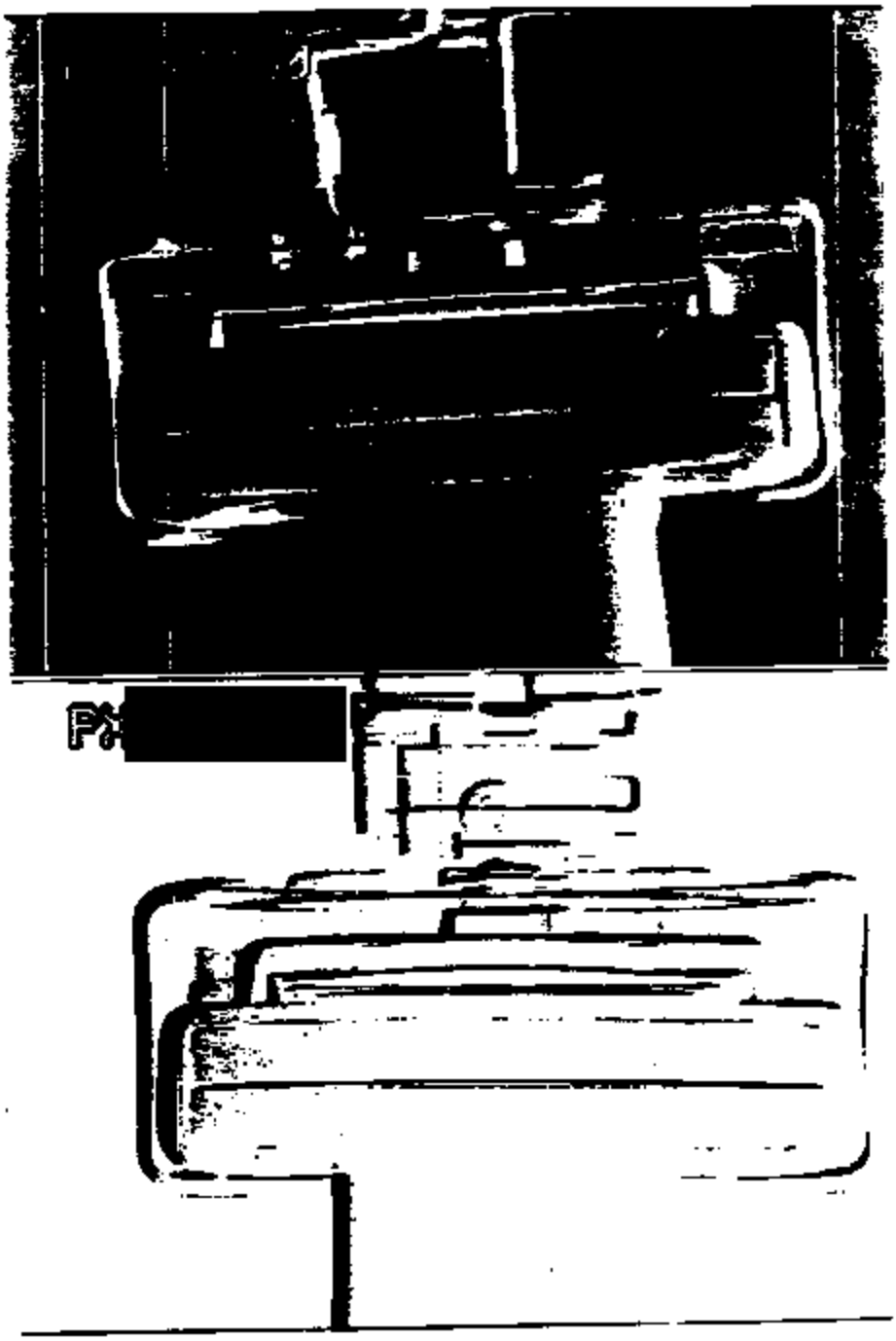
EA02-025

FORD 10/27/03

APPENDIX N

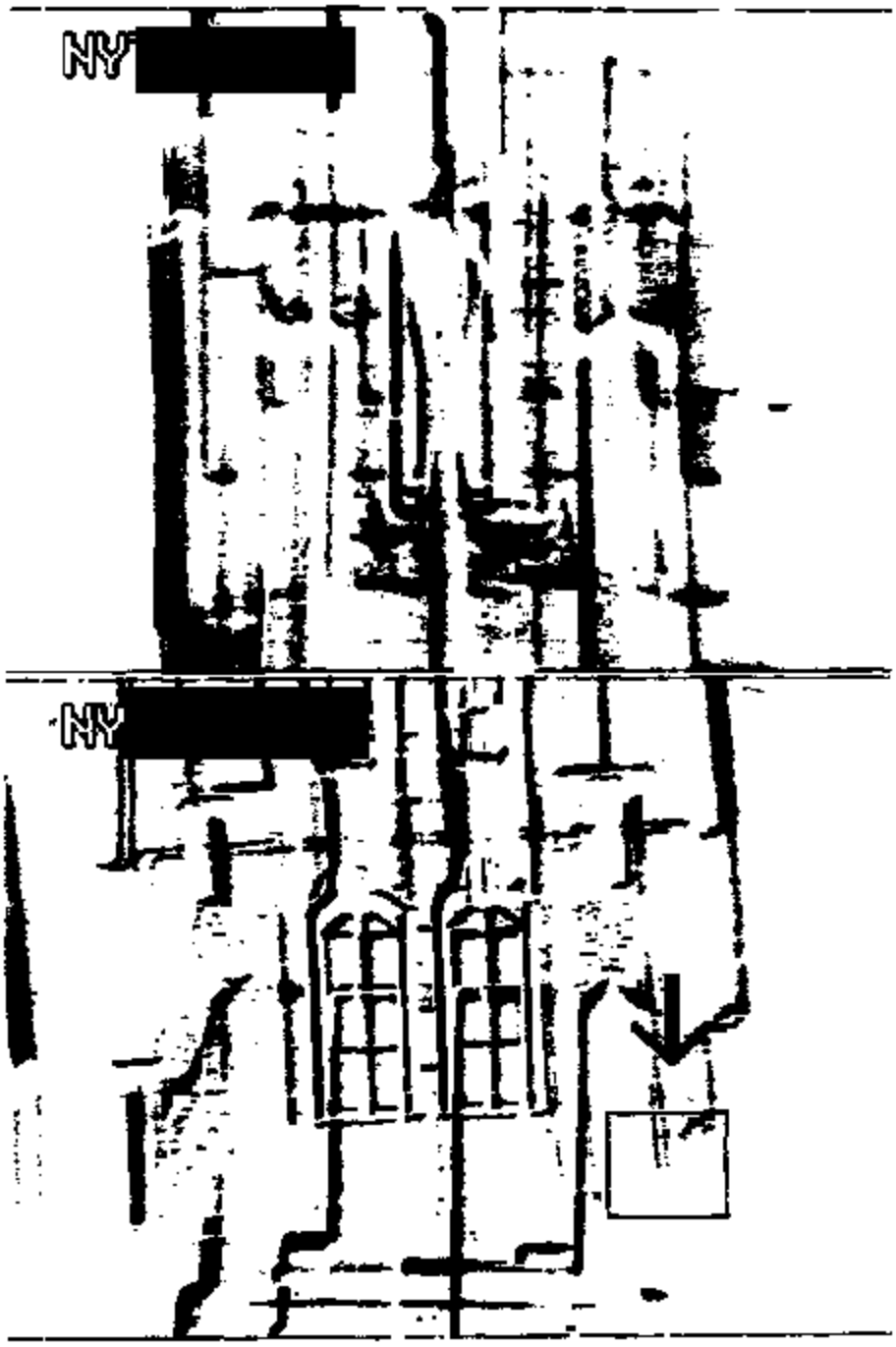
BOOK 37

PART 3 OF 3



3713 3105

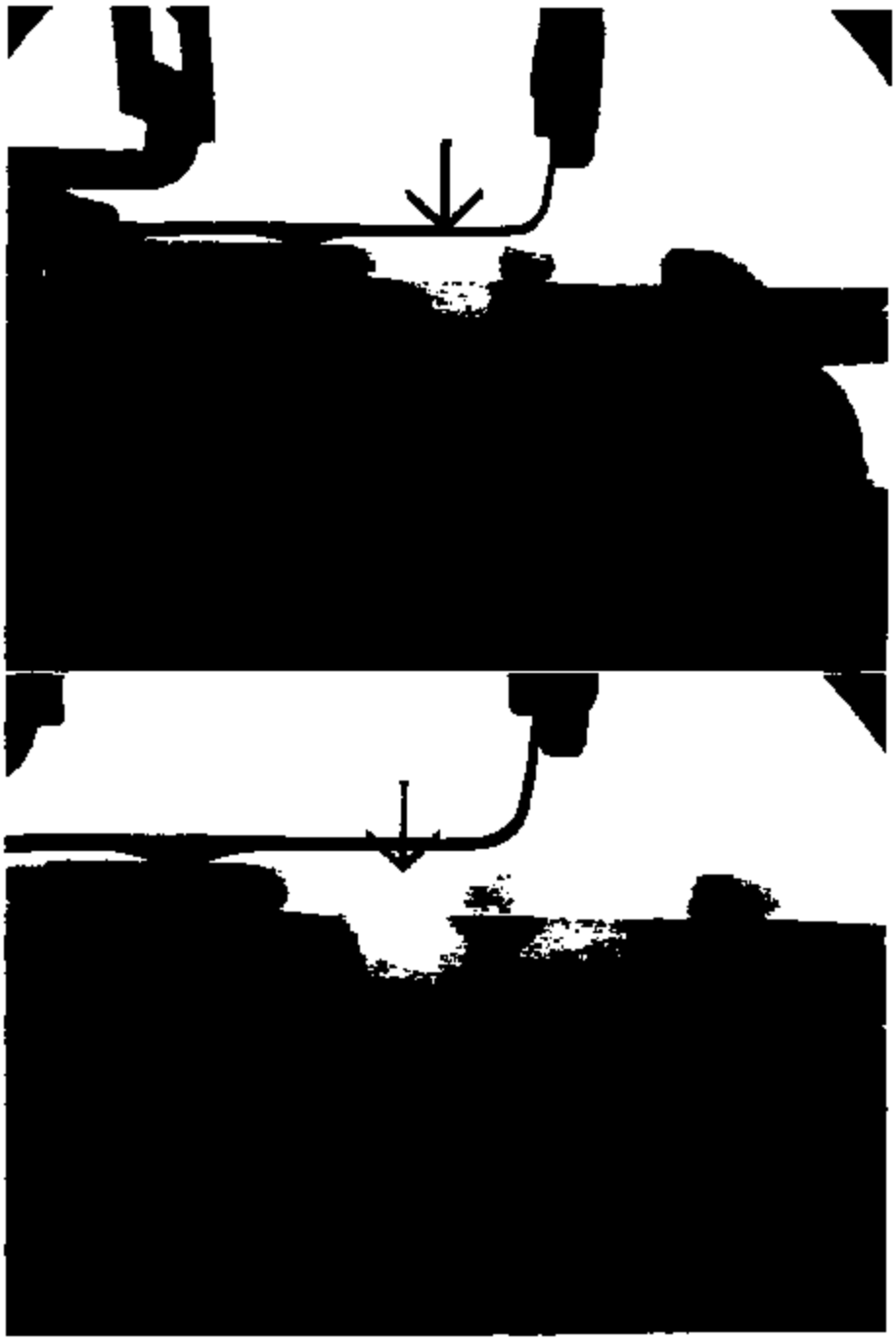
PRODUCED BY FORD



3713 3106

PRODUCED BY FORD

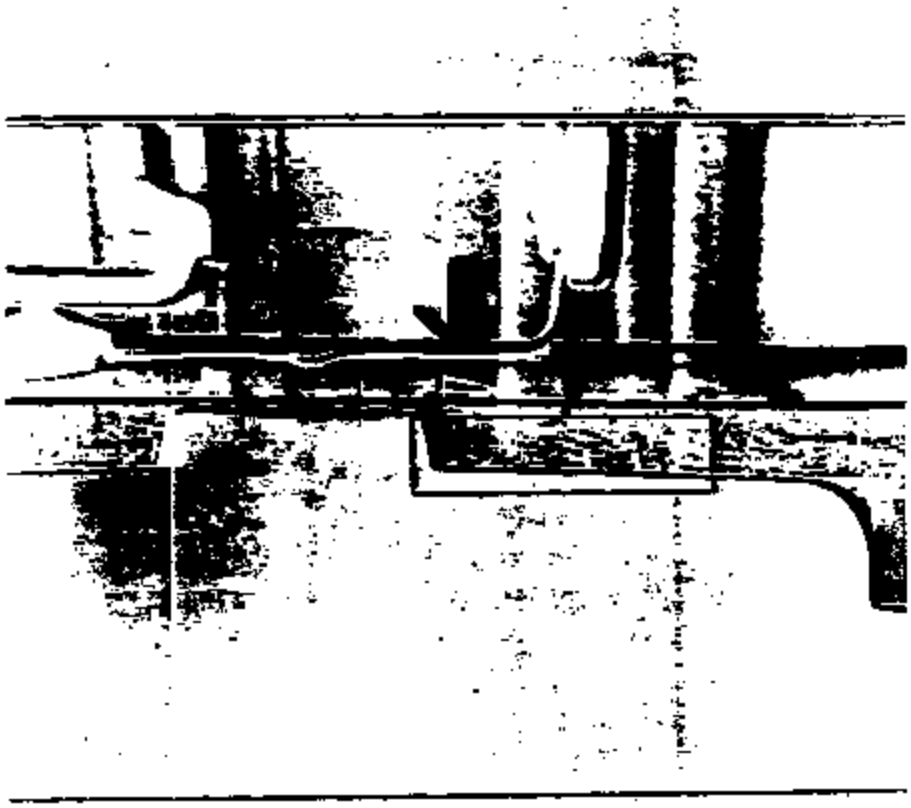
ER82-825-A 8868



3713 3107

PRODUCED BY FORD

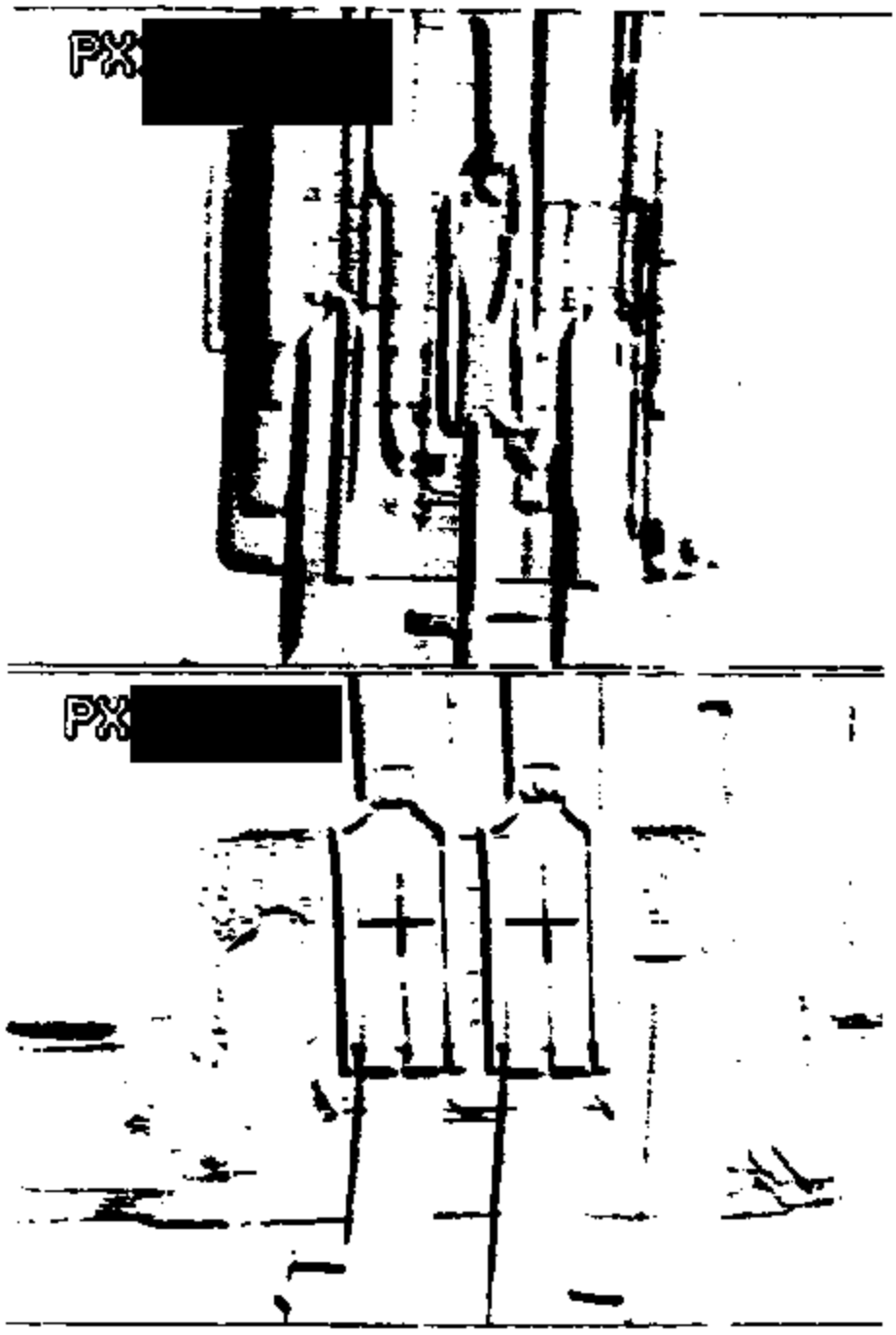
EA02-025-A 9808

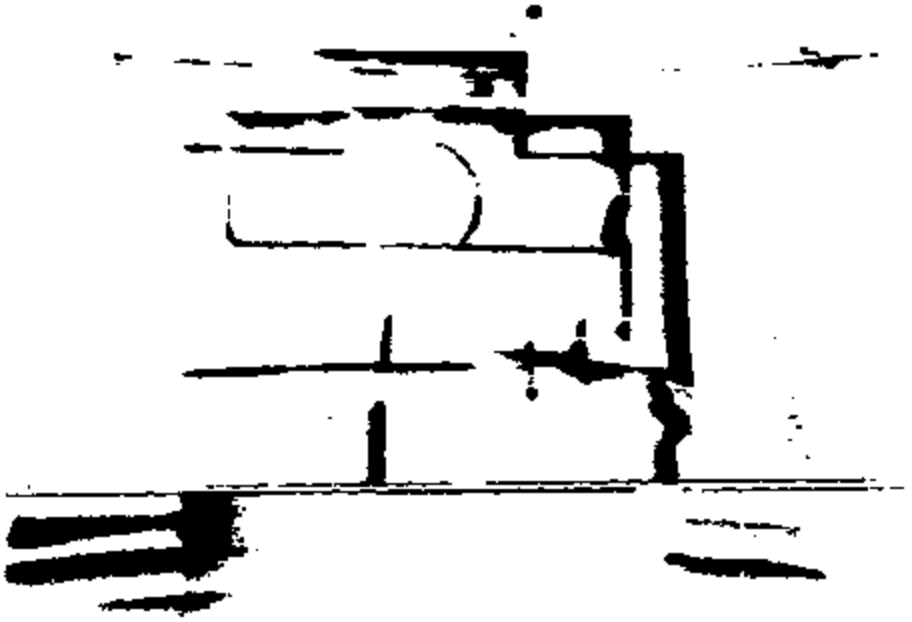


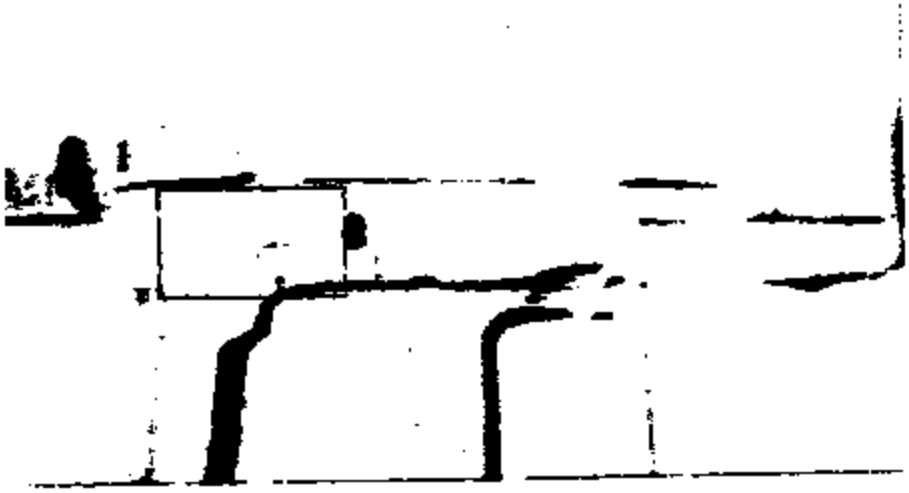
3713 3108

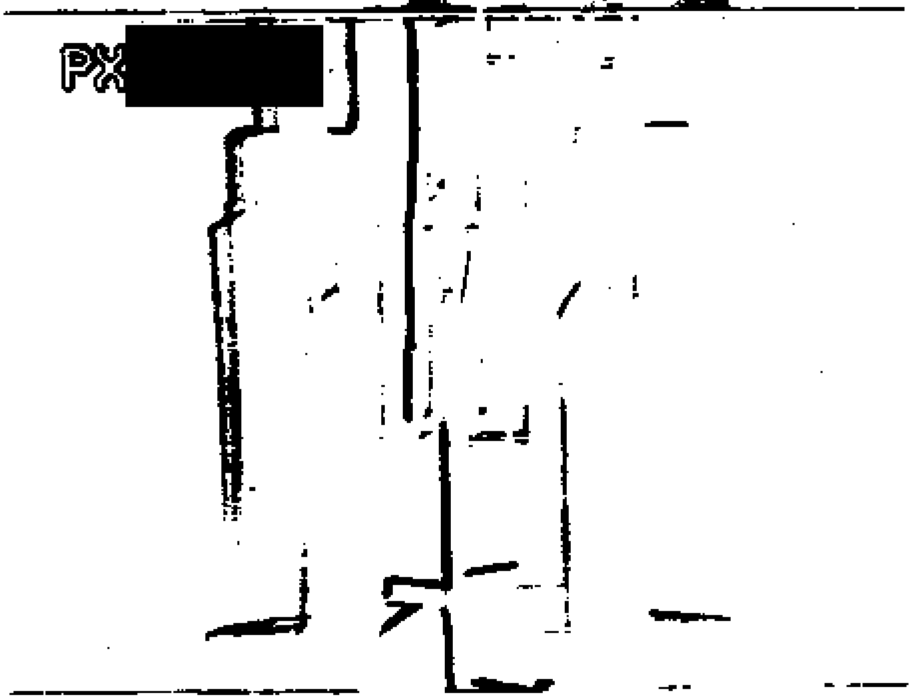
PRODUCED BY FORD

ER82-025-A 9906


PX
PX







3713 3111

PRODUCED BY FORD

EA02-025-A 0003

Request for Central Laboratory Service

Receipt - Copy

Lab Request Number: [illegible]
Date of Request: 02/22/1999 09:17:31 AM
Print Date: 05/20/1999 03:48:35 PM

