

EA02025

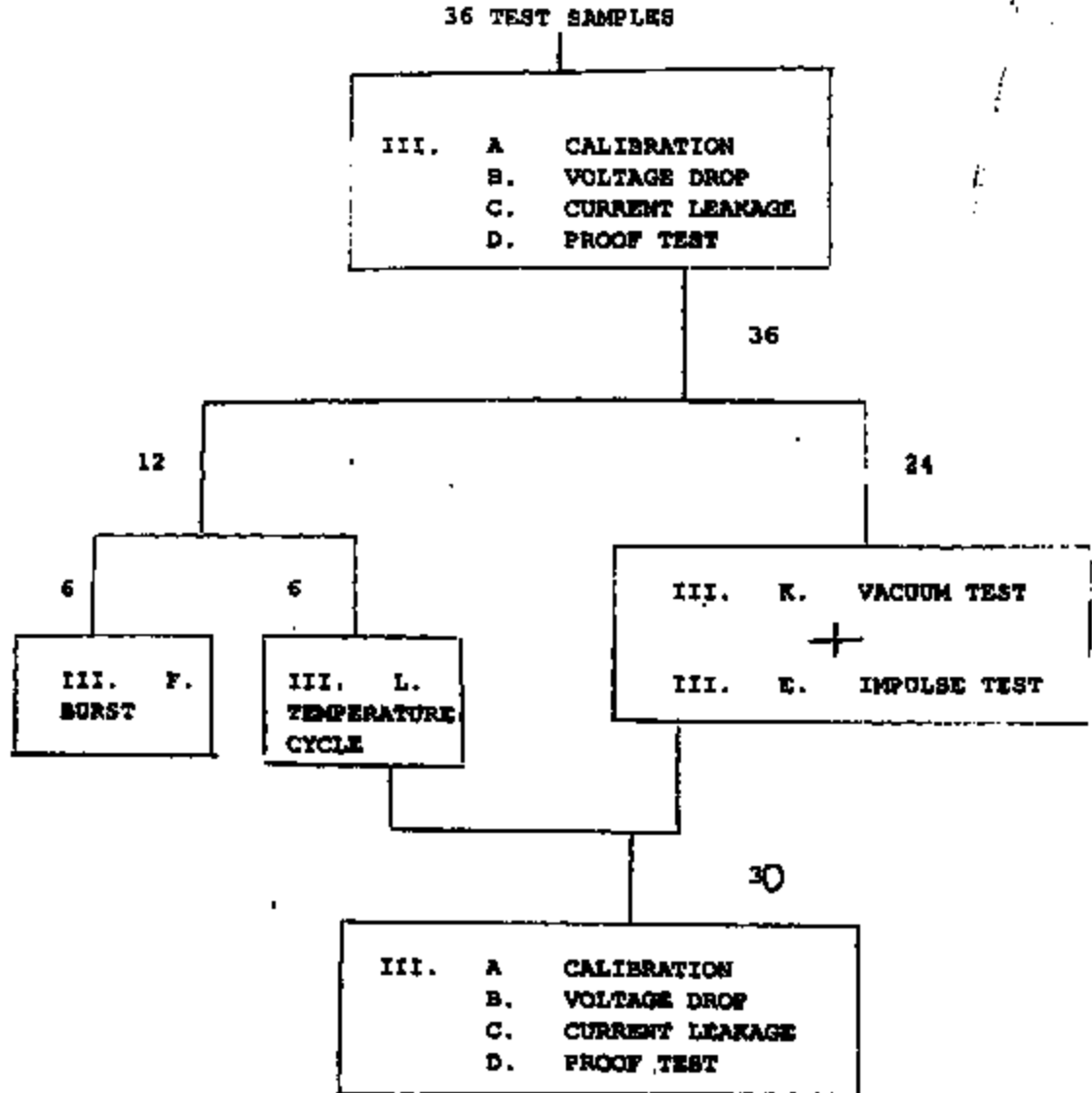
TEXAS INSTRUMENTS, INC.'S

9/10/03 ATTACHMENT TO ODI

BOX 4, PARTS A - N

PART A

PRODUCTION VALIDATION FLOW CHART



Thermal Cycle Test

Cold (-40°) Hot (+38°C)

Cycle	Start Time	End Time	Cycle Time	Min Temp	Max Temp		Start Time	End Time	Cycle Time	Min Temp	Max Temp	Date	
1	5:45	-42	3:35	-40	-42		3:35	+45	4:55	+38	+45		
4/4	7:55	-42	7:10	-41	-42	~	7:10	+50	8:35	39	50	7/4	
"	8:35	-43	10:05	-40	-44		10:05	+50	11:50	42	50	7/14	
"	11:50	-43	1:15	-40	-43		1:15	+50	2:50	41	50	"	
"	2:50	-42	4:30	-42	-50		4:30	+45	8:05	38	45	4/6	
4/1	8:05	-44	9:55	-40	-43		9:55	+50	11:05	40	50	"	
"	11:05	-44	12:40	-40	-43		12:40	+50	1:55	40	50	"	
"	1:55	-44	4:20	-41	-44		4:20	+45	8:10	+38	45	4/6	
4/1	8:10	-44	10:45	-41	-44		10:45	+50	12:35	42	51	"	
"	12:35	-44	2:20	-40	-44		2:20	+50	4:00	41	50	"	
"	4:00	-42	8:10	-41	-42		8:10	+50	9:15	38	50	4/7	
4/1	9:15	-44	10:25	-40	-44		10:25	+50	11:40	38	50	"	
4/17	9:15	-44	9:20	-41	-44		9:20	+50	10:20	38	50	7/17	
"	10:20	-44	11:30	-40	-44		11:30	+50	1:45	43	50	"	
"	1:45	-44	3:15	-43	-44		3:15	+50	4:20	38	50	"	
4/20	3:10	-44	7:10	-40	-44		7:10	+50	10:30	41	50	4/20	
"	10:30	-44	12:40	-43	-44		12:40	+50	1:50	39	50	"	
"	1:50	-44	2:00	-40	-44		2:00	+50	4:25	42	50	"	
4/1	2:00	-44	8:10	-41	-44		8:10	+50	9:15	+38	50	7/21	
"	9:15	-44	10:25	-40	-44		10:25	+50	11:25	+38	50	"	
"	10:25	-44	12:50	-41	-44		12:50	+50	1:55	+39	50	"	
"	1:55	-44	7:00	-40	-44		7:00	+50	4:45	+42	50	"	
4/10	9:05	-44	9:15	-41	-43		9:15	+50	10:15	+38	50	4/22	
"	10:15	-44	11:25	-41	-45		11:25	+50	12:45	+41	50	"	
"	12:45	-44	2:10	-42	-44		2:10	+50	3:20	440	50	"	
26													
27													
28													
29													
30													
31													

TI-NHTSA 005287

CRIMP SHIFT TEST

PURPOSE: Static, disassembled measurements of sensor, t-pin, and base calibration do not necessarily represent the assembled device, due to suspected shifts in dimensions (of the base) during final crimp. This test will serve to characterize this shift.

SCOPE: Since we are beginning to lean towards a material change, and Noryl appears to be the most cost-effective alternative, this test will be run on both 4300 PBT and Noryl. We'll check base-only, pre-crimp and post-decrimp; and base plus dummy sensor, pre-crimp and post-crimp.

PROCEDURE:

- 1) Obtain about a dozen each of production 4300 bases and the prototype Noryl bases, no terminals.
- 2) Starting with Noryl, perform the following:
- 3) Take initial readings of the bases alone.
- 4) Take initial readings of the bases paired with dummy sensors.
- 5) Crimp the dummy sensors to the bases.
- 6) Take final, crimped readings of the bases.
- 7) Remove the dummies and take final "decrimped" readings of the base alone. (these are actually cut, not decrimped)
- 8) Repeat 3 - 7 for the 4300 material.
- 9) Calculate two delta's: for the base alone, and for pre/post crimp with dummy sensor.

SBO/920402/revA/FILENAME CRSHIFT

So 11002

TI-NHTSA 005288

MSG #00575561 FROM:DT1 TO:8801 SENT:04/02/92 07:44 AM
R#13A CT#0 DIV#0630 CC#06101 BY#DT1 AT#04/02/92 07:44 AM

APR 2, 1992

1 TO: SAUNDERS STB
CHARLIE DOUGLAS CPPC
JOCK BARTLEY MFCO
STEVE OFFICER SDC1
MATT BELLERS PCME
DALE BOODE AELB
BILL SHEET PCME
JIM WATT PCDA

1 TOM CHARBONEAU TC
DARY BNYDER CPPC

1 DAVE ZARN ZARN

CCPS QUIET SWITCH

SUMMARY OF OUR CONFERENCE CALL WITH BOUCE MAEROFF AND TIM ANDRESON
FORD #20, AND OF OUR 4/1/92 MORNING MEETING.

THE NEED FOR A QUIET SWITCH HAS BECOME A TOP PRIORITY FOR FORD ON
THE EN53 (CROWN VIC/GRAND MARQUIS) PLATFORM WHICH STARTED
PRODUCTION IN FEBRUARY. IT'S ALSO A PRIORITY FOR SHO TAURUS WHICH
STARTS UP EARLY 1992.

THERE ARE MANY THINGS THAT WE NEED TO DO IN THE NEXT TWO WEEKS TO
MAKE THIS A SUCCESS.

WE ASKED DALE TO HOLD REGULAR MEETINGS, EVERY ONE OR TWO DAYS.
PLEASE PROVIDE ALL THE INPUTS AND ASSISTANCE THAT YOU CAN.

SUMMARY OF TELECONF

WE AGREED THAT ULTRA-LOW DIFF'L AND NO SNUBBER WAS PREFERRED.

*FAILED
"F" DISCS RE-HEAT-TREAT
THESE ARE HARD INCAR*

WE WILL BE TESTING LOW DIFF'L W/ SNUBBER ON EN53 (CROWN VIC/GRAND
MAR) BY 4/2/92 AND ULTRA-LOW DIFF'L W/ NO SNUBBER BY 4/3/92.

THIS WILL DECIDE NEAR TERM DIRECTION; ONE OF THESE TWO WILL
BE REQUIRED "IMMEDIATELY".

EN53 ISSUE ELEVATED IN B. MAEROFF'S PRIORITY LIST BECAUSE HIS
LEFT MUD DRIVE A VEHICLE W/ STD SWITCH AND FOUND IT UNACCEPTABLE.

ALSO, MAEROFF BELIEVES SERVICE DEPT'S WILL REPLACE M/C AND
REGISTER IF COMPLAINTS ARE MADE BY CUSTOMERS ==> 89.

PACKED UP PARTS SENT TO MAEROFF 4/1/92:

TI-NHTSA 005289

LOW A FR/L/SNUBBER	77PSL5-1	100-98724-AB1	LOT H DISCS
ULTRA-LOW DIFF'L	77PSL3-1	100-98724-AB2	LOT P DISCS - NOT TRUE ULD

000 MEM 00001153 FF-0801 TC-0201 SENT=04/02/92 10:12 AM
SA-1711170050 0000001 21-0801 AT=00000001 0012 AM

TO: Tom Callero LIT Asst Callers DUNE
Dave Stone I-AN Dale Boggs PRUN
Charles Douglas CMG1 Bill Sweet PDMC
Norm Stone WLLJ Jim Watt PDDA
Dale Ganssdy GPPC

CC: Tom Chandonneau TC Gary Snyder GPPC

FR: Steve Diller SBC1

RE: COMB QUIET SWITCH

I just spoke with Warren Pierce (013-455-5111), who is our primary contact at the Ford test facility in Florida where the quiet switches are being evaluated. I learned several points:

The SMO Taurus evaluation presently underway in Florida will be completed by early/mid next week, at which time everybody "goes home" (Dearborn).

The whereabouts of the cars after this time is TBD.

The supervisor of the DNS development group in Dearborn has speed control responsibility, and has automatic-trans. SHO's to which the noise evaluation could potentially be shifted.

Warren does not have vacuum-bleed capability, and therefore installation of snubber devices causes an air-entrapment issue. They are indeed quiet, but the presence of air in the switch renders this evaluation inconclusive.

The overnight shipping deliveries do not typically arrive until mid-afternoon. He will contact me later today with the results of the ULD's without snubber that we shipped yesterday (AB2's).

NOTE: Dale has raised a concern that these discs do not appear to be ultra low, with differentials around 5 psi. The finished AB devices shipped were quite low, however, with diff's in the high teens.

Regards,
Steve O.

TI-NHTSA 005290

MSC NUM: 00593040 FR=SB01 TO=5201 SENT:04/02/90 02:36 PM
RINGS: DT=0 DIV=005 CC=00100 Z=190 DT=04/02/90 02:36 PM

TO:	Tom Calland	IEFB	Dir. Service	NRPC
	Gary Gorni	ZAPR	Mark Sellers	PCME
	Jeff DiDomenico	FLB	Dale Sagge	PFUN
	Charlie Douglas	DAFI	Bill Sweet	PCME
	Walt Grebe	WHLZ	Jim Walt	PCOA
TO:	Tom Charboneau	TC	Dary Snyder	CPFC
TO:	Steve Offiler	SB01		

RE: CCPS QUIET SWITCH

I just spoke again with Warren Pierce (813-435-5111). He has received and tested the AB2 switches we shipped yesterday. They are using a subjective rating system to grade the switch noise, with 10 being best and 1 being worst. Warren tells me the snubber devices w/ low-diff discs shipped a few days ago initially rated a "7", which degraded to a "6" after a day; hypothetically due to air entrapment which worked itself out over time. The real bad news is the supposed ultra-low-diff devices shipped yesterday averaged only a "4". Dale, you were right.

We are working diligently to produce another 20 of these devices to be shipped to Norm on Fri 920403 for delivery to Tim Andresen for the SHC ZPP build in Atlanta, which I understand is scheduled for the week of 920413. Based on Warren's findings, it seems to me that these parts are inadequate. We need to determine how to proceed from here. I cannot emphasize strongly enough how useful it would be to have a car at our disposal so we may carry out our own testing.

Regards,
Steve D.

(FILE C: TMP_ULD)

TI-NHTSA 005291

TEXAS INSTRUMENTS
ATTLEBORO, MASSACHUSETTS 01740

PAGE 1 OF 1

SAMPLE REPORT

(77PSL 3-1)

REASON FOR REPORT	VENDOR	P.O.	PART NO.	REV.
NEW PART			77PSL 3-1	C
REPLACEMENT TOOL.	REPORT REQ BY	DATE	INSPECTED BY	DATE
CORRECTED TOOL.	E. Rose	4/22/82	ELAINE GRAVEL	4/7
REPAIRED TOOL.	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING ACTUAL VALUES FOR ALL CHARACTERISCS MEASURED. IN CASES WHERE ACTUAL VALUES DEVI. FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION & EACH NON-CONFORMANCE IN THE APPROPRIATE COLUMN.			
REVIEW				
OTHER <u>DIMENSIONAL ANALYSIS</u>				

	(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS)					DISPOSITION
		A	B	C	D	
1	11.40-11.90	11.806	11.799	11.817	11.794	INSPECT Method
2	12.80-13.21	13.043	13.042	13.072	13.094	TM
3	16.86-16.76	16.821	16.652	16.660	16.662	MIC
4	19.45-19.81	19.952	19.954	19.707	19.799	MIC
5	2.24-3.05 ±0.1 @ A	2.990 2.997	2.93 2.983	2.944 2.949	2.951 2.955	MIC
6	31° ± 2°	29° 29'	29° 35'	29° 57'	29° 34'	TM
7	1.85-2.06	1.927	1.986	1.967	1.978	
8	1.24-1.55	1.365	1.387	1.423	1.400	
9	1.24-1.45	1.369	1.369	1.275	1.308	↓
10	11.60-11.92	11.728	11.741	11.727	11.747	MIC
11	12.43-12.85	13.010	13.769	13.786	13.847	TM
12	0.25-0.75	0.495	0.519	0.535	0.572	
13	2.79-3.10 AX 1	2.900	2.909	2.912	2.908	↓
14	0.05-0.26 AX 2	0.187	0.153	0.184	0.076	MIC
15	9 19.05 MAX.	19.701	19.707	19.571	19.557	TM
16	12.59-13.11	12.829	12.806	12.842	13.014	TND
N/A 17	11.65-12.17	N/A NO TERMINALS				
17	0.62-1.30	1.085	1.105	1.122	1.185	TM
18	2.79-3.41	3.076	3.061	3.152	3.109	
19	7.23-7.75	7.579	7.581	7.514	7.545	
20	6.60-6.81	6.701	6.673	6.715	6.677	
21	29° ± 2° 4X		29° 25'			
22	NO flash between A-	slight	flash on edges			↓ @ 10X

REMARKS AND/OR INSTRUCTIONS:
- Abryl GTX P30 -
Lot 77PSL 3-1 (NEW MATERIAL)

DISPOSITION: TOOL APPROVED FOR PROD.	RESUBMISSION REQ'D
MFG. ENG.:	QRA ENG.:
PURCH. AGENT:	TI-NHTSA 005292

TEXAS INSTRUMENTS

ATTLEBORO, MASSACHUSETTS 01701

PAGE 2 OF 0

SAMPLE REPORT

(77P5L3-1)

