

EA02-025

FORD 10/27/03

APPENDIX N

BOOK 15 OF 61

PART 2 OF 4



U.S. Department
of Transportation

National Highway
Traffic Safety
Administration

DEC 1 1998

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12/1/98
L. J. BOHANNON
CAMP

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L.W. Camp, Director
Automotive Safety and Engineering Standards Office
Ford Motor Company
330 Town Center Drive
Dearborn, MI 48126

NSA-12(ja)
PE98-055

Dear Mr. Camp:

This letter is to revise the due date for the November 24, 1998 information request letter regarding investigation 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
1800 424-9383
Wash. D.C. Area (202) 360-0123

3713 1009



U.S. Department
of Transportation
National Highway
Traffic Safety
Administration

V. J. BOGAN--

NOV 24 1998

13 NOV 93 S.J. 16

CERTIFIED MAIL
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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) 365-0123

3713 1010

- 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 driver 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:

- a. the approximate date on which the modification or change was incorporated into production;
- b. a description of the modification or change;
- c. the reason for the modification or change; and
- d. 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:

- a. all causal or contributory factors;
- b. the failure mode;
- c. the risk to occupant safety it poses; and
- d. 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 or 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:JABBOTT:drd:6-5221:11/17/98
cc:
NSA-01
NSA-12/Subj/Chron/
Document: L/ABBOTT/Towncar.IR

PE98-055
page 6

1992 Lincoln Town Car (1LNLM81W2NY703705)



3713 1015

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
2	824018	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	1LNLM81W9NY	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	820318	FL	1LNLM81W3NY	92
14	I/Net	FL	1LNLM81W8NY	92
15	536206	MS	1LNLM83W9NY	92
16	819621	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 1016

Texas Instruments Incorporated
S-D Problem Resolution Report # PS/CAR/93-3

CLOSED 12/1/93

Original Report: July 29, 1993

Update Report: October 18, 1993

Ford Part Number: F3TA-9F924-AA/BA/CA

Part Description: Speed Control Deactivation Switch

(STEP 1) PRODUCT TEAM

Manufacturing Engineering: Matt Sellers
Quality Assurance Engineering: Jim Watt
Product Marketing: Charlie Douglas
Design Engineering: Aziz Rahman (Champion)

(STEP 2) PROBLEM DESCRIPTION

Ford Light Truck Division Brake Engineering reported a noticeable increase in warranty returns, related to inoperative speed control systems for 1993 Econoline models during 4QTR'92 and 1QTR'93 time frame. Detailed breakdown of warranty data showed that a number of these claims were reported to be pressure switch related. Attachment "A" shows R/1000 data as collated from Ford warranty data. Texas Instruments and Ford started on 7/22/93 to call dealerships from the Master Claim list contacting over 150 dealerships. As of 10/18/93, (14) switches have been received, analyzed, and characterized.

The following table details the field data on these switches:

VID	Vehicle type	Switch date code
[REDACTED]	'93 Econoline	2316 (November '92)
	'93 Econoline	2294
	'93 Econoline	3078
	'93 Econoline	2345
	'93 Econoline	2345
	'93 Econoline	2243
	'93 Econoline	2286
	'93 Econoline	2307
	'93 Econoline	2316
	'93 Econoline	2338
	'93 Econoline	2345
	'93 Econoline	3037
	'93 Econoline	3078
	'93 Econoline	3175

(13) switches were confirmed to be inoperative switches due to liquid ingress resulting in severe corrosion. Switch with date code 2307 was operating normally.

(STEP 3)

INTERIM CONTAINMENT ACTION

We have completed the following actions in assessing the integrity of our current product:

1. Verified environmental seal integrity and proper function.
2. Verified switch connector base dimensions that could affect the mating connector sealing ability to be within specification.

Based upon Texas Instruments' verification of the critical connector base dimensions, the functionality of the environmental seal, and observation of fluid ingress into the switch cavity through the terminal blades, an analysis/investigation of the mating connector sealing system is warranted.

3. Texas Instruments, in cooperation with Ford Light Truck Engineering, conducted a water ingress test with various component combinations of the mating connector, to determine relative susceptibility of each combination. The following combinations were tested:

Current Light Truck	Light Truck Before 11/92	Current Pass Car
Black UTA shell	Black EPC shell	Black UTA shell
Gray Grommet	Gray Grommet	Gray Grommet
Red Silicon Seal	Red Sponge Seal	Red Sponge Seal

The matrix of components tested and the test sequence is outlined in attached charts. Preliminary data analysis did not show significant differences amongst various matrix elements. It has been concluded that the switches need extended exposure under shower to initiate water ingress. In addition to the above combination of components, 50% of the switches were tested with a 'rocked' connector.

The shower test was halted on 10/6/93, when non-normal insulation resistance readings were observed on rocked switches. Upon removal of the connectors, water ingress was observed on all switches with rocked connectors. There was no ingress on correctly latched switches. The attached Table 1 summarizes the matrix of parts and visual observations. The ingress in vertical switches was of a magnitude higher than in horizontal switches. Photographs of the switches were sent to Ford Light Truck Engineering for review. The switches were calibrated for functionality. The attached Table 2 confirms the effect of ingress as seen in the reduction of insulation resistance and intermittent operation of the switches. The switches were then disassembled for internal inspection. It was observed that the ingress had proceeded through the connector cavity into the contact zone. Photographs are attached.

The ingress activity on the rocked switches was similar to that observed on parts returned from the field, albeit of a lesser magnitude. It is believed that, given sufficient time (to allow current to pass through the contacts), the ingress on the rocked switches would exhibit exactly the same failure as that observed on the warranty parts.

(STEP 4) ROOT CAUSE

The switches analyzed were inoperative since there was no electrical continuity between the terminals. Attachment "B" shows the fishbone diagram for a stuck open switch. The lack of continuity was due to presence of large amounts of corrosion products inside the switch cavity and, in some cases, failure of contact elements due to corrosion. The large quantity of corrosion products is due to fluid that entered the switch cavity. Because of the severe amount of corrosion observed, it is believed that the corrosion is accelerated by the potential difference between the grounded body of the switch and current carrying members.

Thorough visual observation concluded the fluid entry to be through the mating connector end of the switch as evidenced by brass corrosion products along the terminal blades in the connector cavity (see attached photographs). Two of the switches exhibited blue/green corrosion by-products covering more than one half of the connector cavity. The others showed similar corrosion products but in lesser amounts. None of the switches showed any evidence of fluid ingress by the environmental seal.

The snap acting disc in all the returned switches was functioning normally.

The following observations were made by Texas Instruments on '93 Econoline and F-Series Trucks at a local Ford dealership:

1. Econoline: The wire leads coming out of the switch were routed below and touching the rear A/C line. This will create a propensity for water/condensation traveling along the line to flow along the wire leads to the grommet.

2. F-Series: The observed vehicles had a Red Sponge seal inside the mating connector, as opposed to the expected Red Silicone seal.

Additional observations regarding face seal variations:

1. The target zone for pressure switch sealing surface is smaller on the sponge seal, than the silicone seal. The smaller target zone, may lead to a sub-optimal sealing condition under worst case dimensional stack-up.

2. It has been seen that during the mating connector assembly process, there is an opportunity for the silicone seal to be rolled over. This can happen during insertion of the plastic terminal separator. The insertion is done after the silicone seal is placed in the plastic shell. A rolled over silicone seal would not provide protection against water ingress.
3. The silicone seal, by design, has a lower percent compression than the sponge seal. The design limits for the silicone seal are 10 - 15%, whereas the limits for the sponge seal are 38 - 50%. The reduction in percent compression was intended to maintain similar loading forces. It has been observed that there is a tendency for the mating connector to 'rock' in the latched position. The rocking tendency would lead to a higher percent change in the level of compression of the silicone seal than on the sponge seal.

The shower test detailed above, leads to the conclusion that a "rocked" connector was the most probable root cause of the observed problem. The impact of the problem is magnified in the Econoline platform due to the mounting location and vertical mounting position, both of which are unfavorable from a ingress point of view.

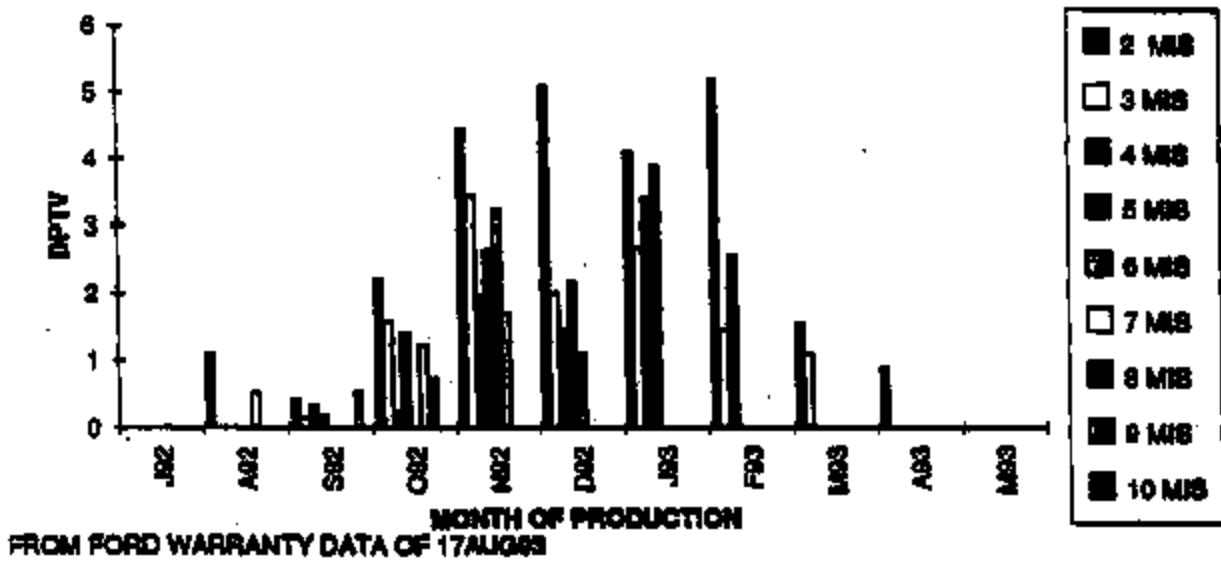
(STEP 5) PERMANENT CORRECTIVE ACTION

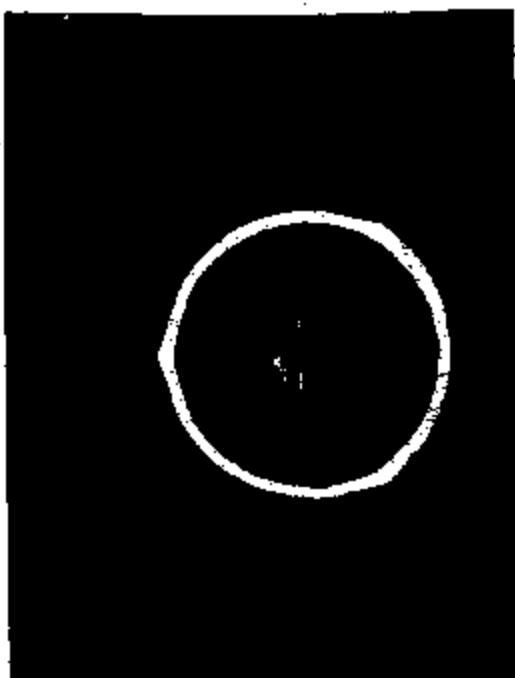
No corrective action is required from Texas Instruments at this point.

(STEP 6) VERIFY CORRECTIVE ACTION

(STEP 7) PREVENT RECURRENCE

93 ECONOLINE

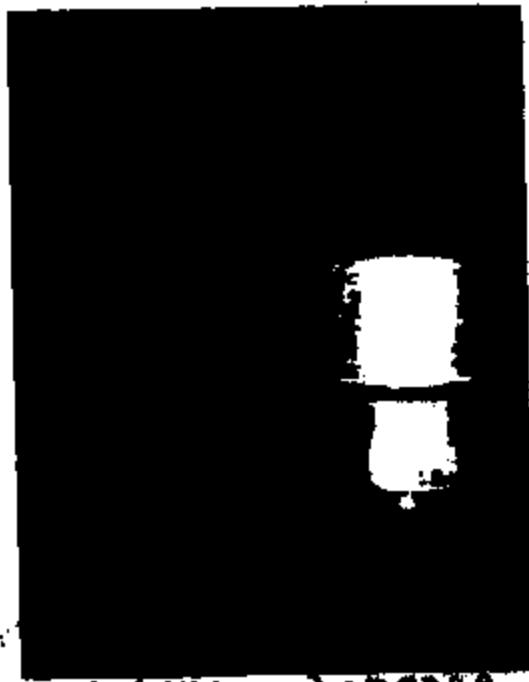




A4F855 DC3078A

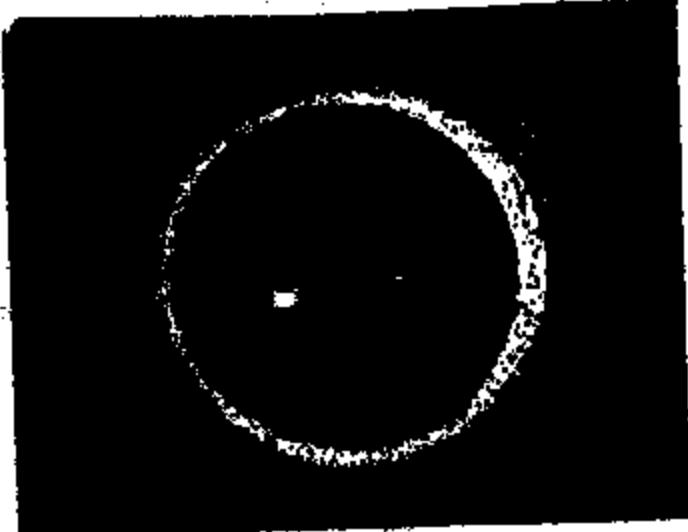


A4F855 DC3078A



A4F855 DC3078A

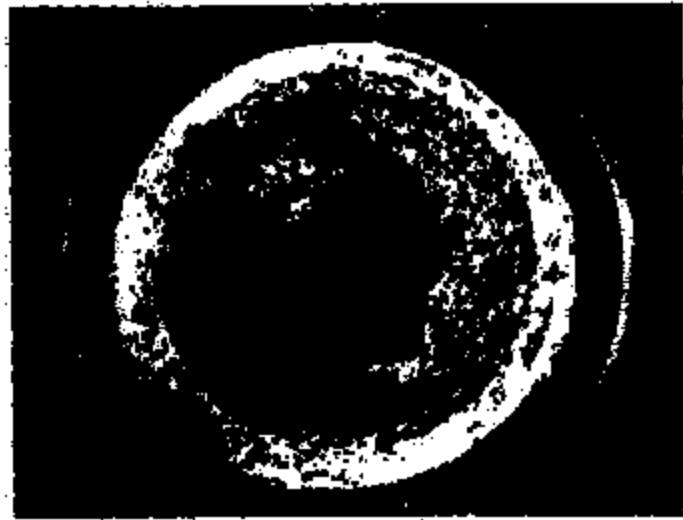
3713 1022



A35294



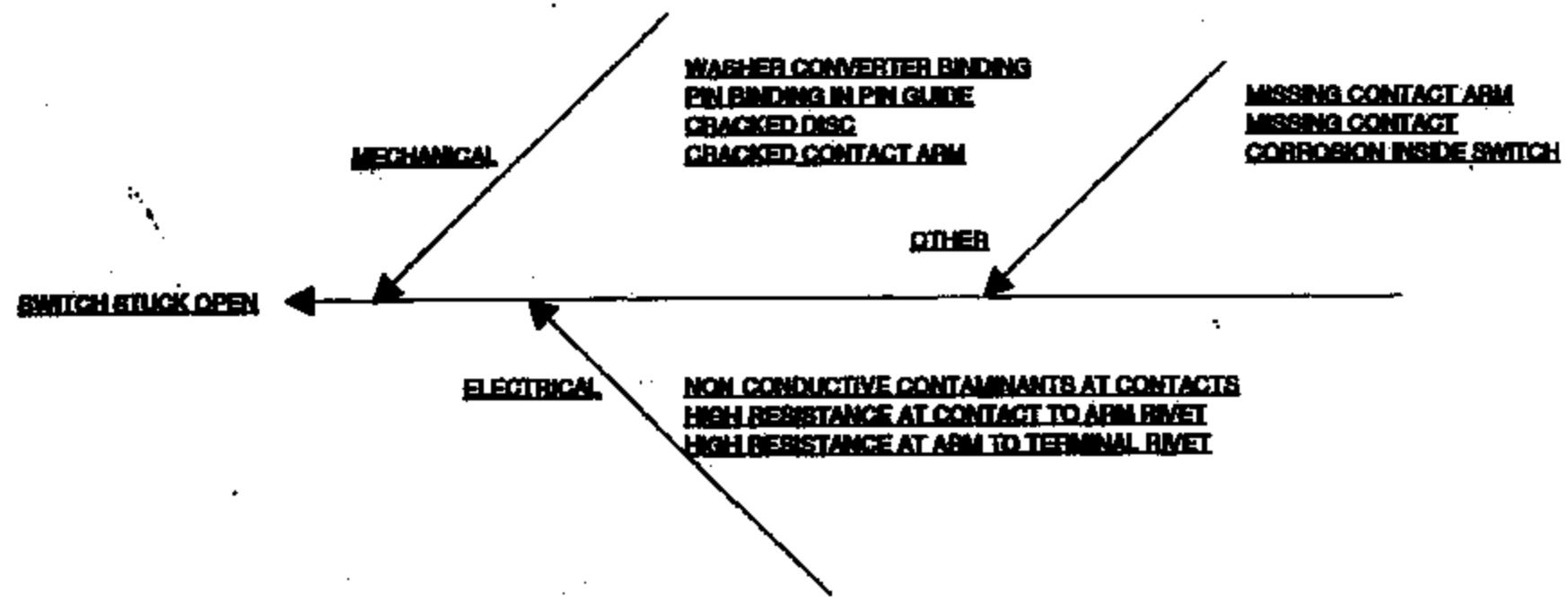
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A35294

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ATTACHMENT "B"



3713 1024

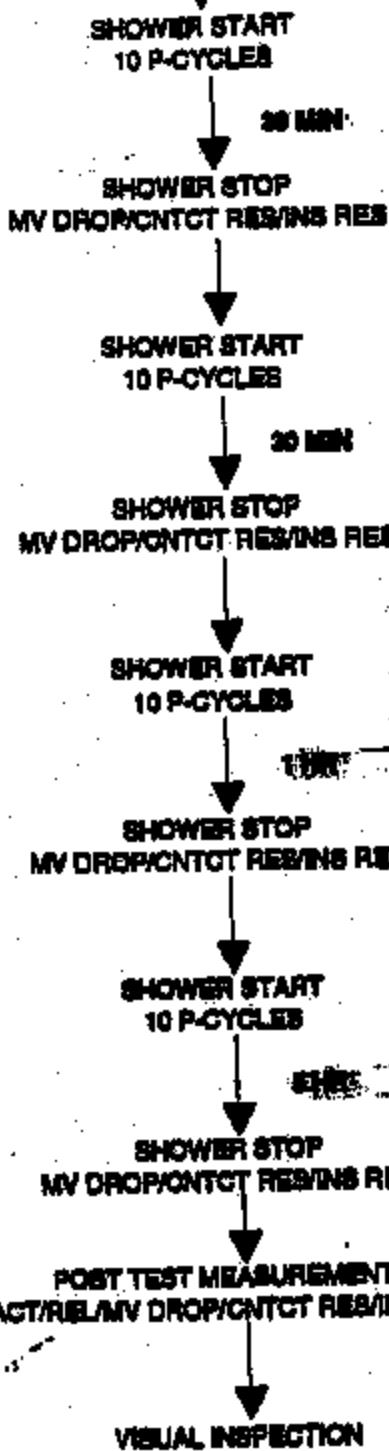
connector system matrix		8/17/93							
for shower test									
		a	b	c	d	e	f		
color	red	red	red	red	red	red	red	red	red
protection	gray	gray	gray	gray	gray	gray	gray	gray	gray
face seal	sponge	sponge	silicone	silicone	sponge	sponge	sponge	silicone	silicone
edge finish	black	tan/tan	black	tan/tan	black	tan/tan	black	tan/tan	tan/tan
orientation	horizontal	horizontal	vertical						
compost.	non-cast iron	non-cast iron	acrylic						
# of surfaces	2	2	2	2	2	2	2	2	2

77REL3-2 CONNECTOR MATRIX SHOWER TEST

PRE TEST MEASUREMENTS
ACT/REL/MV DROP/CNTCT RES/INS RSB

8/19/93

POWER: 13 VDC, 780 mA
P-CYCLE: 0-360 psig



3713 1026

77P6L3-3 SHOWER TEST - RAW DATA 8/29/93

SW. #	PRE-TEST		50 MHZ		60 MHZ		100 MHZ		120 MHZ		150 MHZ			
	ACT	REL	MV DR.	C-RES	HRES	MV DR.	C-RES	HRES	MV DR.	C-RES	HRES	MV DR.	C-RES	HRES
A1	253	183	4.4	0.1	NA	29.5	0.1	NA	52.5	0.1	NA	41.9	0.1	NA
A2	253	180	4	0.1	NA	31.4	0.1	NA	54.7	0.1	NA	43.8	0.1	NA
B1	235	179	4.6	0.1	NA	29.5	0.1	NA	52.5	0.1	NA	41.7	0.1	NA
B2	263	187	4.9	0.1	NA	25.3	0.1	NA	48.7	0.1	NA	37.7	0.1	NA
C1	239	176	4	0.1	NA	32.4	0.1	NA	53.8	0.1	NA	44.7	0.1	NA
C2	261	187	4.3	0.1	NA	16.1	0.1	NA	39.1	0.1	NA	24.9	0.1	NA
D1	248	177	4	0.1	NA	30.1	0.1	NA	53.7	0.1	NA	42.7	0.1	NA
D2	250	183	4.2	0.1	NA	25.4	0.1	NA	41.5	0.1	NA	37.6	0.1	NA
E1	249	181	4.4	0.1	NA	33.8	0.1	NA	57.3	0.1	NA	46	0.1	NA
E2	255	183	4.3	0.1	NA	29.1	0.1	NA	52.9	0.1	NA	38.6	0.1	NA
F1	249	184	4.1	0.1	NA	30.2	0.1	NA	59.3	0.1	NA	48.5	0.1	NA
F2	237	182	6.6	0.1	NA	31.1	0.1	NA	55.5	0.1	NA	49.9	0.1	NA

NA = GREATER THAN 20 MEGAOMS

Table 1

POTA-SP004-CA SPEED CONTROL DE-ACTIVATION SWITCH						10/6/93						
T.I.P.M.	77PSL9-3											
UPDATE OF RESULTS FROM SHOWER TEST												
HOURS OF EXPOSURE TO DATE:		324										
	a	b	c	d	e	f						
steel	flat											
ceramic	gray											
stainless steel	horizontal	horizontal	silicone	silicone	silicone	sponge	sponge	sponge	sponge	sponge	sponge	
Al. Brackets	horizontal	flat	vertical	flat	vertical	horizontal	horizontal	horizontal	horizontal	horizontal	horizontal	
Brass	horizontal	horizontal	vertical									
Plastic	horizontal											
Painted	black-on-white											
	a1	a2	b1	b2	c1	c2	d1	d2	e1	e2	f1	f2
	atched	reashed	atched	reashed								
	o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress o.k.	Ingress	
	(major)											

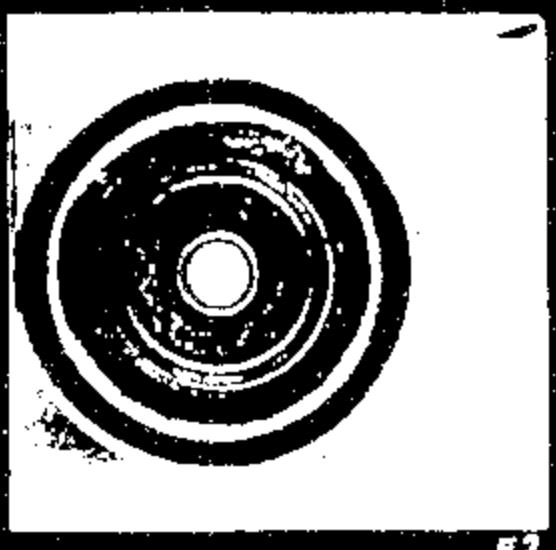
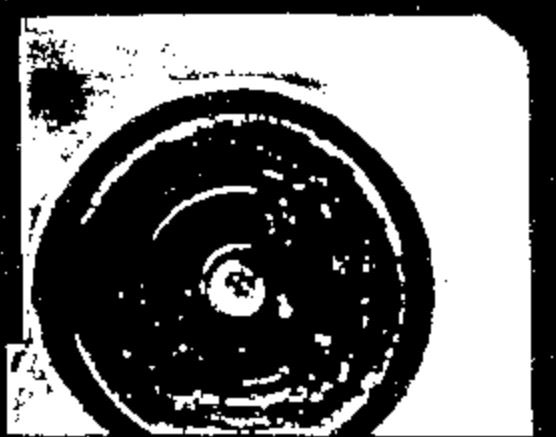
Table 2.