Request Description: SPEED CONTROL CUTOFF SWITCH

Customer Information:
Primary Contact: [redacted] 10000
Secondary Contact: LA POINTE, NORM - 10075 [redacted]
Phone: (313) 594-2[illegible] PROFS ID: NLAPOINT Fax: (313) 337-[illegible]

Send Report to: MD [illegible], FNT MATERIALS, BLDG. #5
Bill to:
Analy.Location: 6100
Dept: T113
Work Task: XQ304

Sample Information:
Total Number of Containers: 21
Sample Handling: Return after test
Source: Not specified
Supplier Code: Not specified

Part/Material Name	Qty	Sample Identification	Part Number	Material Spec	CPSC Code	Supplier
SPEED CONTROL CUTOFF SWITCH	21	SEE ATTACHED SH EET	F2VY-9F924-A	NA	00.00.00	TEXAS INST RUMEN TS

Investigation Information:
Nature of Investigation: Failure Analysis
Long Term Project
Requester Info. Box: Mail typed report

Additional Sample Information/Testing Requirements:
EXAMINE, DOCUMENT, AND ANALYZE SWITCHES PER PROTOCOL ESTABLISHED BY N. LAPOINTE TO ASSIST IN DETERMINING CAUSE OF POSSIBLE SWITCH FIRE OR LEAKAGE. SWITCHES ARE FROM FIELD SURVEYS. MORE SWITCHES MAY FOLLOW.

Reporting Directions:
Date customer would like report: 04/01/1999
Date customer must have report: 04/01/1999

Report Format(s):

Log-In Information:
Initial Routing: Metallurgy
Accepted for Central Laboratory by: LaRouche, Steve
Phone: 84-54[illegible]

View your test status at: 'HTTP://[illegible].ford.com/[illegible]'

Program Name: KALIBLab Engr Module
Program Version: 3.0.0

3713 2517

[illegible]

Re[illegible]est for Central Laboratory Service

Receipt - Copy

Lab Request Number: [illegible]
Date of Request: 01/[illegible]/1999 11:1[illegible] AM
Print Date: [illegible]/1999 [illegible] PM

Request Description: SPEED CONTROL CUTOFF SWITCH

Requester Information:
Primary Contact: [redacted] 1[illegible]
Secondary Contact: LA POINTE, NORM - 10[illegible]75 Phone: (313) [illegible] PROFS ID: NLAPOINT Fax: (313) [illegible]

Send Report to: MD [illegible], RVT MATERIALS, BLDG. #5
Bill to: Acctg.Location: [illegible]
Dept: T113
Work Task: XQ304

Sample Information:
Total Number of Containers: 6
Source: Not specified
Sample Handling: Dispose after 30 days
Supplier Code: Not specified

Part/Material Name	Qty	Sample Identification	Part Number	Material Spec	CPSC Code	Supplier
SPEED CONTROL CUTOFF SWITCH	6	A,B,C,D,1[illegible], AND F	F2VY-[illegible]-A	NA	[illegible]	TEXAS INST RUMENTS

Investigation Information:
Nature of Investigation: Failure Analysis
Long Term Project
Requester Info. Disc: Mail typed report

Additional Sample Information/Testing Requirements:
DISASSEMBLE SWITCHES IN PRESENCE OF PERSONNEL FROM TEXAS INSTRUMENTS. PERFORM ANALYSES TO ASSIST IN DETERMINING CAUSE OF POSSIBLE SWITCH FIRE OR LEAKAGE.

Reporting Directions:
Date customer would like report: 0[illegible]/11/1999
Date customer must have report: 0[illegible]/11/1999

Report Format(s):

Lab Information:
Initial Routing: Metallurgy
Accepted for Central Laboratory by: LaRouche, Steve Phone: [illegible]

View your test status at: 'HTTP://[illegible]'

Program Name: KALIBLab Engr Module
Program Version: 3.0.0

Request for Central Laboratory Service
Receipt - Copy

Lab Request Number: 98801571
Date of Request: 06/12/1998 03:37:40 PM
Print Date: 05/28/1998 05:49:22 PM

Request Description: SPEED CONTROL CUTOFF SWITCH

Requestor Information:
Primary Contact: [redacted] 10069 [redacted]
Secondary Contact: LA POINTE, NORM - 10075 Phone: (313) 594-2896 PROFS ID: NLAPOINT Fax: (313) 337-6256

Send Report to: MD 8K046G086, RVT MATERIALS, BLDG. #5
Bill to:
Acctg Location: 5100
Dept: T113
Work Task: XG904

Sample Information:
Total Number of Containers: 17
Source: Not specified
Sample Handling: Return after test
Supplier Code: Not specified

Part/Material Name	Qty	Sample Identification	Part Number	Material Spec	CPSC Code	Supplier
SPEED CONTROL CUTOFF SWITCH	17	SEE ATTACHED SH EET	F2VY-9F924-A	NA	00.00.00	TEXAS INST RUMEN TS

Investigation Information:
Nature of Investigation/Requestor Info. Box: Mail typed report

Additional Sample Information/Testing Requirements:
Perform Tests as in Lab Number: 9806037
PERFROM TESTS AS IN 9806037 TO ASSIST IN DETERMINING CAUSE OF POSSIBLE LEAKAGE/FIRES. ADDITIONAL SWITCHES MAY FOLLOW.

Reporting Directions:
Date customer would like report: 07/01/1998
Date customer must have report: 07/01/1998

Report Format(s):

Log-In Information:
Initial Routing: Metallurgy
Accepted for Central Laboratory by: LaRonche, Steve Phone: 84-54076

View your test status at: 'HTTP://bdiweb.pd7.ford.com/kalis'

Program Name: KALIS/Lab Engr Module
Program Version: 3.0.0

3713 2519

PRODUCED BY FO

EA02-025-A 9996

****
* Note printed by FPORTER on 23 Feb 1999 at 16:26:19 *
****

From: I2060625--EXTERNAL Date and time 02/23/99 12:13:50
To: FPORTER --FORDMAIL 'Fred Porter (For NLAPOINT--FORDMAIL 'Norm LaPointe (F

From: Rahman, Aziz
Subject: FW: (U)Pressure Tests

You may have received this from Steve R. Interesting info on pressure profiles at various nodes. We will try to factor this into our vehicle test.

Regards
Aziz.

From: Steve Reimers SMTP:sreimers@ford.com
Sent: Friday, February 19, 1999 8:13 AM
To: Aziz Rahman, Texas
Subject: (U)Pressure Tests

fyi... I gave him a copy of your test plan and asked what pressure range and fr
equency we should instrument for.

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03288 ;>
*** Forwarding note from JJOYCE1 --DRBN007 02/18/99 19:40 ***
To: SREIMERS--DRBN007
cc: FPORTER --DRBN007

FROM: John Joyce USAET(UTC -05:00)
Subject: (U)Pressure Tests

Steve,

I got your note and will be on vacation tomorrow through Wednesday. Here's the info.

The more I think about this, the more I think TC activation may be the mechanism.

I am not sure of the order of the things connected and that can influence the low frequency amplitude of the signals. But the short answer is to instrument for 0-250 Bar and sample at 1 kHz or more.

Since I'm not sure of where the pressure switch is hydraulically connected I'll give you pressures at nodes and states I do know. The worst case for the switch would be to be connected between the HCU and the prop valve, which
is where I think it is.

This is the low frequency component of the signal, I'll talk about the high-frequency component further down.

MC - HCU NODE
Maximum Pressure - ~175 Bar

Achieved by getting maximum vacuum (high revving engine and suddenly close throttle) then standing on the pedal as hard as you can. I don't remember this number very well it might be as low as ~130 or as high as 220. It also depends on your leg strength. This type of pressure is VERY RARE at this mode. For this car, the driver will typically apply <20 bar and very rarely exceed 50 bar.

HCU - PROP VALVE MODE
Standing Still - Same as MC pressure - see above.

ABS Maximum - ~110 Bar
This is achieved by loading to GVW and performing an ABS stop. you may find that you are pedal effort limited, not limited by ABS control. It's pretty rare to get this high of pressure in this mode.

TCS Maximum - ~180 Bar
This is a good candidate. On this vehicle because the HCU had to pump through the prop valve to do the brakes-only traction control, the pressures coming out of the HCU got very high. The pressure relief valve on the pump VERY OFTEN dictated the peak pressure which could be developed - not the control - put another way, because the pressure at the rear brake had to restrain the entire powertrain (no engine intervention) and push through a prop valve, it was often possible to drive through the TC - the engine could overpower the brakes, even though very high pressures were being generated at the HCU. The noise during TC activation in these applications was very dependent upon the pressure relief valve opening point. So the pressure relief valve value got changed a few times over the years as performance was sacrificed for NVH. Also the tolerance on the pressure relief valves was fairly large - a total of 40 bar, at that time I believe. The pressure relief valve pressure might be anywhere from 90 to 180 bar depending on part-to-part variation and the design generation that was agreed upon.

You can achieve this easiest by getting the rear wheels off the ground and putting the car in drive. Get into the throttle hard, but not so hard that you drive out of first gear or faster than ~15 mph. If you maintain this for a while, the thermal model to protect the rear linings will disable the Traction Control. You will then need to wait for them to cool, before the function will be reenabled. You can dramatically accelerate
the cooling time by cruising (without braking) at about 40 mph.

Typical drivers can regularly get high pressures in this mode.

PROP VALVE - REAR BRAKE MODE
ABS Maximum Pressure ~70 Bar
Load to GVW and perform an ABS stop at maximum pedal effort.

TCS Maximum Pressure ~100 Bar
This pressure level is strongly dependent upon the pressure relief valve level - see above.

Standing Still
Same as ABS Maximum Pressure

High Frequency Content
The high frequency content has two parts. If you are not in ABS or Traction Control there is practically no high frequency content - the pressure is modulated at <10 Hz. This is basically limited by booster response times

and hydraulic dampening in the ABS orifices.

High Frequency Content Due To Control
During ABS/TC events the pressure is changed in quick steps. Typically it will increase by ~10 Bar in a few milliseconds, and this type of change occurs about every 100ms. The pressure will decrease by about 20 Bar every 300 ms. There can be quite a bit of variation in these numbers, but those are pretty typical. (Actually the numbers I assigned were for ABS, swap "increase" and "decrease" for TC activation.)

High Frequency Content Due to Shock Waves
This is a secondary effect from the control. Generally it is worst right at the outlet of the HCU. It is dampened and dissipated the further you get from the HCU. The shock wave is generated from the cyclical pulsing of the pump as well as the sudden changes in pressure when a solenoid valve is snapped open or shut.

The amplitude of this can be really big - I haven't looked at it in this generation unit for a few years, but I think it's about 50 Bar peak-peak right at the HCU. It will fall off as you move further away from the HCU.

The frequency is pretty high and I think some components are above the 1 kHz level, but you can get a very good idea of the disturbances by sampling at ~1kHz.

Regards,
John Joyce

****
* Note printed by FPORTER on 23 Feb 1999 at 11:18:50 *
****

From: I2060625--EXTERNAL Date and time 03/22/99 18:19:17
To: SREIMERS--FORDMAIL 'Steve Reimers (F SLAROUCH--FORDMAI 'Steve LaRouche (
NLAPOINT--FORDMAIL 'Norm LaPointe (F FPORTER --FORDMAIL 'Fred Porter (For

From: Rahman, Aziz
Subject: TI Durability

Norm,

I just confirmed. The durability tests were run at 135 C.

Regards
Aziz.

```
*************************************************************************
*          Note printed by FPORTER on 23 Feb 1999 at 11:16:59          *
*************************************************************************
```

From: I2060435--EXTERNAL Date and time 02/22/99 10:35:15
To: SLAROUCH--FORDMAI 'Steve LaRouche (SREIMERS--FORDMAIL 'Steve Reimers (F
NLAPOINT--FORDMAIL 'Norm LaPointe (F FPORTER --FORDMAIL 'Fred Porter (For
cc: OTFW0GYK--EXTERNAL Sharpe, Robert

From: Rahman, Aziz
Subject: TI Durability Samples

cc: 'Sharpe, Robert'<rsharpe@email.mo.ti.com>

I have the following disassembled samples with me and I will forward them to Steve L. today pm.

200k Cycles	2 samples
400k Cycles	2 samples
600k Cycles	2 samples
728k Cycles	1 sample (observed leakage)
800k Cycles	2 samples

This will be part of the library to establish lab tests vs field data.

Regards
Aziz.

3713 1226

2/24/99

Few Mtg Notes

[illegible] flush procedure?

[illegible] leakage 5 mA

[illegible] cause [illegible]

[illegible] ?

[illegible]

[illegible] mfr [illegible] VS

[illegible]

[illegible] Disc [illegible]

[illegible] [illegible]Improved [illegible] inhibitor in Brake Fluid ([illegible] Delphi)

[illegible]

92-94 [illegible]

3713 1795

PRODUCED BY FORD

EA02-025-A 18082

2/2

2/24/?

Mtg Hopkins & Attleboro

- samples off Memphis Switch

[illegible] these [illegible] fuses? No ATO

Does [illegible] the increase [illegible]

[illegible]ture in switch at [illegible]?

[illegible]

[illegible] from Brake Fluid [illegible].

[illegible] process uses sulfur.

[illegible] switch [illegible] Carbon what

happens to insulation resistance

3713 1799

PRODUCED BY FORD

2/24/99
3/3

Look into fire retardant case mtl?

New Tests
Include Chlorine as corrosive
[illegible]late as corrosive

[illegible] 500 hour Test

[illegible]

[illegible]

[illegible]

3713 1800

PRODUCED BY FORD

EA02-025-A 18884

Actions 2/24/[illegible]

✓ Go look at cars

OK Prepare to do combustion test on base w/harness attached. Check w/ [illegible]

✓ Request Battery drain warranty with BP Sw replacement

– Get effective date for Quiet Sw F2AC [illegible]

✓ [illegible] monitor with optics [illegible]

– Test loose metal in switch cavity

– Check AFG for 74/75 Town Car

– [illegible]

– [illegible]

✓ Team meeting w/DOW

– [illegible]

3713 1601

C = COMPLETE
NA = NOT APPLICABLE
TBP = TO BE PERFORMED

Brake Switch Testing Checklist

INF = INFINITY (OPEN)
NP = NOT PERFORMED
NRCLS = NOT RECD AT CEN. LAB

			7	97	Mar-97	Oct-95	93	97	97	92
			TX[redacted]	X[redacted]	[redacted]	[redacted]	P[redacted]	L[redacted]	L[redacted]	7X[redacted]
Field Info	1	[illegible]	C	C	C	C	C	C	C	C
	2	[illegible]	C	C	C	C	C	C	C	C
	3	[illegible]	C	C	C	C	C	C	C	C
	4	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
		[illegible]								
Switch + Connector Assembly	5	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	6	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	7	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	8	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
Connector Only	9	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	10	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	[redacted]									
	12	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	13	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	14	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	15	[illegible]	NP	NP	NP	NP	NP	NP	NP	NP
Switch External Unpressurized	16	[illegible]	—	—	—	—	—	—	—	—
	17	[illegible]	0.03 Ω	0.01 Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.01 Ω
	18	[illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	19	[illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	20	[illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	[redacted]									
Switch External Pressurized	21	[illegible]	156 Ω	158 Ω	230	266	137	261	251	195
	22	[illegible]	96	98	165	188	58	183	184	73
	23	[illegible]	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK
	24	[illegible]	—	—	—	—	—	—	—	—
	17	[illegible]	∞	∞	∞	0.02 Ω	∞	0.01 Ω	0.02 Ω	—
	18	[illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	19	[illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	20	[illegible]	∞	∞	∞	∞	∞	∞	∞	∞
Switch	28	[illegible]								
	29	[illegible]								
	30	[illegible]								
	31	[illegible]								
Techniques	31	[illegible]								
	32	[illegible]								
	33	[illegible]								
		[illegible]								

3713 3289

PRODUCED BY FORD

EF62-0025-A 10861

C = COMPLETE
NA = NOT APPLICABLE
TBP = TO BE PERFORMED

Brake Switch Testing Checklist

INF = INFINITY (OPEN)
NP = NOT PERFORMED
NRCLS = NOT REC'D AT CEN. LAB.

		1? [redacted]							
Field Info	1 [illegible]	C							
	2 [illegible]	C							
	3 [illegible]	C							
	4 Check for [illegible] engagement	NP							
	[illegible]								
Switch + Connector Assembly	5 [illegible]	NP							
	6 [illegible]	NP							
	7 [illegible]	NP							
	8 [illegible]	NP							
Connector Only	9 [illegible]	NP							
	10 [illegible]	NP							
[redacted]									
	12 Check [illegible]	NP							
	13 Check wire [illegible]	NP							
	14 Check [illegible]	NP							
	15 [illegible]	NP							
Switch External Unpressurized	16 [illegible]	—							
	17 [illegible]	1.11 Ω							
	18 [illegible]	∞							
	19 [illegible]	∞							
	20 [illegible]	∞							
[redacted]									
Switch External Pressurized	24 Switch Opening Pressure	1.25							
	25 Switch Closing Pressure	80							
	26 Proof Test for leakage	NO LEAK							
	27 [illegible]	—							
	17 [illegible]	∞							
	18 [illegible]	∞							
	19 [illegible]	∞							
	20 [illegible]	∞							
Switch	28 [illegible]								
	29 [illegible]								
	30 [illegible]								
	31 [illegible]								
Techniques	31 [illegible]								
	32 [illegible]								
	33 [illegible]								
	[illegible]								

3713 3290

Project No. [redacted]

44 Book No. 3744 TITLE

From Page No.

TO: [redacted]

SUBJECT: SPEED CONTROL CANCEL SWITCH

PART NUMBER: F2VY-9F924-A

SPECIFICATION: NOT PROVIDED

SUPPLIER: TEXAS INSTRUMENTS

RECEIVED: SEVENTEEN SPECIMENS WERE RECEIVED ON MAY 12, 1999.

OBJECT: TEST SWITCH PER MATRIX PROCEDURE AND EVALUATION PROCESS INSTRUCTIONS THAT WERE PROVIDED.