REASON FOR REPORT	VENDOR	P.O.	PART NO.	RE
NEW PART			77P5L2-1	6
REPLACEMENT TOOL.	REPORT REQ. BY	DATE	INSPECTED BY	DA
CORRECTED TOOL.	<i>E. Ross</i>	4/02/92		4
REPAIRED TOOL.	THE DIMENSIONS INDICATED BELOW REPRESENT TEXAS INSTRUMENTS' FINDINGS REGARDING ACTUAL VALUES FOR ALL CHARACTERISTICS MEASURED. IN CASES WHERE ACTUAL VALUES DIFFER FROM THE SPECIFIED DIMENSIONS, THE DISPOSITION MUST INDICATE THE REQUIRED ACTION FOR EACH NON-COMFORMANCE IN THE APPROPRIATE COLUMN.			
REVIEW				
OTHER				

		(CIRCLE ALL OUT OF TOLERANCE DIMENSIONS)				DISPOSITION	
		A	B	C	D		
23	LOW ON SURFACE					TM	
23A	1.20-2.21R 2X	1	1.651	1.651	1.651	1.651	
23B		2	1.651	1.772	1.651	1.651	
23 24	2.30-2.72 2X	1	2.535	2.553	2.424	2.572	
		2	2.706	2.677	2.570	2.519	
24 25	2.15-2.42 2X	1	2.213	2.226	2.237	2.271	
25 26	25° ± 2° 2X	1	24° 25'	24° 08'	24° 47'	24° 06'	
		2	24° 18'	24° 18'	24° 06'	24° 43'	
26 27	45° ± 2° 2X	1	44° 25'	42° 47'	44° 47'	45° 01'	
		2	44° 02'	42° 35'	42° 38'	43° 58'	
27 28	(71.5°) 2X	1	72°	71° 01'	71° 20'	72° 01'	
		2	71° 07'	72°	72° 10'	71° 12'	
28 29	1.42-1.63 2X	1	1.532	1.532	1.522	1.603	
		2	1.532	1.613	1.602	1.576	
29 30	0.35-0.66 4X	1	0.527	0.522	0.522	0.522	
		2	0.542	0.521	0.576	0.522	
		3	0.614	0.524	0.576	0.522	
30 31	0.35-0.66 2X	1	0.527	0.522	0.522	0.522	
		2	0.542	0.521	0.576	0.522	
31 32	0.86-1.17 4X	1	1.025	0.992	0.922	1.021	
		2	0.925	0.992	0.922	1.021	
		3	1.025	0.992	0.922	1.021	
		4	0.925	0.992	0.922	0.922	
32 33	Team, handling Brown black ok per Flamingo Band, trying new material						

REMARKS AND/OR INSTRUCTIONS:

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

TI-NHTSA 005293



Product Quality Documentation

CERTIFICATE OF COMPLIANCE

Customer Order Number SAMPLE/SOFTWARE	Customer Part Number	Oil Regulation Number 1281498/1	Material, Grade and Color NATURAL
Lot Number N52311	Cty. Shipped 100	U.M. LB	Shipper Name WISE SERVICE INC.
			Date Shipped 04/06/91
			Shipper's Number 01329145

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

Specification	
Specification Original	77PSL3-1
	- NATURAL -
Specification Comment	Noryl GTX
	830
	BASE MAT.

TEST	REFERENCE	REQUIREMENT	(UNITS)	(METRIC)
LOT DATA:				
HOT TENSILE STRENGTH - 1/4"	ASTM D648	450.0 DEG F MINIMUM	160.0 DEG F	290 DEG C
NOTCHED IZOD IMPACT-1/8"	ASTM D256	1.5 FT-LB/IN MINIMUM	2.0 FT-LB/IN	107.0 J/M
% ELONGATION	ASTM D638	4 % MINIMUM	4 %	
TENSILE YIELD	ASTM D638	20,000 PSI MINIMUM	26,690 PSI	189.9 MPa
FLEXURAL MODULUS	ASTM D790	1,000,000 PSI MINIMUM	1,266,000 PSI	8,716.9 MPa
FLEXURAL STRENGTH YIELD	ASTM D790	28,000 PSI MINIMUM	37,930 PSI	261.0 MPa
SPECIFIC GRAVITY	ASTM D792	1.31-1.35 G/CC		1.33 G/CC
% MOISTURE CONTENT	ASTM FISCHER	0.50 % MAXIMUM	0.09 %	

PRODUCT AUDIT DATA: DATE OF LAST SUBMIT: 06/91
 FLAMMABILITY, .100" THICK FWSS.202 4.00 IN/MIN MAXIMUM SELF-EXTINGUISHING HAZARD BURN RATE

ELIAME
 THESE ARE THE CERTS YOU
 REQUESTED FOR 46515-3

RON BOTELHO
 X 1559

If you have any questions or

GE-100-6
 1-810-475-5800

AGENT JIM KEARNEY

TI-NHTSA 005284

PRESSURE SWITCH DATA

FORM 21605

TEST NO. 226-01-41

DEVICE <u>77A5 4B2</u>	DATE REQUESTED	REQUESTED BY	REQUESTED COMPL. DATE
PERFORMED BY <u>Loris</u>	DATE STARTED <u>4-2-92</u>	DATE COMPLETED <u>4-2-92</u>	APPROVED BY

PROJECT TITLE:

CUSTOMER:

PURPOSE OF TEST: SAMPLES

PROCEDURE:

Act limits 90-160 PSI

	ACT	ACT	DIFF		ACT	ACT	DIFF			
(2)	01	132-128	4	(4)	29	137-127	10			
Loris	02	134-99	35		30	139-125	14			
	03	133-121	12		31	132-128	4			
	04	123-108	15		32	133-122	11			
	05	133-108	25		33	132-113	19			
(1)	06	132-102	30		34	128-111	17			
	07	126-107	19		35	147-138	9			
(6)	08	134-115	19		36	133-118	15			
	09	124-110	14		37	150-130	20	Loris		
Loris	* 10	130-203	17		38	150-132	18	Loris		
	11	127-126	1		39	134-120	14			
	12	127-107	20		40	124-118	6			
(3)	13	134-127	7	(5)	41	134-123	11			
	14	133-110	23							
	15	131-113	18							
	16	127-116	11							
	17	120-102	18							
	18	127-103	24							
	19	130-122	8							
	20	126-111	15							
	21	147-130	17							
	22	123-108	15							
	23	126-129	3							
	24	140-128	12							
	25	122-126	4							
	26	138-127	11							
	27	131-123	8							
	28	134-128	6							

TI-NHTSA 005295

4/2/72

* DATA *

* REMARKS *

P 2

NO.	1	2	3	4	5	6	7	8	9	10	11	12	13
5	Part test readings.												
	Device	ULTEM	Fortron										
	1	.0305	.0375										
	2	.0315	.033										
	3	.0285	.034										
	4	.0315	.0335										
	5	.031	.0335										
	6	.031	.034										
	7	.0295	.0285										
	8	.0275	.0295										
	9	.029	.030										
	10	.028	.031										
	11	.0275	.030										
	12	.0235	.029										
6	Calculate Δ from Part readings to Part.												
		ULTEM	Fortron										
	1	.0005	.0005										
	2	.001	0										
	3	.001	.001										
	4	.001	.0005										
	5	.001	.0005										
	6	.001	.001										
	7	0	-.0005										
	8	.0005	-.001										
	9	0	.0005										
	10	0	0										
	11	0	-.0005										
	12	.0005	-.0005										

TI-NHTSA 005200

PRESSURE SWITCH DATA

Form 21605

TEST NO. 230-15-12

DEVICE 77-87 RS.	DATE REQUESTED 4/15/42	REQUESTED BY Steve O'	REQUESTED COMPL. DATE
PERFORMED BY Alan Kewinton	DATE STARTED 4/15/42	DATE COMPLETED	APPROVED BY
PROJECT TITLE: Noryl Base Analysis			

CUSTOMER: TI-INTERNAL

PURPOSE OF TEST:

- PROCEDURE:
- 1) Take initial base readings
 - 2) Put up bases w/ dummy sensors Record measurements. * No heat *
 - 3) Crimp
 - 4) Measure crimped devices
 - 5) Desolder
 - 6) Reassemble board. * crimp PSI 700^{psi} are 700^{psi} Dial *

Noryl 6

Base #	Unimp. Re-Reading	Unimp. w/ Sensor	Crimped w/ Sensors	Desimp. Readings	Δ BASE	Δ CRIMP
1	.422	.435	.4345	.422	+0.005	-0.005
2	.422	.4305	.43	.422	0	-0.005
3	.422	.4305	.43	.422	0	-0.005
4	.4225	.4305	.43	.422	-0.005	-0.005
5	.4215	.4305	.43	.421	+0.005	-0.005
6	.422	.430	.4305	.422	0	-0.005
7	.422	.4305	.43	.422	0	-0.005
8	.422	.430	.43	.422	0	-0.005
9	.422	.430	.43	.422	+0.005	-0.005
10	.420	.4305	.43	.42	0	-0.005
11	.422	.430	.43	.422	0	-0.005
12	.422	.4305	.43	.422	0	-0.005
					7 .0017	-0.0067
					61 .0007	-0.0067

TI-NHTSA 005287

-MSG #= 23922 FR=SBO1 TO=CMP1 SENT=04/03/92 07:31 AM
R#-186 ST=C DIV=0050 CC=00101 BY=SBO1 AT=04/03/92 07:31 AM
TO: Ted Ballard ETB Paul Kotch PRK1
Tom Burke MFPC Steve Major SMFH
Jeff DiDomenico ELB Dale Sogge FFUN
Charlie Douglas CMP1 Matt Sellers PCME
Norm Frada WHLZ Rusty Struble RCS2
Dick Gariepy MFPC 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

SILENT DEVICE: We have shipped several attempts at quiet switches, which are being evaluated on SHO Taurus at a Ford test facility in Florida. These include:

Ultra-Low-Diff (1.4 psi) truck discs in pass-car sensors
Low-Diff (3.0 psi) car discs with model-shop snubber hexports
(supposedly) Ultra-Low-Diff (~ 5 psi) creep car discs with normal hexport

Warren Pierce, our contact Florida, informs us that all of these devices could be heard. It is unclear to us how loud the first lot was, but the second lot performed fairly well at first then degraded, and the third lot was not very good at all. Many questions come to mind, such as: is the SHO brake system in some way different from the Sable we tested? (performance car versus family car); have they tried a matrix of different switches along with different M/C's and boosters?; what level of noise will ultimately be considered acceptable?; have they tried any frequency or NVH analysis?; will Ford even consider the feasibility of moving the switch away from the M/C on this platform? (if indeed the problems are unique to SHO). Ford has requested 20 devices to ship today for a 2PP build in Atlanta, which we have prepared from the third lot above. Since these devices are not silent, there is no point in shipping them. We need to discuss this with Ford, specifically Tim Andresen and Bruce Maeroff.

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We produced an "SD" for Bruce Maeroff, Supervisor of P/C Brake Eng. This is written primarily for the SHO, but includes significant information pertaining to the ENS3 issue at St Thomas as well. This document explains in general terms the snubber option and the low-energy option, and states that significant development is needed. It also tries to tactfully highlight the fact that our devices meet all Ford written specifications and requirements, hence the problem is not at all the result of errors on the part of TI.

TI-NHTSA 005298

THERMAL SHIFT: We are investigating options for a base material change. The production fixes in place at present appear adequate for devices with normal pin windows, (including upcoming 87PS) but the silent devices will have a reduced window and therefore will require a more stable base. Initial evaluations of Fortron, Noryl, and Ultem have shown all three to be more stable. Fortron is very difficult to crimp without cracking, and Ultem is expensive, leaving Noryl as the primary choice. We are conducting various tests of Noryl with 4300 as a control, including thermal dimensional evaluation and thermal shift characterization using devices at a range of offsets. We plan to have the CCPS cyclar available for this testing as soon as the Thermal Cycle validation test is complete, approx. next Wednesday. To help understand the causes, we also plan to investigate dimensional shifts related to final crimp, and thermal effects on the hatchet curve.

VALIDATION: A sustained high level of effort is being expended to remain on schedule. We are still on track to complete the two highest priority ("group I") ISR's by 920415, and we have not experienced any unexpected difficulties to date. Batteries of characterizations are required, including the final char's of group I, and completion of initial char's of groups II and III, and later the final char's of these groups. Dick Gariepy was approached to obtain an individual to help us with this effort, and I will be co-ordinating with him today.

FIRST CYCLE SYNDROME: I spoke earlier this week with Bruce Pease regarding the first cycle syndrome testing we developed on 920320. He had a couple of minor comments regarding the types of measurements he'd like to see Dana-Weatherhead performing. I have begun to rough out a test plan, and will complete this and co-ordinate with Jim Watt who has been handling the customer interface at Dana.

-MSG W#- 23922 FR=SBO1 TO=PCQA SENT=04/03/92 07:31 AM
R#-612 ST=C DIV=0050 CC=00101 BY=SBO1 AT=04/03/92 07:31 AM
TO: Ted Ballard ETB Paul Kotch PRK1
Tom Burke MFPC Steve Major SMFH
Jeff DiDomenico ELB Dale Sogge FFUN
Charlie Douglas CMP1 Matt Sellers PCME
Norm Freda WHLE Rusty Struble RCS2
Dick Gariepy MFPC 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

SILENT DEVICE: We have shipped several attempts at quiet switches, which are being evaluated on SHO Taurus at a Ford test facility in Florida. These include:

Ultra-Low-Diff (1.4 psi) truck discs in pass-car sensors
Low-Diff (3.0 psi) car discs with model-shop snubber hexports
(supposedly) Ultra-Low-Diff (~ 5 psi) creep car discs with normal hexport

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We produced an "8D" for Bruce Maeroff, Supervisor of P/C Brake Eng. This is written primarily for the SHO, but includes significant information pertaining to the EN53 issue at St Thomas as well. This document explains in general terms the snubber option and the low-energy option, and states that significant development is needed. It also tries to tactfully highlight the fact that our devices meet all Ford written specifications and requirements, hence the problem is not at all the result of errors on the part of TI.

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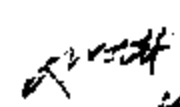
TI-NHTSA 005300

*CC = Elaine R.
FYI [initials]*

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*Will leave coordination up to
my direct officer - 
4/2/92*

HIGHLIGHTS
Stephen B. Offler
Week Ending 92-04-03

Handwritten initials and date:
9/2/92



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TI-NHTSA 005302

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22-50WT*

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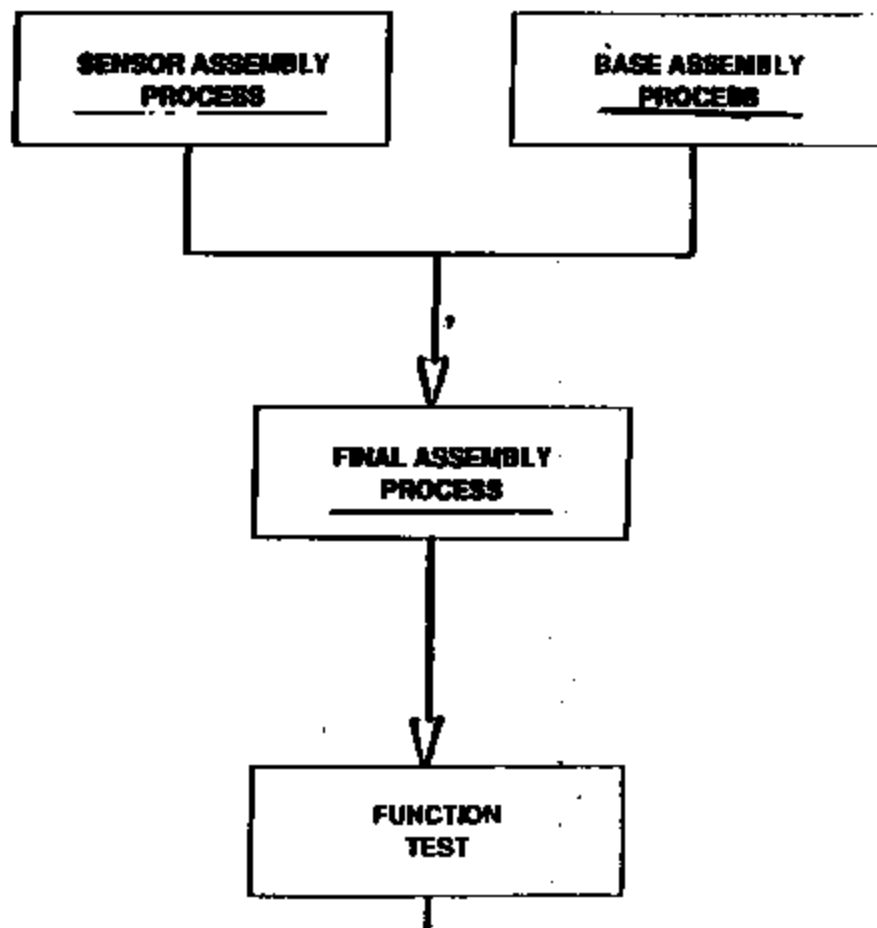
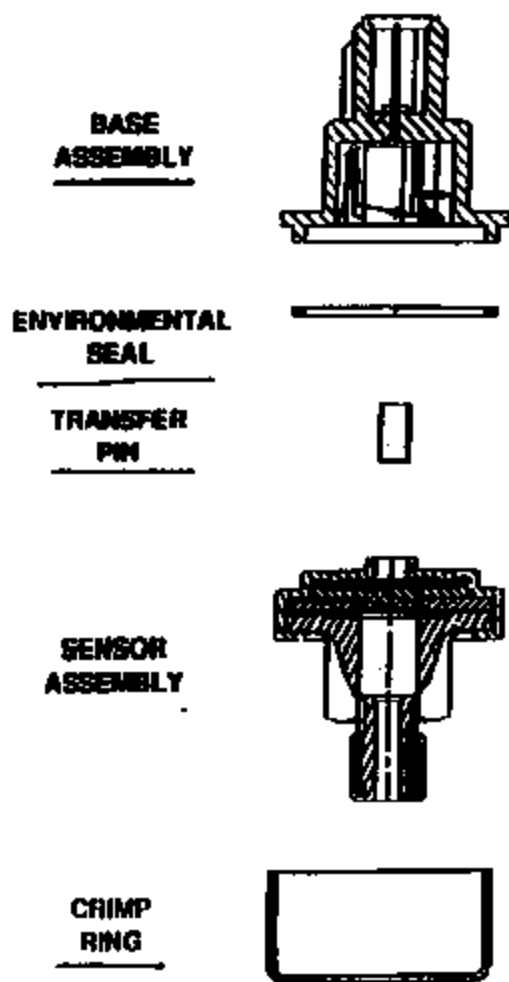
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101 224 11 11 90245

