SECTION 0A

GENERAL INFORMATION

CAUTION: This vehicle is equipped with Supplemental Inflatable Restraint (SIR). Refer to CAUTIONS in Section 9J under "ON-VEHICLE SERVICE" and the SIR Component and Wiring Location view in Section 9J before performing service on or around SIR components or wiring. Failure to follow CAUTIONS could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

CONTENTS

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) HANDLING

Refer to CAUTIONS and the SIR Component and Wiring Location view in Section 9J when performing service on or around SIR components or SIR wiring. SIR equipped vehicles can be identified by:

- Steering wheel hub marked "INFLATABLE RESTRAINT."
- "INFLATABLE RESTRAINT" indicator lamp in instrument cluster.
- Code "2," "3" or "5" for the seventh digit of the vehicle identification number (VIN).

DISCONNECTING THE BATTERY NEGATIVE CABLE ASSEMBLY

CAUTION: Before removing or installing any electrical unit or when a tool or equipment could easily come in contact with "live" exposed electrical terminals, disconnect the battery negative cable assembly to help prevent personal injury and/or damage to the vehicle or components. Unless instructed otherwise, the ignition switch must be in the "OFF" or "LOCK" position.

HANDLING ELECTROSTATIC DISCHARGE (ESD) SENSITIVE PARTS

Figure 1

NOTICE: When handling an electronic part that has an ESD sensitive label (Figure 1) or is identified as ESD sensitive in the list that follows, the service technician should follow these guidelines to reduce any possible electrostatic charge buildup on the service technician's body and the electronic part in the dealership:

1. Do not open package until it is time to install the part.
2. Do not touch electrical terminals of the part or its pigtail connector(s) with a finger or tool.
3. Before removing the part from its package, ground the package to a known good ground on the vehicle.
4. Always touch a known good ground before handling the part. This should be repeated while handling the part and more frequently after sliding across the seat, sitting down from a standing position or walking a distance.

Not all parts that can be damaged by ESD have an ESD label. Components that can be damaged by ESD are:

Inflatable restraint diagnostic energy reserve module (DERM) and resistor module

Powertrain control module (PCM)

Instrument panel cluster

able through General Motors Service Parts Operation (GMSPO).

Many metric fasteners available in the aftermarket parts channels were designed to metric standards of countries other than the United States. The fasteners may have different strength or thread pitch and may not have the numbered head marking system. The metric fasteners used on GM products are designed to new international standards that might not be used by some nondomestic bolt/screw and nut suppliers.

PREVAILING TORQUE FASTENERS

Figures 18 and 19

A prevailing torque nut is designed to develop an interference between the nut and bolt/screw threads. This interference is usually created by distortion of the top of an all-metal nut or by a nylon patch in the threads in the middle of a hex flat. In other cases, a nylon insert may be used (Figure 18).

A prevailing torque bolt/screw is designed to develop an interference between the bolt/screw and nut threads or between the bolt/screw and tapped hole threads. This interference is created by distorting some of the threads or by using a nylon patch or adhesive (Figure 18).

Rusty or damaged bolts/screws and nuts should be replaced with new parts of the same strength class or higher. Clean, unrusted bolts/screws and nuts can be reused. Be sure to use the following recommendations:

