

EA02025

TEXAS INSTRUMENTS, INC.'S

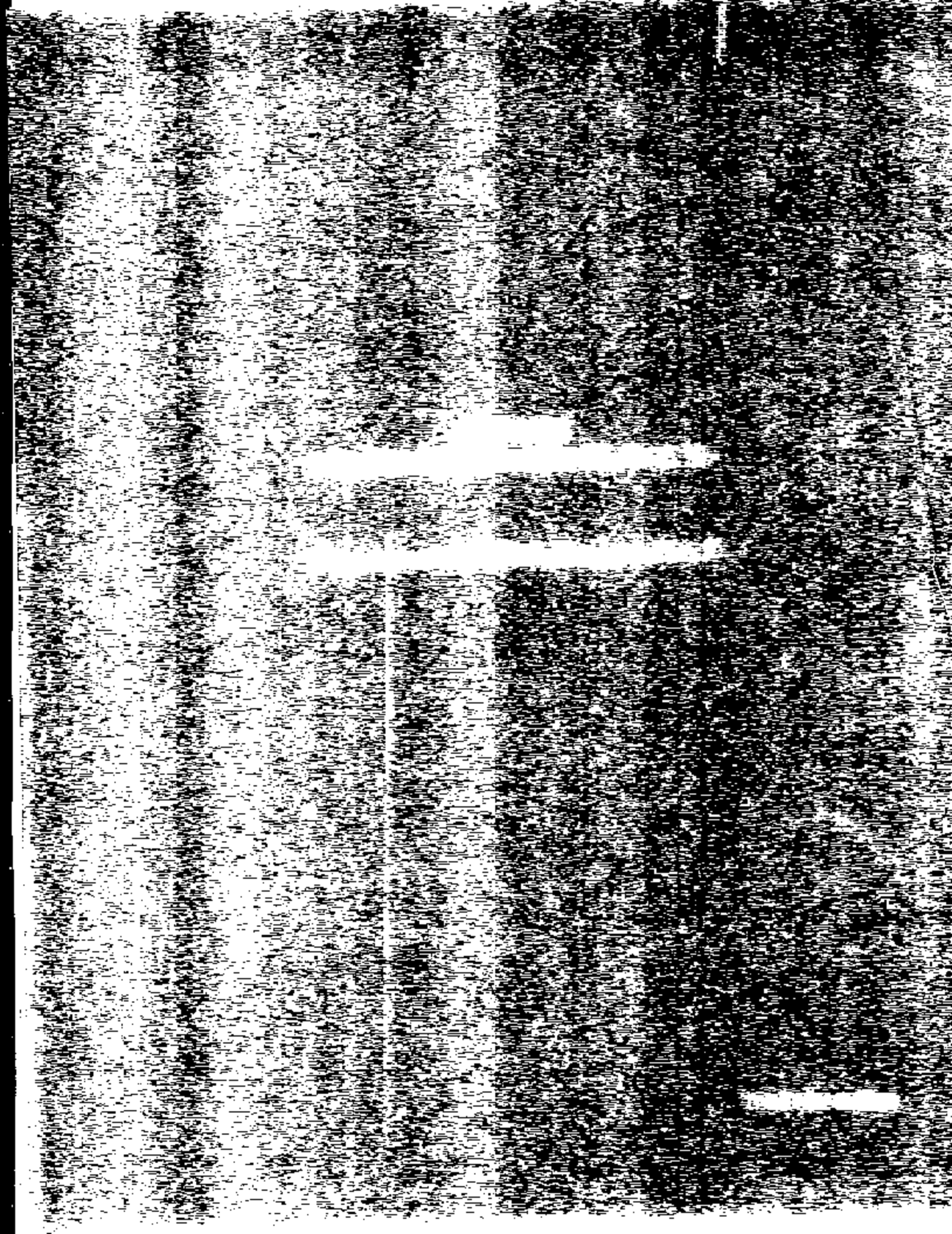
09/10/03 LETTER TO ODI

REQUEST 9

BOX 12

PART A – 0

PART A





**TEXAS
INSTRUMENTS**

March 21, 1997

FACSIMILE TRANSMITTAL

TO: **Name:** **Norman LaPointe**
 Location: **Design Analysis Department**
 Phone Number:
 FAX Number: **(313) 337-8258**

FROM: **Bryan Dague**
 TEXAS INSTRUMENTS **MS 12-29**
 Phone Number: **(508) 236-3234**
 FAX Number: **(508) 236-3588**

Total number of pages (including header page):

4

Norm,

Here is the information that we have sent Fred over the past few days.

Let me know if you need anything else.

**Regards,
Bry**

TEXAS INSTRUMENTS INCORPORATED * 34 FOREST STREET * ATTLEBORO, MA 02703

TI-NHTSA 016089

Dague, Bryan

From: Douglas, Charles
Sent: Wednesday, January 08, 1999 9:00 AM
To: Dague, Bryan
Subject: FW: Florida Information

Charlie

Charlie Douglas
(508) 238-3887 (P)
(508) 238-1888 (F)
c-douglas2@ti.com

From: Douglas, Charles
Sent: Monday, January 04, 1999 8:23 PM
To: Porter, Fred (Fred)
Subject: FW: Florida Information

Fred,

I was not able to get answers to all of your questions and will pass along what we know right now:

- While the exact melt temperature of the Noryl GTX 830 was not available, we do know that this material is molded in the 540 F - 550 F range.
- Kapton does not melt nor burn. Technically it "chars". While we have not been able to determine the exact char temperature of the Kapton, we do know that it is well above 800 F.
- Our team is working on the information on the gasket -> we need to get this from our supplier.

I have a meeting with Bryan Dague and Al Hopkins first thing in the morning and will raise these questions again with them (Al is only returning from vacation on Tuesday). My concern is that we may be reliant on our suppliers for some of the information that you are requesting. What I will try to understand from Al and Bryan is if we have the capability to run tests to determine these temperatures ourselves (if this is the best way to generate the information).

Regards,

Charlie

Charlie Douglas
(508) 238-3887 (P)
(508) 238-1888 (F)
c-douglas2@ti.com

From: K. Porter[SMTP:kporter@voyager.net]
Sent: Monday, January 04, 1999 12:18 AM
To: c-douglas2@ti.com
Ca: Fred Porter
Subject: Florida Information

Dague, Bryan

From: Douglas, Charles
Sent: Wednesday, January 08, 1998 8:50 AM
To: Dague, Bryan
Subject: FW: 99-002: PROPOSED PROTOCOL FOR DISASSEMBLY AND ANALYSIS OF SWITCH FROM 77P8 FROM LINCOLN TOWN CAR

Charlie

Charlie Douglas
(508) 238-3657 (P)
(508) 238-1898 (F)
c-douglas2@t.com

From: Douglas, Charles
Sent: Wednesday, January 08, 1998 8:27 AM
To: Porter, Fred (Fred); Sharps, Robert
Subject: FW: 99-002: PROPOSED PROTOCOL FOR DISASSEMBLY AND ANALYSIS OF SWITCH FROM 77P8 FROM LINCOLN TOWN CAR

Fred,

Attached is the protocol for disassembly and analysis we plan to follow tomorrow. Please feel free to offer your thoughts relative to any additions or modifications your team may desire.

Rob,

Please make sure Norm gets a copy of this at your earliest convenience.

Regards,

Charlie

Charlie Douglas
(508) 238-3657 (P)
(508) 238-1898 (F)
c-douglas2@t.com

From: Hopkins, Al
Sent: Tuesday, January 06, 1998 7:37 PM
To: Dague, Bryan; Fyala, Stephen; Douglas, Charles
Cc: Barnham, Peter; Baker, Gary; McCluck, Andy; Beringhaus, Steven; Andree, Amy; Skudlak, Alan; Paves, Joe
Subject: 99-002: PROPOSED PROTOCOL FOR DISASSEMBLY AND ANALYSIS OF SWITCH FROM 77P8 FROM LINCOLN TOWN CAR

Here's a rough pass, what do you guys think?

PROPOSED PROTOCOL FOR DISASSEMBLY AND ANALYSIS OF SWITCH FROM
77P8 FROM LINCOLN TOWN CAR

- Review Ford's Analysis data that they are bringing in.
- Examine threads and determine if it is OK to just chase the threads to get a good seal or should we remove material for analysis.
- Pressure Leak Test the device (15 minute static-hold, air-pressurized test).
- Decide if we should remove any material or try any other analysis before we start disassembling the device.
- Do a practice descap using the below procedure on a deliberately fractured part (to mimic the condition that the returned device will be in) before performing it on the real sample. Bryan, you and I could do this now.
- Procedure to remove aluminum crimp ring
- Use aluminum foil (or plastic if Ford prefers) to mask the analysis surface.
- Also create a paper/tape shield to further reduce chance of contamination during cutting of crimp ring.
- Place a piece of tape over the area to be cut.
- Cut crimp ring using jewelers saw or Dremel cutoff wheel in one of the two areas indicated on optical photo.
- Cut corners of ring at 180 degree orientation
- Unfold crimp ring
- Optically examine revealed surfaces. Take optical photographs (Digital camera with macro lens plus instant microphotography) and document observations where appropriate. Examine the following areas
 - Inside surface of crimp ring.
 - Seal area and underside of base
 - Top of cap
- Start SEM-EDX (Scanning Electron Microscope with Energy Dispersive Analysis of X-rays) analysis on the inside of the ring and on various surfaces of the plastic base.
- Reprotect the top surface and remove the cap. Bryan had originally suggested just using an end mill to remove the cap. I wouldn't, however, go all the way through with the end mill. I would leave some material behind as a shield. I would suggest then banding the cap off.
- Optically document all revealed surfaces starting with cap.
- Meanwhile, start SEM-EDX analysis on top side of cap. Particularly focus in on the edges of the ceramic pin guide and on the indented ring that lines up with interior wall of the switch cavity. Particularly look for evidence of corrosion or arcing.
- Decide if we should try to flake off any of the overlaying debris to try to examine the underlying metal surface.
- Proceed to perform SEM-EDX analysis on other component surfaces revealed by removal of cap.
- Non-destructively probe inside of the grommet to determine its resilience which will give us an indication of the temperature that it saw. Another indication might be the depth of the indentations left by the grommet seal rings in the wire.
- Decide if it makes sense to further examine the mating connector or grommet seal.

Regards,

Al

END - OF - FAX

Russ Baumann



Office of the General Counsel

Ford Motor Company
 Parklane Towers West
 Suite 200
 Three Parklane Boulevard
 Dearborn, Michigan 48120-2000

**AUTOMOTIVE SAFETY AND PRODUCT LITIGATION
 FACSIMILE TRANSMITTAL SHEET**

Date: 10-29-98 Time:
 To: Rob Sharp Facsimile Number: (248) 305-5734
 Telephone Number:

From: SHAWN L. NORTON
 (313) 322-3269

Number of Sheets Transmitted, including this one: 4

If you do not receive all the pages, please contact the above.

IMPORTANT NOTICE: THIS COMMUNICATION CONTAINS CONFIDENTIAL INFORMATION WHICH IS INTENDED ONLY FOR THE USE OF THE ADDRESSEE. IT MAY ALSO CONTAIN (AND IF LABELED 'PRIVILEGED AND CONFIDENTIAL' DOES CONTAIN) INFORMATION THAT IS PROTECTED BY THE ATTORNEY-CLIENT PRIVILEGE OR THE WORK PRODUCT DOCTRINE. COPYING OR DISTRIBUTION OF THIS COMMUNICATION BY PERSONS OTHER THAN THE ADDRESSEE IS PROHIBITED. IF YOU HAVE RECEIVED THIS COMMUNICATION IN ERROR, PLEASE NOTIFY US IMMEDIATELY BY TELEPHONE AND RETURN THE ORIGINAL MESSAGE TO US AT THE ABOVE ADDRESS BY UNITED STATES MAIL. THANK YOU.