TEST DATA:

SEE MATRIX CHARTS ATTACHED TO THE FILED REPORT.

To Page No.

Witnessed & Understood by me. | Date | Invented by | Date 6-25-99

Recorded by

3713 3291

PRODUCED BY FORD

ER82-625-A 10883

STA Mtg	BPS	5/21/97

John Rantis, Andy, FRED, Steve,

Team meeting – "Prevent action" chart plans development

– Recall parts examine plan

XRAY
TEST TO FAILURE
REGIONAL STAMPING

– Invite John Rantis
jrantis

JUNE 17-18 TRIP TO ATTLEBORO

– LINE VISIT — John / MC
– UNDERSTAND 92 PROCESS — JOE K ?
– " 99 PROCESS — TOM M ?
Norm LaPointe ?

3713 1786

SMMPSXEA Service to Engineering Cross Reference 09/01/00 14:52:57
==>

SERVICE PART: 1W1Z- 2140-AA___ CYLINDER ASY - MASTER
HISTORY: N

A C	ENGINEERING PART	ENG. INFO ORIGIN	EFFECTIVE IN DATE	Effective Out Date
	1W13 2C156 AA	WERS	12/14/99	

F1=Help F2=ServPartDisp F5=EngPartDisp F6=EngServXref
NO MORE RECORDS AVAILABLE EFT54AM

ES F17A- 2L118-AA

ES 1374

ES 2669-1

ES 2922

SMMPSXBA Service to Engineering Cross Reference 09/01/00 14:53:10
==> _____

SERVICE PART: 1W1Z- 2140-BA___ CYLINDER ASY - MASTER
HISTORY: N

A C	ENGINEERING PART	ENG. INFO ORIGIN	EFFECTIVE IN DATE	Effective Out Date
	1W13 2C156 BA	WERS	12/14/99	

F1=Help F2=ServPartDisp F5=EngPartDisp F6=EngServXref
NO MORE RECORDS AVAILABLE EFT54AM

09/01/00 MATTER CHANGE REPORT for NLAPOINT
(for past 2 months)

C = Matter Change; * = Changed field; N = New Matter

LOG DATE		NUMBER	MATTER NAME	STATUS	OGC ATTY	TRIAL DATE	OC FIRM
08/01/00	C	966611	SOUTH DAKOTA FLEE	OPEN	*DLAMPE		
08/01/00	C	402108	SOUTH DAKOTA STAT	OPEN	*DLAMPE		
08/01/00	C	402107	SOUTH DAKOTA STAT	OPEN	*DLAMPE		
07/06/00	N	410536	HUBBARD TROY	OPEN	DLAMPE		AZ36
07/05/00	C	403443	MYERS JEFFREY L	*CLSD	NGRABOWS		

Susan to call me back!

- FMEA for shorted switch.
- FMEA for failed BOO functio
- What does competition do? SALTER
- Why a P switch? VISTEON
- Immediate action (Containment)
  - Disconnect Switch (Remove & Repl
  - Re-wire to low-side
  - ~~Short~~ Jumper out switch

- 14 D

- OTHER TEAM MEM
VO - TOWNC

- Competitive Analysis. of Redundant Sw. does comptr use it.
- Is it a Redundant sw?
- FAILS REQUIRE NOT ALL TIME
- Cut away of switch
-

TOM REEVES

3713 1818

PRODUCED BY FORD

ER82-625-A 19878

INTERIM REPAIR

DISABLE SPEED CONTROL DEACTIVATION SWITCH

SERVICE PROCEDURE

1. Disconnect the electrical connector from the speed control deactivation switch. See Figure 1.

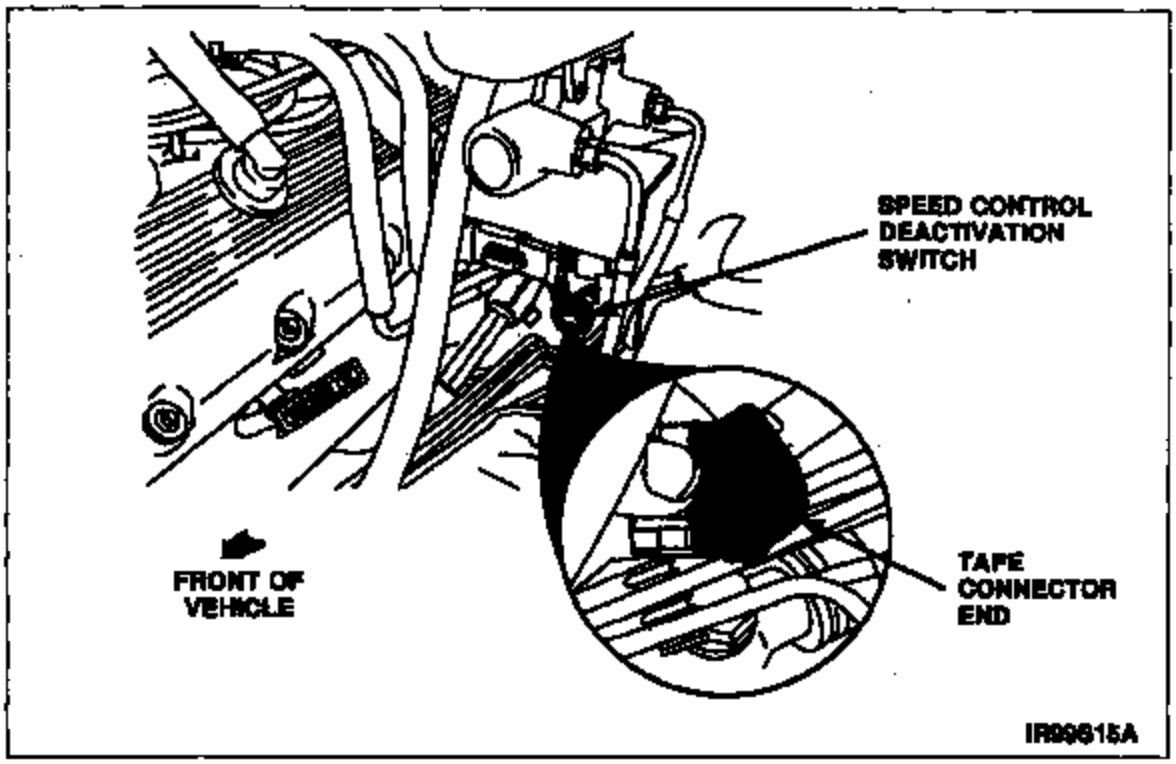


FIGURE 1

2. Tape the end of the connector to prevent contamination from entering the end of the connector.
3. Tie strap the connector to the wiring harness located on the left splash shield.

PERMANENT REPAIR

SPEED CONTROL DEACTIVATION SWITCH AND CONNECTOR REPLACEMENT

AFFECTED VEHICLES: CERTAIN 1992 AND 1993 CROWN VICTORIA, GRAND MARQUIS AND TOWN CAR WITH SPEED CONTROL

OVERVIEW

This repair involves replacement of the speed control deactivation switch and the hard shell of the switch electrical connector. The connector terminals will be removed from the old connector hard shell and inserted into the *new* connector hard shell.

PROCEDURE

1. Install a memory saver and disconnect the negative battery terminal.
2. Disconnect the electrical connector from the speed control deactivation switch. See Figure 2.

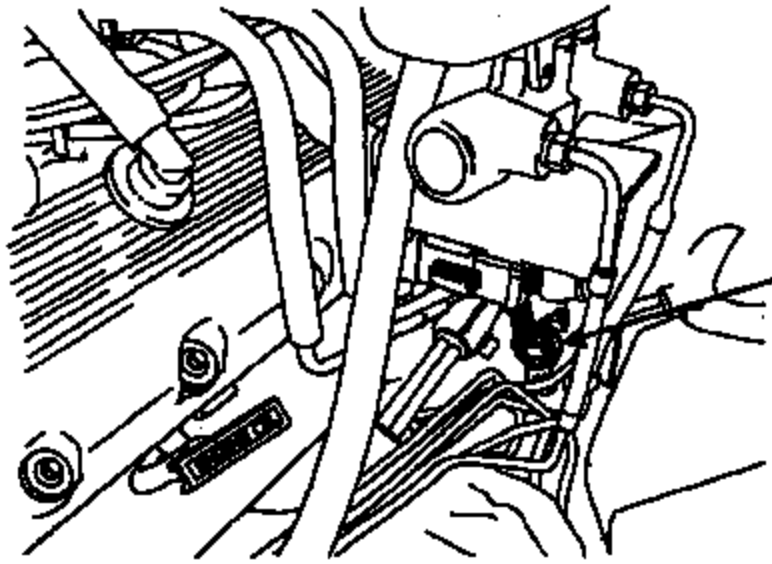


FIGURE 2

3. Remove the locking wedge from the end of the connector. Then, disengage the locking tabs and remove the wire terminals from the connector. See Figure 3.

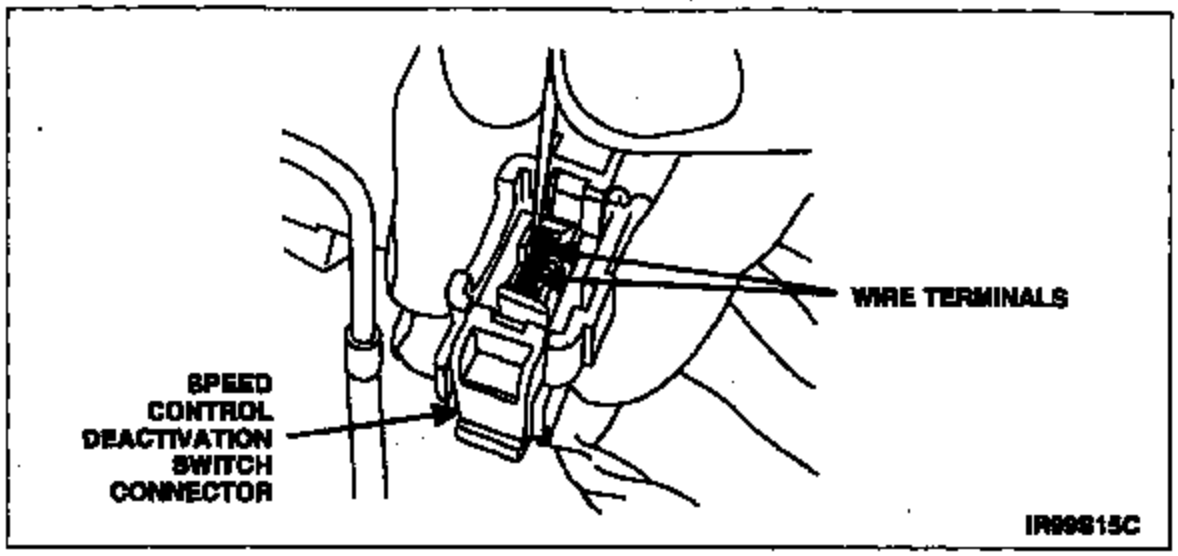


FIGURE 3

4. Obtain the *new* connector from the kit. Insert both wire terminal ends through the connector seal and into the connector hard shell. (The wire terminal ends may be installed into either of the connector cavities).
5. Check the connector to make sure the locking tabs have engaged both terminal ends. Also, make sure the seal is fully seated in the back of the connector. Then, install the red locking wedge to secure the terminals in the connector.
6. Obtain the speed control deactivation switch from the parts kit.
7. Remove the old speed control deactivation switch.
8. Fill the *new* speed control deactivation switch with High Performance DOT 3 Brake Fluid and install the speed control deactivation switch. Tighten the switch to 18 Nm (13 lb-ft).
9. Attach the electrical connector to the speed control deactivation switch.
10. Connect the battery negative cable and remove the memory saver.
11. Raise the vehicle on a holst.
12. Connect a clear drain tube to the RH rear bleeder screw and the other end in a container partially filled with the recommended brake fluid.
13. Have an assistant pump the brake pedal and then hold firm pressure on the brake pedal.
14. Loosen the RH rear bleeder screw until a stream of brake fluid comes out. While the assistant maintains pressure on the brake pedal, tighten the bleeder screw.
    - Repeat until clear, bubble-free fluid comes out.
    - Refill the brake master cylinder reservoir as necessary.
15. Repeat Steps 12-14 for the LH rear bleeder screw.
16. Lower the vehicle.

Irv Salmeen

From: Irving Salmeen
Sent: Wednesday, February 24, 1999 8:15 AM
To: isalmeen@pobox.srl.ford.com
Subject: DOW Rep Meeting

Regards,
IRVING SALMEEN
*** Forwarding note from SREIMERS--DRBN007 02/23/99 11:09 ***
To: PKILLGOA--DRBN005 ISALMEEN--DRBN005
cc: JNEME --DRBN005 FPORTER --DRBN007 Porter, F.J.

FROM: Steve Reimers USAET(UTC -05:00)
Subject: DOW Rep Meeting
Meeting has been changed to Wednesday 2/24/99, 2pm in bldg 5 rm 3A039.
This is supporting a NHTSA investigation of underhood fires. We really need the right people on this team. Please call me if you have any questions or if you need further justification to support this effort.
thanks,

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03266 SREIMERS sreimers@ford.com fax 39-03266 :>
*** Forwarding note from SREIMERS--DRBN007 02/22/99 15:32 ***
To: PKILLGOA--DRBN005 ISALMEEN--DRBN005

FROM: Steve Reimers USAET(UTC -05:00)
Subject: DOW Rep Meeting
Need a Chemistry or Materials expert to help sort out what is or maybe potentia l reactions leading to brake fluid ignition inside the switch cavity of the Bra ke Pressure switch. The main question is given the constraints of battery volt age, 15 amps maximum current, and the combination of brake fluid, copper, zinc, silver, sulfur, and an inductive load induced arc can there be combustion? Als o, where does the sulfur come from?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03266 SREIMERS sreimers@ford.com fax 39-03266 :>
*** Forwarding note from SREIMERS--DRBN007 02/19/99 12:37 ***
To: JNEME --DRBN005 FPORTER --DRBN007 Frederick J. Porte
RENGLIS1--DRBN005 SSALTER --DRBN005
NLAPOINT--DRBN005 TMASTERS--DRBN005
JKAFATI --DRBN004 SREIMERS--DRBN007 Steve Reimers
FKOHL --DRBN007 Fred Kohl TBAZIL --DRBN005
JMCINERN--DRBN005 DGOEL --DRBN005
LBROWN --DRBN005 SCOLE1 --DRBN005
HWELFER3--DRBN005 GSTEVEN1--DRBN005
WABRAMCZ--DRBN005 MREESE --DRBN005
SLAROUCH--FORDNA1 TSCHRODY--VISTEON
DBUDZYNS--VISTEON PSTOKES --VISTEON
I2060625--EXTERNAL OTPW0GYK--EXTERNAL

FROM: Steve Reimers USAET(UTC -05:00)

3713 5062

ER02-025-A 18606 PRODUCED BY FORD

Requester: Steve Reimers
Date to be scheduled: 02/23/99
Starting time: 09:00 AM
Ending time: 11:00 AM

Location: bldg 5 3A017

Subject: DOW Rep Meeting

Purpose: Discuss with DOW the brake pressure switch.
Attend Only if interested in materials questions?

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À À _û û[ÛM
****

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03258 SREIMERS sreimers@ford.com fax 39-03286

Irv Salmeen

From: Irving Salmeen
Sent: Wednesday, February 24, 1999 8:15 AM
To: isalmeen@pobox.srl.ford.com
Subject: DOW Rep Meeting

Regards,
IRVING SALMEEN
*** Forwarding note from SREIMERS--DRBN007 02/22/99 15:32 ***
To: PKILLGOA--DRBN005 ISALMEEN--DRBN005

FROM: Steve Reimers USAET(UTC -05:00)
Subject: DOW Rep Meeting
Need a Chemistry or Materials expert to help sort out what is or maybe potentia l reactions leading to brake fluid ignition inside the switch cavity of the Bra ke Pressure switch. The main question is given the constraints of battery volt age, 15 amps maximum current, and the combination of brake fluid, copper, zinc, silver, sulfur, and an inductive load induced arc can there be combustion? Als o, where does the sulfur come from?

Roc
Will you please look into this.
Thanks
Irv

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
*** Forwarding note from SREIMERS--DRBN007 02/19/99 12:37 ***

To: JNEME --DRBN005	FPORTER --DRBN007 Frederick J. Porte
RENGUS1--DRBN005	SSALTER --DRBN005
NLAPOINT--DRBN005	TMASTERS--DRBN005
JKAFATI --DRBN004	SREIMERS--DRBN007 Steve Reimers
FKOHL --DRBN007 Fred Kohl	TBAZIL --DRBN005
JMCINERN--DRBN005	OGOEL --DRBN005
LBROWN --DRBN005	SCOLE1 --DRBN005
HWELFER3--DRBN005	GSTEVEN1--DRBN005
WABRAMCZ--DRBN005	MREESE --DRBN005
SLAROUCH--FORDNA1	TSCHRODY--VISTEON
DBUDZYNS--VISTEON	PSTOKES --VISTEON
I2050625--EXTERNAL	OTFW0GYK--EXTERNAL

FROM: Steve Reimers USAET(UTC -05:00)

Requester: Steve Reimers
Date to be scheduled: 02/23/99
Starting time: 09:00 AM
Ending time: 11:00 AM

Location: bldg 5 3A017

Subject: DOW Rep Meeting

Purpose: Discuss with DOW the brake pressure switch.
Attend Only if interested in materials questions?

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3713 5050

PRODUCED BY FORD

EA02-025-A 18988

Steve Reimers building 6 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 :>

[redacted]
From: Irving Salmeen
Sent: Wednesday, February 24, 1999 8:15 AM
To: Isalmeen@pobox.srl.ford.com
Subject: DOW Rep Meeting

Regards,
IRVING SALMEEN
*** Forwarding note from SREIMERS--DRBN007 02/23/99 11:09 ***
To: PKILLGOA--DRBN005 ISALMEEN--DRBN005
cc: JNEME --DRBN005 FPORTER --DRBN007 Porter, F.J.

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Steve Reimers building 5 3C043
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39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
*** Forwarding note from SREIMERS--DRBN007 02/22/99 15:32 ***
To: PKILLGOA--DRBN005 ISALMEEN--DRBN005

FROM: Steve Reimers USAET(UTC -05:00)
Subject: DOW Rep Meeting
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age, 15 amps maximum current, and the combination of brake fluid, copper, zinc,
silver, sulfur, and an inductive load induced arc can there be combustion? Als
o, where does the sulfur come from?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
*** Forwarding note from SREIMERS--DRBN007 02/19/99 12:37 ***
To: JNEME --DRBN005 FPORTER --DRBN007 Frederick J. Porte
RENGLIS1--DRBN005 SSALTER --DRBN005
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FKOHL --DRBN007 Fred Kohl TBAZIL --DRBN005
JMCINERN--DRBN005 DGOIEL --DRBN005
LBROWN --DRBN005 SCOLE1 --DRBN005
HWELPERS--DRBN005 GSTEVEN1--DRBN005
WABRAMCZ--DRBN005 MRGEBE --DRBN005
SLAROUCH--FORDNA1 TSCHRODY--VISTEON
DBUDZYN8--VISTEON PSTOKES --VISTEON
I2080625--EXTERNAL OTPWOGYK--EXTERNAL

FROM: Steve Reimers USAET(UTC -05:00)

Requester: Steve Reimers
Date to be scheduled: 02/23/99
Starting time: 09:00 AM
Ending time: 11:00 AM

Location: bldg 5 3A017

Subject: DOW Rep Meeting

Purpose: Discuss with DOW the brake pressure switch.
Attend Only if interested in materials questions?

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Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Tonake Pressure Switch Mtg 2/24/?