F1TA-SF024-CA SPEED CONTROL DE-ACTIVATION SWITCH						10/18/93		
T.I. PIN	77/PBL3-3	ACT	REL	V.DROP	TERM TO TERM @ 300 PSI	TERM TO CASE 500 VDC MEGGER	CONNECTOR STATUS	INGRESS
RESULTS FROM SHOWER TEST								
HOURS OF EXPOSURE TO DATE:						324		
A1	260	162	4		> 20 MEGA-OHM	64 GIGA-OHM	LATCHED	NONE
A2	242	176	4			100 GIGA-OHM	ROCKED	MINOR
B1	239	172	4.2			98 GIGA-OHM	LATCHED	NONE
B2	235	185	4.2			50 GIGA-OHM	ROCKED	MINOR
C1	238	174	4			120 GIGA-OHM	LATCHED	NONE
C2	235	177	5.8		> 20 MEGA-OHM	220 GIGA-OHM	ROCKED	MAJOR
D1	245	179	4.3		> 20 MEGA-OHM	130 GIGA-OHM	LATCHED	NONE
D2	235	186	4.1		> 20 MEGA-OHM	220 GIGA-OHM	ROCKED	MAJOR
E1	267	162	4.1		> 20 MEGA-OHM	110 GIGA-OHM	LATCHED	NONE
E2	260	190	4.2			220 GIGA-OHM	ROCKED	MAJOR
F1	265	162	4			167 GIGA-OHM	LATCHED	NONE
F2	265	162	4		> 20 MEGA-OHM	220 GIGA-OHM	ROCKED	MAJOR
INTERMITTENT ACTUATION								

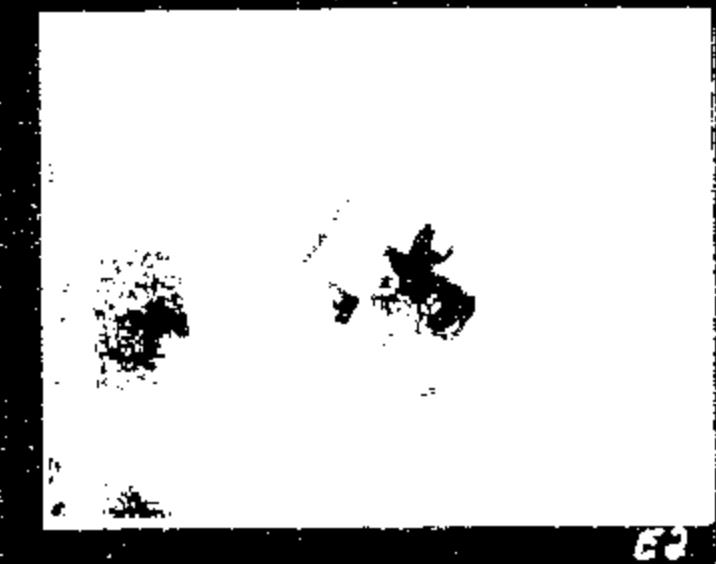
3719 1023



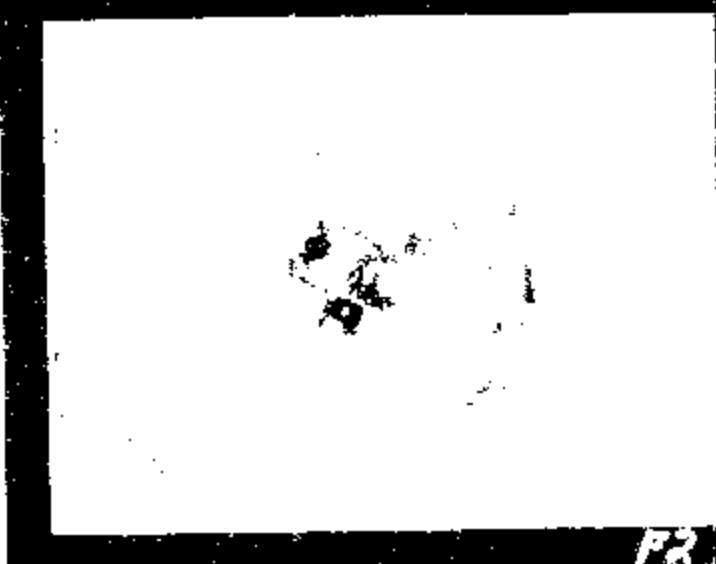
C8



E2



G2



F2



F2

3719 1030

To Consumer: _____ Alert: _____ If undeliverable

Sel C/F Part(s): _____ Actv CPSC= Sqg Release= _____ Is CR# Determined

Brake Booster/Master Cylinder Assy -

- F F1VC 2B195 AB NC00 060701 000 NC00E10391082000IR P IR 94/03/29

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

- CR Description: notices issued to identify Mexico grand marquis chassis parts as balance out, since NAAO is responsible for this vehicle for the 1995 model year.

- F F1VC 2B195 BA NC00 060701 000 NC00E10041053000IR P IR 89/11/11

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

- CR Description: release 200 master booster with passenger compartment air intake (pcai).

- F F1VC 2B195 B2 NC00 060701 000 NC00I10010977026IR P IR 89/03/22

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

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

- F F1VC 2B195 B2 NC00 060701 001 NC00B00444499092IR P IR 89/09/22

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

- CR Description: Usage Change

- F F1VC 2B195 CA NC00 060701 000 NC00E10048319001IR P IR 90/02/14

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

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

- F F1VC 2B195 CB NC00 060701 000 NC00E10067809001IR P IR 90/03/28

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

- CR Description: Revise The Hole Pattern In Bracket f1vc-14336-Ba To Bb - 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 NC00E10070190000IR P IR 90/06/04

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

- CR Description: Complaints of vehicle pull while braking exist for town car, em33, mercury/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 "blated piston" master cylinder design. This change is only applicable to cars with abs and is a \$1.08 price cost increase. This change will reduce town car and em33 warranty by 4/1000 (\$1.03/veh) and continental by 8/1/000 (\$1.23/veh). Mercury/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 em33 use f1vc-2b195-cd, mercury/sable and continental use f1vc-2b195-ab, mercury/sable use f1vc-2b195-bb.

- F F1VC 2B195 CD NC00 060701 000 NC00E100929190000IR P IR 90/10/03

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

- CR Description: The low pressure brake fluid hose connecting the anti-lock 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 NC00E10094269000IR P IR 90/10/24

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

- CR Description: modify connector terminals on brake fluid reservoir cap. The modifications are reduce the gage thickness and increase the lead-in chamber of the subject terminals. Pinouts not affected. The part which is being modified is a common part used on both the dn-5 and fa-9 certificates also. There are no problems in changing these certifcats as well. They get the improved Connector free.

- F F1VC 2B195 CF NC00 060701 000 NC00B10104848000IR P IR 90/11/28

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

- CR Description: In ABS brake booster and master cylinder assembly, review 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. EMVSE is not affected.

- To Concern: _____ Alert: _____ If Prod Release
 Sel C/F Part: _____ Acty CPSC Seq Release: _____ 45-CIS Date: _____
- F F1VC 2B195 CG NC00 060701 000 NC00E10300678000IR P IR 93/05/20

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

CR Description: incorporate new bracket (3ec 14536 aa) into booster master cylinder.
 - F F1VC 2B195 DA NC00 060701 000 NC00E10070190000IR P IR 90/06/04

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

CR Description: Complaints of vehicle pull while braking exists for town car, es33, mercury 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 es33 warranty by 4c1000 (\$1.05/veh) and continental by 8c1000 (\$1.23/veh). Mercury/continental (12% abs) warranty will not be measurably affected. Replace the following booster and master cylinder assys. Which all use the same master cylinder f1vc-2a032-aa. Town car and es33 use f1vc-2b195-cd, mercury/continental use f1dc-2b195-ab, mercury also uses f1dc-2b195-bb.
 - F F1VC 2B195 DB NC00 060701 000 NC00E10084269000IR P IR 90/10/24

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

CR Description: modify connector terminals on brake fluid receiver cap. The modifications are reduce the gage thickness and increase the lead-in chamber of the subject terminals. Power not affected. The part which is being modified is a common part used on both the da-3 and fa-9 carlines also. There are no problems in changing these carlines as well. They get the improved connector free.
 - F F1VC 2B195 DC NC00 060701 000 NC00E10104848000IR P IR 90/11/28

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

CR Description: In ABS brake booster and master cylinder assembly, revise low pressure hose mount position for shipping. Also delete the shipping cap from the check valve located in the booster to ease assembly operation and reduce cost. PMV36 is not affected.
 - F F1VC 2B195 DD NC00 060701 000 NC00E10079779020IR P IR 92/08/27

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

CR Description: 1992 April record change for brakes. 1. Es-f3c-2b109-aa - completed es-brake tube - initially released incomplete. 2. F3ac-90433-ab - otherwise revised as manufactured, i.e. +/- 0.05 to +/- 0.5; Ld. 0.03 to +/- 0.12. 3. Remove item #3, revisions done on other notice. 4. F1vc-2b195-cg/f1vc-2b195-dd/f1vc-2a032-aa/f3dc-2a032-aa: release supplier drawing showing master cylinder reduction-control valve. 5. F3ac-2780-hs -- revised drawing reflecting change in main rivet on parking brake control assembly. 6. F3ac-2c025-aa -- replace rear rotor file drawing with update (no change). 7. F3dc-2c287-ab -- brake fluid tube assembly - incorrect flare is shown at pt c20. Revise drawing to show iso flare for pt c20. 8. Remove items #8 & #9. These revisions were completed on other notice. 9. 10. F3dc-2c334-aa & f3dc-2c333-aa -- change esu mounting torque from 7 - 9 nm to 2.5 +/- 0.4 nm. 11. F3dc-2c296-aa & f3dc-2c296-aa -- add 3.6mm dimension to last change: anti-rotational clip & revise wrench block and hole hex dimensions to prevent plastic build up in stud threads. 12. F3dc-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 F1VC 2005 AA NC00 060701 000 NC00E10042672000IR P IR 89/11/17

<BSTR.ASY-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 assy. Will be f1vc-2b195-ab and the booster alone will be f1vc-2005-ab. These parts will also be used on es33 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 es33 vp build in Jan. 1990. does not affect compliance with regulations --brake dept.--
 - C F1VC 2005 AB NC00 060701 000 NC00E10107234042IR P IR 93/05/20

<BSTR.ASY-BRK...> <.....>

CR Description: Initial release of brk rotors,shield & callipers
 - C F1VC 2005 AC NC00 060701 000 NC00E10079779040IR P IR 94/01/03

<BSTR.ASY-BRK...> <NON.ABS...>

CR Description: Initial release of brk rotors,shield & callipers. 1. f1f4gc-060600-04; add unique torque for color fit brk hs 2. F3dc-2c189-aa; add supplier info 3. B6dc-9a174-ba; redraw 4. F3dc-2078/2b557-ab; redraw 5. F6rc-2530/2531-ab; drawing revision 6. F4ac-2003-ac; drawing revision 7. F4dc-2c204-bb; redraw to find level of release 8. F3dc-2c205-ab/(3dc-2c190-ac)/f4dc-2a190-aa; review to facilitate manufacturing 9. F4ac-1125-ac; drawing revision 10. F2ac-2009/2b195-ba/f1vc-2005-ac; review/review labels 11. F1sc-1107-aa; show optional design 12. F4cc-2267/2268-ac/f4sc-2267/2268-bb; add wax to tube cut 13. F3dc-2c360-aa; revise drawing to facilitate manufacturing
 - C F1VC 2005 BA NC00 060701 001 NC00B10640583005IR P IR 98/09/03

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

To Consumer _____ Alert: _____ [Final Release]

Sel C/F Part# _____ Actv CPSC= Seq Balances= S CME Date= _____

- F FIVC 2025 AA NC00 060701 000 NC00E10032035000IR 5 IR 89/09/08

<BSTRASY-BRK><SERVICE ONLY>

- CR Description: Release booster & master缸未明示 tube grease spec. # 446 06 site n 10636. Booster & master cyl. Ass'y'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. Ins requirement - material use of new grease only.

Master Cylinder & Pressure Control Valve Assy -

- C FIVC 2C156 AA NC00 060701 000 NC00E10348036000IR P IR 93/11/18

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

- CR Description: replace the f3ac-2b195-bb booster/master cylinder assy with the f2ac-2b195-be starting job #1 94, ending with job #1 95 also replace the f3ac-2a040-be tube with f3ac-2a040-aa 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 NC00E10019802001IR P IR 89/06/26

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

- CR Description: the fuel and brake line bundles must be revised to acc ommodate the new rear brake tube (-2367-). 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 NC00E10027703000IR P IR 89/09/06

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

- CR Description: Hole location for 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 - 1000.0 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 NC00E10037380000IR P 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 ln-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 f1ve-3003-cj frame assy. (2) add an additional stlyne clip to the fuel line bundle (-9l291-) 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 teflon tubing on supply and re turn lines by 20 mm. (5) revise routing to provide clearance to the (a) rear belt bolt, (b) rear engine mount, (c) front and rear torque box. (6) revise the -9l294-fuel/vapor crossover & front brake tube to avoid contact with the knee brace (ref. Concern # e102231803). (7) design and release a new fuel vapor c/o and front brake bundle (-9l294) for the the non-abs 1991 ln-36. (8) release the 10kc-3a897-ab air line in the -9l291-fuel line bundle. Sys gen components removed.... 90/05/17

- F FIVC 9L291 AD NC00 100103 000 NC00E10048573000IR P IR 90/01/30

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

- CR Description: Last Change: The following action is required for the -9l291- and -9l294- 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 -9l294 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 bolt 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 10rc-9a317-as has been carried over and released for all 1991 ln-36 vehicles. The clip is no longer necessary for 1991 and should be deleted for a \$26 piece cost and bolt labor save on two clips per vehicle.

- F FIVC 9L291 AE NC00 100103 000 NC00E10048573002IR P IR 90/02/21

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

- CR Description: the -9l291- and -9l294- fuel bundles released with the previous notice supplemental #e10048573-000 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 -9l294- 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 20¢ 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 Customer: _____

Alert: _____ !Func!Release

Sel C/F Part: _____

Actv CPSC Seq Release: _____ 45 CIS Date: _____

- F F1VC 9L291 AF NC00 100103 000 NC00E10048573007IR 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 f1vc-5a897-ah 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 frame update requiring re-routing of the air suspension air line along the frame rail requiring the following changes: * add 7m's of air line tubing. * add 100 mtrs of evt protection tubing under the brake distribution valve, located on the lh frame side rail. * add (1) f1vc-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 all line assembly. * delete air line assembly f1vc-5a897-ah from -9L291-. * add new air line assembly f1vc-5a897-as to -9L291-. * -9L291- becomes f1vc-9L291-aj.

- F F1VC 9L291 AG NC00 100103 000 NC00E10066976000IR P IR 90/03/30

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

- CR Description: Re-routing of the fu-36 -9L291- fuel/brake bundle will be accomplished as a cr change. The marked up parts list and prints show the changes: which are as follows: 1) f1vc-9L291-ah 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 #8 bolt will be used to secure the clip.

- F F1VC 9L291 AH NC00 100103 000 NC00E10066976001IR P IR 90/04/10

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

- CR Description: 1991 fu-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 interplay problem. 2) clip location problem (bundy quality problem) 3) air line location problem (bundy qty problem) 4) air line clip insertion problem (bundy design) -9a294- 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 actions on the above mentioned concerns will be: -9L291- * cr change to produce a f1vc-9L291-aj bundle to replace the f1vc-9L291-ah bundle. This bundle will have a rerooted 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 fu-36 and en33 clips as on current fu-36. -9a294- cr change to produce a f1vc-9a294-af and a f1vc-9a294-ld in place of the current f1vc-9a294-ac and f1vc-9a294-bc. 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 shorter 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 pins 388577-s in place of the currently released push pin n805635-s to attach the center of the -9a294- to the #2 crossmember.

- F F1VC 9L291 AJ NC00 100103 000 NC00E10069882000IR P IR 90/04/23

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

- CR Description: Add single tube airline clip, f0ve-9279-as, to suspension airline assembly at 603 mm from end of airline. Move existing clip from 400 mm to 365 mm, from end of airline. 91 fu-36 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 off of the abs hydraulic unit. Revision to be accomplished on latest chassis monthly record change. Sys gen components removed.... 90/08/21

- F F1VC 9L291 AK NC00 100103 000 NC00E10080556000IR P IR 90/07/03

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

- CR Description: 1991 fu-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 evt 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 F1VC 9L291 AL NC00 100103 000 NC00E10080556000IR P IR 90/07/03

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

- CR Description: 1991 fu-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 evt 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 Customer: _____ Alert: _____ If Prod/Release
 Sel C/P Part: _____ Acty CPS/Cmp Seq Release: _____ SIS Date: _____
 - F F1VC 9L291 AM NC00 100103 000 NC00E10086498000IR 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 so 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 p3-f1vc-9L291-a1. 5) add engineering spec data en-f1ac-9327-ac to complete drawing.

- F F1VC 9L291 AN NC00 100103 000 NC00E10086523000IR 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 p1s to fuel/brake tube bundle -9L291- for en-53; and item air line assembly f2ac-5a897-ab will replace f2ac-5a897-ac. This change is a result of rerouting the suspension air line and revising its retention along lh side of the #4 c/member requiring the following changes: delete tape wrap above "y" connector and replace with double tubing clip with optional construtction, to accommodate the new retention along the #4 c/member. B & a processing: fn36 & en-53. Review process sheets to ref reflect new air line routing and retention along the lh side of the #4 c/member. Fuel/brake bundle: delete air line assy f1vc-5a897-ac from 9L291. Add new air line assy f1vc-5a897-ad to new fuel/brake bundle f1vc-9L291-ac. Sys gen components removed.... 90/11/28 *** this change must be coordinated with frame change supplement.

- F F1VC 9L291 AR NC00 100103 000 NC00E10078761000IR P IR 90/09/17
 <TUBE.ASY-FUEL.RETURN.& BRAKE> <.....>

- CR Description: increase in fuel supply and return line length at fuel sender to accomodate 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-ac fuel/brake bundle nos-a/bc en-53 f2ac-9L291-ad fuel/brake bundle nos en-53 ----- f1vc-9L291-ac fuel/brake bundle fn-36 layouts and detail drawings are required.---- Note :this notice must be processed before notice nc00-e-10072777-000.

- F F1VC 9L291 A3 NC00 100103 000 NC00I10010977019IR P IR 89/03/05
 <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 NC00E10091352000IR 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-ha (not bb) and the suffix should be bumped to ca (in f1vc-9L291-ac is a f1vc-9L291-ca).sys gen components removed.... 91/01/29

- F F1VC 9L291 CA NC00 100103 000 NC00E10095356000IR P IR 90/10/19
 <TUBE.ASY-FUEL.RETURN.& BRAKE> <.....>

- CR Description: vehicle tryouts with a 4 inch protective sleeve added to the lobeard 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. Peugnon wizcom q-prem apktl. Sys gen components removed.... 91/03/07 approval is requested to incorporate the following part changes. 1991 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 \$ 3400.00 1992 en-53 - delete end item air line assembly f2ac-5a897-ab and advance/release the new part number. - air line piece cost \$ 0.06 tooling \$ 3400.00 tooling to incorporate running change at wizcom is projected to be week of 90/10/5. Fn36/en-53 service not affected. Uninstall existing stock.

- F F1VC 9L291 CB NC00 100103 000 NC00E101003784000IR P IR 90/11/16
 <TUBE.ASY-FUEL.RETURN.& BRAKE> <.....>

- CR Description: revise -9L291- as follows: for cr 10102784: add a nylon 12 sleeve to the fuel return line between bonds fn10 and fn11; 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 handle 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: _____ Alert: _____ IfusalRelease

Sel C/F Part: _____ Acty CPSC: Seq Release: _____ IS CRB Date: _____

- F P1VC 9L291 CC NC00 100103 000 NC00E1011222600IR 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 head number fs ft 5 & ft3 and 3.5 inches above those heads. Note: hose used for cover is to be hypalon line ea-m2d188-a (same covering used on the flex tube at fuel sender)

- F P1VC 9L291 CD NC00 100103 000 NC00E10124098000IR 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 strapped to the fuel lines. *** ex drawings released for ~~ea-36-1991-12~~ the following fuel/brake bundles are affected: 1991 fa-36 P1vc-9l291-cd to become f1vc-9l291-cc 1992 fa-36 f2vc-9l291-cs to become f2ac-9l291-cf f2ac-9l291-dd to become f2ac-9l291-dc

- F P1VC 9L291 CE NC00 100103 000 NC00E10124098002IR 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 pao for direction) 91-05-20 *** bundy tubing was kicked off on clip 91-05-13 wisdom 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 ea-33ac00-e-10139122 ex'd 91-05-21. *** the parts affected are as follows: fa-36 1991 and 1992 with current fuel rail: f1vc-9l291-cs will advance to f1vc-9l291-cf fa-36 1992 with new fuel rail due fall 91: f2vc-9l291-cs will advance to f2vc-9l291-ab
- *****This notice is to follow nc00-e-10139122-000.

- F P1VC 9L291 CF NC00 100103 000 NC00E10128004000IR P IR 91/07/26

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

- CR Description: replace screw s200369-436 with screw n610937-436. Screw attaches clip-fuel line & brake (91376) to valve assembly-brake press control (2b081). Torque on the joint is to be 6.8-9.2 nm.

- F P2VC 9L291 AA NC00 100103 000 NC00E10124098002IR 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 pao for direction) 91-05-20 *** bundy tubing was kicked off on clip 91-05-13 wisdom 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 ea-33ac00-e-10139122 ex'd 91-05-21. *** the parts affected are as follows: fa-36 1991 and 1992 with current fuel rail: f1vc-9l291-cs will advance to f1vc-9l291-cf fa-36 1992 with new fuel rail due fall 91: f2vc-9l291-cs will advance to f2vc-9l291-ab
- *****This notice is to follow nc00-e-10139122-000.

- F F2VC 9L291 AB NC00 100103 000 NC00E10128004000IR P IR 91/07/15

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

- CR Description: release a modified brake prep valve bracket and a clip pin to the fuel lines. 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 NC00E10165200000IR P IR 91/11/16

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

- CR Description: delete f1vc-9l276-hs and (1) n602191-436 due to f2ac-9l276-as acting as a ground for the fuel portion of the -9l291- bundle. F1vc-9l276-hs was incorporated to create a ground for the to fuel lines.

- F F2VC 9L291 AD NC00 100103 000 NC00E10180478000IR P IR 92/01/09

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

- CR Description: incorporates 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" cont. fa-36 air line: delete f1vc-9l297-af add f2vc-5a897-as ea-33 air line: delete f2ac-5a897-ac add f2ac-5a897-ad. clip-double tube: delete f2vc-9279-ba add f2ac-9279-as ** fuel portion: 920106 Per 1992 - replace f1vc-5a897-af with f2vc-5a897-as in the f2ac-9l291-ad (fuel return and brake line bundle) Per 1993 - replace f1vc-5a897-af with f2vc-5a897-as in f2ac-9l291-ab (fuel return and brake line bundle)

To Censors: _____ Alerts: _____ [ForcedRelease]

Sel C/F Part: _____ Acty CPSC: Seq R#: _____ CIS Date: _____

- F F2VC 9L291 AB NC00 100103 000 NC00E10180678001R P IR 92/01/21

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

- CR Description: this notice is to support a 10/80678 (add shielding or convoluting to the airline (f1vc 5a897-as) just above the y connector for protection. Airline is pta 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 5a897-not (f1vc 5a897-as).