Re: CRUISE CONTROL BRAKE PRESSURE SWITCH

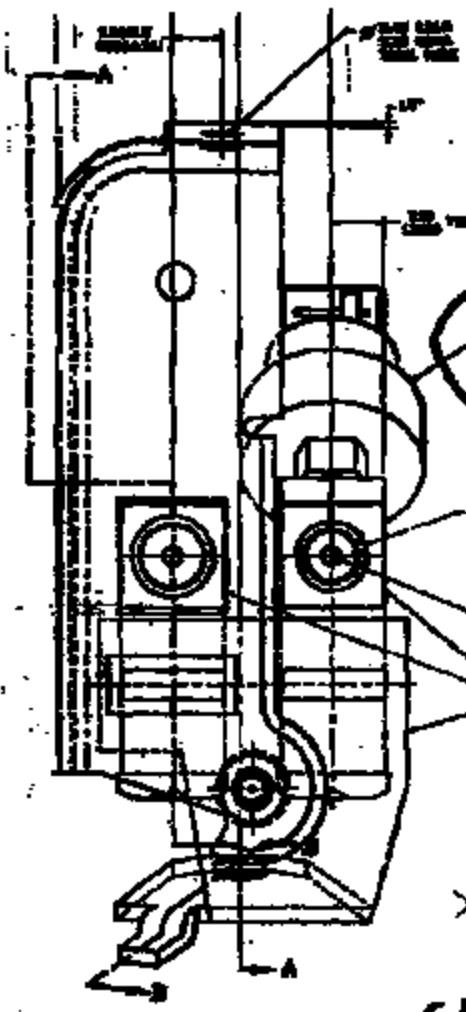
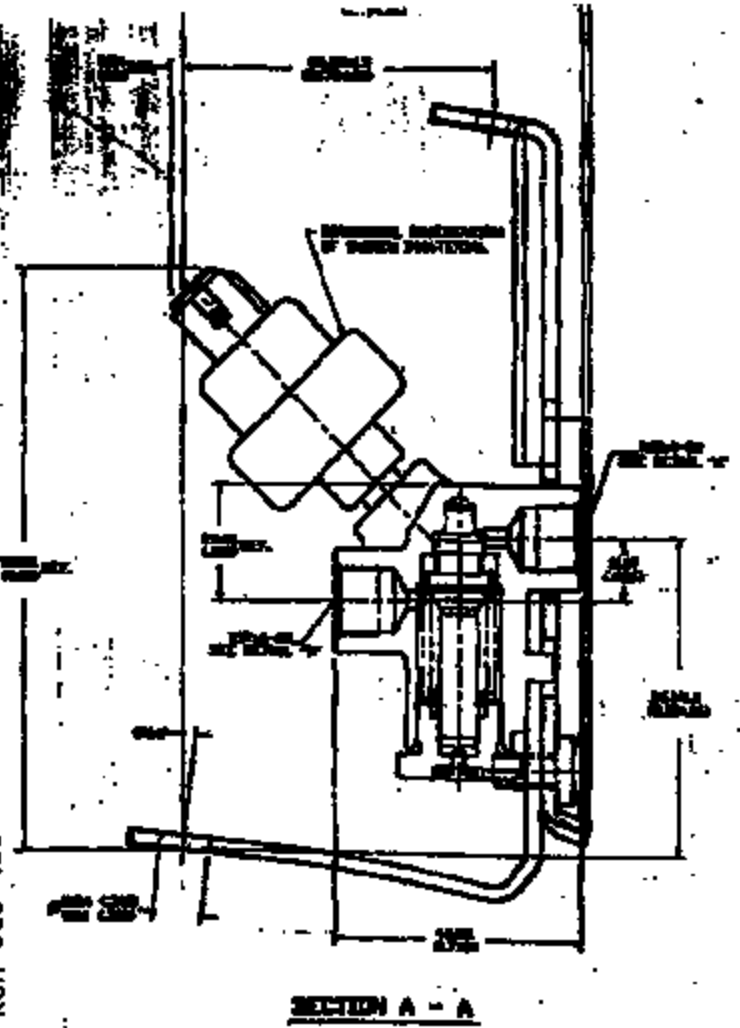
Remarks: 1992 TOWN CAR

Rob,
 Here attached is the
 information we spoke of
 this morning.
 Thanks for all your
 help.
 Shawn Norton

TI-NHTSA 016094

OCT 29 '98 7:52 FROM OGC 480

PAGE 002



408- Service Book
Cross Reference

NOTES:

1. ENGINEERING APPROVAL REQUIRED FOR A...
2. AFTER INITIAL RELEASE... ENGINEERING APPROVAL...
3. THIS PRODUCT IS FOR... 1984-1992...
4. ALLIED SYSTEMS OF... SERVICE...
5. PRODUCT IS COVERED BY... PATENT...

UNIT - 408 UNIT NO. 100-100-00-00 (Covered) EQUIPMENT 120 600 77251-1

Texas Instruments

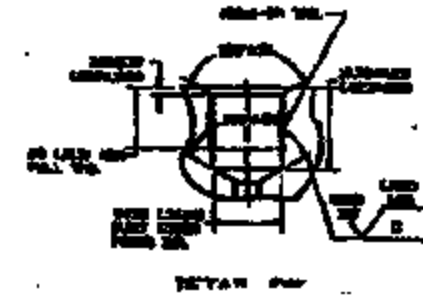


WARNING: THIS PRODUCT IS NOT TO BE USED IN ANY APPLICATION WHERE FAILURE COULD BE DANGEROUS TO LIFE OR PROPERTY DAMAGE.

FOR BEST COPY, VISIT WWW.FEDERALBUREAUOFINVESTIGATION.GOV

* REMOVE

ATTN: Shawn



DATE	BY	REVISION

VALVE ACTUATOR
FRAC

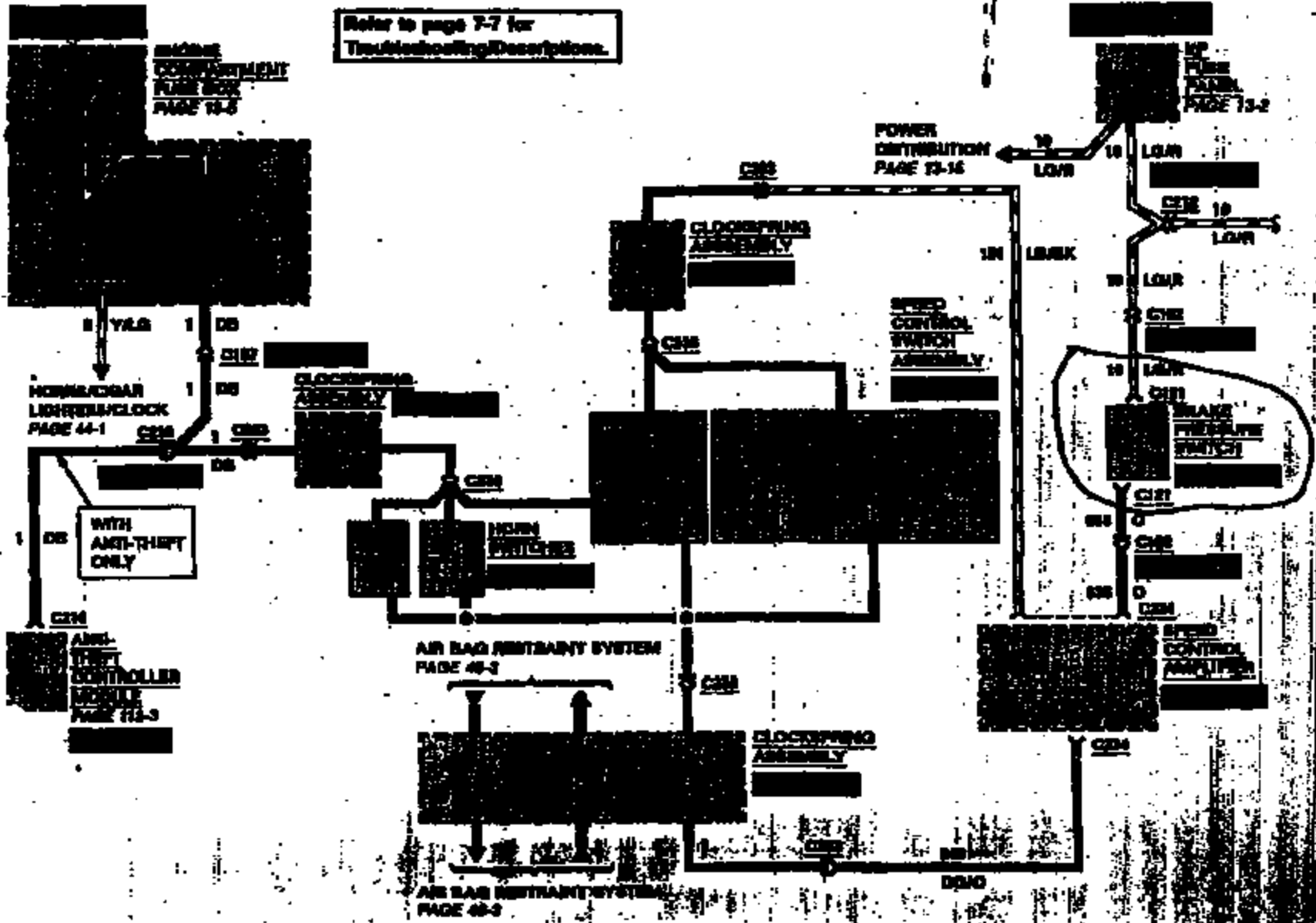
OCT 13 '98 18:53 FR PE#1 FCS/D LUVNH

734 063 8159 10 24003

Draw Sheffield

31-1 SPEED CONTROL

Refer to page 7-7 for Troubleshooting Descriptions.





Office of the General Counsel

UNCLASSIFIED & CONFIDENTIAL

Ford Motor Company
2 Parklane Boulevard
Piquette Towers West, Suite 600
Dearborn, Michigan 48120-2000

December 14, 1988

Erna Baumann
84 Forest Street
Mail Station 2021
Attleboro, MA 01903

Re: Client: Texas Instruments
Our Claimant: Eula Cassel / Allstate
Date of Event: May 11, 1988

Dear Mr. Baumann,

As per our conversation Friday December 11, 1988, enclosed in this letter you will have the information requested.

The vehicle is being stored for Ford Motor Company by Captain Walt Godfrey of Fire Reconstruction Consultants, Inc., in Cape Canaveral, Florida. Captain Godfrey's number is (407)968-7800, and he can give you the directions to the vehicle, and provide details regarding his inspection.

Ford Motor Company does not own this vehicle it is being stored for Ford, therefore we do not have the authority to ship any part to you. Please be advised that you may view this vehicle through the expressed permission of Captain Walt Godfrey, therefore you must contact him to set up an appointment. The vehicle is being store so that you and your expert may have the opportunity for inspection.

You may also contact our outside expert, Ray Davis, of Ray C. Davis, Inc., to discuss his inspection findings. Mr. Davis's number is (810)658-7888

I am also making duplicates of our experts photos and will forward them to your office once I receive the copies.

If you have any further questions please contact me at; (818)222-3355.

Sincerely,

Shawn L. Norton

TJ-NHTSA 016097

Graveline, Dora

From: Douglas, Charles
Sent: Thursday, December 17, 1998 2:58 PM
To: Dague, Bryan; McGuirk, Andrew; Pechonis, John; Proia, Stephen; Ha, DI
Cc: Beumann, Russ; Sharpe, Robert
Subject: Town Car Fires

Team,

As an update, I just had a fairly lengthy discussion with Fred Porter (inflated by Fred) on this issue. Fred is an engineering supervisor at Ford and has been tasked with determining the root cause of the fires on the Town Cars and determining whether or not the situation warrants a recall on the part of Ford. As additional reference information, while not having familiarity with the 77PS per se, Fred does have a significant level of history with TI mainly around sensors for brake controls and has visited TI on a number of occasions. Overall, Fred has a positive view of TI.

As additional reference information, Fred's group has requested and Rob Sharpe has already set-up to visit on Tuesday next week to provide an overview on basic switch function. Initially, Rob's plan was for Rob only to go in front of Ford and pick up in Attleboro via conference call or teleconference to outline switch function. We are overnighting Rob the following materials in preparation for this visit:

- Cross section drawing
- physical sample
- mounted cross section (hopefully)

Based on my discussion with Fred today, I believe there is benefit to our having engineering representation from Attleboro at this meeting on Tuesday. I would suggest that if possible, at a minimum, Bryan (and possibly Andy) attend this meeting. For instance, Fred expects that they will have x-rays of a switch which is showing internal anomalies available on Tuesday -- as an aside, this single switch is the base for all of the concern being directed at the switch right now. Fred is not jumping to any conclusions though he clearly would like TI to participate in the diagnostic journey and help fend off any witch hunts. Based on numerous previous interactions with Fred, I do not doubt his sincerity and believe we can only help our cause by cooperating with most any request we receive from his group.

Fred has also requested and I have agreed to put together, a matrix showing platform usage of this switch from SOP in MY92 through current usage. A couple of pieces of usage information which help defend the switch are as follows:

- Switch was also used on Crown Vic and Grand Marquis in MY92 - 93 timeframe
- Fires are isolated to MY92-93 Town Car and this platform used switch through MY97.

While Fred is not jumping to any conclusion and he has overall responsibility for determining root cause of the fires, he was very clear in letting me know that there are people at Ford who are ready to jump to conclusions based on the anomalies being seen on the one switch. This is the main reason that I believe it is important for us to cooperate with Fred as much as is reasonably possible. During our discussion, I also shared with Fred some of the history on a similar situation with our power steering pressure switch and how the switch was originally thought to be the root cause of a fire but in actuality we were able to show that the switch internal seal melted as a result of being exposed to a fire.

I think that pretty much covers the discussion today.

Any questions / issues, please let me know.

