

**PE03-044**  
**FORD**  
**5/13/2005**  
**APPENDIX I**  
**BOOK 17 OF 28**  
**PART 1 OF 4**

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**From:** Evangelista, Elio - Troy [eevangelist@TFXAuto.com]  
**Sent:** Monday, July 09, 2001 1:21 PM  
**To:** Carr, Doug - Van Wert; Foreman, Mike - Kendallville; Braniff, Greg - Troy; Teller, Bill - Troy; Lisa Petrukas (E-mail); Tomasz Skowinski (E-mail); Douglas Veit (E-mail); Bill Gesler (E-mail)  
**Cc:** Wright, Tim - Kendallville; Da Silva, Carlos - Troy; Beth (Elizabeth) L. Vojtisek (E-mail)  
**Subject:** open issues - U137 program - Adjustable Pedals

<<U137\_2002\_Open\_Issue.doc>>

***Elio Evangelista  
Program Manager - Pedal Systems  
Teleflex Automotive Group***

11/18/2003

PE83-844 22772

## U137 PROGRAM - OPEN ISSUES

**Program:** U137/P131

**Description:** Brake, Accel & ETC Adjustable Pedals

**Program Manager:** Elio Evangelista

**Ford STA:** Doug Veit / Bill Gesler

**P/N:** 2C34 2450 EB (026T-G0128); 2C34 2450FB (026T-G0129); 2C34 9F836 CB (026T-G0133); 2C34 9726 CC (026T-G0132);  
2C34 9G662 AB (026T-G0142); 2C34 9G662 BC (026T-G0143) 2C34 9726 EA (026T-G0166)

**Ford Engineer:** Lisa Petruskas

**TFX Engineer:** Greg Brniff

**Account Manger:** Conrad Niester

**Quality Engineer:** Ben Franklin

Issue #	Description	Date Opened	Responsible	Update / Status	Date Due	Date Closed
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	PPAP Promise Data	6/6/01	B. Franklin/ E. Evangelista	2C34 2450 EB - Adjustable Brake Assy - Gas 2C34 2450 FB - Adjustable Brake Assy - Diesel 2C34 9F836 CB - Adjustable Accelerator Assy - Diesel (ETC) 2C34 9726 CC - Adjustable Accelerator Assy - Gas (5.4 L) 2C34 9G662 AB - Motor Assy - Adjustable Pedals - Non Memory 2C34 9G662 BC - Motor Assy - Adjustable Pedals - Memory - <i>Ref Concern C11237999, Alert A11237993</i> 2C34 9726 EA - Adjustable Accelerator Assy - Gas (6.8 L) - <i>Ref Concern C11237702</i>	7/2/01 7/2/01 7/2/01 7/2/01 7/12/01 8/20/01	
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## U137 PROGRAM - OPEN ISSUES

**Program:** U137/P131

**Description:** Brake, Accel & ETC Adjustable Pedals

**Program Manager:** Elio Evangelista

**Ford STA:** Doug Veit / Bill Gesler

**P/N:** 2C34 2450 EB (026T-G0128); 2C34 2450FB (026T-G0129); 2C34 9F836 CB (026T-G0133); 2C34 9726 CC (026T-G0132);  
2C34 9G662 AB (026T-G0142); 2C34 9G662 BC (026T-G0143) 2C34 9726 EA (026T-G0166)

**Ford Engineer:** Lisa Petrauskas

**TFX Engineer:** Greg Braniff

**Account Manger:** Conrad Niester

**Quality Engineer:** Ben Franklin

Issue #	Description	Date Opened	Responsible	Update / Status	Date Due	Date Closed
10	Adjustable Pedal - Accel Gas (026T-G0132) Ford P/N 2C34 9726 CC Ref Concern C11232702	5/31/01	M. Foreman	Add error proofing device to line that ensures the correct spring is in assembly (Gas vs. ETC). Pedal arm should "fall" forward under own weight.	8/12/01	
12	Adjustable Pedal - Accel Gas (026T-G0166) Ford P/N 2C34 9726 EA Ref Concern C11232702	5/31/01	G. Braniff  L. Petrauskas  L. Petrauskas	Pedal life cycle test to ensure spring life - PV testing. <i>Parts rec'd for testing start 6/4/01. Testing complete, switching spring to new version, new spring required.</i> FMVSS testing at Ford (FMVSS 124). <i>Per meeting 6/5/01, testing to start at room temp first, cold testing scheduled for Friday 6/8/01. Testing based on 7" spring design did not pass.</i> New FMVSS testing with changed springs to pedal and throttle body.	6/11/01  6/5/01  6/14/01	6/11/01  6/8/01  6/29/01

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PERS-044 2277A

## U137 PROGRAM - OPEN ISSUES

**Program:** U137/P131

**Description:** Brake, Accel & ETC Adjustable Pedals

**Program Manager:** Elio Evangelista

**Ford STA:** Doug Veit / Bill Gealer

**P/N:** 2C34 2450 EB (026T-G0128); 2C34 2450FB (026T-G0129); 2C34 9F836 CB (026T-G0133); 2C34 9726 CC (026T-G0132);  
2C34 9G662 AB (026T-G0142); 2C34 9G662 BC (026T-G0143) 2C34 9726 EA (026T-G0166)

**Ford Engineer:** Lisa Petrauskas

**TFX Engineer:** Greg Braniff

**Account Manger:** Conrad Niester

**Quality Engineer:** Ben Franklin

Issue #	Description	Date Opened	Responsible	Update / Status	Date Due	Date Closed
			G. Braniff	Testing complete and passed FMVSS. Drive evaluation at RTP 6/29/01 approved pedal feel. Pedal life cycle test to ensure spring life - PV testing.	8/13/01	
13	Adjustable Pedals - ALL	5/31/01	G. Braniff	1) PV testing - Parts built for FUE build - Ref DVP&R. 1 of 6 accel cables did not pass PV testing. Cable replaced and testing continued. Full completion of current testing 6/7/01. Testing complete 2) PV testing - New spring for APS - Testing for spring life only. (Used an Accelerator Assembly 2C34 9726CC) - 3) PV testing - Repeat Life Cycle for new cable length. (Used on Memory motor assembly 2C34 9G662 BC). Parts tested must be off run@rate Testing complete - See DVP&R 4) Accelerator Assembly for 4.8 L - Ford P/N 2C34 9726 EA (026T-G0166) - Ref Concern C11232703 - PV testing on new spring to ensure spring life.	6/4/01 6/11/01 7/10/01 8/13/01	6/11/01 6/11/01 7/09/01

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PER3-644 2270

## U137 PROGRAM - OPEN ISSUES

Program: U137/P131

Description: Brake, Accel & ETC Adjustable Pedals

Program Manager: Elio Evangelista

Ford STA: Doug Veit / Bill Gesler

P/N: 2C34 2450 EB (026T-G0128); 2C34 2450FB (026T-G0129); 2C34 9F836 CB (026T-G0133); 2C34 9726 CC (026T-G0132);  
2C34 9G662 AB (026T-G0142); 2C34 9G662 BC (026T-G0143) 2C34 9726 EA (026T-G0166)

Ford Engineer: Lisa Petranskas

TFX Engineer: Greg Braniff

Account Manager: Conrad Niester

Quality Engineer: Ben Franklin

Issue #	Description	Date Opened	Responsible	Update / Status	Date Due	Date Closed
15	Run@Rate - Motor Ford P/N 2C34 9G662 AB  2C34 9G662 BC Concern # 11237959, Alert A11237993	6/1/01	B. Franklin/M. Foreman	Scheduled 6/6/01. (Used on Accelerator Assembly 2C34 9726CC) Date changed to 6/5/01. Run@rate complete - Avg. 84 parts/hour (target 40 parts/hr) Date changed to 7/11/01 (based on cable issue & PV testing)	6/6/01  7/11/01	6/5/01
17	Accel Cable - Memory Motor Concern # 11237959, Alert A11237993	6/1/01	G. Braniff J. Mango J. Mango  B. Franklin	Did not pass PV testing. Returning to 1PP design. Lengths 4mm for IB build. (Used on Memory Motor Assembly 2C34 9G662 BC). Parts are to be off production equipment. - Need Alert to retrofit parts at KTP. Alert # A11237993 - Retrofit parts at KTP. Initial batch of cables received, - Tryout at KTP to ensure no build issues. 1/B complete no reported issues. - Memory Motor PPAP - PPAP will include testing	6/4/01 6/8/01 6/8/01  7/12/01	6/4/01 6/8/01 6/8/01
18	Motor Noise	6/4/01	G. Braniff, R. Mandruff	Conduct DOB # 3 Mandruff to provide in-vehicle data of audit cars by	6/15/01	
20	Rattle/Lash concerns Concern C11231780	6/4/01	G. Braniff	1) Changes to following components to improve rattle and lash. - Revised bushing (thicker) & - Guide rod slot width and DD	6/12/01	6/29/01

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PMS-044 22778

## U137 PROGRAM - OPEN ISSUES

Program: U137/P131

Description: Brake, Accel & ETC Adjustable Pedals

Program Manager: Elio Evangelista

Ford STA: Doug Velt / Bill Gealer

P/N: 2C34 2450 EB (026T-G0128); 2C34 2450FB (026T-G0129); 2C34 9F836 CB (026T-G0133); 2C34 9726 CC (026T-G0132);

2C34 9G662 AB (026T-G0142); 2C34 9G662 BC (026T-G0143) 2C34 9726 EA (026T-G0166)

Ford Engineer: Lisa Petrauskas

TFX Engineer: Greg Braniff

Account Manger: Conrad Niester

Quality Engineer: Ben Franklin

Issue #	Description	Date Opened	Responsible	Update / Status	Date Due	Date Closed
			E. Evangelista	<i>Tryouts conducted at KTP. Noted improvements. See data provided from Jack Margo.</i> 2) Provide data to Ford on latest changes (bushing, slot width) to determine difference in "#3" part that did not perform as well on rattle 3) Verify that difference is in pivot on "#3" parts and replace pivot with new pivot built off revised orbital form operation. 4) "Wear-Out" test pedal cycling per ES YL 14-2450 AA, section 2. <i>Testing complete, parts being measured for lash.</i> 5) Post "Wear-Out" test Lash per ES YL14-2450-AA, section 3. 6) Vibration test per ES YL14-2450-AA, section 14 @ 12+- 3 Hz 7) In vehicle evaluation on "Worn-Out" parts (item 20-4) 4-poster evaluation on "Worn-Out" parts (item 20-4)	7/10/01	
					7/11/01	
					7/3/01	7/5/01
					7/10/01	
					TBD	
					7/13/01	
					7/13/01	
21	Tang length issue	7/9/01	G. Braniff M. Foreman	Fall out at welders on drive tang length. <i>Added 100% check at welders to ensure that parts not used, concern on amount of fallout and permanent fix</i>	TBD	
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23						
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PEB3-844 22777

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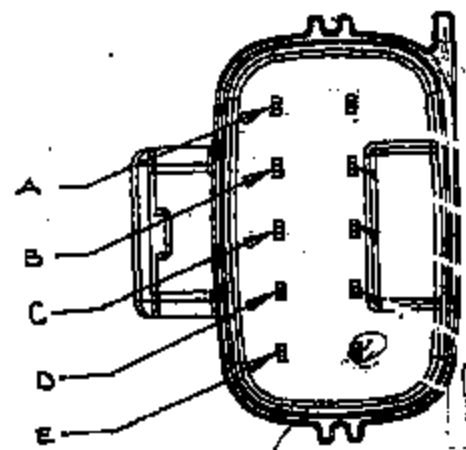
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 Page 5 of 5

FORM NO. 1000 (4-77)

NEW:  
DON  
SALRAPA

FROM  
S.I.  
ENGLAND

ES/23/99



(84) VIEW IN DIRECTION OF ARROW A  
2X SCALE

A	B	C	D	E
APP (+)	APP (-)	APP (OUTPUT)	SWITCH	SWITCH

① DON THIS IS THE PIN OUT AWEAR  
I WOULD LIKE TO USE FOR  
THE -13.7 -

②

ACCW:  
PETER  
HUANG

313-317-2399

10/08/99 16:34 FBI 248 616 3310

TELETYPE AUTOMATIC

ELEC

JAN 616 3810

PER-044 12412


6001



Continued Sub-Systems

- 1011 WHEEL\_DEFINITION
- 1012 WHEEL\_LOADS
- 1013 CHASSIS\_SYSTEM
- 1014 POWER\_DISTRIBUTION
- 1015 STEERING\_SYSTEM
- 1016 PHL1.CLA.L.SL
- 1017 PHL1.SL
- 1018 ADRS\_PARKING
- 1019 MAX\_SLEEP\_SWITCH
- 1020 WHEEL\_SLEEP\_SWITCHES
- 1021 ANTS-LOCK\_SWITCH
- 1022 WIND\_PUMP\_PUMP AND AIR
- 1023 AIR\_BELL
- 1024 AIR\_CONDITIONING/HEATER
- 1025 AIRSIDE\_SWITCHES/VALVES
- 1026 ENGINEING\_CHASSIS
- 1027 VEHICLE\_FRAME AND AX
- 1028 INSTRUMENT\_ILLUMINATION
- 1029 EXHAUST\_PIPE/EXHAUST AND AIR
- 1030 HEADLAMP/BATTERY\_BURNING\_LAMP
- 1031 PARKING LAMP AND AIR
- 1032 TURN/STOP/BRAKING\_LAMP
- 1033 REFLECTOR\_LAMP
- 1034 REAR\_LAMP

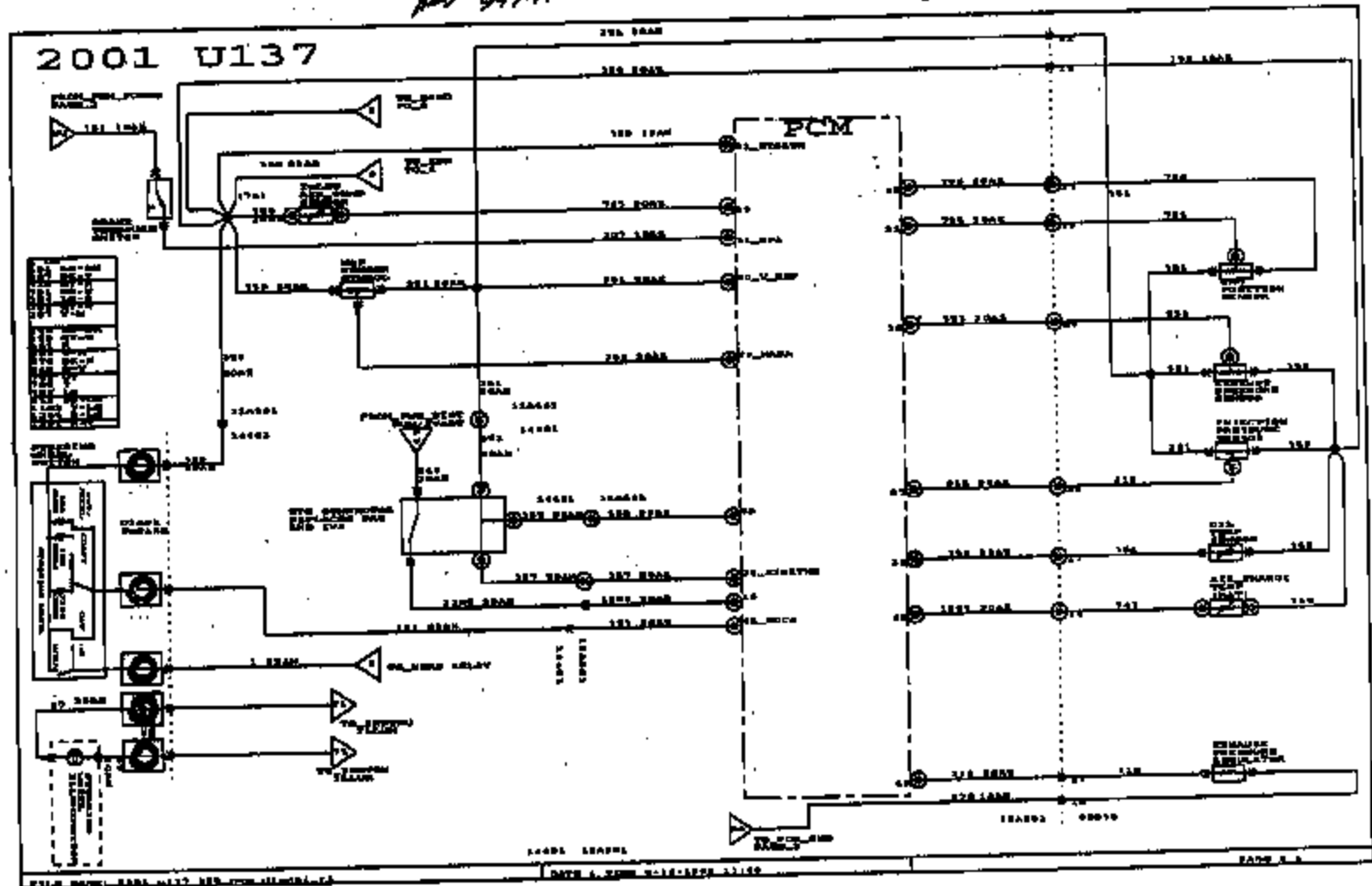
- 1011 WHEEL\_DEFINITION
- 1012 WHEEL\_LOADS
- 1013 CHASSIS\_SYSTEM
- 1014 POWER\_DISTRIBUTION
- 1015 STEERING\_SYSTEM
- 1016 PHL1.CLA.L.SL
- 1017 PHL1.SL
- 1018 ADRS\_PARKING
- 1019 MAX\_SLEEP\_SWITCH
- 1020 WHEEL\_SLEEP\_SWITCHES
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- 1034 REAR\_LAMP

