; RELCR= 0.2

107 SER 84; FIA 4; C= 0000000; SIN=8000; WFLU=93.1; WFRD=11.3; LEAK RATE= 1.6
ACT: 119.3; REL= 27.3; DIP= 89.3 PSI; ACTOR= 0.0mm; RELCR= 0.1

108 SER 85; FIA 1; C= 0000000; SIN=8000; WFLU=66.7; WFRD=10.7; LEAK RATE= 1.3
ACT: 117.3; REL= 25.3; DIP= 66.7 PSI; ACTOR= 0.8mm; RELCR= 0.3

109 SER 86; FIA 2; C= 0000000; SIN=8000; WFLU=66.7; WFRD=10.7; LEAK RATE= 1.3
ACT: 117.3; REL= 25.3; DIP= 61.4 PSI; ACTOR= 0.9mm; RELCR= 0.3

~~SER 87; FIA 3; C= 0023005; SIN=CONT; WFLU=66.7; WFRD=10.7; LEAK RATE= 1.3
ACT: 70.7; REL= 0.0; DIP= 70.7 PSI; ACTOR= 200.0mm; RELCR= 200.0~~

10 SER 88; FIA 4; C= 0000000; SIN=8000; WFLU=66.7; WFRD=10.7; LEAK RATE= 1.3
ACT: 124.4; REL= 25.3; DIP= 62.5 PSI; ACTOR= 0.7mm; RELCR= 0.3

11 SER 89; FIA 1; C= 0000000; SIN=8000; WFLU=11.0; WFRD=11.0; LEAK RATE= 1.3
ACT: 117.3; REL= 24.8; DIP= 92.7 PSI; ACTOR= 0.7mm; RELCR= 0.2

112 SER 90; FIA 2; C= 0000000; SIN=8000; WFLU=11.0; WFRD=11.0; LEAK RATE= 1.3
ACT: 117.3; REL= 24.8; DIP= 92.7 PSI; ACTOR= 0.7mm; RELCR= 0.4

~~SER 91; FIA 3; C= 0023005; SIN=CONT; WFLU=11.0; WFRD=11.0; LEAK RATE= 1.3
ACT: 70.7; REL= 0.0; DIP= 70.7 PSI; ACTOR= 200.0mm; RELCR= 200.0~~

113 SER 92; FIA 4; C= 0000000; SIN=8000; WFLU=11.0; WFRD=11.0; LEAK RATE= 1.3
ACT: 124.4; REL= 24.8; DIP= 92.7 PSI; ACTOR= 0.7mm; RELCR= 0.4

TI-NHTSA 003287

114 SER 93; FIX 1; C= 0000000; BIN=8000; MFRU=98.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 124.3; REL= 28.3; DIF= 96.0 PSI; ACTCR= 0.0mm; RELCR= 0.1

115 SER 94; FIX 2; C= 0000000; BIN=8000; MFRU=98.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 121.5; REL= 29.0; DIF= 92.4 PSI; ACTCR= 0.0mm; RELCR= 0.5

116 SER 95; FIX 3; C= 0000000; BIN=8000; MFRU=98.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 127.5; REL= 23.6; DIF= 103.9 PSI; ACTCR= 0.2mm; RELCR= 0.1

117 SER 96; FIX 4; C= 0000000; BIN=8000; MFRU=98.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 124.3; REL= 28.2; DIF= 96.1 PSI; ACTCR= 0.1mm; RELCR= 0.6

118 SER 97; FIX 1; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 128.7; REL= 25.7; DIF= 103.0 PSI; ACTCR= 0.0mm; RELCR= 0.2

119 SER 98; FIX 2; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 117.6; REL= 28.0; DIF= 89.6 PSI; ACTCR= 0.1mm; RELCR= 0.2

120 SER 99; FIX 3; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 125.7; REL= 28.3; DIF= 97.5 PSI; ACTCR= 0.0mm; RELCR= 0.3

121 SER 100; FIX 4; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 127.6; REL= 26.6; DIF= 101.0 PSI; ACTCR= 0.0mm; RELCR= 0.2

122 SER 101; FIX 1; C= 0000000; BIN=8000; MFRU=135.8; MFRD=11.4; LEAK RATE= 1.3
ACT= 124.5; REL= 23.3; DIF= 101.2 PSI; ACTCR= 0.1mm; RELCR= 0.7

123 SER 102; FIX 2; C= 0000000; BIN=8000; MFRU=135.8; MFRD=11.4; LEAK RATE= 1.3
ACT= 115.3; REL= 20.8; DIF= 94.5 PSI; ACTCR= 0.0mm; RELCR= 0.4

124 SER 103; FIX 3; C= 0000000; BIN=8000; MFRU=135.8; MFRD=11.4; LEAK RATE= 1.3
ACT= 122.8; REL= 28.5; DIF= 94.3 PSI; ACTCR= 0.0mm; RELCR= 0.2

125 SER 104; FIX 4; C= 0000000; BIN=8000; MFRU=135.8; MFRD=11.4; LEAK RATE= 1.3
ACT= 118.3; REL= 26.1; DIF= 89.3 PSI; ACTCR= 0.1mm; RELCR= 0.8

126 SER 105; FIX 1; C= 0000000; BIN=8000; MFRU=98.2; MFRD=10.7; LEAK RATE= 1.3
ACT= 124.3; REL= 28.3; DIF= 96.0 PSI; ACTCR= 0.0mm; RELCR= 0.3

127 SER 106; FIX 2; C= 0000000; BIN=8000; MFRU=98.2; MFRD=10.7; LEAK RATE= 1.3
ACT= 122.1; REL= 25.7; DIF= 96.4 PSI; ACTCR= 0.0mm; RELCR= 0.1

128 SER 107; FIX 3; C= 0000000; BIN=8000; MFRU=98.2; MFRD=10.7; LEAK RATE= 1.3
ACT= 122.1; REL= 25.4; DIF= 96.7 PSI; ACTCR= 0.0mm; RELCR= 0.3

~~SER 108; FIX 4; C= 0000000; BIN=8000; MFRU=98.2; MFRD=10.7; LEAK RATE= 1.3
ACT= 122.1; REL= 25.4; DIF= 96.7 PSI; ACTCR= 0.0mm; RELCR= 0.3~~

129 SER 109; FIX 1; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 128.7; REL= 25.7; DIF= 103.0 PSI; ACTCR= 0.0mm; RELCR= 0.2

130 SER 110; FIX 2; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 117.6; REL= 28.0; DIF= 89.6 PSI; ACTCR= 0.1mm; RELCR= 0.2

131 SER 111; FIX 3; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 125.7; REL= 28.3; DIF= 97.5 PSI; ACTCR= 0.0mm; RELCR= 0.3

132 SER 112; FIX 4; C= 0000000; BIN=8000; MFRU= 0.0; MFRD=11.2; LEAK RATE= 1.3
ACT= 127.6; REL= 26.6; DIF= 101.0 PSI; ACTCR= 0.0mm; RELCR= 0.2

TI-NHT8A 003258

11-OCT-1991 13:24:23.81 OPER DOOR DID NOT CLOSE 1

11-OCT-1991 13:25:02.56 OPER DOOR DID NOT CLOSE 1

11-OCT-1991 13:25:52.37 POWER OFF 1

63PS SWITCH TESTER LOT REPORT

MACHINE: 77PSL2-1

LOT ID: 10-2

LOT STARTED: 11-OCT-1991 13:07:53.32

TIME PRINTED: 11-OCT-1991 14:57:09.63

SETUP DATA:

LIMIT (NC)

ACTUATION: 90.0 TO 160.0 PSI
RELEASE: 20.0 TO 160.0 PSI
DIFFERENTIAL: 0.0 TO 160.0 PSI
MAX MILLIVOLT: 200.0 PSI
CREEP TIME: 10.0 PSI
PRECYCLE PRESS: 800.0 PSI
PRECYCLE COUNT: 2

NUMBER OF PIECES TESTED: 112

NUMBER OF PIECES GOOD: 97

YIELD: 86.61 %

REJECT COUNTS

RIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	12	89.00 %
ACCR	1	8.67 %
ACLO	0	0.00 %
ACMI	0	0.00 %
SLHI	0	0.00 %
RLLO	2	13.33 %
DFLO	0	0.00 %
ALCR	0	0.00 %
DFHI	0	0.00 %

STATISTICS

	MEAN	STDEV	CPK
ACTUATION:	122.1	5.41	1.98
RELEASE:	27.0	3.42	0.68
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	95.1	7.07	3.06

HISTOGRAM OF ACTUATION PRESSURE

TI-NHTSA 003289

RLO 0 0.00 %
 DFLO 0 0.00 %
 RLCR 0 0.00 %
 DFHI 0 0.00 %

~~252~~ pc run
 252

STATISTICS	MEAN	SIEMA	DPK
ACTUATION:	0.0	0.00	0.00
RELEASE:	0.0	0.00	0.00
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	0.0	0.00	0.00

133 SER 1; FIX 1; C= 0000000; BIN=GOOD; MRRU=96.2; MRRD=10.6; LEAK RATE= 1.6
 ACT= 121.2; REL= 26.0; DIF= 95.2 PSI; ACTCR= 0.0ms; RELCR= 0.2

~~SER 2; FIX 2; C= 0023005; BIN=CONT; MRRU=96.2; MRRD=10.6; LEAK RATE= 1.6
 ACT= 48.7; REL= 0.0; DIF= 48.7 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

~~SER 3; FIX 3; C= 0023005; BIN=CONT; MRRU=96.2; MRRD=10.6; LEAK RATE= 1.6
 ACT= 48.7; REL= 0.0; DIF= 48.7 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

~~SER 4; FIX 4; C= 0023005; BIN=CONT; MRRU=96.2; MRRD=10.6; LEAK RATE= 1.6
 ACT= 48.7; REL= 0.0; DIF= 48.7 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

10-OCT-1991 12:20:15.41 CAP STA CAP XFER 1 NOT HOME 1

134 SER 5; FIX 1; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=11.4; LEAK RATE= 1.4
 ACT= 121.1; REL= 23.6; DIF= 97.5 PSI; ACTCR= 0.0ms; RELCR= 0.6

135 SER 6; FIX 2; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=11.4; LEAK RATE= 1.4
 ACT= 122.2; REL= 23.4; DIF= 96.7 PSI; ACTCR= 0.0ms; RELCR= 0.2

136 SER 7; FIX 3; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=11.4; LEAK RATE= 1.4
 ACT= 106.7; REL= 35.3; DIF= 71.4 PSI; ACTCR= 0.1ms; RELCR= 0.3

137 SER 8; FIX 4; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=11.4; LEAK RATE= 1.4
 ACT= 125.2; REL= 36.5; DIF= 88.7 PSI; ACTCR= 0.7ms; RELCR= 0.2

10-OCT-1991 12:20:50.38 CAP STA CAP XFER 1 NOT HOME 1

138 SER 9; FIX 1; C= 0000000; BIN=GOOD; MRRU=101.1; MRRD=11.4; LEAK RATE= 1.5
 ACT= 118.1; REL= 28.3; DIF= 89.8 PSI; ACTCR= 0.0ms; RELCR= 0.4

139 SER 10; FIX 2; C= 0000000; BIN=GOOD; MRRU=101.1; MRRD=11.4; LEAK RATE= 1.5
 ACT= 112.9; REL= 33.3; DIF= 79.6 PSI; ACTCR= 0.0ms; RELCR= 0.1

140 SER 11; FIX 3; C= 0002000; BIN=FLCR; MRRU=101.1; MRRD=11.4; LEAK RATE= 1.5
 ACT= 120.3; REL= 26.2; DIF= 94.1 PSI; ACTCR= 0.6ms; RELCR= 162.1

141 SER 12; FIX 4; C= 0000000; BIN=GOOD; MRRU=101.1; MRRD=11.4; LEAK RATE= 1.5
 ACT= 122.7; REL= 24.8; DIF= 96.1 PSI; ACTCR= 0.0ms; RELCR= 0.0

10-OCT-1991 12:21:21.35 CAP STA CAP XFER 1 NOT HOME

1

143 SER 13; FIX 1; C= 0000000; BIN=8000; MRRL=96.9; MRSD=10.7; LEAK RATE= 1.1
ACT= 114.8; REL= 25.2; DIF= 89.6 PSI; ACTCR= 0.8ms; RELCR= 0.5

~~SER 14; FIX 2; C= 0023005; BIN=CONT; MRRL=96.9; MRSD=10.7; LEAK RATE= 1.1
ACT= 78.4; REL= 0.0; DIF= 78.4 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

~~SER 15; FIX 3; C= 0023005; BIN=CONT; MRRL=96.9; MRSD=10.7; LEAK RATE= 1.1
ACT= 78.4; REL= 0.0; DIF= 78.4 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

143 SER 16; FIX 4; C= 0000000; BIN=8000; MRRL=96.9; MRSD=10.7; LEAK RATE= 1.1
ACT= 122.0; REL= 28.4; DIF= 93.6 PSI; ACTCR= 0.1ms; RELCR= 0.4

10-OCT-1991 12:24:35.86 CAP STA CAP XFER 1 NOT HOME

1

144 SER 17; FIX 1; C= 0000000; BIN=8000; MRRL=145.0; MRSD=11.4; LEAK RATE= 1.5
ACT= 124.4; REL= 24.9; DIF= 99.5 PSI; ACTCR= 0.7ms; RELCR= 0.6

145 SER 18; FIX 2; C= 0000000; BIN=8000; MRRL=145.0; MRSD=11.4; LEAK RATE= 1.5
ACT= 118.3; REL= 35.0; DIF= 78.2 PSI; ACTCR= 0.7ms; RELCR= 0.4

146 SER 19; FIX 3; C= 0000000; BIN=8000; MRRL=145.0; MRSD=11.4; LEAK RATE= 1.5
ACT= 115.4; REL= 28.8; DIF= 86.6 PSI; ACTCR= 0.7ms; RELCR= 0.2

147 SER 20; FIX 4; C= 0000000; BIN=8000; MRRL=145.0; MRSD=11.4; LEAK RATE= 1.5
ACT= 133.5; REL= 24.1; DIF= 109.4 PSI; ACTCR= 0.9ms; RELCR= 0.0

10-OCT-1991 12:27:00.95 CAP STA CAP XFER 1 NOT HOME

1

~~SER 21; FIX 1; C= 0023005; BIN=CONT; MRRL=93.1; MRSD=10.7; LEAK RATE= 1.5
ACT= 78.0; REL= 0.0; DIF= 78.0 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

148 SER 22; FIX 2; C= 0000000; BIN=8000; MRRL=93.1; MRSD=10.7; LEAK RATE= 1.5
ACT= 120.9; REL= 24.4; DIF= 96.5 PSI; ACTCR= 0.0ms; RELCR= 0.2

149 SER 23; FIX 3; C= 0000000; BIN=8000; MRRL=93.1; MRSD=10.7; LEAK RATE= 1.5
ACT= 115.8; REL= 20.2; DIF= 95.6 PSI; ACTCR= 0.7ms; RELCR= 0.4

150 SER 24; FIX 4; C= 0000000; BIN=8000; MRRL=93.1; MRSD=10.7; LEAK RATE= 1.5
ACT= 112.4; REL= 27.1; DIF= 85.3 PSI; ACTCR= 0.6ms; RELCR= 1.9

10-OCT-1991 12:36:20.72 CAP STA CAP XFER 1 NOT HOME

1

10-OCT-1991 12:36:22.32 CAP STA CAP XFER 1 NOT HOME

1

10-OCT-1991 12:37:55.67 CAP STA CAP XFER 2 NOT HOME

1

10-OCT-1991 12:37:55.75 CAP STA CAP XFER 2 NOT HOME

1

10-OCT-1991 12:37:56.07 CAP STA PRESS CAP NOT HOME

1

TI-NHTSA 003281

10-OCT-1991 12:37:56.24 CAP STA FLIP CAP EOS 1

10-OCT-1991 12:37:56.70 CAP STA FLIP CAP EOS 1

151 SER 25; FIX 1; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=10.7; LEAK RATE= 1.2
ACT= 117.0; REL= 22.5; DIF= 94.5 PSI; ACTCR= 0.8ms; RELCR= 0.2

152 SER 26; FIX 2; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=10.7; LEAK RATE= 1.2
ACT= 120.8; REL= 28.5; DIF= 92.2 PSI; ACTCR= 0.0ms; RELCR= 0.5

153 SER 27; FIX 3; C= 0000000; BIN=GOOD; MRRU=99.7; MRRD=10.7; LEAK RATE= 1.2
ACT= 123.8; REL= 25.2; DIF= 98.6 PSI; ACTCR= 0.7ms; RELCR= 0.0

~~SER 28; FIX 4; C= 0000000; BIN=CONT; MRRU=99.7; MRRD=10.7; LEAK RATE= 1.2
ACT= 77.8; REL= 0.0; DIF= 77.8 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

10-OCT-1991 12:38:14.85 OPER DOOR DID NOT CLOSE 1

10-OCT-1991 12:40:22.84 POWER OFF 1

10-OCT-1991 12:41:23.90 POWER ON 1

10-OCT-1991 12:43:22.24 POWER OFF 1

10-OCT-1991 12:45:44.81 POWER ON 1

10-OCT-1991 12:52:40.14 CAP STA FLIP CAP NOT EOS 1

10-OCT-1991 12:52:40.22 CAP STA CAP XFER 2 NOT HOME 1

10-OCT-1991 12:52:40.30 CAP STA CAP XFER 2 EOS 1

154 SER 29; FIX 1; C= 0000000; BIN=GOOD; MRRU=89.3; MRRD=11.9; LEAK RATE= 1.4
ACT= 114.4; REL= 31.6; DIF= 82.8 PSI; ACTCR= 0.8ms; RELCR= 0.5

155 SER 30; FIX 2; C= 0000000; BIN=GOOD; MRRU=89.3; MRRD=11.9; LEAK RATE= 1.4
ACT= 114.4; REL= 32.2; DIF= 82.3 PSI; ACTCR= 0.0ms; RELCR= 0.3

156 SER 31; FIX 3; C= 0000000; BIN=GOOD; MRRU=89.3; MRRD=11.9; LEAK RATE= 1.4
ACT= 119.4; REL= 28.5; DIF= 90.9 PSI; ACTCR= 0.7ms; RELCR= 0.5

157 SER 32; FIX 4; C= 0000000; BIN=GOOD; MRRU=89.3; MRRD=11.9; LEAK RATE= 1.4
ACT= 122.8; REL= 29.1; DIF= 93.7 PSI; ACTCR= 0.0ms; RELCR= 0.6

10-OCT-1991 12:52:54.29 OPER DOOR DID NOT OPEN 1

10-OCT-1991 12:54:15.71 CAP STA CAP XFER 2 NOT EOS 1

10-OCT-1991 12:54:15.79 CAP STA CAP XFER 2 NOT HOME 1

TI-NHTSA 003292

10-OCT-1991 12:54:15.88 CAP STA PRESS CAP NOT HOME 1

10-OCT-1991 12:54:15.96 CAP STA CAP XFER 2 EOS 1

10-OCT-1991 12:54:16.29 CAP STA FLIP CAP EOS 1

SER 33; FIX 1; C= 0023005; BIN=CONT; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.0
ACT= 78.4; REL= 0.0; DIF= 78.4 PSI; ACTCR= 200.0ms; RELCR= 200.0

158 SER 34; FIX 2; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.0
ACT= 123.9; REL= 23.5; DIF= 100.3 PSI; ACTCR= 4.5ms; RELCR= 0.1

159 SER 35; FIX 3; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.0
ACT= 130.0; REL= 28.2; DIF= 101.8 PSI; ACTCR= 0.2ms; RELCR= 0.3

160 SER 36; FIX 4; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.0
ACT= 121.8; REL= 24.7; DIF= 97.2 PSI; ACTCR= 0.0ms; RELCR= 0.6

10-OCT-1991 12:55:30.09 POWER OFF 1

10-OCT-1991 12:57:12.98 POWER ON 1

10-OCT-1991 12:58:46.40 CAP STA CAP NOT PRESENT 1

161 SER 37; FIX 1; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.9
ACT= 124.4; REL= 25.7; DIF= 98.7 PSI; ACTCR= 0.1ms; RELCR= 0.3

162 SER 38; FIX 2; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.9
ACT= 120.4; REL= 22.6; DIF= 97.8 PSI; ACTCR= 0.7ms; RELCR= 0.5

163 SER 39; FIX 3; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.9
ACT= 112.4; REL= 26.8; DIF= 85.6 PSI; ACTCR= 0.0ms; RELCR= 0.5

SER 40; FIX 4; C= 0023005; BIN=CONT; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.9
ACT= 78.0; REL= 0.0; DIF= 78.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

10-OCT-1991 13:00:01.37 CAP STA CAP NOT PRESENT 1

164 SER 41; FIX 1; C= 0000000; BIN=GOOD; MRRU=98.4; MRRD=12.2; LEAK RATE= 1.4
ACT= 118.7; REL= 31.9; DIF= 86.8 PSI; ACTCR= 0.9ms; RELCR= 0.0

165 SER 42; FIX 2; C= 0000000; BIN=GOOD; MRRU=98.4; MRRD=12.2; LEAK RATE= 1.4
ACT= 115.4; REL= 33.5; DIF= 82.0 PSI; ACTCR= 0.1ms; RELCR= 0.1

166 SER 43; FIX 3; C= 0000000; BIN=GOOD; MRRU=98.4; MRRD=12.2; LEAK RATE= 1.4
ACT= 114.5; REL= 30.1; DIF= 84.4 PSI; ACTCR= 0.0ms; RELCR= 0.4

167 SER 44; FIX 4; C= 0000000; BIN=GOOD; MRRU=98.4; MRRD=12.2; LEAK RATE= 1.4
ACT= 112.3; REL= 30.1; DIF= 82.4 PSI; ACTCR= 0.8ms; RELCR= 0.6

SER 45; FIX 1; C= 0023005; BIN=CONT; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.0
ACT= 79.0; REL= 0.0; DIF= 79.0 PSI; ACTCR= 200.0ms; RELCR= 200.0

SER 46; FIX 2; C= 0000000; BIN=GOOD; MRRU=106.1; MRRD=10.7; LEAK RATE= 1.0

TI-NHTSA 003293

168 SER 47; FIX 3; C= 0000000; BIN=GOOD; MRU=100.7; MRD=14.0; LEAK RATE= 1.0
ACT= 118.3; REL= 30.3; DIF= 88.0 PSI; ACTCR= 0.0ms; RELCR= 0.3

169 SER 48; FIX 4; C= 0000000; BIN=GOOD; MRU=100.7; MRD=14.0; LEAK RATE= 1.0
ACT= 137.2; REL= 24.6; DIF= 110.6 PSI; ACTCR= 0.0ms; RELCR= 0.2

170 SER 49; FIX 1; C= 0000000; BIN=GOOD; MRU=114.5; MRD=10.7; LEAK RATE= 1.3
ACT= 122.2; REL= 27.8; DIF= 94.3 PSI; ACTCR= 0.2ms; RELCR= 0.4

171 SER 50; FIX 2; C= 0000000; BIN=GOOD; MRU=114.5; MRD=10.7; LEAK RATE= 1.3
ACT= 118.4; REL= 28.7; DIF= 89.7 PSI; ACTCR= 0.0ms; RELCR= 0.1

~~SER 51; FIX 3; C= 0023000; BIN=GOOD; MRU=114.5; MRD=10.7; LEAK RATE= 1.3
ACT= 77.8; REL= 0.0; DIF= 77.3 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

172 SER 52; FIX 4; C= 0000000; BIN=GOOD; MRU=114.5; MRD=10.7; LEAK RATE= 1.3
ACT= 121.5; REL= 24.5; DIF= 87.0 PSI; ACTCR= 0.1ms; RELCR= 0.3

173 SER 53; FIX 1; C= 0000000; BIN=GOOD; MRU=105.3; MRD=11.2; LEAK RATE= 1.4
ACT= 127.0; REL= 30.7; DIF= 96.3 PSI; ACTCR= 0.8ms; RELCR= 0.3

174 SER 54; FIX 2; C= 0000000; BIN=GOOD; MRU=105.3; MRD=11.2; LEAK RATE= 1.4
ACT= 120.7; REL= 22.9; DIF= 97.8 PSI; ACTCR= 0.0ms; RELCR= 0.5

175 SER 55; FIX 3; C= 0000000; BIN=GOOD; MRU=105.3; MRD=11.2; LEAK RATE= 1.4
ACT= 118.6; REL= 28.4; DIF= 90.2 PSI; ACTCR= 0.9ms; RELCR= 0.3

176 SER 56; FIX 4; C= 0000000; BIN=GOOD; MRU=105.3; MRD=11.2; LEAK RATE= 1.4
ACT= 115.6; REL= 28.4; DIF= 87.1 PSI; ACTCR= 0.1ms; RELCR= 0.6

177 SER 57; FIX 1; C= 0000000; BIN=GOOD; MRU=114.5; MRD=11.6; LEAK RATE= 1.2
ACT= 127.2; REL= 32.3; DIF= 94.9 PSI; ACTCR= 0.0ms; RELCR= 0.4

178 SER 58; FIX 2; C= 0000000; BIN=GOOD; MRU=114.5; MRD=11.6; LEAK RATE= 1.2
ACT= 127.3; REL= 24.4; DIF= 100.9 PSI; ACTCR= 0.2ms; RELCR= 0.6

179 SER 59; FIX 3; C= 0000000; BIN=GOOD; MRU=114.5; MRD=11.6; LEAK RATE= 1.2
ACT= 122.8; REL= 26.8; DIF= 96.0 PSI; ACTCR= 0.0ms; RELCR= 0.5

180 SER 60; FIX 4; C= 0000000; BIN=GOOD; MRU=114.5; MRD=11.6; LEAK RATE= 1.2
ACT= 113.7; REL= 31.7; DIF= 81.9 PSI; ACTCR= 0.0ms; RELCR= 0.6

181 SER 61; FIX 1; C= 0000000; BIN=GOOD; MRU=112.9; MRD=11.0; LEAK RATE= 1.5
ACT= 127.6; REL= 25.7; DIF= 101.9 PSI; ACTCR= 0.8ms; RELCR= 0.0

182 SER 62; FIX 2; C= 0000000; BIN=GOOD; MRU=112.9; MRD=11.0; LEAK RATE= 1.5
ACT= 130.6; REL= 29.5; DIF= 101.1 PSI; ACTCR= 0.9ms; RELCR= 0.4

183 SER 63; FIX 3; C= 0000000; BIN=GOOD; MRU=112.9; MRD=11.0; LEAK RATE= 1.5
ACT= 121.6; REL= 20.6; DIF= 98.0 PSI; ACTCR= 0.6ms; RELCR= 0.0

184 SER 64; FIX 4; C= 0000000; BIN=GOOD; MRU=112.9; MRD=11.0; LEAK RATE= 1.5
ACT= 122.7; REL= 21.0; DIF= 101.7 PSI; ACTCR= 0.0ms; RELCR= 0.2

185 SER 65; FIX 1; C= 0000000; BIN=GOOD; MRU=94.6; MRD=11.4; LEAK RATE= 1.4
ACT= 116.6; REL= 24.6; DIF= 94.0 PSI; ACTCR= 0.7ms; RELCR= 0.2

186 SER 66; FIX 2; C= 0000000; BIN=GOOD; MRU=94.6; MRD=11.4; LEAK RATE= 1.4
ACT= 116.3; REL= 26.6; DIF= 89.9 PSI; ACTCR= 0.0ms; RELCR= 0.0

187 SER 67; FIX 3; C= 0000000; BIN=8000; MRRU=94.6; MRRD=11.4; LEAK RATE= 1.4
ACT= 115.6; REL= 27.4; DIF= 88.2 PSI; ACTCR= 0.1ms; RELCR= 0.3

188 SER 68; FIX 4; C= 0000000; BIN=8000; MRRU=94.6; MRRD=11.4; LEAK RATE= 1.4
ACT= 114.3; REL= 29.4; DIF= 84.7 PSI; ACTCR= 0.6ms; RELCR= 0.3

189 SER 69; FIX 1; C= 0000000; BIN=8000; MRRU=110.7; MRRD=11.2; LEAK RATE= 1.5
ACT= 124.0; REL= 29.1; DIF= 94.9 PSI; ACTCR= 0.9ms; RELCR= 0.6

190 SER 70; FIX 2; C= 0000000; BIN=8000; MRRU=110.7; MRRD=11.2; LEAK RATE= 1.5
ACT= 120.9; REL= 27.3; DIF= 93.5 PSI; ACTCR= 0.0ms; RELCR= 0.3

191 SER 71; FIX 3; C= 0000000; BIN=8000; MRRU=110.7; MRRD=11.2; LEAK RATE= 1.5
ACT= 127.0; REL= 21.6; DIF= 105.5 PSI; ACTCR= 0.1ms; RELCR= 0.3

192 SER 72; FIX 4; C= 0000000; BIN=8000; MRRU=110.7; MRRD=11.2; LEAK RATE= 1.5
ACT= 127.0; REL= 24.3; DIF= 102.7 PSI; ACTCR= 1.9ms; RELCR= 0.3

193 SER 73; FIX 1; C= 0000000; BIN=8000; MRRU=101.5; MRRD=11.5; LEAK RATE= 1.1
ACT= 131.4; REL= 27.3; DIF= 104.1 PSI; ACTCR= 0.0ms; RELCR= 0.0

194 SER 74; FIX 2; C= 0000000; BIN=8000; MRRU=101.5; MRRD=11.5; LEAK RATE= 1.1
ACT= 123.4; REL= 25.2; DIF= 98.2 PSI; ACTCR= 0.7ms; RELCR= 0.3

195 SER 75; FIX 3; C= 0000000; BIN=8000; MRRU=101.5; MRRD=11.5; LEAK RATE= 1.1
ACT= 109.1; REL= 25.0; DIF= 84.1 PSI; ACTCR= 0.1ms; RELCR= 0.3

196 SER 76; FIX 4; C= 0001000; BIN=8000; MRRU=101.5; MRRD=11.5; LEAK RATE= 1.1
ACT= 123.4; REL= 27.6; DIF= 97.8 PSI; ACTCR= 25.1ms; RELCR= 0.0

197 SER 77; FIX 1; C= 0000000; BIN=8000; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.6
ACT= 117.7; REL= 28.9; DIF= 88.8 PSI; ACTCR= 0.7ms; RELCR= 0.2

~~SER 78; FIX 2; C= 0000000; BIN=8000; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.6
ACT= 122.4; REL= 19.4; DIF= 102.8 PSI; ACTCR= 0.8ms; RELCR= 0.3~~

198 SER 79; FIX 3; C= 0000000; BIN=8000; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.6
ACT= 121.7; REL= 22.9; DIF= 98.8 PSI; ACTCR= 0.7ms; RELCR= 0.2