- F F3VC 9L291 AA NC00 100103 000 NC00B10165200000R P IR 91/11/16

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

- CR Description: delete f1vc-91276-ha and (1) n002191-ac due to f2ac-91276-as acting as a ground for the fuel portion of the -9l291- bundle. F1vc-91276-ha was incorporated to create a ground for the lo 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. fa36 air line; delete f1vc-5a897-as add f2vc-5a897-as on #3 air line; delete f2ac-5a897-as add f2ac-5a897-ad clip-double tube; delete f1vc-9279-ha add f2ac-9279-as **** for 1992 - replace f1vc-5a897-as with f2vc-5a897-as in the f2vc-91291-ad (fuel return and brake line bundle) for 1993 - replace f1vc-5a897-as with f2vc-5a897-as in f3vc-91291-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: \$888 must be coordinated with nc00 e 10221001 002, replaces part released by nc00 e 10221001 003 \$355 - to reduce likelihood of misbuilds, release new adaptor block which has two m12 outlet ports instead of one m10 and one m12. Additionally, releases new fuel-brake line bundle for non-limo which has two m12 tube nuts to mate to adaptor (f3vc-91291-ha). - change to adaptor block (f3vc-2e320-ha) is a no cost change. Change to fuel-brake line bundle (f3vc-91291-ha) 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 m53.

- F F3VC 9L291 BA NC00 100103 000 NC00B10236663000R P IR 92/09/04

<TUBE.ASY-FUEL.&.BRAKE.(LHD)> <.....>

- CR Description: \$555 must be coordinated with nc00 e 10221001 002, replaces part released by nc00 e 10221001 003 \$888 - to reduce likelihood of misbuilds, release new adaptor block which has two m12 outlet ports instead of one m10 and one m12. Additionally, releases new fuel-brake line bundle for non-limo which has two m12 tube nuts to mate to adaptor (f3vc-91291-ha). - change to adaptor block (f3vc-2e320-ha) is a no cost change. Change to fuel-brake line bundle (f3vc-91291-ha) 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 m53.

TUBE.ASY-P/S.RETURN

C F1VC 3A563 EA NC00 110203 000 NC00B10108305001R P IR 91/01/29

<TUBE.ASY-P/S.RETURN> <.....>

- CR Description: design activity: redesign p/s cooler package similar to 92 m53 (fin pack type mounted to the lower r.h. corner of the radiator support assembly. Also, please update p/s and filter location sheets as req'd. ***** testing: new cooler passes gpm req/mil/veo 910106 (sl. ***** memo: cost, weight, & timing std: "detail drawings req'd", ***** sys gpm components removed.... 91/06/26

- C F1VC 3A563 FA NC00 110203 000 NC00B10074000000R P IR 90/05/10

<TUBE.ASY-P/S.RETURN> <.....>

- CR Description: subject: 91 fa-36 4.6l all except trailer tow w/o into 92 m53 all except trailer tow. Break down: job #1 req/std. - express chg. (ex) p/s disc action suffix comments f1vc-3c563-as with any new ab . new 3a563+ab base f1vc-3a563-fa take any new fb revise/modify f1vc-3a274-ha how c/o ha carryover component piece cost: no change weight: no change tooling :\$24,000 (a) (b/d) figure could be significantly less, if tooling can be modified. Supplier : form site

- C F1VC 3A563 FB NC00 110203 000 NC00B10145560002R P IR 93/07/17

<TUBE.ASY-P/S.RETURN> <.....>

- CR Description: revise the finish on the ea114/fa116 p/s return hose assemblies and gear end of the pressure hose to aluminum rich paint over galvan 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 fa116/fa114 pending that .035" wall tube remains a fall back option.

To Concern: _____ Alerts: _____ If Prod Release
 Sel C/F Part: _____ Actv CPSC: Sec. Release: _____ CIS Date: _____

- C F3VC 3A563 A1 NC00 110203 000 NC00E10145560002IR P IR 93/07/17
 <TUBE.ASY-P/S.RETURN...> <.....>

- CR Description: revise the finish on the en114/fa116 p/s return hose assemblies and gear end of the pressure hose to aluminum rich paint over galvan 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 fall 1991/92 pending that .035" wall tube remains a full back option.

- F F1VC 3A563 JA NC00 110203 000 NC00E10057562000IR P IR 90/06/20
 <TUBE.ASY-P/S.PUMP.RETURN...> <PCN=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 en1991 fa-36. Break down: ref c.d.o. Dated 89/10/6 - see attachment p/n desc action cost / wt tooling comments f2ac-3a274-ca rtm line delete \$ 0.30/20 \$ 2.200 spent f2ac-3493-a1 rm line new \$ 1.18/50 @ \$ 0.88 = f2ac-3a274-ds rtm line delete \$ 0.19/13 \$ 1.800 spent f2ac-3493-b1 rm line new \$ 0.34/m # @ \$ 1.800 + \$ 0.13 a Import: tooling & pc cost \$ 4,300 + \$ 1.11 a * memo: phase 1 builds used (f2ac-3493-a1) hose assy @ memo: new line routing requires stretching for protection design Activity: please design & rel.components stated above. also, please update p/d & illustration sheets as required. Break down: standard part p/n desc action comment n603917-a56 bolt info only deleted on e 10057561/rwj 97242-at01 clamp info only deleted on e 10057561/rwj e8de-8287-as clamp info only released on e 10057561/rwj e8de-3c510-as clamp rel. 91 fa-36 on e 10047014/rwj 93873-a101 snap rel. Positive retention 3493 sys gas components removed.... 91/01/29

- F F1VC 3A563 JA NC00 110203 000 NC00E10057562000IR P IR 90/04/18
 <TUBE.ASY-P/S.PUMP.RETURN...> <.....>

CR Description:

- F F1VC 3A563 A1 NC00 110203 000 NC00I10011396002IR P IR 89/06/23
 <TUBE.ASY-P/S.PUMP.RETURN...> <.....>

- CR Description: 1991 fa36 requires all new p/s hydraulic distribution system for packaging & bka 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, plus accommodate bka dfa concerns. Also, please review p/d & 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 NC00E10057561002IR P IR 90/03/28
 <TUBE.ASY-P/S.PUMP.RETURN...> <.....>

- CR Description: supplement required to delete p/s return tube assy omitted on Supplement 000.

- F F1VC 3A563 B1 NC00 110203 000 NC00I10010977020IR P IR 89/07/07
 <TUBE.ASY-P/S.PUMP.RETURN...> <.....>

- CR Description: initial release of p/s hoses, cooler & att. Parts. Sys gas components removed.... 01/04/90 sys gas components removed.... 01/26/90 sys gas components removed.... 90M03/30

PROP Valves:

- C F2VC 2B091 CC NC00 060202 000 NC00B10129983000IR P IR 92/04/02
 <VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

- CR Description: adding abs to limo must be coordinated change between nc00 (body), nc0w (axle), and nc00. Chassis cannot support job #1, 1993 timing, and requests affected parts be retained for 14p93a. 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 assy (3vc-4001-a1 (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to (3vc-9s294-as and delete (3vc-9s294-ba. I will include an addendum 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 restatements of 1990 parts. The total chassis costs are \$293 w/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 wixons 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 USB wheel if the vehicle is modified. This will continue to have a green sticker for identification. ----- valves should be tested. B&A, schematic & gearlist, insist on not changing tube set to prevent mis-build. Brakes requests bka concurrence they will process to prevent any valve build, i.e. black sticker valve on non limo, or unstickered valve on limo.

To: Concourse _____ Alert: _____ [FinalRelease]
 Sc: C/P Part: _____ Acty CPSC: Seq. Release: ---S CUS Date: ---

- F F2VC 2B091 AA NC00 060605 000 NC00E10128004001R PIR 91/07/11
 <VALVE.ASY.BRK.PRESS.CONTROL.> <ANTI-SPIN.BRAKES.WITH.SPEED.CONTROL.FB/FP..>

- CR Description: for fn36 and cn53 - with abs: release new prop valves(2b091) with modified bracket - extended for attachment of fuel line clip.
 For non-abs cn53, replace new adapter assy (2e320) with similarly modified bracket.

New part replaces usage

F2vc-2b091-aa f1vc-2b091-ad abs w/o new speed control

F2vc-2b091-ba f2vc-2b091-aa abs w/ new speed control

F2ac-2c320-bb f2ac-2c320-ba non-abs w/o new spd contr

F2ac-2c320-cb f2ac-2c320-ca non-abs w/ new spd contr

- until production tooling, listed parts are available, alert e10128004 authorizes use of pm parts.

- summary

(Instrumental) piece cost tooling weight

Non abs (with & w/o spd contr) \$1.00 \$50,000 0.20 #

Abs (with & w/o spd contr) \$0.35 \$100,000 0.16 #

- F F2VC 2B091 A1 NC00 060605 000 NC00E10014063005R PIR 90/03/24

<VALVE.ASY.BRK.PRESS.CONTROL.> <.....>

- CR Description: initial release fn36 frame sys gen components removed... 10/25/89

- F F2VC 2B091 BA NC00 060605 000 NC00B00444499336R PIR 91/01/18

<VALVE.ASY.BRK.PRESS.CONTROL.> <.....>

- CR Description: initial release of proportioning valve & junction block with p.i.r. speed control deactivation switch

- F F2VC 2B091 CA NC00 060605 000 NC00B10117988001R PIR 91/02/28

<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

- CR Description: USAGE CHANGE

- F F2VC 2B091 CB NC00 060605 000 NC00E10128004004R PIR 91/07/25

<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

- CR Description: f2vc-2b362-ab released in error. Delete and cancel f2vc-2b362-ab. Non-limousine-releases f2vc-2b362-aa as a component of f2vc-2b091-aa and f2vc-2b091-ba. Limousine-release f2vc-2b091-cb with f2vc-2b362-ba as a component. F2vc-2b091-cb replaces f2vc-2b091-dc.

- F F2VC 2B091 CC NC00 060605 000 NC00E10184338000R PIR 92/02/11

<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

- CR Description: until production tooling is/rd parts are available use pm's

- C F3VC 2B091 BA NC00 060202 000 NC00B10129983005R PIR 92/06/21

<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

- CR Description: adding abs to limo must be coordinated change between nbo0 (body), ad0w (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 nbo1164-p43 for limo application. (these parts are currently released for non-limo only). The axle assy (3vw-4001-a1 (023-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 restorations of 1990 parts. The total chassis costs are \$293 w/c and \$1600000 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 wilson 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. -----fmvsa should be tested. Edta, schmanski & gaudia, insist on not changing tube not to prevent mis-build. Brakes requests bba 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/ba in 93 on the prop valve (2b091) and the limo brk cosy kits (2e201).

- To: Concerns _____ Alert: _____ Phase/Release: _____
Sel C/F Part No.: _____ Arty.CPSC: Seq Release: _____ IS CIS Date: _____
- F F3VC 2B091 AA NC00 060605 000 NC00E10129983005IR P IR 92/08/21
<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>

• CR Description: adding abs to limo must be coordinated change between nb00 (body), nc0w (axle), and nc00. Chassis cannot support job #1, 1993 timing, and requests affected parts be retained for j4p93a. This notice releases abs brakes as standard on limousine body must modify usage to include 10vb-2c309-ad, 10vb-2c312-ac, and 8801164-a43 for limo application. (these parts are currently released for non-limo only). The axle assy f3vc-4001-a1 (025-d tag #) must be coordinated with abs brakes parts. Chassis fuel systems must add limo usage to f3vc-9a294-ac and delete f3vc-9a294-bn. 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 restatements 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 wixona 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 whenif the vehicle is modified. This will continue to have a green sticker for identification. --- fmws should be tested. B&K, schmiedek & genikau, insist on not changing tube nut so prevent mis-build. Brakes requests bba 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 NC00E00444499662IR P IR 92/09/16
<VALVE.ASY.BRK.PRESS.CONTROL.> <LIMO.....>
- CR Description: delete the abs mfc from the base usage

Air Suspension:

- F F2VC 3B484 AA NC00 040501 000 NC00E10126377000IR 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 (30rc vs 34 rc) 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 BN33	COMP/DRYER ASSY	F2AC-3B484-AD	F2AC-3B484-AE
1992 BN33	COMPRESSOR ASSY	F2AC-2875-AD	F2AC-2875-AB

- F F2VC 3B484 AB DE00 040501 000 DE00110267019000IR P IR 93/09/24
<COMPR.&DRYER.ASY-SUSP.AIR.S> <.....>
- CR Description: supplement to effect out pr96 air suspension parts

- F F2VC 3B484 AB NC00 040501 000 NC00E10170180000IR 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 easier to install and, therefore, easier to positively locate in the yoke retaining groove. The retaining groove on the compressor end cap will be enlarged to accommodate the revised gasket. Tokico has agreed to submersion test 15,000 fn36, and 15,000 en33 compressors with revised gaskets to verify the effectiveness of this corrective action.

- F F2VC 3B484 AC NC00 040501 000 NC00E10221308000IR P IR 92/08/05
<COMPR.&DRYER.ASY-SUSP.AIR.S> <.....>

• CR Description: revise compressor mounting bracket to provide sufficient clearance to the fender spro. Supplier has provided a proposal which increases clearance from zero to five mil. Timing - assuming \$5,000 obsolescence cost for en33 brackets Wixona - to receive parts by sept 15. 1992 St. Thomas - to receive parts by jan 1993 part numbers will be affected as follows:

COMPONENT	CURRENT PN	NEW PN
FN36 COMPRESSOR & DRYER ASSY	F2VC-3B484-AC	F2VC-3B484-AA
FN36 COMPRESSOR ASSY SVC. ONLY	F2VC-2875-AC	F2VC-2875-AA
BN33 COMPRESSOR & DRYER ASSY	F2AC-3B484-AA	F2AC-3B484-AA
BN33 COMPRESSOR ASSY SVC. ONLY	F2AC-2875-AP	F2AC-2875-AA

To Customer _____ Alert: _____ IPesselRelease
 801 C/P Part: _____ Acvt:CPSCm See Release: _____ IS CRIS Database
 - P F3VC 3B484 AA NC00 040501 000 NC00E0044449991SIR P IR 93/09/24
 <COMPR.&DRYER.ASY-SUSP.AIR.S> <.....>
 • CR Description: this notice supplement supports alert a10316934 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
 <CONTROL.ASY-BRK.ANTI/LK.HYD> <.....>
 • CR Description: use 1991 fn36 abs without traction assist. Label the hydraulic control units 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-to 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 c10053166 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 en53/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 as the later part of the 1992 model year built with the grey 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.TRCITION.H> <.....>
 • CR Description: to provide power tool access at the rear of the hcu/c the inboard tube nut, revise the tube nut extension for the secondary circuit in the hcu/c "f2c285" to be the same as the primary circuit tube nut extension to conform with changes made on the tube bundle "f2c296".
- C F1VC 2C285 BC NC00 060903 001 NC00E10068739002IR P IR 90/04/18
 <CONTR.ASY-BRK.A/LK.TRCITION.H> <.....>
 • CR Description: to provide power tool access at the rear of the hcu/c the inboard tube nut, revise the tube nut extension for the secondary circuit in the hcu/c "f2c285" to be the same as the primary circuit tube nut extension to conform with changes made on the tube bundle "f2c296".
- F F1VC 2C285 A1 NC00 060903 000 NC00H10018851001IR 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 NC00H10018851001IR 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 Customer _____ Alert: _____ Classification: _____
 Sel C/F Part No.: _____ Acty C/P/Cm: See Reference: _____ IS CIS Date: _____
- P 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/hc: the inboard tube nut, revise the tube nut extension for the secondary circuit in the hcu/c 2c285" to be the same as the primary circuit tube nut extension to conform with changes made on the tube bundle 2c296".
 - P F1VC 2C285 BB NC00 060903 000 NC00E00444499323IR P IR 90/12/17
 <CONTR.ASY-BRK.A/LK.TRCTION.H> <.....>
 • CR Description: usage change: effective point revision to brake anti-lock hydraulic controls due to part availability.
 - P F1VC 2C285 BC NC00 060903 000 NC00E10068739003IR P IR 90/05/24
 <CONTR.ASY-BRK.A/LK.TRCTION.H> <.....>
 • CR Description: to provide power tool access at the rear of the hcu/hc in the inboard tube nut: 1. Revise the abt hex extension 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 of \$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. Sy parts components removed.... 90/08/21
 - P F1VC 2C285 CA NC00 060903 000 NC00E10117341001IR P IR 91/02/28
 <CONTR.ASY-BRK.A/LK.TRCTION.H> <.....>
 • CR Description: release f1vc-2c296-eb in place of f1vc-2c296-ec and/or pm-f1vc-2c296-ec. F1vc-2c296-eb has two m10 tube nuts to mate with the m10 fittings on the revised traction control hcu. Paves is not affected. ---- Incorporation in production of the brake tube bundle f1vc-2c296-eb must be coordinated with incorporation in production of the hcu -2c285- released on nc00-e10117341 000.
 - P F1VC 2C285 CB NC00 060903 000 NC00E10145527000IR P IR 91/09/22
 <CONTR.ASY-BRK.A/LK.TRCTION.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 en53 and fr36.

(C) **TESTS** SHALL BE IN ACCORDANCE WITH
APPLICABLE SPECIFICATIONS.

TEST SPECIFICATIONS **SAFETY**

TESTS

0.1 **INSULATING MATERIAL** **SHALL**
SPECIFICATION **AS-2007-140021-A**.

0.2 **INSULATING MATERIAL** **SHALL** **BE** **IN** **ACCORDANCE** **WITH**
SPECIFICATION **AS-2007-140021-A**.

0.3 **INSULATING MATERIAL** **SHALL** **BE** **IN** **ACCORDANCE** **WITH**
SPECIFICATION **AS-2007-140021-A**.

(C) **TESTS** **SHALL** **BE** **PERFORMED** **USING** **TEST**
INSTRUMENTATION **AS-2007-140021-A**.

0.4 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TESTS **APPROVED** **BY** **THE** **TEST**
INSTRUMENTATION **AS-2007-140021-A**.

C **(C)** **TESTS** **SHALL** **BE** **PERFORMED** **USING** **TEST**
INSTRUMENTATION **AS-2007-140021-A**.

(C) **TESTS** **SHALL** **BE** **PERFORMED** **USING** **TEST**
INSTRUMENTATION **AS-2007-140021-A**.

0.5 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

0.6 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

0.7 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

0.8 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

0.9 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

(C) **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

(C) **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

0.10 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**.

(C) **TEST** **AS-2007-140021-A**, **TEST** **SHALL** **NOT**
BE **IN** **CLASSED** **AS** **UNCLASSIFIED** **OR**
CONFIDENTIAL **OR** **TOP SECRET**.

0.11 **TEST** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-A**,
AS-2007-140021-B, **OR** **TEST** **INSTRUMENTATION**
INSTRUMENTATION **AS-2007-140021-C**. **TEST** **SHALL**
NOT **APPLY** **TO** **TEST** **INSTRUMENTATION** **AS-2007-140021-D**
TEST **SHALL** **NOT** **APPLY** **TO** **TEST** **INSTRUMENTATION** **AS-2007-140021-E**.

0.12 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-F**.

0.13 **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-G**.

(C) **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-H**.

(C) **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-I**.

(C) **TESTS** **SHALL** **NOT** **APPLY** **TO**
TEST **INSTRUMENTATION** **AS-2007-140021-J**.

3749 1045

A									
B									
C									
FORMAT	COLOR	NAME	EXTENSION	SIZE	TYPE	SIZE	TYPE	SIZE	TYPE
NUMBER									

FRAME 3 OF 11

46

47

A									
B									
C									
FORMAT	COLOR	NAME	EXTENSION	SIZE	TYPE	SIZE	TYPE	SIZE	TYPE
NUMBER									

40001400000F3TB-12A581-AF J1

48

49

50

37191046

REF ID	ITEM NO.	DESCRIPTION	QTY	UNIT
40	40	REAR BRAKE CALIPER	1	PC
41	41	REAR BRAKE PADS	2	PC
42	42	REAR BRAKE COTTER PIN	2	PC
43	43	REAR BRAKE LINE	1	PC
44	44	REAR BRAKE LINE	1	PC
45	45	REAR BRAKE LINE	1	PC