DATE	ISSUE NUMBER & DESCRIPTION
01/07/92	INIT PRINT SERVER UPDATED
04/10/92	ADDENDUM BEAM SYSTEM TO 7.3L BESS
05/22/92	ADD FRONT WHEELS UPDATE
07/15/92	IMPLEMENTATION OF GAS SERVICE
10/06/92	RELEASE OF NEW WHEELS
02/28/93	RELEASE NEW PUMP MONITORING SYSTEM
02/22/93	NEW MONITORING RELEASES FAC AND EYE
 <b>APL - Automotive Systems Engineering</b>	
Subsystem	IS PER WHEEL
File Name	ISL1.M11.001_per_wheel.vt
Engineer	SANDY HENSLER
Phone #	240-5123
Release Date	8-10-1992 15:04
Comments	

FEB-04 12413

*N. RANMAD 9/17/99*  
9-17-99

*Jim LWS 9-17-99*



PER-044 12414

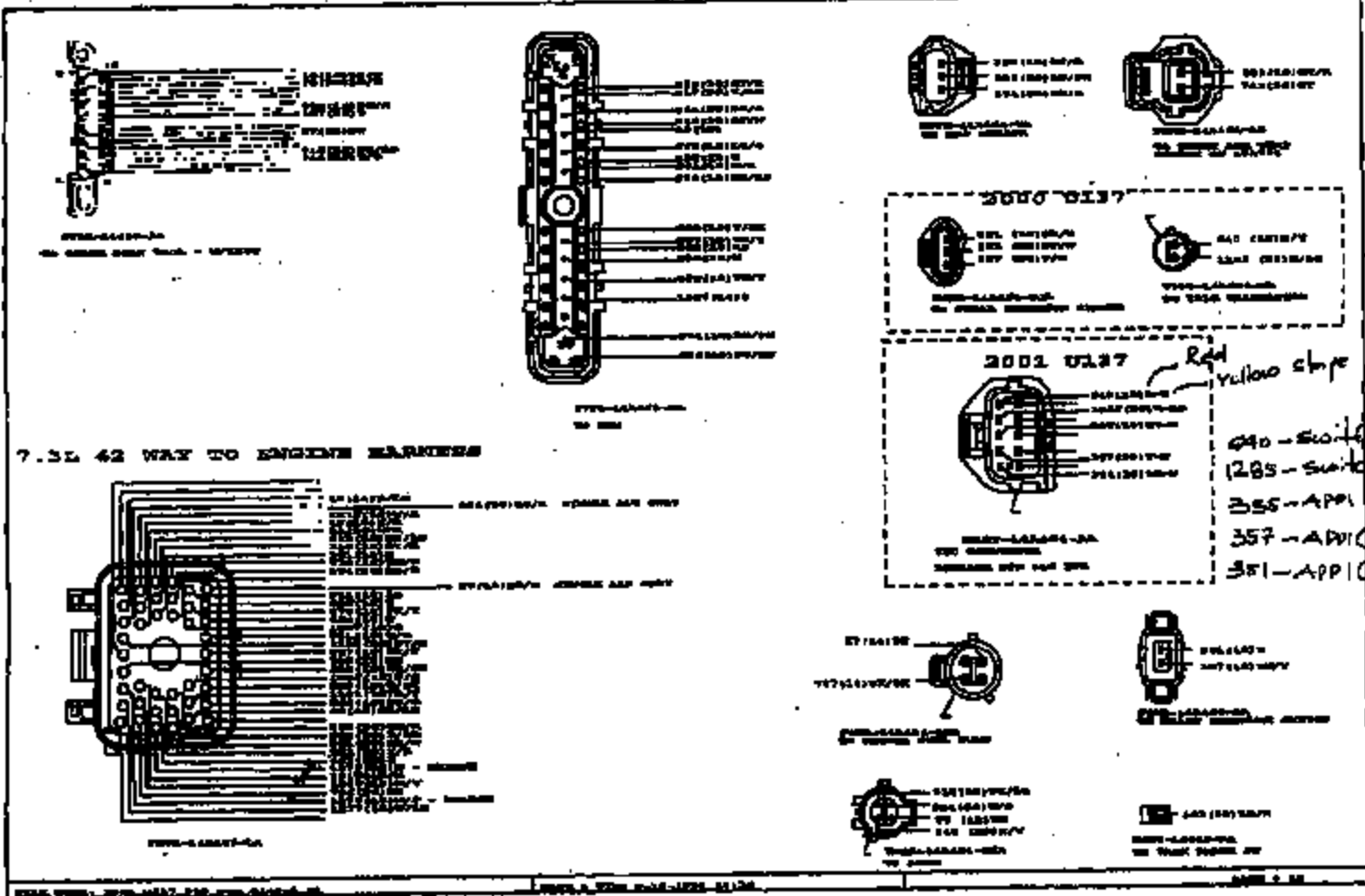


70: P1100 Jarak  
 fax 21-6163810  
 phone 248-877-3245

N. RAHMAN 9/11/99

AcCen Kaku  
 OK 9/16/99

P1100 P.1/2



08/10/98 THU 14:07 JTB/BJ NO 7781


P1100-04 12915

**Connected Sub-systems**

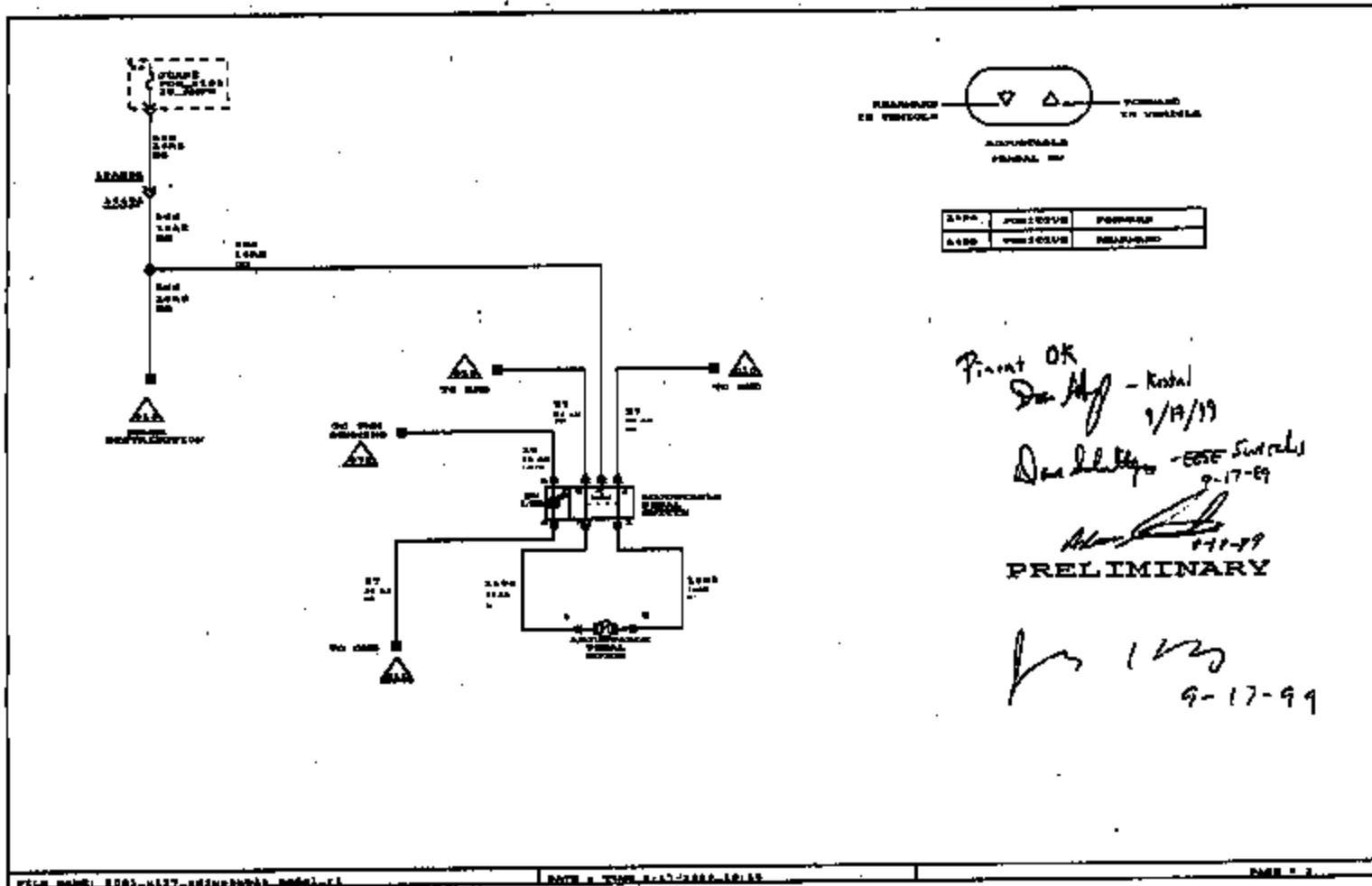
- |  |                                |
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| ▲100 WHEEL_LOAD_MEASUREMENT                    | ▲100 VALVE/SHUTTER_ADAPTER     |
| ▲101 FUEL_PRESSURE                             | ▲101 POWER_WINDOW              |
| ▲102 SHIFTER_POSITION                          | ▲102 OVERHEAD_CONSOLE          |
| ▲103 POWER_TRANSMISSION                        | ▲103 POWER_DOOR_LOCKS          |
| ▲104 POWER_MIRROR                              | ▲104 IGNITION_INTERRUPT_SWITCH |
| ▲105 WIPER_FLUSH_MOTOR                         | ▲105 POWER_SEATS               |
| ▲106 FUEL_COIL_A_B_C                           | ▲106 POWER_MIRRORS             |
| ▲107 FUEL_A                                    | ▲107 PARK                      |
| ▲108 FUEL_B                                    | ▲108 REVERSE_PARK_LED          |
| ▲109 AIR_FILTER                                |                                |
| ▲110 AIR_INJECT_CONTROL                        |                                |
| ▲111 ENGINE_MIL/FAULT_INDICATOR                |                                |
| ▲112 APPS_LOCK_RELEASE                         |                                |
| ▲113 STEERING_WHEEL/POWER_WINDOW               |                                |
| ▲114 AIR_GAGE                                  |                                |
| ▲115 AIR_CONDITIONING_HEATER                   |                                |
| ▲116 IGNITION_INTERRUPT_SWITCH                 |                                |
| ▲117 TRANSMISSION_SELECTOR                     |                                |
| ▲118 VEHICLE_SPEED                             |                                |
| ▲119 TRANSMISSION_ILUMINATION                  |                                |
| ▲120 TRANSMISSION_SELECTOR                     |                                |
| ▲121 TRANSMISSION_SELECTOR_SWITCH/POWER_WINDOW |                                |
| ▲122 POWER_WINDOW                              |                                |
| ▲123 TURN/STEER/PAUSE/PAUSE                    |                                |
| ▲124 REVERSE_LIGHTS                            |                                |
| ▲125 PARKING_LIGHTS                            |                                |

PRELIMINARY

NOTE:  
 \*More Detail Information  
 \*Refer also to description per Peter DUMAS

ISSUED	ISSUE NUMBER & DESCRIPTION
01/01/98	PRELIMINARY RELEASE
 <b>AFL - Automotive Systems Engineering</b>	
Subsystem	SEE ATTACHABLE PERAL
File Name	ISSUE_017_0200000000_0001_01
Engineer	RANDY HEDLEY
Phone #	340-5123
Access Chg	8-17-1999_00.18
Comments	

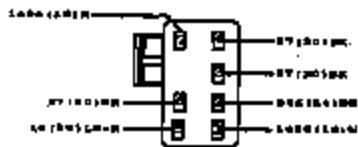
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ADD	FORWARD	REARWARD

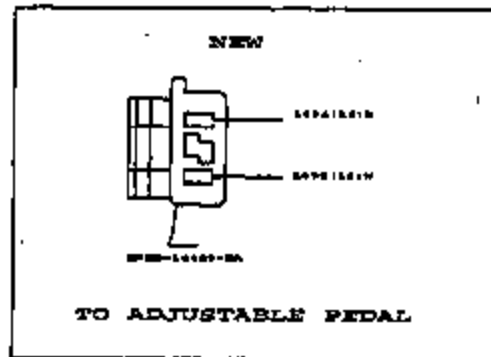
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F003-044 12417



7710-2700-00  
 TO ADJUSTABLE PEDAL BY  
 (100V-200V)

PRELIMINARY



Print of  
 - Kuhl  
 9/17/99  
 Dan Schmitt - test/awards  
 9/17/99

Handwritten signature and text:  
 2001-0111-0117 circuit part

Handwritten signature and date:  
 9-17-99


PE83-844 12418

**Standard Sub-System**

- ▲10 ENGINE\_LIGHTSWITCH
- ▲11 FUEL\_LIGHTSWITCH
- ▲12 CHASSIS\_SWITCH
- ▲13 POWER\_DISTRIBUTION
- ▲14 STARTING\_SYSTEM
- ▲15 ENGINE\_CLOCK\_WATCH\_DOG (not)
- ▲16 FUEL\_SELECTOR\_SWITCH
- ▲17 FUEL\_SELECTOR\_SWITCH
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- ▲199 FUEL\_SELECTOR\_SWITCH
- ▲200 FUEL\_SELECTOR\_SWITCH

● odd variables  
 all parenthesized sub-variables  
 are always initialized

DATE	ISSUE NUMBER & DESCRIPTION
01/20/98	INITIAL ISSU BY NEDLEK INITIAL ISSUE FOR MONITORING SYSTEM FROM EPC INTO EEC
02/18/98	SPC CORRECTION USED FOR ADJUSTABLE SEATBELT REPLACEMENT FROM EPC, SEVEN AND 10K VOLKSWAGEN MERCE
03/23/98	REVISIONS BY ESSENTIAL PERMIT
 <b>AFL - Automotive                  Systems Engineering</b>	
Subsys can	IF PDL VIEW
File Name	0000_pdl_000.pwr_000001_01
Engineer	SANDY NEDLEK
Phone #	240-5131
Issued Date	2-18-1998 10:00
Comment	
Page	

