LUBRICATION AND MAINTENANCE

CONTENTS

GENERAL INFORMATION

INDEX

GENERAL INFORMATION

INTRODUCTION

Service and maintenance procedures for components and systems listed in Schedule—A or B can be found by using the Group Tab Locator index at the front of this manual. If it is not clear which group contains the information needed, refer to the index at the back of this manual.

There are two maintenance schedules that show proper service based on the conditions that the vehicle is subjected to.

Schedule— **A** , lists scheduled maintenance to be performed when the vehicle is used for general transportation.

Schedule— **B** , lists maintenance intervals for vehicles that are operated under the conditions listed at the beginning of the Maintenance Schedule section.

Use the schedule that best describes your driving conditions.

Where time and mileage are listed, follow the interval that occurs first.

PARTS AND LUBRICANT RECOMMENDATIONS

When service is required, Chrysler Corporation recommends that only Mopar® brand parts, lubricants and chemicals be used. Mopar provides the best engineered products for servicing Chrysler Corporation vehicles.

INTERNATIONAL SYMBOLS

Chrysler Corporation uses international symbols to identify engine compartment lubricant and fluid inspection and fill locations (Fig. 1).

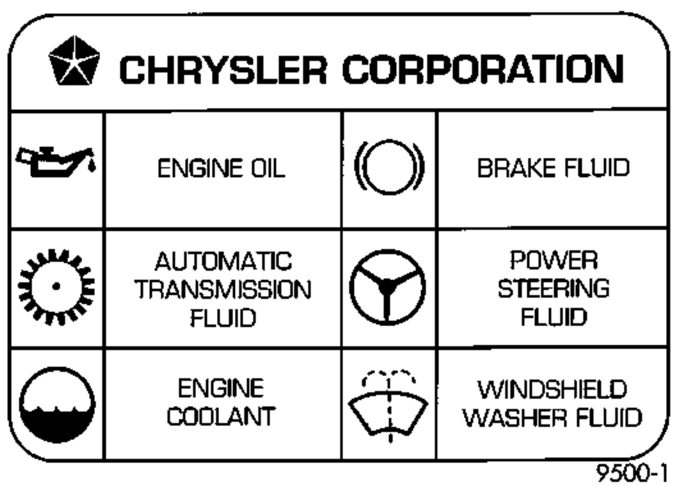

Fig. 1 International Symbols

JUMP STARTING, TOWING AND HOISTING

INDEX

SERVICE PROCEDURES

JUMP STARTING PROCEDURE

WARNING: REVIEW ALL SAFETY PRECAUTIONS AND WARNINGS IN GROUP 8A, BATTERY/STARTING/CHARGING SYSTEMS DIAGNOSTICS. DO NOT JUMP START A FROZEN BATTERY, PERSONAL INJURY CAN RESULT. DO NOT JUMP START WHEN MAINTENANCE FREE BATTERY INDICATOR DOT IS YELLOW OR BRIGHT COLOR. DO NOT JUMP START A VEHICLE WHEN THE BATTERY FLUID IS BELOW THE TOP OF LEAD PLATES. DO NOT ALLOW JUMPER CABLE CLAMPS TO TOUCH EACH OTHER WHEN CONNECTED TO A BOOSTER SOURCE. DO NOT USE OPEN FLAME NEAR BATTERY. REMOVE METALLIC JEWELRY WORN ON HANDS OR WRISTS TO AVOID INJURY BY ACCIDENTAL ARCING OF BATTERY CURRENT. WHEN USING A HIGH OUTPUT BOOSTING DEVICE, DO NOT ALLOW BATTERY VOLTAGE TO EXCEED 16 VOLTS. REFER TO INSTRUCTIONS PROVIDED WITH DEVICE BEING USED.

CAUTION: When using another vehicle as a booster, do not allow vehicles to touch. Electrical systems can be damaged on either vehicle.

TO JUMP START A DISABLED VEHICLE:

(1) Raise hood on disabled vehicle and visually inspect engine compartment for:

- Battery cable clamp condition, clean if necessary.
- Frozen battery.
- Yellow or bright color test indicator, if equipped.
- Low battery fluid level.
- Generator drive belt condition and tension.
- Fuel fumes or leakage, correct if necessary.

CAUTION: If the cause of starting problem on disabled vehicle is severe, damage to booster vehicle charging system can result.

(2) When using another vehicle as a booster source, park the booster vehicle within cable reach. Turn off all accessories, set the parking brake, place the automatic transmission in PARK or the manual transmission in NEUTRAL and turn the ignition OFF.

(3) On disabled vehicle, place gear selector in park or neutral and set park brake. Turn off all accessories.

(4) Connect jumper cables to booster battery. RED clamp to positive terminal (+). BLACK clamp to negative terminal (-). DO NOT allow clamps at opposite end of cables to touch, electrical arc will result. Review all warnings in this procedure.

(5) On disabled vehicle, connect RED jumper cable clamp to positive (+) terminal. Connect BLACK jumper cable clamp to engine ground as close to the ground cable attaching point as possible (Fig. 1).

(6) Start the engine in the vehicle which has the booster battery, let the engine idle a few minutes, then start the engine in the vehicle with the discharged battery.

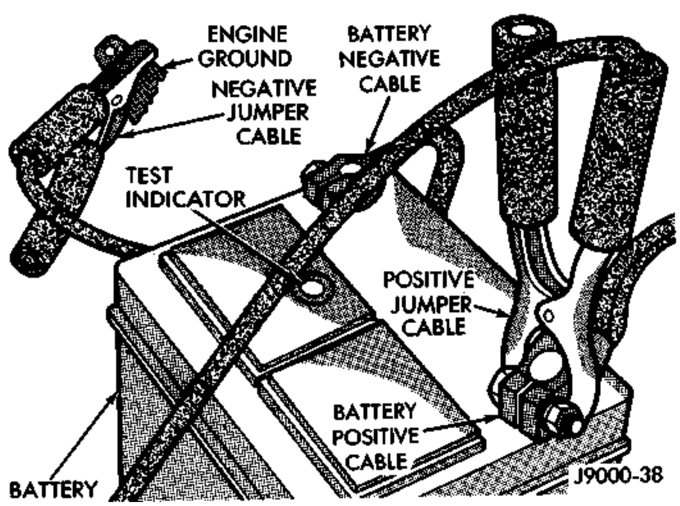

Fig. 1 Jumper Cable Clamp Connections

CAUTION: Do not crank starter motor on disabled vehicle for more than 15 seconds, starter will overheat and could fail.

(7) Allow battery in disabled vehicle to charge to at least 12.4 volts (75% charge) before attempting to start engine. If engine does not start within 15 seconds, stop cranking engine and allow starter to cool (15 min.), before cranking again.

DIAGNOSIS AND TESTING (Continued)

(4) Lift dust boot and inspect strut assembly for evidence of fluid running from the upper end of fluid reservoir. (Actual leakage will be a stream of fluid running down the side and dripping off lower end of unit). A slight amount of seepage between the strut rod and strut shaft seal is not unusual and does not affect performance of the strut assembly (Fig. 3). Also inspect jounce bumpers for signs of damage or deterioration.