FRAME 4 OF 11

40081790 REF 3VB-12A5B1-AF J1

A

B

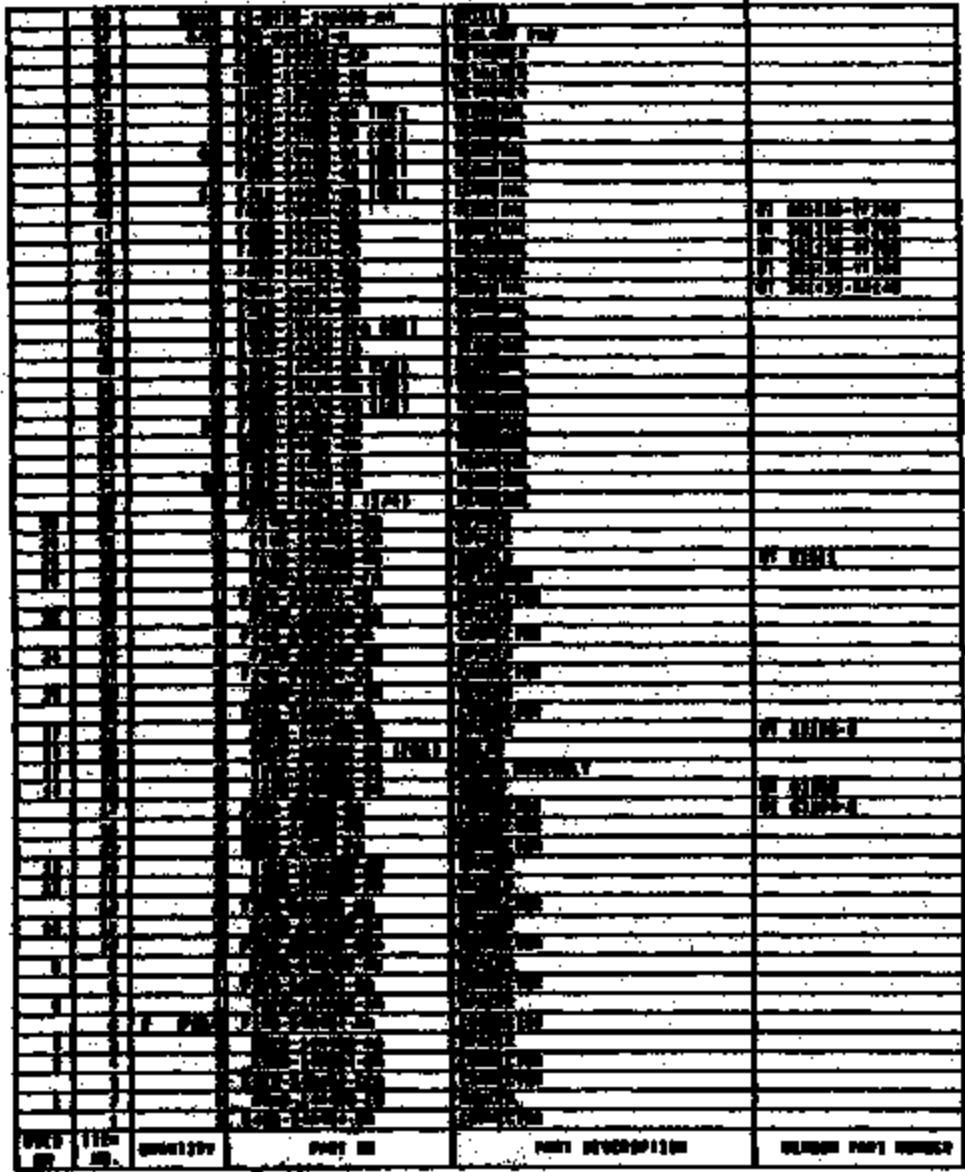
C

B

A

B

37191047



FRAME 3 OF 11

34

35

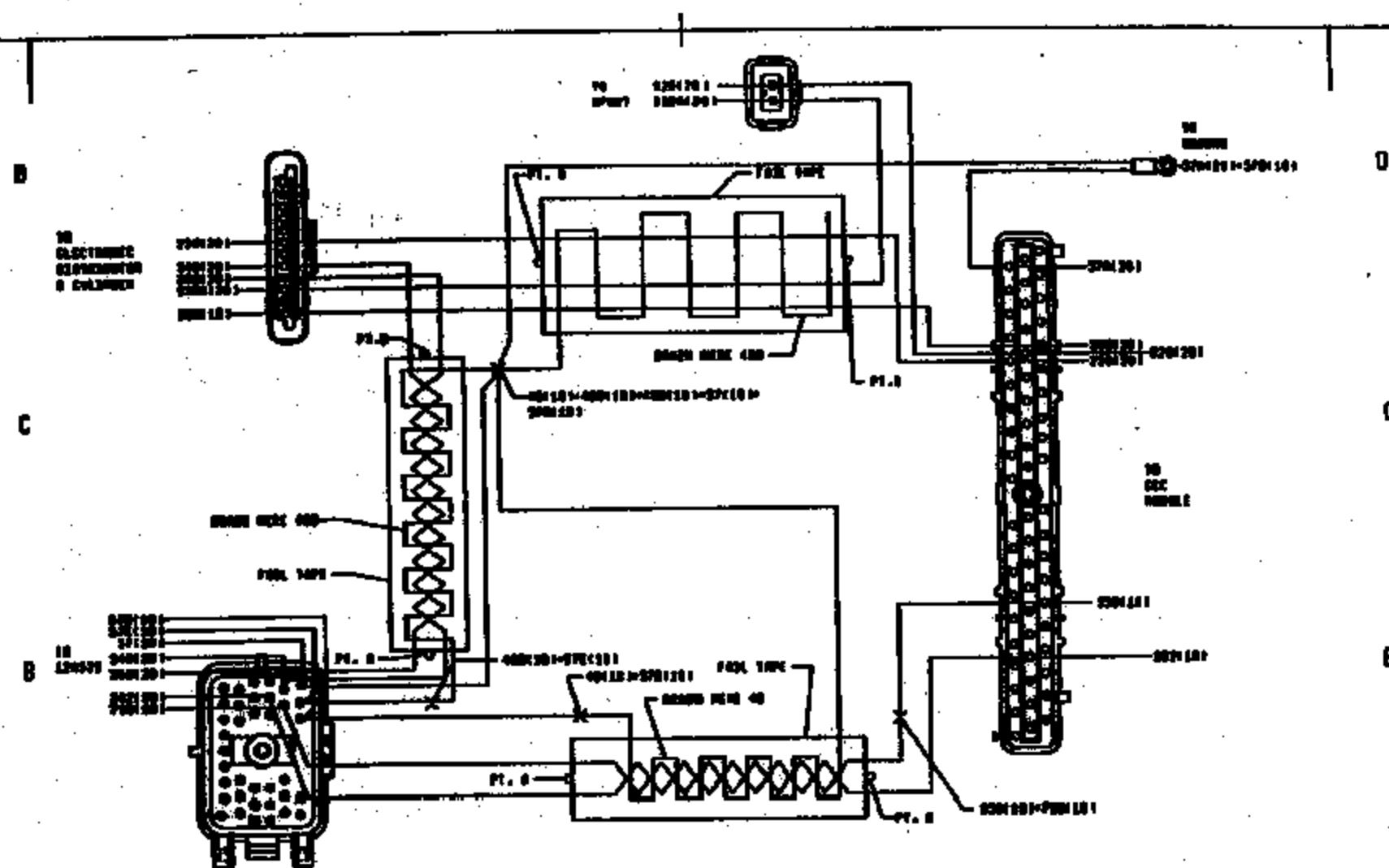
36

37

38

39

40091790 F3VB-120581-AF J1



GROUNDING SCHEMATIC

3713 1048

FRAME 6 OF 11

29

30

31

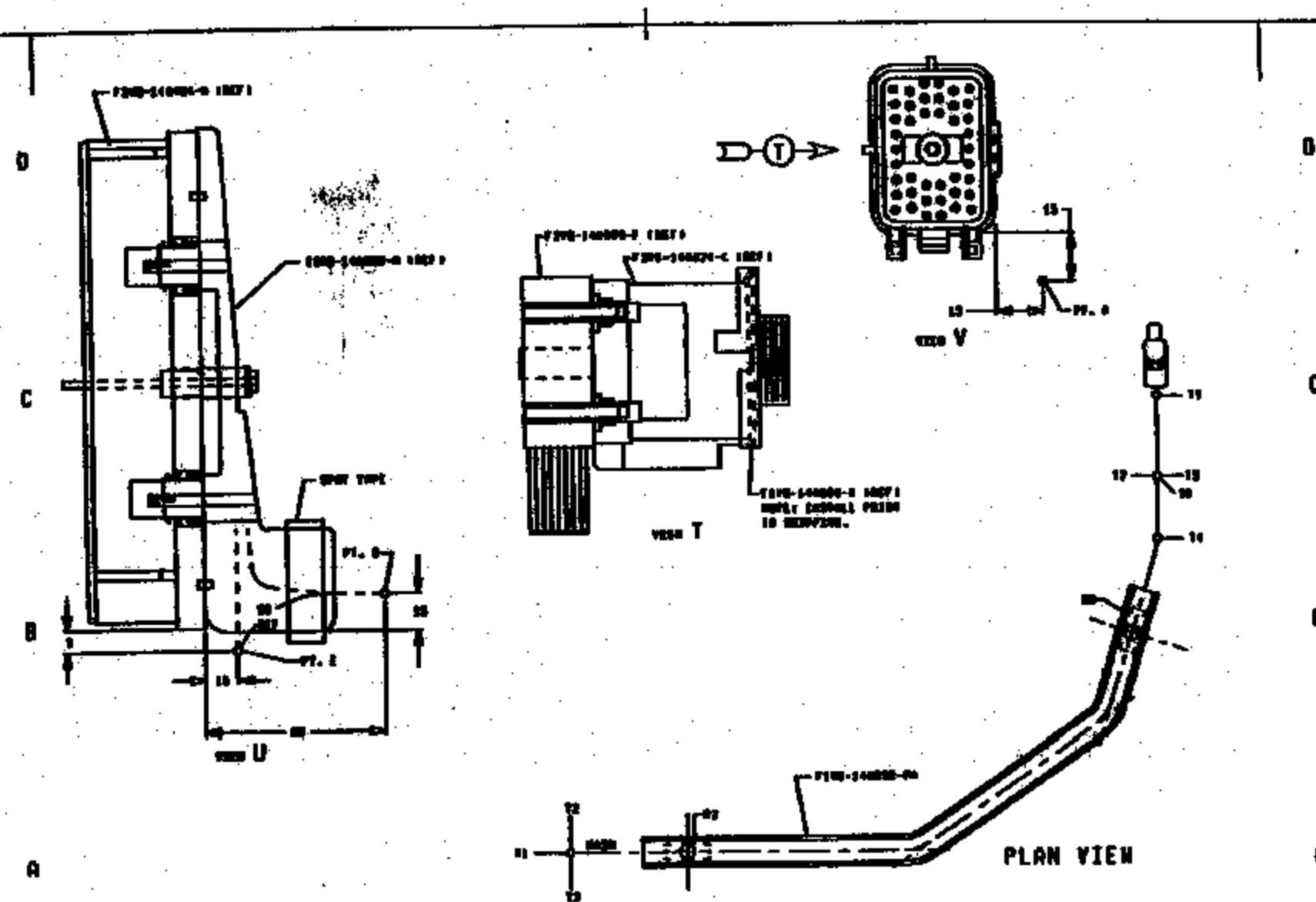
400017380 F3VB-120381-AF J1

32

33

34

3713 1049



FRAME 7 BF 11

23

24

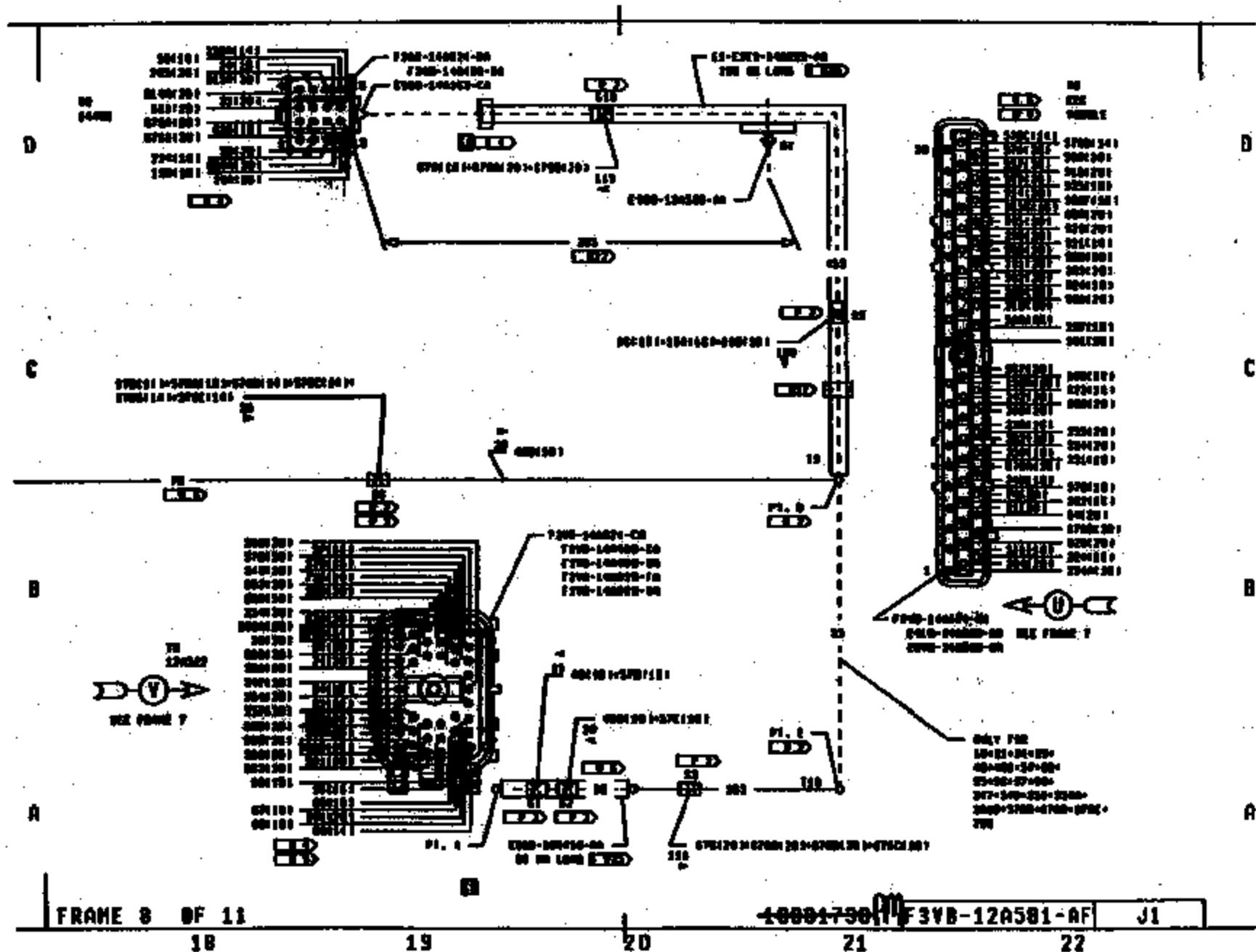
25

26

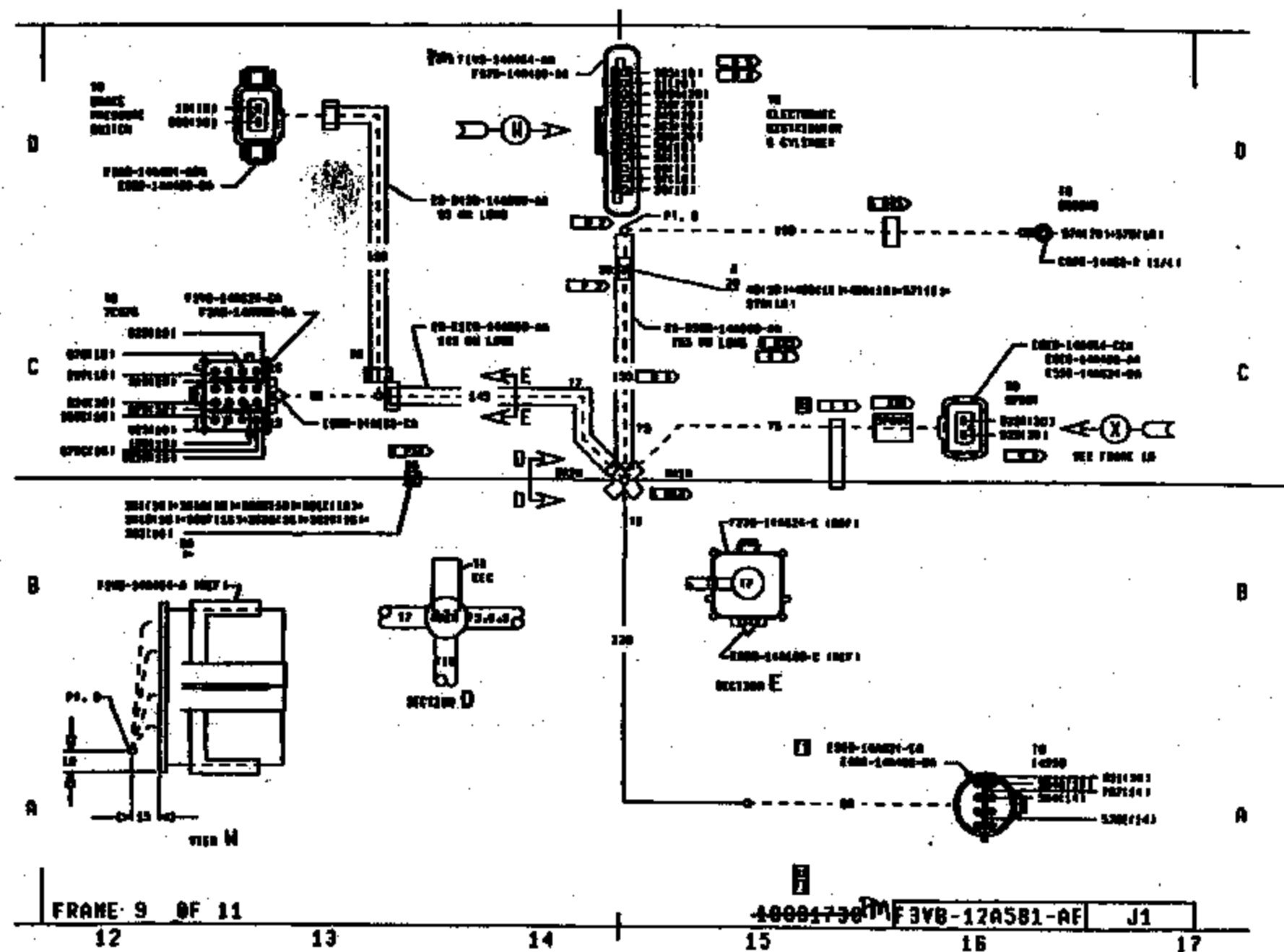
27

28

40004730 M3VB-12A581-AF J1



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FRAME 9 OF 11

-400017301M F 3VB-12A5B1-AF J1

12

13

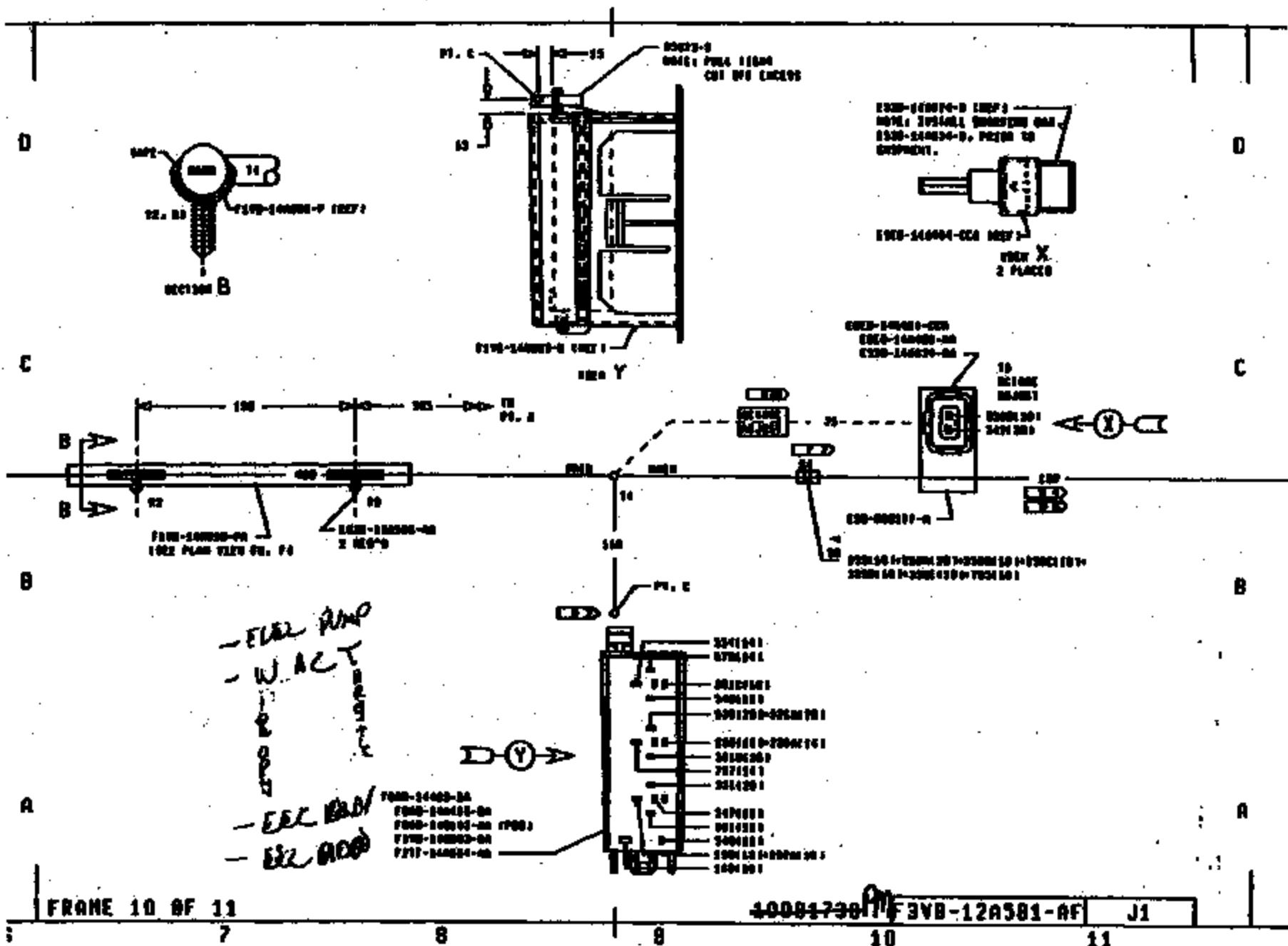
14

15

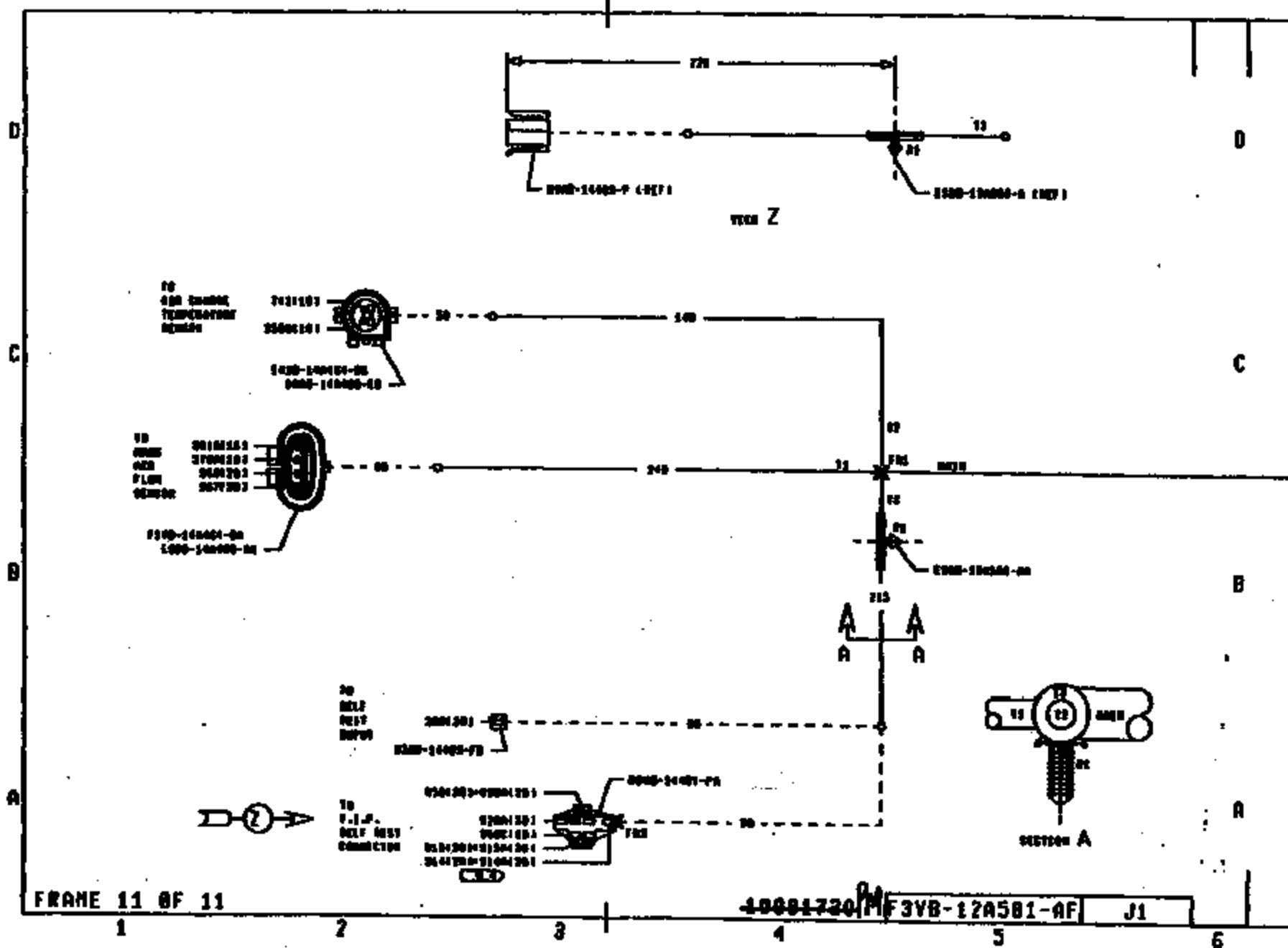
16

17

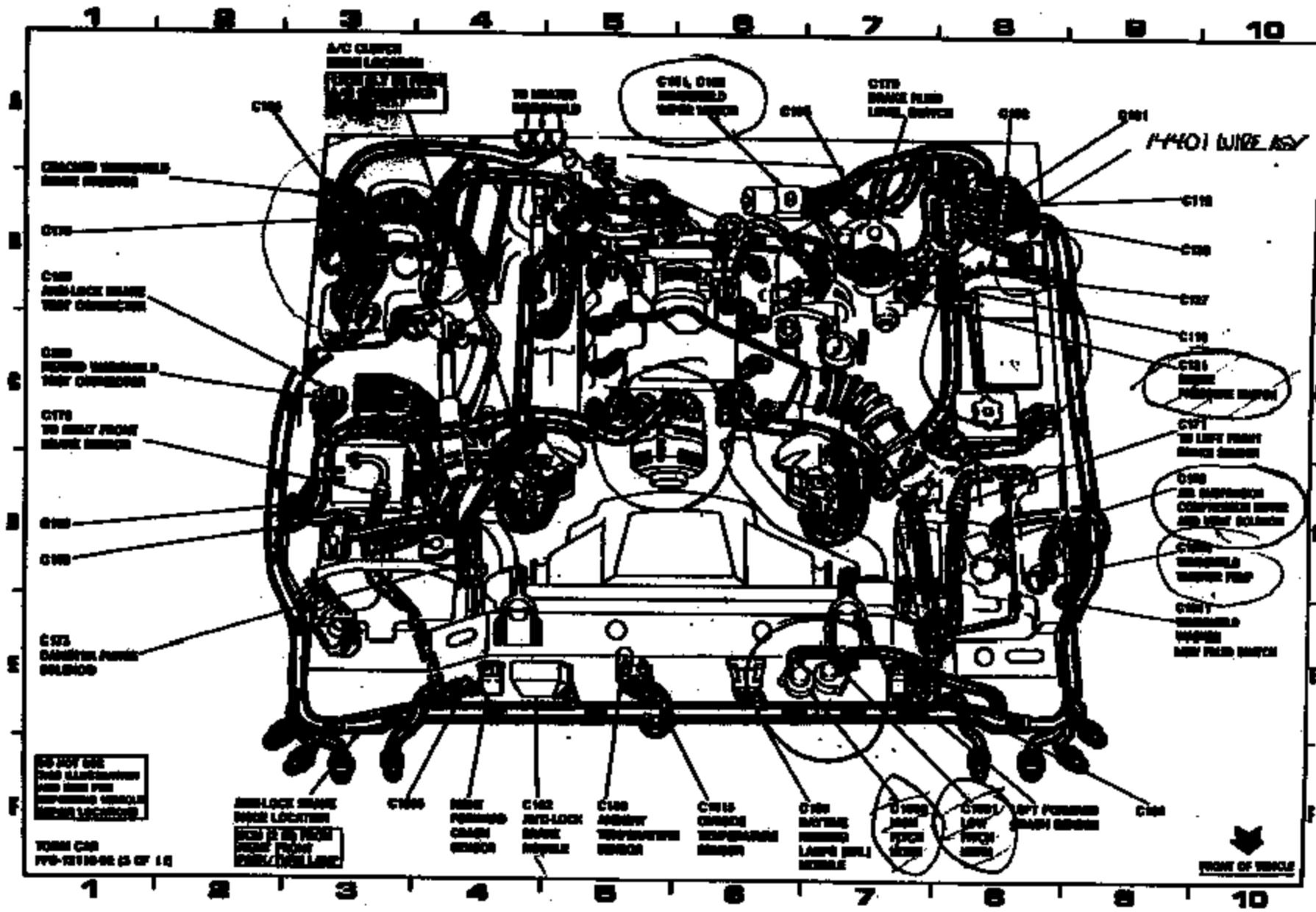
1990-94



3719 1029



151-3 COMPONENT LOCATION VIEWS



4679-16 1991 CHARGE: 2000000000

JUN 11 1991 11:22:27

- ADD NEW 4.6 LITER 2V ENGINE
- ADD OF LINE SUSPENSION ADJUSTMENT (CHANGES SIGNIFICANT TIRE/CHASSIS OF REACT.)
- ADD ANALOG INSTRUMENT CLUSTER
- ADD ELECTROCHROMIC MIRROR WITH AUTOMATIC CONTROL
- SPEED CONTROL STAND ALONE REMOVE FROM ECU MEMORY
- ADD SPEED CONTROL OPERATIONAL LIGHT
- ADD DATA PORTS
- ADD NEW DELTA FWD. FRENCHING AIR
- ADD TRACTION CONTROL TO ANTI-LOCK BRAKE SYSTEM
- ADD A/C COMPRESSOR
- NEW HORN/BUZZER MOTOR
- ADD IGNITION SWITCH SWITCERS FOR ANTI-Theft SYSTEM
- ADD DISC JOCKEY SYSTEM FOR COMPACT PLATE (RELAY TO 92)
- ADD ENCLOSURE AND LAMPS TO MEMORY SEAT FUNCTION (RELAY TO 92)

3713 1058

CB2-B2B 2202 2202 2202

JUN 11 1968

4478-16 1962 CIRCUIT SCHEMATIC

- * A.C.D.I. ELECTRONIC TRANSMISSION
- * DELAY STARTER RELAY
- * NEW ELECTRONIC SPEED CONTROL.

461993 PR-34 NEW FEATURE TRACKING
463798-203 1/04/91 24m

82112-58, IT-NET

SYSTEM DESCRIPTION	WORD	WDA	INFO
	SCHMATIC	SCHMATIC	REGULATIONS
◆			
◆ SECURITY FEATURES SYSTEM/DOOR CLOSER			
◆			
◆ ILLUMINATED SWITCH			
◆			
◆ UNIVERSAL CHARGE PROBE			
◆			
◆ INVERSE DUAL ELECTRIC DOOR RELEASE PULLS			
◆			
◆ OVERDRIVE LOCKOUT SWITCH			
◆			
◆ SECURITY ALARM			
◆			
◆ UNIVERSAL ONE TOUCH DOOR RELEASE			
◆			
◆ CORPORATE CLOCK			
◆			
◆ NEW SVC SYSTEM			
◆			
◆ ADJUST AND AUTOMATIC TIRE PRESSURE			

37131057

00000000000000000000000000000000

09/26/1991 CHANGE REQUEST

- ADD NEW 4.6 LITER 24 VALVE ENGINE
- END OF LINE SUSPENSION ADJUSTMENT (CHANGES SIGNIFICANT WHEELBASE OR HEIGHT.)
- ADD ANALOG INSTRUMENT CLUSTER
- ADD ELECTROCHROME MIRROR WITH AUTOLAMP CONTROLS
- SPEED CONTROL STAND ALONE (REMOVE FROM ECU MODULE)
- ADD STEREO CONTROL OPERATIONAL LIGHT
- ADD ECU MODULE
- ADD NEW DATA BUS PRESENCE REL.
- ADD TRACTION CONTROL TO ANTI-LOCK BRAKE SYSTEM
- NEW A/C COMPRESSOR
- NEW HEATER BLOWER MOTOR
- ADD IGNITION SWITCH MODULE FOR ANTI-THEFT SYSTEM
- ADD DISC JOCKEY SYSTEM FOR COMPACT DISC PLAYER (RELAY TO 92)
- ADD RECLINER AND SWIVEL TO DRIVER SEAT FUNCTION (RELAY TO 92)

L2121 85.11 Rev

3:3 550 5584 PAGE 002

3713 1088

JAN 11 1992 12:27

400P-36 1992 CUMMINS SUMMARY 24m

- A.O.D.I. ELECTRONIC TRANSMISSION
- DELAYED STARTUP RELAY
- NEW ELECTRONIC SPEED CONTROL.

461993 FM-36 NEW FEATURES TRUCK 100224n
460378-283 1/04/9124n

NET 11:00 12:28

SYSTEM DESCRIPTION	FORD SCHEMATIC	ODA SCHEMATIC	INFO REQUESTED
• REMOTE KEYLESS SYSTEM/KEYT SAVING			
• INTEGRATED ENERGY			
• INTEGRATED CHILLER THERM			
• INVERSE VOLT ELECTRIC POWER PACK			
• OVERDRIVE LOCKOUT SWITCH			
• MEMORY SEATBELT			
• INVERSE ONE TOUCH DOWN WINDOW			
• COMPACTOR CLOCK			
• NEW RTC SYSTEM			
• HIGH AND MEDIUM IND. LAMPS			

3:3 993 9884 PAGE .224

3710 1080

40070-36 1991 CHARGE REQUIREMENTS

- ADD NEW 4.0 LITER V6 ENGINE
- ADD OF LINE SUSPENSION MANAGEMENT (CHOSES SIGNIFICANT IMPROVEMENT OF SUSP.)
- ADD ANALOG INSTRUMENT CLUSTER
- ADD ELECTROCHROME MIRROR WITH AUTOMATIC CONTROL
- SWING CONTROL SYSTEM MADE REMOTE FROM THE WHEELS
- ADD SWING CONTROL OPERATIONAL LIGHT
- ADD SIDE AIRBAGS
- ADD NEW BRAKE PUMP PRESSURE SENS.
- ADD TRACTION CONTROL TO ANTI-LOCK BRAKE SYSTEM
- NEW A/C COMPRESSOR
- NEW HIGHER BRAKE ROTORS
- ADD IGNITION SWITCH SENSORS FOR MULTI-THRETT SYSTEM
- ADD DISC JOCKEY SYSTEM FOR COMPACT DISC PLAYER (DISPLAY TO SC)
- ADD RECLINER AND TILTARM TO REARVIEW SEAT FUNCTIONS (DISPLAY TO SC)

APRIL 16 1992 CHICAGO SUBURBAN

- A.G.D.1. ELECTRONIC TRANSMISSION
- DIRECT STARTER RELAY
- VAC ELECTRONIC SPEED CONTROL

JAN 11 1992 10:27

313 590 5884 PAGE 883

3713 1082

08:01:58, 11 Nov

313 553 3684 PAGE .004

3713 1063

4m1993 7B-36 NEW FEATURES-TRACKERMAN
4m33V8-201 1/04/9124a

SYSTEM DESCRIPTION	FORD	DATA	INFO
4m	SCHEMATIC	SCHEMATIC	REQUIRED24a
• REMOTE PARKING SYSTEM/DOOR ALARMS			
• INTEGRATED DISPLAY			
• INTEGRATED CIRCUITRY			
• INTEGRATED ELECTRIC POWER FANS			
• OVERHEAD LOCKOUT SWITCH			
• MEMORY SEATBELT			
• INNER ONE TOUCH BOND THERMO			
• COMPACTIC CLOCK			
• NEW ATC SYSTEM			
• ADDS AND REMOVES KNOB, LAMPS			



UT Automotive
A United Technologies Company

5200 Anna Club Drive
Dearborn, Michigan 48126-9992
313/593-9000

ELECTRICAL SYSTEMS - AMERICAS
FORD CAR
FACSIMILE TRANSMISSION

FAX # 313-240-3012

TO:

ATTENTION:	COMPANY/LOCATION:	FAX NUMBER:
ROR English		390-0650

DATE: 1/8

PAGE 1 OF 4

MESSAGE:

FROM: Bob Benson)

PHONE: 523 9776

078ad fit

1003 Adore

593-3714

593-4666

2003 Am 93/94 70.

91 5200 adore

Excess to PR 2000
Excess to PR 2000

Per week

Ex 2000 / Excess / Cents

- 2000 bath
- PR 2 photos
-

Per 3 Adore

2 3 3
2 3 3

* Note printed by ENGLISH1 on 5 Jan 1999 at 15:20:37 *

From: EDGERING--DRBN005 Date and time 01/05/99 15:46:29
To: CTEBKE --DRBN005 Chuck Tebke CHUBT --DRBN005 Charles Hunt
ENGLISH1--DRBN005 Bob English LEMITH9 --DRBN005 Lee Smith
WARRANCE--DRBN005 William Abramczyk RMEVI --DRBN005 Ray Mewi
JMCINERAN--DRBN005 John McInerney JMBMG --DRBN005 Joseph Manna
EDBERING--DRBN005 S. Dearing

FROM: S Dearing

USAPT(UTC -05:00)

Requester: S. Dearing
Date to be scheduled: 01/06/99
Starting time: 4:00PM USAPT
Ending time: 5:00PM USAPT

Location: LVC Bldg #2 Conference Rm 23A39

Subject: NHTSA Investigation Response

Purpose: Review issues and the 1/18/99 response to NHTSA required for
PB98-055 1992-93 Lincoln Town Car.

Regards,
Kandra Dearing

91 lost

14401

14290

92 lost

12AS01

(Transferred)

93 lost

94 lost

Job List 91

3713 1068

11/24/98

PE Opening Reports (PE98-056)
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	821667	LA	1LNLM81W9NY	92
5	979834	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	WNet	FL	1LNLM81W8NY	92
15	536206	MS	1LNLM83W9NY	92
16	819621	LA	1LNLM82W5NY	92
17	WNet	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

Type
VIN?

3713 1067

Ray -

121400Z
TC underhood fire reports
from Tom Cooper.
Can we get to Texas to inspect
2 vehicles?

B2 12/17

PGM-466- Additional Fires Since Opening

FL	UNNUMBERED	92	Sept-68	Parked for 2 days, engine the drivers side side-area, the day cold fuel pump running
FL	UNNUMBERED	92	Oct-68	Parked for about half hour, fire under hood
TX	UNNUMBERED	92	92	Light fire damage left side of engine compartment
TX	UNNUMBERED	92	Nov-68	Fire at left side of engine compartment, parked 24 hours
TX	UNNUMBERED	92	Nov-68	Parked 45-50 min., engine compartment fire.
CA	UNNUMBERED	92	Aug-68	Parked 14 hours, fire in left side of engine compartment near master cylinder
FL	UNNUMBERED	92	Feb-69	Parked 5 min., fire underhood on drivers side.
