

-MSG N#- 64114 FR=CERN TO=PCQA SENT=03/25/91 01:44 PM
 R#-090 ST=C DIV=0050 CC=00101 BY=CERN AT=03/25/91 01:44 PM

Handwritten: 64114
 FyE/20

MARCH 25, 1991

RUSTY STRUBLE	RCS2	CC: TOM CHARBONEAU	TC
MIKE DeMATTIA	PCQA	JOHN KOURTISIS	NDES
CHARLIE DOUGLAS	CPPC	STEVE MAJOR	WHLZ
DICK GARIEPY	MFPC	ANDY McGUIRE	PCQA
PAUL KOTCH	PRK1	ED O'NEILL	EJON
JOE LAZARZ	JNL8	JOE SCHUCK	WHLZ
STEVE OFFILER	SBO1	GARY SHYDER	CPPC
MATT SELLERS	PCNE	MARTHA SULLIVAN	CPPC
BILL SWEET	PCNE	RAY TOURANGEAU	PCNE
GEORGE LAVOIE	B512	TED BALLARD	AVNE
JIN WATT	PCQA	DAVE VANNEY	FORM
STAN HOMOL	SH2	SCOTT MARTIN	MFPC
		CLAIRE BALTEBAR	MFPC
		BILL CONGDON	MFPC

FR: DAVE CEARN EARN

SJ: FORD CHUISE CONTROL PRESSURE SWITCH START-UP MEETING:
 03/21/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 03/28 (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

57 L/T	WHO	WHEN	
Hexport:			
* ELCO CONTROL PLAN	KOTCH	01/17	ORIG.
		03/28	REV.
. COMPLETE JS12 GAGE (TDR)	SELLERS	04/18	
. L/T PILOT RUN	SELLERS/	01/24	ORIG.
(PUSHOUT DUE TO HEXPORT AVAILABILITY)	GARIEPY	04/08	REV.
ISR ISSUES:			
* RESOLVE TERMINAL POS'N ISSUE	TEAM	03/21	ORIG.
		04/04	REV.
* EVALUATE ANVIL CHANGE IN STAKER	SELLERS/	03/07	ORIG.
	SWEET	03/21	COMP.
* COMPLETE TOOLING MODS. AND RUN CAPABILITY STUDY	SELLERS/	04/01	
	WATT		
* SUBMIT ISR FOLLOW-UP TO FORD SQA	WATT	04/04	
* DELIVER 260 CUSTOMER SAMPLES	OFFILER	04/01	ORIG.
(PUSHOUT DUE TO HEXPORT AVAILABILITY)		04/12	REV.
* MEASURE HEXPORT LEAD IN ANGLE	SELLERS/	03/21	ORIG.
	OFFILER	03/21	COMP.

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* DETERMINE HOW TO SHIP NON-STANDARD QTY'S OF SWITCHES THROUGH APRIL	STRUBLE	03/28	
* COMMUNICATE "STANDARD" LOT SIZES TO FORD PURCHASING THRU CUST. SERV.	STRUBLE	04/04	
. P/C			

. OFFSET POLARITY KEY BASE PRINT	OFFILER	11/16	ORIG.
		03/28	REV.
* P/C PILOT RUN	SELLERS/	01/31	ORIG.
(PUSHOUT DUE TO HEXPORT AVAILABILITY)	GARIFFY	04/15	REV.
* 6 SWITCHES TO QA FOR DIMENSIONAL CHECK (POLARITY KEY DIM'S ONLY)	OFFILER	04/05	
* ISR SUPPLEMENT FOR SWITCHES W/BROWN OFFSET POLARITY KEY BASES	WATT	04/10	
* DELIVER 56 PCS. TO PITTS FOR THEIR SECOND PASS ISR	OFFILER/	04/12	
	WATT		
77PS			

. DESIGN UPDATE	OFFILER	ONGOING	
. MFG/MECH UPDATE	SELLERS	ONGOING	
. REPORT ON TOKICO P.S. RESPONSIBILITY	DOUGLAS	ONGOING	
. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHASAR	ONGOING	
* UPDATE SPC FILES/RUN CAPABILITY STUDIES	BALTHASAR	ONGOING	
. COMPLETE DESIGN FMEA	OFFILER	04/18	
. COMPLETE PROCESS FMEA	SELLERS	07/01	
* IMPULSE TEST LOW CURRENT CONTACT AT SLOWER CYCLE RATE	OFFILER	03/14	ORIG.
		04/04	REV.
* 77PS SWITCH VERIFICATION TEST	OFFILER	04/04	
CORRECTED MODEL SHOP PROD. INTENT PARTS	OFFILER	03/07	ORIG.
- TERMINAL		03/21	REV.
		03/18	COMP.
* DETERMINE ACCEPTABLE CALIBRATION WINDOW BY DIMENSIONAL ANALYSIS	OFFILER/	03/24	ORIG.
	SELLERS	03/28	REV.
. VERIFICATION RUN FOR CALIBRATION WINDOW	OFFILER/	03/28	ORIG.
	SELLERS	04/04	REV.
. F/D CHARACTERIZATION OF SPRING ARMS	OFFILER	04/18	
* GAGE FOR IN-PROCESS F/D CHARACTERIZ. OF SPRING ARMS	SELLERS	TBD	
* J512 W/SNUBBER SKETCH	OFFILER	03/14	ORIG.
		03/18	REV.
		03/18	COMP.
. QUOTE J512 W/SNUBBER	KOTCH	04/04	
* CLARIFY APRIL 01 SAMPLE REQNT.	DOUGLAS	03/21	ORIG.
		03/21	COMP.
* UPDATE PRODUCTION PLAN PER REVISED SCHEDULE BELOW	STRUBLE	03/28	
* F/U WITH KLINGLER RE: NEXT GEN. SPEED CONTROL IMPLEMENTATION BY PLATFORM	DOUGLAS	04/04	
* MTG. TO REVIEW TOOLING ITEMIZATION FOR AMI#2 UPGRADE VS. NEW AMI BUILD	SELLERS	04/01	
. 57 TO 77 CONVERSION: PHASE 1 TESTING	HOMOL	05/30	
. IDENTIFY INSPECTION REQNTS. FOR SOP	WATT	06/01	
. 77PS QAS (PRELIMINARY)	WATT	07/01	
. 77PS CHARACTERISTICS SHEETS	WATT	07/15	
. GAGE R&R STUDIES	WATT	07/15	
. 77PS QAS (FINAL)	WATT	08/01	
. SET UP SPC FILES/RUN CAPABILITY STUDIES	BALTHASAR	08/01	

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IOP'S:			
* BASE	SELLERS/	02/28	ORIG.
	OFFILER	03/28	REV.
Production Components:			
RESOLVE OPEN ISSUES ON CUP	SELLERS/	03/24	ORIG.
	OFFILER	03/28	REV.
		03/25	COMP.
* UPDATE CUP PRINT	OFFILER	03/28	
* REVIEW CAPABILITY DATA - MOV. TERM.	SELLERS	03/28	ORIG.
		03/21	COMP.
* RESOLVE OPEN ISSUES ON MOV. TERM.	SELLERS/	04/04	
	OFFILER		
. STATIONARY TERM.	LAVOIS	03/22	ORIG.
(KF BASSLER DELIV. DATE PUSH-OUT)		04/05	REV.
* BASE	SELLERS	03/06	ORIG.
(AFCC DELIV. DATE PUSH-OUT)		03/25	REV.
		03/20	COMP.
* RESOLVE OPEN ISSUES ON BASE	SELLERS	04/11	
* 10K HEXPORTS TO REPLACE PARTS	KOTCH	04/03	
ON REJECTION			
. 2ND HEXPORT LOT DELIVERY	KOTCH	04/05	
Manufacturing Equipment:			
. FINAL ASM MACHINE BUILD COMPLETION	SELLERS/	04/15	
	KOURTESIS		
. BASE ASM MACHINE BUILD COMPLETION	SELLERS/	05/31	
	KOURTESIS		
. PRESSURE TESTER BUILD COMPLETION	SELLERS/	06/20	
	KOURTESIS		

WD AUSTRALIA

. FORD AUSTRALIA UPDATE DOUGLAS ONGOING

DISCUSSION

BY L/T AND P/C

MEASUREMENTS OF THE HEXPORT LEAD-IN ANGLE CONFIRMED THAT THE FIRST LOT OF 4300 PARTS VIOLATE THE ENVELOPE DRAWING. THE LOT IS ON REJECTION; EXPEDITED DELIVERY OF REPLACEMENT PARTS IS IMPERATIVE, IN ORDER TO KEEP TO OUR PRODUCTION BUILD SCHEDULE, AND TO MEET PITTS' IMMEDIATE NEED FOR 56 PRODUCTION SWITCHES.

PITTS HAS INDICATED THAT THEY WILL BE ORDERING 19K SWITCHES FOR DELIVERY IN MAY. (PITTS IS TIER 1 TO FORD P/C, WHICH HAS A JUNE 03 JOB 1.) HEXPORTS ARE THE GATING ITEM AT THIS POINT. THE PRODUCTION PLAN IS UPDATED BELOW.

77PB

THE CALIBRATOR WILL BE ASSEMBLED TO THE ANI BY 03/28. ONCE COMPLETED, WE'LL BE ABLE TO CALIBRATE PARTS USING THE ANI IN A JOG MODE. STEVE PLANS TO CALIBRATE PARTS WEDNESDAY OR THURSDAY FOR A COMBINED THERMAL CYCLE/IMPULSE TEST TO BE RUN OVER THE LONG WEEKEND.

MILESTONES PLANNED ACTUAL

TI-NHTSA 001798

57 L/T ISIR	11/21/90	11/21/90
57 L/T JOB 1	09/03/91	
57 P/C ISIR	01/15/91	01/15/91
57 P/C JOB 1	06/03/91	
77PS ISIR	08/01/91	
77PS SOP (TI)	09/01/91	

PRODUCTION PLAN BY MONTH (THOUSANDS) - WITHOUT OVERAGE

	P/C 57PSL5-3	L/T 57PSL5-2	P/C 77PSL2-1	L/T 77PSL2-3
FEB	0	0	0	0
MAR	0	0	0	0
APR	10	2	0	0
MAY	10	0	0	0
JUN	*10 (tentative)	0	0	0
JUL	10	2.3	0	0
AUG	10	2.3	2	0
SEP	10	*2.6	2	0
OCT	0	9.5	**9	2
NOV	0	8.5	25	2
DEC	0	0	25	**9.5

NOTE: PLAN FOR AUGUST AND BEYOND IS TENTATIVE.

* = JOB1 FOR 57PS VERSIONS

** = TENTATIVE JOB1 FOR 77PS VERSIONS

REGARDS,
 E CRANN | 16-FORD

TI-NHTSA 001790

PART NUMBER: 42451436

DATE: 3/16/91
 REV DATE: 3/16/91
 PREPARED BY: T. JOHNSON

T DESCRIPTION: REMFOR ASM - A/C CLUTCH OUTLINE POSITIONED SWICCH

STEP	POS	MOVE	STOPS	IMPACT	OPERATION DESCRIPTION	NET WEIGHT CHARACTERISTICS	NET CENTER CHARACTERISTICS
1					(BASE PARTS STORED IN WAREHOUSE 1- BASE 1- REVERSIBLE TERMINAL 1- STATIONARY TERMINAL 1- CONTACT ARM 1- SLIDE 1- REVERSIBLE CONTACT 1- CONNECTOR SHELL		
2					BASE PARTS MOVED TO THE MACHINE		
3	10				AUTOMATIC ASSEMBLY OF BASE 1- BASE FOR INFO NEXT 1- STATIONARY TERMINAL 1- REVERSIBLE INFO BASE 1- CONTACT, CONTACT ARM & REVERSIBLE TERMINAL PLACED ON MACHINE. 1- CONTACT ATTACHED TO CONTACT ARM 1- CONTACT ARM ATTACHED TO REVERSIBLE TERMINAL 1- REVERSIBLE TERMINAL AND ATTACHED TO BASE 1- TERMINAL JOINT 1- CONNECTOR SHELL 1- ATTACHED INTO BASE	TERMINAL JOINT TERMINAL JOINT TERMINAL JOINT	LOSS OF TERMINAL WORK/SHOWN TOOL LOSS OF INFO TOOL REASSEMBLY MISALIGNMENT OF INFO TERMINAL BASE CHECK OUT OF INFO
4			11		STOW BASE ASST BY TRANSPORT		
5			12		WALK OUT FROM INFO IN WAREHOUSE		
6					MOVE FROM INFO FROM WAREHOUSE		
7	20				MOVE FROM INFO	LOSS WEIGHT/LOSS CENTER OF GRAVITY LOSS WEIGHT	LOSS WEIGHT LOSS WEIGHT
8			20		BASE ASSEMBLY (A FINAL ASST OPERATOR) STORED IN WAREHOUSE 1- SLIDE 1- MOTOR 1- TRANSMISSION TIP 1- INFO SHEET 1- INFO 1- INFO WEIGHT		(INFO SHEET AND VEHICLE TRANSMISSION)
9					BASE ASSEMBLY AND		

TI-NHTSA 001800

CT DESCRIPTION: FINISH ARM - R/C SLOTTED CYCLING POSITIONER SWITCH

STEP	FAO	MOVE	FORM	INSPECT	OPERATION DESCRIPTION	NET PRODUCT CHARACTERISTICS	NET CONTROL CHARACTERISTICS
					(FINAL ARM COMPONENTS MOVED TO LINE		
10	38				(PIN SLIDE 1- ASSEMBLE BASE AND DISC 1- PIN GAMES & PIN SLIDE 1- PIN SLIDE		
11					(MOVE BASE AND DISC SLIDE ASSEMBLY TO FINAL ASSEMBLY		
12	39				(FINAL ASSEMBLY PARTS) 1- BASE/DISC SLIDE ASSEMBLY PLACED IN TEST FIXTURE 1- DISC PLACED ON SIDE SHAFT 1- SLIDE PLACED OVER DISC 1- GASKET PLACED OVER SLIDE 1- SPRING FITTING PLACED OVER GASKET 1- CHECK OVER SLIDE SPRING ASSEMBLY PARTS 1- DEVICE COMPLETED 1- DEVICE PLACED IN TEST		
13					(DEVICE MOVED TO CHECKOUT		
14	40				(CHECK FINISHED DEVICE	(CHECK DEVICE	(CHECK TOTAL COMPLETION FAILURE REQUIREMENT FAILURE
15					(MOVE DEVICE TO PARALLEL TESTER		
16	41				(TRANSFER TEST DEVICE	(RELEASE (ACTUATION (CHECK	(CONTINUE RELEASE COMPLETION FAILURE REQUIREMENT FAILURE
17					(DEVICE MOVED TO OVER TESTER		
18	42				(RELEASE OVER TEST	(TEST RELEASE (TEST ARM (TEST SPRING	(RELEASE CHECK COMPLETION FAILURE REQUIREMENT FAILURE
19					(MOVE DEVICE TO FINAL TESTER		

PART NUMBER: 22481438

DATE: 2 25 81

REV DATE: 3-26-81

T DESCRIPTION: AIRBORN ARM - A/C CLUTCH CYCLING PRESSURE SWITCH

PREPARED BY: T SPOONER

STEP	FAB	MOVE	STORE	INSPECT	OPERATION DESCRIPTION	KEY PRODUCT CHARACTERISTICS	KEY CONTROL CHARACTERISTICS
10				SI	FINAL INSPECTION	PARON LEAK COSMETIC DEFECTS THREAD DAMAGED/ FUNCTIONALITY	EQUIPMENT IDENT

77PS CALIBRATION SPECIFICATION TEST 131-15-100 JAB 1/27/73

DEVICE #	TEST LOT	ACT	REL	DISC TO REFERENCE	MATCHET CURVE	PIN WINDOW
131-15-01	1	294	119	0.0475		
131-15-02	1	302	124	0.0478		
131-15-03	1	298	104	0.0478		
131-15-04	1	296	107	0.0479		
131-15-05	1	283	117	0.0476		
131-15-06	1	276	113	0.0482		
131-15-07	1	290	127	0.0476	X	.146-.153
131-15-08	1	285	124	0.0479		
131-15-09	1	307	112	0.0479		
131-15-10	1	286	126	0.0476		
131-15-11	1	281	116	0.0478		
131-15-12	1	275	112	0.0481		
131-15-13	1	305	128	0.0479		
131-15-14	1	308	132	0.0476	X	.147-.155
131-15-15	1	292	108	0.0478		
131-15-16	1	300	102	0.0475		
131-15-17	1	279	111	0.0479		
131-15-18	1	318	138	0.0476		
131-15-19	1	285	121	0.0478		
131-15-20	1	298	117	0.0479		
131-15-21	1	308	125	0.0476		
131-15-22	1	276	112	0.0479	X	.147-.155
131-15-23	1	299	130	0.0475		
131-15-24	1	290	122	0.048		
131-15-25	1	290	115	0.0478		
131-15-26	1	298	134	0.0476		
131-15-27	1	273	117	0.0479		
131-15-28	1	302	118	0.0477		
131-15-29	1	278	111	0.048		
131-15-30	1	297	126	0.0478		
131-15-31	2	137	64	0.0488		
131-15-32	2	132	63	0.0489		
131-15-33	2	140	67	0.0488	X	.147-.151
131-15-34	2	128	59	0.0488		
131-15-35	2	135	63	0.0488		
131-15-36	2	139	66	0.0489		
131-15-37	2	143	67	0.0486		
131-15-38	2	141	66	0.0487		
131-15-39	2	128	66	0.0488		
131-15-40	2	137	57	0.0487	X	.146-.151
131-15-41	2	136	66	0.0487		
131-15-42	2	136	63	0.0486		
131-15-43	2	133	57	0.0486		
131-15-44	2	138	78	0.0488		
131-15-45	2	148	78	0.0487		
131-15-46	2	139	68	0.0487		
131-15-47	2	135	70	0.0488		
131-15-48	2	142	74	0.0489		
131-15-49	2	146	76	0.0487		
131-15-50	2	122	59	0.0485		
131-15-51	2	145	72	0.0487		
131-15-52	2	130	67	0.0488		
131-15-53	2	136	73	0.049		

TI-NMTSA 001803

77PS CALIBRATION SPECIFICATION TEST 131-15-100 JAD 3/27/91

131-15-54	2	139	66	0.0487	X	.147-.151
131-15-55	2	145	64	0.0486		
131-15-56	2	135	62	0.0486		
131-15-57	2	128	60	0.0486		
131-15-58	2	135	62	0.0487		
131-15-59	2	141	76	0.0488		
131-15-60	2	143	77	0.0487		
131-15-61	2B	130	69	0.0438		
131-15-62	2B	132	59	0.0439		
131-15-63	2B	144	74	0.0438		
131-15-64	2B	140	70	0.0427		
131-15-65	2B	138	71	0.0439		
131-15-66	2B	143	75	0.044		
131-15-67	2B	135	73	0.0442		
131-15-68	2B	136	65	0.0439		
131-15-69	2B	136	65	0.0441		
131-15-70	2B	141	76	0.0442		
131-15-71	3	595	424	0.0454		
131-15-72	3	600	424	0.045	X	.147-.151
131-15-73	3	599	413	0.0452		
131-15-74	3	288	415	0.0452		
131-15-75	3	606	433	0.0455		
131-15-76	3	619	439	0.0456		
131-15-77	3	593	414	0.0455		
131-15-78	3	591	419	0.0455		
131-15-79	3	586	410	0.0454	X	.146-.152
131-15-80	3	577	411	0.0455		
131-15-81	3	586	409	0.0454		
131-15-82	3	608	486	0.0451		
131-15-83	3	610	434	0.0452		
131-15-84	3	585	404	0.0457		
131-15-85	3	596	412	0.0458		
131-15-86	3	593	405	0.0455		
131-15-87	3	573	414	0.0455		
131-15-88	3	600	425	0.0458		
131-15-89	3	603	433	0.0456		
131-15-90	3	584	413	0.0456		
131-15-91	3	583	409	0.0461		
131-15-92	3	594	421	0.0456		
131-15-93	3	595	424	0.0453	X	.147-.151
131-15-94	3	588	412	0.0457		
131-15-95	3	605	419	0.0456		
131-15-96	3	601	429	0.0455		
131-15-97	3	575	409	0.0453		
131-15-98	3	606	435	0.0454		
131-15-99	3	588	407	0.0455		
131-15-100	3	583	419	0.0455		

HILITES 91-03-28

- * CIR's for 77AS parts are in-process; planned to submit next week under mandatory EIS system
 - 36580 - adding note re: 41-95° ϕ , how to measure
 - 27713 - fixing corner radii to reflect actual R found on 27288. will allow approval of tool.
 - 3667/B - minor updates to re-spec revised chamber on blades
 - 46615 - multitude of minor revs primarily to clarify print or correct errors; no sig's to design intent
 - 36889 - entire spring design needs review based on geometry learned on prototypes

* Matt & I ran a quick abbreviated R&R in TDR's 5112 chamber gage. We began to develop a technique which helps improve precision. I have developed a Lotus spreadsheet to input gage measurements & output actual cham ϕ & θ . TDR is how to train like on our developing techniques.

* Carl Innocelli of Weatherhead called. He said like reviews with contract as stated in our tolerance relocation experiment. Bruce Pease is requesting Tier-1's to perform various checks of hydraulic seal integrity. We have been expecting this request for a couple months. Also, we're requesting similar requests from Atto & K/H. I'd like to get a Call to know how many total parts req'd for all 3 Tier-1's so the model shop only needs to do this once. Qty and pricing is T-B-D w/ next mfr.

* Jeff D has completed initial measurements on all 100 parts undergoing cal. spec. test. Data crunching is ongoing, as well as a plan for the verification portion of the test.

 316328

TO: BILL SWEET
FM: MATT SELLERS
SJ: HIGHLIGHTS FOR W/E 3/28/91

77PS

THE 27713-1 LOW RATIO CUT TOOL WITH VALENTINE IS NOW APPROVED THE PRINT WAS CHANGED FOR THE LAST TWO DIMENSIONAL ISSUES BASED ON FUNCTIONAL EVALUATIONS AND PAPER STUDIES. THE MEASUREMENT TECHNIQUE ISSUES HAVE BEEN CLEARED UP WITH INSPECTION - REVISED METHODS HAVE BEEN UPDATED ON THE PART IQP.

CONCERNING THE STATIONARY TERMINAL TOOL - BASSLER EFFORTS TO CORRECT THE PROBLEM IDENTIFIED LAST WEEK HAVE BEEN SUCCESSFUL. FIRST SAMPLES OFF THE TOOL WERE PRESENTED DURING A VISIT THIS WEEK. THEY STILL HAVE WORK TO DO ON THE TERMINAL TIP ANGLE DIMENSION; SAME PROBLEM AS WITH THE MOVABLE TERMINAL TOOL. FAI SUBMISSION FOR THE STATIONARY TERMINAL TOOL IS EXPECTED IN 2 WEEKS MAX. RE-SUBMISSION OF THE MOVABLE TERMINAL TOOL IS EXPECTED ABOUT THE SAME TIME.

TDR HAS NEARLY COMPLETED BUILD ON THE J512 HEXPORT CHAMFER GAUGE SYSTEMS. A VISIT TO LOOK AT THE GAUGES WAS MADE THIS WEEK. A GAUGE R&R STUDY WAS CONDUCTED WITH STEVE OFFILER AND MYSELF AS OPERATORS. THE R&R CAPABILITY OF THE SYSTEM IS EXCEPTIONAL WITH VALUES BETWEEN 5 AND 10% OF A .010" TOLERANCE. THE SYSTEM WOULD NOT HAVE BEEN ACCEPTABLE IF WE WERE STILL REQUIRED BY FORD TO MEET THE .004" TOLERANCE. DELIVERY FROM TDR IS EXPECTED TODAY.

THE ALUMINUM CRIMP RING PRODUCTION QUALIFICATION IS PROGRESSING SLOWLY. PLANS WERE TO USE THE 57PS LIGHT TRUCK / PASS CAR TO EVALUATE THE RING. HOWEVER, PILOT RUN PUSHOUTS DUE TO HEXPORT DELIVERY PROBLEMS HAVE CREATED A TIME CRUNCH SITUATION. THE PILOT BUILD SAMPLES WILL BE NEEDED TO SUPPORT CUSTOMER SAMPLE DELIVERIES RATHER QUICKLY. THIS ALL IS CREATING A SITUATION WHERE TESTING WILL NEED TO BE CONDUCTED PRIOR TO THE PILOT RUN. BOB ROBICHAUD AND DAVE P. WILL BE CONDUCTING THIS TESTING AS SOON AS TIME PERMITS.

CHRYSLER LH PROJECT

MECHANIZATION HAS ASKED FOR ADDITIONAL FUNDING TO SUPPORT THE STAKING. PRIOR PROPOSAL HAD INDICATED \$6.1K. THEY NOW INDICATE THAT PROJECT COST WILL BE \$8.5K. THERE IS SUFFICIENT

TL-NHTSA 001808

CUSTOMER FUNDING ALLOCATED TO SUPPORT THIS SO KARL W. HAS BEEN ASKED TO UPDATE THE CP ACCOUNT.

RIVETING SYSTEMS ARE PROGRESSING O.K. MANUFACTURING ENG. HAS BEEN DIRECTED TO TAKE OWNERSHIP OF ORDERING THE BASE RIVETERS. STANDARD PRACTICE?????GENE UZPURVIS IS BEING PURSUED BUT IS IMPOSSIBLE TO GET A HOLD OF. TIME IS A WASTING! IF THE RIVETING SYSTEMS BECOME AN ISSUE WITH THE JUNE 23RD DATE. MARKETING HAS INDICATED THAT WE WILL BE ABLE TO USE EXISTING 62PS SYSTEMS.

BASE MOLD DESIGN REVIEW IS SET FOR TODAY AT 11:00AM AT AFCC.

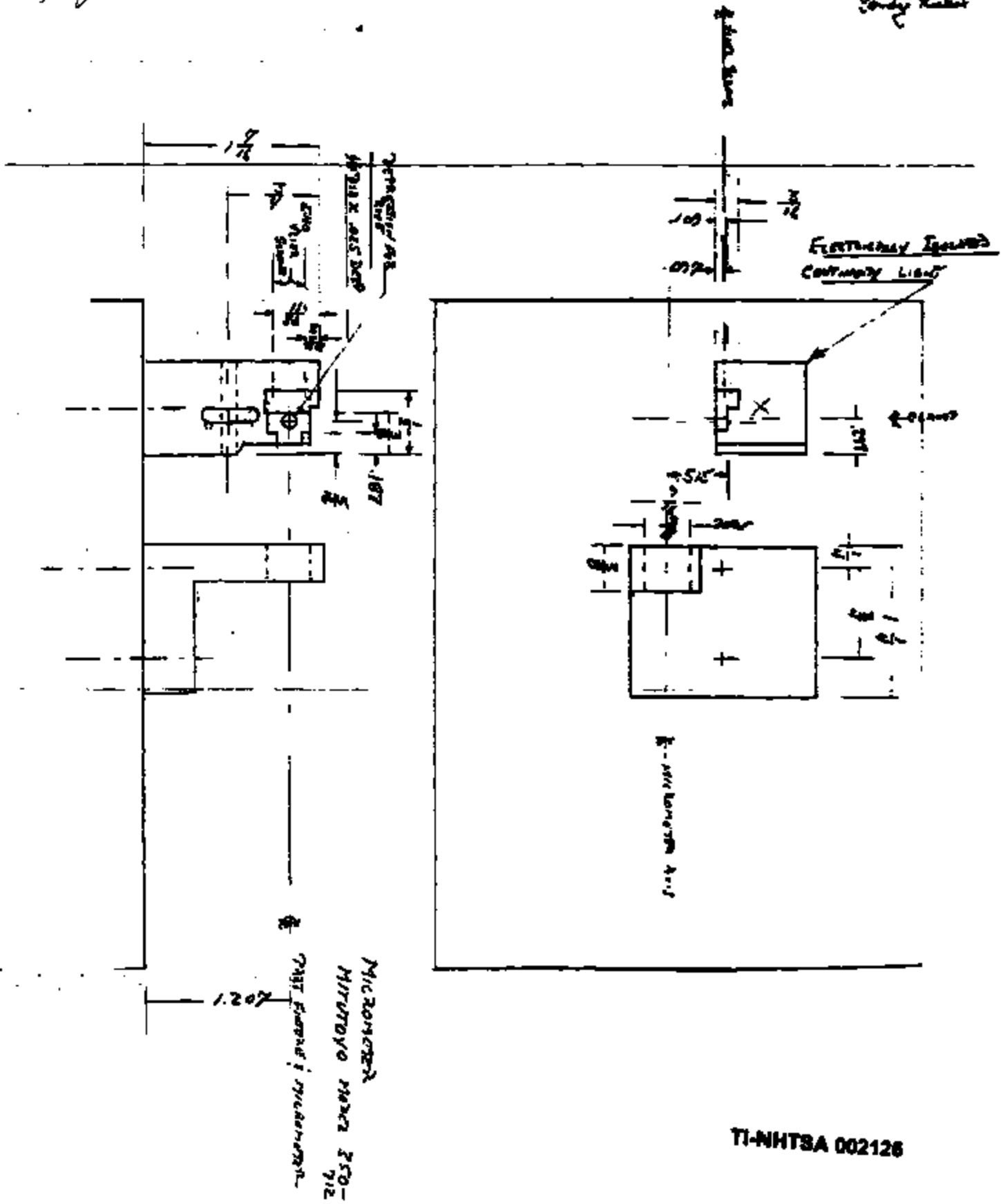
GENERAL

WORK ON 57PS TERMINAL POSITION ISSUES HAVE PROGRESSED WELL THIS WEEK. WE HAVE MADE WHAT WILL BE CALLED THE FINAL ITERATION OF TOOL DESIGN. DAVE P. CONDUCTED AN ASSESSMENT OF OUR NEW CAPABILITY WITH GOOD RESULTS. WE WARE NOW CAPABLE TO A $\pm .010$ " TOLERANCE. PREVIOUS CAPABILITY WAS $\pm .031$ ". FORD HAS FORMALLY ALLOWED $\pm .008$ ", AND INFORMALLY LEFT THE DOOR OPEN TO $\pm .010$ ". RE-SUBMISSION PROCESS WILL COMMENCE ASAP.