Steve Reimers	SREIMERS	x 03286	AVT/EESE
Shawn McCarthy	SMCCARTS	x 21355	FRL
Roe Carter	RCARTER	x31733	FRL
Dave Bauer	DBAUER3	x 41756	FRL
[illegible]	[illegible]	x 37595	[illegible]
GREG STEVENS	GSTEVEN1	x 36686	AVT MAT L
NORM LAPOINTE	NLAPOINT	X42686	AVT. DES. [illegible]
STEVE LAROUCHE	SLAROUCH	54876	CENTRAL LAB
PETE KLAAS	PKLAAS	21613	CENTRAL LAB
MK KITT (DOW)	MKTT@DOW.COM	225 353 6345	[illegible]
Ken Gribble	KGribble	38658	AEVT M. [illegible]
[illegible]	[illegible]T.COM		
ROB ENGLISH	RENGLIS1	73225	AVT-SESE
[illegible]	[illegible]	x 33384	[illegible]
[illegible]			
SCOTT URBINA	SURBINA@DOW.COM	248-[illegible]	Dow Automotive
Fred Polter	FPOLTER	(313)84-53722	AVT-ESE

3713 1797

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E002-026-A 10012

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**************************************************************************
*          Note printed by FPORTER on 4 Mar 1999 at 11:09:55            *
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From: SLAROUCH--FORDMA1 Date and time 03/02/99 11:56:23
To: FPORTER --FORDMAIL Porter, Fred (F.J. NLAPOINT--FORDMAIL LaPointe, Norman (
SREIMERS--FORDMAIL Reimers, Steve (S. I2060625--EXTERNAL 'A. Rahman'
SMCCART3--FORDMAIL McCarthy, Shaun (S SLAROUCH--FORDMA1 LaRouche, Steve (S

From: LaRouche, Steve (S.)
Subject:

We have found three switches so far (including the one to be analyzed by the Sci Lab), that will not open electrically when disc is heard to snap under application of air pressure. I sectioned one of these switches and found what appears to be water (it evaporated rather quickly at room temp) and corrosion product. I found that the transfer pin has been stuck in place by the corrosion products. What this means, is that even if the disc snaps, the pin will not pull back, and the contacts will not open. None of these switches showed evidence of diaphragm leakage on the test stand.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room M418
(313) 845-4876 (313) 322-1614 FAX

3713 1371

Shaun Mccarthy

From: Shaun Mccarthy
Sent: Tuesday, March 02, 1999 2:50 PM
To: smccart3@gw.ford.com
Subject: NO SUBJECT

Regards,
SHAUN McCarthy__SRL Room 1339 Mail Stop 1170
32-21366 FAX 32-31129
*** Forwarding note from SLAROUCH--FORDNA1 03/02/99 11:56 ***
To: FPORTER --FORDMAIL Porter, Fred (F.J. NLAPOINT--FORDMAIL LaPointe, Norman (
SREIMERS--FORDMAIL Reimers, Steve (S. I2080625--EXTERNAL 'A. Rahman'
SMCCART3--FORDMAIL McCarthy, Shaun (S SLAROUCH--FORDNA1 LaRouche, Steve (S

From: LaRouche, Steve (S.)
Subject:

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Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room N410
(313) 845-4576 (313) 322-1614 FAX

Brake Pressure Switch Meeting 1/3

3/3/99

	EMAIL		
Steve Reimers	SREIMERS	X03286	ANT/EESA
Fred Porter	FPORTER	X53722	ANT/EESE
M. P. Reese	MREESE	x77142	OPD LVC
Rob Sharpe	rsharpe@ti.com	(512) 385-8749	Texas Instruments
Greg Stevens	GSTEVEN1	x 36686	ANT MAT'L
Karen LaPointe	KLAPOINT	x42686	ANT/DES. Link
Steve LaRouche	SLAROUCHE	54876	CENTRAL LINK
Andy McGuire	A-MCGUIRE@TI.COM	508 263 2680	TI QRA
WILLIAM M. ABRAMCZYK	WABRAMCZ	313 32 23284	ASO

* Steve Beringhouse / Bryan Bogus from TI on conference call speaker phone.

3713 1794

PRODUCED BY FORD

EA02-025-A 18815

RVT - EESE WORKPLAN FOR 92-93MY TOWN CAR UNDERHOOD FIRES

	Champion	Target Complete Date
Read, assess, and categorize COIS verbatims:		
(A). Town Car, CV/GM.	RVT-Elect	A - 3/8/99
(B). Econoline and F-Series.	RVT-Elect	S - 3/12/99
(2). Identify underhood hot at all times wiring circuits and electrical components.	RVT-Elect	S - 3/9/99
(A). Draw possible conclusions relative to COIS verbatims.	RVT-Elect	S - 3/10/99
(3). Review previous repair info on 47 Town Cars identified with underhood fires:	RVT-Elect	A - 3/5/99
(A). Draw possible conclusions relative COIS verbatims.	RVT-Elect	S - 3/9/99
(4). Correlate 47 Town Cars against orderable options - traction assist and trailer tow.		
(A). First 31 out of 47 Town Cars.	FCSD	A - 3/1/99
(B). Last 16 out of 47 Town Cars.	FCSD	S - 3/10/99
(C). Draw possible conclusions relative to COIS verbatims.	RVT-Elect	S - 3/11/99
(5). Perform field inspections of the 47 Town Cars:		
(A). Perform phone survey using questionnaire by RVT-EESE and Design Analysis.	LVC-Safety	S - 3/15/99
(B). Litigation Prevention Team follows up with selected field reviews of vehicles.	LVC-Safety	S - 4/5/99
(6) Brake Pressure Switch:		
(A). Determine root cause.	RVT-Chassis	
(B) Brainstorm and identify possible resolution proposals.	RVT-Chassis	S - 3/10/99
* Recommend resolution proposal along with supporting rationale.	RVT-Chassis	S - 3/22/99
(C). Identify required DVP&R testing: CAE and/or Bench and/or In-Vehicle, etc.	RVT-Chassis	
* Complete DVP&R testing.	RVT-Chassis	
(D) Determine manufacturing feasibility with affected suppliers.	RVT-Chassis	S - 3/17/99
* Obtain supplier cost/timing/tools to support resolution proposal.	RVT-Chassis	
(E) Determine Assy Fees for proposal - review installation procedure with FCSD.	RVT-Chassis	S - 3/17/99
(F) Complete 14D white paper.	RVT-Chassis	

[illegible] created 3/4/1999 revised 3/8/99. Page 1 of 1 C: [illegible]

3713 1752

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*****************************************************************************
*          Note printed by FPORTER on 5 Mar 1999 at 17:40:04               *
*****************************************************************************

From: TBAZIL   --DRBN005                       Date and time    03/05/99 08:12:05
To: SREIMERS--DRBN007  Reimers, Steve
cc: BEGEN    --DRBN007                       MKERBE   --DRBN005
    BPRABE   --DRBN005                       LSMITTH  --DRBN005
    NLAPOINT--DRBN005                        FPORTER  --DRBN007

FROM: Tom Bazil                                   USAET(UTC -05:00)
Subject: Brake pressure Switch
I don't think so without greater risk than existing ideas, but I welcome ideas
from cos.

Have a good day!
--------------------------------------------------------------------------
Thomas S. Bazil (313) 59-47547 Lrg & Lux Car CPD Brake/Veh Supv
Drop 1229-LVC, Cube 24-E36, fax 61-16678, pager (888) 375-6449
*** Forwarding note from SREIMERS--DRBN007  03/04/99 11:15 ***
To: TBAZIL   --DRBN005  Bazil, Tom
cc: NLAPOINT--DRBN005                        FPORTER --DRBN007  Porter, F.J.

FROM: Steve Reimers                               USAET(UTC -05:00)
Subject: Brake pressure Switch
Tom, Another potential solution... Isolate the pressure switch hydraulic port f
rom the vehicle ground.  Is there a way to connect the brake pressure switch to
 the prop-valve hydraulic port with a non-conductive tubing or spacer or someth
ing else????

