

EA02-025

FORD 10/27/03

APPENDIX N

BOOK 25 OF 61

PART 4 OF 5

FROM: Mike Hardie USAET(UTC -05:00)

Subject: (U) Ground Fault Detector

I don't know who would still be over there now - with specific responsibility over the system. However, I believe that Joe Burba (JBURBA) is on EV and certainly would have knowledge of who would know about the circuitry. (My knowledge is from old VCC110 days..... ('93 CE14 with Nas Battery.))

Regards,

Mike Hardie (313)845-7279

Quality Center

*** Forwarding note from FPORTER -DRBN007 03/16/99 13:25 ***

To: MHARDIE -DRBN005 Hardie, Mike

cc: SREIMERS-DRBN007

FROM: F. J. Porter USAET(UTC -05:00)

Subject: (U) Ground Fault Detector

Mike,

You mentioned in the meeting yesterday that a ground fault detector is used on the electric vehicle.

Please provide me with a name of someone so we can start to track down this option.

Thanks.

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

MSG:FROM: GSTEVEN1-DRBN005 TO: SREIMERS-DRBN007 03/18/99 06:39:44

To: SREIMERS-DRBN007

cc: KGRIBBLE-DRBN005

From: Greg Stevens USAET(UTC -05:00)

Subject: B/P Switch USAET(UTC -05:00)

Steve: I talked to Fred regarding a test we might want to perform on the switch based on Joe Evans comments in the meeting yesterday. I was thinking on submerging the switch in brake fluid (old fluid) at an elevated temp. for 70 to 120 hrs, then checking the components for evidence of damage. Let me know what you think. I will need a switch to do test.

Regards,

Greg Stevens

MSG:FROM: GSTEVEN1-DRBN005 TO: SREIMERS-DRBN007 03/18/99 07:25:45

To: SREIMERS-DRBN007

From: Greg Stevens USAET(UTC -05:00)

Subject: Town Car Brake Pressure Switch USAET(UTC -05:00)

Steve: Doesn't look like the cleaner is not a problem...I'll check the MSDS.

Regards,

Greg Stevens

*** Forwarding note from SBALZER1-DRBN006 03/17/99 14:52 ***

To: GSTEVEN1-DRBN005

FROM: Stacy Balzer USAET(UTC -05:00)

Subject: Town Car Brake Pressure Switch USAET(UTC -05:00)

Greg, I discussed the Brake Parts Cleaner with the supplier. They confirmed that there is NO malic acid in the product. We do not have any samples at our facility, we are planning on ordering some. The fastest way to receive would be to purchase from a Ford dealership.

The part number is: F6AZ-2C410-AB.

If you have any additional questions, please feel free to contact me.

Also, the MSDS is available in MATS under tax number: 147124.

Regards,

Stacy Balzer PROPS ID: SBALZER1 Internet: sbalzer1@ford.com

PCSD Repair Product Planning Phone: (313) 39-06765

Product Engineer-Service Chemicals Fax: (313) 39-00770

*** Forwarding note from GSTEVEN1-DRBN005 03/10/99 09:09 ***

To: SBALZER1-DRBN006

cc: SREIMERS-DRBN007

SLAROUCH-FORDNA1

KGRIBBLE-DRBN005

From: Greg Stevens

USAET(UTC -05:00)

Subject: Town Car Brake Pressure Switch USAET(UTC -05:00)

Stacy: I don't know if you have heard anything about the problems we are experiencing with this switch (FIBES) but a question has been raised concerning the compatibility of a brake parts cleaner (F6AZ-2CH10-AB) with this switch. Do you know if the cleaner contains oxalic acid which could be damaging to our switch? If not, do you have a couple of quarts of this cleaner available that our central lab and Texas Instruments can analyze?

Regards,

Greg Stevens

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 03/19/99 15:45:14

To: FPORTER --FORDMAIL Porter, Fred (F.J. SREIMERS-FORDMAIL Reimers, Steve (S.

From: LaRouche, Steve (S.)

Subject: Brake Fluid Conductivity

Fred/Steve: Gayle Gullen talked to Pat Moyer. He said he has never measured conductivity of brake fluid, but is willing to give it a try. He will need ~100 ml of brake fluid to try. If you can get me some samples that you would like tested, I will set it up with Pat.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876

(313) 322-1614 FAX

MSG:FROM: JHAYDEN2-DRBN005 TO: SREIMERS-DRBN007 03/22/99 08:43:12

To: SREIMERS-DRBN007

FROM: John T. Hayden

USAET(UTC -05:00)

Subject: Relay Requirements

Steve,

I am the Relay Engineer. We do not have a relay that will meet your requirements. The currently released relays require more than 12mA to actuate, approx. 80mA @ 25C. The relays need to switch a minimum of 500mA, to prevent damage to the contacts. What would be controlling the relay (i.e. telling the coil when to energize & de-energize)?

Regards,

John T. Hayden

Power Distribution Device Section

Phone (313) 32-29377

*** Forwarding note from SREIMERS-DRBN007 03/19/99 19:07 ***

To: WGLARDNER-DRBN004

cc: JHAYDEN2-DRBN005

FPORTER --DRBN007 Porter, F.J.

FROM: Steve Reimers

USAET(UTC -05:00)

Subject: Relay Requirements

MUST: Operate underhood; Operate continuously (normally energized at all times by HOT ALL TIME circuit); Actuating current less than 12 milliamps; Actuating

voltage is provided by closure to ground; One circuit normally-closed when energized; switch battery voltage to an inductive load (53 - 112 mH) of 500 milliamps (typical, 800 mA at -40 degrees). Flyback is clamped at load.*****
WANT: Opens circuit when load has exceeded 1 amp to eliminate need for fuse; For d Qualified part; Stand-alone mounting; Available in large quantities (500,000 in 30 days).

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG FROM: FKOHL -DRBN007 TO: SREIMERS-DRBN007 03/24/99 13:11:41
To: FPORTER -DRBN007 SREIMERS-DRBN007
FROM: Fred Kohl USAFT(UTC -05:00)
Subject: Brake Pressure Switch in Ground Circuit.

I have updated the answer in your question on moving the pressure switch to the clutch ground circuit. However, further updates maybe coming. We are looking how the numbers in the FMEA will be affected. This will not be completed for a few days.

The concern is the system maybe less robust with the deact switch in the clutch ground circuit.

Also, I including an answer on moving the deact switch to the system ground circuit without any changes to the servo. Answer is NO. System would reset like an ignition OFF event every time the deact switch was cycled.

Regards, Fred Kohl, Precision Speed Control (Panther)
PROPS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IBM Mail(USFMCBJZ)
Mailing Address: EVB, 1WB05

MSG FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 03/24/99 13:20:55
To: NLAPPOINT-FORDMAIL LaPointe, Norman SLAROUCH-FORDNA1 LaRouche, Steve
FPORTER -FORDMAIL Porter, Fred SREIMERS-FORDMAIL Reimers, Steve
GSTEVEN1-FORDSMTP Stevens, Gregory

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

I have received two switches with filled out questionnaires 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

MSG FROM: SREIMERS-DRBN007 TO: SREIMERS-DRBN007 03/24/99 17:28:29
To: WABRAMCZ-DRBN005
cc: JNEME -DRBN005 FPORTER -DRBN007 Porter, F.J.
JKAPATI -DRBN004 TMASTERS-DRBN005
SREIMERS-DRBN007 Reimers, S. J.
FROM: Steve Reimers USAFT(UTC -05:00)

Subject: Baton Rouge Leaker

Bill, I called Robinson Brothers L/M in Baton Rouge and spoke with Randy. He replaced the switch and is shipping it per the OASIS instructions. The car is a 92 Town Car, 76277 miles, VIN 1LNLM82W7NY708347. Car had no brake lights, nor speed control. He replaced the 15 amp fuse and test drove the car. Speed control was still inop and returned to the shop. On opening the hood to examine the BP switch he observed white smoke. When it stopped smoking he replaced it and the 15 amp fuse again. Connector did not appear to be damaged. He cleaned fluid from inside and outside the connector. Vehicle has been returned to customer. Randy says he is very familiar with the leaking bp switch and the symptoms it causes. Not sure what more we can get from this car by send BAA after it.

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: TBAZIL -DRBN005 TO: SREIMERS-DRBN007 03/23/99 17:18:11

To: JNEME -DRBN005
cc: SREIMERS-DRBN007 RENGLISH-VISTEON
LSMITH9 -DRBN005 MRESE -DRBN005
FPORTER -DRBN007 WABRAMCZ-DRBN005
TBAZIL -DRBN005

FROM: Tom Bazil USAET(UTC -05:00)

Subject: BP Switch Without Speed Control

Based on the '94 Service Manual, no switches were supplied with non-speed control vehicles. The junction block appears to be unique with no port for the switch.

Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brakes/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 373-6449

*** Forwarding note from JNEME -DRBN005 03/23/99 16:40 ***

To: TBAZIL -DRBN005 RENGLISH-DRBN005
cc: SREIMERS-DRBN007 WABRAMCZ-DRBN005
FPORTER -DRBN007

FROM: Joseph S. Neme USAET(UTC -05:00)

SUBJECT: BP Switch Without Speed Control

I can't answer... can either of you?

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax: 62-18147, E-Mail: jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Telex: 313-795-7003

*** Forwarding note from SREIMERS-DRBN007 03/23/99 14:03 ***

To: JNEME -DRBN005
cc: FPORTER -DRBN007 Porter, F.J. WABRAMCZ-DRBN005

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

Subject: BP Switch Without Speed Control

Did we sell cars with BP switches and harnesses without speed control?

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: O2421WP1-EXTERNAL TO: SREIMERS-DRBN007 03/29/99 17:46:35

To: SREIMERS-FORDMAIL "Steve Reimers"

From: Kitt, Michael (MB)
Subject: RE: Brake Fluid Shipping addresses
From: "Kitt, Michael (MB)" <mikitt@dow.com>
Steve,
We sent all the sample material to TI. I spoke with Gerty at TI and he
will ship you some of the material they have.
Mike Kitt

>
> From: Steve Reimers[SMTP:sreimers@ford.com]
> Sent: Wednesday, March 24, 1999 7:59 AM
> To: mikitt@dow.com
> Subject: RE: Brake Fluid Shipping addresses
>
> *** Reply to note of 03/24/99 07:56
> Mike, Thanks. Will you be sending some to Ford soon?
>
> Steve Reimers building 5 3E008
> RVT Chassis E/E System Applications mail drop 5011
> 39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>
>

MSG:FROM: FIR43P4A--EXTERNAL TO: SREIMERS--DRBN007 03/18/99 13:28:18
To: SREIMERS--FORDMAIL 'sreimers@ford.com'
cc: FPORTER--FORDMAIL 'fporter@ford.com'
From: McGuirk, Andy
Subject: FW: History / Usage
From: "McGuirk, Andy" <a-mcguirk@email.mcc.ti.com>
AUTOMOTIVE SENSORS AND CONTROLS QRA MANGER
34 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL: (508) 236-3080
FAX: (508) 236-3745
PAGE: (800) 467-3700 PIN 604-2044

From: Douglas, Charles
Sent: Thursday, March 18, 1999 12:17 PM
To: McGuirk, Andrew
Subject: History / Usage
Andy,
Per your request:
<<Lincoln.doc>>
Regards,
Charlie
Charlie Douglas
(508) 236-3657 (P)
(508) 236-1598 (F)
c-douglas2@ti.com

Attachments sent separately:

Data Type	File Name
BINARY	LINCOLN.DOC_PC

MSG:FROM: FIR43P4A--EXTERNAL TO: SREIMERS--DRBN007 04/01/99 16:53:28
To: FPORTER--FORDMAIL Porter, F.J. SREIMERS--FORDMAIL 'Steve Reimers'

From: McGuirk, Andy
Subject: RE: Materials Recommendations for Flammability issue
From: "McGuirk, Andy" <a-mcguirk@email.mc.ti.com>
cc: "Roy, Norman" <nroy@email.mc.ti.com>,
"Dagun, Bryan" <bdagun@email.mc.ti.com>
Steve, got your voice mail and did act upon it.
norm roy is our in-house plastic molding coordinator and has initiated
considerations of various plastics. our first concern was 'knit line'
integrity of the LCP which might create a mechanical weakness issue.
alternates were being reviewed.
also, norm was going to review our celanex 3316 pedigree to assure it was
what it should have been as it 'acted' too similar to 4300.

AUTOMOTIVE SENSORS AND CONTROLS QRA MANGER
34 FOREST ST M/S 23-05
ATTLEBORO, MA 02703
TEL : (508) 236-3080
FAX : (508) 236-3745
PAGE: (800) 467-3700 PIN 604-2044

From: Steve Reimers[SMTF:reimers@ford.com]
Sent: Thursday, April 01, 1999 4:33 PM
To: A.McGuirk, a-mcgui; Porter, F.J.
Subject: Materials Recommendations for Flammability issue
fyi
Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS reimers@ford.com fax 39-04145 >
*** Forwarding note from PAPC8HBU--EXTERNAL 04/01/99 16:09 ***
To: GSTEVENI--FORDSMTP SREIMERS--FORDMAIL
cc: 02X07WKT--EXTERNAL Michael J Bauhof
From: Paul J Kane
Subject: Materials Recommendations for Flammability issue
From: "Paul J Kane" <Paul.J.Kane@USA.dupont.com>
cc: "Michael J Bauhof" <Michael.J.Bauhof@USA.dupont.com>
Greg, I recommend the Zenite 6140L (used at Ford in a wiper motor to

solve
similar concern where high amperage going through when motor was in
stall
torque condition). The DuPont Zenite LCP is a liquid crystal
polymer that
is V-0 (flame retardant) down to .031 inch thickness and has a melt
point
of 635F. The Celanex PBT grades have a melt point of 431F and the
Noryl
GTK 830 which is just a nylon alloy has a melt point of 497 F.
My experience is that in these situations, going to higher melt
point is
the only hope for solving it from a polymer standpoint.
The other material I recommended is Zytel HTN FR52G30BL which has a
melt
point of 590 F and is flame retardant. This would be lower cost
resin.
I have fax'd data sheet to you and we can rush samples to TI for

moking if
you want, Paul Kane.....248-583-8107

MSG FROM: FPORTER -DRENO07 TO: SREIMERS--DRENO07 04/08/99 12:47:45

To: SREIMERS--DRENO07

FROM: F. J. Porter USAET(UTC -04:00)

Subject: Materials Recommendations for Flammability issue

Please get the material that Andy asked for.

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

*** Forwarding note from PIR43P4A-EXTERNAL 04/08/99 11:48 ***

To: FPORTER -FORDMAIL Frederick J. Port

From: McGuirk, Andy

Subject: Materials Recommendations for Flammability issue

From: "McGuirk, Andy" <a-mcguirk@email.mc.ti.com>

PER MY TELECON

SEVERAL POINTS....

THE 3316 SAMPLES WERE 3316.

THE 'SIMPLE TEST' WE HAVE USED WITH A KITCHEN MATCH IS NOT 'SANCTIONED' AS A TEST...(but seems to be a pretty good indicator)

COLORANTS ARE KNOWN TO AFFECT FLAMMABILITY

STEVE REDMERS HAD OFFERED TO OBTAIN SOME Dupont Zytel HTN FR52G30BL

.....CAN WE GET SOME ASAP TO SAMPLE IN OUR MOLD ?

SHOULD I GET IT HERE?

A

AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER

34 FOREST ST M/S 23-05

ATTLEBORO, MA 02703

TEL : (508) 236-3080

FAX : (508) 236-3745

MOBILE: (508) 208-6119

PAGE: (800) 467-3700 PIN 604-2044

From: Roy, Norman

Sent: Thursday, April 08, 1999 9:09 AM

To: McGuirk, Andy

Subject: FW: Materials Recommendations for Flammability issue

Andy,

Attached is the reply from Ticona regarding material pedigree with additional info regarding effect of colorants. The current bumperless system in the 46515 mold uses heat pipe technology that is not recommended for LCP materials. We are also getting an answer on its compatibility with the Zytel material.

Regards,

Norm

From: Dunn, Kevin

Sent: Tuesday, April 06, 1999 9:52 AM

To: Roy, Norman

Subject: FW: Materials Recommendations for Flammability issue

From: kprice@ticona.com[SMTP:kprice@ticona.com]

Sent: Tuesday, April 06, 1999 9:45 AM
To: kdunn@email.mc.ti.com
Cc: rfyurachek@ticona.com
Subject: RE: Materials Recommendations for Flammability issue
Mr. Dunn,

The samples sent to you labeled as Celanex 3316 were in fact Celanex 3316. A non-technical test, such as exposing a sample to a simple kitchen match under non-controlled conditions, will yield misleading results. The UL-94 flammability tests are very specific in nature. Items which must be carefully controlled include sample orientation (vertical or horizontal), sample size and thickness, burner size and regulator, type of gas used to supply burner, flame height, temperature and relative humidity. The time that the flame is applied and the relative orientation of the flame to the specimen are also carefully controlled.

I can send you a copy of the procedure, but in order to perform the test properly, you must have the right equipment. If you want a copy, please provide your fax number.

The tensile bar probably behaved better because it was thicker. Colorants can have an effect on the flammability. We have pre-colored materials which have been rated in the UL-94 test. For example, Celanex 3316 natural is rated V-0 down to 0.38 mm thickness, while all other colors are rated V-0 down to 0.75 mm thickness. The natural material is more robust in its flame retardancy.

Celanex 3316 has been successfully used in hot runner systems.

Ken Price

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

From: Yurachek, Robert, TP/US
Sent: Tuesday, April 06, 1999 12:55 AM
To: Price, Kenneth, TP/US
Subject: FW: Materials Recommendations for Flammability issue
Importance: High
Ken:

Please contact Kevin and respond to his request. Thanks and please copy me.

Bob

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

From: Dunn, Kevin [mailto:kdunn@email.mc.ti.com]
Sent: Monday, April 05, 1999 2:52 PM
To: rfyurachek@ticona.com
Subject: FW: Materials Recommendations for Flammability issue
Hi Bob, Would you please verify that the test bars were 3316

material. Also

please check for alternatives.

As you can see, things are getting more attention at the customer.

Kevin

From: Roy, Norman

Sent: Monday, April 05, 1999 9:00 AM
To: Dunn, Kevin
Subject: FW: Materials Recommendations for Flammability issue
Kevin,

Would you please follow-up with Ticona to insure the sample of Celanex 3316 was indeed that. Also would adding colorant reduce the V-0

flammability

rating of the sample Ticona submitted. Feedback from our customer is that

the 3316 was no better than the 4300 material when subjected to a non-technical type of flammability test, i.e., "the kitchen match test".

However, it was reported that the tensile bars behaved better.

The customer is now getting input to move to a higher melt temperature material such as an LCP that would, in addition to a V-0 rating, provide the

flammability resistance they need. Another material being suggested is

Dupont Zytel HTN FR52G30BL which is lower cost. Does Ticona have any recommendations keeping in mind that the mold is equipped with a

Kona hot

runner system?

Please get a response from Ticona on these questions ASAP.

Regards,

Norm

From: McGuirk, Andy

Sent: Thursday, April 01, 1999 5:44 PM

To: Porter, F.J.; 'Steve Reimers'

Cc: Roy, Norman; Dague, Bryan

Subject: RE: Materials Recommendations for Flammability issue

Steve, got your voice mail and did act upon it.

norm roy is our in-house plastic molding coordinator and has initiated

considerations of various plastics. our first concern was 'knot line'

integrity of the LCP which might create a mechanical weakness issue. alternates were being reviewed.

also, norm was going to review our celcon 3316 pedigree to assure it was

what it should have been as it 'acted' too similar to 4300.

MSG FROM: FPORTER--DRBN007 TO: SREIMERS--DRBN007

04/08/99 14:35:55

To: JEVANS--DRBN005

cc: SREIMERS--DRBN007

FROM: F. J. Porter

USAET(UTC -04:00)

Subject: SUPPLY CHAIN MANAGEMENT

Joe,

Could you contact the people at Hilite Industries to find out what types of fluids may have come in contact with the brake pressure switch in their process. Since the connector may not be sealed at that point or if there was a cap, it may have come off, this would be one explanation for some of the contamination that we are suspecting in the parts.

Thanks.

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

*** Forwarding note from PIR43P4A--EXTERNAL 04/08/99 13:37 ***

To: FPORTER--FORDMAIL Frederick J. Port

From: McGuirk, Andy

Subject: SUPPLY CHAIN MANAGEMENT

From: "McGuirk, Andy" <a-mcguirk@email.mc.ti.com>

FRED, I BELIEVE WE WILL SEE THAT ALL PRESSURE SWITCHES FOR THE TOWN CAR PLATFORM TRAVELED THROUGH HILITE INDUSTRIES (PITTS/MAPCO/SURFACES & HILITE) IN TEXAS FOR ASSEMBLY INTO THE PROP VALVE. HAVE YOU HAD DIALOGUE WITH THEM ABOUT PROCESS AND TEST PROTOCOL AND SPECIFICS ABOUT CLEANING OF THE PROP VALVE AND RINSE REGARDING FLUIDS AND RESIDUES ? IS THERE A CHANCE THAT SOME OF THOSE FLUIDS DRIP OUT OF A PROP VALVE AND INTO ELECTRIC SWITCH WHEN THEY ARE MOUNTING/PACKING THE VALVE ?? THERE JUST MIGHT BE A DISTINCTION SOMEWHERE IN THERE THAT HELPS FOCUS.

MEDHAT HABASHI IS THE QUALITY MANAGER THERE AT CARROLLTON, TX AT (972) 242-3432.

MEDHAT AND I HAVE WORKED SEVERAL PRODUCT ISSUES OVER THE YEARS AND WE KNOW EACH OTHER.

A

AUTOMOTIVE SENSORS AND CONTROLS QRA MANAGER

34 FOREST ST M/S 23-03

ATTLEBORO, MA 02703

TEL : (508) 236-3080

FAX : (508) 236-3745

MOBILE: (508) 208-6119

PAGE: (800) 467-3700 PIN 604-2044

MSG:FROM: PAPCHIBU--EXTERNAL TO: SREIMERS--DRBN007

04/09/99 13:23:53

To: SREIMERS--FORDMAIL Steve Reimers

From: Paul J Kane

Subject: Re: Zytel Sample to TI

From: "Paul J Kane" <Paul.J.Kane@ma.dupont.com>

cc: A-mcguirk@ti.com,

rwalters@ti.com

The V-0(flame retardant) high temperature Zytel HTN FR52G30BL NC010 (natural color) will arrive at TI on Monday April 12. I talked with Andy McGuirk and Steve Walters (molding responsibility) about this product and have fax'd the processing guidelines to Steve. This product will have a 160F higher melt point over the Celanex 4300 and a 100F higher melt point over the Noryl GTX 830 (a nylon alloy). It will also have much better flow and dimensional stability over the Noryl GTX 830. Paul 248-583-8107

MSG:FROM: TALLEN16--DRBN006 TO: SREIMERS--DRBN007

04/06/99 13:22:10

To: SREIMERS--DRBN007

FROM: Tawanda Wallace Allen

USAET(UTC -04:00)

Subject: Relay Requirements

Steve, currently, our Solid State relays are rated for 10 and 20 Amps. I don't think that the low currents you are speaking of (80mA) would be enough to drive the relays we use presently. I will pose the question to the design team from Motorola and forward you their feedback. Thanks so much.

Have a wonderful day!

Tawanda Allen, Relay Engineer

Power Distribution Devices - AVT Bldg 3 20027

(313)84-51680 (TALLEN16) (tallen16@gw.ford.com)

*** Forwarding note from SREIMERS--DRBN007 03/22/99 09:18 ***

To: JHAYDEN2--DRBN005

cc: TALLEN16--DRBN006

WGARDNER--DRBN004

FROM: Steve Reimers

Subject: Relay Requirements

I will need to consider using the 80mAmp relay. The relay coil will be control led by a pressure actuated switch that closes to ground. NOTE**** My requirement is state continuous operation, however, while the relay coil will be normally en ergized (except when brake is applied) the load current will only occur while speed control is engaged.

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

*** Forwarding note from JHAYDEN2--DRBN005 03/22/99 08:43 ***

To: SREIMERS--DRBN007

FROM: John T. Hayden

Subject: Relay Requirements

Steve,

I am the Relay Engineer. We do not have a relay that will meet your requirements. The currently released relays require more than 12mA to actuate, approx. 80mA @ 25C. The relays need to switch a minimum of 500mA to prevent damage to the contacts. What would be controlling the relay (i.e. telling the coil when to energize & de-energize)?

Regards,

John T. Hayden

Power Distribution Device Section

Phone (313) 32-29577

*** Forwarding note from SREIMERS--DRBN007 03/19/99 19:07 ***

To: WGARDNER--DRBN004

cc: JHAYDEN2--DRBN005

FROM: Steve Reimers

Subject: Relay Requirements

MUST: Operate underhood; Operate continuously (normally energized at all times by HOT ALL TIME circuit); Actuating current less than 12 milliamps; Actuating voltage is provided by closure to ground; One circuit normally-closed when energized; switch battery voltage to an inductive load (53 - 112 mH) of 500 milliamps (typical, 800 mA at -40 degrees). Flyback is clamped at load.***** WANT: Opens circuit when load has exceeded 1 amp to eliminate need for fuse; For d Qualified part; Stand-alone mounting; Available in large quantities (500,000 in 30 days).

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG FROM: FPORTER--DRBN007 TO: SREIMERS--DRBN007

04/16/99 20:15:11

To: SLAROUCH--FORDNA1

cc: NLAPPOINT--DRBN005

PKLAAS --FORDNA1

FROM: F. J. Porter

Subject: Brake Switches

For clarification:

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

Is there, or could there be, evidence of corrosion occurring on the EAA

Originator:
Bkpw

Page 113 of 180

Date Issued:
Date Revised: 06/01/99

3713 6620

switches similar to the junkyard switches.

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

*** Forwarding note from SLAROUCH-FORDNAI 04/16/99 17:14 ***

To: FPORTER -FORDMAIL Porter, Fred (F.J.)

cc: NLAPONTE-FORDMAIL LaPointe, Norman (FKLAAS -FORDNAI KLaas, Pete (P.F.)

SLAROUCH-FORDNAI 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 ingestion 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 ingestion 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 definite 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) 322-1614 FAX

MSG:FROM: JKAFATI-DRBN004 TO: SREIMERS-DRBN007 04/20/99 12:45:25

To: SREIMERS-DRBN007

FROM: Joseph Kafati USAET(UTC-04:00)

Subject: Town Car

Steve, info on a 92 Town Car if you need anything off of it. I don't know if it is still available. Thanks

Regards,

Joseph Kafati

Advanced Vehicle Technology, ESE-OPD

PH: 313-390-5389, Text Page: (313) 795-0702, FAX: 313-248-1268

*** Forwarding note from WABRAMCZ-DRBN005 04/14/99 07:33 ***

To: JKAFATI-DRBN004 JNEME -DRBN005

FROM: William Abramczyk USAET(UTC-04:00)

Subject: Town Car

Gyl

William M. Abramczyk

Automotive Safety Office-Mail: 500 Fairlane Plaza South (FPS)

Car Safety Investigations Dearborn, MI

Phone (313) 322-3284 Fax (313) 594-2268

*** Forwarding note from RNEVI -DRBN005 04/13/99 15:27 ***

To: FANSARJI-FORDNA1

cc: JLOGEL --FORDNA1

WABRAMCZ-DRBN005

WBOHAN -DRBN005

RNEVI -DRBN005

FROM: Ray Nevi

USAET(UTC-04:00)

Subject: Town Car

The NHTSA called with a report of an underhood fire on a 1992 Town Car. Please make arrangements for inspection. Available information:

1. VIN: 1LNLM81W3NY707083

2. DOL: 3/25/99

3. Location: Incident - Grand Saline, TX; Vehicle now in Longview, TX

4. Contact: Glen Bolton, Alstato, (800) 432-4669

Regards,

R. A. Nevi PROPS ID: RNEVI Phone: 59-47688 FAX: 59-42268

Car Safety Investigations Manager, Automotive Safety Office

Suite 500, Fairlane Plaza South

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 04/21/99 13:20:32

To: SREIMERS-FORDMAIL, Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: RE: BP switch part numbers

Steve: None of the switches on hand at Central Lab have a suffix of BA or AB. Three of the switches have prefixes other than F2VC. All three have a prefix of F2AC. One was a leaky and is sample D (97 Crown Vic) from one of the first groups we analyzed. The other two are not leakers. One is sample E (#11) from the same group as sample D; the other sample (PX151140) came from a junkyard and has not been analyzed.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876

(313) 322-1614 FAX

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

From: Steve Reimers [mailto:areimers@gw.ford.com]

Sent: Wednesday, April 21, 1999 10:51 AM

To: slarouch@mail.ford.com

Subject: BP switch part numbers

Do any of the switches have received have a suffix of HA or HB? Are there any

prefixes other than F2VC?

thanks,

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS areimers@ford.com fax 39-04145 ;>

MSG FROM: FPORTER -DRBN007 TO: SREIMERS-DRBN007

04/20/99 09:19:30

To: SREIMERS-DRBN007

FROM: F. J. Porter

USAET(UTC -04:00)

Subject: RE: Brake Switches

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

*** Forwarding note from SLAROUCH-FORDNA1 04/20/99 08:05 ***

To: FPORTER -FORDMAIL Porter, Fred (F.J.)

cc: SLAROUCH-FORDNA1 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 gas samples; the initiation point could not be determined in the other samples).

Steve LaRouche

(SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876

(313) 322-1614 FAX

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

From: Frederick J. Porter [mailto:fporter@gw.ford.com]

Sent: Monday, April 19, 1999 6:17 PM

To: slarouch@mail.ford.com

Cc: areimers@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,

Originator:
Bripenw

Page 116 of 150

Date Issued:
Date Revised: 05/01/99

3713 8823

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
*** Forwarding note from SLAROUCH--FORDNA1 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.

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room N410
(313) 845-4876 (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: nlapoint@gw.ford.com; areimere@gw.ford.com; pklaas@mail.ford.com
Subject: Brake Switches

For clarification:

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

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

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
*** Forwarding note from SLAROUCH--FORDNA1 04/16/99 17:14 ***
To: FPORTER --FORDMAIL Porter, Fred (F.J.)
cc: NLAPPOINT--FORDMAIL LaPointe, Norman (PKLAAS --FORDNA1 Khas, Pete (P.F.)

SLAROUCH--FORDNA1 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 ingestion of water into the switch cavity, with no brake fluid leakage, and no evidence of a cell.

The Memphis switch and all of the losers 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.

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contact material to the cups, indicating a possible cell. No evidence of road salt detected. Could not determine if brake fluid leakage occurred.

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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 definite 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) 322-1614 FAX

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS--DRBN007 04/22/99 11:54:02

To: SREIMERS-FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: RE: Brittle Clarification

Steve:

The brittleness was determined on a qualitative basis by comparing the flexibility of the material at the crack with that of the material away from the crack. This was done by flexing the material with a small probe (dental pick). In other words, it was done by "feel". There is no way to quantify this on the seals removed from the switches since the damage is so localized. I suppose the properties could be quantified by exposing tensile test samples to brake fluid and determining elongation, etc. The problem with this is that we have no way of duplicating the exact environment to which the seals were exposed in the switches. Did Dupont or TI do this sort of thing before choosing this material for this application?

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

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

From: Steve Reimers [mailto:sreimers@sw.ford.com]

Sent: Thursday, April 22, 1999 10:05 AM

To: slarouch@mail.ford.com

Subject: Brittle Clarification

Your spread sheet mentions a brittle condition and cracking in some Kapton layer

ra. Please clarify what brittle means. Is there a quantitative test you can do to compare "brittleness" of field returns versus virgin Kapton? I have some Kapton you may use or we can get some from TI or DuPont that has not been handled as much.

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145

MSG:FROM: SLAROUCH--FORDNA1 TO: SREIMERS--DRBN007 04/22/99 11:56:13

To: SREIMERS--FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: RE: Brake Fluid In Non-leakers

Steve: No non-leakers had brake fluid in the terminal cavity.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876 (313) 322-1614 FAX

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

From: Steve Reimers [mailto:sreimers@gw.ford.com]

Sent: Thursday, April 22, 1999 11:51 AM

To: slarouch@mail.ford.com

Subject: Brake Fluid In Non-leakers

Steve, Did any of the field samples that had connector and harness attached and were NON-Leakers have any Brake fluid in the terminal cavity. This would indicate whether Brake Fluid could be getting into the switch other than through the Kapton diaphragm.

thanks,

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145

MSG:FROM: SLAROUCH--FORDNA1 TO: SREIMERS--DRBN007 04/22/99 13:35:17

To: SREIMERS--FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: RE: Water Ingress

Three of the samples from junkyard show evidence of water ingestion and corrosion. Only one of these had tarnish or corrosion on the terminals. The terminals were clean in the other two switches. These samples showed no evidence of brake fluid leakage through the Kapton seals. They also showed no evidence of a cell (transfer of contact material to cup) like that found in the switches that leaked brake fluid or burned.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876 (313) 322-1614 FAX

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

From: Steve Reimers [mailto:sreimers@gw.ford.com]

Sent: Thursday, April 22, 1999 1:27 PM

To: slarouch@mail.ford.com

Subject: Water Ingress

How many field returns show signs of water ingress and water induced corrosion?

Is there any sign of water in the terminal cavity?

Steve Reimers : building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 04/23/99 10:14:43
To: SREIMERS-FORDMAIL Reimers, Steve (S.)
From: LaRouche, Steve (S.)
Subject: RE: Metal transfer

Steve: Yes, we have seen this in all the switches (including the Memphis switch) that we have analyzed that have had brake fluid in the switch cavity. We can only do elemental analysis, but that, and the green appearance suggests that the transferred material has taken the form of an oxide or sulfur compound (according to Roc Carter from the Sci Lab, the green appearance indicates that these compounds have been hydrated, i.e., they have reacted with moisture). We have also found evidence of transferred material in the burned switches, but we could not confirm the presence of brake fluid because of the burned and exposed condition.

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

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

From: Steve Reimers [mailto:sreimers@gw.ford.com]
Sent: Friday, April 23, 1999 8:03 AM
To: slarouch@mail.ford.com
Subject: Metal transfer

Do you see this in all field samples that have brake fluid in the switch cavity

? What is it, salts or actual metal plating or something else?

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG FROM: FKOHL -DRBN007 TO: SREIMERS-DRBN007 04/23/99 10:28:12

To: SREIMERS-DRBN007
FROM: Fred Kohl USAET(UTC -04:00)
Subject: 92/93 Towncar Brakes
Follow-up to my verbal to you.
Did not have any changes during that time period.
Regards, Fred Kohl, Precision Speed Control (Panther)
PROFS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280
IRM Mail(USFMCBIZ)

Mailing Address: EVB, 1WE05

*** Forwarding note from SREIMERS-DRBN007 04/19/99 18:21 ***

To: FKOHL -DRBN007
FROM: Steve Reimers USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Fred, I may be repeating myself but I can't find a previous response from you. Did Speed control make any design changes in this time frame (Sept 92 thru Nov 92)? This was probably the model year change-over for Town Car. Would the changes also be implemented concurrently on Crown Vic and Grand Marquis?

thanks,

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

*** Forwarding note from TBAZIL -DRBN005 04/19/99 12:58 ***

To: SREIMERS-DRBN007

FROM: Tom Bazil

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

FYL

Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brake/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from LSMITH9 -DRBN005 04/17/99 11:24 ***

To: TBAZIL -DRBN005

SREIMERS-DRBN007

MREESE -DRBN005

PCONDON -DRBN005

CHUNT -DRBN005

FPORTER -DRBN007

cc: LSMITH9 -DRBN005

FROM: Lee Smith

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Info

Regards,

Lee Smith OPD Brake Systems Development 24N31 Bldg 2 MD 1229

Phone (313) 390-4661 Fax (313) 621-6675

Internet lsmit9@ford.com lsmit9@aol.com

*** Forwarding note from CHUNT -DRBN005 04/17/99 09:22 ***

To: LSMITH9 -DRBN005

FROM: Charles Hunt

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Somewhere in there we dropped UTA and went to AFL as a Towncar wiring vendor.