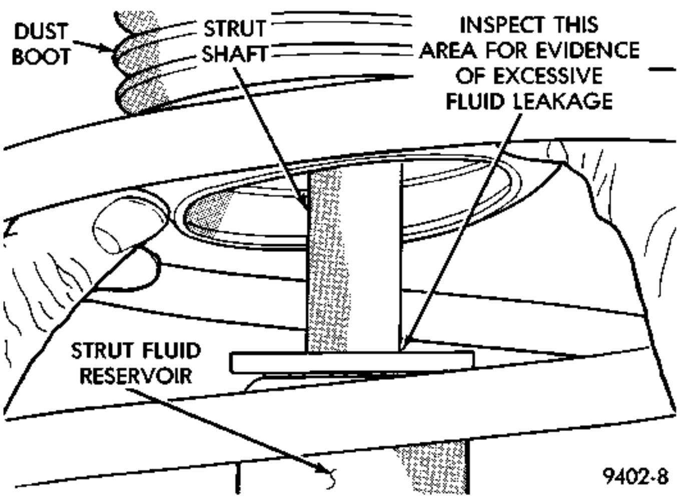

Fig. 3 Strut Assembly Leakage Inspection

SUSPENSION KNUCKLE

The rear suspension knuckle is not a repairable component of the rear suspension. If it is determined that the knuckle is broken or bent when servicing the vehicle, no attempt is to be made to repair or to straighten the knuckle. **THE KNUCKLE MUST BE REPLACED IF FOUND TO BE DAMAGED IN ANY WAY.**

LATERAL LINKS

Inspect the lateral link isolator bushings and sleeves for signs of damage or deterioration. If the lateral link isolator bushings or sleeves are damaged or are deteriorated, replacement of the lateral link assembly will be required. The isolator bushings are not serviceable as a separate component of the lateral link assembly.

Inspect the lateral links for signs of contact with the ground or road debris which has bent or caused other damage to the lateral link assembly. If the lateral link is bent or damaged, the lateral link will require replacement. **Do not attempt to repair or straighten a lateral link.**

TENSION STRUT

Inspect the tension strut bushings and retainers for signs of deterioration or damage. If the tension strut bushings are deteriorated or the retainers are damaged, replacement of the tension strut bushings and or the retainers will be required. The bushings and retainers are serviceable as separate components of the tension strut.

Inspect the tension strut for signs of contact with the ground or road debris which has bent or caused other damage to the tension strut. If the tension strut is bent or damaged the tension strut will require replacement. **Do not attempt to repair or straighten a tension strut.**

STABILIZER BAR AND BUSHINGS

Inspect the stabilizer bar for damage or bending. Inspect for broken or distorted stabilizer bar bushings, bushing retainers, and worn or damaged stabilizer bar to strut attaching links. If stabiizer bar to rear frame rail bushing replacement is required, bushings can be removed from sway bar by opening slit and peeling bushing off sway bar.

STABILIZER BAR ATTACHING LINKS

Inspect the bushings and sleeves in the stabilizer bar attaching links for damage or deterioration. Inspect the stabilizer bar attaching link to ensure it is not bent or broken. If any of these conditions are present when inspecting the attaching links, replacement of the attaching link is required.

SERVICE PROCEDURES

REAR WHEEL ALIGNMENT

Refer to Front And Rear Wheel Toe Setting Procedures in the Wheel Alignment Check And Adjustment section in this group of the service manual for the required rear wheel Toe setting procedure.

REMOVAL AND INSTALLATION

STRUT ASSEMBLY

REMOVE

(1) Raise vehicle on jackstands or centered on a frame contact type hoist. See Hoisting in the Lubrication and Maintenance section of this manual, for the required lifting procedure to be used for this vehicle.

(2) Remove the rear wheel and tire assembly from the vehicle.

(3) Remove hydraulic flex hose bracket, from bracket on rear strut assembly (Fig. 4). If vehicle is equipped with Anti-Lock brakes, the wheel speed sensor cable routing clip is also attached to the strut assembly bracket.

(4) Support rear knuckle, suspension and brake components of vehicle before removing clevis bracket to knuckle attaching bolts. **Do not let weight of**

DESCRIPTION AND OPERATION (Continued)

ABS OPERATION AND VEHICLE PERFORMANCE

This ABS System represents the current state-of-the-art in vehicle braking systems and offers the driver increased safety and control during braking. This is accomplished by a sophisticated system of electrical and hydraulic components. As a result, there are a few performance characteristics that may at first seem different but should be considered normal. These characteristics are discussed below.

NORMAL BRAKING SYSTEM FUNCTION

Under normal braking conditions, the ABS System functions the same as a standard brake system with a diagonally split master cylinder and conventional vacuum assist.

ABS SYSTEM OPERATION

If a wheel locking tendency is detected during a brake application, the brake system will enter the ABS mode. During ABS braking, hydraulic pressure in the four wheel circuits is modulated to prevent any wheel from locking. Each wheel circuit is designed with a set of electric solenoids to allow modulation, although for vehicle stability, both rear wheel solenoids receive the same electrical signal.

During an ABS stop, the brakes hydraulic system is still a diagonally split. However, the brake system pressure is further split into three control channels. During antilock operation of the vehicle brake system, the front wheels are controlled independently and are on two separate control channels. The rear wheels of the vehicle however, are controlled together through one control channel.

The system can build and release pressure at each wheel, depending on signals generated by the wheel speed sensors (WSS) at each wheel and received at the Controller Antilock Brake (CAB).

ABS operation is available at all vehicle speeds above 3 to 5 mph. Wheel lockup may be perceived at the very end of an ABS stop and is considered normal.

VEHICLE HANDLING PERFORMANCE DURING ABS BRAKING

It is important to remember that an antilock brake system does not shorten a vehicle's stopping distance under all driving conditions, but does provide improved control of the vehicle while stopping. Vehicle stopping distance is still dependent on vehicle speed, weight, tires, road surfaces and other factors.

Though ABS provides the driver with some steering control during hard braking, there are conditions however, where the system does not provide any benefit. In particular, hydroplaning is still possible when the tires ride on a film of water. This results in the vehicles tires leaving the road surface rendering the vehicle virtually uncontrollable. In addition, extreme steering maneuvers at high speed or high speed cornering beyond the limits of tire adhesion to the road surface may cause vehicle skidding, independent of vehicle braking. For this reason, the ABS system is termed Antilock instead of Anti-Skid.

NOISE AND BRAKE PEDAL FEEL

During ABS braking, some brake pedal movement may be felt. In addition, ABS braking will create ticking, popping and/or groaning noises heard by the driver. This is normal due to pressurized fluid being transferred between the master cylinder and the brakes. If ABS operation occurs during hard braking, some pulsation may be felt in the vehicle body due to fore and aft movement of the suspension as brake pressures are modulated.