Regards,

Page 1

TI-NHTSA 016098

Charlie

Charlie Douglas
(508) 238-3887 (P)
(508) 238-1888 (F)
c-douglas2@tlo.com

REDACTED

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:36 AM
To: 'Porter, Fred (Ford)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY82	MY83	MY84	MY85	MY86	MY87	MY88
Econoline	Econoline	Econoline	Econoline	Econoline	Econoline	Econoline
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car	Town Car	Town Car	Town Car	Town Car	Town Car	
Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	
	F Series	F Series	F Series	F Series	F Series	F Series
	Bronco	Bronco	Bronco	Bronco		
	SHO Taurus	SHO Taurus	SHO Taurus??			
		Capri	Capri	Capri??		
		Win88	Win88	Win88	Win88	Win88
			Falcon	Falcon	Falcon	Falcon
				Explorer??	Explorer	Explorer
				Ranger??	Ranger	Ranger
					Expedition	Expedition

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY96 timeframes than MY96 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY96 timeframes, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charlie Douglas
(508) 236-3657 (P)
(508) 236-1508 (F)
c-douglas2@tloom

Douglas, Charles

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:35 AM
To: 'Parter, Fred (Fred)'
Cc: Sharps, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY82	MY83	MY84	MY85	MY86	MY87	MY88
Econoline	Econoline	Econoline	Econoline	Econoline	Econoline	Econoline
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car	Town Car	Town Car	Town Car	Town Car	Town Car	
Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	
	F Series	F Series	F Series	F Series	F Series	F Series
	Bronco	Bronco	Bronco	Bronco		
	SHO Taurus	SHO Taurus	SHO Taurus??			
		Capri	Capri	Capri??		
		Win88	Win88	Win88	Win88	Win88
			Falcon	Falcon	Falcon	Falcon
				Explorer??	Explorer	Explorer
				Ranger??	Ranger	Ranger
					Expedition	Expedition
						Navigator

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY82 - MY85 timeframe than MY86 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY86 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charlie Douglas
(808) 234-3447 (P)
(808) 234-1888 (F)
c-douglas2@ti.com

PS8478	77PBL3-3 BASE COLORANT CHANGE	C. WAGNER	3/15/84
PS8386	77PBL3-3 NOISE TEST3	A. RAHMAN	10/15/83
PS8344	77PBL3-3 NOISE TEST FOR TOKYO	A. RAHMAN	8/21/83
PS8348	77PBL4-1 IGR VALIDATION	A. RAHMAN	6/04/83
PS8322	77PBL6-1 PURPLE ORING VALIDATION	A. RAHMAN	5/03/83
PS8371	77PBL6-1 VALIDATION REPORT	A. RAHMAN	2/10/83
PS8301	77PBL3-3 HIGH TEMP IMPULSE	S.OFFILER	
PS8390	77PBL3-3 QUIET VALIDATION	S.OFFILER	
PS8384	77PBL3-3 800-HR THERMAL TEST	S.OFFILER	
PS8283	77PBL2-3 RETROD DEVICE ANALYSIS	S.OFFILER	
PS8282	77PBL3-1 VALIDATION REPORT	S.OFFILER	
PS8288	77PBL5-2 VALIDATION REPORT	S.OFFILER	
PS8278	FORD PIN FSTA-8F884-BA(77PBL3-3) SOUND PULSE TEST EVAL'N	D.CZARN	
PS8278	QUIET SWITCH STUDIES, ALTERNATIVE CONFIGURATION	D.SOGGE	
PS8272	77PBL3-1 SOUND LEVEL VS. SWITCH DIFFERENTIAL	D.SOGGE	
PS8282	77PBL3-1 PARTIAL IGR TESTING	S.OFFILER	
PS8148	77PBL2-1 VALIDATION TESTING	OFFILER	
PS8148	77PBL2-3 VALIDATION TESTING	OFFILER	

TI-NHTSA 016103

Douglas, Charlie

From: Douglas, Charlie
Sent: Friday, December 16, 1999 (8:28 AM)
To: Peter, Paul Ford
Cc: Steve, Robert
Subject: Usage Matrix - Speed Control Configuration Feature Switch

Fred,

The following represents a rough usage matrix over BRZ:

MY98	MY98	MY98	MY98	MY98	MY98	MY98
Econoline-L	Econoline-L	Econoline-B	Econoline-B	Econoline-B	Econoline	Econoline - ?
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car-P	Town Car-P	Town Car-P	Town Car-P	Town Car-B	Town Car-B	Town Car - B
Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-B	Crown Vic-B	Crown Vic - B
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis - B
	F Series-L	F Series-B	F Series-B	F Series-B	F Series-B	F Series - B
	Bronco-L	Bronco-B	Bronco-B	Bronco-B	Bronco-B	
	SHO Taurus	SHO Taurus	SHO Taurus??			
	Capri - P	Capri - P	Capri??			
	Wind	Wind	Wind	Wind	Wind	Wind
	Falcon	Falcon	Falcon	Falcon	Falcon	Falcon
	Taurus-P	Taurus-P	Taurus-P	Explorer??-B	Explorer	Explorer - B
	Sable-P	Sable-P	Sable-P	Ranger??-B	Ranger	Ranger
				Aerostar-B	Expedition	Expedition - B
						Navigator - B

B = Rooster Mount
P = Prop. Valve
L = Line Mount

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY98 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 lineframe, we are actually releasing on more platforms than what is shown above. I say this because our actual shipped volumes which are in the JMU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

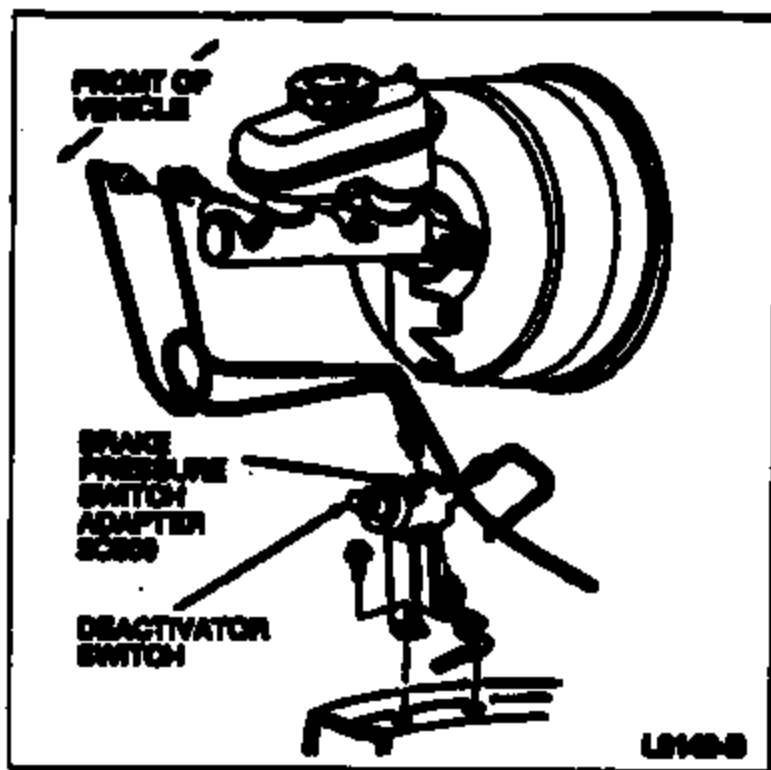
One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot on virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know and at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this fixed to your attention.

Regards,

Charlie

Charlie Douglas
(800) 226-3887 (P)
(800) 226-1888 (F)
c-douglas2@f.com



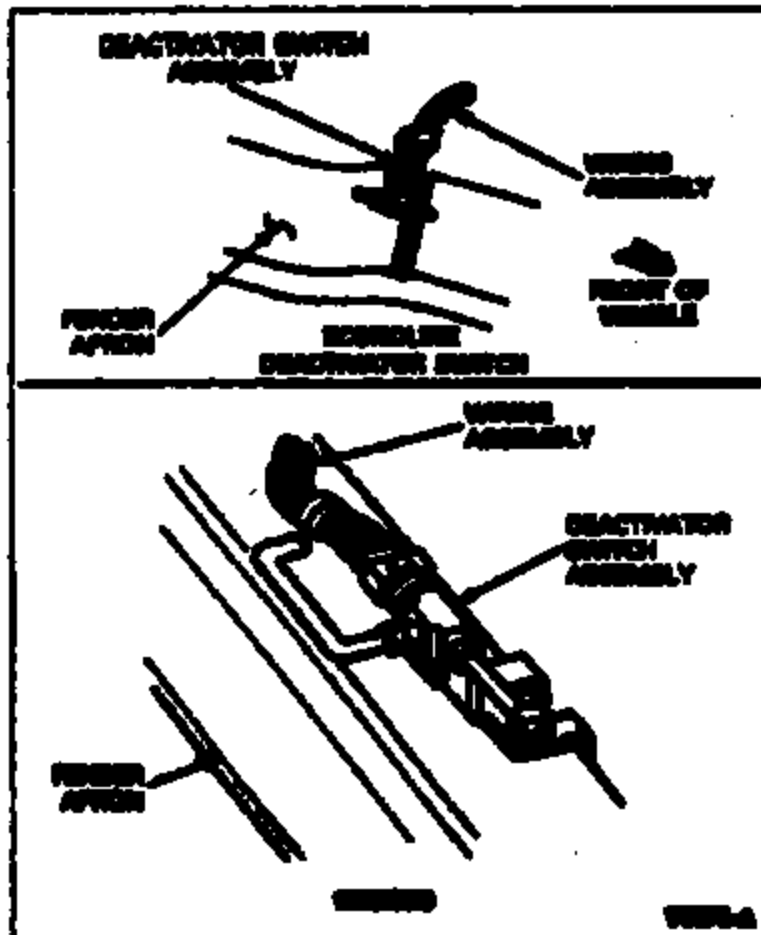
Deactivator Switch

Removal and Installation

1. Disconnect deactivator switch connector. Deactivator switch is located inside front frame rail by left front door, floorplate, and top of frame rail under brake master cylinder, F-Series and Bronco.
2. Uncover switch and remove.

For installation, follow removal procedure in reverse order. Tighten switch to 18-20 N-m (13-14 ft-lb) and bleed brake lines as described in section 05-09.

Deactivator Switch



Deactivator Switch

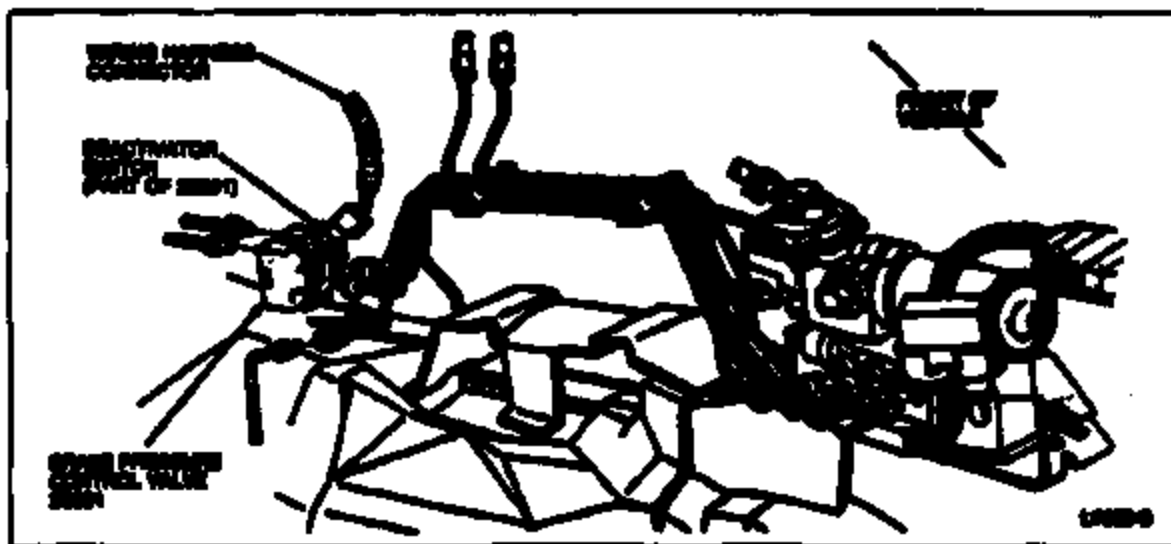
Removal

1. Remove electrical connector from deactivator switch.
2. Unscrew deactivator switch and remove from brake pressure control valve (ZB001) (vehicles with anti-lock brakes) or brake pressure switch adapter (BC300) (vehicles with conventional hydraulic brakes).

Installation

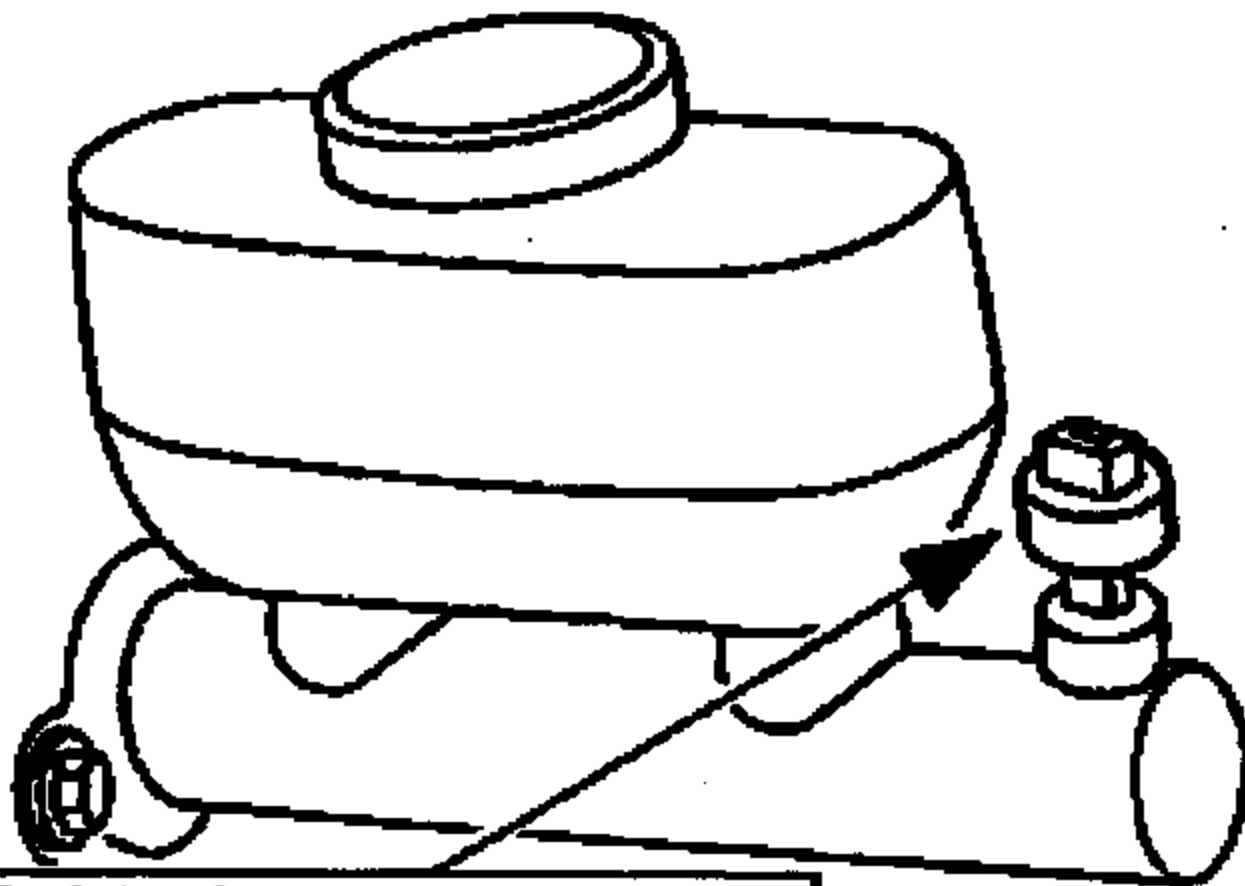
1. Screw deactivator switch into brake pressure control valve or brake pressure switch adapter. Tighten to 16-20 N-m (11-15 ft-lb).
2. Attach electrical connector.
3. Bleed brake lines as outlined in Section 9B-02 (anti-lock brakes), or Section 9B-03 (conventional hydraulic brakes).