PDR-044 12/19



*Handwritten signature*  
9-17-99

D. RAYMOND 911199

Jan 11 3 9-17-99

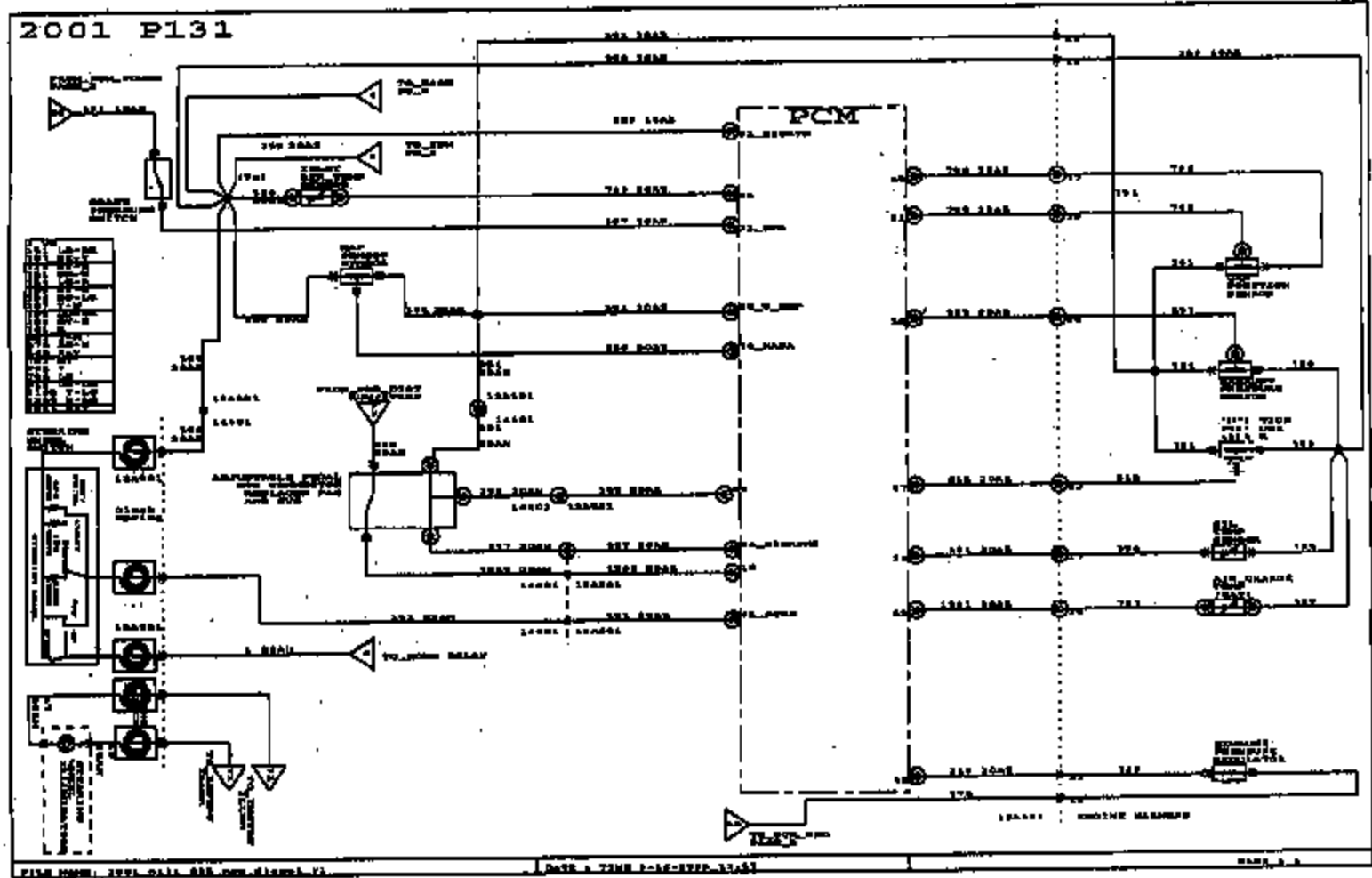


FIG 90-044 12A20





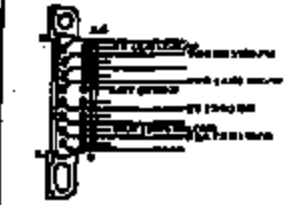
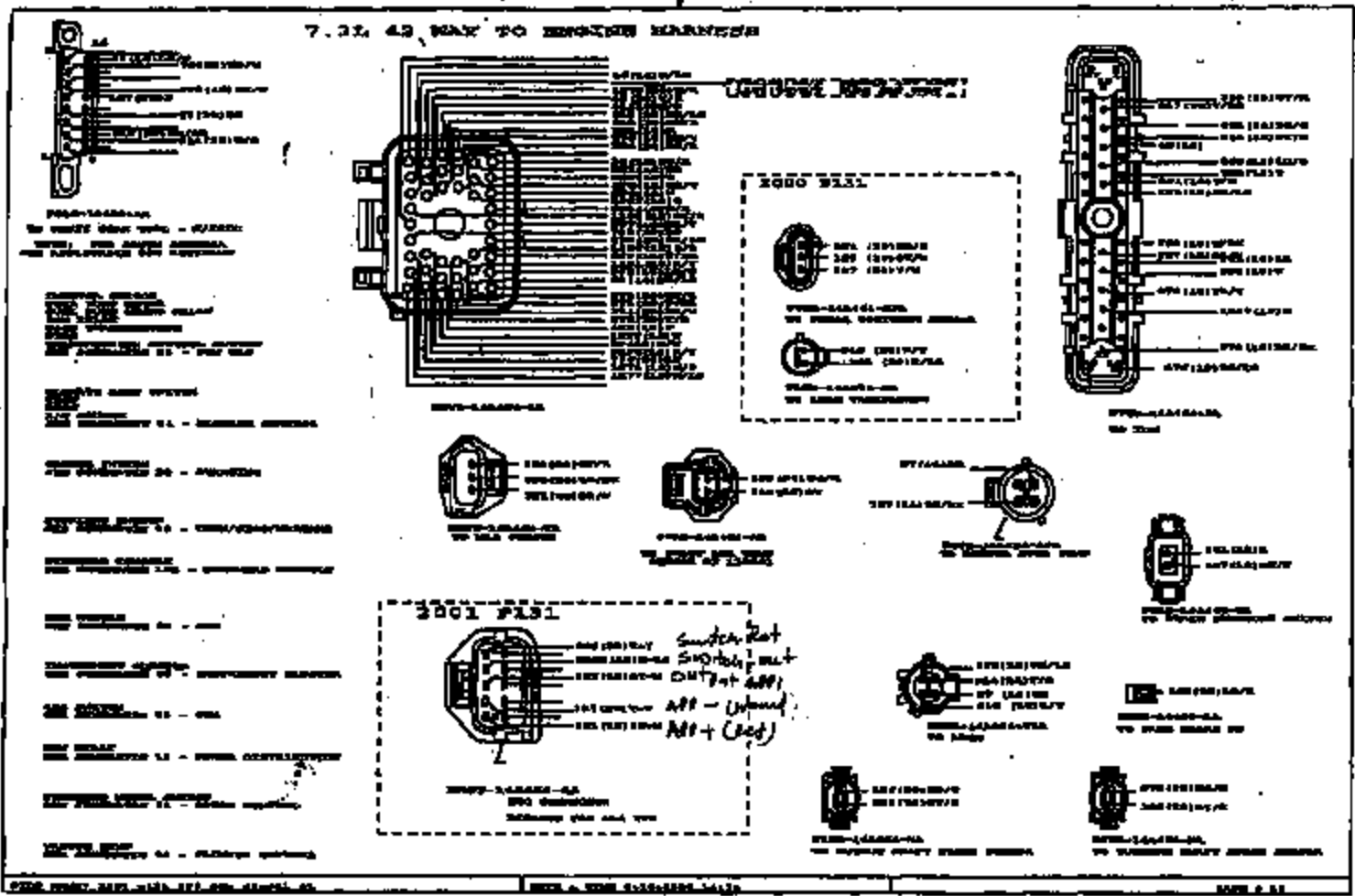
N. RAYMOND 411199 *ALC/SA*  
FOR INFO

*Jan 173*  
9-12-99

OK

9/16/99

NU-474 P.2/2



3000-1444-01  
TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

3000-1444-01  
TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

3000-1444-01  
TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

3000-1444-01  
TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

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TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

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TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

3000-1444-01  
TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

3000-1444-01  
TO BROTHER HARNESS - 4/19/50  
TYPE: FOR BROTHER HARNESS  
NO. 1444-01-01

08/16/99 THU 14:57 JTE/SX NO 77611

FIGS-044 12421

Ste  
fax 848 616 3810

From: Max/Stave  
TO: Sandy  
1 page  
313-317-2349

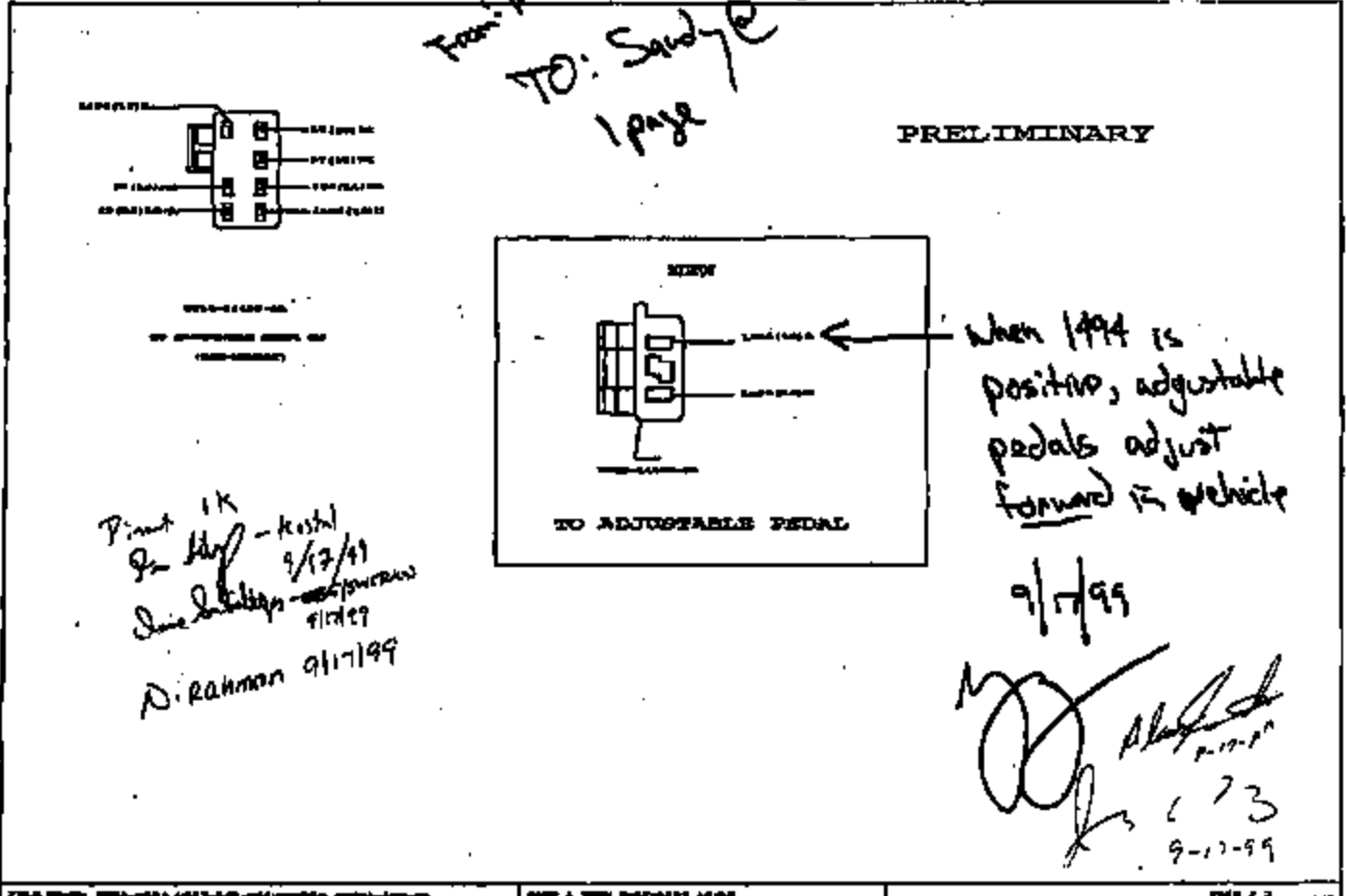
SEP 17 1999 11:13  
NO. 493 P. 1/1

SEP 17 1999 05:56  
248 616 3818

FEB 9 04 12422

08/17/99 11:11 FAX 218 618 2810  
[8082 ON EN/II] 09:01 INK 08/11/99  
TELELEX AUTOMATIC

8091

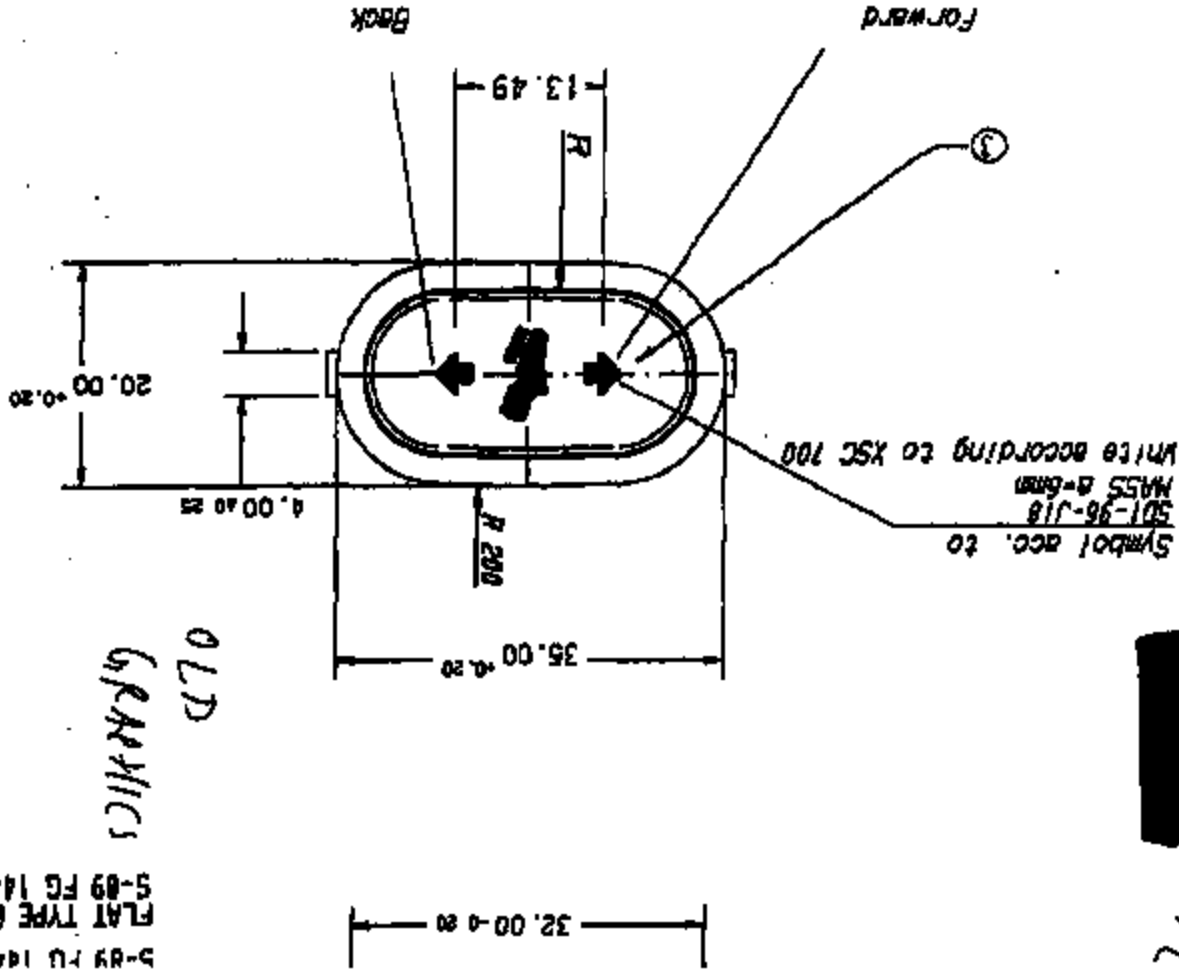


When 1494 is positive, adjustable pedals adjust forward in vehicle

9/17/99

*[Handwritten signature]*  
9-17-99

Peter Huang from Ford signed last



OLD  
GRAPHICS

5-89 PU 18421 UHM  
PLAT TYPE PLUG TO  
5-89 FG 14421 GAA

\*\* TOTAL PAGE.002 \*\*

PROB-044 12023



2/2



SEP 24 '99 7:58 FR

I 313 323 2929 TO 72349

P.01/02

SEP-21-99 TUE 04:17 PM

FAX NO.

