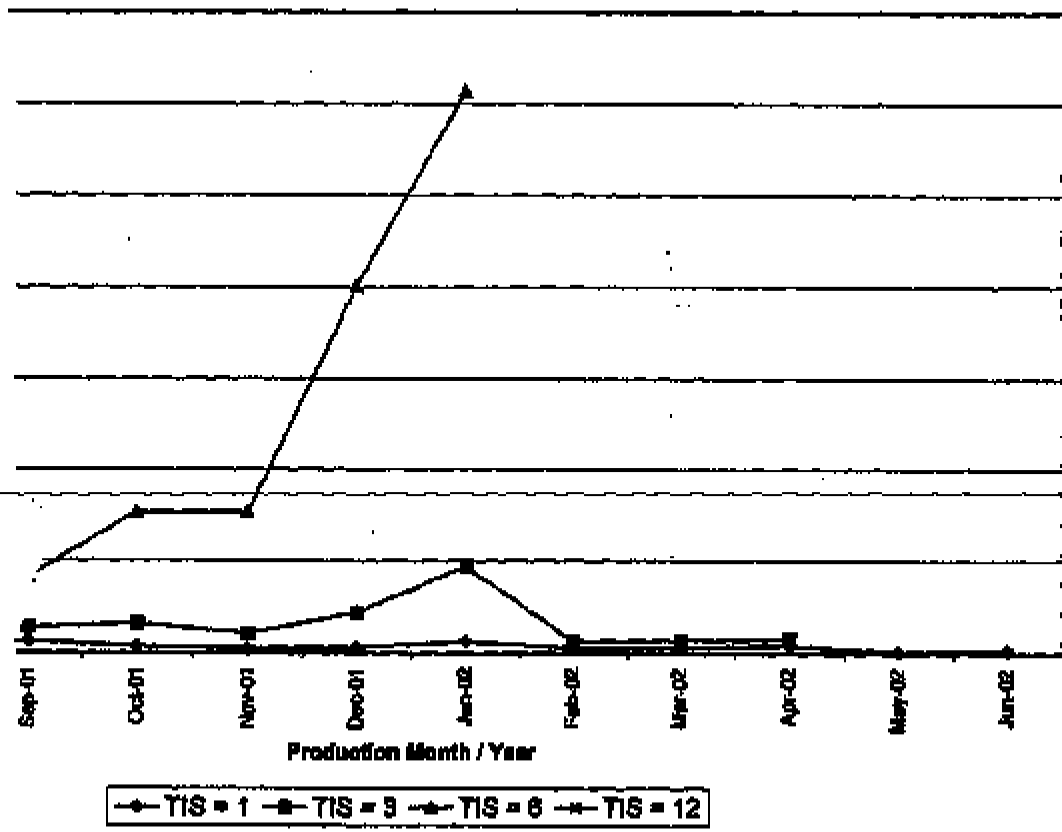
PE03-044
FORD
5/13/2005
APPENDIX I
BOOK 22 OF 28
PART 3 OF 4

002 MYTD 7.3L SUPER DUTY - 9F836 - Stack Chart

Part Num Full (causal) [typed] = [2C3Z,9F836,%]



PE03-044 23788

Burrows, Jim (J.A.)

From: Conrad, James (J.A.)
Sent: Tuesday, June 25, 2002 11:32 AM
To: Burrows, Jim (J.A.)
Subject: ETC Pedal Warranty

Follow Up Flag: Follow up
Flag Status: Flagged

Jim,

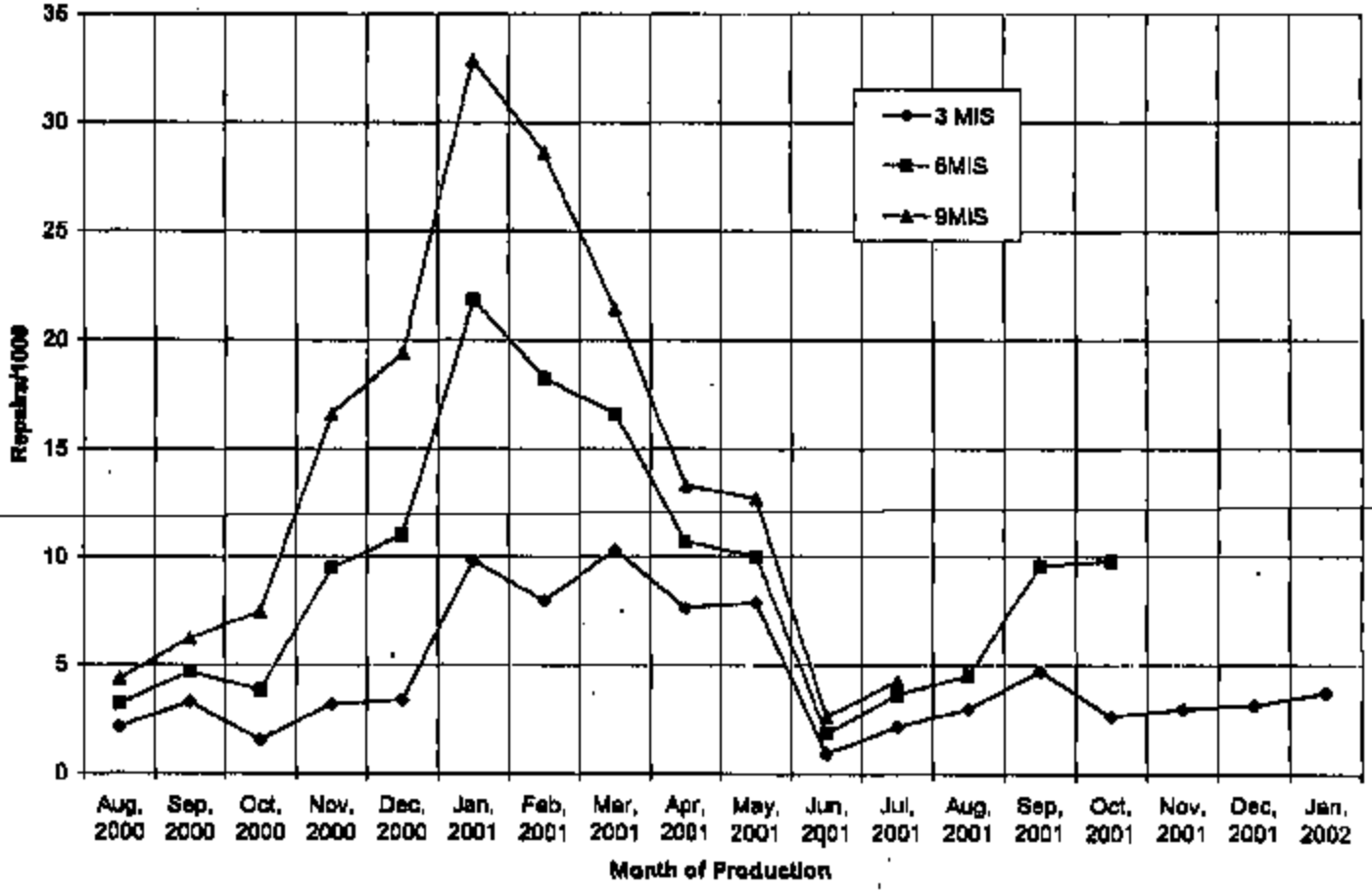
Here is the 2001 and 2002 warranty in the format Bill likes used originally. The big bulge starting in Aug, 2000, was caused primarily by the accelerator pedal pad falling off. This is at least the third time this has happened to Teleflex that I know of. The knurled pin holding the pad on was out of spec. Interestingly, the dealers are using the Williams pedal as the replacement, if the part numberlisted on the claims is correct. The sudden increase in the 6 MIS warranty line between Aug and Sep, 2001, appears to be caused by PCM and wiring problems being binned against the pedal.

MOP pedal warranty.xls

Jim Conrad
Accelerator Controls & Air Induction Subsystems
Powertrain Subsystems Engineering Technology Dept.
GCE / P&AE - Core & Adv P/T Engrg. (CAPE)
Location: FPC-A Mail Drop: #3 Cube: 1AK15
E-MAIL: jconrad1@ford.com
Phone: (313) 33-76483 Fax: (313) 62-18020

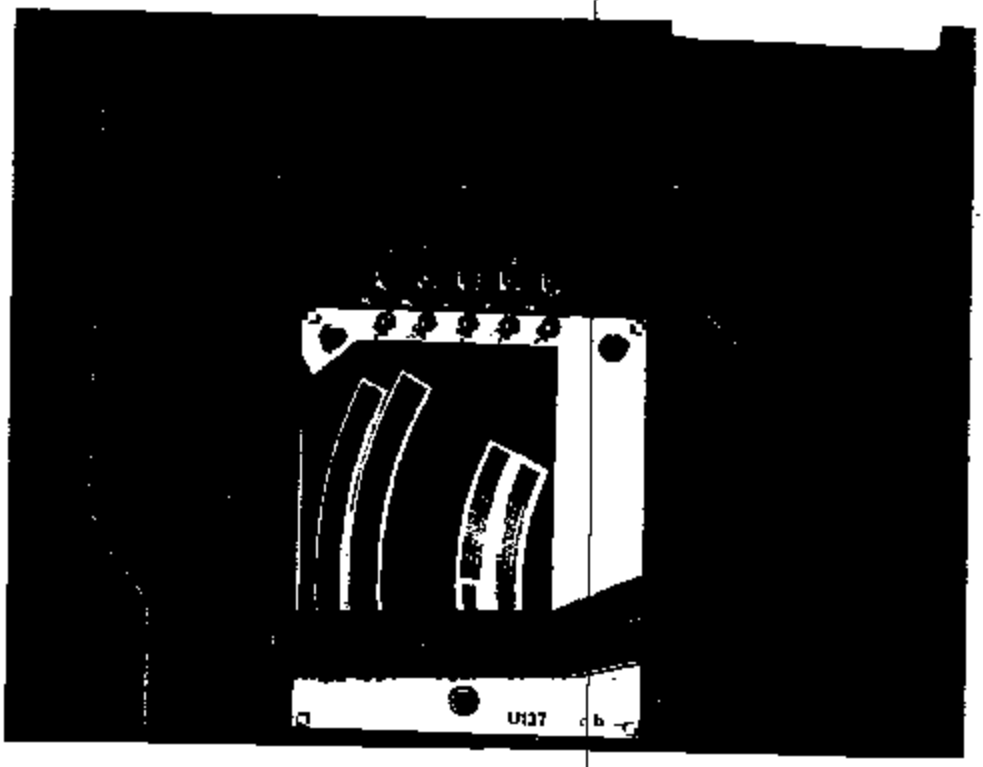
<http://pm1001.fpc.ford.com/j362/indexacc.html>

>8500 ETC Diesel Pedal Warranty

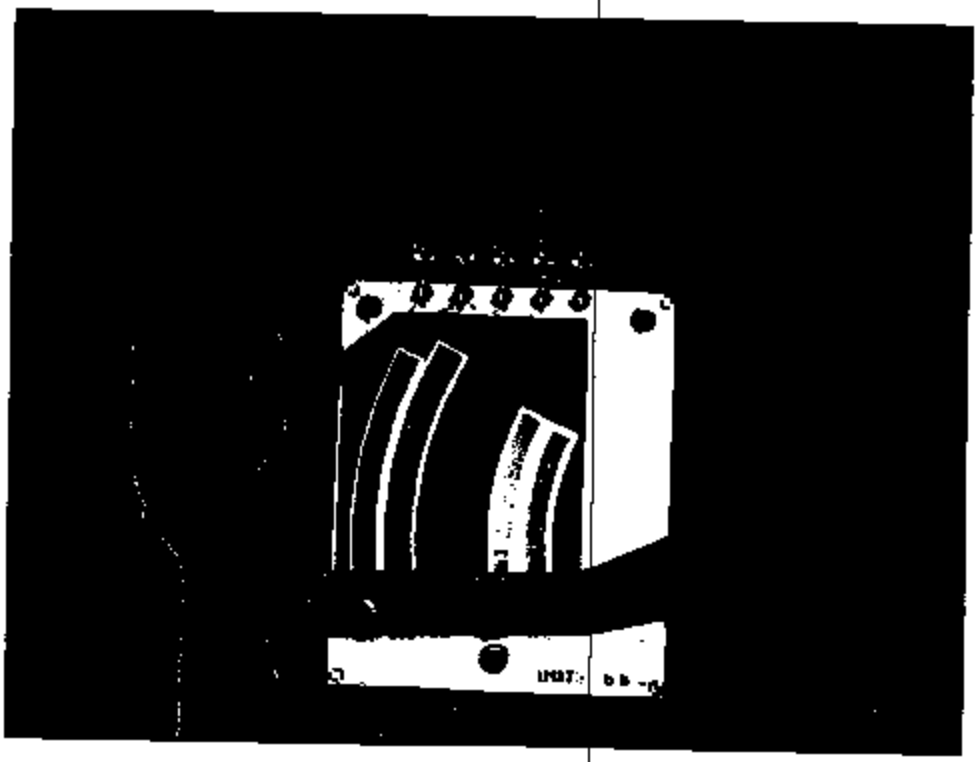


	3 MIS	6MIS	9MIS	12MIS
Aug, 2000	2.16	3.22	4.35	
Sep, 2000	3.31	4.68	6.24	
Oct, 2000	1.58	3.84	7.45	
Nov, 2000	3.21	9.5	16.65	
Dec, 2000	3.39	11.01	19.39	
Jan, 2001	9.84	21.84	32.86	
Feb, 2001	7.97	18.26	28.63	
Mar, 2001	10.34	16.63	21.43	
Apr, 2001	7.63	10.71	13.31	
May, 2001	7.88	10.04	12.69	
Jun, 2001	0.94	1.88	2.65	
Jul, 2001	2.16	3.62	4.25	
Aug, 2001	3.01	4.51		
Sep, 2001	4.69	6.58		
Oct, 2001	2.66	9.81		
Nov, 2001	3			
Dec, 2001	3.16			
Jan, 2002	3.73			
Feb, 2002				
Mar, 2002				
Apr, 2002				
May, 2002				