Brake Pressure Control Valve Location



Junction Block Location

Step 1

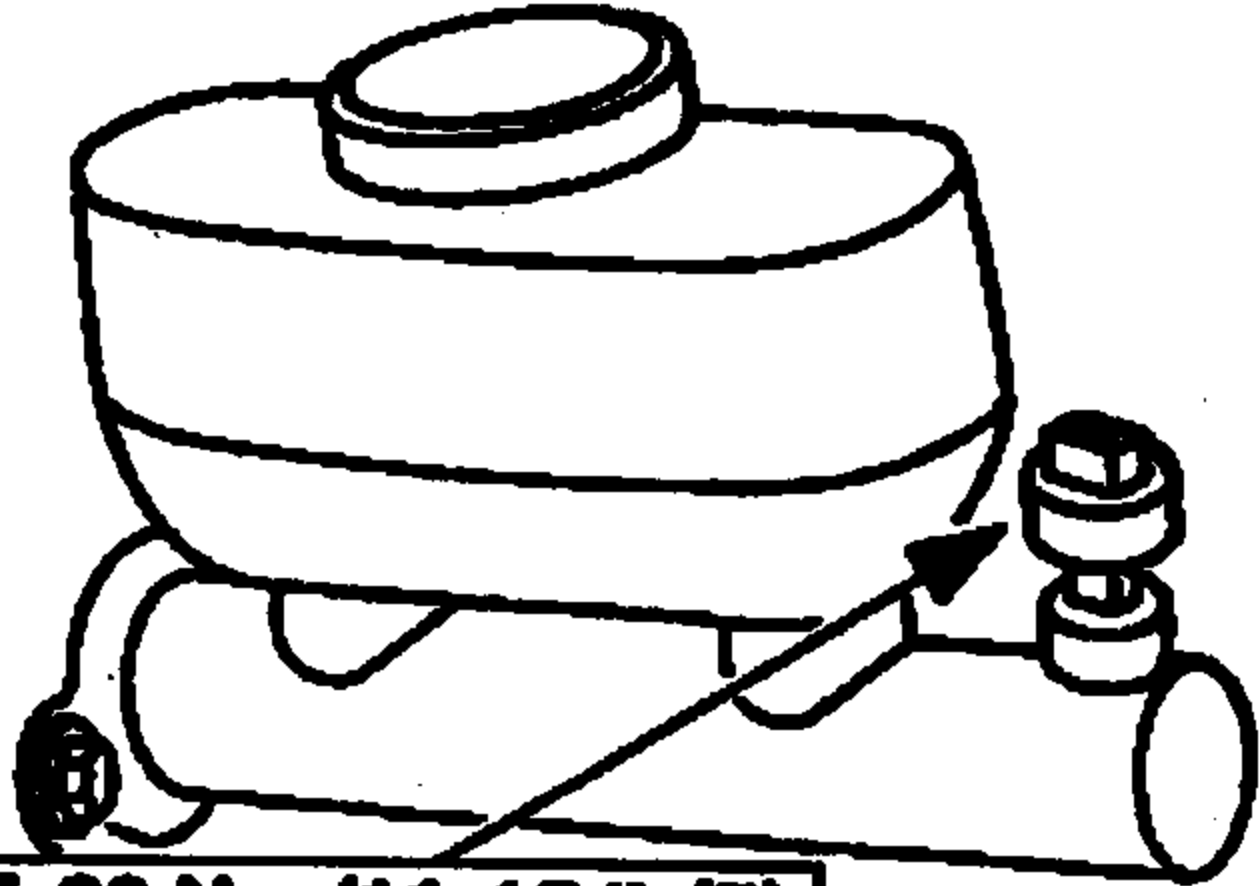


15-20 Nm (11-15 lb/ft)

GH0046-A

TI-NHTSA 016108

Step 1



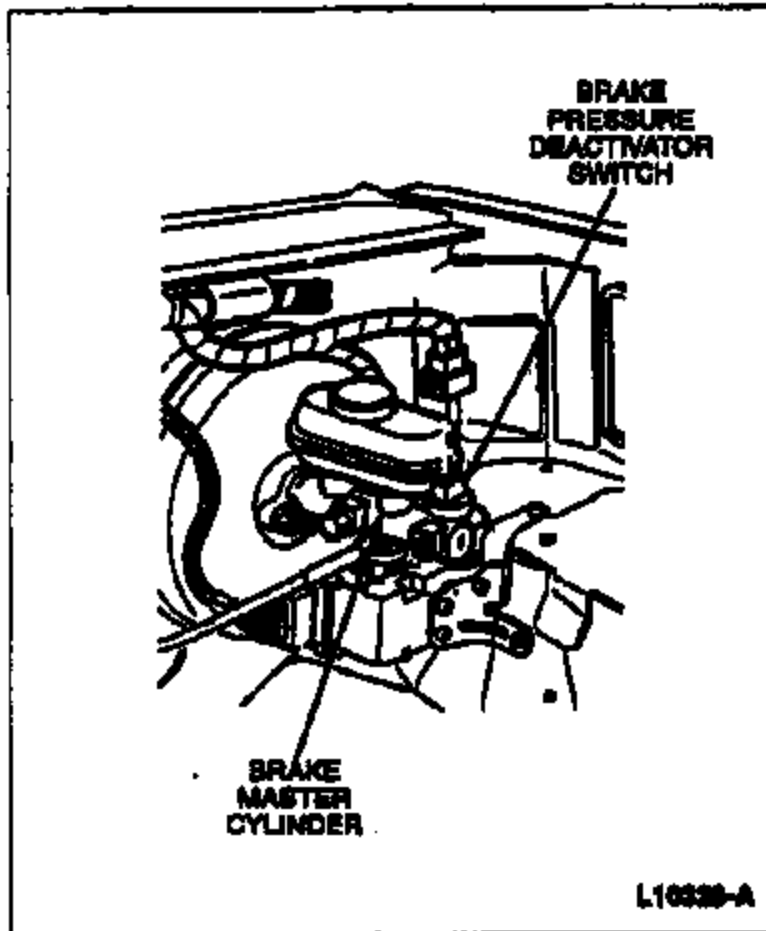
15-20 Nm (11-15 lb/ft)

GH0046-A

TI-NHTSA 016109

Deactivator Switch

The deactivator switch is provided as an additional redundant safety feature in the system. Normally, when the brake pedal (2488) is depressed, an electrical signal from the brakelamp circuit to the speed control amplifier (9D843) will turn off the system. Under increased brake pedal efforts (22-45 N-m [17-33 lb-ft]), the deactivator switch mounted on the master cylinder will open and remove power to the speed control actuator clutch, releasing the throttle independent of the speed control amplifier. The deactivator switch is located underneath the brake master cylinder on the motorhome chassis.



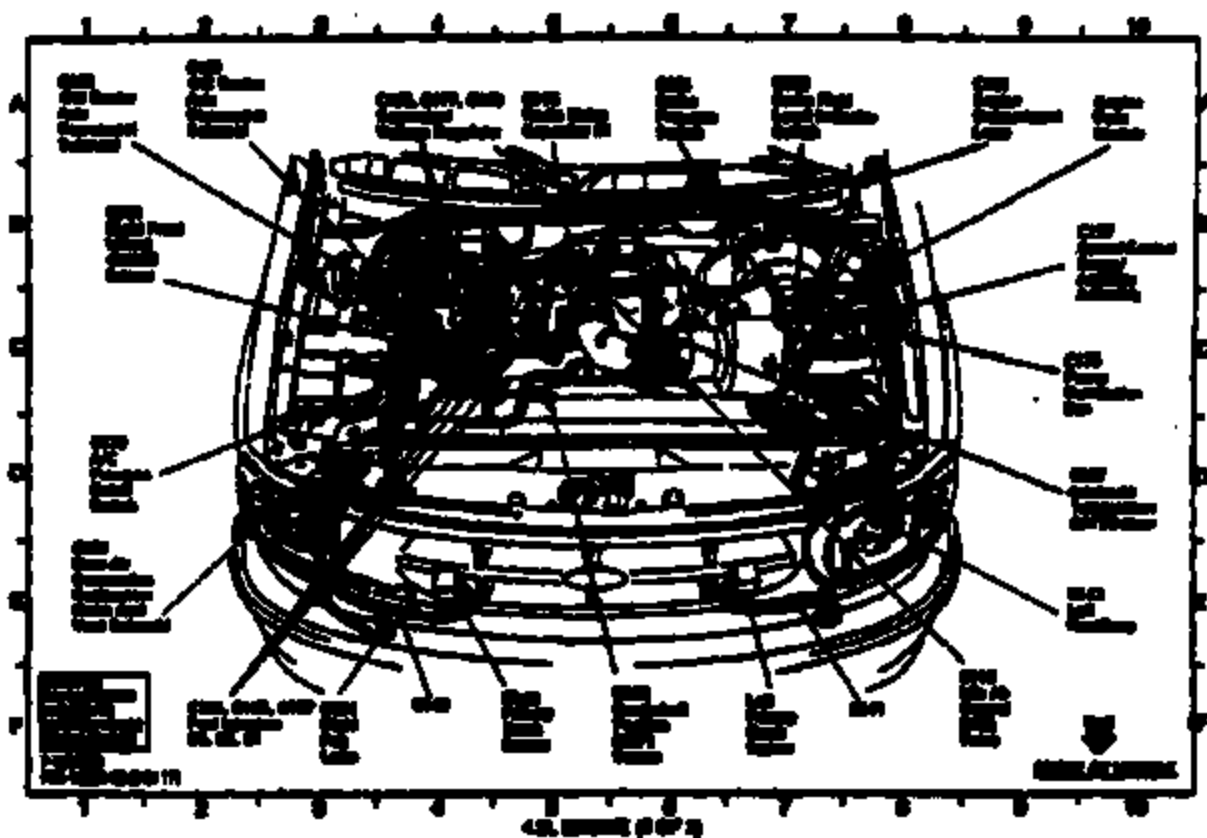
Brake Pressure Switch, 4.2L I4

C181

● Power Distribution 13-9

● Speed Control 31-2

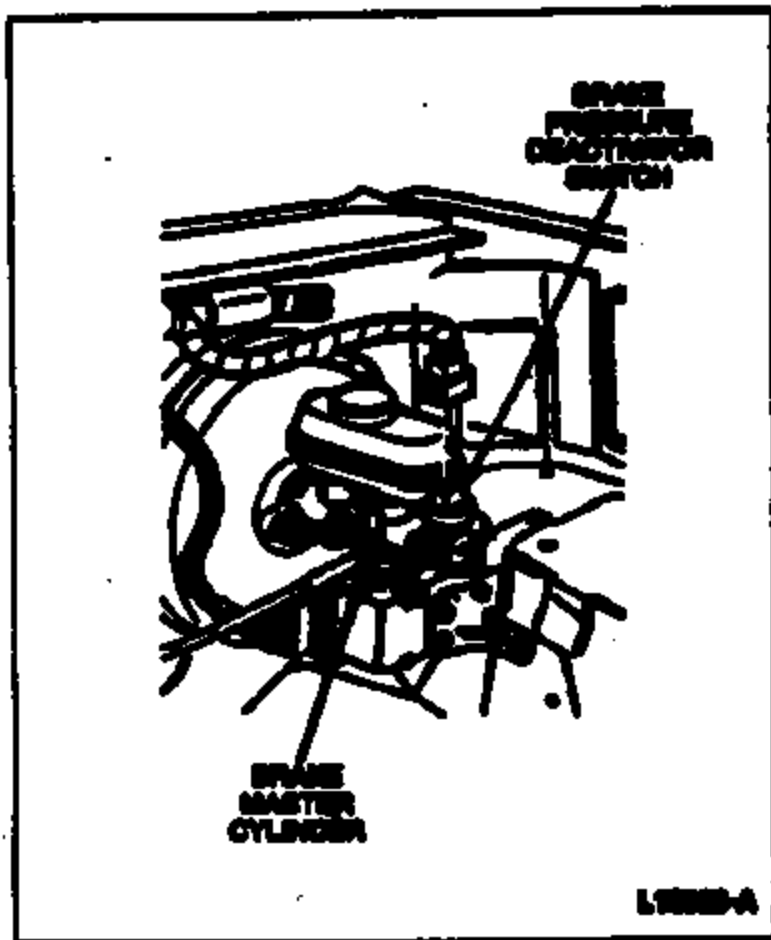
Left rear corner of engine compartment (A8)



TI-NHTSA 018111

Decelerator Switch

The decelerator switch is provided as an additional redundant safety feature in the system. Normally, when the brake pedal (B406) is depressed, an electrical signal from the braking circuit to the speed control amplifier (SC43) will turn off the system. Under increased brake pedal efforts (22-45 N-m [17-33 lb-ft]), the decelerator switch mounted on the master cylinder will open and remove power to the speed control actuator clutch, releasing the throttle independent of the speed control amplifier. The decelerator switch is located underneath the brake master cylinder on the mainframe chassis.