P. 01

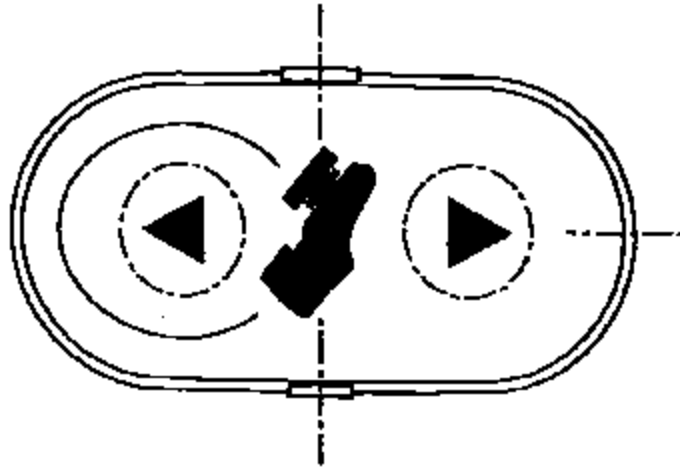
1/2

ATTN: Peter Huang

x72349

7871	99-21-17
313-323-2929	240-471-0888

AX SIZE  
TO BE USED AS TEMPLATE ONLY



NEW GRAPHICS

U152 Pedal Adjust Switch.

SEP 21 '99 13:17

PAGE.001

PE83-044 12424

C11002032

P131/U137 Containment-Plan

FRW Contained? Yes  No  Advance PC? Yes  No  PMT

Device Number:                       
SUN Project:                       
FOR History:                       
Notes:  May NOT be used  May be used (see PA)  Issues for Change  Proprietary

Country:                       
Change number:                       
                      
                    

Country	Change	Part No.	Part Name	Part Desc	Part Qty	Part Unit	Part Price	Part Status

Part No.	Part Name	Part Desc	Part Qty	Part Unit	Part Price	Part Status

Change Operation:  
 F04 VCA  Mod A.A.  B133  
Change Minutes:                       
 A1  C1  D1  
 F01  G1  H1

Picture of change (do not remove until all 4 sides of box are used)

Attach picture of change

Additional Remarks:  
                      
                      
                    

CD SERIAL NUMBER                       
TO:                       
FROM:                       
DATE:                       
TIME:                     

44 TOTAL PAGE(S) \*\*  
PENS-849 12425

Copyright © 1998  
All Rights Reserved  
P131/U137 Containment-Plan

OCT 7 09 13:47 FR  
1 018 020 2032 TO 72349  
P. 01/91

4400 0000  
Date Printed:

**Advanced Product Quality Planning  
Status Report**

Date: 2/1/98

Revision No.: 2

Diamond Point

Supplier	Teleflex, Inc
Location	Holland, MI
Supplier Code	TBD
Risk Assessment	Low
New:	Size <input type="checkbox"/> Technology <input type="checkbox"/> Process <input type="checkbox"/>
Other Risks	

Program	U137 Excursion
Model Year	2001
Part Number	TBD
Part Name	Brake/Accel Pedal Assy - Adj
Notice Level	
User Plant(s)	Kentucky Truck Plant

Team Members	Company/Title	Phone/Fax
Tim Tjiba	Teleflex - Application Engineer	(248) 616-5113/3910
Felix Adler	Teleflex - App. Engineering Mgr	(248) 616-4196/3916
Doug Wheeler	Teleflex-Design Eng. Mgr	(248) 616-5122/3910
Bill Mohler	Ford - Buyer	(313) 845-4927 (313) 244-4487
Linda Brown	Teleflex-Holland QA Mgr.	(317) 489-1841 x238/1910
Rich Corleo	Teleflex-Mfg. Engineer	(317) 489-1641 / 1810
Dave Knapenwold	Teleflex - Account Manager	(248) 616-3122 / 2610
Marty Spangis	Teleflex - Purchasing	(313) 755-4256 / 4600
John Cheng	Teleflex - Test Engineering	(313) 755-4688 / 4800

Build Level	Material Required Date	Quantity	Completed		P.L.T. %	P.P.C. %
			No. SCs	No. CCs		
CP	10/24/01	TBD				
PSW	4/30/02	300 Mts				
TPP	3/31/02	TBD				
PSI	TBD	TBD				
Complete	TBD	TBD				
Integrated	TBD	TBD				
Job 1	2/20/02	TBD				

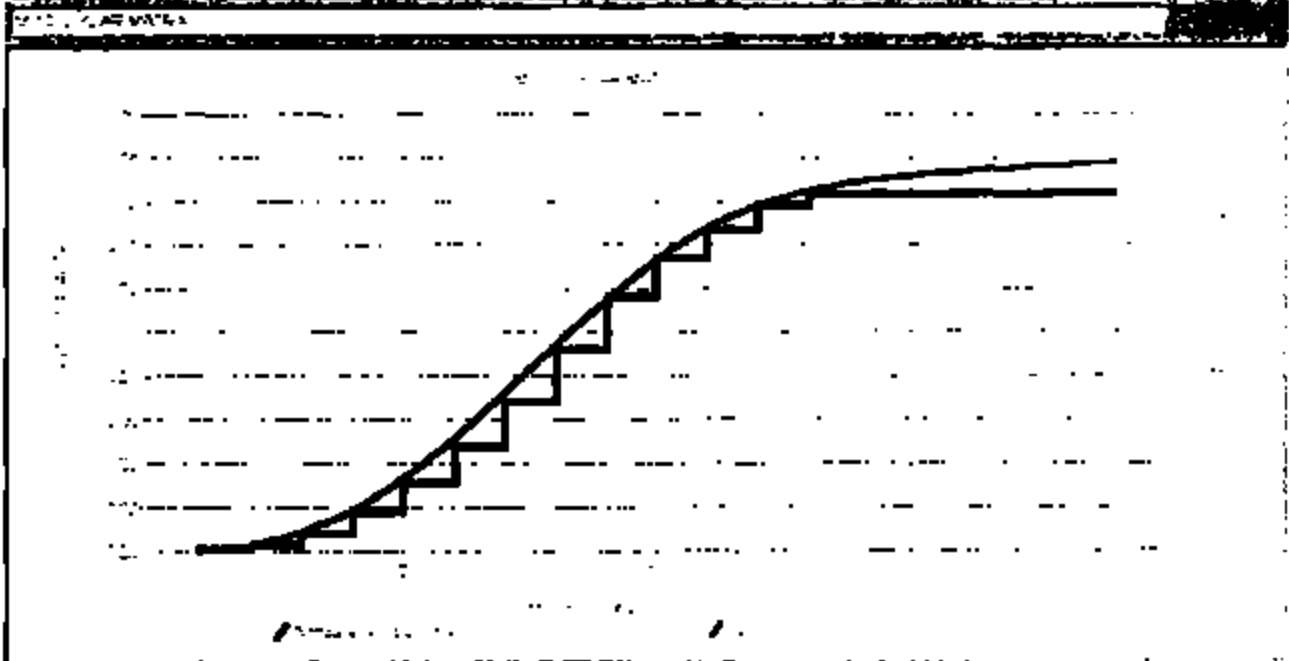
APOP Milestone	QTY Status	Forecast Rating	Program Start Date	Supplier Time Date	Closed Date	Resp. Engineer Initials	Remarks or Action Items Required
1) Source Decision	S			3/19/98		BB	
2) Customer Input Requirements	S			3/25/98		FW	
3) Design FMEA	S			4/1/98		DW	Preliminary
4) Design Refinement	S		Ongoing	Ongoing			
5) Detail Verification Plan	S			4/1/98		DW	Preliminary
6) Subcontract APOP Status	S		Ongoing	Ongoing		BB	Check against Suppliers
7) Facilities, Tools and Gages	S			4/20/98		RC	Start Actions By 2/1/98
8) Prototype Build Control Plan	S			5/19/98		JG	
9) Prototype Build - MFD	S			5/22/98		RC	
10) Reviews and Approvals	S			5/22/98		TJRW	
11) Test Feasibility Commitment	S			5/26/98		TJRW	
12) Manufacturing Process Flow Chart	S			6/5/98		RC	
13) Process FMEA	S			7/20/98		RC	Preliminary
14) Measurement System Evaluation	S			8/11/98		RC	
15) Preliminary Control Plan	S			8/26/98		RC/LB	
16) Operator Process Instructions	S			8/26/98		RC	
17) Packaging Specifications	S			10/2/98		KTP	Responsibility of Customer
18) Production Trial Run	S			9/13/98		RC	
19) Production Control Plan	S			10/2/98		RC/LB	
20) Preliminary Process Capability Study	S			10/2/98		RC/LB	
21) Production Validation Testing	S			10/2/98		DW	
22) Production Part Approval (PPAP)	S			2/1/99		LB	
23) First Part Delivery at MFD	S			2/2/99		TY	

COMMENTS

IBM APOP Status Reporting Guidelines, Document No. T50, Issue No. 1, 1/19/98

Reliability Analysis / Result ID: 225, Domain: Time

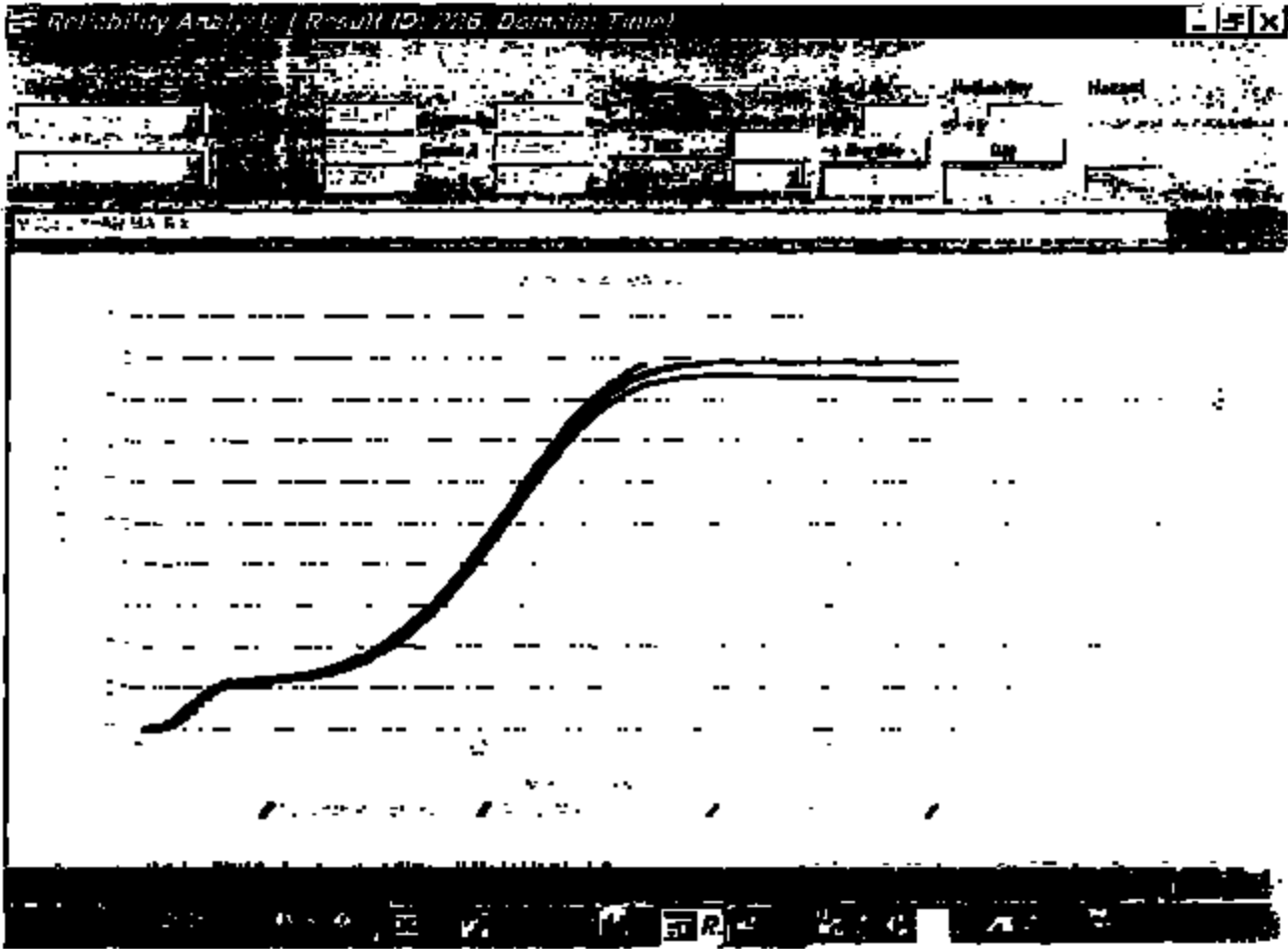
Element	Value	Unit
1	17850	...
2	...	...
3	...	...
4	...	...
5	...	...
6	...	...
7	...	...
8	...	...
9	...	...
10	...	...



...

PERC-044 12538





PH30-044 12/3/98





PROBABILITY OF FAILURE  
(Passimistic Estimate)

Time in Service	← MILEAGE →															
	10K	20K	30K	35K	40K	50K	60K	70K	80K	90K	100K	110K	120K	130K	140K	150K
8	3.0%	3.5%	3.7%	3.8%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
12	5.0%	5.1%	10.0%	10.0%	11.0%	11.0%	11.7%	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%	11.8%
16	5.0%	9.0%	11.4%	11.8%	12.8%	12.8%	13.0%	13.1%	13.1%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%
24	5.0%	10.0%	11.0%	12.0%	13.4%	13.7%	13.8%	14.1%	14.2%	14.3%	14.3%	14.3%	14.4%	14.4%	14.4%	14.4%
30	6.0%	10.0%	13.0%	13.0%	13.1%	13.8%	14.0%	14.2%	14.4%	14.8%	14.7%	14.8%	14.8%	14.8%	17.0%	17.0%
36	6.7%	11.0%	14.0%	13.0%	17.0%	18.0%	18.8%	20.1%	20.0%	20.0%	21.2%	21.4%	21.6%	21.7%	21.8%	21.8%
42	8.0%	12.7%	16.0%	18.0%	21.0%	23.0%	25.0%	28.0%	29.0%	27.0%	28.1%	28.0%	29.0%	29.0%	29.5%	29.5%
48	7.1%	13.0%	18.0%	21.0%	26.0%	26.0%	27.0%	33.0%	33.0%	33.0%	37.0%	38.0%	38.0%	38.0%	40.1%	40.1%
54	7.0%	16.0%	21.0%	25.1%	32.0%	34.0%	36.0%	42.0%	44.0%	44.2%	47.0%	48.2%	50.4%	51.4%	52.0%	52.1%
60	7.4%	16.0%	23.0%	27.0%	36.0%	41.7%	44.0%	48.7%	52.0%	55.5%	57.7%	59.7%	61.4%	63.0%	64.1%	65.2%
66	7.6%	18.4%	23.0%	28.0%	38.0%	43.0%	51.0%	55.4%	58.2%	61.4%	62.2%	67.0%	69.7%	71.0%	73.2%	74.6%
72	7.3%	16.7%	23.7%	30.0%	41.0%	48.1%	53.7%	58.0%	62.0%	66.0%	68.2%	69.0%	72.0%	74.7%	76.0%	78.0%
78	7.8%	18.0%	28.0%	31.2%	42.0%	49.0%	54.0%	60.0%	64.0%	68.2%	71.0%	74.2%	76.0%	78.0%	81.0%	82.0%
84	7.0%	16.0%	28.1%	31.2%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.7%	83.4%
90	7.0%	16.0%	28.1%	31.4%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.0%	83.5%
96	7.0%	16.0%	28.1%	31.4%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.0%	83.5%
102	7.0%	16.0%	28.1%	31.4%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.0%	83.5%
108	7.0%	16.0%	28.1%	31.4%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.0%	83.5%
114	7.0%	16.0%	28.1%	31.4%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.0%	83.5%
120	7.0%	16.0%	28.1%	31.4%	42.0%	49.2%	55.2%	60.4%	64.0%	68.7%	72.0%	74.0%	75.5%	79.7%	81.0%	83.5%