1. Clean dirt and other foreign material from nut or bolt/screw.

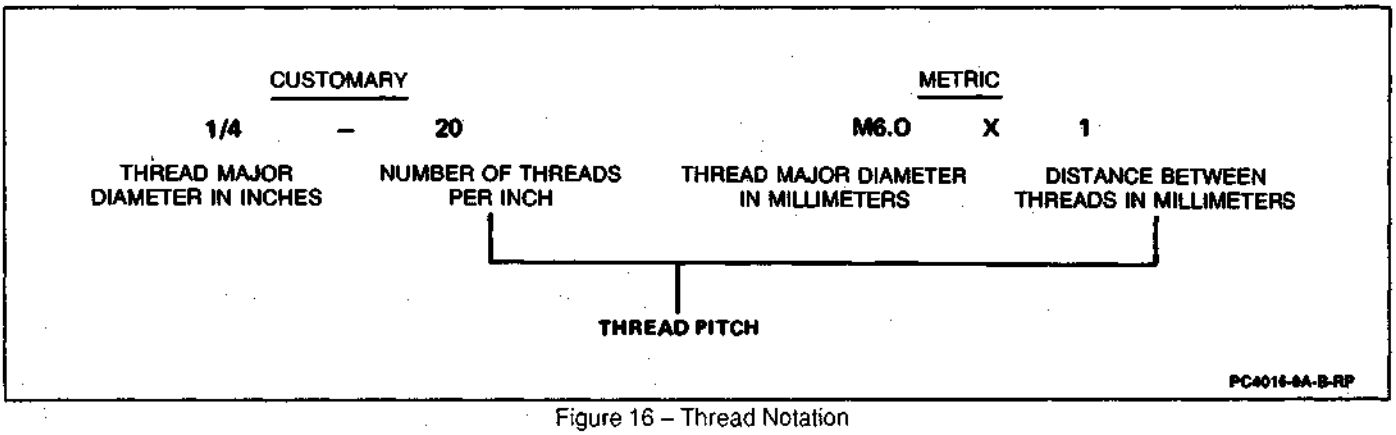

Figure 16 – Thread Notation

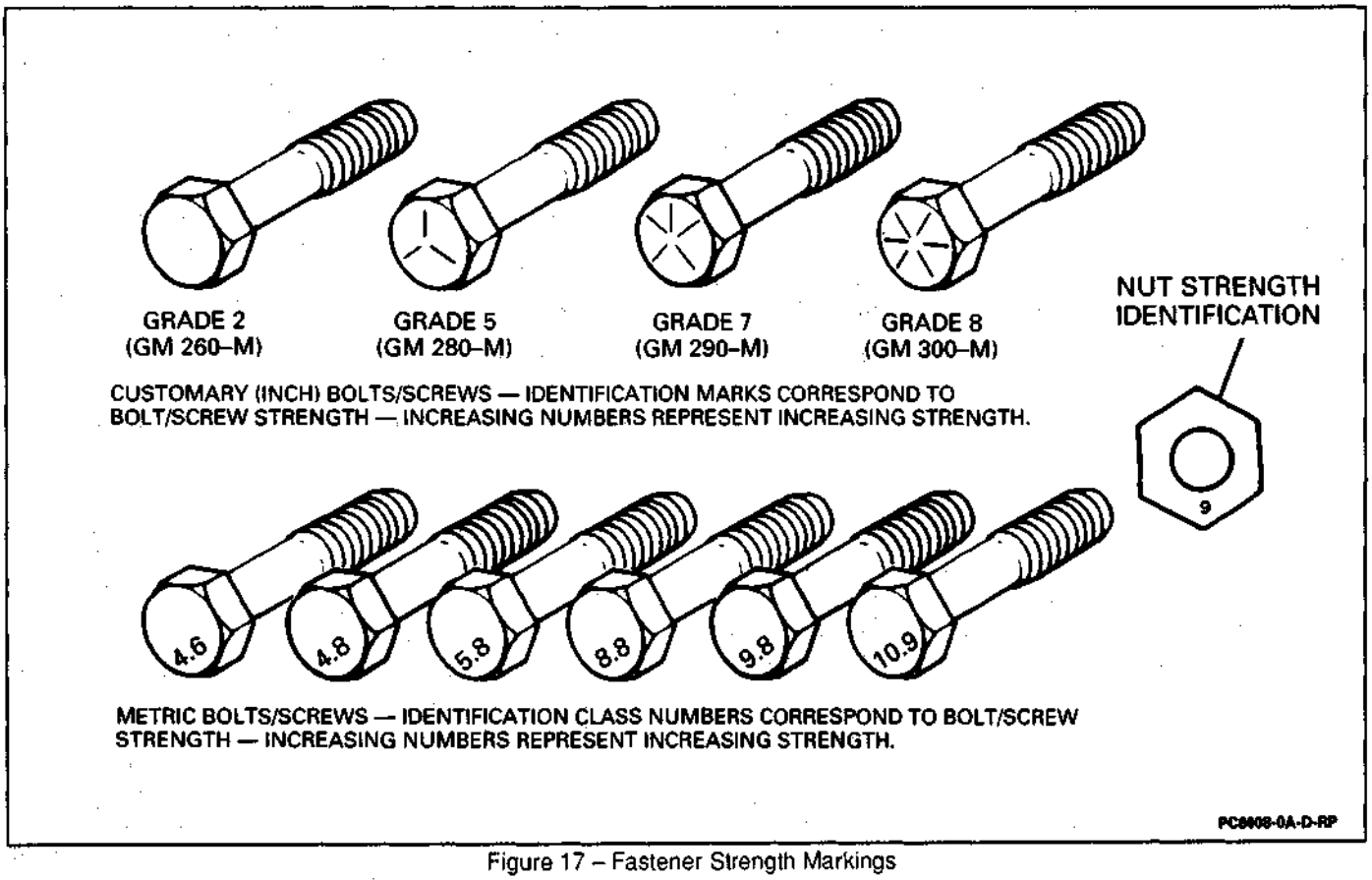

Figure 17 – Fastener Strength Markings

Key No.	Part Name
1	NUT, HEXAGON SLOTTED
2	PIN, COTTER
3	SEAL, TIE ROD
5	ROD ASM, OUTER TIE
6	FITTING, LUBE (90 DEG ELBOW)
7	NUT, METRIC HEX (M14 X 1.5)
8	CLAMP, TIE ROD END
10	BOOT, RACK & PINION
11	CLAMP, SEAL RETAINING
12	ROD ASM, INNER TIE
13	RING, SHOCK DAMPENER
15	NUT, ADJUSTER PLUG LOCK
16	ADAPTER, SEAL
17	RING, RETAINING
18	SEAL, STUB SHAFT DUST
20	SEAL, STUB SHAFT
21	BEARING ANNULUS ASM, NEEDLE
23	SEAL, O-RING (4.50 I.D.)
25	LINE ASM, CYLINDER (RT)
26	LINE ASM, CYLINDER (LT)
30	GEAR ASM, RACK & PINION (PARTIAL)
32	NUT, HEX LOCK
33	COVER, DUST
35	CLIP, PIPE
36	BUSHING, STEERING GEAR
37	SLEEVE, STEERING GEAR BUSHING

Figure 2 Power Rack and Pinion – End Take Off – Legend

OUTER TIE ROD

Figures 1 thru 3

Tool Required:
J 24319-01 Universal Steering Linkage Puller

Remove or Disconnect

1. Cotter pin (2) and hex slotted nut (1) from outer tie rod assembly (5).
2. Loosen hex nut (7).
3. Outer tie rod (5) from steering knuckle with J 24319-01.
4. Outer tie rod (5) from inner tie rod (12).

Install or Connect

1. Outer tie rod assembly (5) to inner tie rod (12). Do not tighten hex nut (7).
2. Outer tie rod (5) to steering knuckle, hex slotted nut (1) to outer tie rod stud.

Tighten

- Hex slotted nut (1) to 47 N•m (35 lb. ft.).
- Tighten nut up to 1/6 additional turn, or 70 N•m (52 lb. ft.) maximum, to align cotter pin slot. Do not back off nut for cotter pin insertion.

3. Cotter pin (2) into hole in tie rod stud (5).

Adjust

- Toe by turning inner tie rod (12).

Important

- Be sure rack and pinion boot (10) is not twisted or puckered during toe adjustment.

Tighten

- Hex nut (7) against outer tie rod (5) to 68 N•m (50 lb. ft.).

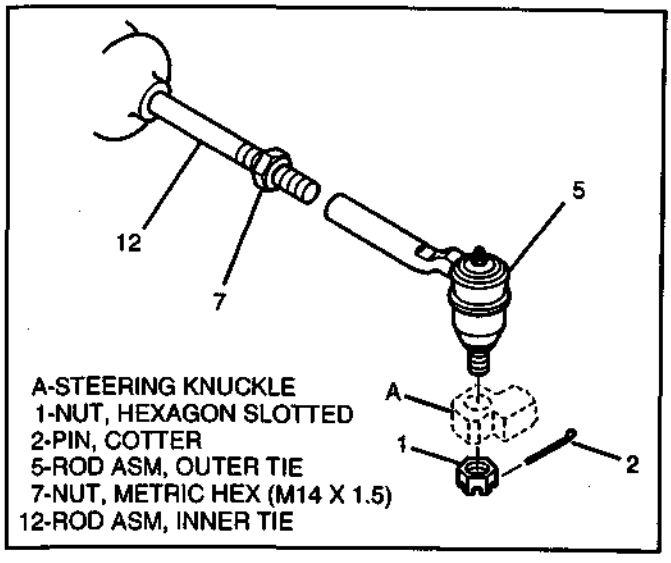

Figure 3 Outer Tie Rod Replacement

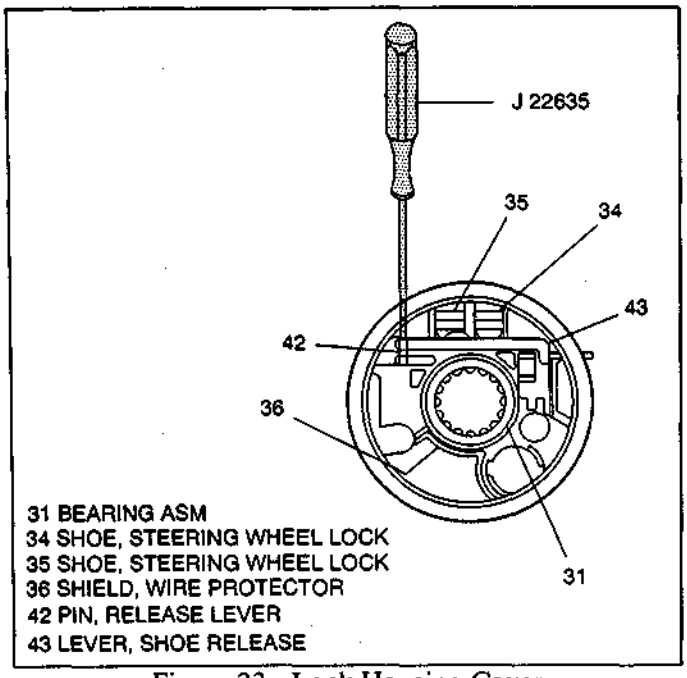

Figure 23 - Lock Housing Cover Components, Interior

Disassemble

Steering Column Housing Assembly

A. Bearing assembly (31).
B. Hex head screw (48).
C. Lock bolt spring (33).
D. Lock bolt (32).
E. Switch actuator rack (44) and rack preload spring (45).
F. Drive shaft (37).
G. Switch actuator sector (47).
I. Release lever pin (42) using J 22635.
J. Shoe release lever (43).
K. Release lever spring (41).
L. Dowel pin (38) using J 22635.
M. Lock shoes (34) and (35).
N. Shoe springs (40).

Assemble

Steering Column Housing Assembly

A. Shoe springs (40).
B. Lock shoes (34) and (35).
C. Dowel pin (38) using J 22635.
D. Release lever spring (41).
E. Shoe release lever (43).
F. Release lever pin (42) using J 22635.
G. Switch actuator sector (47).
H. Drive shaft (37).
I. Rack preload spring (45).
J. Switch actuator rack (44) to actuator sector (47).
K. Bearing assembly (31) lubricated with lithium grease to column housing (46) using J 38639 and J 8092.
L. Lock bolt (32).
M. Lock bolt spring (33). (See Figure 30)
N. Hex head screw (48).

Tighten

- Tighten screw (48) to 4.0 N·m (35 lb.in.).