SIN. = 777

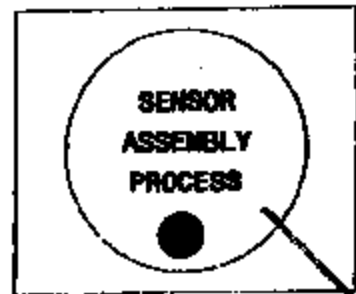
TEXAS INSTRUMENTS, INCORPORATED CRUISE CONTROL PRESSURE SWITCH

77PS SUB-ASSEMBLY DETAIL

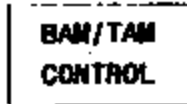
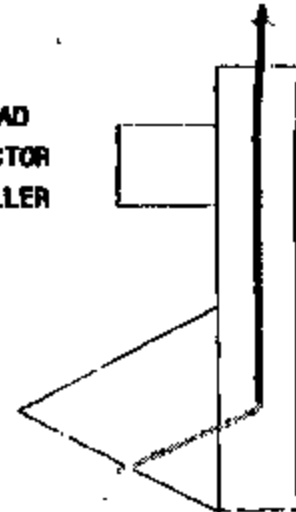
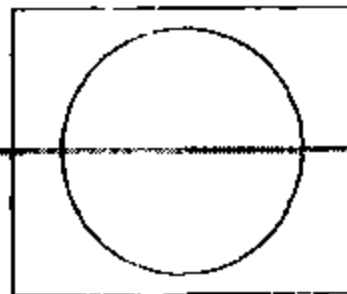
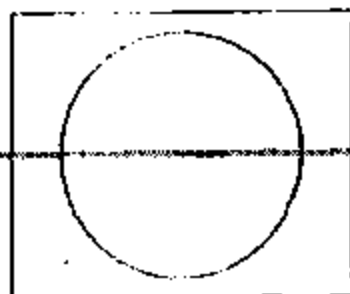
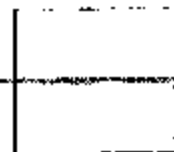


TI-NHTSA 005304

77PS LINE FLOW OVERVIEW

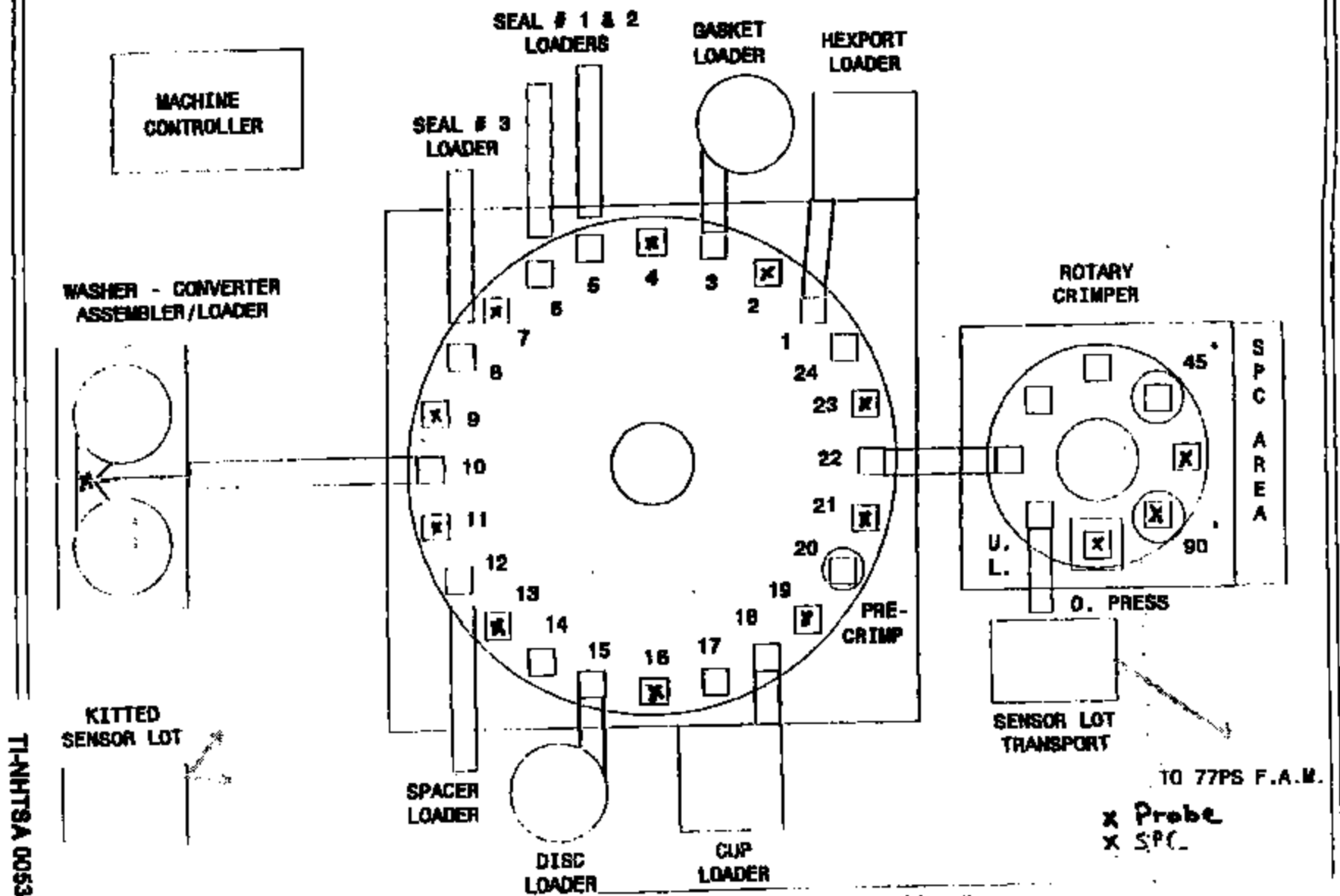


JIT WAREHOUSE



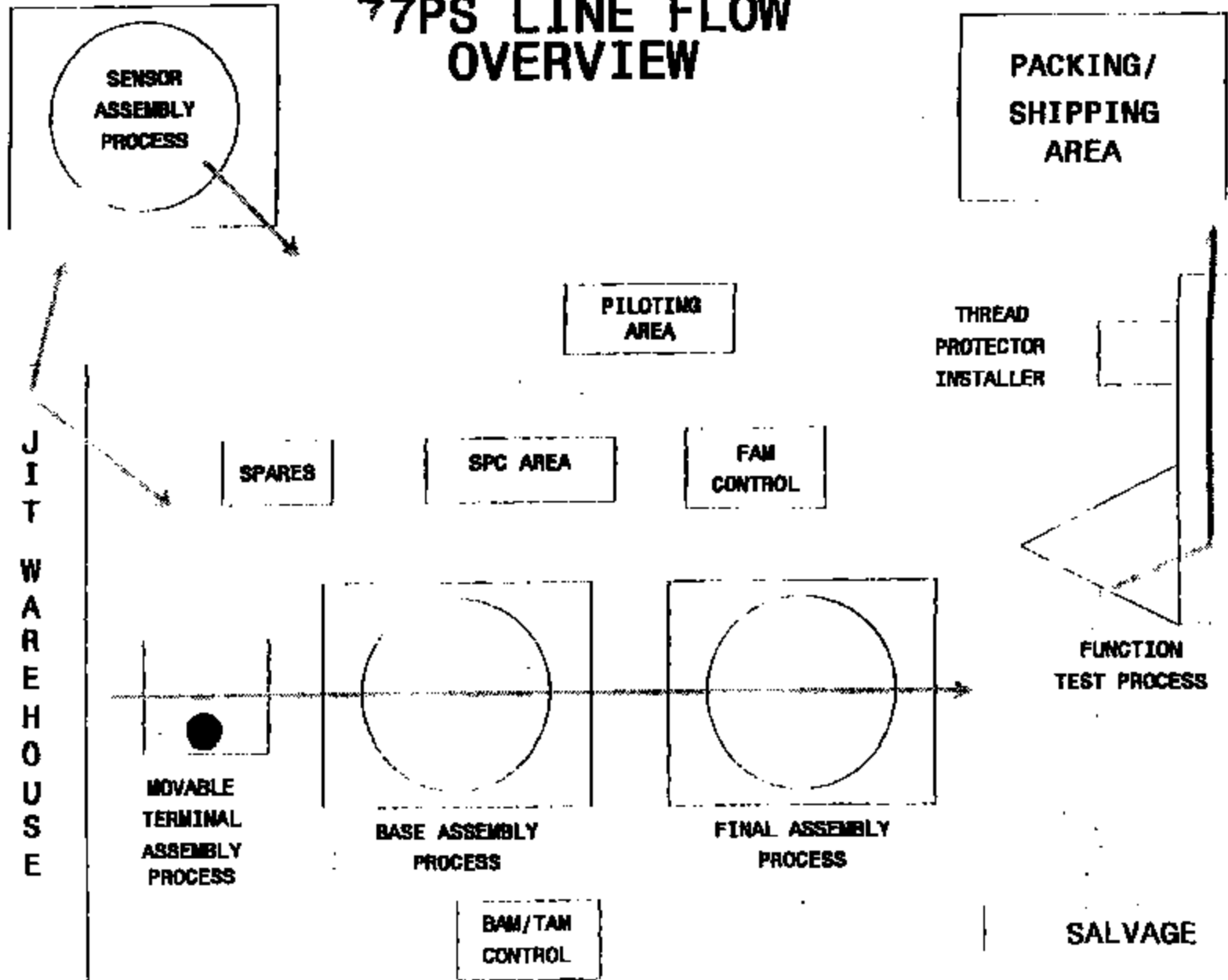
TJ-NHTSA 005305

77PS SENSOR ASSEMBLY PROCESS



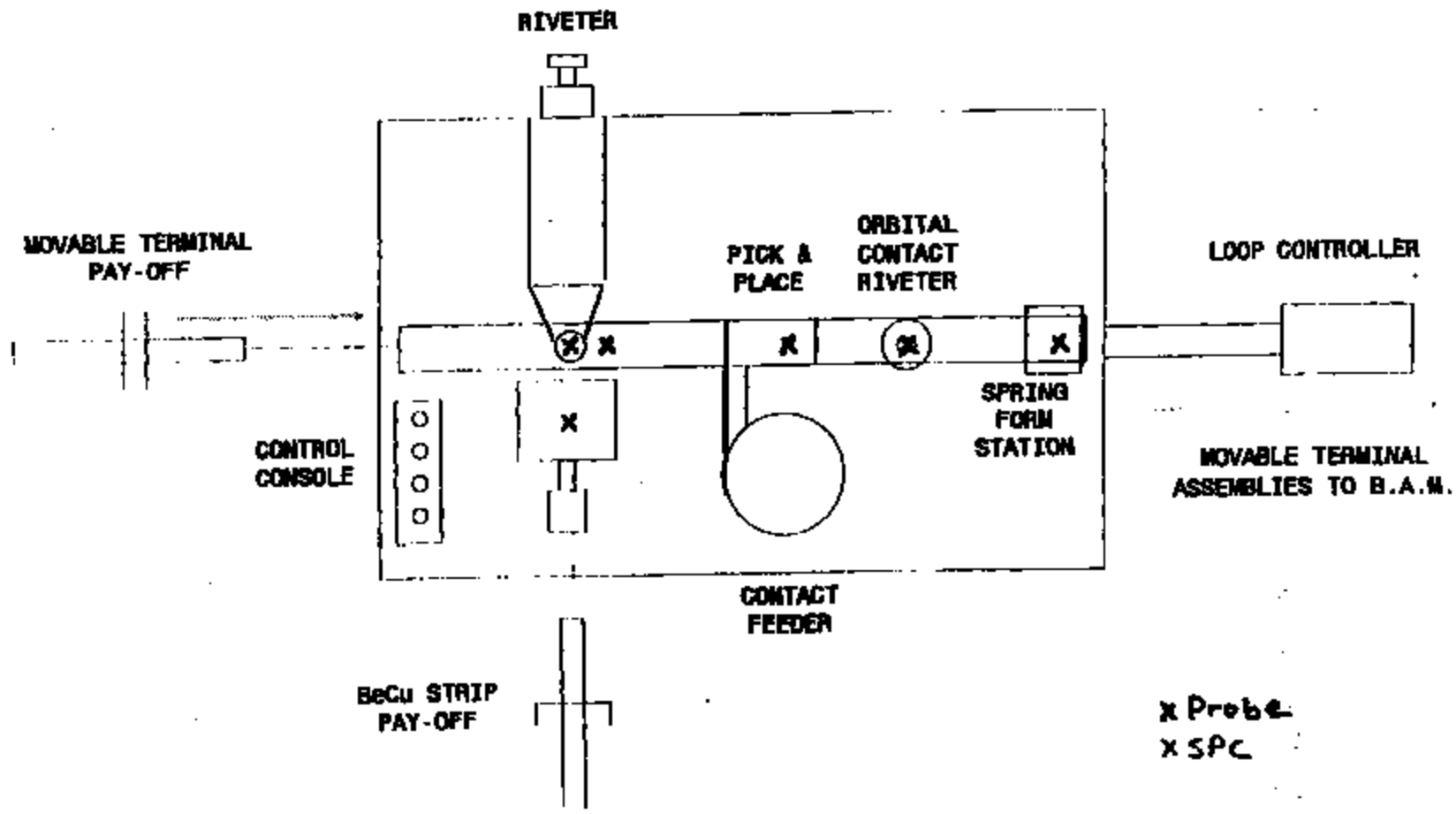
TI-NHTSA 005306

77PS LINE FLOW OVERVIEW



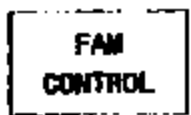
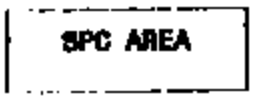
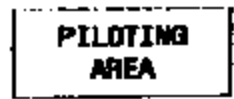
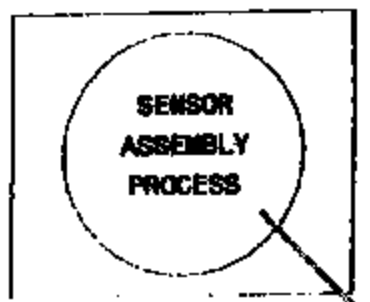
TI-NHTSA 005307

77PS TERMINAL ASSEMBLY PROCESS

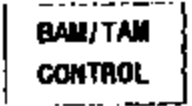
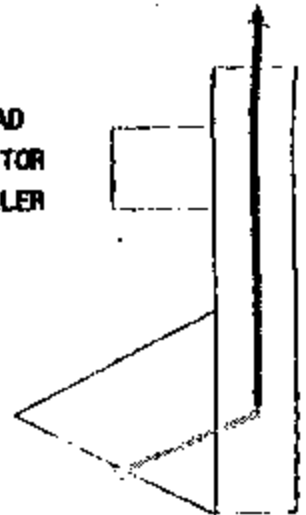
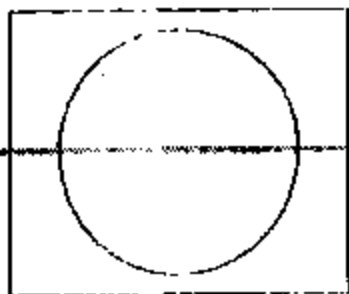
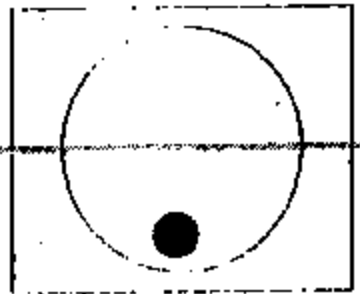
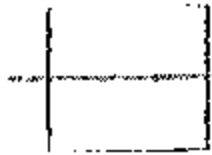