I would have thought the date was a bit later, but maybe not.

Regards,

Charles Hunt

(CHUNT), 323-7723, Fax 621-8439, Panther Chassis Engineering

Bldg 2, MD1240, Cube 24N19

*** Forwarding note from LSMITH9 -DRBN005 04/17/99 08:17 ***

To: CHUNT -DRBN005

cc: LSMITH9 -DRBN005

TBAZIL -DRBN005

FROM: Lee Smith

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Did we change harness suppliers in that area to your re-collection?

Regards,

Lee Smith OPD Brake Systems Development 24N31 Bldg 2 MD 1229

Phone (313) 390-4661 Fax (313) 621-6675

Internet lsmit9@ford.com lsmit9@aol.com

*** Forwarding note from SREIMERS-DRBN007 04/16/99 19:08 ***

To: TBAZIL -DRBN005

cc: PCONDON -DRBN005

MREESE -DRBN005

LSMITH9 -DRBN005

FPORTER -DRBN007 Porter, F.I.

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Sept thru Nov of 1992.

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 3011

39-03286 SREIMERS sreimers@ford.com fax 39-04145

*** Forwarding note from TBAZIL -DRBN005 04/16/99 16:04 ***

To: SREIMERS-DRBN007

cc: PCONDON -DRBN005

LSMITH9 -DRBN005

MREESE -DRBN005

FROM: Tom Bazil

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Does the difference appear to be at Job#1 or some other point. That may help pinpoint a change. We will do further exploratory WERS searches.

Frank, Les, Marty, Any other ideas?

Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brake/Veh Supv
Drop 1229-LVC, Cube 24-E36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from SREIMERS-DRBN007 04/16/99 15:26 ***

To: TBAZIL -DRBN005

cc: FPORTER -DRBN007 Porter, F.J.

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Tom, The statistics for fires shows a dramatic drop in fires between MY92 and MY93 which synchronizes with the Crown Vic and Grand Marquis. Something changed somewhere and we are on a search. Your help is needed to identify brake system changes. Did we change suppliers for some component or did a supplier change manufacturing sites? Did ABS release a new software update? Did the plants start using a new process for filling the brake fluid? Did a supplier change a manufacturing process? We are pursuing TI and Hi-Line Industries for this same kind of info. FYI there is a Tech. Review on Monday afternoon.

thanks,

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG FROM: FPORTER -DRBN007 TO: SREIMERS-DRBN007

04/23/99 13:27:11

To: SREIMERS-DRBN007

FROM: F. J. Porter

USAET(UTC -04:00)

Subject: (C) potential recall

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

*** Forwarding note from JNEME -DRBN005 04/23/99 11:47 ***

To: JKAFATI -DRBN004

FPORTER -DRBN007

KZUBIETA-DRBN006

cc: JNEME -DRBN005

FROM: Joseph S. Neme

USAET(UTC -04:00)

SUBJECT: (C) potential recall

Job #1 for CV looks like 2/5/92...we need PCSD to check NAVIS to see if different.

Kelly... please see note below... can you check NAVIS to confirm vehicle start date for Crown Vic with AODE transmission? The same request will be coming for 92 Towncars... thanks

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax: 62-18147, E-Mail: jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpage: 313-795-7003

*** Forwarding note from APOLLUBIN-DRBN006 04/23/99 11:23 ***

To: JNEME -DRBN005

cc: BPATEL7 -DRBN005

CROXIN -DRBN006

APOLUBIN-DRBN006

FROM: Ann Polubinski

USAET(UTC -04:00)

Subject: (C) potential recall

Joe, The CV/GM starting using the AODE transmission in February for Police and North American Non-police. Mexico did not get the AODE until later. The following part numbers were used to release the AODE transmission in the CV/GM applications.

Police — F2AP-7000-BA

Non-Police NA — F2AP-7000-FA

Mexico — F2AP-7000-GA

Currently NAVIS identifies the trans in position 044. I believe this was true in 1992. A 'P' in the 044 position identifies and AODE. Prior to 'P', a 'T' was used for AOD.

WERS identifies the timing of the AODE release into ENS3 as S4P92C which equates to February 5, 1992. I do not know if this date is accurate with respect to the date the vehicle was built.

NAVIS should be able to pull up the first visa using AODE. I hope my information helps. Please let me know if you have any questions.

Regards, Ann Polubinski

PTO Resident Engineering

St. Thomas Assembly Plant

Dial Net 9-1-782-5378 Fax 9-1-782-5461

*** Forwarding note from BPATEL7 -DRBN005 04/22/99 20:29 ***

To: APOLUBIN-DRBN006

cc: JNEME -DRBN005

BPATEL7 -DRBN005

CROXIN -DRBN006

FROM: Bharat J. Patel

USAET(UTC -04:00)

Subject: (C) potential recall

Ann, please investigate with Shel Schultz or Joe Blain. There is a way at least to look up when a specific part was released in WERS and for what timeframe if you know what the part number is. Strip by and I can give you a demo. As for the VIN, I am hoping that between Joe and Shel, we will get lucky.

Joe, give me a call sometime. Need to chat on STUFF.

LVC: POWER, POISE, PERFORMANCE, PEOPLE, PROFITS!!!!!!!!!!!!!!

Bharat Patel: 519-637-5366(PHN); 1-888-442-0837 (TXT. PAGER)

519-637-5209(FAX); E-Mail: usfnctv@ibmmail.com

STAP PVT - Resident Engineering Supervisor

*** Forwarding note from JNEME -DRBN005 04/22/99 17:20 ***

To: BPATEL7 -DRBN005

FROM: Joseph S. Neme

USAET(UTC -04:00)

SUBJECT: (C) potential recall

Bharat... looks like Bro is out.. can you help on the request below... please advise... thanks

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax:62-18147, E-Mail:jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Telex:313-795-7003

*** Forwarding note from JPETRUCC-DRBN005 04/21/99 15:22 ***

To: MPETTEGR-DRBN007

JPRYDE -DRBN004

cc: RARNING -DRBN006

JNEME -DRBN005

SPARK1 -DRBN006

KMCCARTH-DRBN005

FROM: Julie K. Petrucci

Subject: (C) potential recall

Pls respond/handle for us thanks
Regards, Julie K. Petrucci
Town Car/Continental/L.S PVT Manager
Wixom Assembly Plant

Phone: 34-45106 Fax: 34-45502

*** Forwarding note from JNEME --DRBN005 04/21/99 14:43 ***

To: BHOUSLAN--DRBN005 JPETRUCC--DRBN005

cc: CTESKE --DRBN005

FROM: Joseph S. Neme USAET(UTC -04:00)

SUBJECT: (C) potential recall

We are investigating a potential recall on 1992/3 Townsman and Crown
Vics with AODE transmissions. Though our research the AODE was
incorporated into the Townsman in Nov '91 and into the Crown Vic in Feb
'92.

Can you please provide actual incorporation date and VIN number of the
first vehicles with the AODE? The info is needed by COB 4/28. I would
think that your GRC's would have access to the information... thanks

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax: 62-18147, E-Mail: jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpage: 313-795-7003

MSG FROM: SREIMERS--DRBN007 TO: AAGENT --EXTERNAL 04/22/99 08:45:00

To: AAGENT --EXTERNAL

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Kapton Wizard

to: Mark_McAloon@CDCLN05.LVS.DUPONT.COM

Subject: email path

Mark, this is just a note to establish an email path.

thanks,

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG FROM: SREIMERS--DRBN007 TO: MHARDIE --DRBN005 04/27/99 15:51:51

To: MHARDIE --DRBN005

cc: JNEME --DRBN005 WABRAMCZ--DRBN005

FPORTER --DRBN007 Porter, P.J.

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Brake Pressure switch claims

Mike, Does the claim list you gave me include claims from GCC? If not, how
can we get claims data from GCC? I am interested in what kind of problem they
are seeing in a really HOT climate.

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG FROM: SREIMERS--DRBN007 TO: JNEME --DRBN005 04/28/99 11:58:27

To: JNEME --DRBN005

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Verify BP Switch out date

Joe, Need to verify the build date when we stopped using the Brake pressure
switch and started using the Pedal travel switch on TC CV and GM.

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG FROM: SREIMERS-DRBN007 TO: SLAROUCH-FORDNA1 04/29/99 10:28:35
To: SLAROUCH-FORDNA1
cc: FPORTER -DRBN007 Porter, F.J. PIR43P4A-EXTERNAL A.McGuirk, a-mogui
OTFWGYYK-EXTERNAL Rob Sharpe, Texas I
FROM: Steve Reimers USAET(UTC -04:00)
Subject: RE: Brake Switch

I have asked Andy in Fed Ex a 48 inch strip of Kapton and 10 screens to Rob Sharpe (local TI rep) for you to use in comparative tests with some of the field return samples. Please also include in this test the samples from TI that were removed every 200K cycles from the impulse testing. Please let me know when these tests could be completed.

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

*** Forwarding note from SLAROUCH-FORDNA1 04/29/99 08:51 ***

To: SREIMERS-FORDMAIL Reimers, Steve (S.)
cc: FPORTER -FORDMAIL Porter, Fred (F.J. SLAROUCH-FORDNA1 LaRouche, Steve (S)
From: LaRouche, Steve (S.)
Subject: RE: Brake Switch

Steve: I should have it to you today; I have a few more entries to make. I received several switches from F-150s. Do you know what the background is on these switches? I also talked to some more people in our polymers section and found that there may be one or two ways for us to quantify the effects of brake fluid on the Kapton. One is called DMA, which can be used to determine the modulus of the material; the other, which is called DSC, can determine the effects indirectly by establishing the glass transition temperature. (Don't ask me what all this stuff means, because it's a mystery to me). I'm going to round up some samples and have them see what they can do with them. Can you get us some new switches so we can remove the Kapton seals? I'd like to use material out of new switches because it has been deformed. Some uninstalled Kapton may also be useful so we can see the effects of deforming the Kapton around the converter and washer.

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

---Original Message---

From: Steve Reimers [mailto:sreimers@gw.ford.com]

Sent: Wednesday, April 28, 1999 6:59 PM

To: slarouch@mail.ford.com

Subject: Brake Switch

Steve, thanks for the updates. Can I get the updated findings Thursday?

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

*** Forwarding note from SLAROUCH-FORDNA1 04/23/99 16:28 ***

To: SREIMERS-FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: Brake Switch

Steve: Here are the updated switch log and checklist. I am working on expanded results spreadsheet, incorporating observations on the connectors and wires. I hope to have that completed by Tuesday next week. In addition

to the results already reported on the findings spreadsheet you already have,

<<chklist.xls>> <<SwitchLog.xls>>

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

Attachments sent separately:

Data Type	File Name
BINARY	CHKLIST.XLS_PC
BINARY	SWITCHLO.XLS_PC

MSG:FROM: JNEME -DRBN005 TO: SREIMERS-DRBN007 04/29/99 14:33:15
To: SREIMERS-DRBN007 FPORTER -DRBN007
JEAFATI -DRBN004

FROM: Joseph S. Neme USAET(UTC -04:00)
SUBJECT: Special Request for Navis Information -92/93 Cr Vio/Gr Mar, 92/93
Joseph S. Neme

LVC - Safety
Phone: 39-08133, Fax: 62-18147, E-Mail:jneme@ford.com
Location: MD1255/Cube 2M37, Building #2 Telexpager:313-795-7003
*** Forwarding note from LGEE3 -DRBN006 04/29/99 14:32 ***

To: JNEME -DRBN005
cc: LGEE3 -DRBN006
FROM: Larry Gee USAET(UTC -04:00)
Subject: Special Request for Navis Information -92/93 Cr Vio/Gr Mar, 92/93
Town Car /W/wh AODE Transmission.

Cr. Vio/Gr Marq. (From: 2/5/92 Thru: 11/30/92) -----170,510 Cars
Plant -St. Thomas -First production unit w/AODE Trans. 2/5/92
Town Car (From: 11/04/91 Thru: 11/30/92) -----123,310 Cars
Plant -Wixom -First production unit w/AODE Trans. 11/5/91
Regards,
Larry Gee

MSG:FROM: BPEASE -DRBN005 TO: SREIMERS-DRBN007 04/01/99 14:42:06
To: FPORTER -DRBN007 SREIMERS-DRBN007
FROM: Bruce Pease (BPEASE) USAET(UTC -05:00)
Subject: Switch isolation

1. Directional cost on hose easy with 25 mm hose is \$1.91. Extra length available at (my est) \$.10 per 25 mm.
2. I have contacted HayesTech for meeting early next week regarding a non conducting powder metal part. (We exchanged calls and I asked him to look into the non conducting aspect prior our meeting and described other part req's).
Regards, Bruce Pease
R&VT-Adv. Brake Systems, 84-54774, fax 39-04145

MSG:FROM: TBAZIL -DRBN005 TO: SREIMERS-DRBN007 04/16/99 16:01:14
To: SREIMERS-DRBN007

FROM: Tom Bazil USAET(UTC -04:00)
Subject: Brake Pressure Switch
134mi difference between max and light on per Bosch Braking Systems
Chris Thornton.
Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brake/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from SREIMERS--DRBN007 04/13/99 10:04 ***

To: TBAZIL --DRBN005

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: Brake Pressure Switch

Tom, I am trying to sort out differences between 92/93 Town car and 93
Econoline brake fluid LOW warnings. What is the volume of brake fluid that
would have to be lost to make the Brake Warning lamp turn ON? Assume Max level
is the starting volume.

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145

MSG:FROM: TBAZIL --DRBN005 TO: SREIMERS--DRBN007

04/19/99 12:58:22

To: SREIMERS--DRBN007

FROM: Tom Bazil

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

FYI.

Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brake/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from LSMITH9 --DRBN005 04/17/99 11:24 ***

To: TBAZIL --DRBN005

SREIMERS--DRBN007

MKEESE --DRBN005

PCONDON --DRBN005

CHUNT --DRBN005

FPORTER --DRBN007

cc: LSMITH9 --DRBN005

FROM: Lee Smith

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Info

Regards,

Lee Smith OPD Brake Systems Development 24N31 Bldg 2 MD 1229

Phone (313) 390-4661 Fax (313) 621-6675

Internet lsmith9@ford.com lsmith9@aol.com

*** Forwarding note from CHUNT --DRBN005 04/17/99 09:22 ***

To: LSMITH9 --DRBN005

FROM: Charles Hunt

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Somewhere in there we dropped UTA and went to AFL as a Towncar wiring vendor.

I would have thought the date was a bit later, but maybe not.

Regards,

Charles Hunt

(CHUNT), 323-7723, Fax 621-8439, Panther Chassis Engineering

Bldg 2, MD1240, Cube 24N19

*** Forwarding note from LSMITH9 --DRBN005 04/17/99 08:17 ***

To: CHUNT --DRBN005

cc: LSMITH9 --DRBN005

TBAZIL --DRBN005

FROM: Lee Smith

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Did we change harness suppliers in that area to your re-collection?

Regards,

Lee Smith OPD Brake Systems Development 24N31 Bldg 2 MD 1229

Phone (313) 390-4661 Fax (313) 621-6675

Internet lsmit9@ford.com lsmit9@aol.com

*** Forwarding note from SREIMERS--DRBN007 04/16/99 19:08 ***

To: TBAZIL --DRBN005

cc: FCONDON --DRBN005

MREESE --DRBN005

LSMIT9 --DRBN005

FPORTER --DRBN007 Porter, F.J.

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Sept thru Nov of 1992.

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

*** Forwarding note from TBAZIL --DRBN005 04/16/99 16:04 ***

To: SREIMERS--DRBN007

cc: FCONDON --DRBN005

LSMIT9 --DRBN005

MREESE --DRBN005

FROM: Tom Bazil

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Does the difference appear to be at Job#1 or some other point. That may help pinpoint a change. We will do further exploratory WERS searches.

Frank, Lee, Marty, Any other ideas?

Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brake/Veh Supr

Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 373-6449

*** Forwarding note from SREIMERS--DRBN007 04/16/99 15:26 ***

To: TBAZIL --DRBN005

cc: FPORTER --DRBN007 Porter, F.J.

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

Tom, The statistics for fires shows a dramatic drop in fires between MY92 and MY93 which synchronizes with the Crown Vic and Grand Marquis. Something changed somewhere and we are on a search. Your help is needed to identify brake system changes. Did we change suppliers for some component or did a supplier change manufacturing sites? Did ABS release a new software update? Did the plants start using a new process for filling the brake fluid? Did a supplier change a manufacturing process? We are pursuing TI and Hi-Lite Industries for this same kind of info. FYI there is a Tech. Review on Monday afternoon.

thanks,

Steve Reimers

building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG:FROM: JEVANS8 --DRBN005 TO: SREIMERS--DRBN007 04/20/99 09:10:25

To: SREIMERS--DRBN007

*** Reply to note of 04/19/99 18:17

FROM: Joe Evans

USAET(UTC -04:00)

Subject: 92/93 Towncar Brakes

What change to lower the relief pressure? Are you talking about TC? The only changes I see in the resident review books are a new front rotor for the CV/GM and new material for the brake tubes for improved corrosion protection. EVAC and FILL process changes would have been made with the introduction of ABS on the 1990 Town Car and the 1992 Crown Vic/Grand Marquis.

Regards, Joe Evans

Brakes, Vacuum Distribution and Chassis Control Systems

Core Brake Control Systems Engineering
Phone 32-23832 Fax 32-31947

MSG:FROM: KZUBIETA--DRBN006 TO: SREIMERS--DRBN007 04/26/99 11:24:39

To: SREIMERS--DRBN007

cc: FPORTER --DRBN007

JNEME --DRBN005

FROM: Kelly Zubieta

USAET(UTC -04:00)

Subject: 14D

Steve, just say "All markets affected". From my Navis extract, the vehicles went to U.S., Canada, Affiliate Markets, Federalized Territories and Non-Federalized Territories.

Also, Fred Porter had given me the following start/end dates:

Town Car:

From 11/4/91 thru 11/30/92

Crown Vic/Grand Marquis:

From 2/1/92 or 3/1/92 thru 11/30/92

Has a start date been firmed up yet for Crown Vic/Grand Marquis?

Regards,

Kelly Zubieta

FCSD, Recall/Service Programs, Recall/ONP Coordinator

313-248-8817 Fax: 313-845-1024 Internet: KZUBIETA@Ford.com

*** Forwarding note from SREIMERS--DRBN007 04/23/99 18:27 ***

To: KZUBIETA--DRBN006

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: 14D

Need you help to complete info the Underhood Fires 14D.

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS reimers@ford.com fax 39-04145 ;>

*** Forwarding note from JNEME --DRBN005 04/23/99 17:54 ***

To: SREIMERS--DRBN007

FROM: Joseph S. Neme

USAET(UTC -04:00)

SUBJECT: 14D

Try Kelly Zubieta at FCSD...

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax: 62-18147, E-Mail:jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpager: 313-795-7003

*** Forwarding note from SREIMERS--DRBN007 04/23/99 14:13 ***

To: JNEME --DRBN005

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: 14D

part 1 d asks for "Markets Affected". Can you get this info?

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS reimers@ford.com fax 39-04145 ;>

MSG:FROM: JNEME --DRBN005 TO: SREIMERS--DRBN007 04/26/99 11:42:13

To: SREIMERS--DRBN007

cc: JKAFATI --DRBN004

FPORTER --DRBN007

KZUBIETA--DRBN006

FROM: Joseph S. Neme

USAET(UTC -04:00)

SUBJECT: 14D paper

Steve,

use the following 2 start dates for your IAD...I got these from the plants...

T/C: 11/4/91

CV/GM: 2/5/92

Update with what ever end dates the teams determines as appropriate... thanks

Joseph S. Name

LVC - Safety

Phone: 39-08133, Fax: 62-18147, E-Mail: jname@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpage: 313-795-7003

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 04/26/99 12:48:07

To: SREIMERS-FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: RE: Brake Pressure Switch Burrs

OK, I'll take a closer look at those parts. In response to your earlier message, I'm checking in to whether some kind of mechanical test can be performed on the Kapton seals that have already been in service.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876 (313) 322-1614 FAX

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

From: Steve Reimers [mailto:sreimers@gw.ford.com]

Sent: Monday, April 26, 1999 12:40 PM

To: slarouch@mail.ford.com

Subject: Brake Pressure Switch Burrs

DuPont suggests we look closely at the mechanical components that contact the

Kapton diaphragm using at least a 10X magnification. They have had some experience that produced a result like we are seeing. Look at the converter and the washer for the 2 or 3 switches that have the cracked layers.

thanks,

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 3011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 04/26/99 15:39:29

To: SREIMERS-FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: RE: Brittle Clarification

Steve: I talked to our polymers people. A quantitative comparison of mechanical properties of the seals used in the switches would be just about impossible due to their small size and the deformation that has occurred during service. Normally, standard size tensile test strips are die cut out of sheet, exposed to an environment, and then tested and compared to non exposed strips. The problem in this case, would be duplicating the environment since we don't know what conditions the Kapton has been exposed to over the last 7 years or so.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876 (313) 322-1614 FAX

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

From: Steve Reimers [mailto:sreimers@gw.ford.com]

Sent: Monday, April 26, 1999 11:23 AM

To: slarouch@mail.ford.com

Subject: RE: Brittle Clarification

Can you do a quantitative comparison of the Kapton layers from field samples vs fresh Kapton?

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >
*** Forwarding note from SREIMERS-DRBN007 04/22/99 12:22 ***

To: NLAPPOINT-DRBN005
FROM: Steve Reimers USAET(UTC -04:00)
Subject: RE: Brittle Clarification

Norm, I think you were asking about this...
Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >
*** Forwarding note from SLAROUCH-FORDMAIL 04/22/99 11:54 ***
To: SREIMERS-FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)
Subject: RE: Brittle Clarification
Steve:

The brittleness was determined on a qualitative basis by comparing the flexibility of the material at the crack with that of the material away from the crack. This was done by flexing the material with a small probe (dental pick). In other words, it was done by "feel". There is no way to quantify this on the seals removed from the switches since the damage is so localized. I suppose the properties could be quantified by exposing tensile test samples to brake fluid and determining elongation, etc. The problem with this is that we have no way of duplicating the exact environment to which the seals were exposed in the switches. Did Dupont or TI do this sort of thing before choosing this material for this application?

Steve LaRouche (SLAROUCH)
Metallurgy Section, Central Laboratory, Room N410
(313) 843-4876 (313) 322-1614 FAX

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

From: Steve Reimers [mailto:sreimers@gw.ford.com]
Sent: Thursday, April 22, 1999 10:03 AM
To: slarouch@mail.ford.com
Subject: Brittle Clarification
Your spread sheet mentions a brittle condition and cracking in some Kapton

lays
ra. Please clarify what brittle means. Is there a quantitative test you can do to compare "brittleness" of field returns versus virgin Kapton? I have some Kapton you may use or we can get some from TI or DuPont that has not been handled as much.

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: WABRAMCZ-DRBN005 TO: SREIMERS-DRBN007 04/22/99 07:20:35
To: SREIMERS-DRBN007
*** Reply to note of 04/27/99 15:51
FROM: William Abramczyk USAET(UTC -04:00)
Subject: Brake Pressure switch claims

The claims listing contains the owner and field reports, MORS and CQIS respectively. The lawsuits and consumer claims are a separate population. Most of those fires, if not all, are full vehicle fires and it would be difficult to come up with a possible cause.

William M. Abramczyk
Automotive Safety Office-Mail: 500 Fairlane Plaza South (FPS)
Car Safety Investigations Dearborn, MI
Phone (313) 322-3284 Fax (313) 594-2268

MSG:FROM: MHARDIE-DRBN005 TO: SREIMERS-DRBN007 04/28/99 08:27:31
To: SREIMERS-DRBN007 JNEME --DRBN005
FPORTER --DRBN007 WABRAMCZ-DRBN005
FROM: Mike Hardie USAET(UTC -04:00)

Subject: Brake Pressure switch claims

Attached is the file of all the causal/non-causal 9F924 part numbers replaced worldwide (except for the USA) as recorded in AWS. It should be noted that AWS only stores ACES II reports. Canada stored their reports under ACES I until a few years ago, and those reports were NOT translated into ACES II and thus are not included. It appears from these data that the European equivalent part number is probably different -- there are no replacements for Mondeo/Scorpio, etc. The USA vehicles sold to foreign countries are not fully coded and show up as worldwide direct. These can be vehicles sold to GCC, Japan, etc, or even US servicemen who purchase US vehicles thru plans available on their base. (Sometimes the Worldwide direct vehicles show up in the US warranty system.) The Worldwide Direct vehicles can be a small percentage of the total vehicles sold. For example, the 1995 USA sales of the CV/GM was 192,000 vehicles. In Canada we sold 10,448 vehicles. Worldwide Direct (including the GCC states) purchased 4141 vehicles total. There was one problem for the 9F924 for the 1996 MY on the Grand Marquis for all of worldwide direct -- and that problem was repaired in the USA in Texas.

I have also included two files of vehicle volumes for your use. One worldwide for 1995-1997 and one USA for 1992-1998.

It is interesting to note that the 1996 numbers give a bit of a strange picture when the "rates" of 9F924 replacements are calculated. The 1996 CV/GM US volume of about 204,000 had a total of 128 replacements. The Worldwide volume of 7782 had one replacement. If it had the same rate of failure as the USA, one would have expected about 5 to be replaced. It appears that if there was a theory of greater issue in the Worldwide Direct vehicles, it could be proven false.

Have you guys been successful in duplicating this event in the lab? (Previously, the lab test that successfully duplicated the event did not follow the theory.) Was anyone able to confirm that the non-speed control units did not have the brake pressure switch installed? If so, has anyone re-evaluated the incidents on those units to determine the different root cause on those?

Regards,
Mike Hardie (313)845-7279
Quality Center

*** Forwarding note from SREIMERS-DRBN007 04/27/99 13:51 ***

To: MHARDIE-DRBN005
cc: JNEME --DRBN005 WABRAMCZ-DRBN005
FPORTER --DRBN007 Porter, F.J.
FROM: Steve Reimers USAET(UTC -04:00)
Subject: Brake Pressure switch claims

Mike, Does the claim list you gave me include claims from GCC? If not, how
can we get claims data from GCC? I am interested in what kind of problem they may
be seeing in a really HOT climate.

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG FROM: FKOHL --DRBN007 TO: SREIMERS--DRBN007 04/29/99 11:29:28

To: SREIMERS--DRBN007

FROM: Fred Kohl USAET(UTC -04:00)

Subject: Introduction of NGSC for 1992 / 1993

1992 MODEL YEAR

VN58 - ECONOLINE / CLUB WAGON (JOB#1 - SEPTEMBER 3, 1991)

FN36 - TOWN CAR (JOB#1 - NOVEMBER 11, 1991)

1993 MODEL YEAR

EN53 - CROWN VICTORIA/GRAND MARQUIS (JOB#1 - FEB. 17, 1992)

F-SERIES / BRONCO (JOB#1 - AUGUST 3, 1992)

TAURUS SHO AUTOMATIC (JOB#1 - OCTOBER 5, 1992)

FN10 - MARK VIII (JOB#1 - OCTOBER 5, 1992)

CDW27 - SIERRA - EUROPE (JOB#1 - NOVEMBER 30, 1992)

Regards, Fred Kohl, Precision Speed Control (Panther)

PROPS ID: FKOHL Phone (313) 32-21801 Pager (888) 377-6280

IBM Mail(USPMCBJZ)

Mailing Address: EVB, 1WB05

MSG FROM: TBAZIL --DRBN005 TO: SREIMERS--DRBN007 04/30/99 18:40:14

To: SREIMERS--DRBN007

cc: MREESE --DRBN005 TBAZIL --DRBN005

FROM: Tom Bazil USAET(UTC -04:00)

Subject: Prop Valve Service Part

Prop valves F2VC-2B091-BA and F2AZ-2B091-BA include the switch and
indicate service parts F2VY-2B091-B and F2AZ-2B091-BA as respective
service numbers.

F2VC-2B091-BA shows component switch F2VC-9F924-BB which has its own
service number F2VY-9F924-B. The valve block F2VC-2B382-AA/AB does not
show that it is serviceable separately in the WERS screens.

Does this answer? If not, Marty Reese has volunteered to try to buy
parts at a dealer? Please respond to Marty.

Have a good day!

Thomas E. Bazil (313) 59-47547 Lrg & Lux Car OPD Brake/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from SREIMERS--DRBN007 04/29/99 10:09 ***

To: TBAZIL --DRBN005

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Prop Valve Service Part

Tom, Does the Prop valve service part include the Brake pressure switch for the
1992 and 1993 Town Car and Crown Vic and Grand Marquis?

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG FROM: SLAROUCH--FORDNA1 TO: SREIMERS--DRBN007 05/03/99 08:43:10

To: SREIMERS--FORDMAIL Reimers, Steve (8.

From: LaRouche, Steve (S.)

Subject: RE: Results

The spring arm appears to have corroded through just above where it was attached to the terminal base.

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

—Original Message—

From: Steve Reimers [mailto:reimers@gw.ford.com]

Sent: Friday, April 30, 1999 5:17 PM

To: slarmuch@mail.ford.com

Subject: Results

In NY760055 ... movable contact separated. Does this mean the spring arm or the

contact connected to end of the spring arm?

Steve Reimers building 3 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145

MSG:FROM: MREESE --DRBN005 TO: SREIMERS--DRBN007 05/03/99 13:18:30

To: SREIMERS--DRBN007

cc: TBAZIL --DRBN005 JNEME --DRBN005

FROM: M. P. REESE USAET(UTC-04:00)

Subject: Prop Valve Service Part

STEVE, FCSD DAVE SMITH HAS REPLIED. (I WILL BUY SERVICE PARTS, ANYWAY; ONE PRESSURE SWITCH, AND ONE PROPORTIONING VALVE.)

Regards,

M. P. Reese 313-317-7142 (313-621-6675 FAX)

OPD LVC - Brakes Mail Drop 1229 BUILDING 2 24M31

*** Forwarding note from DSMITH22--DRBN006 05/03/99 12:12 ***

To: MREESE --DRBN005

cc: TBAZIL --DRBN005

FROM: Dave Smith USAET(UTC-04:00)

Subject: Prop Valve Service Part

Marty, the prop valves I looked at all come with the brake pressure switch. Brake pressure switch is available separately but prop valve cannot be purchased without the brake pressure switch.

I am consulting with Tom.

Best Regards,

Dave Smith - FCSD North American Parts Analysis - Car Brakes

Room 1103B NPDC- Livonia, MI

Ph. 734-523-5471 Fax 458-0059 - email: dsmit22@ford.com

*** Forwarding note from MREESE --DRBN005 05/03/99 10:41 ***

To: DSMITH22--DRBN006 SREIMERS--DRBN007

cc: TBAZIL --DRBN005 JNEME --DRBN005

FROM: M. P. REESE USAET(UTC-04:00)

Subject: Prop Valve Service Part

DAVE, HELP, PLEASE. I ASK THAT YOU CHECK SERVICE INFORMATION, AND CONFIRM THE REPLY THAT TOM BAZIL FORWARDED TO STEVE REIMERS.

(I THINK THAT A SERVICE USAGE CHART (FOR PROPORTIONING VALVE -2B091-, AND FOR BRAKE PRESSURE SWITCH -9P924-, FOR 1992 THROUGH 1994 MODEL TOWN CAR/CROWN VICTORIA/GRAND MARQUE) WOULD BE A HELPFUL PART OF THE ANSWER.)

STEVE REIMERS' MAIN QUESTION IS CONTAINED IN HIS NOTE, FORWARDED HERE.

STEVE, I AM BUYING A BRAKE PRESSURE SWITCH FOR A 1992 TOWN CAR AT VILLAGE

FORD. VILLAGE FORD ADVISES THAT A F2VY-9F924-A WILL BE AVAILABLE FOR PICKUP TUESDAY. PRICE IS ABOUT \$13.00. I THINK THAT THIS ANSWERS PART OF YOUR QUESTION. IF MORE PARTS ACQUIRED FROM SERVICE WILL HELP US, LET ME KNOW WHAT YOU WOULD LIKE TO SEE AND I WILL TRY.

Regards,

M. P. Reese 313-317-7142 (313-621-6675 FAX)

OPD LVC - Brakes Mail Drop 1229 BUILDING 2 24M31

*** Forwarding note from TBAZIL -DRBN005 04/30/99 18:40 ***

To: SREIMERS-DRBN007

cc: MREESE -DRBN005

TBAZIL -DRBN005

FROM: Tom Basil

USAET(UTC -04:00)

Subject: Prop Valve Service Part

Prop valves F2VC-2B091-BA and F2AZ-2B091-BA include the switch and indicate service parts F2VY-2B091-B and F2AZ-2B091-BA as respective service numbers.

F2VC-2B091-BA shows component switch F2VC-9F924-BB which has its own service number F2VY-9F924-B. The valve block F2VC-2B382-AA/AB does not show that it is serviceable separately in the WERS screens.

Does this answer? If not, Marty Reese has volunteered to try to buy parts at a dealer? Please respond to Marty.

Have a good day!

Thomas E. Basil (313) 59-47547 Lrg & Lux Car OPD Brakes/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from SREIMERS-DRBN007 04/29/99 10:09 ***

To: TBAZIL -DRBN005

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: Prop Valve Service Part

Tom, Does the Prop valve service part include the Brake pressure switch for the 1992 and 1993 Town Car and Crown Vic and Grand Marquis?

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DRBN007 03/06/99 09:13:32

To: FPORTER -FORDMAIL Porter, Fred (F.J. SREIMERS-FORDMAIL Reimers, Steve (S.

From: LaRouche, Steve (S.)

Subject: Wyko Testing

Fred and Steve: Andy Wedepohl took some converters, washers, and hexports over to ETC to see if he could document the surface topography using their Wyko tester. It turns out that this machine is not suitable for what we want to measure. The machine only scans a small area (~1mm x 1mm) and has a very limited depth of field (meaning it only works on fairly flat surfaces). It is actually used more for measuring surface finish than for measuring contour or topography. If I find another means, I'll let you know.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876

(313) 322-1614 FAX

MSG:FROM: DSTOLLST-DRBN004 TO: SREIMERS-DRBN007 03/08/99 09:19:32

To: SREIMERS-DRBN007

FROM: DALE STOLLSTEIMER

USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

I believe so. Windstar has been treated as a car by chassis

Regards,

DALE STOLLSTEIMER

*** Forwarding note from SREIMERS--DRBN007 05/07/99 17:31 ***

To: DSTOLLST--DRBN004

FROM: Steve Reimers USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Is Windstar already using it?