At the end of an ABS stop, ABS will be turned off when the vehicle is slowed to a speed of 3–4 mph. There may be a slight brake pedal drop anytime that the ABS is deactivated, such as at the end of the stop when the vehicle speed is less then 3 mph or during an ABS stop where ABS is no longer required. These conditions will exist when a vehicle is being stopped on a road surface with patches of ice, loose gravel or sand on it. Also stopping a vehicle on a bumpy road surface may activate the ABS because of the wheel hop caused by the bumps.

TIRE NOISE AND MARKS

Although the ABS system prevents complete wheel lock-up, some wheel slip is desired in order to achieve optimum braking performance. Wheel slip is defined as follows, 0 percent slip means the wheel is rolling freely and 100 percent slip means the wheel is fully locked. During brake pressure modulation, wheel slip is allowed to reach up to 25 to30%. This means that the wheel rolling velocity is 25 to 30% less than that of a free rolling wheel at a given vehicle speed. This slip may result in some tire chirping, depending on the road surface. This sound should not be interpreted as total wheel lock-up.

Complete wheel lock up normally leaves black tire marks on dry pavement. The ABS System will not leave dark black tire marks since the wheel never reaches a fully locked condition. Tire marks may however be noticeable as light patched marks.

ABS COMPONENTS

The following is a detailed description of the Allied Signal ABX-4 ABS brake system components. For information on servicing the base brake system components, see the Base Brake section of this Service Manual.

DESCRIPTION AND OPERATION (Continued)

#1 cable must be routed under the PCV hose and clipped to the #2 cable.

ELECTRONIC IGNITION COILS

WARNING: THE DIRECT IGNITION SYSTEM GENERATES APPROXIMATELY 40,000 VOLTS. PERSONAL INJURY COULD RESULT FROM CONTACT WITH THIS SYSTEM.

The coil pack consists of 2 coils molded together. The coil pack is mounted on the valve cover (Fig. 3) or (Fig. 4). High tension leads route to each cylinder from the coil. The coil fires two spark plugs every power stroke. One plug is the cylinder under compression, the other cylinder fires on the exhaust stroke. Coil number one fires cylinders 1 and 4. Coil number two fires cylinders 2 and 3. The PCM determines which of the coils to charge and fire at the correct time.

The Auto Shutdown (ASD) relay provides battery voltage to the ignition coil. The PCM provides a ground contact (circuit) for energizing the coil. When the PCM breaks the contact, the energy in the coil primary transfers to the secondary causing the spark. The PCM will de-energize the ASD relay if it does not receive the crankshaft position sensor and camshaft position sensor inputs. Refer to Auto Shutdown (ASD) Relay—PCM Output, in this section for relay operation.

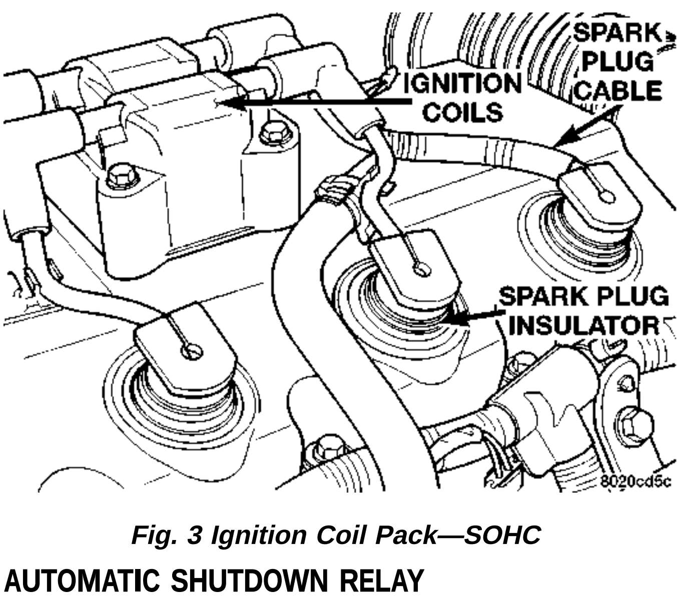

Fig. 3 Ignition Coil Pack—SOHC

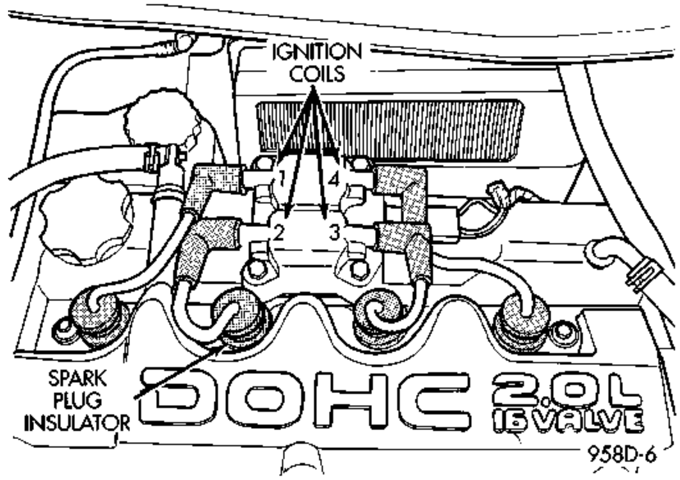

Fig. 4 Ignition Coil Pack—DOHC

AUTOMATIC SHUTDOWN RELAY

The Automatic Shutdown (ASD) relay supplies battery voltage to the fuel injectors, electronic ignition coil and the heating elements in the oxygen sensors.

A buss bar in the Power Distribution Center (PDC) supplies voltage to the solenoid side and contact side of the relay. The ASD relay power circuit contains a 20 amp fuse between the buss bar in the PDC and the relay. The fuse also protects the power circuit for the fuel pump relay and pump. The fuse is located in the PDC. Refer to Group 8W, Wiring Diagrams for circuit information.

The PCM controls the ASD relay by switching the ground path for the solenoid side of the relay on and off. The PCM turns the ground path off when the ignition switch is in the Off position. When the ignition switch is in On or Start, the PCM monitors the crankshaft and camshaft position sensor signals to determine engine speed and ignition timing (coil dwell). If the PCM does not receive crankshaft and camshaft position sensor signals when the ignition switch is in the Run position, it will de-energize the ASD relay.

The ASD relay is located in the PDC (Fig. 5). The inside top of the PDC cover has label showing relay and fuse identification.

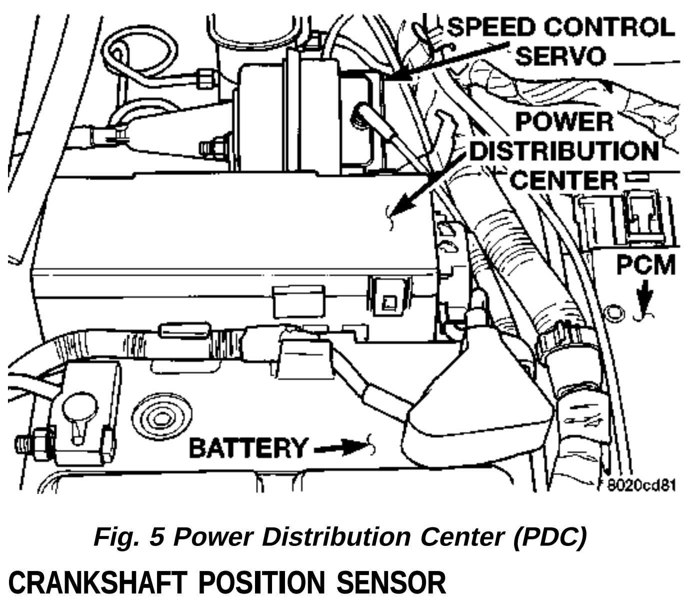

Fig. 5 Power Distribution Center (PDC)

CRANKSHAFT POSITION SENSOR

The PCM determines what cylinder to fire from the crankshaft position sensor input and the camshaft position sensor input. The second crankshaft counter-

DIAGNOSIS AND TESTING (Continued)

(3) Disconnect wire connector.