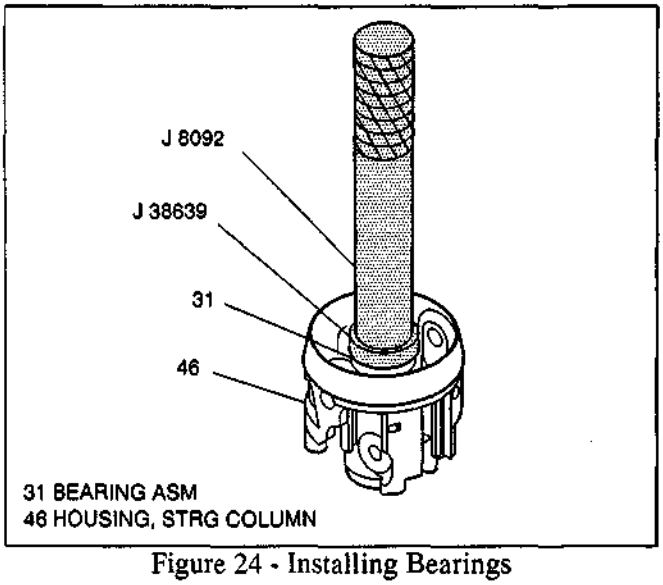

Figure 24 - Installing Bearings

8. Lower bearing adapter clip (89).
9. Bearing adapter retainer (88).
10. Lower bearing adapter (86) and bearing assembly (87).
11. Steering column shaft assembly (55).

Inspect

- Steering column shaft assembly (55) for accident damage. (See Figure 34)

REAR BRAKE PIPE ASSEMBLIES-TO-REAR BRAKE HOSE ASSEMBLIES							
						NUT TIGHTENING SPECIFICATIONS	
CALLOUT NUMBER	CIRCUIT	NUT SIZE @ CENTER HOSE ASSEMBLY	NUT SIZE @ RIGHT AND LEFT HOSE ASSEMBLIES	PIPE ASSEMBLY DIAMETER	APPROXIMATE BRAKE PIPE LINEAR LENGTH	@ CENTER HOSE ASSEMBLY	@ RIGHT AND LEFT-HOSE ASSEMBLIES
54	RIGHT-HAND REAR DISC	M10 x 1.0	M10 x 1.0	4.76 mm	867.0 mm (34.13")	15.0 N•m (11 LB. FT.)	15.0 N•m (11 LB. FT.)
55	LEFT-HAND REAR DISC	M12 x 1.0	M10 x 1.0	4.76 mm	566.0 mm (22.28")	15.0 N•m (11 LB. FT.)	15.0 N•m (11 LB. FT.)
114	RIGHT-HAND REAR	M12 x 1.0	—	4.76 mm	3615.0 mm (142.32")	15.0 N•m (11 LB. FT.)	—
115	LEFT-HAND REAR	M10 x 1.0	—	4.76 mm	3630.0 mm (142.91")	15.0 N•m (11 LB. FT.)	—

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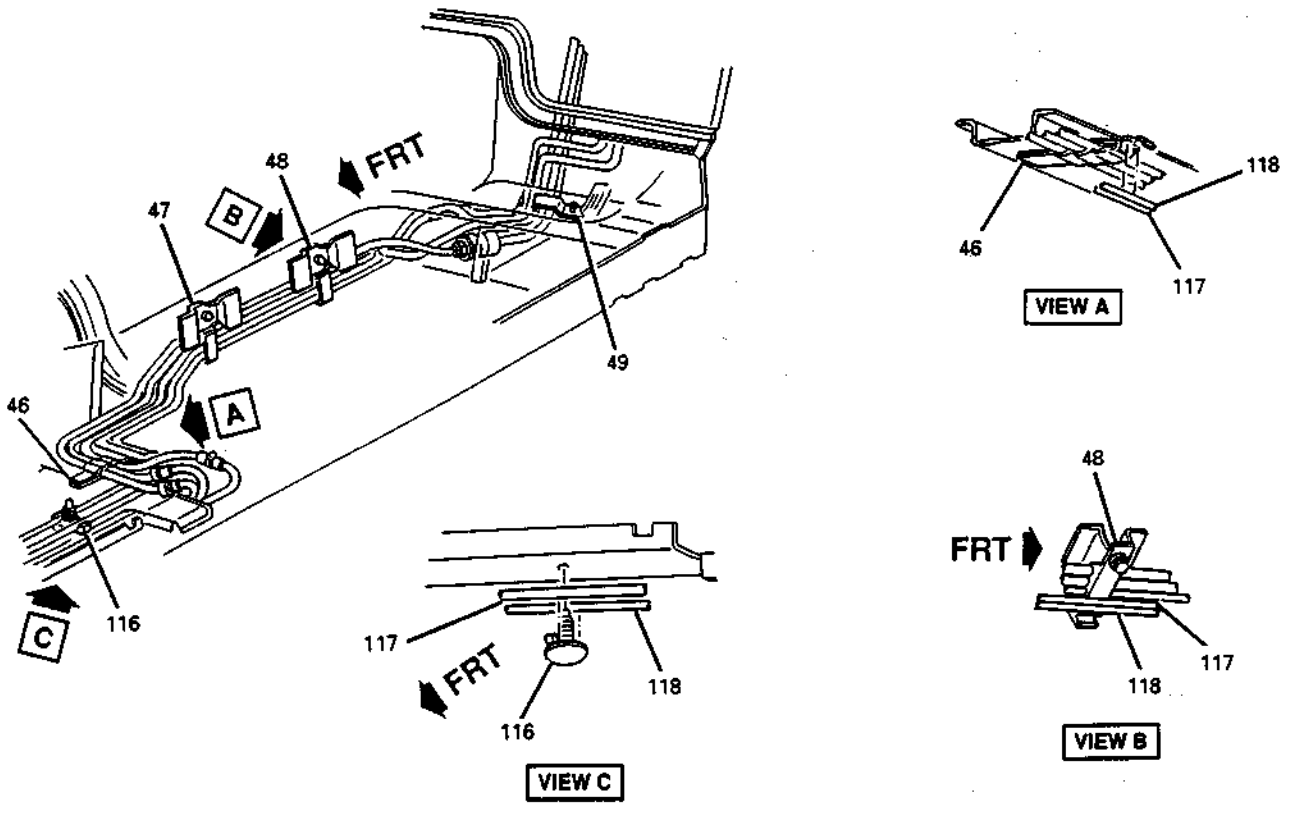
Figure 13 – Rear Brake Pipe and Hose Assemblies Specifications (With Traction Control System)



46 CLIP, FUEL LINE RETAINER
47 CLIP, FUEL LINE RETAINER
48 CLIP, FUEL LINE RETAINER
49 CLIP, FUEL LINE RETAINER
116 CLIP, REAR BRAKE FRONT PIPE REAR
117 PIPE ASSEMBLY, RIGHT-HAND REAR BRAKE FRONT
118 PIPE ASSEMBLY, LEFT-HAND REAR BRAKE FRONT

RC0907-5-F-RP

Figure 14 – Routing Underbody Rear Brake Front Pipe Assemblies (With Traction Control System)

DTC 36

(Page 2 of 2)
LOW SYSTEM VOLTAGE

DIAGNOSIS CONTINUED FROM PAGE 1 OF 2 OF THIS DTC CHART.

5
- REMOVE ABS IGN 5 AMP FUSE 5.
- USING J 39200 MEASURE RESISTANCE BETWEEN EACH ABS IGN 5 AMP FUSE 5 BLOCK TERMINAL AND TERMINAL "B11" OF THE 32-WAY EBCM HARNESS CONNECTOR.

IS EITHER MEASUREMENT 2Ω OR LESS?

NO → REPAIR HIGH RESISTANCE IN CKT 641.

YES

6
- WITH BATTERY CABLES DISCONNECTED, TURN IGNITION "ON" (THIS PROVIDES IGNITION CIRCUIT CONTINUITY).
- USING J 39200, MEASURE RESISTANCE BETWEEN POSITIVE BATTERY CABLE TERMINAL AND EACH ABS IGN 5 AMP FUSE 5 BLOCK TERMINAL.

IS EITHER MEASUREMENT 2Ω OR LESS ?

NO → REFER TO SECTION 8A TO REPAIR HIGH RESISTANCE IN THE "IGNITION SWITCH 'RUN' FUSE FEED" CIRCUIT.