Steve Reimers building 5 3E008

EVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

*** Forwarding note from DSTOLLST--DRBN004 05/07/99 08:00 ***

To: SREIMERS--DRBN007

FROM: DALE STOLLSTEIMER USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Escalade and Explorer are looking at it. All cars are already using the

plunger switch.

Regards,

DALE STOLLSTEIMER

*** Forwarding note from SREIMERS--DRBN007 05/06/99 10:48 ***

To: DSTOLLST--DRBN004

cc: RALVEY --DRBN005 FPORTER --DRBN007 Porter, F.J.

SREIMERS--DRBN007 Reimers, S. J.

FROM: Steve Reimers USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Dale, Do you know of any vehicles that are planning to change from using the tr

ake pressure switch (9F924) to the brake pedal travel switch (also 9F924) (

or the Speed control Deac function?

Steve Reimers building 5 3E008

EVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

*** Forwarding note from FPORTER --DRBN007 05/05/99 18:36 ***

To: RSMIT195--DRBN005

cc: FKOHL --DRBN007 TMASTERS--DRBN005

SREIMERS--DRBN007

FROM: F. J. Porter USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Ron,

Fred Kohi (fkohl) at Vinson would be a good person to talk to about

this.

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

*** Forwarding note from RSMIT195--DRBN005 05/03/99 14:19 ***

To: FPORTER --DRBN007

cc: TMASTERS--DRBN005

FROM: Ron J. Smith USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Good Afternoon Fred,

I am passing the cost reduction idea mentioned in the attached profs note. Who

can I talk to about this idea? Thanks for your anticipated cooperation.

Regards,

Ron J. Smith

AVT/ESE/OPD

(313) 322-3288 (RSMIT195)

*** Forwarding note from MSALANTA--DRBN005 05/03/99 14:23 ***

To: LCOORNEY --DRBN007

cc: RSMIT195--DRBN005

DLAL --DRBN005

RALVEY --DRBN005

DSTOLLST--DRBN004

From: Michael Salanta

USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

I do not believe we can eliminate it, but perhaps use other means to either detect brake pedal depression, or intent to slow down or stop vehicle.

You must have a REDUNDANT means of deactivation, cannot rely on brakelamp switch only per FMVSS requirements.

The switch itself is (actual) \$1.16

wiring save (guess \$0.10 or \$0.15)

mounting pad deletion (guess \$0.10 or \$0.15)

brake pedal flag deletion (guess \$0.05).

Please advise how you wish to accomplish this.

Personally, I would not cry if the 9F924 went away.

Thanks.

Regards,

Michael Salanta

Phone: (313) 84-54007, msalanta@ford.com

Tel Fgr: (313) 795-9159, FAX: (313) 323-2923

*** Forwarding note from LCOORNEY --DRBN007 05/03/99 13:51 ***

To: MSALANTA--DRBN005 Salanta, Michael

cc: RSMIT195--DRBN005

FROM: Lee Corney, Visteon

USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Mika,

CRID # 150762 DELETE AC SWITCH XF1T-9F924-AB(Visteon Bedford) is currently an idea in the cost reduction system. (Current CrownVic/Grand Marquis).

Apparently, there is a cost reduction out there to delete a "redundant" brake cut out switch for the cruise control system.

- 1) Is this a valid idea?
- 2) What would this be worth (ball park guess)...??
- 3) Any other comments you might have?

thanks,

Lee Corney

Visteon - Large/Luxury Car Vehicle Center

Phone: 313-33-72787 Internet ID: lcorney.ford@e-mail.com

Page: Text Page or 313-752-9181

MSG:FROM: JMOULDER--DRBN004 TO: SREIMERS--DRBN007 05/15/99 11:19:53

To: SREIMERS--DRBN007 Reimons, Steve

cc: RSAYLER --DRBN006

FROM: Jack Moulder, TRMC-PVT ST. THOMAS CANET(UTC -04:00)

Subject: brake pressure switch kit - xw73-9g652-aa

Steve, I processed the concern c10971850 for subject kit. However, I was not able to issue it under ac00 activity. Please refer to your work which releases notice nb00-e-10971850-000 for parts identified. Also, your faxed copy of the h.o.m. identified c9eb-14a468-ad. I believe this should have read 'da' suffix and changed it accordingly. Please advise if you should have any questions.

Thanks.....

Regards,

Jack Moulder
TRMC-PVT ST. THOMAS 782-5420 FAX 782-5461
OUTSIDE FORD PHONE AREA CODE 519-637-5420 // FAX 519-637-5461

MSG:FROM: BPEASE -DRBN005 TO: SREIMERS-DRBN007 05/17/99 09:47:06
To: SREIMERS-DRBN007
FROM: Bruce Pease (BPEASE) USAET(UTC -04:00)
Subject: Brake Pressure Switch
Steve,

I have no information on the process or parts used for the durability vehicle
brake pressure switches. I do not have an SD from TI for the autocrimper issue.
Regards, Bruce Pease

R&VT-Adv. Brake Systems, 84-54774, fax 39-04145

*** Forwarding note from SREIMERS-DRBN007 05/13/99 10:37 ***

To: BPEASE -DRBN005
cc: SREIMERS-DRBN007 Reimers, S. J.
FROM: Steve Reimers USAET(UTC -04:00)
Subject: Brake Pressure Switch

Did the durability tests for 92 Town car use parts made on the automatic
crimper? Do you have an SD from TI for the autocrimper issue?
Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG:FROM: ACHEFF -DRBN006 TO: SREIMERS-DRBN007 05/17/99 12:00:58
To: GBALINT -DRBN006 SREIMERS-DRBN007
FROM: Amy B. Cheff USAET(UTC -04:00)
Subject: XW7Z-9G632-AA (99S15)
Currently, we have obtained the estimated cost of \$4.758 per kit from
HLM. It is not in the system as yet but will be soon.
We anticipate the dealer net to be approx. \$8.00 per kit.
(Steve: Please contact Gary Ballat regarding labor hours)
Amy Cheff 734/266-9911 FAX 734/266-1166
Recall Specialist
PROFS ID ACHEFF aheff@ford.com

MSG:FROM: WABRAMCZ-DRBN005 TO: SREIMERS-DRBN007 05/17/99 14:48:48
To: FPORTER -DRBN007 SREIMERS-DRBN007
JKAFATI -DRBN004 JNEME -DRBN005
FROM: William Abramczyk USAET(UTC -04:00)
Subject: Safety Recall 99S15

FYI
William M. Abramczyk
Automotive Safety Office-Mail: 500 Fairlane Plaza South (FPS)
Car Safety Investigations Dearborn, MI
Phone (313) 322-3284 Fax (313) 594-2268

*** Forwarding note from WBOHAN -DRBN005 05/17/99 14:19 ***

To: SBAUER -DRBN005 AEXEL -DRBN005
RWHEELC -DRBN005 DYU -DRBN005
IRENOUF -DRBN005 LMOKIENK -DRBN005
PDOHERTY -DRBN005 PWEBER -DRBN005
RNEVI -DRBN005 PANTON -DRBN005
BSLAMPK -DRBN005 LWILKINS -DRBN005
IKUNZ -DRBN005 MBRAND -DRBN006

SJOHNS18--DRBN006
LEDWARDS--DRBN005
KKRSCHK--DRBN005
DFERRETT--DRBN005

REOLASSA--DRBN005
FOAUNT --DRBN005
WABRAMCZ--DRBN005
TWILLIA4--FORDNA2
USAET(UTC -04:00)

FROM: Bill Bohan
Subject: Safety Recall 99S15
For your information.
Regards,

Bill Bohan, Production Vehicle Safety & Compliance Manager
Automotive Safety Office, ESE, Suite 500, Fairlane Plaza South
Phone (313)322-9115; Fax (313)594-2268; email wbohan@ford.com

*** Forwarding note from JBRADLEY--DRBN006 05/17/99 14:15 ***

To: MZEVALKI--DRBN005
MHUTCHI1--FORDNA2
WBODDIE --DRBN006
MJORDANI--FORDNA1
NRESSLER--FORDNA1
RGOLDSBE--DRBN006
KKOZLOWS--FORDNA1
VKOSHKAR--DRBN005
HPETRAUS--DRBN004
JOCONNOR--DRBN006
DTHURSEFI--DRBN004
CMAZZORI--DRBN007
SPARKIN3--DRBN006
KKOHS --DRBN005
JDEVINE1--DRBN004
LHANSEN --DRBN006
JPADILLA--DRBN005
BWOMAC --VISTEON

JPASKUS --DRBN005
GBEDI --DRBN004
KSHAUGHN--DRBN005
RREWEY --DRBN006
WBOHAN --DRBN005
TBEHRK1--FORDNA1
WFORD --FORDNA1
CMUHLHAU--VISTEON
KROBER11--DRBN006
KZUBIETA--DRBN006
ILOGEL --FORDNA1
IMARTIN2--DRBN005
RPARRY2--DRBN006
KWILUSH --FORDNA2
JDONALDS--DRBN006
RKRYGHER--DRBN007
JRI NTAMA--FORDNA1

cc: AONEILL --FORDNA1

USAET(UTC -04:00)

FROM: Joe Bradley
Subject: Safety Recall 99S15

Safety Recall 99S15 - 1992-93 MY Town Car, Crown Victoria and
Grand Marquis Vehicles Equipped with Speed Control - Speed
Control Deactivation Switch

The NHTSA (National Highway Traffic Safety Association) has an
open investigation into reports of engine compartment fires on
certain 1992-93 MY Town Car vehicles. The speed control
deactivation switch which is installed on certain 1992-93 MY Town
Car, Crown Victoria and Grand Marquis vehicles equipped with
speed control may develop a short in the electrical circuit that
may result in overheating, smoke and potentially a fire. A fire
is possible both when the vehicle is running and when the engine
is off. Also, the short may disable the speed control system or
cause a fuse to open. There have been 147 fires and two injuries
alleged as a result of this condition.

Approximately 123,300 1992-93 MY Town Car vehicles produced at
the Wixom Assembly Plant from November 4, 1991, through November
30, 1992, and approximately 155,300 Crown Victoria and Grand
Marquis vehicles produced at the St. Thomas Assembly Plant from
February 5, 1992, through November 30, 1992, are potentially
affected.

The Field Review Committee recommends that owners with

potentially affected vehicles be requested to return their vehicle to their dealer for disabling of the speed control deactivation switch which also disables the speed control system. When parts become available, owners will be contacted again to return their vehicle to their dealer for installation of a speed control deactivation switch kit.

Ford will notify the National Highway Traffic Safety Administration and Transport Canada that this will be handled as a safety recall.

The estimated cost of this program is \$ 19.7 million.

Regards,

Joe Bradley for:

Ann O'Neill, Director

Vehicle Service and Programs

DSC-I (Diagnostic Service Center I, Room 2)

PH: 323-8467 FAX: 845-2580

Executive Admin: Pam Harrington (PHARRIN1)

Outlook User - Please view calendar on Web

Manager, Recall and Service Programs, Vehicle Serv. & Prgms.FCSD

Joe Bradley_33-72457 FAX 84-51024 rm403 DSC2

MSG:FROM: SLAROUCH-FORDNA1 TO: SREIMERS-DREN007 04/29/99 08:51:34

To: SREIMERS-FORDMAIL Reimers, Steve (S.)

cc: FPORTER -FORDMAIL Porter, Fred (F.I. SLAROUCH-FORDNA1 LaRouche, Steve (S)

From: LaRouche, Steve (S.)

Subject: RE: Brake Switch

Steve: I should have it to you today; I have a few more entries to make. I received several switches from F-150s. Do you know what the background is on those switches? I also talked to some more people in our polymers section and found that there may be one or two ways for us to quantify the effects of brake fluid on the Kapton. One is called DMA, which can be used to determine the modulus of the material; the other, which is called DSC, can determine the effects indirectly by establishing the glass transition temperature. (Don't ask me what all this stuff means, because it's a mystery to me). I'm going to round up some samples and have them see what they can do with them. Can you get us some new switches so we can remove the Kapton seals? I'd like to use material out of new switches because it has been deformed. Some uninstalled Kapton may also be useful so we can see the effects of deforming the Kapton around the converter and washer.

Steve LaRouche (SLAROUCH)

Metallurgy Section, Central Laboratory, Room N410

(313) 845-4876 (313) 322-1614 FAX

—Original Message—

From: Steve Reimers [mailto:sreimers@gsf.ford.com]

Sent: Wednesday, April 28, 1999 6:59 PM

To: slarouch@mail.ford.com

Subject: Brake Switch

Steve, thanks for the updates. Can I get the updated findings Thursday?

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

*** Forwarding note from SLAROUCH-FORDNA1 04/23/99 16:28 ***

To: SREIMERS-FORDMAIL Reimers, Steve (S.)

From: LaRouche, Steve (S.)

Subject: Brake Switch

Steve: Here are the updated switch log and checklist. I am working on expanded results spreadsheet, incorporating observations on the connectors and wires. I hope to have that completed by Tuesday next week. In addition to the results already reported on the findings spreadsheet you already have,

<<chklist.xls>> <<SwitchLog.xls>>

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

Attachments sent separately:

Data Type	File Name
BINARY	CHKLIST.XLS_PC
BINARY	SWITCHLOG.XLS_PC

MSG:FROM: MSALANTA--DRBN005 TO: SREIMERS--DRBN007 05/04/99 11:00:09

To: DSTOLLST--DRBN004

cc: RALVEY --DRBN005 WKLOSEK --DRBN005
SREIMERS--DRBN007

From: Michael Salanta USAET(UTC -04:00)

Subject: BOO switch Failures
FYI

I meant to cc you initially.

Regards,

Michael Salanta

Phone: (313) 84-54007, msalanta@ford.com

Txt Pgr: (313) 795-9159, FAX: (313) 323-2923

*** Forwarding note from MSALANTA--DRBN005 05/04/99 10:55 ***

To: SREIMERS--DRBN007

cc: RALVEY --DRBN005 WKLOSEK --DRBN005
From: Michael Salanta USAET(UTC -04:00)

Subject: BOO switch Failures

Steve,

the core switch engineer you should contact for this one is

Dale Stollsteimer, x-57696, profile DSTOLLST.

Dale please get in touch with Steve. Thanks.

Regards,

Michael Salanta

Phone: (313) 84-54007, msalanta@ford.com

Txt Pgr: (313) 795-9159, FAX: (313) 323-2923

*** Forwarding note from SREIMERS--DRBN007 05/04/99 10:44 ***

To: MSALANTA--DRBN005

FROM: Steve Reimers USAET(UTC -04:00)

Subject: BOO switch Failures

I see that Ray is away. Please read note below.

Steve Reimers building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS reimers@ford.com fax 39-04145 >

*** Forwarding note from SREIMERS--DRBN007 05/04/99 10:36 ***

To: RALVEY --DRBN005 Alvey, R. S. (Ray)

cc: SREIMERS--DRBN007 Reimers, S. J.

FROM: Steve Reimers USAET(UTC -04:00)

Subject: BOO switch Failures

Ray, I need info on the types of failures and failure rates for the BOO switch in all applications (segregate Speed control applications if possible). You may recall I am working an underhood fire issue. One aspect of the solution rests heavily on the BOO switch reliability. This topic will be discussed at a meeting with Jack Paskus and Ann ONeil on this coming Thursday. The pertinent data is failure versus time in service and versus miles for each type of failure. We may need support from you in the meeting. Probably late afternoon, thanks.

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: DSTOLLST--DRBN004 TO: SREIMERS--DRBN007 05/04/99 12:51:23
To: SREIMERS--DRBN007
FROM: DALE STOLLSTEIMER USAET(UTC -04:00)
Subject: BOO switch Failures
we are at about .05 R/1000 @ 3/36.

Regards,
DALE STOLLSTEIMER

*** Forwarding note from MSALANTA--DRBN005 05/04/99 11:00 ***

To: DSTOLLST--DRBN004
cc: RALVEY --DRBN005 WKLOSEK --DRBN005
SREIMERS--DRBN007
From: Michael Salanta USAET(UTC -04:00)
Subject: BOO switch Failures
FYL

I meant to cc you initially.

Regards,
Michael Salanta
Phone: (313) 84-54007, msalanta@ford.com
Txt Pgr: (313) 795-9159, FAX: (313) 323-2923

*** Forwarding note from MSALANTA--DRBN005 05/04/99 10:55 ***

To: SREIMERS--DRBN007
cc: RALVEY --DRBN005 WKLOSEK --DRBN005
From: Michael Salanta USAET(UTC -04:00)
Subject: BOO switch Failures
Steve,

the core switch engineer you should contact for this one is
Dale Stollsteimer, x-57696, profs DSTOLLST.
Dale please get in touch with Steve. Thanks.

Regards,
Michael Salanta
Phone: (313) 84-54007, msalanta@ford.com
Txt Pgr: (313) 795-9159, FAX: (313) 323-2923

*** Forwarding note from SREIMERS--DRBN007 05/04/99 10:44 ***

To: MSALANTA--DRBN005
FROM: Steve Reimers USAET(UTC -04:00)
Subject: BOO switch Failures

I see that Ray is away. Please read note below.

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

*** Forwarding note from SREIMERS--DRBN007 05/04/99 10:36 ***

To: RALVEY --DRBN005 Alvey, R. S. (Ray)

cc: SREIMERS-DRBN007 Reimers, S. J.
FROM: Steve Reimers USAET(UTC -04:00)

Subject: BOO switch Failures

Rey, I need info on the types of failures and failure rates for the BOO switch in all applications (segregate Speed control applications if possible). You may recall I am working an underhood fire issue. One aspect of the solution rests heavily on the BOO switch reliability. This topic will be discussed at a meeting with Jack Paskus and Ann O'Neil on this coming Thursday. The pertinent data is failure versus time in service and versus miles for each type of failure. We may need support from you in the meeting. Probably late afternoon. Thanks,

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG:FROM: DSTOLLST-DRBN004 TO: SREIMERS-DRBN007 05/05/99 08:31:05

To: SREIMERS-DRBN007

FROM: DALE STOLLSTEIMER USAET(UTC -04:00)

Subject: BOO switch Failures

There really is not a predominant failure. But if I had to say one, it would be contact wear, and the failure is open circuit.

Regards,

DALE STOLLSTEIMER

*** Forwarding note from SREIMERS-DRBN007 05/04/99 13:38 ***

To: DSTOLLST-DRBN004

*** Reply to note of 05/04/99 12:51

FROM: Steve Reimers USAET(UTC -04:00)

Subject: BOO switch Failures

What is the predominant failure mode? What is R/1000 at 5,6, and 7 years?

Thanks,

Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 ;>

MSG:FROM: FPORTER-DRBN007 TO: SREIMERS-DRBN007 05/05/99 17:46:46

To: SREIMERS-DRBN007

FROM: P. J. Porter USAET(UTC -04:00)

Subject: (U)

Please send Andy and Steve at TI the characteristics of the brake pressure with run out.

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

MSG:FROM: TBAZIL-DRBN005 TO: SREIMERS-DRBN007 05/05/99 17:52:19

To: SREIMERS-DRBN007 JNEME-DRBN005

MHAFANOW-DRBN005

cc: TBAZIL-DRBN005

FROM: Tom Bazil USAET(UTC -04:00)

Subject: Verify BP Switch out date

Mid October for FN145, Late October for EN114. I don't know exact dates but will look.

Mike, Do you recall or should I ask TRMC.

Have a good day!

Thomas E. Bazil (313) 39-47547 Lrg & Lux Car OPD Brakes/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from JNEME --DRBN005 05/05/99 16:17 ***

To: THAZIL --DRBN005

cc: SREIMERS--DRBN007

FROM: Joseph S. Neme USAET(UTC -04:00)

SUBJECT: Verify BP Switch out date

Do you recall?

Joseph S. Neme

LVC - Safety/Recall

Phone: 39-08133, Fax:62-18147, E-Mail:jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpager:313-795-7003

*** Forwarding note from SREIMERS--DRBN007 05/05/99 09:05 ***

To: JNEME --DRBN005

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Verify BP Switch out date

When was 1998.25 Job#17

Steve Reimers Building 5 3E008

RVT Chassis E/E System Applications mail drop 5011

39-03286 SREIMERS sreimers@ford.com fax 39-04145 :-

*** Forwarding note from JNEME --DRBN005 05/05/99 08:25 ***

To: SREIMERS--DRBN007

FROM: Joseph S. Neme USAET(UTC -04:00)

SUBJECT: Verify BP Switch out date

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax:62-18147, E-Mail:jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpager:313-795-7003

*** Forwarding note from THAZIL --DRBN005 05/05/99 08:16 ***

To: JNEME --DRBN005

FROM: Tom Bazil USAET(UTC -04:00)

Subject: Verify BP Switch out date

1998.25 Job #1

Have a good day!

Thomas E. Bazil (313) 39-47547 Lrg & Lux Car OPD Brakes/Veh Supv
Drop 1229-LVC, Cube 24-H36, fax 62-16675, pager (888) 375-6449

*** Forwarding note from JNEME --DRBN005 04/28/99 15:12 ***

To: THAZIL --DRBN005

cc: SREIMERS--DRBN007

SREIMERS--DRBN007

FROM: Joseph S. Neme USAET(UTC -04:00)

SUBJECT: Verify BP Switch out date

Tom... can you help provide date?I can't recall if it was 95 or 98... thanks

Joseph S. Neme

LVC - Safety

Phone: 39-08133, Fax:62-18147, E-Mail:jneme@ford.com

Location: MD1255/Cube 2M37, Building #2 Textpager:313-795-7003

*** Forwarding note from SREIMERS--DRBN007 04/28/99 11:58 ***

To: JNEME --DRBN005

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Verify BP Switch out date

Joe, Need to verify the build date when we stopped using the Brake pressure

switch and started using the Pedal travel switch on TC CV and GM.
Steve Reimers building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145 >

MSG:FROM: KZUBIETA-DRBN006 TO: SREIMERS-DRBN007 05/06/99 19:08:15
To: THAZIL -DRBN005 JSAKIOKA-DRBN006
PVEGH -DRBN005 FKOHL -DRBN007
DFINLEY -FORDNA1 RNEVI -DRBN005
RENOLISI-DRBN005 JPASKUS -DRBN005
TDONOVAN-DRBN005 FPORTER -DRBN007
SREIMERS-DRBN007 JKAFATI -DRBN004
TMASTERS-DRBN005 CTESKE -DRBN005
WABRAMCZ-DRBN005

FROM: Kelly Zubietta USAET(UTC -04:00)

Subject: New Number "99S15" Assigned on May 6, 1999

Regards,

Kelly Zubietta

PCSD, Recall/Service Programs, Recall/ONP Coordinator

313-248-8817 Fax: 313-845-1024 Internet: KZUBIETA@Ford.com

*** Forwarding note from KZUBIETA-DRBN006 05/06/99 19:04 ***

To: Recall Number Assignment Distribution

FROM: Kelly Zubietta USAET(UTC -04:00)

Subject: New Number "99S15" Assigned on May 6, 1999

Safety Recall 99S15 has been assigned to 1992-93 Town Car, Crown Victoria and
Grand Marquis Vehicles Equipped with Speed Control - Brake Pressure Switch
(99X32).

14-D Author: Tim Donovan

The 14-D Team/Author will be responsible for reviewing Prevent Action closure
with the Engineering Directors on July 30, 1999, at the Engineering Directors'
Campaign Prevent Meeting.

This review will focus on implementation of Prevent Action (step 13) requiring
evidence of incorporation and overall quality of event including systemic

root cause and appropriate prevent action selection to capture lessons learned.

Please contact Dave Craig (DCRAIG) upon receipt of this notice for further
information and direction.

Regards,

Kelly Zubietta

PCSD, Recall/Service Programs, Recall/ONP Coordinator

313-248-8817 Fax: 313-845-1024 Internet: KZUBIETA@Ford.com

MSG:FROM: DSTOLLST-DRBN004 TO: SREIMERS-DRBN007 05/07/99 08:00:04

To: SREIMERS-DRBN007

FROM: DALE STOLLSTEIMER USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch

Econoline and Explorer are looking at it. All cars are already using the
finger switch.

Regards,

DALE STOLLSTEIMER

*** Forwarding note from SREIMERS-DRBN007 05/06/99 10:48 ***

To: DSTOLLST-DRBN004

cc: RALVEY -DRBN005

FPORTER -DRBN007 Porter, F.J.

SREIMERS-DRBN007 Reimers, S. J.

FROM: Steve Reimers

USAET(UTC -04:00)

Subject: MCR Idea: Delete Cruise Control De-Activate Switch
Dale, Do you know of any vehicles that are planning to change from using the brake pressure switch (9P924) to the brake pedal travel switch (also 9P924) or the Speed control Deac function?

Svein Reinert building 5 3E008
RVT Chassis E/E System Applications mail drop 5011
39-03286 SREIMERS sreimers@ford.com fax 39-04145
*** Forwarding note from FPORTER -DRBN007 05/05/99 18:35 ***
To: RSMIT195-DRBN005
cc: FKQHL -DRBN007 TMASTERS-DRBN005
SREIMERS-DRBN007

FROM: F. J. Porter USAET(UTC -04:00)
Subject: MCR Idea: Delete Cruise Control De-Activate Switch
Ron,

Fred Kohl (fkohl) at Visteon would be a good person to talk to about this.

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
*** Forwarding note from RSMIT195-DRBN005 05/05/99 14:19 ***

To: FPORTER -DRBN007
cc: TMASTERS-DRBN005
FROM: Ron J. Smith USAET(UTC -04:00)
Subject: MCR Idea: Delete Cruise Control De-Activate Switch
Good Afternoon Fred,

I am pursuing the cost reduction idea mentioned in the attached profit note. Who can I talk to about this idea? Thanks for your anticipated cooperation.

Regards,
Ron J. Smith
AVT/EESE/OPD

(313) 322-3288 (RSMIT195)
*** Forwarding note from MSALANTA-DRBN005 05/03/99 14:23 ***
To: LCORNEY -DRBN007

cc: RSMIT195-DRBN005 DLAL -DRBN005
RALVEY -DRBN005 DSTOLLST-DRBN004

From: Michael Salanta USAET(UTC -04:00)
Subject: MCR Idea: Delete Cruise Control De-Activate Switch
I do not believe we can eliminate it, but perhaps use other means to either detect brake pedal depression, or intent to slow down or stop vehicle. You must have a REDUNDANT means of deactivation, cannot rely on brakelamp switch only per FMVSS requirements.

The switch itself is (actual) \$1.16
wiring save (guess \$0.10 or \$0.15)
mounting pad deletion (guess \$0.10 or \$0.15)
brake pedal flag deletion (guess \$0.05).

Please advise how you wish to accomplish this.
Personally, I would not cry if the 9P924 went away.
Thanks.

Regards,
Michael Salanta
Phone: (313) 84-54007, msalanta@ford.com
Txi Pgr: (313) 795-9159, FAX: (313) 323-2923

*** Forwarding note from LCORNEY -DRBN007 05/03/99 13:51 ***

To: MSALANTA-DRBN003 Salantz, Michael
cc: RSMIT195-DRBN003
FROM: Leo Corney, Visteon USAET(UTC -04:00)
Subject: MCR Idea: Delete Cruise Control De-Activate Switch
Mike,

CRID # 150762 DELETE AC SWITCH XF1T-9F924-AB(Visteon Bedford)
is currently an idea in the cost reduction system. (Current CrownVic/Grand
Marquis).

Apparently, there is a cost reduction out there to delete a "redundant"
brake cut out switch for the cruise control system.

- 1) Is this a valid idea?
- 2) What would this be worth (ball park guess)...??
- 3) Any other comments you might have?

thanks,

Leo Corney

Visteon - Large/Luxury Car Vehicle Center

Phone: 313-33-72787 Internet ID: lcorney.ford@e-mail.com

Page: Text Page or 313-752-9181

MSQ:FROM: MHARDIE -DRBN003 TO: SREIMERS-DRBN007 05/07/99 14:24:48

To: SREIMERS-DRBN007

FROM: Mike Hardie USAET(UTC -04:00)

Subject: Brake Pressure Returns

Sorry for the long time to get back with you on this one. I looked up the part
number and found that it was being retrieved, but no parts were coming in. On
further investigation, I found that it was only coming in as a "special"
program - only from a very few selected dealers. (Thus no parts are coming
in.)

As far as requesting parts, there is a list of people responsible for getting
aparts in. This person responsible for brake parts is Gary Berlin (GBERLINO)
for electronic parts it is Joe Lizbinski (JLIZBINS.) Either of these should be
able to direct you to the right source to get the parts in short order.

I recommend that parts be requested for several vehicle lines. As time goes
on, I think you will probably find needs for several lines. All the parts come
in with a significant amount of data, claim number, VIN, mileage, customer
complaint, dealership, etc. You can also request special processing in terms
of mileage requirements (only parts greater than 15,000 miles for example) and
many other parameters.

The part number that you specified above appears to be an engineering part
number. You will need a service part number to complete the action requested.
I think the correct service part should be F51Z-9F924-A.

Any more questions, data required, etc. - let me know.

Regards,

Mike Hardie (313)845-7279

Quality Center

*** Forwarding note from SREIMERS-DRBN007 05/03/99 17:35 ***

To: MHARDIE -DRBN003

cc: SREIMERS-DRBN007 Reimers, S. J.

FROM: Steve Reimers USAET(UTC -04:00)

Subject: Brake Pressure Returns

Mike, Can you help us get parts back from the field F58A-9F924-AA(windstar) or
do you know who we should contact? We would like any model years replaced for
any reason. Copy of service sheet with each or at least a tag with model year
and mileage. These parts need to be carefully pack so that they don't leak brak

*** End automated email ***

Originator:
Brispan

Page 160 of 160

Date Issued:
Date Revised: 08/01/98

3713 6657

* Note printed by ZDEERING on 27 May 1999 at 16:18:57 *

From: JMCINERN--DREN005
To: JPASKUS --DREN005
CC: JNEMS --DREN005
ZDEERING--DREN005

Date and time 04/08/99 13:42:05

WBOHAN --DREN005

*** Reply to note of 04/08/99 13:17

FROM: John McInerney

USART(UTC -04:00)

Subject: Town Car Underhood Fires

I will be meeting with Joe Neme at 2PM and will work with him to set the
Tech Review/FRCas quickly as possible.

Regards,

John McInerney:Tech Specialist-Safety,LVC-OPD Safety and Police
Engineering. 313-322-0276, Pager:313-795-9243 or TEXTPAGE "Cel"
phone:734-765-7834,"FORD-Building the Safest Cars in the World"

Ford Money Market Account

Are You Interested in Higher Interest?

11:45

PCS. CALL ME REGARDING

'95 WINDSTAR FUEL TANK

CRAX. TXK!!

Jim Ostrowski

Rates: 1-800-462-2614 Enrollment Package: 1-800-580-4778

X-43874

26000 switches
4000 (1) only 5 day
is make 5000/day
Parts reqd.

FSVB-14464AA
connector and
E9EB-14468DA-wedge

ATTACHMENT II
PAGE 1 OF 2
SAFETY RECALL 98915

BRAKE PRESSURE 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 brake pressure 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.

ADD LOCATION OF SWITCH

PROCEDURE

1. Install a memory saver and disconnect the negative battery terminal.
2. Disconnect the electrical connector from the brake pressure switch.
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 1.

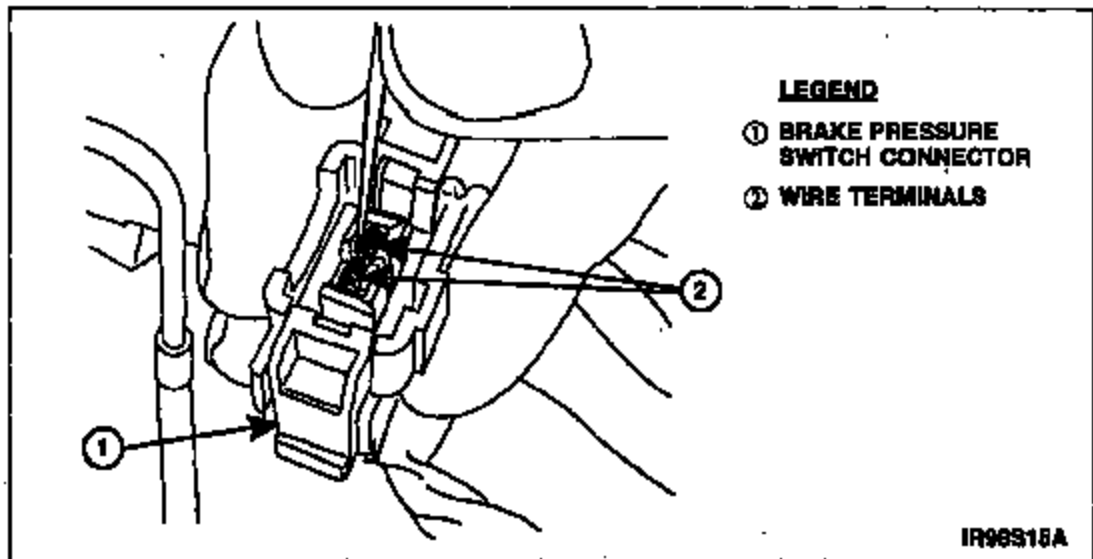


FIGURE 1

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).

CPA © 1998 FORD MOTOR COMPANY
DEARBORN, MICHIGAN 48121
608

LS. XXXX

SHEET 1 OF 2

BRAKE PRESSURE SWITCH AND
CONNECTOR REPLACEMENT

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ITE

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△DRAFT △DRAFT △DRAFT △DRAFT △DRAFT

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 brake pressure switch from the parts kit.
7. Remove the old brake pressure switch.
8. Fill the new brake pressure switch with High Performance DOT 3 Brake Fluid and install the brake pressure switch. Tighten the switch to 18 Nm (13 lb-ft).
9. Attach the electrical connector to the brake pressure 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.


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 DEARBORN, MICHIGAN 48121
 500

LS. XXXX

SHEET 2 OF 2

**BRAKE PRESSURE SWITCH AND
CONNECTOR REPLACEMENT**

RTS

ADRAFT ADRAFT ADRAFT ADRAFT

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ADRAFT ADRAFT ADRAFT ADRAFT ADRAFT

DESCRIPTION (Continued)

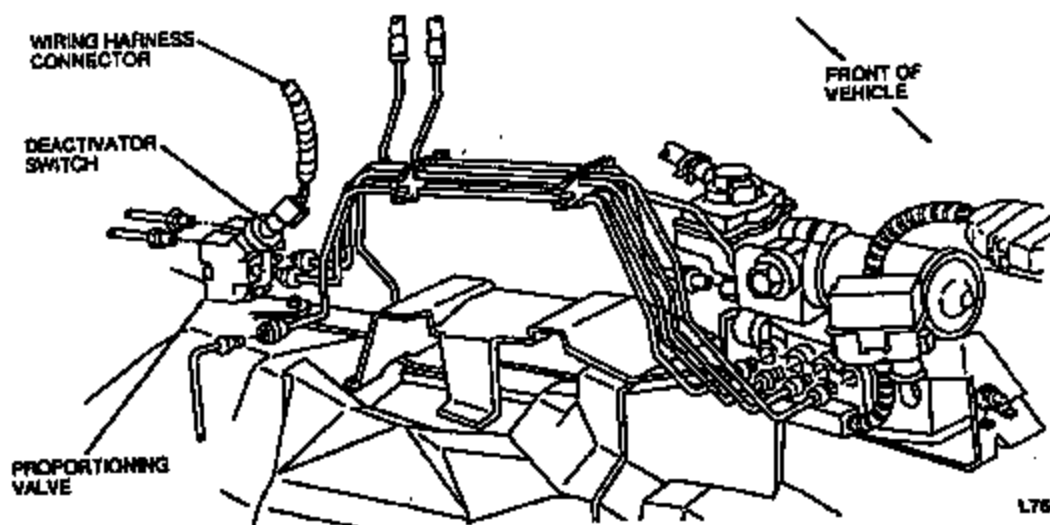
Item	Part Number	Description
1A	HE10958-S56	Screw
2	—	Actuator Cable Adjuster Fitting
3	9A526	Speed Control Actuator

(Continued)

Item	Part Number	Description
4	—	Accelerator Cable
5	9C736	Speed Control Servo
6	9C809	Speed Control Bracket Plate
A		Tighten to 3-4 N-m (27-35 lb-in)

Deactivator Switch

The deactivator switch is a normally closed switch and replaces the vacuum dump valve as a redundant safety feature in the system. Normally when the brake pedal is depressed, an electrical signal from the brakelamp circuit to the speed control servo will disengage the system. Under increased brake pedal efforts (6-10 lbs, engine running), the deactivator switch mounted in the brake line will open and remove power to the speed control servo clutch, releasing the throttle independent of the speed control servo control. The deactivator switch is located at the rear brake proportioning valve (ABS brakes) or junction block (Non-ABS brakes) below the brake booster.