Mat

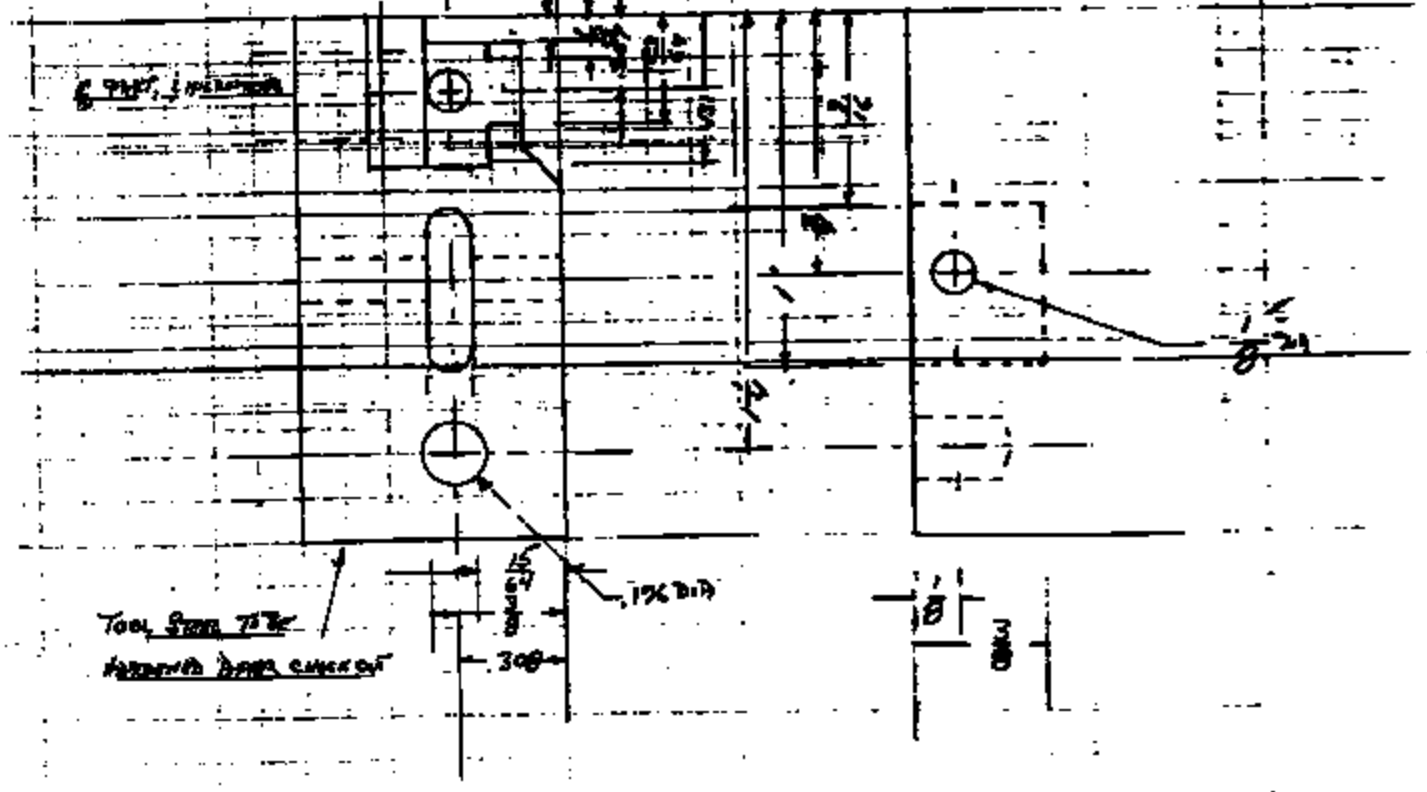
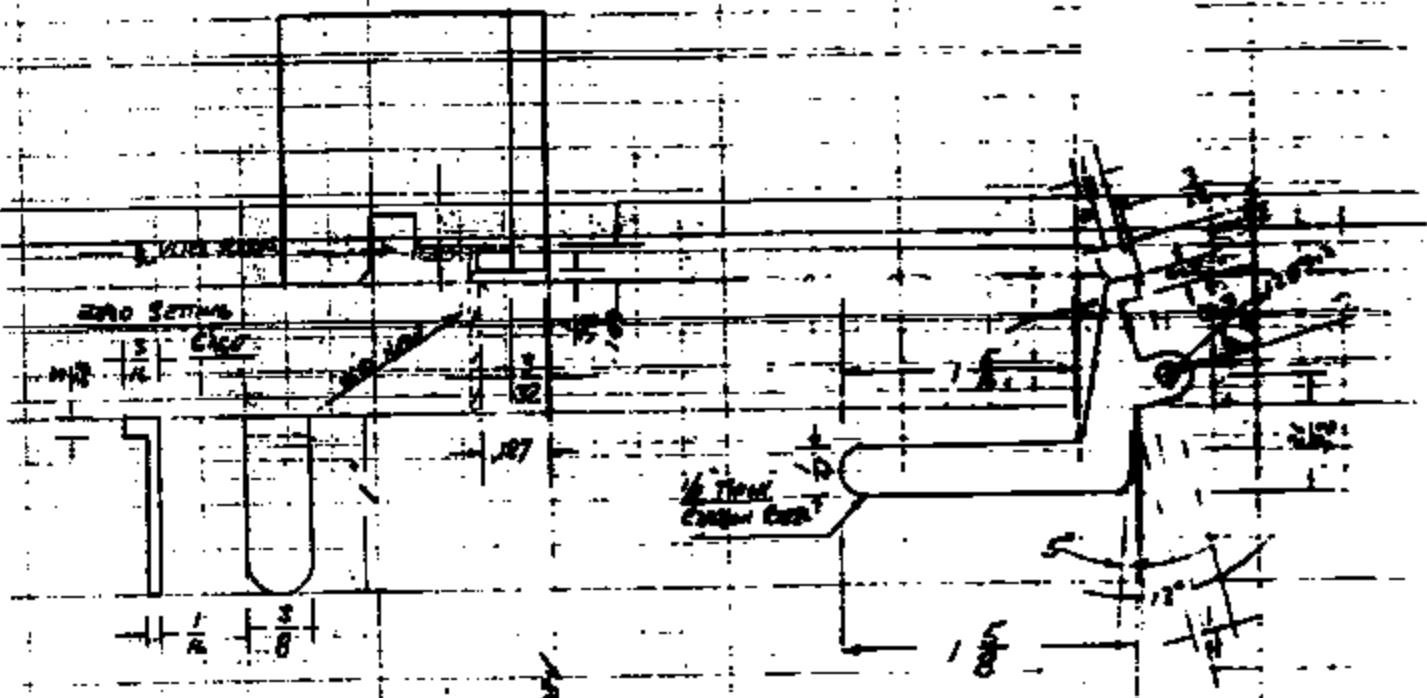
7775-102 CONTACT CASE

Doc 2
July 1991
Sandy Rubin



7773 - CDR CONTROL GAGE

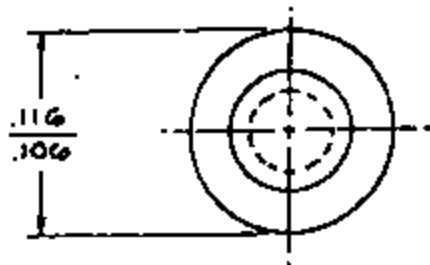
8



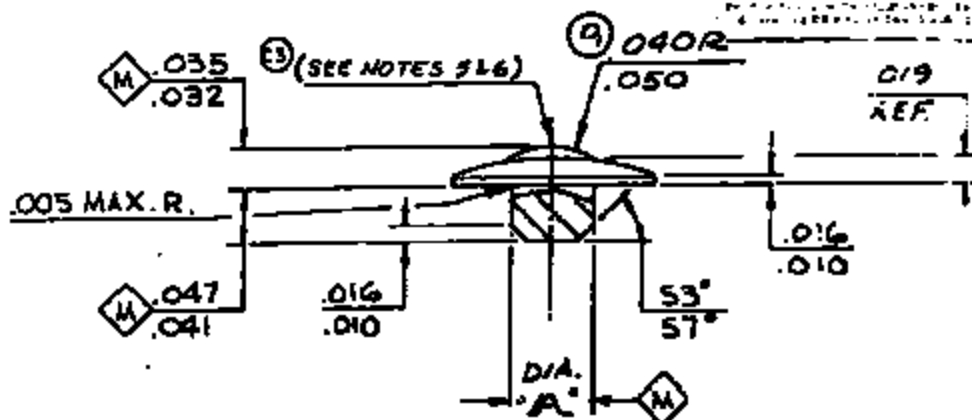
74408

MOVABLE CONTACT

D 7440



REVISIONS
 1. REVISED DRAWING
 2. REVISED DRAWING
 DATE 11-1-57



NOTES:

- PARTS MUST BE STORED IN PLASTIC BAGS THROUGH ALL SHIPPING AND HANDLING PROCESSES.
- MATERIAL & PLATING THICKNESS CERTIFICATION REQUIRED WITH EACH SHIPMENT
- DIMENSIONS APPLY AFTER PLATING.
- MEASURE PLATING THICKNESS BY MOUNTING & CROSS-SECTIONING PART
- PLATING THICKNESS APPLIES AT THE INDICATED LOCATION ONLY
- TOOL VENT MARK ON .040-.050R ALLOWED. DIMENSIONS MAY NOT EXCEED .001 IN HEIGHT AND .003 IN WIDTH. THERE MUST BE NO VOID IN PLATING IN THIS AREA. .032-.035 DIMENSION MAY MEASURE .036 OVER THIS MARK.
- PLATING THICKNESS OF .0007 MINIMUM ALLOWED ABOVE TOOL VENT MARK ONLY. ADJACENT AREAS MUST MEET "FINISH" REQUIREMENTS.

SL4-1
 SEE CN - CR 98927
 5-3-57 M.D. DES
 SEE DCN
 7-9-58, 12-5-7-56, 8-9-55

74408-1	COPPER	SILVER PLT. .0011/.0024 THK. (SEE NOTE #5)	0605-06
PART NO.	MATERIAL	FINISH	DIA.
BY T. D. [Signature]	TEXAS INSTRUMENTS	KLIXON	74408

TI-NHTSA 002128

UNITED STATES DEPARTMENT OF TRANSPORTATION
SAFETY INVESTIGATION BOARD
WASHINGTON, D.C. 20590
STATE OF CALIFORNIA
COUNTY OF ALBERTA
CIVIL NUMBER: 00111111
ADAMS AIRLINES, INC. (Plaintiff)
vs.
ADAMS AIRLINES, INC. (Defendant)
Case No. 153,776
FILED FOR RECORD
JAN 10 1984
COURT OF APPEALS
SACRAMENTO, CALIFORNIA
DEPT. CLERK
COURT REPORTER
COURT REPORTER
COURT REPORTER

John Michael 

STATE OF CALIFORNIA
COUNTY OF ALBERTA
CIVIL NUMBER: 00111111
ADAMS AIRLINES, INC. (Plaintiff)
vs.
ADAMS AIRLINES, INC. (Defendant)
Case No. 153,776
FILED FOR RECORD
JAN 10 1984
COURT OF APPEALS
SACRAMENTO, CALIFORNIA
DEPT. CLERK
COURT REPORTER
COURT REPORTER
COURT REPORTER

AMERICAN ELECTRO PRODUCTS
CROSS SECTION REPORT SHEET

71150

0211

71408

TEST DATE <i>4-24-91</i>	REF. NO.	TYPE PLATING <i>Silver</i>	PLATING SPEC. <i>1100 - 2400</i>	MOUNT # <i>1</i>
PART NO. <i>6254A</i>	P.O. NO. <i>132784</i>			APPROVED BY <i>Mike V</i>
CUSTOMER <i>Milford</i>		LOTS PER ORDER <i>1</i>		QTY. OF ORDER
CROSS SECTION SENT TO CUSTOMER Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		READINGS TAKEN WITH NIKON MICROSCOPE 1800 POWER		
READINGS TAKEN ON	I.D. _____ O.D. <i>X</i> _____ Both _____	FINAL READINGS BELOW		

- 1 *1240*
- 2 *1097*
- 3 *1421*
- 4 *1462*
- 5 *1134*

TI-NHTSA 002130



AMERICAN ELECTRO PRODUCTS INC.
 1355 THOMASTON AVENUE
 WATERBURY, CT 06704
 (203) 756-7061

Certificate of Compliance

017642

NO. 214724
 REL 1

HILFORD RIVET & NUT
 857 BRIDGEPORT AVE

DATE 04/24/91

HILFORD CT 06460

YOUR ORDER NO. 1 3278
 SHIPPED VIA UNITED P. S.

This is to verify that parts and/or your material furnished against your purchase order number shown above, have been manufactured in accordance with requirements and specification as required.

PART NO.	DESCRIPTION	QUANTITY
6254A	SILVER 0.001100-0.002400 NUT	200.000 0

Tests to substantiate this have been performed in our plant (or have been performed by our suppliers) and are available upon request from us/or our suppliers.

Very truly yours

AMERICAN ELECTRO PRODUCTS, INC

Signed by

Gene R. Matthey
 Q.C. Inspector

**BELGIAN METALS CORPORATION
650 HOFFERMAN AVENUE
YONKERS, N.Y. 10701**

FORM CERTIFICATE OF ANALYSIS AND COMPLIANCE FOR

LT. 38390

**MILFORD RIVET & MACHINE CO.
557 BRIDGEPORT AVENUE
MILFORD, CT. 06460**

**BMC # 3837
P.O.# 1200
OUR INVOICE# 3802
DELIVERY DATE: 01/05/69**

Q. 0870

M.I.A.: %

QT: 100

ELONGATION:

TI

ROCKWELL HARDNESS:

IFH: B

GRAIN SIZE (ASTM) FINAL ANNEAL:

TENSILE STRENGTH: 48.62-49.08 KSI

ELECTRICAL CONDUCTIVITY: %

TENSILE DESIGNATION: M01.5

CHEMICAL ANALYSIS:

CU	ZN	PB	FE	BN
99.98				
AL	MN	NI	SI	P

FR:

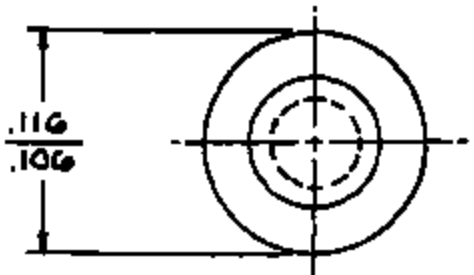
**CERTIFY THAT THIS SHIPMENT CONFORMS TO THE CHEMICAL AND PHYSICAL
 TESTS SHOWN ABOVE, AND IS IN COMPLIANCE WITH THE SPECIFICATIONS
 THIS ORDER**

BELGIAN METALS CORPORATION

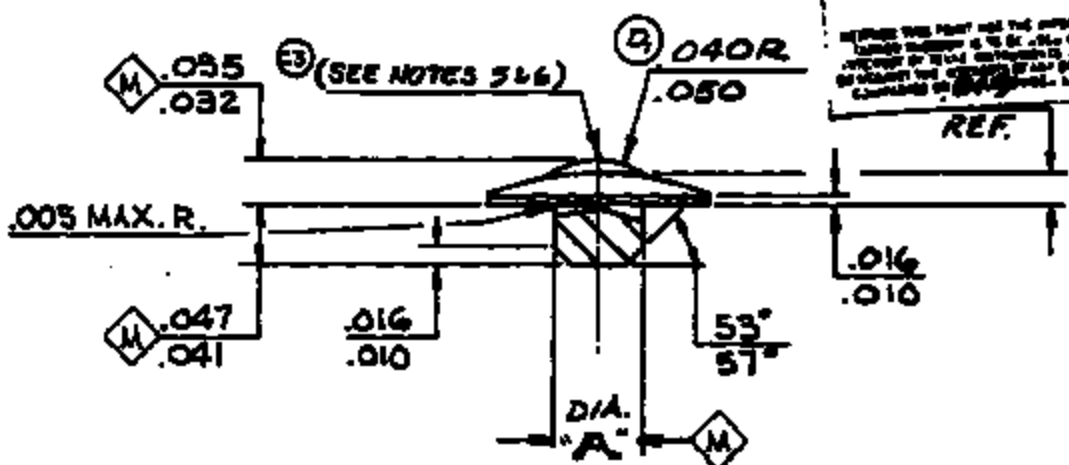
APL/ATL/Unit

74408

MOVABLE CONTACT D 74408



REWORKED PART
 G. STD. E9898 REV. E
 JUL 1 1991
 REF.



- NOTES:**
- PARTS MUST BE STORED IN PLASTIC BAGS THROUGH ALL SHIPPING AND HANDLING PROCESSES.
 - MATERIAL & PLATING THICKNESS CERTIFICATION REQUIRED WITH EACH SHIPMENT.
 - DIMENSIONS APPLY AFTER PLATING.
 - MEASURE PLATING THICKNESS BY MOUNTING & CROSS-SECTIONING PART.
 - PLATING THICKNESS APPLIES AT THE INDICATED LOCATION ONLY.
 - TOOL VENT MARK ON .040-.050 R ALLOWED. DIMENSIONS MAY NOT EXCEED .001 IN HEIGHT AND .003 IN WIDTH. THERE MUST BE NO VOID IN PLATING IN THIS AREA. .032-.035 DIMENSION MAY MEASURE .036 OVER THIS MARK.
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56PSL4-1
 1ST ISSUE 1-6-85
 2ND ISSUE 1-13-86
 3RD ISSUE 1-13-86
 4TH ISSUE 1-13-86
 5TH ISSUE 1-13-86
 6TH ISSUE 1-13-86
 7TH ISSUE 1-13-86
 8TH ISSUE 1-13-86
 9TH ISSUE 1-13-86
 10TH ISSUE 1-13-86
 11TH ISSUE 1-13-86
 12TH ISSUE 1-13-86
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 16TH ISSUE 1-13-86
 17TH ISSUE 1-13-86
 18TH ISSUE 1-13-86
 19TH ISSUE 1-13-86
 20TH ISSUE 1-13-86
 21ST ISSUE 1-13-86
 22ND ISSUE 1-13-86
 23RD ISSUE 1-13-86
 24TH ISSUE 1-13-86
 25TH ISSUE 1-13-86
 26TH ISSUE 1-13-86
 27TH ISSUE 1-13-86
 28TH ISSUE 1-13-86
 29TH ISSUE 1-13-86
 30TH ISSUE 1-13-86
 31ST ISSUE 1-13-86
 32ND ISSUE 1-13-86
 33RD ISSUE 1-13-86
 34TH ISSUE 1-13-86
 35TH ISSUE 1-13-86
 36TH ISSUE 1-13-86
 37TH ISSUE 1-13-86
 38TH ISSUE 1-13-86
 39TH ISSUE 1-13-86
 40TH ISSUE 1-13-86
 41ST ISSUE 1-13-86
 42ND ISSUE 1-13-86
 43RD ISSUE 1-13-86
 44TH ISSUE 1-13-86
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 63RD ISSUE 1-13-86
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 68TH ISSUE 1-13-86
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 70TH ISSUE 1-13-86
 71ST ISSUE 1-13-86
 72ND ISSUE 1-13-86
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 80TH ISSUE 1-13-86
 81ST ISSUE 1-13-86
 82ND ISSUE 1-13-86
 83RD ISSUE 1-13-86
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 86TH ISSUE 1-13-86
 87TH ISSUE 1-13-86
 88TH ISSUE 1-13-86
 89TH ISSUE 1-13-86
 90TH ISSUE 1-13-86
 91ST ISSUE 1-13-86
 92ND ISSUE 1-13-86
 93RD ISSUE 1-13-86
 94TH ISSUE 1-13-86
 95TH ISSUE 1-13-86
 96TH ISSUE 1-13-86
 97TH ISSUE 1-13-86
 98TH ISSUE 1-13-86
 99TH ISSUE 1-13-86
 100TH ISSUE 1-13-86

TI-NHT8A 002133

74408-1	COPPER	SILVER PLT. .0011/.0024 THK. (SEE NOTE #3)	.0605-.0635
A	B	C	D
PART NO.	MATERIAL	FINISH	DIA. "A"

BY T. Dail 1-6-89
 OF K. Parker 1-13-86
 ENG. Ben Becker 1-13-86

TEXAS INSTRUMENTS
 INCORPORATED
 ATTLEBORO, MASS., U.S.A.

KIDSON
 CONTROL PRODUCTS
 DIVISION

PARTS LIST
74408
 CASE INVT NO. 87447

VALENTINE TOOL & STAMP CO.

17045 PLYMOUTH AVENUE, FREEPORT, TEXAS 77541
(936) 263-4551 (936) 263-4541

CERTIFICATE OF CONFORMANCE

DATE : TUESDAY JULY 2, 1995

CUSTOMER : TEXAS INSTRUMENTS INC

CUSTOMER P.O. NO. : 5050267 5

SUPPLIER INVOICE NO. : 45

PART DESCRIPTION : 21288-01 CUP REV. A

SUPPLIER P.O. NO. : 1824

QUANTITY SHIPPED : 6.650

SHIPMENT DATE : 6/22/95

WE CERTIFY THAT ALL ITEMS SHIPPED ON THIS ORDER ARE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PURCHASE ORDER AND APPLICABLE DRAWINGS. ALL ITEMS HAVE BEEN INSPECTED AND FOUND TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PURCHASE ORDER. A COPY OF THIS CERTIFICATE OF CONFORMANCE WILL BE FILED IN OUR QUALITY CONTROL DEPARTMENT.

SIGNATURE: *Jeanne Lafrenne*
Jeanne Lafrenne
Quality Control Manager

TI-NHTSA 002134

HIGHLIGHTS

Stephen B. Offiler
Week Ending 91-07-03

*Parts of
7/10/93*



FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

Parts for both the Light Truck and Pass Car validation testing were built on the switch asm. AMI and the final asm. AMI. Both machines run fairly well, considering we're still in a debug phase. Issues related to the switch machine include: the base feed bowl, which is not integrated yet due to incorrect height of its stand; terminal seating, which is not giving good terminal position yet; Eastern Automation equipment, not in-house yet; calibrator, not up to machine speed yet; and check station, no software written yet. Issues related to the final asm. include: jams at the env. seal station on PC, likely related to the thicker gasket; misfeeds at the t-pin station, related to alignment & size of the feed tube relative to the guide in the cup.

After running about 150 of each, we checked some in the lab and discovered about 20% had continuity problems. Inspection revealed fractured t-pins were the cause in every case. Mechanization is aware of this problem, and will work to modify this station to handle the t-pins more gently. We are decrimping and salvaging all parts. All switches and env. seals will be re-used. Sensors with good t-pins (about 80%) will be reused. Sensors with a chance of having ceramic fragments will be set aside for possible internal use in the future. We plan to rebuild the validation parts as soon as Mech. can complete modifications to the pin station. Also, the pressure tester is reaching a stage where we can run these parts through it. The plan is to label a quantity of parts, then run through the PT and compare the results with a manual check.

Measurement of 32 calibrated switches taken from the validation run showed a sigma of 0.54 mils using the manual check method, and a fairly consistent fixed offset of 4 mils. However, upon running another set of switches at a different calibration setting for Stan Homol's use, we discovered the fixed offset had shifted to 7 mils. We have decided to perform a calibration correlation study as soon as feasible, where we will run a dozen or so parts at each of several calibrator settings, and compare the results with manual measurements to develop a correlation. It is important to note that Mech. has been using high-speed video to identify speed improvements, and they are presently making modifications. We must ensure that our sigma's are not impacted negatively by these speed improvements. Also, the correlation study may point to the need to modify the springs/weights used on the LVDT to more closely match the deflected-spring shape to the actual application.

John K. is issuing an ultimatum to Eastern Automation. Regardless of its condition, we will be qualifying the machine on July 12, and we will bring it in-house by July 19. If it is not ready, we will finish it ourselves and back-charge Eastern.

I have been in contact with Bruce Pease to help in obtaining samples of the offset-key connectors. He has contacted UTA, and reports that the ISIR approval is due any day now. On Monday of next week I will be contacting Gus Morris at the plant in Huntington, IN that makes the parts. If the parts are still not approved, we will work with Bruce to determine whether they are dimensionally suitable for our use in validation testing. This issue, combined with fractured t-pins, is going to push out the validation schedule by two weeks, to Sept 16.

TI-NHTSA 002135

MSG NO: 352439 FR: CZRN TO: PCDA SENT: 07/05/91 02:39 PM
R#-049 ST-C DIV-0050 CC-00101 BY: CZRN AT: 07/05/91 02:39 PM

JULY 5, 1991

TO: RUSTY STRUBLE
LUKE DEWALLA
VANDIE BOUCLAS
DICK ERIEY
PAUL BOULCH
DEJAZZ
STEVE OFFLER
DALL SELLERS
TIP SWEET
TED BREIKEN

RCSZ
LWJ
KAY
PEL
KAY
SCOTT
CLINE
CLINE
PSUT

CC: TOM CHARRONEAU
JOHN KORKISTIS
STEVE KALIN
ANDY NEEDERK
ED D. HELL
DE SOKK
GARY SMYER
MARTHA SULLIVAN
RAY HARRIS
TED BELLING
STAN BORN
CLARE THAZAR
BILL LINDSON
STEVE RIDGWAY
JERRY MARRIN
DONNA MORRISON

TC
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FR: DAWE CZRN ZORN
SJ: EPOD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
07/05/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:
DATE: 07/11 (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

57 L/T (15-2)

REPORT:

* L/T PILOT RUN
(IN PROGRESS; SENSORS BUILT)

	WAD	WEN	
SELLERS		01/29	ORIG.
WERTZ		07/03	REV.

cc DONNA
Need to start 7795 @ 8
FYE/Please attend -
thx.
DM

TI-NHTSA 002139

- PLAN FOR EVALUATING POULSEN
- PROPOSAL FOR RECEIVING GASKETS ON MANIFOLDS
- ENSURE THAT ELCO USES .512 SIZE ON ALL FUTURE LOTS
- SET UP F/T JIG WITH ELCO AT TI
- REVISED HEADSTAMP PRINT W/ RADIOS ON DOW POINT DIAMETER

KOTCH 07/03
05/16
07/11
KOTCH 07/03
KOTCH 07/11
OFFILER 07/11

COMP. REV.
REV.
ORIG. REV.

ISR ISSUES:

- CORRELATE INSERTION FORCE TEST REPORT
- PROTOTYPE TEST FOR N-GAGE CONCEPT
- RELEASE PRINT FROM L/T

OFFILER 07/11
SELLERS 07/11
SCHUCK 05/09
WATT 07/18
09/09
07/22

ORIG. REV.
REV.
REV.