Steve Reimers                                 building 5  3E008
AVT Chassis E/E System Applications           mail drop  5011
39-03286 SREIMERS    sreimers@ford.com        fax 39-03286       :>
```

3713 1370

****
* Note printed by FPORTER on 15 Mar 1999 at 17:27:35 *
****

From: SLAROUCH--FORDMA1 Date and time 03/12/99 13:03:30
To: NLAPOINT--FORDMAIL LaPointe, Norman SLAROUCH--FORDMA1 LaRouche, Steve
FPORTER --FORDMAIL Porter, Fred SREIMERS--FORDMAIL Reimers, Steve
GSTEVEN1--FORDMTP Stevens, Gregory

From: LaRouche, Steve (S.)
Subject: OASIS

I received another switch from the oasis. 93 Town Car, ~83k miles. Dealer: Robinson Brothers, Baton Rouge, LA. Complaint was that ABS light stays on, brakes grab when vehicle is coasting as though brakes had been applied. Replaced switch because it was found to be leaking.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room R410
(313) 845-4876 (313) 322-1814 FAX

Schrody, Thomas (T.P.)

From:	Fred Kohl [fkohl@gw.ford.com]
Sent:	Monday, March 22, 1999 3:41 PM
To:	dbudzyns@visteon.com; ghuberts@visteon.com
Cc:	tschrody@visteon.com
Subject:	RE: Brake Pressure Switch in Ground Return Circuit

Dan and Garland: I have scheduled tomorrow morning Tues at 8am to 8:30 to review Brake Pressure Switch in Grd Circuit status with Scott in his office. Please attend if you want.

Note: Tom Schrody is coming.

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: EVB, 1WE05
*** Forwarding note from SSIMPSOS--VISTEON 03/21/99 14:44 ***
To: FKOHL --FORDMAIL Kohl, Fred (F.H.)
cc: DBUDZYNS--VISTEON Budzynski, Dan (D.

From: Simpson, Scott (S.L.)
Subject: RE: Brake Pressure Switch in Ground Return Circuit

PLease set up a meeting to brief me on this. We don't need more than 30 minutes.

Scott Simpson
Manager, Powertrain Electronic Systems and Applications
Powertrain Control Systems/Visteon
Phone: (313) 821-7959 Fax: (313) 322-1830

----Original Message----
From: Fred Kohl [mailto:fkohl@gw.ford.com]
Sent: Thursday, March 18, 1999 11:59 AM
To: dbudzyns@visteon.com; fporter@gw.ford.com; ghuberts@visteon.com; sreimers@gw.ford.com; ssimpso3@visteon.com; tschrody@visteon.com
Cc: fkohl@gw.ford.com
Subject: Brake Pressure Switch in Ground Return Circuit

Fred Porter and Steve Reimers:

Attached file (GrdReturn.doc) details what it would take at a minimum to place the brake pressure switch (deactivation switch) in the ground return circuit.

Please note a complete design analysis would be needed to determine if other changes are required.

Visteon does not feel this change is a viable solution for fixing the issue. We will continue to support you and the teams efforts to resolve the issue.

A reply on Visteon letterhead will come next week.

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: EVB, 1WE05

Schrody, Thomas (T.P.)

From: Fred Kohl (fkohl@gw.ford.com)
Sent: Thursday, March 18, 1999 11:53 AM
To: dbudzyns@visteon.com; fporter@gw.ford.com; ghuberts@visteon.com; sreimers@gw.ford.com; asimpso3@visteon.com; tschrody@visteon.com
Cc: fkohl@gw.ford.com
Subject: Brake Pressure Switch in Ground Return Circuit

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Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: EVS, 1WE08

Schrody, Thomas (T.P.)

From: Steve Reimers (sreimers@gw.ford.com)
Sent: Thursday, February 25, 1999 4:15 PM
To: wboyer1@visteon.com
Cc: fkohl@gw.ford.com; tschrody@visteon.com; gdygert@visteon.com; ghuberts@visteon.com; Porter, F.J.
Subject: RE: Speed control servo

Thanks for the technical info. Did the bad R44 NGSC batch include any MY98 or MY 99 Town cars built after 11/1/97? If so, was there any corrective action for the vehicles already delivered? Also, are there other failure modes inherent to the NGSC which result in the clutch coil being energized when it should be off?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
*** Forwarding note from WBOYER1 --VISTEON 02/25/99 15:51 ***
To: SREIMERS--FORDMAIL Reimers, Steve (S.
cc: FKOHL --FORDMAIL Kohl, Fred (F.H.) TSCHRODY--VISTEON Schrody, Thomas (T
GDYGERT --VISTEON Dygert, Greg (G.J. DBUDZYNS--VISTEON Budzynski, Dan (D.
GHUBERTS--VISTEON Huberts, Gerlan (G

From: Boyer, Wes (W.D.)
Subject: RE: Speed control servo

Steve,

Greg Dygert helped me with this. He ran a dynamic transient response analysis on the flyback voltage appearing at the BPS - Deac node (our J1-6 terminal) when the clutch is engaged and switched off by the external BPS. With the flyback clamping resistor in place, the transient is limited to a relatively clean, exponentially decaying impulse peaking at about -50 volts, with or without the 22 nF capacitor in our module, confirming my description of 2/22/1999.

Without the 82 ohm resistor and diode across the clutch winding, the voltage is an underdamped oscillation that theoretically peaks at -/+ 1000 volts and whose envelope decays exponentially. It is very likely that the switch and/or capacitor (rated at 100 volts dc, 200 v pk) would break down at a much lower voltage. The energy stored in the clutch winding could cause the switch to arc. For this to occur the ignition must be ON and speed control must have been "SET" (or #1 fault = shorted MOSFET driver) AND the flyback resistor, R44, is open (fault #2) AND the brake pressure builds up to open the switch. If fault #1 occurs without the switch opening, a continuous current of about 0.5 amp drains the battery rather rapidly (overnight) and the driver will be aware that something is wrong. Fault #2 is known to have caused fault #1 and the drained battery on a small population of vehicles built with Thin FR4 (non-ceramic) circuits and a bad batch of R44 resistors from the supplier! I do not believe these are in the same generation of NGSC modules as the present concern.

Please copy Huberts, Garlan (G.J.) and/or Dygert, Greg (G.J.) with any reply or response to this message.

Regards,
Wes (W. D.) Boyer Phone: (313) 248-9417
Visteon Automotive Systems Fax: (313) 322-9629
Precision Speed Control - Electronic Design E-mail: WBoyer1@visteon.com
(Usually at work, Wednesday + Thursday, only; Personal e-mail:
w.d.boyer@ieee.org)

> ----Original Message----
> From: Steve Reimers [SMTP:sreimers@gw.ford.com]
> Sent: Monday, February 22, 1999 12:16 PM
> To: wboyer1@visteon.com
> Cc: fkohl@gw.ford.com
> Subject: RE: Speed control servo
>
> Can you model this with the flyback resistor disconnected?
>
> Steve Reimers building 5 SC04S
> AVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 :>
> *** Forwarding note from SREIMERS--FORDMAIL 02/22/99 10:00 ***
> To: SREIMERS--FORDMAIL Reimers, Steve (S. WBOYER1 --VISTEON Boyer, Wes
> (W.D.)
> cc: FKOHL --FORDMAIL Kohl, Fred (F.H.) TSCHRODY--VISTEON Schrody,
> Thomas (T
>
> From: Boyer, Wes (W.D.)
> Subject: RE: Speed control servo
>
> The transient pulse will be an identical mirror image of the one shown in
> the previous traces. That is, instead of floating at the Vbatt level,
> "charging" the inductance at zero [the Vds(on) of the MOSFET] and flying
> back to a positive voltage, the pulse on the BPS side (referenced to
> ground)
> will fly back to a negative voltage limited by the I*R drop across the
> clamping resistor. There will be a small difference in the dynamics due

> to
> a capacitor at the BPS-Desc node that doesn't enter the picture when the
> FET
> is switched. I will look into that on Wednesday.
>
> Wes
> w.d.boyer@ieee.org
>
> -----Original Message-----
> From: Steve Reimers
> To: wboyer1@visteon.com
> Cc: fkohl@gw.ford.com; tschrody@visteon.com
> Sent: 2/18/99 5:46 PM
> Subject: RE: Speed control servo
>
> Please re-run this model with the following condition: No Fly-back and
> FET alwa
> ys on and use the Brake Pressure switch to create the switching
> transient.
> What is the voltage at the brake pressure switch?
>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
> """ Forwarding note from WBOYER1 --VISTEON 02/17/99 10:58 """
> To: DPORTER1--VISTEON Porter, David (D.L SREIMERS--FORDMAIL Reimers,
> Steve (S.
> cc: FKOHL --FORDMAIL Kohl, Fred (F.H.) TSCHRODY--VISTEON Schrody,
> Thomas (T
> DBUDZYNS--VISTEON Budzynski, Dan (D.
>
> From: Boyer, Wes (W.D.)
> Subject: RE: Speed control servo
>
> Attached is an analysis of the idealized flyback pulse of the turn-off
> transient on the clutch winding:
> <<CL_62r44.pdf>>
>
> Regards,
> Wes (W. D.) Boyer Phone: (313) 248-8417
> Visteon Automotive Systems Fax: (313)
> 322-3529
> Precision Speed Control - Electronic Design E-mail:
> WBoyer1@visteon.com
> (Usually at work, Wednesday + Thursday, only; Personal e-mail:
> w.d.boyer@ieee.org)
>
> > -----Original Message-----
> > From: Porter, David (D.L.)
> > Sent: Wednesday, February 17, 1999 10:29 AM
> > To: Steve Reimers
> > Cc: Fred Kohl (E-mail); Tom Schrody (E-mail); Wes Boyer (E-mail)
> > Subject: RE: Speed control servo
> >
> > Steve, the inductance of the clutch was at one time called out as
> 53-112
> > MH. This is measured at 1 Khz and in parallel.
> >
> > Dave Porter dporter1@Visteonet.com Phone: 313-390-8674
> Fax
> > 313-322-3529
> >
> > -----Original Message-----
> > From: Steve Reimers [SMTP:sreimers@gw.ford.com]

> > Sent: Wednesday, February 17, 1999 9:53 AM
> > To: dporter1 @visteon.com; fkohl@gw.ford.com
> > Subject: FW: Speed control servo
> >
> > Fred Kohl will bring the parts to Visteon. These were retrieved
> > from junkyards
> > as part of a sampling process related to Brake Pressure switch
> > function. The
> > Brake Pressure switch ES spec defines 300 milli-Henry as the
> minimum
> > test induc
> > tance for life testing. Is this a good number? Can you measure
> the
> > inductance
> > to establish a minimum and maximum?
> >
> > Steve Reimers building 5 3C043
> > AVT Chassis E/E System Applications mail drop 5011
> > 39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
> > *** Forwarding note from DPORTER1--VISTEON 02/17/99 08:16 ***
> > To: SREIMERS--FORDMAIL Reimers, Steve (S.
> > cc: FKOHL --FORDMAIL Fred Kohl (E-mail) WBOYER1 --VISTEON Wes
> > Boyer (E-mail)
> >
> > From: Porter, David (D.L.)
> > Subject: FW: Speed control servo
> >
> > Steve, the clutch resistance should be in the neighborhood of 24
> > Ohms. If
> > the clutch winding is intact, and nothing is mechanically
> damaged,
> > etc. I
> > would assume the parts are functional. There is no specified
> > inductance on
> > the clutch, because it varies with gear position (open or
> closed).
> > If it
> > is important to check functionality of these parts, bring them
> to
> > our lab,
> > and I can bench test them for you. Are these parts off vehicles,
> or
> > just
> > unused parts that have been lynig in a corner for a few years?
> You
> > did not
> > mention motor phase inductance or resistance. Generally, the
> motors
> > are OK
> > if they rotate freely, and the three phases all have a
> resistance of
> > about
> > 2.6 Ohms.
> >
> > Dave Porter dporter1@Visteonet.com Phone:
> 313-390-8674
> > Fax
> > 313-322-3529
> >
> > > ----Original Message----
> > > From: Boyer, Wes (W.D.)
> > > Sent: Wednesday, February 17, 1999 8:05 AM
> > > To: Porter, David (D.L.)
> > > Subject: FW: Speed control servo

> > >
> > >
> > > f.y.i.
> > > Regards,
> > > Wes (W. D.) Boyer Phone: (313)
> > 248-8417
> > > Visteon Automotive Systems Fax: (313)
> > 322-3529
> > > Precision Speed Control - Electronic Design E-mail:
> > WBoyer1@visteon.com
> > > (Usually at work, Wednesday + Thursday, only; Personal e-mail:
> > > w.d.boyer@ieee.org)
> > >
> > > -----Original Message-----
> > > From: Fred Kohl [SMTP:fkohl@gw.ford.com]
> > > Sent: Tuesday, February 16, 1999 3:48 PM
> > > To: wboyer1@visteon.com; tschrody@visteon.com
> > > Subject: RE: Speed control servo
> > >
> > > fyi
> > >
> > > Regards,__ Fred Kohl, Precision Speed Control (Panther)
> > > PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
> > > IBM Mail(USPMCBUZ)
> > > Mailing Address: ETC C375
> > > *** Forwarding note from SREIMERS--DRBN007 02/16/99 12:36 ***
> > > To: FKOHL --DRBN007
> > >
> > > FROM: Steve Reimers USAET(UTC
> -05:00)
> > > Subject: RE: Speed control servo
> > > These are from MY92 and 93. No known failures. Just want to
> know
> > if
> > > there
> > > clutch control function has degraded.
> > >
> > > Steve Reimers building 5 3C043
> > > AVT Chassis E/E System Applications mail drop 5011
> > > 39-03286 SREIMERS sreimers@ford.com fax 39-03288 :>
> > > *** Forwarding note from FKOHL --FORDMAIL 02/16/99 10:33 ***
> > > To: TSCHRODY--VISTEON Schrody, Thomas (T
> > > cc: DBUDZYNS--VISTEON Budzynski, Dan (D. FKOHL --FORDMAIL
> Kohl,
> > Fred
> > > (F.H.)
> > > SREIMERS--FORDMAIL Reimers, Steve (S.
> > >
> > > From: Boyer, Wes (W.D.)
> > > Subject: RE: Speed control servo
> > >
> > > I'll send a copy of the complete clutch-dump analysis when I
> get
> > in on
> > > Wednesday.
> > >
> > > What model year clutches are we talking about? And, Why from
> the
> > > "junkyard?
> > >
> > > Wes
> > > w.d.boyer@ieee.org
> > > -----Original Message-----
> > > From: Schrody, Thomas (T.P.)

> > > To: Boyer, Wes (W.D.)
> > > Sent: 2/16/99 10:13 AM
> > > Subject: FW: Speed control servo
> > > >
> > > Wes,
> > > >
> > > I don't think you're in today, but if you are... Could you
> respond
> > to
> > > Steve Reimers? I'm busy at NPEF and will return tomorrow.
> > > >
> > > -----Original Message-----
> > > From: Fred Kohl
> > > To: techrody@vistaon.com
> > > Cc: dbudzyns@vistaon.com; fkohl@gw.ford.com;
> sreimers@gw.ford.com
> > > Sent: 2/16/99 7:59 AM
> > > Subject: Speed control servo
> > > >
> > > Can you answer Steve questions?
> > > >
> > > Regards,__ Fred Kohl, Precision Speed Control (Panther)
> > > PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
> > > IBM Mail(USFMCBJZ)
> > > Mailing Address: ETC C375
> > > *** Forwarding note from SREIMERS--DRBN007 02/16/99 16:14 ***
> > > To: FKOHL --DRBN007
> > > >
> > > FROM: Steve Reimers USAET(UTC
> -05:00)
> > > Subject: Speed control servo
> > > What is the inductance and resistance of the clutch? What is
> used
> > to
> > > clamp the
> > > flyback voltage? What is the magnitude of the flyback
> voltage?
> > > I have collected at least ten speed servos from junk yards.
> Can
> > you test
> > > them f
> > > or function?
> > > >
> > > Steve Reimers building 5 3C049
> > > AVT Chassis E/E System Applications mail drop 5011
> > > 39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
>
>
> Attachments sent separately:
>
> Data Type File Name
> ---------- ----------
> BINARY CL_82R44.PDF_PC

Schrody, Thomas (T.P.)

From:	Steve Reimers [sreimers@gw.ford.com]
Sent:	Wednesday, February 24, 1999 8:48 AM
To:	tschrody@visteon.com
Cc:	fkohl@gw.ford.com
Subject:	RE: Speed Control Output

I agree a stuck on condition would drain the battery. The other thing it does is provide a potential for arcing at the brake pressure switch contacts every time the switch actuates.**********
I am interested in ANY failure mode where the clutch output circuit provides a ground path when it should not. Does your DFMEA address this mode of failure?
****

One possible cause could be a FET latching fault (something I came across years ago). This fault results in the FET being turned on by some internal parasitic mechanism (usually triggered by an over-voltage).
thanks,

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03266 SREIMERS sreimers@ford.com fax 39-03266 ;>
*** Forwarding note from TSCHRODY--VISTEON 02/24/99 07:24 ***
To: SREIMERS--FORDMAIL Reimers, Steve (S.
cc: FKOHL --FORDMAIL Kohl, Fred (F.H.)

From: Schrody, Thomas (T.P.)
Subject: RE: Speed Control Output

I'm not sure I understand your question. A continuously energized clutch circuit is not considered a failure mode. The FET is in the "latched" on state whenever the speed control is engaged. When the brake pressure switch disconnects the power from the clutch, the microprocessor will detect it and turn the FET off. When power is re-applied to the clutch, it would be off.

A shorted clutch driver IS a potential failure mode (however, I did not see this failure mode on the one badly burned unit I examined). If the FET were shorted, the clutch would be on whenever the brake pressure switch was closed. Aside from draining the battery when the ignition is off, this would pose no problem. The amount of current drawn by the circuit would be no greater than when the speed control was engaged.

From a safety standpoint, our system will still disengage because the amplifier will see the BOO switch and cancel. In addition, the removal of power by the brake pressure switch will also cancel the system. In both cases, the servo is spooled to the zero (throttle released) position and the clutch is released.

I'll try to make it to your 2:00 meeting this afternoon. I don't have badge access to Building 5. Do you know who I can contact to gain access?

Regards,

Thomas Schrody
Product Design Engineer ETC, C-395
Precision Speed Control Tel: (313) 323-9695
Visteon Automotive Systems Fax: (313) 322-9529

> -----Original Message-----

> From: Steve Reimers [SMTP:sreimers@gw.ford.com]
> Sent: Tuesday, February 23, 1999 5:28 PM
> To: fkohl@gw.ford.com
> Cc: tschrody@visteon.com
> Subject: Speed Control Output
>
> Does your FMEA include a condition where the clutch is continuously
> energized b
> ecause the FET output driver is latched in the ON-state? Is this a
> failure mod
> e for the output FET circuit? When the Brake pressure switch disconnects
> the p
> ower to the clutch would that cause the FET to unlatch? When the
> Brake pressure switch re-applies power to the clutch would the FET
> re-latch or
> stay OFF?
>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 6011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 >

Schrody, Thomas (T.P.)

From: Boyer, Wes (W.D.)
Sent: Monday, February 22, 1999 10:00 AM
To: Reimers, Steve (S.J.); Boyer, Wes (W.D.)
Cc: Kohl, Fred (F.H.); Schrody, Thomas (T.P.)
Subject: RE: Speed control servo

The transient pulse will be an identical mirror image of the one shown in the previous traces. That is, instead of floating at the Vbatt level, "charging" the inductance at zero (the Vds(on) of the MOSFET) and flying back to a positive voltage, the pulse on the BPS side (referenced to ground) will fly back to a negative voltage limited by the I*R drop across the clamping resistor. There will be a small difference in the dynamics due to a capacitor at the BPS-Desc node that doesn't enter the picture when the FET is switched. I will look into that on Wednesday.

Wes
w.d.boyer@ieee.org

-----Original Message-----
From: Steve Reimers
To: wboyer1@visteon.com
Cc: fkohl@gw.ford.com; tschrody@visteon.com
Sent: 2/16/99 5:46 PM
Subject: RE: Speed control servo

Please re-run this model with the following condition: No Fly-back and
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ys on and use the Brake Pressure switch to create the switching
transient.
What is the voltage at the brake pressure switch?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 6011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
*** Forwarding note from WBOYER1 --VISTEON 02/17/99 10:56 ***
To: DPORTER1--VISTEON Porter, David (D.L SREIMERS--FORDMAIL Reimers, Steve (S.
cc: FKOHL --FORDMAIL Kohl, Fred (F.H.) TSCHRODY--VISTEON Schrody, Thomas (T
DBUDZYNS--VISTEON Budzynski, Dan (D.

From: Boyer, Wes (W.D.)

Subject: RE: Speed control servo

Attached is an analysis of the idealized flyback pulse of the turn-off transient on the clutch winding:
<<Cl_62r44.pdf>>

Regards,
Wes (W. D.) Boyer Phone: (313) 248-9417
Visteon Automotive Systems Fax: (313) 322-3529
Precision Speed Control - Electronic Design E-mail: WBoyer1@visteon.com
(Usually at work, Wednesday + Thursday, only; Personal e-mail: w.d.boyer@ieee.org)

> -----Original Message-----
> From: Porter, David (D.L.)
> Sent: Wednesday, February 17, 1999 10:29 AM
> To: Steve Reimers
> Cc: Fred Kohl (E-mail); Tom Schrody (E-mail); Wes Boyer (E-mail)
> Subject: RE: Speed control servo
>
> Steve, the inductance of the clutch was at one time called out as 53-112
> MH. This is measured at 1 Khz and in parallel.
>
> Dave Porter dporter1@Vistaonet.com Phone: 313-390-8674 Fax
> 313-322-3529
>
> -----Original Message-----
> From: Steve Reimers [SMTP:sreimers@gw.ford.com]
> Sent: Wednesday, February 17, 1999 9:53 AM