TI-NHTSA 005308

77PS LINE FLOW OVERVIEW

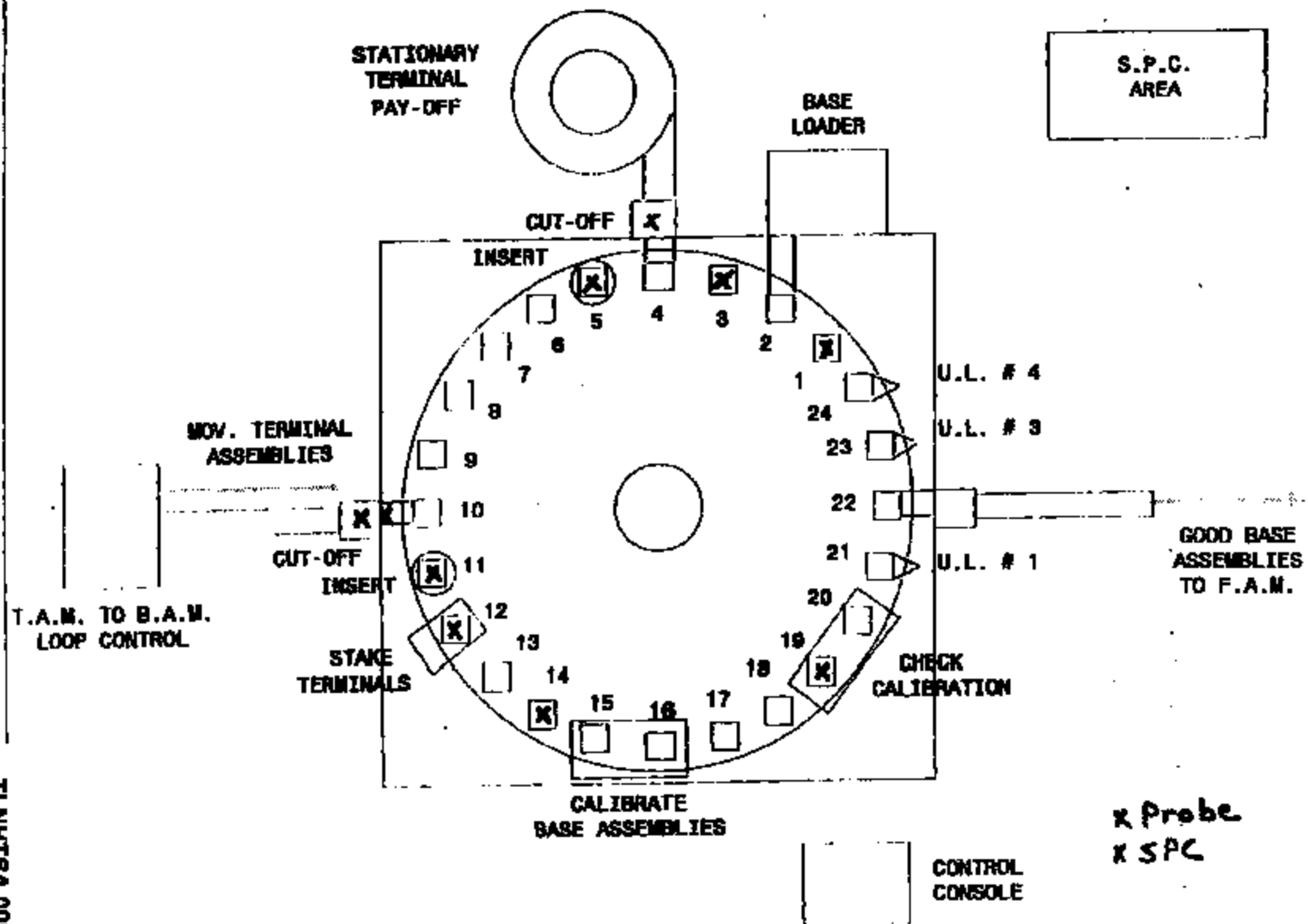


JIT WAREHOUSE



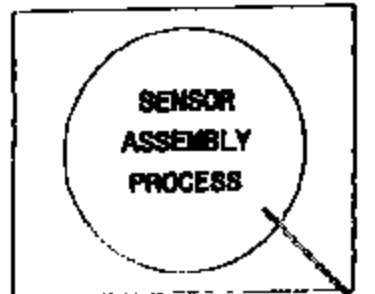
71-NHTBA 095309

77PS BASE ASSEMBLY PROCESS

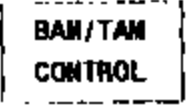
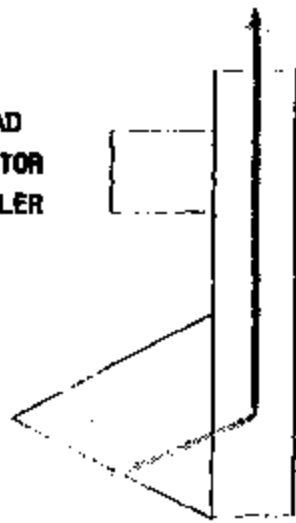
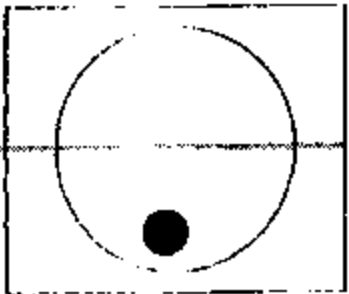
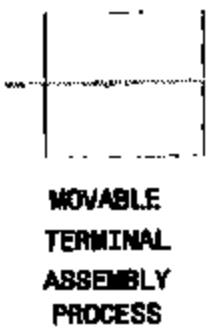
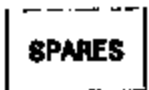


TI-NHTSA 005310

77PS LINE FLOW OVERVIEW

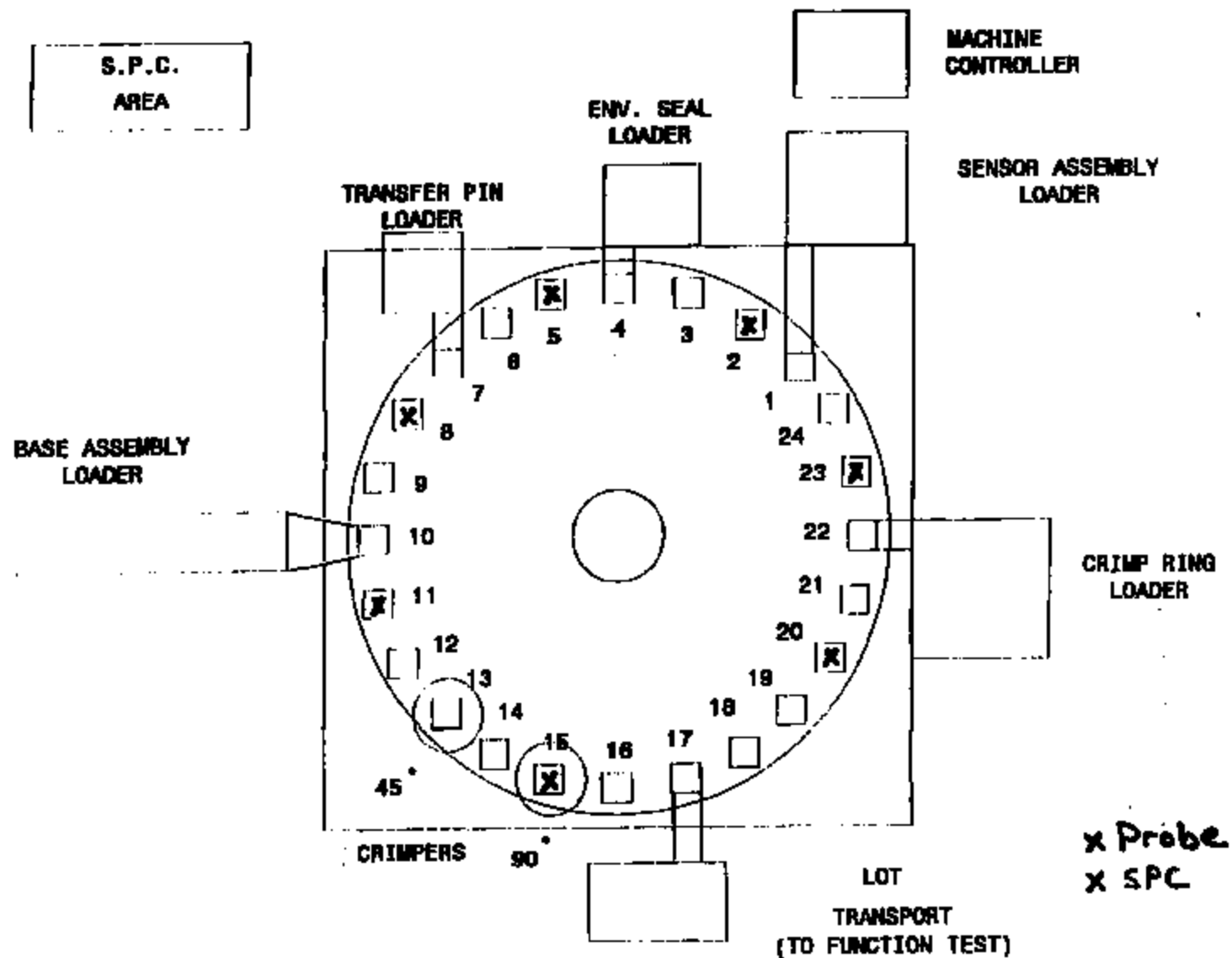


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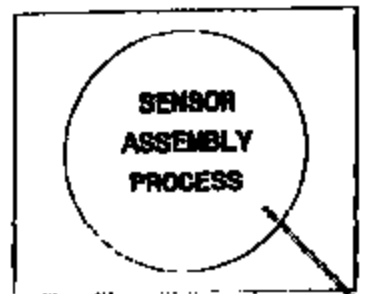
TI-NHTSA 005311

77PS FINAL ASSEMBLY PROCESS



TI-NHTBA 005312

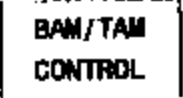
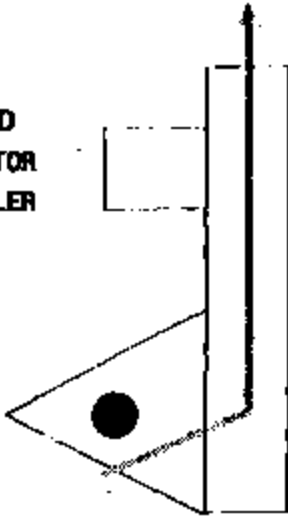
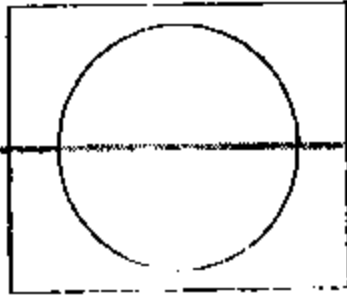
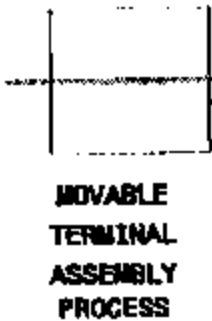
77PS LINE FLOW OVERVIEW