L7665-B

Vehicle Speed Sensor (VSS)

The vehicle speed sensor (VSS)(9E731) is mounted to the transmission.

OPERATION

System Activation

To operate the speed control system, the engine must be running and vehicle speed must be greater than 48 km/h (30 mph). The system is activated by pressing the ON switch in the steering wheel. Then the operator must depress and release the SET/ACCEL switch. Current speed will then be maintained until a new speed is set, the brake pedal is depressed or the OFF switch is depressed.

REMOVAL AND INSTALLATION (Continued)

3. Install three screws that retain the contact assembly and tighten to 2-3 N-m (18-26 lb-in). Remove tape from contact assembly.
4. Route the contact assembly harness down the column and connect to main wiring.
NOTE: If a new contact assembly is installed, remove the lock mechanism after assembly is secured to column.
5. Install steering column shroud.
6. Install lower trim panel.
7. Install tilt lever if equipped.
8. Position steering wheel on steering shaft and install new steering wheel retaining bolt. Tighten to 31-45 N-m (23-33 lb-ft).
NOTE: Route contact assembly wiring through steering wheel as wheel is being positioned.

9. Connect speed control horn connector to clockspring contact assembly connector.
CAUTION: Make sure wires are positioned that no interference is encountered when installing air bag module.
10. Position air bag module on steering wheel and connect clockspring contact connector.
11. Install air bag module on wheel and install four and washer assemblies. Tighten to 4-5.8 N-m (35-50 lb-in) for Town Car and 2.7-3.7 (24-32 lb-in) for Crown Victoria / Grand Marquis.
12. Connect battery ground cable and air bag bag power supply. Refer to Section 01-208.
13. Verify air bag warning indicator.

Deactivator Switch

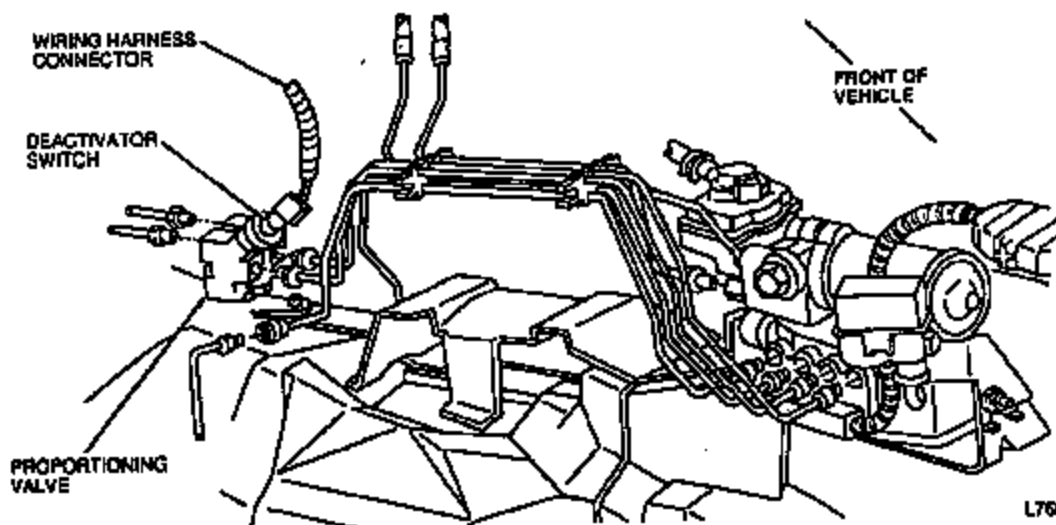
Removal

1. Remove electrical connector from switch.
2. Unscrew switch and remove from brake proportioning valve or junction block.

Installation

1. Screw switch into proportioning valve or junction block. Tighten to 15-20 N-m (12-14 lb-ft).
2. Attach electrical connector.
3. Bleed brake lines as outlined in Section 06-09 ABS brakes, or Section 06-08, non-ABS brake.

Proportioning Valve Location



Facsimile Transmittal

To: *Z. Desiring*
J. McInerney
J. Neme

Location

Room

Date

12/9

No. of Pages
(including this Transmittal)

2

From:

B. Abramczyk

Location

Room

FAX No.

06002

Telephone No.

Comments:

FAX No.

Telephone No.

23284

Build dates attached...

* Note printed by JMCINERN on 18 Dec 1998 at 16:14:05 *

From: JNEME --DRBN005
To: JMCINERN--DRBN005

Date and time 12/18/98 13:40:56

FROM: Joseph S. Neme
SUBJECT: Brake Pressure Switch Analysis
Please cover for me... thanks

USABT(UTC -05:00)

Joseph S. Neme
LVC- Chassis: SN95 - Wheels/Tires, Steering, Carline
Phone: 39-08133, Fax:39-07281, E-Mail:jneme@ford.com
Location: MD1255/Cuba 2M17, Building #2 Textpager:313-795-7003
*** Forwarding note from FPORTER --DRBN007 12/18/98 13:19 ***
To: WABRAMCZ--DRBN005 HEGEN --DRBN007 Barry Egen
RANGLIS1--DRBN005 JEVANS8 --DRBN005
DGOEL --DRBN005 JGREGOIR--DRBN005
KGRIBBLE--DRBN005 NLAPPOINT--DRBN005
SLAROUCH--FORDNA1 JMCINERN--DRBN005
JNEME --DRBN005 RNEVI --DRBN005
OSTEVEN1--DRBN005 CTHOMAS5--DRBN005
HWELFER3--DRBN005

FROM: F. J. Porter

USABT(UTC -05:00)

Requester: Frederick J. Porter
Date to be scheduled: 12/22/98
Starting time: 10:00AM USABT
Ending time: 12:00PM USABT

Location: Central Labs - Lobby Conference Room

Subject: Brake Pressure Switch Analysis

Purpose: Review brake pressure switch operation with Texas Instrument
Review available data and determine next steps.

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

~~BOB PORTER~~ SWEN MTRG 12-16-98

ROB ENGLISH	AUT-ESSE-ES	73225	REXUS1
NORM LAPOINTE	AVT-DES. ANAL.	42686	N LAPOINT
Jim Gregoire	AVT ESE OPE	79962	J GREGOIR
FRED PORTER	AVT-EESE	53722	F PORTER
WILLIAM ABRAHAMSKY	ASD	23284	WABRAMSKY
JOE NOBLE	LUL	68133	J NOBLE
CHRIS MILLERLEY	LUL-SAFETY	32 22 276	J MILLERLEY

 * Note printed by JMCINERN on 17 Dec 1998 at 07:10:58 *

From: FPORTER --DRBN007 Date and time 12/17/98 00:48:51
 To: WABRAMCZ--DRBN005 RCLAYTON--DRBN005
 BEGEN --DRBN007 RENGLIS1--DRBN005
 JEVANS8 --DRBN005 JGREGOIR--DRBN005
 KGRIBBLE--DRBN005 NLAPPOINT--DRBN005
 JMCINERN--DRBN005 JNEME --DRBN005
 RNEVI --DRBN005 GSTEVEN1--DRBN005
 CTHOMAS5--DRBN005 DGOEL --DRBN005
 HWELFER3--DRBN006

FROM: F. J. Porter USAET(UTC -05:00)
 Subject: (U)

1992-1993 Town Car F2VC-9F924-A Brake Pressure Switch Investigation

TEAM:

AVT EESE Chassis Electronics:	Fred Porter	x84-53722	fporter
AVT Chassis Engineering:	Joe Evans	x32-23832	jevans8
	Barry Egen	x32-39512	begen
AVT EESE BOS:	Rob English	x33-73225	renglis1
AVT Design Analysis:	Norm LaPointe	x59-42686	nlapoint
AVT EESE OPE:	Jim Gregoire	x33-79962	jgregoir
EESE Prod. Veh. Safety:	William Abramczyk	x32-23284	wabramcz
	Ray Nevi	x59-47688	rnevi
Large Luxury VC:	Joe Neme	x39-08133	jneme
	Ron Clayton	x32-24025	rclayton
Large Luxury VC Safety:	John McInerny	x32-20276	jmcinern
AVT Materials Engineering:	Ken Gribble	x32-38638	kgribble
	Clark Thomas	x59-41313	cthomas5
	Greg Stevens	x32-36686	gsteven1

INFORMATION:

NETSA letter: PE98-055

Vehicles identified: 21 initially identified.
 20 additional vehicles reported since publication of the investigation.

Warranty: A total of 89 warranty claims are identified in AWS on the F2VY-9F924-A for 1992 and 1993 Town Cars.

Two CQIS reports (WJIAA135 & VDUA322) mention underhood fire in connection with the brake pressure switch.
 WJIAA135 occurred at 51,500 miles.
 VDUA322 occurred at 56,802 miles.

Supplier: The pressure switch was manufactured by Texas Instruments. The switch was purchased in assembly with the brake proportioning valve bought from Surfaces.

Contacts: Surfaces - Mike Thomas (248)543-6520 [HILITE Industries]
 TI - Andy McGuirk (508)236-3080.

Function: The brake pressure switch is a redundant switch for turning off the

speed control function.

ON-GOING ACTIVITY:

Norm LaPointe and Clark Thomas will meet with engineers from Central Laboratory to X-ray one part on 12/17/1998.

QUESTIONS: (in no particular order)

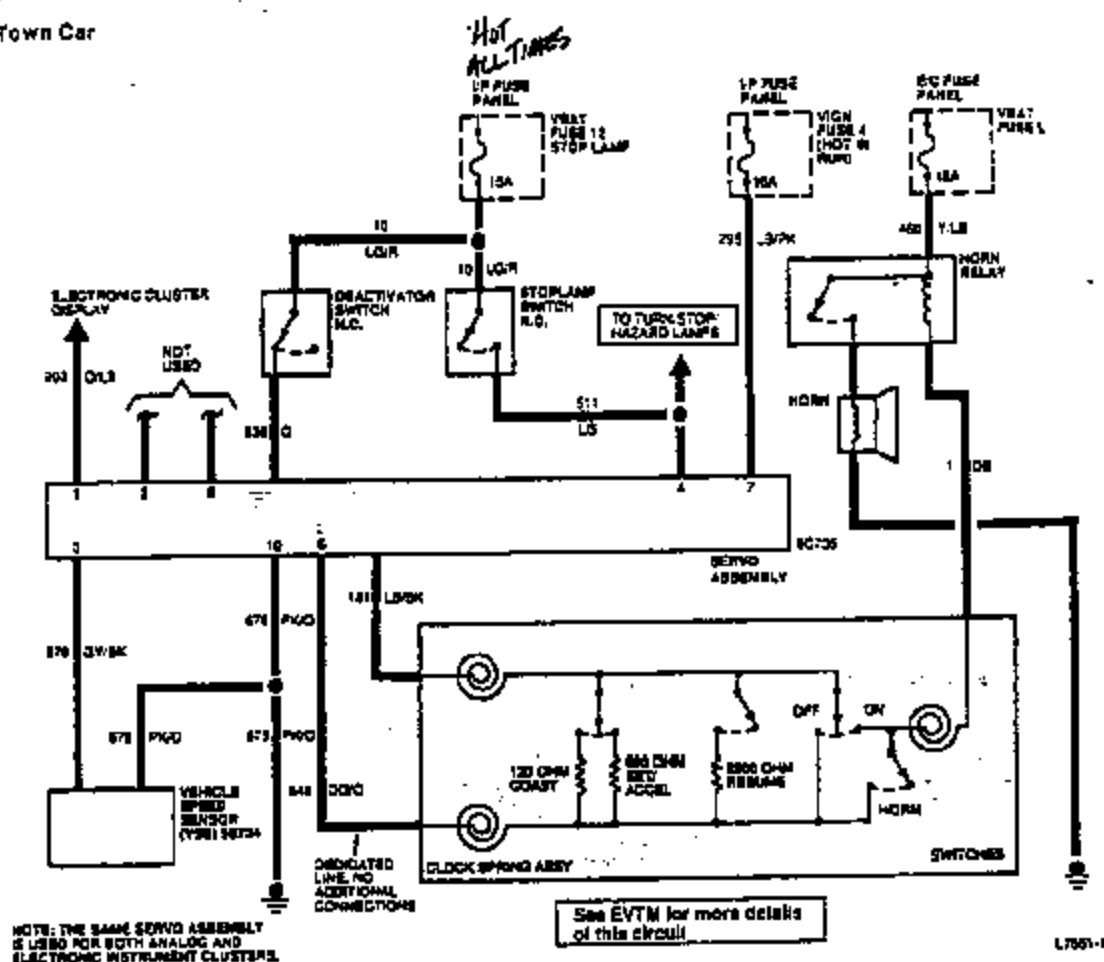
- 1) What is the normal current in the brake pressure switch?
- 2) Was cruise control standard on Town Car in 1992 and 1993?
- 3) Under what circumstances is brake fluid flammable?
- 4) What is the repair history for vehicles that have exhibited a problem?
- 5) What other vehicles use this brake pressure switch? What are their electrical configurations?
- 6) Is this switch still in use? If not, why not? If so, what design changes have been implemented since 1992/1993?
- 7) What fault codes are stored if the brake pressure switch fails?

Regards,
Fred Porter OV - fporter fporter@ford.com
Chassis E/E Systems Applications (313) 845-3722
Bldg 5 - Mail Drop 5030 - Cubicle 3E004 fax: 390-4148

- (STATIONARY TERMINAL CABLE)
- ① SWITCH TERMINALS & INTERNAL PORTION OF SWITCH CAN FORM CORROSION.
 - ② T.O. TO ANALYZE A SUSPECT PART.
 - ③ NORYL GTX 130 - MATERIAL HOUSING

DIAGNOSIS AND TESTING (Continued)

Town Car



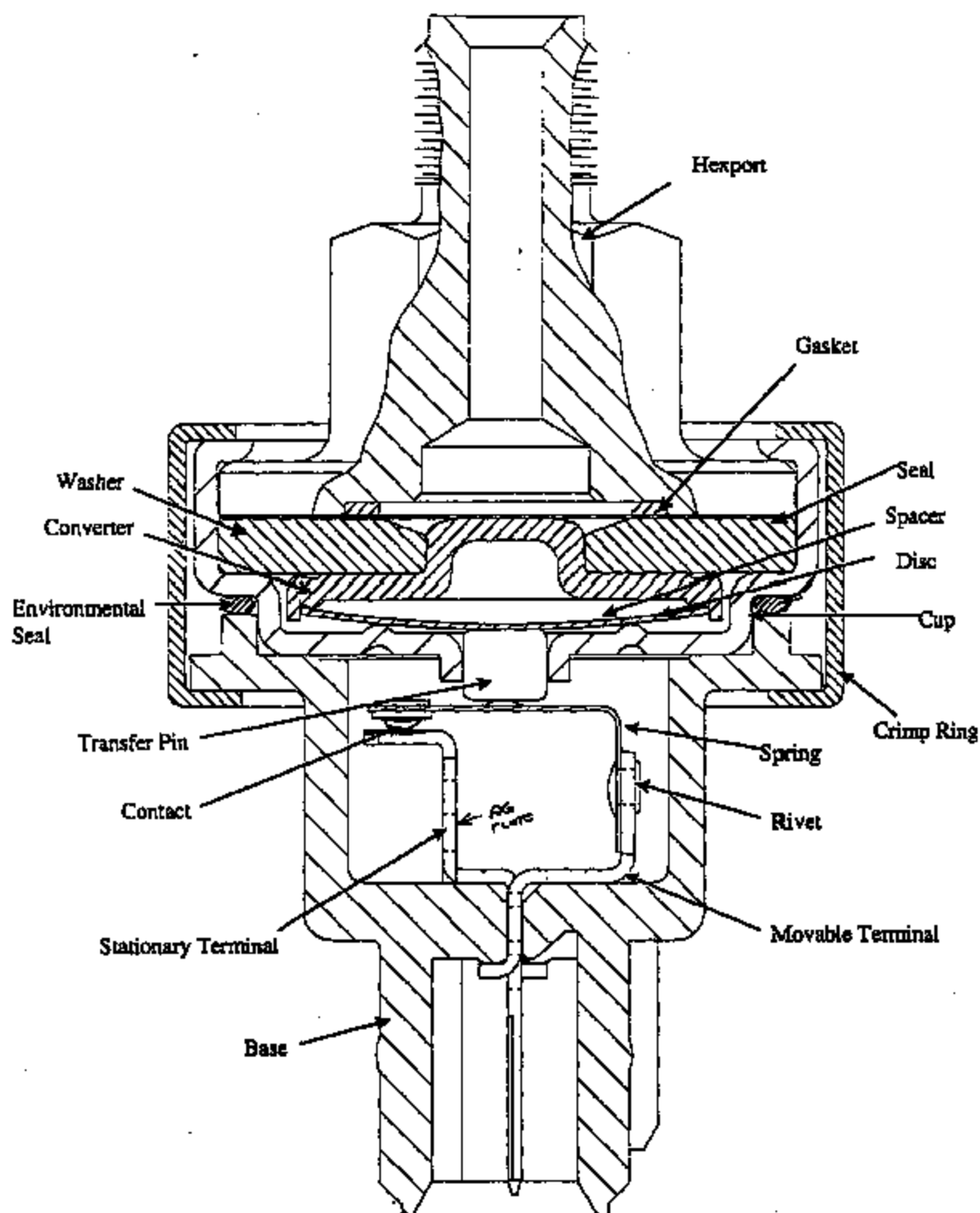
Brake Pressure Switch Review

12/21/98

NAME	ORGANIZATION	PHONE
FRED PORTER	FORD AVT EESC	(313) 84-53722
JOLA LOTT	AVT NAT'L ENGINEERING	(313) 24-83641
ZANDRA DEERING	LVC - SAFETY ENG'G	(313) 57-41663
Jim Gregoire	AVT EESC OPD	(313) 33-79962
STEVE LaROUCHE	FORD Central Labs	313 8454876
NORMAN LAPOINTE	AVT-DES. ANAL.	313 39/42686

ROBERT SHARPE	FIELD SALES	T.I.
BRYAN DAGUE	DES ENG SUP	T.I.

Hydraulic Pressure Switch Cross Section



* Note printed by ZDERRING on 5 Jan 1999 at 09:48:49 *

From: MINTRAIN--DRBN005
To: LVC Employees
cc: PDY2K --DRBN005

Date and time 01/04/99 09:40:33
MINTRAIN--DRBN005

FROM: M Intrain
Subject: (1) MINI-TRAINING CLASSES THIS WEEK IN BLDG 2
The schedule for mini-training classes this week in Bldg 2 includes:

TUESDAY JAN 5

Y2K (OnMark) - 8:30 am to 9:30 am in Conf Rm 2GC23A
Y2K (OnMark) - 10:00 am to 11:00 am in Conf Rm 2GC23A

WEDNESDAY JAN 6

Y2K (OnMark) - 9:00 am to 10:00 am in Conf Rm 22G14
Digital Buck - 10:30 am to 11:30 am in Conf Rm 22G14

Class descriptions follow:

OnMark 2000 is software designed to help scan your data files for potential Year 2000 problems. Training will overview the Year 2000 compliance process, demonstrate how to operate the OnMark 2000 application, discuss how to fix data files, and how to find Y2K info on the Ford Web.
* Classes are held on a first come, first served basis.
* Training materials will be distributed.
* For any questions, contact your End-User Coordinator.

Digital Buck is a simulation methodology. It is based on the application of emerging computer aided technology and processes. It's purpose is to analyze component & system interfaces within a full vehicle environment relative to fit, package & assembly. Seating is on first come basis.
Regards,
M Intrain

78353 NARIE

Pay check

Shirley
Hughes
X 57961

Need
Tech Review

Robert Bussotti

09254

- Air bag module
Kick-off

11/24/98

PE Opening Reports (PE98-055)
1992 Lincoln Town Car Engine Fires

NO.	Source	ST	VIN	M/Y	
1	813241	FL	1LNLM82W5NY	92	- 9/10/91
2	824016	TX	1LNLM81W2NY	92	- 3/16/92
3	808265	FL	1LNLM82W7NY	92	- 7/30/92
4	821667	LA	1LNLM81W9NY	92	- 6/25/92
5	979634	TX	1LNLM82W5NY	92	- 11/25/91
6	521137	OK	1LNLM81W2NY	92	- 3/10/92
7	F.D.R.	GA	1LNLM82W3NY	92	- 5/20/92
8	804418	OH	1LNLM81W8NY	92	- 4/1/92
9	541041	FL	1LNLM81W3NY	92	- 7/10/92
10	F.D.R.	FL	1LNLM81W2NY	92	- 4/7/92
11	F.D.R.	FL	1LNLM82W7NY	92	- 2/5/92
12	A805260	FL	1LNLM81W0NY	92	- 1/17/92
13	820316	FL	1LNLM81W3NY	92	- 7/31/92
14	I/Net	FL	1LNLM81W8NY	92	- 4/17/92
15	536206	MS	1LNLM83W9NY	92	- 6/25/92
16	819821	LA	1LNLM82W5NY	92	- 5/15/92
17	I/Net	FL	1LNLM82W4NY	92	- 3/1/92
18	F.D.R.	GA	1LNLM82W1NY	92	- 6/5/92
19	A804221	FL	1LNLM81WP2Y	93	- 8/24/91
20	823462	MS	1LNLM81W5PY	93	- 4/30/93
21	F.D.R.	FL	1LNLM81WXP	93	- 10/20/92

Typo in
VIN?

Ray -

TC underhood fire reports
from Tim Cooper.
Can we get to Texas to inspect
2 vehicles?

12/16/98

Design Analysis/ASO to visit Texas
sites w/6
B² 12/17 1/11/98

PEBB-055-Additional Fires Since Opening

FL	1LNLM82W4H	92	Sep-88	Parked for 2 days, engine fire, driver's side mid-area, fire dept said fuel pump running
MD	1LNLM81W6H	82	Oct-88	Parked for about half hour, fire under hood
TX	1LNLM82W6H	82	98	Light fire damage left side of engine compartment
TX	1LNLM83W5H	82	Nov-88	Fire at left side of engine compartment, parked 24 hours
TX	1LNLM82W1P	92	Nov-88	Parked 45-50 min., engine compartment fire.
NY	1LNLM81W8P	92	Aug-88	Parked for 14 hours, fire in left side of engine compartment near master cylinder
CA	1LNLM81W2P	82	Feb-88	Parked 5 min., fire underhood on driver's side.
FL	1LNLM81W0H	92	Nov-88	Parked 20 min, fire underhood on left side.
NM	1LNLM81W0H	82	Oct-88	Fire underhood while parked in garage.
TX	1LNLM81W6H	82	Oct-88	Parked 8 hours, fire in engine compartment in area of brake master cylinder and left front wheel.
	1LNLM81W3H	82	Sep-88	Fire originated around left side of engine.
	1LNLM81W5P	82	Sep-88	Fire originated around left side of engine.
	1LNLM81W5H	82	May-88	Fire originated at the brake pressure switch
	1LNLM82W5H	82	Jan-88	Fire originated at left side of engine compartment where electrical distribution located (Relays)
	1LNLM82W1H	82	Jun-88	Parked in garage, electrical fault in circuit 636 (brake pressure switch to speed control amplifier)
	1LNLM81W7H	82	Jun-88	Parked 5 hours, fire at left front fender area
TX	1LNLM82W3H	82	May-88	Parked 4 hours, fire originated in the driver's side of the engine compartment, above fender well
FL	1LNLM82W2H	82	Oct-88	Fire originated in the front driver's side of the engine compartment
	2MECM75W1H	82	Jul-88	Caught on fire while sitting in parking lot, driver's side, brake pressure switch
	2MECM75W4H	82	Jun-88	Parked several hours in airport, burn patterns surrounded brake booster.
FL	2MECM74W1H	82	Sep-88	Parked in garage, fire under hood. (Colonial-Penn las.)

incident
data

To Concern: _____ Alert: _____ (Func/Release)
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS CIB Date: _____
 Brakes Booster/Master Cylinder Assy

_ F F1VC 2B195 AB NC00 060701 000 XC00E10391082000R P IR 94/03/29

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: notice issued to identify Maxima grand marquis chassis parts as balance out, since NAAO is responsible for this vehicle for the 1993 model year.

_ F F1VC 2B195 BA NC00 060701 000 NC00E10041053000R P IR 89/11/11

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: release 200 tandem booster with passenger compartment air intake (pcsi).

_ F F1VC 2B195 B2 NC00 060701 000 NC00I10010977026R P IR 89/05/22

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: Initial release-abs booster & master cylinder

_ F F1VC 2B195 B2 NC00 060701 001 NC00E0044499092R P IR 89/09/22

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: Usage Change

_ F F1VC 2B195 CA NC00 060701 000 NC00E10049319001R P IR 90/02/14

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: Release a booster and master cyl assy for abs vehicles with a bracket for attaching the 42 pin electrical connector. This change was requested by b & a to eliminate one in plant part and save the labor for assembling the bracket to the booster. Release the bracket for service.

_ F F1VC 2B195 CB NC00 060701 000 NC00E10057809001R P IR 90/03/28

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: Revise The Hole Pattern In Bracket f1vc-14536-Ba To Be - Compatible With Wiring Connector Changes. Revise The Abs Booster & Master Cylinder Assy, F1vc-2b195-Cb To Show The New Bracket. Revise The Bracket Attaching Point So That It Is Secured Under The Inboard Master Cylinder Attachment Nut

_ F F1VC 2B195 CC NC00 060701 000 NC00E10070190000R P IR 90/06/04

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: Complaints of vehicle pull while braking exist for town car, en53, taurus/sable and continental. This is due to a master cylinder induced pressure differential in the two chambers of the brake system. This pressure difference can be made nearly zero by using a "linked piston" master cylinder design. This change is only applicable to cars with abs and is a \$1.08 piece cost increase. This change will reduce town car and en53 warranty by 4r/1000 (\$1.05/veh) and continental by 8r/1000 (\$1.23/veh). Taurus/sable (12% abs) warranty will not be measurably affected. Release the following booster and master cylinder assys. Which all use the same master cylinder f1vc-2a032-m. Town car and en53 use f1vc-2b195-cd, taurus/sable and continental use f1dc-2b195-ab, taurus also uses f1dc-2b195-bb.

_ F F1VC 2B195 CD NC00 060701 000 NC00E10092919000R P IR 90/10/03

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: The low pressure brake fluid hose connecting the antilock brake master cylinder reservoir to the hydraulic control unit reservoir is too long. The routing of the hose will be improved by reducing the length from 500+-5 to 475+-5.

_ F F1VC 2B195 CB NC00 060701 000 NC00E10084269000R P IR 90/10/24

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: modify connector terminals on brake fluid reslvor cap. The modifications are reduce the gage thickness and increase the lead-in chamfer of the subject terminals. Fmvss not affected. The part which is being modified is a common part used on Both the dn-5 and fn-9 carlines also. There are no problems in changing these carlines as well. They get the improved Connector from.

_ F F1VC 2B195 CF NC00 060701 000 NC00E10104848000R P IR 90/11/28

<BSTR.&MSTR.CYL.ASY.BRK...> <.....>

- CR Description: In ABS brake booster and master cylinder assembly, revise low pressure hose stowage position for shipping. Also delete the shipping cap from the check valve located in the booster to ease assembly operation and reduce cost. FMYSS is not affected.

To Concern: _____ Alert: _____ (Frnc/Release)
 Set C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS CHS Date: _____

_ F FIVE 2B195 CG NC00 060701 000 NC00E10300678000R P IR 93/15/20

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: Incorporate new bracket (F3ac 14536 aa) into booster master cylinder.

_ F FIVE 2B195 DA NC00 060701 000 NC00E10070190000R P IR 90/06/04

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: Complaints of vehicle pull while braking exist for town car, en53, taurus/sable and continental. This is due to a master cylinder induced pressure differential in the two circuits of the brake system. This pressure difference can be made nearly zero by using a "linked piston" master cylinder design. This change is only applicable to cars with abs and is a \$1.08 piece cost increase. This change will reduce town car and en53 warranty by 4c/1000 (\$1.05/veh) and continental by 8c/1000 (\$1.23/veh). Taurus/sable (12% abs) warranty will not be measurably affected. Release the following booster and master cylinder asy's. Which all use the same master cylinder flvc-2a032-aa. Town car and en53 use flvc-2b195-cd, taurus/sable and continental use fldc-2b195-ab, taurus also uses fldc-2b195-ba.

_ F FIVE 2B195 DB NC00 060701 000 NC00E10084269000R P IR 90/10/24

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: modify connector terminals on brake fluid reservoir cap. The modifications are reduce the gage thickness and increase the lead-in chamfer of the subject terminals. Faurus not affected. The part which is being modified is a common part used on both the dn-9 and fu-9 calipers also. There are no problems in changing these calipers as well. They get the improved Connector free.

_ F FIVE 2B195 DC NC00 060701 000 NC00E10104848000R P IR 90/11/28

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: In ABS brake booster and master cylinder assembly, revise low pressure hose storage position for shipping. Also delete the shipping cap from the check valve located in the booster to ease assembly operation and reduce cost. PMVSS is not affected.

_ F FIVE 2B195 DD NC00 060701 000 NC00E10079779020R P IR 92/08/27

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: 1992 April record change for brakes. 1. Ea-F3lc-2b109-aa - completed ea-brake tube - initially released incomplete. 2. F3ac-90433-ab - tolerances revised as manufactured, i.e. +/- 0.05 to +/- 0.5; i.d. 0.05 to +/- 0.12. 3. Remove item #3, revisions done on other notice. 4. Flvc-2b195-cg/flvc-2b195-dc/flvc-2a032-aa/f3dc-2a032-aa: release supplier drawing showing master cylinder reduction-control valve. 5. F0ac-2780-ba - revised drawing reflecting change in main rivet on parking brake control assembly. 6. F3ac-2a026-aa - replace rear rotor fls drawing with update (no change). 7. F3lc-2c287-cb - brake fluid tube assembly - incorrect flare is shown at pt a20. Revise drawing to show no flare for pt a20. 8. Remove items #8 & #9. These revisions were completed on other notice. 9. 10. F3lc-2c334-aa & F3lc-2c333-aa - change cam mounting torque from 7 - 9 nm to 2.5 +/- 0.4 nm. 11. F3lc-2c296-ba & F3lc-2c296-aa - add 3.6mm dimension to last change: anti-rotation clip & revise wrench block stud hole hex dimensions to prevent plastic build up in stud threads. 12. F3ac-2c026-ab - change in location of the part number stamp. 13. F3dc-2c299-ab & f3dc-2b664-ab - added specification for vibration and a not specifying that certain dimensions are before coating.

_ C FIVE 2005 AA NC00 060701 000 NC00E10042672000R P IR 89/11/17

<BSTRASY-BRK.....> <.....>

- CR Description: Revise booster check valve location from the 2:00 position to the 11:00 position. New part number for the booster and master cylinder asy. Will be flvc-2b195-ab and the booster alone will be flvc-2005-ab. These parts will also be used on en53 non-abs cars. Tooling cost is \$1700, piece cost change is zero and there is no effect on c/1000 or tgv/1000. Parts will be available for en53 vp build in Jan. 1990. does not affect compliance with regulations -brake dept.-

_ C FIVE 2005 AB NC00 060701 000 NC00E10107234042R P IR 93/05/20

<BSTRASY-BRK.....> <.....>

- CR Description: Initial release of bck rotors, shield & calipers

_ C FIVE 2005 AC NC00 060701 000 NC00E10079779040R P IR 94/01/03

<BSTRASY-BRK.....> <NON ABS.....>

- CR Description: Initial release of bck rotors, shield & calipers. 1. F6ac-060600-04; add unique torque for cobra fit brk bn 2. F3dc-2c189-aa; add supplier info 3. B6dc-9a474-ba; redraw 4. F5ac-2078/2b557-ab; redraw 5. F6ac-2530/2531-ab; drawing revision 6. F4ac-2005-ac; drawing revision 7. F4dc-2c204-bb; redraw to ford level of release 8. F0ac-2c205-ab/f3lc-2c190-aa/f4ac-2c190-aa revise to facilitate manufacturing 9. F4ac-1125-aa; drawing revision 10. F2ac-2005/2b195-ba/flvc-2005-ac; redraw, revise labels 11. F1ac-1107-aa; show optional design 12. F4ac-2267/2268-ac/f4ac-2267/2268-bb; add wax to tube nut 13. F6ac-2c360-aa; revise drwg to facilitate manufacturing

_ C FIVE 2005 BA NC00 060701 001 NC00E10640585005R P IR 98/09/03

- CR Description: Blanket concern to support worn clean-up actions.

To Concern: _____ Alert: _____ If not Release
 Set C/F Part: _____ Acty CPSC: _____ Seq Release: _____ S C/S Date: _____

_ F FIVC 2005 AA NC00 060701 000 NC00E10032035000R S IR 89/09/08

<BSTR.ASY-BRK> <SERVICE ONLY>

- CR Description: Release booster & master air using tubes grease spec. # 446 06 at n 10636. Booster & master cyl. Asy's built with new grease to be identified with blue dash of paint in the 12:00 position on the booster front shell. For a min. of 60 days from start of production. 1st requirement- material test of new grease only.

Master Cylinder & Pressure Control Valve Asy -

_ C FIVC 2C156 AA NC00 060701 000 NC00E10348036000R P IR 93/11/18

<CYL.&PRESS.CONTR.VLV.ASY-BR> <NON-ABS>

- CR Description: replace the f3ac-2b193-ba booster master cylinder asy with the f2ac-2b193-ba starting job #1 94, ending with job #1 95 also replace the f3ac-2a040-ba tube with f3ac-2a040-ba for job #1 94 ending with job #1 95. This will be the same as the 93 model year booster, master cylinder, brake tubes.