YES

7
- IGNITION "OFF."
- INSPECT ABS ENABLE RELAY AND ABS ENABLE RELAY HARNESS CONNECTOR FOR POOR TERMINAL CONTACT. INSPECT 8-WAY AND 32-WAY EBCM HARNESS CONNECTORS FOR A POOR CONNECTION TO THE EBCM. INSPECT POSITIVE BATTERY CABLE TERMINAL FOR POOR CONTACT TO THE BATTERY. REFER TO SECTION 8A-4, "CHECKING TERMINAL CONTACT." REPLACE TERMINALS IF POOR CONTACT IS EVIDENT.
- RECONNECT ALL CONNECTORS.
- DRIVE VEHICLE ABOVE 5 km/h (3 MPH).

DOES DTC 36 SET AS A CURRENT DTC?

NO → MALFUNCTION IS MOST LIKELY DUE TO A POOR CONNECTION. REFER TO "DIAGNOSTIC AIDS" ON FACING PAGE.

YES → REPLACE EBCM.

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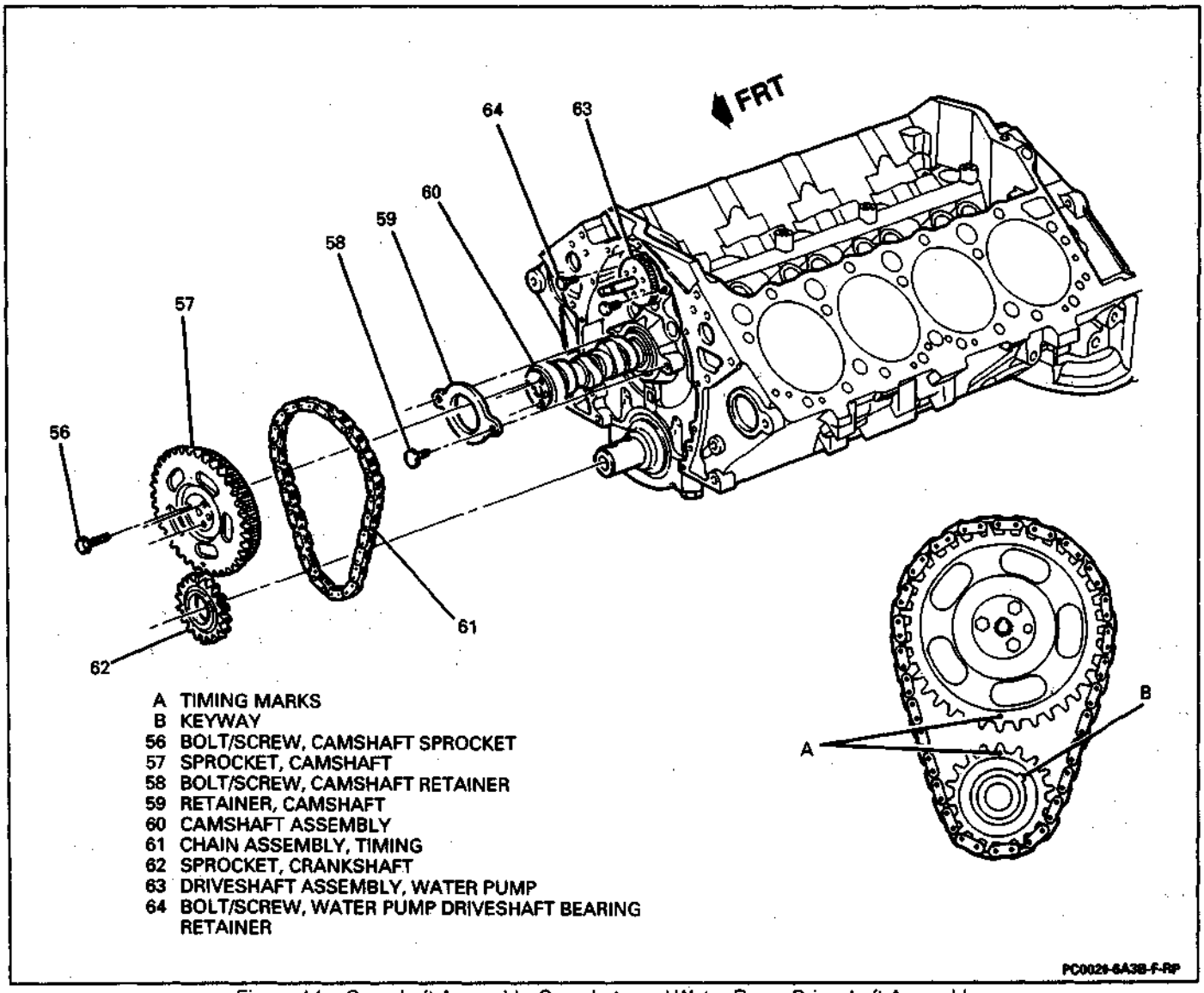

Figure 14 – Camshaft Assembly, Sprockets and Water Pump Driveshaft Assembly

J 39089 Driven Gear/Water Pump Shaft Seal Installer

Remove or Disconnect

1. Engine front cover assembly. Refer to "Engine Front Cover Assembly" in this section.
2. Rotate crankshaft assembly until timing marks punched on crankshaft sprocket (62) and camshaft sprocket (57) are aligned as shown in Figure 14.
3. Camshaft sprocket bolts/screws (56).
4. Camshaft sprocket (57) and timing chain assembly (61).

   NOTICE: Do not turn the crankshaft assembly after the timing chain has been removed to prevent damage to piston assemblies or valves.
5. Water pump bearing retainer bolts/screws (64) and water pump driveshaft assembly (63) using J 39243.
   - Remove and discard O-ring from water pump driveshaft assembly (63).
6. Crankshaft sprocket (62) using J 5825-A.
7. Key, if necessary.

Inspect

- Refer to SECTION 6A3B for component inspection.

Install or Connect

NOTICE: See "Notice" on page 6A3A-1 of this section.

1. Key, if previously removed.
2. Crankshaft sprocket (62) using J 5590.
3. Water pump driveshaft assembly (63) using J 39092.
4. Water pump bearing retainer bolts/screws (64).

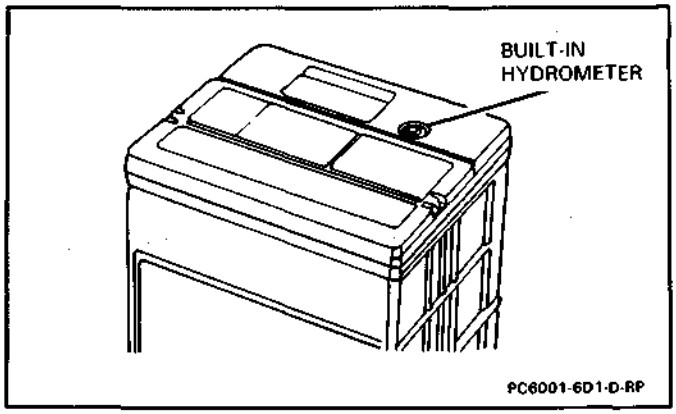

Figure 1 – Maintenance-Free Battery Assembly

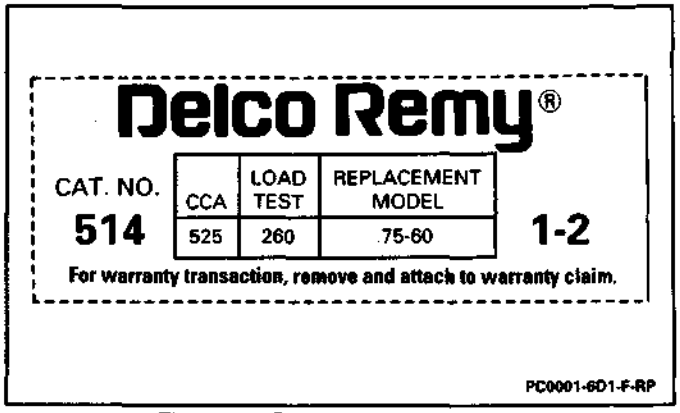

Figure 2 – Battery Assembly Label

The battery assembly has three major functions in the electrical system: first, it provides a source of energy for cranking the engine; second, it acts as a voltage stabilizer for the electrical system; and third, it provides energy for a limited time when the electrical load exceeds the output of the generator assembly.