199 SER 80; FIX 4; C= 0000000; BIN=8000; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.6
ACT= 118.6; REL= 26.5; DIF= 92.1 PSI; ACTCR= 0.0ms; RELCR= 2.1

~~SER 81; FIX 1; C= 0023000; BIN=8000; MRRU=91.6; MRRD=10.8; LEAK RATE= 1.6
ACT= 78.8; REL= 0.0; DIF= 78.5 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

200 SER 82; FIX 2; C= 0000000; BIN=8000; MRRU=91.6; MRRD=10.8; LEAK RATE= 1.6
ACT= 119.1; REL= 27.1; DIF= 92.0 PSI; ACTCR= 0.1ms; RELCR= 0.6

201 SER 83; FIX 3; C= 0000000; BIN=8000; MRRU=91.6; MRRD=10.8; LEAK RATE= 1.6
ACT= 126.4; REL= 26.6; DIF= 99.8 PSI; ACTCR= 0.8ms; RELCR= 0.1

202 SER 84; FIX 4; C= 0000000; BIN=8000; MRRU=91.6; MRRD=10.8; LEAK RATE= 1.6
ACT= 112.9; REL= 32.4; DIF= 80.6 PSI; ACTCR= 0.0ms; RELCR= 0.3

203 SER 85; FIX 1; C= 0000000; BIN=8000; MRRU=98.7; MRRD=11.3; LEAK RATE= 1.3
ACT= 123.0; REL= 27.7; DIF= 95.3 PSI; ACTCR= 0.7ms; RELCR= 0.5

204 SER 86; FIX 2; C= 0000000; BIN=8000; MRRU=98.7; MRRD=11.3; LEAK RATE= 1.3
ACT= 125.2; REL= 25.6; DIF= 101.6 PSI; ACTCR= 0.2ms; RELCR= 0.2

TI-NHTSA 003295

205 ACT= 122.1; REL= 25.8; DIF= 96.4 PSI; ACTCR= 0.7ms; RELCR= 0.2

206 SER 88; FIX 4; C= 0000000; BIN=8000; WRLU=98.7; WRRD=11.3; LEAK RATE= 1.3
ACT= 128.3; REL= 23.2; DIF= 105.1 PSI; ACTCR= 0.9ms; RELCR= 0.5

10-OCT-1991 13:11:21.35 OPER DOOR DID NOT CLOSE 1

207 SER 89; FIX 1; C= 0000000; BIN=8000; WRLU=96.9; WRRD=11.0; LEAK RATE= 1.4
ACT= 119.4; REL= 26.2; DIF= 93.2 PSI; ACTCR= 0.7ms; RELCR= 0.3

208 SER 90; FIX 2; C= 0000000; BIN=8000; WRLU=96.9; WRRD=11.0; LEAK RATE= 1.4
ACT= 116.7; REL= 29.2; DIF= 87.5 PSI; ACTCR= 0.1ms; RELCR= 0.2

209 SER 91; FIX 3; C= 0000000; BIN=8000; WRLU=96.9; WRRD=11.0; LEAK RATE= 1.4
ACT= 119.4; REL= 24.2; DIF= 95.3 PSI; ACTCR= 0.0ms; RELCR= 0.2

210 SER 92; FIX 4; C= 0000000; BIN=8000; WRLU=96.9; WRRD=11.0; LEAK RATE= 1.4
ACT= 125.6; REL= 31.5; DIF= 94.1 PSI; ACTCR= 0.6ms; RELCR= 0.2

211 SER 93; FIX 1; C= 0000000; BIN=8000; WRLU=97.7; WRRD=12.5; LEAK RATE= 1.4
ACT= 120.5; REL= 26.5; DIF= 94.0 PSI; ACTCR= 0.0ms; RELCR= 0.5

212 SER 94; FIX 2; C= 0000000; BIN=8000; WRLU=97.7; WRRD=12.5; LEAK RATE= 1.4
ACT= 115.4; REL= 28.3; DIF= 87.1 PSI; ACTCR= 0.0ms; RELCR= 0.6

~~SER 95; FIX 3; C= 0022004; BIN=8000; WRLU=97.7; WRRD=12.5; LEAK RATE= 1.4
ACT= 117.5; REL= 0.0; DIF= 117.5 PSI; ACTCR= 0.0ms; RELCR= 200.0~~

~~SER 96; FIX 4; C= 0000000; BIN=8000; WRLU=97.7; WRRD=12.5; LEAK RATE= 1.4
ACT= 126.4; REL= 0.0; DIF= 126.4 PSI; ACTCR= 0.0ms; RELCR= 0.4~~

213 SER 97; FIX 1; C= 0002000; BIN=8000; WRLU=109.1; WRRD=11.5; LEAK RATE= 1.4
ACT= 126.3; REL= 41.6; DIF= 84.7 PSI; ACTCR= 0.0ms; RELCR= 200.0

214 SER 98; FIX 2; C= 0000000; BIN=8000; WRLU=109.1; WRRD=11.5; LEAK RATE= 1.4
ACT= 126.3; REL= 28.0; DIF= 98.3 PSI; ACTCR= 0.1ms; RELCR= 0.4

215 SER 99; FIX 3; C= 0000000; BIN=8000; WRLU=109.1; WRRD=11.5; LEAK RATE= 1.4
ACT= 122.4; REL= 25.5; DIF= 96.9 PSI; ACTCR= 0.7ms; RELCR= 0.3

216 SER 100; FIX 4; C= 0000000; BIN=8000; WRLU=109.1; WRRD=11.5; LEAK RATE= 1.4
ACT= 122.4; REL= 29.1; DIF= 93.3 PSI; ACTCR= 1.0ms; RELCR= 0.1

217 SER 101; FIX 1; C= 0000000; BIN=8000; WRLU=131.3; WRRD=11.4; LEAK RATE= 1.3
ACT= 120.3; REL= 30.4; DIF= 89.9 PSI; ACTCR= 0.0ms; RELCR= 0.4

218 SER 102; FIX 2; C= 0000000; BIN=8000; WRLU=131.3; WRRD=11.4; LEAK RATE= 1.3
ACT= 119.2; REL= 29.2; DIF= 90.0 PSI; ACTCR= 0.0ms; RELCR= 0.7

219 SER 103; FIX 3; C= 0000000; BIN=8000; WRLU=131.3; WRRD=11.4; LEAK RATE= 1.3
ACT= 120.3; REL= 23.5; DIF= 96.8 PSI; ACTCR= 0.7ms; RELCR= 0.3

220 SER 104; FIX 4; C= 0000000; BIN=8000; WRLU=131.3; WRRD=11.4; LEAK RATE= 1.3
ACT= 115.4; REL= 32.6; DIF= 82.7 PSI; ACTCR= 0.0ms; RELCR= 0.3

10-OCT-1991 13:13:40.43 OPER DOOR DID NOT OPEN 1

SER 105; FIX 1; C= 0000000; BIN=8000; WRLU=112.9; WRRD=10.7; LEAK RATE= 1.3

TI-NHTSA 003298

222 SER 106; FIX 2; C= 0000000; BIN=8000; MRRL=112.9; MRRL=10.7; LEAK RATE= 1.3
ACT= 116.2; REL= 30.8; DIF= 85.4 PSI; ACTCR= 0.7ms; RELCR= 0.4

223 SER 107; FIX 3; C= 0000000; BIN=8000; MRRL=112.9; MRRL=10.7; LEAK RATE= 1.3
ACT= 122.2; REL= 29.2; DIF= 94.0 PSI; ACTCR= 0.1ms; RELCR= 0.2

~~SER 108; FIX 4; C= 0023005; BIN=8000; MRRL=112.9; MRRL=10.7; LEAK RATE= 1.3
ACT= 78.4; REL= 0.0; DIF= 78.4 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

224 SER 109; FIX 1; C= 0000000; BIN=8000; MRRL=102.3; MRRL=11.2; LEAK RATE= 1.3
ACT= 124.6; REL= 22.8; DIF= 101.7 PSI; ACTCR= 0.8ms; RELCR= 0.3

225 SER 110; FIX 2; C= 0000000; BIN=8000; MRRL=102.3; MRRL=11.2; LEAK RATE= 1.3
ACT= 121.5; REL= 26.9; DIF= 94.6 PSI; ACTCR= 0.0ms; RELCR= 0.1

226 SER 111; FIX 3; C= 0000000; BIN=8000; MRRL=102.3; MRRL=11.2; LEAK RATE= 1.3
ACT= 112.3; REL= 27.2; DIF= 85.1 PSI; ACTCR= 1.1ms; RELCR= 0.5

227 SER 112; FIX 4; C= 0000000; BIN=8000; MRRL=102.3; MRRL=11.2; LEAK RATE= 1.3
ACT= 123.3; REL= 21.8; DIF= 101.7 PSI; ACTCR= 0.0ms; RELCR= 0.5

10-OCT-1991 13:14:26.26 OPER DOOR DID NOT CLOSE 1

228 SER 113; FIX 1; C= 0000000; BIN=8000; MRRL=100.7; MRRL=11.7; LEAK RATE= 1.3
ACT= 120.0; REL= 26.1; DIF= 93.9 PSI; ACTCR= 0.0ms; RELCR= 0.3

229 SER 114; FIX 2; C= 0000000; BIN=8000; MRRL=100.7; MRRL=11.7; LEAK RATE= 1.3
ACT= 120.0; REL= 26.3; DIF= 93.7 PSI; ACTCR= 0.4ms; RELCR= 0.3

230 SER 115; FIX 3; C= 0000000; BIN=8000; MRRL=100.7; MRRL=11.7; LEAK RATE= 1.3
ACT= 117.9; REL= 31.3; DIF= 86.6 PSI; ACTCR= 0.8ms; RELCR= 0.2

231 SER 116; FIX 4; C= 0000000; BIN=8000; MRRL=100.7; MRRL=11.7; LEAK RATE= 1.3
ACT= 107.6; REL= 33.0; DIF= 74.7 PSI; ACTCR= 7.5ms; RELCR= 0.1

232 SER 117; FIX 1; C= 0000000; BIN=8000; MRRL=103.8; MRRL=14.7; LEAK RATE= 1.1
ACT= 116.3; REL= 28.6; DIF= 87.7 PSI; ACTCR= 0.0ms; RELCR= 0.1

~~SER 118; FIX 2; C= 0023004; BIN=8000; MRRL=103.8; MRRL=14.7; LEAK RATE= 1.1
ACT= 116.3; REL= 0.0; DIF= 116.3 PSI; ACTCR= 0.1ms; RELCR= 200.0~~

233 SER 119; FIX 3; C= 0000000; BIN=8000; MRRL=103.8; MRRL=14.7; LEAK RATE= 1.1
ACT= 120.7; REL= 27.0; DIF= 93.7 PSI; ACTCR= 0.7ms; RELCR= 0.4

~~SER 120; FIX 4; C= 0063004; BIN=8000; MRRL=103.8; MRRL=14.7; LEAK RATE= 1.1
ACT= 124.4; REL= 0.0; DIF= 124.4 PSI; ACTCR= 4.2ms; RELCR= 200.0~~

~~SER 121; FIX 1; C= 0023005; BIN=8000; MRRL=117.5; MRRL=10.6; LEAK RATE= 1.3
ACT= 78.7; REL= 0.0; DIF= 78.7 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

234 SER 122; FIX 2; C= 0000000; BIN=8000; MRRL=117.5; MRRL=10.6; LEAK RATE= 1.3
ACT= 117.1; REL= 28.5; DIF= 88.6 PSI; ACTCR= 0.2ms; RELCR= 0.1

235 SER 123; FIX 3; C= 0000000; BIN=8000; MRRL=117.5; MRRL=10.6; LEAK RATE= 1.3
ACT= 121.1; REL= 28.1; DIF= 93.0 PSI; ACTCR= 0.0ms; RELCR= 0.4

236 SER 124; FIX 4; C= 0000000; BIN=8000; MRRL=117.5; MRRL=10.6; LEAK RATE= 1.3
ACT= 119.0; REL= 28.1; DIF= 92.9 PSI; ACTCR= 0.1ms; RELCR= 0.1

TI-NHTSA 003297

237 SER 125; FIX 1; C= 0000000; BIN=8000; MFRU=96.2; MFRD=11.4; LEAK RATE= 1.0
ACT= 123.7; REL= 24.5; DIF= 99.2 PSI; ACTCR= 0.1ms; RELCR= 0.2

238 SER 126; FIX 2; C= 0000000; BIN=8000; MFRU=96.2; MFRD=11.4; LEAK RATE= 1.0
ACT= 125.6; REL= 26.0; DIF= 99.6 PSI; ACTCR= 0.1ms; RELCR= 0.2

239 SER 127; FIX 3; C= 0000000; BIN=8000; MFRU=96.2; MFRD=11.4; LEAK RATE= 1.0
ACT= 127.8; REL= 25.1; DIF= 102.7 PSI; ACTCR= 0.1ms; RELCR= 0.2

240 SER 128; FIX 4; C= 0000000; BIN=8000; MFRU=96.2; MFRD=11.4; LEAK RATE= 1.0
ACT= 121.8; REL= 35.3; DIF= 86.5 PSI; ACTCR= 0.0ms; RELCR= 0.4

241 SER 129; FIX 1; C= 0000000; BIN=8000; MFRU=94.6; MFRD=11.3; LEAK RATE= 1.2
ACT= 115.9; REL= 27.4; DIF= 88.6 PSI; ACTCR= 0.0ms; RELCR= 0.3

242 SER 130; FIX 2; C= 0000000; BIN=8000; MFRU=94.6; MFRD=11.3; LEAK RATE= 1.2
ACT= 133.2; REL= 23.0; DIF= 110.2 PSI; ACTCR= 0.0ms; RELCR= 0.3

243 SER 131; FIX 3; C= 0000000; BIN=8000; MFRU=94.6; MFRD=11.3; LEAK RATE= 1.2
ACT= 124.3; REL= 23.7; DIF= 100.5 PSI; ACTCR= 0.0ms; RELCR= 0.3

244 SER 132; FIX 4; C= 0000000; BIN=8000; MFRU=94.6; MFRD=11.3; LEAK RATE= 1.2
ACT= 131.2; REL= 23.5; DIF= 107.6 PSI; ACTCR= 0.7ms; RELCR= 0.3

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245 SER 133; FIX 1; C= 0000000; BIN=8000; MFRU=99.2; MFRD=10.7; LEAK RATE= 1.2
ACT= 128.4; REL= 27.1; DIF= 101.4 PSI; ACTCR= 0.9ms; RELCR= 0.2

246 SER 134; FIX 2; C= 0000000; BIN=8000; MFRU=99.2; MFRD=10.7; LEAK RATE= 1.2
ACT= 120.3; REL= 29.4; DIF= 90.9 PSI; ACTCR= 0.1ms; RELCR= 0.3

247 SER 135; FIX 3; C= 0000000; BIN=8000; MFRU=99.2; MFRD=10.7; LEAK RATE= 1.2
ACT= 132.3; REL= 23.1; DIF= 109.2 PSI; ACTCR= 0.1ms; RELCR= 0.6

~~SER 136; FIX 4; C= 0023005; BIN=8000; MFRU=99.2; MFRD=10.7; LEAK RATE= 1.2~~
~~ACT= 78.7; REL= 0.0; DIF= 78.7 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

248 SER 137; FIX 1; C= 0000000; BIN=8000; MFRU=91.6; MFRD=11.9; LEAK RATE= 1.2
ACT= 124.4; REL= 31.5; DIF= 92.9 PSI; ACTCR= 0.9ms; RELCR= 0.2

249 SER 138; FIX 2; C= 0000000; BIN=8000; MFRU=91.6; MFRD=11.9; LEAK RATE= 1.2
ACT= 121.4; REL= 30.9; DIF= 90.5 PSI; ACTCR= 0.0ms; RELCR= 0.5

250 SER 139; FIX 3; C= 0000000; BIN=8000; MFRU=91.6; MFRD=11.9; LEAK RATE= 1.2
ACT= 123.1; REL= 28.7; DIF= 94.4 PSI; ACTCR= 0.1ms; RELCR= 0.3

151 SER 140; FIX 4; C= 0000000; BIN=8000; MFRU=91.6; MFRD=11.9; LEAK RATE= 1.2
ACT= 119.5; REL= 29.0; DIF= 90.5 PSI; ACTCR= 0.7ms; RELCR= 0.4

152 SER 141; FIX 1; C= 0002000; BIN=8000; MFRU=131.7; MFRD=11.7; LEAK RATE= 1.3
ACT= 118.5; REL= 30.8; DIF= 85.7 PSI; ACTCR= 0.0ms; RELCR= 200.0

153 SER 142; FIX 2; C= 0000000; BIN=8000; MFRU=131.7; MFRD=11.7; LEAK RATE= 1.3
ACT= 123.6; REL= 35.9; DIF= 87.8 PSI; ACTCR= 0.7ms; RELCR= 0.6

154 SER 143; FIX 3; C= 0000000; BIN=8000; MFRU=131.7; MFRD=11.7; LEAK RATE= 1.3
ACT= 120.9; REL= 27.4; DIF= 93.6 PSI; ACTCR= 0.1ms; RELCR= 0.1

155 SER 144; FIX 4; C= 0000000; BIN=8000; MFRU=131.7; MFRD=11.7; LEAK RATE= 1.3

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256 SER 145; FIX 1; C= 0000000; BIN=GOOD; MRRU=91.4; MRRD=11.0; LEAK RATE= 1.3
ACT= 118.0; REL= 20.7; DIF= 97.3 PSI; ACTCR= 0.0ms; RELCR= 0.4

257 SER 146; FIX 2; C= 0000000; BIN=GOOD; MRRU=91.6; MRRD=11.0; LEAK RATE= 1.3
ACT= 124.9; REL= 26.0; DIF= 99.0 PSI; ACTCR= 0.7ms; RELCR= 0.3

258 SER 147; FIX 3; C= 0000000; BIN=GOOD; MRRU=91.6; MRRD=11.0; LEAK RATE= 1.3
ACT= 122.7; REL= 27.9; DIF= 94.8 PSI; ACTCR= 0.9ms; RELCR= 0.1

259 SER 148; FIX 4; C= 0000000; BIN=GOOD; MRRU=91.6; MRRD=11.0; LEAK RATE= 1.3
ACT= 119.0; REL= 27.2; DIF= 91.7 PSI; ACTCR= 0.2ms; RELCR= 0.4

260 SER 149; FIX 1; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=11.5; LEAK RATE= 1.0
ACT= 113.6; REL= 33.4; DIF= 80.2 PSI; ACTCR= 0.1ms; RELCR= 0.7

261 SER 150; FIX 2; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=11.5; LEAK RATE= 1.0
ACT= 116.6; REL= 21.5; DIF= 95.1 PSI; ACTCR= 0.9ms; RELCR= 0.7

262 SER 151; FIX 3; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=11.5; LEAK RATE= 1.0
ACT= 114.6; REL= 25.5; DIF= 91.1 PSI; ACTCR= 0.0ms; RELCR= 0.3

263 SER 152; FIX 4; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=11.5; LEAK RATE= 1.0
ACT= 118.5; REL= 24.9; DIF= 93.6 PSI; ACTCR= 0.1ms; RELCR= 0.4

~~SER 153; FIX 1; C= 0000004; BIN=RLD; MRRU=98.7; MRRD=10.8; LEAK RATE= 1.4
ACT= 116.1; REL= 18.7; DIF= 97.2 PSI; ACTCR= 0.9ms; RELCR= 0.7~~

264 SER 154; FIX 2; C= 0002000; BIN=RLCR; MRRU=98.7; MRRD=10.8; LEAK RATE= 1.4
ACT= 125.2; REL= 28.7; DIF= 96.5 PSI; ACTCR= 0.1ms; RELCR= 200.0

265 SER 155; FIX 3; C= 0000000; BIN=GOOD; MRRU=98.7; MRRD=10.8; LEAK RATE= 1.4
ACT= 125.2; REL= 23.7; DIF= 101.5 PSI; ACTCR= 0.0ms; RELCR= 0.3

266 SER 156; FIX 4; C= 0000000; BIN=GOOD; MRRU=98.7; MRRD=10.8; LEAK RATE= 1.4
ACT= 129.0; REL= 25.1; DIF= 103.9 PSI; ACTCR= 0.0ms; RELCR= 0.4

267 SER 157; FIX 1; C= 0000000; BIN=GOOD; MRRU=82.4; MRRD=12.7; LEAK RATE= 1.3
ACT= 118.9; REL= 23.2; DIF= 95.7 PSI; ACTCR= 0.0ms; RELCR= 0.2

268 SER 158; FIX 2; C= 0000000; BIN=GOOD; MRRU=82.4; MRRD=12.7; LEAK RATE= 1.3
ACT= 123.7; REL= 30.6; DIF= 93.1 PSI; ACTCR= 0.1ms; RELCR= 0.3

~~SER 159; FIX 3; C= 0000004; BIN=RLD; MRRU=82.4; MRRD=12.7; LEAK RATE= 1.3
ACT= 128.8; REL= 24.0; DIF= 120.5 PSI; ACTCR= 0.1ms; RELCR= 0.1~~

269 SER 160; FIX 4; C= 0000000; BIN=GOOD; MRRU=82.4; MRRD=12.7; LEAK RATE= 1.3
ACT= 125.9; REL= 26.8; DIF= 99.0 PSI; ACTCR= 0.9ms; RELCR= 0.2

270 SER 161; FIX 1; C= 0000000; BIN=GOOD; MRRU=108.4; MRRD=11.4; LEAK RATE= 1.2
ACT= 117.8; REL= 24.2; DIF= 93.8 PSI; ACTCR= 0.0ms; RELCR= 0.2

271 SER 162; FIX 2; C= 0000000; BIN=GOOD; MRRU=108.4; MRRD=11.4; LEAK RATE= 1.2
ACT= 122.9; REL= 23.6; DIF= 99.3 PSI; ACTCR= 0.8ms; RELCR= 0.5

272 SER 163; FIX 3; C= 0000000; BIN=GOOD; MRRU=108.4; MRRD=11.4; LEAK RATE= 1.2
ACT= 122.0; REL= 22.9; DIF= 89.1 PSI; ACTCR= 0.9ms; RELCR= 0.0

273 SER 164; FIX 1; C= 0000000; BIN=GOOD ; MRRL=108.4; MRPD=11.4; LEAK RATE= 1.2
ACT= 119.9; REL= 26.2; DIF= 92.7 PSI; ACTCR= 0.1ms; RELCR= 0.2

274 SER 165; FIX 1; C= 0000000; BIN=GOOD ; MRRL=80.9; MRPD=11.4; LEAK RATE= 1.5
ACT= 114.8; REL= 28.5; DIF= 86.3 PSI; ACTCR= 0.1ms; RELCR= 0.2

275 SER 166; FIX 2; C= 0000000; BIN=GOOD ; MRRL=80.9; MRPD=11.4; LEAK RATE= 1.5
ACT= 122.1; REL= 25.1; DIF= 97.0 PSI; ACTCR= 0.9ms; RELCR= 0.4

276 SER 167; FIX 3; C= 0000000; BIN=GOOD ; MRRL=80.9; MRPD=11.4; LEAK RATE= 1.5
ACT= 125.9; REL= 29.9; DIF= 96.0 PSI; ACTCR= 0.0ms; RELCR= 0.2

277 SER 168; FIX 4; C= 0000000; BIN=GOOD ; MRRL=80.9; MRPD=11.4; LEAK RATE= 1.5
ACT= 124.2; REL= 23.4; DIF= 100.8 PSI; ACTCR= 0.7ms; RELCR= 0.3

278 SER 169; FIX 1; C= 0000000; BIN=GOOD ; MRRL=87.0; MRPD=11.6; LEAK RATE= 1.2
ACT= 118.8; REL= 25.4; DIF= 93.4 PSI; ACTCR= 0.6ms; RELCR= 1.2

279 SER 170; FIX 2; C= 0000000; BIN=GOOD ; MRRL=87.0; MRPD=11.6; LEAK RATE= 1.2
ACT= 120.8; REL= 25.4; DIF= 95.3 PSI; ACTCR= 0.8ms; RELCR= 0.2

280 SER 171; FIX 3; C= 0000000; BIN=GOOD ; MRRL=87.0; MRPD=11.6; LEAK RATE= 1.2
ACT= 116.8; REL= 29.7; DIF= 87.1 PSI; ACTCR= 0.7ms; RELCR= 0.4

281 SER 172; FIX 4; C= 0000000; BIN=GOOD ; MRRL=87.0; MRPD=11.6; LEAK RATE= 1.2
ACT= 123.9; REL= 30.5; DIF= 93.4 PSI; ACTCR= 0.0ms; RELCR= 0.6

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282 SER 173; FIX 1; C= 0000000; BIN=GOOD ; MRRL=101.2; MRPD=11.5; LEAK RATE= 1.5
ACT= 115.6; REL= 36.5; DIF= 79.1 PSI; ACTCR= 0.3ms; RELCR= 0.5

283 SER 174; FIX 2; C= 0000000; BIN=GOOD ; MRRL=101.2; MRPD=11.5; LEAK RATE= 1.5
ACT= 117.7; REL= 26.7; DIF= 91.0 PSI; ACTCR= 0.7ms; RELCR= 0.6

284 SER 175; FIX 3; C= 0000000; BIN=GOOD ; MRRL=101.2; MRPD=11.5; LEAK RATE= 1.5
ACT= 124.7; REL= 32.4; DIF= 92.3 PSI; ACTCR= 0.0ms; RELCR= 0.1

285 SER 176; FIX 4; C= 0000000; BIN=GOOD ; MRRL=101.2; MRPD=11.5; LEAK RATE= 1.5
ACT= 120.7; REL= 24.4; DIF= 96.3 PSI; ACTCR= 0.7ms; RELCR= 0.2

286 SER 177; FIX 1; C= 0000000; BIN=GOOD ; MRRL=116.0; MRPD=10.7; LEAK RATE= 1.1
ACT= 119.2; REL= 28.0; DIF= 91.2 PSI; ACTCR= 0.6ms; RELCR= 0.4

~~SER 178; FIX 2; C= 0023005; BIN=GOOD ; MRRL=116.0; MRPD=10.7; LEAK RATE= 1.1
ACT= 79.4; REL= 0.0; DIF= 79.4 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

287 SER 179; FIX 3; C= 0000000; BIN=GOOD ; MRRL=116.0; MRPD=10.7; LEAK RATE= 1.1
ACT= 116.0; REL= 26.7; DIF= 89.4 PSI; ACTCR= 0.1ms; RELCR= 0.0

288 SER 180; FIX 4; C= 0000000; BIN=GOOD ; MRRL=116.0; MRPD=10.7; LEAK RATE= 1.1
ACT= 122.4; REL= 27.5; DIF= 94.7 PSI; ACTCR= 4.1ms; RELCR= 0.2

289 SER 181; FIX 1; C= 0000000; BIN=GOOD ; MRRL=101.5; MRPD=11.5; LEAK RATE= 1.4
ACT= 124.7; REL= 29.3; DIF= 93.4 PSI; ACTCR= 0.7ms; RELCR= 0.4

290 SER 182; FIX 2; C= 0000000; BIN=GOOD ; MRRL=101.5; MRPD=11.5; LEAK RATE= 1.4
ACT= 112.1; REL= 26.8; DIF= 85.8 PSI; ACTCR= 0.7ms; RELCR= 0.3

TI-NHT8A 003300

291 ACT= 121.3; REL= 28.4; DIF= 92.9 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 184; FIX 4; C= 0000000; BIN=GOOD; MRRU=101.5; MRRD=11.5; LEAK RATE= 1.4
292 ACT= 122.7; REL= 34.2; DIF= 88.6 PSI; ACTCR= 0.7ms; RELCR= 0.3

SER 185; FIX 1; C= 0000000; BIN=GOOD; MRRU=62.6; MRRD=11.2; LEAK RATE= 1.3
293 ACT= 118.5; REL= 29.7; DIF= 88.8 PSI; ACTCR= 0.0ms; RELCR= 0.7

SER 186; FIX 2; C= 0002000; BIN=RELR; MRRU=62.6; MRRD=11.2; LEAK RATE= 1.3
294 ACT= 125.5; REL= 26.8; DIF= 98.7 PSI; ACTCR= 0.1ms; RELCR= 200.0

SER 187; FIX 3; C= 0000000; BIN=GOOD; MRRU=62.6; MRRD=11.2; LEAK RATE= 1.3
295 ACT= 112.3; REL= 28.7; DIF= 83.6 PSI; ACTCR= 0.1ms; RELCR= 0.1

SER 188; FIX 4; C= 0000000; BIN=GOOD; MRRU=62.6; MRRD=11.2; LEAK RATE= 1.3
296 ACT= 122.6; REL= 22.3; DIF= 100.2 PSI; ACTCR= 0.7ms; RELCR= 0.4

SER 189; FIX 1; C= 0000000; BIN=GOOD; MRRU=88.5; MRRD=11.2; LEAK RATE= 1.3
297 ACT= 116.1; REL= 25.5; DIF= 90.7 PSI; ACTCR= 0.0ms; RELCR= 0.1

SER 190; FIX 2; C= 0000000; BIN=GOOD; MRRU=88.5; MRRD=11.2; LEAK RATE= 1.3
298 ACT= 126.2; REL= 22.5; DIF= 103.7 PSI; ACTCR= 0.7ms; RELCR= 0.2

SER 191; FIX 3; C= 0000000; BIN=GOOD; MRRU=88.5; MRRD=11.2; LEAK RATE= 1.3
299 ACT= 126.2; REL= 24.1; DIF= 102.1 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 192; FIX 4; C= 0000000; BIN=GOOD; MRRU=88.5; MRRD=11.2; LEAK RATE= 1.3
300 ACT= 118.5; REL= 23.2; DIF= 93.3 PSI; ACTCR= 0.0ms; RELCR= 4.8

SER 193; FIX 1; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.5; LEAK RATE= 1.6
ACT= 116.0; REL= 31.8; DIF= 84.1 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 194; FIX 2; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.5; LEAK RATE= 1.6
ACT= 123.9; REL= 24.8; DIF= 99.1 PSI; ACTCR= 0.2ms; RELCR= 0.4

SER 195; FIX 3; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.5; LEAK RATE= 1.6
ACT= 122.1; REL= 33.2; DIF= 88.9 PSI; ACTCR= 0.1ms; RELCR= 0.6

SER 196; FIX 4; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.5; LEAK RATE= 1.6
ACT= 120.6; REL= 29.0; DIF= 91.7 PSI; ACTCR= 0.3ms; RELCR= 0.2