TUBE.ASY-FUEL.RETURN.&BRAKE

_ F FIVC 9L291 AA NC00 100103 000 NC00E10019802001R F IR 89/06/26

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: the fuel and brake line bundles must be revised to acc. on the new rear brake tube (-2267-). The action required includes revising the rear end of the vapor tube 1/2 inch and shortening the inboard brake tube. Sys gen components removed.... 10/25/89 sys gen components removed.... 01/04/90

_ F FIVC 9L291 AB NC00 100103 000 NC00E10027703000R F IR 89/09/06

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: the rear fuel line clip in the kick-up area is not feasible for the frame processing. Revise the design of the subject clip and relocate the frame hole location as required. The new location of the fuel line hole is as follows: x - 4382.0 y - z - 630.0 sys gen components removed.... 12/15/89 sys gen components removed.... 01/04/90 sys gen components removed.... 01/26/90

_ F FIVC 9L291 AC NC00 100103 000 NC00E10037380000R F IR 89/11/27

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: (1) the fuel line bundle clip in the rear kick-up area can contact the vehicle body on the 1991 fn-36 due to minimal clearance to the body flange. The subject hole should be moved to 4452.0 - x; 690.0 - z from 4382.5 - x; 630.0 - z on the fivc-5005-dj frame asy. (2) add an additional nylon clip to the fuel line bundle (-91291-) in order to hold the lines clear during body decking. A new hole is required at 4895.0 - x and 548.0 - z. Sys gen components removed.... 90/03/30 sys gen components removed.... 90/05/15 (3) revise the rear routing of the fuel bundle to provide adequate clearance to the body and the fuel tank flange. (4) shorten the steel braided tefton tubing on supply and return lines by 20 mm. (5) revise routing to provide clearance to the (a) seat belt bolt, (b) rear engine mount, (c) front and rear torque box. (6) revise the -9a294- fuel vapor crossover & front brake tube to avoid contact with the knee brace (ref. Concern # c10023180). (7) design and release a new fuel vapor c/o and front brake bundle (-9a294-) for the non- abs 1991 fn-36. (8) release the f0vc-5a897-ab air line in the -91291- fuel line bundle. Sys gen components removed.... 90/05/17

_ F FIVC 9L291 AD NC00 100103 000 NC00E10048573000R P IR 90/01/30

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: Last Change: The following action is required for the -91291- and -9a294- fuel bundles to resolve clearance issues: 1. Revise fuel (ret & supp. -91291-) line and brake line routing in order to: a) improve clearance along center rail, torque box, and rear suspension (abs and non-abs). B) provide an adequate clearance window between the fuel lines and brake lines for installation of the shift cable and bracket assembly (abs and non-abs). C) eliminate contact and inadequate clearance between the brake lines from the master cylinder and the fuel lines (non-abs only). 2. Revise the -9a294- crossover vapor line routing to eliminate contact to the shift cable frame attachment clip (abs and non-abs). Sys gen components removed.... 90/07/10 also, to facilitate beta assembly process, change the rear hole of the fuel filter bracket (-9b072-) to a slot at a \$3200 tooling cost and no piece cost increase. Sys gen components removed.... 90/08/21 the clip f0vc-9a317-as has been carried over and released for all 1991 fn-36 vehicles. The clip is no longer necessary for 1991 and should be deleted for a \$.26 piece cost and beta labor save on two clips per vehicle.

_ F FIVC 9L291 AE NC00 100103 000 NC00E10048573000R P IR 90/02/21

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: the -91291- and -9a294- fuel bundles released with the previous notice supplement #c10048573-000 were reviewed on an updated vehicle by fuel system engineering and it was discovered that additional clearance issues must be resolved. Therefore the following action is required: revise -91291- and -9a294- abs and non-abs fuel bundles to provide adequate clearance to rear seat belt bracket, the floor pan, center rail, and the rear frame. The 20k in tooling is for the addition of a new flat clip for the -91291- bundle. Sys gen components removed.... 90/07/10 sys gen components removed.... 90/08/21

To Contact: _____ Alerts: _____ If Recall/Release
 Set C/P Parts: _____ Acty CPSC: _____ Seq Release: _____ IS CDS Date: _____

_ F FIVC 9L291 AF NC00 100103 000 NC00E10048573007R P IR 90/03/20

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: The following action is required for the -9L291- air line assembly f1vc-5a897-as will replace f0vc-5a897-ab which is pia to the fuel/brake tube bundle -9L291-. This change will result in a \$ 0.30 per piece cost increase and a tooling charge of \$ 13,000.00. This change is a result of the new lh fender apron requiring rerouting of the air suspension air line along the frame rail requiring the following changes: * add 76 mm's of air line tubing. * add 100 mm's of ext protection tubing under the brake distribution valve, located on the lh frame side rail. * add (1) f0vc-9279-as clip and reposition two existing clips to accommodate new retention along the frame rail. Sys gen components removed.... 90/08/21 notice resolution. * release new air line routing along lh frame rail and revise retention of the air line assembly. * delete air line assembly f0vc-5a897-ab from -9L291- * add new air line assembly f1vc-5a897-as to -9L291- * -9L291- becomes f1vc-9L291-ag

_ F FIVC 9L291 AG NC00 100103 000 NC00E10066976000R P IR 90/03/30

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: Re-routing of the fr-36 -9L291- fuel/brake bundle will be accomplished as a ex change. The marked up parts list and prints show the changes, which are as follows: 1) f1vc-9L291-ab will replace f1vc-9L291-ag; which involves re-routing of the fuel and brake lines to provide improved clearance to the steering shaft coupling. 2) deletion of one of the f1vc-9L276-ca. Note: one of the f1vc-9L276-ca is still required pia to the fuel/brake bundle at the rear. 3) a new metal clip is to be added pia to the -9L291 toward the front of the bundle to electrically ground and provide support to the fuel supply and return lines. A nut bolt will be used to secure the clip.

_ F FIVC 9L291 AH NC00 100103 000 NC00E10066976001R P IR 90/04/10

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: 1991 fr-36 phase II functional build revealed the following concerns with the fuel/brake bundle and the crossover tubes: sys gen components removed.... 90/08/21 -9L291- fuel/brake bundle 1) vapor tube/hose connection assembly problem. 2) clip location problem (bundy quality problem) 3) air line location problem (bundy qty pbhm) 4) air line clip insertion problem (bundy design) -9a294- vapor/brake crossover away 1) vapor tube interferes with brake line connection on abs equipped car. 2) vapor tube to shifter cable clip close (3.2mm as designed). 3) frame change necessitates line change at clip b 4) push pin difficult to install. Corrective action on the above mentioned concerns will be: -9L291- * ex change to produce a f1vc-9L291-aj bundle to replace the f1vc-9L291-ah bundle. This bundle will have a rerouted fuel vapor tube and the details will call out the location of bundle straps to ensure air line location. * Bundy has been informed of the clip location quality problem. * Bundy has been informed of the air line insertion concern and has been given direction to modify the clip design to produce similar insertion loads for the 91 fr36 and ex33 clips as on current fr36. -9a294- ex change to produce a f1vc-9a294-af and a f1vc-9a294-bd in place of the current f1vc-9a294-ae and f1vc-9a294-be. The following actions are needed on the new assembly: * reroute vapor tube to provide improved access to the abs brake line connection (-9L291- to -9a294-) * reroute vapor and brake tubes to accommodate frame change. * investigate vapor tube to shifter cable clip clearance; a shifter vapor hose used to connect the -9L291- to the -9a294- appears to be needed to avoid having the vapor hose from pushing the tubes into the shifter clip clearance zone. * release push pin 388577-a in place of the currently released push pin n805635-a to attach the center of the -9a294- to the #2 crossmember.

_ F FIVC 9L291 AJ NC00 100103 000 NC00E10069882000R P IR 90/04/23

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: Add single tube skyline clip, f0vc-9279-as, to suspension skyline assy at 605 mm from end of skyline. Move existing clip from 400 mm to 365 mm, from end of skyline. 91 fr36 frame drawing to be revised to represent current frame production, including 7.0-7.25 mm dia. Hole which is on the top of the forward lh rail aft of the abs hydraulic unit. Revision to be accomplished on latest chassis monthly record change. Sys gen components removed.... 90/08/21

_ F FIVC 9L291 AK NC00 100103 000 NC00E10080556000R P IR 90/07/03

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: 1991 fr-36 town car: -9L291- fuel/brake bundle revisions concerns raised on the 5p2 build resulted in the following changes to the -9L291- for job #1: 1) redesign of the fuel supply and return line routing at #4 crossmember to improve clearance to the shock absorber mounting washer. 2) redesign of the fuel supply, return, and vapor line routing at the firewall to provide improved clearance to the body. 3) addition of a tube retaining clip to the fuel supply and return lines near the fuel rail to prevent possible rvl concern. 4) adjustment of the number and placement of the straps for the air suspension air line to insure proper routing and prevent pinching of the air line on frame, body, or tubes.

_ F FIVC 9L291 AL NC00 100103 000 NC00E10080556000R P IR 90/07/03

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: 1991 fr-36 town car: -9L291- fuel/brake bundle revisions concerns raised on the 5p2 build resulted in the following changes to the -9L291- for job #1: 1) redesign of the fuel supply and return line routing at #4 crossmember to improve clearance to the shock absorber mounting washer. 2) redesign of the fuel supply, return, and vapor line routing at the firewall to provide improved clearance to the body. 3) addition of a tube retaining clip to the fuel supply and return lines near the fuel rail to prevent possible rvl concern. 4) adjustment of the number and placement of the straps for the air suspension air line to insure proper routing and prevent pinching of the air line on frame, body, or tubes.

To Concern: _____ Alerts: _____ (Func/Release)
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS CHS Date: _____
 _ F FIVC 9L291 AM NC00 100103 000 NC00E10086498000R P IR 90/08/02
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: revise fuel/brake bundle (91291) as follows: 1) replace air suspension air line flvc-5a897-ab with flvc-5a897-ac. The new air line changes the location of retaining clips and installation tape marks. 2) revise bundle strapping of air line (5a897) to fuel/brake bundle (91291) by adding bundle strap and modifying the location of existing bundle straps. 3) revise fuel/brake bundle drawing to show air line routing around filter area and provide sections and notes as to specific strapping of air line to bundle. 4) revise location of fuel line clip on #4 crossmember in the p2-flvc-91291-al. 5) add engineering spec delta ca-flac-9327-as to complete drawing.

_ F FIVC 9L291 AN NC00 100103 000 NC00E10086523000R P IR 90/08/10
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: the following action necessary to correct air surp air line to frame noise: for fn36: air line assembly flvc-5a897-ad will replace flvc-5a897-ac which is pia to fuel/brake tube bundle -91291- for en53; end item air line assembly flac-5a897-ab will replace flac-5a897-as. This change is a result of rerouting the suspension air line and revising its retention along th side of the #4 c/member requiring the following changes: delete tape wrap above "y" connector and replace with double tubing clip with optional construction, to accommodate the new retention along the #4 c/member. B & a processing: fn36 & en53. Revise process sheets to ref reflect new air line routing and retention along the th side of the #4 c/member. Fuel/brake bundle: delete air line say flvc-5a897-ac from 91291. Add new air line say flvc-5a897-ad to new fuel/brake bundle flvc-91291-ar. Sys gen components removed..... 90/11/28 *** this change must be coordinated with frame change supplement.

_ F FIVC 9L291 AR NC00 100103 000 NC00E10078761000R P IR 90/09/17
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: increase in fuel supply and return line length at fuel sender to accommodate modified fuel sender. The increase in line length is to be achieved by increasing the length of tieflex hoses. Part numbers will have the suffix bumped from a? To c? And b? To d? For en-53 and a? To b? For fn-36; as follows: flac-91291-ca fuel/brake bundle non-abs en-53 flac-91291-da fuel/brake bundle abs en-53 flvc-91291-ha fuel/brake bundle fn-36 layouts and detail drawings are required. Note: this notice must be processed before notice nc00-c-10072777-000.

_ F FIVC 9L291 A3 NC00 100103 000 NC00I10010977019R P IR 89/05/05
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: initial release-fuel lines & fuel filter assy sys gen components removed..... 10/25/89

_ F FIVC 9L291 BA NC00 100103 000 NC00E10091352000R P IR 90/10/10
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: revise apline to add forth tape mark for installation. Revisions to drawing and layout pending new air line drawing (air line - 5a897-). Detailed drawings and layouts required. 90/09/28 drawing of air line in air suspension drafting; package issued. ***** the new -5a897- is to be added to the flvc-91291-ba (act bb) and the suffix should be bumped to ca (ie flvc-91291-ca is a flvc-91291-ca) sys gen components removed..... 91/01/29

_ F FIVC 9L291 CA NC00 100103 000 NC00E10095356000R P IR 90/10/19
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: vehicle tryouts with a 4 inch protective sleeve added to the inbound air line routed along the #4 crossmember, proved positive in that the squeak noise previously heard on 4-p vehicles was eliminated. This tryout accepted as resolution from r. Ferguson wixom q-pross sghtl. Sys gen components removed..... 91/03/07 approval is requested to incorporate the following part changes. 1991 fn36 - delete air line assembly flvc-5a897-ac and advance/release the new part number. - fuel/brake bundle: delete air line assembly flvc-5a897-ac from -91291- bundle assembly. Add new air line assembly to -91291- assembly. - air line piece cost \$ 0.06 tooling \$ 3600.00 1992 en53 - delete end item air line assembly flac-5a897-ab and advance/release the new part number. - air line piece cost \$ 0.06 tooling \$ 3600.00 timing to incorporate running change at wixom is projected to be week of 90/11/05. Fn36/en53 service not affected. Use/exhaust existing stock.

_ F FIVC 9L291 CB NC00 100103 000 NC00E10102784000R P IR 90/11/16
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: revise -91291- as follows: for cr c10102784: add a nylon 12 sleeve to the fuel return line between bends fr10 and fr11; the slit in the sleeve is to POINT upward. (Sk tooling; \$0.40 piece cost c10102784) the above occurs on fn-36 and en-53 for cr c10100320; add a bundle strap to the brake lines, fuel vapor, and fuel supply lines. (O tooling; \$0.10 piece cost c10100320) the above occurs on en-53 only.

To Concern: _____ Alert: _____ Func/Release
 Sel C/F Part _____ Acty CPSC _____ Seq Release _____ US CIS Date _____
 _ F F1VC 9L291 CC NC00 100103 000 NC00E1012226000R P IR 91/01/16

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: add the previously deleted rubber protective cover on the fuel lines at the fire wall. This cover consists of 4 inch alk rubber hose secured with two tie straps. The slit is to point to the side of the vehicle as installed. The rubber cover is to extend approx. 0.5 inches below bend number 6a fit 5 & fit 5 and 3.5 inches above these bends. Note: hose used for cover to be hypalon hose esm-m2d158-a (same covering used on the flex tube at fuel sender)

_ F F1VC 9L291 CD NC00 100103 000 NC00E10124098000R P IR 91/03/20

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: add a rubber insulate sleeve to the fuel lines at the #4 crossmember and the body reinforcement. The sleeve is to be a slit rubber hose tie strapped to the fuel lines. ***** ex drawings released for ***** the following fuel/brake bundles are affected: 1991 fn-36 F1vc-91291-cd to become f1vc-91291-ce 1992 en-53 f2ac-91291-ce to become f2ac-91291-cf f2ac-91291-dd to become f2ac-91291-de

_ F F1VC 9L291 CE NC00 100103 000 NC00E10124098002R P IR 91/05/31

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: revise the "I" shaped clip to lower the fuel lines by 5.76 mm. Initial drawing has been completed by wright plastics. *** the "I" shaped clip is to be added to details without modifying the line location; however the layout should reflect the line movement caused by the clip and line location (see pec for direction) 91-05-20 **** Bundy tubing was kicked off on clip 91-05-13 wixom tryout has shown the "I" shaped clip should be implemented as soon as feasible (manufacturing date of 91-07-29 has been give by the supplier for the clip completion) this notice must follow the ex notice for en-53nc00-e-10139122 ex'd 91-05-21. **** the parts affected are as follows: fn-36 1991 and 1992 with current fuel rail: f1vc-91291-ce will advance to f1vc-91291-cf fn-36 1992 with new fuel rail due fall 91: f2vc-91291-as will advance to f2vc-91291-ab *****This notice is to follow nc00-e-10139122-000.

_ F F1VC 9L291 CF NC00 100103 000 NC00E10128004005R P IR 91/07/26

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: replace screw n800369-a56 with screw n610957-a56. Screw attaches clip-fuel line & brake (91276) to valve say-brake brake press control (2b091). Torque on the joint is to be 6.8-9.2 nm.

_ F F2VC 9L291 AA NC00 100103 000 NC00E10124098002R P IR 91/05/31

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: CR Description: revise the "I" shaped clip to lower the fuel lines by 5.76 mm. Initial drawing has been completed by wright plastics. *** the "I" shaped clip is to be added to details without modifying the line location; however the layout should reflect the line movement caused by the clip and line location (see pec for direction) 91-05-20 **** Bundy tubing was kicked off on clip 91-05-13 wixom tryout has shown the "I" shaped clip should be implemented as soon as feasible (manufacturing date of 91-07-29 has been give by the supplier for the clip completion) this notice must follow the ex notice for en-53nc00-e-10139122 ex'd 91-05-21. **** the parts affected are as follows: fn-36 1991 and 1992 with current fuel rail: f1vc-91291-ce will advance to f1vc-91291-cf fn-36 1992 with new fuel rail due fall 91: f2vc-91291-as will advance to f2vc-91291-ab *****This notice is to follow nc00-e-10139122-000.

_ F F2VC 9L291 AB NC00 100103 000 NC00E10128004000R P IR 91/07/15

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: release a modified brake prop valve bracket and a clip pin to the fuel tubes. The clip attaches to the bracket with a m-6 self tapping bolt. The clip and bracket are to prevent bending of the fuel lines during assembly. ****91-06-25 reviewed bracket with brake valve supplier; they are working on both a temporary and permanent change. * 91-06-26 reviewed clip with fuel line supplier. Bundy is proceeding with tooling for the clip. Clip to be pin to fuel lines. Assembly drawings will be ex'd asap.

_ F F2VC 9L291 AC NC00 100103 000 NC00E10165200000R P IR 91/11/16

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: delete f1vc-91276-ha and (1) n802191-a56 due to f2ac-91276-as acting as a ground for the fuel portion of the -91291- bundle. F1vc-91276-ha was incorporated to create a ground for the fuel lines.

_ F F2VC 9L291 AD NC00 100103 000 NC00E10180678000R P IR 92/01/09

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: incorporate the following design changes to improve air line retention to the #4 crossmember. Revise double clip above "y" to insure positive retention - add protective tubing to the air line loop above "y" com. fn36 air line: delete f1vc-5a897-af add f2vc-5a897-as sa53 air line: delete f2ac-5a897-as add f2ac-5a897-ad clip-double tube: delete fove-9279-ba add f2ac-9279-as ** fuel portion: 920106 For 1992 - replace f1vc-5a897-af with f2vc-5a897-as in the f2vc-91291-ad (fuel return and brake line bundle) For 1993 - replace f1vc-5a897-af with f2vc-5a897-as in f3vc-91291-ah (fuel return and brake line bundle)

To Concern: _____ Alert: _____ If Fuel Release
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ ES CUS Date: _____

_ F F2VC 9L291 AB NC00 100103 000 NC00E10180678000R P IR 92/01/21

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: this notice is to support a10180678 (add sheathing or convoluting to the airline (f1vc-5a97-af) just above the y connector for protection. Airline is pin to fuel & brake line bundle (9L291). Also, revise clips on #4 cross member to provide better retention. The part number on the first line should be (f1vc-5a97-af) not (f1vc-5a97-af).

_ F F3VC 9L291 AA NC00 100103 000 NC00E10165200000R P IR 91/11/16

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: delete f1vc-9f276-ba and (1) n802191-a56 due to f2ac-9f276-as acting as a ground for the fuel portion of the -9L291- handle. F1vc-9f276-ba was incorporated to create a ground for the fuel lines.

_ F F3VC 9L291 AB NC00 100103 000 NC00E10180678000R P IR 92/01/09

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: Incorporate the following design changes to improve air line retention to the #4 crossmember. - revise double clip above "y" to insure positive retention - add protective tubing to the air line loop above "y" conn. f136 air line: delete f1vc-5a897-af add f2vc-5a897-aa en53 air line: delete f2ac-5a897-ac add f2ac-5a897-ad clip-double tube: delete f1vc-9f279-ba add f2ac-9f279-aa **** for 1992 - replace f1vc-5a897-af with f2vc-5a897-aa in the f2vc-9L291-ad (fuel return and brake line bundle) for 1993 - replace f1vc-5a897-af with f2vc-5a897-aa in f3vc-9L291-ab (fuel return and brake line bundle)

_ F F3VC 9L291 AC NC00 100103 000 NC00E10236663000R P IR 92/09/04

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: \$\$\$\$ must be coordinated with ac00 e 10221001 002, replaces part released by nc00 e 10221001 003 \$\$\$\$ - to reduce likelihood of misbuilds, release new adaptor block which has two m12 outlet ports instead of one m10 and one m12. Additionally, release new fuel-brake line bundle for non-limo which has two m12 tube nuts to mate to adaptor (f3vc-9L291-ba). - change to adaptor block (f3vc-2a320-ba) is a no cost change. Change to fuel-brake line bundle (f3vc-9L291-ba) costs are: place cost \$0.01; tooling cost \$10,000. - current brake-fuel line bundle (f3vc-9L291-ac) will continue to be used on the limo. The current prop valve (2b091) will continue to be used on the en53.

_ F F3VC 9L291 BA NC00 100103 000 NC00E10236663000R P IR 92/09/04

<TUBE,ASY-FUEL,&BRAKE,(LH)> <.....>

- CR Description: \$\$\$\$ must be coordinated with nc00 e 10221001 002, replaces part released by nc00 e 10221001 003 \$\$\$\$ - to reduce likelihood of misbuilds, release new adaptor block which has two m12 outlet ports instead of one m10 and one m12. Additionally, release new fuel-brake line bundle for non-limo which has two m12 tube nuts to mate to adaptor (f3vc-9L291-ba). - change to adaptor block (f3vc-2a320-ba) is a no cost change. Change to fuel-brake line bundle (f3vc-9L291-ba) costs are: place cost \$0.01; tooling cost \$10,000. - current brake-fuel line bundle (f3vc-9L291-ac) will continue to be used on the limo. The current prop valve (2b091) will continue to be used on the en53.

TUBE,ASY-P/S,RETURN

C F1VC 3A563 EA NC00 110203 000 NC00E10108505001R P IR 91/01/29

<TUBE,ASY-P/S,RETURN> <.....>

- CR Description: design activity: redesign p/s cooler package similar to 92 en-53 (fin pack type mounted to the lower r.h. corner of the radiator support assembly. Also, please update p/s and illustration sheets as req'd. ***** testing: new cooler passed gas req'ts./vco 910108 (a). ***** testing: cost, weight, & timing thd. "detail drawings req'd". and testbed & testbeds are components removed...., 91/06/26

_ C F1VC 3A563 FA NC00 110203 000 NC00E10074000000R P IR 90/05/10

<TUBE,ASY-P/S,RETURN> <.....>

- CR Description: subject: 91 fa-36 4.6l eff all except trailer tow c/o into 92 en-53 all except trailer tow. Break down: job #1 req't. - express ckg. (ex) p/s desc action suffix comments f1vc-3a563-as (chase) new ab new 3a563-c/o hose f1vc-3a563-fa tube any new th revise/modify f1vc-3a274-ba hose c/o ha carryover component piece cost: no change weight: no change tooling: \$24,800 (e) (thd) figure could be significantly less, if tooling can be modified. Supplier: form file

_ C F1VC 3A563 FB NC00 110203 000 NC00E10145560002R P IR 93/07/17

<TUBE,ASY-P/S,RETURN> <.....>

- CR Description: revise the finish on the en114/fal14 p/s return hose assemblies and gear end of the pressure hose to aluminum rich paint over galfin and the pump end of the pressure hose to thick wall (.042" versus current .035") tubing. ----- development of .042" wall is still ongoing. System pressure temperature and noise effects are being studied. Steering engineering approves for use in the fal16/en114 pending thd.035" wall tube remains a fall back option.

To Concern: _____ Alert: _____ If/When Release: _____
 Set C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS CMS Date: _____
 _ C F3VC 3A563 A1 NC00 110203 000 NC00E10145360002R P IR 93/07/17

<TUBE.ASY-P/S.RETURN.....> <.....>

- CR Description: revise the finish on the en114/en116 p/s return hose assemblies and gear end of the pressure hose to aluminum rich paint over galfer and the pump end of the pressure hose to thick wall (.042" versus current .035") tubing. development of .042" wall is still ongoing. System pressure temperature and noise effects are being studied. Steering engineering approves for use in the en116/en114 pending that .035" wall tube remains a fall back option.

_ F F0VC 3A563 JA NC00 110203 000 NC00E10057562000R P IR 90/06/20

<TUBE.ASY-P/S.PUMP.RETURN....> <FCN=9BVA1104025.....>

- CR Description: new p/s line package req'd for trailer tow & police vehicles in order to route around the abs anti-lock relay module and module bracket. ***** memo: 92 base vehicle is c/o 1991 fn-36. Break down: ref: d.o. Dated 891106 - see attachment p/n desc action cost / wt tooling comments f2ac-3a274-ca rim line delete \$ 0.30/20 \$ 2,200 spent f2ac-3493-a1 rim line new \$ 1.18/30 @ \$ 2,500e +\$ 0.88 e f2ac-3a274-da rim line delete \$ 0.19/13 \$ 1,800 spent f2ac-3493-b1 rim line new \$ 0.34/ac @ \$ 1,800 +\$ 0.23 e important: tooling & pc cost \$ 4,300 +\$ 1.11 e # memo: phase 1 builds used (f2ac-3493-a1) hose any @ memo: new lines/muting require shielding for protection. design Activity: please design & rel. components stated above. Also, please update p/i & illustration sheets as required. Break down: standard parts p/n desc action comments n605917-a56 bolt info only deleted on e 10057561/rwj 97242-a101 clamp info only deleted on e 10057561/rwj c8de-3287-as clamp info only released on e 10057561/rwj e8ta-3c510-as clamp rel. 91 fn-36 on e 10047814/tha 95873-a101 strap rel. Positive retention 3493 ***** sys gen components removed.... 9/10/29

_ F F0VC 3A563 JA NOSE 110203 000 NOSEE10065839000R P IR 90/04/18

<TUBE.ASY-P/S.PUMP.RETURN....> <.....>

CR Description:

_ F F1VC 3A563 A1 NC00 110203 000 NC00E10011356002R P IR 89/06/23

<TUBE.ASY-P/S.PUMP.RETURN....> <.....>

- CR Description: 1991 fn36 requires all new p/s hydraulic distribution system for packaging & bta dfa reasons. The p/s pressure line contacts front end stabilizer bar. Design activity: please design and release all new p/s hydraulic distribution system to avoid contact with the front end stabilizer bar, please accommodate bta dfa concerns. Also, please review p/i & illustration sheets and update accordingly. See marked up copies attached. Processing activity: please update process sheets as req'd.

_ F F1VC 3A563 BA NC00 110203 000 NC00E10057561002R P IR 90/03/28

<TUBE.ASY-P/S.PUMP.RETURN....> <.....>

- CR Description: supplement required to delete p/s return tube sys omitted on Supplement 000.

_ F F1VC 3A563 B1 NC00 110203 000 NC00E10010977020R P IR 89/07/07

<TUBE.ASY-P/S.PUMP.RETURN....> <.....>

- CR Description: initial release of p/s hoses, cooler & att. Parts. Sys gen components removed.... 01/04/90 sys gen components removed.... 01/26/90 sys gen components removed.... 90/03/30

PROP Valves:

_ C F2VC 2B091 CC NC00 060202 000 NC00E10129983000R P IR 92/04/02

<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

- CR Description: adding abs to limo must be coordinated change between nb00 (body), nd0w (axle), and nc00. Chassis cannot support job #1, 1993 timing, and requests affected parts be retimed for J4p93a. This notice releases abs brakes as standard on limo & body must modify usage to include f0vb-2c309-ad, f0vb-2c312-ac, and n801164-a43 for limo application. (these parts are currently released for non-limo only). The axle asy f3vw-4001-a1 (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to f3vc-9s294-a and delete f3vc-9s294-ba. I will include an add/delete parts list for all brake parts with the notice package. The only new brake subsystem parts are for the 11" brake asy and prop valves. All other parts are usage changes or resurrections of 1990 parts. The total chassis costs are \$293 v/c and \$160000 tooling to add abs to the limousine package. *** as in today's non-abs limo, two prop valves will be released the first, which will be installed by wixom will look identical to the abs valve used on the base car although it will have a different performance. It will have a black sticker to identify it from production valves. The second will GO INTO A KIT FOR USE when/if the vehicle is modified. This will continue to have a green sticker for identification. --- fmvss should be tested. B&A, schmanski & genikas, insist on not changing tube out to prevent mis-build. Brakes requests bta concurrence they will process to prevent any mis build, i.e. black sticker valve on non limo, or unstickered valve on limo.

To Concern: _____ Alert: _____ (Func/Release)

Sel C/P Part: _____ Acty CPSC: _____ Seq Release: _____ IS C/S Date: _____

_ F F2VC 2B091 AA NC00 060605 000 NC00E10128004001R P IR 91/07/11

<VALVE,ASY,BRK,PRESS,CONTROL> <ANTI-SPIN,BRAKES,WITH,SPEED,CONTROL,FB/FP..>

- CR Description: for fu36 and ea53 - with abs; release new prop valve(2b091) with modified bracket - extended for attachment of fuel line clip.

For non-abs ea53, release new adapter ways (2c320) With similarly modified bracket.

New part replaces usage

F2ac-2b091-aa f1vc-2b091-ad abs w/o new speed control

F2ac-2b091-ba f2vc-2b091-na abs w/ new speed control

F2ac-2c320-bb f2ac-2c320-ba non-abs w/o new spd ctrl

F2ac-2c320-ch f2ac-2c320-ca non-abs w/ new spd ctrl

- until production tooling, is/d parts are available, alert a10128004 authorizes use of pm parts.

- summary

(incremental) price cost tooling weight

Non abs (with & w/o spd ctrl) \$1.00 \$50,000 0.20 #

Abs (with & w/o spd ctrl) \$0.35 \$100,000 0.16 #

_ F F2VC 2B091 A1 NC00 060605 000 NC00E10014063008R P IR 90/05/24

<VALVE,ASY,BRK,PRESS,CONTROL> <.....>

- CR Description: initial release fu36 frames sys gas components removed..... 10/25/89

_ F F2VC 2B091 BA NC00 060605 000 NC00E00444499336R P IR 91/01/18

<VALVE,ASY,BRK,PRESS,CONTROL> <.....>

- CR Description: initial release of proportioning valve & junction block with p.i.a. speed control deactivation switch

_ F F2VC 2B091 CA NC00 060605 000 NC00E10117988001R P IR 91/02/28

<VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>

- CR Description: USAGE CHANGE

_ F F2VC 2B091 CB NC00 060605 000 NC00E10128004004R P IR 91/07/25

<VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>

- CR Description: f2vc-2b382-ab released in error. Delete and cancel f2vc- 2b382-ab. Non-limousine--restate f2vc-2b382-ab as a component of f2vc-2b091-na and f2vc-2b091-ba. Limousine--release f2vc-2b091-ch with f2vc-2b382-ba as a component. F2vc-2b091-ch replaces f2vc-2b091-ca.

_ F F2VC 2B091 CC NC00 060605 000 NC00E10184338000R P IR 92/02/11

<VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>

- CR Description: until production tooling, is/d parts are available use pm's

_ C F3VC 2B091 BA NC00 060202 000 NC00E10129983005R P IR 92/08/21

<VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>

- CR Description: adding abs to limo must be coordinated change between nb00 (body), n00w (axle), and nc00. Chassis cannot support job #1, 1993 timing, and requests affected parts be retimed for j4p93a. This notice releases abs brakes as standard on limo& body must modify usage to include f0vb-2c309-ad, f0vb-2c312-ac, and n801164-a43 for limo application. (these parts are currently released for non-limo only). The axle sys f3vw-4001-a1 (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to f3vc-9a294-as and delete f3vc-9a294-ba. I will include an add/delete parts list for all brake parts with the notice package. The only new brake subsystem parts are for the 11"brake sys and prop valves. All other parts are usage changes or resurrections of 1990 parts. The total chassis costs are \$293 v/c and \$160000 tooling to add abs to the limousine package. *****as in today's non-abs limo, two prop valves will be released the first, which will be installed by wixom will look identical to the abs valve used on the base car although it will have a different Performance. It will have a black sticker to identify it from production valves. The second will go into a kit for use when/if the vehicle is modified. This will continue to have a green sticker for identification. --- fmvss should be tested. B&K, schmanaki & geniks, insist on not changing tube nut to prevent mis-build. Brakes requests b&K concurrence they wil l proceed to prevent any mls build, i.e. black sticker valve on non limo, or unstickered valve on limo. *****clarify usage and effective points for the limo w/out abs and limo w/abs in 93 on the prop valve (2b091) and the limo brk conv kits (2a201).

To Contact: _____ Alert: _____ (Func/Release)
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS C/N Date: _____
 - F F3VC 2B091 AA NC00 060605 000 NC00E10129983005R P IR 92/08/21
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO>

- CR Description: adding abs to limo must be coordinated change between ab00 (body), nd0w (axle), and nc00. Chassis cannot support job #1, 1993 timing, and requests affected parts be retimed for j4p93a. This notice releases abs brakes as standard on limo & body must modify usage to include f0vb-2c309-ad, f0vb-2c312-ac, and a801164-s43 for limo application. (these parts are currently released for non-limo only). The axle assy f3vw-4001-a1 (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to f3vc-9a294-aa and delete f3vc-9a294-ba. I will include an add/delete parts list for all brake parts with the notice package. The only new brake subsystem parts are for the 11" brake assy and prop valves. All other parts are usage changes or resurrections of 1990 parts. The total chassis costs are \$293 w/o and \$160000 tooling to add abs to the limousine package. ***** in today's non-abs limo, two prop valves will be released the first, which will be installed by wixom will look identical to the abs valve used on the base car although it will have a different performance. It will have a black sticker to identify it from production valves. The second will go into a kit for use when/if the vehicle is modified. This will continue to have a green sticker for identification. --- f3vss should be tested. B&a, schmanaki & genikow, insist on not changing tube nut to prevent mis-build. Brakes requests b&a concurrence they will process to prevent any mis build, i.e. black sticker valve on non limo, or unstickered valve on limo. *****clarify usage and effective points for the limo w/out abs and limo w/abs in 93 on the prop valve (2b091) and the limo brk conv kits (2a281).