FL	UNNUMBERED	92	Nov-68	Parked 20 min., fire underhood on left side.
FL	UNNUMBERED	92	Oct-68	Fire underhood while parked in garage.
TX	UNNUMBERED	92	Oct-68	Parked 8 hours, fire in engine compartment in area of brake master cylinder and left front wheel.
TX	UNNUMBERED	92	Sept-68	Fire originated around left side of engine.
TX	UNNUMBERED	92	Sept-68	Fire originated around left side of engine.
TX	UNNUMBERED	92	Sept-68	Fire originated at the brake pressure switch
TX	UNNUMBERED	92	Jan-69	Fire originated at left side of engine compartment where electrical distribution located (photos)
FL	UNNUMBERED	92	Nov-68	Parked in garage, electrical fault in circuit 636 [brake pressure switch to speed control amplifier]
FL	UNNUMBERED	92	Jan-69	Parked 5 hours, fire at left front master area
TX	UNNUMBERED	92	May-68	Parked 4 hours, fire originated in the drivers side of the engine compartment, above header rail
FL	UNNUMBERED	92	Oct-68	Fire originated in the front drivers side of the engine compartment
FL	UNNUMBERED	92	Sept-68	Caught on the white ribbon in parking lot, drivers side, brake pressure switch
FL	UNNUMBERED	92	Aug-68	Parked several times in garage, bare pathways surrounded brake hoses.
FL	UNNUMBERED	92	Sept-68	Parked in garage, fire under hood. (Catalent-Penn Inc.)

CIRCUITS THAT REMAIN ENERGIZED AT ALL TIMES - 1992 LINCOLN TOWN CAR

CKT #	CIRCUIT NAME / DESCRIPTION	CKT COLOR
	BATTERY TO ENGINE PDB	R
	BATTERY TO STARTER MOTOR SOLENOID	R
10	UP FUSE PANEL TO BRAKE PRESSURE SWITCH	LG/R
36	PDB TO ALTERNATOR	Y/W
37	PDB TO IGN SWITCH STARTER INTERRUPT RELAY	Y
38	PDB TO ALTERNATOR	BR/O
39	PDB TO UP FUSE PANEL	BR/O
50	PDB TO PWR TO ELECT BRAKES (TR. TOW PKG)	R
178	PDB TO REAR WDG DE-FOST CONTROL	BR/Y
278	PDB TO IGNITION SW	BR
328	PDB TO IGNITION SW	DE/O
414	PDB TO AIR SPRING SOLENOIDS (FR. & REAR)	CR/R
414	AIR SUSPENSION COMPRESSOR MOTOR & VENT	CR/R
517	PDB TO FUEL FILLER DOOR RELEASE	BR/W
517	PDB TO DOOR LID SWITCH	BR/W
517	PDB TO DOOR LOCK RELAY	BR/W
517	PDB TO DRIVER'S SEAT SWITCH	BR/W
517	PDB TO PASSENGER'S SEAT SWITCH	BR/W
556	PDB TO ANTI-LOCK BRAKE MODULE	BR
557	PDB TO ANTI-LOCK BRAKE MODULE RELAY	Y/W
554	PDB TO LINC TRIM RELAY / ECC MODULE	Y/BK
568	PDB TO IGNITION SW	LG
578	PDB TO TAIL LIGHT LAMP RELAYS	LG
717	PDB TO FUEL PUMP RELAY	PR/BK
828	PDB TO AMPLIFIER & CH SUB WOOFER AMPLIFIER	PR/B
831	PDB TO TRAILER BATTERY CHARGING RELAY	O
837	PDB TO AIR BAG MODULE	BR/W

BILL SUEK
 JOE STUKA
 (RE: SUEK)

→ JOE STUKA (RE: SUEK)
 * → BILL SUEK 228-162
 Town Car

CIRCUITS THAT REMAIN ENERGIZED AT ALL TIMES - 1992 LINCOLN TOWN CAR

CKT #	CIRCUIT NAME / DESCRIPTION	CKT COLOR
	BATTERY TO ENGINE PDB	R
	BATTERY TO STARTER MOTOR SOLENOID	R
10	UP FUSE PANEL TO BRAKE PRESSURE SWITCH	LG/R
38	PDB TO ALTERNATOR	Y/W
37	PDB TO IGN SWITCH/STARTER INTERRUPT RELAY	Y
38	PDB TO ALTERNATOR	BR/0
38	PDB TO UP FUSE PANEL	BR/0
50	PDB TO PWR TO ELECT BRAKES (TIL TOW PKG)	R
176	PDB TO REAR WDO DEFROST CONTROL	BR/Y
273	PDB TO IGNITION SW	BR
515	PDB TO IGNITION SW	BR/0
414	PDB TO AIR SIPPING SOLENOIDS (F/R BEAR)	DR
414	AIR SUSPENSION COMPRESSOR MOTOR & VENT	DR
517	PDB TO FUEL FILLER DOOR RELEASE	BR/W
517	PDB TO DECKLID SWITCH	BR/W
517	PDB TO DOOR LOCK RELAY	BR/W
517	PDB TO DRIVER'S SEAT SWITCH	BR/W
517	PDB TO PASSENGER'S SEAT SWITCH	BR/W
533	PDB TO ANTI-LOCK BRAKE MODULE	DR
537	PDB TO ANTI-LOCK BRAKE MOTOR RELAY	Y/W
554	PDB TO TEC PWR RELAY / ECU MODULE	Y/W
568	PDB TO IGNITION SW	LG
576	PDB TO TRAILER LAMP RELAYS	DR
787	PDB TO FUEL PUMP RELAY	FR/BR
828	PDB TO AMPLIFIER & OR SUB WOOFER AMPLIFIER	DR/B
931	PDB TO TRAILER BATTERY CHARGING RELAY	O
937	PDB TO AIRBAG MODULE	RAW

* Note printed by REGRILIS1 on 6 Jan 1999 at 14:22:43 *

From: FPORTER --DRBN007
To: WARBRANCE--DRBN005
REGRILIS1--DRBN005
DGOKL --DRBN005
KGRIIBBLE--DRBN005
SLAROUCH--FDRM001
JNAME --DRBN005
GATEVEN1--DRBN005
HWBLFIR3--DRBN006

Date and time 12/18/98 17:04:06
BEGEN --DRBN007
JEVANS8 --DRBN008
JGREGOIR--DRBN005
MLAPOINT--DRBN005
JMCINERN--DRBN005
BNEVI --DRBN005
CTHOMAS5--DRBN005

FROM: F. J. Porter
Subject: PF924 Update (19981218)

USART(UTC -05:00)

1992-1993 Town Car P2VC-9F924-A Brake Pressure Switch Investigation

TEAM:

AVT BBSE Chassis Electronics:	Fred Porter	x84-53722	fporter
AVT Chassis Engineering:	Joe Evans	x32-23832	jevans8
	Barry Egan	x32-39812	begen
AVT BBSE E&S:	Bob English	x33-73228	renglis1
AVT Design Analysis:	Born LaPointe	x59-42686	mlapoint
AVT BBSE OPS:	Jim Gregoire	x33-79962	jgregoir
E&S Prod. Veh. Safety:	William Abramczyk	x32-23284	wabramcz
	Ray Nevi	x39-47688	rnevi
Large Luxury VC Safety:	John McInernay	x32-20276	jmcinern
	Joe Name	x39-08133	jname
AVT Materials Engineering:	Greg Stevens	x32-36686	gateven1
	Ken Gribble	x32-38688	kgribble
	Clark Thomas	x59-41313	cthomass5
Central Lab Services:	Steve LaRoucha	x84-54876	slarouch

INFORMATION:

NHTSA letter: PE98-035

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
P2VC-9F924-A for 1992 and 1993 Town Cars.

Two OQIS reports (WJIAA135 & WDAAA322) mention underhood fire
in connection with the brake pressure switch.
WJIAA135 occurred at 51,500 miles.
WDAAA322 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 HILITH Industries
TI - Rob Sharp (248)305-5729

3713 1071

TI - Russ Baumann (508) 236-3314
TI - Charlie Douglas (508) 236-3657

Function: The brake pressure switch is a redundant switch for turning off the speed control function.

X-Rays: Taken by Steve LaRouche, Norm LaPointe & Clark Thomas on 12/17/1993. Original photographs and part are in Steve LaRouche's possession.

ON-GOING ACTIVITY:

2 service parts have been ordered from Fairlane Ford for X-ray and other testing by Central Lab Services.

Meeting with representatives of TI is planned for 12/22/1993 to discuss intended operation of the switch. The meeting will be at the Central Laboratory Conference room off of the lobby.

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?

According to Clark Thomas & Mary Haga, brake fluid is flammable at approximately 300 degrees F.

4) What is the repair history for vehicles that have exhibited a problem? Repair history for the two CQZ vehicles are being gathered by Fred Porter.

5) What other vehicles use this brake pressure switch? What are their electrical configurations?

MODEL YEAR	92	93	94	95	96	97	98
Town Car	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	
Crown Vic	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	
Grand Marquis	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	
Econoline	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	
Club Wagon	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	
F-Series	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	[xxxx]	
Bronco	[xxxx]	[xxxx]	[xxxx]	[xxxx]			
Taurus SWO	[xxxx]	[xxxx]	[----]				
Capri			[xxxx]	[xxxx]			
Windstar			[xxxx]	[xxxx]	[xxxx]	[xxxx]	
Falcon				[xxxx]	[xxxx]	[xxxx]	
Explorer					[----]	[xxxx]	[xxxx]
Ranger					[----]	[xxxx]	[xxxx]
Expedition						[xxxx]	[xxxx]
Navigator						[xxxx]	

[xxxx] = used in model year

[----] = may have been used in model year

6) Is this switch still in use? If not, why not? If so, what design changes have been implemented since 1992/1993?

Charlie Douglas of TI is investigating the design changes that may have been implemented on the brake pressure switch beginning in 1992.

7) What fault codes are stored if the brake pressure switch fails?