(4) Using two jumper wires, one connected to a 12 volt source, and 2 the other connected to a good body ground. Refer to the Mirror Test (Fig. 5) for appropriate mirror response. RHD vehicle with Power Fold Away Mirror refer to (Fig. 6)

(5) If test results are not obtained as shown in the (Fig. 5), check for open or shorted circuit (Fig. 7), or replace mirror assembly as necessary.

MIRROR TEST			
MIRROR SWITCH CONNECTOR			
		Mirror Reaction	
12 volt	Ground	Left	Right
PIN 4	PIN 5		UP
PIN 8	PIN 5	UP	
PIN 5	PIN 4		DOWN
PIN 5	PIN 8	DOWN	
PIN 6	PIN 3		RIGHT
PIN 6	PIN 7	RIGHT	
PIN 3	PIN 6		LEFT
PIN 7	PIN 6	LEFT	
DOOR CONNECTOR			
PIN 3	PIN 1	UP	
PIN 1	PIN 3	DOWN	
PIN 6	PIN 4	RIGHT	
PIN 4	PIN 6	LEFT	

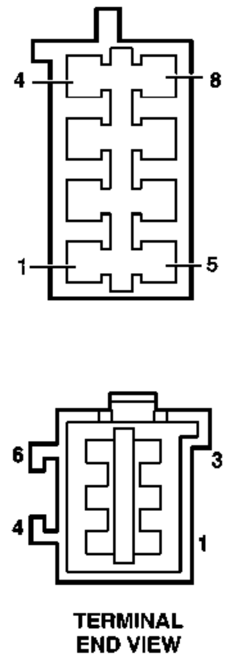

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Fig. 5 Mirror Test

MIRROR TEST			
MIRROR SWITCH AND RELAY CONNECTORS			
12 volts	Ground	Mirror Reaction	
Mirror Relay Removed		Left	Right
PIN A-4	PIN C-8		UP
PIN A-8	PIN C-8	UP	
PIN C-8	PIN A-4		DOWN
PIN C-8	PIN A-8	DOWN	
PIN A-6	PIN A-3		RIGHT
PIN A-6	PIN A-7	RIGHT	
PIN A-3	PIN A-6		LEFT
PIN A-7	PIN A-6	LEFT	
PIN C-8	PIN B-1	RETRACT (IN)	RETRACT (IN)
PIN B-1	PIN C-8	EXTEND (OUT)	EXTEND (OUT)
MIRROR RELAY INSTALLED			
PIN A-4	—		UP
PIN A-8	—	UP	
PIN A-5	PIN A-4		DOWN
PIN A-5	PIN A-8	DOWN	
PIN A-6	PIN A-3		RIGHT
PIN A-6	PIN A-7	RIGHT	
PIN A-3	PIN A-6		LEFT
PIN A-7	PIN A-6	LEFT	
PIN A-5	PIN B-1	RETRACT (IN)	RETRACT (IN)
PIN B-1	—	EXTEND (OUT)	EXTEND (OUT)
MIRROR CONNECTOR IN LEFT OR RIGHT DOOR			
PIN D-3	PIN D-1	UP	
PIN D-1	PIN D-3	DOWN	
PIN D-6	PIN D-4	RIGHT	
PIN D-4	PIN D-6	LEFT	
PIN D-5	PIN D-1	EXTEND (OUT)	
PIN D-1	PIN D-5	RETRACT (IN)	