- SIGNIT ISR FOLLOW-UP TO FORD SOA - (NEED RELEASE PRINT)

Waiting for print
Does no money check we need another check to a date new print
57 P/C (L5-3)

- PLAN FOR MAKING L/T AND P/C ENV. SEAL COMPRESSION CONSISTENT
- ADD RIDGE FOR SEAL COMPRESSION TO BASE PRINT AND REVIEW WITH AETL
- PLAN FOR EVALUATING INJECTOR (EX3355-97) GASKETS ON L/T SWITCHES
- CHECK SEAL COMPRESSION ON 5 SWITCHES FROM LIGHT P/L/T
- DEBUE ENGINE THROTTLE
- SET VAPOR & THER. 1'S
- BUILD ALL 57'S & 5-3'S W/ EX3355-97-1 GASKETS UNTIL TDD TIME
- SHIP 21K 15-3'S (DELIV. DATE PUSHOUT BY FORD)
- 2 SWITCHES FROM NEXT PILOT RUN TO STEVE O. FOR SECTIONING
- CHEMICAL LABELS FOR VANISHING OIL

OFFILER/ 06/06
SELLERS 07/03
07/03
OFFILER/ 07/18
SELLERS 07/18
OFFILER 07/18
WATT 06/20
BREDIKEN 07/11
GRIEPEY/ 06/03
STUMBLE 06/01
BALTHAZAR 07/18

ORIG. REV.
COMP.
ORIG. REV.
ORIG. REV.
ORIG. REV.
ORIG. REV.

77PS

- PROD. LINE SET-UP (RTE CARDS, ETC)
- UPDATE SPC FILES/RUN CAPABILITY STUDIES

BALTHAZAR 08/01

No 57PS P/C - 4/11
The new injection problems
Problem of setting up with 77PS

• ESTABLISH OVERALL SCHEDULE OF DESIGN ENG. ACTIONS	OFFILER	05/02	ORIG.
• 77PS EIS PARTS LISTS	OFFILER	06/06	ORIG.
• 77PS COMPONENT LIST TO CLAIRE	OFFILER	06/28	ORIG.
• COMPLETE DESIGN FMEA	OFFILER	06/28	ORIG.
• COMPLETE PROCESS FMEA	SELLERS	07/01	ORIG.
• CAL. WINDOW STUDY TO DETERMINE ALLOWABLE CALIBRATION RANGE	OFFILER	07/18	REV.
• 77PS DESIGN CONFIRMATION TEST	OFFILER	06/20	ORIG.
• PROD'N CALIBRATION WINDOW EXPERIMENT	OFFILER	07/04	ORIG.
• BUILD E20 GAGE FOR SPRING ARMS	SELLERS	07/19	REV.
• COMPLETE B.A.N. STAKER MODIFICATION	SELLERS/ MURPHY	07/31	
• COMMUNICATE ANY REQ'D TERMINAL CHANGES TO BASSLER	SELLERS	06/13	ORIG.
• BUILD 200 SWITCHES FOR ES TESTING	SELLERS/ MURPHY	06/14	ORIG.
• 57 TO 77 CONVERSION: PHASE I TESTING	MORAL	05/21	ORIG.
• COST ESTIMATE FOR LOW DIFF. SWITCH	SELLERS	06/16	ORIG.
• 77PS GAS (PRELIMINARY)	WATT	02/01	ORIG.
• 77PS CHARACTERISTICS SHEETS	WATT	07/15	REV.
• SET UP SV FILES AND CAPABILITY STUDIES	WATT	07/15	
• 77PS GAGE FOR MUST TESTER	WATT	07/01	
• 77PS GAGE FOR MUST TESTER	WATT	08/01	
• PV TESTING:			
• REBUILD VALIDATION TEST SWITCHES	SELLERS/ OFFILER	07/08	
• MTS CONNECTORS FOR P/C SWITCHES	OFFILER	07/12	
• COMPLETE TESTING AND REPORT	OFFILER	09/16	
• PRODUCTION COMPONENTS:			
• RESOLVE OPEN ISSUES ON BASE (POSTROOT DUE TO STAKER EVAL.)	SELLERS	09/11	ORIG.
		07/03	REV.

MANUFACTURING EQUIPMENT:

- * FINAL ASH MACHINE DEBUG COMPLETION
- * BASE ASH MACHINE BUILD COMPLETION
- * (RECEIVE E.A. MACHINE)
- * PRESSURE TESTER BUILD COMPLETION
- * B.A.M. EFFECTIVITY RUN #1
- * F.A.M. EFFECTIVITY RUN #1

SELLERS/	06/03	ORIG.
KOURTESIS	08/02	REV.
SELLERS/	05/31	ORIG.
KOURTESIS	08/02	REV.
SELLERS/	07/19	ORIG.
KOURTESIS	08/02	REV.
SELLERS	07/03	ORIG.
SELLERS	08/02	REV.
SELLERS	07/03	ORIG.
SELLERS	08/02	REV.

TOKICO:

* REPORT ON TOKICO P.S.

DOUGLAS ONGDING

DISCUSSION:

57 LT & P/C

A SECOND LOT OF HEADPORTS WERE REJECTED FOR OUT-OF-SPEC CHAMFER. PROBLEM WAS AGAIN RELATED TO NOT THE PARTS SEAT IN THE GROOVE. STEVE O. RE-REASURED THE PARTS AND DETERMINED THAT THEY'RE WITHIN SPEC. WE'VE NOT YET GOTTEN A RELEASE FROM PITTS FOR PRODUCTION VOLUMES OF 15-20'S. POSSIBLE HURDLE BY EDWARD IN RELEASING THE NSIC FOR FY92 TOWNSEND (FISB); JOE AND CHARLIE TO FOLLOW-UP.

77'S

14 TEST SWITCHES WERE BUILT, BUT ARE UNUSABLE DUE TO CRACKED PINS. 10% OF THE LOT. PROBLEM RELATES TO THE PIN INSERTION STATION; MODIFICATIONS ARE PLANNED.

<u>MILESTONES</u>	<u>PLANNED</u>	<u>ACTUAL</u>
57 LT ISIR	11/21/90	11/21/90
57 LT ISIR	09/15/91	
57 P/C ISIR	01/15/91	01/15/91
57 P/C ISIR	06/03/91	

77PS ISIR 09/01/91
 77PS SUP (TI) EST. 10/01/91

PRODUCTION PLAN BY MONTH (THOUSANDS) - WITHOUT OVERAGE

	P/E-3 57PS	L/I-2 57PS	P/E-1 77PS	L/I-3 77PS
APR	0 (CONP.)	0	0	0
MAY	22 (TENTATIVE)	2.2	0	0
JUN	0	2.2	0	0
JUL	0	2.2	0	0
AUG	0	2.2	0	0
SEP	0	2.2	0	0
OCT	0	2.2	0	0
NOV	0	2.2	0	0
DEC	0	2.2	0	0
TOTAL	22	22	0	0
		11		9.5

:: = JMBI FOR 57PS VERSIONS
 :: = TENTATIVE JMBI FOR 77PS VERSIONS

REGARDS
 DAVID L. AMN 029-FORD

-MSG NO- 367439 FR-CZRN TO-PCOA SENT-07/05/91 02:39 PM
RF-050 ST-C DIV-0050 CC-00101 BY-CZRN AT-07/05/91 02:39 PM

JULY 5, 1991

TO: RUSTY STRUBLE PCSZ
MIKE DEWITTA PCSZ
DORIS LE DONELAS PCSZ
DICK BRUSHY PCSZ
PAUL KOCH PCSZ
KEVIN AZARZ PCSZ
STEVE WITLER PCSZ
MATT SELLERS PCSZ
BILL SWEET PCSZ
JIM MATT PCSZ
TED BREIDEN PCSZ

CC: TOM CHARBONEAU TC
JOHN KORTESIS TC
STEVE JANKO TC
ANDY MERTIK TC
ED O'NEILL TC
KEVIN SUNDZ TC
DAVE SYNER TC
MARTHA SULLIVAN TC
RAY TOWNSEND TC
TED BILLOU TC
STAN JONES TC
CLARE BILHAZAR TC
BILL DUNSON TC
STEVE MCCOY TC
LESLY MURPHY TC
DONNA ROYAL TC

FR: DAVE CZARN ZARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
07/03/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

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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

✓ (L5-2)

✓ (L5-2)
VT RUN
SS; SENSORS BUILT)

WHO	WHEN	
SELLERS/ BRUSHY	01/29 07/03	ORIG. REV.

- PLAN FOR EVALUATING POULSEN
- PROPOSAL FOR RECEIVING GASKETS ON MODELS
- ENSURE THAT FLOD USES J512 GAGE ON ALL FUTURE LOTS
- SET UP FALDING WITH FLOD AT TI
- REVISED EXPORT PRINT W/ RADIOS ON DOWPOINT DIAMETER

KITCH 07/03
 05/16
 07/11
 SELLERS
 KITCH 07/03
 KITCH
 OFFILER 07/11

COMP.
 ORIG.
 REV.

ORIG.
 REV.

*Thin. Piping - need salt spray testing
 1 By 1/2*

ISR ISSUES:

- CONNECTOR INSERTION FORCE TEST REPORT
- PROTOTYPE TEST, P/S, N GAGE CONCEPT
- RELEASE PRINT FROM L/T
- SUBMIT ISR FOLLOW-UP TO FORD SOA (NEED RELEASE PRINT)

OFFILER 07/11
 SELLERS 05/18
 SCHUCK 07/18
 WATT 07/22

ORIG.
 REV.
 REV.

*TRUCK front vs. air, switch
 post imp. snap -
 not available -
 dec. imp. g. -
 cracked disc*

57 P/C (L5-3)

- PLAN FOR MAKING L/T AND P/C ENV. SEAL COMPRESSION CONSISTENT
- ADD RIDGE FOR SEAL COMPRESSION TO BASE PRINT AND REVIEW WITH AELT
- PLAN FOR EVALUATING WILKER (EX355-97) GASKETS ON L/T SWITCHES
- CHECK SEAL COMPRESSION ON 5 SWITCHES FROM 1500 P/C LOT
- REFINE RIGGING TORQUE
- REF. V/P/ASE & TIER 1'S
- BUILD ALL 57-95-3'S W/ EX355-97-1 GASKETS UNTIL TBO TIME
- STOP 21K L5-3'S (DELIV. DATE PUSHOUT BY FORD)
- 2 SWITCHES FROM NEXT PILOT RUN TO STEVE D. FOR SECTIONING (TENTATIVE)
- CHEMICAL LABELS FOR WASHING OIL

OFFILER/ 06/06
 SELLERS 07/13
 07/13
 OFFILER/ 07/18
 SELLERS
 OFFILER/ 07/18
 SELLERS
 OFFILER 07/18
 WATT 06/20
 BREDIKEN 07/11
 GRIEPEY/ 06/03
 STUMBLE 07/01
 BALTHAZAR WHEN AVAIL.
 RODRIGUEZ 07/18

ORIG.
 REV.
 COMP.

ORIG.
 REV.

ORIG.
 REV.

N/A

*(11.1) T
 (11.1) (11.1)*

77PS

- PROD. LINE SET-UP (RTE CARDS, ETC)
- UPDATE SPC FILES/RUN CAPABILITY STUDIES

BALTHAZAR ENGINE

• ESTABLISH OVERALL SCHEDULE OF DESIGN ENG. ACTIONS

OFFILER

05/02

ORIG.

• 77PS EIS PARTS LISTS

OFFILER

05/06

REV.

- schedule Sun V. Validation test

• 77PS COMPONENT LIST TO CLAIRE

OFFILER

05/28

ORIG.

• COMPLETE DESIGN FMEA

OFFILER

06/03

ORIG.

• COMPLETE PROCESS FMEA

SELLERS

07/01

ORIG.

• CAL. WINDOW STUDY TO DETERMINE

OFFILER

07/18

REV.

ADJUSTABLE CALIBRATION RANGE

• 77PS DESIGN CONFIRMATION TEST

OFFILER

06/20

ORIG.

• PROD'N CALIBRATION WINDOW EXPERIMENT

OFFILER

07/04

ORIG.

V/ "SILENT" SENSORS

SELLERS

07/18

REV.

• BUILD E70 GAGE FOR SPRING ARMS

SELLERS/
LOHMEY

07/31

• COMPLETE B.A.N. STAKER MODIFICATION

SELLERS

06/13

ORIG.

• COMMUNICATE ANY RED'D TERMINAL CHANGES

SELLERS/
LOHMEY

06/13

ORIG.

TO P251 EX

SELLERS/
LOHMEY

06/13

ORIG.

need these modifications Due 7/5-7/11

• 57 TO 77 CONVERSION: PHASE I TESTING

NORL

05/30

ORIG.

- (?) Res. all S/L's

• COST ESTIMATE FOR LOW DIFF. SWITCH

SELLERS

06/06

ORIG.

• 77PS GAS (PRELIMINARY)

WATT

07/01

ORIG.

• 77PS CHARACTERISTICS SHEETS

WATT

07/02

REV.

• GAGE FOR STUDIES

WATT

07/15

• 77PS GAS (FILING)

WATT

08/01

• SET UP SPC FILES / RUN CAPABILITY STUDIES

WALDHAZAR

08/01

• TOUPTS GAGE FOR BUST TESTER

WATT

08/01

• REMOVED VALIDATION TEST SWITCHES

SELLERS/
WEELEDER

07/08

• NTG CONNECTORS FOR P/T SWITCHES

WEELEDER

02/12

• COMPLETE TESTING AND REPORT

OFFILER

09/16

نورمان ویتنگ

PRODUCTION COMPONENTS:

• RESOLVE OPEN ISSUES ON BASE

SELLERS

08/11

ORIG.

(POSDOUT DUE TO STAKER EVAL.)

07/03

REV.

MANUFACTURING EQUIPMENT:

• FINAL ASH MACHINE SBOG COMPLETION

SELLERS/ 06/03 ORIG.

• BASE ASH MACHINE BUILD COMPLETION

KOURTESIS 08/02 REV.

(NEED E.A. MACHINE)

SELLERS/ 05/31 ORIG.

• RECEIVE EA MACHINE

KOURTESIS 08/02 REV.

• PRESSURE TESTER BUILD COMPLETION

SELLERS/ 06/20 ORIG.

KOURTESIS 08/02 REV.

• B.A.M. EFFECTIVITY RUN #1

SELLERS 07/03 ORIG.

• F.A.M. EFFECTIVITY RUN #1

SELLERS 07/03 ORIG.

08/02 REV.

TOK100:

• REPORT ON TOK100 P.S.

DOUGLAS ONGOING

DISCUSSION:

57 LT & P/C

A SECOND LOT OF REPORTS WERE REJECTED FOR OUT-OF-SPEC CAMFER. PROBLEM WAS AGAIN RELATED TO HOW THE PARTS SEAT IN THE CASE. STEVE D. RE-MEASURED THE PARTS AND DETERMINED THAT THEY'RE WITHIN SPEC.

WE'VE NOT YET GOTTEN A RELEASE FROM PITTS FOR PRODUCTION VOLUMES OF 1.5-2% POSSIBLE PUSHOUT BY END. IN RELEASING THE RISC FOR NY92 TONKAC (FMS6); JOE AND CHARLIE TO FOLLOW-UP.

77S

PV TEST SWITCHES WERE BUILT, BUT ARE UNUSABLE DUE TO CRACKED PINS IN A LOT OF THE LOT. PROBLEM RELATES TO THE PIN INSERTION STATION; MODIFICATIONS ARE PLANNED.

71-4478A 002144

MILESTONES

PLANNED

ACTUAL

57 LT ISIR
57 LT JIB 1
57 P/C ISIR
57 P/C JOB 1

11/21/90
09/03/91
01/15/91
06/03/91

11/21/90
01/15/91

77PS ISIR 09/01/91
 77PS SWP (TI) EST. 10/01/91

PRODUCTION PLAN BY MONTH (THOUSANDS) - WITHOUT OVERAGE

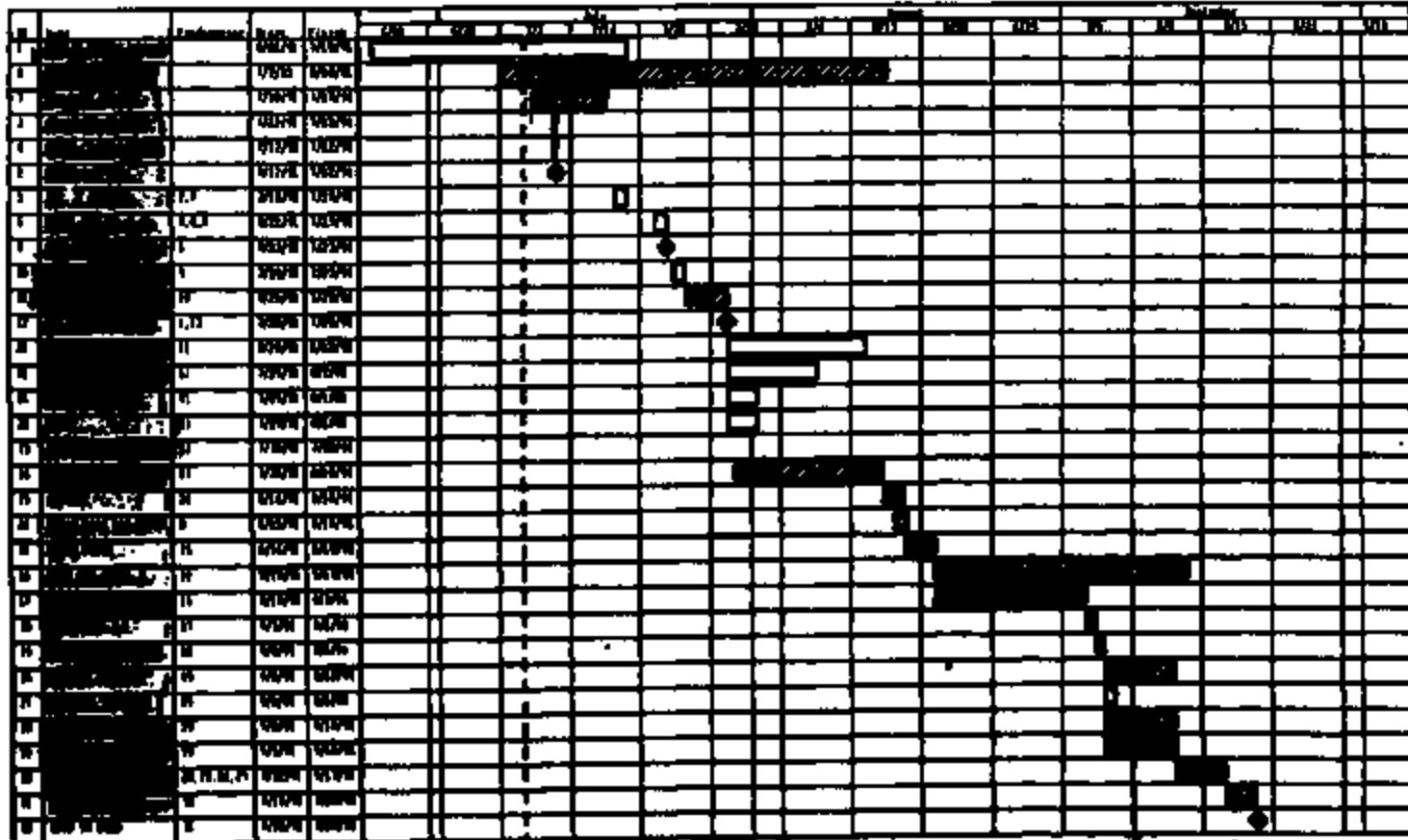
	P/E 57PS 5-3	L/T 57PS 5-2	P/E 77PS 2-1	L/T 77PS 2-3
APR	0	0	0	0
MAY	2 (CONF.)	2	0	0
JUN	22 (TENTATIVE)	22.3	0	0
JUL	0	22.3	0	0
AUG	0	22.3	0	0
SEP	0	22.3	0	0
OCT	0	22.3	0	0
NOV	0	22.3	0	0
DEC	0	22.3	0	0
TOTAL	22	110.5	0	0
AVG	1.76	9.21	0	0
MAX	22	22.3	0	0
MIN	0	0	0	0
STDEV	10.5	10.5	0	0
COEFF	0.6	0.6	0	0
VAR	110	110	0	0
STDEV	10.5	10.5	0	0

.. = JOB FOR 57PS VERSIONS
 .. = TENTATIVE JOB FOR 77PS VERSIONS

REGARDS
 DAVID L. ZARN 023-FORD

TI-NHTSA 002148

7795 PRODUCTION VALIDATION TESTING



Prepared by: [illegible]

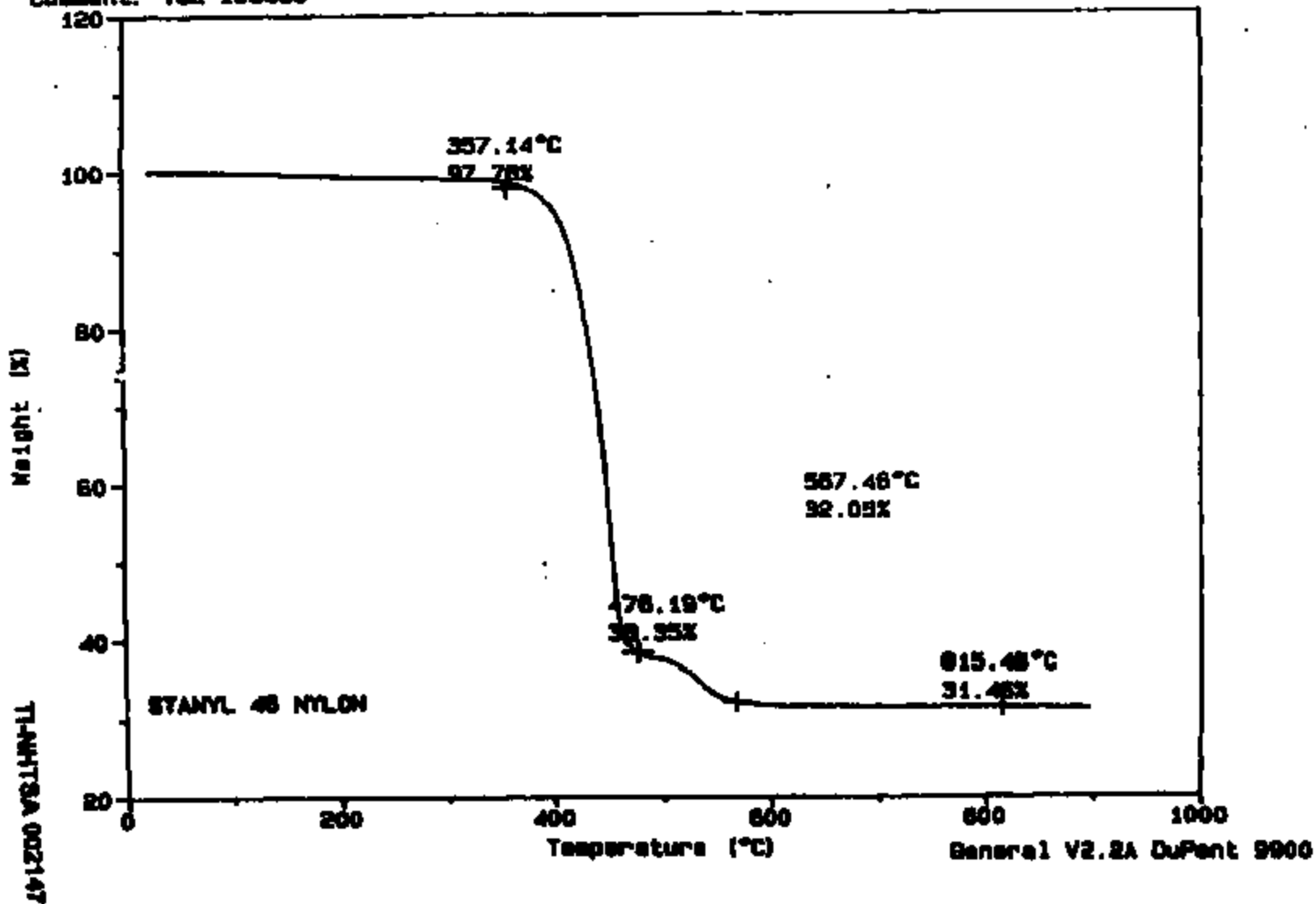
910709

TL-NHTSA 002146

Sample: STANYL 4B NYLON ID 98-00-02
Size: 30.1680 mg
Method: 10/900/ISO
Comment: TSL 109886

TGA

File: TR09.07
Operator: KROSS
Run Date: 07/10/91 09:56



-MSG NO= 09834 FR=VAGS TO=ZARN SENT=07/10/91 03146 PM
R#=036 ST=C DIV=0050 CC=00134 BY=VAGS AT=07/10/91 03146 PM

CHARLIE DOUGLAS CPPC

CC: BILL SWEET PCME
DAVE CZARN ZARN
STEVE OFFILER 6801
GARY SNYDER CPPC
TED BALLARD ETB

FRI MATT SELLERS PCME

SJ: LOW DIFFERENTIAL DISC (QUITE SNAP) COST IMPACT

CHARLIE,

THE ANTICIPATED COST IMPACT OF FORDS' REQUIREMENTS THAT WE CHANGE
OUR DISC DESIGN TO A LOWER DIFFERENTIAL DISC IS OUTLINED BELOW.
FURTHER DESIGN LAB EXPERIMENTATION WILL BE CONDUCTED IN THE NEAR
FUTURE THAT WILL FINE TUNE THESE APPROXIMATIONS.

** ANTICIPATED INCREMENTAL YIELD LOSS = 3 TO 4% (SEE BELOW FOR %/K)
** ADDITIONAL SOFTWARE DEVELOPMENT COST = \$5,000.00

3 TO 4% YIELD LOSS EQUIVALENCE TO %/K BASED ON 4/12/91 COST
ESTIMATE IS \$43.69/K TO \$59.25/K RESPECTIVELY.

REGARDS...MATT
X1245

TI-MNTSA 002148

HIGHLIGHTS
Stephen B. Offiler
Week Ending 91-07-12

Handwritten initials and date:
MMA
7/17/91



FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

Mechanization was able to redesign and rebuild the transfer pin station very quickly after discovery that a large percentage of t-pins were fracturing. They are now using a vacuum pick-and-place instead of blowing the pins through a tube. The vacuum head has a feature which locates it relative to the pin guide, helping to ensure that the pin does not collide with the guide and cause fracture. The same vibratory bowl and escapement is used. This station was demonstrated by running 100 parts consecutively with zero problems of any kind.

Completion of the above allowed the second-pass attempt to build validation parts. Bases were salvaged from the first-pass. While these bases were thought to be acceptable, severe cracks turned up during final crimp. Experimentation showed that the cracks were likely present after the first build, but to a lower level which was not noticed until the second build opened them up. The problem is related to the base design. Somehow the fillet at the flange ended up .025"R on the production mold, whereas the 77PS proto mold and the 57PS mold both have .060"R. As confirmation, proto bases were run and no cracks were found. The production mold is being modified on a high priority basis; Steve Walters indicates we can have new parts next Wednesday 91-07-17.

As a result of the cracking issue, we have revamped the validation schedule again. It now shows a completion date of 91-09-20; a total pushout of three weeks from the rough original schedule. Items on the critical path are receipt of the new bases, and the Final Resistance Test. I have contacted Hank Griffin and forwarded a schedule; I am now waiting for his confirmation that the timing for the field test is acceptable.

Bruce Pease assisted in locating the correct person at UTA to obtain offset-key connectors. I have been informed that these passed ISIR just days ago. UTA is sending roughly 200 no-charge, due to arrive early next week.

Mechanization has been making modifications to the calibrator to speed it up and fit it into the machine cycle. Previously, we found that some offset exists between the cal. measurement and the actual measurement, and this offset seems to change every time the station is modified. A correlation experiment was run to get a handle on the present state of the art. We ran roughly 20 parts at each of several different target values which more than spanned the expected range, from 86 mils to 100 mils (actual). Statistics were collected from the calibrator, and Jeff performed manual measurements on each. We discovered the difference between the cal. average and the actual average was very close to 6.0 mils for every lot. Previously, this was at 4 mils, and started out originally at 2.3 mils. The average of the sigma's (actual) for all lots was 0.8 mils. This sigma is 60% worse than before the speed-up efforts.