> To: dporter1@visteon.com; fkohl@gw.ford.com
> Subject: FW: Speed control servo
>
> Fred Kohl will bring the parts to Visteon. These were retrieved
> from junkyards
> as part of a sampling process related to Brake Pressure switch
> function. The
> Brake Pressure switch ES spec defines 900 milli-Henry as the minimum
> test induc
> tance for life testing. Is this a good number? Can you measure the
> inductance
> to establish a minimum and maximum?
>
> Steve Reimers building 5 3C045
> AVT Chassis E/E System Applications mail drop 5011
> 39-03288 SREIMERS sreimers@ford.com fax 39-03288 >
> *** Forwarding note from DPORTER1--VISTEON 02/17/99 08:16 ***
> To: SREIMERS--FORDMAIL Reimers, Steve (S.
> cc: FKOHL --FORDMAIL Fred Kohl (E-mail) WBOYER1--VISTEON Wes
> Boyer (E-mail)
>
> From: Porter, David (D.L.)
> Subject: FW: Speed control servo
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> Steve, the clutch resistance should be in the neighborhood of 24
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> and I can bench test them for you. Are these parts off vehicles,
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You
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> if they rotate freely, and the three phases all have a
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> Dave Porter dporter1@Visteonet.com Phone:
313-390-8674
> Fax
> 313-322-3529
>
> > ----Original Message----
> > From: Boyer, Wes (W.D.)
> > Sent: Wednesday, February 17, 1999 8:05 AM
> > To: Porter, David (D.L.)
> > Subject: FW: Speed control servo
> >
> >
> > I,y,l.
> > Regards,
> > Wes (W. D.) Boyer Phone: (313)
> 248-9417
> > Visteon Automotive Systems Fax: (313)
> 322-3529
> > Precision Speed Control - Electronic Design E-mail:
> WBoyer1@visteon.com
> > (Usually at work, Wednesday + Thursday, only; Personal e-mail:
> > w.d.boyer@ieee.org)
> >
> > ----Original Message----
> > From: Fred Kohl [SMTP:fkohl@gw.ford.com]
> > Sent: Tuesday, February 16, 1999 3:48 PM
> > To: wboyer1@visteon.com; tschrody@visteon.com
> > Subject: RE: Speed control servo
> >
> > fyi
> >
> > Regards,__ Fred Kohl, Precision Speed Control (Panther)
> > PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
> > IBM Mail(USFMCBJZ)
> > Mailing Address: ETC C375
> > "" Forwarding note from SREIMER8--DRBN007 02/16/99 12:38 ***
> > To: FKOHL --DRBN007
> >
> > FROM: Steve Reimers USAET(UTC
-05:00)
> > Subject: RE: Speed control servo
> > These are from MY92 and 93. No known failures. Just want to

know
> If
>   > there
>   > clutch control function has degraded.
>   >
>   > Steve Reimers   building 5 3C043
>   > AVT Chassis S/E System Applications   mail drop 5011
>   > 39-03256 SREIMERS sreimers@ford.com   fax 39-03258   ;>
>   > *** Forwarding note from FKOHL --FORDMAIL 02/16/99 10:33 ***
>   > To: TSCHRODY--VISTEON Schrody, Thomas (T
>   > cc: DBUDZYNS--VISTEON Budzynski, Dan (D. FKOHL --FORDMAIL
Kohl,
> Fred
>   > (F.H.)
>   >   SREIMERS--FORDMAIL Reimers, Steve (S.
>   >
>   > From: Boyer, Wes (W.D.)
>   > Subject: RE: Speed control servo
>   >
>   > I'll send a copy of the complete clutch-dump analysis when I
get
> in on
>   > Wednesday.
>   >
>   > What model year clutches are we talking about? And, Why from
the
>   > "junkyard?
>   >
>   > Wes
>   > w.d.boyer@ieee.org
>   > -----Original Message-----
>   > From: Schrody, Thomas (T.P.)
>   > To: Boyer, Wes (W.D.)
>   > Sent: 2/16/99 10:13 AM
>   > Subject: FW: Speed control servo
>   >
>   > Wes,
>   >
>   > I don't think you're in today, but if you are... Could you
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>   > Steve Reimers? I'm busy at NPEP and will return tomorrow.
>   >
>   > -----Original Message-----
>   > From: Fred Kohl
>   > To: tschrody@visteon.com
>   > Cc: dbudzyns@visteon.com; fkohl@gw.ford.com;
sreimers@gw.ford.com
>   > Sent: 2/16/99 7:59 AM
>   > Subject: Speed control servo
>   >
>   > Can you answer Steve questions?
>   >
>   > Regards,__ Fred Kohl,   Precision Speed Control (Panther)
>   > PROFS ID: FKOHL Phone TBD   Pager (888) 377-6250
>   > IBM Mail(USFMCBJZ)
>   > Mailing Address: ETC C378
>   > *** Forwarding note from SREIMERS--DRBN007 02/15/99 18:14 ***
>   > To: FKOHL --DRBN007
>   >
>   > FROM: Steve Reimers   USAET(UTC
-05:00)
>   > Subject: Speed control servo
>   > What is the inductance and resistance of the clutch? What is

used
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Can
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> >
> > Steve Reimers building 5 3C043
> > AVT Chassis E/E System Applications mail drop 5011
> > 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Attachments sent separately:

Data Type	File Name
BINARY	CL_82R44.PDF_PC

Schrody, Thomas (T.P.)

From: Porter, David (D.L.)
Sent: Friday, February 19, 1999 2:50 PM
To: Fred Kohl (E-mail)
Cc: Tom Schrody (E-mail)
Subject: Vehicle Teardown Data

Here is revised matrix with data on clutch flyback circuit added.

Schrody, Thomas (T.P.)

From: Steve Reimers [SREIMERS.DRBN007@ovvm.gw.ford.com]
Sent: Friday, February 19, 1999 7:39 AM
To: JNEME.DRBN005@ovvm.gw.ford.com; slarouch@mail.ford.com; FPORTER.DRBN007@ovvm.gw.ford.com; RENGLIS1.DRBN005@ovvm.gw.ford.com; SSALTER.DRBN006@ovvm.gw.ford.com; NLAPOINT.DRBN005@ovvm.gw.ford.com; TMASTERS.DRBN005@ovvm.gw.ford.com; JKAFATI.DRBN004@ovvm.gw.ford.com; SREIMERS.DRBN007@ovvm.gw.ford.com; tschrody@visteon.com; FKOHL.DRBN007@ovvm.gw.ford.com; TBAZIL.DRBN005@ovvm.gw.ford.com; JMCINERN.DRBN005@ovvm.gw.ford.com; dzudzyns@visteon.com; pstokes@visteon.com; DGOEL.DRBN005@ovvm.gw.ford.com; LBROWN.DRBN005@ovvm.gw.ford.com; SCOLE1.DRBN005@ovvm.gw.ford.com; HWELFER3.DRBN005@ovvm.gw.ford.com; GSTEVEN1.DRBN005@ovvm.gw.ford.com; WABRAMCZ.DRBN005@ovvm.gw.ford.com; MREESE.DRBN005@ovvm.gw.ford.com; drahman@email.mc.ti.com; rsharpe@email.mc.ti.com
Subject: DOW Rep Meeting

Requester: Steve Reimers
Date to be scheduled: 02/23/99

Starting time: 09:00 AM
Ending time: 11:00 AM
Recurrence: Single event

Location: bldg 5 3A017

Subject: DOW Rep Meeting

Purpose: Disouss with DOW the brake pressure switch.
Attend Only if interested in materials questions?

Recurrence: Single event

Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Friday, February 19, 1999 10:40 AM
To: dporter1@visteon.com; tschrody@visteon.com
Cc: dbudzyns@visteon.com; fkohl@gw.ford.com
Subject: Speed control clutches

Can you get parts for TI testing of the brake pressure switch?
Five clutches

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: ETC C375
*** Forwarding note from SREIMERS--DRBN007 02/18/99 17:38 ***
To: FKOHL --DRBN007

FROM: Steve Reimers USAET(UTC -05:00)
Subject: Speed control clutches
I need 6 clutches to send to TI so thay have the correct load for there testing
. Of course I really needed them yesterday.

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 >

Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Friday, February 19, 1999 10:38 AM
To: dporter1@visteon.com; tschrody@visteon.com
Cc: dbudzyns@visteon.com; fkohl@gw.ford.com
Subject: Speed control report

Info needed in report for Brake Pressure investigation.

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: ETC C375
*** Forwarding note from SREIMERS--DRBN007 02/18/99 17:48 ***
To: FKOHL --DRBN007

FROM: Steve Reimers USAET(UTC -05:00)
Subject: Speed control report
Please include the functional status of the fly-back circuit in the report of t

he fel returned units. ALSO..any FRACAS activity to report?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Schrody, Thomas (T.P.)

From: Steve Reimers [sreimers@gw.ford.com]
Sent: Thursday, February 18, 1999 5:46 PM
To: wboyer1@visteon.com
Cc: fkohl@gw.ford.com; tschrody@visteon.com
Subject: RE: Speed control servo

Please re-run this model with the following condition: No Fly-back and FET alwa
ys on and use the Brake Pressure switch to create the switching transient.
What is the voltage at the brake pressure switch?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
*** Forwarding note from WBOYER1 --VISTEON 02/17/99 10:58 ***
To: DPORTER1--VISTEON Porter, David (D.L SREIMERS--FORDMAIL Reimers, Steve (S.
cc: FKOHL --FORDMAIL Kohl, Fred (F.H.) TSCHRODY--VISTEON Schrody, Thomas (T
DBUDZYNS--VISTEON Budzynski, Dan (D.

From: Boyer, Wes (W.D.)
Subject: RE: Speed control servo

Attached is an analysis of the idealized flyback pulse of the turn-off
transient on the clutch winding:
<<Cl_82r44.pdf>>

Regards,
Wes (W. D.) Boyer Phone: (313) 248-9417
Visteon Automotive Systems Fax: (313) 322-3529
Precision Speed Control - Electronic Design E-mail: WBoyer1@visteon.com
(Usually at work, Wednesday + Thursday, only; Personal e-mail:
w.d.boyer@ieee.org)

> ----Original Message----
> From: Porter, David (D.L.)
> Sent: Wednesday, February 17, 1999 10:29 AM
> To: Steve Reimers
> Cc: Fred Kohl (E-mail); Tom Schrody (E-mail); Wes Boyer (E-mail)
> Subject: RE: Speed control servo
>
> Steve, the inductance of the clutch was at one time called out as 53-112
> MH. This is measured at 1 Khz and in parallel.
>
> Dave Porter dporter1@Visteonet.com Phone: 313-390-8674 Fax
> 313-322-3529
>
> -----Original Message-----
> From: Steve Reimers (SMTP:sreimers@gw.ford.com)
> Sent: Wednesday, February 17, 1999 9:53 AM
> To: dporter1@visteon.com; fkohl@gw.ford.com
> Subject: FW: Speed control servo
>
> Fred Kohl will bring the parts to Visteon. These were retrieved
> from junkyards
> as part of a sampling process related to Brake Pressure switch

> function. The
> Brake Pressure switch ES spec defines 300 milli-Henry as the minimum
> test induc
> tance for life testing. Is this a good number? Can you measure the
> inductance
> to establish a minimum and maximum?
>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
> *** Forwarding note from DPORTER1--VISTEON 02/17/99 08:18 ***
> To: SREIMERS--FORDMAIL Reimers, Steve (S.
> cc: FKOHL --FORDMAIL Fred Kohl (E-mail) WBOYER1 --VISTEON Wes
> Boyer (E-mail)
>
> From: Porter, David (D.L.)
> Subject: FW: Speed control servo
>
> Steve, the clutch resistance should be in the neighborhood of 24
> Ohms. If
> the clutch winding is intact, and nothing is mechanically damaged,
> etc. I
> would assume the parts are functional. There is no specified
> inductance on
> the clutch, because it varies with gear position (open or closed).
> If it
> is important to check functionality of these parts, bring them to
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> and I can bench test them for you. Are these parts off vehicles, or
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> unused parts that have been lying in a corner for a few years? You
> did not
> mention motor phase inductance or resistance. Generally, the motors
> are OK
> if they rotate freely, and the three phases all have a resistance of
> about
> 2.5 Ohms.
>
> Dave Porter dporter1@Visteonet.com Phone: 313-390-9674
> Fax
> 313-322-3529
>
> > -----Original Message-----
> > From: Boyer, Wes (W.D.)
> > Sent: Wednesday, February 17, 1999 8:05 AM
> > To: Porter, David (D.L.)
> > Subject: FW: Speed control servo
> > >
> > >
> > > I.y.i.
> > > Regards,
> > > Wes (W. D.) Boyer Phone: (313)
> 248-8417
> > > Visteon Automotive Systems Fax: (313)
> 322-3529
> > > Precision Speed Control - Electronic Design E-mail:
> WBoyer1@visteon.com
> > > (Usually at work, Wednesday + Thursday, only; Personal e-mail:
> > > w.d.boyer@ieee.org)
> > >
> > > -----Original Message-----
> > > From: Fred Kohl [SMTP:fkohl@gw.ford.com]
> > > Sent: Tuesday, February 16, 1999 3:48 PM
> > > To: wboyer1@visteon.com; techrody@visteon.com

> > Subject: RE: Speed control servo
> >
> > fyi
> >
> > Regards,__ Fred Kohl, Precision Speed Control (Panther)
> > PROFS ID: FKOHL Phone TBD Pager (888) 377-8280
> > IBM Mail(USFMCBJZ)
> > Mailing Address: ETC C375
> > *** Forwarding note from SREIMERS--DRBN007 02/16/99 12:38 ***
> > To: FKOHL --DRBN007
> >
> > FROM: Steve Reimers USAET(UTC -05:00)
> > Subject: RE: Speed control servo
> > These are from MY92 and 93. No known failures. Just want to know
> if
> > there
> > clutch control function has degraded.
> >
> > Steve Reimers building 5 3C043
> > AVT Chassis E/E System Applications mail drop 5011
> > 39-03286 SREIMERS sreimers@ford.com fax 39-03288 ;>
> > *** Forwarding note from FKOHL --FORDMAIL 02/16/99 10:33 ***
> > To: TSCHRODY--VISTEON Schrody, Thomas (T
> > cc: DBUDZYNS--VISTEON Budzynski, Dan (D. FKOHL --FORDMAIL Kohl,
> Fred
> > (F.H.)
> > SREIMERS--FORDMAIL Reimers, Steve (S.
> >
> > From: Boyer, Wes (W.D.)
> > Subject: RE: Speed control servo
> >
> > I'll send a copy of the complete clutch-dump analysis when I get
> in on
> > Wednesday.
> >
> > What model year clutches are we talking about? And, Why from the
> > "junkyard?
> >
> > Wes
> > w.d.boyer@ieee.org
> > -----Original Message-----
> > From: Schrody, Thomas (T.P.)
> > To: Boyer, Wes (W.D.)
> > Sent: 2/16/99 10:13 AM
> > Subject: FW: Speed control servo
> >
> > Wes,
> >
> > I don't think you're in today, but if you are... Could you respond
> to
> > Steve Reimers? I'm busy at NPEF and will return tomorrow.
> >
> > -----Original Message-----
> > From: Fred Kohl
> > To: tschrody@visteon.com
> > Cc: dbudzyns@visteon.com; fkohl@gw.ford.com; sreimers@gw.ford.com
> > Sent: 2/16/99 7:59 AM
> > Subject: Speed control servo
> >
> > Can you answer Steve questions?
> >
> > Regards,__ Fred Kohl, Precision Speed Control (Panther)
> > PROFS ID: FKOHL Phone TBD Pager (888) 377-8280
> > IBM Mail(USFMCBJZ)

\>   > Mailing Address: ETC C375
\>   > *** Forwarding note from SREIMERS--DRBN007 02/15/99 18:14 ***
\>   > To: FKOHL   --DRBN007
\>   >
\>   > FROM: Steve Reimers   USAET(UTC -05:00)
\>   > Subject: Speed control servo
\>   > What is the inductance and resistance of the clutch? What is used
\> to
\>   > clamp the
\>   > flyback voltage? What is the magnitude of the flyback voltage?
\>   > I have collected at least ten speed servos from junk yards. Can
\> you test
\>   > them !
\>   > or function?
\>   >
\>   > Steve Reimers   building 5 3C043
\>   > AVT Chassis E/E System Applications   mail drop 5011
\>   > 39-03286 SREIMERS   sreimers@ford.com   fax 39-03286   ;>

Attachments sent separately:

Data Type	File Name
BINARY	CL_82R44.PDF_PC

Schrody, Thomas (T.P.)

From: Boyer, Wes (W.D.)
Sent: Wednesday, February 17, 1999 10:57 AM
To: Porter, David (D.L.); Reimers, Steve (S.J.)
Cc: Kohl, Fred (F.H.); Schrody, Thomas (T.P.); Budzynski, Dan (D.J.)
Subject: RE: Speed control servo

Attached is an analysis of the idealized flyback pulse of the turn-off transient on the clutch winding:

cl_82r44.pdf

Regards,
Wes (W. D.) Boyer   Phone: (313) 248-9417
Visteon Automotive Systems   Fax: (313) 322-3529
Precision Speed Control - Electronic Design E-mail: WBoyer1@visteon.com
(Usually at work, Wednesday + Thursday, only;   Personal e-mail: w.d.boyer@ieee.org)

-----Original Message-----
From: Porter, David (D.L.)
Sent: Wednesday, February 17, 1999 10:29 AM
To: Steve Reimers
Cc: Fred Kohl (E-mail); Tom Schrody (E-mail); Wes Boyer (E-mail)
Subject: RE: Speed control servo

Steve, the inductance of the clutch was at one time called out as 63-112 MH. This is measured at 1 Khz and in parallel.

Dave Porter   dporter1@Visteonet.com   Phone: 313-390-6674   Fax 313-322-3529

-----Original Message-----
From: Steve Reimers [SMTP:sreimers@gw.ford.com]
Sent: Wednesday, February 17, 1999 9:53 AM
To: dporter1@visteon.com; fkohl@gw.ford.com
Subject: FW: Speed control servo

3713 4966

Fred Kohl will bring the parts to Visteon. These were retrieved from junkyards as part of a sampling process related to Brake Pressure switch function. The Brake Pressure switch ES spec defines 300 milli-Henry as the minimum test inductance for life testing. Is this a good number? Can you measure the inductance to establish a minimum and maximum?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
*** Forwarding note from DPORTER1--VISTEON 02/17/99 08:18 ***
To: SREIMERS--FORDMAIL Reimers, Steve (S.
cc: FKOHL --FORDMAIL Fred Kohl (E-mail) WBOYER1 --VISTEON Wes Boyer (E-mail)

From: Porter, David (D.L.)
Subject: FW: Speed control servo

Steve, the clutch resistance should be in the neighborhood of 24 Ohms. If the clutch winding is intact, and nothing is mechanically damaged, etc. I would assume the parts are functional. There is no specified inductance on the clutch, because it varies with gear position (open or closed). If it is important to check functionality of these parts, bring them to our lab, and I can bench test them for you. Are these parts off vehicles, or just unused parts that have been lynig in a corner for a few years? You did not mention motor phase inductance or resistance. Generally, the motors are OK if they rotate freely, and the three phases all have a resistance of about 2.5 Ohms.

Dave Porter dporter1@Visteonet.com Phone: 313-390-8674 Fax 313-322-3529

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> From: Boyer, Wes (W.D.)
> Sent: Wednesday, February 17, 1999 8:05 AM
> To: Porter, David (D.L.)
> Subject: FW: Speed control servo
>
>
> f.y.i.
> Regards,
> Wes (W. D.) Boyer Phone: (313) 248-9417
> Visteon Automotive Systems Fax: (313) 322-3529
> Precision Speed Control - Electronic Design E-mail: WBoyer1@visteon.com
> (Usually at work, Wednesday + Thursday, only; Personal e-mail:
> w.d.boyer@ieee.org)
>
> -----Original Message-----
> From: Fred Kohl [SMTP:fkohl@gw.ford.com]
> Sent: Tuesday, February 16, 1999 3:46 PM
> To: wboyer1@visteon.com; tschrody@visteon.com
> Subject: RE: Speed control servo
>
> fyi
>
> Regards,__ Fred Kohl, Precision Speed Control (Panther)
> PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
> IBM Mail(USFMCBJZ)
> Mailing Address: ETC C375
> *** Forwarding note from SREIMERS--DRBN007 02/16/99 12:36 ***
> To: FKOHL --DRBN007
>
> FROM: Steve Reimers USAET(UTC -05:00)
> Subject: RE: Speed control servo
> These are from MY92 and 93. No known failures. Just want to know if
> there

> clutch control function has degraded.
>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>
> *** Forwarding note from FKOHL --FORDMAIL 02/16/99 10:33 ***
> To: TSCHRODY--VISTEON Schrody, Thomas (T
> cc: DBUDZYNS--VISTEON Budzynski, Dan (D. FKOHL --FORDMAIL Kohl, Fred
> (F.H.)
> SREIMERS--FORDMAIL Reimers, Steve (S.
>
> From: Boyer, Wes (W.D.)
> Subject: RE: Speed control servo
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> I'll send a copy of the complete clutch-dump analysis when I get in on
> Wednesday.
>
> What model year clutches are we talking about? And, Why from the
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> Wes
> w.d.boyer@ieee.org
> -----Original Message-----
> From: Schrody, Thomas (T.P.)
> To: Boyer, Wes (W.D.)
> Sent: 2/16/99 10:13 AM
> Subject: FW: Speed control servo
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> From: Fred Kohl
> To: tschrody@visteon.com
> Cc: dbudzyns@visteon.com; fkohl@gw.ford.com; sreimers@gw.ford.com
> Sent: 2/16/99 7:59 AM
> Subject: Speed control servo
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> Can you answer Steve questions?
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> Regards,__ Fred Kohl, Precision Speed Control (Panther)
> PROFS ID: FKOHL Phone TBD Pager (888) 377-8280
> IBM Mail(USFMC8JZ)
> Mailing Address: ETC C375
> *** Forwarding note from SREIMERS--DRBN007 02/15/99 18:14 ***
> To: FKOHL --DRBN007
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> FROM: Steve Reimers USAET(UTC -05:00)
> Subject: Speed control servo
> What is the inductance and resistance of the clutch? What is used to
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> AVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Wednesday, February 17, 1999 9:56 AM
To: dporter1@visteon.com
Cc: fkohl@gw.ford.com; dbudzyns@visteon.com; techrody@visteon.com; wboyer1@visteon.com; sreimers@gw.ford.com
Subject: FW: Speed control servo

I will pick up the 10 servos from Steve Reimers late today (2/17). I will put them on your desk for analysis. Steve needs your analysis by vehicle number. Each servo is in a bag with vehicle ID.

If I get a chance I will put the vehicle number on the part...

Regards.__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: ETC C375
*** Forwarding note from DPORTER1--VISTEON 02/17/99 08:18 ***
To: SREIMERS--FORDMAIL Reimers, Steve (S.