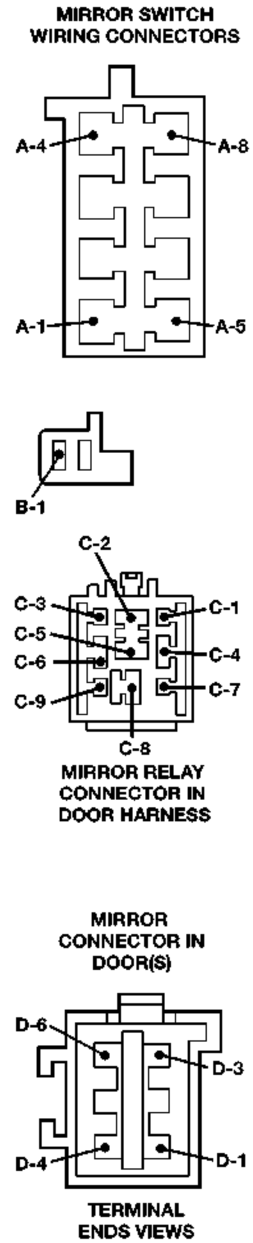

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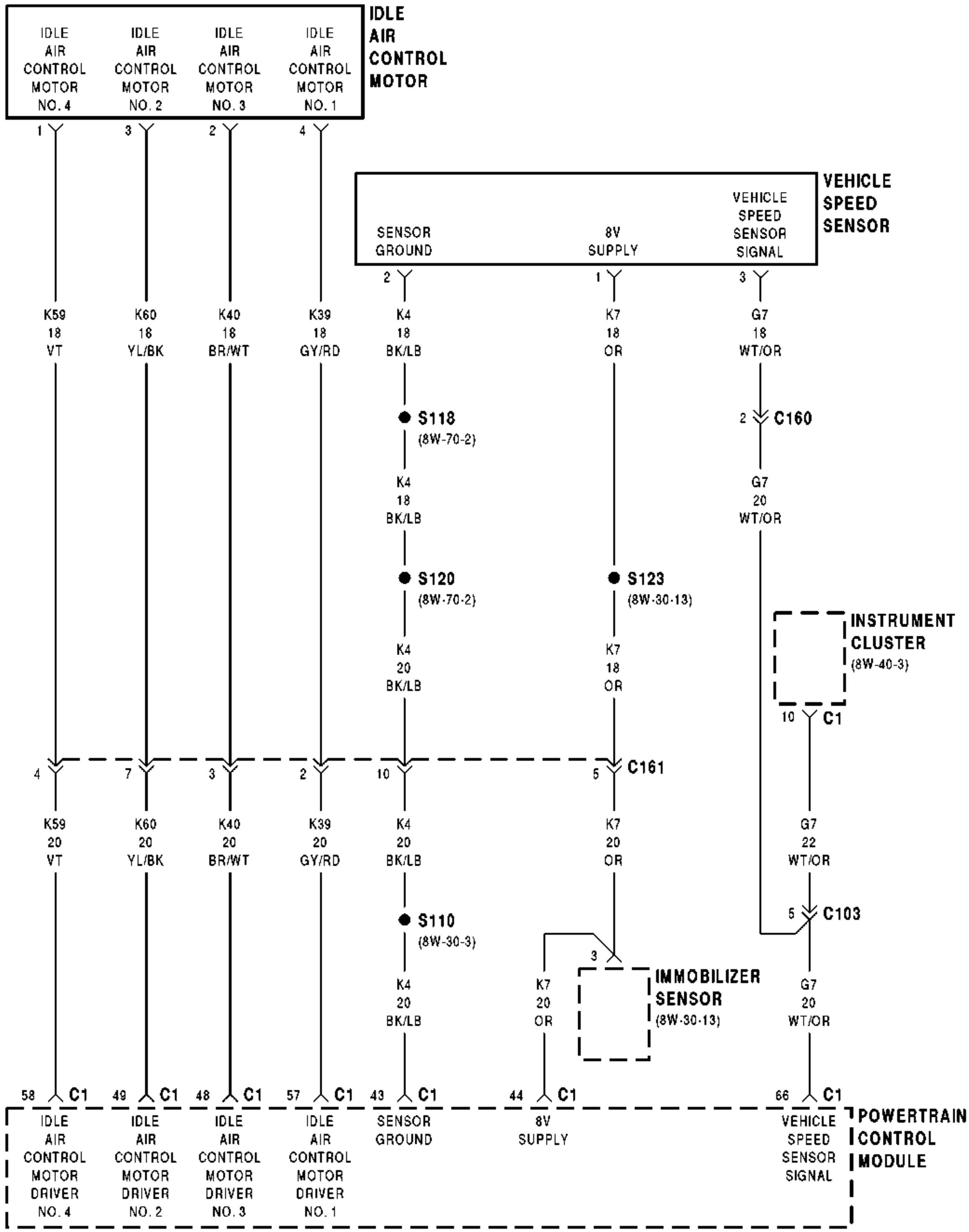
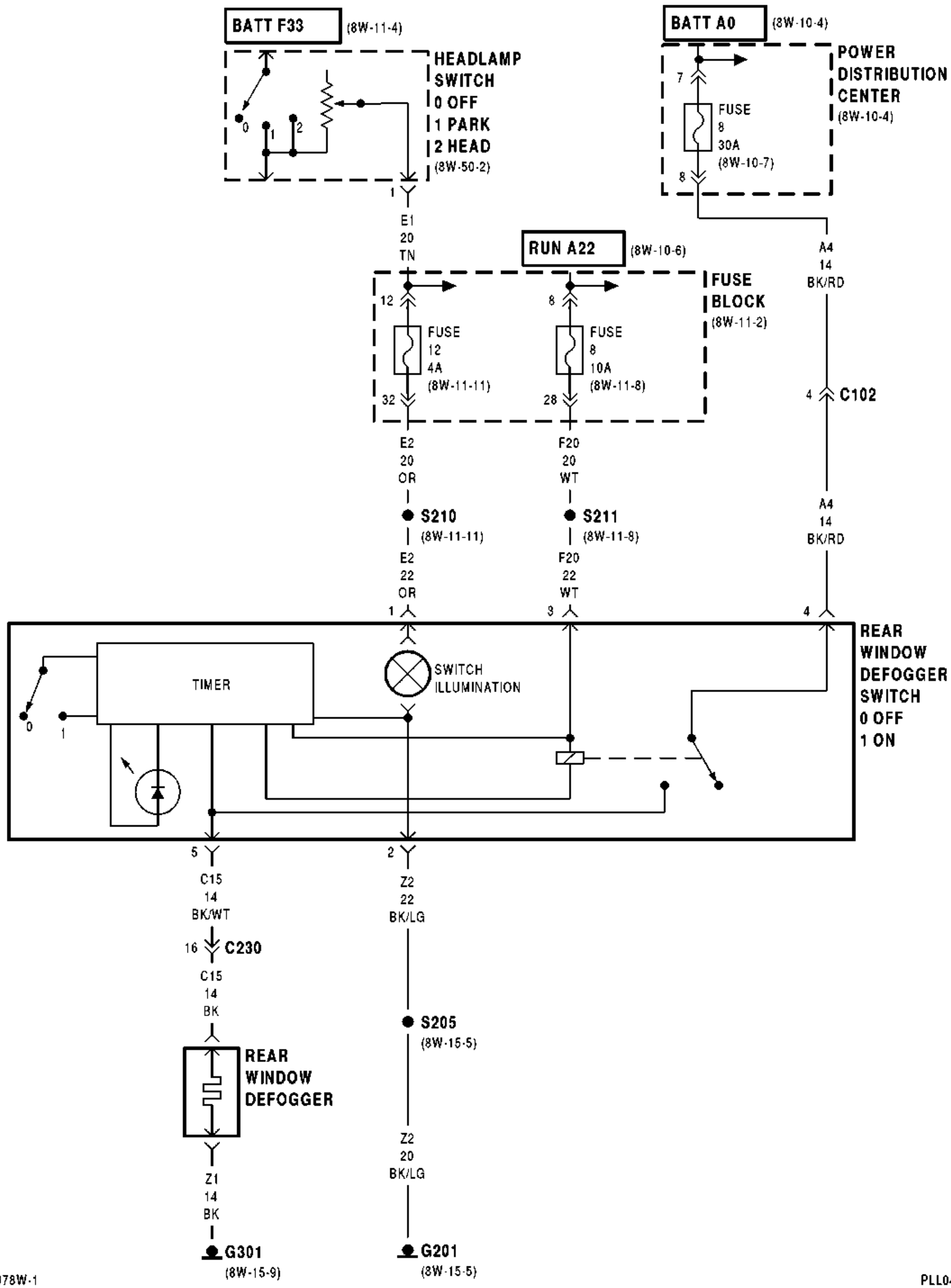
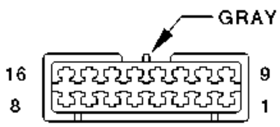
Fig. 6 Power Fold Away Mirror Test

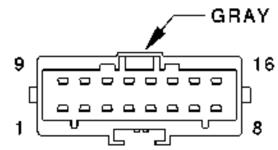

IDLE AIR CONTROL MOTOR
IDLE AIR CONTROL MOTOR NO. 4
IDLE AIR CONTROL MOTOR NO. 2
IDLE AIR CONTROL MOTOR NO. 3
IDLE AIR CONTROL MOTOR NO. 1
VEHICLE SPEED SENSOR
SENSOR GROUND
8V SUPPLY
VEHICLE SPEED SENSOR SIGNAL
K59 18 VT
K60 18 YL/BK
K40 18 BR/WT
K39 18 GY/RD
K4 18 BK/LB
K7 18 OR
G7 18 WT/OR
S118
(8W-70-2)
C160
G7 20 WT/OR
S120
(8W-70-2)
S123
(8W-30-13)
K4 20 BK/LB
K7 18 OR
INSTRUMENT CLUSTER
(8W-40-3)
C1
C161
K59 20 VT
K60 20 YL/BK
K40 20 BR/WT
K39 20 GY/RD
K4 20 BK/LB
K7 20 OR
G7 22 WT/OR
S110
(8W-30-3)
C103
IMMOBILIZER SENSOR
(8W-30-13)
K7 20 OR
G7 20 WT/OR
58 C1
49 C1
48 C1
57 C1
43 C1
44 C1
66 C1
POWERTRAIN CONTROL MODULE
IDLE AIR CONTROL MOTOR DRIVER NO. 4
IDLE AIR CONTROL MOTOR DRIVER NO. 2
IDLE AIR CONTROL MOTOR DRIVER NO. 3
IDLE AIR CONTROL MOTOR DRIVER NO. 1
SENSOR GROUND
8V SUPPLY
VEHICLE SPEED SENSOR SIGNAL