The above parts are now being used to build devices for the Production Pilot Technique experiment. About eight parts will be built on the final assembly machine at each of eight different calibration values, spanning the typical pinning window and beyond. They will be checked for actuation and release, and then the data will be creatively analyzed to look for a scheme to determine the center of the pinning window. One hypothesis is that differential narrows as the calibration digresses in either direction from the ideal. Another is that the sigma of the actuation value of several devices built at a given calibration value will be

smallest in the ideal zone. Some combination of these may provide a useful technique to determine the center of the window. This is necessary for Light Truck devices using silex discs, where no creep check can be performed.

We have also begun to experiment with the system of weights and springs that applies loads to the spring during the calibration cycle, in an attempt to minimize the observed offset and possibly reduce the sigma. To date, we have been using a 60g weight over the contacts with a 20g weight on the LVDI at the t-pin bump. In the real world, there is no weight over the contacts and all weight is applied at the bump, so we decided to try switching the weights, putting the 60g at the bump and the 20g at the contacts. The offset dropped to 5 mils, and the sigma dropped to 0.55. Next, we tried even more weight at the bump, up to 110g. This was accomplished by stacking weights, and some sloppy, rocking motion of the weights was observed. Offset dropped to 4 mils, but sigma increased to 0.86 (probably due to the sloppiness). Also, with this much weight the total cal. cycle time slowed considerably. Next, we removed all weight from the contacts, to most closely duplicate the real world. However, nearly every part was crushed, which is the known result if the spring is not held firmly against the stationary contact. More effort needs to be spent to dial in this system.

The writeup of the terminal insertion force test is planned ASAP, to be hand-carried to Dearborn by Dave Czern during his trip next Tuesday.

-MSG NO- 95812 FR-VTS TO-8512 SENT-07/12/91 02:56 PM
R#-194 ST-C DIV-0006 CC-00653 BY-VTS AT-07/12/91 02:56 PM

JULY 12, 1991

TO: GEORGE LAVOIE

FROM: GEORGE MACIEL

RE: PARTS'S ^{7195 LIT and 7195 P/C Cap} 27288-1 & 27719-1 ZINC PLATE

GEORGE,

*cc= DONNA M.
FIT/RY*

NOTE ON PRINT:

THESE SURFACES MUST BE SMOOTH AND FREE OF ANY PLATING OR INCLUSIONS
(NO FROSTED EFFECTS OR PARTICULATE CONTAMINATION IN THE PLATING.)

QUESTIONS:

THICKNESS TEST: (NOW) - BY PERMASCOPE

ADHESION TEST: USE #600 TAPE

TIME IN ACID BATH: DO NOT USE ACID - USE CYANIDE

TIME IN PLATE: (.0002 THICKNESS) - 13.3 MINUTES

**** NOT A DEDICATED LINE ****

PLEASE CALL IF YOU SHOULD HAVE ANY QUESTIONS.

REGARDS,

GEORGE

TI-NHTSA 002151

CAGE DIMENSION PELOE EXPERIMENT TEST 156-15-64 JAN 7/15/91

	LOT 1: .000"		LOT 2: .002"		LOT 3: .004"		LOT 4: .006"	
DEVICE	ACT	REL (DIFF)	ACT	REL (DIFF)	ACT	REL (DIFF)	ACT	REL (DIFF)
1	342	309	42	304 / 244	62	261 / 300	61	263 / 102
2	350	303	47	278 / 222	56	263 / 102	61	260 / 192
3	321	270	51	301 / 252	49	272 / 194	38	264 / 104
4	346	311	55	314 / 266	40	255 / 179	36	262 / 190
5	320	262	58	304 / 247	57	259 / 196	63	266 / 200
6	374	324	60	297 / 242	55	265 / 205	60	261 / 176
7	320	250	62	280 / 237	51	264 / 203	61	265 / 107
8	320	253	67	350 / 289	69	251 / 206	45	273 / 195
AVG.	342	304	57.7	304	250	155.0	261	196
STD.	122.2	123.8	16.07	122.3	118.0	16.56	16.01	19.57

	LOT 5: .008"		LOT 6: .010"		LOT 7: .012"		LOT 8: .014"	
DEVICE	ACT	REL (DIFF)	ACT	REL (DIFF)	ACT	REL (DIFF)	ACT	REL (DIFF)
1	265	186	79	244 / 175	69	165 / 127	30	00 0000
2	340	181	59	239 / 166	71	192 / 146	46	139 / 110
3	257	184	73	213 / 167	46	127 / 92	35	70 / 50
4	352	180	72	209 / 139	50	202 / 140	54	66 / 48
5	260	177	83	240 / 150	82	187 / 143	44	121 / 70
6	250	187	63	234 / 172	62	171 / 129	43	58 / 34
7	347	181	66	236 / 156	82	234 / 173	61	171 / 134
8	245	175	70	253 / 170	83	206 / 145	61	127 / 90
AVG.	252	181	70.6	234	166	140.1	186	130
STD.	117.74	13.90	17.46	114.1	16.63	113.5	129.0	121.7

-MSG #1- 203994 FR-CERN TO-PCQA SENT-07/17/91 01:29 PM
#1-040 ST-C DIV-0050 CC-00101 ST-CERN AT-07/17/91 01:29 PM

JULY 17, 1991

TO: RUSTY STRUBLE RCSI CC: TOM CHAMBERLAIN TC
NIKE DEMATTIA PCQA JOHN KOURTISIS RDES
CHARLIE DOUGLAS CPFC STEVE MAJOR WELS
DICK GARIEPY MFPC ANDY McGUIRK PCQA
PAUL ROTCH PRKI ED O'SHELL ELOW
JOB LASARE JHLS JOE SCHUCK WELS
STEVE OFFILER SDOI GARY SNYDER CPFC
MATT SELLERS PCNE MARTHA SULLIVAN CPFC
BILL SWERT PCNE RAY TOSCANO PCNE
JIM WATT PCQA TED BALLARD AFWE
TED BRADIKEN PWNT STAN HENOL SZZ
CLAIRE BALTRAKAS PWNT
BILL CONNOR MFPC
STEVE MCCOY RDES
TERRY ROSSIGNOL MFPC
DONNA ROYCE PCQA

FR: DAVE CHASE SARN

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
07/11/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 07/18 (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

57 L/T (LS-2)

Export:

	WHO	WHEN	
* PLAN FOR EVALUATING POULSEN	ROTCH	05/18	ORIG.
		07/03	OR HOLD
* ENSURE THAT ELCO USES J512 GAGE ON ALL FUTURE LOTS	ROTCH	07/11	ORIG.
		07/11	REV.
* SET UP F/U MFG. WITH ELCO AT TI	ROTCH	07/11	COMP.
		07/17	ORIG.
		07/17	COMP.
* REVISED EXPORT PRINT W/ RADIUS ON DOGPOINT DIAMETER	OFFILER	07/11	
* PROPOSAL FOR RECEIVING GASSETS ON HANDRELS	SELLERS	07/11	ORIG.
		07/18	REV.
* RELEASE ELCO FOR 1 LOT OF EXPORTS W/ .00015" MIN PLATING THICKNESS	ROTCH	07/25	

ISR Issues:

* CONNECTOR INSERTION FORCE TEST REPORT	OFFILER	07/11	ORIG.
		07/15	COMP.
* PROTOTYPE TERM. POS'N GAGE CONCEPT	SELLERS	07/11	ORIG.
		07/25	REV.
* RELEASE PRINT FROM L/T	SCHUCK	05/09	ORIG.
		07/25	REV.
* SUBMIT ISR FOLLOW-UP TO FORD SQA	WATT	04/84	ORIG.

Job 1 Sept
6x-10K
7793 L/T

Kind
Spray
Natures
- - -

TI-NHTSA 002153

(NEED RELEASE PRINT)

07/26 REV.

57 P/C (L5-3)

. ADD RIDGE FOR SEAL COMPRESSION TO BASE PRINT AND REVIEW WITH AFCC	OFFILER/SELLERS	07/18	
. PLAN FOR EVALUATING THICKER (EX3355-97) GASKETS ON L/T SWITCHES	OFFILER/SELLERS	07/18	
. CHECK SEAL COMPRESSION ON 5 SWITCHES FROM 1600 PC. LOT	OFFILER	07/18	
* DEFINE GAGING TORQUE → SPEC W/PHASE & TIER 1'S	WATT	06/20 07/18	Handwritten: <i>Handwritten</i> ORIG. REV.
. BUILD ALL 57PSL5-3'S W/EX3355-97-1 GASKETS UNTIL TED TIME	BRODIE	ONGOING	
. SHIP 2LK L5-3'S (DELIV. DATE PUSHOUT BY FORD)	GARRETT/ OF BOLD	06/03	ORIG.
* CHEMICAL LABELS FOR VANISHING OIL	RODRIGUEZ	07/18 07/11	ORIG. COMP.

77PS

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHAZAR	ONGOING	
. UPDATE SPC FILES/NOV CAPABILITY STUDIES	BALTHAZAR	ONGOING	
* ESTABLISH OVERALL SCHEDULE OF DESIGN ENG. ACTIONS	OFFILER	05/02 07/25	ORIG. REV.
* 77PS EIS PARTS LISTS	OFFILER	06/06 07/18	ORIG. REV.
. COMPLETE DESIGN FMEA	OFFILER	04/18 07/18	ORIG. REV.
. COMPLETE PROCESS FMEA	SELLERS	07/01 07/18	ORIG. REV.
. CAL. WINDOW STUDY TO DETERMINE ALLOWABLE CALIBRATION RANGE	OFFILER	07/18	
* 77PS DESIGN CONFIRMATION TEST	OFFILER	06/20 07/18	ORIG. REV.
* PROD'S CALIBRATION WINDOW EXPERIMENT W/ "SILENT" SENSORS	OFFILER	07/04 07/18	ORIG. REV.
. BUILD F/D GAGE FOR SPRING ARMS	SELLERS	07/18	
. COMPLETE B.A.N. STAKER MODIFICATION	SELLERS/ MCCOY	07/11 07/11	
. COMMUNICATE ANY REQ'D TERMINAL CHANGES TO BASSLER	SELLERS	06/13 07/18	ORIG. REV.
* 57 TO 77 CONVERSION: PHASE 1 TESTING	BHOL	05/30 09/00	ORIG. REV.
* COST ESTIMATE FOR LOW DIFF. SWITCH	SELLERS	06/06 07/11 07/11	ORIG. REV. COMP.
77PS EIS PARTS LISTS	WATT	07/01 07/25	ORIG. REV.
. 77PS CHARACTERISTICS SHEETS	WATT	07/15	
. GAGE R&R STUDIES	WATT	07/18	
. 77PS QAS (FINAL)	WATT	08/01	Handwritten: <i>needs to be completed</i>
. SET UP SPC FILES/NOV CAPABILITY STUDIES	BALTHAZAR	08/01	
. 10KPSI GAGE FOR BURST TESTER	WATT	08/01	
* SCHED. TO COMPLETE QC P-TESTER	WATT	07/25	
FV Testing:			
* ADD RADIUS TO BASE TO ELIM. CRACKING	WALTERS	07/17	
* REBUILD VALIDATION TEST SWITCHES	SELLERS/ OFFILER	07/19	
. MFG CONNECTORS FOR P/C SWITCHES	OFFILER	07/12	
* COMPLETE TESTING AND REPORT	OFFILER	09/18 09/20	ORIG. REV.
Production Components:			
* RESOLVE OPEN ISSUES ON BASE	SELLERS	04/11	ORIG.

(MISSHOOT DUE TO STAKER EVAL.)

07/18 REV.

Manufacturing Equipment:

. FINAL ASM MACHINE DEBUG COMPLETION	SELLERS/ 06/03	ORIG.
	KOUPPENIS 08/02	REV.
. BASS ASM MACHINE BUILD COMPLETION	SELLERS/ 05/31	ORIG.
(NEED F.A. MACHINE)	KOUPPENIS 08/02	REV.
. RECEIVE BA MACHINE	KOUPPENIS 07/19	
. PRESSURE TESTER BUILD COMPLETION	SELLERS/ 06/20	ORIG.
	KOUPPENIS 08/02	REV.
. S.A.M. EFFECTIVITY RUN #1	SELLERS 07/03	ORIG.
	08/02	REV.
. F.A.M. EFFECTIVITY RUN #1	SELLERS 07/03	ORIG.
	08/02	REV.
Tokico:		
. REPORT ON TOKICO P.S.	DOUGLAS ONGOING	

MILESTONES	PLANNED	ACTUAL
57 L/T ISIR	11/31/90	11/31/90
57 L/T JOB 1	09/03/91	
57 P/C ISIR	01/15/91	01/15/91
57 P/C JOB 1	06/03/91	
77PS ISIR	09/01/91	
77PS SOP (TX) est.	10/01/91	

PRODUCTION PLAN BY MONTH (THOUSANDS) - WITHOUT OVERAGE

	P/C 57P6LS-3	L/T 57P6LS-2	P/C 77P6LS-1	L/T 77P6LS-3
APR	0	0	0	0
MAY	2 (COMP.)	2	0	0
JUN	0	0	0	0
JUL	22 (tentative)	2.3	0	0
AUG	10 "	2.3	20	0
SEP	10 "	**2.6	10	10
OCT	0	9.5	**9	2
NOV	0	8.5	25	2
DEC	0	0	25	**9.5

* = JOB1 FOR 57PS VERSIONS
** = TENTATIVE JOB1 FOR 77PS VERSIONS

REGARDS,
DAVE CHARN | 36-FORD

TI-NHTSA 002155

marked 7/23/91

July 19, 1991

MY'93 Downsized NGSC Deactivate Switch Program

1. Proposed schedule - Revision 3, dated 06/18/91

Key Dates:

Release <i>component</i> tooling: housing, base, washer, hexport and diaphragm ¹	07/26	
Complete DVP&R testing on switch	10/04	8/16
Complete DVP&R testing on switch/master cyl. asm. (switches will be available for Tokico on 09/16)	TBD	9/16
Release <i>assembly</i> tooling ²	08/16	
Production Validation testing	<i>begins</i> 10/28 <i>ends</i> 12/30	
ISR submittal	01/06	

Notes:

1. Leadtime for a complete 4 cavity production base mold is 13 weeks. Parts will be produced off of a single cavity in an existing mold frame in 6 weeks to support the DVP&R testing.

Blanking tools for the diaphragm will be developed. The hexport and washer for DVP&R will be modifications of the production tooled components for the F3TA-9F924-AA switch. The housing will be a screw machine part.

2. Assumptions for the assembly tooling are:
 - a. For MY'93 start-up, manual sensor assembly and final assembly processes will be developed. To the greatest extent possible, this equipment will be built such that it can be transferred to a fully automated process for MY'94. Also, the base assembly machine, presently in the final stages of debug for September start-up of the F3TA-9F924-AA switch, will be modified to accept the present and proposed downsized switch.

II. DVP&R Proposed Test Plan - Switch

The following DVP&R plan is based on functional and durability tests described in Ford's specification ES-F2VC-9P924-AA. A modification to the Fluid Resistance test is proposed, as described below, to accelerate completion of DVP&R testing. Total test time per the proposed plan is 3 weeks.

Paragraph	# of switches	Description
III A	36	Calibration
B	36	Voltage Drop
D	36	Proof
E	6	Impulse
F	6	Burst
G	6	Humidity
H	6	Salt Spray
K	6	Vacuum
L	6	Temperature Cycle
M	6	Fluid Resistance
A,B,D	30	- modified: eliminate storage dwell time for each fluid Post-test Characterization

*AK'd
as long as
FSR includes
full rate to include*

36 samples

III. A. Calibration
B. Voltage Drop
D. Proof Test

6	6	6	6	6	6
III. E Impulse	III. G Humidity	III. H Salt Spray	III. L Temp. Cyc.	III. M. Fluid Res.	III. F Burst
6					
III. K Vacuum					

30

III. A. Calibration
B. Voltage Drop
D. Proof Test

III. DVP&R Proposed Test Plan - Switch/Master Cylinder Assembly

Per the proposed schedule, switches will be delivered to Tokico on 09/16 for DVP&R testing of the Switch/Master Cylinder Assembly. DVP&R test schedules will be run in parallel.

IV. Risk Factors Associated with the DVP&R Plan

While the downsized switch design preserves much of the F3TA-9P924-AA design, there are some changes that need to be specifically evaluated.

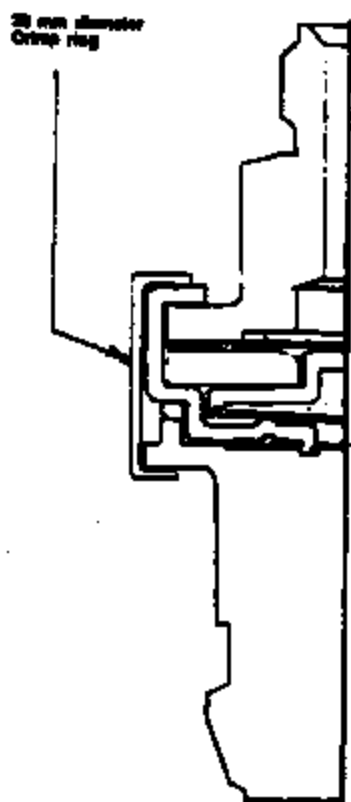
- a. Because of the compressed time schedule, the Fluid Resistance test has been reduced from ~5 weeks to ~2 weeks. This was done by eliminating the "Storage Times" described in the procedure. The environmental seal in the proposed design is created by crimping the metal housing over the plastic base, eliminating the elastomer gasket found in the present F2VC-9P924-AA switch. Elimination of the storage times may make the Fluid Resistance test less severe than intended, and may not fully prove out the effectiveness of the sealing system.
- b. The F3TA-9P924-AA switch is held together as a complete assembly by an aluminum crimp ring. The downsized switch replaces this with a plated steel ring, which is subsequently crimped in two places - one is to secure the pressure sensing components and the other is to secure the base. While the crimping operation is similar to that of the F2VC-9P924-AA switch, the housing is plated steel rather than aluminum. Plated steel has been chosen initially to gain sufficient hydrostatic burst strength, with minimal wall thicknesses. Process and tooling iterations may be required to minimize the amount of plating that is removed during the crimping operation, which could lead to less corrosion protection than required. Unplated brass has also been considered as an alternative to address this issue, but would require additional development time which is not afforded by the schedule.
- c. To focus on those areas of the design which we believe are most significantly changed, the following tests from the F2VC-9P924-AA ES schedule are assumed to be met by similarity of the designs: current leakage, vibration, terminal strength.

VI-DVPR.WP1

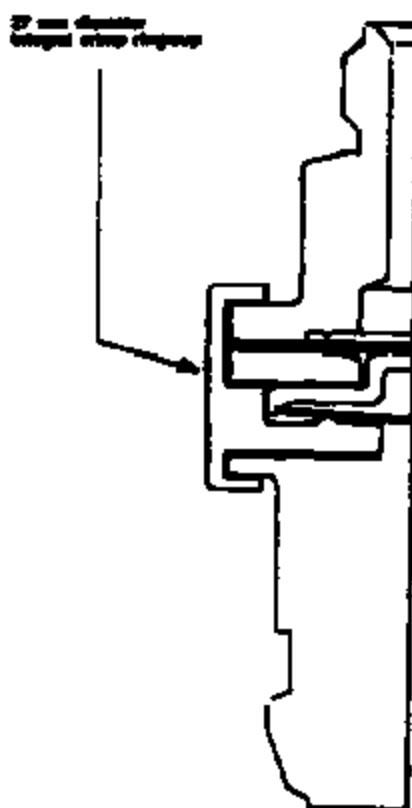
David Gamm 7/19/91

TI-NHTSA 002158

DOWNBIZED NGSC DEACTIVATE SWITCH



F3TA-8F824-AA Switch



Downbized Switch
27 mm Diameter w/bottom hex

**MY'83 SCHEDULE
DOWNIZED NGSC DEACTIVATE SWITCH
27 mm DIAMETER WITH BOTTOM HEX**

'81 JUL AUG SEP OCT NOV DEC '82 JAN FEB

ACTIONS

INITIAL DRAWINGS	comp. 5/22	<i>Per Kish Backani's inputs 7/23/82</i>
DP - MODEL SHOP SWITCHES BUILD/FUNCTIONAL TEST	comp. 6/14	
EP - PROD. INTENT SWITCHES		
BASE MOLD - 1 CAVITY (8)	07/28 - 08/06	_____
WASHER/EXPORT/DIAPHRAM (4)	07/28 - 08/03	_____
ASSEMBLY TOOLS (4)	07/28 - 08/03	_____
BUILD SWITCHES (1)	08/05 - 08/13	_____
DPMS/VFFMEA (8)	08/02 - 08/27	_____
FINALIZE PRODUCTION DRAWINGS (4)	07/19 - 07/28	_____
DVP&R SWITCHES TO TOKYO	08/18	_____
DVP&R - SWITCH (3)	08/13 - 08/04	_____
cal Adrop/proofburn (1)	08/13 - 08/20	
temperature cycle (2)	08/13 - 08/27	
modified fluid resistance (2)	08/13 - 10/04	
impulse/vacuum (1)	08/13 - 10/04	
humidity (1)	08/13 - 10/04	
salt spray (1)	08/20 - 08/27	
post test analysis & report (1)	08/27 - 10/04	
DVP&R - SWITCHMASTER CYL. ASS.	(08/18)	
DEFINE ASM EQUIPMENT & DESIGN (4)	07/19 - 08/18	_____
BUILD/DEBUG PROD'N ASM EQUIP (24)	08/18 - 01/31	_____
TOOL PROD'N COMPONENTS (13)	07/28 - 10/23	_____
DELIVER WP SWITCHES	11/07	
BUILD SWITCHES FOR PV TESTING	10/23 - 10/28	_____
PRODUCTION VALIDATION TESTING (8)	10/28 - 12/30	_____
COMPLETE RFR AND SUBMIT (1)	12/30 - 01/06	_____

CC PMD BPT
REVISION 1 IN 1891

TI-NHTSA 002180

CCPS DOWNSEED SWITCH

DATE 8/26/91

		TIPS	27 mm Bottom Hex	27 mm Hexcup
J516 HEXNUT	310.50	✓		
WASHER		✓		
CUP		✓		
BASE		✓	✓	
STAT. TERMINAL		✓	✓	✓
DISC		✓	✓	✓
CONVERTER		✓	✓	✓
KAPTON SEAL (3)		✓	✓	✓
MIN. TERMINAL		✓	✓	✓
GAUZE		✓	✓	✓
SPRING ARM		✓	✓	✓
FEATHER PIN		✓	✓	✓
GRV SEAL		✓	✓	✓
MIN. CONTACT		✓	✓	✓
KAPTON SPACER		✓	✓	✓
RIBBET		✓	✓	✓
THREAD CAP		✓	✓	✓
AL. CONDUCTOR		✓	✓	✓
			53.61	
HOUSING (BRASS)	482.27		✓	
-91 (STEEL-AD)				
PROJ. J516 HEXNUT - 78	276.00		✓	
HEXCUP (BRASS)	429.45			✓
-100 (STEEL-AD)	579.46			
DISC SUPPORT (BRASS)	269.81			✓
-101 (STEEL-AD)				
PROJ. WASHER	76.99 011			✓
		<u>866.69</u>	<u>1210.4</u>	<u>1131.1</u>


Δ = + 345.42

Δ = + 264.41

TI-NHTSA 002161

HIGHLIGHTS
Stephen B. Offler
Week Ending 91-07-19

SEA of
7/27/91



FORD MY'92 ELECTRONIC SPEED CONTROL DEACTIVATE PS

VALIDATION

To solve the base cracking problem at final crimp, we asked AFCC to increase the radius at the flange from .025" to .060" (same as 46412). They made this change and delivered parts in both colors in a commendably short time. We ran these bases on the swich AMI yesterday to produce parts for validation. The calibrator's offset was 4.5 mils (down from the previous 6 mils, underscoring its unpredictable nature) and the signal was roughly 0.7. For the most part, the calibrator cycle now fits into the machine cycle, and the machine ran well. We were not able to get production to build sensors for us yesterday; this is planned for today. We are not using sensors from the previous build attempts because they were not properly salvaged - sensors containing ceramic fragments were mixed with good ones, forcing us to toss them all. We did run a lot of 30 Pass-Car devices with quiet discs on the final arm. mach. for an urgent customer need. The env. seal station is still acting up significantly.

I was contacted by Beth Kill from the Chem Lab. She has confirmed that our schedule for the fluid resistance test will be acceptable. We plan to begin on 91-07-29. We have received about 200 mating connectors no-charge from UTA which are required for this test.

CUSTOMER ISSUES

The writeup of the insertion force test was completed and hand-delivered by Dave during his trip earlier this week. It was well received, but they did request some additional information. They'd like to see a plot of force as it varies with insertion position. Fortunately, we had previously collected exactly this information, but chose not to include it in the original writeup. A trivial modification to the document was made to include this. We will duplicate and bind the new document and forward copies to Ford via Joe Schuck.

We were forced to scramble to create very high priority emergency samples for Tim Anderson using Pass Car silent discs. Apparently communication problems existed somewhere in the loop, because Design Engineering had not received the correct paperwork, fundamental to our sample-build scheduling scheme, until about one day prior to required delivery. In an attempt to avoid these situations, Charlie has suggested we build a quantity of spare Pass-Car and Light Truck 77PS devices, using quiet discs since they are universal.

We are getting mixed signals on start-up of quiet LT 77's. After Dave's meeting, the plan was to start the quiet discs on 77PS, however now there is talk of creating another part number, and running snap-77's for VN58 (which has no need for a quiet disc) and starting up quiet 77's when needed for direct M/C mount applications.

MISCELLANEOUS

The Eastern Automation movable-terminal assembly equipment has arrived at Bldg. 20. They are beginning the integration process, but it is difficult to predict the amount of time this will require because the EA machine is not 100% complete. One of the main problems is the Milford riveter. We plan to get Milford personnel to visit in order to help debug the problems in parallel. Mechanization has contracted Basler to do some developmental work on the rivetless eyelet concept in order to eliminate the rivet.

TI-NHTSA 002162

HIGHLIGHTS, 910719

Page 2

Wayne Carlson reports that he is making progress on the final station on the switch AMI, the check station. Plans are to complete it by Aug. 1. This will involve a carefully conducted correlation study, comparing it to Jeff's manual measurements.

We have completed our production piloting technique experiment, with very good results. We calibrated switches to eight different values (at .002" increments) to duplicate the normal pin ranges, then build all devices using a single pin length. Actuation and release were recorded and differential calculated. Actuation sigma for each lot was calculated, and plotted versus calibration size along with differential, and the ratio of differential to sigma. At the tails of the hatchet curve, the act. sigmas widen considerably while the differential simultaneously narrows. We were able to show that the ratio of these provides an excellent indication of the center of the hatchet curve, which corresponds to the target value which is programmed into the calibrator.

We had our final print review with Baasler, covering both terminals. Minor print dimensions have been revised slightly as appropriate, and we are now in a position to approve the tools. We will submit ECN's to update the prints ASAP.

TI-NHTSA 002163

TO: BILL SWEET
FM: MATT SELLERS
SJ: HIGHLIGHTS FOR W/E 7/19/91

77PS

EASTERN AUTOMATION UPDATE . . . EASTERN AUTOMATION EQUIPMENT ARRIVED YESTERDAY TO BLDG. 20. PLANS ARE TO IMMEDIATELY GET THE SYSTEM HOOKED UP AND RUNNING TO ALLOW DEBUG EFFORTS TO COMMENCE. DEBUG IS BEING PERFORMED HERE AT T.I. RATHER THAN EASTERN AUTOMATION DUE TO THE URGENCY WITH WHICH IT MUST BE COMPLETED. THIS EQUIPMENT MUST BE RUNNING SUFFICIENTLY TO ALLOW EFFECTIVITY RUNS TO PROCEED NEXT MONTH. THE PRIMARY FOCUS OF DEBUG WILL BE ON THE MILFORD RIVETING SYSTEM. THIS RIVETER EXHIBITED MANY PROBLEMS DURING OUR VISIT TO EASTERN LAST WEEK. THEY RANGED FROM BOWL JAMS TO TRACK JAMS TO MIS-FEEDS, ETC. A VISIT TO MILFORD ON THE RETURN LEG OF OUR TRIP TO EASTERN AUTOMATION ENABLED US TO GIVE THEM THE HEADS UP ON SPECIFIC DETAILS OF THE SYSTEM PROBLEMS, AND ALSO TO SET UP PLANS FOR MILFORD TO VISIT US HERE TO PARTICIPATE IN THE DEBUG EFFORTS. THEY WILL VISIT EITHER TODAY OR MONDAY DEPENDING ON OUR ABILITY TO GET THE SOFTWARE/ELEC/PNEUMATICS IN PLACE.