Regards,

Fred Porter OV - fporter
Chassis E/E Systems Applications fporter@ford.com
Bldg 8 - Mail Drop 5020 - Cubicle 3E004 (313)845-3722
 fax: 390-6145

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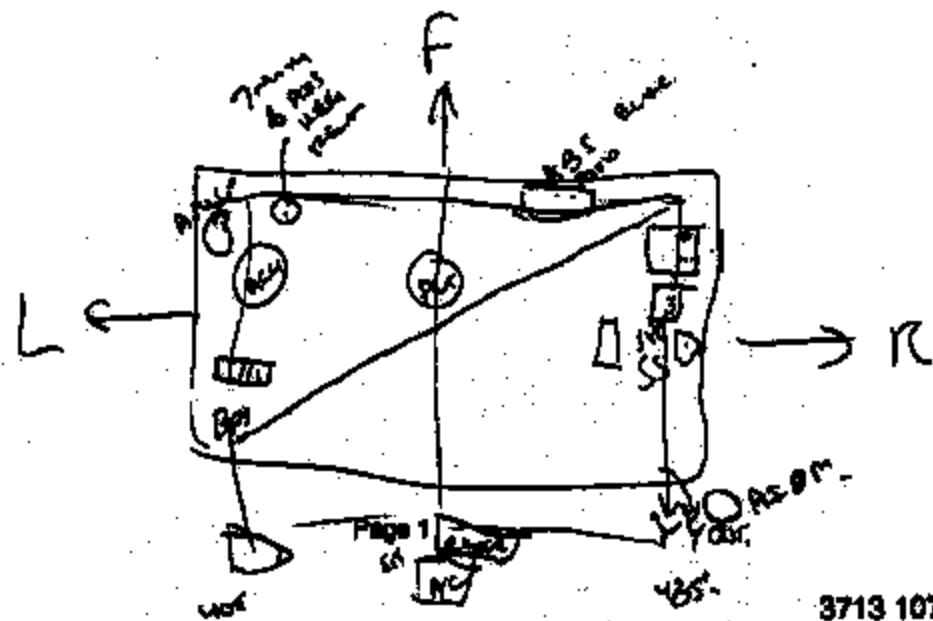
CIRCUITS THAT REMAIN ENERGIZED AT ALL TIMES - 1992 LINCOLN TOWN CAR

Circuit

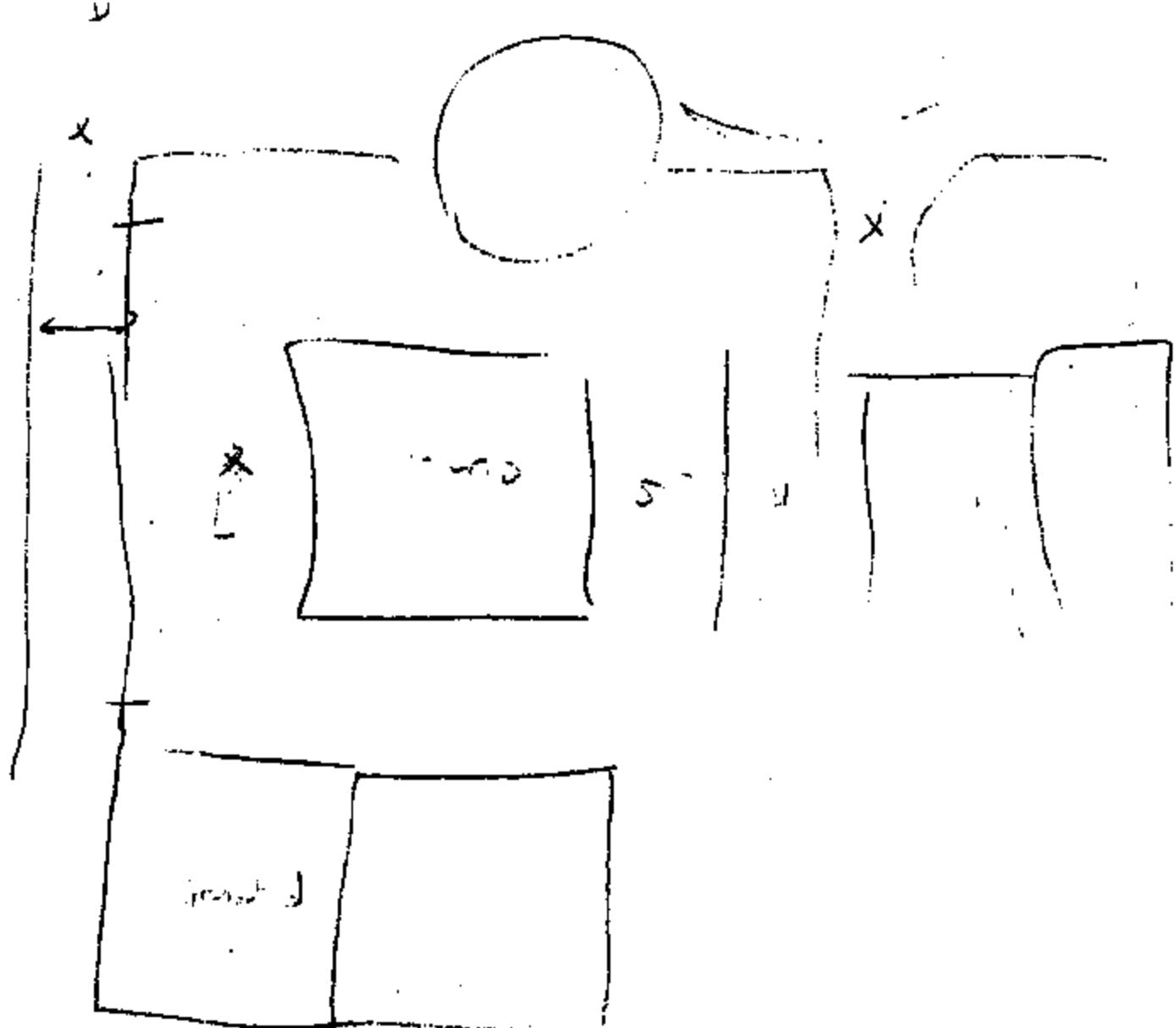
P/T

CKT #	CIRCUIT NAME / DESCRIPTION	CKT COLOR
12	BATTERY TO ENGINE P/O	
14	BATTERY TO STARTER MOTOR SOLENOID	
161	IP FUSE PANEL TO BRAKE PRESSURE SWITCH	YR
19	P/O TO ALTERNATOR	YW
37	R/H TO IGNITION SWITCH STARTER INTERFERENT RELAY	?
39	P/O TO ALTERNATOR	?
40	P/O TO IP FUSE PANEL	BRD
50	P/O TO P/W TO SELECT BRAKE (H/L TOW FWD)	BRD
170	P/O TO REAR BRAKE POSITION CONTROL	BR
210	P/O TO IGNITION SW	BR
250	P/O TO IGNITION SW	BRD
47	P/O TO AIR BAG INFLATOR (HARDWARE)	CR
48	YARD SENSING LINE FROM THE REAR SIDE WENT	CR
517	P/O TO FRONT BRAKE POSITION CONTROL	CRW
517	P/O TO BRAKE RELAY	CRW
517	P/O TO ENTRY/EXIT LIGHT SWITCH	CRW
517	P/O TO PARKING BRAKE SWITCH	CRW
538	P/O TO ANTILOCK BRAKE MODULE	CR
557	P/O TO ANTILOCK BRAKE POSITION CONTROL	CRW
557	P/O TO BRAKE RELAY/ECU MODULE	CRW
565	P/O TO IGNITION SW	LG
571	P/O TO TRAILER CAMP RELAYS	DE
591	P/O TO FOG LAMP RELAY	CRW
625	P/O TO AMPLIFIER FOR SUBWOOFER AMP (PASSTHROUGH)	CRB
931	P/O TO REAR BATTERY CHARGING RELAY	CR
937	P/O TO AIR BAG MODULE	CRW

Legend:
 -? = Unknown
 -OK = Known
 -?Unknown = Unknown
 -CR = CR
 -CRW = CRW



3713 1074



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BASIC PRESSURE SWITCH
Evaluation Plan for Field Returns

DATE CODE P/N

Set #	Date of update			
Category	Item #	Action	Person Responsible	Comments
Initial				
Field Test	1 Log Field info into Switch Log-in 2 Photograph Switch 3 Record any unusual external visual observations 4 Check for Connector engagement			See note below If not correct conduct X-Ray to determine fit-up between base flange and seal
Switch Only	5 Wire 1 to Wire 2 Resistance 6 Wire 1 to Hesport Resistance 7 Wire 2 to Hesport Resistance			
Connector Only	8 Separate Harness from Switch 9 Verify Connector Seal			Visual check of Red Seal, Dirt free, Indentation mark. Indentation mark must be 30 degrees.
External Unpressurized	10 Wire 1 to Wire 2 resistance 11 Current Leakage Wire 1 to Wire 2 12 Check for full engagement of connector 13 Check wire insulation 14 Check wire gage ends 15 Cut wire insulation to check for corrosion			Visual check of dirt lines on crimped switch base Cut insulation longitudinally to check for wrinkling along wires. If signs of corrosion, identify color, save samples for chem I.d.
Switch Only	16 Assembly Switch to Calibration Stand 17 Terminal 1 to Terminal 2 Resistance 18 Terminal 1 to Hesport Resistance 19 Terminal 2 to Hesport resistance 20 Gage to Hesport Resistance 21 Current Leakage Terminal 1 to Hesport 22 Current Leakage Terminal 2 to Hesport			

	23 Voltage drop at 200 mA	
Switch Positioned	24 Switch Opening Pressure 25 Switch Closing Pressure 26 Proof Test for Leaks 27 Repeat Steps 17 through 23 at 100 mA	Do not perform on parts from undrained lines, as may disturb displacement condition Do not perform on parts from undrained lines, as may disturb displacement condition Do not perform on parts from undrained lines, as may disturb displacement condition
Switch Initial	Editor is Present Established By Norm LaPierre & Steve Lefebvre and Al Hopkins (TI) for the Memphis Part.	
	Norm/Steve, please e-mail Aziz a copy of the protocol. Aziz will format it in a flow chart format and insert here.	
Date Entry	Log All data from this sheet into Switch Log Aziz will review Switch Log to include cells for this data.	
	Photographs, Elemental maps etc must be retained and referenced by Switch #	

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Log Update 27/6/2009											
Line #	Job Order Code	Vehicle	Year	Model	VIN#	Location	Location #1	Location #2	Location #3	Time Stamp	Present Location of Inv.
											Present Status
		Stolen Car		Non F/F							Classified Lab
A		Stolen Car		Uninsured/Flea							Classified Lab
B		Stolen Car		Uninsured/Flea							AVT
C		Stolen Car		Uninsured/Flea							Classified Lab
D		Chesapeake Police Car		Uninsured/Flea							Classified Lab
E		Stolen Car		Uninsured/Flea							Unmarked In Progress
F		Stolen Car		Uninsured/Flea							Unmarked In Progress
1	2000	Stolen Car		Uninsured/Flea	799401						AVT
2	2000	Stolen Car		Uninsured/Flea	799402						AVT
3	2000	Stolen Car		Uninsured/Flea	799403						AVT
4	2000	Stolen Car		Uninsured/Flea	799404						Classified Lab
5	2000	Stolen Car		Uninsured/Flea	799405						Classified Lab
6	2000	Stolen Car		Uninsured/Flea	799406						AVT
7	2000	Stolen Car		Uninsured/Flea	799407						Classified Lab
8	2000	Stolen Car		Uninsured/Flea	799408						AVT
9	2000	Stolen Car		Uninsured/Flea	799409						AVT
10	2000	Stolen Car		Uninsured/Flea	799410						AVT
11	2000	Stolen Car		Uninsured/Flea	799411						AVT
Done TXING 27/6/2009 to AVT											
1	2000	Stolen Car		Uninsured/Flea							MTR Computer and servo
2	2000	Chesapeake Police Car		Uninsured/Flea							MTR Computer and servo
3	2000	Stolen Car		Uninsured/Flea							MTR Computer and servo
4	2000	Chesapeak		Uninsured/Flea							MTR Computer
5	2000	Stolen Car		Uninsured/Flea	799401						MTR Computer
6	2000	Stolen Car		Uninsured/Flea	799402						MTR Computer
7	2000	Stolen Car		Uninsured/Flea	799403						MTR Computer
8	2000	Stolen Car		Uninsured/Flea	799404						MTR Computer, Prop Values
9	2000	Stolen Car		Uninsured/Flea	799405						MTR Computer, Prop Values, Servo
10	2000	Chesapeak		Uninsured/Flea	799406						MTR Computer, Prop Values, Servo
11	2000	Chesapeak		Uninsured/Flea	799407						MTR Computer
12	2000	Stolen Car		Uninsured/Flea	799408						MTR Computer
13	2000	Stolen Car		Uninsured/Flea	799409						MTR Computer and servo

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Work Plan- Brake Pressure Switch

Root Cause Investigation-

Identify the combustibles?

AVT EESE Materials Engineering

Identify the contaminants in returned parts?

Central Lab analysis

Identify source of contaminants?

Central Lab analysis

Identify causes of brake fluid leakage?

Central Lab and Texas Instrument

Identify heat source(s) start event?

AVT EESE Chassis Electronics

Create Event in Lab

AVT EESE Chassis Electronics

Collect Field Samples

LVC - Safety

Root Cause Investigation Tasks

What are the combustibles?

AVT EESE Materials Engineering

Are the switch materials compatible with brake fluid?

by 2/18/99

Are the switch materials compatible with brake fluid in an electric field?

by 2/18/99

Are the switch materials compatible with brake fluid and contaminants?

by 2/18/99

Are the switch materials compatible with contaminated brake fluid in an electric field?

by 2/18/99

Flash points for all materials? by completed

TT provided to Norm LaPointe

Get Dow assistance by 2/16/99

How can a fire start with the switch given the constraints:

Continuous Battery voltage applied between switch electrical components and the hydraulic connection, circuit fused at 15 amps, inductive load current of 0.5 amps switched when speed control is turned off, the switch cavity contains a black material containing at least copper, zinc, sulfur, and brake fluid (probably containing water), vehicle underhood temperatures.

By 2/22/99

What is the difference in the base materials that look different?

Texas Instruments by complete

Color of plastic base identifies calibration. Also, plastic material change from Celazole 4300 to Noryl GTX430 to MY 1995 when P/N changed from F2VC to F2AC

What are the material call-outs for 1992 and 1993?
Texas Instruments by 2/13/99

**Master Planning Strategy
POTC-07000-AE
Material List for NYT Boxes**

What are the constituents in returned parts?

Central Lab analysis

Results of Mammal part analysis by 2/18/99

Results of testing with corrosion simulation?

AVT-EISEK Chassis Electronics by complete

Black corrosion recreated in lab on virgin parts. Given to Lab for analysis

TI analysis results of the Memphis parts (cross marks in diagram, etc)?

Texas Instruments by complete

B. Johnson

Page 1 of 1

www.lawline.com
Volume 17, No. 1

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TI gave to Norm LaPointe on 2/10/99. Crease mark caused by degradation of Kapton. TI chemical analysis matches Ford analysis.

What is source of contaminants?

Central Lab analysis by 2/18/99

What causes brake fluid leakage?

By 2/24/99

Central Lab and Texas Instrument

What does TI DFEMA say about this failure mode?

Texas Instruments by 2/16/99

TI identifies potential for leak. Copy to Norm Lapointe.

What are TI in-process test failures?

Texas Instruments by completed

TI provided IP and Weibull test reports to Fred Porter and Norm Lapointe. First leak observed at 994,000 cycles. Test suspended at 1.6 million cycles. Leaker was by Kapton diaphragm.

Provide TI end-of-life lab test parts to Norm Lapointe.

TI by 2/18/99

Does the event occur only on vehicles with ABS?

LVC-Safety by 2/18/99

Characterize the real vehicle brake pressure seen at the switch.

AVT Chassis Brakes by

Characterize the real vehicle brake pressure during ABS and TC events seen at the switch. AVT Chassis Brakes by

DOB work plan for TI activities.

TI by 2/16/99

Correlate Lab test cycle Kapton wear with field mileage Kapton wear.

TI and Central Lab by 2/29/99

What heat source(s) start event?

AVT EESE Chassis Electronics

Analysis of harness pig-tails

AVT EESE OFD by 2/18/99

Use thermocouple to record switch temperature during and after
driving. AVT EESE OFD by 2/18/99

Recreate Event in Lab

AVT EESE Chassis Electronics

What does it take to start an event? by on-going

If a switch is contaminated can it start the event? by on-going

Switch with clean Brake fluid residue is being monitored for increase in
leakage current.

If current is stopped does combustion stop?

Collect Field Samples

LVC - Safety

Collect Brake Pressure switches and speed control servos with harnesses
attached. By 2/22/99

Miscellaneous

Can the switch act as a fuse?

Team by complete

No.

Could a fuse (e.g. 2 amp) be added in series between the stop lamp fuse and the brake pressure switch? Failure parameters would have to be known.

What are descriptions from AWS and CQIB?

LVC-Safety by 2/18/99

What are we seeing in returned Speed control modules (FRACAS)?

Visteon Speed Control by 2/17/99

Provide color photos of Econoline?

Texas Instruments

by complete

There are no color photos.

Containment / Corrective Action Tasks

Competitive Vehicles

How is switch packaged?

Is it always Powered (HOT_ALL_TIME) ?

Are the contacts opened when pressure applied?

What is fail-safe?

What is being switched?

Is it a redundant switch?

AVT EISIE Competitive Analysis by 2/24/99

What does Speed control FMEA say about Brake Switch?

Virtuous Speed Control by completed

The Brake Pressure Switch (Deactivation Switch) coupled with the Stop Lamp switch are categorized as "Automatic Deactivation". The FMEA lists "Automatic Deactivation" as current design control for 66 different potential causes/mechanical failures.

Brake Pressure Switch (Deactivation Switch) is one of the most important safety features.

When was non-Pressure actuated switch introduced?

AVT EISIE Chrysler Electronics by completed

95 Continental and T/Bird were first to use it.

Is the Circuit drive hi-side or low-side?

Virtuous Speed Control by completed

Circuit is low side driven.

How does speed control use this switch?

Virtuous Speed Control by completed

1. Brake Pressure Switch provides electrical power to the speed control servo clutch circuit. The clutch circuit needs to be energized for the servo motor to pull the cable.
2. Switch provides a redundant method of sensing brake application independent of the primary system deactivation mode; this is a SDS (SC-0003) requirement.

- Signal from the stop lamp switch is primary deactivation mode for brake application.
- Under "hard" braking condition, Brake Pressure Switch provides redundant brake signal to the speed control logic (similar to stop lamp switch signal) and disconnects power to the clutch circuit; causing the speed control servo pulley to immediately return to the idle position. Note: Under normal braking conditions, only the stop lamp switch signal cancels speed control operation.

Do all Ford applications use switch between fuse and load?

Visteon Speed Control by completed
YES

Do all Ford applications have switch connected to HOT-ALL-TIME?

AVT-KESB-OPD by 2/18/99

Can Brake Pressure Switch function be removed from power feed circuit and placed in ground return circuit?

Visteon Speed Control by completed

1. Would require redesign of the speed control electronics.
2. Additional isolated ground circuit is required.
3. From FMEA position switching the ground circuit is not as good as switching the B+ feed.
 - With a ground return circuit; short to ground (fault) it would override the deactivation switch.
 - With the current power feed circuit; short to ground makes the speed control system inoperative. A short to power is required to override the deactivation switch; much lower potential to occur.

Why is this switch connected to HOT-ALL-TIME?

Visteon Speed Control by completed
Because the SDS requires it to be connected to the same fuse as the stop lamp.

What is SDS requirement number?

Virtuous Speed Control by completed
SDS (SC-0063) states: *The stop lamp switch and redundant deactivator
switch must be on the same fused circuit.*

Is it feasible to disconnect the switch as immediate containment?

Yes. The customer will not have use of the speed control.

Is it acceptable to jumper out the switch as immediate containment?

Virtuous Speed Control by completed
NO... *Would eliminate an important safety feature of the speed control
system; The Brake Pressure Switch provides the redundant method for
sensing brake application independent of the primary system deactivation
mode. This is an SDS (SC-0063) requirement.*

Elimination of this feature requires the concurrence of the OGC.

Other recommendations for immediate containment?

All by on-going
Add fuse between the stop lamp fuse and the brake pressure switch?

Recommendations for increased Life of switch.

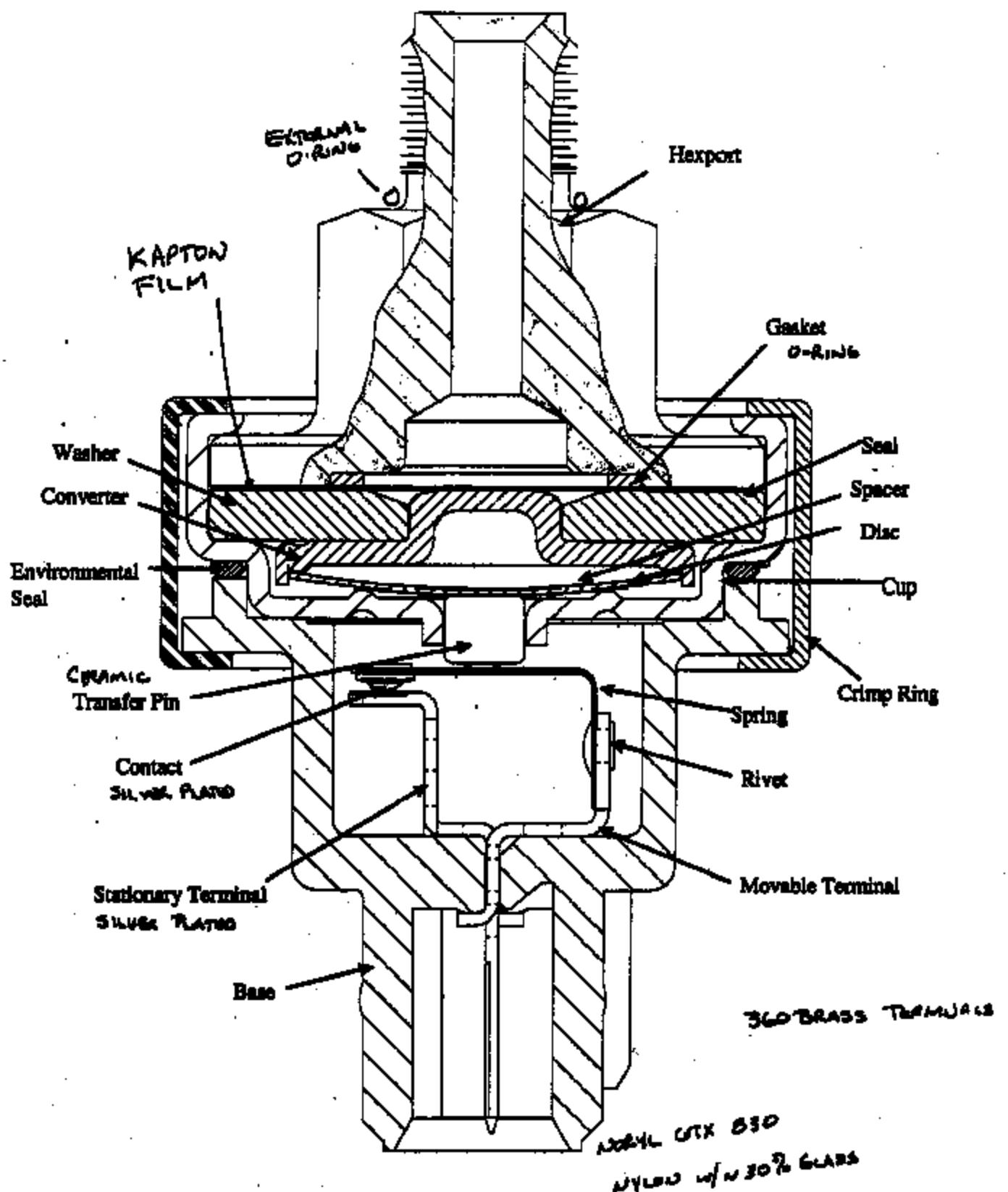
TI by 3/5/99
*TI suggested looking at an automotive ceramic diaphragm pressure
transducer (not a switch) that is used for ABS.*

Brake Pressure Switch Test Log
Updated 2/10/99

Category	Test	Location	Test Procedure	Results Update
Lab Environment	1	T1	Various Levels of Brake Fluid, Water, Diesel Fuel 14Vdc to one terminal, Input/Output procedure	100+ hours into test, max current 6mA no significant change with time
No Fluids	2	T1	Various Levels of Brake Fluid, Water, Diesel Fuel 1 Amp Through switch terminals	100+ hours into test No significant temperature rise with time > 200 hours into test, max current 7mA
	3	AVT	Brake Fluid in Switch, 24 VDC to one terminal Harpoon Grounded, Ambient at 100 C	No significant change with time 10 hours into test max current 6mA
	4	AVT	Brake Fluid in Switch, 24 VDC to one terminal Harpoon Grounded, Ambient at 100 C	No significant temperature rise with time
	5	AVT	Brake Fluid in Switch, 14 Amps Through switch terminals	Temperature rise of 20 C above room temp Delta T measured steady state at 20 C.
	6	T1	Stud broken, inserted into Switch Hand SB Surface	Repaired update 2/19
Life Cycle Reliability	7	T1	0-1400 mils exposure to 100 C ambient Part A	Part A 1000 cycles, no break.
Failure Criteria			Part B	Part continues to function
	8	T1	0-1400 mils exposure to 100 C ambient	Part continues every 2000 cycles, characterized for wear
Failure & Correlation	9	Control Lube	Various Fluids, 14Vdc to one terminal Harpoon Grounded, 24Vdc to one terminal 14Vdc to one terminal, Harpoon Grounded	Part in Control Lube, both unexposed
	10	T1	Various Levels of Brake Fluid, Water, Under 14 conditions, In Water	Part being monitored, expected Phase One to begin 2/19
	11	AVT	14Vdc, Pressure and Temperature at Switch Location for ABS and non-ABS	Corroding water tested off.
All Pressures & Temperatures Profile in Room Car			Corroding water	