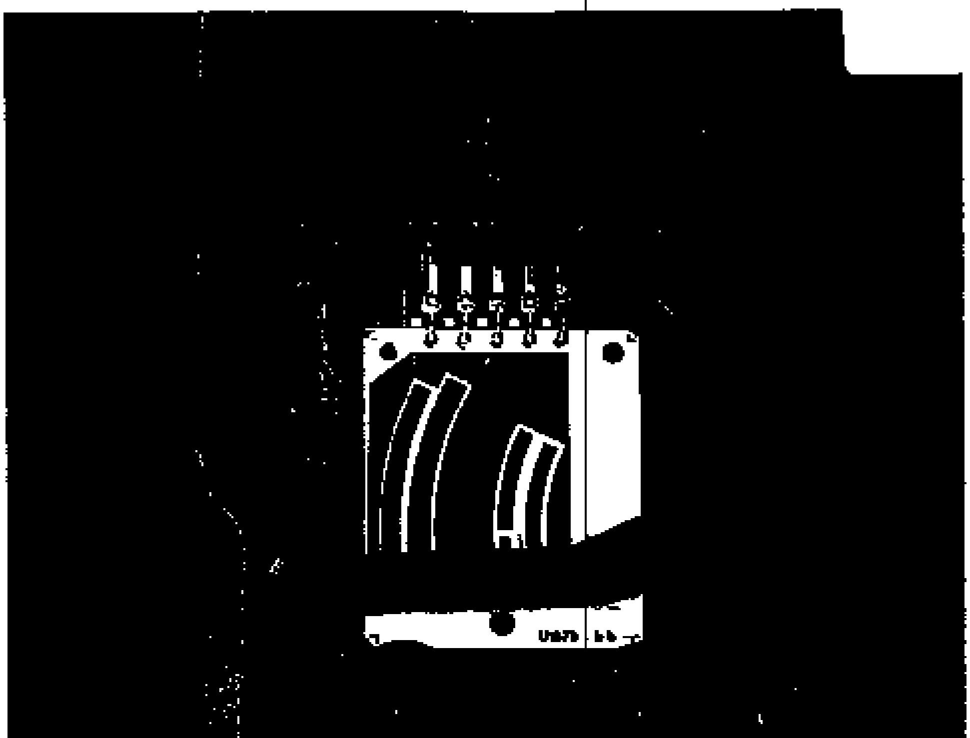
U-137
MY- 2001



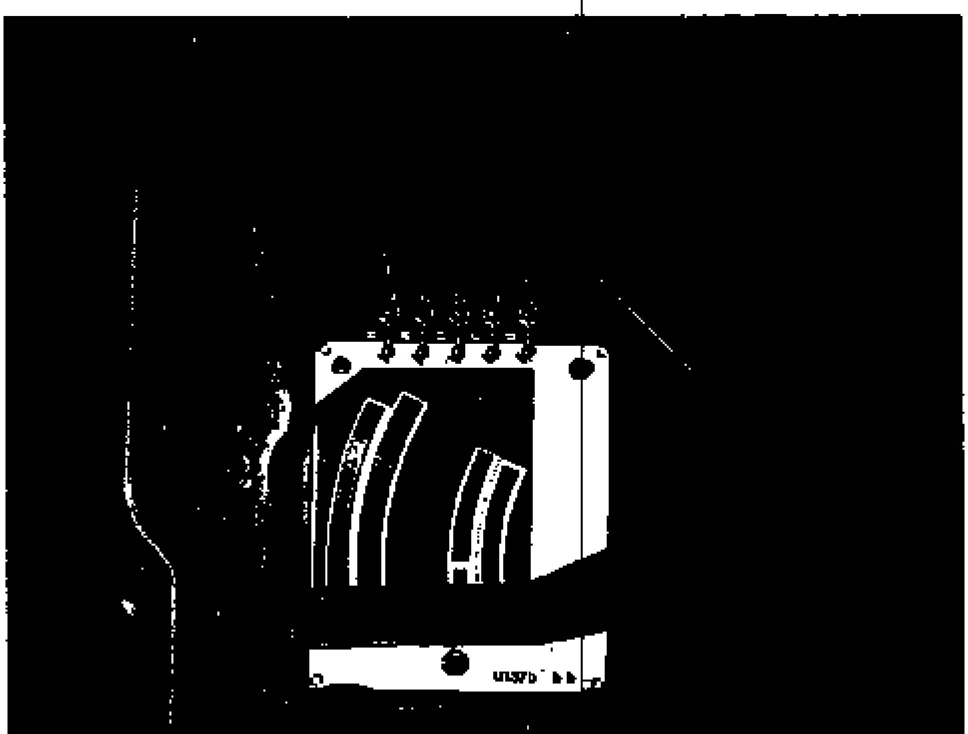
100K cycles TA 7749

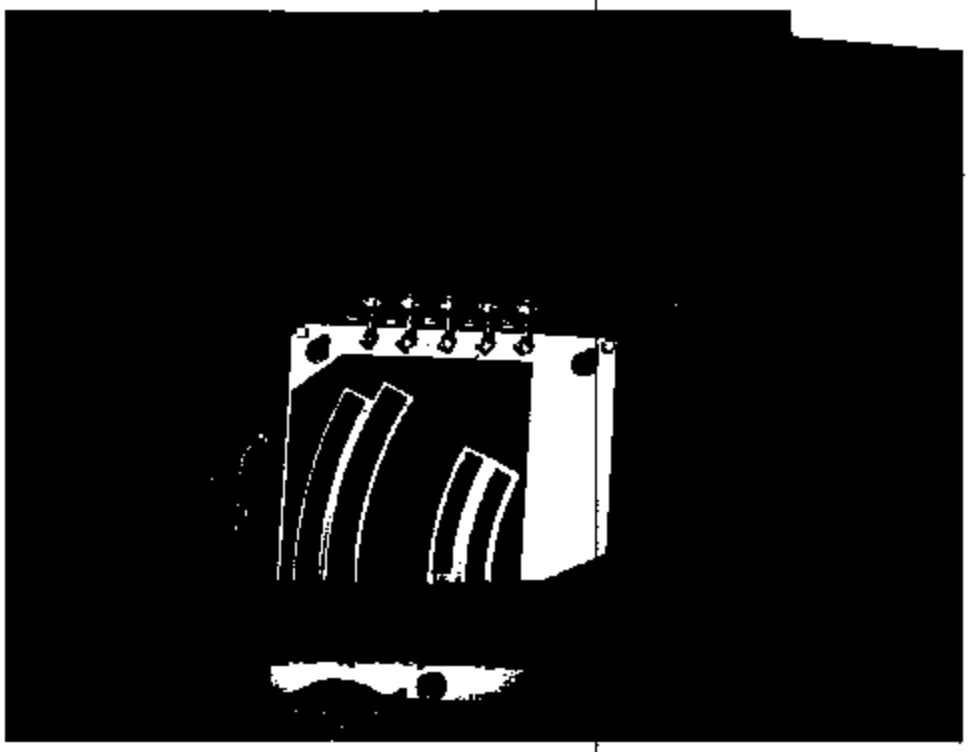


PE83-044 11665

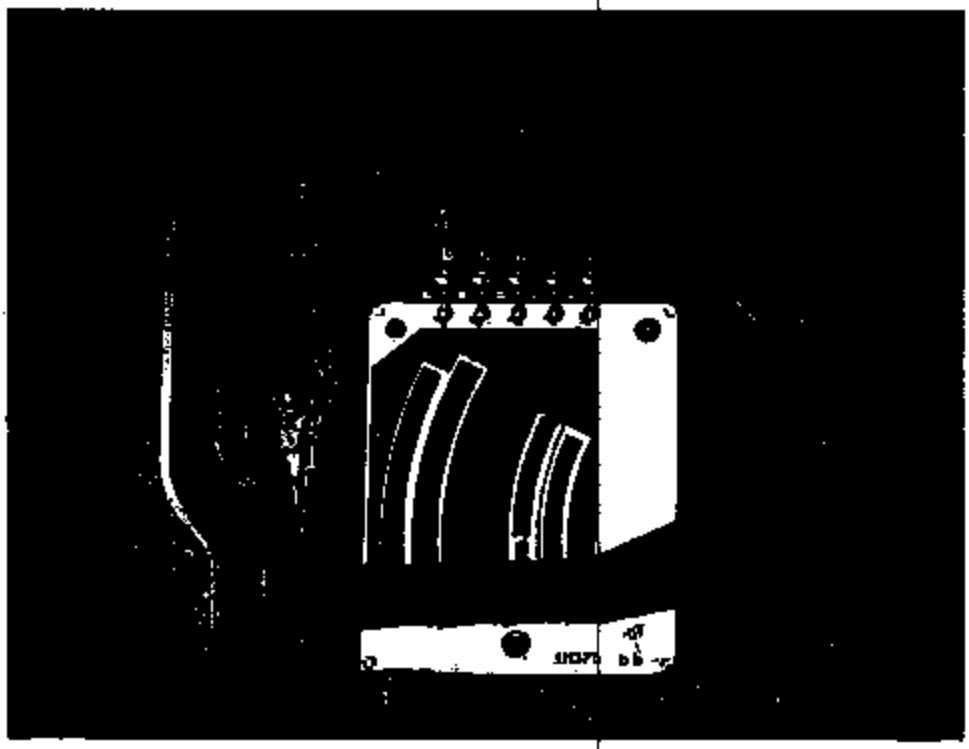


100K cycles TA 7749

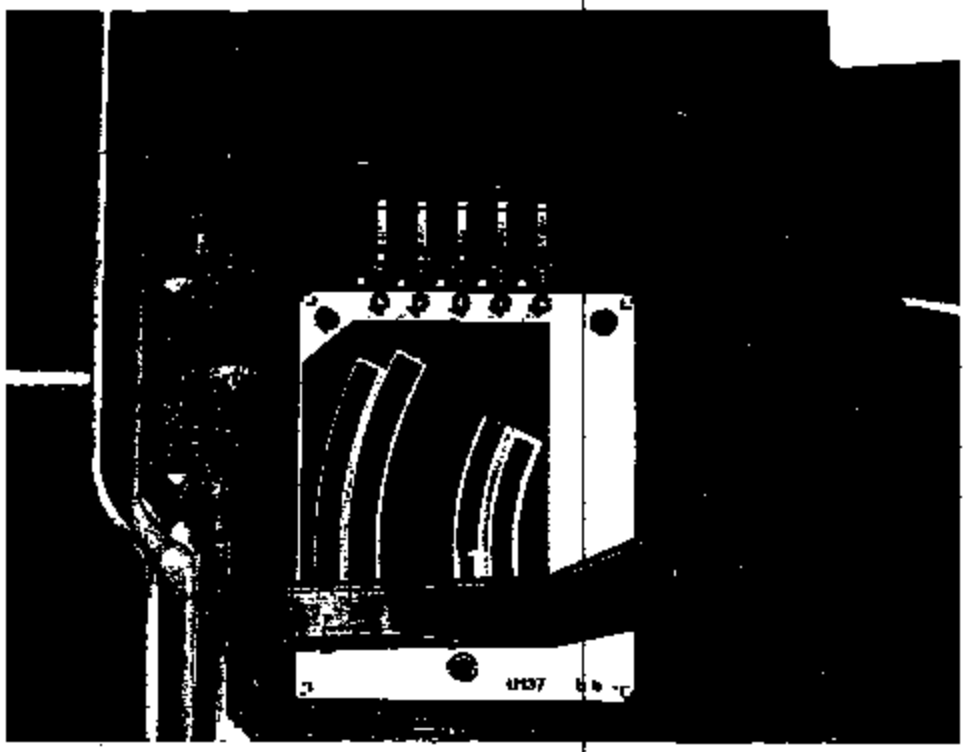




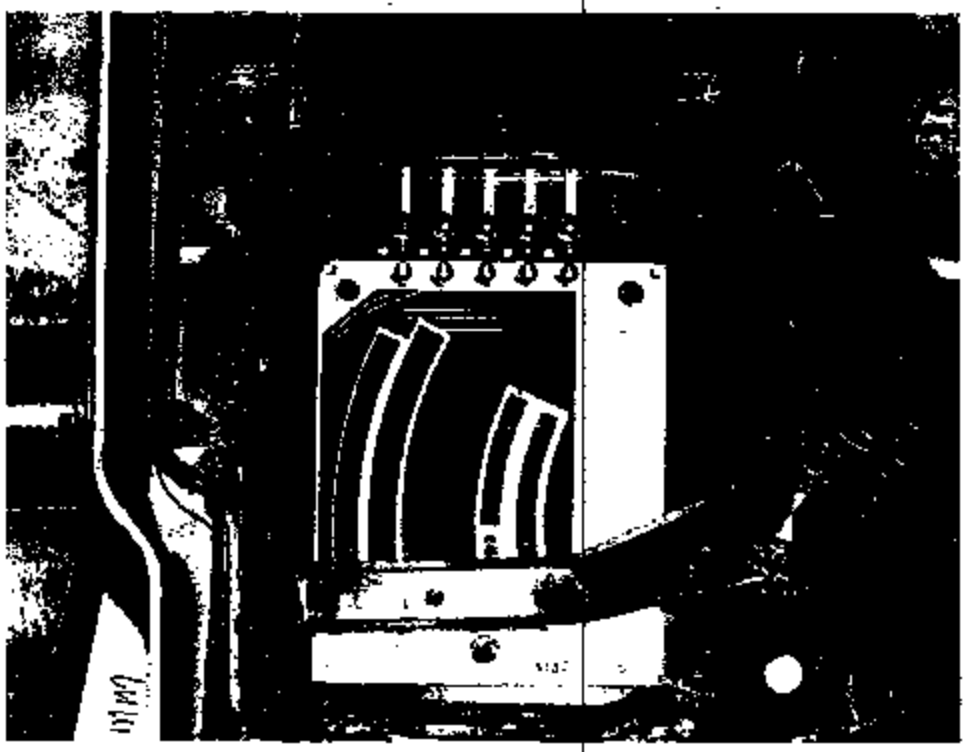
100K cycles TA 7749



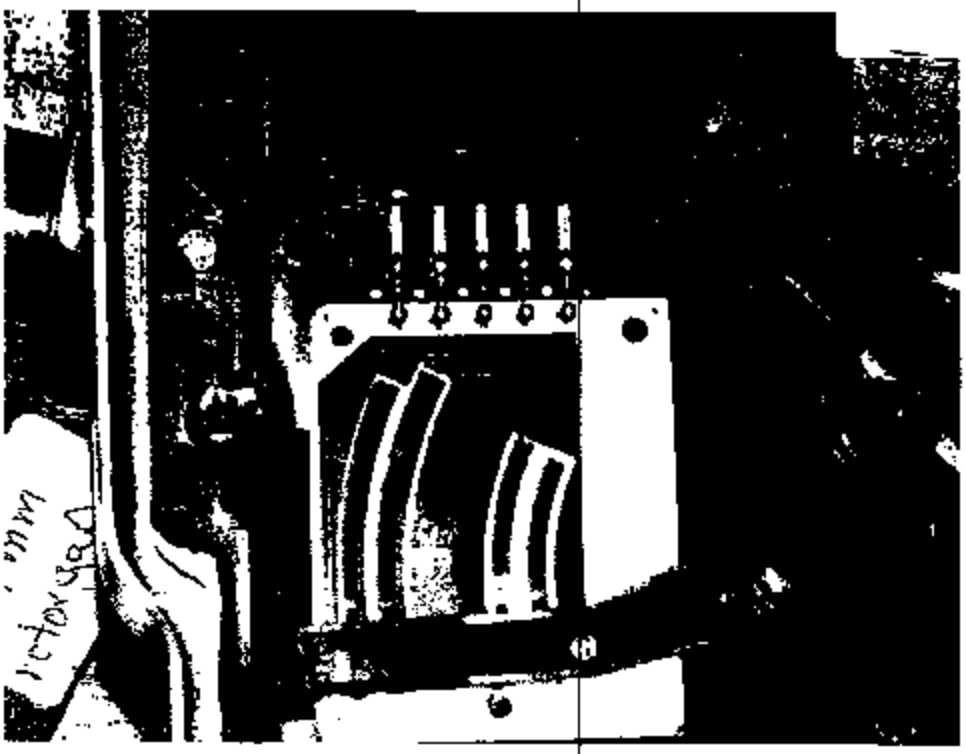
FE83-044 11687



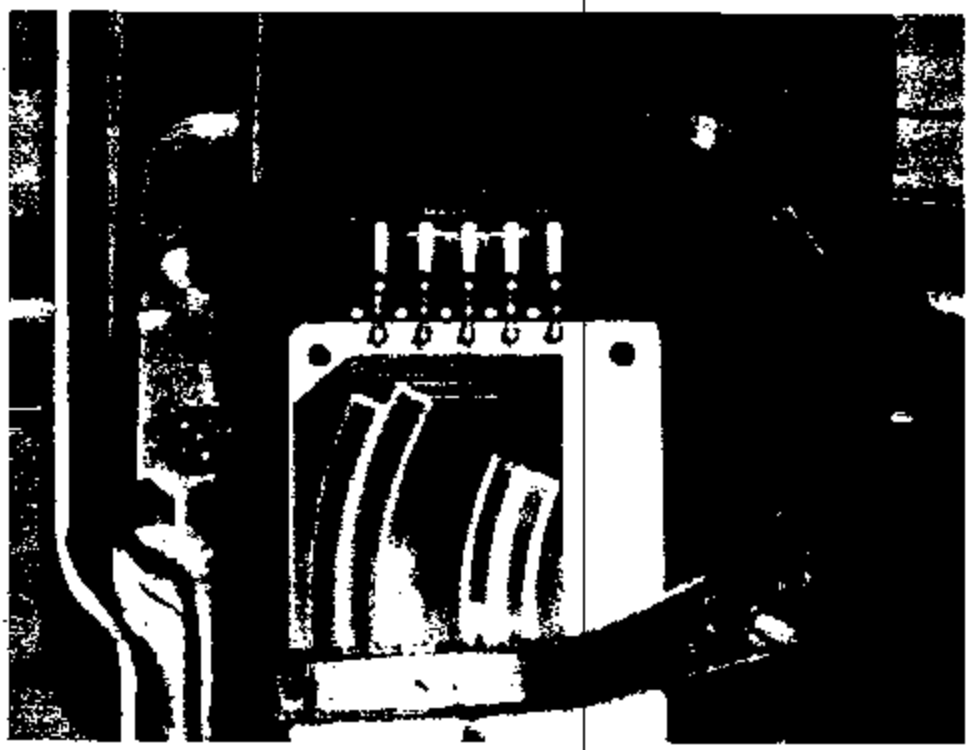
200K cycles TA 7749



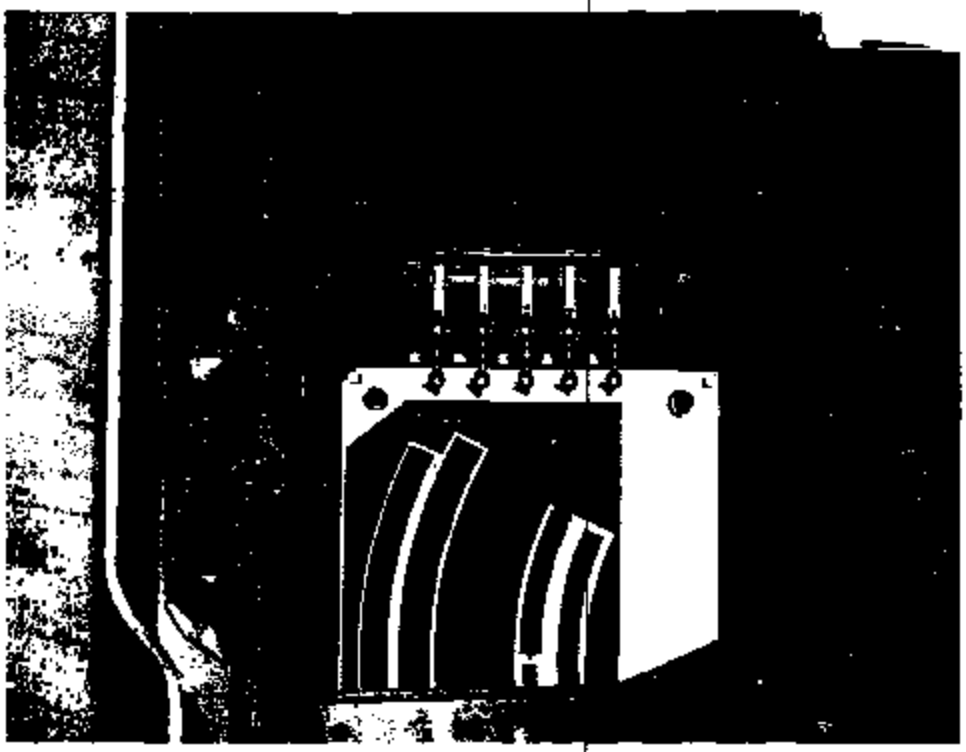
PE83-844 11885



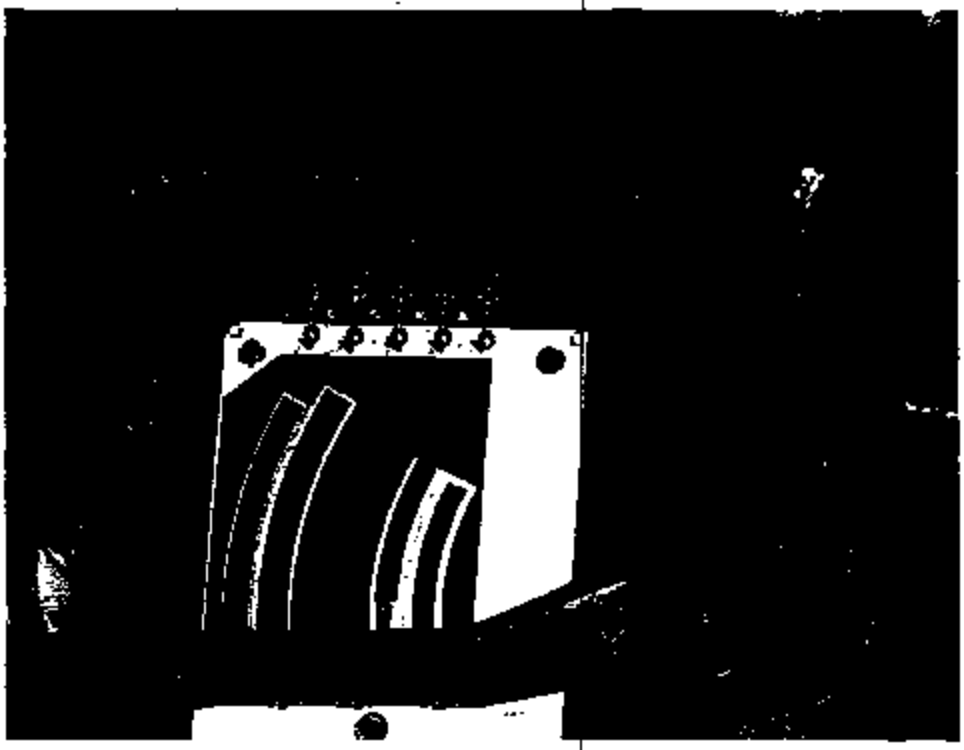
200K cycles TA 7749



PE83-844 11868



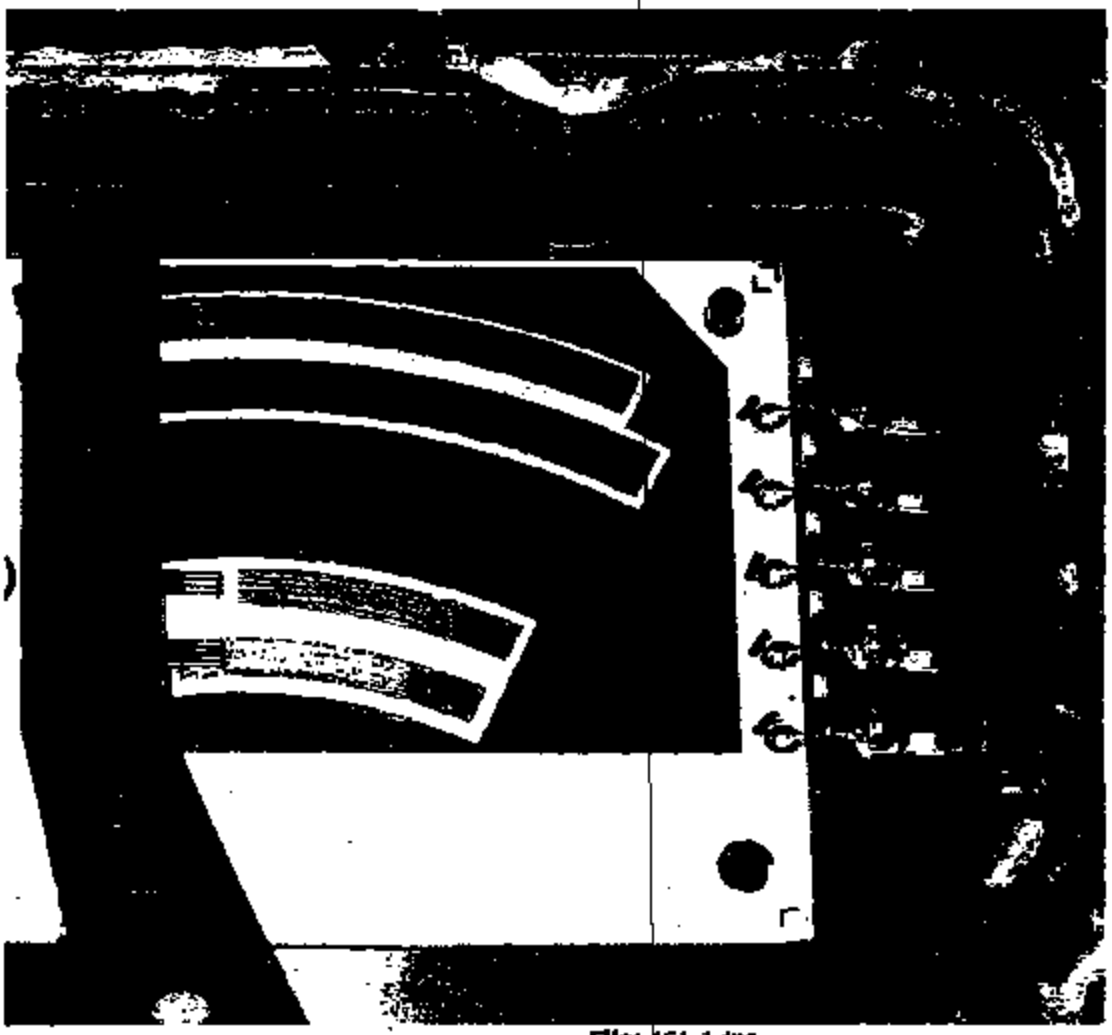
200K cycles TA 7749



PE83-844 11578

From "Greg Braniff" <gbraniff@tfxauto.com>
Date Monday, September 9, 2002 12:11 pm
To zkhan1@tfxauto.com,Greg West <gwest2@ford.com>, Larry Liposky <lliposky@ford.com>,kzolan@tfxauto.com, Joe Vitale <jvitale@wabashtech.com>
Subject Phenolic Parts after 461K cycles

Greg Braniff
Teleflex Automotive
Ph 248-616-3107
Cell 248-840-1840
gbraniff@tfxauto.com



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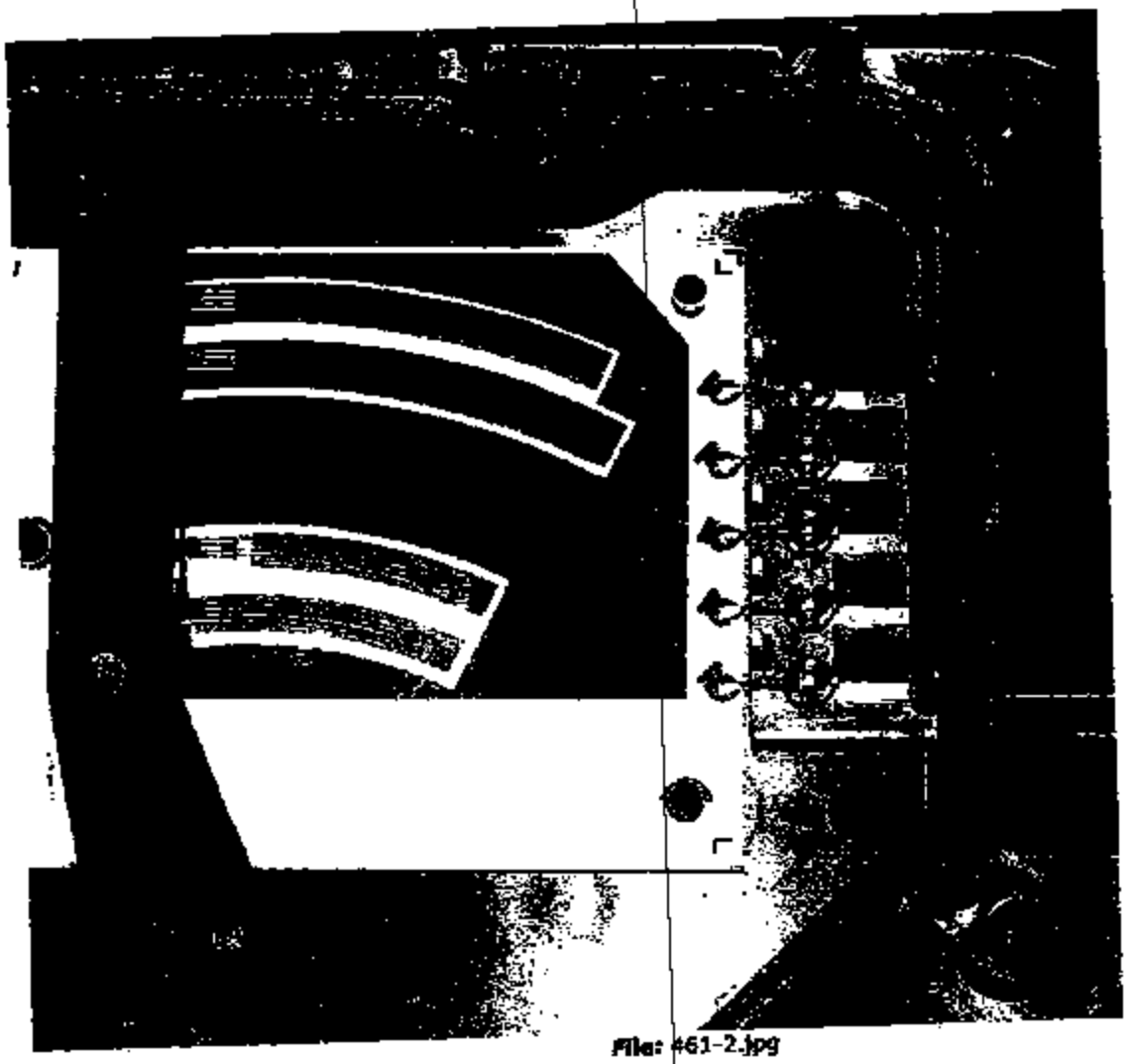

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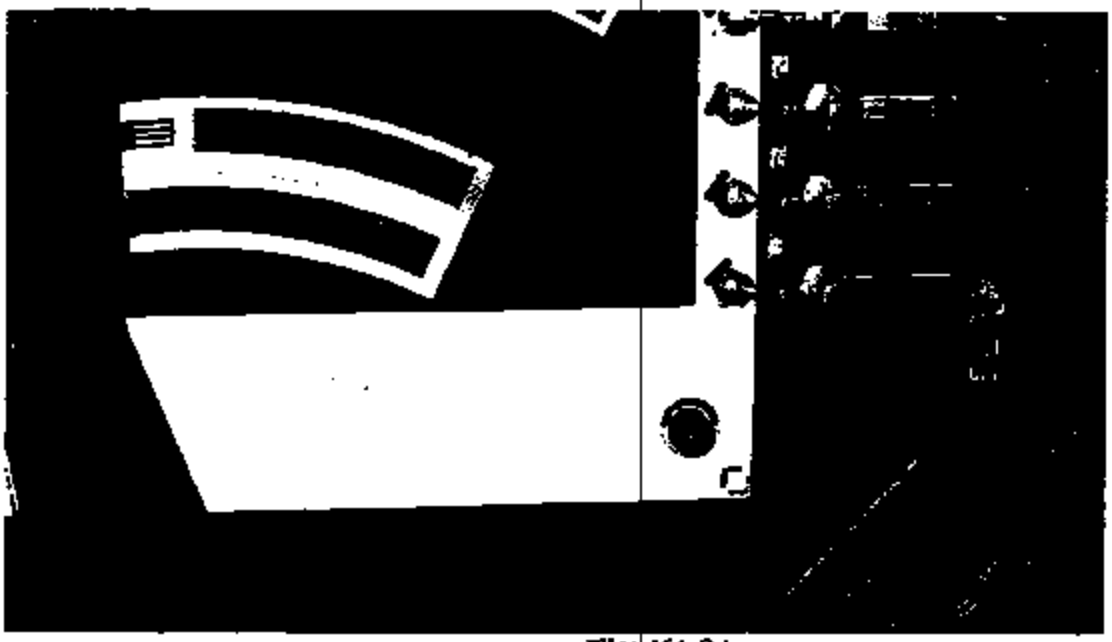
PE83-844 11672