PERS-014 12844

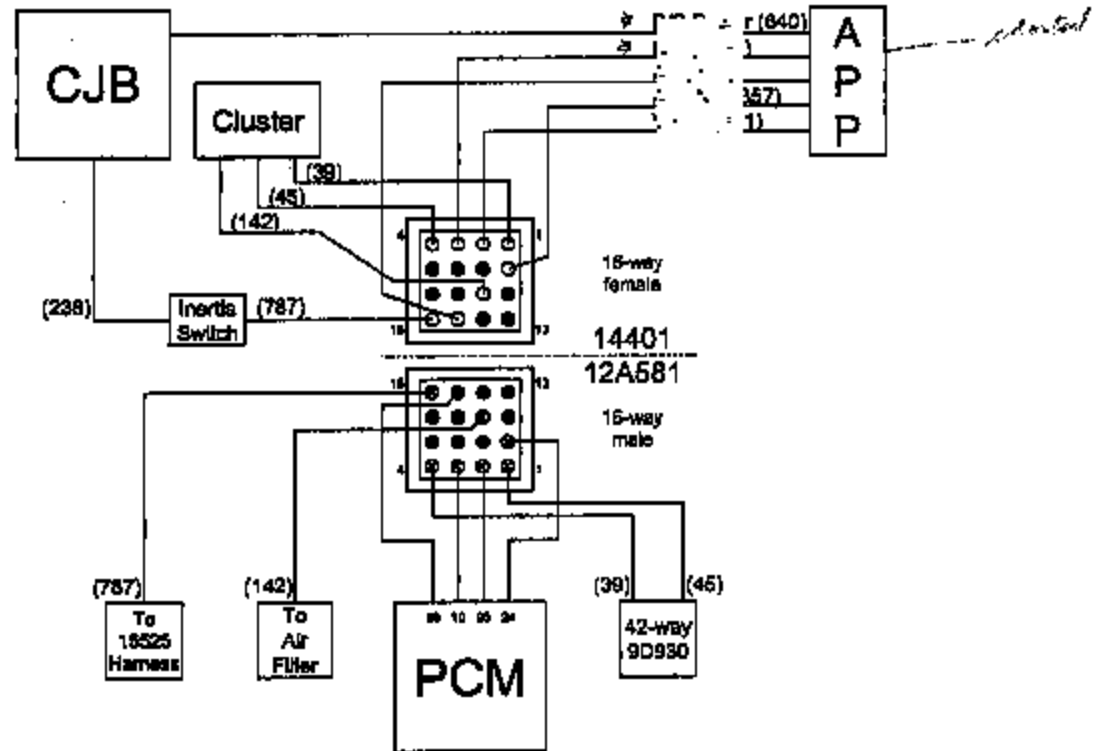
Raghu Jalapur

Date: 5/20/03

3 hubs → 12/16/01

### 7.3L Diesel APP Sensor & Wiring

*EVS to power  
16V 22.9 Amp  
heated but did not  
flash  
EMC?  
ATL  
EISE*



**Circuit Summary:**  
 39, TEMPERATURE GAGE TO TEMPERATURE SENDING UNIT, Red, White  
 45, HOT WATER TEMPERATURE RELAY TO HOT WATER TEMPERATURE SENDING UNIT, Yellow, Red  
 142, DIESEL FUEL FILTER WARNING LAMP INDICATOR FEED, Lt Blue, Red  
 238, MODULE, POWERTRAIN CONTROL TO FUEL PUMP MONITOR /FUEL PUMP RELAY TO SAFETY SWITCH, Dk Green, Yellow  
 787, FUEL PUMP POWER, Pink, Black

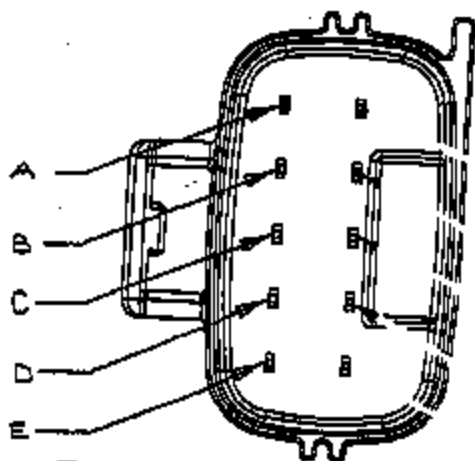
RE03-944 12972

Sandy  
313-240-5121

NEW:  
DOW  
ALMAN

FORD  
S.J.  
ENGLISH

8/23/99



84 VIEW IN DIRECTION OF ARROW A  
2X SCALE

PS - HAVE YOU  
DONE A LAYOUT  
TO DETON MUX  
IF THE SUBSTRATE  
YOU HAVE PROPOSED  
WILL HANDLE A  
3 TRACK OUTPUT

PLEASE CONFIRM  
BOTH ① + ②

A APP(+)	B APP(-)	C APP(OUTPUT)	D SWITCH	E SWITCH
-------------	-------------	------------------	-------------	-------------

ELEC

① DOW THIS IS THE PIN OUT AVEVA  
& FORD WOULD LIKE TO USE FOR  
THE D-137 - THAT WHY ONLY  
ONE PIN BUCK IS NEEDED

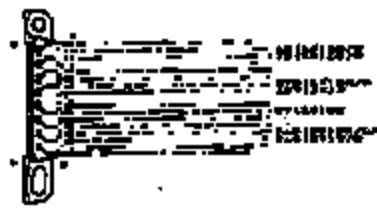
8/99

1-arah  
 No 248 6168810  
 phone 248-277-2245

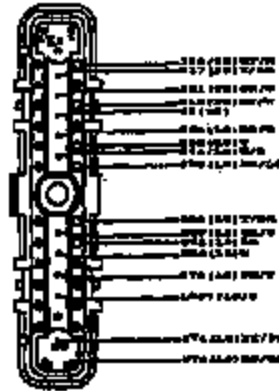
N. RAHMAN 41777

Percein Kakti  
 OK 9/16/97

10/12 11/12



42-WAY CONNECTOR  
 TO ENGINE HARNESS (SEE PAGE 10/12)



42-WAY CONNECTOR  
 TO ENGINE HARNESS

7.3D 42 WAY TO ENGINE HARNESS



42-WAY CONNECTOR  
 TO ENGINE HARNESS



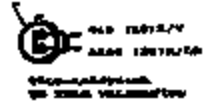
3-PIN CONNECTOR  
 TO ENGINE HARNESS



4-PIN CONNECTOR  
 TO ENGINE HARNESS



2-PIN CONNECTOR  
 TO ENGINE HARNESS



3-PIN CONNECTOR  
 TO ENGINE HARNESS

2001 ULS7



7-PIN CONNECTOR  
 TO ENGINE HARNESS

Red  
 yellow stripe

- 640 - Switch (Ret)
- 1285 - Switch (Green)
- 235 - Appl (Output)
- 357 - Appl (Green)
- 351 - Appl (Ret)



3-PIN CONNECTOR  
 TO ENGINE HARNESS



4-PIN CONNECTOR  
 TO ENGINE HARNESS



3-PIN CONNECTOR  
 TO ENGINE HARNESS



4-PIN CONNECTOR  
 TO ENGINE HARNESS

09/16/98 THU 14:57 [TX/RX NO 1761]

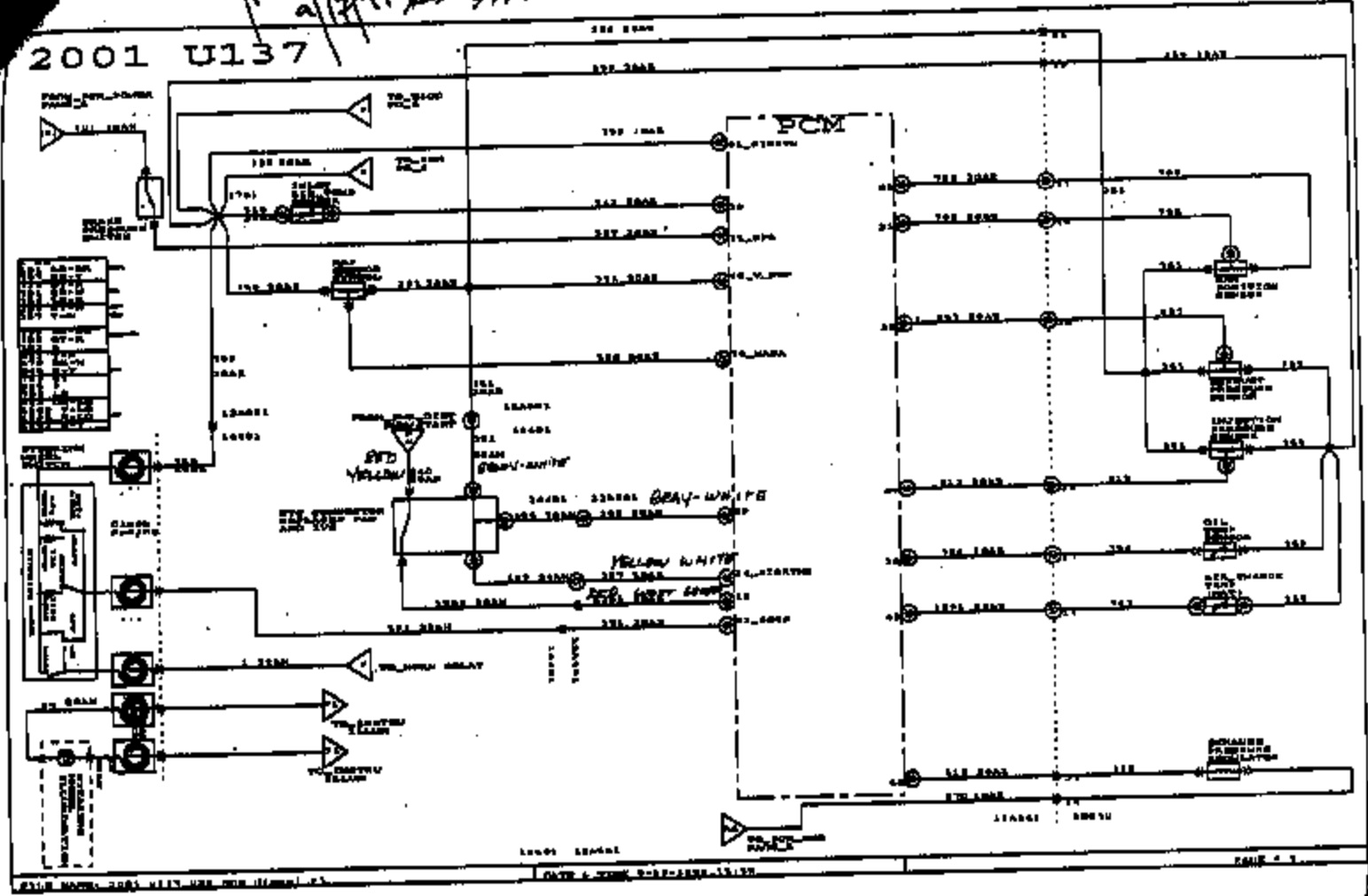
PENG-044 12574

*Arif K...*  
9/17/99  
917-99

N. RAHMAN 91799

Jan 14 9 9-17-99

2001 U137



PERC-044 12075

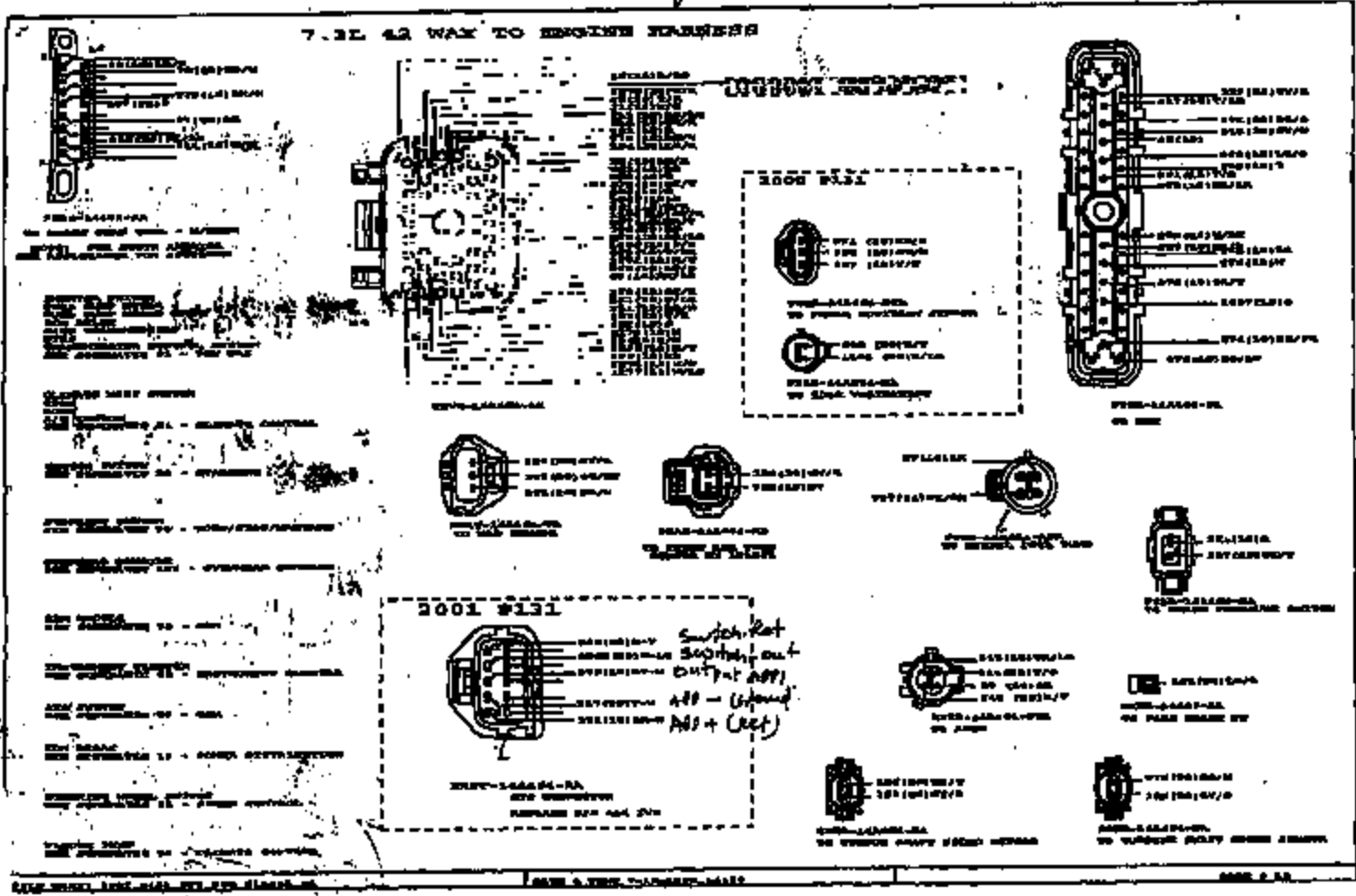
N. RIMMIN 911199 *Ally*  
for auto

9-12-59

OK

9/16/59

NO. 474 P. 2/2



09/16/59 THU 14:57 ITZ/RY NO 77811

PER-644 12578



97 006-74424-ASA

11/08/99 10:00 FAX 7340813349

YMA CONFERENCE CENTER

00017081

**FAX COVER PAGE**  
**YAZAKI NORTH AMERICA, INC.**

Call Request Desk  
Cable: 941 4117  
Phone: 734-983-2962  
Fax: 734-983-2963

Used on 2001  
P131 / U137 ETC  
Jan 12/99  
11/9/99

**COMPANY:** Ford Motor  
**ATTN:** Mr. Chris Variamos  
**FAX NUMBER:** (313) 594-2814  
**DATE:** Nov 08, 1999

**SUBJECT:** 10 Way 1.5 sealed connector

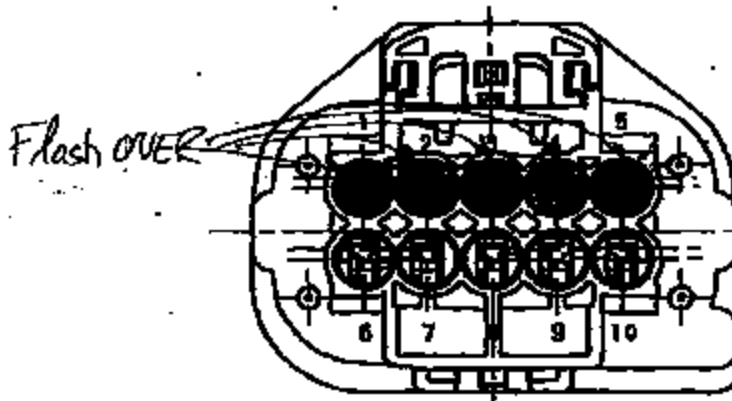
**NO. OF PAGES (including this page):** 1

**SENDER:** Vijay Keshavamurthy **DEPT:** Connector.

**MESSAGE:**

Hello Chris,  
Please find below, a picture of the back view of the Yazaki 1.5 system sealed 10 way female connector.