BATT F33
(8W-11-4)
HEADLAMP SWITCH
0 OFF
1 PARK
2 HEAD
(8W-50-2)
0
1
2
1
E1
20
TN
BATT A0
(8W-10-4)
POWER DISTRIBUTION CENTER
(8W-10-4)
7
FUSE
8
30A
(8W-10-7)
8
A4
14
BK/RD
RUN A22
(8W-10-6)
FUSE BLOCK
(8W-11-2)
12
FUSE
12
4A
(8W-11-11)
32
8
FUSE
8
10A
(8W-11-8)
28
4
C102
E2
20
OR
S210
(8W-11-11)
E2
22
OR
F20
20
WT
S211
(8W-11-8)
F20
22
WT
A4
14
BK/RD
1
3
4
TIMER
SWITCH ILLUMINATION
0
1
REAR WINDOW DEFOGGER SWITCH
0 OFF
1 ON
5
C15
14
BK/WT
16
C230
C15
14
BK
REAR WINDOW DEFOGGER
Z1
14
BK
G301
(8W-15-9)
2
Z2
22
BK/LG
S205
(8W-15-5)
Z2
20
BK/LG
G201
(8W-15-5)



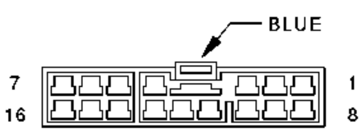
C230

CAV	CIRCUIT
1	G10 20LG/RD
2	L7 20BK/YL
	L7 20BK/YL
3	L62 18BR/RD
4	L63 18DG/RD
5	X51 22BR/YL
6	G4 18DB
	G4 20DB
7	X52 22DB/WT
8	L38 18BR/WT
9	G16 20BK/LB
10	P33 16OR/BK
11	P34 16PK/BK
12	M2 20YL
13	X57 22BR/LB
14	M23 20YL/BK
15	X58 22DB/OR
16	C15 14BK



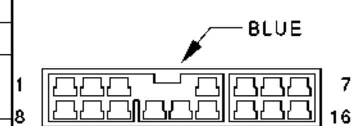
C230

CAV	CIRCUIT
1	G10 20LG/RD
2	L7 20BK/YL
	L7 20BK/YL
3	L62 20BR/RD
4	L63 20DG/RD
5	X51 22BR/YL
6	G4 20DB
7	X52 22DB/WT
8	L38 18BR/WT
9	G16 20BK/LB
10	P33 16OR/BK
	P33 16OR/BK
11	P34 16PK/BK
	P34 16PK/BK
12	M2 20YL
13	X57 22BR/LB
14	M23 22YL/BK
15	X58 22DB/OR
16	C15 14BK/WT



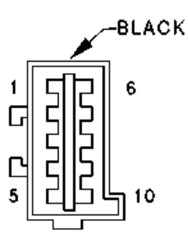
C231

CAV	CIRCUIT
1	F35 16RD/YL
2	P36 16PK/VT
3	P35 16OR/VT
4	Z8 14BK/VT
5	P33 16OR/BK
6	P34 16PK/BK
7	F21 14TN
8	M1 22PK
9	P90 22LG/BK
10	P91 22WT/BK
11	P92 22YL
12	P94 22WT/YL
13	Q16 14BR/WT
14	Q26 14VT/WT
15	X53 22DG
	X53 22DG
16	X55 22BR/RD
	X55 22BR/RD



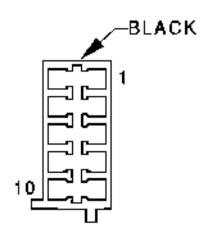
C231

CAV	CIRCUIT
1	F35 18RD/YL
2	P36 18PK/VT
3	P35 18OR/VT
4	Z8 14BK/VT
5	P33 18OR/BK
6	P34 18PK/BK
7	F21 14TN
8	M1 22PK
9	P90 20LG/BK
	P90 20LG/BK
10	P91 20WT/BK
	P91 20WT/BK
11	P92 22YL
12	P94 22WT/YL
13	Q16 14BR/WT
14	Q26 14VT/WT
15	X53 22DG
16	X55 22BR/RD



C241

CAV	CIRCUIT
1	M23 22YL/BK
2	P36 16PK/VT
3	A41 14YL
4	P35 16OR/VT
5	Z2 20BK/LG
6	G5 20DB/WT
7	P36 16PK/VT
8	A41 14YL
9	P35 16OR/VT
10	F35 16RD/YL



C241

CAV	CIRCUIT
1	–
2	P36 16PK/VT
3	A41 14YL/BK
4	P35 16OR/VT
5	–
6	–
7	P36 16PK/VT
8	A41 14YL/BK
9	P35 16OR/VT
10	–

REMOVAL AND INSTALLATION (Continued)