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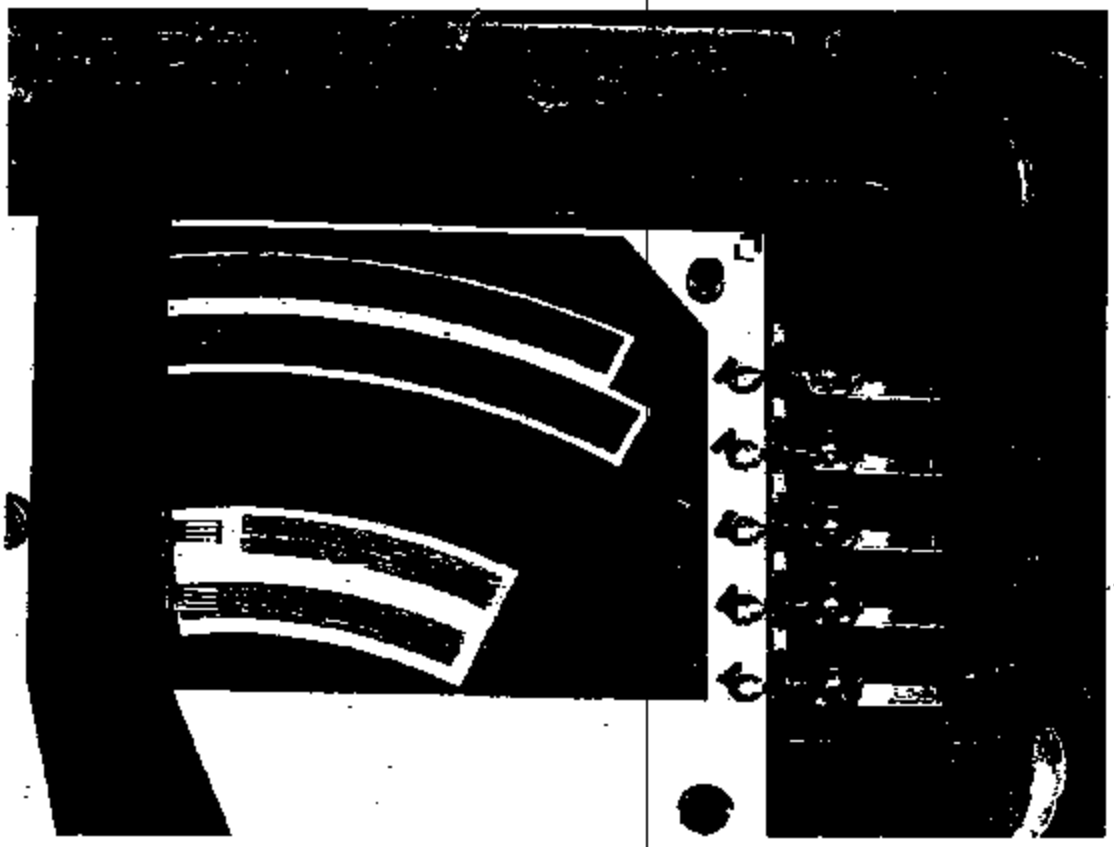

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PE83-044 11673

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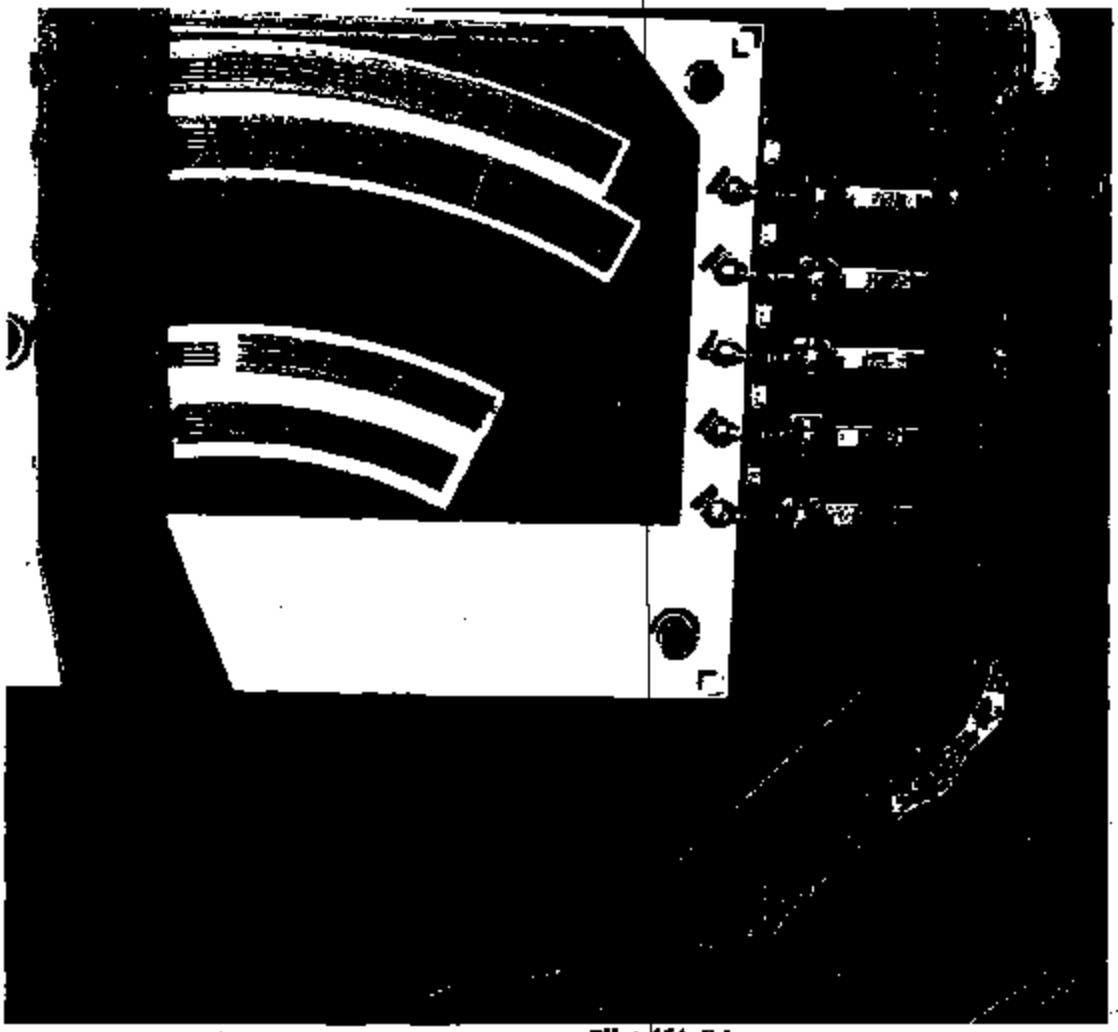

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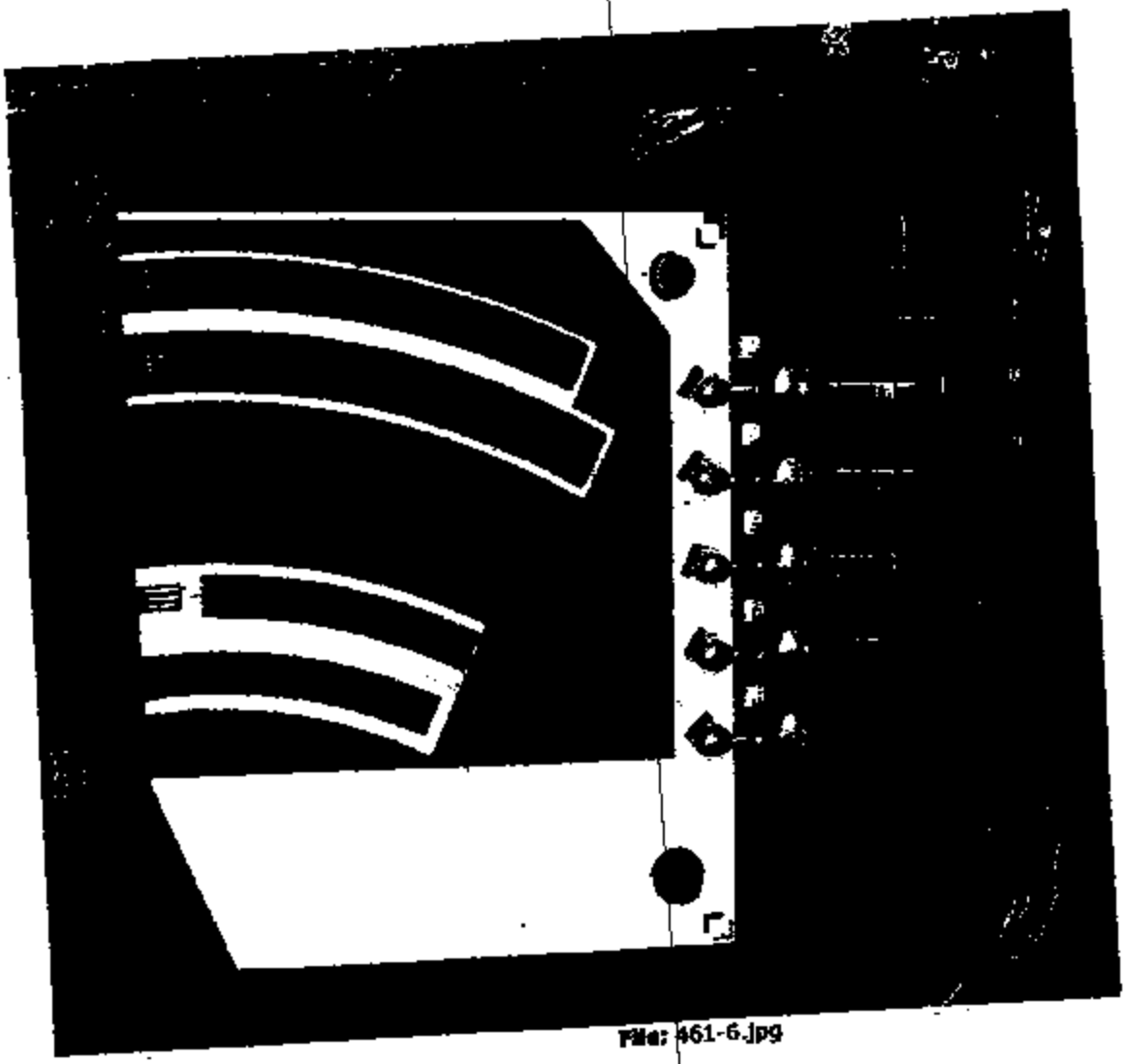


File: 461-6.jpg

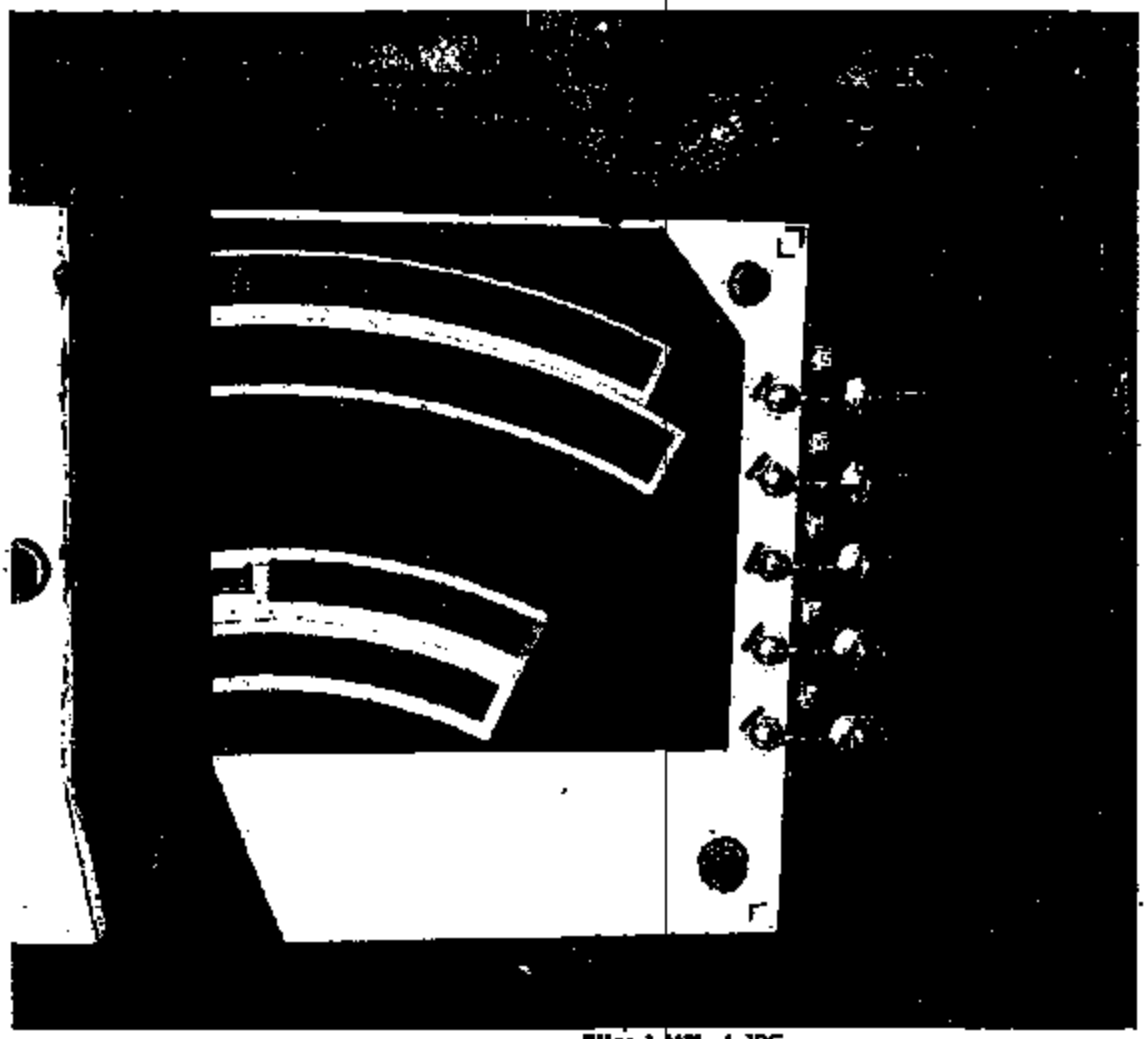
U-137

POST 1M cycles

From "Zulqarnain Khan" <zkhan1@tfxauto.com>
Date Monday, October 21, 2002 3:11 pm
To zkhan1@tfxauto.com
Subject u-137 DOE
Attachments Mvc-114f.411 4K Mvc-115f.411 4K Mvc-116f.411 4K
Mvc-118f.411 4K Mvc-125f.411 4K Mvc-127f.411 4K
Mvc-130f.411 4K

TA # 7749

PHENOLIC BOARD.



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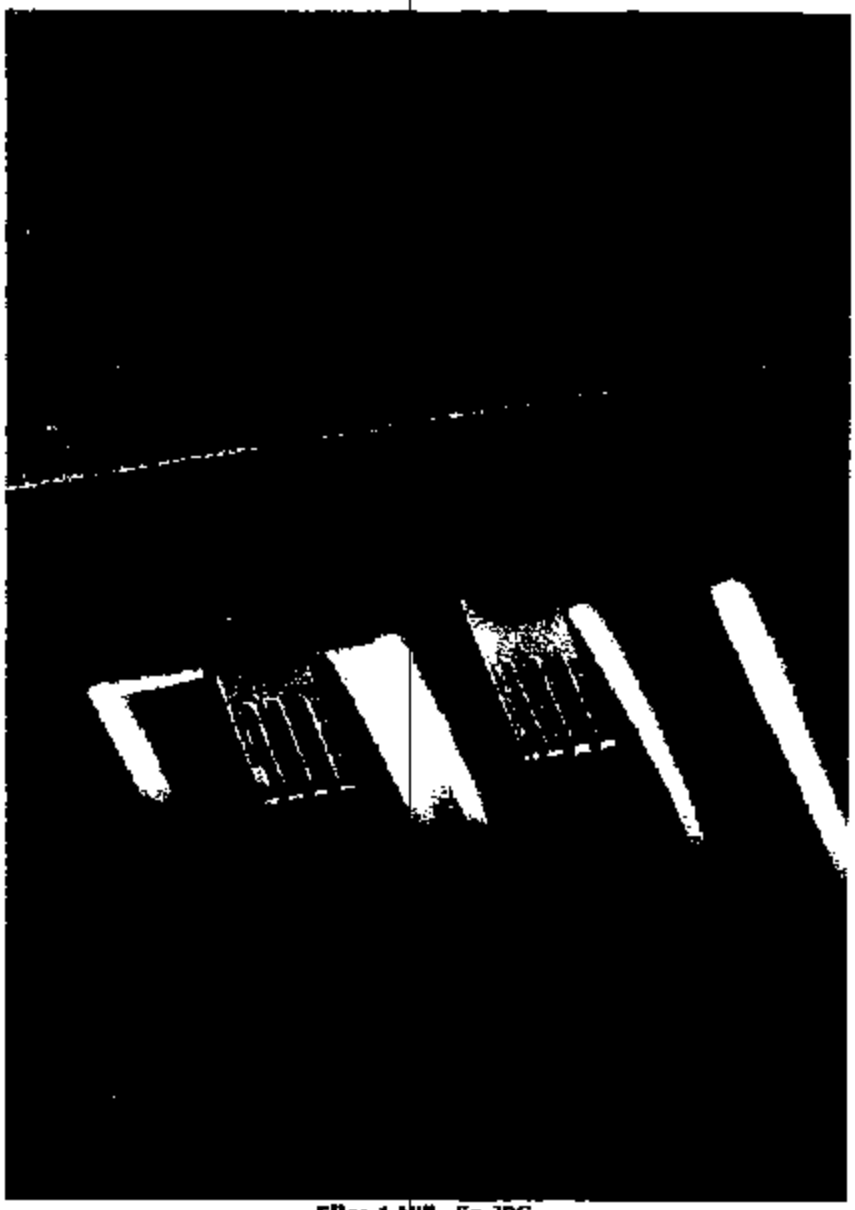
10/21/02



File: 1 NH--5a.JPG

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10/21/02

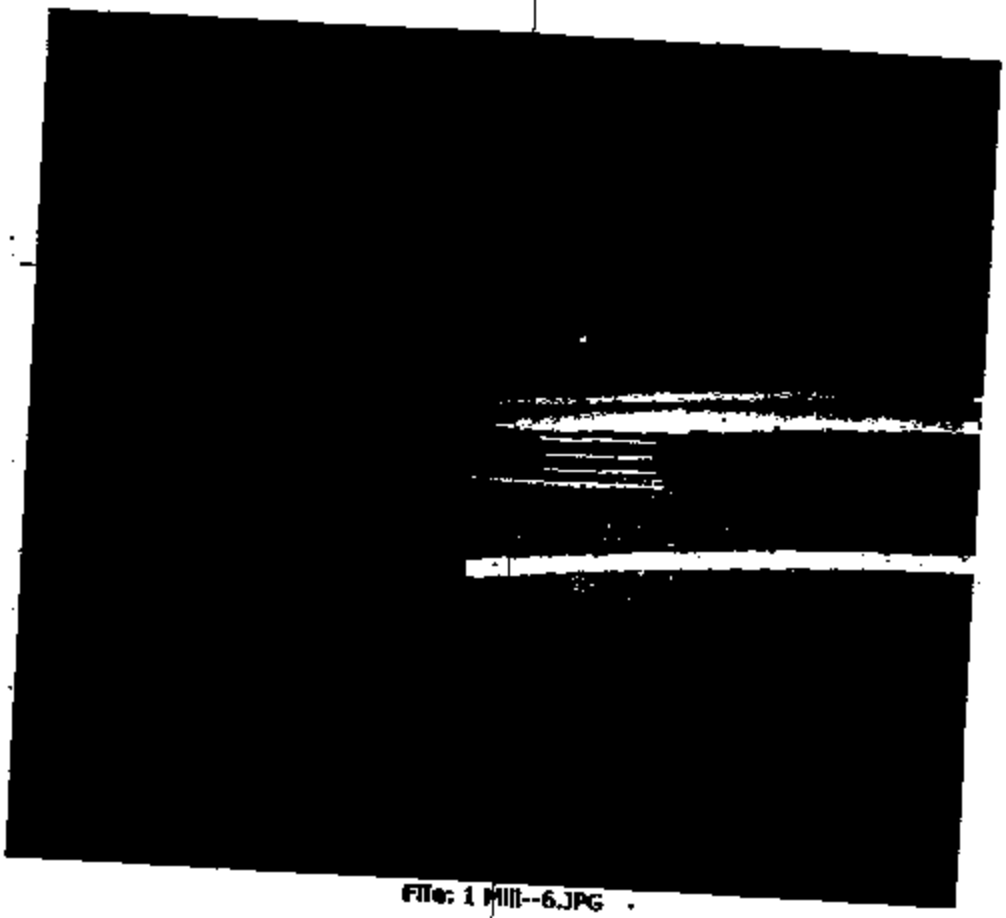
PE63-044 11877

File: 1 NBI—5b.JPG

[redacted]

10/21/02

PE83-844 11578



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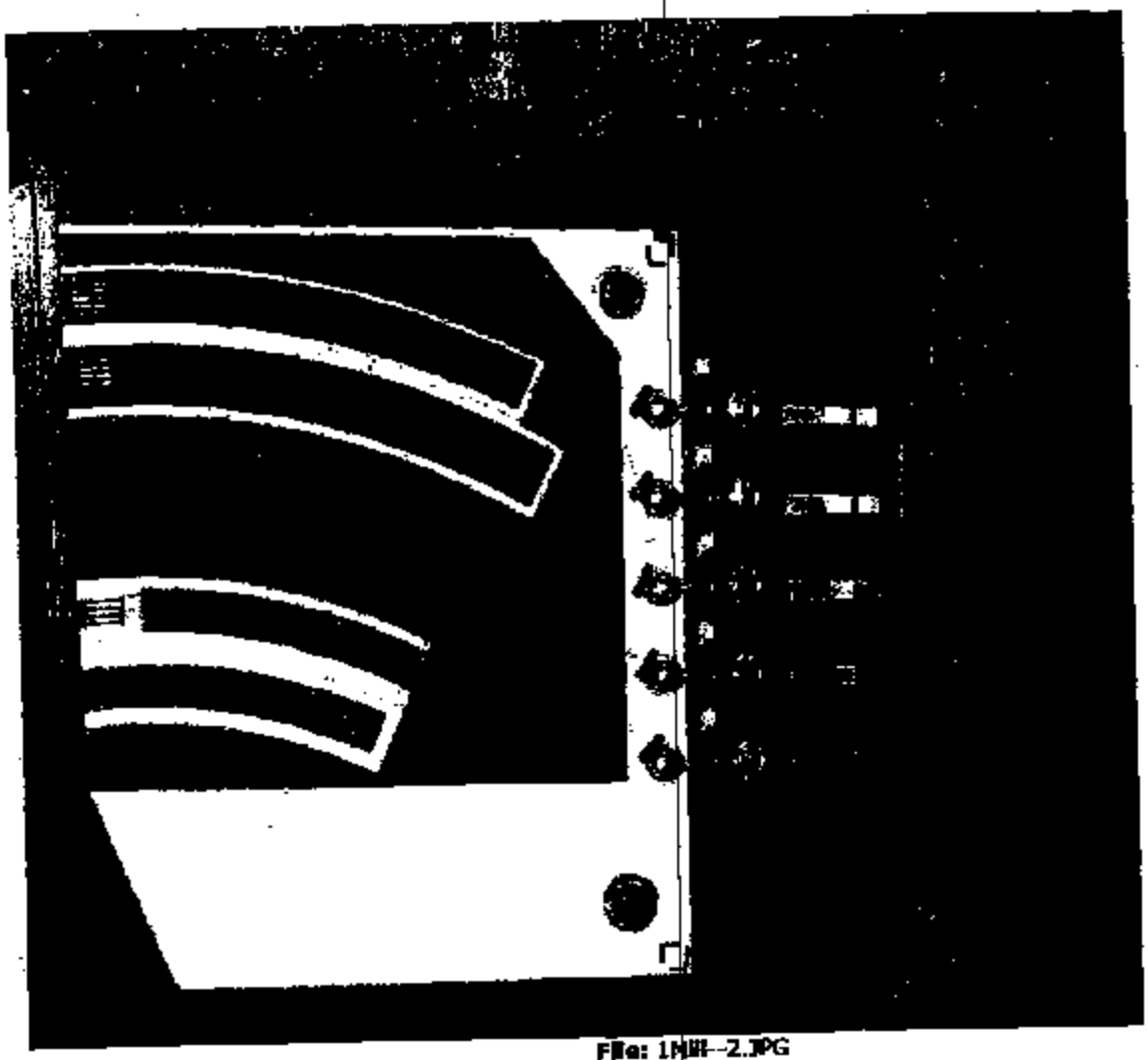
10/21/02