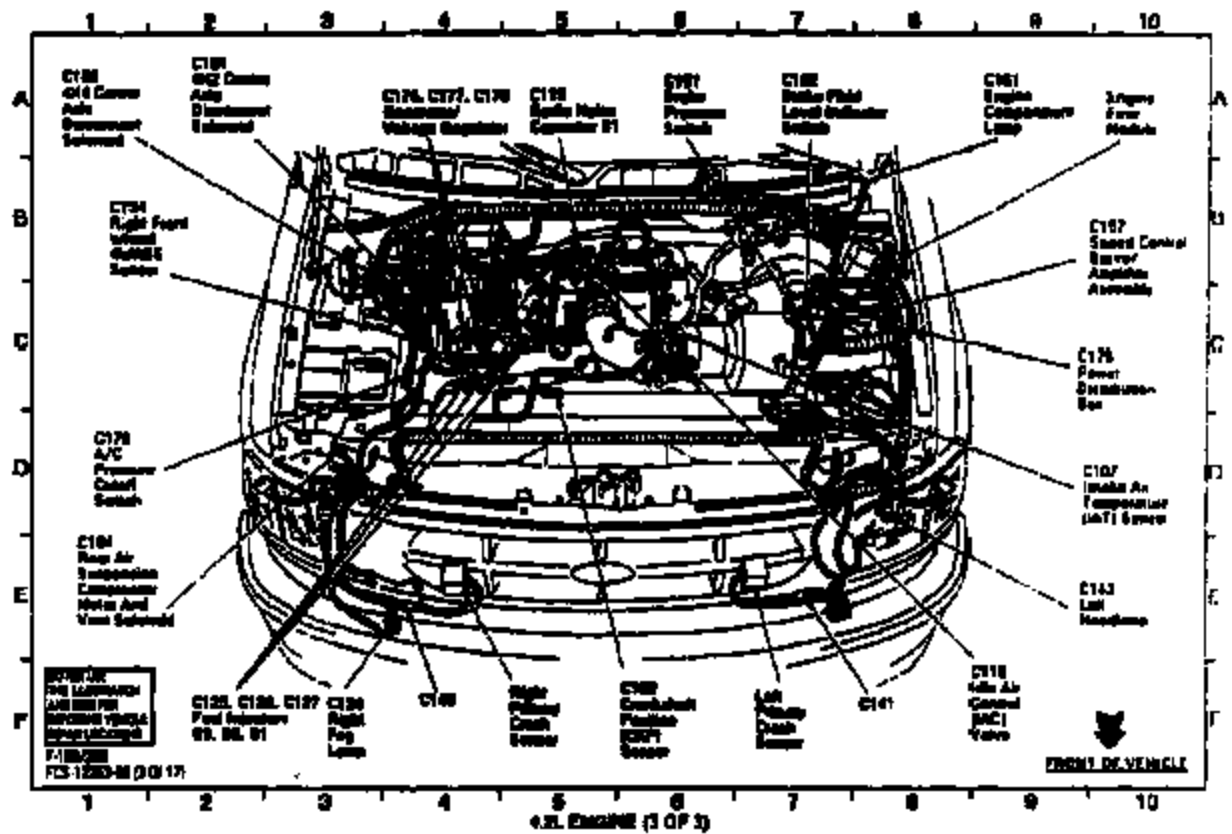
Brake Pressure Switch, 4.2L N/A

C151

● Power Distribution 13-9

● Speed Control 31-2

Left rear corner of engine compartment (A6)



TI-NHTSA 016113

12/18/98

Douglas, Charles

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:38 AM
To: 'Frad, Fred [Fwd]'
On: Charles, Robert
Subject: Usage Matrix - Speed Control Application Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline	Econoline	Econoline	Econoline	Econoline	Econoline	Econoline
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car	Town Car	Town Car	Town Car	Town Car	Town Car	
Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	
F Series	F Series	F Series	F Series	F Series	F Series	
Bronco	Bronco	Bronco	Bronco	Bronco		
	SHO Taurus	SHO Taurus??	SHO Taurus??			
	Capri	Capri??	Capri??	Capri??		
	Wind	Wind	Wind	Wind	Wind	Wind
			Falcon	Falcon	Falcon	Falcon
			Explorer??	Explorer??	Explorer	Explorer
			Ranger??	Ranger??	Ranger	Ranger
					Expedition	Expedition
						Navigator

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY98 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 200J range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me hear one at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this fixed to your attention.

Regards,

Charles

Charles Douglas
(988) 236-3887 (P)
(988) 236-1888 (F)
c-douglas2@ll.com

Fred,

I believe that your list includes some service part numbers, older rev levels, as well as pre-production or prototype part numbers. Overall, including Ford Australia, there are eight different production parts. Differences from part to part are fairly minor and include, actuation calibration, release pressure, bumper style, position and / color of connector base, thread style, and snap noise associated with the pressure disc. The following matrix, helps summarize this information:

Part Number	Actuation	Release Item	Hardware	Thread	Part #
P2VC 9F924 AB 90-160 (1)	20 min	Brown / pos 2	FS12	3/8-24M	Snap
PGLC 9F924 AA 200-300 (2)	40 min	Black / pos 1	FS12	3/8-24M	Snap
FZAC 9F924 AA 90-200 (3)	20 min	Natural / pos 2	FS12	3/8-24M	Quiet
F3EA 9F924 AA 90-160 (4)	20 min	Grey / pos 1	FS12	3/8-24M	Quiet
P3TA 9F924 CA 200-300 (5)	40 min	Red / pos 1	FS12	3/8-24M	Snap
94DA 9F924 AA 90-160 (6)	20 min	Natural / pos 2	o-ring	3/8-24M	Quiet
F3DC 9F924 AA 90-160 (7)	20 min	Natural / pos 2	Sealbar	3/8-24M	Quiet
94JA 9F924 AB 90-160 (8)	20 min	Grey / pos 1	o-ring	3/8-24M	Quiet

Vehicle - Part Number Correlation

- (1) Crown Vic, Grand Marquis, Mark, Town Car
- (2) Excursion, Club Wagon
- (3) Crown Vic, Grand Marquis, Mark, Town Car
- (4) Winstar
- (5) Bronco, F-Series, Ranger, Explorer, Navigator, Expedition, Excursion, Club Wagon
- (6) Falcon
- (7) SHO Trucks
- (8) Capri

TI PIN Correlation to Above

- (1) 77P6L2-1
- (2) 77P6L3-3
- (3) 77P6L3-1
- (4) 77P6L3-2
- (5) 77P6L3-1
- (6) 77P6L4-1
- (7) 77P6L5-2
- (8) 77P6L6-1

Interleaved:
but not new
ford information

Douglas, Charles

10-3-

Ford
MANAGESTM
For ALL
these
models

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:38 AM
To: 'Pomer, Fred (Ford)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

A.B.S.
Sections

Switch Location
Voltage/Load

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline ✓	Econoline ✓	Econoline ✓	Econoline ✓	Econoline ✓	Econoline ✓	Econoline ✓
Club Wagon ✓	Club Wagon ✓	Club Wagon ✓	Club Wagon ✓	Club Wagon ✓	Club Wagon ✓	Club Wagon ✓
Town Car ✓	Town Car ✓	Town Car ✓	Town Car ✓	Town Car ✓	Town Car ✓	Town Car ✓
Crown Vic ✓	Crown Vic ✓	Crown Vic ✓	Crown Vic ✓	Crown Vic ✓	Crown Vic ✓	Crown Vic ✓
Grand Marquis ✓	Grand Marquis ✓	Grand Marquis ✓	Grand Marquis ✓	Grand Marquis ✓	Grand Marquis ✓	Grand Marquis ✓
F Series ✓	F Series ✓	F Series ✓	F Series ✓	F Series ✓	F Series ✓	F Series ✓
Bronco ✓	Bronco ✓	Bronco ✓	Bronco ✓	Bronco ✓	Bronco ✓	Bronco ✓
SHO Taurus ✓	SHO Taurus ✓	SHO Taurus ✓	SHO Taurus ✓	SHO Taurus ✓	SHO Taurus ✓	SHO Taurus ✓
Capri ✓	Capri ✓	Capri ✓	Capri ✓	Capri?? ✓	Capri?? ✓	Capri?? ✓
Win98 ✓	Win98 ✓	Win98 ✓	Win98 ✓	Win98 ✓	Win98 ✓	Win98 ✓
Falcon ✓	Falcon ✓	Falcon ✓	Falcon ✓	Falcon ✓	Falcon ✓	Falcon ✓
Explorer?? ✓	Explorer?? ✓	Explorer?? ✓	Explorer?? ✓	Explorer?? ✓	Explorer?? ✓	Explorer?? ✓
Ranger?? ✓	Ranger?? ✓	Ranger?? ✓	Ranger?? ✓	Ranger?? ✓	Ranger?? ✓	Ranger?? ✓
					Expedition ✓	Expedition ✓
						Navigator ✓

- BUILT SIDE OF KAPLAN

- DETERMINATE SIDE
- SEEMS TO BE LEGAL

- 250' FC ENGINE - ACCOUNTS
- COB @ SPAN CONTROL

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY98 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

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Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards, mounting - wire

Charlie 12V or ECM

always on

Booster yrs → ...
↓

Charlie Douglas
(800) 234-3687 (P)
(800) 234-1888 (F)
c-douglas2@u.com

Fred.

I believe that your list includes some service part numbers, older rev levels, as well as pre-production or prototype part numbers. Overall, including Ford Australia, there are eight different production parts. Differences from part to part are fairly minor and include, actuation calibration, release pressure, export style, position tab / color of connector base, thread style, and snap noise associated with the pressure disc. The following matrix, helps summarize this information:

<u>Part Number</u>	<u>Actuation</u>	<u>Release</u>	<u>Base</u>	<u>Hardware</u>	<u>Thread</u>	<u>S or Q</u>
F2VC 9F924 AB 90-160 (1)	20 min	Brown / pos 2	J512	3/8-24M	Snap	
F6LC 9F924 AA 200-300 (2)	40 min	Black / pos 1	J512	3/8-24M	Snap	
F2AC 9F924 AA 90-200 (3)	20 min	Natural / pos 2	J512	3/8-24M	Quiet	
F58A 9F924 AA 90-160 (4)	20 min	Grey / pos 1	J512	3/8-24M	Quiet	
F3TA 9F924 CA 200-300 (5)	40 min	Red / pos 1	J512	3/8-24M	Snap	
94DA 9F924 AA 90-160 (6)	20 min	Natural / pos 2	o-ring	M10x1.0M	Quiet	
F3DC 9F924 AA 90-160 (7)	20 min	Natural / pos 2	Snubber	3/8-24M	Quiet	
94JA 9F924 AB 90-160 (8)	20 min	Grey / pos 1	o-ring	3/8-24M	Quiet	

Vehicle - Part Number Correlation

- (1) Crown Vic, Grand Marquis, Mark, Town Car
- (2) Econoline, Club Wagon
- (3) Crown Vic, Grand Marquis, Mark, Town Car
- (4) Winstar
- (5) Bronco, F-Series, Ranger, Explorer, Navigator, Expedition, Econoline, Club Wagon
- (6) Falcon
- (7) SHO Taurus
- (8) Capri

TEFN Correlation to Above

- (1) 77PSL2-1
- (2) 77PSL2-3
- (3) 77PSL3-1
- (4) 77PSL3-2
- (5) 77PSL3-3
- (6) 77PSL4-1
- (7) 77PSL5-2
- (8) 77PSL6-1

TI-NHTSA 018118

Douglas, Charles

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:36 AM
To: 'Porter, Fred (Fred)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline-L	Econoline-L	Econoline-B	Econoline-B	Econoline-B	Econoline	Econoline - ?
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car-P	Town Car-P	Town Car-P	Town Car-P	Town Car-B	Town Car-B	Town Car-B
Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-B	Crown Vic-B	Crown Vic-B
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis-B	Grand Marquis-B
	F Series-L	F Series-B	F Series-B	F Series-B	F Series-B	F Series-B
	Bronco-L	Bronco-B	Bronco-B	Bronco-B		
	SHO Taurus	SHO Taurus	SHO Taurus??			
		Capri-P	Capri	Capri??		
		Win88	Win88	Win88	Win88	Win88
		Falcon	Falcon	Falcon	Falcon	Falcon
		Taurus-P	Taurus-P	Explorer??-B	Explorer	Explorer-B
		Sable-P	Sable-P	Ranger??-B	Ranger	Ranger
				Expedition??-B	Expedition	Expedition-B
						Navigator-B

position of switch
B = Boston Mount
P = Power Valve
L = Line Mount
(Low mount)

except those changed last time see to on more just

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY96 on. Where you see ??, that means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY96 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being not on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention

Regards,

Charlie

Charlie Douglas
(508) 236-3857 (P)
(508) 236-1888 (F)
c-douglas2@ti.com

Sharpe, Robert

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:37 AM
To: Porter, Fred (Ford)
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline L	Econoline L	Econoline B	Econoline B	Econoline	Econoline	Econoline
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon B	Club Wagon	Club Wagon
Town Car P	Town Car P	Town Car P	Town Car P	Town Car B	Town Car B	
Crown Vic P	Crown Vic P	Crown Vic P	Crown Vic P	Crown Vic B	Crown Vic B	
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis
	F Series L	F Series B	F Series B	F Series B	F Series B	F Series B
	Bronco L	Bronco B	Bronco B	Bronco B		
	SHO Taurus	SHO Taurus	SHO Taurus??			
		Capri P	Capri	Capri??		
		Win88	Win88	Win88	Win88	Win88
			Falcon	Falcon	Falcon	Falcon
			Taurus P	Explorer?? B	Explorer	Explorer B
			Seble - P	Ranger?? B	Ranger	Ranger
				Aurster B	Expedition	Expedition B
						Navigator B