Reddick (Memphis, 1993 Town Car)	1LNLM82W0PV	F2VC/2056	Partially burned.	Black residue containing glycol based material (probably brake fluid) and a metal oxalate. Indicates presence of brake fluid on fluid and switch sides of seals.	Environmental seal and gasket intact and appear to have had good sealing. All three Kapton seals are buckled and exhibit brittle cracks which most likely formed leak path. Damage appears to have initiated in seal closest to washer. Damaged Kapton darkened and embrittled by unknown mechanism.	Green Deposits on face of cup contain elements from brass contacts indicating transfer of contact material to cup probably as oxide, sulfide, or corrosion product. Glycol based material (probably brake fluid) also detected in this area.	Base separated below crimp ring. Transfer pin and movable contact missing. Stationary contact exhibits loss of material due to corrosion, evidence of dezincification, stress corrosion cracking. Base of movable contact melted back into bulkhead between switch and terminal cavities. Appears to have occurred in later stages of event. Surfaces of terminals covered with black and green deposits which appear to be sulfur compounds of the terminal materials.
A (1993 Town Car, Houston)	1LNLM82W1PV	????/2281	Burned	Elements from contact material detected at fitting end of hexport. Indicate possible flow of fluid back through seals. Traces of silicone detected.	Gasket and environmental seal missing. Charred fragments Kapton seals remain.	Deposits on face of cup contain elements from brass contacts indicating transfer of contact material to cup probably as oxide, sulfide, or corrosion product.	Base, stationary contact, movable contact, and terminals missing.
B (1992 Town Car, Houston)	1LNLM83W5N	F2VC/2114	Burned	Elements from contact material detected at fitting end of hexport. Indicate possible flow of fluid back through seals.	Not permitted to disassemble switch.	Deposits on face of cup contain elements from brass contacts indicating transfer of contact material to cup probably as oxide, sulfide, or corrosion product.	Transfer pin and movable contact missing. Stationary contact exhibits crack in similar location as that in Reddick sample.
C (1992 Town Car, Houston)	1LNLM81W2N	F2VC/2003	Burned	Elements from contact material detected at fitting end of hexport. Indicate possible flow of fluid back through seals. Black deposit in cavity contains traces of hydrocarbon and silicone.	Gasket appears charred. Environmental seal missing. Damage to Kapton seals currently being evaluated.	Deposits on face of cup contain elements from brass contacts indicating transfer of contact material to cup probably as oxide, sulfide, or corrosion product.	Base, stationary contact, movable contact, and terminals missing.
D (1997 Crown Victoria)	2RALP71W1V	F2AC/?????	Apparent leakage.	Black residue containing glycol based material (probably brake fluid) and a metal oxalate. Indicates presence of brake fluid on fluid and switch sides of seals.	Environmental seal and gasket intact and appear to have had good sealing. Kapton seals exhibit damage similar to that found in Reddick sample. All three exhibit brittle cracks which most likely formed a leak path.	Dark green deposits on face of cup contain elements from brass contacts indicating transfer of contact material to cup probably as oxide, sulfide, or corrosion product. Deposits appear to have formed a bridge between movable contact and cup. Liquid in interior and on face of cup is glycol based (probably brake fluid).	Switch cavity and terminal cavity contain glycol based material (probably brake fluid). Contacts appear intact. Dark green deposits on movable and stationary contacts contain elements from brass contact material. Terminals appear clean (no apparent deposits or corrosion).
E (#11 from survey)	1LNLM82W1V	F2AC/2137	No leaks or other apparent problems.	Black residue containing glycol based material (probably brake fluid) and a metal oxalate. Indicates presence of brake fluid on fluid and switch sides of seals.	Environmental seal and gasket intact and appear to have had good sealing. Kapton seals exhibit deformation and buckling similar to that found in Reddick sample. Crazing on surfaces suggest incipient damage is occurring.	Face of cup appears clean and dry.	Switch cavity and terminal cavity appear clean and dry. No apparent deposits or corrosion.
F	1LNLM82W1N	F2VC/2126	Apparent leakage	Black residue containing glycol based material (probably brake fluid) and a metal oxalate. Indicates presence of brake fluid on fluid and switch sides of seals.	Environmental seal and gasket intact and appear to have had good sealing. Kapton seals exhibit damage similar to that found in Reddick sample. All three exhibit brittle cracks which most likely formed a leak path.	Dark green deposits on face of cup contain elements from brass contacts indicating transfer of contact material to cup probably as oxide, sulfide, or corrosion product. Liquid in interior and on face of cup is glycol based (probably brake fluid).	Switch cavity and terminal cavity contain glycol based material (probably brake fluid). Stationary contact is intact, but does show stress corrosion cracking in progress in bridge area (same location as in Reddick switch). Movable contact appears to have separated as a result of loss of material (~50% of thickness) due to corrosion. No evidence of heating or arc damage. Dark green deposits on movable and stationary contacts contain elements from brass contact material, as well as sulfur. Terminals exhibit green deposits (currently being analyzed). Deposits extend in from both sides of

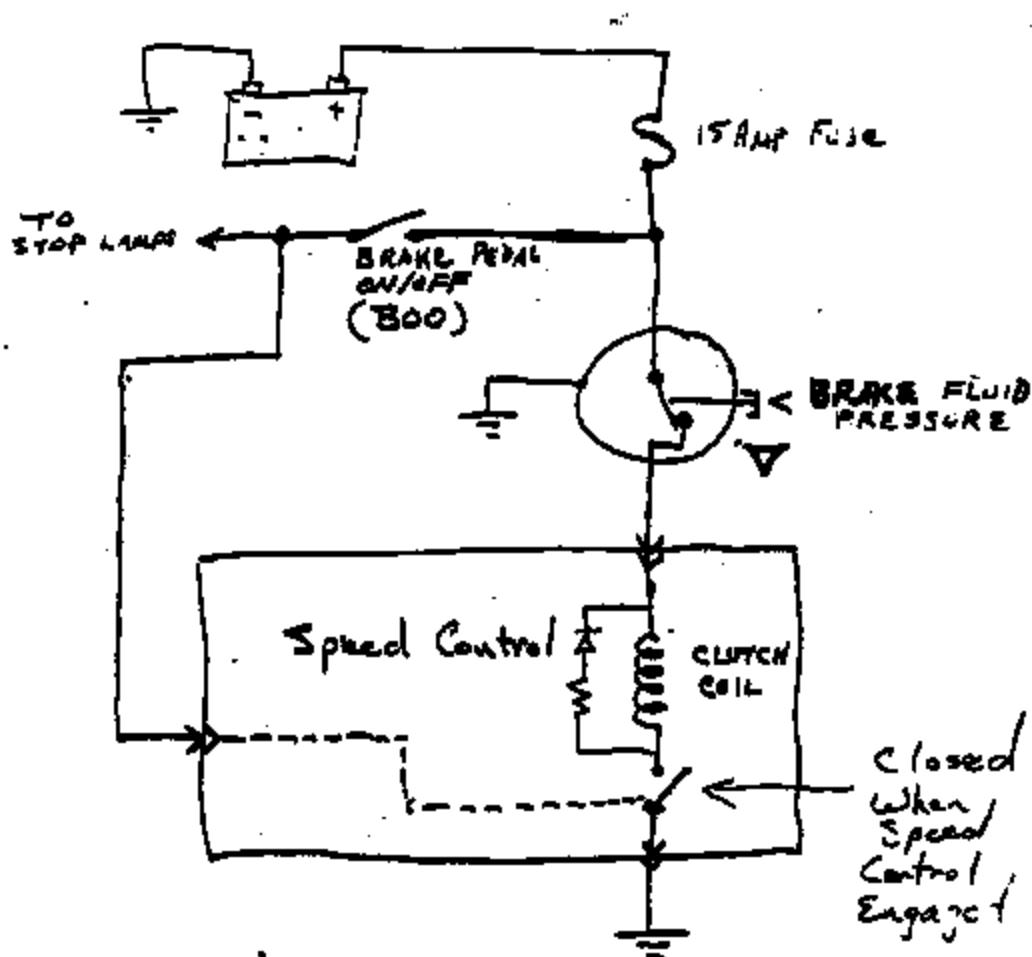
Hydraulic Pressure Switch Cross Section



3713 1090

Brake Pressure Switch Function-

- Provide power to Speed Control Clutch circuit.
Clutch engages servo-motor to pull throttle cable.
- Provide redundant sensing of brake application independent of the primary system deactivation mode by disconnecting power to clutch circuit causing servo-motor to release throttle cable.
 - Under Hard Braking only
 - Stop lamp signal is primary (normal braking)



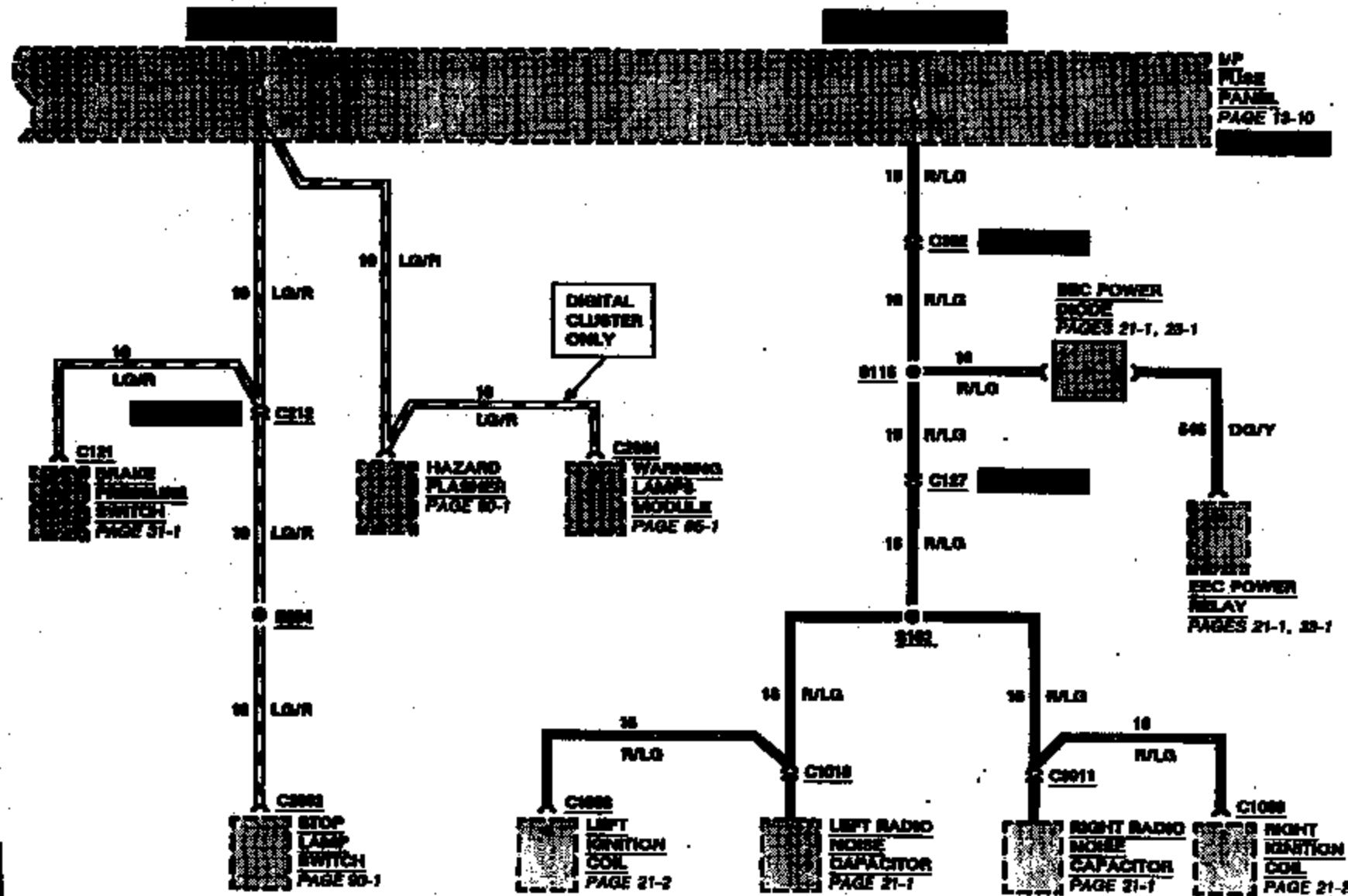
Brake Pressure Switch
F2WC-6P124-AE
Material List for MY 92/93

Material List for MY 92/93		
Gasket	Elastomer Ethylene Propylene	JBL Compound # E-7104-70
Diaphragm	Kapton, Polyimide	Dupont 500 FN131L, 3 Diaphragms per switch
Base	PBT, Plastic	Grade Celanex 4300
Crimp Ring	Aluminum	Grade # 5062
Spacer	Kapton, Polyimide	Dupont #200H, Friction Reducer on Disc
Pivot	Brass	CDA 260
Transfer Pin	Ceramic	Stearite , L-3 Grade
Environmental Seal	Silicone	JBL Compound # S7519
Converter	Cold Rolled Steel	Grade # 1008
Washer	Cold Rolled Steel, Zinc Plated	Grade # 1060
Cup	Cold Rolled Steel	Grade 1010
Spring Arm	Beryllium Copper	Grade # C17200
Movable Contact	Silver Plated Copper	Oxygen Free Cu, Fine Silver
Stationary Terminal	Brass + Silver Inlay	CDA 260
Movable Terminal	Brass	CDA 260
Disc	Stainless Steel	Grade 302
Hexport	Cold Rolled Steel, Zinc Plated	C10L10
Thread Cap	LDPE, Plastic	

**CIRCUITS THAT REMAIN ENERGIZED AT ALL TIMES - 1992-93 LINCOLN TOWN CAR
ON THE LEFT HAND SIDE OF THE ENGINE COMPARTMENT**

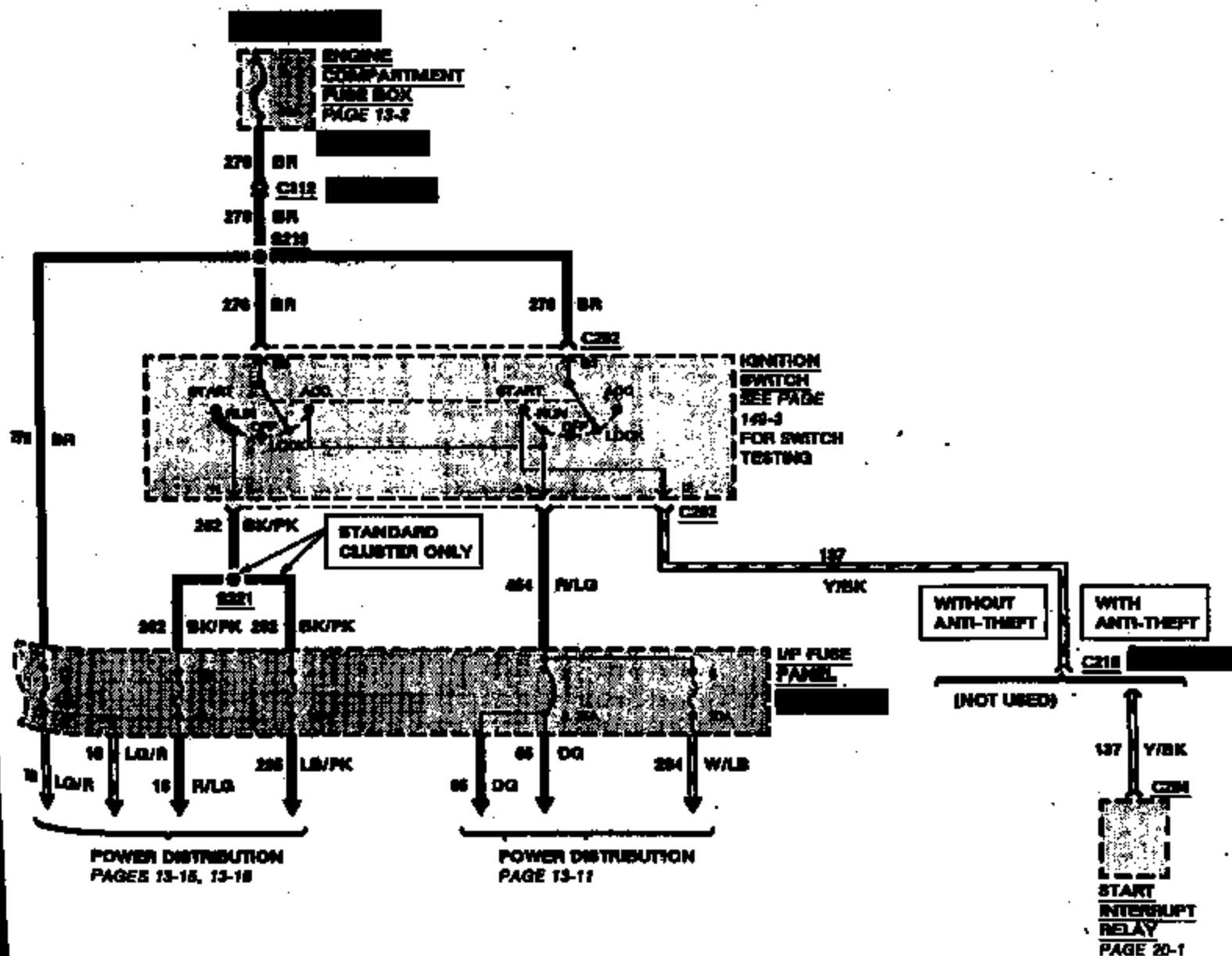
CKT #	CIRCUIT NAME / DESCRIPTION	CKT COLOR	WIRE HARNESS
10	1/P FUSE PANEL TO BRAKE PRESSURE SWITCH	L/G/R	14401
278	PDB TO IGNITION SW	BR	14401 / 14290
414	AIR SUSPENSION COMPRESSOR MOTOR / A/V	G/R	14290
637	PDB TO ANTI-LOCK BRAKE MOTOR RELAY	T/Y	14290
864	PDB TO EEC PWR RELAY / EEC MODULE	Y/BK	14290 / 124581
787	PDB TO FUEL PUMP RELAY	PK/A/K	14290 / 124581