SER 197; FIX 1; C= 0000000; BIN=GOOD; MRRU=109.9; MRRD=11.7; LEAK RATE= 1.5
ACT= 109.9; REL= 23.7; DIF= 84.1 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 198; FIX 2; C= 0000000; BIN=GOOD; MRRU=109.9; MRRD=11.7; LEAK RATE= 1.5
ACT= 113.9; REL= 36.8; DIF= 77.3 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 199; FIX 3; C= 0000000; BIN=GOOD; MRRU=109.9; MRRD=11.7; LEAK RATE= 1.5
ACT= 123.2; REL= 30.8; DIF= 92.4 PSI; ACTCR= 0.1ms; RELCR= 0.3

SER 200; FIX 4; C= 0000000; BIN=GOOD; MRRU=109.9; MRRD=11.7; LEAK RATE= 1.5
ACT= 119.1; REL= 26.5; DIF= 92.6 PSI; ACTCR= 0.8ms; RELCR= 0.4

~~SER 201; FIX 1; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=10.6; LEAK RATE= 1.5
ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 202; FIX 2; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=10.6; LEAK RATE= 1.5
ACT= 121.0; REL= 25.7; DIF= 95.2 PSI; ACTCR= 0.0ms; RELCR= 4.5

SER 203; FIX 3; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=10.6; LEAK RATE= 1.5

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SER 204; FIX 4; C= 0000000; BIN=GOOD; MRU=83.9; MRD=10.6; LEAK RATE= 1.3
ACT= 119.1; REL= 26.5; DIF= 90.6 PSI; ACTCR= 0.4ms; RELCR= 0.5

SER 205; FIX 1; C= 0000000; BIN=GOOD; MRU=64.1; MRD=10.8; LEAK RATE= 1.3
ACT= 123.0; REL= 21.9; DIF= 101.1 PSI; ACTCR= 0.0ms; RELCR= 0.5

~~SER 206; FIX 2; C= 0023005; BIN=CONT; MRU=64.1; MRD=10.8; LEAK RATE= 1.3
ACT= 79.0; REL= 0.0; DIF= 79.0 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 207; FIX 3; C= 0000000; BIN=GOOD; MRU=64.1; MRD=10.8; LEAK RATE= 1.3
ACT= 126.4; REL= 27.2; DIF= 99.3 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 208; FIX 4; C= 0000000; BIN=GOOD; MRU=64.1; MRD=10.8; LEAK RATE= 1.3
ACT= 118.0; REL= 32.0; DIF= 86.0 PSI; ACTCR= 0.6ms; RELCR= 0.3

SER 209; FIX 1; C= 0000000; BIN=GOOD; MRU=97.7; MRD=10.8; LEAK RATE= 1.3
ACT= 117.8; REL= 25.0; DIF= 92.8 PSI; ACTCR= 0.0ms; RELCR= 1.1

SER 210; FIX 2; C= 0000000; BIN=GOOD; MRU=97.7; MRD=10.8; LEAK RATE= 1.3
ACT= 125.9; REL= 32.3; DIF= 93.6 PSI; ACTCR= 0.7ms; RELCR= 0.1

~~SER 211; FIX 3; C= 0000004; BIN=BLD; MRU=97.7; MRD=10.8; LEAK RATE= 1.3
ACT= 115.7; REL= 30.8; DIF= 84.9 PSI; ACTCR= 0.0ms; RELCR= 0.1~~

SER 212; FIX 4; C= 0000000; BIN=GOOD; MRU=97.7; MRD=10.8; LEAK RATE= 1.3
ACT= 120.4; REL= 28.5; DIF= 92.0 PSI; ACTCR= 0.1ms; RELCR= 0.2

SER 213; FIX 1; C= 0000000; BIN=GOOD; MRU=56.5; MRD=11.6; LEAK RATE= 1.3
ACT= 118.8; REL= 25.6; DIF= 93.2 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 214; FIX 2; C= 0000000; BIN=GOOD; MRU=56.5; MRD=11.6; LEAK RATE= 1.3
ACT= 118.1; REL= 30.2; DIF= 87.9 PSI; ACTCR= 0.1ms; RELCR= 0.6

SER 215; FIX 3; C= 0000000; BIN=GOOD; MRU=56.5; MRD=11.6; LEAK RATE= 1.3
ACT= 107.6; REL= 27.5; DIF= 80.1 PSI; ACTCR= 0.1ms; RELCR= 0.0

SER 216; FIX 4; C= 0000000; BIN=GOOD; MRU=56.5; MRD=11.6; LEAK RATE= 1.3
ACT= 121.9; REL= 25.6; DIF= 96.3 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 217; FIX 1; C= 0000000; BIN=GOOD; MRU=0.0; MRD=11.4; LEAK RATE= 1.4
ACT= 121.4; REL= 23.7; DIF= 97.7 PSI; ACTCR= 0.1ms; RELCR= 0.2

SER 218; FIX 2; C= 0000000; BIN=GOOD; MRU=0.0; MRD=11.4; LEAK RATE= 1.4
ACT= 119.4; REL= 27.5; DIF= 91.9 PSI; ACTCR= 0.1ms; RELCR= 0.5

SER 219; FIX 3; C= 0000000; BIN=GOOD; MRU=0.0; MRD=11.4; LEAK RATE= 1.4
ACT= 118.4; REL= 23.6; DIF= 94.8 PSI; ACTCR= 0.9ms; RELCR= 0.2

SER 220; FIX 4; C= 0000000; BIN=GOOD; MRU=0.0; MRD=11.4; LEAK RATE= 1.4
ACT= 120.4; REL= 35.4; DIF= 85.0 PSI; ACTCR= 0.2ms; RELCR= 0.4

SER 221; FIX 1; C= 0000000; BIN=GOOD; MRU=118.3; MRD=11.2; LEAK RATE= 1.0
ACT= 121.9; REL= 26.7; DIF= 95.2 PSI; ACTCR= 0.8ms; RELCR= 0.3

SER 222; FIX 2; C= 0000000; BIN=GOOD; MRU=118.3; MRD=11.2; LEAK RATE= 1.0
ACT= 113.7; REL= 22.6; DIF= 91.1 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 223; FIX 3; C= 0000000; BIN=GOOD; MRU=118.3; MRD=11.2; LEAK RATE= 1.0
ACT= 116.3; REL= 28.5; DIF= 87.8 PSI; ACTCR= 0.8ms; RELCR= 0.6

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SER 224; FIX 4; C= 0000000; BIN=GOOD ; MRRU=118.3; MRRD=11.2; LEAK RATE= 1.0
ACT= 123.8; REL= 23.5; DIF= 100.3 PSI; ACTCR= 0.7ms; RELCR= 0.2

SER 225; FIX 1; C= 0000000; BIN=GOOD ; MRRU=99.2; MRRD=11.2; LEAK RATE= 1.4
ACT= 119.4; REL= 23.4; DIF= 94.1 PSI; ACTCR= 0.0ms; RELCR= 0.5

SER 226; FIX 2; C= 0000000; BIN=GOOD ; MRRU=99.2; MRRD=11.2; LEAK RATE= 1.4
ACT= 122.4; REL= 22.1; DIF= 100.3 PSI; ACTCR= 0.1ms; RELCR= 0.3

SER 227; FIX 3; C= 0000000; BIN=GOOD ; MRRU=99.2; MRRD=11.2; LEAK RATE= 1.4
ACT= 127.7; REL= 22.8; DIF= 104.9 PSI; ACTCR= 1.2ms; RELCR= 0.3

SER 228; FIX 4; C= 0000000; BIN=GOOD ; MRRU=99.2; MRRD=11.2; LEAK RATE= 1.4
ACT= 122.4; REL= 27.2; DIF= 95.2 PSI; ACTCR= 0.2ms; RELCR= 0.4

SER 229; FIX 1; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.1
ACT= 126.7; REL= 31.5; DIF= 95.2 PSI; ACTCR= 0.7ms; RELCR= 0.1

SER 230; FIX 2; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.1
ACT= 118.8; REL= 22.8; DIF= 96.0 PSI; ACTCR= 0.1ms; RELCR= 0.3

SER 231; FIX 3; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.1
ACT= 127.8; REL= 23.3; DIF= 104.5 PSI; ACTCR= 0.0ms; RELCR= 0.1

SER 232; FIX 4; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.3; LEAK RATE= 1.1
ACT= 116.6; REL= 30.7; DIF= 85.9 PSI; ACTCR= 0.7ms; RELCR= 0.3

SER 233; FIX 1; C= 0000000; BIN=GOOD ; MRRU=102.3; MRRD=11.7; LEAK RATE= 1.5
ACT= 127.0; REL= 31.0; DIF= 96.0 PSI; ACTCR= 0.0ms; RELCR= 0.6

SER 234; FIX 2; C= 0000000; BIN=GOOD ; MRRU=102.3; MRRD=11.7; LEAK RATE= 1.5
ACT= 115.9; REL= 26.9; DIF= 89.1 PSI; ACTCR= 0.1ms; RELCR= 0.2

SER 235; FIX 3; C= 0000000; BIN=GOOD ; MRRU=102.3; MRRD=11.7; LEAK RATE= 1.5
ACT= 119.9; REL= 30.2; DIF= 89.8 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 236; FIX 4; C= 0000000; BIN=GOOD ; MRRU=102.3; MRRD=11.7; LEAK RATE= 1.5
ACT= 119.0; REL= 26.2; DIF= 92.8 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 237; FIX 1; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.5; LEAK RATE= 1.2
ACT= 117.9; REL= 31.4; DIF= 86.5 PSI; ACTCR= 0.0ms; RELCR= 0.5

SER 238; FIX 2; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.5; LEAK RATE= 1.2
ACT= 117.9; REL= 24.5; DIF= 93.4 PSI; ACTCR= 0.2ms; RELCR= 0.4

SER 239; FIX 3; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.5; LEAK RATE= 1.2
ACT= 124.2; REL= 28.8; DIF= 95.4 PSI; ACTCR= 0.8ms; RELCR= 0.3

SER 240; FIX 4; C= 0000000; BIN=GOOD ; MRRU=94.6; MRRD=11.5; LEAK RATE= 1.2
ACT= 114.8; REL= 31.1; DIF= 83.7 PSI; ACTCR= 0.0ms; RELCR= 0.2

~~SER 241; FIX 1; C= 0023005; BIN=CONT ; MRRU=96.9; MRRD=10.7; LEAK RATE= 1.4
ACT= 78.2; REL= 0.0; DIF= 78.2 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 242; FIX 2; C= 0000000; BIN=GOOD ; MRRU=96.9; MRRD=10.7; LEAK RATE= 1.4
ACT= 123.0; REL= 27.3; DIF= 95.8 PSI; ACTCR= 0.7ms; RELCR= 0.5

SER 243; FIX 3; C= 0000000; BIN=GOOD ; MRRU=96.9; MRRD=10.7; LEAK RATE= 1.4
ACT= 121.1; REL= 26.9; DIF= 94.2 PSI; ACTCR= 0.1ms; RELCR= 0.2

TI-NHTSA 003303

ACT= 126.3; REL= 22.5; DIF= 103.8 PSI; ACTCR= 0.8ms; RELCR= 0.0

SER 245; FIX 1; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.3; LEAK RATE= 1.4
ACT= 122.3; REL= 26.4; DIF= 95.9 PSI; ACTCR= 0.7ms; RELCR= 0.9

SER 246; FIX 2; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.3; LEAK RATE= 1.4
ACT= 125.3; REL= 23.3; DIF= 102.0 PSI; ACTCR= 0.8ms; RELCR= 0.6

SER 247; FIX 3; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.3; LEAK RATE= 1.4
ACT= 119.4; REL= 34.6; DIF= 84.8 PSI; ACTCR= 0.7ms; RELCR= 0.1

SER 248; FIX 4; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.3; LEAK RATE= 1.4
ACT= 123.3; REL= 27.5; DIF= 95.8 PSI; ACTCR= 0.1ms; RELCR= 0.3

SER 249; FIX 1; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.0; LEAK RATE= 1.6
ACT= 122.5; REL= 26.1; DIF= 94.5 PSI; ACTCR= 0.0ms; RELCR= 0.6

SER 250; FIX 2; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.0; LEAK RATE= 1.6
ACT= 122.5; REL= 26.5; DIF= 94.0 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 251; FIX 3; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.0; LEAK RATE= 1.6
ACT= 120.6; REL= 23.2; DIF= 97.4 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 252; FIX 4; C= 0000000; BIN=GOOD; MRRU=83.9; MRRD=11.0; LEAK RATE= 1.6
ACT= 113.8; REL= 21.1; DIF= 92.7 PSI; ACTCR= 0.0ms; RELCR= 0.6

10-OCT-1991 13:28:52.92 OPER DOOR DID NOT CLOSE 1

10-OCT-1991 13:29:42.01 OPER DOOR DID NOT OPEN 1

63PS SWITCH TESTER LOT REPORT

RATING: 77PSL2-1
 LOT ID: 10-2
 LOT STARTED: 14-OCT-1991 10:44:52.69
 TIME PRINTED: 14-OCT-1991 10:50:02.17

SETUP DATA:

LIMIT (NC)

ACTUATION: 90.0 TO 160.0 PSI
 RELEASE: 20.0 TO 160.0 PSI
 DIFFERENTIAL: 0.0 TO 160.0 PSI
 MAX MILLIVOLT: 200.0 PSI
 CREEP TIME: 10.0 PSI
 PRECYCLE PRESS: 200.0 PSI
 PRECYCLE COUNT: 2

NUMBER OF PIECES TESTED: 44
 NUMBER OF PIECES GOOD: 34
 YIELD: 77.27 %

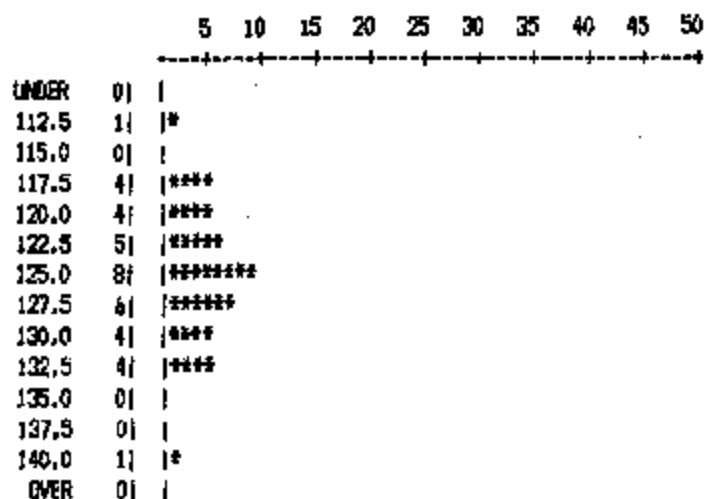
REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	7	70.00 %
ACCA	0	0.00 %
ACLO	0	0.00 %
ADHI	0	0.00 %
ADHI	0	0.00 %
FLLO	3	30.00 %
DFLO	0	0.00 %
PLDF	0	0.00 %
DFHI	2	0.00 %

STATISTICS	MEAN	SIGMA	CV%
ACTUATION:	125.2	5.66	2.04
RELEASE:	27.7	6.45	0.40
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	97.4	6.91	2.04

TI-NHTSA 003305

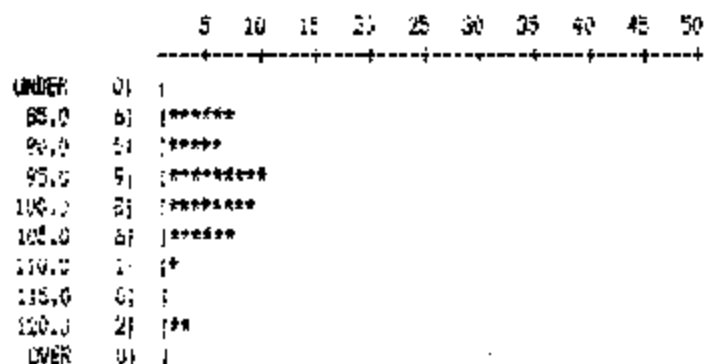
HISTOGRAM OF ACTUATION PRESSURE

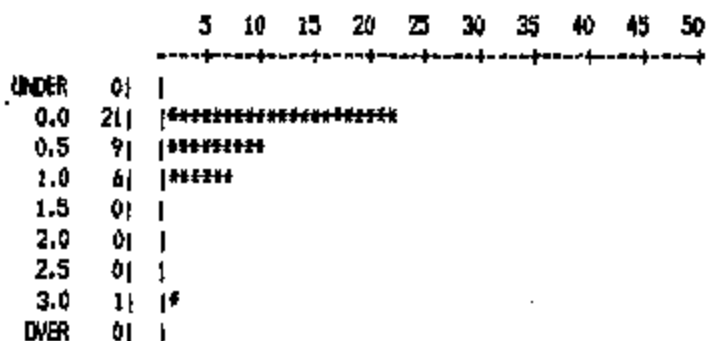


HISTOGRAM OF RELEASE PRESSURE

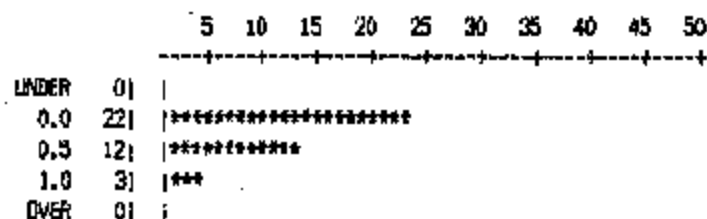


HISTOGRAM OF DIFFERENTIAL PRESSURE





HISTOGRAM OF RELEASE CREEP



FIXTURE POSITION 1
 NUMBER OF PIECES TESTED: 11
 NUMBER OF PIECES GOOD: 9
 YIELD: 81.82 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
LOUT	1	50.00 %
ACCR	0	0.00 %
ACLO	0	0.00 %
ACMI	0	0.00 %
ALMI	0	0.00 %
RELO	1	50.00 %
DFLO	0	0.00 %
KLDF	0	0.00 %
DFMI	0	0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	129.6	5.66	2.04
RELEASE:	26.9	10.49	0.22
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	97.7	11.33	1.33

FIXTURE POSITION 2
 NUMBER OF PIECES TESTED: 11
 NUMBER OF PIECES GOOD: 11

TI-NHTSA 003307

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	2	100.00 %
ACCR	0	0.00 %
ACLO	0	0.00 %
ACH1	0	0.00 %
RLHI	0	0.00 %
RLLO	0	0.00 %
DFLO	0	0.00 %
RLCR	0	0.00 %
DFHI	0	0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	123.9	7.00	1.61
RELEASE:	30.3	3.89	0.88
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	93.6	7.50	2.95

FIXTURE POSITION 3

NUMBER OF PIECES TESTED: 11
NUMBER OF PIECES GOOD: 7
YIELD: 63.64 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	2	50.00 %
ACCR	0	0.00 %
ACLO	0	0.00 %
ACH1	0	0.00 %
RLHI	0	0.00 %
RLLO	2	50.00 %
DFLO	0	0.00 %
RLCR	0	0.00 %
DFHI	0	0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	128.6	5.03	2.06
RELEASE:	26.4	5.71	0.57
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	102.2	9.00	2.14

FIXTURE POSITION 4

NUMBER OF PIECES TESTED: 13
NUMBER OF PIECES GOOD: 6
YIELD: 46.15 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	2	100.00 %
ACCR	0	0.00 %
ACLO	0	0.00 %
ACH1	0	0.00 %
RLHI	0	0.00 %
RLLO	0	0.00 %
DFLO	0	0.00 %
RLCR	0	0.00 %
DFHI	0	0.00 %

TI-NHTSA 003308

STATISTICS	MEAN	SIGMA	CMK
ACTUATION:	123.7	4.09	2.74
RELEASE:	27.4	2.36	1.05
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	96.2	5.65	3.76

14-OCT-1991 10:50:05.85 OPER DOOR DID NOT CLOSE 1

14-OCT-1991 10:53:05.32 TOOL CYCLE TIMEOUT 1

TI-NHTSA 003309

PRESSURE SWITCH DATA

Form 21605

TEST NO. 171-03-14

DEVICE CCPS	DATE REQUESTED 10/25/91	REQUESTED BY S1+V-0	REQUESTED COMPL DATE
PERFORMED BY JAD	DATE STARTED 10/25/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE:			

CUSTOMER:

PURPOSE OF TEST:

Swamp of wing tracks; Kayla wife

PROCEDURE:

Conductor QP

Device #	Tool	Place	Run ID Date	Cycles to fail				
111-03-01	Hand-Line	AMI	91025	625K				
-02				597K				
-03				950K	SUSPENDED - OPENED FOR INP ANALYSIS			
-04				621K				
-05				733K				
-06				743K				
171-03-07	AMI	AMI	91025	950K	SUSPENDED	6170		
08				500K				
09				597K				
10				551K				
11				775K				
12				610K				
171-03-13	AMI	Hand-Line	91025	512K				
14				469K				
15				412K				
16				524K				
17				500K				
171-03-19	Hand-Line	Hand-Line	91025	511K				
20				621K				
21				454K				
22				710K				
23				646K				
24								

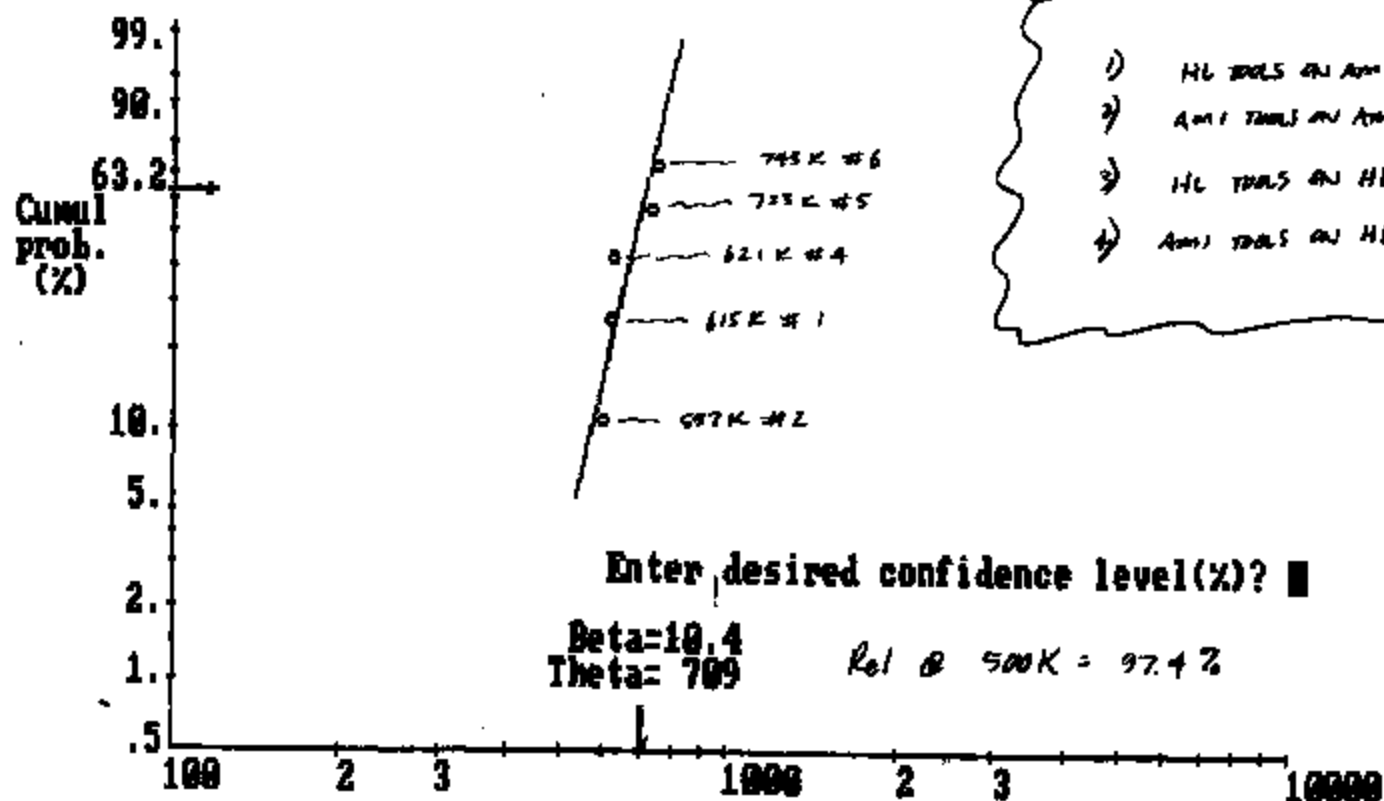
TI-NHT8A 003310

(OVER)

HAND LINE TOOLS ON AMI DT 911025

TEST 171

#3 SUSPENDED @ 950K FOR ONE ANALYSIS



				500K
1)	HL TOOLS ON AMI	10.4	709	92.4%
2)	AMI TOOLS ON AMI	6.6	660	86.5%
3)	HL TOOLS ON HL	5.3	670	80.9%
4)	AMI TOOLS ON HL	7.9	540	58.0%

TI-NHTSA 003311

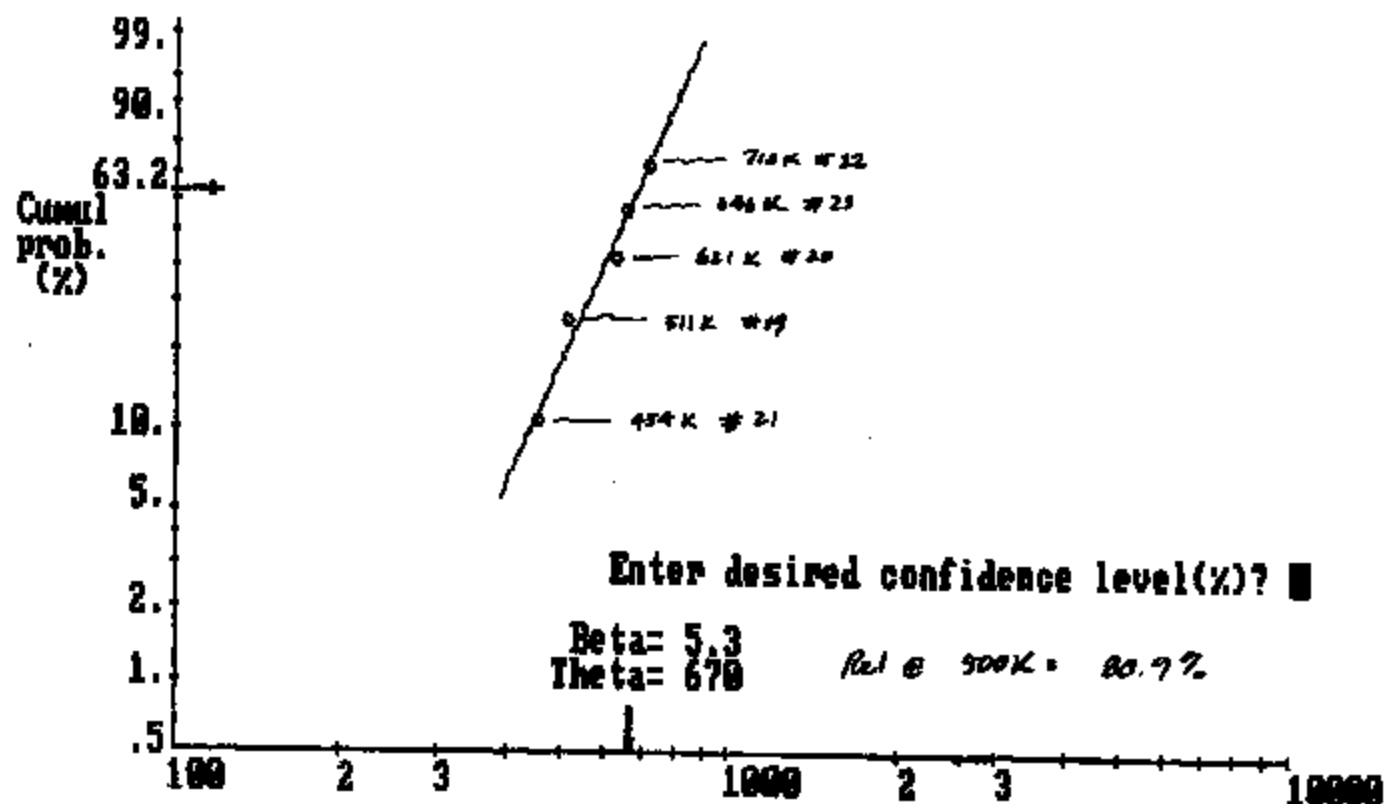
(PRELIM S/B DEMO)

HAND-LINE TROLS ON HAND-LINE 911025

(ASSUME #24 SUSP @ 735 K)

TEST 171

#24 ————



TI-NHTSA 003312

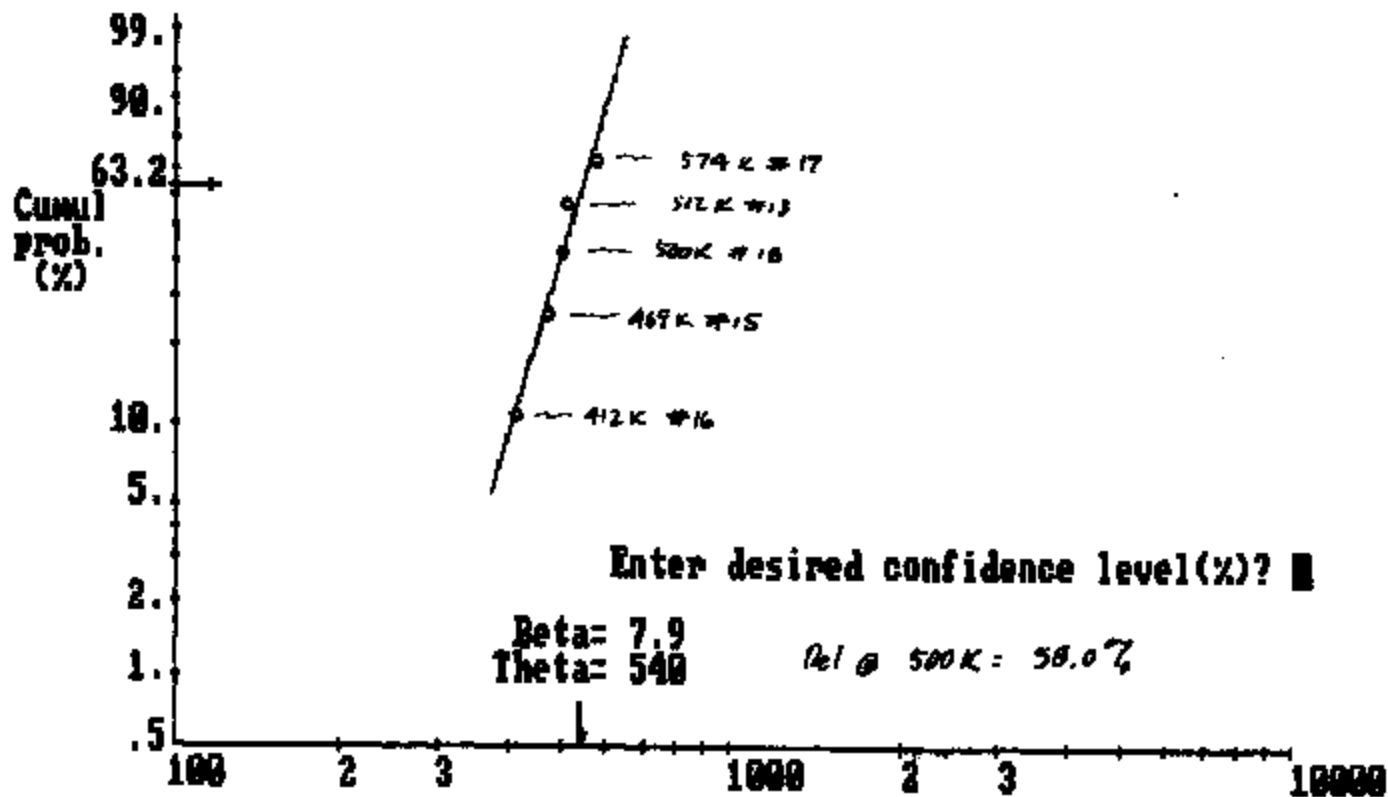
(PRELIM: 5/6 DEAD)

AMI TOOLS ON HANDLINE 911025

TEST 171

#14: -

?