The cavities are numbered according to the Ford SDS requirement. Please have the PHN engineer block the necessary cavities (by filling them in) and return this sheet to me so that we can make a drawing accordingly.



Cover 1-5  
Cavities.

Jan 12/99  
11/9/99

Chris Variamos  
YAZAKI NA 11/8/99

Please obtain the appropriate signatures for concurrence.  
Thank You.

Regards,  
*Vijay Keshavamurthy*  
Vijay Keshavamurthy

M. Sanyal - AFL 11/9/99  
D. Crawford - AFL 11/9/99  
*[Signature]*  
11/9/99

YAZAKI1089F002.DOC(7/99)

ADL002, Rev. 1.0



2406163238 P. 02/02

TELEPLEX TRDY

NOV-83-1993 17:57

PERC-944 12079

Zent ELECTRICAL  
 Part Merriah  
 11/9/99

L. GILPIN - FORD  
 N. RAYMOND - FORD  
 P. HUANG - FORD  
 J. CRANFORD - AFL  
 M. SPURDIN - AFL  
 C. VALLANIS - YAZAKI

pins 1-5 blocked - FLASHED OVER  
 pins 6-10 open

TOTAL P. 02

**Device Transmitter:**

Vehicle Make: [ ] Vehicle Year: [ ]  
 Device Name: [ ]  
 Manufacturer Name: [ ]

**Part Serial Engineer:**  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

**Part Serial Engineer:**  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

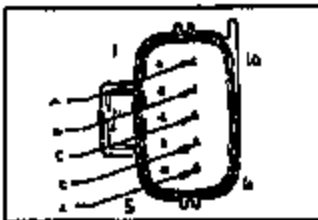
**Device Part Number:** [ ]  
**Device Supplier:** [ ]  
**WMI Logo Number:** [ ]  
**WMI Location Code:** [ ]

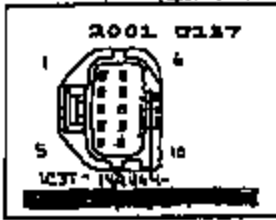
**Device Connector Part Number:** [ ]  
**Device Connector Supplier:** [ ]  
**Device Connector Type:** [ ]

**Part Serial Part No.:** [ ]  
**Part Serial Part No.:** [ ]

**Connector Supplier:** [ ]  
**Connector Description:** [ ]

**Part Serial Part No.:** [ ]  
**Class Controller at Tel. No.:** [ ]  
**SES Registration:** [ ]

**Device Connector View:**  


**WMI Description View:**  


Circuit	Circuit Function	WMI	Connector Type	WMI Code	Terminal Description										Terminal Part Number	Terminal Part Name	Terminal Part Description	WMI Code	WMI Location	Last Change Date
					Min	Max	Min	Max	Min	Max	Min	Max	Min	Max						
A	Antenna port (pin 1)				92A	10mA	4.8	2V	5.2											
B	Antenna port (pin 2)				92A	10mA	4.8	2V	5.2											
D	Antenna port (pin 4)				92A	10mA	4.8	2V	5.2											
D	Antenna port (pin 5)				92A	10mA	4.8	2V	5.2											
E	Antenna port (pin 6)				92A	10mA	4.8	2V	5.2											

**Part Serial Engineer:** [ ]  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

**Part Serial Engineer:** [ ]  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

**Part Serial Engineer:** [ ]  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

**Part Serial Engineer:** [ ]  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

**Part Serial Engineer:** [ ]  
 Name Number: [ ]  
 Signature: [ ]  
 Location/Date: [ ]

The Vehicle's license plates bearing the (country) and part number with the fractional (1/2) bearing the (Year) number  
 applies to the (country) number.  
 This entry is maintained in the (country) and (part) files. A (part) file (1/2) and the (country) file (1/2) are

Jr. 1220  
 11/9/99  
 Phos & Under Water

M. Jansen 11/9/99  
 Raymond Raymon 11/9/99  
 J. Cranford 11/9/99  
 M. Spurdin

Don Spurdin 11/9/99

Engineer: Don Spurdin  
 2406163238  
 11/9/99

Date Issued: 11/03/99  
 Date Received: 11/03/99



BRNZZI 4140-CORSA

:57

TELEFLEX TROY

2486153920 P. 02/82

Device Transmittal

Vehicle Code:     Vehicle ID#:

Mobile Name:

Organization Name:

Field Wiring Engineer:

Phone Number:

Signature:

Location/Date:

Device Number:

Item # Code:

Field and Date:

PSM# System # Equipment:

PSM# Number:

Device Part Number:

Device Supplier:

MM State Number:

Yak Location Code:

Part Chart Code:

Component Supplier:

Field System ID#:

Device Characteristic Part:

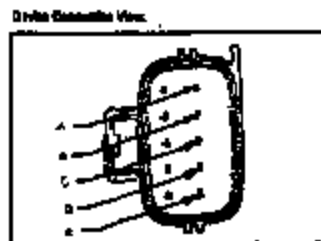
Device Characteristic Part:

Device Characteristic Type:

Ref. Conn. App. Part No.:

Component Description:

Does Component meet local EMI Requirements? Yes  No



Code	Circuit Function	NO	Component Wire	Wire Size	Device Connector						Wire Harness Connector				Last Entry Date			
					Min	Max	Size	Min	Max	Wire Size	Min	Max	Wire Size	Terminal Part Number		Wire Size	Wire Size	
A	Antenna feed position 00				18GA	18GA	4A	1V	0.2			18-01	18-01	MS	Th 4 Au			
B	Antenna feed position 01				20GA	20GA	4A	0V	0.2			18-02	18-02	MS	Th 5 Au			
C	Antenna feed position 02				20GA	20GA	4A	0V	0.2			18-03	18-03	MS	Th 5 Au			
D	Antenna feed position 03				20GA	20GA	0V	10V	MS			18-04	18-04	MS	Th 5 Au			
E	Antenna feed position 04				20GA	20GA	0V	10V	MS			18-05	18-05	MS	Th 5 Au			

Field System Engineer:

Phone Number:

Signature:

Location/Date:

Field Wiring Engineer:

Phone Number:

Signature:

Location/Date:

Field Conn. App. Engineer:

Phone Number:

Signature:

Location/Date:

Comments: This Wiring Diagram is intended for use by the manufacturer and is not to be used for any other purpose. The manufacturer assumes no responsibility for the accuracy of the information provided. This document is intended for use by the manufacturer and is not to be used for any other purpose. This document is intended for use by the manufacturer and is not to be used for any other purpose.

Originator: Greg Peterson  
 (616) 231-1111  
 4/17/81

TOTAL P. 02  
 PRICE - 02

2486153920

NOV 83 1999 17:45

**Device Transmittal**

Vehicle Code:  Update U:

Device Name:

Multiple Name:

Device Part Number:  Device Connector Part:

Device Supplier:  Device Connector Supp:

WH Base Number:  Device Connection Type:

Use Location Code:

Part Number P/N:  Ref. Conn App Form No:

Connector Supplier:  Connector Description:

Part Number P/N:  Does connector meet spec:

304 Req Approved?  Yes  No

Ford Device Engineer:

Phone Number:

Signature:

Location Code:

Control Number:

Issue Date:

Revised Date:

FORD Systems Engineer:

Phone number:



Qty	Part #	Description	Rev	Dimensions				Weight	Material	Finish	Tolerance	Cage Code	CPL#	Mfg. Information				Lot #	Date
				W	H	D	R							Part #	Rev	Plant	Lot #		
1	304-100	304-100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1	304-100	304-100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1	304-100	304-100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1	304-100	304-100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1	304-100	304-100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
1	304-100	304-100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	

Part Number:  Part Name:

Part Number:  Part Name:

Part Number:  Part Name:

Part Number:  Part Name:

Part Number:  Part Name:

Comments: This Transmittal includes 304 and connector and part numbers and the information required. The Vendor will receive a copy of this transmittal if needed. The 304 part number should be 304-100 to the design transmittal. The 304 part number should be 304-100 to the design transmittal.

FORM 844 12581

Electrical / Electronic Systems Design Transmittal

Company Name:	Phil & Son Pty - Aps
Part Number:	PCB-PEB-04
Subsystem:	AS.14.01

Release (Part):	04
Rev:	001
ED:	
TD:	

Order:	
Alt:	
Y. Part:	

Electrical Hardware Requirements Matrix

Component Number / Pin Number	Signal Name	Polarity	Operating Voltage (V)				Operating Current (mA)				Operating Duration	Thermal Protection
			Min	Normal	Max	Peak	Min	Normal	Max	Peak		
10	AVSUPPLY		4.5	5	5.5				500			
8	VCC		5	5	5				100			
1	AVSS											
2	VSS											
3	AVSS											
4	VSS											
5	AVSS											
6	VSS											
7	AVSS											
9	AVSS											
11	VSS											
12	AVSS											
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14	AVSS											
15	VSS											
16	AVSS											
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96	AVSS											
97	VSS											
98	AVSS											
99	VSS											
100	AVSS											

Operating Temperature (Degrees C)	Min	Normal	Max
	-40	25	85

Note: All response voltages and currents are for NORMAL operation and must include both active and non-active phases.

EMC Group/10/06 Last Ver: 4

Date Revised: 01/06/2010

Page 1 of 1

1. Board of Directors  
Phil & Son Pty Ltd

PCB-044 12/02

Physical / Electronic Systems Design Transmittal

Component Name:	PL 3 Upgrade - ACJ
Part Number:	426-000000
Subsystem:	8L182

ODM Engineer (Print):	
Department:	
Phone:	
PHONE Ext:	

Project:	
Task:	
Date:	
By:	
Check:	
Table:	

Physical Interface Requirements Matrix

System Part Number	Pin		Terminal Part Number
	Name	IR	
			PL3

Scenario? Pin-Out - View Looking Into the Face of the Connector on Component

**AP3 BUILDS ONLY**

**SEE ATTACHMENT**

Note: Contains Pin Number to the Pin Number for the Connector on Your Component Unless Otherwise Noted.

PHOTO-044 12383

FORM 1007  
Data Format: 01/09/00

FORM 1007  
Data Format: 01/09/00

FORM 1007  
Data Format: 01/09/00



SHIELDED CIRCUITRY						2C71-14401-6T			
UNIT NO.	SYMBOL	DESCRIPTION	QUANTITY	REMARKS	SPECIFICATIONS	REV.	DATE	BY	CHKD.
1	RES	2C71-14401-01	1		RESISTOR				
2	RES	2C71-14401-02	1		RESISTOR				
3	RES	2C71-14401-03	1		RESISTOR				
4	RES	2C71-14401-04	1		RESISTOR				
5	RES	2C71-14401-05	1		RESISTOR				
6	RES	2C71-14401-06	1		RESISTOR				
7	RES	2C71-14401-07	1		RESISTOR				
8	RES	2C71-14401-08	1		RESISTOR				
9	RES	2C71-14401-09	1		RESISTOR				
10	RES	2C71-14401-10	1		RESISTOR				
11	RES	2C71-14401-11	1		RESISTOR				
12	RES	2C71-14401-12	1		RESISTOR				
13	RES	2C71-14401-13	1		RESISTOR				
14	RES	2C71-14401-14	1		RESISTOR				
15	RES	2C71-14401-15	1		RESISTOR				
16	RES	2C71-14401-16	1		RESISTOR				
17	RES	2C71-14401-17	1		RESISTOR				
18	RES	2C71-14401-18	1		RESISTOR				
19	RES	2C71-14401-19	1		RESISTOR				
20	RES	2C71-14401-20	1		RESISTOR				
21	RES	2C71-14401-21	1		RESISTOR				
22	RES	2C71-14401-22	1		RESISTOR				
23	RES	2C71-14401-23	1		RESISTOR				
24	RES	2C71-14401-24	1		RESISTOR				
25	RES	2C71-14401-25	1		RESISTOR				
26	RES	2C71-14401-26	1		RESISTOR				
27	RES	2C71-14401-27	1		RESISTOR				
28	RES	2C71-14401-28	1		RESISTOR				
29	RES	2C71-14401-29	1		RESISTOR				
30	RES	2C71-14401-30	1		RESISTOR				
31	RES	2C71-14401-31	1		RESISTOR				
32	RES	2C71-14401-32	1		RESISTOR				
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36	RES	2C71-14401-36	1		RESISTOR				
37	RES	2C71-14401-37	1		RESISTOR				
38	RES	2C71-14401-38	1		RESISTOR				
39	RES	2C71-14401-39	1		RESISTOR				
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73	RES	2C71-14401-73	1		RESISTOR				
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82	RES	2C71-14401-82	1		RESISTOR				
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90	RES	2C71-14401-90	1		RESISTOR				
91	RES	2C71-14401-91	1		RESISTOR				
92	RES	2C71-14401-92	1		RESISTOR				
93	RES	2C71-14401-93	1		RESISTOR				
94	RES	2C71-14401-94	1		RESISTOR				
95	RES	2C71-14401-95	1		RESISTOR				
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97	RES	2C71-14401-97	1		RESISTOR				
98	RES	2C71-14401-98	1		RESISTOR				
99	RES	2C71-14401-99	1		RESISTOR				
100	RES	2C71-14401-100	1		RESISTOR				

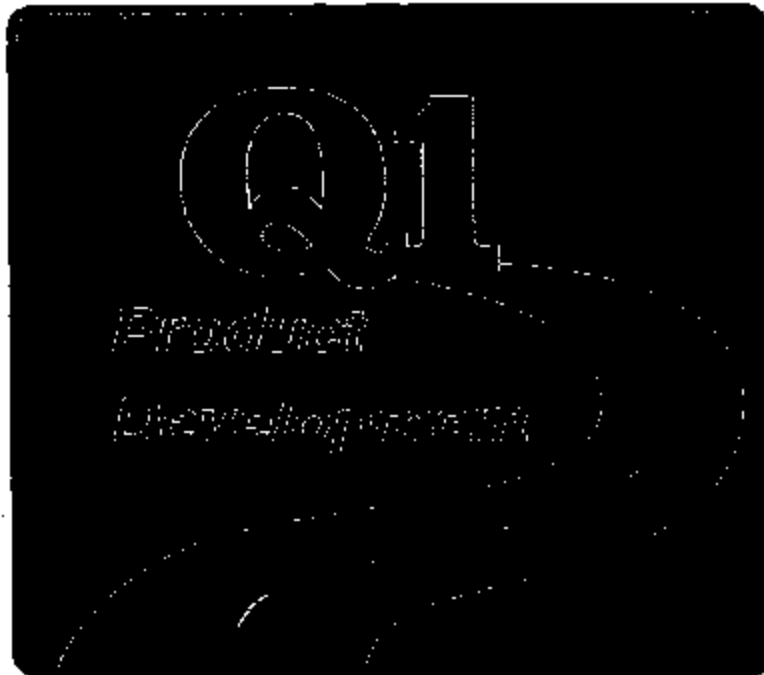
  

**ALCOA**  
ALUMINUM COMPANY OF AMERICA

LIBRARY STORE DATE: 00/12/18 06:48  
LIBRARY NUMBER: AYT LIB 26-20 2000-049  
LIBRARY NAME: EDAS LIB 00-12-15  
ASSEMBLY CONTAINS 328 CIRCUITS