POWER DISTRIBUTION 13-16

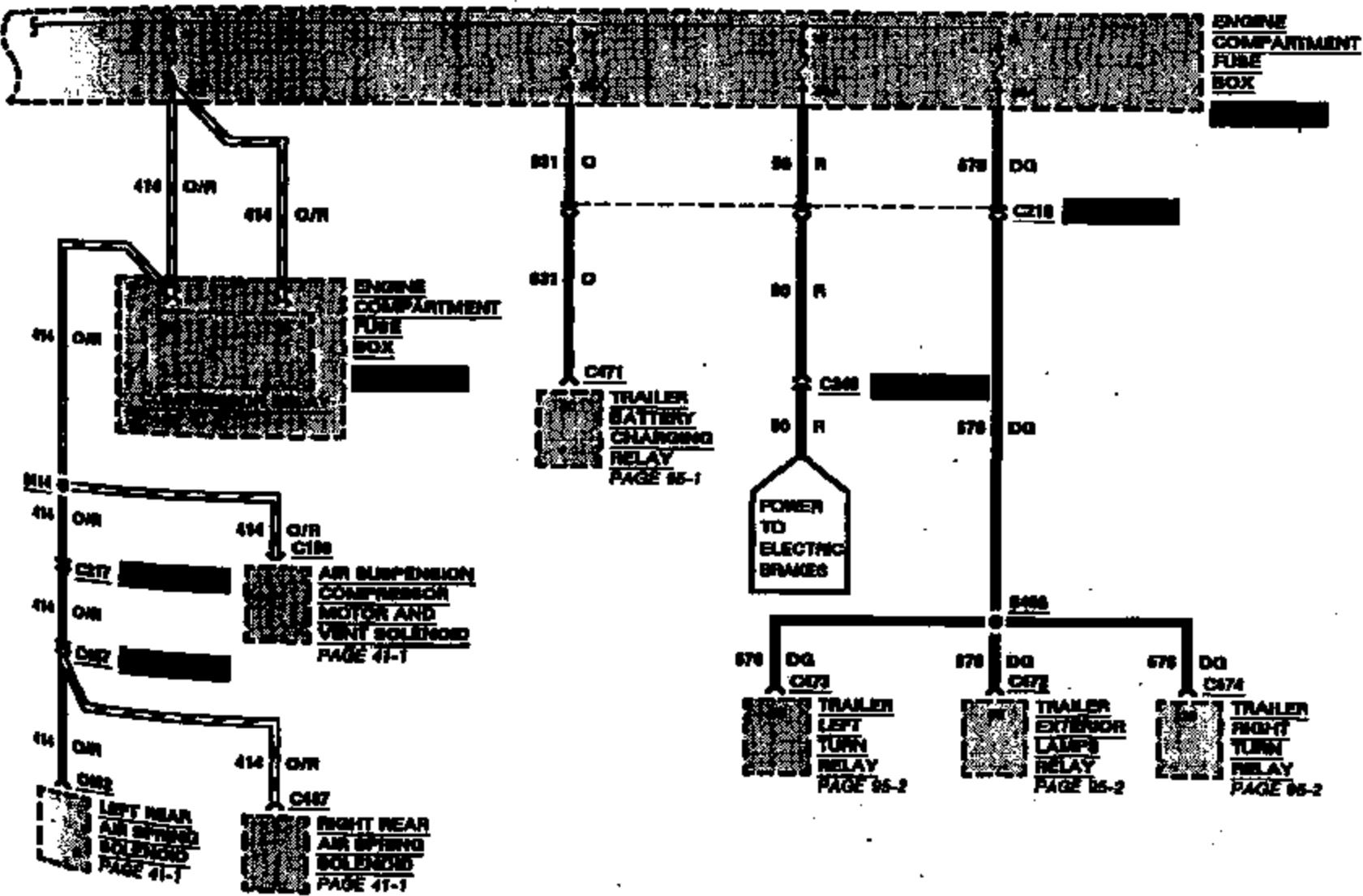


374

POWER DISTRIBUTION 13-10



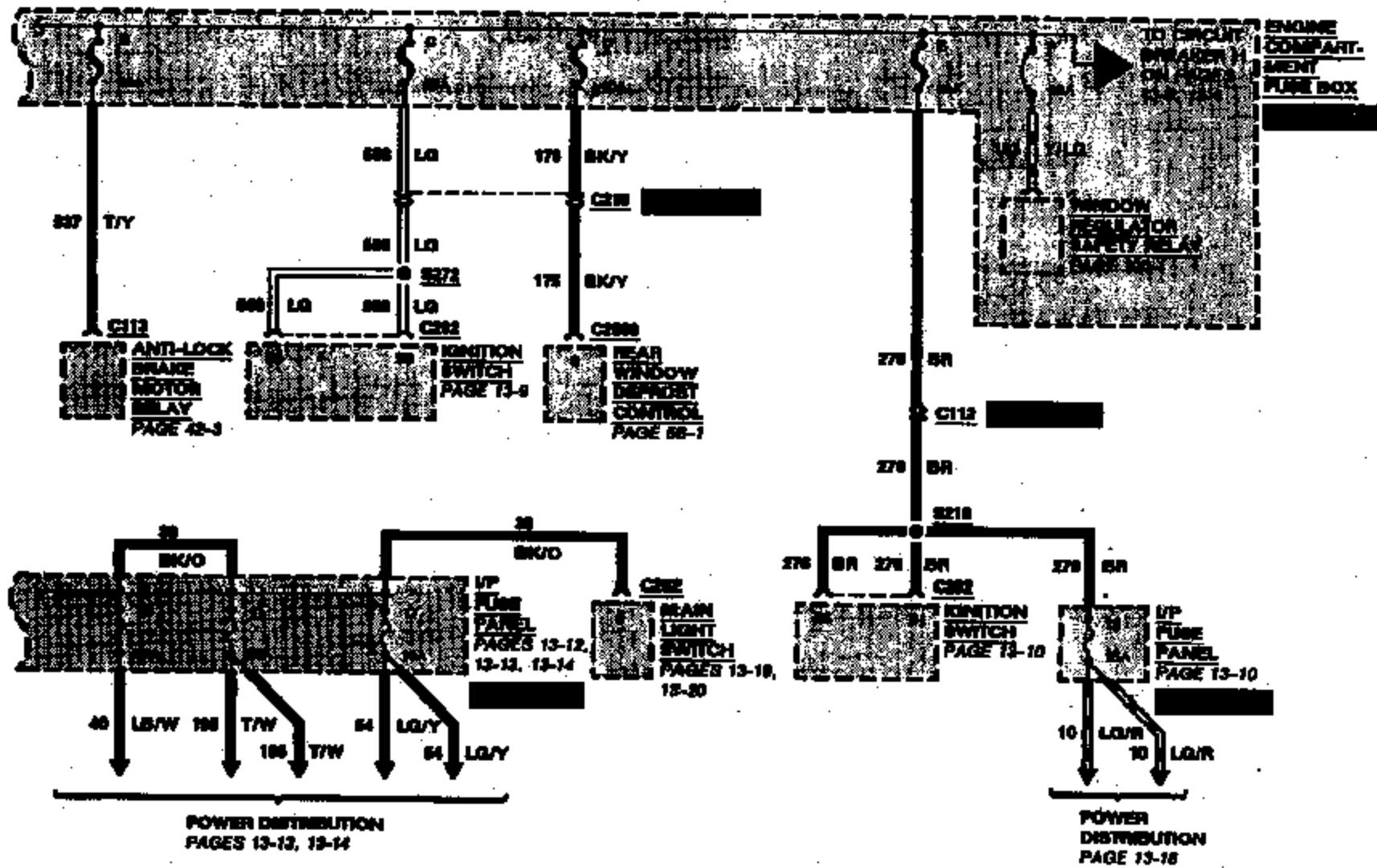
POWER DISTRIBUTION 13-8



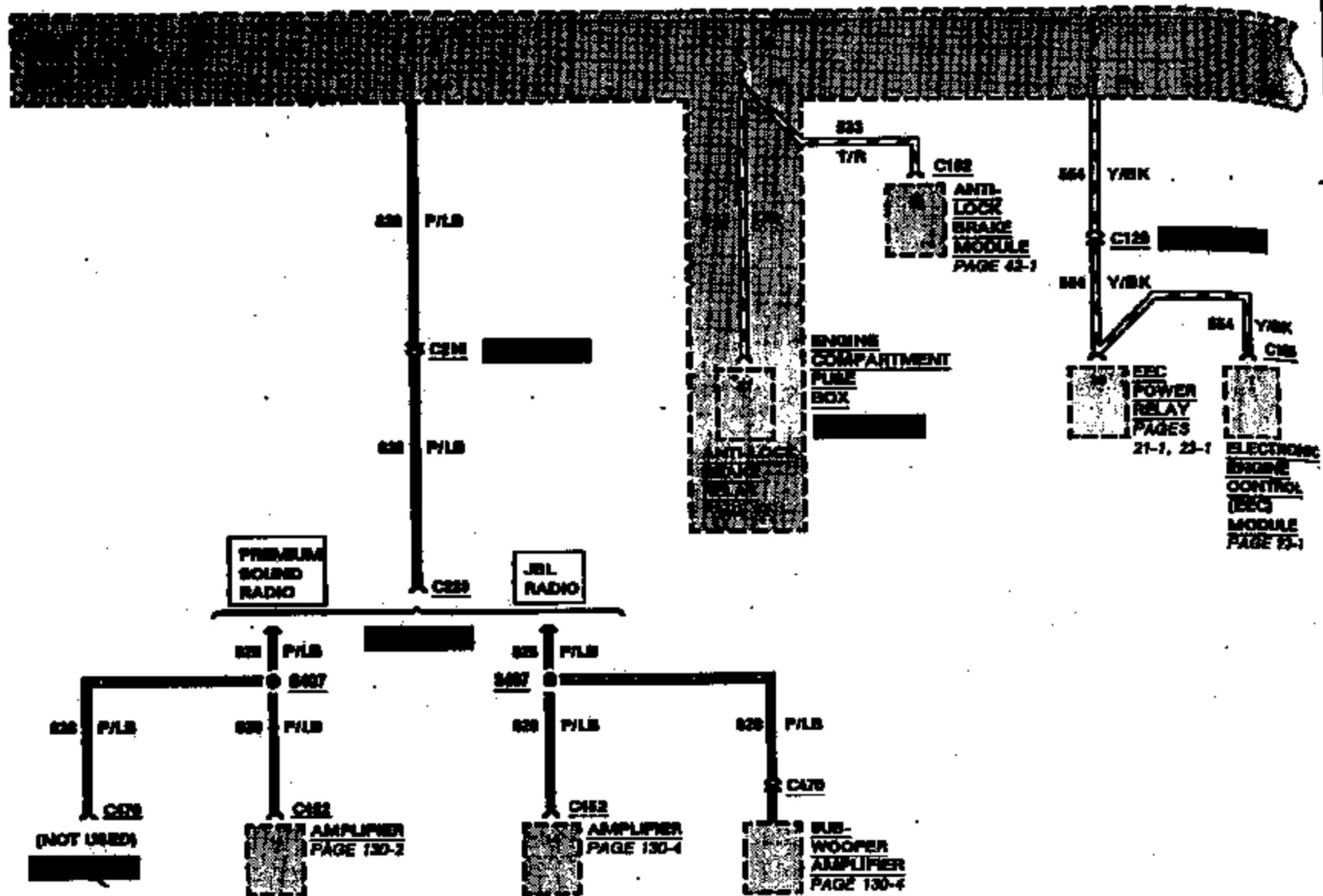
Y8K
GMS
T-
CHROME
WHEEL
STYLING
GT
DALE
H 20-1

3713 1096

POWER DISTRIBUTION 13-2

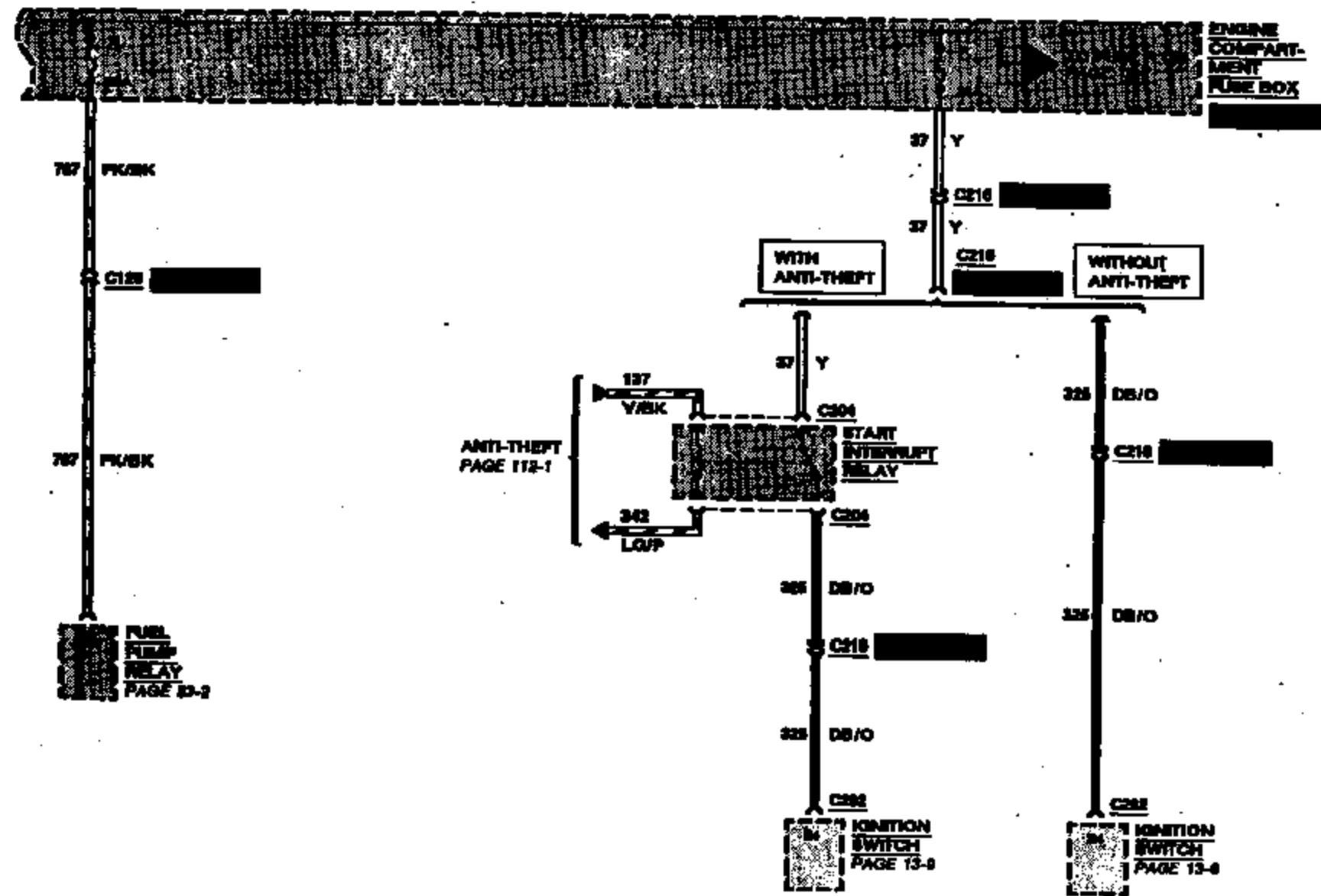


13-7 POWER DISTRIBUTION

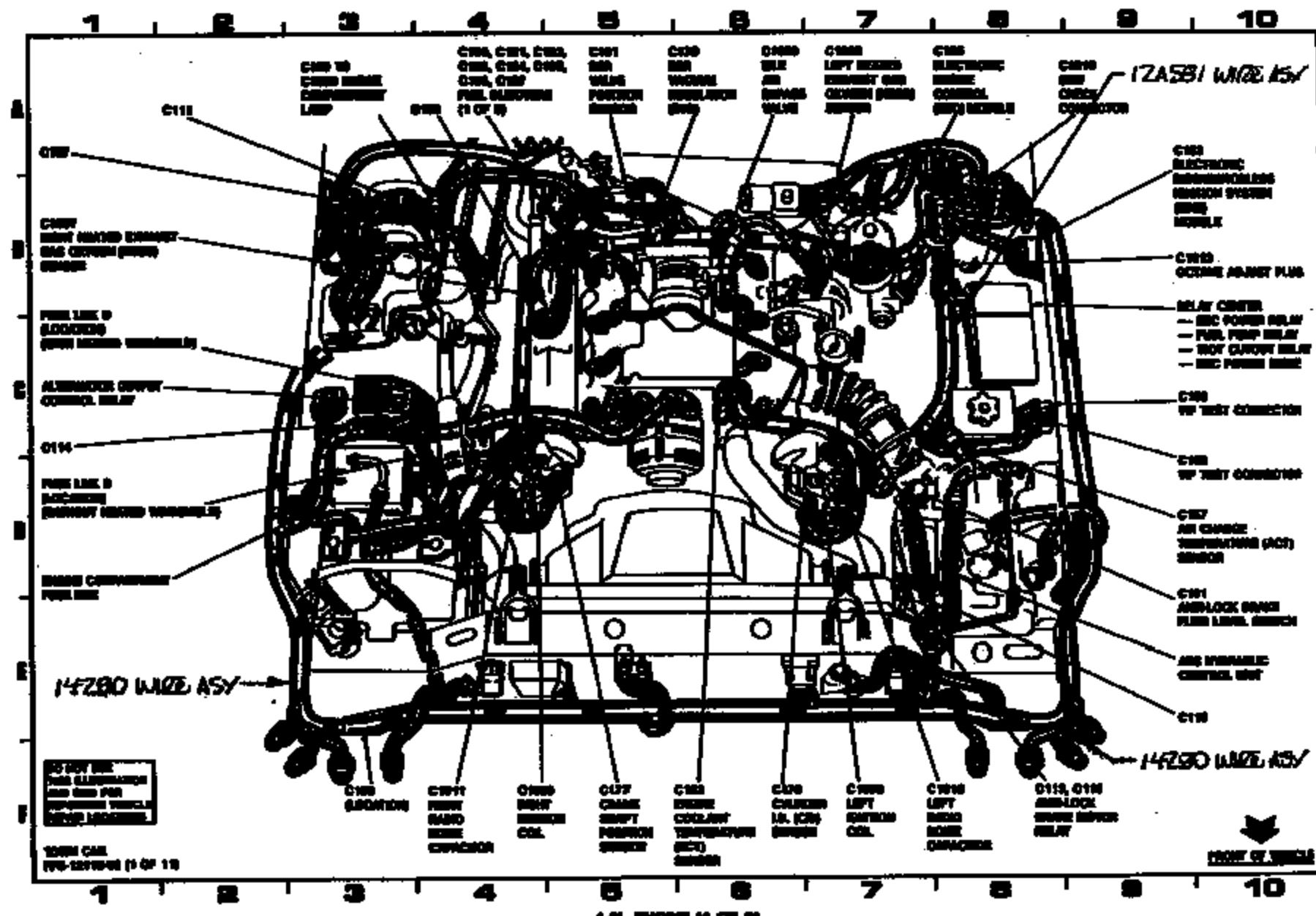


3743 10

POWER DISTRIBUTION 13-6



151-1 COMPONENT LOCATION VIEWS



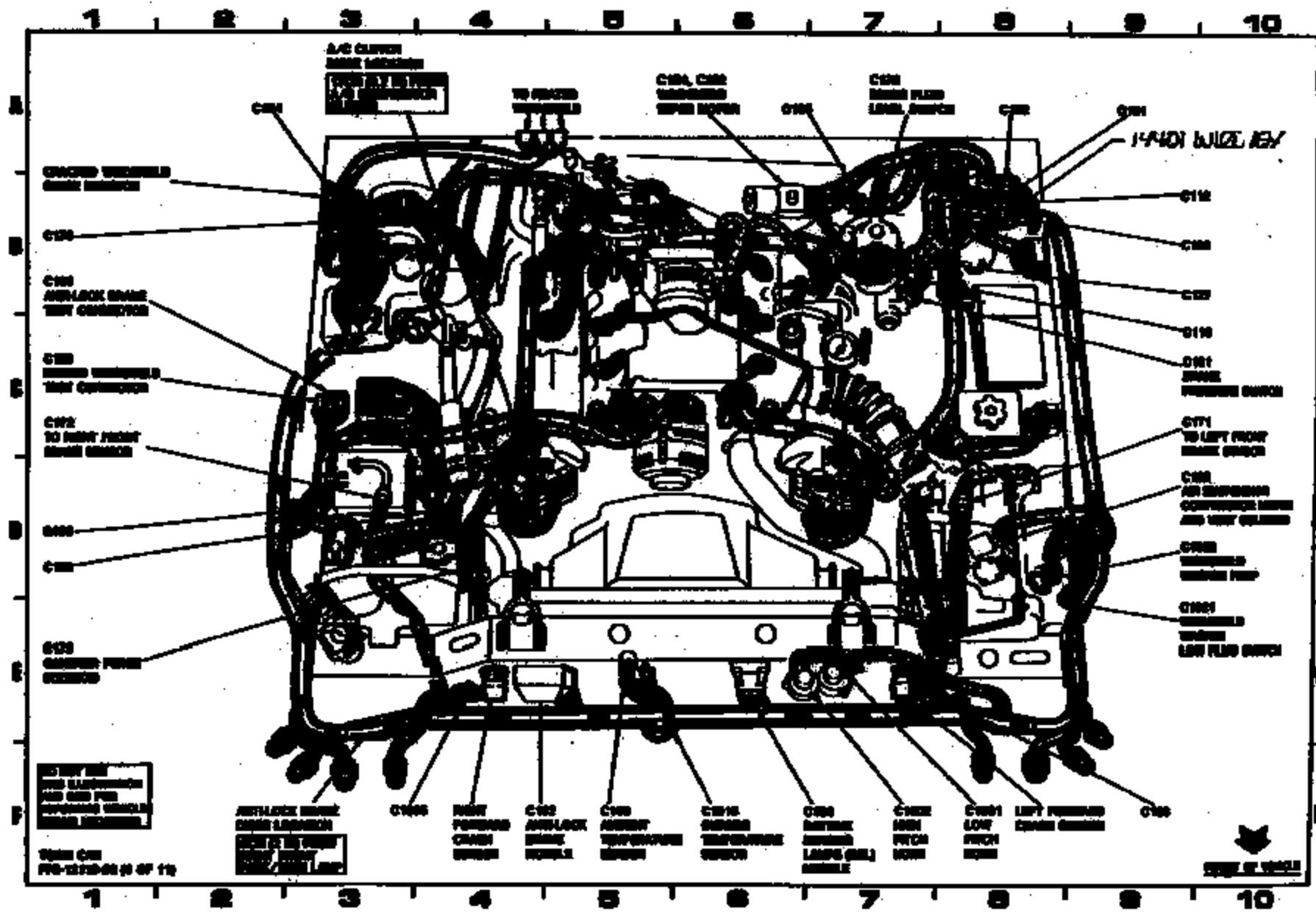
3713 1100

10

1999 GM
PG-20000116 OF 11

ANSWER

151-3 COMPONENT LOCATION VIEWS



BORG PROBE SWISH MTG 12-16-98

ROB EBELSON	AUT-ECE-EDS	73225	REKUSI
NORM LATAMBE	AUT-DES.ANAL.	42686	NLAPOINT
Jim Gregoire	AUT ECE OPE	77762	J GREGOIRE
FRED PORTER	AUT-ECE	53722	F PORTER
WILLIAM ABRAHAMS	AIO	23284	WABRAME?
JOE NOONE	LVC	C 3133	JOONE
CLAUDIA MCNEIL	LVC SAFETY	52 22 216	MCNEEN

48-082-5

2:55 PM

ROB,

HERE IS THE PART WE REVIEWED THIS MORNING.

I'VE HAD NORM LAPONT FROM DESIGN ANALYSIS

LOOK AT THE PART.

PLEASE REVIEW THIS PART WITH ERIC PORTER.

AFTER YOU ARE DONE, NORM LAPONT HAS OFFERED

TO COORDINATE THE ANALYSIS OF THIS PART WITH CENTRAL

LABS (NORM'S # x-42686 PARKVIEW TOWER WEST ROOM 604).

ALSO, IF THERE WAS A PROBLEM WITH THE SWITCH,

COULD THE RESISTANCE OF THE TERMINAL TO GROUND

BE AN INDICATOR?

WILLIAM ABRAHAMSON

x 23284

3713-108

P.S. I'LL BE ON VACATION THURSDAY THRU THE
END OF THE YEAR.

Page: 01

CQIS DETAIL REPORT

12/07/98 13:14:14

CQIS Report Number: WJIAA135 Program Type: Q Orig Rpt #: 225951-98
 Report Source: M3S - FCSD - QSPS Report Date: 10/09/1998

----- R E P O R T S U M M A R Y -----

VEHICLE:	1993 TOWN CAR, SIGN ,SEDAN	VIN :	1LWLM82W0FY [REDACTED]
Engine :	4.6L ROMEO BASE EFI	Odometer:	51,500 MILES
Operating Environ:		NCC :	5D09
Vehicle Use :		Rsp. Act:	
SYMPTOM:	3 01 0 00 CHASSIS OTHER (CODE NOT AVAILABLE)	SERVICE BRAKE SYSTEM OTHER (CODE NOT AVAILABLE)	
Additional Symptom:			
Other Veh. With Concern:		Severity Rating - Customer:	Engineering:
Causal Component:	2B264	SWITCH BRAKE PRES NRW L	
Causal Factor:		Feature:	Loc:
Causal Condition:		Photo:	Images: 0
Component Test Status:		--- Return Loc:	
Vehicle Fixed?: YES	Customer satisfied?:	Repair Effectiveness (%):	100

----- C O M M E N T S -----

--TYPE-- COMMENT TEXT

CONCERN INITIALLY THE CUSTOMERS CONCERN WAS THAT THE VEHICLE WOULD NOT COME OUT OF PARK. WHILE IN THE DEALERSHIP, AN UNDERHOOD FIRE STARTED, CAUSED BY A LEAKING BRAKE FLUID THROUGH THE SWITCH INTO THE CONNECTOR.

REPAIR REPLACED THE SPEED CONTROL SWITCH AND CONNECTOR. REPLACED THE STOP LAMP SWITCH FOR THE ORIGINAL CUSTOMERS CONCERN. PER TECHNICIAN, THIS IS THE THIRD UNIT THAT HAD AN UNDERHOOD FIRE THAT APPEARED TO ORIGINATE FROM THIS AREA. THE OTHER TWO WERE TOO DAMAGED TO DETERMINE THE SPECIFIC LOCATION OF THE POINT OF THE ORIGIN. THE SWITCH AND CONNECTOR ARE PRESENTLY IN MY POSSESSION IN THE MEMPHIS REGIONAL OFFICE.

AUDIT 10/14/1998 09:36AM BRENDA WENDEL M3S - FCSD - QSPS
 DEALER ID 68523 CHANGED TO 12098 BY BWENDEL

----- C O N C E R N D I T A I L S -----

----- D I A G N O S T I C I N F O R M A T I O N -----

Symp. Verif?:	Base of Diagnosis:	Level of Assistance:	
Comp. Timing:	Base Timing :	MIL light on? :	
Test Stand :	Road Test :	ID Number:	
Prior Repair Attempts:		Repair Prior to Call: NO	
DTCs Read:	KOEC:		
MOER:	CB:		
Equipment/Procedure Used	Effective?	Equipment/Procedure Used	Effective?

----- S E R V I C E A C T I O N S -----

Repair Type	Component Number	Number	Description	Causal Comp.
MPL	2B264	SERVICE	SWITCH BRAKE PRES NRW L	YES

----- V E H I C L E D E T A I L S -----

Vehicle Build Date:	09/10/1992	Warranty Start Date:	02/08/1993
Date of Sale:	02/08/1993	Selling Dlr (Mkt, Dlr, Sub):	12098
Dealer Special Order:		Gross Vehicle Weight:	
LH/RH Drive:			

----- E N G I N E -----

Engine: 4.6L ROMEO BASE EFI	Tag: 3G	812 AA
Std Dt: Calib: 31AUR10 A	Serial #: 4	

REDACTED

3713 1104M

Page: 02

CQIS DETAIL REPORT

12/07/98 18:14:14

CQIS Report Number: WJYAA135 Program Type: Q Orig Rpt #: 225851-98
Report Source: MBS - FCSD - QSPS Report Date: 10/09/1998

- - - T R A N S M I S S I O N - - -

Trans: AOD-E 4SP ELEC O/D Part #:
Bld Dt: Serial #:
Model: Pkt: Shift:

Axle: 8.8 3.08 CONVENTIONAL Id Tag Code: Bld Dt:
Serial #: Pkt:

- - - A X L E - - -
Tire : P215/70R15 NSW Brand :
Radio : ELECTA PREMIUM AM/FM STEREO/CSDR A/C : ATC AIR CONDITIONER
Paint : BLUE EXTERIOR PAINT FAMILY ----- AQUAMARINE FROST C/C

- - - - A F T E R M A R K E T M O D I F I C A T I O N S - - - -

NO AFTER MARKET MODIFICATIONS DATA AVAILABLE FOR THIS VEHICLE

- - - - R E P O R T O R I G I N A T O R - R E P A I R F A C I L I T Y - C U S T O M E R I N F O R M A T I O N - - - -

Orig/Caller : KENNETH DYTRE Title: OTHER

Repair Dir: 12096 - SCHILLING L-N/MENDENHALL INC Phs:(901) 794-4000
City: Memphis State: Tennessee
Country: UNITED STATES Region: Memphis - 23

Claim #:Date : LIC5777 07/19/1998

Customer name : [REDACTED] City :

- - - - C Q I S V . I N H I S T O R Y - - - -

NO CQIS VIN HISTORY AVAILABLE FOR THIS VEHICLE

- - - S U P P L E M E N T A L S U R V E Y : N O N E - - - -

- - - - V E H I C L E ' S W A R R A N T Y H I S T O R Y (3 6 5 d a y s o n l y) - - - -

NO VEHICLE WARRANTY HISTORY AVAILABLE FOR THIS VEHICLE

3713 1106M