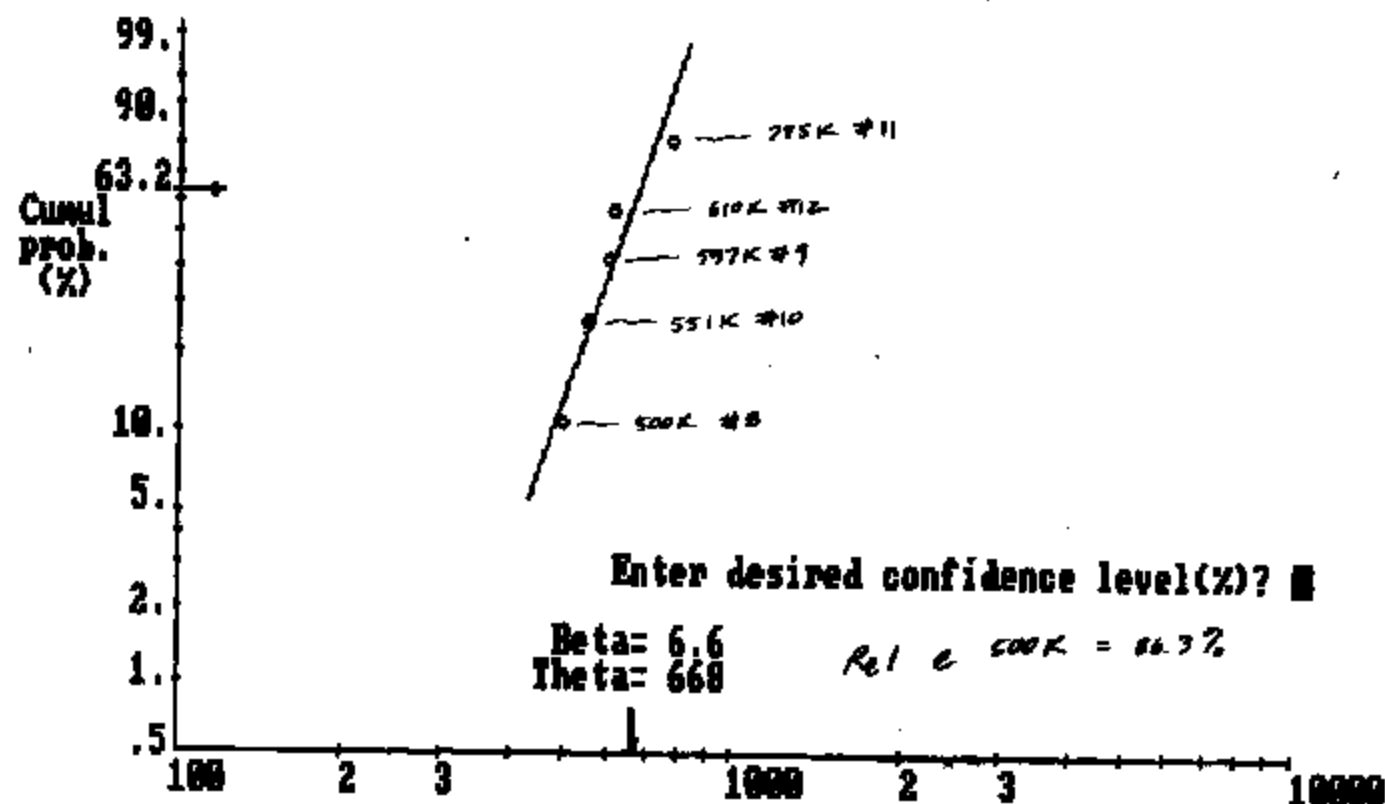


TI-NHT9A 003313

AMI T80LS AN AMI 711026

TEST # 171

#7 SUSPENDED @ 950K, OPENED FOR PNF ANALYSIS



TI-NHT8A 003314

PRESSURE SWITCH DATA

Form 21605

TEST NO. 169-03-24

DEVICE CCPS	DATE REQUESTED 10/16/91	REQUESTED BY Steve Offiler	REQUESTED COMPL DATE
PERFORMED BY Taffrey D. D'Amico	DATE STARTED 10/17/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford MT '92 Electric Speed Control Deactivate PS			

CUSTOMER:

PURPOSE OF TEST: **To see the effect of different washer lots on diaphragm life.****To see the effect of putting crimp punches from Lead-line on AMI cylinders**

PROCEDURE: **All devices crimped on AMI. All sensor only**
Crimp pressure 55/48
Counter Reset @ 950K
Counter Reset @ 192K or 11/25 - 1132K total

Device #	Washer	crimp punch	Build Date	Cycles to failure			
169-03-01	B cut	AMI	9/10/91	1328K			
-02	Normal			1166K			
-03	Blade			603K			
-04				1673K			
-05				Stopped @ 192K			
-06				1548K			
169-03-07	B cut	AMI	9/10/91	1166K			
-08	Normal			603K			
-09				Stopped @ 192K			
-10				901K			
-11				1672K			
-12				1404K			
169-03-13	B cut	AMI	9/10/91	471K			
-14	Normal			426K			
-15				898K			
-16				1166K			
-17				1212K			
-18				612K			
9-03-19	B cut	Leadline					
-20	Normal						
-21							
-22							
-23							
-24							

Never got built: Referred to future test

(OVER)

TI-NHTSA 003315

DIAPHRAGM LIFE: WASHER LOTS

TEST 169-03-14

JAD 11/08/91

DEVICE #	WASHER	BUILD DATE	CYC. TO FAILURE	SUSPENDED
169-03-01	0 CUT	911017	1328K	
169-03-02	NICKLE		1166K	
169-03-03	PLATE		603K	
169-03-04			1673K	
169-03-05				1870K
169-03-06			1548K	
169-03-07	2 CUT	911017	1166K	
169-03-08	ZINK		603K	
169-03-09	PLATE			1870K
169-03-10			902K	
169-03-11			1632K	
169-03-12			1404K	
169-03-13	0 CUT	911017	771K	
169-03-14	ZINK		426K	
169-03-15	PLATE		888K	
169-03-16			1166K	
169-03-17			1212K	
169-03-18			662K	

TI-NHTSA 003316

PRESSURE SWITCH DATA

Form 21605

TEST NO. 170-23-14

DEVICE CCRS	DATE REQUESTED 10/22/91	REQUESTED BY Steve Officer	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey DeDomenico	DATE STARTED 10/22/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford F150 1992 Electronic Speed Control Deactivation PS			

CUSTOMER:

PURPOSE OF TEST: Lubrication of Gasket to control tear-drop shaped pucker in the Kasten

PROCEDURE: Lubricate gaskets with Rot 5 Brake Fluid. Hand-build.
Crimp on AMT

- * Started w/ 662K on Counter
- * Counter Reset @ 950K
- * Suspended @ 470K

[illegible]

TI-NHTSA 003317

(OVER)

PRESSURE SWITCH DATA

Form 21605

DEVICE <i>CCPS</i>	DATE REQUESTED <i>10/11/91</i>	REQUESTED BY <i>Steve Off. by</i>	TESTED COMPL.
PERFORMED BY <i>Jeffrey D. Denonico</i>	DATE STARTED <i>10/12/91</i>	DATE COMPLETED	APPROVED BY
PROJECT TITLE: <i>Ford MY '93 Electronic Speed Control Deactivate PS</i>			

CUSTOMER:

PURPOSE OF TEST: *To see the effect of different washer let-
in diaphragm life.**To see the effect of putting crimp punches
from hand-line in AMI cylinders*PROCEDURE: *All devices crimped in AMI. All sensors only
Crimp pressure 55/48
Counter Reset @ 950K
Counter Reset @ 192K or 1125-1132K total*

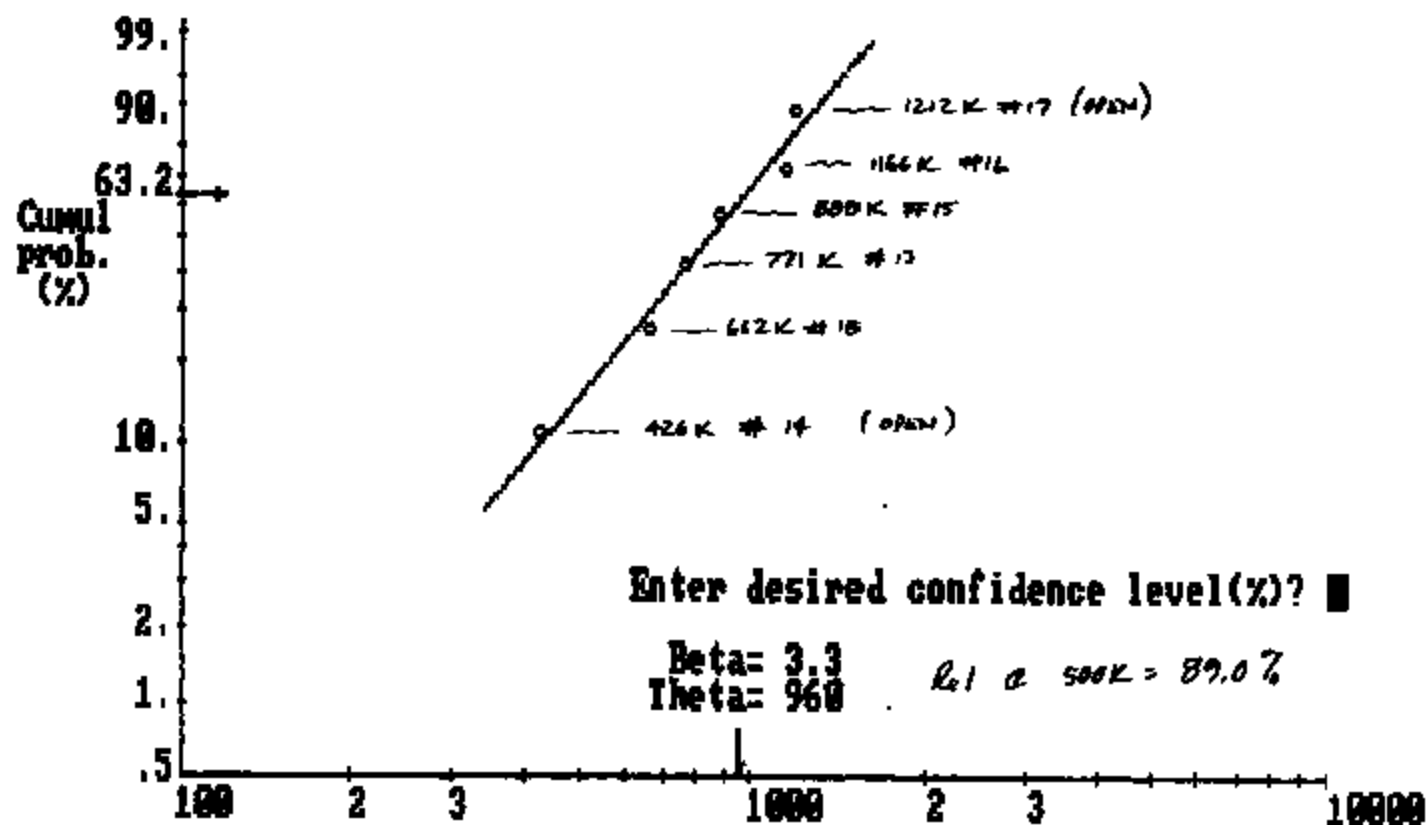
Device #	Washer	Crimp Punch	Build Date	Cycles					
169-02-01	A cut	AMI	9/10/17	1328K					
-02	Nickh			1166K					
-03	Blade			603K					
-07				1673K					
-05				Stopped	0.192K				
-16				1598K					
169-02-02	B cut	AMI	9/10/17	1166K					
-05	Nickh			603K					
-09				Stopped	0.192K				
-10				904K					
-11				1673K					
-12				1404K					
169-02-13	B cut	AMI	9/10/17	971K					
-14	Nickh			826K					
-15				898K					
-16				1166K					
-17				1212K					
-18				612K					
169-02-19	B cut	Handline							
-20	Nickh								
-21									
-22									
-23									
-24									

TI-NHT8A 003518

Ø CUT Zn PLATE BLD 911017

AMI CRIMP

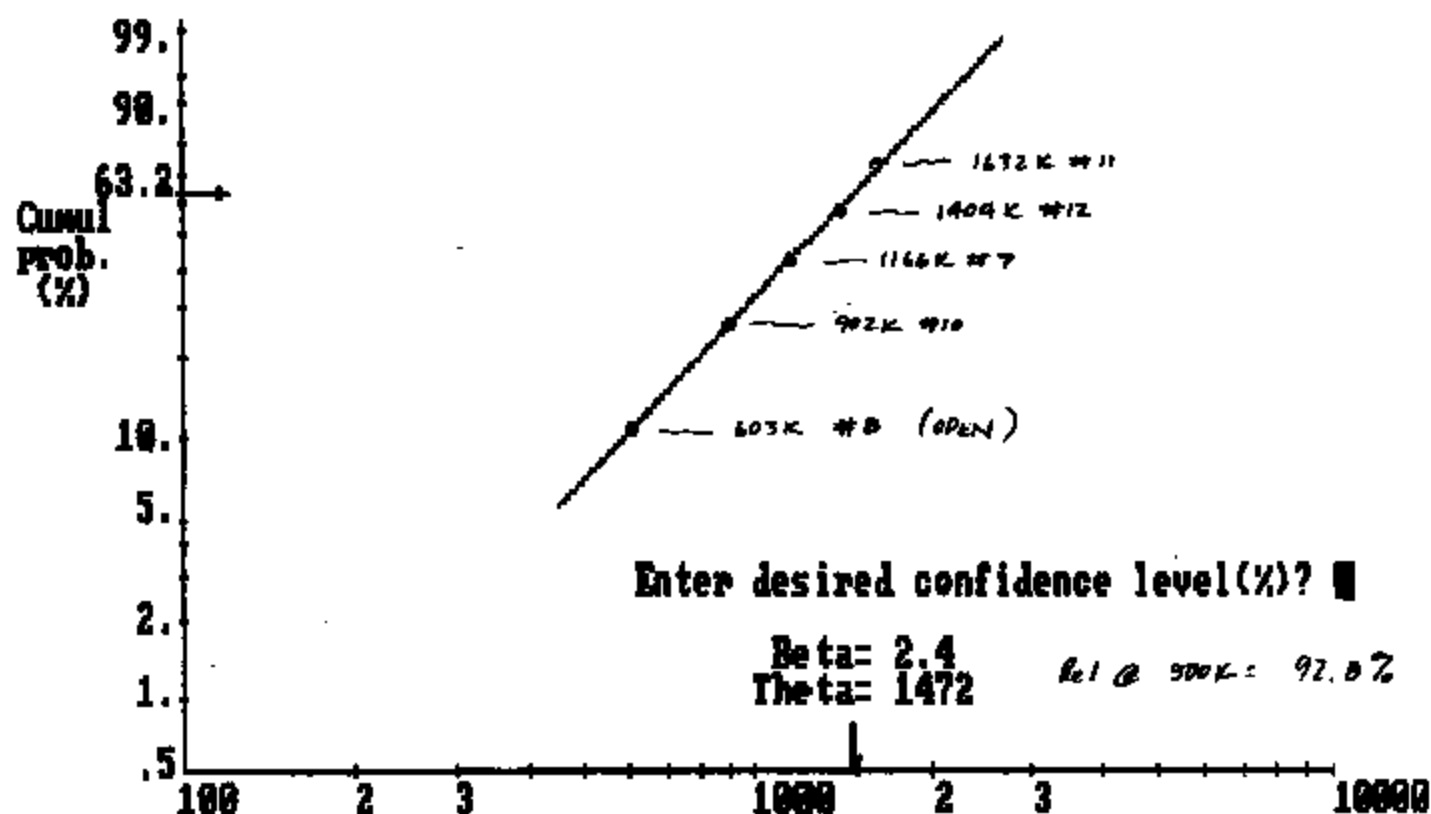
TEST 169



2 CT 21 PLATE WASHERS 911017

TEST 169

#7 SUSPENDED @ 1870K, CYCLES, OPENED

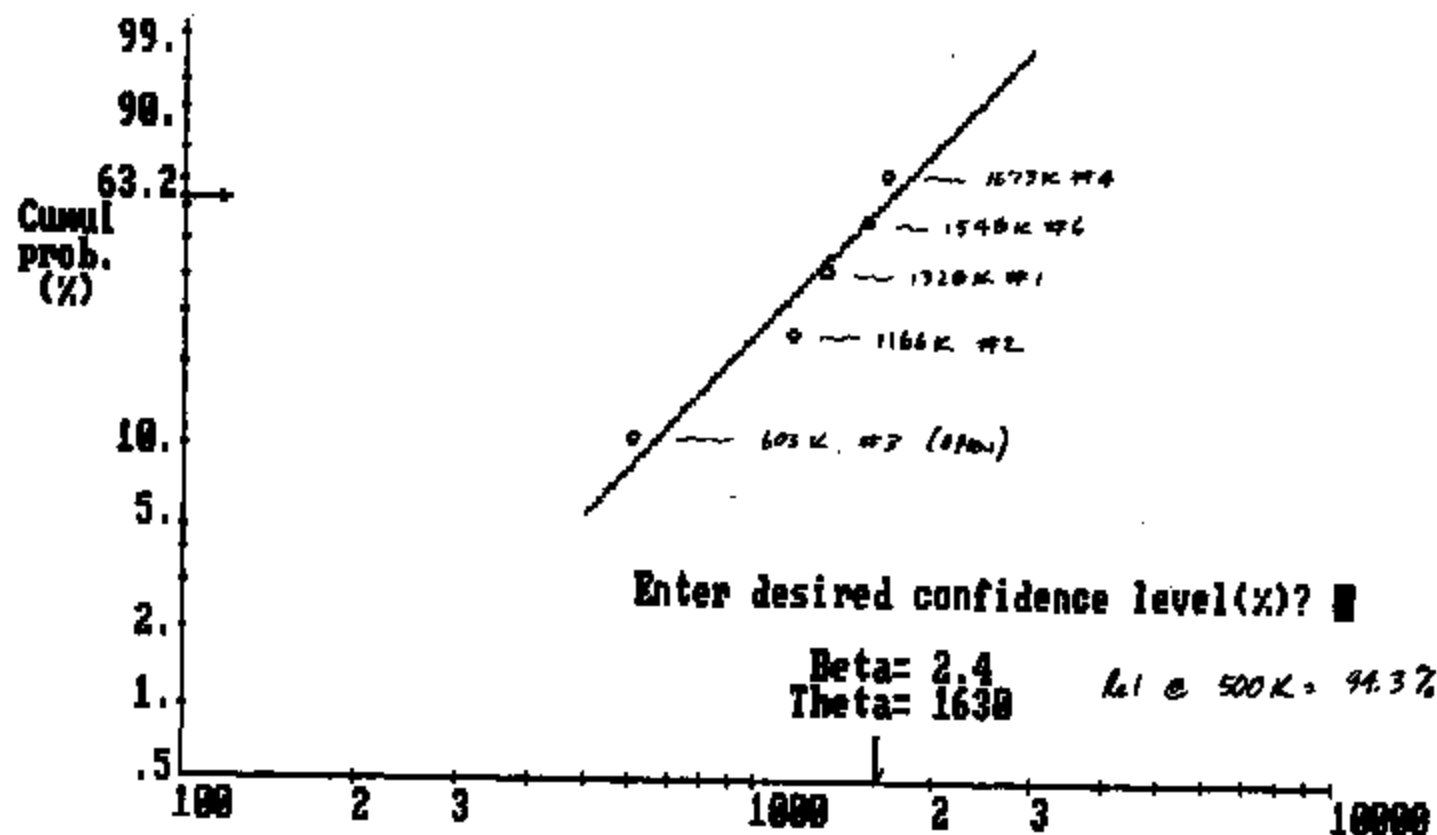


TI-NHT8A 003320

Ø CUT NI PLATE WASHER 911017

TEST 169

#5 SUSPENDED @ 1870K CYCLES OPENED

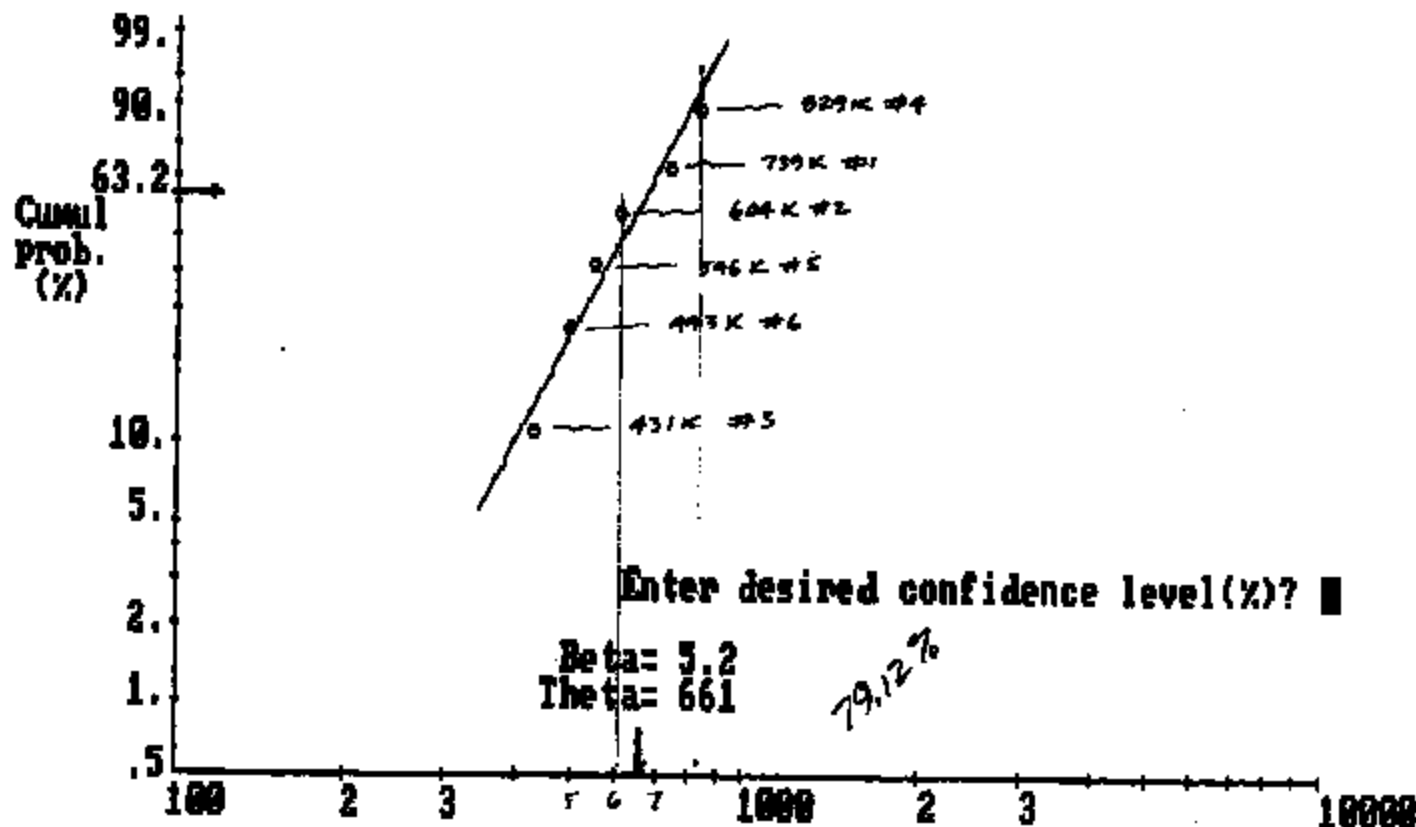


VALIDATION ATTEMPT BUILT ON AM1;
CYCLED ON 1000. + STAN'S

TEST 165

BLD DT 910913

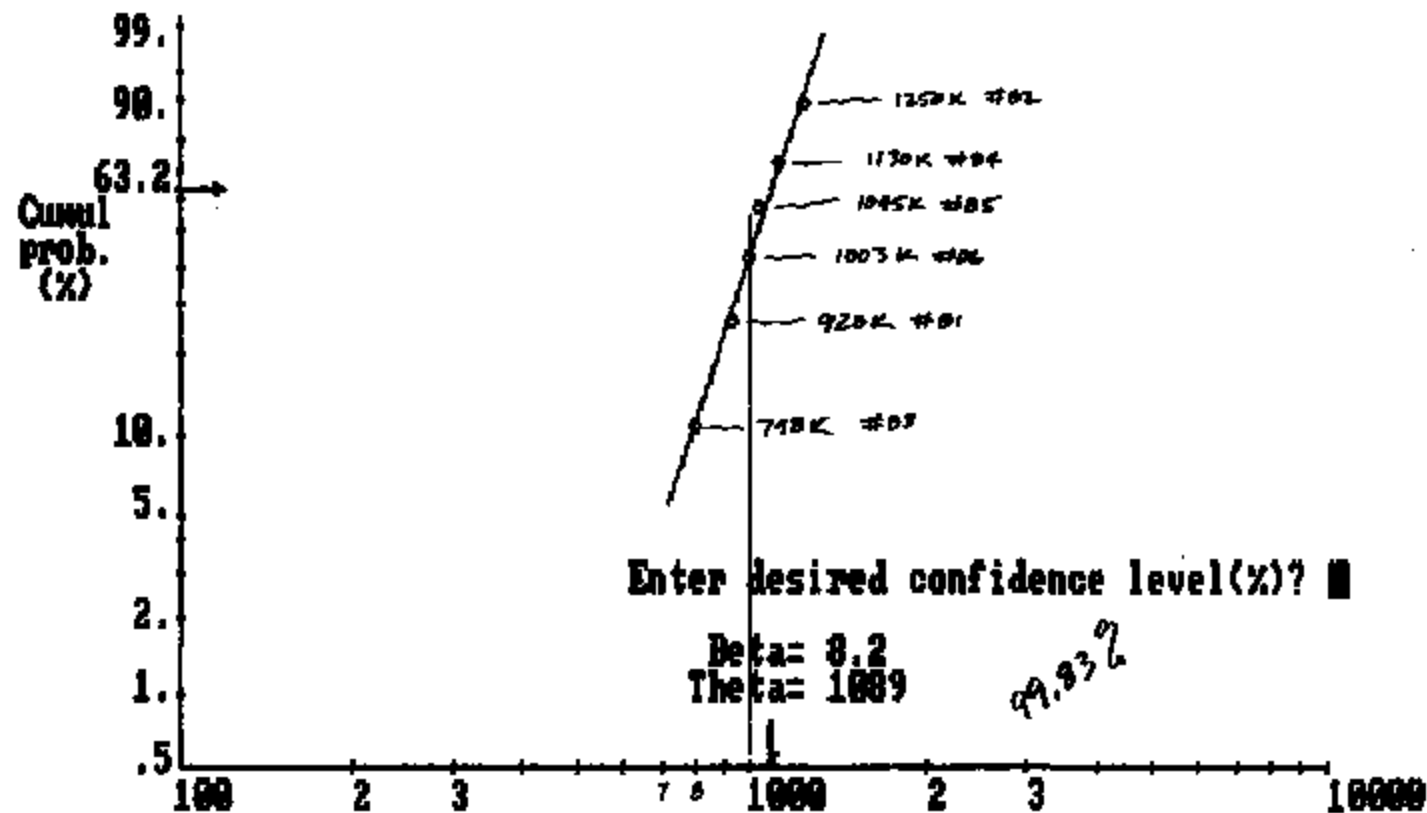
So
911009



TI-NHTSA 003322

PASS-FAIR VALIDATION PARTS

BUILD DT 910913, HAND-LINE
W/ SWITCHES TEST 160



TI-NHT8A 003323

ce = E/linek.
KPI/2nd
10/14/01

10-7-91
TO: DAVE CZARN
STATE OFFICER
MIKE DEWITT
DIP WITT
CHARLIE DUBOIS

RE: ~~THE SCHOLAR~~
SJ: PASSCAR THIS
"MERT"

THIS IS NOT OFFICIAL
UNTIL DEGRAZIA (MGR)
SIGNS OFF. THIS SHOULD
HAPPEN THIS WEEK.
AFTER WHICH ALL TAKE
THE ISIR PKG H MERT
TO MARK SCHOLAR
FOR MARVIN R. P.S

ALERT DETAIL

PRINT DATE/TIME: 91/10/03 18:18
PAGE: 1ALERT NUMBER:
A10166193IGIN ACTIVITY: NC00 CHASSIS PEO (LNCG)
IGINATOR: PEASE, B. F.
SC: 060605TYPE: (U) USE PPR
DATE: 91/10/02
PHONE: 32-37955
NOTICE NO:STATUS: A
LOCATION: RM 3001, BLDG 05
RESOLVING NOTICE:ERT DESC: PERMIT TEXAS INSTRUMENTS TO SKIP SPEED CONTROL REDUNDANT
DEACTIVATION SWITCH, PZVC-91924-AD, WITH EXCEPTION TO THE
INTENDED MANUFACTURING/ASSEMBLY PROCESS CONSISTING OF
1992 LINCOLN TOWN CAR, CROWN VICTORIA, GRAND
MARQUIS WITH NEW GENERATION SPEED CONTROL.
CVFA CVPN CVPN
NA17DEL CODES:
ANTS AFFECTED:
S CONCERN CTRL:
QCRN:
T:
T INCRN VAB COST:
T INCRN VAD COST:
IT MEASURE:
PP 0009:

MODEL YEAR: 92

ENS CONCERN CTRL:
EFFECTIVE IN:
EMISSION CODE: 000
TIME: 900
EST INCRN TOOL COST: 5
EST INCRN FAC COST: 5
APPEARANCE:INVALID:
OUT:
DISP: U
EST INCRN LBA COST:
UT EFFECT: 0.000

***** AFFECTED PARTS *****

F PART NO:
SC1:
T:

060605

INTER:

AFF PART DESC:
NOTICE:
SUPPLY/LOCAL:
SUPPLIER:

AVAIL:

REL IND: N

FUNC RECD:

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

SERID: BFP2409 ACTIVITY: NC00 ENTRY DATE: 91/10/02
ERT DESC:
ING A MANUALLY LOADING SENSOR CRIMPING MACHINE VERSUS THE
TORATIC IN LINE LOADED CRIMPER. THE AUTOMATIC CRIMPER HAD
EN DETERMINED TO HAVE A YET TO BE DEFINED DEFICIENCY THAT
ULTS IN PART FAILURE TO MEET THE REQUIRED NUMBER OF CYCLE
THE IMPULSE TEST. THE SUPPLIER IS GIVEN A 90 DAY PERIOD
RESOLVE THE ISSUE. THE MANUALLY CRIMPED PARTS PASS THE
TEST. THIS DEVIATION PERMITS INCORPORATION OF THE -AD
VEL SWITCH AND DELETION OF THE INTERIM -ON SWITCH FOR A
ST REDUCTION OF 6.92. THE -AD SWITCH IS PIA TO END ITEMSERID: BFP2409 ACTIVITY: NC00 ENTRY DATE: 91/10/03
ERT DESC:
PORTIONING VALVES PZAC-20091-0A, PZVC-20091-0C, AND
INJECTION BLOCK PZAC-20320-0B.