- F F3VC 2B091 BA NC00 060605 000 NC00E0044499662R P IR 92/09/16
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO>

- CR Description: delete the abs mfc from the limo usage

Air Suspension:

- F F2VC 3B484 AA NC00 040501 000 NC00E10126577000R P IR 91/05/28
 <COMPR.&DRYER,ASY,SUSP,AIR,S> <.....>

- CR Description: to eliminate compressor noise, the current mounting washer is to be replaced with a thicker (1.5mm vs 1.0mm), harder (311c vs 34 rh) washer. Part numbers are affected as follows

CAR LINE PART NAME CURRENT NUMBER REVISED NUMBER

1992 FN36	COMP/DRYER ASSY	F2VC-3B484-AA	F2VC-3B484-AB
1992 FN36	COMPRESSOR ASSY	F2VC-2875-AA	F2VC-2875-AB
1992 EN53	COMP/DRYER ASSY	F2AC-3B484-AD	F2AC-3B484-AE
1992 EN53	COMPRESSOR ASSY	F2AC-2875-AD	F2AC-2875-AE

- F F2VC 3B484 AB DE00 040500 000 DE00E10267019004R P IR 93/09/24
 <COMPR.&DRYER,ASY,SUSP,AIR,S> <.....>

- CR Description: supplement to effect out p996 air suspension parts

- F F2VC 3B484 AB NC00 040501 000 NC00E10170180000R P IR 91/12/02
 <COMPR.&DRYER,ASY,SUSP,AIR,S> <.....>

- CR Description: Implement a redesigned compressor yoke gasket. The new gasket, which is 50% wider and 100% thicker, is more substantial and, therefore, easier to positively locate in the gasket retaining groove. The retaining groove on the compressor crank case will be enlarged to accommodate the revised gasket. Tekico has agreed to submission test 15,000 fn36, and 15,000 en53 compressors with revised gaskets to verify the effectiveness of this corrective action.

- F F2VC 3B484 AC NC00 040501 000 NC00E10221208000R P IR 92/08/05
 <COMPR.&DRYER,ASY,SUSP,AIR,S> <.....>

- CR Description: revise compressor mounting bracket to provide sufficient clearance to the leader apron. Supplier has provided a proposal which increases clearance from zero to five mm. Timing - assuming \$5,000 obsolescence cost for en53 brackets Wixom - to receive parts by sept 15, 1992 St. Thomas - to receive parts by Jan 1993 part numbers will be affected as follows:

COMPONENT	CURRENT P/N	NEW P/N
FN36 COMPRESSOR & DRYER ASSY	F2VC-3B484-AC	F3VC-3B484-AA
FN36 COMPRESSOR ASSY SVC. ONLY	F2VC-2875-AC	F3VC-2875-AA
EN53 COMPRESSOR & DRYER ASSY	F2AC-3B484-AA	F3AC-3B484-AA
EN53 COMPRESSOR ASSY SVC. ONLY	F2AC-2875-AP	F3AC-2875-AA

To Concern: _____ Alert: _____ [Fund Release]
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS CIB Date: _____

_ F F3VC 3B484 AA NC00 040501 000 NC00E00444499915IR P IR 93/09/24

<COMPL&DRYER,ASY-SUSP,AIR,S> <.....>

- CR Description: this notice supplement supports alert #10336934 which releases air suspension air compressors minus the rubber air intake hose & mounting clip. Parts to be identified by a "pm" prefix. See referenced alert for further description.

ABS HCU: note in 1993... Towncar adopted Mark VIII ABS HCU as a complexity reduction (ABS or ABS/TC?)

_ F F1VC 2C286 AA NC00 060903 000 NC00E10098043000IR P IR 90/10/11

<CONTR,ASY-BRK,ANTI/LK,HYD> <.....>

- CR Description: use 1991 fn36 abs without traction assist. Label the hydraulic control unit and the shipping boxes that the unit arrive in for both fn36 & fn9. The labels should read "towncar" for the fn36 and "continental" for the fn9. The labels on the boxes should be large so that a hi-lo driver can read them from the operators chair. This should continue until the fool-proof connectors become available as per components with fool-proof connectors release on c10053836 not c10090911 which was rejected in favor of this alert. Also, labels should continue to be used even after fool-proof connectors are available. It should be noted that body electrical still has not released the wiring harness change to incorporate the fool-proof connector.

_ F F3VC 2C286 AA NC00 060903 000 NC00E10185750000IR P IR 92/04/29

<CONTR,ASY-BRK,ANTI/LOCK,HYD> <.....>

- CR Description: the unused christmas tree retainer on the 19-pin connector will be removed and 4 tie straps (one at each end of the 19-pin and 4-pin connectors) will be added to keep the wires within the convolute. Cost is \$0.42 piece cost, \$0 tooling. This is a 1992 running change for fn33/fn36, **** in addition, this notice will release a different reservoir cap and replace the current rubber plugs in the tube ports with a single tape strip covering the ports. These are for contamination prevention during shipping, and are removed before assembly. This is a no cost change, and is being released on the dn5 and fn9 drawings as well as the en53/fn36. The dn5 and fn9 part numbers will not change, ***** this notice also releases f2vc-2c266-as for service only. F2vc-2c266-as is an abs valve block that will service 1991 and part of the 1992 model year fn36 abs-only vehicles. This part has the disc/disc calibration and a black connector. F2ac-2c266-as (already released) will continue to service the latter part of the 1992 model year built with the gray connector. The release of f2vc-2c266-as is done at no cost, no tooling.

_ F F3VC 2C286 AB NC00 060903 000 NC00E10249956000IR P IR 92/12/03

<CONTR,ASY-BRK,ANTI/LOCK,HYD> <.....>

- CR Description: modify 19-way cannon connector with internal key-way to prevent 180 degree rotation by mistake. testing tbd. this is a one model year change. however, it involves safety concerns and should be incorporated.

_ F F3VC 2C286 AC NC00 060903 000 NC00E10249956000IR P IR 92/12/03

<CONTR,ASY-BRK,ANTI/LOCK,HYD> <.....>

- CR Description: modify 19-way cannon connector with internal key-way to prevent 180 degree rotation by mistake. testing tbd. this is a one model year change. however, it involves safety concerns and should be incorporated.

_ C F1VC 2C285 BB NC00 060903 001 NC00E10068739002IR P IR 90/04/18

<CONTR,ASY-BRK,A/LK,TRCTION,H> <.....>

- CR Description: to provide power tool access at the rear of the hcu to the inbound tube nut, revise the tube nut extension for the secondary circuit in the hcu to f2c285 to be the same as the primary circuit tube nut extension to conform with changes made on the tube bundle f2c295.

_ C F1VC 2C285 BC NC00 060903 001 NC00E10068739002IR P IR 90/04/18

<CONTR,ASY-BRK,A/LK,TRCTION,H> <.....>

- CR Description: to provide power tool access at the rear of the hcu to the inbound tube nut, revise the tube nut extension for the secondary circuit in the hcu to f2c285 to be the same as the primary circuit tube nut extension to conform with changes made on the tube bundle f2c295.

_ F F1VC 2C285 A1 NC00 060903 000 NC00E10018851001IR P IR 89/05/22

<CONTR,ASY-BRK,ANTI/LK,HYD> <.....>

- CR Description: revise outlet porting of hydraulic control unit for manufacturing feasibility.

_ F F1VC 2C285 A1 NC00 060903 001 NC00E10018851001IR P IR 89/05/22

<CONTR,ASY-BRK,ANTI/LK,HYD> <REMOVAL, RESULTING FROM DUAL RELEASE RECORDS>

- CR Description: revise outlet porting of hydraulic control unit for manufacturing feasibility.

To Concern: _____ Alert: _____ Ifund/Release
 Sel C/F Part _____ Acty CPSC _____ Seq Release _____ IS CTR Date _____

_ F F1VC 2C285 BA NC00 060903 000 NC00E10068739002IR P IR 90/04/18

<CONTR.ASY-BRK.ANTI/LK.HYD...> <.....>

- CR Description: to provide power tool access at the rear of the hcu to the inboard tube nut, revise the tube nut extension for the secondary circuit in the hcu to 92c285 to be the same as the primary circuit tube nut extension to conform with changes made on the tube bundle 92c286.

_ F F1VC 2C285 BB NC00 060903 000 NC00E00444499323IR P IR 90/12/17

<CONTR.ASY-BRK.A/LK.Traction.H> <.....>

- CR Description: usage change: effective point revision to brake anti-lock hydraulic controls due to part availability.

_ F F1VC 2C285 BC NC00 060903 000 NC00E10068739003IR P IR 90/05/24

<CONTR.ASY-BRK.A/LK.Traction.H> <.....>

- CR Description: to provide power tool access at the rear of the hcu to the inboard tube nut; 1. Revert the abs hcu common extensions, for attaching of the brake tubes from the master cylinder, to one long and one short extension. This is a \$0.48 piece cost save at \$0.00 tool cost. 2. Increase the length of the secondary circuit brake tube 10.0, increase the length of the tube nut to compensate for the short extension at the hcu, and revise the tube nut to m12 from m10. This is a piece cost increase of \$0.08 and a tool cost of \$10000.00. These changes will maintain the tube nut hex in the current location, continuing to provide power tool access, at a net piece cost save of \$0.40 and \$10000.00 tool cost. Sys gen components removed.... 90/08/21

_ F F1VC 2C285 CA NC00 060903 000 NC00E10117341001IR P IR 91/02/28

<CONTR.ASY-BRK.A/LK.Traction.H> <.....>

- CR Description: release f1vc-2c296-cb in place of f1vc-2b296-ac and/or gm-f1vc-2b296-ca. F1vc-2c296-cb has two m10 tube nuts to mate with the m10 fittings on the revised traction control hcu. Pwvss is not affected. --- incorporation in production of the brake tube bundle f1vc-2c296-cb must be coordinated with incorporation in production of the hcu-2c285 released on nc00-e10117341 000.

_ F F1VC 2C285 CB NC00 060903 000 NC00E10145527000IR P IR 91/09/22

<CONTR.ASY-BRK.A/LK.Traction.H> <.....>

- CR Description: change from spiral wrap to convolute tubing, add a "christmas tree" to the 19-pin connector pigtail, and add a hole to the 2c303 bracket to retain the pigtail for both eu53 and fu36.

1992/93 Lincoln Town Car Parts Lists

To Contact: _____ Alerts: _____ (Func) Release
 Sel C/F Part _____ Acty CPSC _____ Seq Release _____ 18 CIB Date _____
 Brake Booster/Master Cylinder Assy -

- F FIVC 2B195 AB NC00 060701 000 NC00E10391082000R P IR 94/03/29
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 BA NC00 060701 000 NC00E10041053000R P IR 89/11/11
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 B2 NC00 060701 000 NC00E10010977026R P IR 89/05/22
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 B2 NC00 060701 001 NC00E0044499092R P IR 89/09/22
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CA NC00 060701 000 NC00E10048319001R P IR 90/02/14
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CB NC00 060701 000 NC00E10057809001R P IR 90/03/28
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CC NC00 060701 000 NC00E10070190000R P IR 90/06/04
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CD NC00 060701 000 NC00E10092919000R P IR 90/10/03
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CE NC00 060701 000 NC00E10084269000R P IR 90/10/24
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CF NC00 060701 000 NC00E10104848000R P IR 90/11/28
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 CG NC00 060701 000 NC00E10300678000R P IR 93/05/20
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 DA NC00 060701 000 NC00E10070190000R P IR 90/06/04
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 DB NC00 060701 000 NC00E10084269000R P IR 90/10/24
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 DC NC00 060701 000 NC00E10104848000R P IR 90/11/28
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>
 - F FIVC 2B195 DD NC00 060701 000 NC00E10079779020R P IR 92/08/27
 <BSTR.&MSTR.CYL.ASY.BRK> <.....>

Brake Booster Assy -

- C FIVC 2005 AA NC00 060701 000 NC00E10042672000R P IR 89/11/17
 <BSTR.ASY-BRK> <.....>
 - C FIVC 2005 AB NC00 060701 000 NC00E10107234042R P IR 93/05/20
 <BSTR.ASY-BRK> <.....>
 - C FIVC 2005 AC NC00 060701 000 NC00E10079779040R P IR 94/01/03
 <BSTR.ASY-BRK> <NON.ABS>
 - C FIVC 2005 BA NC00 060701 001 NC00E10640585005R P IR 98/09/03
 - F FIVC 2005 AA NC00 060701 000 NC00E10032035000R S IR 89/09/08
 <BSTR.ASY-BRK> <SERVICE ONLY>

Master Cylinder & Pressure Control Valve Assy -

- C FIVC 2C156 AA NC00 060701 000 NC00E10348036000R P IR 93/11/18
 <CYL.&PRESS.CONTR.VLV.ASY-BR> <NON.ABS>

TUBE.ASY-FUEL.RETURN.&BRAKE

- F FIVC 9L291 AA NC00 100103 000 NC00E10019802001R P IR 89/06/26
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>
 - F FIVC 9L291 AB NC00 100103 000 NC00E10027703000R P IR 89/09/06
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>
 - F FIVC 9L291 AC NC00 100103 000 NC00E10037380000R P IR 89/11/27

1992/93 Lincoln Town Car Parts Lists

To Concern: _____ Alert: _____ If Used/Released
 Set C/F Part _____ Acty CPSC Seq Release _____ IS CBS Date _____
 _ F F3VC 3B484 AA NC00 040501 000 NC00E004449991SR P IR 93/09/24
 <CONTR.ASY-BRK.ASY-SUSP.AIR.S> <.....>

ABS HCU: note in 1993... Towncar adopted Mark VIII ABS HCU as a complexity reduction (ABS or ABS/TC7)

_ F F1VC 2C286 AA NC00 060903 000 NC00E10098043000IR P IR 90/10/11
 <CONTROL.ASY-BRK.ANTI/LK.HYD> <.....>
 _ F F3VC 2C286 AA NC00 060903 000 NC00E10185750000IR P IR 92/04/29
 <CONTR.ASY-BRK.ANTI/LOCK.HYD> <.....>
 _ F F3VC 2C286 AB NC00 060903 000 NC00E10249956000IR P IR 92/12/03
 <CONTR.ASY-BRK.ANTI/LOCK.HYD> <.....>
 _ F F3VC 2C286 AC NC00 060903 000 NC00E10249956000IR P IR 92/12/03
 <CONTR.ASY-BRK.ANTI/LOCK.HYD> <.....>
 _ C F1VC 2C285 BB NC00 060903 001 NC00E10068739002IR P IR 90/04/18
 <CONTR.ASY-BRK.A/LK.TRTION.H> <.....>
 _ C F1VC 2C285 BC NC00 060903 001 NC00E10068739002IR P IR 90/04/18
 <CONTR.ASY-BRK.A/LK.TRTION.H> <.....>
 _ F F1VC 2C285 A1 NC00 060903 000 NC00I10018851001IR P IR 89/05/22
 <CONTR.ASY-BRK.ANTI/LK.HYD> <.....>
 _ F F1VC 2C285 A1 NC00 060903 001 NC00I10018851001IR P IR 89/05/22
 <CONTR.ASY-BRK.ANTI/LK.HYD> <REMOVAL RESULTING FROM DUAL RELEASE RECORDS>
 _ F F1VC 2C285 BA NC00 060903 000 NC00E10068739002IR P IR 90/04/18
 <CONTR.ASY-BRK.ANTI/LK.HYD> <.....>
 _ F F1VC 2C285 BB NC00 060903 000 NC00E0044499323IR P IR 90/12/17
 <CONTR.ASY-BRK.A/LK.TRTION.H> <.....>
 _ F F1VC 2C285 BC NC00 060903 000 NC00E10068739003IR P IR 90/03/24
 <CONTR.ASY-BRK.A/LK.TRTION.H> <.....>
 _ F F1VC 2C285 CA NC00 060903 000 NC00E10117341001IR P IR 91/02/28
 <CONTR.ASY-BRK.A/LK.TRTION.H> <.....>
 _ F F1VC 2C285 CB NC00 060903 000 NC00E10145527000IR P IR 91/09/22
 <CONTR.ASY-BRK.A/LK.TRTION.H> <.....>

1992/93 Lincoln Town Car Parts Lists

To Concern: _____ Alert: _____ Ifunc/Release _____
 Sel C/F Part _____ Acty CPSC _____ Seq Release _____ IS CUS Date _____
 - F F3VC 9L291 AC NC00 100103 000 NC00E10236663000R P IR 92/09/04
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 - F F3VC 9L291 BA NC00 100103 000 NC00E10236663000R P IR 92/09/04
 <TUBE,ASY-FUEL,&BRAKE(LH).> <.....>

TUBE,ASY-P/S,RETURN

C F1VC 3A563 BA NC00 110203 000 NC00E10108105001R P IR 91/01/29
 <TUBE,ASY-P/S,RETURN.....> <.....>
 - C F1VC 3A563 FA NC00 110203 000 NC00E10074000000R P IR 90/05/10
 <TUBE,ASY-P/S,RETURN.....> <.....>
 - C F1VC 3A563 FB NC00 110203 000 NC00E10145560002R P IR 93/07/17
 <TUBE,ASY-P/S,RETURN.....> <.....>
 - C F3VC 3A563 A1 NC00 110203 000 NC00E10145560002R P IR 93/07/17
 <TUBE,ASY-P/S,RETURN.....> <.....>
 - F F0VC 3A563 JA NC00 110203 000 NC00E10057562000R P IR 90/06/20
 <TUBE,ASY-P/S,PUMP,RETURN...> <PCN=9BVA1104025.....>
 - F F0VC 3A563 JA NOSE 110203 000 NOSEE10065839000R P IR 90/04/18
 <TUBE,ASY-P/S,PUMP,RETURN...> <.....>
 - F F1VC 3A563 A1 NC00 110203 000 NC00E10011356002R P IR 89/06/23
 <TUBE,ASY-P/S,PUMP,RETURN...> <.....>
 - F F1VC 3A563 BA NC00 110203 000 NC00E10037561002R P IR 90/03/28
 <TUBE,ASY-P/S,PUMP,RETURN...> <.....>
 - F F1VC 3A563 B1 NC00 110203 000 NC00E10010977020R P IR 89/07/07
 <TUBE,ASY-P/S,PUMP,RETURN...> <.....>

PROP Valves:

- C F2VC 2B091 CC NC00 060202 000 NC00E10129983000R P IR 92/04/02
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>
 - F F2VC 2B091 AA NC00 060605 000 NC00E10128004001R P IR 91/07/11
 <VALVE,ASY,BRK,PRESS,CONTROL> <ANTI-SPIN,BRAKES,WITH,SPEED,CONTROL,FB/FP..>
 - F F2VC 2B091 A1 NC00 060605 000 NC00E10014063008R P IR 90/05/24
 <VALVE,ASY,BRK,PRESS,CONTROL> <.....>
 - F F2VC 2B091 BA NC00 060605 000 NC00E00444499336R P IR 91/01/18
 <VALVE,ASY,BRK,PRESS,CONTROL> <.....>
 - F F2VC 2B091 CA NC00 060605 000 NC00E10117988001R P IR 91/02/28
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>
 - F F2VC 2B091 CB NC00 060605 000 NC00E10128004004R P IR 91/07/25
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>
 - F F2VC 2B091 CC NC00 060605 000 NC00E10184338000R P IR 92/02/11
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>
 - C F3VC 2B091 BA NC00 060202 000 NC00E10129983005R P IR 92/08/21
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>
 - F F3VC 2B091 AA NC00 060605 000 NC00E10129983005R P IR 92/08/21
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>
 - F F3VC 2B091 BA NC00 060605 000 NC00E00444499662R P IR 92/09/16
 <VALVE,ASY,BRK,PRESS,CONTROL> <LIMO.....>

Air Suspensions:

- F F2VC 3B484 AA NC00 040501 000 NC00E10126577000R P IR 91/03/28
 <COMPR.&DRYER,ASY-SUSP,AIR.S> <.....>
 - F F2VC 3B484 AB DB00 040500 000 DB00E10267019004R P IR 93/09/24
 <COMPR.&DRYER,ASY-SUSP,AIR.S> <.....>
 - F F2VC 3B484 AB NC00 040501 000 NC00E10170180000R P IR 91/12/02
 <COMPR.&DRYER,ASY-SUSP,AIR.S> <.....>
 - F F2VC 3B484 AC NC00 040501 000 NC00E10221208000R P IR 92/08/05
 <COMPR.&DRYER,ASY-SUSP,AIR.S> <.....>

1992/93 Lincoln Town Car Parts Lists

To Concern: _____ Alert: _____ (Func)Release
 Set C/P Part: _____ Acty CPSC: _____ Seq Release: _____ 4S CMS Date: _____

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AD NC00 100103 000 NC00E10048573000R P IR 90/01/30
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AE NC00 100103 000 NC00E10048573002R P IR 90/02/21
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AF NC00 100103 000 NC00E10048573007R P IR 90/03/20
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AG NC00 100103 000 NC00E10066976000R P IR 90/03/30
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AH NC00 100103 000 NC00E10066976001R P IR 90/04/10
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AJ NC00 100103 000 NC00E10069882000R P IR 90/04/23
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AK NC00 100103 000 NC00E10080556000R P IR 90/07/03
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AL NC00 100103 000 NC00E10080556000R P IR 90/07/03
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AM NC00 100103 000 NC00E10086498000R P IR 90/08/02
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AN NC00 100103 000 NC00E10086523000R P IR 90/08/10
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AR NC00 100103 000 NC00E10078761000R P IR 90/09/17
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 AS NC00 100103 000 NC00I10010977019R P IR 89/05/05
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 BA NC00 100103 000 NC00E10091352000R P IR 90/10/10
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 CA NC00 100103 000 NC00E10095356000R P IR 90/10/19
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 CB NC00 100103 000 NC00E10102784000R P IR 90/11/16
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 CC NC00 100103 000 NC00E10112226000R P IR 91/01/16
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 CD NC00 100103 000 NC00E10124098000R P IR 91/03/20
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 CE NC00 100103 000 NC00E10124098002R P IR 91/05/31
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F1VC 9L291 CF NC00 100103 000 NC00E10128004005R P IR 91/07/26
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F2VC 9L291 AA NC00 100103 000 NC00E10124098002R P IR 91/05/31
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F2VC 9L291 AB NC00 100103 000 NC00E10128004000R P IR 91/07/15
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F2VC 9L291 AC NC00 100103 000 NC00E10165200000R P IR 91/11/16
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F2VC 9L291 AD NC00 100103 000 NC00E10180678000R P IR 92/01/09
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F2VC 9L291 AE NC00 100103 000 NC00E10180678001R P IR 92/01/21
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F3VC 9L291 AA NC00 100103 000 NC00E10165200000R P IR 91/11/16
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>
 F F3VC 9L291 AB NC00 100103 000 NC00E10180678000R P IR 92/01/09
 <TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

1981-85 LINCOLN/CROWN VIC/GRAND MARQ BRAKE PART NUMBERS

Part Name	Base Part #
Brake Adapter Assy	-2C220-
Hub/Rotor Assy	-1125- 060301
Caliper Assy	-2B118- 060302
	-2B119-
Parking Brake Cable	-2780- 060502
• FRT	-2863-
Brake Pedal Support Assy	-2450- 060602
Brake Hose - FRT	-28657- 060603
Booster & Master Cyl.	-2B195- 060701
	-2005- "
	-2C158-
Hoses	
w/o ABS FRT LH	-2267- 060802
w/ ABS MVC FRT	-2A040- "
Control Valve	-2B091- 060805 JcE
• - Junction Box	-2C320- "
ABS	
- Hydraulic Control Unit (HCU)	-2C285- 060903
- HCU Bracket	-2C304- "
- Electronic Control Unit (ECU)	-2C210-
- ECU bracket	-2C214-
- Pump Motor Bracket	-2C013-
- Sensor	-2C190- 060901
• bracket	-2C218-

BA
FMC-66/6C A1

DATE: 01/05/99

TIME: 11:11:44

PAGE: 1

CROWN VIC-GRAND MARQUIS 060301

LV	PREFIX	BASE	SUFFIX	PARTNAME/REMARKS	ACTY	CPSC	REQ	F	NOTICE	WGT/TYPE	C.O.G	P F E C R S S C	C I T I I I P S S	QTY A IN/OCT	UOM
01	F3VC	1125	EA	DISC-FRT WHEEL BRAKE UNPAINTED-FOR SERVICE ONLY	NC00	060301	000	2	NC00E10640585004R AFB-----			S N M Y B Y X X N	2 P 920831	EA 991231	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10640585004R AFB-----			S N M Y B Y X X N	2 P 920831	EA 991231	
01	F3VC	1125	FA	DISC-FRT WHL BRK PAINTED-SERVICE ONLY	NC00	060301	000	2	NC00E10640585004R AFB-----			S N M Y B Y X X N	2 P 920831	EA 991231	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10640585004R AFB-----			S N M Y B Y X X N	2 P 920831	EA 991231	
01	F3VC	1125	AB	DISC-FRT WHEEL BRAKE PAINTED	NC00	060301	000	2	NC00E10878399000R CFB-----	22.6500	E	P N M Y B Y S S Y	2 P 971028	EA 010822	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10878399000R CFB-----	22.6500	E	P N M Y B Y S S Y	2 P 971028	EA 010822	
02	ESF1VC	1125	AA	SPEC-DISC FRONT WHL BRAKE REVISE N/A UNRESOLVED COMPONENTS PER REPORT	NC00	060301	000	2	NC00E10878399000R			P N M Y B N X X	F P 970701	EA 020624	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10878399000R			P N M Y B N X X	F P 970701	EA 020624	
02	ESF1VC	1306	AA	SPEC-BRK PACKAGING REVISE N/A UNRESOLVED COMPONENTS PER REPORT	NC00	060301	000	2	NC00E10878399000R			P N M Y B N X X	F P 970701	EA 020624	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10878399000R			P N M Y B N X X	F P 970701	EA 020624	
02	ESF17A	2L118	AA	SPEC-BRK SYS RECALL PREV	NC00	060301	000	2	NC00E10878399000R			P N M Y B N X X	F P 970701	EA 020624	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10878399000R			P N M Y B N X X	F P 970701	EA 020624	
01	XW13	1125	AA	DISC-FRT WHEEL BRAKE PAINTED	NC00	060301	000	2	NC00E10896515000R CFB-----	22.6500	E	P N M Y B Y	2 P 980831	EA 991231	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10896515000R CFB-----	22.6500	E	P N M Y B Y	2 P 980831	EA 991231	
02	ESF1VC	1125	AA	SPEC-DISC FRONT WHL BRAKE REVISE N/A UNRESOLVED COMPONENTS PER REPORT	NC00	060301	000	2	NC00E10878399000R			P N M Y B N X X	F P 980930	EA 991231	
		VAR CST:		A/I: TOOL CST: A/I: WT: A/I: UM:					NC00E10878399000R			P N M Y B N X X	F P 980930	EA 991231	

3713 6695

JUDY SIMMONS OSCAPAY
FRAN CONDO

PL — F2AC - 060603 - A1
F2VC - 060603 - A1

F2AC - 060603 - A1

F2VC - 060603 - A1

BRACKETUBE LAYOUTS

Brake Assembler Assy - 2C220

Hub/Potor Assy 1125

Caliper Assy 2B118

2B119

Parking Brake Cable 2780

2853 front

~~1288290~~

Brake Pedal Support Assy - 2450 -

Brake Hoses
RF

2B557

Boosters & Master Cylinder Assy 2B125

2005

2C156

Wiper
w/o ABS For LH

2B67

w/ ABS M/C Front

2A050

2C296

Control Valve
Function Exp.

2B091

2C320

ABS
Hydraulic control unit
HCU bracket

- 2285 -
2C304

ECU
ECU Bracket
Pump Motor Relay

2C219
2C214
2C013

Sensor
" Bracket

2C190
2C218

1981-85 LINCOLN/CROWN VIC/GRAND MARQ BRAKE PART NUMBERS

Part Name	Base Part #
Brake Adapter Assy	-2C220-
Hub/Rotor Assy	-1125-
Caliper Assy	-2B118-
	-2B119-
Parking Brake Cable	-2780-
▪ ▪ ▪ - FRT	-2863-
Brake Pedal Support Assy	-2450-
Brake Hose - FRT	-2B557-
Booster & Master Cyl.	-2B195-
	-2005-
	-2C158-
Hoses	
w/o ABS FRT LH	-2267-
w/ ABS M/C FRT	-2A040-
Control Valve	-2B091-
▪ ▪ ▪ - Junction Box	-2C320-
ABS	
- Hydraulic Control Unit (HCU)	-2C285-
- HCU Bracket	-2C304-
- Electronic Control Unit (ECU)	-2C219-
- ECU bracket	-2C214-
- Pump Motor Bracket	-2C013-
- Sensor	-2C190-
- ▪ bracket	-2C218-

J 92 JOB #1
L 93 JOB LAST

FUEL LINES 9L291

P. 82/82

313 594 2268 TO 06002

DEC 89 '98 14:29 FR AESO (500 EAST)

3713 6700

11/24/98

** TOTAL PAGE: 02 **

PE Opening Reports (PE98-055)
1992 Lincoln Town Car Engine Fires

NO.	Source	ST	VIN	MIY
1	813241	FL	1LNLM82W5N	92 - 9/10/91
2	824016	TX	1LNLM81W2N	92 - 3/16/92
3	808265	FL	1LNLM82W7N	92 - 7/30/92
4	821867	LA	1LNLM81W8N	92 - 6/25/92
5	979634	TX	1LNLM82W5N	92 - 11/25/91
6	521137	OK	1LNLM81W2N	92 - 3/10/92
7	F.D.R.	GA	1LNLM82W3N	92 - 5/20/92
8	804418	OH	1LNLM81W8N	92 - 4/14/92
9	541041	FL	1LNLM81W3N	92 - 7/16/92
10	F.D.R.	FL	1LNLM81W2N	92 - 4/7/92
11	F.D.R.	FL	1LNLM82W7N	92 - 2/5/92
12	A805260	FL	1LNLM81W0N	92 - 1/17/92
13	820316	FL	1LNLM81W3N	92 - 7/13/92
14	I/Net	FL	1LNLM81W8N	92 - 4/14/92
15	536208	MS	1LNLM83W9N	92 - 6/25/92
16	819821	LA	1LNLM82W5N	92 - 5/15/92
17	I/Net	FL	1LNLM82W4N	92 - 3/10/92
18	F.D.R.	GA	1LNLM82W1N	92 - 5/15/92
19	A804221	FL	1LNLM81WP2	93 - 8/28/91
20	823452	MS	1LNLM81W5P	93 - 9/30/93
21	F.D.R.	FL	1LNLM81WXP	83 - 10/20/92

Type in
VIN?



CAMPAIGN PREVENTION PROCESS

Team Member Matrix

CAMPAIGNABLE EVENT TEAM	CAMPAIGN EVENT SPECIALIST (CES)	CES BACKUP (U.S./EUROPE)	CHIEF ENGINEER MANAGER	ENGINEERING DIRECTOR
Unexpected Vehicle Movement	Jeff Williams - (PTO-Auto Shift Control) <i>WILLIAMS</i>	Ed Crawford - (PTO-Auto Shift Control) Rod Hamner - (Europe)	K. G. Welaga (Mgr./PTO)	F. G. Williams
Engine Speed Control	Doug Hugheson - (ACD-Cross Org. Tech.) <i>D. HUGHESON</i>	Jane Kinsinger (ACD-Cross Org. Tech.) Rob Bonnington - (Europe)	J. E. Aulier (Mgr./AVT)	G. L. Haycock
Fire - Electrical	Paul Vegh - (AVT-Elec. Dist. Sys.) <i>P. VEGH</i>	Rob English - (AVT-Elec. Dist. Sys.) Christine Gantzel - (Europe)	S. L. Cole (Mgr./AVT)	D. M. Kuzak
Fire - Fuel	Mike Harrigan - (AVT-Fuels Tech.) <i>M. HARRIGAN</i>	Jim Oldfield - (AVT-Fuels Tech.) Tony Fitzgerald - (Europe)	P. J. Ashburn (AVT-Chief Engr.)	C. L. Magee
Fire - Exhaust	Don Valle - (AVT-As Installed P/T) <i>D. VALLE</i>	Dick Huntley - (AVT-As Installed P/T) Oliver Tooby - (Europe)	R. W. Vrooman (Mgr./AVT)	G. L. Haycock
Steering Impaired	Bill Stewart - (AVT-Susp, Brg & Frame) <i>W. STEWART</i>	TBD/ Howard Jamieson - (Europe)	P. J. Ashburn (AVT-Chief Engr.)	C. L. Magee
Braking Control	Mike Bidol - (AVT-Brakes Tech.)	Joe Buttan (AVT-Brakes Tech.) Thomas Vater - (Europe)	P. J. Ashburn (AVT-Chief Engr.)	G. L. Magee
Mechanisms	Dave Gieglo - (AVT-Hardware Sys.) <i>D. GIEGLO</i>	Chris Norton - (AVT-Hardware Sys.) Martin Ulrecht - (Europe)	D. M. Sopko (AVT-Body Chief Engr.)	G. L. Magee

NOTE: "Fresh Eyes" Review only

CAMPAIGNABLE EVENT TEAM	CAMPAIGN EVENT SPECIALIST (CES)	CES BACKUP (U.S./EUROPE)	CHIEF ENGINEER MANAGER	ENGINEERING DIRECTOR
Occupant Movement	Bob Mezzadri - (AVT-Restraints/Seats) <i>R. MEZZADRI</i>	TBD/ John Charles - (Europe)	D. M. Sopko (AVT-Body Chief Engr.)	G. L. Magee
Subsidence	John A. Morriam (AVT-In use P/T Development) <i>J. MORRIAM</i>	Tom Kutz - (AVT-In use P/T Development) Nick Wright - (Europe)	R. R. Tuttle (Mgr./AVT)	G. L. Haycock

TEAM NAME	U.S. LEADER	EUROPEAN LEADER	U.S. MANAGER	EUROPEAN MANAGER	DIRECTOR
General Safety Compliance	Tom Loeley (ASSE) <i>T. LOELEY</i>	Mike Brand (Safety Reg. & Compliance)	Tom Spear (ASSE)	Richard Lewis (Safety Reg. & Compliance)	L. W. Camp

Please schedule the following Technical Review:

Date Time Subject:

Location:

Invitees:

Name

J. Paskus

R. Rankin

R. Harner

M. Zevallink

C. Taske

M. Renucci

J. Saklola

R. Widmer

J. Smith

M. Heyde

M. Sims

W. Bohan

J. Bradley

J. Logel

J. Neme

J. McInerney

Z. Deering

Phone ID

jpaskus

rrankin

rharner1

mzevalle

ctaske

mrenucci

jsaklola

rwidmer1

jsmith17

mheyde

msims

wbohan

jbradley

jlogel

jneme

jmcinera

zdeering

Admin

svokal

rburnask

scuda

llezotte

mgramzel

jjones10

jjones10

bwynn

hfoley

jkaraa

scxel

Info only (x)

FRC committee members

Purchasing :

Core - (Powertrain)

UMMS & ELECTRICAL

(INTERIOR)

(BODY & EXTERIOR)

VC.