TERMINAL STAKING ON THE BASE AMI . . . A COMPUTER LAYOUT OF ALL THE COMPONENTS OF THE STAKING PROCESS HAS BEEN COMPLETED. IT WAS VERY INFORMATIVE AND SERVED TO DICTATE A BEGINNING OFFSET VALUE FOR THE TERMINAL CHANNELING SLOTS. TOOLING WILL BE READY TO TRY OUT NEXT WEEK.

BASSLER TERMINALS . . . BOTH CCPS TERMINAL TOOLS AT BASSLER WERE APPROVED FOR PRODUCTION THIS WEEK. THEY ARE CURRENTLY FILLING REQUIREMENTS TO SUPPORT AUGUST BUILDS.

PRESSURE TESTER . . . TESTER IS COMPLETE. HOWEVER, WE CANNOT PROCEED WITH ANY TRYOUTS UNTIL THE SHOPS HIGH PRESSURE AIR COMPRESSOR IS REPAIRED. APPARENTLY A BLOWOUT OCCURRED.

D & P/MEA . . . MARKETING HAS REQUIRED THAT WE COMPLETE THE P/MEA'S BY THE END OF NEXT WEEK. ASSIGNING ENOUGH PRIORITY TO THIS TO GET IT DONE IS QUESTIONABLE. NEED TO DISCUSS WITH YOU AS SOON AS WE CAN.

TI-NHTSA 002164

CHRYSLER LH

BASE MOLD . . . AFCC IS OFF MAKING THE REQUIRED CHANGES TO THE BASE MOLD. RE-FAI AND REVIEW IS PLANNED LATE NEXT WEEK AT BEST.

TERMINAL STAKER . . . A MEETING IS SCHEDULED MONDAY WITH BASSLER TO REVIEW REQUIRED TOOL REPAIR ITEMS. THE DELAY HAS BEEN ASSOCIATED WITH THE NEED TO GET IN AND STAKE UP SOME DEVICES AND UNDERSTAND WHAT WE CURRENTLY HAVE. WE HAVE ITERATED THE STAKING TOOL TO IMPROVE TERMINAL POSITION. NEXT TRYOUTS WILL NOT HAPPEN UNTIL WE GET NEW TERMINALS OFF THE REPAIRED TOOLS.

52/57PS GENERAL

CAP INSTALLER IS STILL A NIGHTMARE. WE HAVE RELEASED WYNN'S PRECISION TO MODIFY TWO OF THE CAP MOLD CAVITIES. THEY WILL REMOVE THE CENTER CORING. SAMPLES OFF THE MODIFIED CAVITIES AND ALSO SOME UN-MODIFIED CAVITIES WILL ARRIVE LATE NEXT WEEK. THESE SAMPLES WILL BE MADE FROM A "DRYER" NITRIL.

MARKETING IS REQUIRING A MONDAY BALLPARK ESTIMATE ON TWO OPTIONS OF MODIFICATIONS TO THE 52PS DEVICE. OPTION # 1 INVOLVES SHORTENING THE TERMINALS .051", AND ADDING A POLARITY KEY TO THE INSIDE OF THE BASE. MANUFACTURING CONCERNS OVER THE STAKING AND PRESSURE TESTING OPERATIONS ARE PRESENT. WILL BE DISCUSSED WITH MECHANIZATION PEOPLE MONDAY. OPTION TWO IS MUCH LESS DESIREABLE AS IT REQUIRES THAT WE LENGTHEN THE BASE MOLD .051" AND INSTITUTE SOME TYPE OF TERMINAL SEALING OPERATION. SEALING WOULD PROBABLY BE RTV OR STYCAST AND INVOLVE XY TABLE AUTO EJECTION. THIS WILL BE AN EXPENSIVE OPTION AS IT REQUIRES A NEW BASE MOLD, AND AUTOMATION. PIECE PRICE WILL ALSO SUFFER. A BALLPARK OUTLINE OF COST FOR EACH OPTION WILL BE SUPPLIED TO MARKETING MONDAY AFTERNOON.

TI-NHTSA 002165

-MSG #= 323177 FR=CERN TO=PCQA SENT=07/22/91 03:51 PM
R#-005 ST=C DIV=0050 CC=00101 BY=CERN DT=07/22/91 03:51 PM

JULY 22, 1991

TO: RUSTY STRUBLE RCS2
MIKE DeMATTIA PCQA
CHARLIE DOUGLAS CPFC
DICK GARIBY NPFC
PAUL KOTCH PRK1
JOE LAHARE JHLS
STEVE OFFILER SBO1
MATT SELLERS PCNE
BILL EWERT PCNE
JIM WATT PCQA
TED BREDIKEN PSNT

CC: TOM CHARBONEAU TC
JOHN KOURTESIS NDES
STEVE HAJOR NELS
ANDY McGUIRK PCQA
ED O'NEILL EYON
JOE SCHUCK NELS
GARY SWYDER CPFC
MARTHA SULLIVAN CPFC
RAY TOURANGEAU PCNE
TED BALLARD AYNE
STAN BOMOL SE2
CLAIRE BALTEASAR PSNT
BILL CONNOR NPFC
STEVE MCCOOKY NDES
TERRY BERTHOUD NPFC
DONNA NOTWIRAN PCQA

IP2 look up spec.
Capability.

FR: DAVE CEARN SAM

SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
07/18/91 MEETING MINUTES

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

DATE: 07/25 (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

57 L/T (LS-2)

Export:

- PLAN FOR EVALUATING POULSEN
- REVISED EXPORT PRINT W/ RADIUS ON DOGPOINT DIAMETER
- PROPOSAL FOR RECEIVING GASKETS ON MANDRELS *Export packet, change print*
- RELEASE EDCO FOR 1 LOT OF EXPORTS W/ .00015" MIN PLATING THICKNESS

ISR issues:

- PROTOTYPE TERM. POS'N GAGE CONCEPT
- RELEASE PRINT FROM L/T
- SUBMIT ISR FOLLOW-UP TO FORD SQA (NEED RELEASE PRINT)

	WHO	WHEN	
	KOTCH	05/16	ORIG.
		ON HOLD	
	OFFILER	07/11	ORIG.
		07/25	REV. -2-4
	SELLERS	07/11	ORIG.
		07/25	REV. -
	KOTCH	08/01	
	SELLERS	07/11	ORIG.
		07/25	REV.
		07/18	COMP.
	SCHUCK	05/09	ORIG.
		08/01	REV.
	MATT	04/04	ORIG.
		08/03	REV.

Meeting from 5775
Call Bill on evening
on mandrels term
needs to be cut off
check 5775

TI-NHTSA 002166

57 P/C (LS-3)

* ADD RIDGE FOR SEAL COMPRESSION TO BASE PRINT AND REVIEW WITH AFCC	OFFILER/ SELLERS	07/18 08/01	ORIG. REV.
* PLAN FOR EVALUATING THICKER (EX3265-97) GASKETS ON L/T SWITCHES	OFFILER/ SELLERS	07/18 08/01	ORIG. REV.
* DEFINE GAGING TORQUE SPEC W/PRESS & TIER 1'S	WATT	06/20 07/25	ORIG. REV.

Handwritten: Check this ↑

77PS

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALPHAZAR	ONGOING	
. UPDATE SPC FILES/RUN CAPABILITY STUDIES	BALPHAZAR	ONGOING	
. UPDATE PRODUCTION PLANS FOR ALL SWITCHES	DOUGLAS	ONGOING	
* REVIEW 77PS S/U TIMING WITH PURCHASING	DOUGLAS	06/01	
* ESTABLISH OVERALL SCHEDULE OF DESIGN ENG. ACTIONS	OFFILER	05/02 07/25	ORIG. REV.
* 77PS B/S PARTS LISTS - <i>waiting (check)</i>	OFFILER	06/06 07/18	ORIG. REV.
. COMPLETE DESIGN FMEA	OFFILER	04/18 07/18	ORIG. REV.
. COMPLETE PROCESS FMEA	SELLERS	07/01 07/18	ORIG. REV.
. CAL. WINDOW STUDY TO DETERMINE ALLOWABLE CALIBRATION RANGE	OFFILER	07/18	
* 77PS DESIGN CONFIRMATION TEST	OFFILER	06/20 07/18	ORIG. REV.
* PROD'N CALIBRATION WINDOW EXPERIMENT W/ "SILENT" SENSORS <i>04.93.1</i>	OFFILER	07/04 07/18	ORIG. REV.
* NTG. TO REVIEW ARM GAGING TECHNIQUE	SELLERS	08/01	
* BUILD F/D GAGE FOR SPRING ARMS	SELLERS	07/18 08/15	ORIG. REV.
. COMPLETE B.A.M. STAKER MODIFICATION	SELLERS/ MCCOY	07/31	
* COMMUNICATE ANY REQ'D TERMINAL CHANGES TO BASSLER	SELLERS	06/13 07/18 07/18	ORIG. REV. COMP.
* 57 TO 77 CONVERSION: PHASE 1 TESTING	BONOL	05/30 09/--	ORIG. REV.
* 77PS QAS (PRELIMINARY)	WATT	07/01 07/25 07/18	ORIG. REV. COMP.
. 77PS QAS (FINAL)	WATT	08/01	
* 77PS CHARACTERISTIC SHEETS	WATT ←	07/18 08/08	ORIG. REV.
* GAGE BAR STUDIES <i>ISIA 3.4 20.</i>	WATT	07/15 09/03	ORIG. REV.
. 10KPSI GAGE FOR BURST TESTER	WATT	08/01	
. SCHED. TO COMPLETE QC P-TESTER	WATT	07/25	
IV Testing:			
* ADD RADIUS TO BASE TO ELIM. CRACKING	WALTERS	07/17 07/17	ORIG. COMP.
* REBUILD VALIDATION TEST SWITCHES	SELLERS/ OFFILER	07/19 07/19	ORIG. COMP.
* NTG CONNECTORS FOR P/C SWITCHES	OFFILER	07/12 07/18	ORIG. COMP.
. COMPLETE TESTING AND REPORT	OFFILER	09/16 09/20	ORIG. REV.

Production Components:			
* RESOLVE OPEN ISSUES ON BASE (PUSHOUT DUE TO STAKER EVAL.)	SELLERS	04/11 08/09	ORIG. REV.
Manufacturing Equipment:			
. FINAL ASM MACHINE DEBUG COMPLETION	SELLERS/ KOURTESIS	06/03 08/02	ORIG. REV.
. BASE ASM MACHINE BUILD COMPLETION	SELLERS/ KOURTESIS	05/31 08/02	ORIG. REV.
. RECEIVE EA MACHINE	KOURTESIS	07/19	ORIG.
. PRESSURE TESTER BUILD COMPLETION	SELLERS/ KOURTESIS	07/19 06/20 08/02	COMP. ORIG. REV.
* ESTABLISH CRITERIA FOR EFFECT. RUNS	SELLERS	07/25	
. B.A.M. EFFECTIVITY RUN #1	SELLERS	07/03 08/02	ORIG. REV.
. F.A.M. EFFECTIVITY RUN #1	SELLERS	07/03 08/02	ORIG. REV.
* EQUIP. MOVE TO B12	SELLERS	09/12	
Tokico:			
. REPORT ON TOKICO P.S.	DOUGLAS	ONGOING	

DISCUSSION

57 P/C SWITCH BUILD IS ON HOLD; TRANSMISSION RELATED PROBLEMS ARE DELAYING STARTUP OF ELECTRONIC SPEED CONTROL ON F336 PLATFORM. WE MAY BEGIN DIRECTLY WITH THE 77PS VERSION OF THE SWITCH FOR SOP; TIMING IS STILL TENUOUS, BUT WILL NOT BE EARLIER THAN 77 L/T START-UP.

57 L/T PRODUCTION HAS BEGUN IN SMALL VOLUMES. WE HAVE RELEASES OF 6546 SWITCHES THROUGH SEPTEMBER. WE'RE BEING DIRECTED TO EXHAUST INVENTORY OF 57'S BY 10/01; 77'S (2,856 TOTAL) ARE RELEASED FOR SEPTEMBER. WE HAD BEEN TOLD IN THE PAST THAT THE 57-TO-77 CHANGEOVER WOULD COME 90 DAYS AFTER JOB 1; I.E., DEC 01 FOR L/T. SINCE VALIDATION TESTING/ISR PACKAGE WILL NOT BE COMPLETED UNTIL SEPTEMBER 20, THIS RELEASE PRESENTS A PROBLEM. CHARLIE AND JOE WILL FOLLOW UP WITH PURCHASING TO NEGOTIATE A PUSHOUT UNTIL OCTOBER. IF THIS IS NOT ACCEPTABLE TO FORD, WE NEED TO LOOK AT PULLING IN OUR ALREADY AGGRESSIVE ISR COMPLETION SCHEDULE.

THE CONNECTOR INSERTION FORCE TEST REPORT WAS REVIEWED WITH L/T BRAKE ENGINEERING. THEY WERE PLEASED WITH THE RESULTS, AND WILL NOW FINALISE APPROVAL ON THE REVISED TERMINAL TOLERANCE; I.E., WE'LL HAVE FULL ISR APPROVAL FOR BOTH 57PS SWITCHES.

<u>MILESTONES</u>	<u>PLANNED</u>	<u>ACTUAL</u>
57 L/T ISR	11/21/90	11/21/90
57 L/T JOB 1	09/02/91	
57 P/C ISR	01/15/91	01/15/91
57 P/C JOB 1	06/03/91	
77PS ISR	09/01/91	
77PS SOP (TI) est.	10/01/91	

TI-NHTSA 002168

PRODUCTION PLAN BY MONTH (THOUSANDS) - WITHOUT OVERAGE

	P/C 57PSL5-3	L/T 57PSL5-2	P/C 77PSL2-1	L/T 77PSL2-3
APR	0	0	0	0
MAY	2 (COMP.)	2	0	0
JUN	0	0	0	0
JUL	0	2.3	0	0
AUG	0	2.3	20	0
SEP	10	2.0	10	10
OCT	0	0	**9 ?	12.5
NOV	0	0	25 ?	12.5
DEC	0	0	25 ?	12.5

- * = JOB1 FOR 57PS VERSIONS
- ** = TENTATIVE JOB1 FOR 77PS VERSIONS

REGARDS,
DAVE CSARN \31-FORD

PRESSURE SWITCH DATA

Form 21605

TEST NO. 302-15-24

DEVICE 7375 BASF (Noryl)	DATE REQUESTED	REQUESTED BY S. P. O'Neil	REQUESTED COMPL. DATE
PERFORMED BY Jeffrey D. Binegar	DATE STARTED 9/2/77	DATE COMPLETED	APPROVED BY

PROJECT TITLE:

CUSTOMER:

PURPOSE OF TEST: To assure that Noryl pigmented with different colors have similar thermal expansion properties

PROCEDURE: Crimp bases to dummy sensors. Measure from cap base to base of base of sensor. 100°C and 150°C.

group 1

Base #	Color	Temp	150°C	Δ	T ₀
302-15-01	Tan	.4785	.4797	.0012	
-01	↓	.4781	.4794	.0013	.00167
-01	↓	.4782	.4792	.0010	
302-15-09	Pink	.4780	.4795	.0015	
-09	↓	.4783	.4795	.0012	.00313
-09	↓	.4792	.4794	.0002	
302-15-23	Red	.4781	.4795	.0014	
-23	↓	.4781	.4793	.0012	.00333
-23	↓	.4780	.4788	.0008	
302-15-16	Grey	.4760	.4797	.0037	
-16	↓	.4761	.4805	.0044	.00779
-16	↓	.4760	.4797	.0037	
* AVERAGE - Actual is .4779					

group 2

base #	color	^{R₁₁₁} Temp	ISO'C	Δ	\bar{X}_0
301-15-13	Tan	.4785	.4780	.0005	
-17		.4786	.4785	.0001	.00267
-18		.4784	.4780	.0004	
301-15-14	Black	.4784	.4776	.0008	
-17		.4784	.4773	.0011	.00260
-19		.4780	.4776	.0004	
301-15-15	Red	.4783	.4777	.0006	
-20		.4787	.4775	.0012	.00270
-21		.4787	.4780	.0007	
301-15-21	Grey	.4784	.4789	-.0005	
-22		.4780	.4791	-.0011	.00270
-24		.4780	.4787	-.0007	

TI-NHTSA 002171



AKRON RUBBER DEVELOPMENT LABORATORY, INC.

333 KENMORE BOULEVARD • AKRON OHIO 44307
Office (216) 434-6004 Telex (216) 434-8008

July 24, 1991

Ms. Elizabeth Kill
Texas Instruments
34 Forest St.
MS 10-16
Attleboro, MA 02703

SUBJECT: Chemical analysis on sample submitted by the above company.
PO# 800066978

RECEIVED: One sample identified as: #110831 Ethylene Propylene JEL compound
E-7104-70.

POLYMER IDENTIFICATION: ASTM D 3571
Pyrolysis method

SAMPLE

#110831

POLYMER IDENTIFICATION

Ethylene-Propylene Rubber

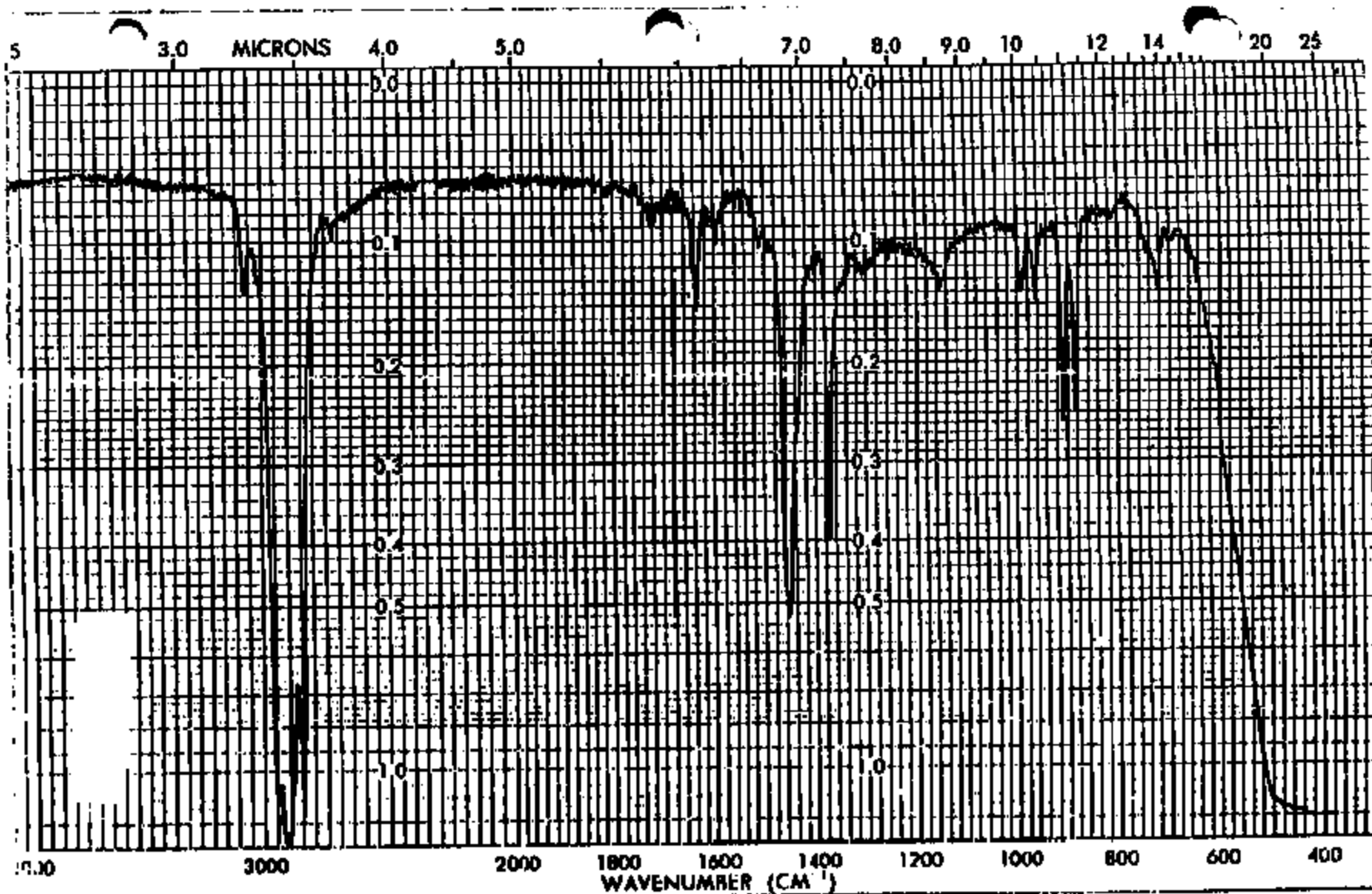
Janis Reifart
Janis Reifart
Senior Chemical Technician
AKRON RUBBER DEVELOPMENT LABORATORY, INC.

Thomas M. Knowles
Thomas M. Knowles
Vice President, Chemical Services

DN# 11726 INV# 31172601

tk

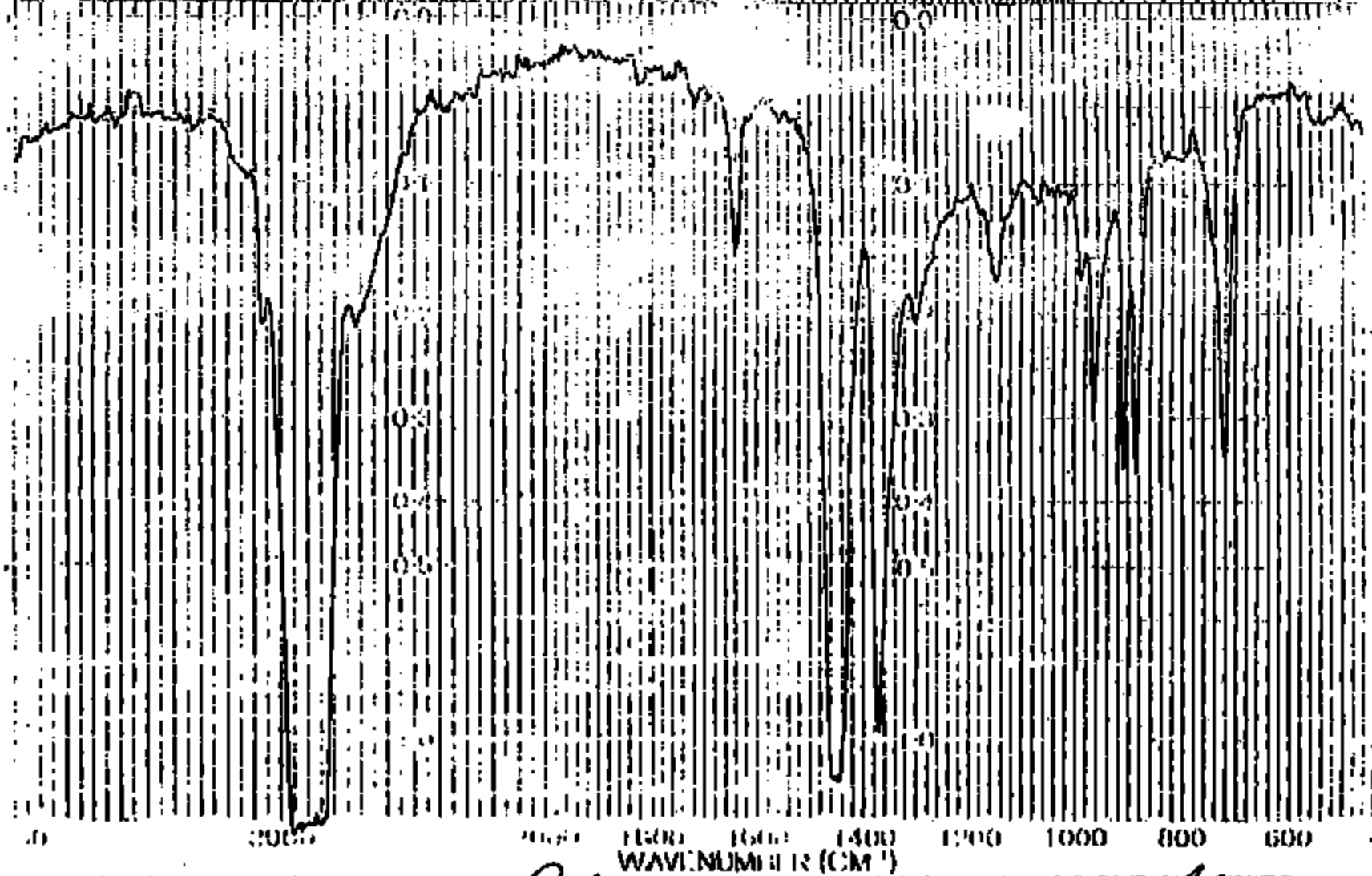




SAMPLE ()	SOLVENT CONC CELL PATH REFERENCE ()	SCAN S/N OPERATOR DATE No PR 5102 1001 ()	SINGLE B T D SPEED CHD EXP T CONST RE: No ()	REMARKS ()
()	()	()	()	()

TI-NHTBA 002173

25 30 MICRONS 40 50 60 70 80 90 10 12 16 20



TI-NUTBA 002174

ETHYL Styrene Propylene Rubber

NAME	Polysar
FORM	
CELL NO.	
DATE	
ANALYST	

SCAN	3
FILE	2
OPERATOR	Tam
DATE	
TIME	

INSTRUMENT	
APERTURE	
SLIT	
SCANNING	
RESOLUTION	

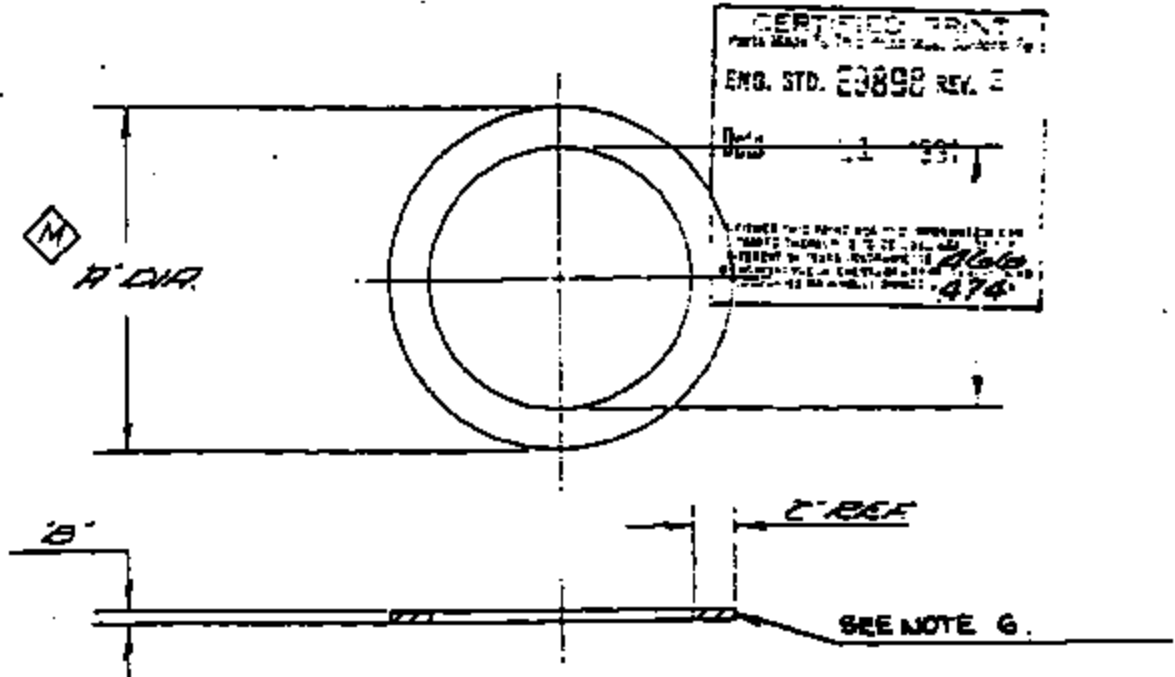
ARDC
Rustad

GNDKKI

14353

74353

ENG. NOTE & D.P. No. 79.
 CROSSING ALL
 CAL. 1-24-54 M
 ADDED-3
 C
 D
 11/19/55
 11/23/55
 12/1/55
 12/1/55
 12/1/55



NOTES:
 1. PARTS MUST BE PURCHASED FROM T.I. ENGINEERING APPROVED VENDORS, LISTED BELOW.
 2. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.
 3. MATERIAL TO BE COMPATIBLE WITH FREON-12 & PERFLUORANT OIL.
 4. PARTS TO BE SHIPPED, ISSUED & STORED IN SEALED PLASTIC BAGS. 39,000 PARTS PER BAG MAX.
 5. ALL CONTAINERS OF PARTS MUST BE MARKED TO REFLECT ANY MATERIAL LOT, TOOL OR PROCESS CHANGE.
 6. DASH 1(-1) AND DASH 4(-4) GASKET MUST HAVE FOUR (4) WHITE STRIPING INK MARKS, EQUALLY SPACED AROUND THE CIRCUMFERENCE, AND NOT LESS THAN 1/8 INCH WIDE. NO INK IS ALLOWED ON ANY OTHER SURFACE.