The battery assembly specifications label contains important information for servicing the battery assembly. This information includes test rating and both original equipment and recommended replacement part numbers. Refer to "Specifications" at the end of this section.

BATTERY ASSEMBLY RATINGS

A battery assembly has two ratings: (1) a reserve capacity rating and (2) a cold cranking amperage rating at –18°C (0°F). When replacing the battery assembly, use these two ratings as a guide in selecting a replacement. For the catalog number of a replacement battery assembly with ratings similar to the original battery assembly, refer to "Specifications" at the end of this section.

Reserve Capacity

The "Reserve Capacity" is an estimate of the maximum length of time it is possible to travel at night with minimum electrical load and no generator assembly output.

Expressed in minutes, it is the approximate time the fully-charged battery assembly can support a 25-amp load without the battery assembly terminal voltage dropping below 10.5 volts at 27°C (80°F).

Cold Cranking Amps

The cold cranking amperage (CCA) test is expressed at a battery temperature of –18°C (0°F). The current rating is the minimum amperage which must be maintained by the battery assembly for 30 seconds, at the specified temperature, while meeting a minimum voltage requirement of 7.2 volts. This rating is a measure of cold cranking capacity.

COMMON CAUSES OF FAILURE

The battery assembly is not designed to last indefinitely; however, with proper care, it will provide many years of service.

If the battery assembly tests "good," but fails to perform satisfactorily in service for no apparent reason, the following are some of the more important factors that may point to the cause of trouble:

1. Vehicle accessories are left on overnight.
2. Slow average driving speeds for short periods.
3. The vehicle's electrical load being more than the generator assembly output, particularly with the addition of aftermarket equipment.
4. Conditions in the charging system such as electrical shorts, slipping serpentine belt, faulty generator assembly, or generator voltage regulator.
5. Battery assembly abuse, including failure to keep the battery assembly terminals clean and tight, or loose battery assembly hold-down. See "Battery Assembly Replacement" in this section for torque specifications.
6. Mechanical conditions in the electrical system, such as shorted or pinched wires.
7. Extended storage of vehicles.
8. Extended cranking periods due to plug fouling.
9. Incorrect interpretation of the hydrometer.
10. Insufficient ampere-hour charge rate for a discharged battery assembly.
11. Continuous current draw on the battery assembly through excessive parasitic drain.

ELECTROLYTE FREEZING

The freezing point of electrolyte depends on its specific gravity. Since freezing may ruin a battery assembly, it should be protected against freezing by keeping it in a charged condition.

As long as the green dot is visible in the hydrometer, the freezing point of the battery will be somewhere below –32°C (–25°F).

The higher the state of charge, the lower the freezing point. A fully charged battery will not freeze until the temperature gets below –65°C (–85°F).

BATTERY TRAY ASSEMBLY AND HOLD-DOWN RETAINER

The battery tray assembly and hold-down retainer should be clean and free from corrosion before installing the battery assembly.

Condition A-Poor Acceleration Low Speed

The car tends to have poor acceleration from a standstill. At speeds above 50 to 55 km/h (30 to 35 mph), the car may act normal. If poor acceleration is noted, it should first be determined that the exhaust system is not blocked, and the transmission is in first (1st) gear when starting out.

If the engine freely accelerates to high RPM in "NEUTRAL" (N), it can be assumed that the engine and exhaust system are normal. Checking for poor performance in "Drive" and "Reverse" will help determine if the stator is freewheeling at all times.

Condition B-Poor Acceleration High Speed

Engine RPM and car speed limited or restricted at high speeds. Performance when accelerating from a standstill is normal. Engine may over-heat. Visual examination of the converter may reveal a blue color from over-heating.

If the converter has been removed, the stator roller clutch can be checked by inserting two fingers into the splined inner race of the roller clutch and trying to turn the race in both directions. The inner race should turn freely clockwise, but not turn or be very difficult to turn counterclockwise.

Noise

Torque converter whine is usually noticed when the vehicle is stopped and the transmission is in "Drive" or "Reverse". The noise will increase when engine RPM is increased. The noise will stop when the vehicle is moving or when the torque converter clutch is applied because both halves of the converter are turning at the same speed.

Perform a stall test to make sure the noise is actually coming from the converter:

1. Place foot on brake.
2. Put gear selector in "Drive".
3. Depress accelerator to approximately 1200 RPM for no more than six seconds.

NOTICE: If the accelerator is depressed for more than six seconds, damage to the transmission may occur.

A torque converter noise will increase under this load.

Important

- This noise should not be confused with pump whine noise which is usually noticeable in "Park", "Neutral" and all other gear ranges. Pump whine will vary with pressure ranges.

The torque converter should be replaced under any of the following conditions:

- External leaks in the hub weld area.
- Converter hub is scored or damaged.
- Converter pilot is broken, damaged or fits poorly into crankshaft.
- Steel particles are found after flushing the cooler and cooler lines.
- Pump is damaged or steel particles are found in the converter.
- Vehicle has TCC shudder and/or no TCC apply. Replace only after all hydraulic and electrical diagnoses have been made. (Converter clutch material may be glazed.)
- Converter has an imbalance which cannot be corrected. (Refer to Converter Vibration Test Procedure.)
- Converter is contaminated with engine coolant containing antifreeze.
- Internal failure of stator roller clutch.
- Excess end play.
- Heavy clutch debris due to overheating (blue converter).
- Steel particles or clutch lining material found in fluid filter or on magnet when no internal parts in unit are worn or damaged – indicates that lining material came from converter.

The Torque Converter Should Not Be Replaced If:

- The oil has an odor, is discolored, and there is no evidence of metal or clutch facing particles.
- The threads in one or more of the converter bolt holes are damaged.
  - Correct with thread insert. (Refer to SECTION 6A.)
- Transmission failure did not display evidence of damage or worn internal parts, steel particles or clutch plate lining material in unit and inside the fluid filter.
- Vehicle has been exposed to high mileage (only). The exception may be where the torque converter clutch damper plate lining has seen excess wear by vehicles operated in heavy and/or constant traffic, such as taxi, delivery or police use.

TCC SHUDDER

The key to diagnosing Torque Converter Clutch (TCC) shudder is to note when it happens and under what conditions.

TCC Shudder should only occur during the APPLY and/or RELEASE of the converter clutch; SELDOM after the TCC plate is fully applied.

DTC 81
DRIVER IGNITION DIODE OPEN

WAS THE "SIR DIAGNOSTIC SYSTEM CHECK" PERFORMED?

YES

WHEN MEASUREMENTS ARE REQUESTED IN THIS CHART USE J 39200 DVM WITH CORRECT TERMINAL ADAPTER FROM J 35616-A. WHEN A CHECK FOR PROPER CONNECTION IS REQUESTED REFER TO "INTERMITTENTS AND POOR CONNECTIONS" IN SECTION 8A-4. WHEN A WIRE, CONNECTOR OR TERMINAL REPAIR IS REQUESTED USE J 38125-A TERMINAL REPAIR KIT AND REFER TO "WIRING REPAIR" IN THIS SECTION.

1
- IGNITION SWITCH "OFF."
- DISCONNECT DRIVER AND PASSENGER INFLATOR MODULES, YELLOW 2-WAY CONNECTORS LOCATED NEAR THE BASE OF THE STEERING COLUMN AND BEHIND THE I/P COMPARTMENT DOOR ASSEMBLY.
- DISCONNECT DUAL POLE ARMING SENSOR.
- MEASURE RESISTANCE ON DUAL POLE ARMING SENSOR HARNESS CONNECTOR FROM TERMINAL "D" TO TERMINAL "C". DOES J 39200 DISPLAY "OL" (INFINITE)?

YES

2
- MEASURE RESISTANCE ON DUAL POLE ARMING SENSOR HARNESS CONNECTOR FROM TERMINAL "D" TO TERMINAL "B". DOES J 39200 DISPLAY "OL" (INFINITE)?