B = Booster

L = Line Mount

P = Prop Value

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY96 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY96 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2M+ range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charles Douglas
(888) 238-3657 (P)
(504) 238-1686 (F)
c-douglas2@ti.com

TI-NHTSA 016120

12/21 (from C. Douglas)

Fred,

I believe that your list includes some service part numbers, older rev levels, as well as pre-production or prototype part numbers. Overall, including Ford Australia, there are eight different production parts. Differences from part to part are fairly minor and include, actuation calibration, release pressure, hexport style, position tab / color of connector base, thread style, and snap noise associated with the pressure disc. The following matrix, helps summarize this information:

Part Number	Actuation	Release	Base	Hexport	Thread	S or Q
F2VC 9F924 AB 90-160 (1)	20 min	Brown / pos 2	F512	3/8-24M	Snap	
F6LC 9F924 AA 200-300 (2)	40 min	Black / pos 1	F512	3/8-24M	Snap	
95 F2AC 9F924 AA 90-160 (3)	20 min	Natural / pos 2	F512	3/8-24M	Quiet	
F38A 9F924 AA 90-160 (4)	20 min	Grey / pos 1	F512	3/8-24M	Quiet	
F3TA 9F924 CA 200-300 (5)	40 min	Red / pos 1	F512	3/8-24M	Snap	
94DA 9F924 AA 90-160 (6)	20 min	Natural / pos 2	o-ring	M10xL0M	Quiet	
F3DC 9F924 AA 90-160 (7)	20 min	Natural / pos 2	Snubber	3/8-24M	Quiet	
94JA 9F924 AB 90-160 (8)	20 min	Grey / pos 1	o-ring	3/8-24M	Quiet	

Vehicle - Part Number Correlation

- (1) Crown Vic, Grand Marquis, Mark, Town-Car
- (2) Econoline, Club Wagon
- (3) Crown Vic, Grand Marquis, Mark, Town-Car
- (4) Winstar
- (5) Bronco, F-Series, Ranger, Explorer, Navigator, Expedition, Econoline, Club Wagon
- (6) Falcon
- (7) SHO Taurus
- (8) Capri

F2AC 9F924 AA "2233" 66699 a/b

"Noth. Snow"

TI-NHTSA 016121

REDACTED

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:35 AM
To: 'Porter, Fred (Ford)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

<u>MY92</u>	<u>MY93</u>	<u>MY94</u>	<u>MY95</u>	<u>MY96</u>	<u>MY97</u>
<u>MY98</u> Econoline Econoline	Econoline Econoline	Econoline	Econoline	Econoline	Econoline
Club Wagon Club Wagon	Club Wagon Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car	Town Car	Town Car	Town Car	Town Car	Town Car
Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis
	F Series	F Series	F Series	F Series	F Series
	F Series				
	Bronco	Bronco	Bronco	Bronco	
	SHO Taurus	SHO Taurus	SHO Taurus??		
		Capri	Capri	Capri??	

	Win86	Win88	Win86	Win88
Win88				
Falcon		Falcon	Falcon	Falcon
Explorer			Explorer??	Explorer
Ranger			Ranger??	Ranger
Expedition				Expedition
Navigator				

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY96 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charlie Douglas
 (808) 238-3667 (P)
 (808) 238-1468 (F)
 c-douglas2@tl.com

TI-NHTSA 016123

REDACTED

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:36 AM
To: 'Porter, Fred (Ford)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

<u>MY92</u>	<u>MY93</u>	<u>MY94</u>	<u>MY95</u>	<u>MY96</u>	<u>MY97</u>	<u>MY98</u>
Econoline	Econoline	Econoline	Econoline	Econoline	Econoline	Econoline
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car	Town Car	Town Car	Town Car	Town Car	Town Car	
Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	
	F Series	F Series	F Series	F Series	F Series	F Series
	Bronco	Bronco	Bronco	Bronco		
	SHO Taurus	SHO Taurus	SHO Taurus??	Capri??		
		Capri	Win88	Win88	Win88	Win88
		Win88	Falcon	Falcon	Falcon	Falcon
				Explorer??	Explorer	Explorer
				Ranger??	Ranger	Ranger
					Expedition	Expedition

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY98 on. Where you see 77, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

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Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charlie Douglas
(508) 238-3887 (P)
(508) 238-1888 (F)
c-douglas2@ti.com

Graveline, Dora

From: Douglas, Charles
Sent: Thursday, December 17, 1998 2:58 PM
To: Dague, Bryan; McGuirk, Andrew; Pechonis, John; Prola, Stephen; Ha, DI
Cc: Baumann, Russ; Sharpe, Robert
Subject: Town Car Fire

Team,

As an update, I just had a fairly lengthy discussion with Fred Porter (initiated by Fred) on this issue. Fred is an engineering supervisor at Ford and has been tasked with determining the root cause of the fire on the Town Cars and determining whether or not the situation warrants a recall on the part of Ford. As additional reference information, while not having familiarity with the 77PS per se, Fred does have a significant level of history with TI mainly around sensors for brake controls and has visited TI on a number of occasions. Overall, Fred has a positive view of TI.

As additional reference information, Fred's group has requested and Rob Sharpe has already set-up to visit on Tuesday next week to provide an overview on basic switch function. Initially, Rob's plan was for Rob only to go in front of Ford and pipe in Attleboro via conference call or teleconference to outline switch function. We are overnighting Rob the following materials in preparation for this visit:

- Cross section drawing
- physical sample
- .mounted cross section (hopefully)

Based on my discussion with Fred today, I believe there is benefit to our having engineering representation from Attleboro at this meeting on Tuesday. I would suggest that if possible, at a minimum, Bryan (and possibly Andy) attend this meeting. For instance, Fred expects that they will have x-rays of a switch which is showing internal anomalies available on Tuesday -> as an aside, this single switch is the basis for all of the concern being directed at the switch right now. Fred is not jumping to any conclusions though he clearly would like TI to participate in the diagnostic journey and help fend off any witch hunts. Based on numerous previous interactions with Fred, I do not doubt his sincerity and believe we can only help our cause by cooperating with most any request we receive from his group.

Fred has also requested and I have agreed to put together, a matrix showing platform usage of this switch from SOP in MY82 through current usage. A couple of pieces of usage information which help defend the switch are as follows:

- Switch was also used on Crown Vic and Grand Marquis in MY82 - 83 timeframe
- Fire are isolated to MY82-83 Town Car and this platform used switch through MY87.

While Fred is not jumping to any conclusion and he has overall responsibility for determining root cause of the fire, he was very clear in letting me know that there are people at Ford who are ready to jump to conclusions based on the anomalies being seen on the one switch. This is the main reason that I believe it is important for us to cooperate with Fred as much as is reasonably possible. During our discussion, I also shared with Fred some of the history on a similar situation with our power steering pressure switch and how the switch was originally thought to be the root cause of a fire but in actuality we were able to show that the switch internal seal melted as a result of being exposed to a fire.

I think that pretty much covers the discussion today.

Any questions / issues, please let me know.

Regards,

Page 1

TI-NHTSA 016126

Charlie

Charlie Douglas
(508) 238-3667 (P)
(508) 238-1588 (F)
c-douglas2@ti.com

Douglas, Charles

From: Douglas, Charles
Sent: Friday, December 10, 1998 10:38 AM
To: 'Porter, Fred (Ford)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline-L	Econoline-L	Econoline-B	Econoline-B	Econoline-B	Econoline-B	Econoline - ?
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car-P	Town Car-P	Town Car-P	Town Car-P	Town Car-B	Town Car-B	
Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-B	Crown Vic-B	
Grand Marquis-P	Grand Marquis-P	Grand Marquis-P	Grand Marquis-P	Grand Marquis-B	Grand Marquis-B	Grand Marquis -B
	F Series-L	F Series-B	F Series-B	F Series-B	F Series-B	F Series - B
	Bronco-L	Bronco-B	Bronco-B	Bronco-B	Bronco-B	
	SHO Taurus	SHO Taurus	SHO Taurus??			
		Capri - P	Capri	Capri??		
		Win88	Win88	Win88	Win88	Win88
			Falcon	Falcon	Falcon	Falcon
			Taurus - P	*Explorer??-B	Explorer	Explorer-B
			Sable - P	*Ranger??-B	Ranger	Ranger
				*Aerostar-B	Expedition	Expedition-B
						Navigator-B

B = Rooster Mount
P = Prop Value
L = Line Mount

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY96 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being hot on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charlie Douglas
(800) 234-3467 (P)
(800) 234-1898 (F)
c-douglas2@ti.com

TI-NHTSA 016128

Douglas, Charles

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:38 AM
To: 'Porter, Fred (Ford)'
Cc: Sharpe, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline-L	Econoline-L	Econoline-L	Econoline-L	Econoline-L	Econoline	Econoline - ?
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car-P	Town Car-P	Town Car-P	Town Car-P	Town Car-L	Town Car-L	Town Car-L
Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-P	Crown Vic-L	Crown Vic-L	Crown Vic-L
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis-L
	F Series-L	F Series-L	F Series-L	F Series-L	F Series-L	F Series-L
	Bronco-L	Bronco-L	Bronco-L	Bronco-L	Bronco-L	
	SHO Taurus	SHO Taurus	SHO Taurus??			
	Capri-P	Capri-P	Capri	Capri??		
	Win88	Win88	Win88	Win88	Win88	Win88
	Falcon	Falcon	Falcon	Falcon	Falcon	Falcon
	Taurus-P		Taurus-P	*Explorer??-L	Explorer	Explorer-L
	Sable-P		Sable-P	*Ranger??-L	Ranger	Ranger
				*Perseus-L	Expedition	Expedition-L
						Navigator-L

position of switch
B = Booster Mount (w/air, expandable)
P = Pop Valve (below master)
L = Line Mount (low mount)

*except of those always hot
 this one is on more just*

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY98 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2500 range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

One additional note, during our discussion yesterday, you talked about the switch being not on the Town Car. I think I misunderstood the context of your statement. At the time of our discussion, I was thinking thermal hot but upon further reflection believe you may have meant wired hot. If this is the case, I am pretty sure the switch is wired hot in virtually all of the above applications. This issue can be discussed further on Tuesday as we will be prepared to provide a brief overview on our understanding of how the switch is electrically plumbed into the system.

Any additional questions, please let me know me at your convenience. Also, if the above application matrix does not come across legible, please let me know and I will have this faxed to your attention.

Regards,

Charlie

Charlie Douglas
(508) 236-3657 (P)
(508) 236-1888 (F)
c-douglas2@tl.com

TI-NHTSA 016129

Graveline, Dora

From: Douglas, Charles
Sent: Friday, December 18, 1998 10:38 AM
To: Porter, Fred (Ford)
Cc: Sharps, Robert
Subject: Usage Matrix - Speed Control Deactivation Pressure Switch

Fred,

The following represents a rough usage matrix over time:

MY92	MY93	MY94	MY95	MY96	MY97	MY98
Econoline	Econoline	Econoline	Econoline	Econoline	Econoline	Econoline
Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon	Club Wagon
Town Car	Town Car	Town Car	Town Car	Town Car	Town Car	
Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	Crown Vic	
Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	Grand Marquis	
	F Series	F Series	F Series	F Series	F Series	F Series
	Bronco	Bronco	Bronco	Bronco		
	SHO Taurus	SHO Taurus	SHO Taurus??			
		Capri	Capri	Capri??		
		Win88	Win88	Win88	Win88	Win88
			Falcon	Falcon	Falcon	Falcon
				Explorer??	Explorer	Explorer
				Ranger??	Ranger	Ranger
					Expedition	Expedition
						Navigator

To be quite honest, I think we actually have more of a grasp on the application matrix in the MY92 - MY95 timeframe than MY98 on. Where you see ??, this means the actual starting or ending model year for a program may be +/- 1 model year. Also, it is conceivable that as of the MY98 timeframe, we are actually released on more platforms than what is shown above. I say this because our actual shipped volumes which are in the 2MU range, would indicate either 100% penetration for cruise control on all of the platforms listed or we are on more than the listed platforms.