74353-4	ETHYLENE PROPYLENE JBL COMPOUND E-7104-70 JBL PART NO. 6197E	70	BLACK	.670-.662	.030-.036	.063	
74353-3	ETHYLENE PROPYLENE JBL COMPOUND E-7054	T.O.	WHITE	.670-.662	.030-.036	.063	
74353-2	ETHYLENE PROPYLENE JBL COMPOUND E-7054	T.O.	WHITE	.599-.591	.030-.036	.063	
74353-1	ETHYLENE PROPYLENE JBL COMPOUND E-7104-70 TEL PART NO. 6197E	70	BLACK	.599-.591	.030-.036	.063	
A	PART NO.	MATERIAL	DIMENSIONS	COLOR	A ()	B ()	C ()

BY J. Dall 9.18.55
 CH. James J. Foster 3.12.56
 ENG. J. J. ... 3.12.56

TEXAS INSTRUMENTS INCORPORATED
 ATTLEBORO, MASS., U.S.A.

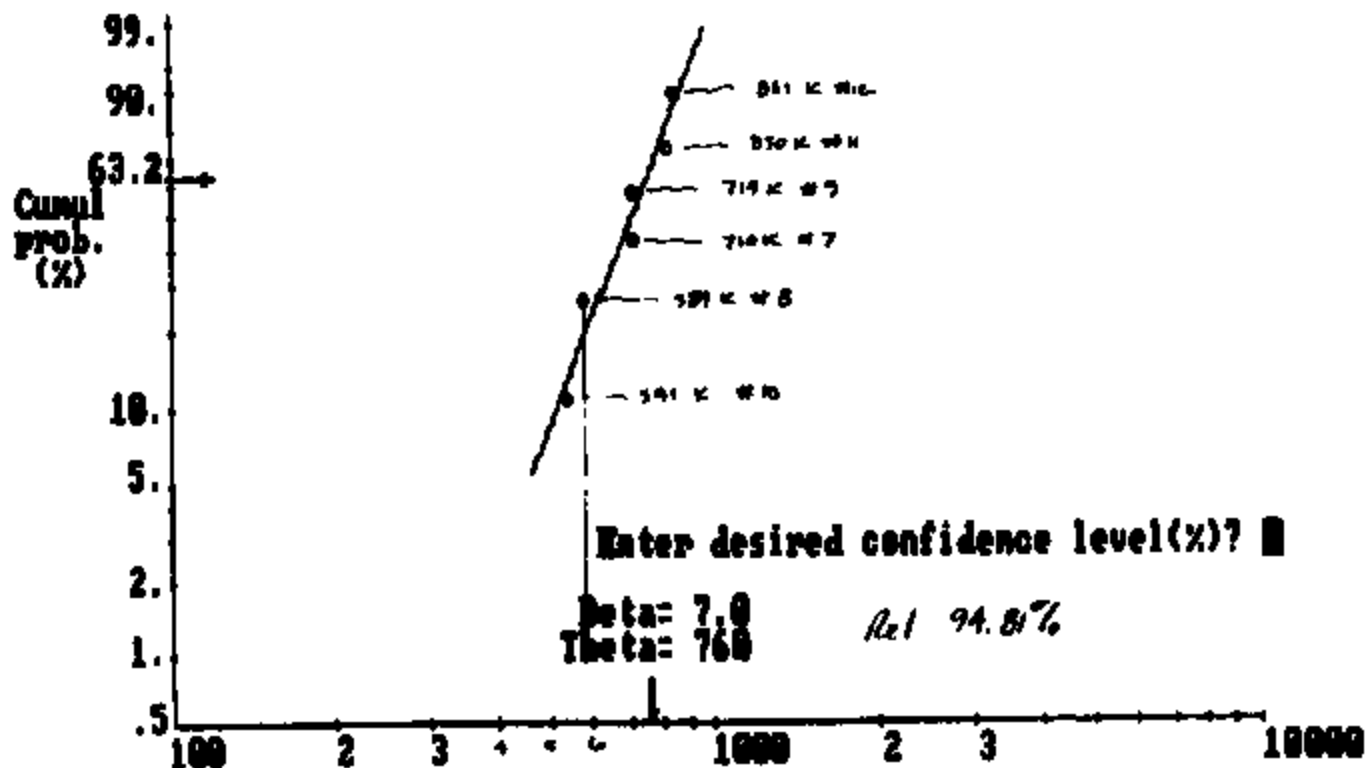
KEY
CONTROL PRODUCTS DIVISION
DATE LIST
A 74353
2379-351

MODEL SHOP CUP

AMI CRIMP

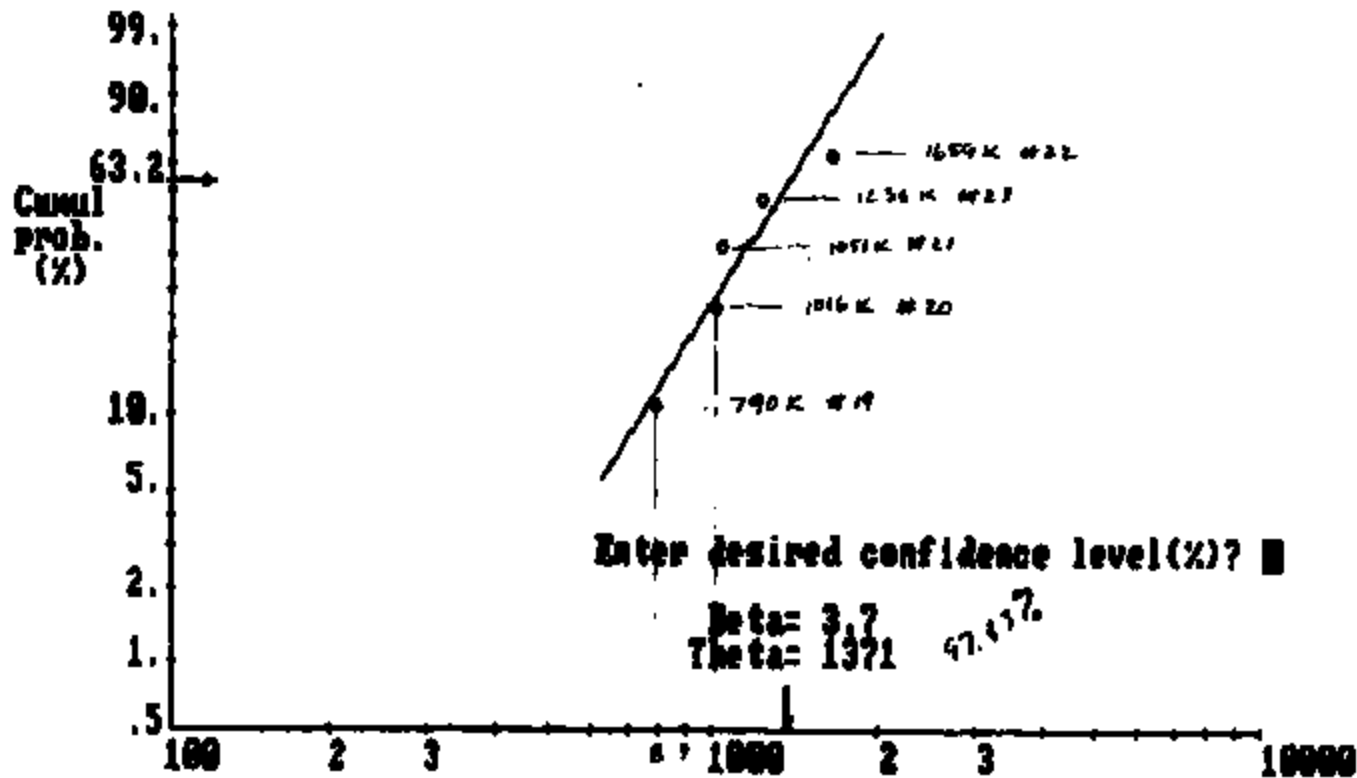
6/6 FAIL

TEST 159



TI-NM75A 002176

M/S RETDUMP CV
 HAND-LINE CRIMP (ORIGINAL 5785 VAL)
 5/6 FAIL
 1 SUSPENDED @ 1975K TEST 159

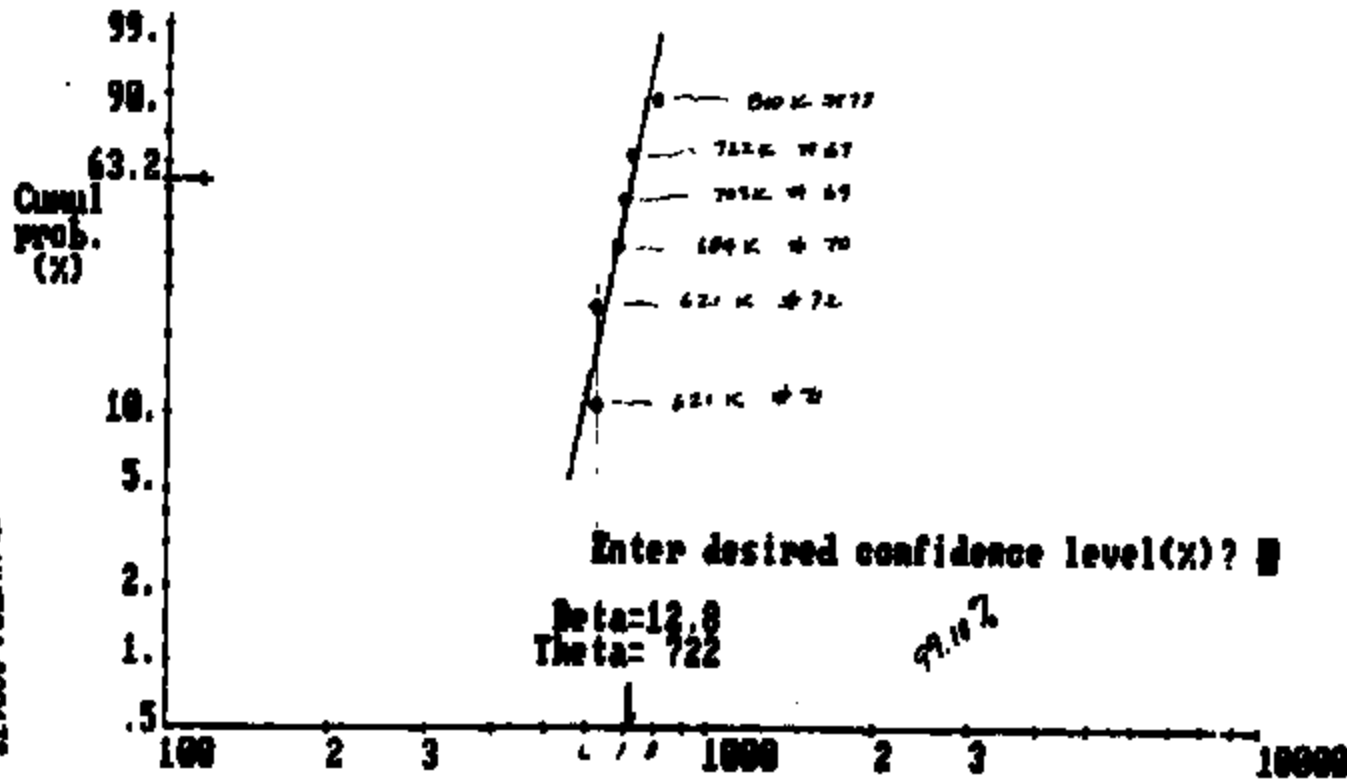


TI-NHTSA 002177

LT VALIDATION PARTS

BUILT ON AM1 JULY '91 TEST 159

TLNHTSA 002176



RELIABILITY LEVELS FOR SPECIFIED VALUES OF TIME

 * WEIBULL SLOPE 12.80
 * CHARACTERISTIC LIFE 722.00

NO. TIME RELIABILITY (%)
 500 99.0972

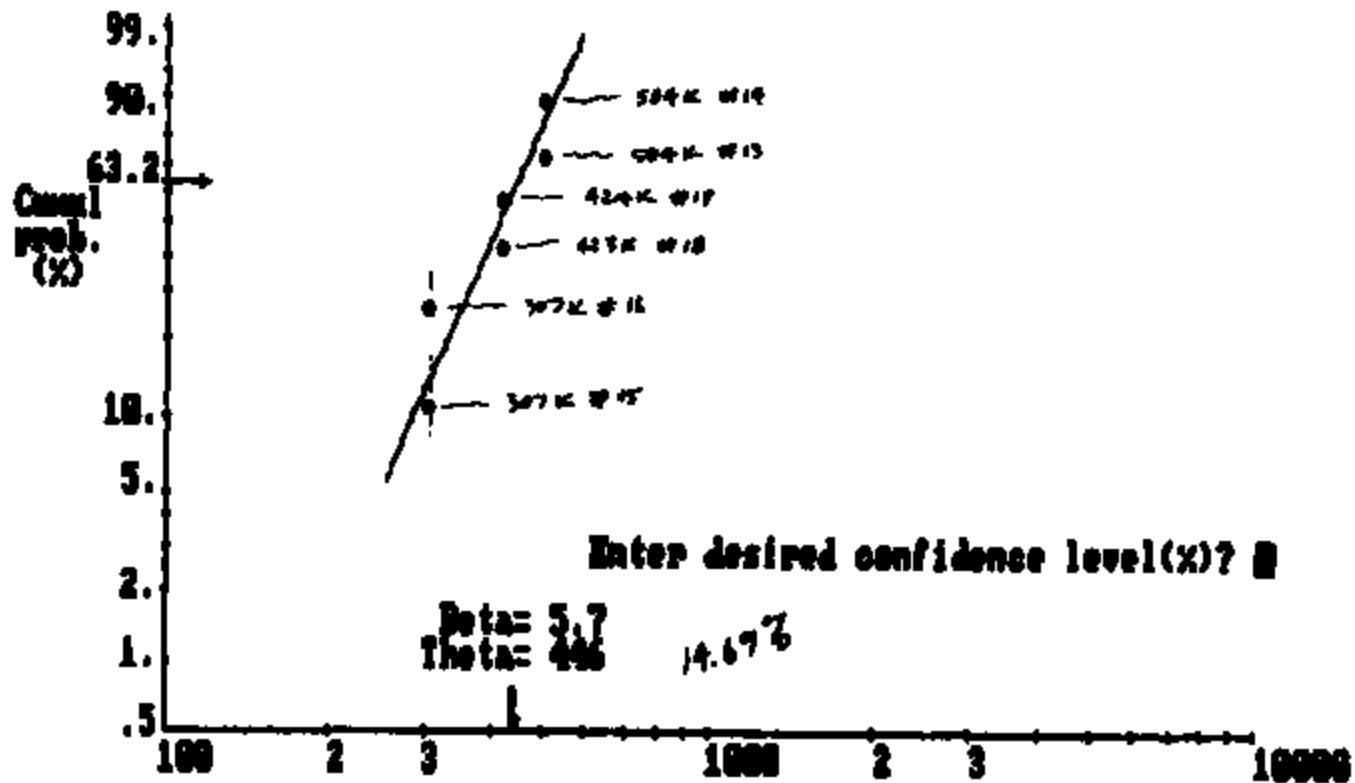
PRODUCTION CUP

AWM1 CRIMP

TEST 159

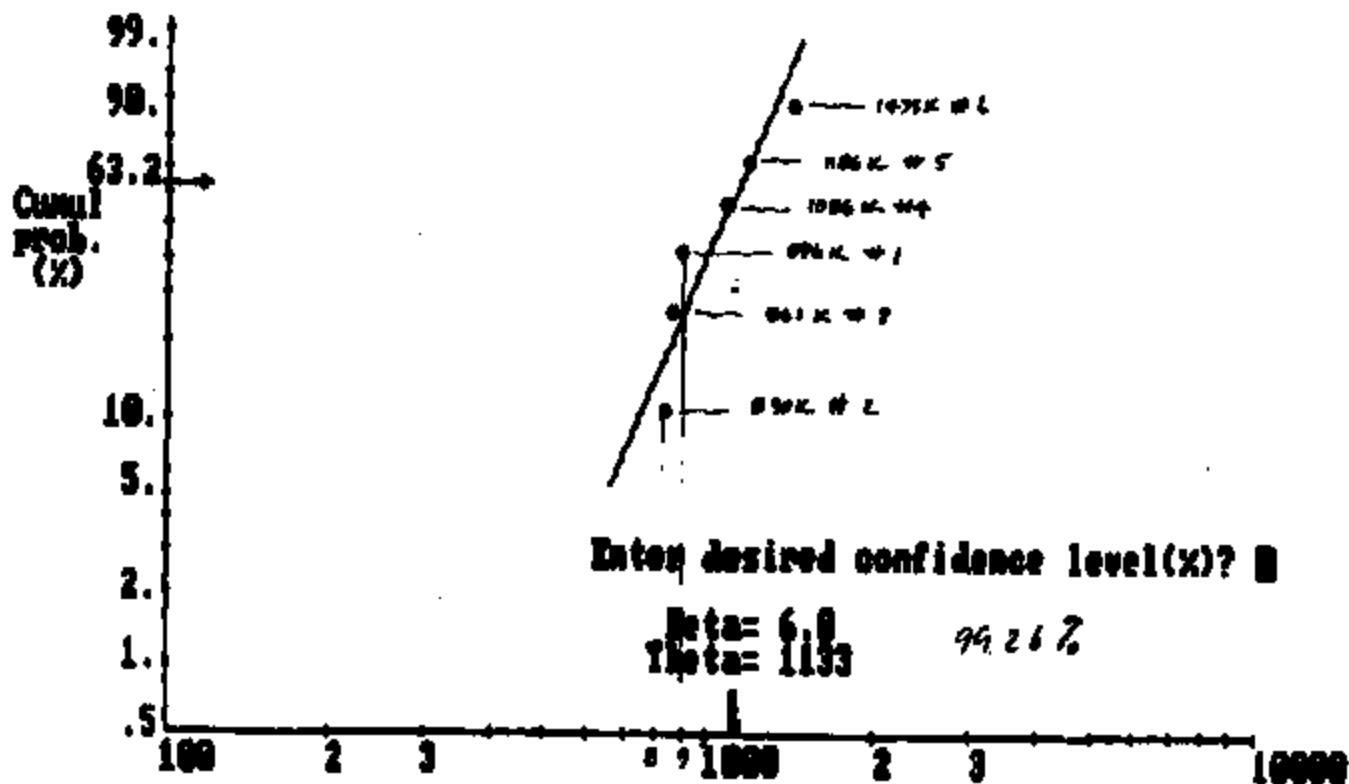
6/6 FAIL

BUILT FOR 7715 VAL (ORIGINAL)



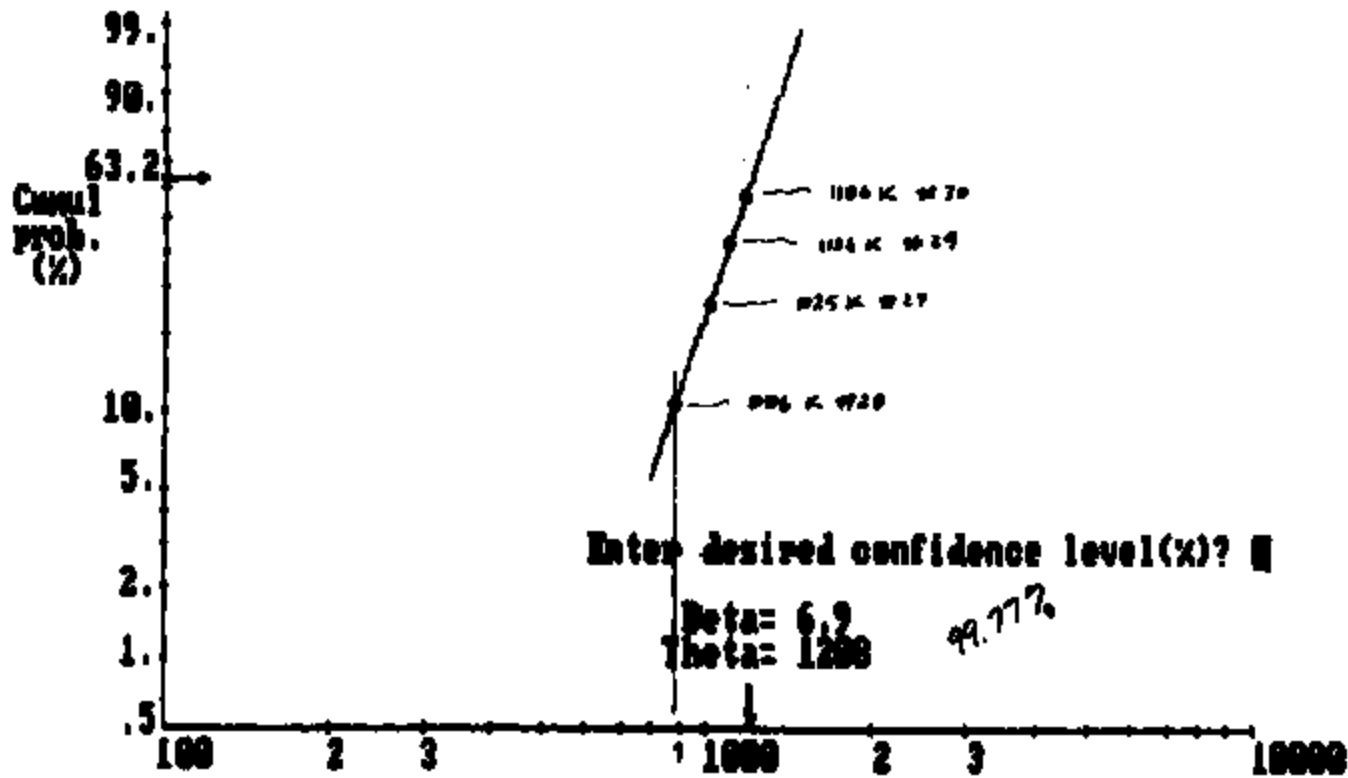
TI-NMTSA 002179

PRODUCTION CUP
 HAND-LINE CRIMP (FIRST PARTIAL)
 6/6 FAIL
 TEST 157



TI-NHTSA 002180

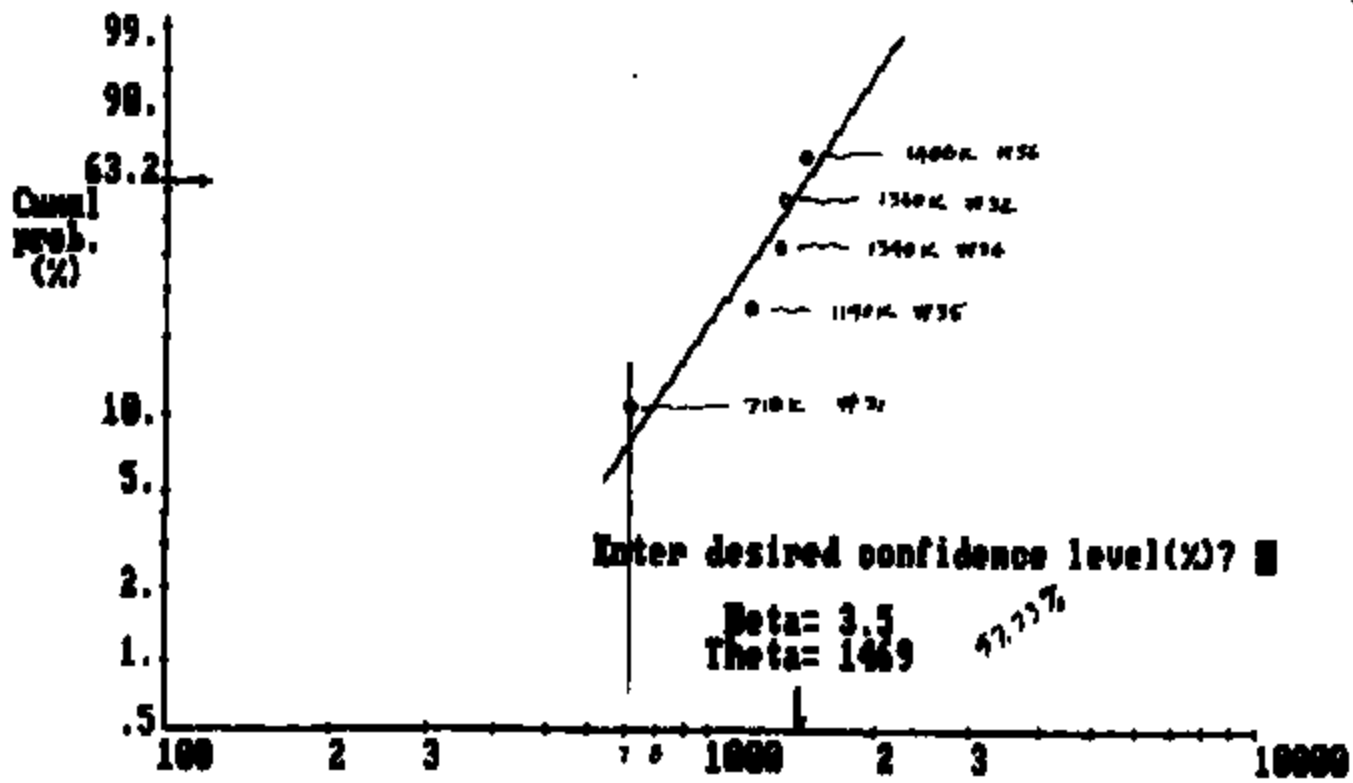
PILED LUP
 AMI BUILT 910028 W/ PRE-CRIMP
 4/6 FAIL TEST 159
 2 SUSPENDED @ 1590K