***** APPROVALS *****

REGION	DEPARTMENT	USERID	ACTIVITY	APPROVER'S NAME	DATE APPROVED
N	K8667	BFP2409	NC00	PEASE, B. F.	91/10/02
N	K8667	JL91M24	NC00	SIMMONS, J.L.	09/08/00

-NONE-

TI-NHTSA 003325

ALERT DETAIL

PRINT DATE/TIME: 01/10/02 10:10
PAGE: 1

10TH ACTIVITY: NCSS CHASSIS PEO (LNCB)
10INATOR: PEASE, D. F.
SC: 040605

TYPE: (U) USE PPM
DATE: 01/10/02
PHONE: 32-37955
NOTICE NO:

ALERT NUMBER: 410140190
STATUS: A
LOCATION: RD 3001, ALBANY
RESOLVING OFFICE:

***** APPROVALS *****

CLIM	DEPARTMENT	NUMBER	ACTIVITY	APPROVER'S NAME	DATE APPROVED	APPROVAL
U	K8463	LASER	NCSS	ZIELINSKI, L.A.	00/00/00	
U	K8467	DIRECTOR	NCSS	WAGGON, E.J.	00/00/00	
U	K8468	VEHICLE	NCSS	DEGRAZIA, V.S. (DEPT	00/00/00	
U	K8473	AIRTEL	NCSS	TURAN, A.J.	00/00/00	
U	K8413	BATL	NCSS	CHASSIS MATL GATEWAY	00/00/00	
U	K8411	PPH/ALBY	NCSS	PPH BATEKEEPER-CHASS	00/00/00	
U	K8467	OFFICIAL	NCSS	PEASE, D. F.	01/10/02	

TI-NHTSA 003328

10-3-91

** 90 day Conditional
Approval for L/R - P/C

- * Remeasure internal tab
on new braces.
- * Submit results in
1 wk

DIAPHRAM LIFE TEST 160-03-36 JAD 911016

DEVICE #	ORIGIN	ACT / REL	CYCLES TO FAILURE
160-03-01	MODIFIED HEXPORTS, .003" RELIEF		561K
160-03-02	TO CHANGE KAPTON CLAMP		1040K
160-03-03	CHARACTERISTICS, HAND BUILT.		402K
160-03-04			263K
160-03-05	SENSORS		428K
160-03-06	BUILD DATE: 910921		933K
160-03-07	CONTROL GROUP FOR 1 - 6.		1197K
160-03-08	ALL STANDARD PARTS.		1170K
160-03-09	HAND BUILT.		1093K
160-03-10			612K
160-03-11	SENSORS		413K
160-03-12	BUILD DATE: 910921		526K
160-03-43	CONTROL LOT FOR 49 - 60.	137 / 66	1268K
160-03-44	ALL STANDARD PARTS. HAND KIT FOR	138 / 60	1514K
160-03-45	AMI CRIMP. RAN 581K ON 159-03-66.	133 / 65	784K
160-03-46		130 / 63	1159K
160-03-47	SENSORS	144 / 59	938K
160-03-48	BUILD DATE: 910905	144 / 62	751K
160-03-49	REDUCED CONVERTER TRAVEL. WASHER	123 / 47	879K
160-03-50	THICKNESS REDUCED BY .006"	119 / 52	1220K
160-03-51	HAND KIT FOR AMI CRIMP. RAN 581K	119 / 43	911K
160-03-52	ON 159-03-66	121 / 54	1703K
160-03-53	SENSORS	133 / 47	751K
160-03-54	BUILD DATE: 910905	117 / 48	1531K
160-03-55	REDUCED CONVERTER TRAVEL. .005"	117 / 48	998K
160-03-56	STEP IN WASHER TO PRE-DEFLECT	113 / 44	1307K
160-03-57	DISC. RAN 581K ON 159-03-66.	122 / 47	810K
160-03-58		120 / 47	1268K
160-03-59	SENSORS	129 / 52	751K
160-03-60	BUILD DATE: 910905	110 / 51	879K
160-03-81	PASS-CAR VALIDATION PARTS.		928K
160-03-82	500K COMPLETED SUCCESSFULLY.		1250K
160-03-83	HAND-LINE CRIMPED		798K
160-03-84			1130K
160-03-85	DEVICES		1045K
160-03-86	BUILD DATE: 910913		1003K

TI-NHTSA 003328

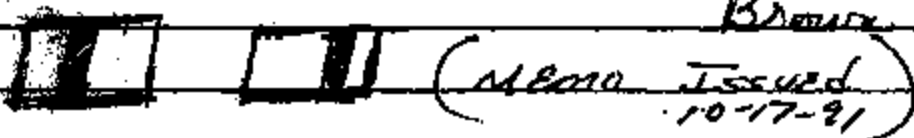
10/17/91

C.C.L.S. Mfg.

Also still working on 2A vs. 3A for
P/C primarily. Unable to meet
spec. as yet. Need to address
Ford customer's on this idea,
and conversion to all Hexports.

"A" cavity - means 2 pc.

QC - locating tab Black 4/T centers
Brown P/C offset



** P/C sensor cam. & pre crimp - final
crimp on hand line, until
further notice.

77 A/C Base

B1 1.99

B2 1.97

C1 2.02

C2 2.045

D1 1.92

D2 1.95

4/T
"A" 1.92

1.93

Metric

2.06

1.85

10.9.91

Jeffrey DiDomenico
Weekly Highlights for Steve Offiler
10/18/91

FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE P8

KAPTON DIAPHRAGM LIFE:

Impulse of test lots crimped at different pressures is nearly complete. Weibull analysis of the data has revealed a general downward trend in reliability at 500K as crimp pressure is increased, however, we have not seen the drastic differences or trend we expected.

<u>Crimp Pressures</u>	<u>Data</u>	<u>Thata</u>	<u>Reliability at 500K</u>
43/40	4.6	677	789
50/44	3.4	672	810
55/48	3.9	669	739
60/50	2.8	764	749
65/56	4.9	632	739
70/60	3.6	643	679

A new matrix of test lots are scheduled to go on impulse by the end of today. This matrix will target differences in washer as a cause of diaphragm failure. The matrix will include 0-cut washers (control lot) which have more of a chamfer on the inner edge than a radius, 2-cut washers which have the best radius we have seen, and the old-style nickel plated washers which are more slippery. A fourth group will be added to the matrix early next week which will be crimped on the AMI with the tools from the hand-line crimper substituted.

CUSTOMER ISSUES/SAMPLES:

It is still unclear which thread is required to fulfill the 12-piece sample order for Ford of Australia. Charlie Douglas hopes to have confirmation one way or the other by Monday. If the M10 x 1.25 thread is correct, we can ship samples next week. However, if the M10 x 1.0 is required, we will not be ready to ship until early November due to back log in the CNC lathes department and the necessity of plating.

CRUISE CONTROL AUTOMATION EQUIPMENT:

Manufacturing engineering and mechanization continue to iron out problems with the switch assembly AMI (3KMMI) and the Easton Automation machine. Production has an order of 3,576 parts to be shipped on Monday which has put this debug on emergency status. 100% of Dave Peripoli's time will be dedicated to this effort until resolved. This accounts for the delay in the above test lot being delayed until next week.

TI-NHTSA 003332

-MSG MH= 22957 FR=8801 TO=PCME BENT=07/26/91 11:12 AM
 R0=485 ST=C DIV=0050 CC=00101 BY=8801 AT=07/26/91 11:12 AM

TO: Andre Charpentier ACHR
 Dave Czarn ZARN
 Ed Kadishevskis MDES
 John Kourtegis MDES
 Matt Sellers PCME

CC: Jeff DiDomenico ELB
 Stan Homol BH2

FR: Steve Offiler 8801

BJ: 77P8 Pressure Tester Correlation

The following shows the results of our correlation experiment between the automatic pressure tester's reported measurement and Jeff's manual measurement.

DEVICE	TESTER		MANUAL		OFFSET	
	ACT	REL	ACT	REL	ACT	REL
1	150.5	64.1	148	68	2.5	-3.9
2	143.9	73.0	143	74	0.9	-1.0
3	158.6	57.5	157	67	1.6	-9.5
4	136.5	58.3	138	63	-1.5	-4.7
5	151.3	71.3	151	70	0.3	1.3
6	151.7	52.5	145	55	6.7	-2.5
7	143.9	48.1	147	53	-3.1	-4.9
8	144.3	64.7	149	67	-4.7	-2.3
9	137.4	63.0	142	63	-4.6	0.0
10	133.0	53.4	131	59	2.0	-5.6
11	123.5	55.2	132	57	-8.5	-1.8
12	151.4	68.4	150	70	1.4	-1.6
13	135.2	51.4	137	54	-1.8	-2.6
14	153.6	72.7	155	75	-1.4	-2.3
15	149.0	55.3	149	58	0.0	-2.7
16	135.2	60.6	138	61	-2.8	-0.4
17	129.2	46.0	124	53	5.2	-7.0
18	131.2	49.9	132	54	-0.8	-4.1
19	141.5	67.5	145	69	-3.5	-1.5
20	146.9	41.4	146	55	0.9	-13.6
AVG.					-0.56	-3.54
STD.					3.431	3.358

Using the statistical program STATPAK, I ran linear regressions for actuation and release, with manual as independent (x) and tester as dependent (y). The correlation coefficient for the actuation data is 0.927 and for the release data is 0.939. In terms of the linear equations, the actuation data shows better agreement: the slope of the regression line is 1.010 with a y-intercept of -2.04; whereas the release data has a slope of 1.183 and a y-int of -14.94. When the data is viewed as a scatter-graph (available upon request) the correlation coefficients given above do not appear to be very impressive. If there is anything we could do to get these numbers over (ballpark estimate) 0.95, we should seriously consider doing so.

Regards.

TI-NHTSA 003333

-MSG MH# 64113 FR=ACHR TO=PCME SENT=07/29/91 09:36 AM
RW=525 BT=C DIV=0050 CC=00157 BY=ACHR AT=07/29/91 09:36 AM

TO: Dave Czarn ZARN
Ed Kadishevskis MDES
John Kourtesis MDES
Steve Dffiler 6801
~~Mohr-Sullivan~~ PCME

CC: Jeff DiDomenico ELB
Stan Homol SH2

FROM: Andre Charpentier ACHR

SJ: 77PS Pressure Tester Correlation
=====

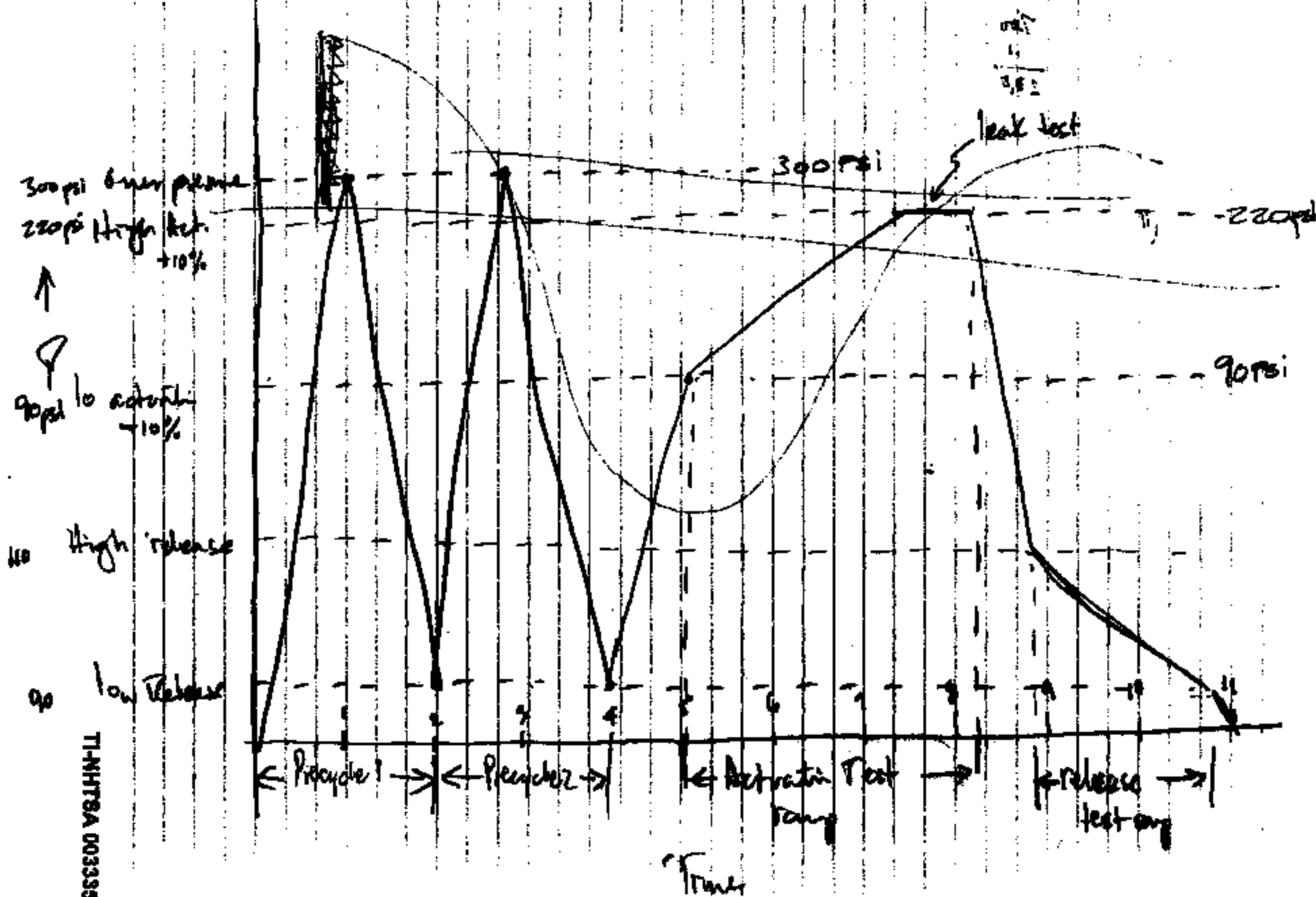
I will look into the tester to see if I can identify any problems that would cause a correlation problem. I would like to have at least some of the tested parts to use as test pieces to aid in my testing.

Regards,

Andre Charpentier

TI-NHTSA 003334

Track Pressure Vs Time Profile Measured at Line P=1250 PSI JACK PANEL



77P5L2-1

500 PSI TEMPERATURE

LO ACT = 90

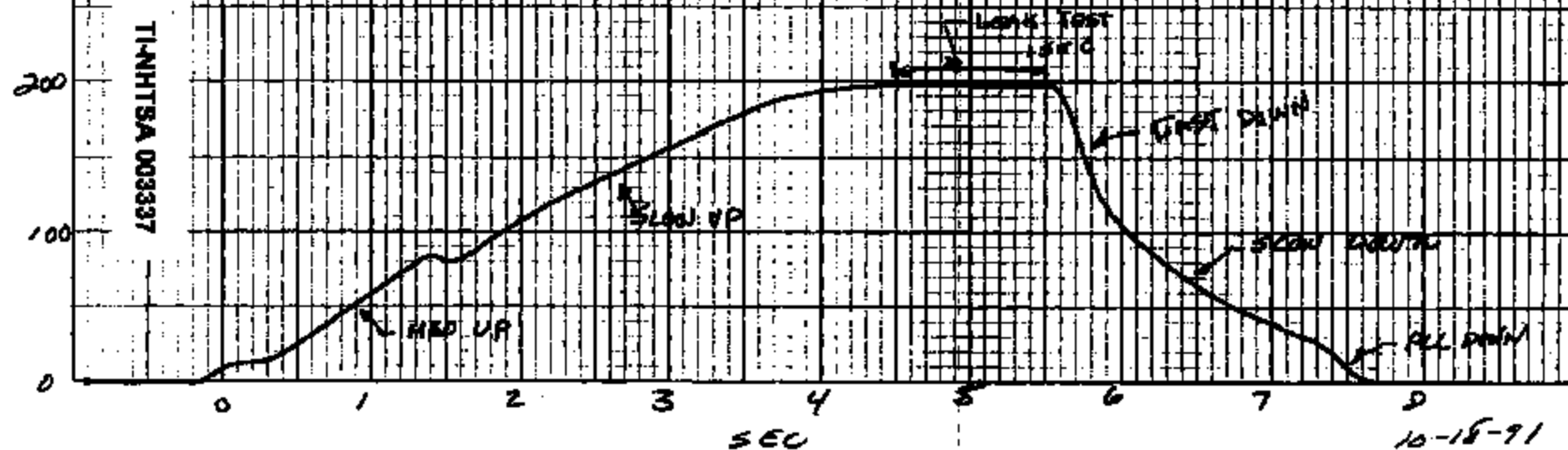
HI ACT = 100

HI REL = 100

LO REL = 50

Ramp Rate = 50

DATE: ~~10-18-91~~ ~~10-18-91~~
 FOR CAL OF = EXHAUST



77PSL2-1

500 PSI TRANSDUCER

Lo Act = 90

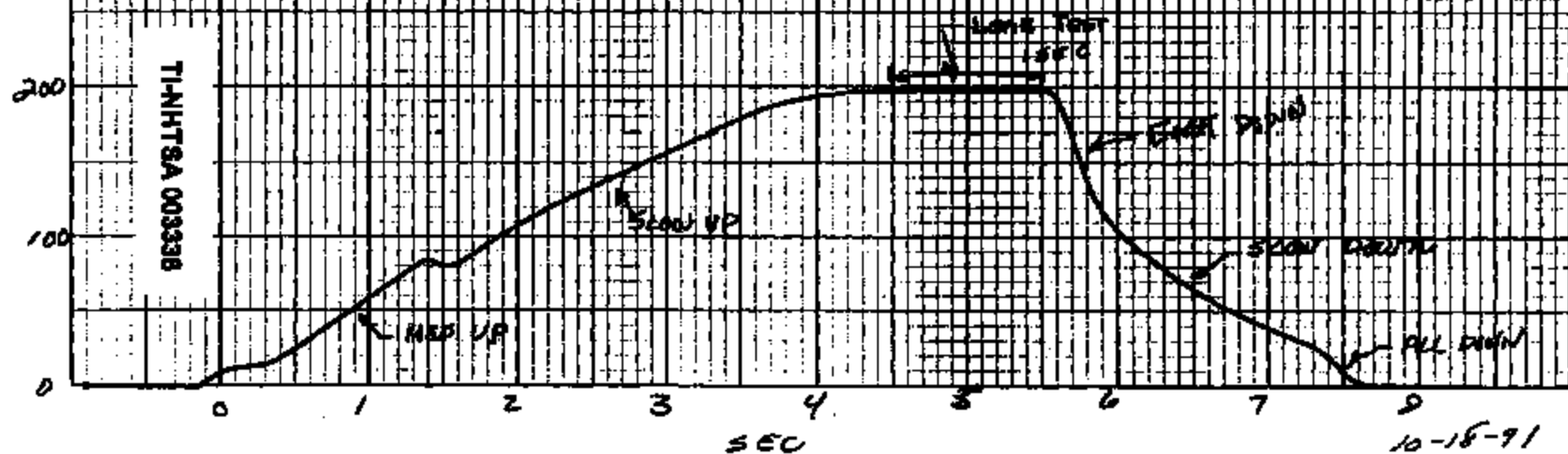
Hi Act = 160

Hi Rec = 170

Lo Rec = 50

Ramp Rate = 50

SWITCH
DIRECT ~~SWITCH~~ VALUES RECOVERED
FOR CAL OFF = EXHAUST



77PSL2-1

500 PSI TRANSducer

LO. AVE = 90

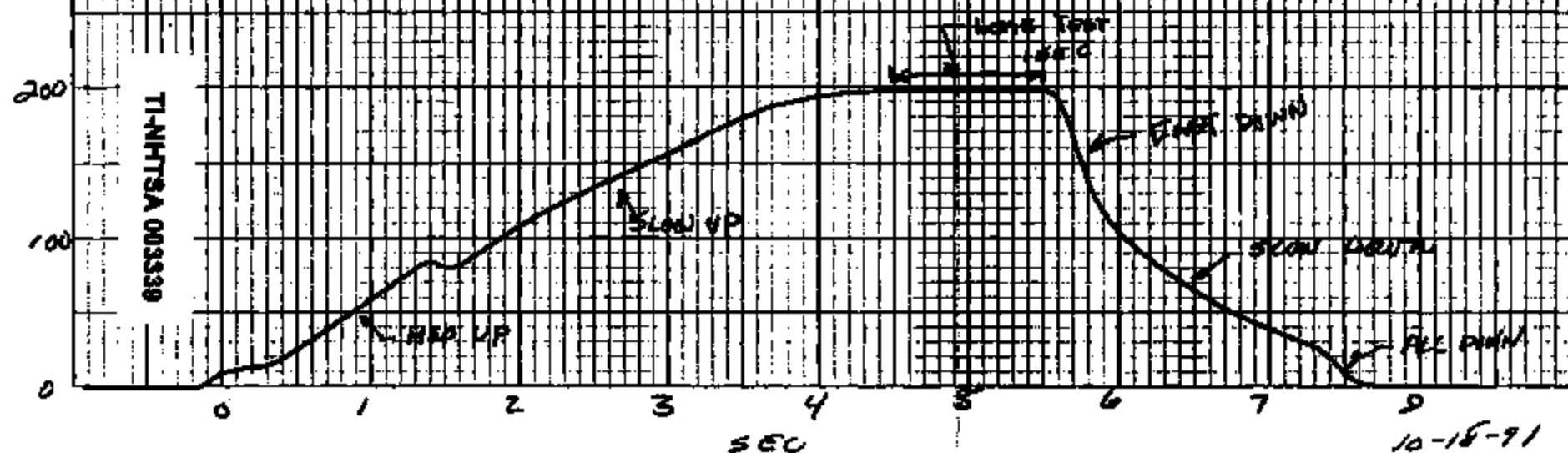
HI. AVE = 100

HI. REL = 10

LO. REL = 50

Ramp Rate = 50

NOTE: DATA VALUES PROVIDED
FOR CUM. AVE & EXHAUST

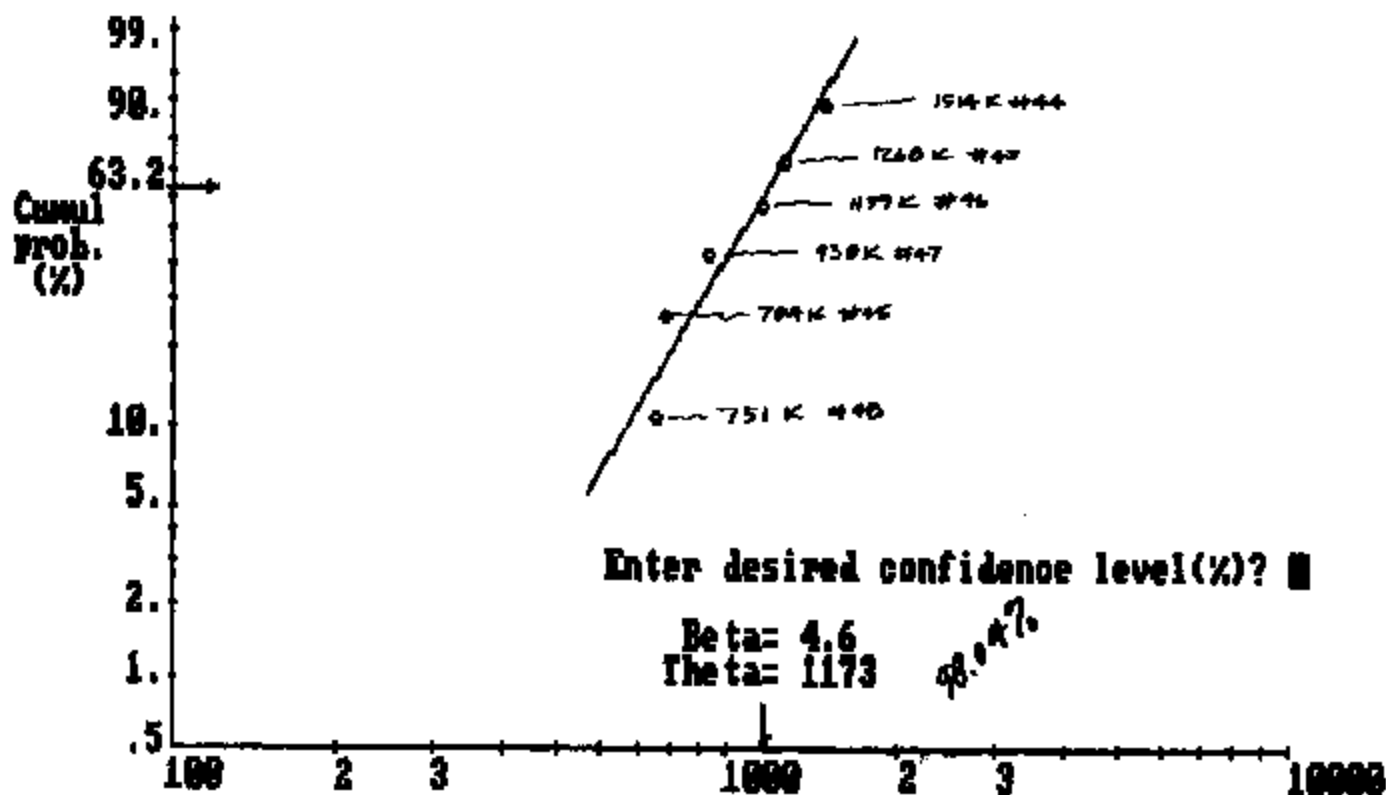


CONTROL LOT FOR MODIFIED-TRAVEL PARTS

BUILD DT 910905 AMI, NO ARE-LR

SENSOR-ONLY

TEST 160

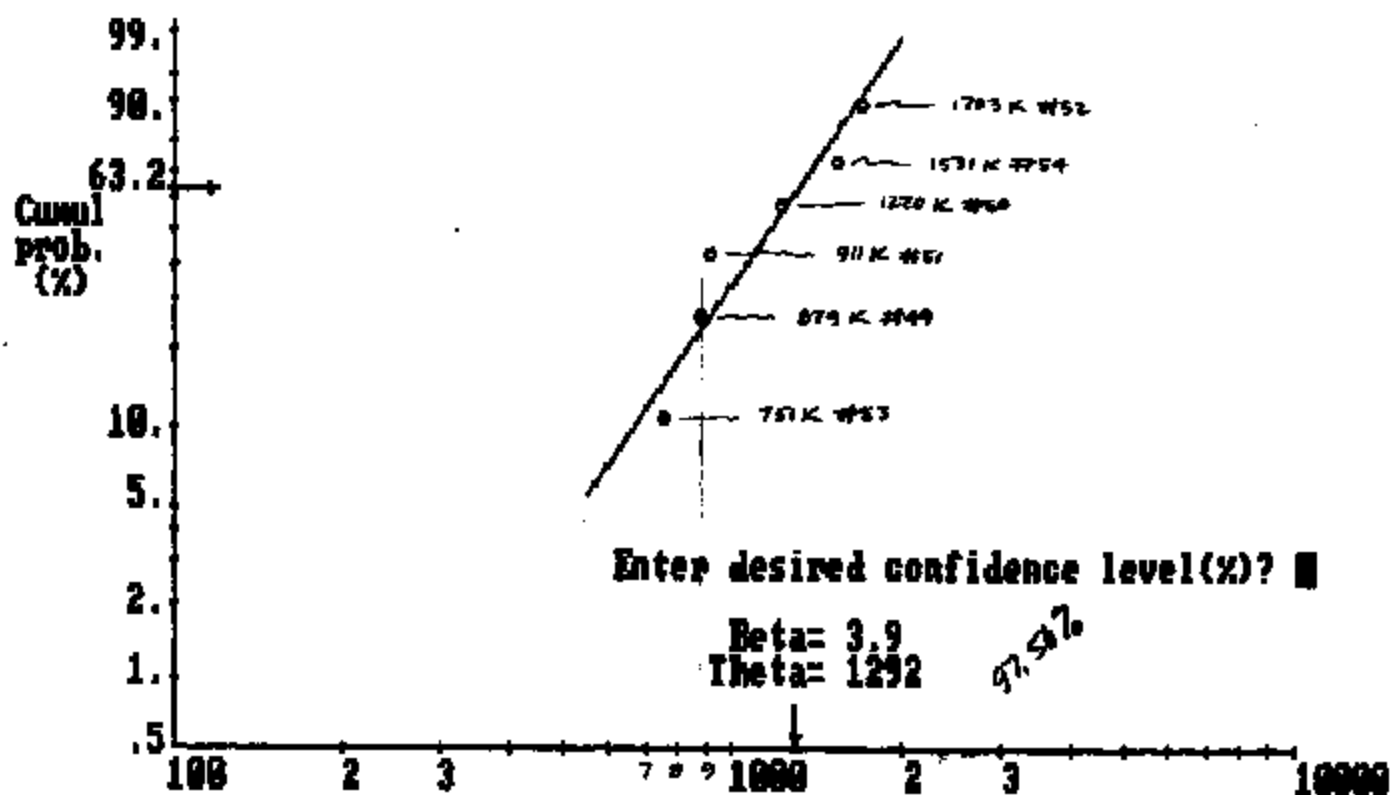


TI-NHTSA 003341

.006" REDUCED WASHER THK.