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Charlie

Charlie Douglas
(508) 238-3667 (F)
(508) 238-1598 (F)
c-douglas2@tl.com

Fred,

I believe that your list includes some service part numbers, older rev levels, as well as pre-production or prototype part numbers. Overall, including Ford Australia, there are eight different production parts. Differences from part to part are fairly minor and include: actuation calibration, release pressure, hexport style, position tab / color of connector base, thread style, and snap noise associated with the pressure disc. The following matrix, helps summarize this information:

<u>Part Number</u>	<u>Actuation</u>	<u>Release Base</u>	<u>Hexport</u>	<u>Thread</u>	<u>S or Q</u>
F2VC 9F924 AB 90-160 (1)	20 min	Brown / pos 2	IS12	3/8-24M	Snap
F6LC 9F924 AA 200-300 (2)	40 min	Black / pos 1	IS12	3/8-24M	Snap
F2AC 9F924 AA 90-200 (3)	20 min	Natural / pos 2	IS12	3/8-24M	Quiet
F5BA 9F924 AA 90-160 (4)	20 min	Grey / pos 1	IS12	3/8-24M	Quiet
F3TA 9F924 CA 200-300 (5)	40 min	Red / pos 1	IS12	3/8-24M	Snap
94DA 9F924 AA 90-160 (6)	20 min	Natural / pos 2	o-ring	M10x1.0M	Quiet
F3DC 9F924 AA 90-160 (7)	20 min	Natural / pos 2	Snubber	3/8-24M	Quiet
94JA 9F924 AB 90-160 (8)	20 min	Grey / pos 1	o-ring	3/8-24M	Quiet

Vehicle - Part Number Correlation

- (1) Crown Vic, Grand Marquis, Mark, Town Car
- (2) Econoline, Club Wagon
- (3) Crown Vic, Grand Marquis, Mark, Town Car
- (4) Wizar
- (5) Bronco, F-Series, Ranger, Explorer, Navigator, Expedition, Econoline, Club Wagon
- (6) Falcon
- (7) SHO Taurus
- (8) Capri

TI P/S Correlation to Above

- (1) 77PSL2-1
- (2) 77PSL2-3
- (3) 77PSL3-1
- (4) 77PSL3-2
- (5) 77PSL3-3
- (6) 77PSL4-1
- (7) 77PSL5-2
- (8) 77PSL6-1

TI-NHTSA 016131

Baumann, Russ

From: Douglas, Charles
Sent: Thursday, December 17, 1998 1:58 PM
To: Dague, Bryan; McGuirk, Andrew; Pechonis, John; Proia, Stephen; Ha, Di
Cc: Baumann, Russ; Sharpe, Robert
Subject: Town Car Fires

Team,

As an update, I just had a fairly lengthy discussion with Fred Porter (initiated by Fred) on this issue. Fred is an engineering supervisor at Ford and has been tasked with determining the root cause of the fires on the Town Cars and determining whether or not the situation warrants a recall on the part of Ford. As additional reference information, while not having familiarity with the 77PS per se, Fred does have a significant level of history with TI mainly around sensors for brake controls and has visited TI on a number of occasions. Overall, Fred has a positive view of TI.

As additional reference information, Fred's group has requested and Rob Sharpe has already set-up to visit on Tuesday next week to provide an overview on basic switch function. Initially, Rob's plan was for Rob only to go in front of Ford and pipe in Attleboro via conference call or teleconference to outline switch function. We are overnighting Rob the following materials in preparation for this visit:

- Cross section drawing
- physical sample
- mounted cross section (hopefully)

Based on my discussion with Fred today, I believe there is benefit to our having engineering representation from Attleboro at this meeting on Tuesday. I would suggest that if possible, at a minimum, Bryan (and possibly Andy) attend this meeting. For instance, Fred expects that they will have x-rays of a switch which is showing internal anomalies available on Tuesday --> as an aside, this single switch is the basis for all of the concern being directed at the switch right now. Fred is not jumping to any conclusions though he clearly would like TI to participate in the diagnostic journey and help fend off any witch hunts. Based on numerous previous interactions with Fred, I do not doubt his sincerity and believe we can only help our cause by cooperating with most any request we receive from his group.

Fred has also requested and I have agreed to put together, a matrix showing platform usage of this switch from SOP in MY92 though current usage. A couple of pieces of usage information which help defend the switch are as follows:

- Switch was also used on Crown Vic and Grand Marquis in MY92 - 93 timeframe
- Fires are isolated to MY92-93 Town Car and this platform used switch through MY97.

While Fred is not jumping to any conclusion and he has overall responsibility for determining root cause of the fires, he was very clear in letting me know that there are people at Ford who are ready to jump to conclusions based on the anomalies being seen on the one switch. This is the main reason that I believe it is important for us to cooperate with Fred as much as is reasonably possible. During our discussion, I also shared with Fred some of the history on a similar situation with our power steering pressure switch and how the switch was originally thought to be the root cause of a fire but in actuality we were able to show that the switch internal seal melted as a result of being exposed to a fire.

I think that pretty much covers the discussion today.

Any questions / issues, please let me know.

TI-NHTSA 016132

Regards.

Charlie

Charlie Douglas
(508) 236-3657 (P)
(508) 236-1898 (F)
c-douglas2@ti.com

TI-NHTSA 016133

Douglas, Charles

To: Porter, Fred (Ford)
Subject: RE: (U)

Fred,

I believe that your list includes some service part numbers as well as pre-production or prototype part numbers. Overall, including Ford Australia, there are eight different production parts. Major differences from part to part are actuation calibration, release pressure, hexport style, position tab / color of connector base, thread style, and snap noise associated with the pressure disc. The following matrix helps summarize this information:

<u>Part Number</u>	<u>Actuation</u>	<u>Release</u>	<u>Base</u>	<u>Hexport</u>	<u>Thread</u>	<u>Snap /</u>
<u>Quiet</u> F2VC 9F924 AB(1) 24M Snap	90-160	20 min	Brown / pos 2	J512	3/8-	
F6LC 9F924 AA(2) 24M Snap	200-300	40 min	Black / pos 1	J512	3/8-	
F2AC 9F924 AA 24M Snap	(3) 90-200	20 min	Natural / pos 2	J512	3/8-	
F68A 9F924 AA(4) 24M Snap	90-160	20 min	Grey / pos 1	J512	3/8-	
F3TA 9F924 CA 24M Snap	(5) 200-300	40 min	Red / pos 1	J512	3/8-	
94DA 9F924 AA(6) 24M Quiet	90-160	20 min	Natural / pos2	o-ring	M10x1.0M	Quiet
F3DC 9F924 AA 24M Quiet	(7) 90-160	20 min	Natural / pos2	Snubber	3/8-	
94JA 9F924 AB(8) 24M Quiet	90-160	20 min	Grey / pos 1	o-ring	3/8-	

- (1) Crown Vic, Grand Marquis, Mark, Town Car
- (2) Econoline, Club Wagon
- (3) Crown Vic, Grand Marquis
- (4) Winstar
- (5) Bronco, F-Series, Ranger, Explorer, Navigator, Expedition, Econoline, Club Wagon
- (6) Falcon
- (7) SHO Taurus
- (8) Capri

Charlie

Charlie Douglas
(808) 236-3657 (P)
(808) 236-1588 (F)
c-douglas2@ti.com

From: Frederick J. Porter[SMTP:fporter@ford.com]
Sent: Friday, December 18, 1998 6:16 PM
To: c-douglas2@ti.com
Subject: (U)

to: c-douglas2@ti.com

Charlie,

Douglas, Charles

From: Frederick J. Porter(SMTP:fporter@ford.com)
Sent: Friday, December 18, 1998 8:18 PM
To: c-douglas2@ti.com
Subject: (U)

to: c-douglas2@ti.com

Charlie,

The following are a list of drawings that I found. At first glance they appear to be the same part. Is there an easy explanation of the differences?

- F2AC-9F924-AA
- F2VC-9F924-AB
F2VC-9F924-BB
- F3DC-9F924-AA
- F3TA-9F924-CA
F3TA-9F924-BA
F50B-9F924-AA
- F58A-9F924-AA
F50B-9F924-AA
F5DB-9F924-AB
- F6LC-9F924-AA
F5SB-9F924-BA
F5SB-9F924-AA
F5ZB-9F924-AB
F9AB-9F924-AA
F8DB-9F924-AA
XF1T-9F924-AC
XF1T-9F924-AB
XF1T-9F924-AA
XRJ1-9F924-AA

Thanks for your help.

Regards,
Fred Porter OV - fporter fporter@ford.com
Chassis E/E Systems Applications (313) 845-3722
Bldg 5 - Mail Drop 5030 - Cubicle 3E004 fax: 390-4145

9409 9F924 AA

9430 9F924 AD

Beumann, Russ

From: Sharpe, Robert
Sent: Monday, December 21, 1998 9:02 AM
To: Douglas, Charles; Dague, Bryan; McGuirk, Andy; Pechonia, John; Proia, Stephen; He, Di
Cc: Beumann, Russ
Subject: RE: Town Car Fires

Charlie,

Fred Porter just left a message asking for the following information for tomorrow's meeting (@ 10am)

- Copies of the FMEA (He did not specify Process or Design, I would recommend having both)
- Results of latest In-Process Testing
- Cross Sectional Sample (I believe you have already sent)

Please confirm who from Attleboro will be attending. I can pick up/drop off at the airport.

Best Regards,

Rob Sharpe

Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharpe@ti.com

-----Original Message-----

From: Douglas, Charles
Sent: Thursday, December 17, 1998 2:58 PM
To: Dague, Bryan; McGuirk, Andrew; Pechonia, John; Proia, Stephen; He, Di
Cc: Beumann, Russ; Sharpe, Robert
Subject: Town Car Fires

Team,

As an update, I just had a fairly lengthy discussion with Fred Porter (Initiated by Fred) on this issue. Fred is an engineering supervisor at Ford and has been tasked with determining the root cause of the fires on the Town Cars and determining whether or not the situation warrants a recall on the part of Ford. As additional reference information, while not having familiarity with the 77PS per se, Fred does have a significant level of history with TI mainly around sensors for brake controls and has visited TI on a number of occasions. Overall, Fred has a positive view of TI.

As additional reference information, Fred's group has requested and Rob Sharpe has already set-up to visit on Tuesday next week to provide an overview on basic switch function. Initially, Rob's plan was for Rob only to go in front of Ford and pipe in Attleboro via conference call or teleconference to outline switch function. We are overruling Rob the following materials in preparation for this visit:

- Cross section drawing
- physical sample
- mounted cross section (hopefully)

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TI-NHTSA 016137

will have x-rays of a switch which is showing internal anomalies available on Tuesday --> as an aside, this single switch is the basis for all of the concern being directed at the switch right now. Fred is not jumping to any conclusions though he clearly would like TI to participate in the diagnostic journey and help fend off any witch hunts. Based on numerous previous interactions with Fred, I do not doubt his sincerity and believe we can only help our cause by cooperating with most any request we receive from his group.

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- Switch was also used on Crown Vic and Grand Marquis in MY92 - 93 timeframe
- Fires are isolated to MY92-93 Town Car and this platform used switch through MY97.

While Fred is not jumping to any conclusion and he has overall responsibility for determining root cause of the fires, he was very clear in letting me know that there are people at Ford who are ready to jump to conclusions based on the anomalies being seen on the one switch. This is the main reason that I believe it is important for us to cooperate with Fred as much as is reasonably possible. During our discussion, I also shared with Fred some of the history on a similar situation with our power steering pressure switch and how the switch was originally thought to be the root cause of a fire but in actuality we were able to show that the switch internal seal melted as a result of being exposed to a fire.

I think that pretty much covers the discussion today.

Any questions / issues, please let me know.

Regards,

Charlie

Charlie Douglas
(508) 236-3857 (P)
(508) 236-1668 (F)
c-douglas2@ti.com

TI-NHTSA 016136

Ford

Graveline, Dora

From: Sharpe, Robert
Sent: Monday, December 21, 1998 10:01 AM
To: Douglas, Charles; Dague, Bryan; McGuirk, Andy; Pechonia, John; Proia, Stephen; Ha, Di
Co: Baumann, Russ
Subject: RE: Town Car Fires

Charlie,

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Best Regards,

Rob Sharpe

Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharpe@ti.com

—Original Message—

From: Douglas, Charles
Sent: Thursday, December 17, 1998 2:58 PM
To: Dague, Bryan; McGuirk, Andrew; Pechonia, John; Proia, Stephen; Ha, Di
Co: Baumann, Russ; Sharpe, Robert
Subject: Town Car Fires

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I think that pretty much covers the discussion today.

Any questions / issues, please let me know.

Regards,

Charlie

Charlie Douglas
(800) 236-5657 (P)
(800) 236-1588 (F)
c-douglas2@f.com

Graveline, Dora

From: Douglas, Charles
Sent: Monday, December 21, 1998 11:51 AM
To: Porter, Fred (Ford)
Cc: Baumann, Russ; Dague, Bryan; Sharpe, Robert
Subject: RE: (U)

Fred,

Let me know if you cannot open or read the attachment and i will fix it to your attention.



Uncon.doc

Regards,

Charlie

Charlie Douglas
(508) 238-3887 (P)
(508) 238-1598 (F)
c-douglas2@ti.com

From: Frederick J. Porter(SMTP:porter@ford.com)
Sent: Friday, December 18, 1998 6:16 PM
To: c-douglas2@ti.com
Subject: (U)

to: c-douglas2@ti.com

Charlie,

The following are a list of drawings that I found. At first glance they appear to be the same part. Is there an easy explanation of the differences?

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F2VC-9F924-AB
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F50B-9F924-AA
F58A-9F924-AA
F50B-9F924-AA
F6DB-9F924-AB
F6LC-9F924-AA
F65B-9F924-BA
F65B-9F924-AA
F62B-9F924-AB
F8AB-9F924-AA
F8DB-9F924-AA
KF1T-9F924-AC

XF1T-9F924-AB
XF1T-9F924-AA
XR3J-9F924-AA

Thanks for your help.