THREAD
PROTECTOR
INSTALLER

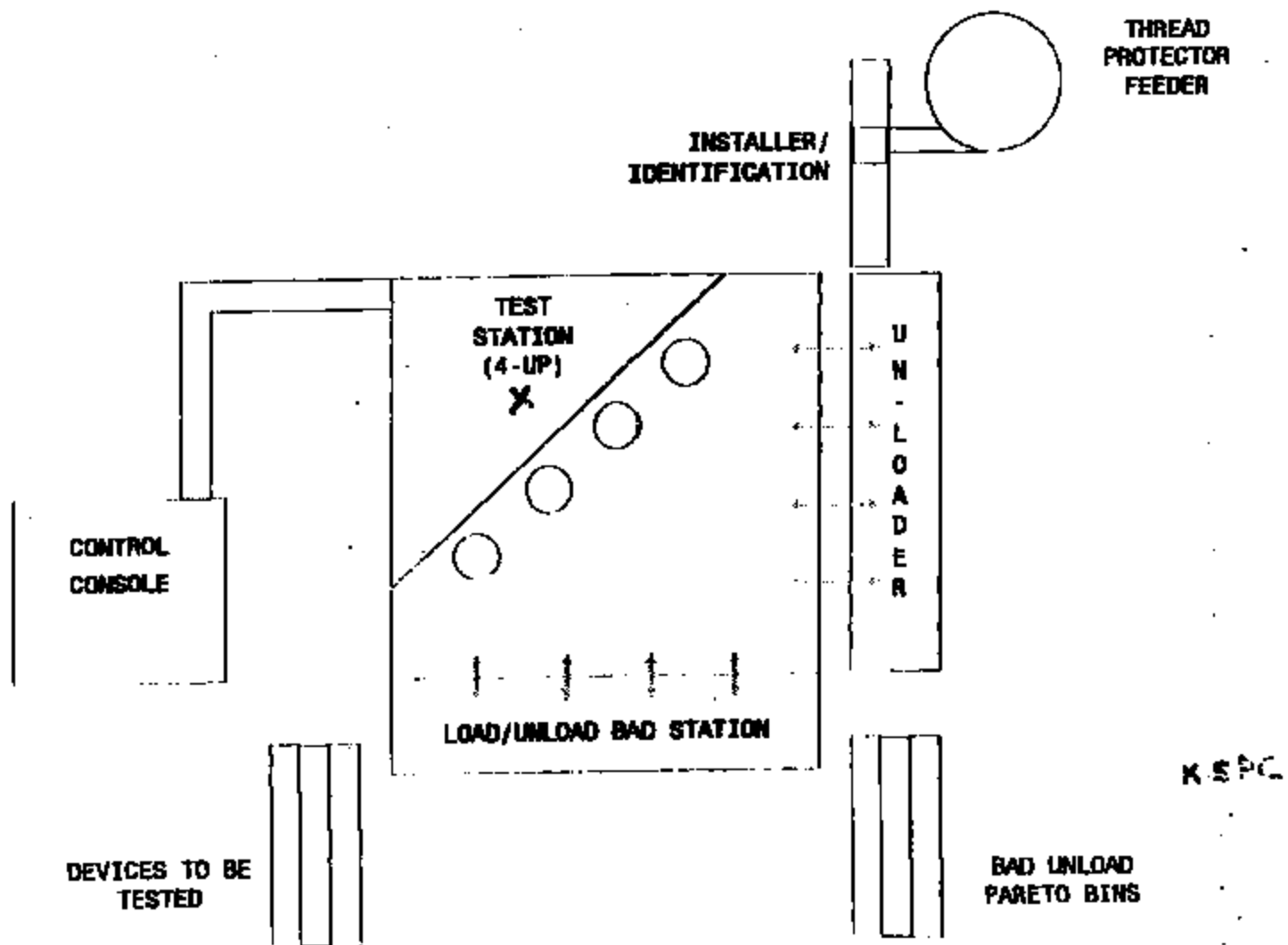


JIT
WAREHOUSE



SALVAGE

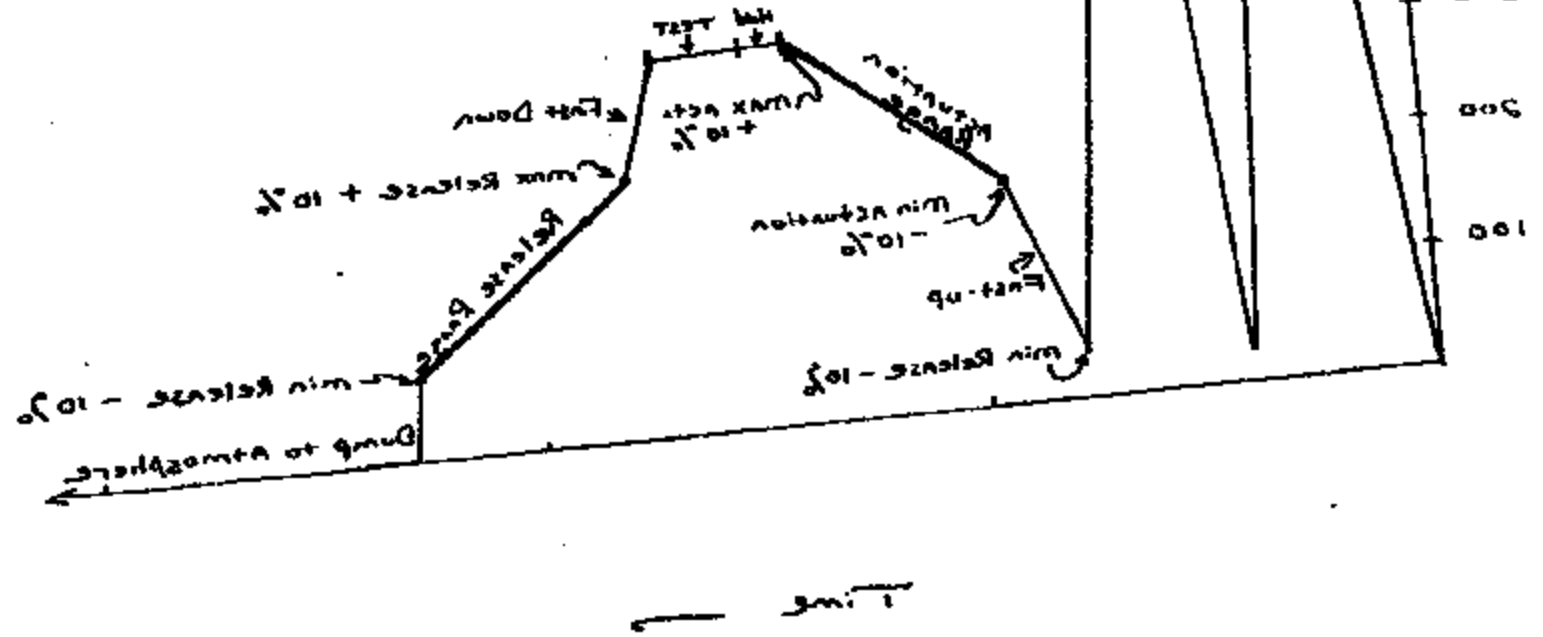
77PS FUNCTION TESTER



TI-NHT9A 005314

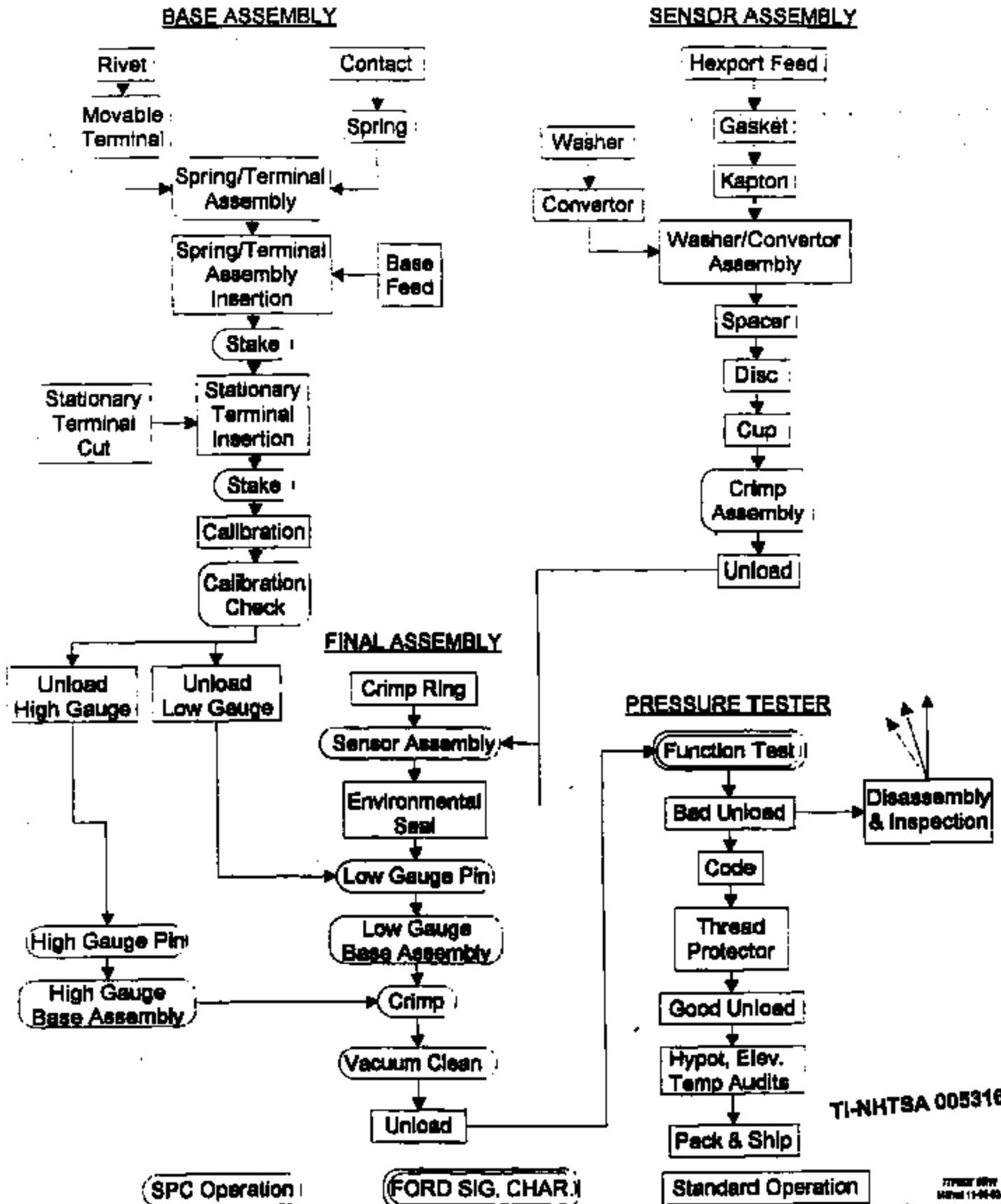
WASTE } CALIBRATION
 WASTE } WASTE
 WASTE } RAMP RATE
 WASTE } WASTE

Initial mixing ending - 5 must be test run 100%
 → 5 second leak decay analysis
 → 1 second hold @ max act + 10% to analyze
 Leak test duration (3 seconds)



TI-NHT

FORD NEXT GENERATION SPEED CONTROL (77PS) QUICK SWITCH PROCESS FLOW CHART

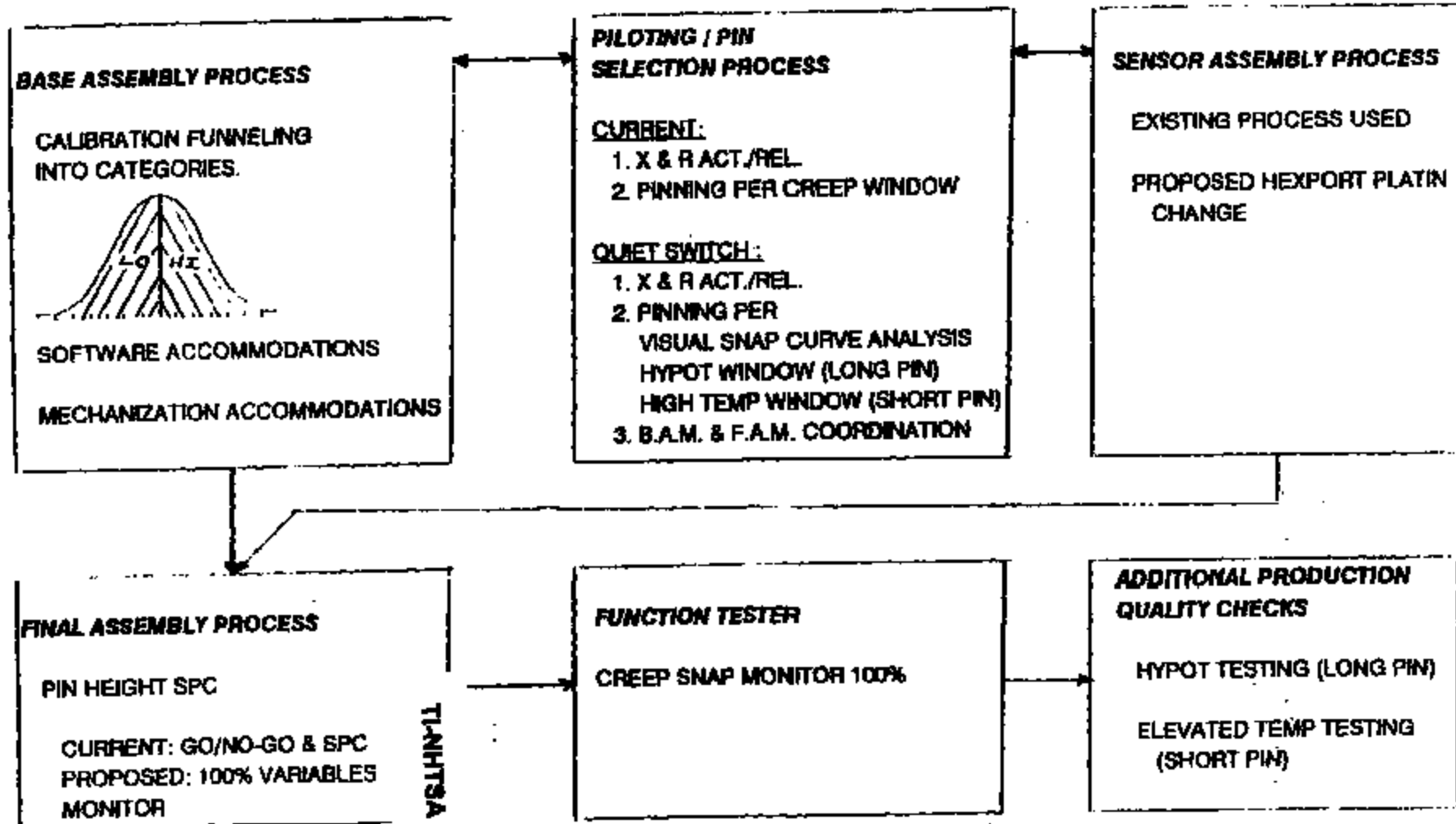


TI-NHTSA 005316

3-Apr-92

QUIET SWITCH PROCESS FLOW MODIFICATIONS IMPLEMENTED

QUIETFLO.XLS



TI-NHT9A 006317

003 RR# 00062290 FR=JW02 TO=3BD1 SENT=04/02/92 09:57 AM
#1=13# CTR# DIV=0050 CD=00101 BY=JW02 AT=04/02/92 09:57 AM

Message: 00062290
Date: 04/02/1992

TO: James Forcians JFF
CC: Ed Smith PCQA Elaine Rose GARY
Steve Offiler SSO1 Matt Sellers PCME
Bill Sweet PCME Norm Roy WLDG
Dave Szarn ZARN Andy McGuirk PCQA
Charlie Douglas CMP1

FR: Jim Watt JW02

Subj: 46412 Base Mold Dimensional Discrepancies

1. A dimensional discrepancy on the 46412 base mold shows the .461 " to .465 " width dimension measurement exceeding the maximum tolerance with measurements up to .4678 "

2. Also, the .501 " to .543 " width dimension measurement is below the minimum tolerance with measurements down to .3257 ".

These measurements were encountered on an IBIR report for our customer Ford.

Please review/perform an FAI on these dimensions with all 4 cavities and submit the results to myself, ext 1719 or Elaine Rose, ext 1907.

We will need this data rather quickly as a customer response is pending.

Regards,

Jim ext. 1719 msg: JW02

TI-NHTSA 005318

MSG MSG# 000496492 FR=SS01 TC=SS01 SENT#04/03/92 01:30 PM
 S#0064 ST#0 DT#0050 CD#00100 BT#SS0 AT#04/03/92 01:30 PM

14 Tom Holland STB Jim Gariepy NTRC
 Dave Grant ZARN Matt Salena PCHE
 Jeff DiDomenico ELB Dale Jodge PFCN
 Charlie Douglas CNPL Bill Sweet PCME
 Ross Frieda WHLC Jim Watt PCCR

204 Tom Charboneau TC Gary Snyder CFFC

204 Steve Giffler SS01

33: COPS QUIET SWITCH

I called Warren Fierce this morning and asked him to Fax me a summary of the performance of our switches to-date. This information follows. Dates are in parentheses, and the digits are a subjective rating of the switch noise, with 10 being silent and 1 being most noisy. The two digits separated by a slash indicate actuation noise and release noise.

Vehicle	Init.	AB1 (disc lot F)	AB2 (disc lot F)	AB3 (disc lot F snub)
Atlanta ZPP	5/5	(4/1) 9/9	(4/2) 5/5	8-9
A4-303 94 Eng. Prototype	N/A	(4/1) 7/8 (4/2) 8/8	(4/2) 5/5 +10min 4/4 (4/3) 4/4	8-9
A4-353 93 Verif Prototype	N/A	(4/1) 9/7 (4/3) 8-9/7	N/A	N/A

At this point, we are NOT shipping the twenty ZPP devices as planned, because the ones we've prepared are the AB2's above which are obviously unacceptable. We are putting together two AB3's and two AB4's to be delivered to Warren tomorrow (Sat.). These will probably be the last shot we have before the evaluation in Florida is finished up. The AB3's will use the lowest-diff discs we've got (truck calibration), and the AB4's will use the lot F discs. Both will use snubbers, and will be pre-filled with brake fluid.

Regards,
 Steve G.

THEY LIKE THESE

THESE DID NOT GO OUT

TI-NHTSA 005319



WE ARE TRANSMITTING A TOTAL OF : TWO PAGES INCLUDING THIS COVER SHEET

PLEASE DELIVER THESE PAGES TO: STEVE OFFICER

ATTENTION:

CL: B. MERRITT }
 T. ANDERSON } FOMOLO
 J. O'CONNOR } BEAKS DEP
 } RM 3001
 } BLDG 5

COMPANY: TEXAS INST.

FAX NUMBER: 508-699-3153

THIS FACSIMILE WAS SENT BY:

SENDER: WARREN B PIERCE

COMMENTS: ANY ?'s, CALL ME.

→ WARREN PIERCE
 5000 34TH AVE S.E.
 NAPLES FL 33964
 FORD MOTOR CO.

TI-NHTSA 005320

Standard Report
 Form 872
 Form 872-1
 Form 872-2
 Form 872-3
 Form 872-4
 Form 872-5
 Form 872-6
 Form 872-7
 Form 872-8
 Form 872-9
 Form 872-10

DATE: APRIL 1984
 CASE NO: 872
 TITLE: NOISE RECORDS OF SERVICE
 FILE NO: 4103

NOISE EVALUATIONS ON CRUISE SWITCH
 THREE CARS USED FOR EVALUATIONS
 ATLANTA IPP LEAD CAR
 D-203 BIRMINGHAM TEST '84
 D-203 VERIFICATION TEST '83
 B-7 CHANGING THE SWITCHES ATLANTA CAR
 WAS RATED A'S BY WILSON. (THIS WAS ONLY
 PRE-CHANGE EVALUATION)
 41
 2 INSTALLED A-1 LEVEL SWITCH INTO ALL THREE
 ATLANTA IPP '9 April '9 Release
 D-203 '9 " '9 "
 D-203 '9 " '9 "
 42
 D-203 NOW RATED A'S ALL THREE W/ A-1
 2 INSTALLED A-2 SWITCHES SUPPLIED BY T.I.
 INTO ATLANTA IPP + D-203
 SWITCHES WERE DELIVERED TO ELIMINATE AS MUCH
 AS FROM INSIDE THE SWITCH AS POSSIBLE
 - ATLANTA IPP - '9 RATING CONTROL W/ SOME
 NOISE PROBABLY ATTRIBUTED TO STOP & STARTS
 + DRIVE FROM TYPICALLY SLOWING DOWN
 - D-203 INITIALLY A'S RATING W/ A-1 INSTALLATION
 AFTER REWIND CAR OFFICE THE MILE + 10 MIN
 RATING DROPPED TO A 4 LEVEL.
 43 EVALUATIONS TODAY
 D-203 STILL 7th RANGE B-9 on APRIL
 D-203 4-WAY CHANGE + REWINDING
 ATLANTA IPP UNAVAILABLE

1K 8am 4/14/92 Tuesday.

~~STRIKE~~
Circumvent only
Grandma
105K/14000
JIK-12A

Hrua Macroff → CONF CALL

SOP

AB3.... plus proposed AB2 for ENS3
AB3 for SHD

* Data 20K sort out still (ON STRIKE)
* Prod cap. by 13th APRIL @ TI

Surf → prep value for AB5

Data → T-fitting junction block NON-ABS 85% of vol.

Hi activation issue resolution - Ellen cont → 200ps. covers us
Bruce resolving → Data waits in waiting from FORD
→ issuing alert temporary alert

Tie Data in to running changes, new Mtd etc. As soon as in
system, chg P/W

Access-the-board? AFord get into it later COST ISSUE
ABS ENS3 15%
PN36 100%

Purchasing → Judy talking to buyer;

Build - St Thomas or @ Data

What lots not complete? As Impulse only for next Mon.
WRITE THIS & FAX TO BRUCE env. test date on Nov/1
samples?

On-track for 4/13 provide sw's from prod. pilots

→ 20 PC SHIP OUT TODAY FOR AB2 ENS3.