TI-NHTBA 002181

PRGD CUP
 AMI CRIMP W/D IRBRIMP

5 OF 6
 #33 SUSP. @ 1590 K TEST 159



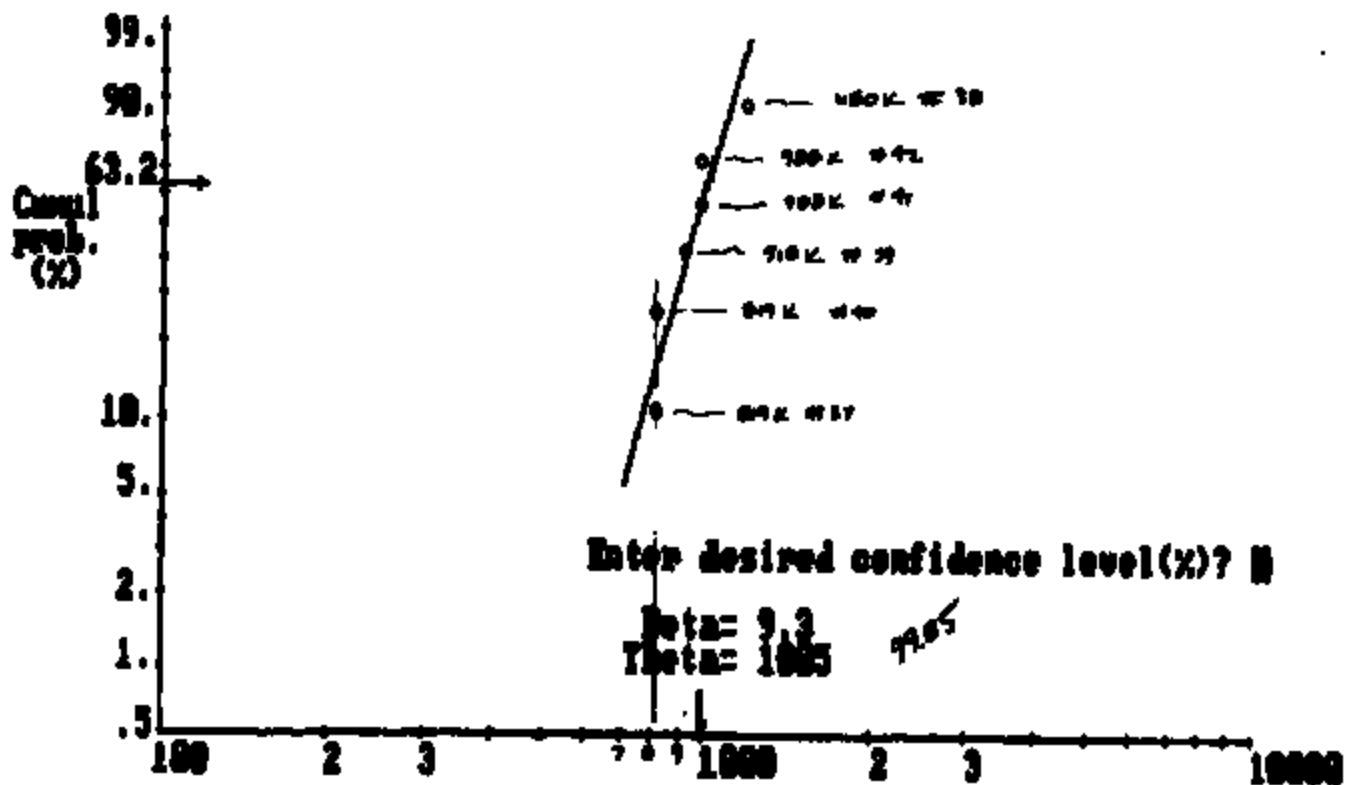
TI-NMTSA 002162

PROD CUPS

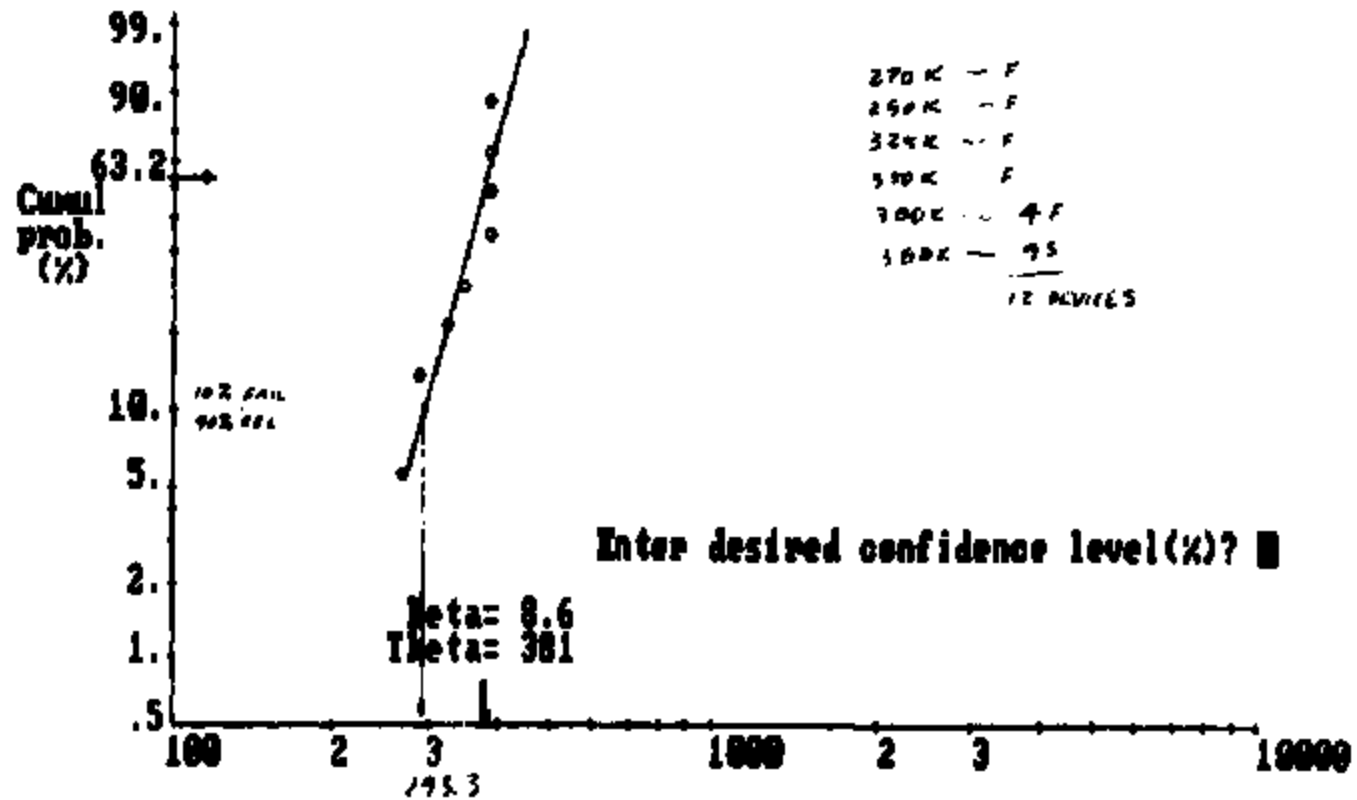
HAND-LINE CRIMP

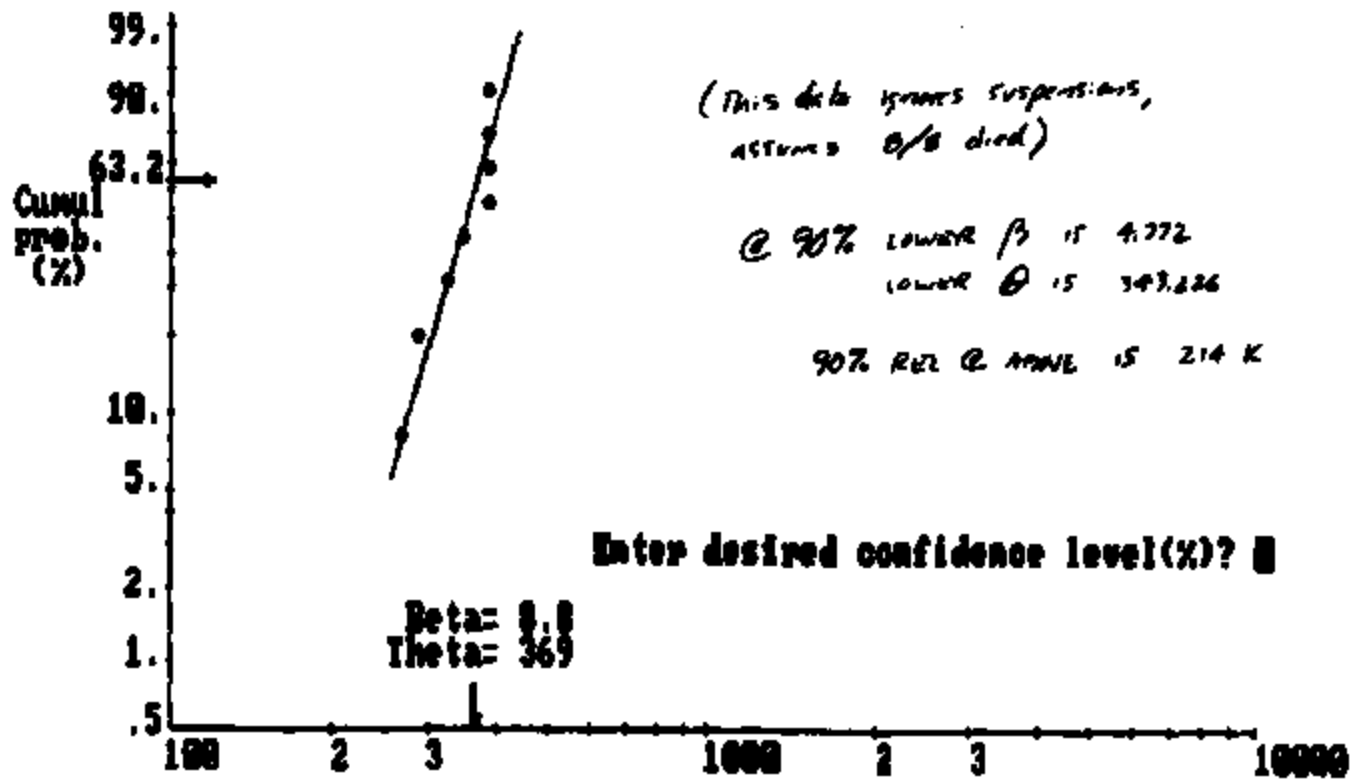
W/ AMI PRECRIMP

TEST 159

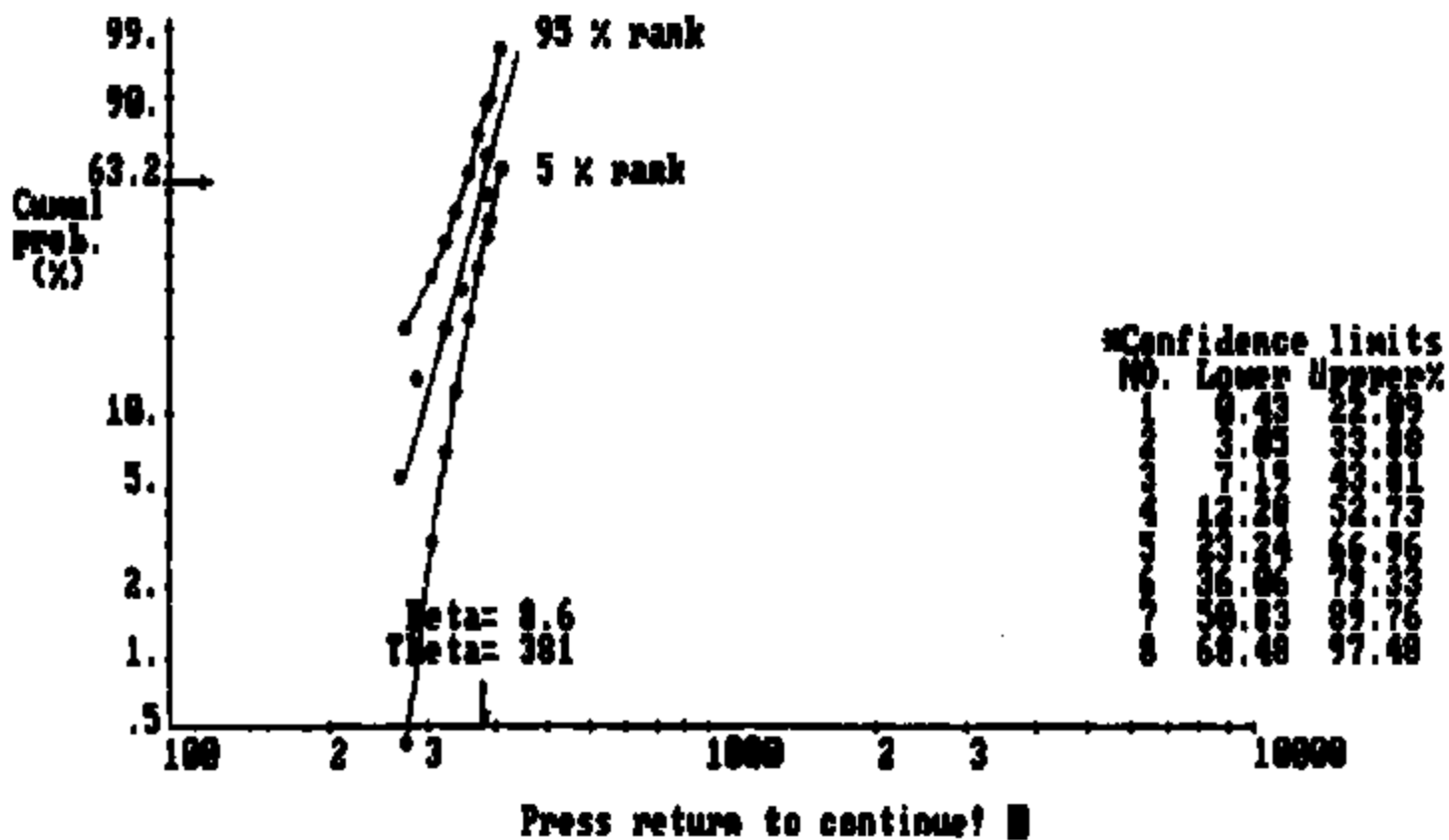


ACTUAL VALIDATION FAILURES PL 77ASLZ-1

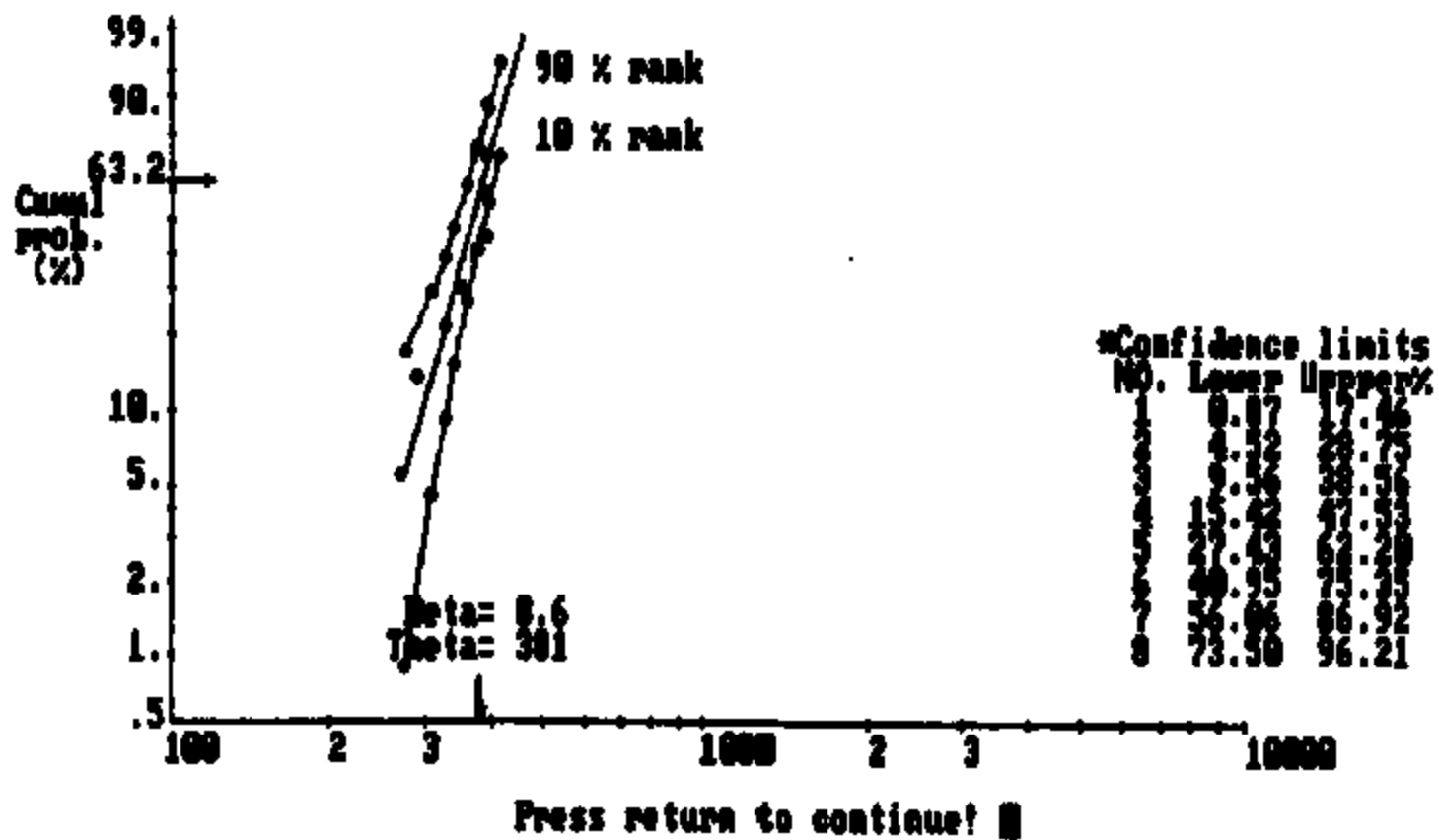




TI-NHTSA 002198



TMNTSA 002187



162-01-20

SAMPLE ORDER

ORDER NO: 0091-35
REQUEST DATE: 7/24/91
CREDIT ACCOUNT: 5902
COST CENTER: 10:
PRODUCT CODE: 060

CUSTOMER: KELSEY-HAYES COMPANY
CUSTOMER P.O. NO: A1E052534
TI PART NO: 57PSL5-3
CUSTOMER PART NO: F2VC 9F924 BB
QUANTITY: 20
PRICE: \$12.00 EACH

DELIVERY PROMISED: 7/25/91

SPECIAL INSTRUCTIONS:

BILL TO:
KELSEY-HAYES COMPANY
38481 HURON RIVER DRIVE
P.O. BOX 98
ROMULUS, MI 48174

SHIP TO:
KELSEY-HAYES COMPANY
ROMULUS PLANT
38481 HURON RIVER DRIVE
ROMULUS, MI 48174
ATTN: JIM COSSINS

XX PRODUCTION SAMPLES
ENGINEERING DEVELOPMENT SAMPLES
CC: ENGINEERING: STEVE OFFILER
PRODUCTION CONTROL: MARIE CROSSLAND
SALES ENGINEER: JOE SCHUCK

TI-NHTSA 002188



AKRON RUBBER DEVELOPMENT LABORATORY, INC.

300 MEMORE BOULEVARD • AKRON, OHIO 44321
Office (216) 434-6664 Telex (216) 434-6668

July 24, 1981

Ms. Elizabeth Kill
Texas Instruments
34 Forest St.
MS 10-16
Attleboro, MA 02703

SUBJECT: Chemical analysis on sample submitted by the above company.
PO# 500066978

REMARKS: One sample identified as; #110831 Ethylene Propylene JEL compound
E-7104-70.

POLYMER IDENTIFICATION: SEMI D 1472
Pyrolysis method

SAMPLE
#110831

POLYMER IDENTIFICATION
Ethylene-Propylene Rubber

Janis Seifert
Janis Seifert
Senior Chemical Technician
AKRON RUBBER DEVELOPMENT LABORATORY, INC.

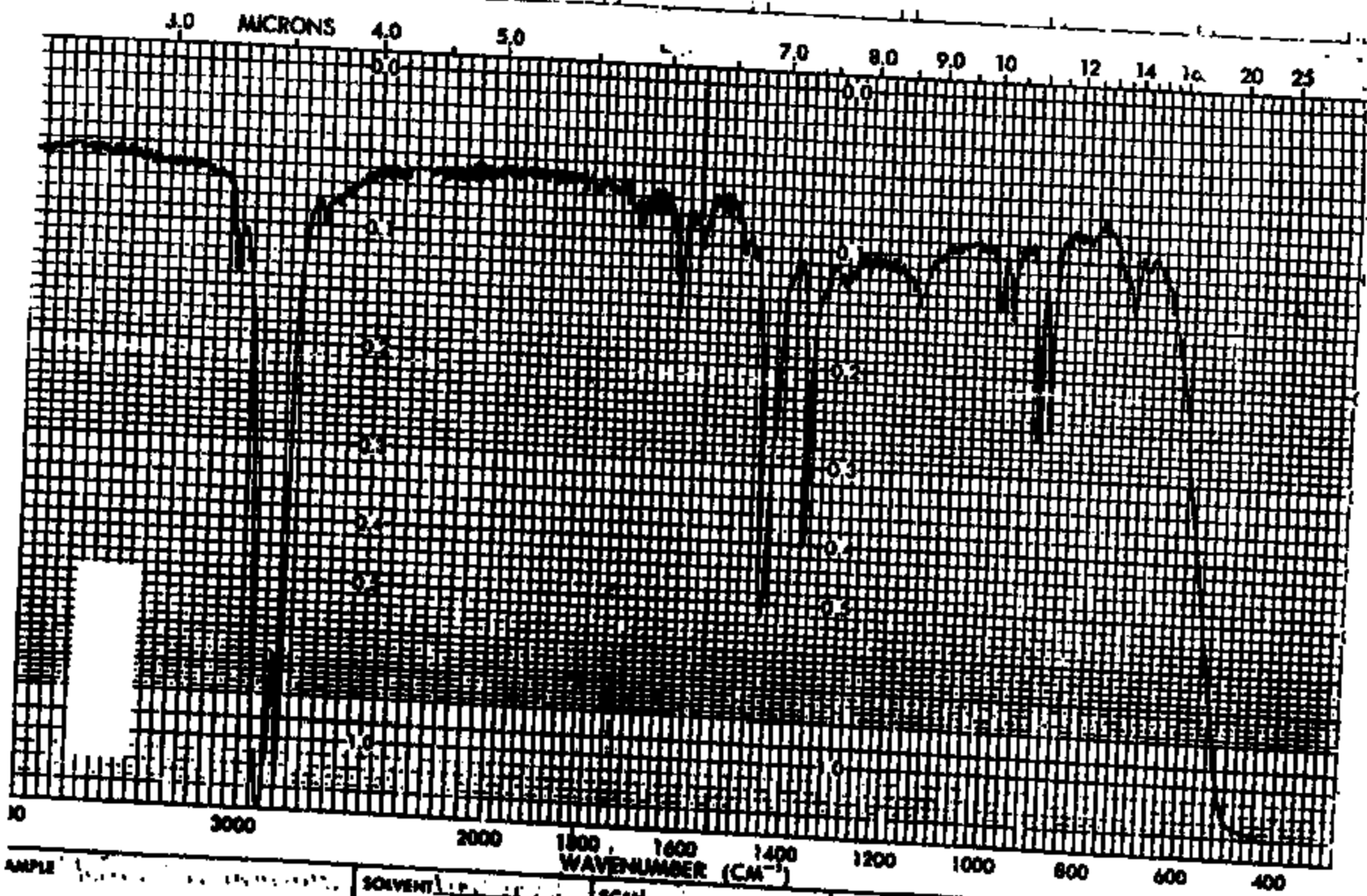
Thomas M. Knowles
Thomas M. Knowles
Vice President, Chemical Services

PH# 11726 INV# 31172601

ck

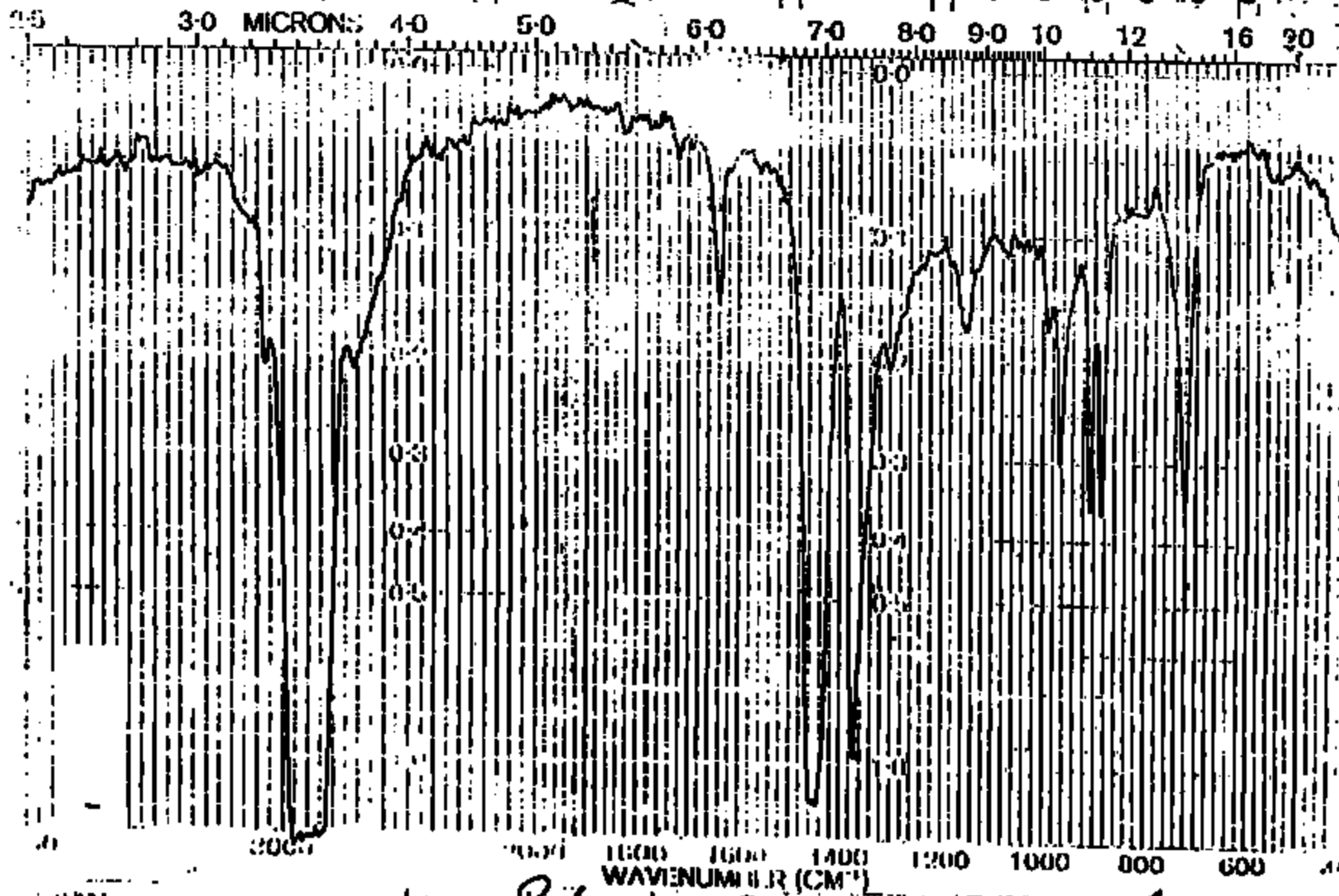
TI-NHTSA 002189





SAMPLE	SOLVENT	SCAN	REMARKS
	CONC.	SR	
SCAN	CELL PATH	OPERATOR	SINGLE B.
	REFERENCE	DATE	T. D. SPEED
		No. 00 5002 100	ORD. EXP.
			T. CONST.
			REF. No.