TEST 160

71107



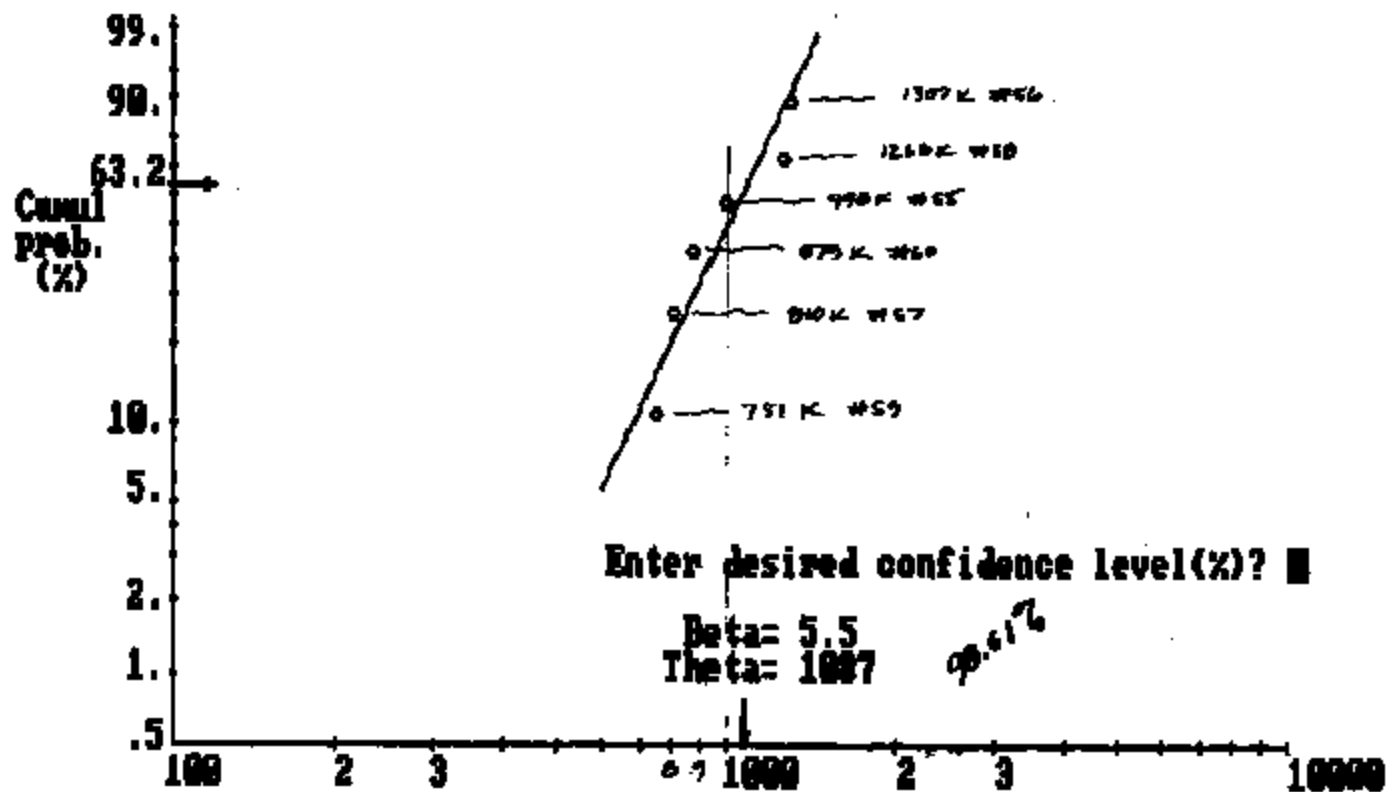
TI-NHTSA 003342

.005 WASHER STEP, PRELOAD DISC, REDUCE CONV. TRAVEL

BUILD DT 910905 AM1, NO RE-GR

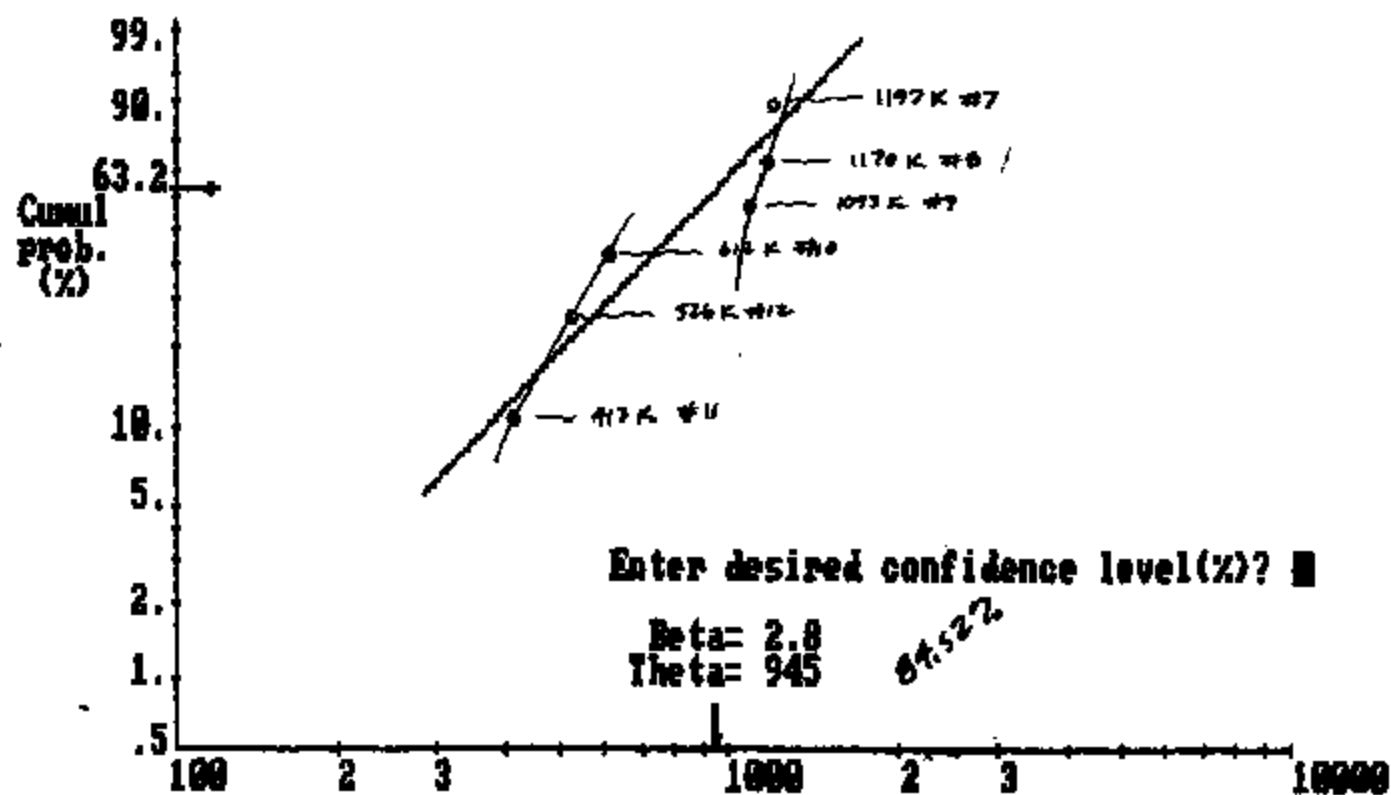
SENSOR-ONLY

TEST 160



TI-NHTSA 003343

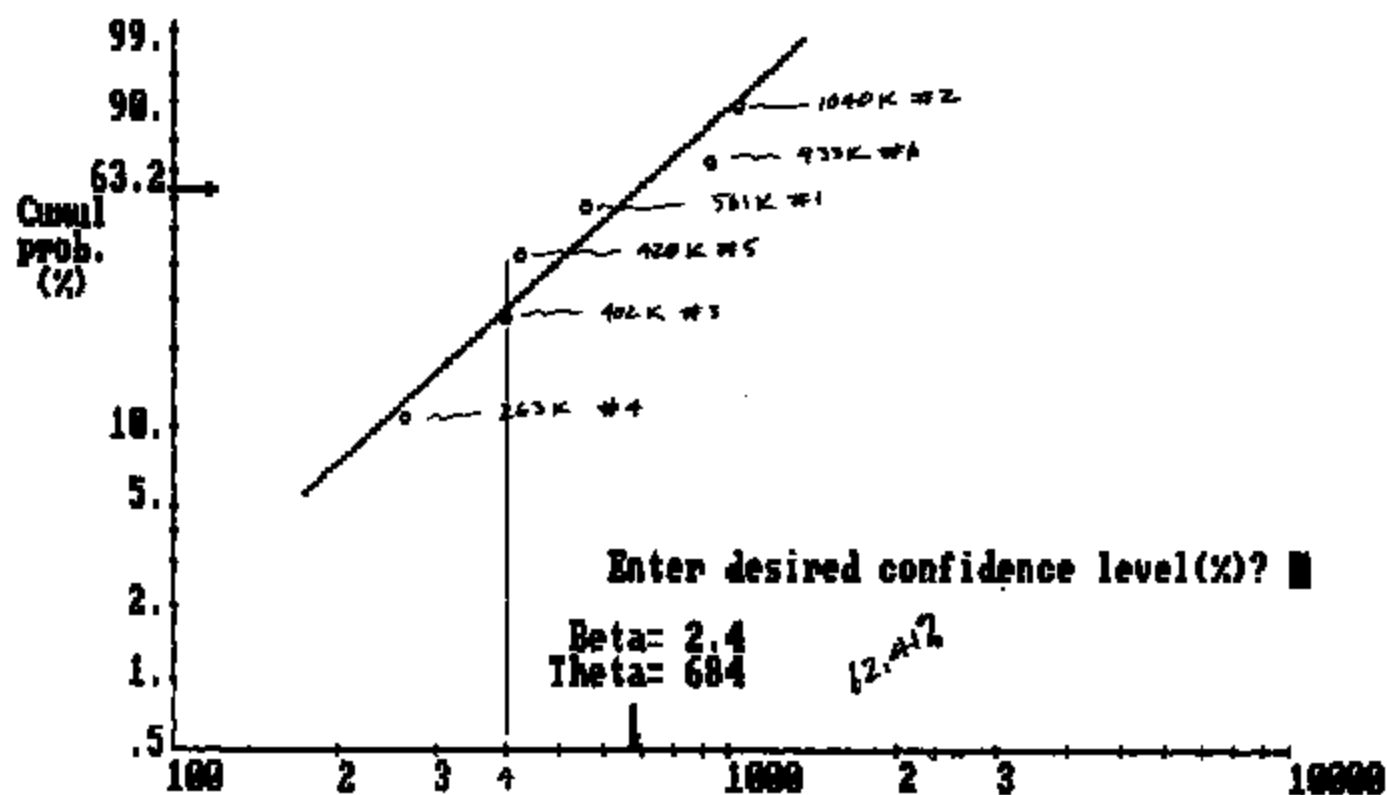
CONTROL GROUP FOR MOD. KAPTON CLAMP (.003 STEP IN HEX)
TEST 160



TI-NHTSA 003344

MOD RAPTOR CLAMP w/ .003" STEP ON HEX
TEST 160

711007



TI-NHTSA 003345

DEVICE CCPS	DATE REQUESTED 10/11/91	REQUESTED BY Steve Off. by	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Moenico	DATE STARTED 10/12/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford MY '92 Election Speed Control Diagnostics PS			

CUSTOMER:

PURPOSE OF TEST: **To see the effect of different washer lets on diaphragm life.**

To see the effect of putting crimp puncher from head line in AMI cylinders

PROCEDURE: **All devices crimped in AMI. All sensors only**
Crimp pressure 55/48
Counter Reset @ 950K
Counter Reset @ 102K or 111K - 1132K total

Device #	Washer	Crimp punch	Build Date	Cycts to failure			
169-03-01	2 cut	AMI	9/10/17	1522K			
-02	nick			1166K			
-03	plate			602K			
-04				1673K			
-05				5140K	1000K	91/10/1	
-06				1548K			
169-03-07	2 cut	AMI	9/10/17	1166K			
-08	normal			602K			
-09				5140K	2000K		
-10				901K			
-11				1632K			
-12				1404K			
161-03-13	2 cut	AMI	9/10/17	771K			
-14	normal			726K			
-15				899K			
-16				1166K			
-17				1212K			
-18				612K			
163-03-19	2 cut	handline					
-20	normal						
-21							
-22							
-23							
-24							

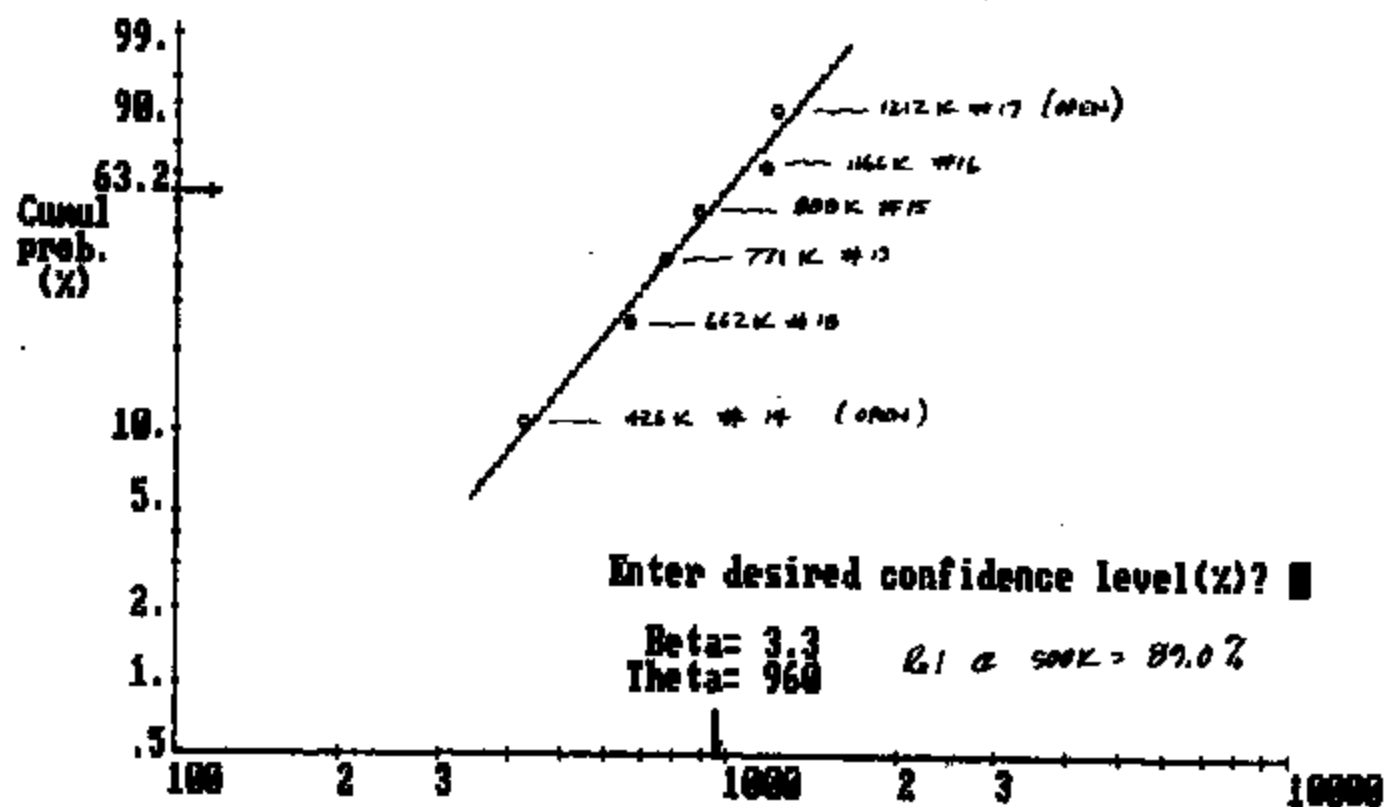
(OVER)

TI-NHTSA 003346

Ø CUT Zn PLATE BLD 911017

Am: CRIMP

TEST 169

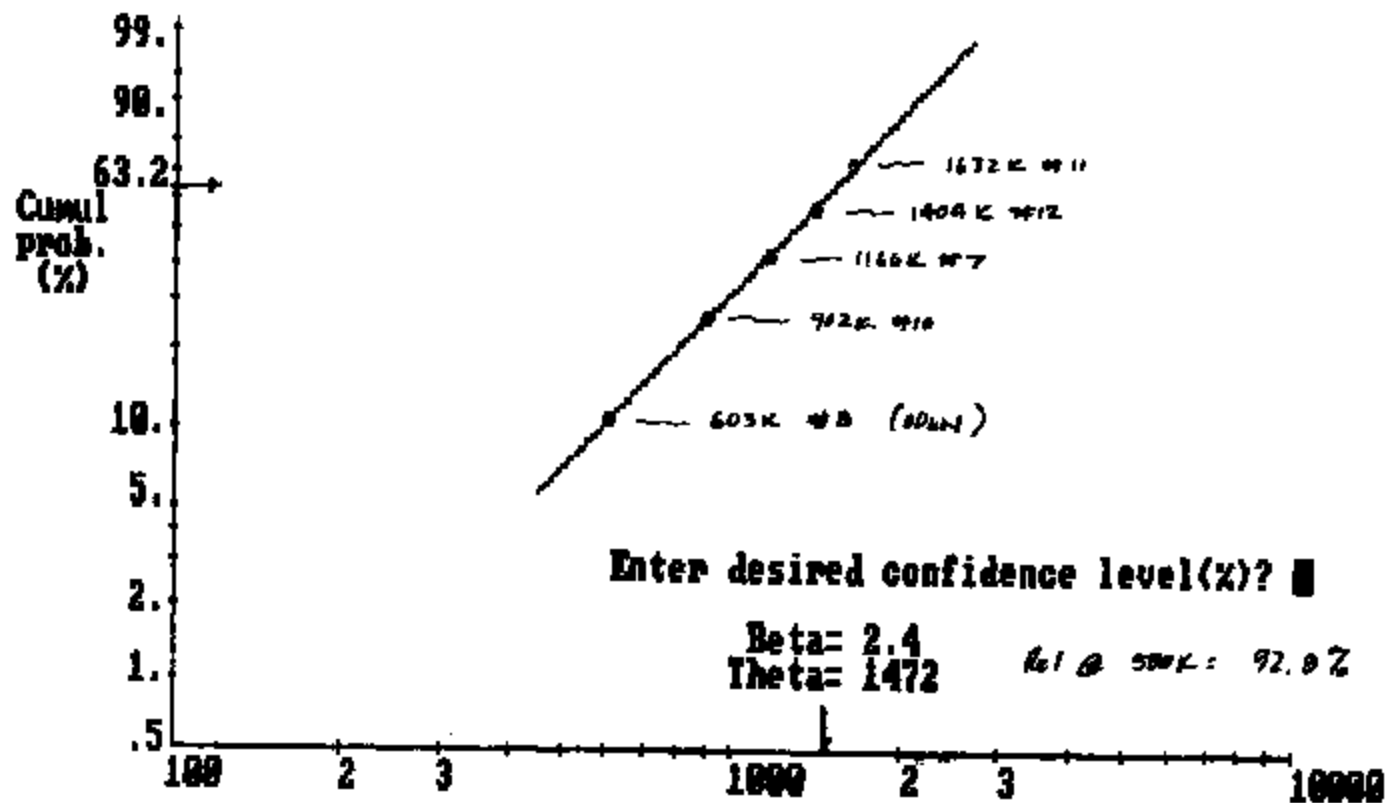


TI-NHTSA 003347

2 LOT Zn PLATE WASHERS 911017

TEST 169

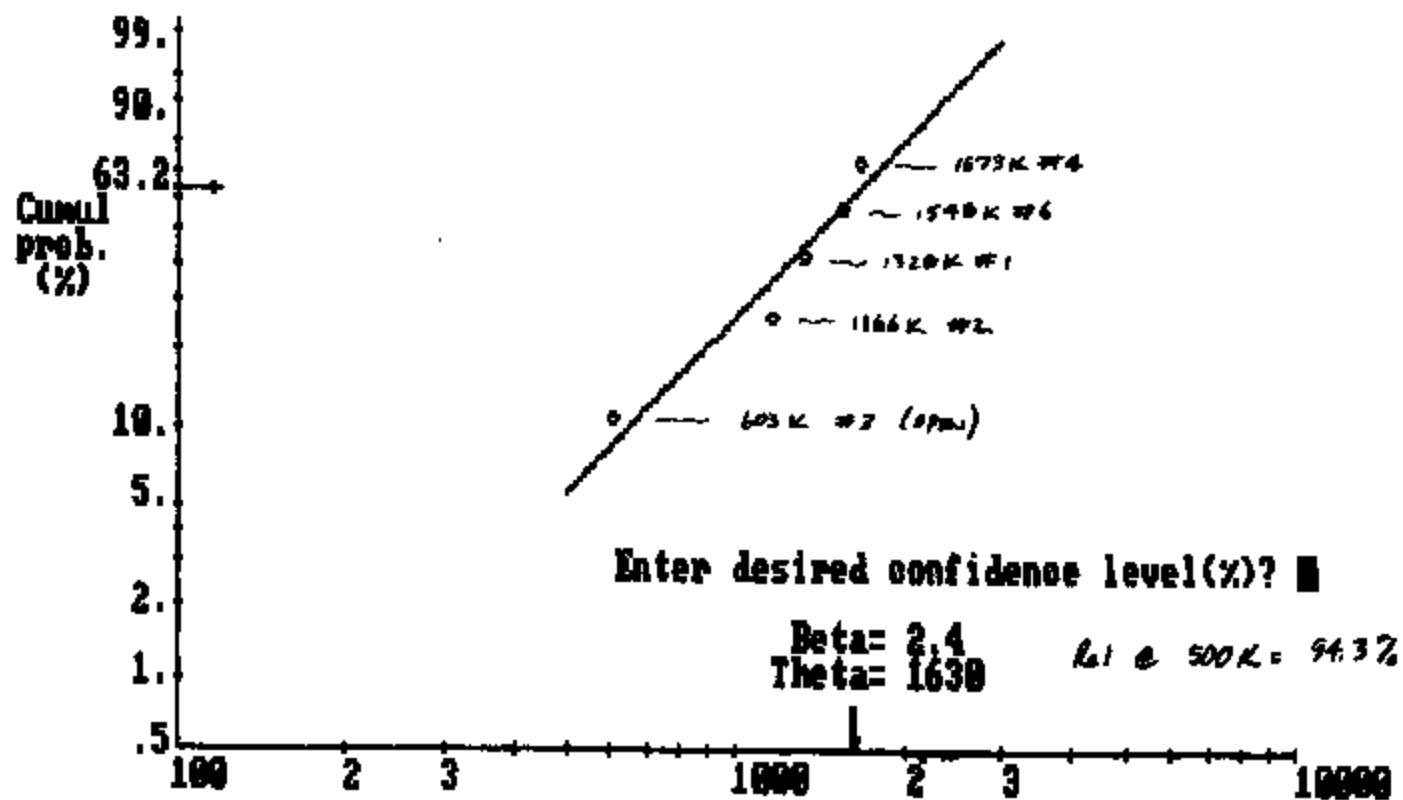
#7 SUSPENDED @ 1070K, CYCLES, OPENED



Ø CUT NI PLATE WASHER 911017

TEST 169

#5 SUSPENDED @ 1870 K CYCLES OPENED



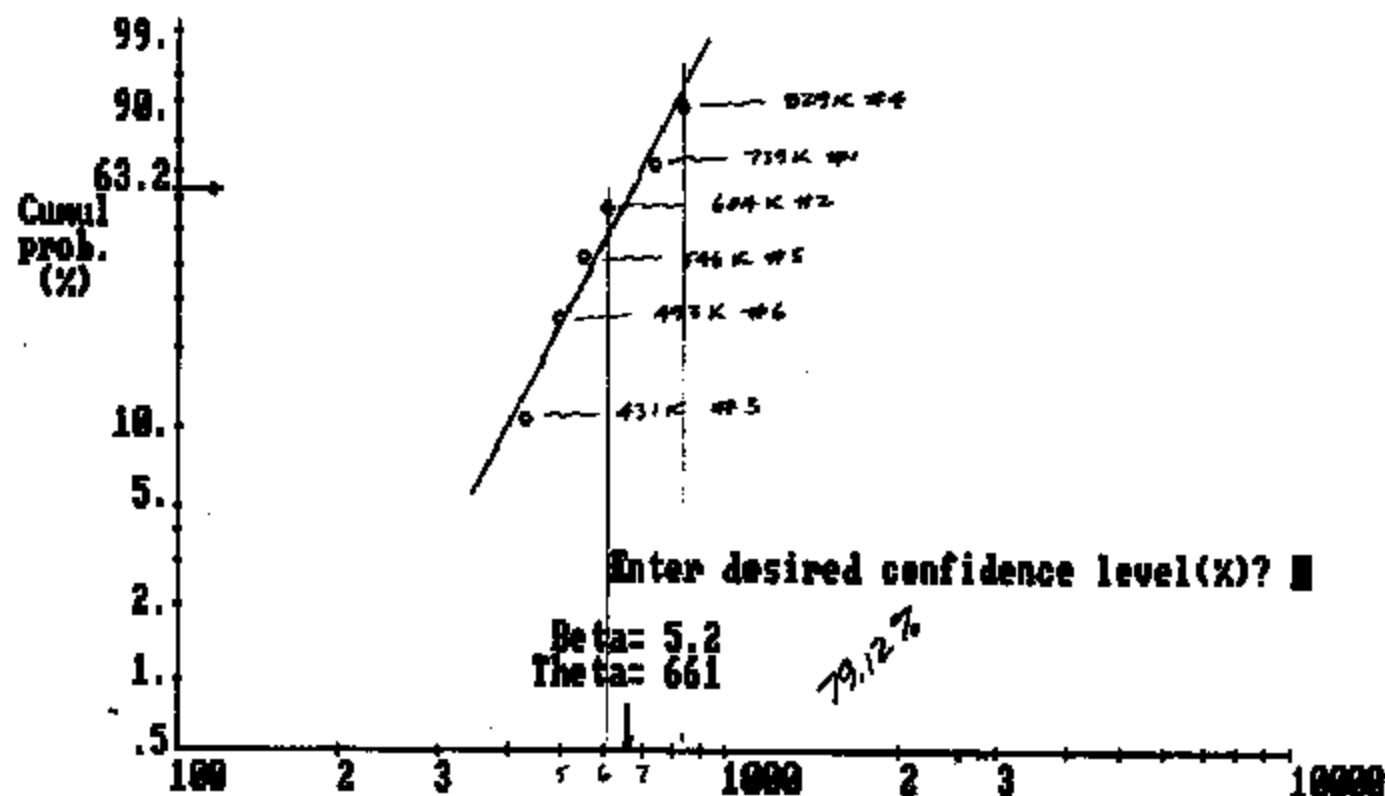
TI-NHTSA 003349

VALIDATION ATTEMPT BUILT ON AM1;
CYCLED ON 1800. + STAN'S

TEST 165

BLD DT 910913

So
911009

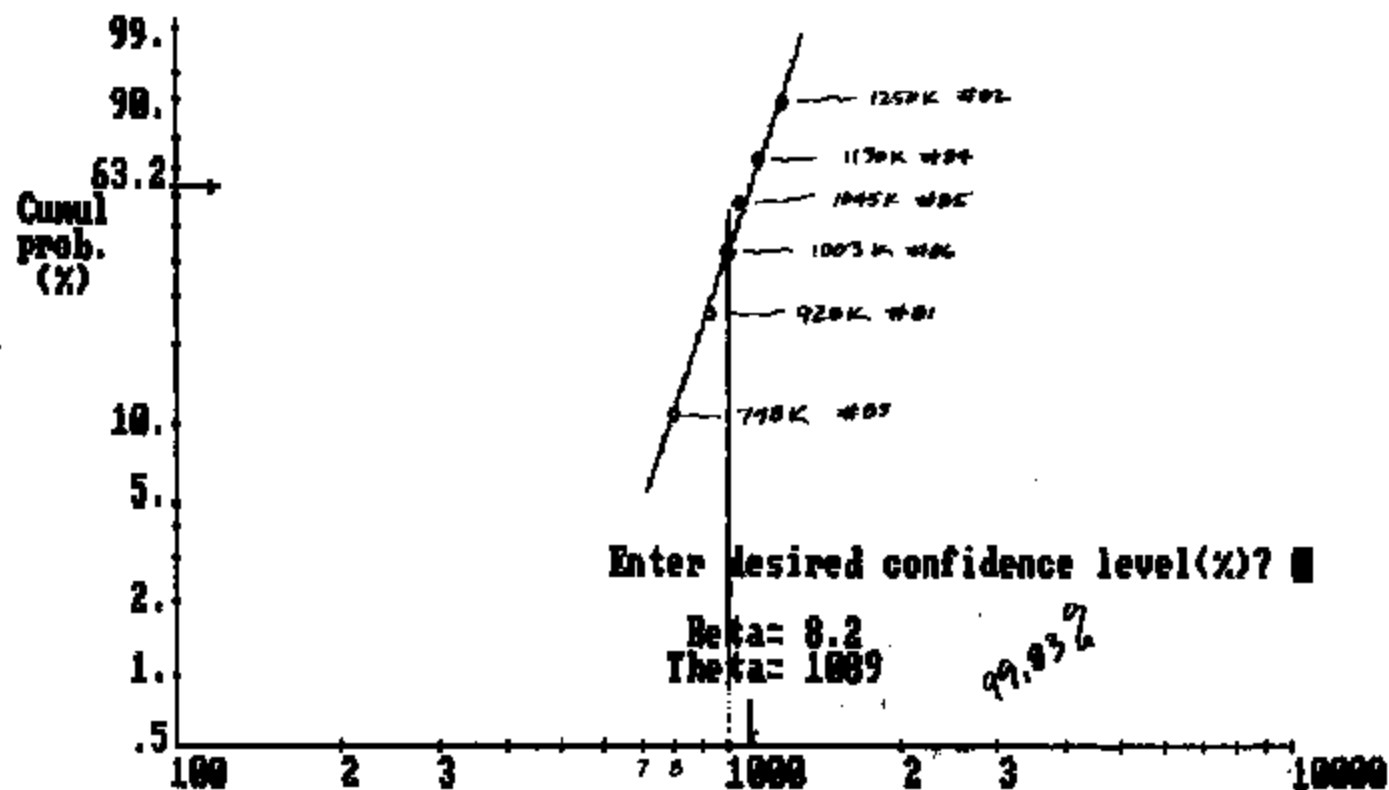


TI-NHTSA 003350

PASS-CAR VALIDATION PARTS

BUILD DT 910913, HAND-LINE

W/ SWITCHES TEST 160



TI-NHTSA 003351

PRESSURE SWITCH DATA

Form 21605

TEST NO. 165-03-22

DEVICE 77PSL2-1	DATE REQUESTED 9/26/91	REQUESTED BY Steve CFFlor	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Danerica	DATE STARTED 9/26/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford MY'91 Electronic speed control deactivate PS			