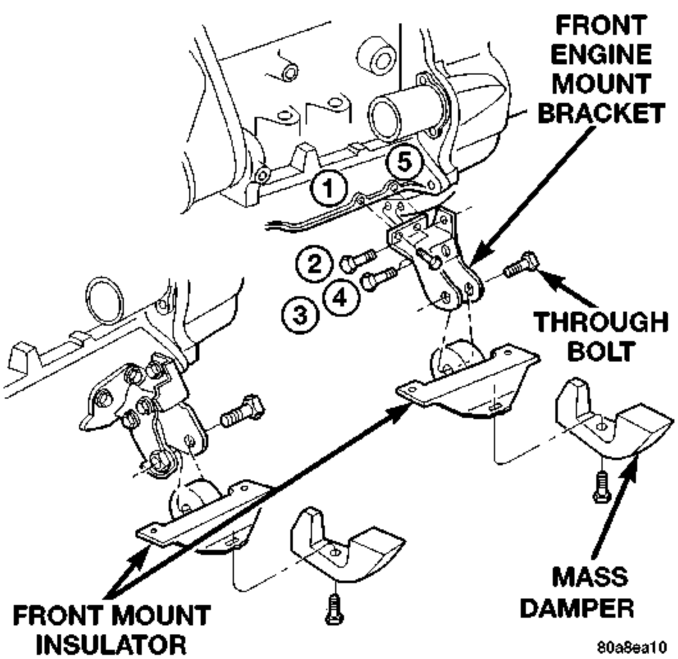


Fig. 13 Engine Mounting—Front

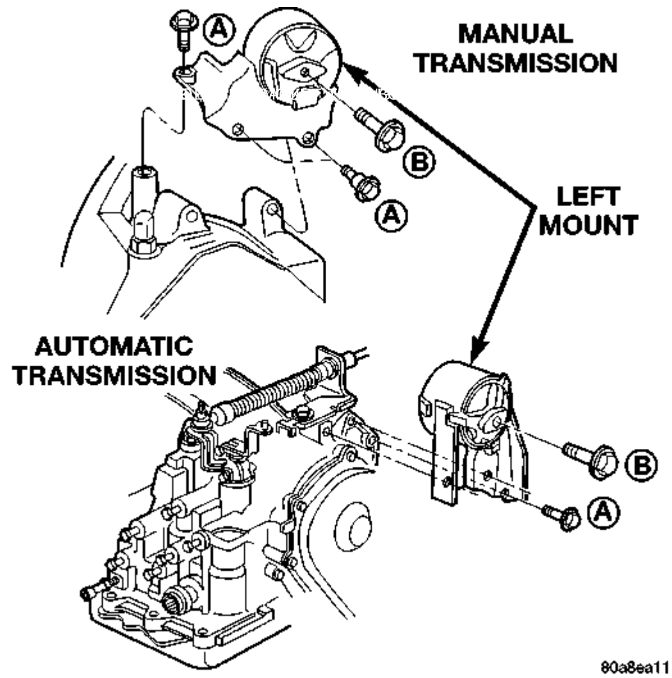


Fig. 14 Engine Mounting—Left

LEFT MOUNT

(1) Raise vehicle on hoist and remove left front wheel.

(2) Remove the Power Distribution Center (PDC) on manual transaxle model, from battery tray mount and lay aside.

(3) Support the transmission with a transmission jack.

(4) Remove the thru-bolt access hole cover. Remove the insulator thru-bolt from the mount (Fig. 14).

(5) Remove the transmission mount fasteners and remove mount.

(6) Reverse removal procedure for installation. Tighten fasteners in this order (Fig. 14):

A. 55 N·m (40 ft. lbs.)

B. 108 N·m (80 ft. lbs.)

RIGHT MOUNT

(1) Remove the purge duty solenoid from engine mount bracket.

(2) Remove the right engine mount insulator vertical fasteners from frame rail (Fig. 15).

(3) Remove the load on the engine mounts by carefully supporting the engine and transmission assembly with a floor jack.

(4) Remove the thru-bolt access hole cover. Remove the thru-bolt from the insulator assembly (Fig. 15). Remove insulator.

(5) Reverse removal procedure for installation. Tighten engine mount to rail fasteners to 54 N·m (40 ft. lbs.), then tighten engine mount to engine bracket thru-bolt to 108 N·m (80 ft. lbs.).

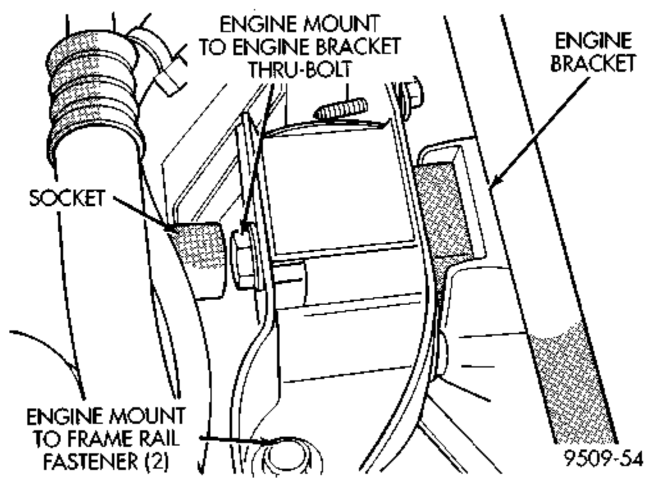


Fig. 15 Engine Mounting—Right

POWER HOP DAMPER

NOTE: Power hop damper is used on manual transmission vehicle only.

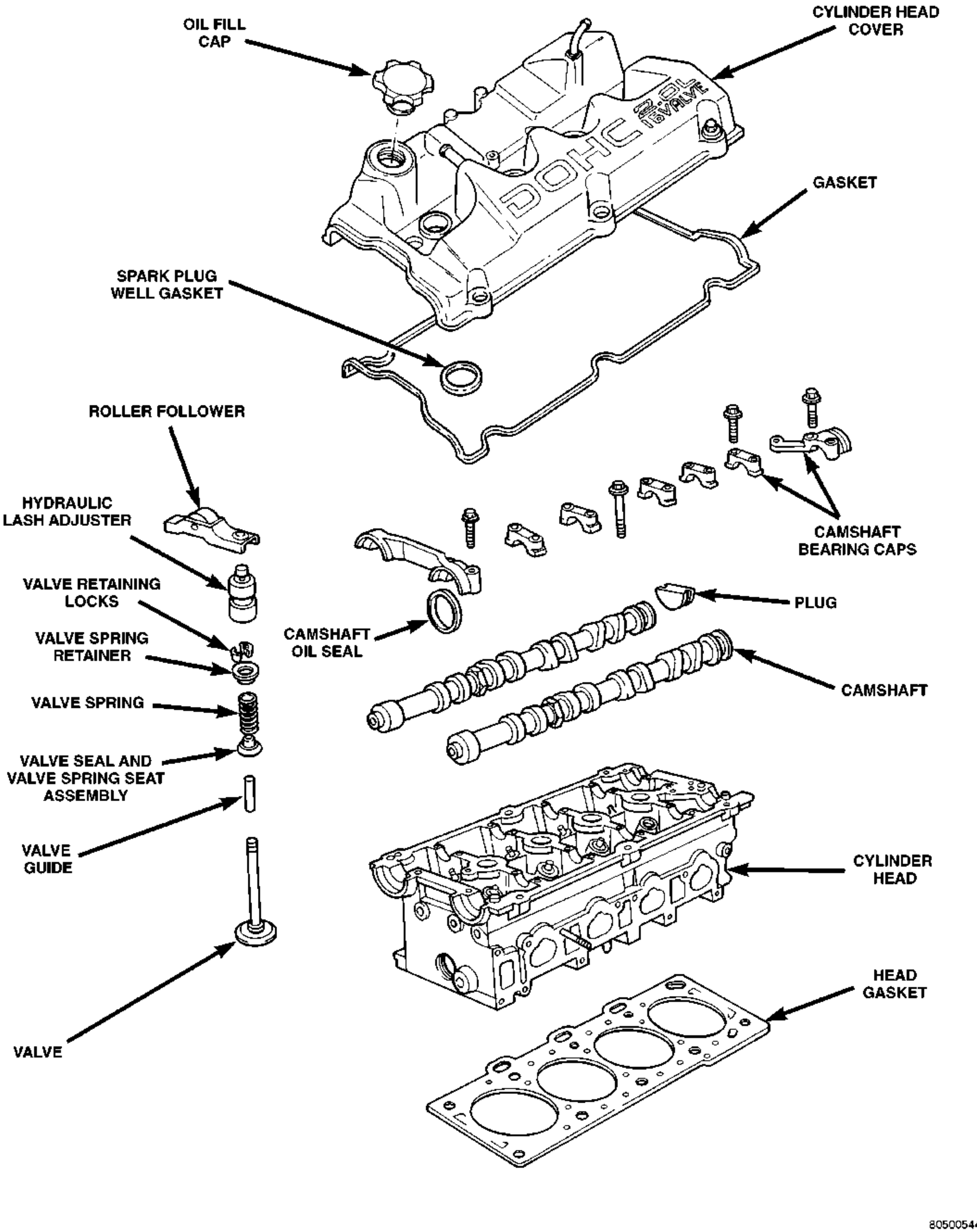
(1) Remove the thru-bolt and nut from the front suspension crossmember (Fig. 16).