PE83-844 11679



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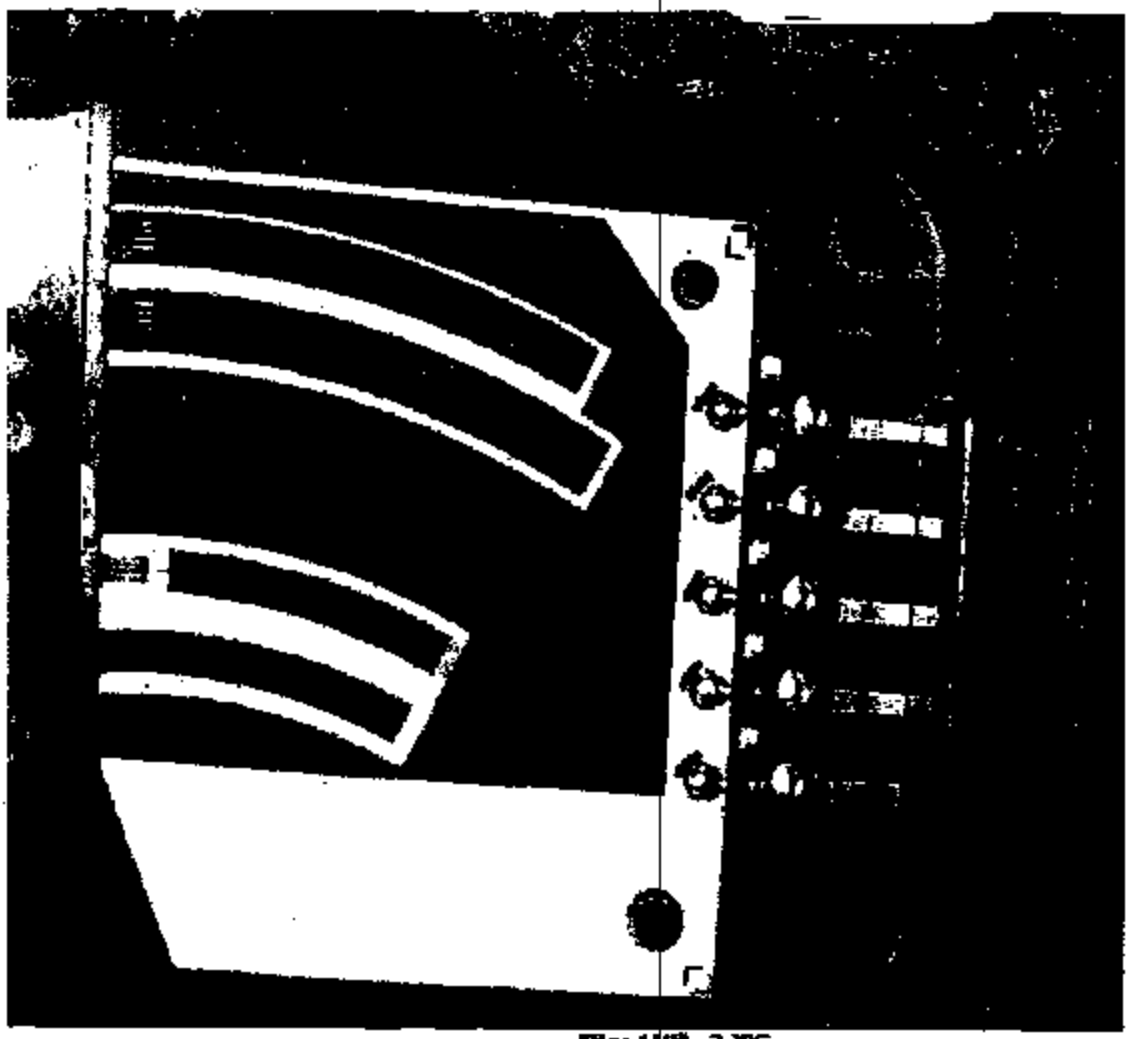
10/21/02

PE82-044 11698

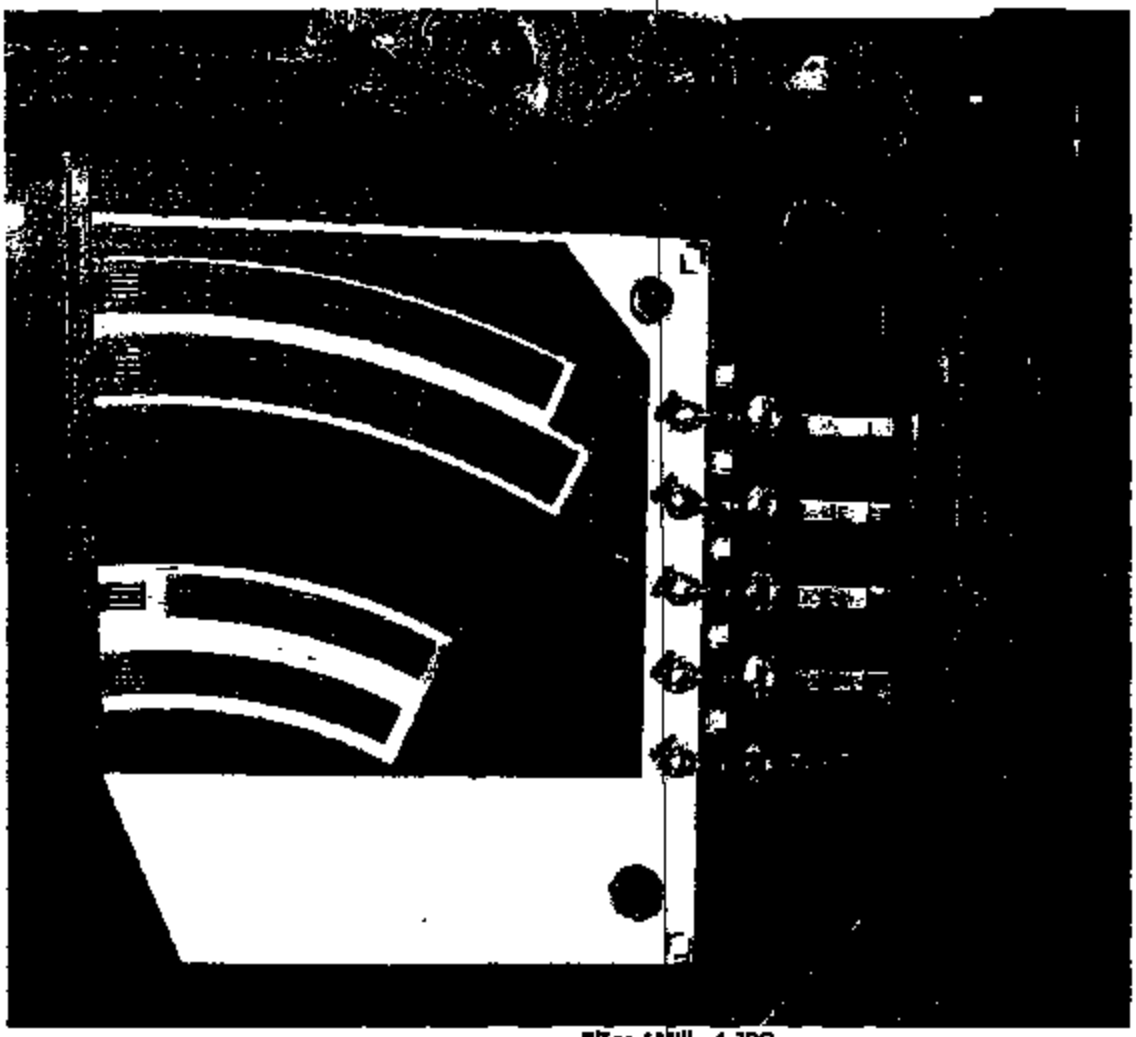


File: 1MB—3.JPG

[redacted]

10/21/02

PE83-844 11681



File: 1Mill--4.JPG

[redacted]

10/21/02

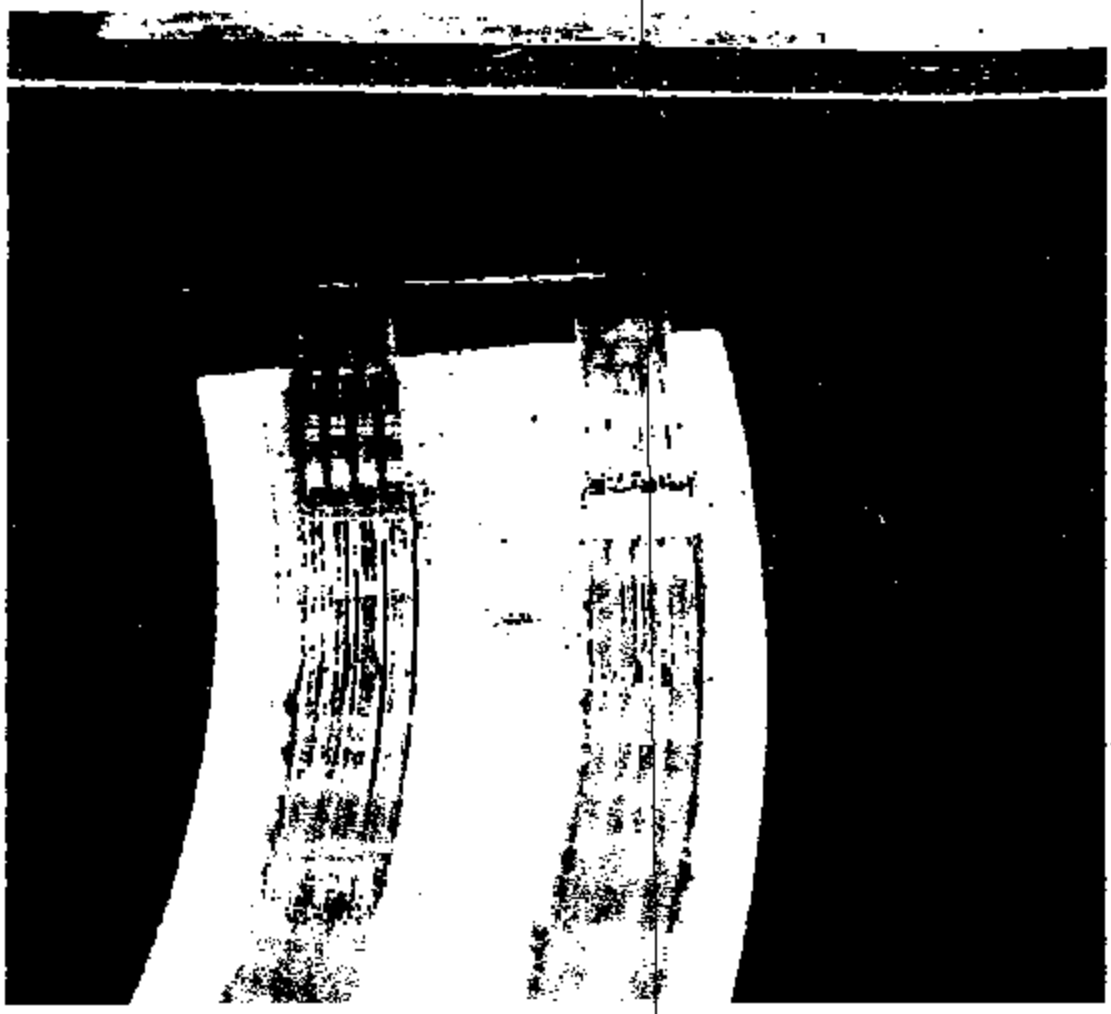
PE83-044 11882

From "Zulqarnain Khan" <zkhan1@tfxauto.com>
Date Tuesday, October 1, 2002 4:36 pm
To gwest2@ford.com,lliposky@ford.com,kzolan@tfxauto.com, gbraniff@tfxauto.com,bpietrzak@wabashtech.com
Subject Fwd: U-137 Adj ETC with Phenolic after 2M cyles.

Attached, are the digital pictures of six pedals with phenolic after 2M cycles.

Khan

----- Original Message -----
From "Zulqarnain Khan" <zkhan1@tfxauto.com>
Date Tue, 01 Oct 2002 16:28:19 -0400
To zkhan1@tfxauto.com
Subject U-137 Adj ETC with Phenolic



[redacted]

[redacted]

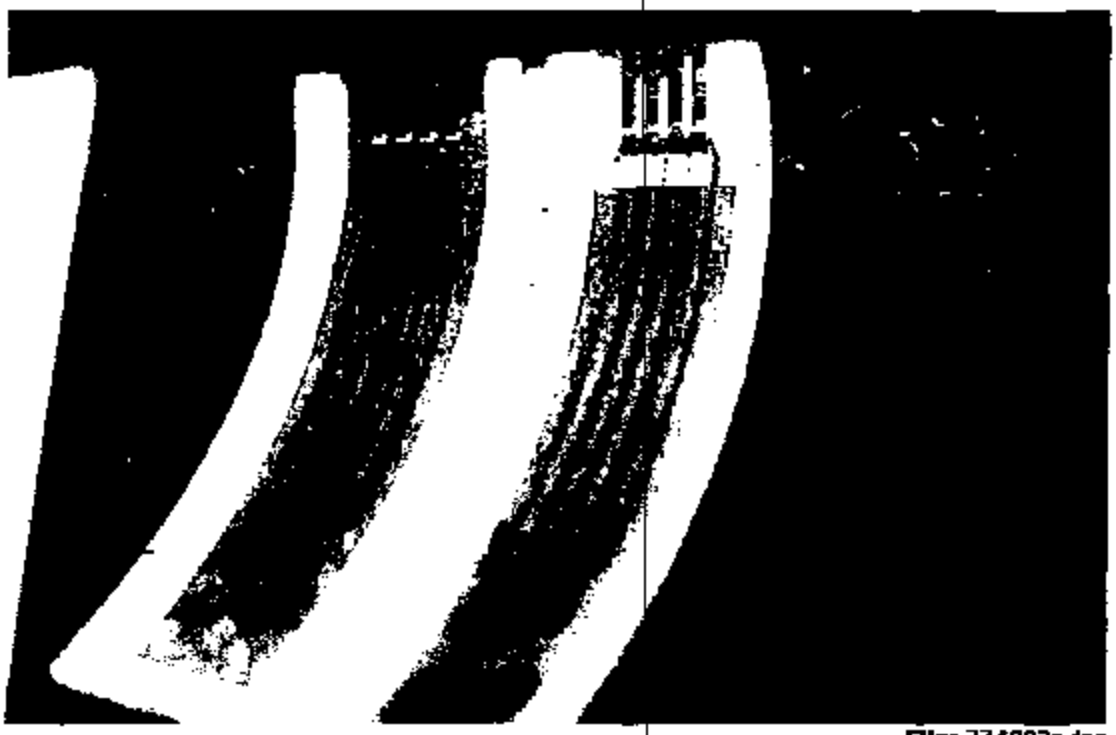
File: 774901a.jpg

File: 774901b.jpg

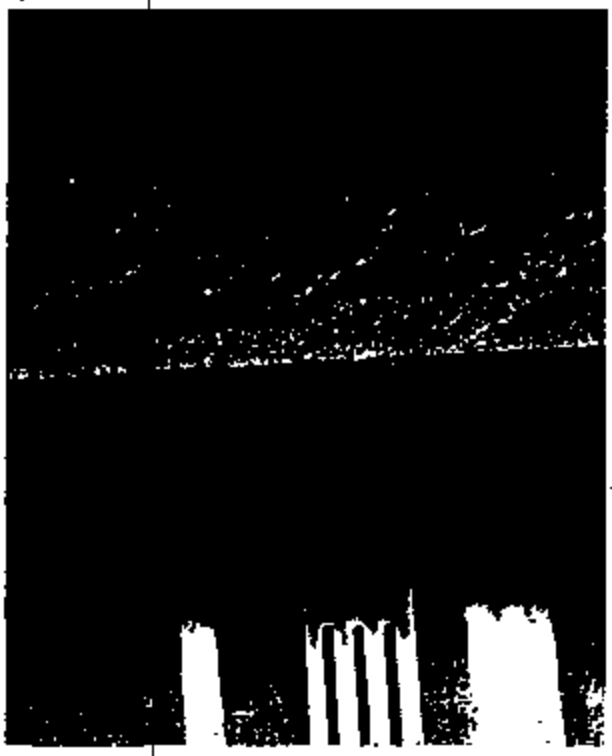
[redacted]

[redacted]

PE83-844 11684



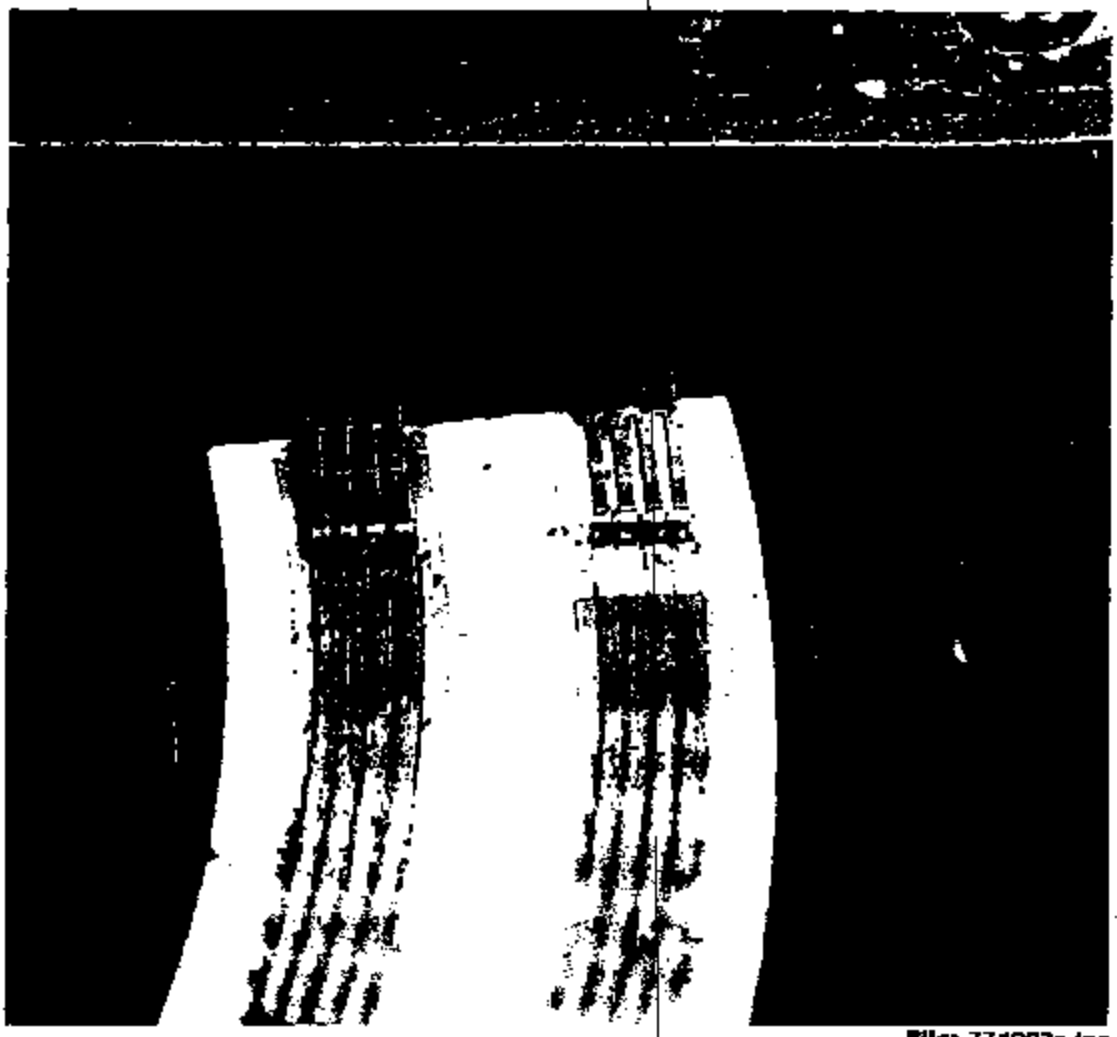
File: 774902a.jpg



[redacted]

PE83-844 11685

File: 774902b.jpg



File: 774903a.jpg

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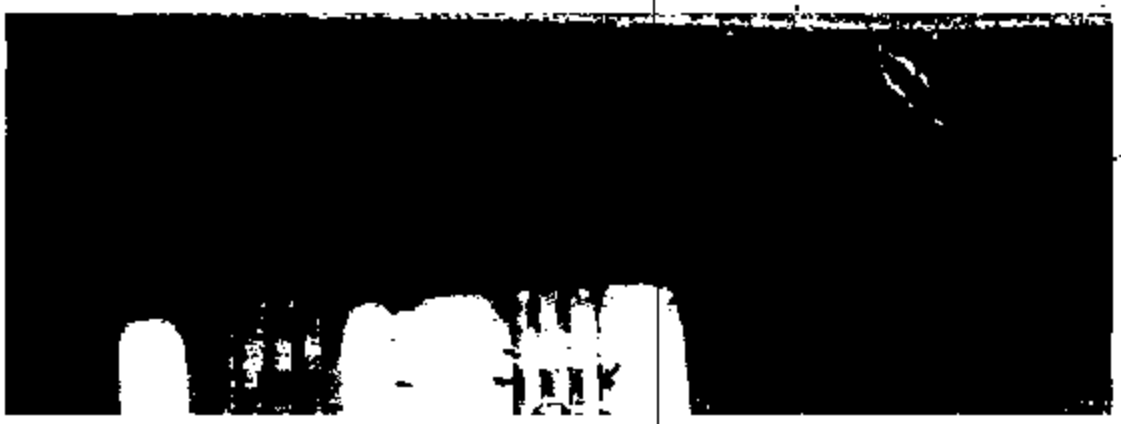
File: 774903b.jpg