YES

3
- RECONNECT DUAL POLE ARMING SENSOR.
- DISCONNECT DERM.
- IGNITION SWITCH "ON."
- MEASURE VOLTAGE FROM DERM HARNESS CONNECTOR TERMINAL "A5" TO TERMINAL "A1" (GROUND). IS VOLTAGE 1 VOLT OR LESS?

NO

- IGNITION SWITCH "OFF."
- GO TO CHART A.

YES

- IGNITION SWITCH "OFF."
- REPLACE DUAL POLE ARMING SENSOR.

NO

GO TO THE "SIR DIAGNOSTIC SYSTEM CHECK."

NO

REPAIR SHORT FROM CKT 1400 TO CKT 1401.

NO

REPAIR SHORT FROM CKT 1400 TO CKT 236.

- RECONNECT ALL SIR SYSTEM COMPONENTS, ENSURE ALL COMPONENTS ARE PROPERLY MOUNTED.
- CLEAR SIR DIAGNOSTIC TROUBLE CODES.
- REPEAT "SIR DIAGNOSTIC SYSTEM CHECK."

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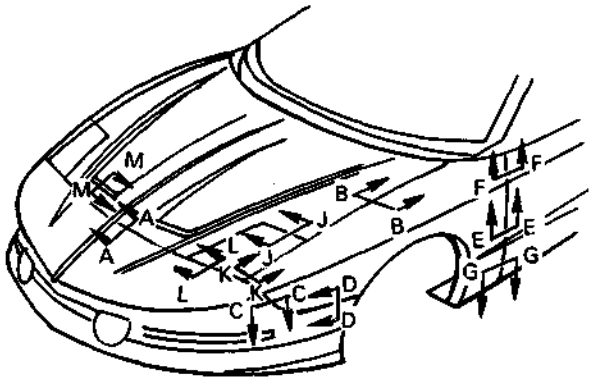
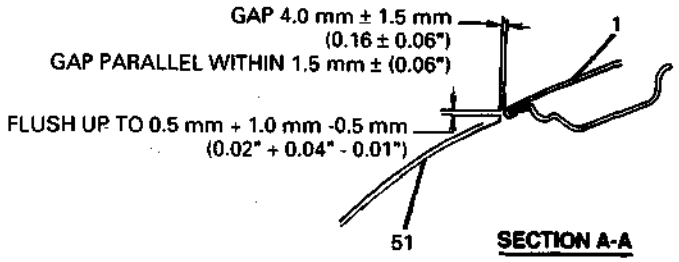
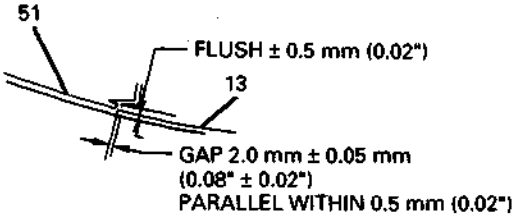




SECTION A-A



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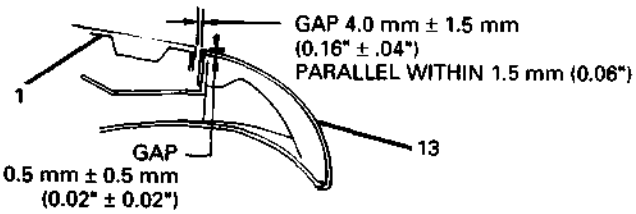

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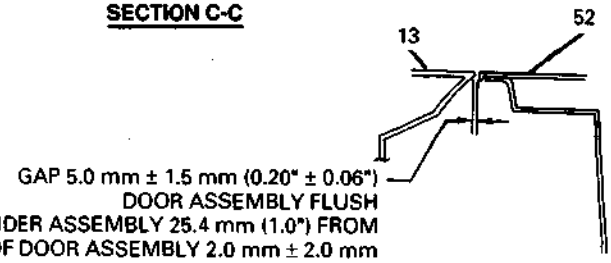

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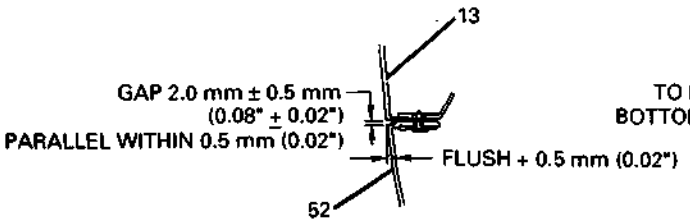

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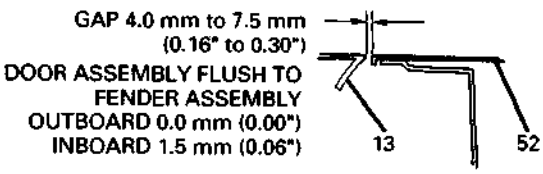
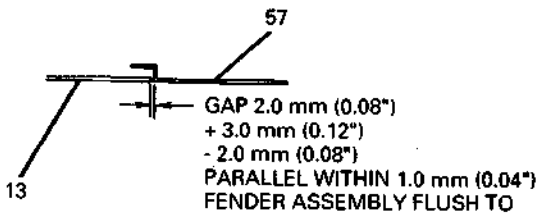
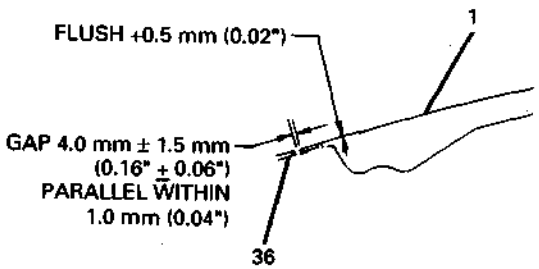


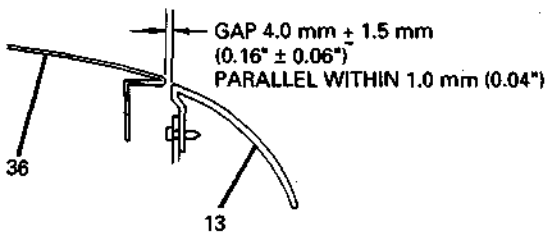
SECTION F-F



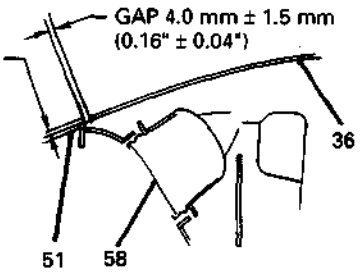
SECTION G-G



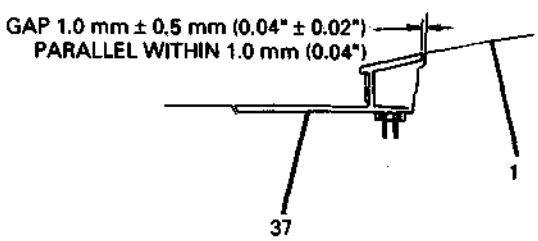
SECTION J-J



SECTION K-K



SECTION L-L



SECTION M-M

1 PANEL ASSEMBLY, HOOD
13 FENDER ASSEMBLY, FRONT
36 DOOR, HEADLAMP OPENING
37 EXTRACTOR, HOOD AIR
51 FASCIA, FRONT BUMPER
52 DOOR ASSEMBLY, FRONT SIDE
57 PANEL ASSEMBLY, ROCKER
58 HEADLAMP ASSEMBLY

PC2014-105 F-RP

Figure 37 – Front End Body Panel Alignment Specifications – (Pontiac)

GENERAL DESCRIPTION

This section contains the service operations necessary for the removal, installation, adjustment and sealing of door assemblies, hardware and trim (Figures 1 through 6).

THREAD LOCKING FASTENERS

All factory installed door hardware attaching bolts/screws contain an epoxy thread-locking compound to ensure the torque will be maintained.