Parts into St Thomas by Tue A.M. must reach customer
B-S on Mon 4/13

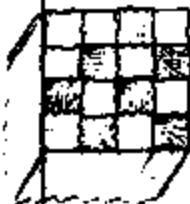
OPTION: Send 1,000 for 1st day direct to St Thom

AB3 prog on making part w/ orifice? Washer surface
20K per year more AB2 w/ pressed-in orifice
cost is a major issue Bruce talk to buyer
MUST LAUNCH VEHICLE → TIMING? ... 50 PC BY PROD
MON 4/13 @ 2 PP JOB 2 w/ AG SAME = 45-90 BY CHG

HIT BEFORE THIS RT

TI-NHTSA.005322

22-141 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS



* ZPP is MILESTONE NOT SALABLE, NO 151R TEST & FINAL EVAL (CALABRO) IN WAY

BUILD 6 CARS ; 20 MINIMUM ; 50 PL DESIRED

TI HAVE SOMEONE PRESENT; MANDATORY WE PARTICIPATE

→ WILL BE 6 CARS; WILLING TO STAY PAST 9:00PM THEN WE CAN TRY OTHER DESIGNS

* PLAN IN ABS THRU J1 + 90 DAYS 1BR ORCLE

CONSOLIDATE ABS2 + ABS3 151R TESTS

→ I'M GOING TO ATLANTA FOR MONDAY MORNING PLANS HAND-CARRY 20PL @ PLANT @ 6:30

WARRON'S EVAL ABS3'S 8-9 NOT YET

~~MORE ABS'S THIS WOULD ... TO ATLANTA THIS WEEK~~

INCREASED SAMPLE SIZE ON DV 30K TEST ON 6 ; THEY WANT LOTS MORE THAN 6

I NEEDED TO BE WELL BRIEFED ON INCIDENT PLAN

ZPP WITHOUT WEISULL INFO FAILURE INFO

→ 4P → THEY WANT IT → NEED ACTUAL DAY EARLY JUNE 6 OLD & 6 NEW

APPROACH SPEED CONTROL (NORM CALLING) RE: CONTACT ACC'ING

CO-ORD WITH ; * 313-323-2167 MIKE SPEARS CARLINE ENG NOT WARR FOR TAURUS CHASSIS

→ 10 PL ABS w/ SNUR TO NORM SHIP OUT TUES

COST/TRAINING/TIMING ON SHD WEDNESDAY CHARLIE GANTTS WED.

DWG'S IN MYLAR

ABS P/N FROM FORD 419 THU, ABS ALERT NEEDS RTING OF TESTING ALLOW PARTIAL 151R "HAVE COMPLETED IMPULSE TEST" NEED MORE DETAIL ALERT OUT BY THU. 419 DETAIL IN SIMILARITY CLAIMS

22-141
22-142
22-143
22-144



F2AC-9824-AA

MATERIAL ANALYSIS

PARTS LIST

	PART NAME	PART #	CERTIFIED
1	BASE	46515-3	YES
2	STA. TERM.	36889-1	YES
3	MOVE. CONTACT	74408-1	YES
4	RIVET	74171-1	YES
5	MOVE. TERM.	36887-1	YES
6	SPRING ARM	36889-1	YES
7	JS12 HEXPORT	36900-1	YES
8	GASKET	74353-1	YES
9	CLIP	27713-1	YES
10	SEAL	74176-1	YES
11	KAPTON STRIP	27225-1	YES
12	WASHER	27639-1	YES
13	CONVERTER	27406-1	YES
14	KAPTON TAPE	74224-1	YES
15	SPACER	73958-27-3	YES
16	CRIMP RING	74797-1	YES
17	TRANSFER PIN	74078-SEL	YES
18	ENVIO. SEAL	74247-4	YES

TI-NHTSA 005324



Product Quality Documentation

CERTIFICATE OF COMPLIANCE

Customer Order Number HELE/STN FILVE	Customer Part Number	GE Reference Number 1281438/1	Material Grade and Class H201
Lot Number NS3011	Qty. Shipped 100	U.M. LB	Shipped From NYSE SERVICE INC
			Date Shipped 04/25/77
			Shipped Number 01323195

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

Specification _____
 Specification Designer _____
 Specification Comments _____

TEST	REFERENCE	MEASUREMENT	(UNITS)	(REMARKS)
LOT DATA:				
HOT TENSILE YIELD - 1/8"	ASTM D248	450.0 CBS F MINIMUM	450.0 CBS F	230 CBS C
NOTCHED IZOD IMPACT-1/8"	ASTM D256	1.5 FT-LB/IN MINIMUM	2.0 FT-LB/IN	107.0 J/IN
% ELONGATION	ASTM D256	4 % MINIMUM	8 %	
TENSILE YIELD	ASTM D256	25,000 PSI MINIMUM	25,000 PSI	189.9 MPa
FLEXURAL MODULUS	ASTM D790	1,000,000 PSI MINIMUM	1,205,000 PSI	8,715.9 MPa
FLEXURAL STR @ YIELD	ASTM D790	28,000 PSI MINIMUM	37,800 PSI	261.8 MPa
SPECIFIC GRAVITY	ASTM D792	1.31-1.35 G/CC		1.33 G/CC
MOISTURE CONTENT	ANAL. FISCHER	0.50 % MAXIMUM	0.08 %	

PRODUCT AUDIT DATA:
 FLAMMABILITY, .100" THICK FHWSS.302 4.00 DAVIN MAXIMUM

DATE OF LAST AUDIT: 05/71
 TYP-EXTENDING SHEET N-70 BURN DATE

ROBERT O. MATINCH
 Quality Manager

THOMAS KEERS
 Manufacturing Manager

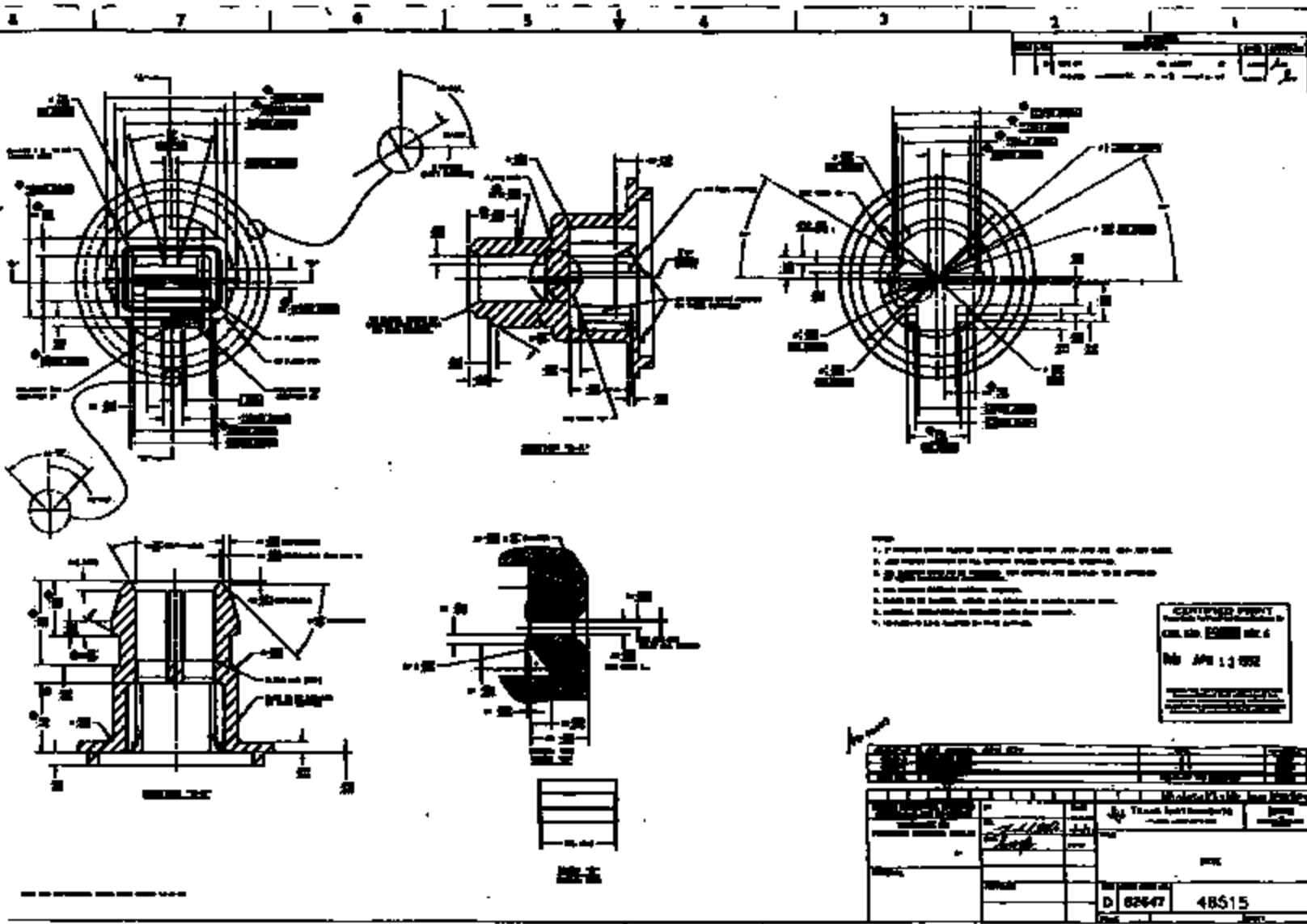
If you have any questions concerning this please contact:

ODAN SHEPHERD
 1-516-475-5600

TEXAS INSTRUMENTS INC.
 ACCOUNTS PAYABLE DEPT
 PO BOX 688
 ATLEBORO, MA 02743-0688
 ATTEN: JIM KEAM

TI-NHTSA 005325

TI-NHTSA 005326





Product Quality Documentation CERTIFICATE OF COMPLIANCE

Order Number 95E/SOLETITE	Customer Part Number	GE Requisition Number 1291438/1	Material, Grade and Color NMS1	GT1830 111
Lot Number NS2311	Qty Shipped 100	U.M. LR	Shipped From HOUSE SERVICE, INC.	Date Shipped 04/05/92
			Shaper's Number 01325195	

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

Specification

Specification Originator

Specification Comments

TEST	REFERENCE	REQUIREMENT	(ENGLISH)	(METRIC)
LOT DATA:				
HOT 8254 PSI - 1/4"	ASTM D648	450.0 DEG F MINIMUM	460.0 DEG F	230 DEG C
NOTCHED IZOD IMPACT-1/8"	ASTM D256	1.5 FT-LB/IN MINIMUM	2.0 FT-LB/IN	107.0 J/M
% ELONGATION	ASTM D638	4 % MINIMUM	8 %	
TENSILE YIELD	ASTM D638	20,000 PSI MINIMUM	26,680 PSI	185.9 MPa
FLEXURAL MODULUS	ASTM D790	1,000,000 PSI MINIMUM	1,265,000 PSI	8,715.9 MPa
TENSILE STR B YIELD	ASTM D790	28,000 PSI MINIMUM	37,990 PSI	261.6 MPa
SPECIFIC GRAVITY	ASTM D792	1.31-1.36 G/CC		1.30 G/CC
MOISTURE CONTENT	KM% FISHER	0.50 % MAXIMUM	0.09 %	

PRODUCT AUDIT DATA:
 FLAME RD. I.T.Y., .100" THICK FM59,302 4.00 IN/IN MAXIMUM

DATE OF LAST AUDIT: 05/91

FLP-EXTINGUISHING W/NO BURN RATE

ROBERT D. MATTHEWS
Quality Manager

THOMAS HELPS
Manufacturing Manager

If you have any questions concerning this, please contact:

EDMY GIBBONS

1-810-475-5003

TEXAS INSTRUMENTS INC.
ACCOUNTS PAYABLE DEPT
PO BOX 688
ATLASCENE, TX 02719-0888
ATTN: JIM KRAM

TI-NHTSA 005327

**DRAWINGS AVAILABLE UPON
REQUEST**

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

ENVELOPE DIMENSIONS TO BASE ONLY

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
1	11.40 - 11.90	11.806	11.817	11.817	11.794
2	13.00 - 13.21	13.043	13.043	13.072	13.094
2	16.50 - 16.76	16.638	16.652	16.671	16.673
		16.661		16.680	16.668
3	19.45 - 19.81	19.752	19.754	19.787	19.799
4	2.84 - 3.05	2.930	2.93	2.944	2.951
	⊙ 0.1 ⊙ A	1.897 0.003	1.923 0.023	1.945 0.045	1.985 0.015
5	SIDE VIEW - 2DEG	29DEG 29MIN	29DEG 36MIN	29DEG 58MIN	29DEG 34MIN
5	1.85 - 2.06	1.927	1.966	1.969	1.978
6	1.25 - 1.55	1.365	1.387	1.423	1.400
7	1.21 - 1.45	1.269	1.268	1.275	1.308
8	11.50 - 11.92	11.768	11.768	11.753	11.777
		11.729	11.740	11.789	11.747
11	13.45 - 13.85	13.010	13.769	13.786	13.647
9	0.65 - 0.75	0.490 0.475	0.519 0.529	0.573 0.635	0.618 0.593
10	2.77 - 3.10	2.900	2.909	2.912	2.908
	2.90	2.903	2.913	2.913	2.911

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
<i>✓</i>	0.05 - 0.26	0.151	0.153	0.124	0.076
	2 PL	0.113	0.142	0.163	0.147
<i>✓</i>	19.05 MAX	18.667	18.709	18.671	18.704
		18.701	18.748	18.565	18.757
<i>18</i>	12.59 - 13.11	12.800	12.829	12.802	12.819
		12.829	12.800	12.842	12.824
<i>13</i>	0.98 - 1.30	1.085	1.105	1.122	1.175
<i>14</i>	2.79 - 3.41	3.076	3.0612	3.152	3.109
<i>19</i>	7.13 - 7.75	7.579	7.501	7.514	7.545
<i>75</i>	6.60 - 6.81	6.701	6.673	6.713	6.677
<i>21</i>	29DEG - 2DEG	MEASURED	29DEG 24MIN	ON CROSS	SECTIONED
		PART	30DEG 06MIN	----	----
		----	29DEG 55MIN	----	----
		----	29DEG 47MIN	----	----
<i>16</i>	NO FLASH/BURRS	SLIGHT	FLASH ON	EDGES	@ 10X

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

DRAWING SPEC	CAVITY # A		CAVITY # B		CAVITY # C		CAVITY # D	
	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL
19 8.50-8.72 2X	8.535	8.553	8.485	8.578				
	8.726	8.512	8.578	8.519				
20 2.15-2.42 2X	2.162	2.171	2.282	2.271				
	2.212	2.236	2.237					
18 25DEG 25MIN	24DEG 25MIN	24DEG 56MIN	24DEG 47MIN	24DEG 06MIN				
	24DEG 10MIN	24DEG 14MIN	24DEG 06MIN	24DEG 40MIN				
21 45DEG 40MIN	46DEG 10MIN	42DEG 44MIN	43DEG 44MIN	45DEG 03MIN				
	44DEG 35MIN	43DEG 47MIN	44DEG 47MIN	45DEG 01MIN				
	45DEG 22MIN	44DEG 47MIN	45DEG 49MIN	46DEG 11MIN				
	44DEG 08MIN	45DEG 37MIN	46DEG 38MIN	43DEG 50MIN				
A 72DEG 20MIN	72DEG --	71DEG 31MIN	71DEG 20MIN	72DEG 01MIN				
	71DEG 07MIN	72DEG --	72DEG 10MIN	71DEG 12MIN				
16 1.51-1.59 2X	1.598	1.598	1.582	1.608				
	1.599	1.612	1.602	1.596				
17 0.55-0.56 4X	0.546	0.547	0.570	0.550	0.598	0.580	0.581	0.556
	0.592	0.614	0.561	0.574	0.576	0.603	0.558	0.575
18 0.47-0.55 4X	0.501	0.471	0.467	0.502	0.459	0.520	0.477	0.493
	0.378	0.417	0.320	0.344	0.357	0.382	0.326	0.398
	0.493	0.506	0.494	0.539	0.496	0.492	0.486	0.518
	0.382	0.395	0.450	0.464	0.384	0.493	0.373	0.409

PROG. ENG.

DEFINE PROCESS FOR QUIET DISC	BALLARD
DEVELOP TEXTURING, ETC.	BALLARD
PROVIDE PROD'N DISC LOTS AS NEEDED	BALLARD
(1000 @TND 4/7)	
DISCUSS/CONF. COST IMPACT TO MFG.	
BY 4/6 - 11:00 AM	

ASSEMBLY

REVIEW PROCESS FLOW TO ID ANY	GARIEPY
AREAS THAT NEED FURTHER WORK	
MECHANISM TO AVOID MIXING PARTS	GARIEPY
BUILD 1K AB2'S FOR AIR SHIP FRI 4/10	GARIEPY/ STRUBLE ***CRITICAL
	STRUBLE ***ITEN
TEST SWIP TO DANA OR ONTARIO; NEED	
STANDARD ASWF NORM	

QUALITY

REPORT FOR FOR EN30 PROD'N; NEEDS	DEMATTIA
TO BE SUBMITTED BY MON. 4/13	
FRI - SW. W/NORYL BASE - ENV. DWG.	DEMATTIA
MAKE . . FIGURED DIM'S ACTION WOULD BE AGT TO YOU (?)	