J. Wellman

jwellman

mcross

M. O'Sullivan

mosulliv

theverle

Responsible Engineer

Responsible Engineering Manager

LVC Campaign Event Specialist:

Unexpected Veh. Mvmt / Engine Speed Control

R. Washington

rwashing

AVT Campaign Specialist:

Unexpected Veh. Mvmt

J. Williams

jwill138

* - cc meeting notice

Tech review meeting notice /zfd

3713 6703

David Patrick
74987

FRC COMPLETE/FOLLOW-UP[illegible]

01/06/1993

Attachments sent separately:

Data Type	File Name
BINARY	PIC31652.PCX_PC

1992/93 Lincoln Town Car Parts Lists

_ F F3VC 2B091 AA NC00 060605 000 NC00E10129983005R P IR 92/08/21

<VALVE.ASY.BRK.PRESS.CONTROL> <LIMO>

- Notice description: adding abs to limo must be coordinated change between ab00 (body), nd0w (axle), and ac00. Chassis cannot support job #1, 1993 timing, and requests affected parts be returned for j4p93a. This notice releases abs brakes as standard on limo & body must modify usage to include f0vb-2a309-ad, f0vb-2a312-aq, and n801164-s43 for limo application. (these parts are currently released for non-limo only). The axle asy f3vw-4001-al (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to f3vc-9a294-aa and delete f3vc-9a294-ba. I will include an add/delete parts list for all brake parts with the notice package. The only new brake subsystem parts are for the 11" brake asy and prop valves. All other parts are usage changes or resurrections of 1990 parts. The total chassis costs are \$293 v/c and \$160000 looking to add abs to the limousine package. ****as in today's non-abs limo, two prop valves will be released the first, which will be installed by wison will look identical to the abs valve used on the base car although it will have a different performance. It will have a black sticker to identify it from production valves. The second will go into a kit for use when/if the vehicle is modified. This will continue to have a green sticker for identification. — frvss should be tested. B&A, schmanski & genikas, insist on not changing tube nut to prevent mis-build. Brakes requests b&a concurrence they will process to prevent any mis build, i.e. black sticker valve on non limo, or unstickered valve on limo. *****clarify usage and effective points for the limo w/out abs and limo w/abs in 93 on the prop valve (2b091) and the limo brk conv kits (2a201).

_ F F3VC 2B091 BA NC00 060605 000 NC00E00444499662R P IR 92/09/16

<VALVE.ASY.BRK.PRESS.CONTROL> <LIMO>

- Notice Description: delete the abs mfc from the limo usage

C.R.

Air Suspension:

_ F F2VC 3B484 AA NC00 040501 000 NC00E10126577000R P IR 91/05/28

<COMPR.& DRYER.ASY-SUSP.AIR.S>

- Notice Description: TO ELIMINATE COMPRESSOR NOISE, THE CURRENT MOUNTING WASHER IS TO BE REPLACED WITH A THICKER (1.5MM VS 1.0MM), HARDER (38RC VS 34 RB) WASHER. PART NUMBERS ARE AFFECTED AS FOLLOWS

CAR LINE	PART NAME	CURRENT NUMBER	REVISED NUMBER
1992 FN36	COMP/DRYER ASSY	F2VC-3B484-AA	F2VC-3B484-AB
1992 FN36	COMPRESSOR ASSY	F2VC-2875-AA	F2VC-2875-AB
1992 EN53	COMP/DRYER ASSY	F2AC-3B484-AD	F2AC-3B484-AB
1992 EN53	COMPRESSOR ASSY	F2AC-2875-AD	F2AC-2875-AB

_ F F2VC 3B484 AB DE00 040500 000 DE00110267019004R P IR 93/09/24

<COMPR.& DRYER.ASY-SUSP.AIR.S>

- Notice Description:

_ F F2VC 3B484 AB NC00 040501 000 NC00E10170180000R P IR 91/12/02

<COMPR.& DRYER.ASY-SUSP.AIR.S>

- Notice Description:

_ F F2VC 3B484 AC NC00 040501 000 NC00E10221208000R P IR 92/01/05

<COMPR.& DRYER.ASY-SUSP.AIR.S>

- Notice Description:

To Concern: _____ Alert: _____ [Func/Release
Sel C/F Part: _____ Acty CPSC= Seq Release= _____ (S CHS Data= _____

_ F F3VC 3B484 AA NC00 040501 000 NC00E00444499915R P IR 93/09/24

<COMPR.& DRYER.ASY-SUSP.AIR.S>

- Notice Description:

ABS HCU: note in 1993... Towncar adopted Mark VII ABS HCU as a complexity reduction (ABS or ABS/TC7)

_ F F1VC 2C286 AA NC00 060903 000 NC00E103098043000R P IR 90/10/11

<CONTROL.ASY-BRK.ANTI/LK.RYD>

- Notice Description:

1992/93 Lincoln Town Car Parts List

• Notice Description:

_ F F0VC 3A563 JA NC00 110203 000 NC00E10057562000R P IR 90/06/20
<TUBE ASSY-P/S.PUMP.RETURN...> <PCN=9BVA1104025.....>

• Notice Description:

_ F F0VC 3A563 JA NC00 110203 000 NC00E10065839000R P IR 90/04/18
<TUBE ASSY-P/S.PUMP.RETURN...> <.....>

• Notice Description:

_ F F1VC 3A563 A1 NC00 110203 000 NC00I10011356002R P IR 89/06/23
<TUBE ASSY-P/S.PUMP.RETURN...> <.....>

• Notice Description:

_ F F1VC 3A563 BA NC00 110203 000 NC00E10057561002R P IR 90/03/28
<TUBE ASSY-P/S.PUMP.RETURN...> <.....>

• Notice Description:

_ F F1VC 3A563 B1 NC00 110203 000 NC00I10010977020R P IR 89/07/07
<TUBE ASSY-P/S.PUMP.RETURN...> <.....>

• Notice Description:

PROP Valves:

_ C F2VC 2B091 CC NC00 060605 000 NC00E10129983000R P IR 92/04/02
<VALVE ASSY.BRK.PRESS.CONTROL> <LIMO.....>

• Notice Description:

_ F F2VC 2B091 AA NC00 060605 000 NC00E10128004001R P IR 91/07/11
<VALVE ASSY.BRK.PRESS.CONTROL> <ANTI-SPIN.BRAKES.WITH.SPEED.CONTROL.FB/FP...>

• Notice Description:

_ F F2VC 2B091 A1 NC00 060605 000 NC00I10014063008R P IR 90/05/24
<VALVE ASSY.BRK.PRESS.CONTROL> <.....>

• Notice Description:

_ F F2VC 2B091 BA NC00 060605 000 NC00E00444499336R P IR 91/01/18
<VALVE ASSY.BRK.PRESS.CONTROL> <.....>

• Notice Description:

_ F F2VC 2B091 CA NC00 060605 000 NC00E10117988001R P IR 91/02/28
<VALVE ASSY.BRK.PRESS.CONTROL> <LIMO.....>

• Notice Description:

_ F F2VC 2B091 CB NC00 060605 000 NC00E10128004004R P IR 91/07/25
<VALVE ASSY.BRK.PRESS.CONTROL> <LIMO.....>

• Notice Description:

_ F F2VC 2B091 CC NC00 060605 000 NC00E10184338000R P IR 92/02/11
<VALVE ASSY.BRK.PRESS.CONTROL> <LIMO.....>

• Notice Description:

_ C F3VC 2B091 BA NC00 060202 000 NC00E10129983005R P IR 92/08/21
<VALVE ASSY.BRK.PRESS.CONTROL> <LIMO.....>

• Notice Description:

_ F F3VC 2B091 AA NC00 060605 000 NC00E10129983005R P IR 92/08/21
<VALVE ASSY.BRK.PRESS.CONTROL> <LIMO.....>

• Notice Description:

*release P.I.A. 3 speed control
PV Question Block
Addition switch*

CCRG M13. DOC
DEC-ECS. XLS
ESC-CODE. XLS
2MWARRAN. DOC
RISK-B. A. DOC



U.S. Department
of Transportation
National High
Traffic Safety
Administration

DEC 11

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Washington, D.C. 20590

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Automotive
Ford Motor
330 Town C
Dearborn, M

Motor
Vehicle and Engineering Standards Office
Dearborn
330 Town C
Drive
3306

NSA-12jfa
PE98-055

Dear Mr. Ca

This letter is to advise the due date for the November 24, 1998 information request letter regarding information PE98-055. The correct due date is January 15, 1999.

Sincerely,

Thomas Z. Cooper, Chief
Vehicle Integrity Division
Office of Defects Investigation



AUTO SAFETY HOTLINE
(800) 424-9393
Wash. D.C. Area (202) 366-0123

3713 6710



U.S. Department
of Transportation

National Highway
Traffic Safety
Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

7. J. BORAN--

NOV 24 1998

NOV 23 1998

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Schedule Number:	27.03

L.W. Camp, Director
Automotive Safety and Engineering Standards Office
Ford Motor Company
330 Town Center Drive
Dearborn, MI 48126

NSA-12jfa

PE98-055

Dear Mr. Camp:

This letter is to advise you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) is conducting a Preliminary Evaluation concerning engine compartment fires in certain Lincoln Town Car vehicles manufactured by the Ford Motor Company.

This office has received 21 reports of engine compartment fires in 1992 and 1993 Lincoln Town Cars. The fires in these vehicles are reported to have started while the vehicles were parked and the engines not running. Ten of the reports indicate a fire at the left front fender wheel well area (see photograph, page 6), two indicate a fire at the master cylinder, which is adjacent to the left front fender wheel well area, and the remaining nine reports indicate a fire in the engine compartment. Additionally, five of the reports indicate the vehicle owner's carport, garage, or home, was also damaged as a result of the fire.

A copy of each of the reports is enclosed for your information.

Unless otherwise stated in the text, the following definitions apply to this information request:

- **Subject vehicles:** all 1992 and 1993 Lincoln Town Car vehicles.
- **Ford:** Ford Motor Company, all of its past and present officers, employees, whether assigned to its principal offices or to any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged by or under the control of Ford Motor Company (including all business units and persons previously referred to) who are or were involved in any way with (a) design, analysis, modification or production; (b) testing, assessment or evaluation; or (c) record-keeping, claims, or lawsuits relating to the alleged defect in the subject vehicles.



AUTO SAFETY HOTLINE
(800) 424-9393
Wash. D.C. Area (202) 388-0123

3713 6711

- **Alleged defect:** all under hood fires, or other thermal anomalies, from any source or origin, of any description, level, degree, or magnitude occurring in the left, or drivers side, of the engine compartment. This would include fires in the area of the left front wheel, or left front fender.
- **Documents:** in the broadest sense of the word, shall mean all written, printed, typed, recorded or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, including but not limited to, papers, records, letters, correspondence, memoranda, communications, electronic mail messages (existing in hard copy and/or in electronic storage), faxes, notes, annotations, working papers, drafts, minutes, records, resolutions, books, pleadings, response to discovery, administrative and judicial filings, all transcripts and other recordings of any kind, affidavits, materials and things produced in discovery, statements, summaries, interviews, opinions, reports, newspaper articles, studies, analysis, evaluations, interpretations, applications, agreements, jottings, agendas, bulletins, notices, announcements, instructions, designs, specifications, blueprints, as-builts, manuals, brochures, publications, schedules, journals, statistical data, lists, tabulations, computer printouts, data processing input, data in storage, and data output, microfilm, microfiche, data from optical scanning or recording, photographs, tangible things, and all records kept by electronic, photographic, or mechanical means, any drafts or revisions pertaining to any of the foregoing, and all other things similar to any of the foregoing however denominated and any other data compilations from which information can be obtained, translated if necessary, into reasonably usable form and any other documents.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following questions. Please repeat each question verbatim before the response. If you have previously furnished ODI with information that is responsive to any item(s) in this request, you need not resubmit that information, but your response must cross-reference (by date of response and question number) the earlier submission. If Ford cannot answer any specific question, please state the reason why it is unable to do so. If you claim that any information or material responsive to the following items need not be divulged to the NHTSA because it is privileged, or the work product of an attorney, state the nature of that information or material and identify any document in which it is found by, date, subject or title, name and position of person from and person to whom it was sent, and name and position of any other recipient. You must also describe any privilege that you claim, and explain why you believe it applies.

1. State the total number of subject vehicles sold in the United States by model year.
2. State the number incidents, known to Ford, in which the alleged defect has been reported to have occurred in the subject vehicles. Furnish copies of all documents, from any and all sources, including documents which may not originally have been submitted to Ford, which

are in Ford's possession or control, or of which it is otherwise aware, that pertain, in any way, to any of these incidents. This should include, but is not limited to, all documents possessed by Ford, or of which it is otherwise aware, pertaining to the reports included with this letter. Furnish all documents whether or not Ford has verified the validity of each document. For each incident in this response please provide the vehicle owner's name, address, and telephone number, and identify all vehicles by vehicle identification number, model year, date of manufacture, date of retail sale, date of incident, mileage at the time of the incident, and problem description. For all incidents involving lawsuits please identify the caption, court, docket number, and filing date of each lawsuit and a copy of the complaint document initiating the lawsuit. Sort all incidents by cause and area or component of origin.

3. State the total number vehicles sold in the United States by model name and model year that have engine compartment configurations (i.e., components and component location, wiring harnesses and harness location) the same as the subject vehicles. Provide a response to question number two for all vehicles identified in your answer to this question.
4. State the number of all warranty claims, including extended warranty claims, and "goodwill," field or zone adjustments received by Ford that relate to the alleged defect in the subject vehicles by calendar year, calendar month, and problem identification. Identify all owners by name, address, and telephone number, and all vehicles by vehicle identification number, model name, model year, date of manufacture, date of retail sale, date of incident, mileage at the time of the incident, and problem description.
5. Identify all electrical circuits by name, number, and wire color, located in the left side of the engine compartment that are, or remain, energized by the battery when the ignition key is in the off position. For all circuits identified, provide a schematic drawing which identifies the harness(es) in which they reside, the harness location(s), and the components to which power is supplied.
6. Identify and describe all inspections, tests or other analyses conducted by Ford, its contractors, suppliers, or by any other entities, regarding the inspection of any subject vehicles that relate to the alleged defect, to date. Identify, by name and address, the entity that conducted each such test or analysis. Furnish copies of all reports, surveys, notes, tables, graphs or other documents that pertain to each such test or analysis. State when each test or analysis was initiated and concluded, or whether it is still in progress. Include in your response a description of a worst case scenario.
7. If Ford has issued any bulletins, advisories, or other communications to distributors, retailers, consumers, or any other entity pertaining to the alleged defect in the subject vehicles, provide a copy of each such document. If no such documents have been issued, so state.

8. Identify and describe all significant modifications or changes made by or on behalf of Ford in the manufacture, design, or material composition of all components in the subject vehicles that may relate to the alleged defect. The following information must be included for each such modification or change:
- the approximate date on which the modification or change was incorporated into production;
 - a description of the modification or change;
 - the reason for the modification or change; and
 - whether the modified or changed components can be interchanged with earlier production components.
9. Provide Ford's assessment of the alleged defect in the subject vehicles, including:
- all causal or contributory factors;
 - the failure mode;
 - the risk to occupant safety it poses; and
 - whether there are any circumstances that would provide the vehicle owner or others with warning of its existence.

Your response to this letter, in duplicate, must be submitted to this office by January 6, 1999. Please include in your response the identification codes referenced on page 1 of this letter. If you find that you are unable to provide all of the information requested within the time allotted, you must request an extension from Mr. Thomas Z. Cooper not later than five days from the due date. If you are unable to provide all of the information requested by the original deadline, you must submit a partial response by that date with whatever information you have available, even if you have received an extension.

This letter is being sent to your company pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49, U.S. Code. Your failure to respond promptly and fully to this letter could subject Ford to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163.

If you consider any portion of your response to be confidential information, include that material in a separate enclosure marked "CONFIDENTIAL." In addition, you must submit a copy of all such material to the Office of Chief Counsel (NCC-30), National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590, and comply with all other requirements for the submission of confidential business information stated in 49 CFR Part 512.

If you have any technical questions concerning this matter, please contact Mr. John Abbott of my staff at (202) 366-5221.

Sincerely,



Thomas Z. Cooper, Chief
Vehicle Integrity Division
Office of Defects Investigation

Enclosures: 12 VOQ's: 813241, 824016, 808265, 821667, 979634, 521137, 804418, 541041
820316, 536206, 819621, 823462; 5 fire department reports; 2 internet reports; and
2 fire investigator reports

NHTSA:NSA:ODI
NSA-12:ABBOTT:dtd:6-5221;11/17/98
CC:
NSA-01
NSA-12/Subj/Chron/
Document: 1/ABBOTT/Towncar.IR

1992 Lincoln Town Car (1LNLM81W2N7 [REDACTED])



11/24/98

PE Opening Reports (PE98-065)
1992 Lincoln Town Car Engine Fires

NO.	Source	ST	VIN	M/Y
1	813241	FL	1LNLM82W5NY	92
2	824016	TX	1LNLM81W2NY	92
3	808265	FL	1LNLM82W7NY	92
4	821867	LA	1LNLM81W9NY	92
5	979634	TX	1LNLM82W5NY	92
6	521137	OK	1LNLM81W2NY	92
7	F.D.R.	GA	1LNLM82W3NY	92
8	804418	OH	1LNLM81W8NY	92
9	541041	FL	1LNLM81W3NY	92
10	F.D.R.	FL	1LNLM81W2NY	92
11	F.D.R.	FL	1LNLM82W7NY	92
12	A805260	FL	1LNLM81W0NY	92
13	820316	FL	1LNLM81W3NY	92
14	I/Net	FL	1LNLM81W8NY	92
15	536206	MS	1LNLM83W9NY	92
16	819821	LA	1LNLM82W5NY	92
17	I/Net	FL	1LNLM82W4NY	92
18	F.D.R.	GA	1LNLM82W1NY	92
19	A804221	FL	1LNLM81WP2Y	93
20	823462	MS	1LNLM81W5PY	93
21	F.D.R.	FL	1LNLM81WXPY	93

3713 6717

Monday---

TOPIC:

~~Meeting~~ NHTSA TC INQUIRE RESPONSE FOR CHASSIS

INVITEES: TOM BAZIL, LAURA KEEFER, DAV NOL,
US, Charlie Hunt, Bill Abramczyk, L. Hossain
cc Teske ~~TRAV~~ CHUNT WABRAMCZ RNEY
KEEPER LHOSSAIN

~~TOPIC: Review of Part List~~

PURPOSE: Review ^{chassis} PART CHANGE LIST ~~OF 5 PAGES~~
TO SUPPORT NHTSA RESPONSE.

Note: I have part list... we will need to
assign champion to ~~list~~ ^{summarize} changes.

FOR MEETING: 2

- ② - provide our part list
- ① - provide NHTSA inquiry & circle ~~for~~ questions

⊗ ~~Alternator...~~ ~~10300~~ ~~Eric Schaeffer~~
92 & 93 ...

⊗ Flu Rob.

23E39

16C079
10-30

PTSE FUEL SYSTEMS - REF. PEPB-0551/20/98

- 1) DO NOT KNOW # OF VEH. SOLD IN U.S. BY MODEL YEAR.
- 2) NONE.
- 3) DO NOT KNOW # OF VEH. SOLD IN U.S. - CROWN VIC/GRAND MARQ. VEHICLES HAVE ENGINE COMPARTMENT CONFIGURATIONS SIMILAR TO TOWN CARS.
- 4) DO NOT KNOW # OF WARRANTY CLAIMS RELATING TO THE ALLEGED DEFECT.
- 5) DO NOT KNOW ELECT. CIRCUITS LOCATED ON LEFT SIDE OF ENGINE COMPARTMENT.
- 6) DO NOT KNOW OF ANY INSPECTIONS, TESTS OR OTHER ANALYSES CONDUCTED BY FORD REGARDING THE INSPECTION OF ANY SUBJECT VEHICLES THAT RELATE TO THE ALLEGED DEFECT, TO DATE.
- 7) DO NOT KNOW IF FORD HAS ISSUED ANY BULLETINS, ADVISORIES OR OTHER COMMUNICATIONS TO DISTRIBUTORS, RETAILERS, CONSUMERS OR ANY OTHER ENTITY PERTAINING TO THE ALLEGED DEFECT.
- 8) E10037300 000
 - a. 8-1-90
 - b. REVISE FUEL/BRAKE LINE BUNDLES FOR CLEARANCE
 - c. INSUFFICIENT CLEARANCE
 - d. YES

B)(CONTINUED)

E10048573 000

- a. 8-1-90
- b. REVISE FUEL/BRAKE LINE BUNDLE FOR CLEARANCE TO MASTER CYLINDER
- c. INSUFFICIENT CLEARANCE
- d. YES.

E10048573 002

- a. 8-1-90
- b. REVISE FUEL/BRAKE LINE BUNDLE FOR CLEARANCE TO FLOOR PAN
- c. INSUFFICIENT CLEARANCE
- d. YES

E10066976 000

- a. 8-1-90
- b. REROUTE FUEL/BRAKE LINE BUNDLE FOR IMPROVED CLEARANCE TO STEERING SHAFT COUPLING. ADD CLIP TO ELEC. GROUND LINES.
- c. INSUFFICIENT CLEARANCE
- d. YES

E10066976 001

- a. 8-1-90
- b. SHORTEN VAPOR HOSE TO AVOID HOSE FROM PUSHING THE TUBES INTO THE SHIFTER CLIP CLEARANCE ZONE
- c. INSUFFICIENT CLEARANCE
- d. YES

E10080556

- a. 8-1-90
- b. REROUTE FUEL/BRAKE BUNDLE AT THE FIREWALL TO PROVIDE IMPROVED CLEARANCE TO THE BODY.
- c. INSUFFICIENT CLEARANCE
- d. YES.

B)(CONTINUED)

E10112226 000

a. ~~2-16-91~~ 3-13-91

b. ADD RUBBER COVER ON FUEL LINES AT FIREWALL

c. INSUFFICIENT CLEARANCE

d. YES

E10120004 005

a. 10-5-91

b. ADD A CLIP TO THE FUEL LINES TO PREVENT BENDING DURING ASSY.

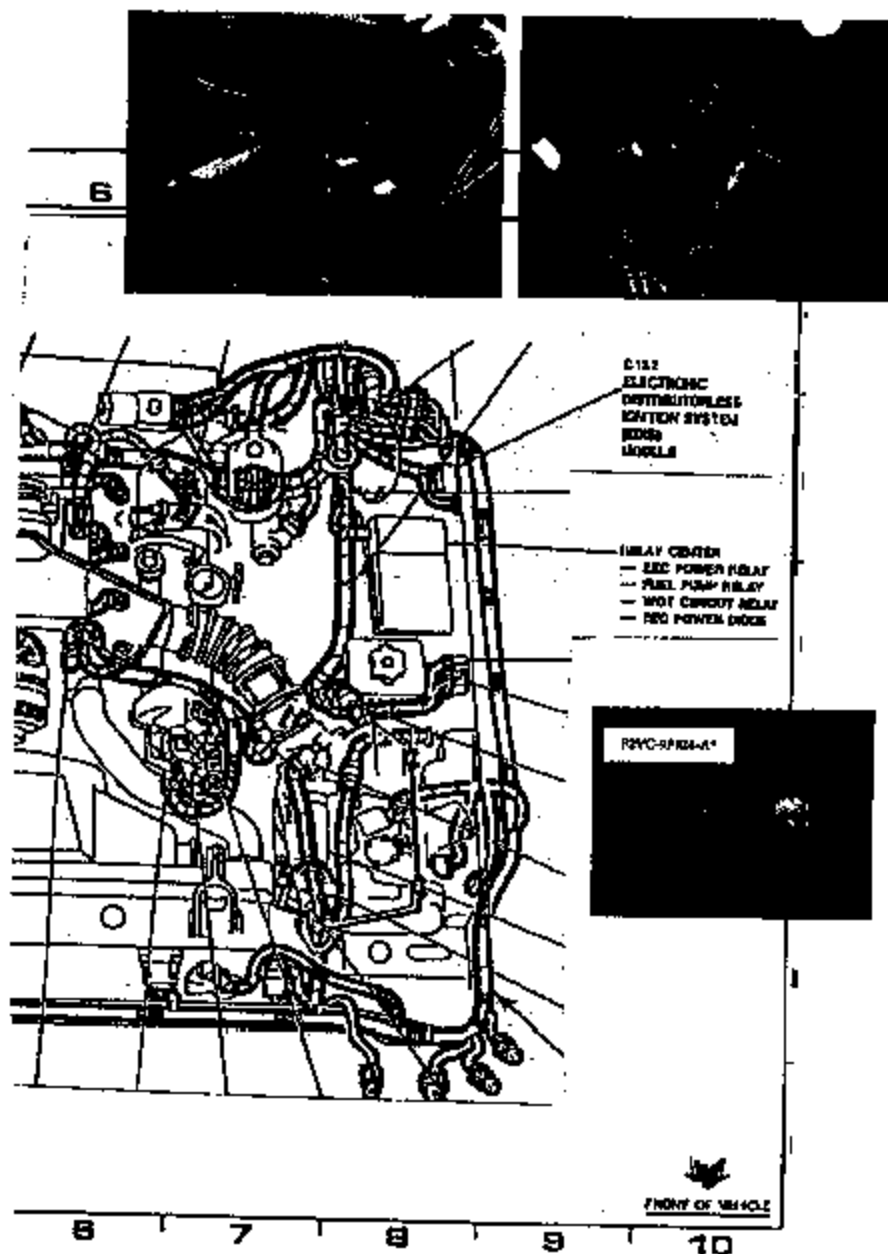
c. ASSEMBLY DAMAGE AND POSSIBLE INSUFFICIENT CLEARANCE.

d. YES

P. H. SMITH
40837

PE98-055 1992-1993 Lincoln Town Car

08 Jan 25



Components

1. Speed control deactivation switch F2VC-8F924-A
2. Electronic Distributorless Ignition System (EDIS) module
3. Relay center:
 - a. EEC power relay
 - b. Fuel pump relay
 - c. WOT control relay
 - d. EEC power diode
4. Wiring assembly 12A581



3713 6722



Ford Motor Company
Environmental and
Safety Engineering

330 Town Center Drive
Dearborn, Michigan 48126

3M EMT™ 8165 TRANSMISSION
TELEPHONE: (313) 594-2268

AUTOMOTIVE SAFETY OFFICE
PRODUCTION VEHICLE SAFETY
AND COMPLIANCE
FAIRLANE PLAZA SOUTH, Suite 500
DEARBORN, MI 48126

DATE: 99-FEB-03

TIME: 12:35 PM

Please deliver to:

Name: ZANAKA DEERING

Organization: _____

Room # and Building: _____

Telephone: _____

FAX: 06002

Number of Sheets being Transmitted (including this one): 2

Special Instructions/Notes:

PE 98-055

FYI

Transmission sent by (Name/Telephone):

[REDACTED]

92-93 Towncar Under-hood NHTSA Investigation
Similar 12A581 W/A

Model	MY90	MY91	MY92	MY93	MY94	MY95	MY96
Aerostar	No 8 Cylinder		No 8 Cylinder	No 8 Cylinder		No 8 Cylinder	No 8 Cylinder /BEC5
Bronco	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor
Continental	Distributor	Distributor	Distributor	No 8 Cylinder	No 8 Cylinder	BEC5	BEC5
Crown Vic	Distributor	Distributor	*****	*****	*****	BEC5	BEC5
Escort/line	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor	
Explorer				No 8 Cylinder	No 8 Cylinder	No 8 Cylinder	
F+B Series	Distributor	Distributor			Distributor		Distributor
F-Series	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor	BEC5
Mark VII/VIII	Distributor	Distributor	Distributor	*****	*****	*****	BEC5
Mustang			Distributor		Distributor	Distributor	BEC5
Probe						No 8 Cylinder	
Ranger						No 8 Cylinder	No 8 Cylinder
Taurus/Sable						No 8 Cylinder	
Thunderbird/ Cougar	No 8 Cylinder	Distributor	Distributor	Distributor	*****	BEC5	BEC5
Towncar	Distributor	*****	*****	*****	*****	BEC5	BEC5
Villager				No 8 Cylinder	Distributor		Distributor
Windstar						No 8 Cylinder	No 8 Cylinder

***** Indicates the 12A581 connects to an BEC4 module using a 60 pin connector and to an EDIS module for an 8 cylinder engine.

Blank cells not researched based on information from other model years.

Investigation performed by Rob English, Paul Vegh, and Jim Gregoire.

C:\My Documents\TOWNCAR\RECALL\SPDCNTRL\12A581.doc
Created by: jgregoir, 02/02/99 7:32 AM
Revised: 02/02/99 1:07 PM

Page 1 of 1

PE 98-055

FEB 03 '99 07:20 FR 06500 (500 EAS)

313 594 2158 TO 06002

P.01/01

** TOTAL PAGE.002 **

** TOTAL PAGE.01 **

3713 6724

92-93 Towncar Under-hood NHTSA Investigation
Similar 12A581 W/A

Model	MY90	MY91	MY92	MY93	MY94	MY95	MY96
Aerostar	No 8 Cylinder		No 8 Cylinder	No 8 Cylinder		No 8 Cylinder	No 8 Cylinder /BEC5
Bronco	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor
Continental	Distributor	Distributor	Distributor	No 8 Cylinder	No 8 Cylinder	BEC5	BEC5
Crown Vic	Distributor	Distributor	*****	*****	*****	BEC5	BEC5
Econoline	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor	
Explorer				No 8 Cylinder	No 8 Cylinder	No 8 Cylinder	
F+B Series	Distributor	Distributor			Distributor		Distributor
F-Series	Distributor	Distributor	Distributor	Distributor	Distributor	Distributor	BEC5
Mark VII/VII	Distributor	Distributor	Distributor	*****	*****	*****	BEC5
Mustang			Distributor		Distributor	Distributor	BEC5
Probe						No 8 Cylinder	
Ranger						No 8 Cylinder	No 8 Cylinder
Taurus/Sable						No 8 Cylinder	
Thunderbird/ Cougar	No 8 Cylinder	Distributor	Distributor	Distributor	*****	BEC5	BEC5
Towncar	Distributor	*****	*****	*****	*****	BEC5	BEC5
Villager				No 8 Cylinder	Distributor		Distributor
Windstar						No 8 Cylinder	No 8 Cylinder

***** indicates the 12A581 connects to an BEC4 module using a 60 pin connector and to an EDIS module for an 8 cylinder engine.

Blank cells not researched based on information from other model years.

Investigation performed by * and Jim Gregoire.

CAW/Don
Created by: jip
Revised: 02/02/

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Page 1 of 1

PE98-055

== TOTAL PAGE 002 ==

== TOTAL PAGE 02 ==

3713 6725

FEB 03 '99 07:19 FR 00500 (500 EAS1) 313 594 2268 TO 000002

P.02/02

**1992/93 LINCOLN TOWN CAR/CROWN VIC/GRAND MARQUIS
BRAKE PRESSURE SWITCH FIELD AUDIT**

VEHICLE TYPE		BUILD DATE		VIN		MILEAGE
Town Car		May-93		1LNM82W4PY		42621
Town Car		Jun-92		1LNM82WXNY		53237
Town Car		Jan-93		1LNM81W3PY		UNK
Grand Marquis		Nov-92		2MELM74W3F		68302
Town Car		Oct-92		1LNLM83W7F		72114
Grand Marquis		Dec-92		2MELM74W4F		55333
Grand Marquis		Apr-93		2MELM74W5F		66689
Grand Marquis		Dec-92		2MELM74W9F		43531
Grand Marquis		Oct-92		2MELM75W4F		94145
Town Car		Jan-93		1LMLM82W5F		UNK
Grand Marquis		Jul-92		2MELM75W0F		57600
Town Car		Sep-93		1LNLM81WXB		97199

To Concern: _____ Alert: _____ IFunct/Release
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ IS C/IS Date: _____
 Brake Booster/Master Cylinder Assy -

_ F F1VC 2B195 AB NC00 060701 000 XC00E10391082000R P IR 94/03/29

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: notice issued to identify Mexican grand marquis chassis parts as balance out, since NAAO is responsible for this vehicle for the 1993 model year.

_ F F1VC 2B195 BA NC00 060701 000 NC00E10041053000R P IR 89/11/11

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: release 200 tandem booster with passenger compartment air intake (pci).

_ F F1VC 2B195 B2 NC00 060701 000 NC00I10010977026R P IR 89/05/22

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: final release abs booster & master cylinder

_ F F1VC 2B195 B2 NC00 060701 001 NC00E00444499092R P IR 89/09/22

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: Usage Change

_ F F1VC 2B195 CA NC00 060701 000 NC00E10048319001R P IR 90/02/14

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: Release a booster and master cyl ass'y for abs vehicles with a bracket for attaching the 42 pin electrical connector. This change was requested by b & a to eliminate out in plant part and save the labor for assembling the bracket to the Booster. Release the bracket for service.

_ F F1VC 2B195 CB NC00 060701 000 NC00E10057809001R P IR 90/03/28

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: Revise The Hole Pattern In Bracket f1vc-14536-Ba To Be - Compatible With Wiring Connector Changes. Revise The Abs Booster & Master Cylinder Assy. F1vc-2b195-Cb To Show The New Bracket. Revise The Bracket Attaching Point So That It Is Secured Under The Inboard Master Cylinder Attachment Nut

_ F F1VC 2B195 CC NC00 060701 000 NC00E10070190000R P IR 90/06/04

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: Complaints of vehicle pull while braking exist for town car, en53, taurus/sable and continental. This is due to a master cylinder induced pressure differential in the two circuits of the brake system. This pressure difference can be made nearly zero by using a "linked piston" master cylinder design. This change is only applicable to cars with abs and is a \$1.08 piece cost increase. This change will reduce town car and en53 warranty by 4r/1000 (\$1.03/veh) and continental by 8r/1000 (\$1.23/veh). Taurus/sable (12% abs) warranty will not be measurably affected. Release the following booster and master cylinder assys. Which all use the same master cylinder f1vc-2a032-aa. Town car and en53 use f1vc-2b195-ad, taurus/sable and continental use f1dc-2b195-ah, taurus also uses f1dc-2b195-bb.

_ F F1VC 2B195 CD NC00 060701 000 NC00E10092919000R P IR 90/10/03

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: The low pressure brake fluid hose connecting the antilock brake master cylinder reservoir to the hydraulic control unit reservoir is too long. The routing of the hose will be improved by reducing the length from 500+-5 to 475+-5.

_ F F1VC 2B195 CE NC00 060701 000 NC00E10084269000R P IR 90/10/24

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: modify connector terminals on brake fluid resivior cap. The modifications are reduce the gage thickness and increase The lead-in chamfer of the subject terminals. Fmvss not affected. The part which is being modified is a common part used on Both the dn-5 and fn-9 cartines also. There are no problems in changing these cartines as well. They get the improved Connector free.

_ F F1VC 2B195 CF NC00 060701 000 NC00E10104848000R P IR 90/11/28

<BSTR.&MSTR.CYLASY.BRK...> <.....>

- CR Description: In ABS brake booster and master cylinder assembly, revise low pressure hose stowage position for shipping. Also delete the shipping cap from the check valve located in the booster to ease assembly operation and reduce cost. FMVSS is not affected.

To Concern: _____ Alert: _____ IFuncRelease
 Sal C/F Part: _____ Acty CPSC: _____ Seq Release: _____ S CJS Date: _____

_ F FIVC 2B195 CG NC00 060701 000 NC00E10300678000R P IR 93/05/20

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: incorporate new bracket (F3ac 14536 aa) into booster master cylinder.

_ F FIVC 2B195 DA NC00 060701 000 NC00E10070190000R P IR 90/06/04

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: Complaints of vehicle pull while braking exist for town car, en53, taurus/sable and continental. This is due to a master cylinder induced pressure differential in the two circuits of the brake system. This pressure difference can be made nearly zero by using a "linked piston" master cylinder design. This change is only applicable to cars with abs and is a \$1.08 piece cost increase. This change will reduce town car and en53 warranty by 4¢/1000 (\$1.05/veh) and continental by 8¢/1000 (\$1.23/veh). Taurus/sable (12% abs) warranty will not be measurably affected. Release the following booster and master cylinder ways. Which all use the same master cylinder f1vc-2a032-aa. Town car and en53 use f1vc-2b195-ed, taurus/sable and continental use f1dc-2b195-ab, taurus who uses f1dc-2b195-bb.