Regards,
Fred Porter OV - fporter fporter@ford.com
Chassis E/E Systems Applications (313)845-3722
Bldg 5 - Mail Drop 5030 - Cubicle J8004 fax: 390-4145

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<u>Part Number</u>	<u>Actuation</u>	<u>Release Stem</u>	<u>Hexport</u>	<u>Thread</u>	<u>S or Q</u>
F2VC 9F924 AB 90-160 (1)		30 min Brown / pos 2	1512	3/8-24M	Snap
PoLC 9F924 AA 200-300 (2)		40 min Black / pos 1	1512	3/8-24M	Snap
F2AC 9F924 AA 90-200 (3)		20 min Natural / pos 2	1512	3/8-24M	Quiet
F5BA 9F924 AA 90-160 (4)		20 min Grey / pos 1	1512	3/8-24M	Quiet
F3TA 9F924 CA 200-300 (5)		40 min Red / pos 1	1512	3/8-24M	Snap
94DA 9F924 AA 90-160 (6)		30 min Natural / pos 2	o-ring	M10x1.0M	Quiet
F3DC 9F924 AA 90-160 (7)		30 min Natural / pos 2	Saubber	3/8-24M	Quiet
94JA 9F924 AB 90-160 (8)		20 min Grey / pos 1	u-ring	3/8-24M	Quiet

Vehicle - Part Number Correlation

- (1) Crown Vic, Grand Marquis, Mark, Town Car
- (2) Econoline, Club Wagon
- (3) Crown Vic, Grand Marquis, Mark, Town Car
- (4) Winstar
- (5) Bronco, F-Series, Ranger, Explorer, Navigator, Expedition, Econoline, Club Wagon
- (6) Falcon
- (7) SHO Taurus
- (8) Capri

TI-NHTSA 016143

Baumann, Russ

From: Sharpe, Robert
Sent: Monday, December 21, 1998 9:02 AM
To: Douglas, Charles; Dague, Bryan; McGuirk, Andy; Pechonka, John; Proia, Stephen;
Ha, Di
Co: Baumann, Russ
Subject: RE: Town Car Fires

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Rob Sharpe

Texas Instruments
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-----Original Message-----

From: Douglas, Charles
Sent: Thursday, December 17, 1998 2:08 PM
To: Dague, Bryan; McGuirk, Andrew; Pechonka, John; Proia, Stephen; Ha, Di
Co: Baumann, Russ; Sharpe, Robert
Subject: Town Car Fire

Team,

As an update, I just had a fairly lengthy discussion with Fred Porter (initiated by Fred) on this issue. Fred is an engineering supervisor at Ford and has been tasked with determining the root cause of the fires on the Town Cars and determining whether or not the situation warrants a recall on the part of Ford. As additional reference information, while not having familiarity with the 77P8 per se, Fred does have a significant level of history with TI mainly around sensors for brake controls and has visited TI on a number of occasions. Overall, Fred has a positive view of TI.

As additional reference information, Fred's group has requested and Rob Sharpe has already set-up to visit on Tuesday next week to provide an overview on basic switch function. Initially, Rob's plan was for Rob only to go in front of Ford and pipe in Attleboro via conference call or teleconference to outline switch function. We are overnighting Rob the following materials in preparation for this visit:

- Cross section drawing
- physical sample
- mounted cross section (hopefully)

Based on my discussion with Fred today, I believe there is benefit to our having engineering representation from Attleboro at this meeting on Tuesday. I would suggest that if possible, at a minimum, Bryan (and possibly Andy) attend this meeting. For instance, Fred expects that they

TI-NHTSA 016144

will have x-rays of a switch which is showing internal anomalies available on Tuesday -> as an aside, this single switch is the base for all of the concern being directed at the switch right now. Fred is not jumping to any conclusions though he clearly would like TI to participate in the diagnostic journey and help fend off any witch hunts. Based on numerous previous interactions with Fred, I do not doubt his sincerity and believe we can only help our cause by cooperating with most any request we receive from his group.

Fred has also requested and I have agreed to put together, a matrix showing platform usage of this switch from SOP in MY92 through current usage. A couple of pieces of usage information which help defend the switch are as follows:

- Switch was also used on Crown Vic and Grand Marquis in MY92 - 93 timeframe
- Fires are isolated to MY92-93 Town Car and this platform used switch through MY97.

While Fred is not jumping to any conclusion and he has overall responsibility for determining root cause of the fires, he was very clear in letting me know that there are people at Ford who are ready to jump to conclusions based on the anomalies being seen on the one switch. This is the main reason that I believe it is important for us to cooperate with Fred as much as is reasonably possible. During our discussion, I also shared with Fred some of the history on a similar situation with our power steering pressure switch and how the switch was originally thought to be the root cause of a fire but in actuality we were able to show that the switch internal seal melted as a result of being exposed to a fire.

I think that pretty much covers the discussion today.

Any questions / issues, please let me know.

Regards,

Charlie

Charlie Douglas
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(508) 236-1998 (F)
c-douglas2@ti.com

TI-NHTSA 016145

12/22/98

Steve LaRouché

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TI-NHTSA 016146



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BANK PRESSURE SWITCH
REVIEW

12/22/98

NAME	ORGANIZATION	PHONE
FRED PORTER	FORD AUT ESE	(313) 84-5372
JOLA LOTT	MI HILLS ENGINEERING	(519) 24-8364
ZANDRA DEERING	LVC - SAFETY EGRG	(313) 97-4163
Jim Gagnier	AUT ESE OPD	(313) 31-3962
Steve LaRouche	Ford Central Lab	313 8454876
NOEMAN LAPOINTE	AVT-DES. LAL.	313 37-4266
	248 926-9896	313 337-2256 (fax)

John Engelage
Tom Moore
to Lux Motor Center
meetings w/ Mitchell 10

1111 ...
...
... 480 8530

Bryon Dugan (Dage, American)

3 Kyrton dead for redundancy (water in Brake Fluid)
Bryon asked what level (Kyrton) is very good

Steve - saw water / moisture come thru
we temp seal internally...
Bryon - What is part of the application

Steve - Buy Solgel at Muller (Sealed through holes on front)
see photo, silver photo

Norm - Don't put fluid in back...
Bryon - back fluid...
Steve - 2960...
Casted nothing in contacts

Corrosion - inside in about term's
Tech Service Lab

Steve - he seen corrosion (many questions re.)
What does corrosion do?
High A in contact
Break down seal
Eventually could travel to Bryon (break down)
to would fill w/ Brake Fluid

Bryon referenced high current loads (AC) about 1000
also had plastic

This term designed to handle
3-5 amp load

CEB fused @ 15 Amps (Norm)
(Bryon could look in kit)
what disopete heat
plastic would show

Norm - How to detect corrosion?
Voltage Drop (to measure in spec)
And < 1uV
w/corrosion low to open ckt

show what is Best Material
--- Along 20% glass - (cont)

Norm - Get up material for analysis (failure)
(1 day) lab @ YF
and to lab factory

Ford show what they have:
(from actual event.)

"References"

wired + can see

Rem/then

click into out

Always built good

worried about ground path

Real test + copy of schematic

"X Rays"

Show several fractures + possible corrosion
color copies → forward to Bryan

Fred → Report to Ford legal 1/8/90

F2V649424-AB

20

Al-Hopkins

Project to Fred 1/11/90

5, 6" Test Analysis

2-3 pages

draw & sketch

job back by John Thomas, AM.

Johns - Material Specs

for components on Bridge

Fred - Fax # 313 390 4145

538 Wed

Dobie L-TEX

Set up a copy

on phone

or face to face

1st of year

Call on 4/11

John LaRibe

Thur 1/7 1990 out

9:55 back

only item, still working

9700

- rays) analysis on the inside of the ring and on various surfaces of the plastic base.
- Reprotect the top surface and remove the cap. Bryan had originally suggested just using an end mill to remove the cap. I wouldn't, however, go all the way through with the end mill. I would leave some material behind as a shield. I would suggest then bending the cap off.
 - Optionally document all revealed surfaces starting with cap.
 - Meanwhile, start SEM-EDX analysis on top side of cap. Particularly focus in on the edges of the ceramic pin guide and on the indented ring that lines up with interior wall of the switch cavity. Particularly look for evidence of corrosion or arcing.
 - Decide if we should try to flake off any of the overlaying debris to try to examine the underlying metal surface.
 - Proceed to perform SEM-EDX analysis on other component surfaces revealed by removal of cap.
 - Non-destructively probe inside of the grommet to determine its resilience which will give us an indication of the temperature that it saw. Another indication might be the depth of the indentations left by the grommet seal rings in the wire.
 - Decide if it makes sense to further examine the mating connector or grommet seal.

Regards,

Al

Proia, Stephen

From: Balhazar, Claire
Sent: Tuesday, December 22, 1998 11:39 AM
To: Proia, Stephen
Subject: Switch Pictures

Sorry it took so long.


Line Mount.BMP Pump Mount1.BMP Pump Mount2.BMP

Claire

Proia, Stephen

From: Sharpe, Robert
Sent: Monday, December 21, 1998 10:01 AM
To: Douglas, Charles; Deque, Bryan; McGuirk, Andy; Pechonia, John; Proia, Stephen; Ha, Di
Cc: Baumann, Russ
Subject: RE: Town Car Fires

Charlie,

Fred Porter just left a message asking for the following information for tomorrow's meeting (@ 10am)

- Copies of the FMEA (He did not specify Process or Design, I would recommend having both)
- Results of latest In-Process Testing
- Cross Sectional Sample (I believe you have already sent)

Please confirm who from Attleboro will be attending. I can pick up/drop off at the airport.

Best Regards,

Rob Sharpe

Texas Instruments
Phone (248) 305-5729
Fax (248) 305-5734
rsharpe@ti.com

-----Original Message-----

From: Douglas, Charles
Sent: Thursday, December 17, 1998 2:58 PM
To: Dupuis, Bryan; McGuirk, Andrew; Pechonka, John; Prole, Stephen; He, Di
Cc: Baumann, Russ; Sharpe, Robert
Subject: Town Car Fire

Team,

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Any questions / issues, please let me know.

Regards,

Charlie

Charlie Douglas
(508) 238-3667 (P)
(508) 238-1595 (F)
c-douglas2@fi.com

Proia, Stephen

From: Balthazar, Claire
Sent: Tuesday, November 17, 1998 2:33 PM
To: Proia, Stephen
Subject: 87PS Photo

Steve,



87PS Cut-away2.BMP

Claire

Proia, Stephen

From: Huang Wei[SMTP:Wei.Huang@Bosch-Brakes.com]
Sent: Wednesday, July 15, 1998 3:50 PM
To: 'Ti Steve Proia'
Subject: Cruise control switch corrosion

Douglas, Charles

From: Douglas, Charles
Sent: Wednesday, October 23, 1998 10:07 AM
To: 'Porter, Fred (Ford)'
Cc: Shawa, Robert
Subject: FW: Lincoln Town Car Switch

Fred,

Per our discussion today, please note the attached.

Regards,

Charlie

Charlie Douglas
(800) 238-3657 (P)
(800) 238-1888 (F)
c-douglas2@ti.com

From: Hopkins, Al
Sent: Wednesday, October 23, 1998 8:47 AM
To: Douglas, Charles; Deane, Bryan
Cc: Shank, Allen
Subject: Lincoln Town Car Switch

It's no problem if the Ford Engineers remove some of the green material. I would prefer it, however, if the Ford Engineers didn't damage the material right around the ceramic pin guide (noted on photo) since we want to determine if there was any corrosion of this area or if there were any signs of arcing. Also if there were other corrosion products on this area that might have crept up the edges of the ceramic pin even though this doesn't seem particularly probable because of the constant motion of the pin.



Just to remind you, I had a couple of other questions.

Does the utilized foam type extinguisher contain water and could it contribute to corrosion? or can we rule that out?

Did it rain in that area within the last day or so of the fire?

Morris, Irene

From: Dague, Bryan
Sent: Monday, December 28, 1998 11:15 AM
To: Douglas, Charles; Sharpe, Robert; Baumann, Russell; Ha, Di; Proia, Stephen; Beringhaus, Steven; Pechonis, John
Subject: RE: Lincoln Brake Switch

Rob.

I added 1 more bullet.

Regards,
Bry

**TI / Ford Brake Pressure Switch Review
12/22/98**

Attendee's

Ford

Fred Porter AVT EESE (313) 845-3722 FAX (313) 390-4145
Jole Lott AVT Materials (313) 248-3641
Zandra Deering LVC Safety (313) 594-1063
Jim Gregoire AVT EESE OPD (313) 337-9962
Steve LaRoche Central Lab (313) 845-4876
Norm LaPointe AVT Design Analysis (313) 594-2686

TI

Bryan Dague Design Engineering (508) 236-3234
Rob Sharpe Field Sales (248) 305-5729

Notes

Ford is currently investigating several thermal incidents involving MY92/93 Lincoln Town Cars. As such, Ford requested a meeting with TI to review the design/functionality of our brake pressure switch (pn F2VC-9F924-AB / 77PSL2-1). The following items summarize these discussions:

- Bryan Dague presented a design overview of the 77PSL2-1. Cross section illustrations and physical samples (including "take a-parts") were given to Ford. Several issues were discussed in general, regarding connector seal integrity, venting, switch component materials, corrosion (including detection), and current loads.
- Ford submitted a circuit diagram which confirmed the switch is fused at 15 amps and is powered by V bat. Bryan Dague offered to complete component testing at the max current level.

- Ford submitted photographs and X-Rays of a switch taken from a MY93 Lincoln in Memphis, Tennessee (vehicle built 9/10/92, switch date code = "2056"). These photographs will be reviewed by TI TSL week of 11/28/09. The actual switch was shown but remained with Ford for additional testing at their Central Lab.
- Ford expressed interested in allowing TI to analyze the above switch at TI TSL. Ford requested a protocol for review and has scheduled 1/7/98 visit to TI to participate in the testing/analysis.
- Ford presented x-ray pictures and photos that suggest corrosion as a possible factor in the fire. Many of their questions related to contamination ingress and corrosion of the internals of the switch.

Action Items

- Confirm material specifications for all switch components. Assembly/Cross Section drawing with material spec. # for each component is satisfactory. (Dague, 1/5/99)
- Submit switch analysis protocol at TI TSL to Ford for their review. (Dague/Hopkins, 1/4/99)
- Confirm Ford visit/agenda to TI- Attleboro TSL on 1/7/98. (Douglas/Sharpe, 1/4/99)
- Define component test procedure and schedule for max current loads, based on 15 amp circuit protection. (Dague, 1/5/99)