Service replacement bolts/screws may not contain a thread-locking compound. Such bolts/screws may be treated with GM P/N 1052279, Loctite® 75, or equivalent. The adhesive is placed on the fastener prior to installation. After the fastener is installed and tightened, the adhesive will cure, preventing the fastener from becoming loose.

FRONT SIDE DOOR WATER DEFLECTORS

Water deflectors are used to seal the door inner panels, preventing water entry.

FRONT SIDE DOOR LOCK STRIKER ASSEMBLIES

Each lock striker assembly is a dual-pin type that attaches to an anchor plate in the body lock pillar. The door assembly is held in the closed position when the lock assembly snaps over and engages the striker assembly.

An interlock striker assembly is also installed to the body lock pillar. It engages into a slot in the door assembly.

FRONT SIDE DOOR LOCK ASSEMBLIES

The lock assemblies use the fork bolt lock design which includes a safety interlock feature. The door assembly is secured in the closed position when the fork bolt engages the striker assembly. Door assemblies can be locked from the inside by moving the knob rearward and from the outside using the oval-headed key.

FRONT SIDE DOOR OUTSIDE HANDLE ASSEMBLIES

The outside handle assemblies actuate the lock assemblies through rods.

EXPRESS DOWN

Express Down fully lowers the driver's front side door window when the side window switch is pressed quickly and released.

FRONT SIDE DOOR UPPER AND LOWER HINGE ASSEMBLIES

The hinge assemblies are steel and are fastened with bolts/screws and nuts. The hinge assemblies are directly accessible.

OUTSIDE REARVIEW MIRROR ASSEMBLIES

The left-hand mirror assembly is remote control and the right-hand mirror assembly is direct control. Electric control is optional.

ON-VEHICLE SERVICE

FRONT SIDE DOOR INTERIOR TRIM

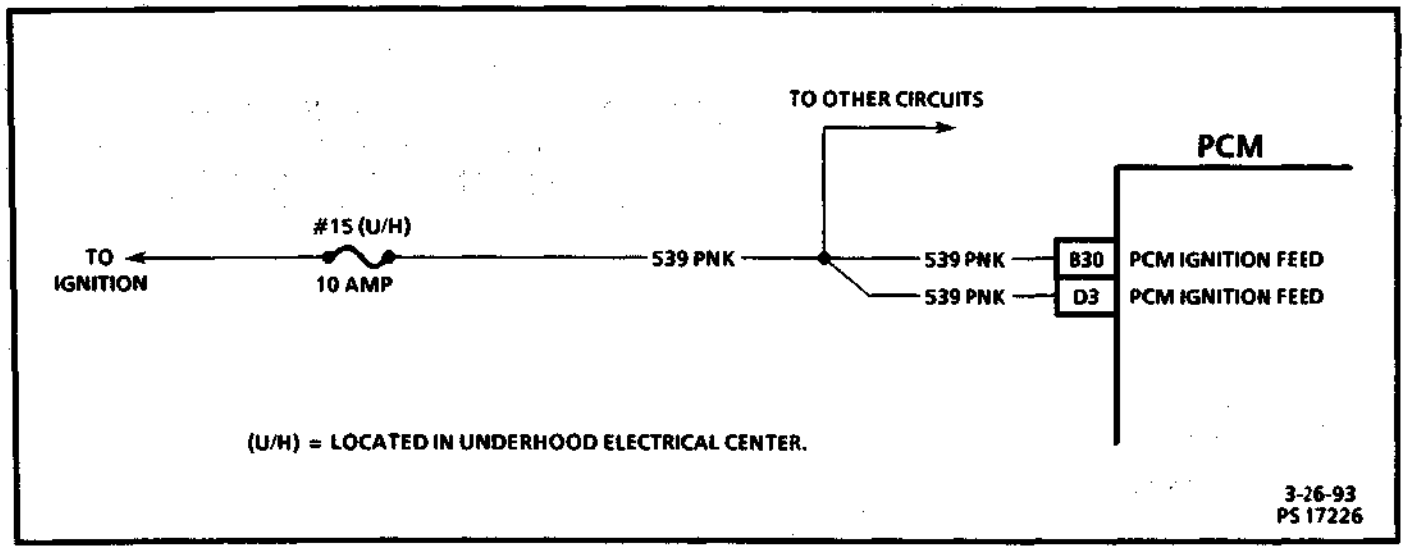
Front Side Door Right and Left Trim Assemblies

Figures 7 and 8

Remove or Disconnect

1. Accessory switch panel assembly or accessory switch opening cover assembly, as equipped. Refer to "Accessory Switch Panel Assembly and Accessory Switch Opening Cover Assembly" in this section (Pontiac only).
2. Front side door inside handle bezel. Refer to "Front Side Door Inside Handle Bezel" in this section.
3. Front side door window regulator handle assembly and front side door window regulator handle spacer. Refer to "Front Side Door Window Regulator Handle Assembly" in this section.
4. Outside rearview mirror bezel assembly. Refer to "Outside Rearview Mirror Assembly" in this section.
5. Bolts/screws (90 or 202).

   NOTICE: Do not try to pull trim assembly straight off door assembly, or hooks in trim assembly will break. To disengage hooks, trim assembly must be lifted up and then pulled away from door assembly.



DTC 96

TRANSMISSION SYSTEM VOLTAGE LOW
3.4L (VIN S) "F" CARLINE (SFI)

Circuit Description:
CKT 539 is the ignition feed for the PCM.

DTC 96 Will Set When: The ignition is "ON" and PCM terminals "B30" and "D3" voltage is less than the graduated scale of: -40°C (-40°F) = 7.3 volts, 90°C (194°F) = 10.3 volts, or 150°C (304°F) = 11.7 volts, with engine speed greater than 1000 RPM for 4 seconds.

Action Taken (PCM will default to): During the time the failure is present, the pressure control solenoid is turned "OFF" (maximum line pressure), there is a soft landing to third gear, and TCC operation is inhibited. (The setting of additional diagnostic trouble codes may result.) DTC 96 will be stored in the PCM memory but will not turn "ON" the Malfunction Indicator Lamp (MIL).

DTC 96 Will Clear When: The fault condition(s) no longer exist.

DTC Chart Test Description: Number(s) below refer to circled number(s) on the diagnostic chart.

1. This test checks for normal battery voltage between 9-15 volts.
2. This test checks if the low voltage display is due to the generator, B+ voltage supply CKT(s), or PCM. If the voltage is less than 9 volts, the PCM is OK.

Diagnostic Aids: If diagnostic trouble code sets when an accessory is operated, check for poor connections or excessive current draw. Refer to SECTION 8A of appropriate service manual for circuit details. Also, check for poor connections at starter solenoid or fusible link.

INSTRUMENT CLUSTER: WITH GAGES

CHART #7
OIL PRESSURE GAGE ALWAYS INDICATES HIGH PRESSURE

IMPORTANT:
- CHECK FOR PROPER OIL LEVEL, THEN CHECK OIL PRESSURE WITH A MECHANICAL GAGE BEFORE PROCEEDING. IF NOT OK, REFER TO SECTION 6A.

- IGNITION "ON" – ENGINE "OFF."
- DISCONNECT OIL PRESSURE SENSOR CONNECTOR.
- CONNECT A JUMPER BETWEEN TERM "A" OF CONNECTOR AND GROUND.
  DOES GAGE MOVE BACK TO THE LEFT (LO PRESSURE)?

YES
- CHECK FOR POOR CONNECTION.
  IF OK, REPLACE OIL PRESSURE SENSOR.

NO
- CHECK FOR A POOR CONNECTION OR OPEN IN CKT 31.
  IF OK, REPAIR/REPLACE INSTRUMENT CLUSTER.

CHART #8
OIL PRESSURE GAGE ALWAYS INDICATES LOW PRESSURE

IMPORTANT:
- CHECK FOR PROPER OIL LEVEL, THEN CHECK OIL PRESSURE WITH A MECHANICAL GAGE BEFORE PROCEEDING. IF NOT OK, REFER TO SECTION 6A.

- IGNITION "ON" – ENGINE "OFF."
- DISCONNECT OIL PRESSURE SENSOR CONNECTOR.
  DOES OIL PRESSURE GAGE MOVE ALL THE WAY TO THE RIGHT (HIGH PRESSURE)?