_ F FIVC 2B195 DB NC00 060701 000 NC00E10084269000R P IR 90/10/24

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: modify connector terminals on brake fluid reservoir cap. The modifications are reduce the gage thickness and increase the lead-in chamfer of the subject terminals. Pinwires not affected. The part which is being modified is a common part used on both the dn-5 and fn-9 earlines also. There are no problems in changing these earlines as well. They got the improved Connector free.

_ F FIVC 2B195 DC NC00 060701 000 NC00E10104848000R P IR 90/11/28

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: In ABS brake booster and master cylinder assembly, revise low pressure hose storage position for shipping. Also delete the shipping cap from the check valve located in the booster to ease assembly operation and reduce cost. PMVSS is not affected.

_ F FIVC 2B195 DD NC00 060701 000 NC00E10079779020R P IR 92/08/27

<BSTR.&MSTR.CYLASY-BRK.....> <.....>

- CR Description: 1992 April record change for brakes. 1. Ea-F3lc-2b109-aa -- completed ex-brake tube - initially released incomplete. 2. F3ac-90433-ab -- tolerances revised as manufactured, i.e. +/- 0.05 to +/- 0.5; i.d. 0.05 to +/- 0.12. 3. Remove item #3, revisions done on other notice. 4. F1vc-2b195-ep/f1vc-2b195-dd/f1vc-2a032-aa/f3dc-2a032-aa: release supplier drawing showing master cylinder reduction-control valve. 5. F0ac-2780-ba -- revised drawing reflecting change in main rivet on parking brake control assembly. 6. F3ac-2c026-aa -- replace rear rotor file drawing with update (no change). 7. F3lc-2c287-cb -- brake fluid tube assembly - incorrect flare is shown at pt e20. Revise drawing to show iso flare for pt e20. 8. Remove items #8 & #9. These revisions were completed on other notice. 9. 10. F3lc-2c334-aa & f3lc-2c333-aa -- change ecu mounting torque from 7 - 9 nm to 2.5 +/- 0.4 nm. 11. F3lc-2c296-ba & f3lc-2c296-ac -- add 3.6mm dimension to last change: anti-rotation clip & revise wrench block stud hole hex dimensions to prevent plastic build up in stud threads. 12. F3ac-2c026-ab -- change in location of the part number stamp. 13. F3dc-2c299-ab & f3dc-2b664-ab -- added specification for vibration and a not specifying that certain dimensions are before coating.

_ C FIVC 2005 AA NC00 060701 000 NC00E10042672000R P IR 89/11/17

<BSTR.ASY-BRK.....> <.....>

- CR Description: Revise booster check valve location from the 1:00 position to the 11:00 position. New part number for the booster and master cylinder assy. Will be f1vc-2b195-ab and the booster alone will be f1vc-2005-ab. These parts will also be used on en53 non-abs cars. Tooling cost is \$1700, piece cost change is zero and there is no effect on r/1000 or tgw/1000. Parts will be available for en53 vp build in Jan. 1990. does not affect compliance with regulations -brake dept.-

_ C FIVC 2005 AB NC00 060701 000 NC00E10107234042R P IR 93/05/20

<BSTR.ASY-BRK.....> <.....>

- CR Description: Initial release of brk rotors, shield & calipers

_ C FIVC 2005 AC NC00 060701 000 NC00E10079779040R P IR 94/01/03

<BSTR.ASY-BRK.....> <NON.ABS.....>

- CR Description: Initial release of brk rotors, shield & calipers. 1. J1f4ze-060600-04: add unique torque for cobra fit brk hs 2. F3dc-2c189-aa: add supplier info 3. F6dc-9a474-ba: redraw 4. F5oc-2078/2b537-ab: redraw 5. F6rc-2530/2531-ab: drawing revision 6. F4ac-2005-ac: drawing revision 7. F4dc-2c204-ba: redraw to ford level of release 8. F0oc-2c205-ab/f3lc-2c190-ac/f4lc-2c190-aa: revise to facilitate manufacturing 9. F4ac-1125-ac: drawing revision 10. F2ac-2005/2b195-ba/f1vc-2005-ac: redraw/revise labels 11. F1ac-1107-aa: show optional design 12. F4ze-2267/2268-ac/f4ac-2267/2268-bb: add wax to tube nut 13. F6ac-2c360-aa: revise drwg to facilitate manufacturing

_ C FIVC 2005 BA NC00 060701 001 NC00E10640385005R P IR 98/09/03

- CR Description: Blanket concern to support wets clean-up actions.

To Concern: _____ Alert: _____ (Fence) Release
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ S Date: _____

_ F FIVC 2005 AA NC00 060701 000 NC00E10032035000R S IR 89/09/08
 <BSTRASY-BRK> <SERVICE ONLY>

- CR Description: Release booster & master cyl using teves grease spec. #446 06 and 10636. Booster & master cyl. Assys built with new grease to be identified with blue daub of paint in the 12:00 position on the booster front shell. For a min. of 60 days from start of production. In requirement - material test of new grease only.

Master Cylinder & Pressure Control Valve Assy -

_ C FIVC 2C156 AA NC00 060701 000 NC00E10348036000R P IR 93/11/18
 <CYL.&PRESS.CONTR.VLV.ASY-BR> <NON.ABS>

- CR Description: replace the f3ac-2b195-bb booster master cylinder assy with the f2ac-2b195-ba starting job #1 94, ending with job #1 95 also replace the f3ac-2a040-ba tube with f3ac-2a040-a for job #1 94 ending with job #1 95. This will be the same as the 93 model year booster, master cylinder, brake tubes.

TUBE.ASY-FUEL.RETURN.&BRAKE

_ F FIVC 9L291 AA NC00 100103 000 NC00E10019802001R P IR 89/06/26
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <NON.ABS>

- CR Description: the fuel and brake line bundles must be revised to accommodate the new rear brake tube (-2267-). The action required includes revising the rear end of the vapor tube 1/2 inch and shortening the inboard brake tube. Sys gen components removed.... 10/25/89 sys gen components removed.... 01/04/90

_ F FIVC 9L291 AB NC00 100103 000 NC00E10027703000R P IR 89/09/06
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <NON.ABS>

- CR Description: Hole location for the rear fuel line clip to the kick-up area is not feasible for the frame processing. Revise the design of the subject clip and relocate the frame hole location as required. The new location of the fuel line hole is as follows: x - 4382.0 y - z - 630.0 sys gen components removed.... 12/15/89 sys gen components removed.... 01/04/90 sys gen components removed.... 01/26/90

_ F FIVC 9L291 AC NC00 100103 000 NC00E10037380000R P IR 89/11/27
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <NON.ABS>

- CR Description: (1) the fuel line bundle clip in the rear kick-up area can contact the vehicle body on the 1991 fr-36 due to minimal clearance to the body flange. The subject hole should be moved to 4452.0 - x: 690.0 - z from 4382.5 - x: 630.0 - z on the f1vc-5005-dj frame assy. (2) add an additional nylon clip to the fuel line bundle (-9L291-) in order to hold the lines clear during body decking. A new hole is required at 4893.0 - x and 548.0 - z. Sys gen components removed.... 90/03/30 sys gen components removed.... 90/05/15 (3) revise the rear routing of the fuel bundle to provide adequate clearance to the body and the fuel tank flange. (4) shorten the steel braided nylon tubing on supply and return lines by 20 mm. (5) revise routing to provide clearance to the (a) seat belt bolt, (b) rear engine mount, (c) front and rear torque box. (6) revise the -9s294- fuel vapor crossover & front brake tube to avoid contact with the knee brace (ref. Concern # c10023180). (7) design and release a new fuel vapor c/o and front brake bundle (-9s294-) for the non-abs 1991 fr-36. (8) release the f0vc-5a897-ab air line in the -9L291- fuel line bundle. Sys gen components removed.... 90/05/17

_ F FIVC 9L291 AD NC00 100103 000 NC00E10048573000R P IR 90/01/30
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <NON.ABS>

- CR Description: Last Change: The following action is required for the -9L291- and -9s294- fuel bundles to resolve clearance issues: 1. Revise fuel (ret & supp. -9L291-) line and brake line routing in order to: a) improve clearance along center rail, torque box, and rear suspension (abs and non-abs). B) provide an adequate clearance window between the fuel lines and brake lines for installation of the shift cable and bracket assembly (abs and non-abs). C) eliminate contact and inadequate clearance between the brake lines from the master cylinder and the fuel lines (non-abs only). 2. Revise the -9s294 crossover vapor line routing to eliminate contact to the shift cable frame attachment clip (abs and non-abs). Sys gen components removed.... 90/07/10 also, to facilitate bda assembly process, change the rear hole of the fuel filter bracket (-9s072-) to a slot at a \$3200 tooling cost and no piece cost increase. Sys gen components removed.... 90/08/21 the clip f0vc-9a317-ab has been carried over and released for all 1991 fr-36 vehicles. The clip is no longer necessary for 1991 and should be deleted for a \$.26 piece cost and bda labor save on two clips per vehicle.

_ F FIVC 9L291 AE NC00 100103 000 NC00E10048573002R P IR 90/02/21
 <TUBE.ASY-FUEL.RETURN.&BRAKE> <NON.ABS>

- CR Description: the -9L291- and -9s294- fuel bundles released with the previous notice supplement #c10048573-000 were reviewed on an updated vehicle by fuel system engineering and it was discovered that additional clearance issues must be resolved. Therefore the following action is required: revise -9L291- and -9s294- abs and non-abs fuel bundles to provide adequate clearance to rear seat belt bracket, the floor pan, center rail, and the rear frame. The 20k in tooling is for the addition of a new flat clip for the -9L291- bundle. Sys gen components removed.... 90/07/10 sys gen components removed.... 90/08/21

To Concern: _____ Alert: _____ IFunc/Release
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ S CUE Date: _____

_ F FIVE 9L291 AF NC00 100103 000 NC00E10048573007R P IR 90/03/20

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: The following action is required for the -91291- air line assembly f1vc-5a897-as will replace f0vc-5a897-ab which is pta to the fuel/brake tube bundle -91291-. This change will result in a \$ 0.30 per piece cost increase and a tooling charge of \$ 13,000.00. This change is a result of the new lh fender apron requiring rerouting of the air suspension air line along the frame rail requiring the following changes: * add 70 mm's of air line tubing. * add 100 mm's of cvt protection tubing under the brake distribution valve, located on the lh frame side rail. * add f11 f0vc-9279-as clip and reposition two existing clips to accommodate new retention along the frame rail. Sys gen components removed..... 90/08/21 notice resolution. * release new air line routing along lh frame rail and revise retention of the air line assembly. * delete air line assembly f0vc-5a897-ab from -91291-. * add new air line assembly f1vc-5a897-as to -91291-. * -91291- becomes f1vc-91291-ag

_ F FIVE 9L291 AG NC00 100103 000 NC00E10066976000R P IR 90/03/30

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: Re-routing of the fn-36 -91291- fuel/brake bundle will be accomplished as a cx change. The marked up parts list and prints show the changes; which are as follows: 1) f1vc-91291-ah will replace f1vc-91291-ag; which involves re-routing of the fuel and brake lines to provide improved clearance to the steering shaft coupling. 2) deletion of one of the f1vc-91276-ca. Note: one of the f1vc-91276-ca is still required pta to the fuel/brake bundle at the rear. 3) a new metal clip is to be added pta to the -91291 toward the front of the bundle to electrically ground and provide support to the fuel supply and return lines. A m8 bolt will be used to secure the clip.

_ F FIVE 9L291 AH NC00 100103 000 NC00E10066976001R P IR 90/04/10

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: 1991 fn-36 phase ii functional build revealed the following concerns with the fuel/brake bundle and the crossover tubes: sys gen components removed..... 90/08/21 -91291- fuel/brake bundle: 1) vapor tube/hose connection assembly problem. 2) clip location problem (bundy quality problem) 3) air line location problem (bundy qly prblm) 4) air line clip insertion problem (bundy design) -9s294- vapor/brake crossover assy 1) vapor tube interferes with brake line connection on abs equipped car. 2) vapor tube to shifter cable clip close (3.2mm as designed). 3) frame change necessitates line change at clip b 4) push pin difficult to install corrective action on the afore mentioned concerns will be: -91291- * cx change to produce a f1vc-91291-aj bundle to replace the f1vc-91291-ah bundle. This bundle will have a rerouted fuel vapor tube and the details will call out the location of bundle straps to ensure air line location. * Bundy has been informed of the clip location quality problem. * bundy has been informed of the air line insertion concern and has been given direction to modify the clip design to produce similar insertion loads for the 91 fn36 and on53 clips as on current fn36. -9s294- cx change to produce a f1vc-9s294-af and a f1vc-9s294-bd in place of the current f1vc-9s294-ae and f1vc-9s294-be. The following actions are needed on the new assembly: * reroute vapor tube to provide improved access to the abs brake line connection (-91291- to -9s294-) * reroute vapor and brake tubes to accommodate frame change. * investigate vapor tube to shifter cable clip clearance; a shorter vapor hose used to connect the -91291- to the -9s294- appears to be needed to avoid having the vapor hose from pushing the tubes into the shifter clip clearance zone. * release push pin 388577-s in place of the currently released push pin n803633-s to attach the center of the -9s294- to the #2 crossmember.

_ F FIVE 9L291 AJ NC00 100103 000 NC00E10069882000R P IR 90/04/23

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: Add single tube airline clip. f0vc-9279-au, to suspension airline assy at 603 mm from end of airline. Move existing clip from 400 mm to 365 mm. from end of airline. 91 fn36 frame drawing to be revised to represent current frame production, including 7.0-7.25 mm dia. Hole which is on the top of the forward lh rail aft of the abs hydraulic unit. Revision to be accomplished on latest chassis monthly record change. Sys gen components removed..... 90/08/21

_ F FIVE 9L291 AK NC00 100103 000 NC00E10080556000R P IR 90/07/03

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: 1991 fn-36 town car: -91291- fuel/brake bundle revisions concerns raised on the 5p2 build resulted in the following changes to the -91291- for job #1: 1) redesign of the fuel supply and return line routing at #4 crossmember to improve clearance to the shock absorber mounting washer. 2) redesign of the fuel supply, return, and vapor line routing at the firewall to provide improved clearance to the body. 3) addition of a tube retaining clip to the fuel supply and return lines near the fuel rail to prevent possible nvh concern. 4) adjustment of the number and placement of tie straps for the air suspension air line to insure proper routing and prevent pinching of the air line on frame/body/or tubes.

_ F FIVE 9L291 AL NC00 100103 000 NC00E10080556000R P IR 90/07/03

<TUBE,ASY-FUEL,RETURN,&BRAKE> <.....>

- CR Description: 1991 fn-36 town car: -91291- fuel/brake bundle revisions concerns raised on the 5p2 build resulted in the following changes to the -91291- for job #1: 1) redesign of the fuel supply and return line routing at #4 crossmember to improve clearance to the shock absorber mounting washer. 2) redesign of the fuel supply, return, and vapor line routing at the firewall to provide improved clearance to the body. 3) addition of a tube retaining clip to the fuel supply and return lines near the fuel rail to prevent possible nvh concern. 4) adjustment of the number and placement of tie straps for the air suspension air line to insure proper routing and prevent pinching of the air line on frame/body/or tubes.

To Concern: _____ Alert: _____ (Fuel/Release)
 Set C/P Part: _____ Acty CPSC: _____ Seq Release: _____ 45 CUS Dates: _____
 F F1VC 9L291 AM NC00 100103 000 NC00E10086498000R P IR 90/08/02
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: revise fuel/brake bundle (9L291) as follows: 1) replace air suspension air line f1vc-5a897-ab with f1vc-5a897-ac. The new air line changes the location of retaining clips and installation tape marks. 2) revise bundle strapping of air line (5a897) to fuel/brake bundle (9L291) by adding bundle strap and modifying the location of existing bundle straps. 3) revise fuel/brake bundle drawing to show air line routing around filter area and provide sections and notes as to specific strapping of air line to bundle. 4) revise location of fuel line clip on #4 crossmember in the p2-f1vc-9L291-al. 5) add engineering spec delta es-f1ac-9327-as to complete drawing.

F F1VC 9L291 AN NC00 100103 000 NC00E10086523000R P IR 90/08/10
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: the following action necessary to correct air susp air line to frame noise: for fn36: air line assembly f1vc-5a897-ad will replace f1vc-5a897-ac which is pie to fuel/brake tube bundle -9L291- for en53: add item air line assembly f2ac-5a897-ab will replace f2ac-5a897-na. This change is a result of rerouting the suspension air line and revising its retention along the side of the #4 c/member requiring the following changes: delete tape wrap above "y" connector and replace with double tubing clip with optional construction, to accommodate the new retention along the #4 c/member. B & a processing: fn36 & en53. Revise process sheets to ref reflect new air line routing and retention along the 1h side of the #4 c/member. Fuel/brake bundle: delete air line any f1vc-5a897-ac from 9L291. Add new air line any f1vc-5a897-ad to new fuel/brake bundle f1vc-9L291-ar. Sys gen components removed..... 90/11/28 *** this change must be coordinated with frame change supplement.

F F1VC 9L291 AR NC00 100103 000 NC00E10078761000R P IR 90/09/17
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: increase in fuel supply and return line length at fuel sender to accommodate modified fuel sender. The increase in line length is to be achieved by increasing the length of the flex hose. Part numbers will have the suffix bumped from a? To c? And b? To d? For en-53 and a? To b? For fn-36; as follows: f2ac-9L291-ca fuel/brake bundle non-abs en-53 f2ac-9L291-da fuel/brake bundle abs en-53 f1vc-9L291-ba fuel/brake bundle fn-36 layouts and detail drawings are required. Note: this notice must be processed before notice nc00-c-1007277-000.

F F1VC 9L291 A3 NC00 100103 000 NC00E10010977019R P IR 89/05/05
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: initial release-fuel lines & fuel filter assy sys gen components removed..... 10/25/89

F F1VC 9L291 BA NC00 100103 000 NC00E10091352000R P IR 90/10/10
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: revise airline to add forth tape mark for installation. Revisions to drawing and layout pending new air line drawing (air line - 5a897-). Detailed drawings and layouts required. 90/09/28 drawing of air line in air suspension drafting. package issued. ***** the new -5a897- is to be added to the f1vc-9L291-ba (not bb) and the suffix should be bumped to ca (ie f1vc-9L291-ca is a f1vc-9L291-ca).sys gen components removed..... 91/01/29

F F1VC 9L291 CA NC00 100103 000 NC00E10095356000R P IR 90/10/19
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: vehicle tryouts with a 4 inch protective sleeve added to the inboard air line routed along the #4 crossmember, proved positive in that the squeak noise previously heard on 4-p vehicles was eliminated. This tryout accepted as resolution from r. Ferguson wixom q-press sq/rfl. Sys gen components removed..... 91/03/07 approval is requested to incorporate the following part changes. (991) fn36 - delete air line assembly f1vc-5a897-ac and advance/release the new part number. - fuel/brake bundle: delete air line assembly f1vc-5a897-ac from -9L291- bundle assembly. Add new air line assembly to -9L291- assembly. - air line piece cost \$ 0.06 tooling \$ 3600.00 1992 en53 - delete end item air line assembly f2ac-5a897-ab and advance/release the new part number. - air line piece cost \$ 0.06 tooling \$ 3600.00 timing to incorporate turning change at wixom is projected to be week of 901105. Fn36/en53 service not affected. Use/exhaust existing stock.

F F1VC 9L291 CB NC00 100103 000 NC00E10102784000R P IR 90/11/16
 <TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: revise -9L291- as follows: for cr c10102784: add a nylon 12 sleeve to the fuel return line between bends fr10 and fr11; the slit in the sleeve is to POINT upward. (5k tooling; \$0.40 piece cost c10102784) the above occurs on fn-36 and en-53 for cr c10100320: add a bundle strap to the brake lines, fuel vapor, and fuel supply lines. (0 tooling; \$0.10 piece cost c10100320) the above occurs on en-53 only.

To Concern: _____ Alerts: _____ Func/Release
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ S C/S Date: _____

_ F F1VC 9L291 CC NC00 100103 000 NC00E1011226000R P IR 91/01/16

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: add the previously deleted rubber protective cover on the fuel lines at the fire wall. This cover consists of 4 inch slit rubber hose secured with two tie straps. The slit is to point to the side of the vehicle as installed. The rubber cover is to extend approx. 0.5 inches below bend number 1a fr 5 & fr 5 and 3.5 inches above these bends. Note: hose used for cover to be hypalon hose ewo-m2d156-a (same covering used on tie-flex tube at fuel sender)

_ F F1VC 9L291 CD NC00 100103 000 NC00E10124098000R P IR 91/03/20

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: add a rubber isolator sleeve to the fuel lines at the #4 crossmember and the body reinforcement. The sleeve is to be a slit rubber hose tie strapped to the fuel lines. ***** ex drawings released for ***** the following fuel/brake bundles are affected: 1991 fr-36 F1vc-9L291-cd to become f1vc-9L291-ce 1992 en-53 f2ac-9L291-ce to become f2ac-9L291-cf f2ac-9L291-dd to become f2ac-9L291-de

_ F F1VC 9L291 CE NC00 100103 000 NC00E10124098002R P IR 91/05/31

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: revise the "I" shaped clip to lower the fuel lines by 5.76 mm. Initial drawing has been completed by wright plastics. *** the "I" shaped clip is to be added to details without modifying the line location; however the layout should reflect the line movement caused by the clip and line location (see pco for direction) 91-05-20 **** bundy tubing was kicked off on clip 91-05-13 wixom tryout has shown the "I" shaped clip should be implemented as soon as feasible (manufacturing date of 91-07-29 has been give by the supplier for the clip completion) this notice must follow the ex notice for en-53nc00-e-10139122 ex'd 91-05-21. **** the parts affected are as follows: fr-36 1991 and 1992 with current fuel rail: f1vc-9L291-ce will advance to f1vc-9L291-cf fr-36 1992 with new fuel rail due fall 91: f2vc-9L291-a will advance to f2vc-9L291-ab *****This notice is to follow nc00-e-10139122-000.

_ F F1VC 9L291 CF NC00 100103 000 NC00E10128004005R P IR 91/07/26

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: replace screw n800369-a56 with screw n610957-a56. Screw attaches clip-fuel line & brake (9L276) to valve asy-brake brake press control (2b091). Torque on the joint is to be 6.8-9.2 nm.

_ F F2VC 9L291 AA NC00 100103 000 NC00E10124098002R P IR 91/05/31

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: CR Description: revise the "I" shaped clip to lower the fuel lines by 5.76 mm. Initial drawing has been completed by wright plastics. *** the "I" shaped clip is to be added to details without modifying the line location; however the layout should reflect the line movement caused by the clip and line location (see pco for direction) 91-05-20 **** bundy tubing was kicked off on clip 91-05-13 wixom tryout has shown the "I" shaped clip should be implemented as soon as feasible (manufacturing date of 91-07-29 has been give by the supplier for the clip completion) this notice must follow the ex notice for en-53nc00-e-10139122 ex'd 91-05-21. **** the parts affected are as follows: fr-36 1991 and 1992 with current fuel rail: f1vc-9L291-ce will advance to f1vc-9L291-cf fr-36 1992 with new fuel rail due fall 91: f2vc-9L291-a will advance to f2vc-9L291-ab *****This notice is to follow nc00-e-10139122-000.

_ F F2VC 9L291 AB NC00 100103 000 NC00E10128004000R P IR 91/07/15

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: release a modified brake prop valve bracket and a clip pin to the fuel tubes. The clip attaches to the bracket with a m-6 self tapping bolt. The clip and bracket are to prevent bending of the fuel lines during assembly. ****91-06-25 reviewed bracket with brake valve supplier; they are working on both a temporary and permanent change. * 91-06-26 reviewed clip with fuel line supplier. Bundy is proceeding with tooling for the clip. Clip to be pla to fuel lines. Assembly drawings will be ex'd asap.

_ F F2VC 9L291 AC NC00 100103 000 NC00E10165200000R P IR 91/11/16

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: delete f1vc-9L276-ha and (1) n802191-a56 due to f2ac-9L276-a acting as a ground for the fuel portion of the -9L291- bundle. F1vc-9L276-ha was incorporated to create a ground for the to fuel lines.

_ F F2VC 9L291 AD NC00 100103 000 NC00E10180678000R P IR 92/01/09

<TUBE,ASY-FUEL,RETURN.&BRAKE> <.....>

- CR Description: Incorporate the following design changes to improve air line retention to the #4 crossmember.- Revise double clip above "y" to insure positive retention - add protective tubing to the air line loop above "y" conn fr36 air line: delete f1vc-5a897-af add f2vc-5a897-a en53 air line: delete f2ac-5a897-ac add f2ac-5a897-ad clip-double tube: delete f1vc-9L279-ba add f2ac-9L279-a ** fuel portion: 920106 For 1992 - replace f1vc-5a897-af with f2vc-5a897-a in the f2vc-9L291-ad (fuel return and brake line bundle) For 1993 - replace f1vc-5a897-af with f2vc-5a897-a in f3vc-9L291-ab (fuel return and brake line bundle)

To Concern: _____ Alert: _____ Ifunc/Release
 Sel C/F Part: _____ Acty CPSC: _____ Seq Release: _____ S C/S Date: _____

_ F F2VC 9L291 AE NC00 100103 000 NC00E10180678000R P IR 92/01/21

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: this notice is to support a10180678 (add sheathing or convoluting to the airline (f1vc-5a97-af) just above the y connector for protection. Airline is pin to fuel & brake line bundle (91291). Also, revise clips on #4 cross member to provide better retention. The part number on the first line should be (f1vc-5a897 not (f1vc-5a97-af).

_ F F3VC 9L291 AA NC00 100103 000 NC00E10165200000R P IR 91/11/16

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: delete f1vc-91276-ha and (1) n802191-436 due to f2ac-91276-aa acting as a ground for the fuel portion of the -91291- handle. f1vc-91276-ha was incorporated to create a ground for the fuel lines.

_ F F3VC 9L291 AB NC00 100103 000 NC00E10180678000R P IR 92/01/09

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: incorporate the following design changes to improve air line retention to the # 4 crossmember. - revise double clip above "y" to insure positive retention - add protective tubing to the air line loop above "y" conn. in 36 air line: delete f1vc-5a897-af add f2vc-5a897-aa en53 air line: delete f2ac-5a897-ac add f2ac-5a897-ad clip-double tube: delete f1vc-9279-ba add f2ac-9279-aa **** for 1992 - replace f1vc-5a897-af with f2vc-5a897-aa in the f2vc-91291-ad (fuel return and brake line bundle) for 1993 - replace f1vc-5a897-af with f2vc-5a897-aa in f3vc-91291-ah (fuel return and brake line bundle)

_ F F3VC 9L291 AC NC00 100103 000 NC00E10236663000R P IR 92/09/04

<TUBE.ASY-FUEL.RETURN.&BRAKE> <.....>

- CR Description: \$\$\$\$ must be coordinated with nc00 e 10221001 002, replaces part released by nc00 e 10221001 003 \$\$\$\$ - to reduce likelihood of misbuilds, release new adaptor block which has two m12 outlet ports instead of one m10 and one m12. Additionally, release new fuel-brake line bundle for non-limo which has two m12 tube nuts to mate to adaptor (f3vc-91291-ba). - change to adaptor block (f3vc-2c320-ba) is a no cost change. Change to fuel-brake line bundle (f3vc-91291-ba) costs are: piece cost \$0.01; tooling cost \$10,000. - current brake-fuel line bundle (f3vc-91291-ac) will continue to be used on the limo. The current prop valve (2b091) will continue to be used on the en53.

_ F F3VC 9L291 BA NC00 100103 000 NC00E10236663000R P IR 92/09/04

<TUBE.ASY-FUEL.&BRAKE.(LH)> <.....>

- CR Description: \$\$\$\$ must be coordinated with nc00 e 10221001 002, replaces part released by nc00 e 10221001 003 \$\$\$\$ - to reduce likelihood of misbuilds, release new adaptor block which has two m12 outlet ports instead of one m10 and one m12. Additionally, release new fuel-brake line bundle for non-limo which has two m12 tube nuts to mate to adaptor (f3vc-91291-ba). - change to adaptor block (f3vc-2c320-ba) is a no cost change. Change to fuel-brake line bundle (f3vc-91291-ba) costs are: piece cost \$0.01; tooling cost \$10,000. - current brake-fuel line bundle (f3vc-91291-ac) will continue to be used on the limo. The current prop valve (2b091) will continue to be used on the en53.

TUBE.ASY-P/S.RETURN

C F1VC 3A563 EA NC00 110203 000 NC00E10108505000R P IR 91/01/29

<TUBE.ASY-P/S.RETURN> <.....>

- CR Description: design activity: redesign p/s cooler package similar to 92 en-53 (fin pack type mounted to the lower r.h. corner of the radiator support assembly. Also, please update p/ and illustration sheets as req'd ***** testing: new cooler passed gas req's/vac 91/01/08 (n). *****memo: cost, weight, & timing tbl. "detail drawings req'd". *****sys gen components removed..... 91/06/26

_ C F1VC 3A563 FA NC00 110203 000 NC00E10074000000R P IR 90/05/10

<TUBE.ASY-P/S.RETURN> <.....>

- CR Description: subject: 91 fo-36 4.6l all except trailer tow c/o into 92 en-53 all except trailer tow. Break down: job #1 req'mt. - express chg. (ex) p/n desc action suffix comments f1vc-3a563-aa t&h asy new 'ab new 3a563-c/o hose f1vc-3a563-fa tube asy new th revise/modify f1vc-3a274-ha hose c/o ha carryover component piece cost: no change weight : no change tooling : \$24,800 (e) (b/d) figure could be significantly less, if tooling can be modified. Supplier : form rite

_ C F1VC 3A563 FB NC00 110203 000 NC00E10145560002R P IR 93/07/17

<TUBE.ASY-P/S.RETURN> <.....>

- CR Description: revise the finish on the en114/fn116 p/s return hose assemblies and gear end of the pressure hose to aluminum rich paint over galfan and the pump end of the pressure hose to thick wall (.042" versus current .035") tubing. ----- development of .042" wall is still ongoing. System pressure temperature and noise effects are being studied. Steering engineering approves for use in the fn126/en114 pending that .035" wall tube remains a fall back option.

To Concern: _____ Alert: _____ IFunc/Release
 Sel C/P Part: _____ Acty CPSC: _____ Seq Release: _____ IS CUS Date: _____
 _ C F3VC 3A563 A1 NC00 110203 000 NC00E10145560002R P IR 93/07/17

<TUBE.ASY-P/S.RETURN.....> <.....>

- CR Description: revise the finish on the enl 1 1/4" 16 p/s return hose assemblies and gear end of the pressure hose to aluminum rich paint over galval and the pump end of the pressure hose to thick wall (.042" versus current .035") tubing. ----- development of .042" wall is still ongoing. System pressure temperature and noise effects are being studied. Steering engineering approves for use in the enl 1 1/4" pending that .035" wall tube remains a full back option.

_ F F0VC 3A563 JA NC00 110203 000 NC00E10057562000R P IR 92/06/20

<TUBE.ASY-P/S.PUMP.RETURN.....> <FCN=9BVA1104025.....>

- CR Description: new p/s line package req'd for trailer tow & police vehicles in order to route around the abs anti-lock relay module and module bracket. ***** memo: 92 base vehicle is c/o 1991 fn-36. Break down: ref: d.o. Dated 891106 - see attachment p/s desc action cost / wt tooling comments f2ac-3a274-ca r/n line delete \$ 0.30/20 \$ 2,200 spent f2ac-3493-a1 r/n line new \$ 1.18/50 @ \$ 2,500e + \$ 0.88 e f2ac-3a274-da r/n line delete \$ 0.19/13 \$ 1,800 spent f2ac-3493-b1 r/n line new \$ 0.34/nc # @ \$ 1,800 + \$ 0.23 e Important: tooling & pc cost \$ 4,300 + \$ 1.11 e # memo: phase 1 builds used (f2ac-3493-a1) hose any @ memo: new line/routing require shielding for protection design Activity: please design & rel.components stated above also, please update p/s illustration sheets as required. Break down: standard parts p/s desc action comments n605917-a56 bolt info only deleted on e 10057561/rwj 97242-s101 clamp info only deleted on e 10057561/rwj slide-8287-a4 clamp info only released on e 10057561/rwj e8ta-3c510-a4 clamp rel. 91 fa-36 on e 10047814/dhs 95873-s101 strap rel. Positive retention 3493 ***** sys gen components removed..... 91/01/29

_ F F0VC 3A563 JA NOSE 110203 000 NOSEB10065839000R P IR 90/04/18

<TUBE.ASY-P/S.PUMP.RETURN.....> <.....>

CR Description:

_ F F1VC 3A563 A1 NC00 110203 000 NC00I10011356002R P IR 89/06/23

<TUBE.ASY-P/S.PUMP.RETURN.....> <.....>

- CR Description: 1991 fn36 requires all new p/s hydraulic distribution system for packaging & b&a dfa reasons. The p/s pressure line connects front end stabilizer bar. Design activity: please design and release all new p/s hydraulic distribution system to avoid contact with the front end stabilizer bar, plus accommodate b&a dfa concerns. Also, please review p/s illustration sheets and update accordingly. See marked up copies attached. Processing activity: please update process sheets as req'd.

_ F F1VC 3A563 BA NC00 110203 000 NC00E10057561002R P IR 90/03/28

<TUBE.ASY-P/S.PUMP.RETURN.....> <.....>

- CR Description: supplement required to delete p/s return tube asy omitted on. Supplement 000.

_ F F1VC 3A563 B1 NC00 110203 000 NC00I10010977020R P IR 89/07/07

<TUBE.ASY-P/S.PUMP.RETURN.....> <.....>

- CR Description: initial release of p/s hoses, cooler & alt. Parts. Sys gen components removed.... 01/04/90 sys gen components removed.... 01/26/90 sys gen components removed.... 90/03/30

PROP Valves:

_ C F2VC 2B091 CC NC00 060202 000 NC00E10129983000R P IR 92/04/02

<VALVE.ASY.BRK.PRESS.CONTROL.....> <LIMO.....>

- CR Description: adding abs to limo must be coordinated change between nb00 (body), nd0w (axle), and nc00. Chassis cannot support job #1. 1993 timing, and requests affected parts be retimed for J4p93a. This notice releases abs brakes as standard on limo & body must modify usage to include f0vb-2c309-ad, f0vb-2c312-ac, and n801164-s43 for limo application. (these parts are currently released for non-limo only). The axle asy f3vw-4001-a1 (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to f3vc-9s294-a4 and delete f3vc-9s294-ba. I will include an add/delete parts list for all brake parts with the notice package. The only new brake subsystem parts are for the 11" brake asy and prop valves. All other parts are usage changes or resurrections of 1990 parts. The total chassis costs are \$293 v/c and \$160000 tooling to add abs to the limousine package. *** as in today's non-abs limo, two prop valves will be released the first, which will be installed by wixom will look identical to the abs valve used on the base car although it will have a different performance. It will have a black sticker to identify it from production valves. The second will GO INTO A KIT FOR USE when/if the vehicle is modified. This will continue to have a green sticker for identification. --- fmvss should be tested. B&A, schmanaki & genikaa, insist on not changing tube nut to prevent mis-build. Brakes requests b&a concurrence they will process to prevent any mis build, i.e. black sticker valve on non limo, or unstickered valve on limo.