T-1-NHTSA 002190



77-NHTSA 002191

IDENTIFIED
 Ethylene Propylene Rubber

SEARCHED *Positive*
 INDEXED
 SERIALIZED
 FILED

SEARCHED
 INDEXED
 SERIALIZED *Tom*
 FILED

SINGLE COPY
 REPRODUCED
 FROM
 ORIGINAL
 FILED

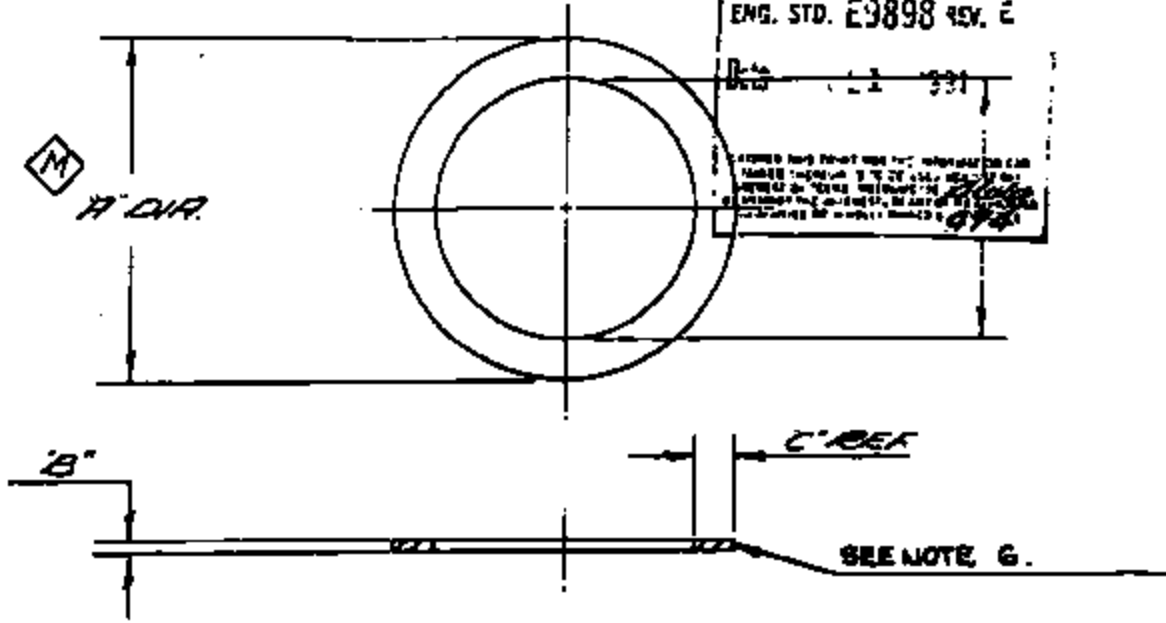
INVESTIGATED
Control

74353

GASKET

74353

CERTIFIED PRINT
 Part Made To Fit To 42 Max. Control To
 ENG. STD. E9898 REV. E
 Date 11 30 72
 100% INSPECTION REQUIRED FOR THIS PART
 TABLE TOP ONLY TO BE USED FOR THE
 PURPOSE OF THIS INSTRUMENT
 CONTROL OF CHANGE, IN ANY OF THE
 DRAWINGS OF THIS PART, MUST BE
 APPROVED BY THE DESIGN ENGINEER



- NOTES:**
1. PARTS MUST BE PURCHASED FROM THE ENGINEERING APPROVED VENDORS, LISTED BELOW.
 2. MATERIAL CERTIFICATION REQUIRED WITH EACH SHIPMENT.
 3. MATERIAL TO BE COMPATIBLE WITH FREON-12 & BOREFLUORANT OIL.
 4. PARTS TO BE SHIPPED, ISSUED & STORED IN SEALED PLASTIC BAGS, AND 30,000 PARTS PER BAG MAX.
 5. ALL CONTAINERS OF PARTS MUST BE MARKED TO REFLECT ANY MATERIAL LOT, TOOL OR PROCESS CHANGE.
 6. DASH 1(-1) AND DASH 4(-4) GASKET MUST HAVE FOUR (4) WHITE STRIPING INK MARKS, EQUALLY SPACED AROUND THE CIRCUMFERENCE, AND NOT LESS THAN 1/8 INCH WIDE. NO INK IS ALLOWED ON ANY OTHER SURFACE.

C. U.S. 1-20-72
 CR. DATE 6-25-72
 CR. NO. 61978
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74353-4	ETHYLENE PROPYLENE JBL COMPOUND E-7104-70 JBL PART NO. 61978	70	BLACK	.670-.662	.030-.036	.062
74353-3	ETHYLENE PROPYLENE JBL COMPOUND E-7054	70	WHITE	.670-.662	.030-.036	.06
74353-2	ETHYLENE PROPYLENE JBL COMPOUND E-7054	70	WHITE	.599-.591	.030-.036	.06
74353-1	ETHYLENE PROPYLENE JBL COMPOUND E-7104-70 JBL PART NO. 6157E	70	BLACK	.599-.591	.030-.036	.06

IV	PART NO.	MATERIAL	FINISH	COLOR	A	B	C

BY T. Dai 3-18-85
 CR. James Lada 3-20-85
 ENG. J. Lada 3-11-85

TEXAS INSTRUMENTS
 INCORPORATED
 ATTLEBORO, MASS. U.S.A.

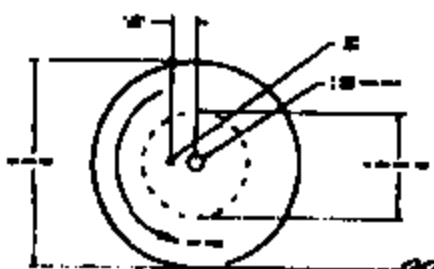
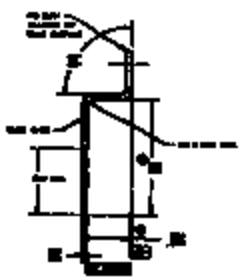
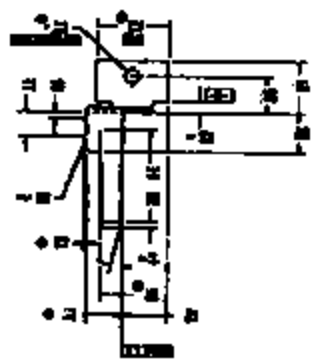
74353

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



FIG. 10
VALVE TO TEST
MOUNTING

- 1. THE COMPONENTS SHOWN IN THIS DRAWING
- 2. ARE TO BE ASSEMBLED IN THE
- 3. MANNER SHOWN IN FIGURE 10.
- 4. THE VALVE TO BE TESTED SHOULD
- 5. BE ASSEMBLED IN THE MANNER SHOWN
- 6. IN FIGURE 10.



ENGINEERING
 DRAWING
 JUL 1 1964

TITLE: DRAWING NO: DATE: SCALE:	
DESIGNED BY: CHECKED BY: APPROVED BY:	36887

TI-NHTSA 002193

TO: DICK GARIEPY MFPC
BILL CONGDON MFPC
TED BREDIKIN PBWT

CLAIRE BALTHAZAR PSWT
BILL SWEET PCNE
RAY TOURANDEAU ROTC

FR: DAVE CZARN IARN

RE: COPS (77PS) MANUFACTURING SUPPORT

I WANTED TO HIGHLIGHT, OUTSIDE OF THE WEEKLY START-UP MEETING MINUTES, SOME OF THE ITEMS THAT NEED PARTICULAR ATTENTION AS WE NEAR PRODUCTION START-UP. I BELIEVE THE OUTSTANDING ITEMS WILL REQUIRE AT LEAST 75% OF CLAIRE'S TIME NOW THROUGH OCTOBER, PERHAPS DROPPING OFF TO 50% BY THE END OF 4Q91.

AS YOU KNOW, WE WILL BE MOVING THE BASE/FINAL ASM. MACHINES AND P-TESTER TO B12 IN SEPTEMBER. SINCE WE ARE SEEING RELEASES FROM FORD FOR THE 77PS IN SEPTEMBER, WE IN TO BUILD UP TO 30K SWITCHES IN AUGUST, WITH THE CURRENT RELEASES, THIS QUANTITY OF SWITCHES WILL LAST INTO THE SECOND WEEK OF OCTOBER. (THIS HAS BEEN TRACKED TO THE BEST OF OUR ABILITY DURING THE START-UP MEETINGS, BUT SEEMS TO CHANGE FROM TIME TO TIME.) WE PLAN TO BUILD THE SWITCHES NEXT MONTH IN B20, THEN MOVE ALL OF THE EQUIPMENT TO B12 DURING THE SECOND HALF OF SEPTEMBER. I'VE ASKED CLAIRE TO DO MUCH OF THE COORDINATION OF THESE BUILDS, AND TO GET THE AUTOMATION SPECIALIST INVOLVED.

IN ADDITION, CLAIRE HAS A LIST OF 50 ITEMS THAT REQUIRE COMPLETION PRIOR TO START-UP, INCLUDES ROUTE CARDS, KAN-BAN CARDS, ETC. HER RECOMMENDATION IS TO HAVE A WEEKLY MEETING WITH MATT, TED, LOUISE AND DICK TO ENSURE THAT ALL OF THESE ITEMS GET DONE ON TIME. I THINK IT'S A GREAT IDEA. I'VE SPECIFICALLY ASKED THAT ITEMS RELATED TO LINE CLEANLINESS BE FORMALLY ADDRESSED AT THESE MEETINGS; LESSONS LEARNED FROM THE PSM START-UP...

I WOULD ALSO LIKE TO MAKE SURE THERE IS A MANUFACTURING REP. AT EACH OF THE WEEKLY START-UP MEETINGS THAT I HOLD, SO WE'RE NOT OVERLOOKING ANY ITEMS THAT MAY REQUIRE THE SUPPORT OF OTHER GROUPS.

PLEASE LET ME KNOW YOUR THOUGHTS.

REGARDS,

DAVE CZARN
19-COPS

TI-NHTSA 002104

-MSG N# 407886 FR=VINN TO=PCQA SENT=07/24/91 04:13 PM
R#-107 ST=C DIV=0050 CC=00561 BY=VINN AT=07/24/91 04:13 PM

To: David Csarn HARN ** Matt Sellers NJS2 **
Steve Offiler SBO1 ** Charlie Douglas CNP1 **
Stan Homol SH2 ** Jim Watt PCQA
Paul Kotch PRK1

Copy: Ed O'Neill EJON ** Ray Tourangeau RGT2
Bill Sweet WBSO Mike Demattis PCQA
Joe Lazars JNLS

From: Vinney Barros VINN

Subj: Minutes of meeting with Elco on 22 July 1991

Ref: Steve Fulton visit to discuss the 36900-1 J512 hexport

(**) ATTENDEES

*CC = DANHAM
FBI/Regarding Cause Control
JWatt*

Steve Fulton, applications engineer at Elco, visited TI on 22 July to discuss the issues surrounding the 36900 hexport. Steve was accompanied by Les Whyte of Elco sales. Listed below are the items/concerns which were discussed. These items are ranked in order of TI importance and will be reviewed with Elco at the next engagement with Elco at end w/o 22 July.

RANK ITEMS

THREAD ISSUES

. Elco has run 2 sample lots, approx 2k pieces, of an alternate, harder material, 10B21 - Specified: 10L10 steel. 10B21 samples passed thread gauges with no re-roll required. 10B21 samples and documentation will be sent to TI this week w/o 7/22. Steve F. could not offer a cost comparison between the 10L10 and the 10B21, however the re-roll operation is expected to offset any material cost increase. Elco uses 10B21 for other non-TI jobs and keeps large stock of this material.

(1) . TI to evaluate above samples and provide feedback about feasibility/potential conversion. Elco to eventually process larger production quantities based on plating lot sizes (5k). TI will approach Ford only after feasibility is proven on representative plating lot.

. Elco suggested semi-automated rack plating as an alternate to the current barrel plating to help minimize nicks on threads. This option is labor intensive, has lower throughput and may require tooling.

. Elco requested that TI loosen the tolerances of the threads. These tolerances are required by TI customer and will not be changed.

(6) . Elco proposed that protective plastic caps with 'bleed' holes be installed on the threaded area before plating. Even though, the threads would then receive little to no plating/chromate, this may not affect the salt spray requirements as the threads, once mated, are protected. Also, TI already uses plastic caps at

TI-NHTSA 002185

mfg.

- (2) . Elco asked for a reduction of the plating thickness. Design engineering to review. TI will authorize release of one plating lot at 0.00015" min. thickness for evaluation. Elco needs to determine if this, in fact, solves the rollover problem
- . Nickel plate was proposed as an alternate to zinc. Concerns were about nickel flaking when the hexport is crimped.
- (8) . Elco was asked to look at feasibility of barrel plating the hexports using a soft media (gelatin or plastic beads) to 'cushion' the impacts.
- (5) . First thread over 45-degree chamfer is usually deformed. A potential fix may be to replace chamfer with concave radius or other suitable geometry. Elco to investigate.

CHROMATE ISSUES

- . Elco asked if a protective coating, such as wax, can be placed chromate to prevent the leaching of the chromate. Concerns about underhood temperatures and contamination of automotive (brake and power steering) fluids may not allow this option.
- (7) . Upon his return at Elco, Steve Fulton will address the issue of chromate wiping off and inform TI of corrective actions.

J512 GAUGE

- Steve Fulton confirmed that Elco is using the J512 gauge both in-process and at QC.
- (3) . J512 gauge should be opened to 0.293 to match TI's. Matt Sellers will provide details if it is not clear to Steve.

RADIUS AT DOGPOINT

. Steve confirmed that a radius is already in place at the dogpoint.

COST ISSUES

- (4) . The 36900 hexport cost about 50 more than similar hexports bought from Elco (\$0.31 vs \$0.22). Steve Fulton pointed out that the 36900:
- uses more material than other hexports
 - has greater finish requirements thus slower speed at chucker
 - requires more machining at both ends
 - comprehends the re-roll operations in its price (about \$14/K). Elco to confirm this in writing.
- . Steve F. to confirm that the finish inside the flare in the control plan at Elco.
- . Steve F. to outline specific mfg steps which make up the cost differential.

Steve Fulton will re-engage with TI at end of this week to review the above items.

Regards,
Vinnay.

TI-NHTSA 002197

MSG N#- 12528 FR=CERN TO=PCQA SENT=07/26/91 07:50 AM
R#-146 ST=C DIV=0050 CC=00101 BY=CERN AT=07/26/91 07:50 AM

ULY 26, 1991

TO: RUSTY STRUBLE RCSZ
MIKE DeMATTIA PCQA
CHARLIE DOUGLAS CPFC
DICK GARIEPY NFPC
PAUL KOTCH PRK1
JOE LAZAR JMLB
STEVE OFFILER SBO1
MATT SELLERS PCME
BILL SWEET PCME
JIM WATT PCQA
TED BREDIKEN PSWT

CC: TOM CHARBONEAU TC
JOHN KOURTESIS NDES
STEVE MAJOR WELS
ANDY McGUIRK PCQA
ED O'NEILL EJOB
JOE SCHUCK WELS
GARY SHYDER CPFC
MARTHA SULLIVAN CPFC
RAY TOURANGEAU PCME
TED BALLARD AVME
STAN HONOL SE2
CLAIRE BALTHAZAR PSWT
BILL CONGDON NFPC
STEVE MCCOBY NDES
TERRY RODRIGUEZ NFPC
DONNA MOYNIHAN PCQA
PAUL WESTERLIND B511

FR: DAVE CEARN XARN

TI-NHTSA 002196

**SJ: FORD CRUISE CONTROL PRESSURE SWITCH START-UP MEETING:
07/25/91 MEETING MINUTES**

MEETING

THE NEXT MEETING IS SCHEDULED FOR:

**DATE: 08/01 (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**

57 L/T (L5-2)

Report:

	WHO	WHEN	
* REPORT ON ELCO ISSUES FROM 7/22 VISIT - 10B21 STEEL/.00015" MIN. PLATE/J512 \$/ THREAD CHAMP. ANGLE/THREAD CAP	KOTCH	ONGOING	
* REVISED HEXPORT PRINT W/ RADIUS ON DOGPOINT DIAMETER	OFFILER	07/11 08/08	ORIG. REV.

*Alvin Dub
Plotting
27290
36980*

ISR Issues:

. RELEASE PRINT FROM L/T	SCHUCK	05/09 08/01	ORIG. REV.
. SUBMIT ISR FOLLOW-UP TO FORD SQA (NEED RELEASE PRINT)	WATT	04/04 08/03	ORIG. - <i>Monday</i> REV.

57 P/C (L5-3)

Environmental Seal:

* DETERMINE BEST WAY TO DIFFERENTIATE P/C AND L/T ENV. SEALS (COLOR, STRIPES...)	SELLERS	08/08	
* DEFINE GAGING TORQUE SPEC W/J. HUTCHISON (PITTS)	WATT	06/20 08/08	

*ORIG. Keep. Tryon.
REV. full case*

77PS

. PROD. LINE SET-UP (RTE CARDS, ETC)	BALTHASAR	ONGOING	
. UPDATE PRODUCTION PLANS FOR ALL SWITCHES	DOUGLAS	ONGOING	
. REVIEW 77PS S/U TIMING WITH PURCHASING	DOUGLAS	08/01	
* 77PS EIS PARTS LISTS	OFFILER	06/06 08/01	ORIG. REV.
* COMPLETE DESIGN FMEA	OFFILER	04/18 07/31	ORIG. REV.
* COMPLETE PROCESS FMEA	SELLERS	07/01 07/31	ORIG. REV.
* IS CALIBRATION ACCURACY ACCEPTABLE W.R.T. DEVICE PERFORM. AND MFG. YLDS ?	OFFILER/ SELLERS	08/08	
* 77PS DESIGN CONFIRMATION TEST	OFFILER	06/20 08/08	ORIG. REV.
* PROD'N CALIBRATION WINDOW EXPERIMENT W/ "SILENT" SENSORS	OFFILER	07/04 07/18 07/18	ORIG. REV. COMP.
. MFG. TO REVIEW ARM GAGING TECHNIQUE	SELLERS	08/01	

. COMPLETE B.A.M. STAKER MODIFICATION	SELLERS/	07/31	
	MCCOOEY		
. 57 TO 77 CONVERSION; PHASE 1 TESTING	HONOL	05/30	ORIG.
		09/--	REV.
* HOLD SEPARATE WEEKLY MFG. START-UP MTGS.	SELLERS	ONGOING	

QA Items:

. 77PS QAS (FINAL)	WATT	08/01	
. 77PS CHARACTERISTICS SHEETS	WATT	07/15	ORIG.
		08/08	REV.
. GAGE R&R STUDIES	WATT	07/15	ORIG.
		09/03	REV.
. 10KPSI GAGE FOR BURST TESTER	WATT	08/01	
. SCHED. TO COMPLETE QC P-TESTER	WATT	07/25	
* IDENTIFY ANY OTHER ITEMS THAT NEED TO BE COMPLETED FOR 9/20 ISR SUBMISSION	WATT	08/01	

*Paul Chan
John Cook*

PV Testing:

. COMPLETE TESTING AND REPORT	OFFILER	09/16	ORIG.
		09/20	REV.

Production Components:

. RESOLVE OPEN ISSUES ON BASE (PUSHOUT DUE TO STAKER EVAL.)	SELLERS	04/11	ORIG.
		08/09	REV.
* PROPOSAL FOR RECEIVING GASKETS ON MANDRELS	SELLERS	07/11	ORIG.
		07/25	REV.
		07/25	COMP.
* INVESTIGATE C.R. IDEAS FOR ENV. SEALS ON MANDRELS (...REUSABLE MANDRELS, ETC.)	SELLERS	08/08	
* EXPEDITE LOT OF ENV. SEALS ON MANDRELS	WESTERL.	07/26	
* SORT EX3355-97 GASKETS (ROUNDNESS)	BALTHAZAR	08/01	

Manufacturing Equipment:

. FINAL ASM MACHINE DEBUG COMPLETION	SELLERS/	06/03	ORIG.
	KOURTESIS	08/02	REV.
. BASE ASM MACHINE BUILD COMPLETION	SELLERS/	05/31	ORIG.
	KOURTESIS	08/02	REV.
. PRESSURE TESTER BUILD COMPLETION	SELLERS/	06/20	ORIG.
	KOURTESIS	08/02	REV.
* ESTABLISH CRITERIA FOR EFFECT. RUNS	SELLERS	07/25	ORIG.
		08/01	REV.
. B.A.M. EFFECTIVITY RUN #1	SELLERS	07/03	ORIG.
		08/02	REV.
. F.A.M. EFFECTIVITY RUN #1	SELLERS	07/03	ORIG.
		08/02	REV.
. EQUIP. MOVE TO B12	SELLERS	09/12	

Tokico:

. REPORT ON TOKICO P.S.	DOUGLAS	ONGOING	
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DISCUSSION

ADDER FOR GASKETS ON MANDREL IS \$1/K; REQUIREMENT WILL BE NOTED ON PRINT. ADDER FOR THE ENVIRONMENTAL SEAL IS \$3/K (30% COST INCREASE). MATT/PAUL W. TO INVESTIGATE WAYS TO REDUCE COST BEFORE ADDING TO PRINT.

WE ARE ASSUMING THE USE OF THE THICKER ENVIRONMENTAL SEAL FOR P/C

SWITCHES FOR 77PS PRODUCTION. MATT WILL INVESTIGATE WAYS TO DIFFERENTIATE FROM THE L/T SEAL.

77PS VALIDATION TESTING HAS BEGUN ON BOTH P/C AND L/T SWITCHES. ISR SUBMISSION IS STILL TARGETED FOR 09/20.

THE PRODUCTION PLAN HAS BEEN REVISED AS SHOWN BELOW. AUGUST BUILD WILL SUPPORT RELEASES THROUGH EARLY OCTOBER; NO PROD'N IS PLANNED DURING SEPTEMBER, AS THE EQUIPMENT WILL BE MOVED TO S12 DURING THIS TIME.

MILESTONES	PLANNED	ACTUAL
57 L/T ISIR	11/21/90	11/21/90
57 L/T JOB 1	09/03/91	
57 P/C ISIR	01/15/91	01/15/91
57 P/C JOB 1	06/03/91	
77PS ISIR	09/01/91 ORIG.	
	09/20/91 REV.	
77PS SOP (TI) est.	08/91	

PRODUCTION PLAN BY MONTH (THOUSANDS) - WITHOUT OVERTAGE

	P/C 57PSL5-3	L/T 57PSL5-2	P/C 77PSL2-1	L/T 77PSL2-3
APR	0	0	0	0
MAY	2 (COMP.)	2	0	0
JUN	0	0	0	0
JUL	0	2.3	0	0
AUG	0	2.3	10	20
SEP	10	2.0	0	0
OCT	0	0	* 9 ?	* 12.5
NOV	0	0	25 ?	12.5
DEC	0	0	25 ?	12.5

* = TENTATIVE JOB1 FOR 77PS VERSIONS

REGARDS,
DAVE CERN \32-FORD

TI-NHTSA 002201

-MSG N# 20142 FR=NGEG TO=PCQA SENT=07/26/91 10:17 AM
Rf=160 ST=C DIV=0050 CC=00146 BY=NGEG AT=07/26/91 10:17 AM

TO: Ed O'Neill EJON Jim Watt PCQA
Ray Tourangeau PCNE Joe LaFare JNLS
Andy McGuirk PCQA Matthew Sellers PCNE
Chuck Stanfa ATPA Clay Howland ATQC
Cheryl Bettinger SANL Pete Foley PFJG

*cl = Downham.
FYE/gy*

CC: Bob Porter PORT Donn Bettinger DBET

SJ: CERTIFIED PART REJECTION FOR PRECISION CONTROLS PRODUCT CODE: 060

FROM: MARK L. GODBOUT ATQC EXT. 1434

P/N 27288-1 PART NAME CUP QUANTITY 6022

DATE: 7/26/91 SUPPLIER VALENTINE TOOL RDM NUMBER: 008507

REASON FOUND RUST, DAMAGE AND TUMBLING MEDIA BEFORE PLATE. THIS IS AN
INPROCESS REJECTION INITIATED BY PLATING.

-MSG #1= 20669 FR=CERN TO=PCQA SENT=07/26/91 10:26 AM
R#161 ST=C DIV=0050 CC=00101 BY=CERN AT=07/26/91 10:26 AM

July 26, 1991

TO: TOM CARBONEAU	TC	STAN BOWOL	SHZ
MARTEA SULLIVAN	CPFC	GARY SNYDER	CPFC
RAY TOURANGEAU	RGT2	YOGEN CHENBURKAR	CPFC
ANDY MCGUIRK	PCQA	STEVE MCCOONEY	NDES
JOHN KOURTSSIS	NDES	MIKE SENATTA	PCQA
BILL CONGDON	MPFC	JIM WATZ	PCQA
DICK GARIEPY	MPFC	STEVE MAJOR	WELS
JOE SCHUCK	WELS	BILL SWEET	PCNE
CHARLIE DOUGLAS	CPFC		
STEVE OFFILER	SB01		
NATT SELLERS	PCNE		

cc = DONNA M.
PME/REV

FR: DAVE CEARO EARN

RE: CCPS (77PS) START-UP

I will be on vacation from 07/29 - 08/16. In my absence, Charlie will take on program management responsibility. The following are some critical items that need to be comprehended in the next several weeks.

1. 77PS start-up

We were made aware last week - through releases from B&A - that we will be required to begin shipping 77 L/T switches in September. We had been told all along by engineering that the 57-to-77 conversion would occur 90 days after the September 03 JOB 1; i.e., early December.

Our validation testing will not be completed until the 3rd week of September. Since the production line will be moved to B12 in September, we need to begin building production switches in B12 in mid-August to meet B&A's requirements. We plan to build a total of 10K P/C switches and 20K L/T switches. Since validation testing and manufacturing production switches will be concurrent, there is a small but very real risk that we will find some design or manufacturing flaw that would render the August-built switches unacceptable. Moreover, L/T has still not decided if a "silent" (low differential) switch is required for 77PS S.O.P.; since the switch is on the T-fitting for NY'92, they should not require it, but we need to be sure.

Actions:

Close with Ford Purchasing to see if 77PS L/T releases can be pushed out to at least October/determine P/C releases ... Marketing/Field Sales

If Ford holds to the September release date, determine how to treat production shipments without ISR approval ... Quality/Field Sales

Complete as much design confirmation testing as possible with production parts prior to the 30K August build ... Design

Ensure that we've completed all items for ISR submission for Sept. 20 submittal; includes gage R&R's, IP-1, etc. ... Quality

DONNA,
Please call
me on the
field

Ensure that we're treating the build in B20 as we would any other production build; observe requirements for SPC, in-process testing, etc. ... Manufacturing/Quality

2. "Silent" (low differential switch)

L/T starts up in NY'92 with the VN58 (Econoline) platform, where the switch is mounted (at B&A) to a T-fitting supplied by Weatherhead. The switch does not create a noise issue when mounted on the T-fitting in the Econoline. Because of Ford's experience with a noise problem on NIN-88, they've assumed that the NY'93 switch for F-series will require a "silent" switch. This assumes the switch is mounted on the N/C in NY'93 (see #4 below).

John Pelkey (L/T Brake Engineering) has told us in the past that, when the 57L/T converts to 77 in the 4Q91, we should implement the "silent", low differential, switch. The timing obviously means that the "silent" switch would be used on the NY'92 VN58, even though it's not needed. John's directive, I believe, assumed that the switch would not cost any more than the current design, and would be identified by the same part number. More recently, though, Ford has told us that they will go to a new switch part number if there is a cost difference; we assume also that they would not changeover until absolutely necessary because of the (up to 40) cost adder. Based on where we are in the program with the development of the low differential switch, delaying the changeover is much in our favor.

Presently, pin windows are determined by checking creep on several pilotlots. The creep check requires that the disc make an audible noise when it snaps; which is not the case with the low differential switch. Therefore, a different pinning concept was conceptualized, and initial evaluations have been promising. There is much work to do to prove out the production viability of the approach, however, and some of the assumed cost increase is associated with simply not knowing the potential impact on yields.

Key to the low differential switch is for Ford to determine if creep actuation and creep release negatively impact their system operation. Joe has 4 silent switches - the 2 with the lower calibrations creep on actuation, the 2 with the higher calibrations creep on release. It's important that we get Ford to evaluate these in a system. Even if the "silent" switch is never required, the creep vs. no-creep issue impacts our plans for 77PS production.

Action:

Close on the "silent" switch issue with Ford ... Field Sales/Marketing

3. Terminal Position

As we're all aware, arriving at a mutually acceptable print tolerance on the dimension that locates the terminals has been a very time consuming and complex task. The base asm. machine cannot presently produce parts that meet print, so the tooling is being redesigned. We've been able to show capability to meet the present print dimensions with redesigned stamping tools on the 57PS hand line. I cannot emphasize too strongly the point that the parts built on the base asm. machine in August must meet the print requirements.

4. Downsized switch

I've left 3 messages for Kish Sadani; none of my calls were returned. Per Joe's inputs, Kish did not want to budge on the 08/18 switch DVP&R requirement. We cannot support this date. Also, meeting the 01/06/92 ISR date was contingent upon being released for tooling by 07/26/91; which Ford has not done because they've still not yet determined if the N/C mounted switch is a "go" program for NY'93. If a decision is made to move forward with the downsized switch for NY'93, we need to quickly decide how it will be supported.

5. 57-to-77 conversion

Based on initial successful testing of the prototype switches earlier in the year, we are assuming the conversion from 57-to-77PS for NY'93 production. We presumably need to begin validating converted 57's in September to meet Ford's needs. It's not clear to me where we stand with Ford on making the conversion; i.e., what are their expectations for test results, sample requirements, etc.

Action:-

Draft a 57-to-77 conversion plan, with appropriate customer dates, needs, etc. ... Marketing/Field Sales

Regards,
Dave Csarn
110-CCPS

TI-NHTSA 002205