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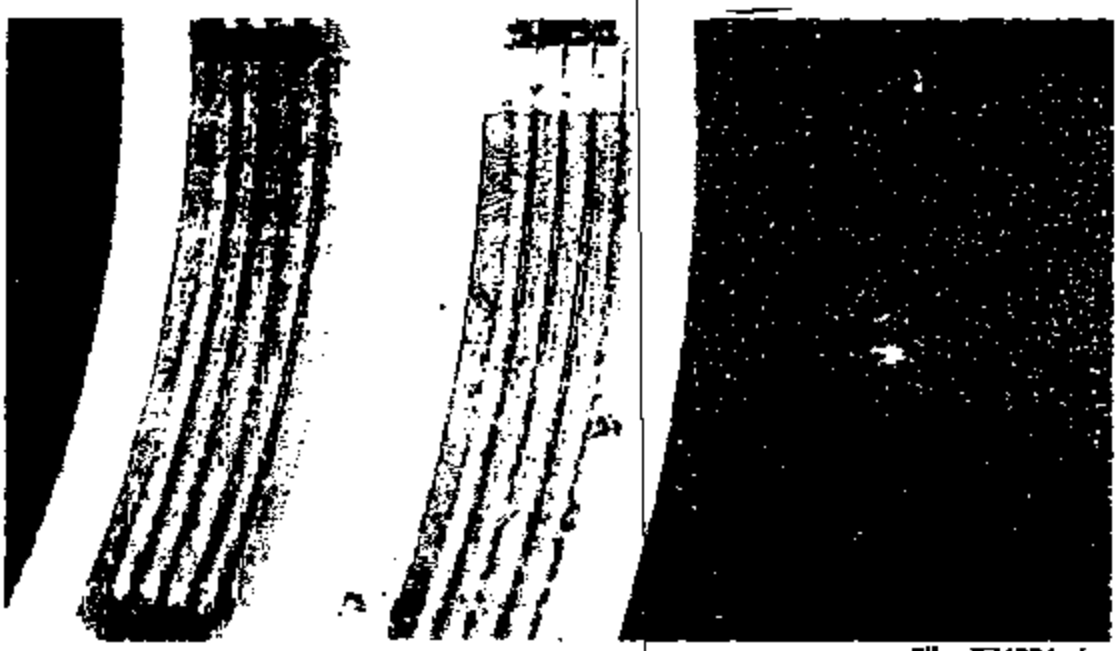
PER3-044 11687



File: 774904a.jpg

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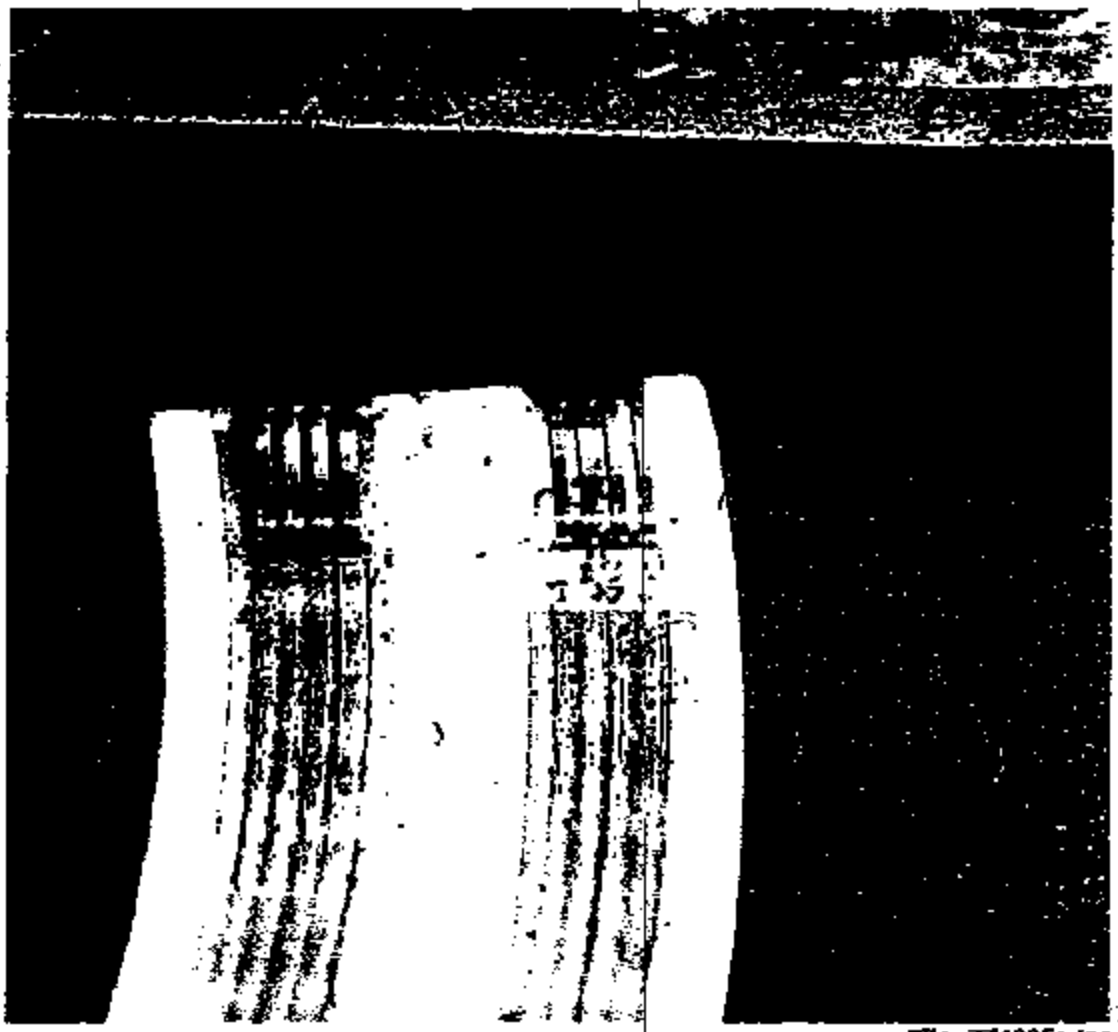
PE03-844 11688

File: 774904b.jpg



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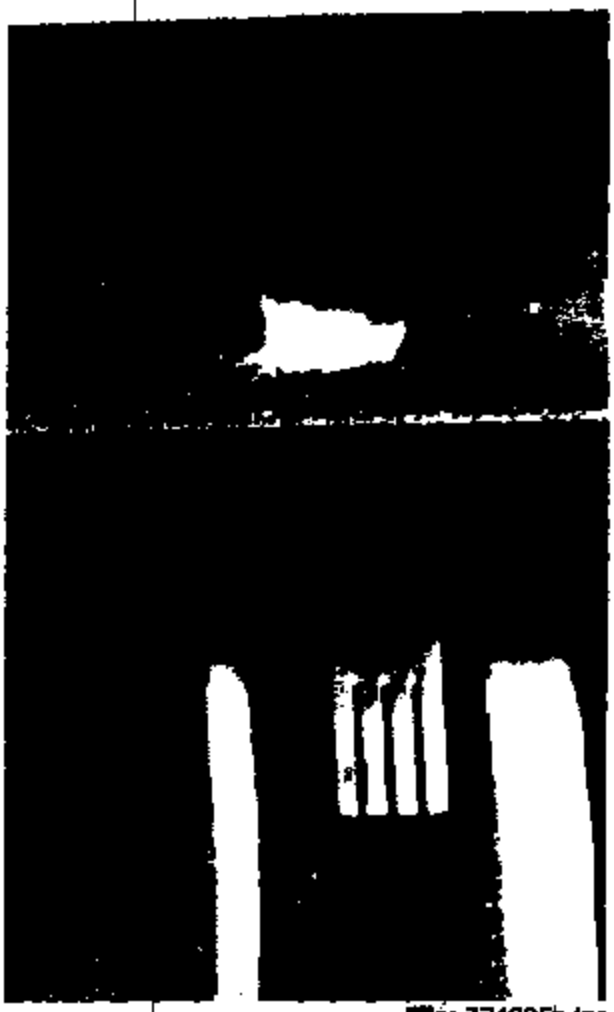

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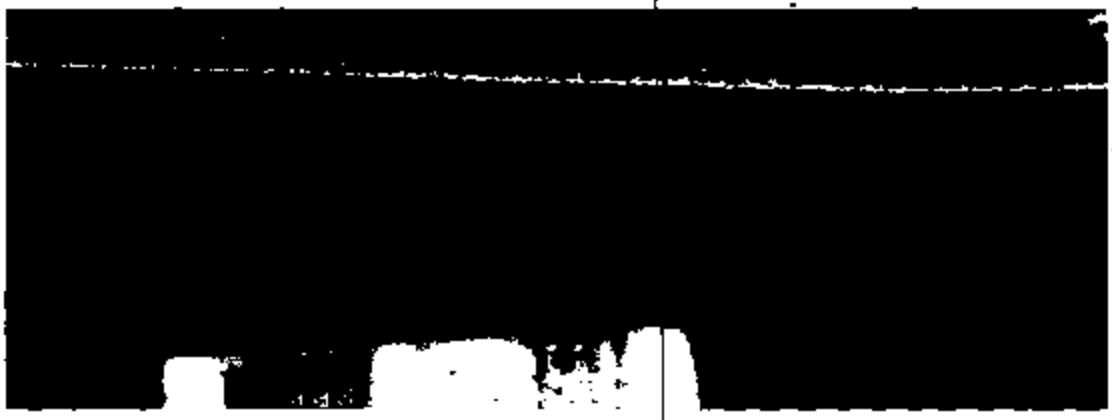


[redacted]

FE83-844 11600

File: 774906a.jpg

[redacted]

PB03-044 11691

File: 774906b.jpg

[redacted]

Sleetha - meet w/ Parchem before Burch / Tebbe meeting.

Adjustable Pedals Issues Meeting

11/30/2000

Issues:

Concerns:

- **C11157559 – Accelerator pedal broke when dropped**

Reinforced Accelerator Bracket with Steel Stamping

1. Design Reinforced Accel Bracket Support:	2wks	11/28/00	12/8/00
2. Prototype new Design	3wks	12/8/00	12/22/00
3. DV Testing	8wks	1/3/01	2/28/01
4. Production tooling for bracket	16wks	12/8/00	3/30/01
5. Tool Tryout	1 wk	3/30/01	4/6/01
6. PSW Steel bracket reinforcement to Kendellvill	1 wk	4/6/01	4/8/01
7. Revise Plastic Accel bracket	7 wks	12/8/00	2/1/01
8. Assembly Equipment	7 wks	12/8/00	2/1/01
9. Equipment Layout	1 wk	2/2/01	2/9/01
10. PSW run	1 wk	2/12/01	2/19/01
11. PV Test	8 wks	2/12/01	4/9/01
12. PSW		4/16/01	

Steel Throttle Retainer:

1. Design Steel Throttle Retainer	2wks	11/28/00	12/8/00
2. Prototype new Design	3wks	12/8/00	12/22/00
3. DV Testing	8wks	1/3/01	2/28/01
4. Production tooling for retainer	7wks	12/8/00	2/2/01
5. Tool Tryout	1 wk	2/2/01	2/9/01
6. PSW Steel retainer to Kendellville	1 wk	4/6/01	4/8/01
7. Weld fixturing	7 wks	12/8/00	2/1/01
8. Weld Tryout	1 wks	12/8/00	2/1/01
9. Install/Debug weld equipment Kendellville	1 wk	2/2/01	2/9/01
10. PSW run	1 wk	2/12/01	2/19/01
11. PV Test	8 wks	2/12/01	4/9/01
12. PSW		4/16/01	

- *DV testing is Drop Test
- PV testing with low volume tool – everything else will be production

11/30/200010:54 AM

Anti-rotation ribs for ETC support:

1. HTFB	12/8/00
2. PSW	2/12/01

Brake Motor & Memory Sensor
Under investigation.

- Wrapping motor & sensor in foam (Noise level should improve)
- Provide protection bracket around motor/sensor

- C11157558 – BOO switch wiring interferes with accel pedal
  Under investigation.
  - CAD shows 6mm of clearance – 19mm is needed
  - Move guide rod down to provide 19mm of clearance from switch
  - Tolerance study from electrical – due today at Noon
  - CAD data showing switch and foot clearance zone required for Teleflex

- C11157564 – Clearance between heat duct & accelerator track rod

  Waiting for cost & timing from Visteon/Lear

  Provide 19mm of clearance around track rod

  Possibilities:
  - New attachment point for foot heater duct – need VO buy in
  - Strengthening flange on duct – adding more ribs
  - bracket come pia to duct for easier installation

C11157557 – Accelerator pedal has contact with carpet

Propose closure for this concern.
CAD data shows 4.13mm clearance between diesel accelerator pedal in WOT and floor carpet. The standard allows zero clearance to carpet for pedal with a positive stop f WOT. The diesel adjustable pedal has positive stop. LT-26 test will be performed to confir there are no any binding issues.

FMVSS related
SDS - design standard

- lost comfort
- EVT - experience of pedal hitting carpet.

2

11/30/2000 12:47 PM

PE03-044-A 8793

From: Kramer, Michael (M.T.)
Sent: Thursday, January 16, 2003 4:56 PM
To: Liposky, Lawrence (L.J.); West, Gregory (G.S.)
Subject: FW: 2002 and 2003 F Series Super Duty and Excursion Adjustable Pedal

CQIS and NHTSA VOQ info. Especially note VOQ info. at bottom of note. Will have AWS claims info. tomorrow.

The company that builds and delivers the best products wins!

Mike Kramer
Supervisor, Super Duty/Excursion/E-Series PTQRT & OPD PT PMT (non-MCR)
Six Sigma Black Belt
Phone/fax: (313) 594-2003
Page: (313) 201-9852 (beep); <http://vm4.dearborn.ford.com/cgi/hantpage/2> (internal text); http://mypalmall.com/ (external text)
Email: mkramer1 (internal); mkramer1@ford.com (external)

---Original Message---
From: Matthews, Steve (S.D.)
Sent: Thursday, January 16, 2003 4:18 PM
To: Kramer, Michael (M.T.)
Subject: FW: 2002 and 2003 F Series Super Duty and Excursion Adjustable Pedal

---Original Message---
From: Matthews, Steve (S.D.)
Sent: Thursday, January 16, 2003 4:04 PM
To: Kramer, Michael (M.)
Cc: Jones, Rick (W.P.)
Subject: 2002 and 2003 F Series Super Duty and Excursion Adjustable Pedal

Mike,

Attached to this email is an excel file listing the specific vehicle VINs that I was able to identify, that have CQIS reports or VOQ (NHTSA) reports regarding the function of the accelerator pedal/throttle pedal on 2002 and 2003 F Series Super Duty and 2002 and 2003 Excursion vehicle lines. The counts include only vehicles equipped with adjustable pedals.

There are reports of similar concerns on vehicles equipped with non-adjustable (fixed) pedals. I have not included those reports in the counts provided below.

A summary of the CQIS reports:

F Series Super Duty:	191 distinct VINs for 2002 MY
	3 distinct VINs for 2003 MY
Excursion:	35 distinct VINs for 2002 MY
	0 distinct VINs for 2003 MY

I did not identify any CQIS reports indicating there have been any accidents or injuries related to this

concern.

A summary of the VOQ (NHTSA) reports:

F Series Super Duty:	2 distinct reports for 2002 MY (1 of the VOQ reports has an invalid VIN so I was not to confirm whether or not the vehicle was equipped with adjustable pedals)
Excursion:	2 distinct reports for 2002 MY

VOQ report, ODI # 8012549, (2002 MY Excursion) indicates the vehicle was involved in an accident and 6 people were injured. The AWS data for this vehicle indicates it is equipped with adjustable pedals, and the pedal assembly was replaced on September 5, 2002 by Stan Martin Ford, Inc., located in Hudson, New York.

2002 and 2003 F Super Duty & E...

Please contact me if you have any questions regarding the information provided.

Steve Matthews
Enhanced Concern Identification
313.248.7770

F Serie

2002 MY - 192 VINs

VIN	CQIS Report Miles	Production Date
1FDAF56F92E	9632	10/31/01
1FDAX57F52E	20792	01/14/02
1FDWW36F02E	46550	10/24/01
1FDXF46F62E	13735	10/28/01
1FDXF46F82E	35840	07/24/01
1FDXW47F42E	13929	01/06/02
1FTNW20F32E	44162	12/14/01
1FTNW20F32E	14000	05/02/02
1FTNW20F52E	16370	01/02/02
1FTNW20F82E	10282	12/21/01
1FTNW20F82E	10573	01/06/02
1FTNW20F82E	22061	12/21/01
1FTNW20FX2E	16000	11/02/01
1FTNW20FX2E	9728	01/17/02
1FTNW21F02E	10488	08/27/01
1FTNW21F02E	13000	11/15/01
1FTNW21F02E	6877	12/08/01
1FTNW21F02E	16000	01/04/02
1FTNW21F02E	17349	01/17/02
1FTNW21F12E	2233	08/08/01
1FTNW21F12E	17811	08/30/01
1FTNW21F12E	12000	09/07/01
1FTNW21F12E	18023	10/30/01
1FTNW21F12E	18266	01/06/02
1FTNW21F12E	17708	12/21/01
1FTNW21F22E	22505	08/14/01
1FTNW21F22E	10000	10/19/01
1FTNW21F22E	19836	11/25/01
1FTNW21F22E	6180	11/12/01
1FTNW21F22E	42538	01/14/02
1FTNW21F22E	12810	01/30/02
1FTNW21F32E	25405	08/06/01
1FTNW21F32E	13000	12/17/01
1FTNW21F32E	13000	12/17/01
1FTNW21F32E	9000	01/04/02
1FTNW21F32E	11000	02/13/02
1FTNW21F32E	8956	03/07/02
1FTNW21F42E	14506	01/16/02
1FTNW21F42E	3181	02/11/02
1FTNW21F52E	9223	09/12/01
1FTNW21F52E	32461	10/22/01
1FTNW21F62E	26091	11/25/01
1FTNW21F52E	5200	01/16/02
1FTNW21F82E	4596	09/12/01
1FTNW21F62E	20555	10/24/01
1FTNW21F62E	19071	01/06/02
1FTNW21F62E	21200	01/16/02

1FTNW21F62E[redacted]	9793	02/12/02
1FTNW21F72E[redacted]	9301	12/07/01
1FTNW21F72E[redacted]	9500	12/07/01
1FTNW21F72E[redacted]	8902	01/04/02
1FTNW21F72E[redacted]	42110	01/06/02
1FTNW21F82E[redacted]	15481	10/26/01
1FTNW21F82E[redacted]	22050	11/30/01
1FTNW21F82E[redacted]	25991	12/12/01
1FTNW21F82E[redacted]	17500	12/21/01
1FTNW21F92E[redacted]	14955	12/14/01
1FTNW21F92E[redacted]	10473	12/19/01
1FTNW21F92E[redacted]	15854	01/11/02
1FTNW21F92E[redacted]	15848	01/09/02
1FTNW21FX2E[redacted]	38200	09/10/01
1FTNW21FX2E[redacted]	6574	05/28/02
1FTNX20F82E[redacted]	6705	02/07/02
1FTNX21F02E[redacted]	13625	12/21/01
1FTNX21F22E[redacted]	14345	10/25/01
1FTNX21F32E[redacted]	8282	12/05/01
1FTNX21F32E[redacted]	17339	04/27/02
1FTNX21F42E[redacted]	20000	10/29/01
1FTNX21F42E[redacted]	28790	11/03/01
1FTNX21F42E[redacted]	9927	12/15/01
1FTNX21F42E[redacted]	27720	02/04/02
1FTNX21F42E[redacted]	1847	05/31/02
1FTNX21F62E[redacted]	11418	10/26/01
1FTNX21F62E[redacted]	14213	11/03/01
1FTNX21F62E[redacted]	12441	11/24/01
1FTNX21F62E[redacted]	16516	05/05/02
1FTNX21F82E[redacted]	7726	12/12/01
1FTNX21F92E[redacted]	24416	10/26/01
1FTNX21F92E[redacted]	5260	06/01/02
1FTNX21FX2E[redacted]	29706	09/01/01
1FTNX21FX2E[redacted]	7603	01/02/02
1FTSF31F32E[redacted]	7859	12/14/01
1FTSF31F32E[redacted]	10390	12/13/01
1FTSW30F12E[redacted]	6500	01/24/02
1FTSW30F82E[redacted]	8216	12/16/01
1FTSW31F02E[redacted]	21331	09/24/01
1FTSW31F02E[redacted]	25907	12/05/01
1FTSW31F02E[redacted]	22564	12/19/01
1FTSW31F12E[redacted]	14189	10/23/01
1FTSW31F12E[redacted]	10962	12/13/01
1FTSW31F12E[redacted]	18335	01/03/02
1FTSW31F12E[redacted]	7585	01/10/02
1FTSW31F22E[redacted]	9992	10/27/01
1FTSW31F22E[redacted]	10489	11/18/01
1FTSW31F22E[redacted]	24976	12/10/01
1FTSW31F22E[redacted]	25892	01/02/02
1FTSW31F22E[redacted]	11500	01/09/02
1FTSW31F22E[redacted]	910	03/30/02
1FTSW31F32E[redacted]	6149	07/26/01

1FTSW31F32	[redacted]	31597	09/10/01
1FTSW31F32	[redacted]	39438	10/24/01
1FTSW31F32	[redacted]	8887	01/14/02
1FTSW31F42	[redacted]	37046	07/19/01
1FTSW31F42	[redacted]	28884	09/10/01
1FTSW31F42	[redacted]	20377	09/09/01
1FTSW31F42	[redacted]	9424	09/12/01
1FTSW31F42	[redacted]	28473	09/25/01
1FTSW31F42	[redacted]	16298	12/03/01
1FTSW31F52	[redacted]	1200	10/11/01
1FTSW31F52	[redacted]	15894	02/11/02
1FTSW31F62	[redacted]	5826	07/18/01
1FTSW31F62	[redacted]	16166	11/30/01
1FTSW31F62	[redacted]	14361	01/22/02
1FTSW31F72	[redacted]	34894	09/21/01
1FTSW31F72	[redacted]	9506	01/03/02
1FTSW31F72	[redacted]	13026	01/08/02
1FTSW31F82	[redacted]	8000	10/11/01
1FTSW31F82	[redacted]	18218	12/04/01
1FTSW31F82	[redacted]	21610	01/15/02
1FTSW31F82	[redacted]	10664	01/30/02
1FTSW31F82	[redacted]	8801	04/16/02
1FTSW31F92	[redacted]	18143	09/22/01
1FTSW31F92	[redacted]	15505	09/22/01
1FTSW31F92	[redacted]	27443	01/17/02
1FTSW31FX2	[redacted]	12646	10/06/01
1FTSW31FX2	[redacted]	8229	12/21/01
1FTSW31FX2	[redacted]	14494	01/11/02
1FTSX31F02	[redacted]	16235	12/07/01
1FTSX31F02	[redacted]	20245	12/07/01
1FTSX31F22	[redacted]	34480	10/11/01
1FTSX31F52	[redacted]	8171	11/03/01
1FTSX31F62	[redacted]	5988	10/04/01
1FTSX31F62	[redacted]	7372	06/03/02
1FTSX31F72	[redacted]	26799	10/30/01
1FTWW32F12	[redacted]	10	09/17/01
1FTWW32F12	[redacted]	23383	10/24/01
1FTWW32F32	[redacted]	10757	12/08/01
1FTWW32F42	[redacted]	45485	10/18/01
1FTWW32F42	[redacted]	20270	01/04/02
1FTWW32F52	[redacted]	8472	12/21/01
1FTWW32F62	[redacted]	19533	10/04/01
1FTWW32F62	[redacted]	26554	05/06/02
1FTWW32F72	[redacted]	32996	08/27/01
1FTWW32F72	[redacted]	35433	05/18/02
1FTWW32F82	[redacted]	42666	11/07/01
1FTWW32FX2	[redacted]	8484	12/19/01
1FTWW33F02	[redacted]	83	08/09/01
1FTWW33F02	[redacted]	10003	01/14/02
1FTWW33F12	[redacted]	27974	12/14/01
1FTWW33F22	[redacted]	31887	12/07/01
1FTWW33F32	[redacted]	22000	08/07/01