YES
REPLACE OIL PRESSURE SENSOR.

NO
- CHECK FOR SHORT TO GROUND IN CKT 31.
  IF OK, REPAIR/REPLACE THE INSTRUMENT CLUSTER.

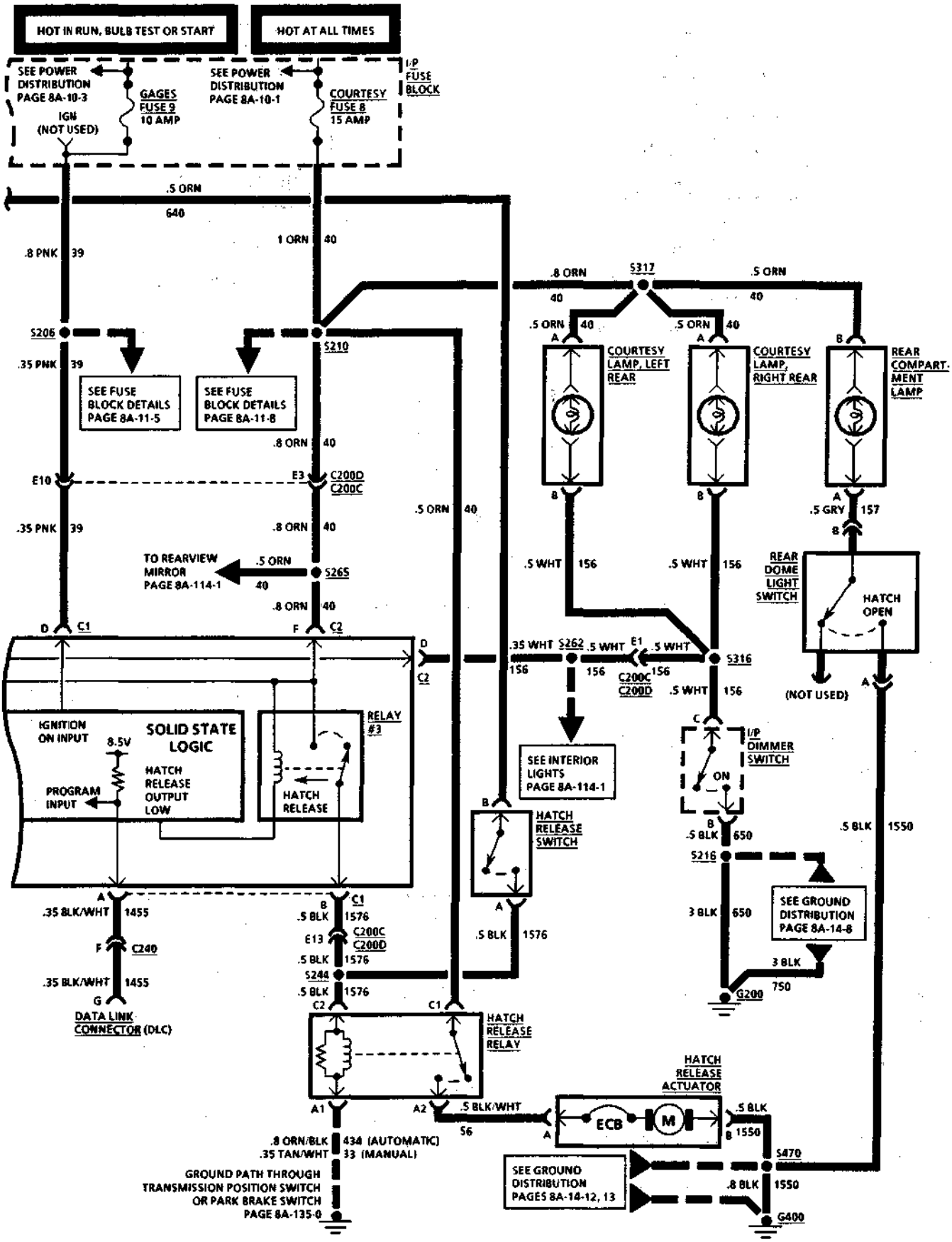
CHART #9
OIL PRESSURE GAGE APPEARS INACCURATE

IMPORTANT:
- CHECK FOR PROPER OIL LEVEL, THEN CHECK OIL PRESSURE WITH A MECHANICAL GAGE BEFORE PROCEEDING. IF NOT OK, REFER TO SECTION 6A.

- IGNITION "ON" – ENGINE "OFF."
- DISCONNECT OIL PRESSURE SENSOR CONNECTOR.
- USING I/P TESTER J 33431 OR EQUIVALENT, CONNECT ONE RED CLIP LEAD TO THE SENSOR CONNECTOR TERM "A" AND CONNECT THE OTHER RED CONNECTOR TO GROUND.
- SET THE RESISTANCE DIALS ON THE TESTER TO 0 OHMS, 40 OHMS AND 100 OHMS.
- THE OIL PRESSURE GAGE SHOULD GO FROM LO PRESSURE TO APPROXIMATELY 30 psi, AND THEN TO HIGH PRESSURE.
  DOES IT?

YES
REPLACE OIL PRESSURE SENSOR.

NO
- CHECK CKT 31 FOR POOR OR CORRODED CONNECTIONS.
  IF OK, REPAIR/REPLACE INSTRUMENT CLUSTER.


HOT IN RUN, BULB TEST OR START
HOT AT ALL TIMES
SEE POWER DISTRIBUTION PAGE 8A-10-3
IGN (NOT USED)
GAGES FUSE 9 10 AMP
SEE POWER DISTRIBUTION PAGE 8A-10-1
COURTESY FUSE 8 15 AMP
I/P FUSE BLOCK
.5 ORN 640
.8 PNK 39
1 ORN 40
S206
S210
.35 PNK 39
SEE FUSE BLOCK DETAILS PAGE 8A-11-5
SEE FUSE BLOCK DETAILS PAGE 8A-11-8
.8 ORN 40
E10
E3
C200D C200C
.35 PNK 39
.8 ORN 40
.5 ORN 40
TO REARVIEW MIRROR PAGE 8A-114-1
.5 ORN 40
S265
.8 ORN 40
D C1
F C2
IGNITION ON INPUT
8.5V
SOLID STATE LOGIC
PROGRAM INPUT
HATCH RELEASE OUTPUT LOW
HATCH RELEASE
RELAY #3
A .35 BLK/WHT 1455
F C240
.35 BLK/WHT 1455
G
DATA LINK CONNECTOR (DLC)
B .5 BLK 1576
E13 C200C C200D
.5 BLK 1576
S244
.5 BLK 1576
C2 C1
HATCH RELEASE RELAY
A1
A2 .5 BLK/WHT 56
.8 ORN/BLK 434 (AUTOMATIC)
.35 TAN/WHT 33 (MANUAL)
GROUND PATH THROUGH TRANSMISSION POSITION SWITCH OR PARK BRAKE SWITCH PAGE 8A-135-0
.8 ORN 40
S317
.5 ORN 40
.5 ORN 40
.5 ORN 40
A COURTESY LAMP, LEFT REAR
A COURTESY LAMP, RIGHT REAR
B REAR COMPART-MENT LAMP
B .5 WHT 156
B .5 WHT 156
A .5 GRY 157
REAR DOME LIGHT SWITCH
HATCH OPEN
(NOT USED)
.35 WHT S262 156
.5 WHT 156
E1 C200C C200D
.5 WHT 156
S316
.5 WHT 156
C I/P DIMMER SWITCH
ON
B .5 BLK 650
S216
3 BLK 650
G200
SEE GROUND DISTRIBUTION PAGE 8A-14-8
3 BLK 750
.5 BLK 1550
SEE INTERIOR LIGHTS PAGE 8A-114-1
B HATCH RELEASE SWITCH
A .5 BLK 1576
HATCH RELEASE ACTUATOR
A ECB M B
.5 BLK 1550
S470
.8 BLK 1550
G400
SEE GROUND DISTRIBUTION PAGES 8A-14-12, 13