cc: FKOHL --FORDMAIL Fred Kohl (E-mail) WBOYER1 --VISTEON Wes Boyer (E-mail)

From: Porter, David (D.L.)
Subject: FW: Speed control servo

Steve, the clutch resistance should be in the neighborhood of 24 Ohms. If the clutch winding is intact, and nothing is mechanically damaged, etc. I would assume the parts are functional. There is no specified inductance on the clutch, because it varies with gear position (open or closed). If it is important to check functionality of these parts, bring them to our lab, and I can bench test them for you. Are these parts off vehicles, or just unused parts that have been lying in a corner for a few years? You did not mention motor phase inductance or resistance. Generally, the motors are OK if they rotate freely, and the three phases all have a resistance of about 2.5 Ohms.

Dave Porter dporter1@Visteonet.com Phone: 313-390-8674 Fax 313-322-3529

> ----Original Message----
> From: Boyer, Wes (W.D.)
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> To: Porter, David (D.L.)
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>
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> f.y.i.
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>
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> *** Forwarding note from SREIMERS--ORBN007 02/16/99 12:38 ***
> To: FKOHL --ORBN007
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> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 6011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 >
> *** Forwarding note from FKOHL --FORDMAIL 02/16/99 10:33 ***
> To: TSCHRODY--VISTEON Schrody, Thomas (T
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> SREIMERS--FORDMAIL Reimers, Steve (S.
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> From: Schrody, Thomas (T.P.)
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> PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
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> Mailing Address: ETC C375
> *** Forwarding note from SREIMERS--ORBN007 02/16/99 18:14 ***
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>
> Steve Reimers building 5 3C043
> AVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

------- Part 2

MIME-version: 1.0
Content-Type: application/ms-tnef
Content-Transfer-Encoding: base64

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AAEJAAQAAgAAAAAAAAABIIADAAAAAADPBwIAEQAIABEALQADADIBAQmAAQAhAAAAOEJFN0MyMUMz
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3713 4971

ER02-025-A 18641 PRODUCED BY FORD

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Schrody, Thomas (T.P.)

From: Fred.Kohl [fkohl@gw.ford.com]
Sent: Monday, February 15, 1999 9:29 AM
To: tschrody@visteon.com
Cc: fkohl@gw.ford.com
Subject: RE: More Questions

Tom, I told Steve that the customer would not know if or internal driver for the clutch output was stuck on. The BOO signal would cause the motor to be driven back to idle. Also, the brake pressure switch when activated would open the feed to the clutch circuit.

I told him that there is NO warning light for faults.

Another question Steve had: does the speed control module check to see if the driver circuit for the clutch is turned on when it should not be. Does it set an internal code or make the system inop?

Steve; mentioned that ABS units check the output state and sets codes if there are faults detected.

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
IBM Mail(USPMCBJZ)
Mailing Address: ETC C375
*** Forwarding note from SREIMERS--DRBN007 02/15/99 08:57 ***
To: FKOHL --DRBN007

*** Reply to note of 02/15/99 08:21
FROM: Steve Reimers USAET(UTC -05:00)
Subject: RE: More Questions
If the clutch output driver gets stuck "ON" would the customer be aware of it? Would the speed control detect this fault? ...light a warning lamp? ...log a fa ult code? Any action on FRACAS?

Steve Reimers building 5 3C043

AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Monday, February 15, 1999 8:13 AM
To: sreimers@gw.ford.com
Cc: dbudzyns@visteon.com; tschrody@visteon.com; fkohl@gw.ford.com
Subject: Alternate Deac Switch

Yes, the pedal mounted switch currently used is compatible electrically with the 92 and 93 Town Car.

I do not know if mounting in the vehicle and wiring harness requirements can easily be met. Chassis would have to answer the mounting / packaging questions and EESE would have to address the wiring harness issues.

The current Town Car deact switch engineer is Mike Salanta (MSALANTA) 84-54007. .

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: ETC C375
*** Forwarding note from SREIMERS--DRBN007 02/13/99 16:43 ***
To: FKOHL --DRBN007

FROM: Steve Reimers USAET(UTC -05:00)
Subject: Alternate Deac Switch
Is the brake pedal mounted switch a viable replacement for the Pressure switch as far as the speed control electronics is concerned? Is this switch input compatible with the speed controls in 92 and 93 town cars?

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Schrody, Thomas (T.P.)

From: Fred Kohl [fkohl@gw.ford.com]
Sent: Friday, February 12, 1999 3:39 PM
To: tschrody@visteon.com
Cc: fkohl@gw.ford.com
Subject: More Questions

Answers to the questions:
Do not understand first question as stated. If he means brake pressure switch stuck closed all of the time, customer would not know as long as there not any other failures.

A relay between the fuse and the switch is OK.

Tom; need your hekd with the time between BOO signal and when software turns off (de-energize) the clutch circuit. What does the software say?
Also, is the timing different is we get a De-act switch signal?

Regards,__ Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone TBD Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: ETC C375
*** Forwarding note from SREIMERS--DRBN007 02/09/99 18:08 ***

To: FKOHL --DRBN007

FROM: Steve Reimers USAET(UTC -06:00)
Subject: More Questions
Would a customer know if the speed control clutch drive output was stuck on?
Is a relay between the the Brake P switch and fuse an feasible fix?
What kind of timing is expected between when the BCO turns off the clutch drive output and when the Brake P switch opens?
thanks,

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03288 SREIMERS sreimers@ford.com fax 39-03288 ;>

Schrady, Thomas (T.P.)

From: Steve Reimers (SREIMERS.DRBN007@ovvm.gw.ford.com)
Sent: Thursday, February 11, 1999 10:00 AM
To: JNEME.DRBN005@ovvm.gw.ford.com; slarouch@mail.ford.com; FPORTER.DRBN007@ovvm.gw.ford.com; RENGLIS1.DRBN005@ovvm.gw.ford.com; SSALTER.DRBN006@ovvm.gw.ford.com; NLAPOINT.DRBN005@ovvm.gw.ford.com; TMASTERS.DRBN005@ovvm.gw.ford.com; JKAFATI.DRBN004@ovvm.gw.ford.com; SREIMERS.DRBN007@ovvm.gw.ford.com; tschrody@visteon.com; FKOHL.DRBN007@ovvm.gw.ford.com; TBAZIL.DRBN006@ovvm.gw.ford.com; JMCINERN.DRBN005@ovvm.gw.ford.com; doudzyns@visteon.com; petokes@visteon.com; DGOGL.DRBN005@ovvm.gw.ford.com; LBROWN.DRBN005@ovvm.gw.ford.com; SCOLE1.DRBN005@ovvm.gw.ford.com; HWELFER3.DRBN006@ovvm.gw.ford.com; GSTEVEN1.DRBN005@ovvm.gw.ford.com; WABRAMCZ.DRBN005@ovvm.gw.ford.com
Subject: Brake Pressure Switch

[redacted]
02-17-99.vcs

Requester: Steve Reimers
Date to be scheduled: 02/17/99
Starting time: 02:00 PM
Ending time: 04:00 PM
Recurrence: Single event

Location: building 5 3A039

Subject: Brake Pressure Switch

Purpose: Weekly team meeting.

Recurrence: Single event

Schrody, Thomas (T.P.)

From: Steve Reimers [SREIMERS.DRBN007@ovvm.gw.ford.com]
Sent: Tuesday, February 09, 1999 7:14 AM
To: JNEME.DRBN006@ovvm.gw.ford.com; slarouch@mail.ford.com; FPORTER.DRBN007@ovvm.gw.ford.com; RENGLI81.DRBN006@ovvm.gw.ford.com; SSALTER.DRBN006@ovvm.gw.ford.com; NLAPOINT.DRBN005@ovvm.gw.ford.com; TMASTERS.DRBN005@ovvm.gw.ford.com; JKAFATI.DRBN004@ovvm.gw.ford.com; SREIMERS.DRBN007@ovvm.gw.ford.com; tschrody@visteon.com; FKOHL.DRBN007@ovvm.gw.ford.com; TBAZIL.DRBN005@ovvm.gw.ford.com; JMCINERN.DRBN005@ovvm.gw.ford.com; dbudzyns@visteon.com; patokas@visteon.com; DGOEL.DRBN005@ovvm.gw.ford.com; LBROWN.DRBN005@ovvm.gw.ford.com; SCOLE1.DRBN005@ovvm.gw.ford.com; HWELFER3.DRBN006@ovvm.gw.ford.com; GSTEVEN1.DRBN005@ovvm.gw.ford.com; WABRAMCZ.DRBN005@ovvm.gw.ford.com
Subject: Brake Pressure Switch

[redacted]
02-10-99.vcs

Requester: Steve Reimers
Date to be scheduled: 02/10/99
Starting time: 02:00 PM
Ending time: 03:00 PM
Recurrence: Single event

Location: bldg 5 3A017

Subject: Brake Pressure Switch

Purpose: Review work plan status.
Plan for Tech. Review on Thursday 2/11/99.

Recurrence: Single event

Schrody, Thomas (T.P.)

From: Steve Reimers [sreimers@gw.ford.com]
Sent: Friday, February 05, 1999 4:53 PM
To: jneme@gw.ford.com; slarouch@mail.ford.com; fporter@gw.ford.com; renglis1@gw.ford.com; ssalter@gw.ford.com; nlapoint@gw.ford.com; tmasters@gw.ford.com; jkafati@gw.ford.com; tschrody@visteon.com; fkohl@gw.ford.com; tbazil@gw.ford.com; jmcinern@gw.ford.com; dbudzyns@visteon.com; patokas@visteon.com; dgoel@gw.ford.com; lbrown@gw.ford.com; scole1@gw.ford.com; hwelfer3@ecms1.dearborn.ford.com; gsteven1@gw.ford.com
Subject: PC File(s) sent to you...

This file lists the actions, champion and target date for the Brake Pressure Sw
itch investigation. The next meeting is tentatively set for 2/16/99 afternoon.
A meeting notice will be sent if there is going to be a meeting.

Steve Reimers building 5 3C043
AVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-03286 ;>

Schrody, Thomas (T.P.)

From: sreimers@gw.ford.com
Sent: Friday, February 05, 1999 4:48 PM
To: tschrody@visteon.com
Subject: File BRKPSW.DOC_PC

brkpsw.doc

Schrody, Thomas (T.P.)

From: Stokes, Paul (P.D.)
Sent: Thursday, February 04, 1999 5:00 PM
To: Schrody, Thomas (T.P.)
Cc: Huberts, Garlan (G.J.)
Subject: FW: Brake Pressure Switch

Tom: The reason this meeting notice was sent to you is because at a meeting today (2/4) same subject which Dan Budzynski and I attended, we were asked to volunteer some people from speed control to help with this investigation. You (for module) and Fred (for system) were nominated.

AVT, chassis electronics is leading this effort. I think they will be doing most of the work but they may need some help with some speed control specific items. Note that the speed control is NOT suspected as the root cause of this investigation. However, the brake pressure switch is and we are the sole user of the brake pressure switch.

Yes, I intentionally left out what the investigation is all about. See me for details.

-----Original Message-----
From: Steve Reimers [SMTP:SREIMERS.DRBN007@ovvm.gw.ford.com]
Sent: Thursday, February 04, 1999 11:46 AM
To: CSTEVEN7.DRBN005@ovvm.gw.ford.com; JNEME.DRBN005@ovvm.gw.ford.com; slarouch@mail.ford.com; FPORTER.DRBN007@ovvm.gw.ford.com; RENGLIS1.DRBN005@ovvm.gw.ford.com; SSALTER.DRBN005@ovvm.gw.ford.com; NLAPOINT.DRBN005@ovvm.gw.ford.com; TMASTERS.DRBN005@ovvm.gw.ford.com; JKAPATI.DRBN004@ovvm.gw.ford.com; SREIMERS.DRBN007@ovvm.gw.ford.com; tschrody@visteon.com; FKOHL.DRBN007@ovvm.gw.ford.com; TBAZIL.DRBN005@ovvm.gw.ford.com; JMCINERN.DRBN005@ovvm.gw.ford.com; dbudzyns@visteon.com; pstokes@visteon.com; DGOEL.DRBN005@ovvm.gw.ford.com; LBROWN.DRBN005@ovvm.gw.ford.com; SCOLE1.DRBN005@ovvm.gw.ford.com; HWELFER2.DRBN005@ovvm.gw.ford.com
Subject: Brake Pressure Switch

Requester: Steve Reimers
Date to be scheduled: 02/05/99
Starting time: 02:00 PM
Ending time: 03:00 PM
Recurrence: Single event

Location: building 5 3A039

Subject: Brake Pressure Switch

Purpose: Develop Work Plan.

02-05-99.vcs

Recurrence: Single event

****
* Note printed by REINERS on 24 Mar 1999 at 14:03:55 *
****

From: SLAROUCH--FORDMAI
To: NLAPOINT--FORDMAIL LaPointe, Norman
FPORTER --FORDMAIL Porter, Fred
GSTEVEN1--FORDSMTP Stevens, Gregory

Date and time 03/24/99 13:20:55
SLAROUCH--FORDMAI LaRouche, Steve
REINERS--FORDMAIL Reiners, Steve

From: LaRouche, Steve (S.)
Subject: Switches from EAA

I have received two switches with filled out questionaires from EAA. One is from a 92 Town Car (Davenport, FL), and the other is from a Town Car with no model year listed (Insurance Auto Auction in Aurora, IL). One vehicle caught fire while it was left idling (IL vehicle), the other caught fire 15-20 minutes after it was parked. Owner couldn't get it out of park previous evening. Police changed fuse for her. Both switches badly burned. Probably won't be able to tell much from them. A 15A fuse was included with one of the switches. No other parts or brake fluid received with switches. Will not be able to make today's meeting.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room S410
(313) 845-4878 (313) 322-1414 FAX

Team meeting notes

3/24/99

92 CV NON/ABS W/SPEED CONTROL
WANT AIR SUSPENSION

Bring Back 92 Town

Jon Watson — Contain fire to switch with Jacket/Shell

70/900 Report Leaks From ANS ABRAMCZYK

FSeries PN96 - 2 Melted Connectors. Nory1?

OVER

3713 1777

CAN A REPLACEMENT CONNECTOR BE CAUSING EXCESS LEAKAGE?

- [illegible] Warranty Data for ? [illegible] Bill

Junkyard connector evaluation

E-MAIL WARRANTY DATA TO ANDY.

3713 1778

****
* Note printed by FPORTER on 25 Mar 1999 at 15:01:00 *
****

From: SLAROUCH--FORDMAI Date and time 03/24/99 13:20:55
To: NLAPOINT--FORDMAIL LaPointe, Norman SLAROUCH--FORDMAI LaRouche, Steve
FPORTER --FORDMAIL Porter, Fred SREIMERS--FORDMAIL Reimers, Steve
GSTEVEN1--FORDSNTP Stevens, Gregory

From: LaRouche, Steve (S.)
Subject: Switches from EAA

I have received two switches with filled out questionaires from EAA. One is from a 92 Town Car (Davenport, FL), and the other is from a Town Car with no model year listed (Insurance Auto Auction in Aurora, IL). One vehicle caught fire while it was left idling (IL vehicle), the other caught fire ~15-20 minutes after it was parked. Owner couldn't get it out of park previous evening. Police changed fuse for her. Both switches badly burned. Probably won't be able to tell much from them. A 15A fuse was included with one of the switches. No other parts or brake fluid received with switches. Will not be able to make today's meeting.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room N410
(313) 845-4876 (313) 322-1614 FAX

4/4

Brake Pressure Switch Team Mtg 3/31/99

Steve Reimers	RVT/EESE	SREIMERS	X03286
FRED PORTER	RVT/EESE	FPORTER	X53722
FRED KOHL	VISTEON	FKOHL	21801
GREG STEVENS	RVT MAT'L	GSTEVEN2	36686
JOE KAFATI	EESE	JKAFATI	05589
NORM LAPOINTE	DESIGN ANAL	NLAPOINT	42686
ANDY McGOVERN	TI QRA	a-mcgovern@ti.com	508236 [illegible]

3713 1776

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EA02-025-A 10860

BP Team Mtg 4/7/99

MARTY REESE, BILL ABRAMCZYK, ANDY McGuirk, FRED PORTER, JOE KAFATI, TOM MASTERS, PETER JOH, NORM LAPOINT, 5 Reimers

- Bill Read report from Myrtle Beach SC -- home destroyed.
- Joe – selecting Waterproof relay

UTA
- Need UTA to explain work plan timing
  why 8 weeks turn-around?
- Validate Pilot Relay fix
  - Splash, Vibration
  - Does Speed control still work.
- Need DV work plan developed.
- Will the BP Switch be replaced as part of recall?

- Are we going to take interim action of disconnecting Brake Pressure Switch? This disables Speed Control.

A – For Monday Meeting should have FMEA Impact of Process, Timing for Kits, Timing for Validation

- Econoline 8D similarities & uniqueness

TI Testing Vertical (Pins-up) ignition

? – Does SYMPTOM MOVE ACROSS PLATFORMS Blown Fuse, Stuck-in-Park, Cruise Inop,

① TI needs to look at capacity to provide kits

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room N410
(313) 948-4876 (313) 322-1614 FAX

-----Original Message-----
From: Frederick J. Porter mailto:fporter@gw.ford.com
Sent: Friday, April 16, 1999 8:15 PM
To: slarouch@mail.ford.com
Cc: slapointe@gw.ford.com; sreimers@gw.ford.com; pklaas@mail.ford.com
Subject: Brake Switches

For clarification:

When you are done with the testing, do the switches from KAA show signs of a cell being formed?

Is there, or could there be, evidence of corrosion occuring on the KAA switches similar to the junkyard switches.

Regards,
Fred Porter OV - fporter fporter@ford.com
Chassis S/S Systems Applications (313)845-3722
Bldg 5 - Mail Drop 5030 - Cubicle 3E004 fax: 390-4145
*** Forwarding note from SLAROUCH--FORDMail 04/16/99 17:14 ***
To: FPORTER --FORDMail Porter, Fred (F.J.
cc: SLAPOINT--FORDMail LaPointe, Norman (PKLAAS --FORDMail Klaas, Pete (P.F.)
SLAROUCH--FORDMail LaRouche, Steve (S

From: LaRouche, Steve (S.)
Subject: Brake Switches

Fred: I had a meeting this afternoon with two gentlemen (one was Roc Carter) from Scientific Research Laboratories to discuss brake switches. I showed them the results I have so far, and they felt that our testing was pretty comprehensive and that there was really not any more that they could contribute in terms of testing. We tried to come up with possible scenarios that would tie our findings to a cause of fire, but couldn't come up with anything. Here is a quick summary of our findings at Central Lab:

There appear to be two modes of failure occurring: One involving leakage of brake fluid through the Kapton seal and an apparent cell being set up between the contacts and steel cup; The other involving ingression of water into the switch cavity, with no brake fluid leakage, and no evidence of a cell:

The Memphis switch and all of the leakers analyzed so far show a leak path through the Kapton seals. The cup faces show transfer of the brass contact material to them which suggests that a cell has occurred between the hot contacts and the grounded cup. In addition to brake fluid, the Memphis switch shows evidence (dezincification of the brass contact) that some moisture may have also been present. We found no evidence that road salt had entered the switches.

The completely burned switches also show probable transfer of contact material to the cups, indicating a possible cell. No evidence of road salt detected. Could not determine if brake fluid leakage occurred.

Three of the junk yard switches (including the one analyzed by SRL) showed corrosion of the cups suggesting ingression of water into the switch cavities. This appears to be a different mode of failure in that there was no evidence of a cell occurring between the contacts and cup. Again, there was no evidence of road salt in the switch cavities. Although there is some damage to the Kapton seals, there appears to have been no leak path or leakage of brake fluid.

I have received two switches from the OASIS which were both leakers. Testing is pretty much complete on these switches and so far we have found nothing different from the other leakers we analyzed.

I have also received three switches from EAA which were completely burned. These switches are in various stages of analysis, but so far do not appear to be different from the completely burned switches we analyzed previously.

The brake fluids in the Memphis switch and all the leakers (including those from the OASIS) contain oxalates. The brake fluid from the car you have out at MPG does not. The guys from SRL suggested that we analyze brake fluids from old vehicles for oxalates and other contaminants, as well as measure conductivity. So far, we have received no brake fluid samples for this.

This is what we have so far: We have found several conditions which may have contributed to a fire, but have not been able to link any of them to a definate cause. I don't think that additional testing on switches is going to be beneficial. I would like to complete the testing that is in progress and wrap this up. Let me know how you want us to proceed.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room N410
(313) 845-4876 (313) 322-1414 FAX

****
* Note printed by FPORTER on 26 May 1999 at 16:49:49 *
****

From: SLAROUCH--FORDNA1 Date and time 04/16/99 17:14:42
To: FPORTER --FORDMAIL Porter, Fred (F.J.
cc: MLAPOINT--FORDMAIL LaPointe, Norman (PKLAAS --FORDNA1 Klaas, Pete (P.F.)
SLAROUCH--FORDNA1 LaRoucha, Steve (S

From: LaRoucha, Steve (S.)
Subject: Brake Switches

Fred: I had a meeting this afternoon with two gentlemen (one was Roc Carter) from Scientific Research Laboratories to discuss brake switches. I showed them the results I have so far, and they felt that our testing was pretty comprehensive and that there was really not any more that they could contribute in terms of testing. We tried to come up with possible scenarios that would tie our findings to a cause of fire, but couldn't come up with anything. Here is a quick summary of our findings at Central Lab:

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The Memphis switch and all of the leakers analysed so far show a leak path through the Kapton seals. The cup faces show transfer of the brass contact material to them which suggests that a cell has occurred between the hot contacts and the grounded cup. In addition to brake fluid, the Memphis switch shows evidence (dezincification of the brass contact) that some moisture may have also been present. We found no evidence that road salt had entered the switches.

The completely burned switches also show probable transfer of contact material to the cups, indicating a possible cell. No evidence of road salt detected. Could not determine if brake fluid leakage occurred.

Three of the junk yard switches (including the one analysed by SRL) showed corrosion of the cups suggesting ingression of water into the switch cavities. This appears to be a different mode of failure in that there was no evidence of a cell occurring between the contacts and cup. Again, there was no evidence of road salt in the switch cavities. Although there is some damage to the Kapton seals, there appears to have been no leak path or leakage of brake fluid.

I have received two switches from the OASIS which were both leakers. Testing is pretty much complete on these switches and so far we have found nothing different from the other leakers we analysed.

I have also received three switches from BAA which were completely burned. These switches are in various stages of analysis, but so far do not appear to be different from the completely burned switches we analysed previously.

The brake fluids in the Memphis switch and all the leakers (including those from the OASIS) contain oxalates. The brake fluid from the car you have out at MPG does not. The guys from SRL suggested that we analyse brake fluids from old vehicles for oxalates and other contaminants, as well as measure conductivity. So far, we have received no brake fluid samples for this.

This is what we have so far: We have found several conditions which may have contributed to a fire, but have not been able to link any of them to a definate cause. I don't think that additional testing on switches is going to be beneficial. I would like to complete the testing that is in progress and wrap this up. Let me know how you want us to proceed.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room #410
(313) 845-4875 (313) 322-1614 FAX

****
* Note printed by FPORTER on 20 Apr 1999 at 09:59:33 *
****

From: SLAROUCH--FORDMAI Date and time 04/20/99 08:05:14
To: FPORTER --FORDMAIL Porter, Fred (F.J.
cc: SLAROUCH--FORDMAI LaRouche, Steve (S

From: LaRouche, Steve (S.)
Subject: RE: Brake Switches

Fred: You are correct for the Reddick switch. The damage was most severe on the washer side of the seal pack, which indicated that was where the cracking initiated. I don't think we can make a general statement about where the cracking/damage initiated for all the samples as it appears to have initiated at different locations in different samples (The cracking appears to have initiated on the fluid side of the seals in the two oasis samples; the initiation point could not be determined in the other samples).

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room M410
(313) 845-4876 (313) 322-1814 FAX

-----Original Message-----
From: Frederick J. Porter mailto:fporter@gw.ford.com
Sent: Monday, April 19, 1999 5:17 PM
To: slarouche@mail.ford.com
Cc: sreimer@gw.ford.com
Subject: RE: Brake Switches

At today's Technical Review Committee meeting, the question was asked "Can we tell which direction the brittleness and cracking is happening on the kapton switches?" We noted that in your chart the Reddick vehicle said that it started on washer side. I think this means that the cracking started on the electrical side and progressed to the hydraulic side of the kapton.

1) Please confirm that I am correct.

2) Can we make a statement in regards to which kapton layer started to crack first on the other leaky switches?

Regards,
Fred Porter CV - fporter fporter@ford.com
Chassis E/E Systems Applications (313)845-3722
Bldg 6 - Mail Drop 6030 - Cubicle 3E004 fax: 336-4145
*** Forwarding note from SLAROUCH--FORDMAI 04/19/99 07:57 ***
To: FPORTER --FORDMAIL Porter, Fred (F.J.

From: LaRouche, Steve (S.)
Subject: RE: Brake Switches

Fred: We are currently investigating this. I hope to have an answer this week.

8628 SL

All shaded areas must be filled in to process your request

Request for Central Laboratory Service

15000 Century Dr., Dearborn MI 48120-1257 Phone (313) 32-21676 FAX (313) 32-21614

Laboratory Number	Date
9901571	5-12-99 SL

Your Name (Send report to)	Telephone	PROFS ID	FAX
G. STEVENS	313 323 [illegible]	GSTEVEN4	313 390 7774
Secondary Contact	**Telephone**	**PROFS ID**	**FAX**
N. LaPOINTE	313 594 [illegible]	NLAPOINT	313 337 8756

Room No./Mail Drop/PO Box	Department/Activity	Building	Location Code	Dept. #	Work Task # (For 5108 Loc. Only)
MD SIDL/2A0L8	EVT MAT'LS	BLDG #5	5[illegible]	T113	X46164

T

Total # of Samples	Sample Handling	TOX/CAS#	Source	Supplier Code
17	X Return after test ___ Dispose after test ___ Dispose after 30 days			

Part/Material Name	Sample Identification (Continue below if needed)	Part Number (If any)	Material Specification (If any)	CPSC Code	Supplier
SPEED CONTROL	SEE ATTACHED	F2VY-9F924-A	NA		TEXAS
CUTOFF SWITCH	SHEET				INSTRUMENTS

Investigation

Nature of Investigation/Specific Tests Required (Check all that apply)

X Production/Plant problem   X Perform Tests as in Lab No. 9812[illegible]

X Failure Analysis   ___ Photograph (Describe below)

___ Legal   ___ Use Specification ___ as a guide

___ Specification Compliance   ___ Other (Describe below)

Requester Info. Box (For requester use)

Stop testing upon failure? ___ No ___ Yes

Does this support CAR testing? X No ___ Yes (If "Yes", what is the expected outcome?)

Do you need to know your CL contact and timing? ___ Yes

Additional Sample Information/Testing Requirements

PERFORM TESTS AS IN 981[illegible] TO ASSIST IN DETERMINING CAUSE OF POSSIBLE LEAKAGE/FIRES. ADDITIONAL SWITCHES [illegible]

Report

Date you would like report: 7-1-99

Date you must have report: 7-1-99

Reports (Check all that apply)

___ FAX preliminary results   ___ FAX hand written   X Mail typed report

___ FAX typed report   ___ Mail hand written   ___ Electronically transfer report

___ Phone preliminary results

For information about services or assistance in completing this form please refer to the Central Laboratory WEB page. (www.[illegible])

Laboratory number and date cannot be assigned without receipt of samples.

Samples will be disposed of after 30 days unless otherwise indicated above.

3713 3281

PRODUCED BY FORD

EA02-025-A 18667

Request for Central Laboratory Service

Receipt - Copy

Lab Request Number: 20990137
Date of Request: 05/12/1999 03:37:40 PM
Print Date: 05/12/1999 04:54:42 PM

Request Description: SPEED CONTROL CUTOFF SWITCH

Requestor Information:
Primary Contact: [redacted]
Secondary Contact: DAPONTE, NORA - 10073 Phone: (313) 594-2685 PROFS ID: NLAPOINT Fax: (313) 337-6256

Send Report to: MD 3009/2G08S, PVT MATERIALS, BLDG. #5
Bill to: Acctg Location: 5100
Dept: T113
Work Task: XQG04

Sample Information:
Total Number of Containers: 17
Source: Not specified
Sample Handling: Return after test
Supplier Code: Not specified

Part/Material Name	Qty	Sample Identification	Part Number	Material Spec	CPSC Code	Supplier
SPEED CONTROL CUTOFF SWITCH	17	SEE ATTACHED SH EET	F2VY-9F924-A	NA	00.00.00	TEXAS INST RUMENTS

Investigation Information:
Nature of Investigation: Requestor Info. Box: Mail typed report

Additional Sample Information/Testing Requirements:
Perform Tests as in Lab Number: 9900807
PERFROM TESTS AS IN 9900807 TO ASSIST IN DETERMINING CAUSE OF POSSIBLE LEAKAGE/FIRES. ADDITIONAL SWITCHES MAY FOLLOW.

Reporting Directions:
Date customer would like report: 07/01/1999
Date customer must have report: 07/01/1999

Report Format(s):

Login Information:
Initial Routing: Metallurgy
Accepted for Central Laboratory by: LaRouche, Steve Phone: 64-34876

View your test status at: 'HTTP://bd4web.pd7.ford.com/kalis'

Program Name: KALISLab Engr Module
Program Version: 3.0.0

Ramon: Please perform heat & pressure tests as before.

Jim needs to log this in to you.
Thanks,
Steve

3713 3286

PRODUCED BY FORD

ER92-625-A 18858

Project No. [illegible]
44 Book No. 2744 TITLE

From Page No.

TO: [redacted]

SUBJECT: SPEED CONTROL CUTOFF SWITCH
PART NUMBER: F2VY-9F924-A
SPECIFICATION: NOT PROVIDED

SUPPLIER: TEXAS INSTRUMENTS

RECEIVED: SEVENTEEN SPECIMENS WERE RECEIVED ON MAY 12, 1999.

OBJECT: TEST SWITCH PER MATRIX PROCEDURE AND EVALUATION PROCESS INSTRUCTIONS THAT WERE PROVIDED.

TEST DATA:
SEE MATRIX CHARTS ATTACHED TO THE FILED REPORT.

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date
[signature]		[signature]	5-25-99

3713 3287

EA02-025-A 10058

C = COMPLETE
NA = NOT APPLICABLE
TBP = TO BE PERFORMED

Brake Switch Testing Checklist

INF = INFINITY (OPEN)
NP = NOT PERFORMED
NRCLS = NOT REC'D AT CEN. LAB.

Section	#	Step	Jun-95 K[redacted]	Apr-98 F[redacted]	Jan-97 L[redacted]	Apr-00 P[redacted]	May-93 L[redacted]	May-96 N[redacted]	Nov-96 C[redacted]	Oct-06 L[redacted]
Field Info	1	[illegible]	C	C	C	C	C	C	C	C
	2	[illegible]	C	C	C	C	C	C	C	C
	3	[illegible]	C	C	C	C	C	C	C	C
	4	[illegible]	NP	NP	C	NP	NP	NP	NP	NP
		[illegible]								
Switch + Connector Assembly	5	[illegible]	NP	NP		NP	NP	NP	NP	NP
	6	[illegible]	NP	NP		NP	NP	NP	NP	NP
	7	[illegible]	NP	NP		NP	NP	NP	NP	NP
	8	[illegible]	NP	NP		NP	NP	NP	NP	NP
Connector Only	9	[illegible]	NP	NP		NP	NP	NP	NP	NP
	10	[illegible]	NP	NP		NP	NP	NP	NP	NP
[redacted]										
	12	[illegible]	NP	NP		NP	NP	NP	NP	NP
	13	[illegible]	NP	NP		NP	NP	NP	NP	NP
	14	[illegible]	NP	NP		NP	NP	NP	NP	NP
	15	[illegible]	NP	NP		NP	NP	NP	NP	NP
Switch External Unpressurized	16	[illegible]	—	—	—	—	—	—	—	—
	17	[illegible]	0.04 Ω	0.03 Ω	0.01 Ω	0.02 Ω	0.03 Ω	0.02 Ω	0.05 Ω	0.01 Ω
	18	[illegible]	∞Ω	∞Ω	∞Ω	3.1 MΩ	∞Ω	∞Ω	∞Ω	∞Ω
	19	[illegible]	∞Ω	∞Ω	∞Ω	3.0 MΩ	∞Ω	∞Ω	∞Ω	∞Ω
	20	[illegible]	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω
[redacted]										
Switch External Pressurized	24	[illegible]	C.N.O.[1]	255	260	C.D.N.O.[1]	275	246	C.D.N.O.[1]	244
	25	[illegible]	C.W.N.O.[2]	200	196	C.W.N.O.[2]	190	180	C.W.N.O.[2]	175
	26	[illegible]	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK
	27	[illegible]	—	—	—	—	—	—	—	—
	17	[illegible]	0.04 Ω	0.04 Ω	∞Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.05 Ω	∞Ω
	18	[illegible]	∞Ω	∞Ω	∞Ω	3.0 MΩ	∞Ω	∞Ω	∞Ω	∞Ω
	19	[illegible]	∞Ω	∞Ω	∞Ω	2.7 MΩ	∞Ω	∞Ω	∞Ω	∞Ω
	20	[illegible]	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω	∞Ω
Switch	28	[illegible]								
	29	[illegible]								
	30	[illegible]								
	31	[illegible]								
Techniques	31	[illegible]								
	32	[illegible]								
	33	[illegible]								
		[illegible]								

FOOTNOTE: 1 CONTACTS DID NOT OPEN
" 2 " WERE " "

PRODUCED BY FORD

3713 3289

C = COMPLETE
NA = NOT APPLICABLE
TBP = TO BE PERFORMED

Brake Switch Testing Checklist

INF = INFINITY (OPEN)
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NRCLS = NOT REC'D AT CEN. LAB.

		7 1X[redacted]	97 X[redacted]	Mar-97 N[redacted]	[redacted]	97 [redacted]	97 U[redacted]	97 U[redacted]	92 7X72588
Field Info	1 [illegible]	C	[redacted]	C	[redacted]	C	C	C	C
	2 [illegible]	C	C	C	C	C	C	C	C
	3 [illegible]	C	C	C	C	C	C	C	C
	4 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	[illegible]								
Switch + Connector Assembly	5 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	6 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	7 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	8 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
Connector Only	9 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	10 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	[redacted]								
	12 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	13 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	14 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
	15 [illegible]	NP	NP	NP	NP	NP	NP	NP	NP
Switch External Unpressurized	16 [illegible]	—	—	—	—	—	—	—	—
	17 [illegible]	0.03 Ω	0.01 Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.02 Ω	0.01 Ω
	18 [illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	19 [illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	20 [illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	[redacted]								
Switch External Pressurized	24 [illegible]	125 Ω	132 Ω	230	266	137	261	251	145
	25 [illegible]	96	98	165	188	58	183	184	73
	26 [illegible]	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK	NO LEAK
	27 [illegible]	—	—	—	—	—	—	—	—
	17 [illegible]	∞	∞	∞	0.02 Ω	∞	0.01 Ω	0.02 Ω	∞
	18 [illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	19 [illegible]	∞	∞	∞	∞	∞	∞	∞	∞
	20 [illegible]	∞	∞	∞	∞	∞	∞	∞	∞
Switch	28 [illegible]								
	29 [illegible]								
	30 [illegible]								
	31 [illegible]								
Techniques	31 [illegible]								
	32 [illegible]								
	33 [illegible]								
	[illegible]								

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NA = NOT APPLICABLE
TBP = TO BE PERFORMED

Brake Switch Testing Checklist

INF = INFINITY (OPEN)
NP = NOT PERFORMED
NRCLS = NOT RECD AT CEN. LAB.

			95 D[redacted]							
Field Info	1	[illegible]	C							
	2	Photograph Switch	C							
	3	[illegible]	C							
	4	Check for Connector engagement	NP							
		X-ray if appropriate								
Switch + Connector Assembly	5	[illegible]	NP							
	6	[illegible]	NP							
	7	[illegible]	NP							
	8	[illegible]	NP							
Connector Only	9	[illegible]	NP							
	10	[illegible]	NP							
[redacted]										
	12	[illegible]	NP							
	13	[illegible]	NP							
	14	[illegible]	NP							
	15	[illegible]	NP							
Switch External Unpressurized	16	[illegible]	—							
	17	[illegible]	1.41 Ω							
	18	[illegible]	∞							
	19	[illegible]	∞							
	20	[illegible]	∞							
[redacted]										
Switch External Pressurized	24	Switch Opening Pressure	125							
	25	Switch Closing Pressure	81							
	26	[illegible]	NO LEAK							
	27	[illegible]	—							
	17	[illegible]	∞							
	18	[illegible]	∞							
	19	[illegible]	∞							
	20	[illegible]	∞							
Switch	28	[illegible]								
	29	[illegible]								
	30	[illegible]								
	31	[illegible]								
Techniques	31	[illegible]								
	32	[illegible]								
	33	[illegible]								
		[illegible]								

3713 3290

PRODUCED BY FORD

EN62-025-A 19862

Project No. [illegible]
44 Book No. 3744 TITLE

From Page No.

[redacted]

TO:

SUBJECT: SPEED CONTROL CUTOFF SWITCH
PART NUMBER: F2VY-9F924-A
SPECIFICATION: NOT PROVIDED

SUPPLIER: TEXAS INSTRUMENTS

RECEIVED: SEVENTEEN SPECIMENS WERE RECEIVED ON MAY 12 1999.

OBJECT: TEST SWITCH PER MATRIX PROCEDURE AND EVALUATION PROCESS INSTRUCTIONS THAT WERE PROVIDED.

TEST DATA:

SEE MATRIX CHARTS ATTACHED TO THE FILED REPORT.

To Page No.

Witnessed & Understood by me,	Date	Invented by	Date
[signature]		[signature]	5-25-99
		Recorded by	

3713 3291

STA Mtg	BPS	5/21/97

John Rentis, Andy, FRED, Steve.

- Team meeting – "Prevent action" chart plans development
  - Recall parts examine plan
    - XRAY
    - TEST TO FAILURE
    - REGIONAL STAMPING
  - Invite John Rentis jrentis

JUNE 17-18 TRIP TO ATTLEBORO

- LINE VISIT — JOHN / MC
- UNDERSTAND 92 PROCESS — JOE K ?
- " 99 PROCESS — TOM M ?
  Norm LaPointe ?

3713 1766

PRODUCED BY FORD

EA82-825-A 10884

SMMPSXEA Service to Engineering Cross Reference 09/01/00 14:52:57

==> _____

SERVICE PART: 1W1Z- 2140-AA___ CYLINDER ASY - MASTER
HISTORY: N

A C -	ENGINEERING PART	ENG. INFO ORIGIN	EFFECTIVE IN DATE	Effective Out Date
	1W13 2C156 AA	WERS	12/14/99	

F1=Help F2=ServPartDisp F5=EngPartDisp F6=EngServXref
NO MORE RECORDS AVAILABLE

EFT54AM

ES F17A-2L118-AA

ES 1374

ES 2669-1

ES 2922

SMMPSXEA Service to Engineering Cross Reference 09/01/00 14:53:10
==> _____

SERVICE PART: 1W1Z- 2140-BA___ CYLINDER ASY - MASTER
HISTORY: N

A C	ENGINEERING PART	ENG. INFO ORIGIN	EFFECTIVE IN DATE	Effective Out Date
	1W13 2C156 BA	WERS	12/14/99	

F1=Help F2=ServPartDisp F5=EngPartDisp F6=EngServXref
NO MORE RECORDS AVAILABLE

EFT54AM

09/01/00 MATTER CHANGE REPORT for NLAPOINT
(for past 2 months)

C = Matter Change; * = Changed field; N = New Matter

LOG DATE		NUMBER	MATTER NAME	STATUS	OGC ATTY	TRIAL DATE	OC FIRM
08/01/00	C	966611	SOUTH DAKOTA FLEE	OPEN	*DLAMPE		
08/01/00	C	402108	SOUTH DAKOTA STAT	OPEN	*DLAMPE		
08/01/00	C	402107	SOUTH DAKOTA STAT	OPEN	*DLAMPE		
07/06/00	N	410536	HUBBARD TROY	OPEN	DLAMPE		AZ36
07/05/00	C	403443	MYERS JEFFREY L	*CLSD	NGRABOWS		

Susan to call me back!

EA02-625-A 10000

- FMEA for shorted switch.
- FMEA for failed BOO functio[n]
- What does competition do? SALTER
- Why a P switch? VISTEON
- Immediate action (Containment)
  - Disconnect Switch (Remove & Repl[ace]?
  - Re-wire to low-side
  - ~~[illegible]~~ Jumper out switch
  -
- 14 D
- OTHER TEAM ME[MBERS]
  VO - TOWNC[illegible]

- Competitive Analysis of Redundant Sw. DOES COMPET USE IT?
- Is it a Redundant Sw?
- FMVSS REQUIRE NOT ALL TIME [illegible]
- Cut away of switch
- [illegible]

TOM AMTSAF [illegible]

3713 1818

PRODUCED BY

EA02-025-A 10676

INTERIM REPAIR

DISABLE SPEED CONTROL DEACTIVATION SWITCH

SERVICE PROCEDURE

1. Disconnect the electrical connector from the speed control deactivation switch. See Figure 1.

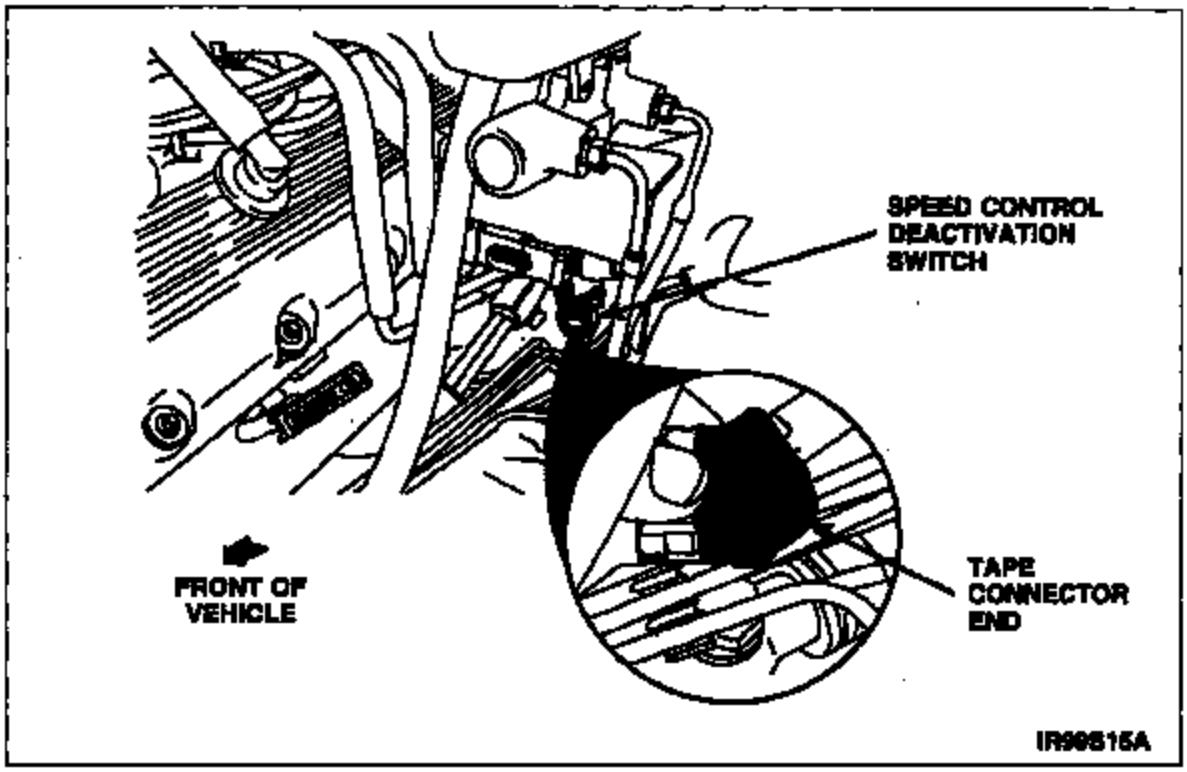

FIGURE 1

2. Tape the end of the connector to prevent contamination from entering the end of the connector.
3. Tie strap the connector to the wiring harness located on the left splash shield.

PERMANENT REPAIR

SPEED CONTROL DEACTIVATION SWITCH AND CONNECTOR REPLACEMENT

AFFECTED VEHICLES: **CERTAIN 1992 AND 1993 CROWN VICTORIA, GRAND MARQUIS AND TOWN CAR WITH SPEED CONTROL**

OVERVIEW

This repair involves replacement of the speed control deactivation switch and the hard shell of the switch electrical connector. The connector terminals will be removed from the old connector hard shell and inserted into the *new* connector hard shell.

PROCEDURE

1. Install a memory saver and disconnect the negative battery terminal.
2. Disconnect the electrical connector from the speed control deactivation switch. See Figure 2.

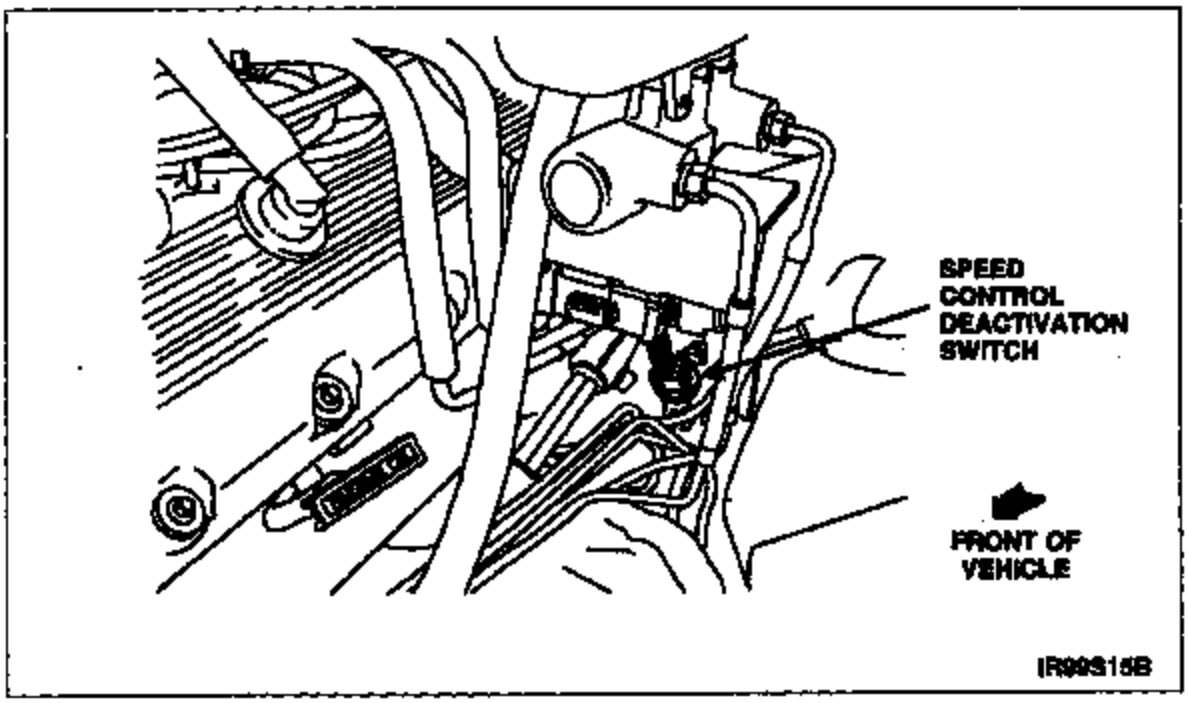

FIGURE 2

3. Remove the locking wedge from the end of the connector. Then, disengage the locking tabs and remove the wire terminals from the connector. See Figure 3.

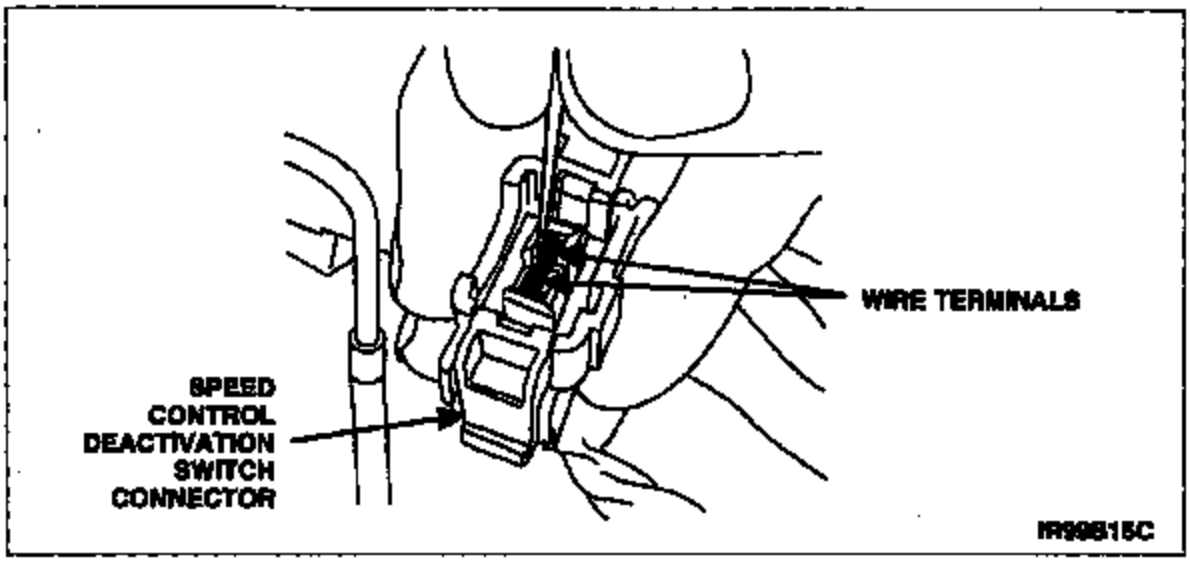

FIGURE 3

4. Obtain the *new* connector from the kit. Insert both wire terminal ends through the connector seal and into the connector hard shell. (The wire terminal ends may be installed into either of the connector cavities).
5. Check the connector to make sure the locking tabs have engaged both terminal ends. Also, make sure the seal is fully seated in the back of the connector. Then, install the red locking wedge to secure the terminals in the connector.
6. Obtain the speed control deactivation switch from the parts kit.
7. Remove the old speed control deactivation switch.
8. Fill the *new* speed control deactivation switch with High Performance DOT 3 Brake Fluid and install the speed control deactivation switch. Tighten the switch to 16 Nm (13 lb-ft).
9. Attach the electrical connector to the speed control deactivation switch.
10. Connect the battery negative cable and remove the memory saver.
11. Raise the vehicle on a hoist.
12. Connect a clear drain tube to the RH rear bleeder screw and the other end in a container partially filled with the recommended brake fluid.
13. Have an assistant pump the brake pedal and then hold firm pressure on the brake pedal.
14. Loosen the RH rear bleeder screw until a stream of brake fluid comes out. While the assistant maintains pressure on the brake pedal, tighten the bleeder screw.
    - Repeat until clear, bubble-free fluid comes out.
    - Refill the brake master cylinder reservoir as necessary.
15. Repeat Steps 12-14 for the LH rear bleeder screw.
16. Lower the vehicle.