FRAME 1 OF 35

**REFERENCE** 2C71-14401-01 2C71-14401-02 2C71-14401-03 2C71-14401-04 2C71-14401-05 2C71-14401-06 2C71-14401-07 2C71-14401-08 2C71-14401-09 2C71-14401-10 2C71-14401-11 2C71-14401-12 2C71-14401-13 2C71-14401-14 2C71-14401-15 2C71-14401-16 2C71-14401-17 2C71-14401-18 2C71-14401-19 2C71-14401-20 2C71-14401-21 2C71-14401-22 2C71-14401-23 2C71-14401-24 2C71-14401-25 2C71-14401-26 2C71-14401-27 2C71-14401-28 2C71-14401-29 2C71-14401-30 2C71-14401-31 2C71-14401-32 2C71-14401-33 2C71-14401-34 2C71-14401-35 2C71-14401-36 2C71-14401-37 2C71-14401-38 2C71-14401-39 2C71-14401-40 2C71-14401-41 2C71-14401-42 2C71-14401-43 2C71-14401-44 2C71-14401-45 2C71-14401-46 2C71-14401-47 2C71-14401-48 2C71-14401-49 2C71-14401-50 2C71-14401-51 2C71-14401-52 2C71-14401-53 2C71-14401-54 2C71-14401-55 2C71-14401-56 2C71-14401-57 2C71-14401-58 2C71-14401-59 2C71-14401-60 2C71-14401-61 2C71-14401-62 2C71-14401-63 2C71-14401-64 2C71-14401-65 2C71-14401-66 2C71-14401-67 2C71-14401-68 2C71-14401-69 2C71-14401-70 2C71-14401-71 2C71-14401-72 2C71-14401-73 2C71-14401-74 2C71-14401-75 2C71-14401-76 2C71-14401-77 2C71-14401-78 2C71-14401-79 2C71-14401-80 2C71-14401-81 2C71-14401-82 2C71-14401-83 2C71-14401-84 2C71-14401-85 2C71-14401-86 2C71-14401-87 2C71-14401-88 2C71-14401-89 2C71-14401-90 2C71-14401-91 2C71-14401-92 2C71-14401-93 2C71-14401-94 2C71-14401-95 2C71-14401-96 2C71-14401-97 2C71-14401-98 2C71-14401-99 2C71-14401-100



**2002 U228 /U222 ACCELERATOR CONTROLS  
REVIEW**

**HELD 9 15 2000**

**SECTIONS II.B THROUGH II.G  
SECTIONS IV.A THROUGH IV.C**

**1999 - Second Edition**

Prepared by: JL Van Gilder  
TVC-PDQ1

Date Prepared: August 11, 2000

FE83-844 12005

## QSA-PD SCORING GUIDELINES

### GENERAL

The universal scoring guidelines shown below shall be used to score the QSA-PD. Scoring may be used as a means of establishing a baseline and measure improvement in performance to the QSA-PD. The scoring may be performed as a self-assessment by an individual or organization, or by a peer(s).

### PEER REVIEW PROCESS

The peer review process provides for assessment and scoring of an engineering organization (or individual) by another engineering organization (or individual). The peer review should include coaching and learning from one peer to another. It is recommended that the initial review by the peer be kept confidential. Subsequent reviews should be published to provide an indication of strengths and weakness and to show continuous improvement.

### *Scoring Guidelines*

Item	Level	Score	Description
<b>A</b> <b>P</b> <b>R</b> <b>O</b> <b>A</b> <b>C</b> <b>E</b>	None	0	The organization is not familiar with the concept/criteria and has no relevant approach in this area.
	Low	1	The organization is familiar with the concept/criteria and a systematic approach is less than 50% developed.
	Medium	2	The organization is familiar with the concept/criteria and a systematic approach is greater than 50% developed.
	High	3	The organization is familiar with the concept/criteria and the approach is greater than 90% developed.
<b>D</b> <b>E</b> <b>V</b> <b>E</b> <b>L</b> <b>O</b> <b>P</b> <b>M</b> <b>E</b> <b>N</b> <b>T</b>	Low	4	A systematic approach is developed and deployment has started in some major areas.
	Medium	5	A systematic approach is developed and deployment is greater than 50% in all areas.
	High	6	A systematic approach is developed and deployment is greater than 90% in all areas.
<b>R</b> <b>E</b> <b>S</b> <b>U</b> <b>L</b> <b>T</b> <b>S</b>	Low	7	Deployment of the approach has produced some relevant improvement in the "quality of event", and/or the product design, and/or value to the customer - minimum Q1 requirement.
	Medium	8	Deployment of the approach has produced moderate (50%) relevant results improvement in the "quality of event" and the product design and/or value to the customer.
	High	9	Deployment of the approach has produced substantial (80%) relevant results improvement in the "quality of event" and the product design and/or value to the customer.
	Outstanding	10	The organization is best-in-class and able to demonstrate significant innovation in new approaches. Excellent relevant results are available over a sustained period.

Prepared by: JL Van Gilder  
TVC-PDQ1

Date Prepared: August 11, 2000

PEB3-044 12998



## II. B. Concurrent Product and Process Design ...

Requirement: Design and model products and processes concurrently using low-cost tooling and inexpensive materials. (Ref: FPDS Engineering Process (formerly REP) Step 7, FRG Modules 9, 12; FAP03-111 & 149)

Item #	Criteria	Review 9/15/00
1	The manufacturing, assembly, inspection (GD&T), and serviceability processes are developed simultaneously with the product design.	5
2	Initial design for product and process includes product reusability (components, tools, fasteners, and fixtures) and craftsmanship.	6
3	The initial design uses low-cost materials and maximum manufacturing/assembly tolerances with the goal of obtaining high quality/reliability at low cost.	6
4	Engineering calculations (e.g. physics stress/strength and thermal expansion) have been analyzed for product/process initial design.	5
5	Initial product and process design embodies the appropriate "Design Focus" (Design for Assembly, Design for Dis-Assembly, Design for Manufacturing, Design for Service, Design for Reliability, Design for Reusability, etc.)	6
6	Verify that the design meets all Worldwide Design Requirements (WDR)/regulatory/safety/campaign prevention requirements and relevant critical characteristics (CC) have been identified and communicated to manufacturing/assembly/suppliers.	4
7	Simultaneously update DVP while developing design.	1
8	Where appropriate, analytical models (CAE) have been utilized to identify and improve physical and functional performance over time.	2
9	Reliability/quality targets have been estimated and actions taken to improve the product/system performance over time.	3
10	Mistake-proofing techniques are utilized as appropriate.	2
11	Tests for discovery have been conducted to verify assumptions and confirm engineering theory.	5
12	Assessment of function/cost/weight/reliability has been conducted for current Ford, its subsidiaries and competitive designs. Design opportunities have been implemented to provide increased value (VA/VE).	4
13	Manufacturing/Assembly feasibility has been assessed and issues resolved.	6
14	A series of constructive peer, expert design reviews have been conducted to improve the product and process.	5
Section II. B. Subtotal (84 points possible)		60
AVERAGE SCORE		4.2

Prepared by: JL Van Gilder  
TVC-PDQ1

Date Prepared: August 11, 2000

PE03-044 12587

### II. C. Prevent Failure Modes and Decrease Variability ...

Requirement: Improve product and process through reduction of potential failure modes and functional variability. [Ref: FPDS Engineering Process (formerly REP) Step 3, FIG Modules 7.14: FAP07-005]

Item #	Criteria	Review 9/15/00
1	Historical failure modes (Warranty, TGW, Lessons Learned including campaign prevention, etc.) were reviewed and initial design and process failure modes identified by a cross-functional team.	6
2	Design and process improvements identified and implemented to reduce occurrence/severity (DFMBA/PPMEA) of functional variability	3
3	Cost and quality effect of reduced functional variability determined.	3
4	DVP includes analysis/tests for priority potential failure modes.	6
Section II. C. Subtotal (24 points possible)		18
AVERAGE SCORE		4.5

### II. D. Optimize Function in the Presence of Noise ...

Requirement: Optimize product and manufacturing/assembly process functions by testing in the presence of anticipated sources of variation (noise). [Ref: FPDS Engineering Process (formerly REP) Step 9: FAP07-003]

Item #	Criteria	Review 9/15/00
1	Product/process experimentation strategy are concurrently developed within (and between) each of the system's functional boundaries	5
2	For each function, the system's signal, control, noise factors and response have been identified.	6
3	Strategy developed for anticipating effects of major sources of noise during experimentation for each of the system's functional elements	5
4	A series of product and process experiments have been conducted to optimize functional performance in the presence of noise.	4
5	DVP includes important noises for priority functions.	6
6	Assumptions used in the analysis have been verified and functional/cost performance improvements (for both product and process) are documented	0
Section II. D. Subtotal (36 points possible)		26
AVERAGE SCORE		4.33

Prepared by: J.L. Van Gilder  
TVC-PDQ1

Date Prepared: August 11, 2000

FE03-044 12000

## II. E. Tolerance Design ...

*Requirement: Selectively adjust product/process tolerances and materials to achieve desired performance (with cost/benefit trade-offs). Identify key characteristics for manufacturing control and continued variability reduction. (Ref. FPDS Engineering Process (formerly REP) Step 10; FAP07-005 & 03-111)*

Item #	Criteria	Review 9/15/00
1	Cause and effect relationships between material/tolerance choices and functional performance have been systematically studied, using designed experiments, and understood.	4
2	Design has been modified to selectively adjust product and process tolerances, and materials to meet functional targets.	4
3	Tolerance studies (Root Mean Square, worst case stack-up, GD&T, etc.) are finalized for fit and finish to mating components.	4
4	Potential Significant Characteristics (SC) have been identified and communicated to manufacturing/assembly where further variance reduction (within the tolerance range) will improve functional performance and customer satisfaction.	4
Section II. E. Subtotal (24 points possible)		16
AVERAGE SCORE		4

## II. F. Finalize Process/Control Plans ...

*Requirement: Concur with process tooling, gages, and control plans. (Ref. FPDS Engineering Process (formerly REP) Step 11; DCP, APQP, FAP03-063)*

Item #	Criteria	Review 9/15/00
1	Key product and process characteristics translated to process control plans.	4
2	Key measurement processes are identified, specified and reviewed.	4
3	All DFMEA/PFMEA high risk failure modes have fool-proof methods designed into the respective product and/or process.	5
4	Manufacturing process sheets, operator instruction sheets, and job aids have been reviewed. (For Assembly Plants & Suppliers)	4
5	Training plans for engineers, operators and skilled trades are reviewed.	0
6	Preventative, predictive, and general assembly/manufacturing/supplier repair/rework plans and procedures reviewed.	3
7	Process and gage control plans are reviewed (including recalibration schedules and reaction plans for out-of-control).	4
8	Supplier FMEA's and Control Plans have been reviewed by the appropriate engineering activities.	6
9	Linkage between DFMEA, PFMEA, DVP and process control plans is evident.	4
Section II. F. Subtotal (31 points possible)		34
AVERAGE SCORE		3.77

Prepared by: J. Van Gilder  
TVC-PDQI

Date Prepared: August 11, 2000

PE03-044 12603

## II. G. Design Verification ...

*Requirement: Integrate and verify design and manufacturing process functions with production-like hardware/software. (Ref: FPDS Engineering Process (formerly REP) Step 12, FRG Modules 3,9,12; FAP03-149 & 014)*

Item #	Criteria	Review 9/15/00
1	Prototypes are manufactured by the production source with production-like content and manufacturing/assembly processes.	6
2	Initiate DVP tests and verify optimized product and process functional performance has met reliability targets under laboratory and/or field conditions.	5
3	Review damage, packaging, shipping, and delivery systems together with testing of damage.	4
4	Verify service requirements and repair procedures/rite studies	5
5	Review manufacturing process and machine capacity/capability verification from vendor sites .	4
6	Supplier DVPRs have been reviewed by the appropriate engineering activity.	6
7	Concern resolution process is in place and all relevant activities identified and tracked.	1
Section II. G. Subtotal (21 points possible)		31
AVERAGE SCORE		4.42

## Section IV. Manage Program (150 total points)

*Requirement: Establish and maintain a highly effective team (for both product and process) that has a shared vision. (Ref: FPDS Engineering Process (formerly REP) Step 1; FAP07-005 & 03-118)*

Item #	Criteria	Review 9/15/00
1	Each multi-disciplinary team has established roles and responsibilities.	2
2	Team meets on a regular basis, and maintains a record of open issues and actions.	6
3	The team is fully staffed on time and includes manufacturing, assembly, product engineering, suppliers, customers, etc., with the necessary know-how	7
4	Team member capabilities (skills) have been assessed by team leader. The team has people who are qualified to do the job	7
5	Team member training is provided on a just-in-time basis.	2
6	Shared vision/mission statement is fully understood, documented, and has the commitment of every team member.	3
7	Management fosters team building events/ workshops	7
8	Attributes of a high-performance team are evident (i.e. passion for customer, knowledge about the program and corporate requirements, freedom to act without fear, willingness to participate in peer reviews, etc.)	7
9	Mechanisms for a learning environment (i.e. dialogue, left-hand column, etc.) are active	1
Section IV. A. Subtotal (90 points possible)		42
AVERAGE SCORE		4.66

Prepared by: JL Van Gilder  
TVC-PDQ1

Date Prepared: August 11, 2000

#### IV.B. Establish a Program Information Center ...

Requirement: Maintain and use a program information center to understand global program, social, and institutional knowledge. [Ref: FPDS Engineering Process (formerly REP) Step 2; FAP03-118]

Item #	Criteria	Review 9/15/00
1	Point-of-need library-like facilities (designated team room/learning center) are established and used	2
2	Program knowledge for product and process (including benchmark competitive information, relevant field data, reliability data, etc.) has been gathered and organized	5
3	Daily operation and management procedures (staff) established	5
4	Corporate lessons learned and best practices have been disseminated	7
Section IV. B. Subtotal (40 points possible)		19
AVERAGE SCORE		4.75

#### IV.C. Update Corporate Memory ...

Requirement: Update the corporate knowledge database with technical, institutional, and social lessons learned. [Ref: FPDS Engineering Process (formerly REP) Step 15; GSI1]

Item #	Criteria	Review 9/15/99
1	Robustness of product and process improved by application of database information	7
2	Corporate memory system updated with new information/lessons learned resulting from application of FPDS activities	6
Section IV. C. Subtotal (20 points possible)		13
AVERAGE SCORE		6.5

## 2002 U228 /U222 ACCELERATOR CONTROLS REVIEW HELD 9 15 2000

Notes, Recommendations and comments

#### II. B. Concurrent Product and Process Design ...

Williams is the FFS Supplier located in Florida .