1FTWW33F32[redacted]	26896	11/06/01
1FTWW33F32[redacted]	13873	12/23/01
1FTWW33F32[redacted]	4575	01/03/02
1FTWW33F32[redacted]	15000	08/18/02
1FTWW33F42[redacted]	8000	08/29/01
1FTWW33F42[redacted]	26000	10/17/01
1FTWW33F42[redacted]	20372	11/01/01
1FTWW33F42[redacted]	17913	12/07/01
1FTWW33F42[redacted]	12847	01/04/02
1FTWW33F42[redacted]	15159	01/14/02
1FTWW33F52[redacted]	17632	04/07/02
1FTWW33F62[redacted]	17046	12/17/01
1FTWW33F82[redacted]	17637	12/21/01
1FTWW33F72[redacted]	15450	09/12/01
1FTWW33F72[redacted]	8673	01/23/02
1FTWW33FB2[redacted]	35562	10/25/01
1FTWW33F82[redacted]	18185	10/26/01
1FTWW33F82[redacted]	10224	01/18/02
1FTWW33F92[redacted]	22000	10/18/01
1FTWW33F92[redacted]	3400	11/11/01
1FTWW33F92[redacted]	19020	12/21/01
1FTWW33FX2[redacted]	21102	10/08/01
1FTWW33FX2[redacted]	29992	10/09/01
1FTWW33FX2[redacted]	27885	01/18/02
1FTWW33FX2[redacted]	12713	01/15/02
1FTWX32F02[redacted]	1851	09/14/01
1FTWX33F12[redacted]	1109	11/08/01
1FTWX33F22[redacted]	25046	10/15/01
1FTWX33F72[redacted]	16570	01/22/02
1FTWX33F92[redacted]	14255	12/03/01
1FTWX33FX2[redacted]	13717	10/31/01
3FTNW20F02M[redacted]	18546	12/18/01
3FTNW21F02M[redacted]	13127	12/11/01
3FTNW21F62M[redacted]	19893	12/13/01
3FTNW21F72M[redacted]	13211	12/21/01
3FTNW21FB2M[redacted]	5	09/18/01
3FTNW21F92M[redacted]	11578	10/16/01
3FTNW21FX2M[redacted]	12977	09/25/01
3FTSW30F32M[redacted]	11000	11/15/01
3FTSW30F62M[redacted]	789	10/20/01
3FTSW31F82M[redacted]	16256	10/31/01

ıs Super Duty

2003 MY - 3 VINs

VIN	CQIS Report Miles	Production Date
1FTNW21F03E	229	10/13/02
1FTNW21FX3E	4555	08/12/02
1FTNX21F13E	6165	07/26/02

Excursion

2002 MY - 35 VINs (2003 MY - 0 VINS)

VIN	CQIS Report Miles	Production Date
1FMNU42F22[redacted]	16399	01/05/02
1FMNU42F82[redacted]	8845	02/07/02
1FMNU42F62[redacted]	9970	12/21/01
1FMSU43F52[redacted]	8514	09/16/01
1FMSU43F92[redacted]	12174	08/17/01
1FMSU43FX2[redacted]	15222	11/13/01
1FMSU43F82[redacted]	12427	11/12/01
1FMSU43F22[redacted]	13158	12/04/01
1FMSU43F22[redacted]	16778	11/10/01
1FMSU43F22[redacted]	12032	11/13/01
1FMSU43F82[redacted]	12561	11/12/01
1FMSU43F22[redacted]	16778	11/10/01
1FMSU43F42[redacted]	1	12/19/01
1FMSU43FX2[redacted]	20703	12/18/01
1FMSU43F42[redacted]	5155	01/16/02
1FMSU43F72[redacted]	9864	10/27/01
1FMSU43F82[redacted]	6837	10/04/01
1FMSU43F42[redacted]	13058	01/16/02
1FMSU43F22[redacted]	13670	11/12/01
1FMSU43F12[redacted]	15000	10/02/01
1FMSU43FX2[redacted]	6035	02/08/02
1FMSU43F22[redacted]	10238	02/19/02
1FMSU43F32[redacted]	20687	10/18/01
1FMSU43F72[redacted]	25931	09/21/01
1FMSU43F72[redacted]	14860	02/19/02
1FMSU43F52[redacted]	17684	10/08/01
1FMSU43F42[redacted]	14600	11/02/01
1FMSU43F92[redacted]	6835	11/14/01
1FMSU43F52[redacted]	9222	01/09/02
1FMSU43FX2[redacted]	32377	12/17/01
1FMSU43FX2[redacted]	20213	12/07/01
1FMSU43F02[redacted]	17496	10/05/01
1FMSU43F52[redacted]	14585	01/08/02
1FMSU43F32[redacted]	12357	05/29/02
1FMSU43F52[redacted]	13398	01/03/02

ODI No	Manufacturer	Model Yr	Model	Vin	Failure Date	Letter Date	Accident	Injured	Fault	Fire	Part Name	City	State	Miles	Summary
[illegible]	FORD MOTOR COMPANY	[illegible]	EXCURSION	1FM[illegible] [redacted]	[illegible]	[illegible]	Y	[illegible]	ENGINE [illegible] SUDDEN ACCELERATION [illegible]	N	FUEL/THROTTLE LINKAGES AND CONTROL	HUDSON	NY	[illegible]	WHEN APPLYING ACCELERATOR PEDAL IT WILL GO TO THE FLOOR INTERMITTENTLY [illegible] WILL NOT [illegible] AND VEHICLE WILL NOT MOVE FORWARD. VEHICLE WAS [illegible] CONSUMER WAS AT A STOP, THEN ATTEMPTED TO ACCELERATE AND VEHICLE DID NOT RESPOND. DAMAGE TO VEHICLE UNKNOWN AT THIS TIME. [illegible] IN ACCIDENT. [illegible]
[illegible]	FORD MOTOR COMPANY	[illegible]	EXCURSION	1FM[illegible] [redacted]	[illegible]	[illegible]		[illegible]	UNKNOWN	N	FUEL/THROTTLE LINKAGES AND CONTROL	[illegible]	VA	[illegible]	VEHICLE STOPPED AT INTERSECTION WITH ENGINE IDLING NORMALLY. ACCELERATOR DEPRESSED BUT ENGINE DID NOT INCREASE SPEED. VEHICLE MOVED INTO INTERSECTION AT IDLE BEFORE BRAKES COULD BE APPLIED. NO ACCIDENT RESULTED. DEALER REPLACED PEDAL ASSEMBLY UNDER WARRANTY. [illegible]
[illegible]	FORD MOTOR COMPANY	[illegible]	[illegible]	1FT[illegible] [redacted]	[illegible]	[illegible]		[illegible]	[illegible]	N	ENGINE	HOUSTON	TX	[illegible]	THE VEHICLE WILL LOSE POWER WITH THE ENGINE LIGHT COMING ON. CAUSE UNKNOWN. THE FORD DEALERSHIP HAS HAD THE VEHICLE FOR THREE DAYS, STATING THAT VEHICLE WAS GETTING SOME SORT OF RESISTANCE. THE VEHICLE WAS AGAIN FAILING WITH THE SAME PROBLEM. [illegible] THE CONSUMER NOTED THAT HE HAD TAKEN THE VEHICLE TO ANOTHER FORD DEALER AND THEY SEEMED TO HAVE RESOLVED THE PROBLEM [illegible] ACCELERATOR. THE WINDSHIELD WAS LEAKING [illegible] STILL LEAKING. THE VEHICLE HAS BEEN [illegible] SINCE THE LAST REPAIR. NOW THE WINDSHIELD IS LEAKING WATER [illegible] THE DASHBOARD. THE CONSUMER HAS ALSO EXPERIENCED THE FOLLOWING: WHEN STOPPING THE VEHICLE FEELS LIKE THE ENGINE SHIFTS FORWARD [illegible] WHEN STARTING OFF THE VEHICLE SHIFTS BACKWARDS. THE [illegible] IS NOT FULLY SEATED [illegible] MODULE. AND THE INJECTOR HARNESS INTERMITTENTLY [illegible] LEFT VALVE COVER INJECTOR HARNESS CONNECTOR CAUSING HIGH RESISTANCE [illegible]
[illegible]	FORD MOTOR COMPANY	[illegible]	F150	1FT[illegible] [redacted]	[illegible]	[illegible]		[illegible]	UNKNOWN		EQUIPMENT: ADAPTIVE ACCELERATOR AND BRAKE SYSTEMS	HOUSTON	TX	[illegible]	CONSUMER STATED THAT THE ENGINE LIGHT COMES ON. THE GAS PEDAL CEASE TO FUNCTION WITH ENGINE STILL RUNNING, BUT VEHICLE WOULDN'T ACCELERATE. THE PROBLEM KEPT HAPPENING INTERMITTENTLY ALL DAY. DEALER CONTACTED. [illegible]

From: Avtar Kalsi [akalsi@ffcauto.com]
Sent: Wednesday, August 21, 2002 12:54 PM
To: Larry Liposki; Greg West; Greg Braniff
Subject: Lila last tear down.ppt

Lila last tear down.ppt

Larry,

Attached please two three track life test torn down parts. As you would notice fingers on all three tracks on both pedals are in a perfectly good condition.

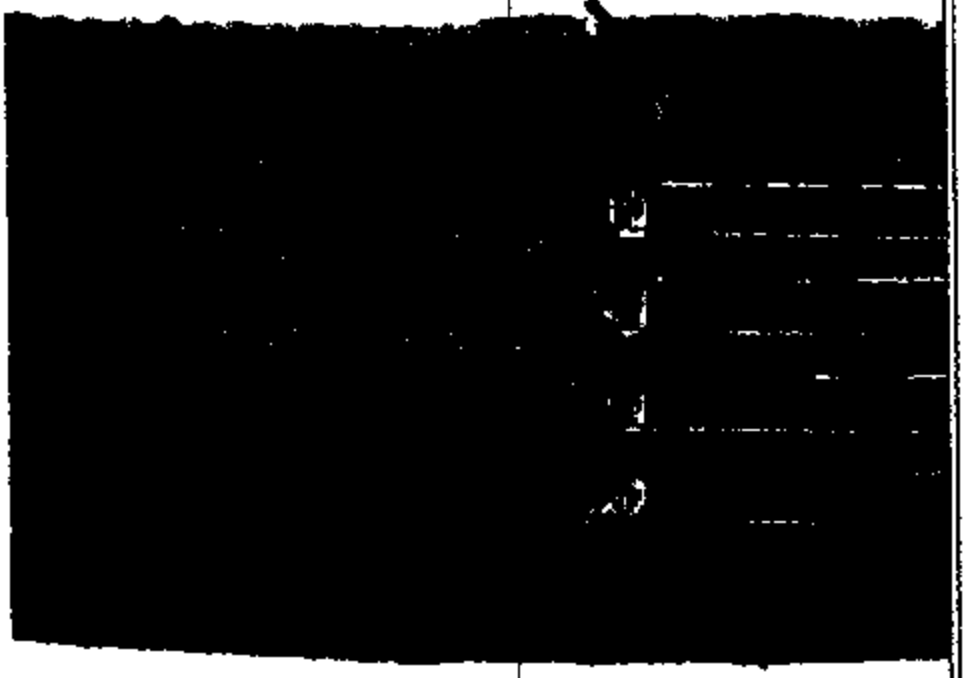
I just left a message for Wabash VP of engineering to expedite the plan for further root cause analysis. Our president has sent e-mail to Wabash's president to pay extra attention to this issue. I'll forward the information to you as soon as I receive something from them.

Thanks for your patience.
Avtar

Pedal 0113

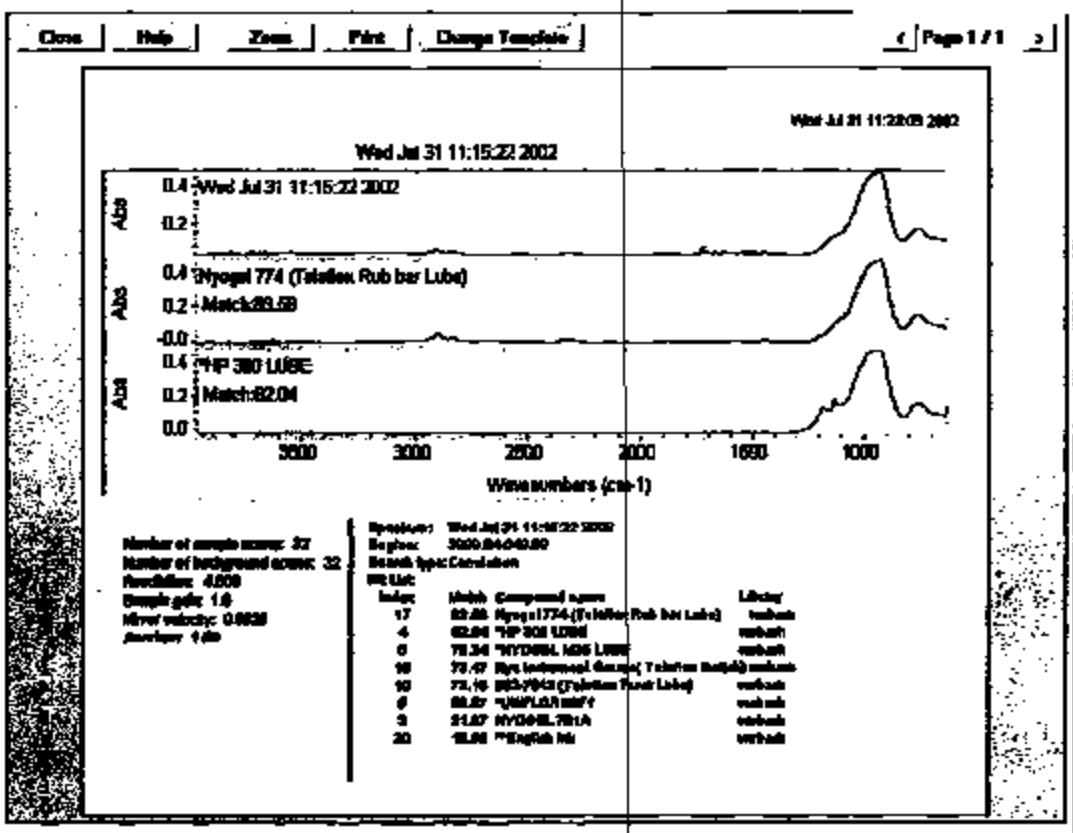
Pedal 0117

Lube



Most areas of the resistive tracks appear to have had the lube applied to the tracks. The abrasive slurry wore the contact fingers off but did not significantly wear the resistive ink.

PE93-844 9859



Above FTIR analysis from Wabash indicates a match to rub bar lube.

Also, Teleflex is conducting another FTIR analysis from 3rd party to verify results of Wabash test.

We will be testing a known returned pedal with worn fingers, and a new part with no lube on rub bar which will be soaked at high temperature overnight in shipping position and then tested for presence of lube.

5. **Implement & Verify Corrective Actions:**

- Eliminate Rub Bar Lube from both intermediate housing and cover
- Conduct LifeTest on 5 samples without Lube on intermediate rub bar and cover, and 1 sample with Lube purposely put on track. Evaluate samples 1-5 for potential wear on rotor at cover rub bar area. Evaluate sample 6 (no lube) for possible wear on wiper fingers.

6. **Implement Permanent Corrective Actions:**

7. **Prevent Problem Recurrence:**

8. **Recognize Project Team:**

From:	Shawn Hansen [shansen@yazaki-na.com]
Sent:	Tuesday, April 29, 2003 3:26 PM
To:	gmetz@ford.com; gwest2@ford.com; kpyle@wmco.com
Cc:	dhomovec@aol.com; jwilla5@ford.com; dhomovec@wmco.com; dsillanpaa@wmco.com; jmiers@wmco.com; Vijay Keshavamurthy
Subject:	RE: P131 FIXED AND ADJUSTABLE PEDAL CONNECTORS

Revised pedal testing 042903.p...

Hello Ken Pyle,
Attached is a summary of the data that has been compiled by Yazaki for the revised accelerator pedal.
As can be seen in the summary, the connector now passes the testing that was performed. Please also observe the notes at the bottom of the summary page. The lack of overtravel could potentially cause future locking issues.
Please feel free to contact me if any additional information is required.

Regards,

Shawn M. Hansen
Connector Development and Engineering
Yazaki North America, Inc.
6801 Haggerty Rd
Canton, MI 48187
Tel- (734)983-2972 Fax- (734)983-2973
E-mail: shansen@yazaki-na.com

>>> "Pyle, Ken" <kpyle@wmco.com> 04/22/03 04:46PM >>>
Gary...Have you received any information from Yazaki on these two pedals.

Thanks,
Ken Pyle
General Manager
Williams Controls
(941)727-5596 x15

-----Original Message-----
From: Metz, Gary (G.D.) [mailto:gmetz@ford.com]
Sent: Friday, April 11, 2003 9:19 AM
To: 'Pyle, Ken'; West, Gregory (G.S.)
Cc: Williams Jr., James (J.P.); Metz, Gary (G.D.); 'dhomovec@aol.com'; Homovec, Drew; Miers, Jerry; Sillanpaa, Don; 'vkeshava@yazaki-na.com'
Subject: RE: P131 FIXED AND ADJUSTABLE PEDAL CONNECTORS

Ken:

Can you please also provide recent samples of the connector interface? I can have Yazaki again double check the dimensions and also do some connector insertion and retention force testing.

thanks.

-----Original Message-----
From: Pyle, Ken [mailto:kpyle@wmco.com]
Sent: Thursday, April 10, 2003 3:59 PM
To: 'West, Gregory (G.S.)'
Cc: 'jwillia5@ford.com'; 'gmetz@ford.com'; 'dhomovec@aol.com'; Homovec, Drew; Miers, Jerry; Sillanpaa, Don
Subject: RE: P131 FIXED AND ADJUSTABLE PEDAL CONNECTORS

04HB Driver OOP Series #11 Test Matrix & Results

FMVSS208 New Final Rule (Dec. 2001)

No.	Dummy Position	Dummy Injury Value (5%ile Dummy)								
		HIC [700]	Chest G [60]	Chest Def. [2.0in]	Comp. Fz [680 lb]	Tension Fz [465 lb]	Nij max[1]			
							Nte	Ntf	Nce	Ncf
V0800.2	N2	1.6%	33.3%	62.0%	3.4%	26.0%	37.0%	14.0%	2.0%	15.0%
V0800.1	N1	6.1%	34.7%	30.0%	0.0%	24.1%	31.0%	30.0%	0.0%	22.0%

Notes: Initiator: Takata PSDI-4 (160/200kpa peak), 130ms squib fire delay

Dummy Position (N1): NHTSA Position 1

Dummy Position (N2): NHTSA Position 2

After some struggles, I had the connector interfaces of both parts measured and analyzed by Yazaki connector engineering (they make the mating connector, shown attached).

The result of the measurements (see page 2 of .pdf file) was that more dimensions were out of print than were in. Yazaki analyzed the dimensions that were out and have recommended which ones need to fixed the soonest (see page 1 of .pdf file).

Yazaki also gave me a sample of a harness connector which they had cut in half. It shows that when you mate the connector to the adjustable pedal assembly, the seal rolls up, almost preventing the connector from physically being able to be locked up. This is due to dimension 10 being so far out of spec on the low side. I'll overnight these parts back to you if you can send me your mailing address so you can see for yourself and demonstrate this to Teleflex if they're in denial.

I would appreciate your help in getting the supplier for both pedal assemblies to correct their molds ASAP. I'd be happy to have any modified parts tested again by Yazaki to ensure their mold changes are effective.

Thanks.

-----Original Message-----
From: Shawn Hansen [mailto:shansen@yazaki-na.com]
Sent: Thursday, April 03, 2003 11:22 AM
To: gmetz@ford.com
Cc: Sherrie Samuels; Vijay Keshavamurthy
Subject: RE: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team

Gary,
Attached are the results of the pedal study that Vijay reviewed with you earlier today. Please let me know if any additional information is required.

Regards,
Shawn Hansen

>>> "Metz, Gary (G.D.)" <gmetz@ford.com> 03/11/03 12:19PM >>>
Resending with drawing in .tif format. Hope you guys can open this one.

<<xr8t14a464bb.tif>>

> -----Original Message-----
> From: Metz, Gary (G.D.)
> Sent: Tuesday, March 11, 2003 12:10 PM
> To: West, Gregory (G.S.)
> Cc: Liposky, Lawrence (L.J.); Rahman, Nayeema (N.); Flynn, Pat (J.P.); Williams, Brent (B.A.); 'rayford.williams@alcoa.com'; Dixon, Wilfred (W.); McNorton, Michael (M.C.); Abar, Robert (R.B.); 'mgrant@yazaki-na.com'; Andrus, Daniel (D.M.); 'vkeshava@yazaki-na.com'
> Subject: RE: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team
> Importance: High
>
> Greg:
>
> I was at KTP two weeks back and reviewed the connector interfaces for both pedal assemblies (fixed and adjustable). I am fairly certain the connector interface on the pedal assemblies do not conform to the dimensional requirements outlined by the mating connector supplier (Yazaki).
>
> Please forward the attached drawing which provides those interface dimensional details (see upper LH corner) and have them check capability on the following dimensions:

> 1) Connector lock ramp position (8.25 +0.1/-0)
> 2) Connector lock ramp height (15.625 - basic dimension)

> In parallel, I have samples of both the fixed and adjustable pedal assemblies (Thank you Brent Williams). I will provide those to Yazaki today and have them analyzed in parallel. I will request a written report from them by Monday of next week and suggest you do the same.
>
> Thanks.
> << File: xr8t14a464bb.tg4 >>
> -----Original Message-----
> From: Rahman, Nayeema (N.)
> Sent: Tuesday, March 11, 2003 10:16 AM
> To: Williams, Brent (B.A.); Flynn, Pat (J.P.); 'rayford.williams@alcoa.com'; Dixon, Wilfred (W.)
> Cc: Liposky, Lawrence (L.J.); West, Gregory (G.S.); McNorton, Michael (M.C.); Abar, Robert (R.B.); Metz, Gary (G.D.)
> Subject: RE: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team
>
> Brent/Pat:
> Can you comment on the process question listed in the original note from Robert Abrar?
>
> Rayford/Wilfred:
> Do you have any comment on the wiring connector design.
>
> Thanks!
>
> -----Original Message-----
> From: Abar, Robert (R.B.)
> Sent: Tuesday, March 11, 2003 9:08 AM
> To: Rahman, Nayeema (N.)
> Cc: Abar, Robert (R.B.); Liposky, Lawrence (L.J.); West, Gregory (G.S.); McNorton, Michael (M.C.)
> Subject: FW: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team
> Importance: High
>
> Nayeema,
> See request below in Mike McNorton's absence.
>
>
> Robert B. Abar
> Manager, Powertrain
>
> (313) 84-54247 FAX:(313) 24-89073 rabar@ford.com
> Room: ICP20/Rotunda Ct #4 Mail Drop: LM410
>
> -----Original Message-----
> From: Abar, Robert (R.B.)
> Sent: Tuesday, March 11, 2003 9:05 AM
> To: McNorton, Michael (M.C.)
> Cc: Abar, Robert (R.B.)
> Subject: FW: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team
> Importance: High
>
> Mike,
> See request below.
>
> Robert B. Abar
> Manager, Powertrain
>
> (313) 84-54247 FAX:(313) 24-89073 rabar@ford.com
> Room: ICP20/Rotunda Ct #4 Mail Drop: LM410
>

> -----Original Message-----
> From: Gertley Sr., Jeffrey (J.B.)
> Sent: Tuesday, March 11, 2003 8:26 AM
> To: Abar, Robert (R.B.)
> Subject: RE: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team
>
> Please forward this to Mike McNorton. I'm not on P131 anymore!
> -----Original Message-----
> From: Abar, Robert (R.B.)
> Sent: Tuesday, March 11, 2003 7:11 AM
> To: Gertley Sr., Jeffrey (J.B.); Williams, James (J.P.); Williams, Brent (B.A.); Reed Jr., Bill (W.P.)
> Cc: Abar, Robert (R.B.); Carr, Richard (R.T.); Liposky, Lawrence (L.J.); West, Gregory (G.S.); Figurski, Patrick (P.M.); Gisleghem, Tom (T.A.)
> Subject: Emerging Issue 328534 - Help needed from Electrical and KTP PVT team
> Importance: High
>
>
> Background:>
> Emerging Issue 328534 is listed for F250HD/F350/450/550
VAT=S11-Powertrain VFG=V41-Smooth response CCC=D36-Engine Hesitates / surges when accelerating
>
> The issue has initially been binned against accelerator pedal by the warranty analyst based on their review of the claims and the parts being replaced.
>
>
> Greg West's analysis of the current AMS claims includes the following:

29 Teleflex (adjustable pedal assy's) - with 6 reporting legitimate codes
15 Williams (fixed pedal assy's) - with 3 reporting legitimate codes
15 unknown due to poor dealer coding

>
> Breakdown from the the verbatims of 58 total 6.0L Pedals on AMS
> 10% (6) Electrical - hard shell not fully seated
> 16% (9) Mis-binned - listed as 7.3L pedal
> 29% (17) Non related hardware (ICP) and/or calibration
> 10% (6) non-pedal related - glow plugs not plugged in, black smoke on accel
> 35% (20) Unexplained - 4 pedals verified through dealership used pin point, no codes, changed anyway
>
>
> Returned Pedal - 5 total three track to date
> Williams - 3 of 3 NTF at supplier and further verified on calibration truck as functionally acceptable
> Teleflex - 2 of 2 NTF at supplier and further verified on calibration truck as functionally acceptable. One of these had a DTC specific to pedal, even though it was verified as acceptible at supplier and in vehicle.
>
>
> Additional pedal assy's are being returned for analysis by supplier and the powertrain accel group.
>
>
> Powertrain team would like a deeper understanding of the electrical connector and the interface to the pedal assy to make sure the connector is always seated and that proper contact is achieved if it is seated. We are looking for system interactions that may explain the codes that are not evident on the existing returned parts the NTF.
>
>
>
> REQUESTED ACTIONS FROM ELECTRICAL AND PT PVT TO SUPPORT POWERTRAIN

INVESTIGATION:
>
> Review installation process of electrical connector at KTP to both the adjustable and fixed pedal assy and provide process to powertrain team in Dearborn. It was note when we were trying to install a connector on to the pedal assy that if you were pushing on the red locking tab (while starting to push on the connector) that you could hear a click but hadn't even started to seat the connector. Is this a blind operation or can the operator see the connection while they are doing it? Does the operator push on the connector and then go back and move the red tab or do they try to do it simultaneously? Do they pull on the connector to confirm its seated- before seating the locking tab or even after seating the locking tab? Some other process?
>
> Jim Williams indicated that there were occasionally issues with getting the red button set on the fixed pedals, but not on the adjustable pedals. Are there physical differences between the pedals in the connector area or assy process that would account for this? Have parts that have had the issue been removed for inspection/analysis?
>
>
>
> Jeff, Would also like to understand the design of the wiring connector relative to the mating part on the pedal assy:
> - Given reports of loose connectors, is it possible to partially seat the connectors and make electrical contact? When do the pins make contact during the assembly process of the connector (as the shells first come together, only after the locking tab starts up the tab ramp, etc)?
> - What are the tolerance stacks of the pins and mating slots?
> - Can someone in Dearborn take us thru the design in the next day or two?
>
>
>
> Thanks in advance for your assistance in helping us get to root cause of this issue.
>
>
>
> Robert B. Abar
> Manager, Powertrain
>
> (313) 84-54247 FAX:(313) 24-89073 rabar@ford.com
> Room: 1CP20/Rotunda Ct #4 Mail Drop: LH410
>

Revised Pedal Module Testing

Connector-Module Mating Force

No.	Force (N)
1	59.8
2	64.8
average	62.3

USCAR Spec: 75N max

CPA Mating Force

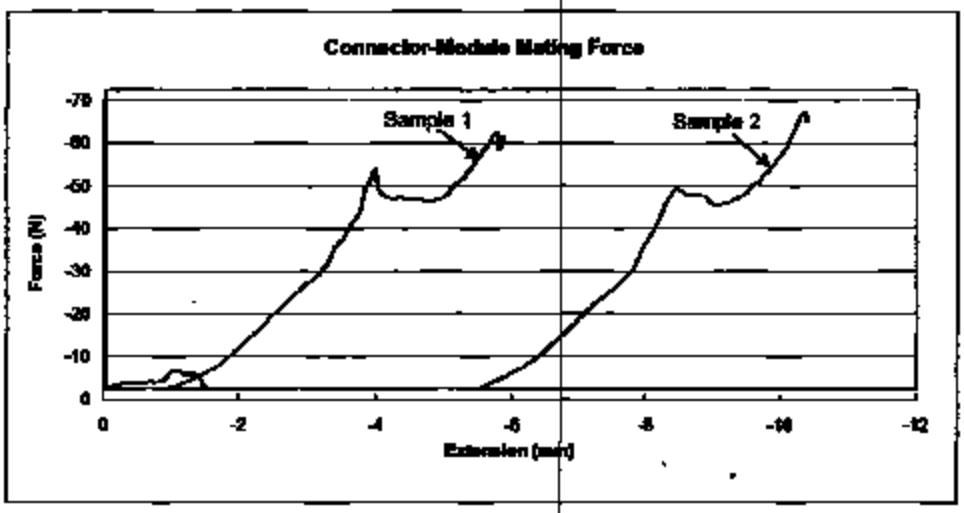
No.	Force (N)
1	8.8
2	6.3
average	7.6

SDS 11.0 Spec: 15N max

Connector-Module Retention Force w/o CPA

No.	Force (N)
1	125.9
2	114.8
average	120.4

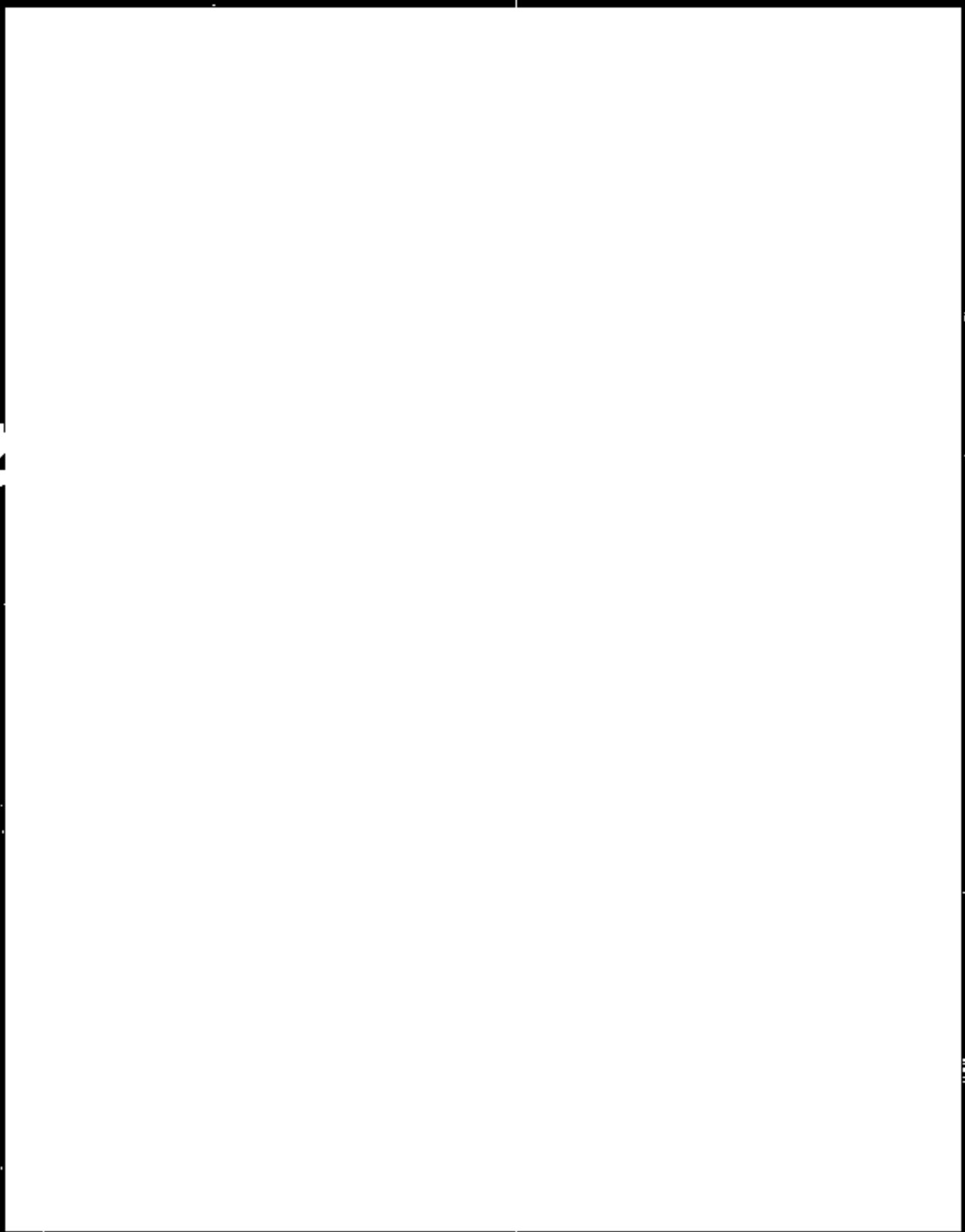
USCAR Spec: 110N min



Note 1: No lock overtravel was observed during the mating process.
Note 2: Inspection results of dimension 6 (14.325 lock height) now show it is in spec 14.25 & 14.24.
Note 3: Inspection results of dimension 3 (18° lock back angle) show it to still out at 6.5 & 6.6.

Tested by: Shawn Hansen
Yazaki North America, Inc.
April 29th, 2003

PE03-044 18124



From: Hudson, Lou - Troy [lhudson@TFXAuto.com]
Sent: Wednesday, November 29, 2000 11:39 AM
To: 'Petrauskas, Lisa (L.E.)'
Subject: RE: Need DDLs for Concerns

You ever get these DDL's?

In other news....

Have your drawings. I can drop them off any time.

I like to stop by to take digital pictures of the tunnel area on a truck or two if that's possible. Sure would aid design of the backup plate to the ETC bracket. The idea is to have the plate extend 3mm past the edges of the bracket. That way, no matter how it's dropped, it hits the steel plate before it hits the plastic of the mounting area. The design issue is potential interference in the tunnel area (carpet, insulation, ducting, etc.) with parts that we don't have in CAD. Do you have any adjustable trucks in Dearborn?

(An issue to hit Bill up with later: What happens to that steel bracket when it's dropped? Do the edges of the steel fold over the back, toward the firewall in vehicle? At 1.5mm thick, it might not be so easy to bend it back for installation, and the plant could go berserk.)

The attachment is the issues list Elio worked up, with due dates. I don't know if he sent it to you or not (He's out today.). If he didn't, please keep this to yourself. Call if you need anything.

<<U137_APQP Open Issue.doc>>

---Original Message---
From: Petrauskas, Lisa (L.E.) [mailto:lpetraus@ford.com]
Sent: Tuesday, November 21, 2000 3:46 PM
To: Lou F. Hudson (E-mail); Elio G. Evangelista (E-mail); William Teller (E-mail)
Subject: Need DDLs for Concerns

Need DDLs for C11159112, C11162269

Lisa Petrauskas
Heavy F-Series Chassis Design
PDC 2B-A60
313-39-06070
(fax) 313-317-2349
lpetraus@ford.com

U137/APQP OPEN ISSUES

Program: U137
Description: Adjustable Pedals
Code: U137
TFX P/N: 016T-G0058,59,60,61

Ford Engineer: Lisa Petrauskas
TFX Engineer: Bill Teller
Account Manger: Conrad Niester
Ford P/N: 1C35 2450 AE/BE 1C35 9726 AD & 9F836 AD
Description: APS

Issue #	Description	Date Opened	Responsible	Update / Statns	Date Due	Date Closed
1	Change Track Rod Position	11/21/00	Bill Teller/Andy Volker	Following components/items would be revised: (DESIGN CHANGE ONLY) 1) Brake Arm (Dwg., tool & gages) 2) Extension Plate(s) (Dwg. tools & gages) 3) Extension Plate sub-assy. (Dwg., tool & gages) 4) Brake Cable (dwg. parts) 5) Weld fixtures & gages 6) Assembly fixtures & gages	12/8/00 (design)	
2	Drop Requirement – Adding ribs to accel housing to protect ETC	11/21/00	Avtar Kalsi/ Andy Volker	Requires changes to accel housing (dwg. & mold)	12/8/00 (design)	
3	Drop Requirement – Back steel plate to protect plastic accel housing	11/21/00	Avtar Kalsi/ Andy Volker	Following components/items would be revised &/or added: (DESIGN CHANGE ONLY) 1) Modify accel. Housing,-add thru holes & bosses (dwg. & mold) 2) New back plate (dwg. & new tool) 3) 2-3 self-tapping screws	12/8/00 (design)	
				4) Assy equipment to asm. plate & housing (scr. driver)		
4	Drop Requirement – Cable Retainer	11/21/00	Bill Teller/ Andy Volker	Following components/items would be revised &/or added: (DESIGN CHANGE ONLY) 1) Replace plastic retainer with steel retainer. 2) New steel retainer (tool & gages) 3) Weld fixtures & gages 4) Assy fixtures	12/8/00 (design)	
5	Drop Requirement – Motor support/protection	11/21/00	Bill Teller/ Andy Volker	T.B.D.	T.B.D.	
6	Drop Testing for items 1-4	11/21/00	Elio Evangelista/ Avtar Kalsi / Bill Teller	1) Fab 20 parts with changes mentioned items 1-4 (Elio) 2) DV Test (Avtar / Bill)	12/6/00 12/8/00	

Author: Elio Evangelista
Filename: U137_APQP Open Issue.doc

Last printed: 11/17/03
Last Updated: 11/17/03

Created on: 10/28/00
Page 1 of 1

FEB-04-2005

From: Hudson, Lou - Troy [lhudson@TFXAuto.com]
Sent: Monday, November 13, 2000 2:19 PM
To: 'Petrauskas, Lisa (L.E.)'
Subject: RE: issues list

A few fields have revisions. What they'll be looking for is issue resolution and implementation dates. If we can tell them the KTP drop review is scheduled for this week, that'd be better than TBD. We have to show progress or we'll all look like idiots, Lisa. (For example, the DV testing timing of 12/1 looks great. If we could put dates on everything else...)

-----Original Message-----
From: Petrauskas, Lisa (L.E.) [mailto:lpetraus@ford.com]
Sent: Monday, November 13, 2000 1:21 PM
To: Lou F. Hudson (E-mail); William Teller (E-mail)
Subject: issues list

<<ADJ_TRIAL_ISSUES_2.xls>>

Lisa Petrauskas
Heavy F-Series Chassis Design
PDC 2B-A60
313-39-08070
(fax) 313-317-2349
lpetraus@ford.com

#	Brake/Accel	Issue with part	Issue with process	Concern No	Cost	PSW Timing	Status/Comments	Supplier	Vehicle	A/V/S
1	Clutch	Accelerator pedal sticking/ high idle 600-1100 rpm		Waiting to get a number			Teleflex will investigate	Teleflex	U137	R
2	Trim panel	The color of the trim panel is not ready. Will not meet 13(1/50) PSW		C11144483		1/4/2001		Visteon	P181A/137	Y
3	Delete Plug	Delete plug will not be PSW until 1/4/01		C11144483	1	1/4/2001		Visteon	P181A/137	Y

Adjustable Pedal Issues List
from
Mfg-Trial at KTP 10/17/2000

#	Module/Assm	Issue with part	Issue with process	Concern Nbr	Cost	P/W Timing	Status/Comments	Supplier	Vehicle	R/Y/G
1	Accel - Gas/Diesel	Accelerator pedal broke when dropped from a height of approx. 8 feet. The outboard most attachment was snapped when the accelerator was dropped. This would be the source of production scrap in the plant. Also concern that damaged parts will get installed.		C11157839			Under investigation - Failure modes affected by impact & CP test results forwarded for review. Meeting with KTP personnel to discuss implications TBD.	Teleflex	P131/U137	R
2	Brake Light Switch (BOO)	Switch wiring can contact brake pedal track rod. Wiring will rub and chafe on track rod when adjusting pedal position or applying the brake.		C11157558		12 wks.	APL investigating different strain relief that will route switch pigtail outboard. Estimated timing to implement change: 12 wks.	APL/Pollak/Teleflex	P131/U137	R
3	Accel - Gas/Diesel	Pedal arm interfering with mounting bracket when pedal is adjusted in the full forward position and at WOT.		C11160109	0	2/19/2001	DV testing will be completed on 12/1/00. PV testing will be completed on 2/5/01	Teleflex	P131/U137	Y
4	Heat Duct/Accel (Diesel & Gas)	Clearance between heat duct and Accel. Track rod is tight when the pedal arm is full rearward.	Difficult to install heat duct on Diesel units with adjustable pedal installed. Duct was broken during assembly.	C11157684			New duct designed to fit with adjustable pedal. CAD data shows that there is 17 mm between pedal-arm tube and heat duct. Prototype duct provided for trial not representative. Production tooled parts available week of 11/13/00 for installation and evaluation in Design Aid.	Lear/Teleflex	P131/U137	Y
5	Accel - gas	Newly installed adj. Accelerator pedal binds, causing high engine idle speed of 900-1100 rpm. Dude incident 321647		C11158289			Teleflex to provide 8D upon completion of analysis. Assembly built correctly. Component layouts underway to determine if parts built to print.	Teleflex	P131/U137	Y
5	Brake - gas/diesel	Brake arm is loose at pivot point on brake development vehicle. Some pedals are very solid and other pedals are loose. - Rattle problem.		C11159112			Prototype part quality issue. Teleflex to provide 8D. One assembly still under investigation.	Teleflex	P131/U137	Y
6	Adj. Pedals	Noise testing conducted in vehicle by RVT indicates system does not meet noise target. Standard will be 6 sone measurement in-vehicle and 0.16 fluctuation. P131/U137 the loudness is between 6-11 sone and fluctuation is between 0.06-0.14.					6-sigma project at Teleflex. Comparing other programs to P131/U137. RVT to provide data on other vehicles for comparison to determine if improvements are required.	Teleflex	P131/U137	Y
7	Brake - Wiring (Diesel & Gas)	Wiring for connecting the adj. pedal motor pigtail requires changes to communize F-Series and Excursion and improve assembly and package.		C11157662	TBD	12 weeks	Revise IP wiring and motor pig tail to locate 3-way connector in a new hole that was added for H218. Pedal motor revised to 11" nominal length.	APL	U137	G
8	IP decking aid		The new end effector detail caught the shift cable upon egress from the vehicle and hit accelerator pedal.				A trial on current IP decking process to determine an alternative stow position for the shift cable will be performed.	VO	U137/P131	Y
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Closed
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Closed
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Closed
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Closed
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Closed

From: Liposky, Lawrence (L.J.)
Sent: Monday, March 03, 2003 2:53 PM
To: West, Gregory (G.S.)
Subject: FW: Wmco Mechanical Studies

Larry Liposky
Supervisor - Accelerator Controls
Tough Truck / Outfitters
Phone 24-81726
Pager 796-0949

----Original Message----
From: Miers, Jerry [mailto:jmiers@wmco.com]
Sent: Monday, March 03, 2003 9:09 AM
To: 'lliposky@ford.com'
Subject: Studies

Attached are the latest studies that were performed utilizing the controlling features.
If you have any comments, please feel free.

"D" Slot angle		Delta To Nom.	Debris	Rotor Depth	Rotor Angle
1	77.411	0.111	0.330	0.380	89.484
2	77.500	0.200	0.328	0.360	89.656
3	77.410	0.110	0.329	0.379	89.702
4	77.491	0.191	0.328	0.380	89.508
5	77.439	0.139	0.330	0.379	89.444
6	77.501	0.201	0.328	0.360	89.653
7	77.421	0.121	0.329	0.379	89.671
8	77.441	0.141	0.329	0.380	89.730
9	77.442	0.142	0.328	0.379	89.581
10	77.406	0.106	0.328	0.379	89.990
11	77.610	0.310	0.329	0.361	89.890
Average	77.461	0.161	0.329	0.380	89.694
STD	0.060966	0.060966	0.000751	0.000874	0.178423

Element	CT 1	WOT 1	CT 2	WOT 2	CT 3	WOT 3
1	80.70	10.20	33.70	87.40	22.40	75.50
2	80.40	9.60	34.30	87.80	22.80	76.50
3	81.80	10.70	34.00	87.40	22.00	75.00
4	80.70	9.90	34.30	88.00	22.70	76.00
5	80.60	9.80	34.40	88.00	22.90	75.60
6	80.60	10.20	34.10	87.70	22.80	75.40
7	80.00	9.70	34.30	87.60	22.70	75.70
8	82.50	11.60	33.20	87.30	21.80	74.90
9	80.90	10.00	33.60	87.70	22.80	76.40
10	80.60	10.00	34.10	87.90	22.60	75.90
11	81.70	10.70	34.00	87.70	22.60	75.80
Average	80.97	10.20	34.00	87.70	22.20	75.64
STD	0.698	0.600	0.366	0.241	0.378	0.441
Min	80.000	9.600	33.200	87.300	21.800	74.900
Max	82.500	11.600	34.400	88.000	22.900	76.400
Range	-2.500	-2.000	-1.200	-0.700	-1.200	-1.500

ETC	CT 1	WOT 1	CT 2	WOT 2	CT 3	WOT 3
1	79.50	11.16	30.85	83.85	19.48	71.62
2	79.86	11.14	30.93	83.44	19.24	71.38
3	81.13	12.01	30.84	83.48	18.85	70.81
4	80.81	11.41	31.10	84.27	19.39	72.07
5	80.82	12.13	30.85	83.32	18.80	70.68
6	80.47	11.84	30.87	83.54	19.47	71.12
7	81.00	12.85	30.02	82.65	18.11	70.12
8	82.24	13.24	30.17	83.39	18.46	70.79
9	80.67	11.79	30.39	83.51	19.81	72.21
10	79.19	10.28	31.98	84.66	20.47	72.73
11	79.96	11.12	31.72	84.38	20.02	72.38
Average	80.51	11.71	30.90	83.65	19.28	71.43
STD	0.848432	0.813908	0.584106	0.567422	0.571748	0.633852
Min	79.19	10.28	30.02	82.65	18.11	70.12
Max	82.24	13.24	31.98	84.66	20.47	72.73
Range	-3.050	-2.960	-1.940	-2.000	-2.360	-2.610

Delta Ele-ETC						
	0.46	-1.51	3.10	4.05	2.92	4.21

Tolerance Study Idle Electrical Reading "D" Slot Angle/Debris Cover Rad./Rotor Depth Angle

Unit s Test Results Gr./Rad	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Depth Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
	1	77.411	0	0.380			79.50	1.20		30.55			19.48	
	2	77.500	0	0.380			79.98	0.48		30.63			19.34	
	3	77.410	0	0.379			81.13	0.47		30.64			19.05	
	4	77.491	0	0.380			80.61	-0.11		31.10			19.39	
	5	77.439	0	0.379			80.82	-0.22		30.86			19.60	
	6	77.501	0	0.380			80.47	0.33		30.87			19.47	
	7	77.421	0	0.379			81.00	-1.00		30.02			19.11	
	8	77.441	0	0.380			82.24	0.26		30.17			19.45	
	9	77.442	0	0.379			80.67	0.33		30.39			19.61	
	10	77.408	0	0.379			79.16	1.61		31.66			20.47	
	11	77.510	0	0.381			79.96	1.76		31.72			20.02	
	Average	77.461	0	0.380			80.61	0.48		30.80			19.28	
	STD	0.060986	0.000	0.000874	0.		0.949452			0.564108			0.371748	
	Min	77.408	0	0.379			79.16			30.02			19.11	
	Max	77.510	0	0.381			82.24			31.66			20.47	
	Range	-0.204	-0	-0.002			-3.080			-1.640			-2.360	