CUSTOMER:

PURPOSE OF TEST: Impulse devices to failure and obtain Weibull data

PROCEDURE: Return parts from Validation testing to impulse test and cycle to failure

1-6 : 90 cycles yet

62, 64, 67: 399K cycles before this test

Tests started with 547K on Counter

7-19 : 0 cycles - Counter @ 555 K when started
COUNTER RESET @ 933K

Device #	ORIGIN	Total Cycles to failure
165-03-01	From the same lot as	739K
-02	the parts cycled on	604K
-03	from cycles and mail	631K
-04	Cycled at reduced pressure	839K
-05	Hand assembled	546K
-06	ARL Crimp; no pregrind	443K
	9/10/91 - Cycled devices	
165-05-62	original Validation	528K
-63	parts	429K
-64	devices	402K
-67	9/10/91	397K
165-03-07	Production parts 100%	
-09	made an accident on	
-11	ARL Cycling to sep	969K
-16	if they are good	
-17	or not	
-19	Build Date 9/10/91	
165-03-13	Same as 7-11 except	1871K
-14	these have been run	904K
-15	through the hard-line	
-16	crimper after being	978K
-17	Crimped on ARL	999K
-19	Build Date 9/10/91	776K

Suspended @

111.8K

on 9/10/91

TI-NHTSA 003352

PRESSURE SWITCH DATA

Form 21605

TEST NO. 160-03-36

DEVICE 77PS	DATE REQUESTED 9/10/91	REQUESTED BY Steve Off. 10V	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey P. Bonarico	DATE STARTED 9/11/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Ford MV '91 Electronic Speed Control Diagnostics PS			

CUSTOMER:

PURPOSE OF TEST: **Improve Kaptan life in Pass-Car parts**PROCEDURE: **Impulse test - standard parameters**

1-12: Started at 0 cycles BANK 4+5

43-60: Started with 591K cycles complete BANK 1,2,3

81-96: Started with 500K cycles complete BANK 6

* All devices AMI crimp, no precrimp, unless otherwise stated under origin

COUNTER RESET @ 999K

Device #	ORIGIN	Exp Act/Rel	Fail		
160-03-01	Special Hexaparts: 403"		591K		
-02	relate to modify		1040K		
-03	Kaptan clamp		402K		
-04	clamps for life		263K		
-05	- Sensors only; hand built		428K		
-06	- Build Date 910921		999K		
160-03-07	Control pump for		1197		
-08	1-6. All standard		1170K		
-09	carbs		1093K		
-10			612K		
-11	- Sensor only; hand built		413K		
-12	- Build date 910921		596K		
160-03-47	Control for	157/66		1268K	
-48	49-60. All standard	179/60		1514K	
-49	Parts. Acc 591K	137/65		1514K	
-50	on road 159-03-06	70/62		1159K	
-51	Sensor only; hand built for AMI	171/57		438K	
-52	910905	184/62		751K	
11-49	Washer thickness reduced	123/97		879K	
-50	by .001". Higher acc. p.	119/50		1230K	
-51	Acc 591K on test	117/48		711K	
-52	159-03-06	70/62		1703	
-53	Sensor only; hand built for AMI	153/97		751K	
-54	910905	117/48		1531K	

(OVER)

TI-NHTSA 003353

Device #	ORIGIN	Incl Act/Rel	Fail		
40-03-55	.005" 3102 in washer	87/44		999K	
-56	predesigned disc	85/44		1309K	
-57	Run 591 K in test	122/41	LEAK @	510K	
-58	4159-03-08	110/47		126BK	
-59	Sensor only; hard kit for AME	101/52	Leak @	751 K	
-60	910905	110/51		879K	
40-03-91	crimped or hand-line			929K	
-92	Pass-car validation			1250K	
-93	parts. Success/fail			799K	
-94	4901 500K in			1130K	
-95	VMI test - discs included			1045K	
-96	910913			1003K	

-MSG #1- 426899 FR=CERN TO=PCQA SENT=10/19/91 10:04 AM
R#128 ST=C DIV=0050 CC=00101 BT=CERN AT=10/19/91 10:04 AM

OCTOBER 19, 1991

TO: RUSTY STRUBLE	RCS2	CC: TON CHARBONNEAU	TC
MIKE DeMATTIA	PCQA	JOHN KOURTESIS	NDES
CHARLIE DOUGLAS	CPFC	STEVE MAJOR	WHL
DICK GARIEPY	MFPC	ANDY MCGUIRK	PCQA
PAUL KOTCH	PRK1	ED O'NEILL	BJON
JOE LAZARE	JML8	JOE SCHUCK	WHL
STEVE OFFILER	SBO1	GARY SHYDER	CPFC
MATT SELLERS	PCNE	MARTHA SULLIVAN	CPFC
BILL SWEET	PCNE	RAY TOURANGEAU	PCNE
JIM WATT	PCQA	BILL CONGDON	MFPC
TOM BURKE	MFPC	STEVE MCGOOGY	NDES
CLAIRE BALTHAZAR	PSNT	ELAINE ROSE	PCQA
TERRY RODRIGUEZ	MFPC	PAUL MESTERLIND	B511

FR: DAVE CERN SARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
10/17/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 10/24 (THURSDAY)
TIME: 10:00 - 11:30 AM
PLACE: MARKETING CONFERENCE ROOM

77PS

Export:

. REPORT ON ELCO ISSUES FROM 7/22 VISIT	KOTCH	ONGOING
- 10B21 STEEL/.00015" MIN. PLATE/J512 S		
. COMPLETE STRIP-OUT/BURST ON 10B21 NAT'L	OFFILER	10/24

Environmental Seal:

. RECEIVE 5K LOT OF BLUE P/C SEALS	SELLERS	10/25	
* SUBMIT SREA FOR OPTIONAL BLUE SEAL	OFFILER	10/17	ORIG.
		10/24	REV.
. INCLUDE GASKETS IN P/C RE-VALIDATION	OFFILER	11/01	

Production Issues:

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHAZAR	ONGOING
. UPDATE PRODUCTION PLANS FOR ALL SWITCHES	DOUGLAS	ONGOING
. REPORT ON WEEKLY MFG. START-UP MTGS.	SELLERS	ONGOING
. DEVELOP ASSEMBLY PRINT PACKAGE	SELLERS/	11/26
	OFFILER	
* PUT CONTROLS IN PLACE TO ENSURE CORRECT	SELLERS	10/24
POLARITY KEY LOC'N ON BLK/BRN BASES		

Sensor Assembly Machine:

TI-NHT8A 003355

The third Kapton station continues to be problematic; a sensor built for design engineering evaluation was found to have an undersized 3rd diaphragm. The condition is likely due to a misfeed; we need to understand why the sense station is not detecting this.

- * CORRECTIVE ACTION FOR KAPTON MISFEED SELLERS/ 10/24
KOURTESIS
- * CALL MTG. TO REVIEW ANI#2 UPGRADE PLANS KADISEV./ 10/24
KOURTESIS

Base Assembly Machine:

The EA equipment is compressing the thickness of the arm at the bend station, which is an unacceptable condition and needs to be addressed immediately. In general, the EA equipment needs to get a higher priority to get completed, as we're beginning production this week!

- * PRIORITIZE WORK ON THE BEND STATION KOURTESIS 10/21
TO ADDRESS THE COMPRESSED THICKNESS
- * PUT PERMANENT CORRECTIONS IN PLACE FOR KOURTESIS 10/24
THE EA EQUIPMENT (e.g., ELIMINATE THE
TEMPORARY SHIMS BY FIXING TOOLING MODS., ETC.)

Final Assembly Machine:

Misc. Manufacturing/QC Equipment:

- * MAKE QC P-TESTER COMPAT. W/77'S KOURTESIS 10/10 ORIG.
10/24 REV.

PV Testing/ISR:

The re-submittal date has been set by the team for 12/20 (delivery). The team has developed a plan for corrective actions to be completed by 10/31/91.

213 P/C switches were shipped to Pitts for their ISR work; the balance will be shipped next week.

- * MODIFY BASE MOLD - second iteration SELLERS 10/14 ORIG.
10/16 COMP.
- * BUILD 300 L2-1'S FOR PITTS FOR THEIR BURKE/ 10/04 ORIG.
ISR (W/CORRECTED BASES) SELLERS 10/24 REV.
- * RECORD PIPC DATA FROM 300 SWITCH LOT RODRIGUEZ/10/11 ORIG.
ROSE 10/24 REV.
- (Waiting for balance of order to be made)
- * SUBMIT ADDENDUM TO ISR'S W/CORRECTED WATT 10/18 ORIG.
BASE DIMENSION - L/T AND P/C (INCLUDE 10/25 REV.
PIST/PIPC DATA FOR P/C)
- * COMPLETE FAI ON P/C SWITCHES ROSE 10/31
- * BEGIN RE-VALIDATION OF P/C SWITCH OFFILER 11/01
- * COMPLETE PV TESTING & REPORT OFFILER 12/20

Diaphragm Life:

Impulse testing of the test lots I-crimped at various cylinder

TI-NHTSA 003356

pressures has thus far been inconclusive. Each of the 6 lots showed at least 1 failure prior to 500K cycles. All lots were built with the "0-cut" washers. Follow up testing with varied washers is underway. We plan also to swap the AMI and H-L crimp dies and evaluate.

* REPORT ON TESTING OF WASHER LOTS	OFFILER	ONGOING
* SWAP AMI AND H-L CRIMP DIES AND GIVE	SELLERS/	10/22
SENSORS TO DESIGN FOR EVALUATION	RODRIGUEZ	
* IMPLEMENT SOLUTION TO DIAPHRAGM LIFE	OFFILER	10/31

Miscellaneous:

John Pelkey of L/T has verbally agreed to the 3A post-plate PD; precedence was set by threaded plugs that they purchase from another supplier. Elco, however, has not been able to demonstrate capability to the 3A tolerance after plating to .0003" min.. I've reviewed the issue with Ron Williams (ELCO Q.C. manager) and will update the team at the next meeting.

. IDENTIFY SWITCH MOUNTING LOCATIONS & SIZE REQMTS FOR FUTURE PLATFORMS	SCHUCK	10/10	ORIG.
. 57 TO 77 CONVERSION: PHASE 1 TESTING	HOMOL	10/17	REV.
. COMPLETE DESIGN FMEA	OFFILER	on hold	
		04/18	ORIG.
		10/31	REV.
. COMPLETE PROCESS FMEA	SELLERS	07/01	ORIG.
		10/31	REV.
* F/U WITH JOHN PELKEY	CSARN	10/10	ORIG.
		10/17	REV.
		10/17	COMP.
* DETERMINE APPROACH FOR 2A/3A THREAD GAGING ISSUE	CSARN/	10/03	ORIG.
	MCGUIRK	10/24	REV.

PRODUCTION PLAN BY MONTH (THOUSANDS)

We have 77 P/C releases from Dana (MY92.5 Tier 1) for 15K switches in November and 10K in December. We will continue to provide 57 P/C switches to Pitts (MY92 Tier 1) until we exhaust our inventory of approximately 17K bases; probably through November. We've reached an agreement with Ford S&A to accept their last shipment of 57's on 10/21, meaning that the first production shipment of 77's will be on 10/28. 77 L/T volume is 3K/week through November, and 8K total for the month of December.

	P/C 57PSL5-3	L/T 57PSL5-2	P/C 77PSL3-1	L/T 77PSL2-3
AUG	0	2.3	0	0
SEP	25	9.3	0	0
OCT	17	7	0	3
NOV	0	0	15	13
DEC	0	0	10 min.	8

MILESTONES	PLANNED	ACTUAL
57 L/T ISIR	11/21/90	11/21/90
57 P/C ISIR	01/15/91	01/15/91
77PS ISIR	09/01/91 ORIG.	
	09/20/91 REV.	09/27 - INITIAL

TI-NHTSA 003357

77PS SOP (TI) 12/20/91
10/91

FINAL

REGARDS,
DAVE CHARN \42-FORD

TI-NHTSA 003358

13220721

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

PARKER HANFORD CORPORATION
JUL DIVISION
WEST CRAFT CIRCLE
SPARTANBURG, S.C. 29302
TELEPHONE (803) 573-7333

J.B.L. Division of Parker Seal certifies that the material used to produce the product
in this shipment, namely SILICONE/ 87519. Conforms to VI drawing and VI purchase
order requirements.

PART TITLE... ENVIRONMENTAL SEAL

CUST P/N... 74247 4 REV 3

DATE SHIPPED

P/N... 30402472

J.B.L. P/N... 207218

10-21-81

P/N... 01410-2

SILICONE COMPOUND... 87519

QUANTITY... 5,000

Very Truly Yours,
J.B.L. Division



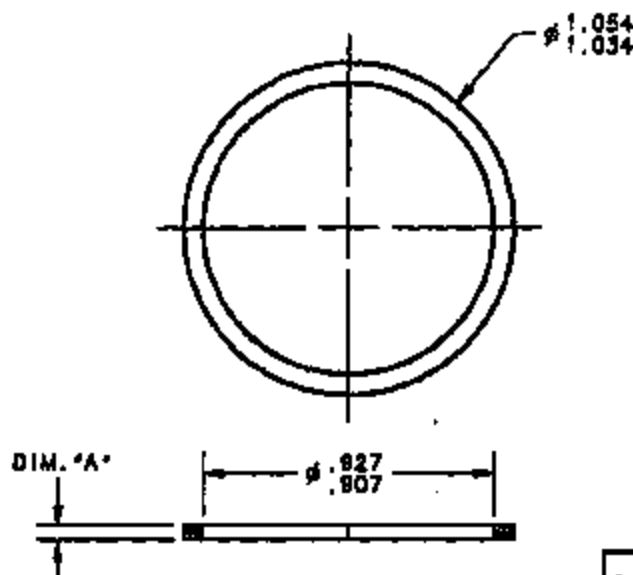
DENNIS T. JOHNSON
Quality Control Manager

DTG



TI-NHTSA 003359

74-1	DEVICE # 52/57PS PROJ. # 3355	TITLE ENVIRONMENTAL SEAL	REV E	74247
------	----------------------------------	-----------------------------	----------	-------



CONFIDENTIAL

CERTIFIED PRINT Parts Made To This Print Must Conform To	
ENCL. STD. E9898 REV. E	
Date NOV 22 1991	
AUTHORITY FOR THIS PRINT IS THE APPROVED SIGNATURE OF THE PERSON IN CHARGE OF THE QUALITY CONTROL DEPARTMENT OF TEXAS INSTRUMENTS. THIS PRINT IS THE PROPERTY OF TEXAS INSTRUMENTS AND IS LOANED TO THE CUSTOMER. IT IS TO BE RETURNED TO TEXAS INSTRUMENTS WHEN THE CUSTOMER HAS COMPLETED THE WORK ORDER. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER.	

NOTES:

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

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

74247-4	SILICONE JBL (T-B-D)	55 - 65	BLUE	.045-.055
74247-3	SILICONE JBL S7424-8	55 - 65	SEE NOTE 2	.048-.055
74247-2	SILICONE JBL S7424-8	55 - 65	RED	.040-.050
74247-1	BUNA N JBL N7014-50	50 - 60	BLACK	.040-.050
PART NO.	MATERIAL	DUROMETER	COLOR	DIM. "A"

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

REV. 1 TON DALL 8-18-91	TEXAS INSTRUMENTS ARLINGTON, MASSACHUSETTS 02703	NIXON CONTROL PRODUCTS DIVISION	74247
----------------------------	---	---------------------------------------	-------

TI-NHTSA 003360

to: Dave,

1/22/91

Texas Instruments # A 2641

Vec: Elmer,

57PS current Leakage Tester

Mech C 140330

Elect D 140334

Cost Center 915

W.O. 121406

- Pogo Pins may be
too short for 77PS (shorter Base)
".100"

- Location

Bldg 12, 3rd Floor

57PS AC Test area

Jim Watt
ext. 1719

Pushy to tag 77 pages prior
to shipment "first time
only"

?? QC: pilot samples & final visual etc
* → need char. sheet

Addendum to TSC

L/T	C/S
tab dim.	tab dim & PDC, data
* 2 from ea. cavity per device	
* submit names	

??? ~~Proton~~ Raptor - seen this before

X-H for Audit ^{they want} (12, 13, 14)
NOV ^{we} 18, 19, 20 Jim no picks to coordinates?

10-22-91

- Mfg. Eng. Samples -

500K cycles completed

* TEST to another 500000 cycles:

** stop every 100000 cycles and check contin

#	100K	200K	300K	400K	500K
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓
5	✓	✓	✓	✓	✓
6	✓	✓	✓	✓	✓
7	✓	✓	✓	✓	✓
8	✓	✓	✓	✓	✓
9	✓	✓	✓	✓	✓
10	✓	✓	✓	✓	✓

(Return to ME or Matt Sellers)

THX -

ELAINE

TI-NHTSA 003365

ELAINE,

- Please place back on production cycling.
- These already have 500K cycles. Need to be cycled to At least 1000K Check Continuity every 100K

Thx
Matt

10-22-91

- Mfg. Eng. Samples -

500K cycles completed

* TEST to ANOTHER 500000 cycles:

** Stop EVERY 100000 cycles AND CHECK CONTINUITY

#	100K	200K	300K	400K	500K
1	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓
5	✓	✓	✓	✓	✓
6	✓	✓	✓	✓	✓
7	✓	✓	✓	✓	✓
8	✓	✓	✓	✓	✓
9	✓	✓	✓	✓	✓
10	✓	✓	✓	✓	✓

(RETURN to ME OR MATT SETTERS)

THX -

ELANE

TI-NHTSA 003388

Q Elaine,

Here is the pcs
you asked for

They have the cavity
letter on them. I have
the actual print out
if you need it

1	ACT	134.9
(1B)	rel	22.6
	Diff	112.3
2	ACT	125.2
(4D)	rel	29.9
	Diff	95.2
3	ACT	119.7
(2C)	rel	26.4
	Diff	93.3
4	ACT	117.6
(5D)	rel	26.8
	Diff	90.9
5	ACT	124.5
(6D)	rel	24.4
	diff	100.1

Start
AT/

pass/
fail

50K CONT.
50K CONT.
50K CONT.
50K CONT.
50K CONT.
50K CONT.
50K CONT.
50K CONT.
50K CONT.
50K CONT.

Total: 50000

END.

HIGHLIGHTS

STEPHEN B. OFFICER
W/E 91-10-25

Jeff
911025

KAPTON DIAPHRAGM LIFE:

As Jeff D. reported last week, the results of the crimp pressure showed absolutely no influence on diaphragm life. We are now in the middle of the master test, using 0-wt Ni plate, 0-wt Zn plate, and 2-wt Zn plate. The 0-wt Zn seems worse than the other two, which are about equal, preliminarily. Failures in the better lots began around 200K, so the master is merely a secondary variable.

Based on Carl Sanford's inputs, we tried lubricating gaskets (using silicone DOT-5 brake fluid) to see if this would have any effect on the "teardrop" shape observed in the Kapton surface when the tungsten is cut off a crimped device. Dry and lubed parts were crimped on H-L and Arns. Teardrops were observed in most devices; on dry Arns part and on lubed H-L part had no teardrop. Since essentially no difference was observed in any of the lots, we have no confidence that the teardrop phenomenon has any influence on Kapton life. We plan to go back to previous failed devices and cut off tungsten to see if any further clues can be obtained using this analysis technique.

We have elevated the priority on the HL vs. Arns die-crimp so we can get test parts cycling over the weekend. Jeff, Dave, Matt, and I will work together to get these test-lots built today. A full matrix will be built: Arns tests on both crimpers, plus HL tests on both crimpers. Jeff is hand-kitting parts, using 0-wt Zn masters. We'll need to bring Jeff in a couple times over the weekend to keep the test running.

SAMPLES:

I think we're finally straight on the Ford Australia samples, after a flurry of correspondence between Charlie and John Butler @ TI Australia. We'll ship 12 77PS's of mating connectors and M10X1.0 Rd for US\$25 each. Mike Vestry's reports that tungsten will be machined Oct 29. Plating should be complete by Nov 2, allowing build & ship Nov 4 if all goes well.

PRESSURE SWITCH DATA

Form 21605

TEST NO. 111-55-17

DEVICE CCPS	DATE REQUESTED 10/15/91	REQUESTED BY SYLVE O	REQUESTED COMPL. DATE
PERFORMED BY JAD	DATE STARTED 10/15/91	DATE COMPLETED	APPROVED BY

PROJECT TITLE:

CUSTOMER:

PURPOSE OF TEST:

Snap of ring lock; Capex Life

PROCEDURE:

Conductor 08

Device #	Tool	Place	Run ID Date	Cycle Temp				
111-12-01	Hand-Like	AMI	91025	615K				
-02				597K				
-03				980K	SUSPENDED - OPENED FOR IMP ANALYSIS			
-04				621K				
-05				733K				
-06				743K				
111-13-07	AMI	AMI	91025	950K	SUSPENDED	DIED		
08				500K				
09				597K				
10				557K				
11				775K				
12				610K				
111-13-13	AMI	Hand-Like	91025	512K				
14				463K				
15				412K				
16				574K				
17				500K				
111-13-19	Hand-Like	Hand-Like	91025	511K				
20				621K				
21				454K				
22				710K				
23				646K				
24								

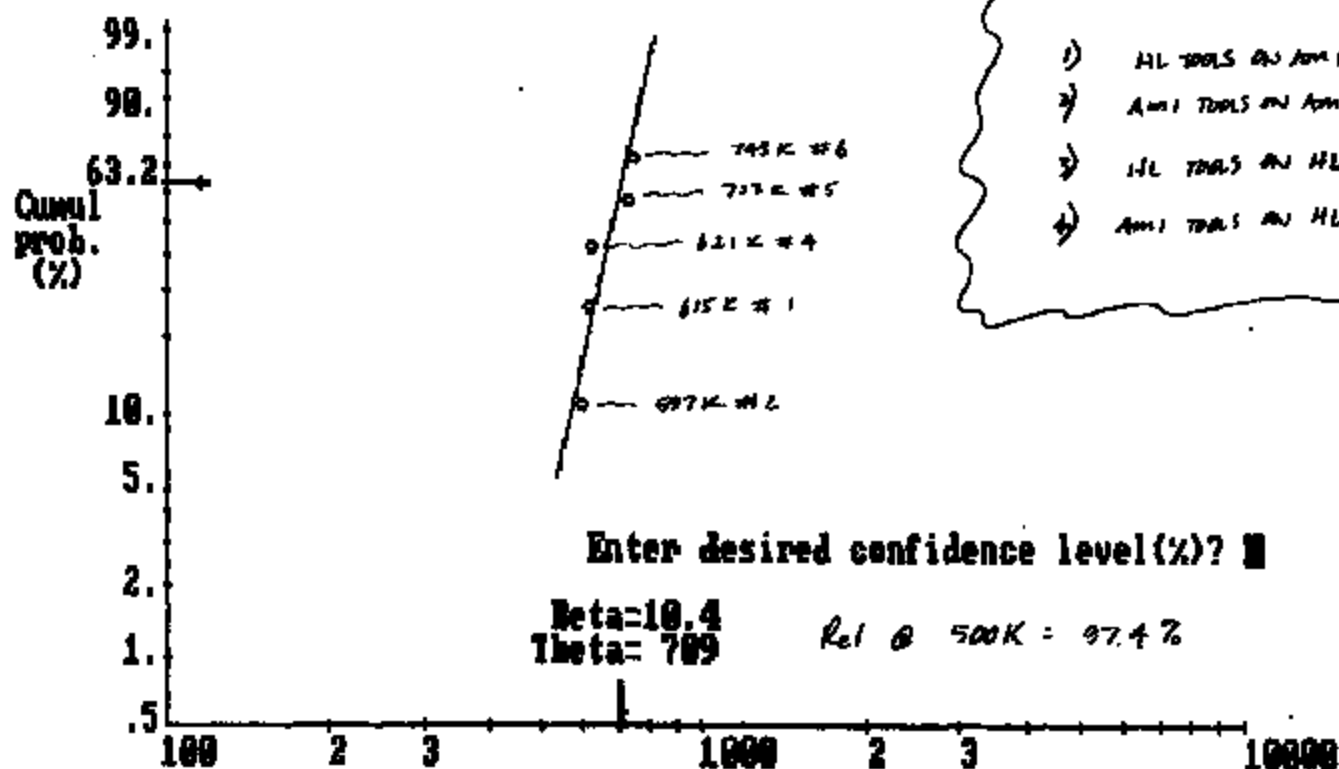
(OVER)

TI-NHTSA 003375

HAND LINE TOOLS ON AMI DT 9/18/25

TEST 171

#3 SUSPENDED @ 950K FOR BNF ANALYSIS



TI-NHTSA 003378

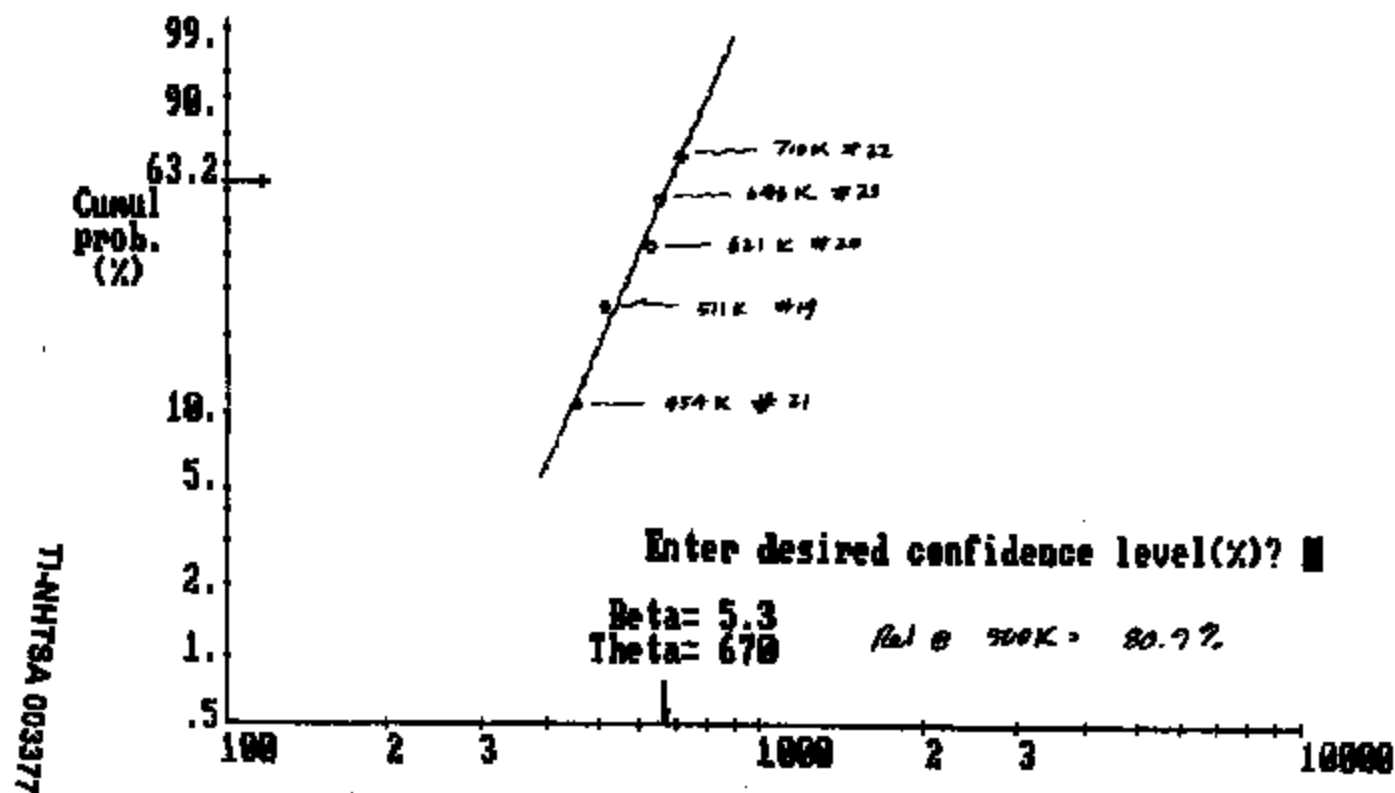
(PRELIM S/G 0240)

HAND-LINE TOOLS ON HAND-LINE 711025

(ASSUME #24 SUSP @ 735 K)

TEST 171

#24 _____



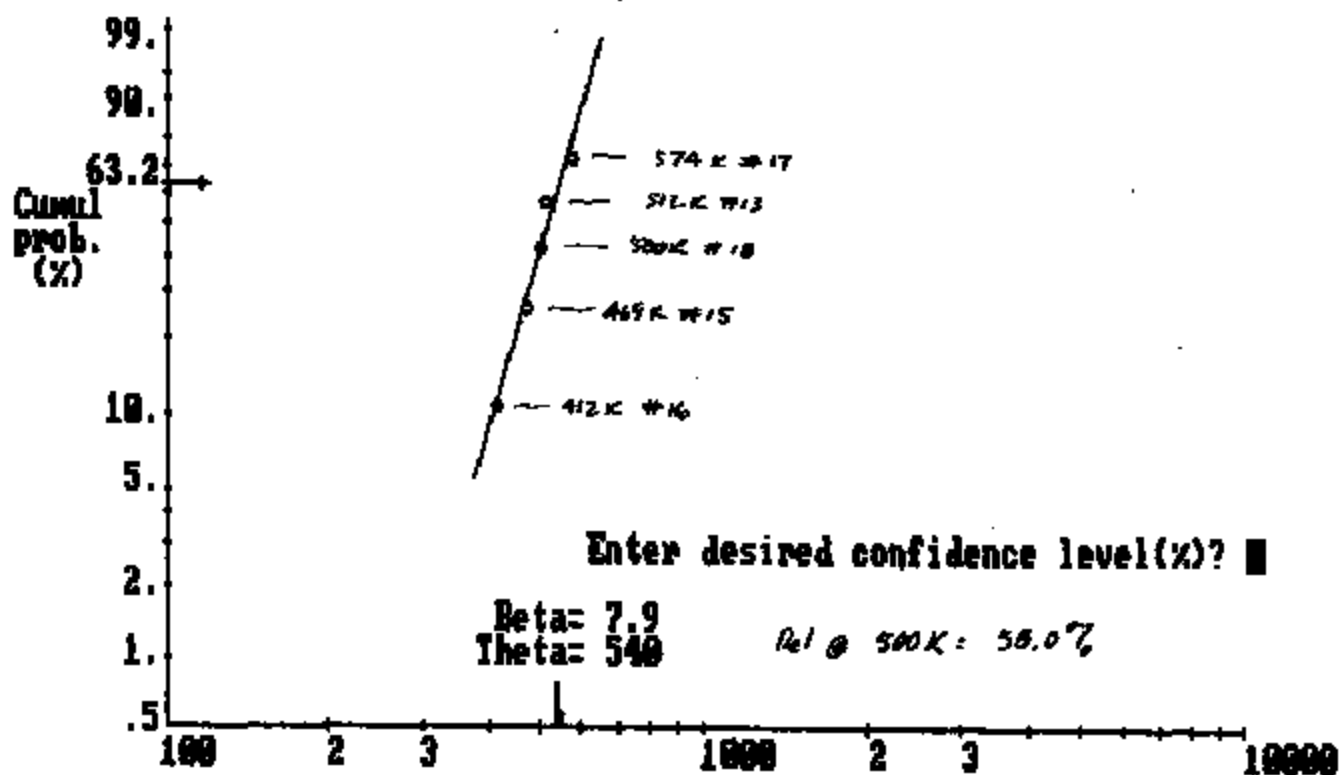
(PRELIM: E/L DEAD)

AM1 TOOLS ON HANDLINE 911025

TEST 171

#14: -

?