- 1) Getting picture or sample product. Don Systems engineer interface Example: Body assembly and manufacturing people on team Job #1 10-2 KTP & Quatilon Assembly Feasibility. Pre-SW and 2003 changing internals of sensor. No Test trucks AP 3 built in December. Process Sheets Manufacturing Sheets (271) DFMEA and PFMEA not done until at the plant
- 2) Going into production before model year retooled pedal pad. (Old Process sheets was Teleflex)
- 3) Design Contest held in years before
- 4) Digital Buck process (Generic FMRA, Need DVP, FEA work) Overload
- 5) (Disassemble of J bolt connector. Williams process Flow) (more for Ford (Run at Rates) New sensor from sub-supplier (No disassemble allowed)

Prepared by: JL Van Gilder  
TVC-FDQI

Date Prepared: August 11, 2000

- 6) Detailed drawing complete (CC Design FMEA YC 9 or 10 severity Y in Design verification plan and how look at details) ( sub components) (WDR) Revisit monthly Core engineering (Jim Conrad)
- 7) (Generic, Timing Plan, Test start dates, and FDVS ISO Ford Design Verification System)
- 8) CAE Ford current model Wire frame, PDGS Ford data wrong packaging not Supplier Ideas Old layout Fool Zones, 2003 dash carryover)
- (PMA) Issues and how eliminate over time (TGW)
- 3 bolt assembly not easier to install to locator pins at dash plant rework (plant try out) cross threaten at Ford manufacturing, Dash panel 3 different shape of holes one tight tolerance PIA fastener width tight and bolt M6 looses of, Tool Access issue impact wide socket use regular
- 11) (TEST TO Confirm the assumption)(Test to verify improve replacement rate 5 or 5,000 months Data (2.5 R/1000 -0/1000 8/ (Emit Ryan STA) Supplier has an open 8-D for 8 months
- 12) No VAVE (Design Competition)
- AP2 builds (No PCM interface functionality) New sensor fit to vehicle Software reads sensors (Interface of systems) test and trial SDS (CPMT, Design Reviews, Monthly) No on site engineer

### **II. C. Prevent Failure Modes and Decrease Variability**

1. (TGW, R/1000, Warranty Data, Campaign Awareness Specialist)
2. (DFMEA and actions to reduce generic)
3. Quality Effect (CR) \$81.00

### **II. D. Optimize Function in the Presence of Noise**

- 1) P Diagram Noises and Control good hard time inputs and outputs (measurable in and out) (Customer satisfaction Reliability Engineer use.
- 2) Ok
- 3) Electronic noises, capability silver nitrate lack of PCM guys
- 4) No truck test time, (Lab test, Bench Test, Cycle tested sensor) Electronic Ignition, radar gun (radiation chamber) Compare different systems
- 5) Good
- 6) No documentation (Cost risk opportunity list, TQM, TCM

### **II. E. Tolerance Design**

- 1) (APEL) (Picked from value fastener chain)
- 2) Fair
- 3) Should be in results stage (interferences with barracks and equilib, (Study of Inverted delta Campaigns, and explain why
- 4) (Identified Process FMEA need Ford Assembly plants PFMEA) Poor supplier

### **II. F. Finalize Process/Control Plans ...**

- 1) (Control Plan Supplier) wiring falling into pedal, Review cable process
- 2) (Supplier Material) Generic
- 3) (Detection Method of DFMEA) High risk items
- 4) Ford final assembly sheet fastener sequence
- 5) PPDS, and FTEP what happens to rejected parts does supplier repair?
- 6) No evidence shown. Follow up for next review

### **II. F. Finalize Process/Control Plans ...**

Prepared by: JL Van Gilder  
TVE-PDQ1

Date Prepared: August 11, 2000

- 7)  
8)  
9) Ron to show linkage speed sheet for U222 to Don. Same written for all platforms

#### **II. G. Design Verification ...**

- 1) Prototypes made on current line
- 2) Keep a close eye on durability Don to check wave pattern on pedal loading
- 3)
- 4)
- 5)
- 6) Don is doing all the wars stuff. (Supplier needs Wars access at the plant)

#### **IV.A. Form a Team**

- 4) Don is a one man show he should have some support

#### **IV.B. Establish a Program Information Center**

- 1) Website is active but supplier can't access it.
- 2)
- 3)
- 4) Campaign prevent was available

#### **IV.C. Update Corporate Memory**

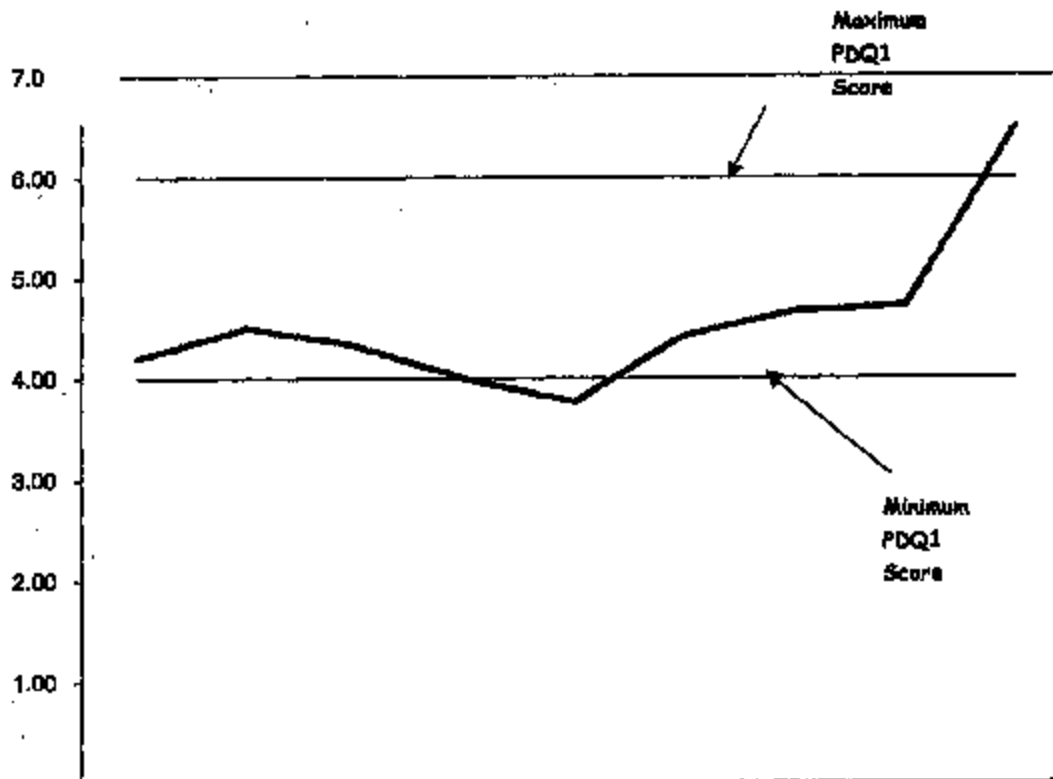
- 1)
- 2) Ron to take data up to Munnising to review data for next review
- 2<sup>nd</sup> design review to be scheduled on Calendar for Mid December

# 2003 Accelerator Controls P131/U137/H215 Team Scores



**TEAM MEMBERS:**  
 Accelerator Controls 2003  
 P 131/U137/H215  
 Don Sillanpaa  
 Ron Gaw  
 (Jim Arntia)  
**COACHING TEAM:**  
 Jim Van Gilder -PDQ1  
 Dave Webb- PDQ1  
 Fredrick Samaan-  
 Gary Nichols 2002 U228  
 A1228 Expedition  
 Navigator Peer Coach

**SCORING RANGE**



	II B (Design)	II C (PFMS DV)	II D (Optimiz)	II E (Tolerance)	II F (Process Cntrl)	II G (DV)	IV A (Mrg. Prg.)	IV B (Prg Info Ctr)	IV C (Corp. Mgmt.)
Lower Limit	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Upper Limit	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
2003 Accelerator Controls P131/ U137/ H215	4.20	4.50	4.33	4.00	3.77	4.42	4.68	4.72	8.50
2003 Accelerator Controls P131/ U137/ H215									

**PDQ1 SECTIONS**

PE03-04 12818

Prepared by: JL Van Gilder  
 TVC-PDQ1

Date Prepared: 8/11/2000





***PD-Q1 Evidence Book***

***2003 Electronic Throttle Controls***

**(documents indicating 2001 program are considered generic documents due to the commonality with 2003 ETC designs)**

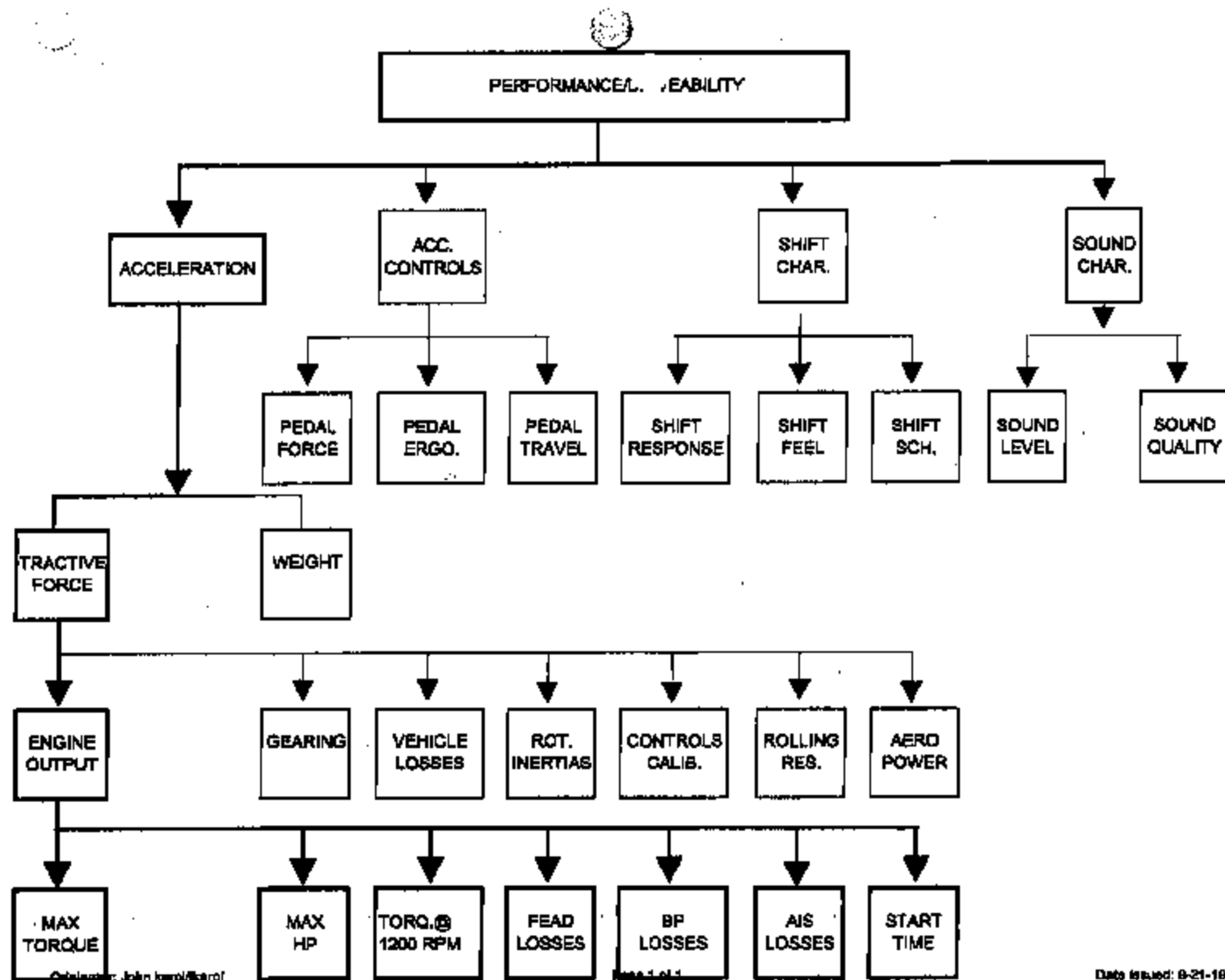


# PERFORMANCE CASCADE DIAGRAM

&

# ETC P-DIAGRAM

12



PERF-844 12863

Originator: John Karol/Karol  
PERF-CASCADE

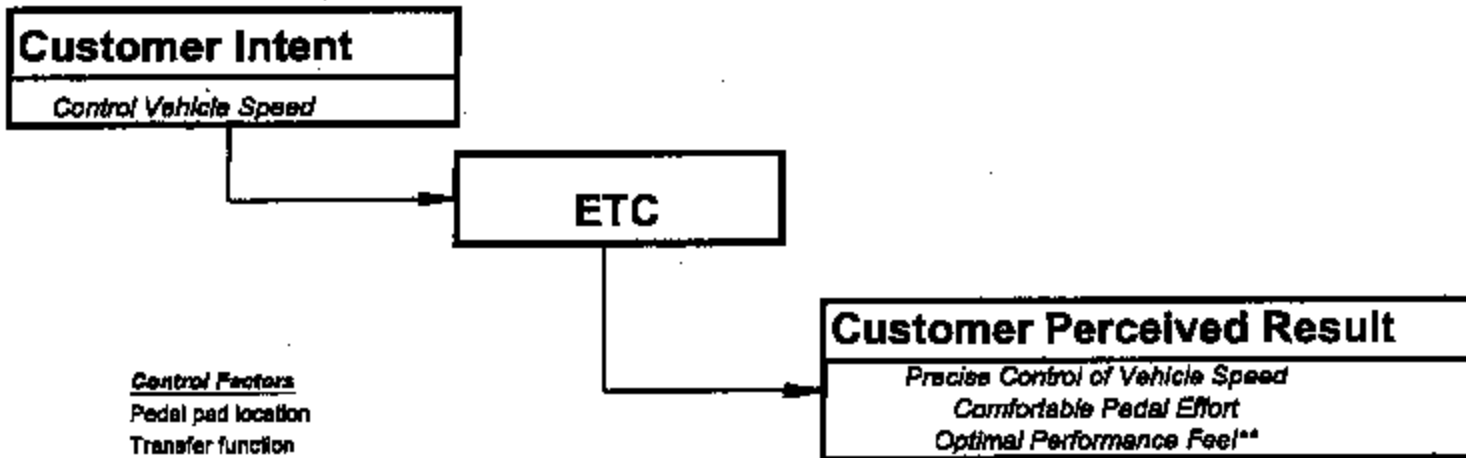
Date Issued: 8-21-1990  
Date Revised: 09/29/1990



## Electronic Throttle Controls P-Diagram

### Noise factors

Customer Usage\* \*Included in Key Life Test  
Manufacturing Variation  
Vehicle Assembly Variation  
Adjoining Systems\*  
Dirt/Dust\*  
Vibration  
Passenger Compartment Temperature\*  
Passenger Compartment Humidity\*



### Control Factors

Pedal pad location  
Transfer function  
Return spring forces  
Sensor materials/design  
Materials for all components of assembly

\*\*Part of Powertrain Control Module Calibration

FORM 004 12000

Originator: Don Billings/DSILLANP  
ETC P-Diagram

Page 1 of 1

Date Issued: 01/21/2000  
Date Revised: 05/20/00

**ALL OVER 8500# ACCELERATOR CONTROLS PARTS LISTS**

**2001**

**2003**

**2004**

Part No.	Part Name	QTY	Unit Price	Total Price	Notes
1000000000	...	1	...	...	...
1000000001	...	1	...	...	...
1000000002	...	1	...	...	...
1000000003	...	1	...	...	...
1000000004	...	1	...	...	...
1000000005	...	1	...	...	...
1000000006	...	1	...	...	...
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1000000008	...	1	...	...	...
1000000009	...	1	...	...	...
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1000000098	...	1	...	...	...
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1000000100	...	1	...	...	...

Use this information  
for ordering parts

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2000 BT Parts List  
Accessories Group  
P30000000

Ergebnis des Prüfes

Part Number	Description	QTY	Units	Part Usage	Part	Part Usage																	
						LT	LT	LT	LT	LT	LT	LT	LT	LT	LT								
2000-0001		1																					

PLANT FOR OPAID (1)  
PLANT FOR OPAID (1)  
PLANT FOR OPAID (1)

Ergebnis des Prüfes  
2000 BT Parts List

Das Ergebnis des Prüfes

P833-044 12869



2004 MY Parts List  
 Automotive Controls  
 P-2111126216

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QTY	Part Number	Cost		Weight		PBT	Part Name	Part Number	Part Usage																				
		Per Unit	Total	Per Unit	Total				2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)	2004 Cammie (SA)								
1	2044						Williams Controls	0804																					
1	2044	\$14.34					Williams Controls	0804																					
1	2044	\$24.42					Williams Controls	0804																					
1	2044	\$14.34					Williams Controls	0804																					
1	2044	\$24.42					Fabricated Steel	0804																					
1	2044	\$24.42					ITW	0804																					
1	2044	\$24.42					Continental Millard	0804																					
1	2044	\$24.42					Delphi	0804																					
1	2044	\$24.42					Delphi	0804																					
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FOR USE ONLY, OTHERWISE NONE  
 INCLUDES OTHER PARTS  
 WITH EQUALITY BRIDGE OPTION