Idle

Unit s Test Results Gr.Red	Sample Number	"D" Slot angle Degrees	Debris Mic Stop Rad. Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
	1	77.411	0.330	89.464	80.70	79.50	1.20	33.70	30.95			19.45	
	2	77.600	0.328	89.668	80.40	79.95	0.45	34.30	30.93			19.34	
	3	77.410	0.329	89.702	81.60	81.13	0.47	34.00	30.94			18.95	
	4	77.491	0.328	89.508	80.70	80.81	-0.11	34.30	31.10			19.39	
	5	77.439	0.330	89.444	80.60	80.82	-0.22	34.40	30.85			18.80	
	6	77.501	0.328	89.563	80.80	80.47	0.33	34.10	30.87			19.47	
	7	77.421	0.329	89.671	80.00	81.00	-1.00	34.30	30.02			18.11	
	8	77.441	0.329	89.730	82.60	82.24	0.26	33.20	30.17			18.48	
	9	77.442	0.329	89.681	80.90	80.57	0.33	33.80	30.39			19.61	
	10	77.406	0.328	89.960	80.80	79.19	1.61	34.10	31.99			20.47	
	11	77.610	0.329	89.950	81.70	79.95	1.75	34.00	31.72			20.02	
	Average	77.481	0.329	89.694	80.97	80.51	0.46	34.00	30.90			19.28	
	STD	0.060956	0.000751	0.178423	0.699	0.848432		0.366	0.584106			0.671748	
	Min	77.406	0.328	89.444	80.000	79.19		33.200	30.02			18.11	
	Max	77.610	0.330	89.960	82.600	82.24		34.400	31.99			20.47	
	Range	0.204	0.002	0.516	2.600	3.050		1.200	1.940			2.360	

Delta Nom	0.16	-0.005	-0.31	0.22	-0.24		4.30	-1.20		3.50	-0.56
USL	77.55	0.354	90.25		83.25			32.20			21.20
Nom	77.30	0.334	90.00	80.75	80.75		29.7	29.7		16.7	16.7
LSL	77.05	0.314	89.75		78.25			27.20			15.20
		Element	USL	83.21			34.60			23.92	
		Element	Nom	81.21			32.60			21.92	
		Element	LSL	79.21			30.60			19.92	

Unit a Test Results Gr./Rod	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
	1	77.411	0		80.70				30.95	2.75		19.48	2.92
	2	77.500	0		80.40				30.83	3.37		19.34	3.46
	3	77.410	0		81.80				30.94	3.06		18.96	3.06
	4	77.491	0		80.70				31.10	3.20		19.39	3.31
	5	77.439	0		80.60				30.85	3.55		18.80	3.70
	6	77.501	0		80.60				30.87	3.23		19.47	3.33
	7	77.421	0		80.00				30.02	4.28		18.11	4.59
	8	77.441	0		82.50				30.17	3.03		18.48	3.12
	9	77.442	0		80.90				30.39	3.21		18.61	3.19
	10	77.406	0		80.80				31.98	2.14		20.47	2.13
	11	77.610	0		81.70				31.72	2.28		20.02	2.58
	Average	77.481	0		80.97		0.45		30.90	3.16		19.28	3.22
	STD	0.060996	0.000	0.	0.699	0.6			0.584106			0.671748	
	Min	77.406	0		80.000				30.02			18.11	
	Max	77.610	0		82.500				31.98			20.47	
	Range	-0.204	-0		-2.500				-1.940			-2.360	
Delta Nom		0.18	-0.005	-0.31	0.22	-0.24		4.30	-1.20		3.50	-0.58	
USL		77.55	0.354	90.25		83.25			32.20			21.20	
Nom		77.30	0.334	90.00	80.75	80.75		29.7	29.7		15.7	19.7	
LSL		77.05	0.314	89.75		78.25			27.20			18.20	
			Element	USL	83.21			34.80			23.92		
			Element	Nom	81.21			32.80			21.92		
			Element	LSL	79.21			30.80			19.92		

Delta

Unit # Test Results Gr./Rod	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
[redacted]	1	0.111	-0.004	-0.536				4.000	1.250		3.700	0.780	
	2	0.200	-0.006	-0.344				4.600	1.230		4.100	0.840	
	3	0.110	-0.005	-0.298				4.300	1.240		3.300	0.250	
	4	0.191	-0.006	-0.492				4.500	1.400		4.000	0.690	
	5	0.139	-0.004	-0.555				4.700	1.150		3.800	0.100	
	6	0.201	-0.006	-0.137				4.400	1.170		4.100	0.770	
	7	0.121	-0.005	-0.329				4.500	0.320		4.000	-0.590	
	8	0.141	-0.005	-0.270				3.500	0.470		2.900	-0.220	
	9	0.142	-0.005	-0.319				3.900	0.690		4.100	0.810	
	10	0.106	-0.006	-0.040				4.466	2.260		3.900	1.770	
	11	0.310	-0.005	-0.050				4.300	2.020		3.900	1.320	
	Average	0.161	-0.005	-0.305			0.46	4.30	1.20		22.20	0.59	
	STD	0.060866	0.000751	0.176423		0.84=1		0.366	0.584106		0.379	0.671748	
	Min	0.106	-0.006	-0.556				3.500	0.32		2.900	-0.59	
	Max	0.310	-0.004	-0.040				4.700	2.26		4.100	1.77	
	Range	-0.204	-0.002	-0.516				-1.200	-1.940		-1.200	-2.360	

Delta Nom	-77.14	-0.339	-90.31	-90.63	-90.89		-25.40	28.50		3.50	18.12
USL	77.55	0.354	90.25		83.25			32.20			21.20
Nom	77.30	0.334	90.00	-90.75	80.75		29.7	29.7		18.7	18.7
LSL	77.05	0.314	89.75		78.25			27.20			16.20
		Element	USL	93.21			34.60			23.92	
		Element	Nom	91.21			32.60			21.92	
		Element	LSL	79.21			30.60			19.92	

PSG-944 (REV. 11)

Tolerance Study WOT Electrical Readings "D" Slot Angle/Debris Cover Rad./Rotor Depth Angle

Link's Test Results Gr./Red	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Depth Inches	Rotor Angle Degrees	WOT 1 Element	WOT 1	WOT 1 Delta Element/ETC	WOT 2 Element	WOT 2 ETC	WOT 2 Delta Element/ETC	WOT 3 Element	WOT 3 ETC	WOT 3 Delta Element/ETC
[redacted]	1	77.411	0.330	0.380	69.464	0	11.18		0	[illegible]		[illegible]	71.52	
	2	77.500	0.328	0.380	69.656	0	11.14		0	[illegible]		[illegible]	71.38	
	3	77.410	0.329	0.379	69.702	0	12.01		0	[illegible]		[illegible]	70.81	
	4	77.491	0.328	0.380	69.508	0	11.41		0	[illegible]		[illegible]	72.07	
	5	77.430	0.330	0.379	69.444	0	12.13		0	[illegible]		[illegible]	70.58	
	6	77.501	0.328	0.380	69.663	0	11.84		0	[illegible]		[illegible]	71.12	
	7	77.421	0.329	0.379	69.671	0	12.65		0	[illegible]		[illegible]	70.12	
	8	77.441	0.329	0.380	69.730	0	13.24		0	[illegible]		[illegible]	70.79	
	9	77.442	0.329	0.379	69.681	0	11.79		0	[illegible]		[illegible]	72.21	
	10	[illegible]	0.328	0.379	69.960	0	10.28		0	[illegible]		[illegible]	72.73	
	11	[illegible]	0.329	0.381	69.960	0	11.12		0	[illegible]		[illegible]	72.38	
	Average	[illegible]	0.329	0.380	69.694	0	11.71		0	[illegible]		[illegible]	71.43	
	STD	[illegible]	0.000751	0.000674	0.176423	0	0.813908		[illegible]	0		[illegible]	0.833852	
	Min	[illegible]	0.328	0.379	69.444	0	10.28		0	[illegible]		[illegible]	70.12	
	Max	[illegible]	0.330	0.381	69.960	0	13.24		0	[illegible]		[illegible]	72.73	
	Range	[illegible]	-0.002	-0.002	-0.516	0	-2.960		0	[illegible]		[illegible]	-2.610	

WOT

Unit s Test Results Gr./Rad	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Angle Degrees	WOT 1 Element	WOT 1	WOT 1 Delta Element/ETC	WOT 2 Element	WOT 2 ETC	WOT 2 Delta Element/ETC	WOT 3 Element	WOT 3 ETC	WOT 3 Delta Element/ETC
	1	77.411	0.330	89.484	10.20	1		87.40		3.66	75.50	71.82	3.96
	2	77.500	0.328	89.656	9.80	1		87.80		4.36	76.00	71.38	4.62
	3	77.410	0.329	89.702	10.70	1		87.40		3.91	75.00	70.81	4.19
	4	77.461	0.328	89.504	9.90	1		86.00		3.73	75.00	72.07	3.93
	5	77.439	0.330	89.444	9.60	1		86.00		4.68	75.60	70.58	5.02
	6	77.501	0.328	89.563	10.20	1		87.70		4.18	76.40	71.12	4.28
	7	77.421	0.329	89.671	9.70	1		87.80		5.15	75.70	70.12	5.58
	8	77.441	0.329	89.790	11.60	1		87.30		3.91	74.80	70.79	4.11
	9	77.442	0.329	89.661	10.00	1		87.70		4.19	76.40	72.21	4.19
	10	77.406	0.328	89.360	10.00	1		87.90		3.25	75.60	72.73	3.17
	11	77.610	0.329	89.950	10.70	1		87.70		3.31	75.40	72.38	3.22
	Average	77.461	0.329	89.594	10.20	1		87.70		4.06	75.64	71.43	4.21
	STD	0.060868	0.000751	0.178423	0.600	0.813		0.241	0.		0.441	0.833852	
	Min	77.406	0.328	89.444	9.600	10.28		87.300			74.800	70.12	
	Max	77.610	0.330	89.950	11.600	13.24		88.000			76.400	72.73	
	Range	-0.204	-0.002	-0.516	-2.000	-2.960		-0.700			-1.600	-2.610	

Delta Nom	0.16	-0.005	-0.31	-2.90	-1.39		6.70	2.65		5.64	1.43	
USL	77.55	0.364	90.26		15.60			83.50			72.50	
Nom	77.30	0.334	90.00	13.10	13.10		81	81		70	70	
LSL	77.06	0.314	89.75		10.60			78.50			67.50	

Element	USL	13.69	87.05	79.21
Element	Nom	11.59	85.06	74.21
Element	LSL	9.59	83.05	72.21

WOT

Delta

Unit s Test Results Gr./Rad	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Angle Degrees	Pk #1 Element	Wot 1 ETC	Wot 1 Delta Element/ETC	Wot 2 Element	Wot 2 ETC	Wot 2 Delta Element/ETC	Pk #3 Element	Wot 3	Wot 3 Delta Element/ETC
	1	0.111	-0.004	-0.536	0			6.400					
	2	0.200	-0.006	-0.344	0			6.800					
	3	0.110	-0.005	-0.266	0			6.400					
	4	0.191	-0.006	-0.492	0			7.000					
	5	0.139	-0.004	-0.556	0			7.000					
	6	0.201	-0.006	-0.137	0			6.700					
	7	0.121	-0.005	-0.329	0			6.600					
	8	0.141	-0.006	-0.270	0			6.300					
	9	0.142	-0.006	-0.519	0			6.700					
	10	0.109	-0.006	-0.040	0			6.900					
	11	0.310	-0.005	-0.050	0			6.700					
	Average	0.161	-0.005	-0.308	0			6.70					
	STD	0.060666	0.000751	0.178423	0	0.8		0.241	0.8			0.8	
	Min	0.109	-0.006	-0.556	0			6.300					
	Max	0.310	-0.004	-0.040	0			7.000					
	Range	-0.264	-0.002	-0.516	0			-0.700					

Delta Nom	-77.14	-0.339	-90.31	-83.65	-82.14		-23.00	27.05		3.50	17.27	
USL	77.55	0.354	90.25		83.25			32.20			21.20	
Nom	77.30	0.334	90.00	80.75	80.75		28.7	28.7		18.7	18.7	
LSL	77.05	0.314	89.75		78.25			27.20			16.20	
		Element	USL	81.24			35.75			24.91		
		Element	Nom	79.24			33.75			22.91		
		Element	LSL	77.24			31.75			20.91		

"D" Slot angle		Delta To Nom.	Datum	Rotor Depth	Rotor Angle
1	77.314	0.014	0.3305	0.3780	89.760
2	77.308	0.008	0.3300	0.3780	89.840
3	77.329	0.029	0.3300	0.3780	89.870
4	77.324	0.024	0.3300	0.3785	89.830
5	77.321	0.021	0.3310	0.3775	89.880
6	77.326	0.026	0.3300	0.3780	89.750
7	77.309	0.009	0.3300	0.3780	89.830
8	77.323	0.023	0.3310	0.3780	89.880
9	77.349	0.049	0.3310	0.3775	89.940
10	77.308	0.008	0.3310	0.3780	89.810
Average	77.321	0.021	0.330	0.378	89.838
STD	0.012547	0.012547	0.000497	0.000284	0.059029

Element	CT 1	WOT 1	CT 2	WOT 2	CT 3	WOT 3
1	81.10	10.00	33.20	87.80	22.20	76.20
2	81.60	11.10	32.60	86.70	21.70	76.30
3	81.80	11.00	32.60	86.40	21.90	75.70
4	81.00	10.40	32.70	86.70	21.60	75.10
5	80.90	9.80	33.10	87.70	22.10	76.10
6	81.50	10.90	32.30	86.70	21.30	75.00
7	81.70	11.00	32.60	86.90	21.80	75.40
8	82.40	11.50	32.30	86.90	21.80	75.30
9	83.10	12.10	32.60	86.60	21.50	75.20
10	82.10	11.60	32.30	86.60	21.60	75.00
Average	81.71	10.94	32.60	86.90	22.20	75.43
STD	0.882	0.716	0.320	0.422	0.272	0.432
Min	80.900	9.800	32.300	86.400	21.300	75.000
Max	83.100	12.100	33.200	87.700	22.200	76.200
Range	-2.200	-2.300	-0.900	-1.300	-0.900	-1.200

ETC	CT 1	WOT 1	CT 2	WOT 2	CT 3	WOT 3
1	78.02	9.46	31.75	84.75	20.59	75.53
2	76.78	10.90	30.74	83.84	20.16	72.61
3	82.20	13.67	28.81	81.95	18.05	70.92
4	82.19	13.96	27.96	80.69	16.85	69.20
5	82.53	13.62	28.38	81.58	17.37	70.29
6	79.61	11.17	30.32	83.52	19.61	72.27
7	84.46	15.80	27.02	80.50	16.44	69.23
8	85.32	16.37	26.52	80.18	16.18	68.99
9	82.53	13.06	29.43	82.61	18.35	70.82
10	83.54	15.24	27.92	81.19	17.12	69.58
Average	81.92	13.40	28.88	82.02	19.07	70.93
STD	2.402248	2.225214	1.873505	1.569136	1.573346	2.035954
Min	78.02	9.46	26.52	80.18	16.18	68.99
Max	85.32	16.37	31.75	84.75	20.59	75.53
Range	-7.300	-6.910	-5.230	-4.570	-4.410	-6.540

Delta Ele-ETC						
	-0.21	-2.46	3.74	4.88	4.13	4.50

Tolerance Study Idle Electrical Reading "D" Slot Angle/Debris Cover Rad./Rotor Depth Angle

Unit # Test Results Gr./Red	Sample Number	"D" Slot angle Degrees	Debris Cover Rad. Inches	Rotor Depth Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3 ETC	CT 3 Delta Element/ETC
	1			0.378		51.10			0				20.69	1.61
	2			0.378		51.50			0				20.10	1.54
	3			0.378		51.60			0				16.05	3.85
	4			0.379		51.00			0				16.85	4.75
	5			0.378		50.90			0				17.37	4.73
	6			0.378		51.50			0				19.81	1.69
	7			0.378		51.70			0				16.44	5.36
	8			0.378		52.40			0				16.78	5.62
	9			0.378		53.10			0				18.35	3.15
	10			0.378		52.10			0				17.12	4.48
	Average			0.378		51.71			0				18.07	3.85
	STD	0.0	0.0	0.000284	0	0.852	2		0	1			1.573346	
	Min			0.378		50.900			0				16.78	
	Max			0.379		53.100			0				20.69	
	Range			-0.001		-2.200			0				-4.410	

Idle

Unit s Test Results Gr./Red	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
	1	77.314	0.3306	89.750	81.100	78.02	3.08	[illegible]	[illegible]	1.45	22.20	20.59	1.61
	2	77.308	0.3300	89.840	81.560	78.76	2.72	[illegible]	[illegible]	1.76	21.70	20.15	1.54
	3	77.326	0.3300	89.870	81.800	82.20	-0.40	[illegible]	[illegible]	3.69	21.90	18.05	3.85
	4	77.324	0.3300	89.630	81.000	82.19	-1.19	[illegible]	[illegible]	4.72	21.60	16.85	4.75
	5	77.321	0.3310	89.880	80.900	82.53	-1.63	[illegible]	[illegible]	4.77	22.10	17.37	4.73
	6	77.325	0.3300	89.750	81.500	79.61	1.89	[illegible]	[illegible]	1.68	21.30	19.61	1.69
	7	77.309	0.3300	89.830	81.700	84.48	-2.78	[illegible]	[illegible]	5.56	21.80	16.44	5.36
	8	77.325	0.3310	89.880	82.400	85.32	-2.92	[illegible]	[illegible]	5.78	21.80	16.18	5.62
	9	77.349	0.3310	89.940	83.100	82.53	0.57	[illegible]	[illegible]	3.07	21.60	18.36	3.15
	10	77.308	0.3310	89.810	82.100	83.54	-1.44	[illegible]	[illegible]	4.38	21.80	17.12	4.46
	Average	77.321	0.330	89.886	81.71	81.92	-0.21	[illegible]	[illegible]	3.74	22.20	18.07	3.66
	STD	0.012547	0.000497	0.059028	0.662	2.402248		[illegible]	[illegible]		0.272	1.573346	
	Min	77.308	0.330	89.750	80.900	78.02		[illegible]	[illegible]		21.300	16.18	
	Max	77.349	0.331	89.940	83.100	85.32		[illegible]	[illegible]		22.200	20.59	
	Range	-0.041	-0.001	-0.190	-2.200	-7.300		[illegible]	[illegible]		-0.900	-4.410	

Delta Nom	0.02	-0.004'	-0.16	0.96	1.17		2.90	0.64		3.50	0.63
USL	77.56	0.354	90.25		83.25			32.20			21.20
Nom	77.30	0.334	90.00	80.75	80.75		29.7	29.7		18.7	18.7
LSL	77.05	0.314	89.75		78.25			27.20			16.20
		Element	USL		82.54			35.44		24.38	
		Element	Nom		80.54			33.44		22.38	
		Element	LSL		78.54			31.44		20.38	

Unit a Test Results Gr.Rad	Sample Number	"p" Slot angle Degrees	Debris Idle Stop Rad. Inches	Roter Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
	1	77.314	0.3305	89.750	81.10	79.02		[illegible]0	[illegible]	1.45	22.20	20.59	1.61
	2	77.308	0.3300	89.840	81.50	79.78		[illegible]0	[illegible]	1.78	21.70	20.18	1.54
	3	77.329	0.3300	89.870	81.80	82.20		[illegible]0	[illegible]	3.86	21.90	18.05	3.85
	4	77.324	0.3300	89.830	81.00	82.19		[illegible]0	[illegible]	4.72	21.60	16.86	4.76
	5	77.321	0.3310	89.880	80.90	82.63		[illegible]0	[illegible]	4.77	22.10	17.37	4.73
	6	77.326	0.3300	89.750	81.50	79.81		[illegible]0	[illegible]2	1.98	21.30	19.51	1.69
	7	77.309	0.3300	89.830	81.70	84.48		[illegible]0	[illegible]2	5.58	21.80	16.44	5.36
	8	77.323	0.3310	89.880	82.40	85.32		[illegible]0	[illegible]	5.78	21.80	16.18	5.62
	9	77.349	0.3310	89.940	83.10	82.63		[illegible]0	[illegible]1	3.07	21.50	18.35	3.15
	10	[illegible]	0.3310	89.810	82.10	83.54		[illegible]0	[illegible]	4.39	21.60	17.12	4.48
	Average	[illegible]	0.330	89.836	81.710	81.71	0	[illegible]1	[illegible]	26.86	22.20	21.75	18.07
	STD	0.[illegible]	0.000487	0.056029	0.982295	0.982235		[illegible]1	0.3[illegible]22		1.569	0.271825	
	Min	[illegible]	0.330	89.750	80.900	80.90		[illegible]20	[illegible]1		1.450	21.30	
	Max	[illegible]50	0.331	89.940	83.100	83.10		[illegible]40	[illegible]2J		5.780	22.20	
	Range	[illegible]	-0.001	-0.190	-2.200	-2.200		[illegible]0	[illegible]		-4.330	-0.900	

Delta Nom	0.02	-0.004	-0.16	0.98	0.96		-29.91	-2.90		3.50	-3.05	
USL	77.55	0.354	90.25		83.25			32.20			21.20	
Nom	77.30	0.334	90.00	80.75	80.75		29.7	29.7		18.7	18.7	
LSL	77.05	0.314	89.75		78.25			27.20			16.20	
		Element	USL		154.87			60.58			38.77	
		Element	Nom		152.87			58.58			36.77	
		Element	LSL		150.87			56.58			34.77	

Delta

Unit s Test Results Gr./Rad	Sample Number	"D" Slot angle Degrees	Debris Idle Stop Rad. Inches	Rotor Angle Degrees	CT 1 Element	CT 1 ETC	CT 1 Delta Element/ETC	CT 2 Element	CT 2 ETC	CT 2 Delta Element/ETC	CT 3 Element	CT 3	CT 3 Delta Element/ETC
	1	0.014	-0.004	-0.250	0.350	-2.730	3.080	3.500		1.450			1
	2	0.008	-0.004	-0.160	0.750	-1.970	2.720	2.600		1.760			1
	3	0.029	-0.004	-0.130	1.060	1.460	-0.400	2.900		3.690			3
	4	0.024	-0.004	-0.170	0.250	1.440	-1.190	3.000		4.720			4
	5	0.021	-0.003	-0.120	0.150	1.780	-1.630	3.400		4.770			4
	6	0.026	-0.004	-0.250	0.750	-1.140	1.890	2.500		1.960			1
	7	0.009	-0.004	-0.170	0.950	3.710	-2.760	2.900		5.580			5
	8	0.023	-0.003	-0.120	1.850	4.570	-2.820	2.600		5.780			5
	9	0.049	-0.003	-0.060	2.350	1.780	0.570	2.800		3.070			3
	10	0.006	-0.003	-0.190	1.350	2.790	-1.440	2.600		4.380			4
	Average	0.021	-0.004	-0.162	0.960	0.96	1.17	-0.21		-0.64			
	STD	0.012547	0.000497	0.059029	0.662235	0.662236		2.161	0.3			0.	
	Min	0.008	-0.004	-0.250	0.150	0.15		-2.920					
	Max	0.049	-0.003	-0.060	2.350	2.35		3.000					
	Range	-0.041	-0.001	-0.190	-2.200	-2.200		-6.000					

Delta Nom	-77.25	-0.336	-90.16	-79.79	-79.79		-29.91	25.80		3.50	15.65
USL	77.55	0.354	90.25		83.25			32.20			21.20
Nom	77.30	0.334	90.00	80.75	80.75		29.7	29.7		18.7	18.7
LSL	77.05	0.314	89.75		76.25			27.20			16.20
		Element	USL	83.92			30.66			20.07	
		Element	Nom	81.92			28.66			18.07	
		Element	LSL	79.92			26.66			16.07	