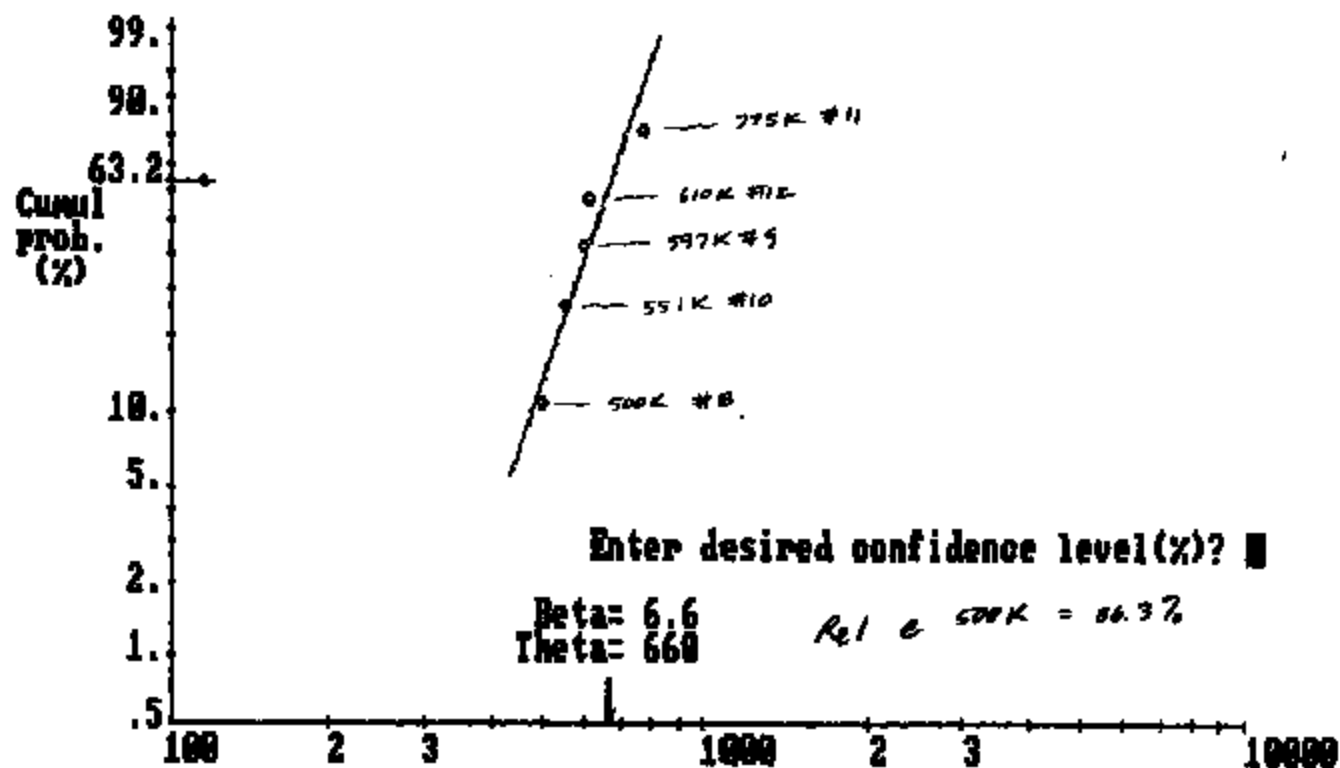


TI-NHTSA 003378

AMI TOOLS ON AMI 311025

TEST # 171

#7 SUSPENDED @ 950K, OPENED FOR INF ANALYSIS



TI-NHTSA 003379

PRESSURE SWITCH DATA

Form 21605

TEST NO. 171-03-19

DEVICE CCPS	DATE REQUESTED 10/25/91	REQUESTED BY Steve O	REQUESTED COMPL. DATE
PERFORMED BY JAD	DATE STARTED 10/25/91	DATE COMPLETED	APPROVED BY
PROJECT TITLE:			

CUSTOMER:

PURPOSE OF TEST: Swap at crimp tools; Raptor Life

PROCEDURE: Cond for CP

Device #	Tool	Place	Run ID Date	Cycles to fail					
111-09-01	Hand-Line	AMI	9/10/25	615K					
-02				597K					
-03				950K	SUSPENDED				
-04				621K					
-05				713K					
-06				793K					
71-01-07	AMI	AMI	9/10/25	950K	SUSPENDED				
08				500K					
09				597K					
10				557K					
11				775K					
12				610K					
111-02-13	AMI	Hand-Line	9/10/25	717K					
14				467K					
15				402K					
16				524K					
17				500K					
111-02-18	Hand-Line	Hand-Line	9/10/25	511K					
20				621K					
21				454K					
22				710K					
23				646K					
24									

TI-NHTSA 003380

CRIMP TOOL SWAP

TEST 171-03-²⁴~~27~~

JAD 11/18/91

DEVICE #	CRIMP DIE	CRIMP PRESS	BUILD DATE	CYC. TO FAILURE	CYC. TO SUSPEND
171-03-01	HAND LINE	AMI	911025	615K	
171-03-02	HAND LINE	AMI	911025	597K	
171-03-03	HAND LINE	AMI	911025		950K
171-03-04	HAND LINE	AMI	911025	621K	
171-03-05	HAND LINE	AMI	911025	733K	
171-03-06	HAND LINE	AMI	911025	743K	
171-03-07	AMI	AMI	911025		950K
171-03-08	AMI	AMI	911025	500K	
171-03-09	AMI	AMI	911025	597K	
171-03-10	AMI	AMI	911025	551K	
171-03-11	AMI	AMI	911025	775K	
171-03-12	AMI	AMI	911025	610K	
171-03-13	AMI	HAND LINE	911025	512K	
171-03-14	AMI	HAND LINE	911025		
171-03-15	AMI	HAND LINE	911025	469K	
171-03-16	AMI	HAND LINE	911025	412K	
171-03-17	AMI	HAND LINE	911025	574K	
171-03-18	AMI	HAND LINE	911025	500K	
171-03-19	HAND LINE	HAND LINE	911025	511K	
171-03-20	HAND LINE	HAND LINE	911025	621K	
171-03-21	HAND LINE	HAND LINE	911025	454K	
171-03-22	HAND LINE	HAND LINE	911025	710K	
171-03-23	HAND LINE	HAND LINE	911025	646K	
171-03-24	HAND LINE	HAND LINE	911025		

TI-NHTSA 003381

MSG PCQA, PCME, PSTN, MAPA, AETL, ZARN, SH2, CPPC, PSWT, MFPC, PCME, CPPC & RCS2, MFPC, MFPC, ATQC, WHLZ, PCME, CPPC, PCQA, MFPC, PCME, MAPA

October 29, 1991

To:	Dave Czarn	ZARN	Matt Sellers	PCME
	Stan Howol	SH2	Rick Conlin	CPPC
	Rusty Struble	RCS2	Ed Smith	PCQA
	Tom Burke	MFPC	Bill Sweet	PCME
	Dick Gariepy	MFPC	Andy McGuirk	PCQA
	Cheryl Bettinger	ATQC	George Dlear	AETL
	Joe Schuck	WHLZ	Gary Snyder	CPPC
	Dave Czarn	ZARN	Mike DeMattia	PCQA
	Paul Sherman	MAPA	Elaine Rose	PCQA
cc:	Bill Congdon	MFPC	Martha Sullivan	CPPC
	Tom Charboneau	TC	Ray Tourangeau	PCME
	Joe Schuck	WHLZ	Neil MacKinnon	MAPA
	Chuck Stanfa	ATPA		
From:	Jim Watt	PCQA		

Re: Kelsey Hayes Quality Visit November 11 - 13, 1991

Tentative plans have been made by Mr. Tom Dann, Kelsey Hayes QRA representative, to conduct a quality audit of our systems in support of our 57PB pressure switches. Areas of interest include, but are not limited to, receiving inspection, environmental test laboratories, gage lab, 57PB line tour, in-process inspection, process control plans, formalized measurable continuous improvement, SPC, Advanced Quality Planning, final inspection, packing, and shipping.

In preparation for the Kelsey Hayes audit, please attend the initial assessment meeting at:

Date: Thursday, 10/31/91
Time: 1:30 p.m.
Place: CPD Conference Room

Below is a tentative agenda compiled for the Kelsey Hayes visit:

KELSEY HAYES VISIT

MONDAY

November 11, 1991

* CPD Conference Room (Bldg 12)

Agenda

Responsibility

10:30 - 10:40 Arrival / Introductions
Review visit agenda

* CPD
Conference Rm

TI-NHTSA 003382

travel itinerary has not been confirmed.

Nick Conlin
Stan Homol
Dave Czarn
Dick Gariopy
Matt Sellers

10:40 - 11:30 Receiving Inspection Tour

Jim Watt

11:30 - 12:15 Gage Lab Tour

Jim Watt

12:15 - 1:00 Lunch

Jim Watt
Rick Conlin

1:00 - 2:30 Environmental Test Lab Tour

Jim Watt

2:30 - 3:00 Engine Test Lab Tour

Jim Watt

3:00 - 4:00 Line Flow/ Control Plan Review

Matt Sellers

4:00 - 5:00 57PS Line Tour with
SPC Demonstration

Bill Sweet
Dick Gariopy

(Rev 0, 10/29/91, Jim Watt, PCQA, ext 1719)

TI-NHTSA 003363

PIPC

77PSL³ P/C

10-30-91

Retention

90-160 PSI

1-100

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
116.4	119.6	130.2	127.1	131.4	128.5	123.3	123.4	121.3	111.9
118.4	117.7	120.4	128.3	124.0	125.3	122.8	120.5	123.9	129.0
129.6	125.5	120.7	120.4	125.4	117.3	123.7	115.1	117.6	120.0
122.5	128.6	111.6	128.4	115.1	125.6	115.6	121.0	131.0	124.1
124.8	116.8	126.7	127.6	116.0	121.7	119.5	123.0	112.7	117.0
131.7	122.7	131.5	116.3	116.2	122.7	125.6	123.0	123.2	118.1
125.8	126.9	133.4	132.4	119.0	124.6	119.3	122.2	122.4	136.0
122.8	125.6	128.5	120.5	112.3	119.2	122.6	117.2	110.0	115.0
130.8	125.3	121.6	123.3	120.1	119.2	117.2	121.3	123.2	120.0
129.5	122.2	124.0	129.1	125.3	124.2	129.3	113.2	113.9	124.6

101-
200

⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳
121.6	117.3	127.6	122.6	122.2	117.0	124.4	112.4	127.6	127.0
119.5	126.5	124.5	124.8	114.8	120.8	120.4	121.5	121.6	127.0
126.6	119.5	115.3	121.2	122.0	123.2	112.4	127.0	121.6	121.4
117.7	124.3	122.5	121.1	124.4	114.4	118.7	120.7	122.7	123.4
115.9	121.5	116.3	122.2	113.3	114.4	115.4	118.6	118.6	109.1
129.9	127.5	129.2	126.7	115.4	119.4	114.5	115.6	116.5	125.4
116.6	124.3	122.2	125.2	133.5	122.8	112.5	127.2	115.6	117.7
120.3	128.7	112.1	119.1	120.9	123.9	118.3	127.3	114.3	121.7
117.3	117.6	121.8	112.9	115.2	130.0	137.2	122.8	124.0	118.6
124.8	125.7	122.6	120.3	112.4	121.8	122.2	113.7	120.8	119.1

201-
300

㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚
126.4	120.5	124.8	127.6	115.9	119.5	116.6	122.9	123.9	121.3
112.9	115.4	116.2	116.3	123.2	116.5	116.6	122.0	115.6	122.7
123.0	126.3	123.2	122.7	124.3	123.6	118.5	119.9	117.7	118.5
125.2	126.3	124.6	117.1	131.2	120.9	125.2	114.8	124.7	125.5
122.1	122.4	121.5	121.1	128.4	123.6	125.2	123.1	120.7	122.3
128.3	122.4	112.3	119.0	120.3	118.0	129.0	125.9	119.2	122.6
119.4	120.3	122.5	123.7	132.3	124.9	118.9	124.2	116.0	116.1
116.7	119.3	120.0	125.6	124.4	122.7	123.7	118.8	122.2	126.2
119.4	120.3	120.0	127.2	121.4	119.0	125.8	120.8	122.7	126.2
125.6	115.4	117.9	121.8	123.1	113.6	117.8	116.8	112.1	118.5

TI-NHTSA 003384

Release

20-160PSE

1-100

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
30.1	29.3	30.8	30.4	34.6	29.4	24.2	28.8	24.7	24.9
34.0	34.1	29.0	27.4	30.5	24.5	25.8	32.5	26.6	25.3
31.4	24.0	33.3	30.1	23.2	25.7	25.5	31.1	22.7	25.2
23.2	23.6	26.3	38.7	34.7	21.4	33.5	26.5	24.5	29.1
21.9	31.7	33.8	27.0	34.4	32.9	29.2	26.0	24.8	22.3
35.1	25.2	27.4	28.7	33.7	24.4	24.9	28.3	27.9	27.9
28.1	30.3	27.9	21.2	23.0	22.1	26.0	25.1	20.1	25.9
25.6	29.0	33.7	30.2	23.5	26.5	30.5	27.8	25.4	28.4
29.9	24.8	28.4	22.8	27.7	28.9	33.2	31.3	26.6	32.3
21.6	28.1	28.6	24.1	26.8	28.5	24.5	22.3	28.3	27.5

101-
200

⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳
31.1	24.6	26.6	24.8	24.8	22.5	25.7	28.7	25.7	21.6
25.2	24.1	23.3	26.8	25.2	28.5	32.6	34.5	29.5	24.3
24.8	29.9	30.8	26.0	28.4	25.2	26.8	30.7	23.6	27.3
27.3	28.3	28.5	23.6	24.9	31.6	31.9	22.9	21.0	25.2
27.3	29.4	26.1	25.4	35.0	32.2	33.8	28.4	24.6	25.0
23.3	23.6	28.3	35.3	28.8	28.5	30.1	28.4	26.6	27.6
27.3	28.2	25.7	36.5	24.1	29.1	32.1	32.3	27.9	28.9
31.6	25.7	31.9	28.3	24.4	23.5	30.3	26.4	29.6	22.9
25.8	28.0	23.0	33.3	20.2	28.2	26.6	26.8	29.1	26.5
21.6	28.3	28.2	26.2	27.1	24.7	27.8	31.7	27.3	27.1

201-
300

㉑	㉒	㉓	㉔	㉕	㉖	㉗	㉘	㉙	㉚
26.6	26.5	28.6	33.0	27.4	29.0	21.5	23.6	30.5	28.4
32.4	28.3	30.8	28.6	23.0	30.8	25.5	32.9	36.5	34.2
27.7	41.6	29.2	27.0	23.7	35.9	24.9	26.2	26.7	29.7
23.6	28.0	22.8	28.5	23.5	27.4	28.7	22.5	32.4	26.8
25.8	25.8	26.9	28.1	27.1	27.1	23.7	25.1	24.4	28.7
23.2	29.1	27.2	26.1	29.4	20.7	25.1	29.9	28.0	22.3
26.2	30.4	21.8	24.8	23.1	26.0	23.2	23.4	26.9	25.5
29.2	29.2	26.1	26.0	31.5	27.9	30.6	25.4	27.5	22.5
24.2	23.5	26.3	25.1	30.9	27.2	26.8	25.4	29.3	24.1
31.5	32.6	31.3	35.3	28.7	33.4	24.1	29.7	26.3	25.2

TI-NHTSA 003385

7795
~~6202 SWITCH TESTER LOT REPORT~~

RATING: 7795L2-1
 LOT ID: L2-1
 LOT STARTED: 10-OCT-1991 12:19:34.69
 LOT FINISHED: 10-OCT-1991 14:05:10.12

SETUP DATA:

LIMIT (NC)

ACTUATION: 90.0 TO 160.0 PSI
 RELEASE: 20.0 TO 160.0 PSI
 DIFFERENTIAL: 0.0 TO 160.0 PSI
 MAX MILLIVOLT: 200.0 PSI
 CREEP TIME: 10.0 PSI
 PRECYCLE PRESS: 800.0 PSI
 PRECYCLE COUNT: 2

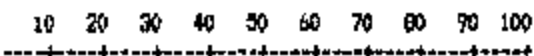
NUMBER OF PIECES TESTED: 232
 NUMBER OF PIECES GOOD: 218
 YIELD: 86.51 %

REJECT COUNTS

BIN	COUNT	% OF REJECTS
LEAK	0	0.00 %
CONT	21	61.76 %
ACCR	1	2.94 %
ACLD	0	0.00 %
ACH	0	0.00 %
RLHI	0	0.00 %
RLLO	7	20.59 %
DFLO	0	0.00 %
RLCR	5	14.71 %
DFHI	0	0.00 %

STATISTICS	MEAN	SIGMA	CPK
ACTUATION:	120.8	4.87	2.11
RELEASE:	26.9	5.12	0.45
MILLIVOLT:	0.0	0.00	0.00
DIFFERENTIAL:	93.9	7.82	2.82

HISTOGRAM OF ACTUATION PRESSURE



TI-NHTSA 003386

Give to
Elaine

Part of 300 pc
run

#1 SER 1; FIX 1; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.5; LEAK RATE= 1.4
ACT= 116.4; REL= 30.1; DIF= 86.3 PSI; ACTCR= 0.1ms; RELCR= 0.3

2 SER 2; FIX 2; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.5; LEAK RATE= 1.4
ACT= 118.4; REL= 34.0; DIF= 84.4 PSI; ACTCR= 0.8ms; RELCR= 1.0

3 SER 3; FIX 3; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.5; LEAK RATE= 1.4
ACT= 129.6; REL= 31.4; DIF= 98.2 PSI; ACTCR= 0.0ms; RELCR= 0.2

4 SER 4; FIX 4; C= 0000000; BIN=GOOD; MRRU= 0.0; MRRD=11.5; LEAK RATE= 1.4
ACT= 122.5; REL= 25.2; DIF= 97.3 PSI; ACTCR= 0.2ms; RELCR= 0.0

5 SER 5; FIX 1; C= 0000000; BIN=GOOD; MRRU=131.3; MRRD=11.1; LEAK RATE= 1.5
ACT= 124.8; REL= 21.9; DIF= 102.9 PSI; ACTCR= 0.6ms; RELCR= 0.4

6 SER 6; FIX 2; C= 0000000; BIN=GOOD; MRRU=131.3; MRRD=11.1; LEAK RATE= 1.5
ACT= 131.7; REL= 35.0; DIF= 96.7 PSI; ACTCR= 0.7ms; RELCR= 0.3

7 SER 7; FIX 3; C= 0000000; BIN=GOOD; MRRU=131.3; MRRD=11.1; LEAK RATE= 1.5
ACT= 125.8; REL= 28.1; DIF= 97.8 PSI; ACTCR= 1.0ms; RELCR= 0.1

8 SER 8; FIX 4; C= 0000000; BIN=GOOD; MRRU=131.3; MRRD=11.1; LEAK RATE= 1.5
ACT= 122.8; REL= 25.6; DIF= 97.2 PSI; ACTCR= 0.1ms; RELCR= 0.4

9 SER 9; FIX 1; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=10.7; LEAK RATE= 1.4
ACT= 130.8; REL= 29.9; DIF= 100.9 PSI; ACTCR= 0.0ms; RELCR= 0.0

~~SER 10; FIX 2; C= 0023005; BIN=GOOD; MRRU=92.3; MRRD=10.7; LEAK RATE= 1.4
ACT= 78.8; REL= 0.0; DIF= 78.8 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

10 SER 11; FIX 3; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=10.7; LEAK RATE= 1.4
ACT= 129.5; REL= 21.6; DIF= 108.0 PSI; ACTCR= 0.1ms; RELCR= 0.1

11 SER 12; FIX 4; C= 0000000; BIN=GOOD; MRRU=92.3; MRRD=10.7; LEAK RATE= 1.4
ACT= 119.6; REL= 29.3; DIF= 90.3 PSI; ACTCR= 3.1ms; RELCR= 0.2

TI-NHTSA 003387

~~SER 12; FIX 1; C= 000000; BIN=GOOD; MFRU=100.0; MFRD=10.7; LEAK RATE= 1.3~~
~~ACT= 78.8; REL= 0.0; DIF= 78.8 PSI; ACTCR= 200.0ms; RELCR= 200.0~~

SER 14; FIX 2; C= 000000; BIN=GOOD; MFRU=100.0; MFRD=10.7; LEAK RATE= 1.3
ACT= 117.7; REL= 34.1; DIF= 83.5 PSI; ACTCR= 0.0ms; RELCR= 0.1

SER 15; FIX 3; C= 000000; BIN=GOOD; MFRU=100.0; MFRD=10.7; LEAK RATE= 1.3
ACT= 125.5; REL= 24.0; DIF= 101.5 PSI; ACTCR= 0.0ms; RELCR= 0.0

SER 16; FIX 4; C= 000000; BIN=GOOD; MFRU=100.0; MFRD=10.7; LEAK RATE= 1.3
ACT= 128.4; REL= 23.0; DIF= 105.4 PSI; ACTCR= 0.9ms; RELCR= 0.7

SER 17; FIX 1; C= 000000; BIN=GOOD; MFRU=77.1; MFRD=11.5; LEAK RATE= 1.5
ACT= 116.8; REL= 31.7; DIF= 85.1 PSI; ACTCR= 0.1ms; RELCR= 0.3

SER 18; FIX 2; C= 000000; BIN=GOOD; MFRU=77.1; MFRD=11.5; LEAK RATE= 1.5
ACT= 122.7; REL= 25.2; DIF= 97.5 PSI; ACTCR= 0.0ms; RELCR= 0.3

SER 19; FIX 3; C= 000000; BIN=GOOD; MFRU=77.1; MFRD=11.5; LEAK RATE= 1.5
ACT= 126.9; REL= 30.2; DIF= 96.7 PSI; ACTCR= 0.6ms; RELCR= 0.1

SER 20; FIX 4; C= 000000; BIN=GOOD; MFRU=77.1; MFRD=11.5; LEAK RATE= 1.5
ACT= 125.6; REL= 29.0; DIF= 96.6 PSI; ACTCR= 0.8ms; RELCR= 0.5

SER 21; FIX 1; C= 000000; BIN=GOOD; MFRU=95.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 125.3; REL= 24.8; DIF= 100.5 PSI; ACTCR= 0.7ms; RELCR= 0.1

SER 22; FIX 2; C= 000000; BIN=GOOD; MFRU=95.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 132.2; REL= 28.1; DIF= 104.1 PSI; ACTCR= 0.7ms; RELCR= 1.1

SER 23; FIX 3; C= 000000; BIN=GOOD; MFRU=95.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 130.2; REL= 30.8; DIF= 99.4 PSI; ACTCR= 0.7ms; RELCR= 0.0

SER 24; FIX 4; C= 000000; BIN=GOOD; MFRU=95.4; MFRD=11.4; LEAK RATE= 1.3
ACT= 120.4; REL= 29.0; DIF= 91.4 PSI; ACTCR= 0.1ms; RELCR= 0.2

14-OCT-1991 10:47:07.37 OPER DOOR DID NOT CLOSE 1

SER 25; FIX 1; C= 000000; BIN=GOOD; MFRU=105.3; MFRD=11.8; LEAK RATE= 1.3
ACT= 120.7; REL= 33.3; DIF= 87.3 PSI; ACTCR= 0.6ms; RELCR= 0.1

SER 26; FIX 2; C= 000000; BIN=GOOD; MFRU=105.3; MFRD=11.8; LEAK RATE= 1.3
ACT= 111.6; REL= 26.3; DIF= 85.3 PSI; ACTCR= 0.1ms; RELCR= 0.1

SER 27; FIX 3; C= 000000; BIN=GOOD; MFRU=105.3; MFRD=11.8; LEAK RATE= 1.3
ACT= 124.7; REL= 33.8; DIF= 90.9 PSI; ACTCR= 0.0ms; RELCR= 0.2

SER 28; FIX 4; C= 000000; BIN=GOOD; MFRU=105.3; MFRD=11.8; LEAK RATE= 1.3
ACT= 131.5; REL= 27.4; DIF= 104.1 PSI; ACTCR= 0.0ms; RELCR= 0.4

SER 29; FIX 1; C= 000000; BIN=GOOD; MFRU=83.6; MFRD=10.7; LEAK RATE= 1.3
ACT= 133.4; REL= 27.9; DIF= 105.5 PSI; ACTCR= 0.7ms; RELCR= 0.1

SER 30; FIX 2; C= 000000; BIN=GOOD; MFRU=83.6; MFRD=10.7; LEAK RATE= 1.3
ACT= 128.5; REL= 33.7; DIF= 94.7 PSI; ACTCR= 0.7ms; RELCR= 0.2

~~SER 31; FIX 3; C= 000000; BIN=GOOD; MFRU=83.6; MFRD=10.7; LEAK RATE= 1.3~~
~~ACT= 140.0; REL= 19.3; DIF= 122.3 PSI; ACTCR= 0.0ms; RELCR= 0.2~~

SER 32; FIX 4; C= 000000; BIN=GOOD; MFRU=83.6; MFRD=10.7; LEAK RATE= 1.3

TI-NHTSA 003388

29 ACT= 121.6; REL= 28.4; DIF= 93.2 PSI; ACTOR= 0.0ms; RELCR= 0.9

~~SER 33; FIX 1; C= 0000001; BIN=GOOD; NRFL=109.1; NRFD=14.7; LEAK RATE= 1.3
ACT= 121.9; REL= 0.0; DIF= 121.9 PSI; ACTOR= 0.0ms; RELCR= 0.0~~

30 SER 34; FIX 2; C= 0000000; BIN=GOOD; NRFL=109.1; NRFD=14.7; LEAK RATE= 1.3
ACT= 124.0; REL= 28.4; DIF= 95.5 PSI; ACTOR= 0.0ms; RELCR= 0.3

~~SER 35; FIX 3; C= 0022004; BIN=CONT; NRFL=109.1; NRFD=14.7; LEAK RATE= 1.3
ACT= 116.1; REL= 0.0; DIF= 116.1 PSI; ACTOR= 0.7ms; RELCR= 200.0~~

~~SER 36; FIX 4; C= 0022004; BIN=CONT; NRFL=109.1; NRFD=14.7; LEAK RATE= 1.3
ACT= 122.4; REL= 0.0; DIF= 122.4 PSI; ACTOR= 0.7ms; RELCR= 200.0~~

31 SER 37; FIX 1; C= 0000000; BIN=GOOD; NRFL=117.5; NRFD=10.9; LEAK RATE= 1.2
ACT= 127.1; REL= 30.4; DIF= 96.7 PSI; ACTOR= 0.1ms; RELCR= 0.2

32 SER 38; FIX 2; C= 0000000; BIN=GOOD; NRFL=117.5; NRFD=10.9; LEAK RATE= 1.2
ACT= 128.3; REL= 27.4; DIF= 100.9 PSI; ACTOR= 0.2ms; RELCR= 0.3

~~SER 39; FIX 3; C= 0000004; BIN=GOOD; NRFL=117.5; NRFD=10.9; LEAK RATE= 1.2
ACT= 126.4; REL= 19.3; DIF= 107.1 PSI; ACTOR= 0.7ms; RELCR= 0.0~~

33 SER 40; FIX 4; C= 0000000; BIN=GOOD; NRFL=117.5; NRFD=10.9; LEAK RATE= 1.2
ACT= 120.4; REL= 30.1; DIF= 90.3 PSI; ACTOR= 0.3ms; RELCR= 0.1

34 SER 41; FIX 1; C= 0000000; BIN=GOOD; NRFL=103.8; NRFD=10.7; LEAK RATE= 1.4
ACT= 128.4; REL= 38.7; DIF= 89.7 PSI; ACTOR= 0.8ms; RELCR= 0.1

~~SER 42; FIX 2; C= 0022005; BIN=CONT; NRFL=103.8; NRFD=10.7; LEAK RATE= 1.4
ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTOR= 200.0ms; RELCR= 200.0~~

Dummies

~~SER 43; FIX 3; C= 0022005; BIN=CONT; NRFL=103.8; NRFD=10.7; LEAK RATE= 1.4
ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTOR= 200.0ms; RELCR= 200.0~~

~~SER 44; FIX 4; C= 0022005; BIN=CONT; NRFL=103.8; NRFD=10.7; LEAK RATE= 1.4
ACT= 78.5; REL= 0.0; DIF= 78.5 PSI; ACTOR= 200.0ms; RELCR= 200.0~~

14-OCT-1991 10:49:11.58 OPER DOOR DID NOT CLOSE

1