PURCHASING

WAVE ELCO QUOTE SWIBBER W/2nd OFE	KOTCH
-----------------------------------	-------

PRODUCTION CONTROL

ORDER BASES/DISCS FOR QUIET SW.	STRUBLE
(NEED TO BUILD 1K AB2'S BY 4/10)	

DRAFTING

PRIORITIZZ DWG AND P/L CHANGES AS	SULHERN
THEY COME THROUGH	

DISC. ACTIONS FROM HI-TEMP MTCB.

ADD CONTINUITY CHK AT 0 PSIG TO P-TESTER	SELLERS
MEASURE OFFSET ON SWITCHES FROM 45 TO 54	OFFILER
MIL OFFSET LOT (SEE DISCUSSION NOTE ABOVE)	
250K CYCLE IMPULSE TEST 45 TO 54 MIL	OFFILER
OFFSET LOT	
25K POWERED IMPULSE TEST 60 MIL OFFSET LOT	OFFILER
	comp.
REPEAT THERMAL CHARACT. AFTER IMPULSE	OFFILER
ON ABOVE 2 LOTS	

UNDERSTANDING THE PROBLEM CAUSE

URGENT THERMAL EXPANSION TEST A	WALLEN
ON DISC LOTS	

TI-NHTSA 005336

EXHAUSTER, SUITED TO DUMPY SINKER
WITHOUT THE DIVISION SEAL

REPEAT THERMAL EXPANSION W/ALTO LARGE PART NO OFFICER

BOARD
W/ALTO
BOARD

TI-NHTSA 005337

- 1: RAYVE OFFICER 5801 *****
BILL SWEET WS4 PLEASE HAVE DELIVER MSG.
MATT BELLERS M52 THANK YOU!
DIP KAY T022 *****
BILL GARNER Y510
EAL DUBBO T1LN
TED WALLARD ETS
PAUL DEMATTIA MD3
MAYN FREDR WHLZ
ROSTY STROBLE R0S2
CHARLIE DOUGLAS CMP1
- 2: TOM CHARBONEAU TC
RAY TOURANGEAU RGT2
ANDY MCGUIRK PCBA
BILL CONGDON MFPC
JOHN COURTESIE MDES
STEVE WALTERS MLDG
JEFF DIDOMENICO ELB
RICH TURNER ELB
DARY SNYDER CFFC
STEVE MAJOR SMFH
DICK MULHERN PCTL
- 3: DAVE GZARN ZARN
- 4: CCPS QUIET SWITCH

meetings will be held daily at 3:30 in the cafeteria.

EXT MEETING:

DATE: WEDNESDAY 4/08
TIME: 3:30
PLACE: CAFETERIA CUBE

TERMINOLOGY:

DESCRIPTION	TI P/N	FORD P/N
AB1) LOW DIFF'L W/SNUBBER		
AB2) ULTRA-LOW DIFF'L	77P6L3-1	F2AC-9F924-AA
AB3) U-LOW DIFF'L W/SNUBBER	77P6L3-2	T-B-D

7P6L3-1 : ENS3 - CROWN VIC/GRAND MARQUIS (IN PROD'N)
7P6L3-2 : SHO TAURUS (MY93)

DISCUSSION:

FAT COMPLETED W/FAVORABLE RESULTS FOR NORTH.

REPORTS TO BE SENT FRIDAY; RECVS INDIVIDUAL IS TO BE
APPROVED WITH INCLUDE LIST OF RS TESTS THAT WILL BE RUN
REAR END LIGHTS CANNOT BE IN-DOOR AND A SOLUTION OF

TI-NHTSA 005338

BE ACCEPTABLE

20013 PROPOSED MANUF.

TO NEXT DATE IN MID MAY 77

CRITICAL PATH ITEMS:
 BASE NAT'L WED 4/8 STRUBLE
 FORD P/N (COMPLETE SEE ABOVE)

MARKETING/FIELD SALES

 UPDATED GANTT CHART BY WED. 4/8 DOUGLAS
 GET P/N'S FOR ENS3 AND SHD SWITCHES FREDA
 LETTER OUTLINING QUIET SW. RISKS SNYDER
 PRELIMINARY QUOTE FOR AB3'S DOUGLAS
 BY WED. 4/8

DESIGN ENG.

 OUTLINE PROPOSED BUILD PROCEDURE SOGGE
 DEFINE BASE MATERIAL TEAM COMP.
 (NORYL BTX830 - COLOR:NATURAL)
 DEFINE DISC TEAM COMP.
 (3-G PSIG DIFF'L & 500F H.T., FLWD.
 BY 400F H.T.)
 SNUBBER DESIGN SOGGE
 (PER 4/7 DISCUSSION W/MAEROFF, FULLY MACHINED
 HEXPORTS OK FOR MONDAY)
 20 AB3 SWITCHES FOR HAND DELIV. OFFILER
 MON. 4/13 - W/MOD. SHOP SNUB HEXPORTS
 PRINTS
 P BASE (ADD -3 AS NAT'L NORYL/OFFSET) OFFILER
 P DISC (NEW SET-UP) SOGGE
 - ENVELOPE DRAWINGS (WHEN REQUESTED) CZARN
 PARTS LISTS (UPDATE) OFFILER
 (START W/ HAND MARKED COPY)
 THERMAL TESTING - NORYL SOGGE
 THERMAL TESTING - NORYL (USING CYCLER) OFFILER
 WEIBULL TESTING FOR M. SPEARS OFFILER
 SHIP 9 AB3'S TO NORM TUES. 4/7 OFFILER COMP.
 SHIP POST-IMPULSE AB2'S TO NORM 4/7 OFFILER COMP.
 EVALUATE PILOT RUN DEVICES SOGGE
 - HYPOD CHECK, DIMENSIONAL, ETC.
 L/T QUIET SWITCHES (AB2'S) BY 4/13 OFFILER new item
 TAKEAPART SW'S W/ STD, LOW, U-L DISCS OFFILER new item
 SHIP TO NORM 4/9

MANUFACTURING ENG./MECHANIZATION

 PROCESS FLOW SELLERS/
 SWEET
 PROCESS SPECS SELLERS
 PILOT RUNS BEGINNING 4/7 SWEET/
 BALTHAZAR
 SET-UP SPC FILES SELLERS
 DELIVER

TI-NHTSA 005339

IDENTIFY REQ'D MECHANIZATION WORK
PRIORITIZE MECH. WORK
NORMAL CHANGES TO S.A.V.

SELLERS
COURTESIE

REPLY LETTERS TO CD FRGSS FOR EACH
LOT OF BONSORO
IN P/L SOUND ON P-TESTER
STATS CONTROL PLAN FOR ISA PKG
BY 4/10

SELLERS new item
SELLERS new item
SELLERS new item

IND. MTG. END.

DEFINE PROCESS FOR QUIET DISC
DEVELOP FIXTURING, ETC.
PROVIDE PRODN DISC LOTS AS NEEDED
(BEGINNING 4/7)
COMMUNICATE COST IMPACT TO MKYG.
BY 4/8 - IF ANY

BALLARD COMP.
BALLARD COMP.
BALLARD COMP.
BALLARD COMP.

(COMP. assumes present "F" lot type discs work...)

CHK DISCS IN LAB

SOBGE new item

MANUFACTURING

REVIEW PROCESS FLOW TO ID ANY
AREAS THAT NEED FURTHER WORK
MECHANISM TO AVOID MIXING PARTS
BUILD 1K AB2'S FOR AIR SHIP PRI 4/10

GARIEPY
GARIEPY
GARIEPY/ ****CRITICAL
STRUBLE ****ITEM

(MAY SHIP TO DANA OR ONTARIO; NEED
ANSWER ASAP NORM)

QUALITY

PARTIAL ISR FOR ENS3 PRODN; NEEDS
TO BE SUBMITTED BY MON. 4/13
FAI - SW. W/NORYL BASE - ENV. DWG.
FAI results looked good; two minor issues that are inconsequential.

DEMATTIA
DEMATTIA COMP.

PURCHASING

HAVE ALSO QUOTE SNUBBER W/2nd OPS

KOTCH

PRODUCTION CONTROL

ORDER BASES/DISCS FOR QUIET SW.
(NEED TO BUILD 1K AB2'S BY 4/10)

STRUBLE COMP.

DRAFTING

PRIORITIZE DWG AND P/L CHANGES AS
THEY COME THROUGH

MULHERN

MISC. ACTIONS FROM HI-TEMP MTGS.

ADD CONTINUITY CHK AT 0 PSIG TO P-TESTER

SELLERS

MEASURE OFFSET ON SWITCHES FROM 45 TO 54
MIL OFFSET LOT (SEE DISCUSSION NOTE ABOVE)

OFFILER

250K CYCLE IMPULSE TEST 45 TO 54 MIL
OFFSET LOT

OFFILER

25K POWERED IMPULSE TEST 60 MIL OFFSET LOT

OFFILER
comp.

TI-NHTSA 005340

IMPROVE 2 LOTS

ONE - FINISHING THE PROBLEM BASES

1. HOT THERMAL EXPANSION TEST W/
2. CYLINDRICAL PORTION OF BASE ONLY
3. ENTIRE BASE - NOT CRIMPED TO SENSOR
3. BASE MODIFIED WITH LARGER SENSOR NESTING DIAMETER, CRIMPED TO DUMMY SENSOR WITHOUT THE ENVIRON. SEAL

OFFICER

REPEAT THERMAL EXPANSION W/ALT. BASE MAT'LS

OFFICER

REGARDS,
DAVE DEARN
MS-60267

TI-NHTSA 005341

77P513-1

Info for, Fords

EN53 platform

what is part in FAT

Steve to add ES test results

full ISTAR^{due} by May 22, 1992

Norm Fords

THURS. 4-8-92 8:00 PM

Bruce Mac JJ

**DRAWINGS AVAILABLE UPON
REQUEST**



INITIAL SAMPLE WARRANT

No. 112389

PART INFORMATION

Part Name NEXT GENERATION Speed Control DEACTIVATION Safety Switch Part Number F2AC-9F924-AA

Control Item Yes No Engineering Change Level _____ Date _____

Engineering Change Authorization Bruce Marshall Date _____

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

Reason for Initial Sample:

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

SUPPLIER INFORMATION (Manufacturing Location)

Supplier Name TEXAS Instruments Street Address 34 Forest St.

City Atholboro State MA Postal Code 02713 Country USA

Supplier Mfg. Location Code - DUNS T0976/7325814 Customer Assigned _____

CUSTOMER INFORMATION

Customer Name Ford Motor Co. NAAO Buyer Fred Henschel Buyer Code 1165

Purchase Order Number _____ Sample Acceptance Level _____

Application NEXT GENERATION Speed Control Deactivation Safety Switch

RESULTS

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

Submission Checklist

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

Supporting data for all requirements are available upon request.

COMMENTS:

Partial ISSU to expedite use of "Quiet" switch; Full Submiss. to be complete by 4/22/92; Bruce Marshall visited TI on 4/13, 4/14 to Review Progress & Status.

DECLARATION

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

Authorized Signature _____ Date _____

Print Name _____ Title _____ Phone No. _____

APPROVAL (also required by customer procedure) Approved Rejected

Signature _____ Date _____

DATE 03/26

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F3AC-9F924-AA

ENVELOPE DIMENSIONS TO BASE ONLY

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
1	11.40 - 11.90	11.806	11.817	11.817	11.794
2	12.80 - 13.21	13.043	13.043	13.072	13.094
3	16.56 - 16.76	16.638	16.652	16.671	16.673
		16.661		16.680	16.668
4	19.45 - 19.81	19.752	19.754	19.787	19.799
5	2.80 - 3.05	2.930	2.93	2.944	2.951
	0.1 ± A	1.897 0.003	1.923 0.023	1.945 0.045	1.885 0.015
6	31DEG +/- 2DEG	29DEG 29MIN	29DEG 38MIN	29DEG 58MIN	29DEG 34MIN
7	1.85 - 2.06	1.927	1.966	1.969	1.978
8	1.24 - 1.55	1.365	1.387	1.423	1.400
9	1.24 - 1.45	1.269	1.268	1.275	1.308
10	11.60 - 11.92	11.768	11.768	11.753	11.777
		11.729	11.740	11.789	11.747
11	13.43 - 13.85	13.010	13.769	13.786	13.647
12	0.25 - 0.75	0.490 0.475	0.519 0.523	0.573 0.635	0.618 0.593
13	2.79 - 3.10	2.900	2.909	2.912	2.908
	2 PL	2.903	2.915	2.913	2.911

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TI-NHT8A 008350

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-98924-AA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
14	0.05 - 0.26	0.151	0.153	0.124	0.076
	2 PL	0.113	0.142	0.163	0.147
15	19.05 MAX	18.667	18.709	18.671	18.704
		18.701	18.748	18.565	18.757
16	12.59 - 13.11	12.800	12.829	12.802	12.819
		12.829	12.800	12.842	12.824
17	0.68 - 1.30	1.085	1.105	1.122	1.175
18	2.79 - 3.41	3.076	3.0612	3.152	3.109
19	7.23 - 7.75	7.579	7.501	7.514	7.545
20	6.60 - 6.81	6.701	6.673	6.715	6.677
21	29DEG +/- 2DEG	MEASURED	29DEG 24MIN	ON CROSS	SECTIONED
	4 X	PART	30DEG 06MIN	----	----
		----	29DEG 58MIN	----	----
		----	29DEG 47MIN	----	----
22	NO FLASH/BURRS	SLIGHT	FLASH ON	EDGES	@ 10X
23A	1.80-2.21 @ 2X	1.651	1.651	1.651	1.651
		1.651	1.778	1.651	1.651

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TI-NHTSA 005351

TEXAS INSTRUMENTS



DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-BA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
23	8.30-8.72 2X	8.535	8.559	8.484	8.578
		8.726	8.512	8.570	8.519
24	2.15-2.42 2X	2.162	2.171	2.282	2.271
		2.212	2.236	2.237	----
25	25DEG +/- 2DEG 2 X	24DEG 25MIN 24DEG 10MIN	24DEG 56MIN 24DEG 14MIN	24DEG 47MIN 24DEG 06MIN	24DEG 06MIN 24DEG 43MIN
26	45DEG +/- 2DEG 4PL	46DEG 10MIN 44DEG 35MIN 45DEG 22MIN 44DEG 08MIN	42DEG 44MIN 43DEG 47MIN 44DEG 47MIN 45DEG 37MIN	43DEG 44MIN 44DEG 47MIN 45DEG 49MIN 46DEG 38MIN	45DEG 03MIN 45DEG 01MIN 46DEG 11MIN 43DEG 50MIN
27	(71.5DEG) 2X	72DEG -- 71DEG 07MIN	71DEG 31MIN 72DEG --	71DEG 20MIN 72DEG 10MIN	72DEG 01MIN 71DEG 12MIN
28	1.42-1.68 2X	1.588 1.539	1.538 1.612	1.582 1.602	1.603 1.596
29	0.35-0.66 4X	0.546 0.547 0.592 0.614	0.570 0.590 0.561 0.574	0.598 0.580 0.576 0.609	0.581 0.556 0.558 0.575
30	0.35-0.66 4X	0.501 0.471 0.378 0.417 0.493 0.506 0.382 0.395	0.467 0.502 0.320 0.344 0.494 0.539 0.450 0.484	0.459 0.520 0.357 0.382 0.436 0.482 0.384 0.393	0.477 0.448 0.338 0.398 0.486 0.518 0.373 0.409

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TI-NHTSA 005352

DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

ENVELOPE DIMENSIONS TO BASE ONLY

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
1	11.40 - 11.90	11.806	11.817	11.817	11.794
2	12.80 - 13.21	13.043	13.043	13.072	13.094
3	16.56 - 16.76	16.638	16.652	16.671	16.673
		16.661	----	16.680	16.668
4	19.45 - 19.81	19.752	19.754	19.787	19.799
5	2.80 - 3.05	2.930	2.93	2.944	2.951
	0.1 ± A	1.897 0.003	1.923 0.023	1.945 0.045	1.865 0.015
6	31DEG +/- 2DEG	29DEG 29MIN	29DEG 38MIN	29DEG 58MIN	29DEG 34MIN
7	1.95 - 2.06	1.927	1.966	1.969	1.978
8	1.24 - 1.55	1.365	1.367	1.423	1.400
9	1.24 - 1.45	1.269	1.268	1.275	1.308
10	11.60 - 11.92	11.768	11.768	11.759	11.777
		11.729	11.740	11.789	11.747
11	13.43 - 13.85	13.010	13.769	13.786	13.647
12	0.25 - 0.75	0.490 0.475	0.519 0.523	0.573 0.635	0.618 0.593
13	2.79 - 3.10	2.900	2.909	2.912	2.908
	2 PL	2.903	2.915	2.913	2.911

DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
14	0.05 - 0.26	0.151	0.153	0.124	0.076
	2 PL	0.113	0.142	0.163	0.147
15	19.05 MAX	18.667	18.709	18.671	18.704
		18.701	18.748	18.565	18.757
16	12.59 - 13.11	12.800	12.829	12.802	12.819
		12.829	12.800	12.842	12.824
17	0.68 - 1.30	1.083	1.103	1.122	1.175
18	2.79 - 3.41	3.076	3.0612	3.152	3.109
19	7.23 - 7.75	7.579	7.501	7.514	7.545
20	6.60 - 6.81	6.701	6.673	6.715	6.677
21	29DEG +/- 2DEG	MEASURED	29DEG 24MIN	ON CROSS	SECTIONED
	4 X	PART	30DEG 06MIN	----	----
		----	29DEG 58MIN	----	----
		----	29DEG 47MIN	----	----
22	NO FLASH/BURRS	SLIGHT	FLASH ON	EDGES	@ 10X
22A	1.80-2.21 @ 2X	1.651	1.651	1.651	1.651
		1.651	1.778	1.651	1.651

DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
23	8.30-8.72 2X	8.335	8.553	8.484	8.578
		8.726	8.512	8.570	8.519
24	2.15-2.42 2X	2.162	2.171	2.282	2.271
		2.212	2.236	2.237	----
25	25DEG +/- 2DEG 2 X	24DEG 25MIN	24DEG 56MIN	24DEG 47MIN	24DEG 06MIN
		24DEG 10MIN	24DEG 14MIN	24DEG 06MIN	24DEG 43MIN
26	45DEG +/- 2DEG 4PL	46DEG 10MIN	42DEG 44MIN	43DEG 44MIN	45DEG 03MIN
		44DEG 35MIN	43DEG 47MIN	44DEG 47MIN	45DEG 01MIN
		45DEG 22MIN	44DEG 47MIN	45DEG 49MIN	46DEG 11MIN
		44DEG 08MIN	45DEG 37MIN	46DEG 38MIN	43DEG 50MIN
27	(71.5DEG) 2X	72DEG --	71DEG 31MIN	71DEG 20MIN	72DEG 01MIN
		71DEG 07MIN	72DEG --	72DEG 10MIN	71DEG 12MIN
28	1.42-1.63 2X	1.538	1.538	1.582	1.603
		1.539	1.612	1.602	1.596
29	0.35-0.66 4X	0.546 0.547	0.570 0.590	0.598 0.580	0.581 0.556
		0.592 0.614	0.561 0.574	0.576 0.603	0.558 0.575
30	0.35-0.66 4X	0.501 0.471	0.467 0.502	0.459 0.520	0.477 0.443
		0.378 0.417	0.320 0.344	0.357 0.382	0.338 0.398
		0.493 0.506	0.494 0.539	0.436 0.482	0.486 0.518
		0.382 0.395	0.450 0.484	0.384 0.393	0.373 0.409

DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9F924-AA

ENVELOPE DIMENSIONS TO BASE ONLY

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
1	11.40 - 11.90	11.806	11.817	11.817	11.794
2	12.80 - 13.21	13.043	13.043	13.072	13.094
3	16.56 - 16.76	16.638	16.652	16.671	16.673
		16.661	----	16.660	16.668
4	19.45 - 19.81	19.752	19.754	19.787	19.799
5	2.80 - 3.05	2.930	2.93	2.944	2.951
	0.1 ± A	1.897 0.003	1.923 0.023	1.945 0.045	1.885 0.015
6	31DEG +/- 2DEG	29DEG 29MIN	29DEG 38MIN	29DEG 58MIN	29DEG 34MIN
7	1.85 - 2.06	1.927	1.966	1.969	1.978
8	1.24 - 1.55	1.365	1.387	1.423	1.400
9	1.24 - 1.45	1.269	1.268	1.275	1.308
10	11.60 - 11.92	11.768	11.765	11.789	11.777
		11.729	11.740	11.789	11.747
11	13.43 - 13.85	13.010	13.769	13.786	13.647
12	0.25 - 0.75	0.490 0.475	0.519 0.523	0.573 0.635	0.618 0.593
13	2.79 - 3.10	2.900	2.909	2.912	2.908
	2 PL	2.903	2.915	2.913	2.911

DIMENSIONAL ANALYSIS ON PART NUMBER

F2AC-9P924-AA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
14	0.05 - 0.26	0.151	0.153	0.124	0.076
	2 PL	0.113	0.142	0.163	0.167
15	19.05 MAX	18.667	18.709	18.671	18.704
		18.701	18.749	18.565	18.757
16	12.39 - 13.11	12.800	12.829	12.802	12.819
		12.829	12.800	12.842	12.824
17	0.68 - 1.30	1.085	1.105	1.122	1.173
18	2.79 - 3.41	3.076	3.0612	3.152	3.109
19	7.23 - 7.75	7.579	7.501	7.514	7.545
20	6.60 - 6.81	6.701	6.673	6.715	6.677
21	29DEG +/- 2DEG	MEASURED	29DEG 24MIN	ON CROSS	SECTIONED
	4 X	PART	30DEG 06MIN	----	----
		----	29DEG 58MIN	----	----
		----	29DEG 47MIN	----	----
22	NO FLASH/BURRS	SLIGHT	FLASH ON	EDGES	8 (0)
23	1.30-1.21n 23	1.651	1.651	1.651	1.651
		1.651	1.779	1.651	1.651

DIMENSIONAL ANALYSIS OF PART NUMBER:

P2AC-99924-AA

	BLUEPRINT SPEC	CAVITY # A ACTUAL	CAVITY # B ACTUAL	CAVITY # C ACTUAL	CAVITY # D ACTUAL
23	8.30-8.72 2X	8.535	8.553	8.484	8.578
		8.726	8.512	8.570	8.519
24	2.15-2.42 2X	2.162	2.171	2.282	2.271
		2.212	2.236	2.237	
25	45DEG +/- 2DEG 2 X	24DEG 25MIN	24DEG 56MIN	24DEG 47MIN	24DEG 06MIN
		24DEG 10MIN	24DEG 14MIN	24DEG 06MIN	24DEG 43MIN
26	45DEG +/- 2DEG 4PL	46DEG 10MIN	42DEG 44MIN	43DEG 44MIN	45DEG 03MIN
		44DEG 35MIN	43DEG 47MIN	44DEG 47MIN	45DEG 01MIN
		45DEG 22MIN	44DEG 47MIN	45DEG 49MIN	46DEG 11MIN
		44DEG 06MIN	45DEG 37MIN	46DEG 38MIN	43DEG 50MIN
27	(71.5DEG) 2X	72DEG --	71DEG 31MIN	71DEG 20MIN	72DEG 01MIN
		71DEG 07MIN	72DEG --	72DEG 10MIN	71DEG 12MIN
28	1.42-1.63 2X	1.538	1.538	1.582	1.603
		1.539	1.612	1.602	1.596
29	0.35-0.6e 4X	0.546 0.547	0.570 0.590	0.598 0.580	0.591 0.556
		0.592 0.614	0.561 0.574	0.576 0.603	0.558 0.575
30	0.35-0.6e 4X	0.501 0.471	0.467 0.502	0.459 0.520	0.477 0.497
		0.578 0.417	0.520 0.344	0.357 0.382	0.335 0.399
		0.493 0.506	0.494 0.539	0.436 0.422	0.486 0.516
		0.362 0.395	0.450 0.484	0.384 0.393	0.373 0.409

DIMENSIONAL ANALYSIS ON PART NUMBER

P/C
L 27

F2VC-9924-AB

	BLUEPRINT SPEC	CAVITY # 1B ACTUAL	CAVITY # 2C ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4D ACTUAL	CAVITY # 5D ACTUAL	CAVITY # 6D ACTUAL	COMMENTS
1	19.45 - 19.81	19.55	19.61	19.58	19.56	19.57	19.57	
2	16.56 - 16.76	16.59/16.59	16.62/16.64	16.62/16.63	16.58/16.59	16.54/16.56	16.59/16.59	
3	11.50 - 13.21	12.974	13.021	13.035	13.043	13.078	12.946	
4	11.40 - 11.90	11.788	11.808	11.775	11.773	11.758	11.755	
5	2.84 - 3.05	2.93	2.92	2.92	2.92	2.93	2.93	
	0.1 A	1.859/0.041	1.920/0.020	1.933/0.033	1.949/0.031	1.885/0.015	1.987/0.013	
6	11.60 - 11.92	11.69/11.71	11.67/11.71	11.72/11.68	11.60/11.63	11.63/11.67	11.65/11.63	
7	1.24 - 1.45	1.252	1.250	1.290	1.280	1.290	1.285	
8	1.24 - 1.35	1.402	1.397	1.400	1.389	1.397	1.397	
9	1.85 - 2.06	2.004	1.974	1.996	1.984	1.994	1.996	
10	13.43 - 13.95	13.772	13.693	13.900	13.686	13.686	13.956	
11	31 DEG +/- 2 DEG	30 DEG 34 MIN	29 DEG 53 MIN	31 DEG	29 DEG 04 MIN	29 DEG 03 MIN	30 DEG 08 MIN	
12	2.79 - 3.10	2.90/2.89	2.90/2.90	2.90/2.90	2.90/2.90	2.89/2.89	2.90/2.94	
13	0.25 - 0.75	0.508/0.641	0.489/0.800	0.442/0.673	0.498/0.671	0.490/0.744	0.460/0.757	OUT OF SPEC.
14	0.05 - 0.26	0.051/0.069	0.074/0.127	0.140/0.076	0.127/0.135	0.155/0.153	0.071/0.036	
		0.140/0.147	0.092/0.089	0.086/0.114	0.048/0.081	0.038/0.813	0.137/0.145	
15	0 19.05 MAX	18.64 18.56	18.57 18.66	18.54 18.66	18.60 18.77	18.63 18.71	18.61 18.67	

DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-9F924-AB

BLUEPRINT SPEC	CAVITY # 1B ACTUAL	CAVITY # 2C ACTUAL	CAVITY # 3C ACTUAL	CAVITY # 4D ACTUAL	CAVITY # 5B ACTUAL	CAVITY # 6B ACTUAL	COMMENTS
16 57.15 MAX	55.65	55.70	55.71	55.70	55.69	55.68	
17 12.59 - 13.11	12.74/12.86	12.72/12.84	12.77/12.76	12.76/12.77	12.75/12.81	12.73/12.80	
18 11.65 - 12.17	11.68/11.79	11.85/11.64	11.73/11.79	11.88/11.84	11.78/11.86	11.73/11.88	
19 14.23 MAX	13.66	13.65	13.67	13.65	13.65	13.66	
20 9.39 - 9.66	9.59/9.63	9.61/9.66	9.57/9.64	9.49/9.62	9.58/9.74	9.55/9.67	OUT OF SPEC.
21 8.12 MIN	8.98/9.29	9.13/9.54	9.12/9.18	8.96/9.56	9.14/9.22	9.11/9.14	
22 1.52 - 2.04	2.040	1.732	1.793	1.727	1.781	1.796	
23 0 7.32-8.03	7.94/7.50	7.94	7.97/7.39	7.97	7.98	7.96	
24 6.60 - 6.81	6.640	6.698	6.693	6.647	6.665	6.642	
24A 29DEG +/- 200 4Z	29DEG 54MIN	30DEG 24MIN	MEASURED	ON A CROSS	SECTIONED	PART	
	30DEG 57MIN	28DEG 46MIN					
25 1.80-2.21R 2Z	1.84-1.84	1.84-1.84	1.84-1.84	1.84-1.84	1.84-1.84	1.84-1.84	
26 7.23-7.75	7.74	7.52	7.53	7.54	7.55	7.53	
26A NO FLASH OR	OK	OK	FLASH	OK	OK	FLASH	
FIGURES ALLOWED							
ON SURFACE							
27 2.79-2.41	3.145	3.095	3.160	3.150	3.119	3.157	
28 6.68-1.30	1.115	1.153	1.175	1.148	1.161	1.153	

DIMENSIONAL ANALYSIS ON PART NUMBER

7200-9924-08

BLUEPRINT SPEC	CAVITY # 18 ACTUAL	CAVITY # 20 ACTUAL	CAVITY # 30 ACTUAL	CAVITY # 40 ACTUAL	CAVITY # 50 ACTUAL	CAVITY # 60 ACTUAL	COMMENTS
284 STAMP DATE	INVERTED	DELTA	OMITTED	HAS SINCE	SEEN	INCLUDED	
CODE & PART#	IN COATING	OPERATION					
29 10.25MIN ± .40	N/A THREADS	HAVE BEEN	ADDED				
150DEG CHAMFER							
30 3/8-24NF-2A	OK	OK	OK	OK	OK	OK	
31 1.10-1.40	1.316	MEASURED	ON A CROSS	SECTIONED	PART		
32 0.16 D	0.051	0.048	0.048	0.008	0.030	0.056	
33 2.5 ±	OK	MEASURED	ON A CROSS	SECTIONED	PART		
34 41DEG - 43DEG	41DEG 21MIN	MEASURED	ON A CROSS	SECTIONED	PART		
35 40-50DEG CHAMF	N/A THREADS	HAVE BEEN	ADDED				
36 32.51 MAX	31.64 31.62	31.46 31.48	31.45 31.46	31.50 31.47	31.46 31.40	31.58 31.58	
37 14.02-14.50HEX	14.11	14.11	14.11/14.13	14.11/14.13	14.12/14.13	14.11/14.12	
38 3.30-3.60	3.45 - 3.46	3.45 - 3.49	3.43 - 3.42	3.45 - 3.46	3.44 - 3.47	3.45 - 3.45	
39 7.23-7.37	7.27 7.29	7.35 7.32	7.33 7.33	7.31 7.37	7.32 7.30	7.37 7.37	
40 5.53-5.65	5.61 5.68	5.72-5.68	5.64-5.66	5.67-5.70	5.60-5.66	5.61-5.63	
41 71.5085 +/-	72DEG 30MIN	72DEG 11MIN	72DEG 12MIN	72DEG 26MIN	72DEG 36MIN	72DEG 10MIN	
2055 ±	72DEG 9MIN	72DEG 14MIN	72DEG 50MIN	72DEG 37MIN	72DEG 11MIN	72DEG 36MIN	

DIMENSIONAL ANALYSIS ON PART NUMBER

F2VC-9F924-AB

	BLUEPRINT SPEC	CAVITY # 19 ACTUAL	CAVITY # 20 ACTUAL	CAVITY # 30 ACTUAL	CAVITY # 40 ACTUAL	CAVITY # 50 ACTUAL	CAVITY # 60 ACTUAL	COMMENTS
42	1.42-1.63 2X	1.62-1.62	1.63-1.63	1.58-1.63	1.63-1.60	1.60-1.59	1.69-1.57	
43	0.35-0.66 4X	1.66-0.65	0.57-0.59	0.57-0.60	0.58-0.59	0.58-0.57	0.57-0.59	
		0.57-0.59	0.59-0.58	0.58-0.57	0.59-0.56	0.56-0.58	0.58-0.56	
44	8.50-8.72 2X	8.43-8.46	8.51-8.44	8.41-8.44	8.42-8.42	8.39-8.43	8.42-8.56	
45	2.15-2.42 2X	2.13-2.21	2.18-2.22	2.30-2.15	2.20-2.16	2.16-2.18	2.23-2.16	81 OUT OF SPEC
46	25DEG+/-2 2X	24DEG 36MIN	24DEG 41MIN	23DEG 14MIN	23DEG 35MIN	23DEG 09MIN	23DEG 34MIN	
		23DEG 06MIN	23DEG 45MIN	24DEG 31MIN	23DEG 53MIN	23DEG 59MIN	24DEG 24MIN	
47	HOUSING: BROWN	BROWN	BROWN	BROWN	BROWN	BROWN	BROWN	
48	45DEG+/-2 4X	44DEG 36MIN	46DEG 47MIN	46DEG 09MIN	45DEG 09MIN	45DEG 37MIN	43DEG	
		45DEG 46MIN	45DEG 19MIN	43DEG 20MIN	45DEG 09MIN	44DEG 11MIN	44DEG 05MIN	
		44DEG 43MIN	45DEG 46MIN	46DEG 46MIN	45DEG 16MIN	44DEG 07MIN	44DEG 01MIN	
		45DEG 12MIN	45DEG 23MIN	45DEG 39MIN	44DEG 49MIN	45DEG 34MIN	44DEG 34MIN	
49	0.66-1.17 4X	0.96-0.95	0.98-1.03	0.97-1.02	0.98-1.02	0.99-1.03	0.99-1.03	
		0.95-0.93	0.96-0.97	0.96-1.00	0.93-1.00	0.97-0.97	0.95-0.95	
50	0.35-0.66 4X	0.54-0.54	0.45-0.44	0.46-0.48	0.46-0.50	0.45-0.50	0.51-0.49	
		0.45-0.51	0.49-0.52	0.54-0.53	0.52-0.52	0.50-0.54	0.51-0.44	

**DRAWINGS AVAILABLE UPON
REQUEST**