(2) Remove the damper nut and grommets. Remove the damper.

(3) Remove the power hop damper bracket, if necessary.

(4) Reverse removal procedure for installation. Tighten all bolts and nuts to 54 N·m (40 ft. lbs.)

REMOVAL AND INSTALLATION (Continued)



DESCRIPTION AND OPERATION (Continued)

FUEL PUMP RELAY—PCM OUTPUT

The fuel pump relay supplies battery voltage to the fuel pump. A buss bar in the Power Distribution Center (PDC) supplies voltage to the solenoid side and contact side of the relay. The fuel pump relay power circuit contains a 20 amp fuse between the buss bar in the PDC and the relay. The fuse also protects the power circuit for the Automatic Shutdown (ASD) relay. The fuse is located in the PDC. Refer to Group 8W, Wiring Diagrams for circuit information.

The PCM controls the fuel pump relay by switching the ground path for the solenoid side of the relay on and off. The PCM turns the ground path off when the ignition switch is in the Off position. When the ignition switch is in the On position, the PCM energizes the fuel pump. If the crankshaft position sensor does not detect engine rotation, the PCM de- energizes the relay after approximately one second.

The fuel pump relay is located in the PDC. The inside top of the PDC cover has a label showing relay and fuse location.

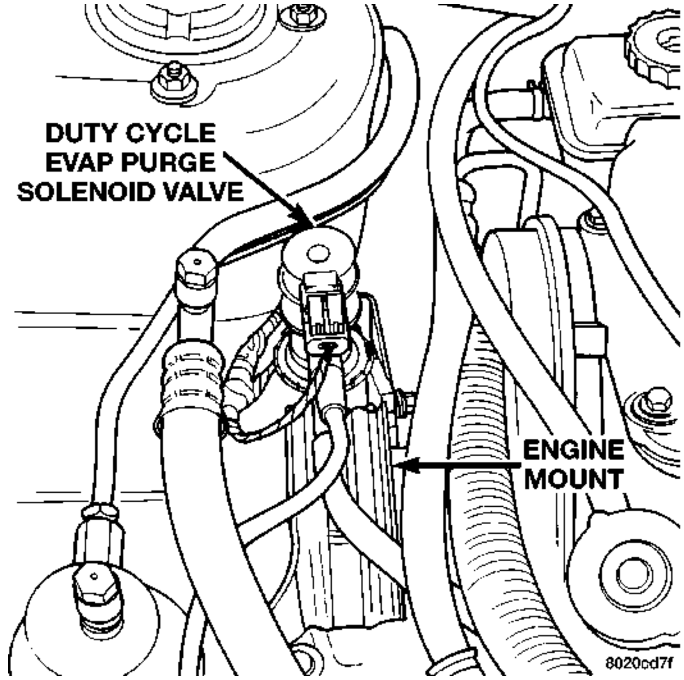


Fig. 22 Duty Cycle EVAP Purge Solenoid

DUTY CYCLE EVAP PURGE SOLENOID—PCM OUTPUT

The duty cycle EVAP purge solenoid regulates the rate of vapor flow from the EVAP canister to the throttle body. The powertrain control module operates the solenoid.

During the cold start warm-up period and the hot start time delay, the PCM does not energize the solenoid. When de-energized, no vapors are purged.

The engine enters closed loop operation after it reaches a specified temperature and the programmed time delay ends. During closed loop operation, the PCM energizes and de-energizes the solenoid 5 to 10 times per second, depending upon operating conditions. The PCM varies the vapor flow rate by changing solenoid pulse width. Pulse width is the amount of time the solenoid is energized.

The solenoid attaches to a bracket near the front engine mount (Fig. 22). To operate correctly, the solenoid must be installed with the electrical connector on top.

ELECTRIC EGR TRANSDUCER—PCM OUTPUT

The Electric EGR Transducer contains an electrically operated solenoid and a back-pressure controlled vacuum transducer (Fig. 23). The PCM operates the solenoid based on inputs from the multiport fuel injection system. The transducer and EGR valve are serviced as an assembly.

When the PCM energizes the solenoid, vacuum does not reach the transducer. Vacuum flows to the transducer when the PCM de-energizes the solenoid.

When exhaust system back-pressure becomes high enough, it fully closes a bleed valve in the vacuum transducer. When the PCM de-energizes the solenoid and back-pressure closes the transducer bleed valve, vacuum flows through the transducer to operate the EGR valve.

De-energizing the solenoid, but not fully closing the transducer bleed hole (because of low back-pressure), varies the strength of the vacuum signal applied to the EGR valve. Varying the strength of the vacuum signal changes the amount of EGR supplied to the engine. This provides the correct amount of exhaust gas recirculation for different operating conditions.

The transducer and EGR valve mount to the rear of the cylinder head (Fig. 23).

GENERATOR FIELD—PCM OUTPUT

The PCM regulates the charging system voltage within a range of 12.9 to 15.0 volts. Refer to Group 8A for Battery system information and 8C for charging system information.

IDLE AIR CONTROL MOTOR—PCM OUTPUT

The Idle Air Control (IAC) motor is mounted on the throttle body. The PCM operates the idle air control motor (Fig. 24). The PCM adjusts engine idle speed through the idle air control motor to compensate for engine load, coolant temperature or barometric pressure changes.

The throttle body has an air bypass passage that provides air for the engine during closed throttle idle. The idle air control motor pintle protrudes into the air bypass passage and regulates air flow through it.

The PCM adjusts engine idle speed by moving the IAC motor pintle in and out of the bypass passage.

STEERING GEAR

INDEX

DESCRIPTION AND OPERATION

STEERING GEAR

The power steering system consists of these four major components. Power Steering Gear (Fig. 1), Power Steering Pump, Pressure Hose, and Return Line. Turning of the steering wheel is converted into linear travel through the meshing of the helical pinion teeth with the rack teeth. Power assist steering is provided by an open center, rotary type control valve which directs oil from the pump to either side of the integral rack piston.

Road feel is controlled by the diameter of a torsion bar which initially steers the vehicle. This movement directs oil behind the integral rack piston, which, in turn, builds up hydraulic pressure and assists in the turning effort.

The drive tangs on the pinion of the power steering pump mate loosely with a stub shaft. This is to permit manual steering control to be maintained if the drive belt on the power steering pump should break. However, under these conditions, steering effort will be increased.

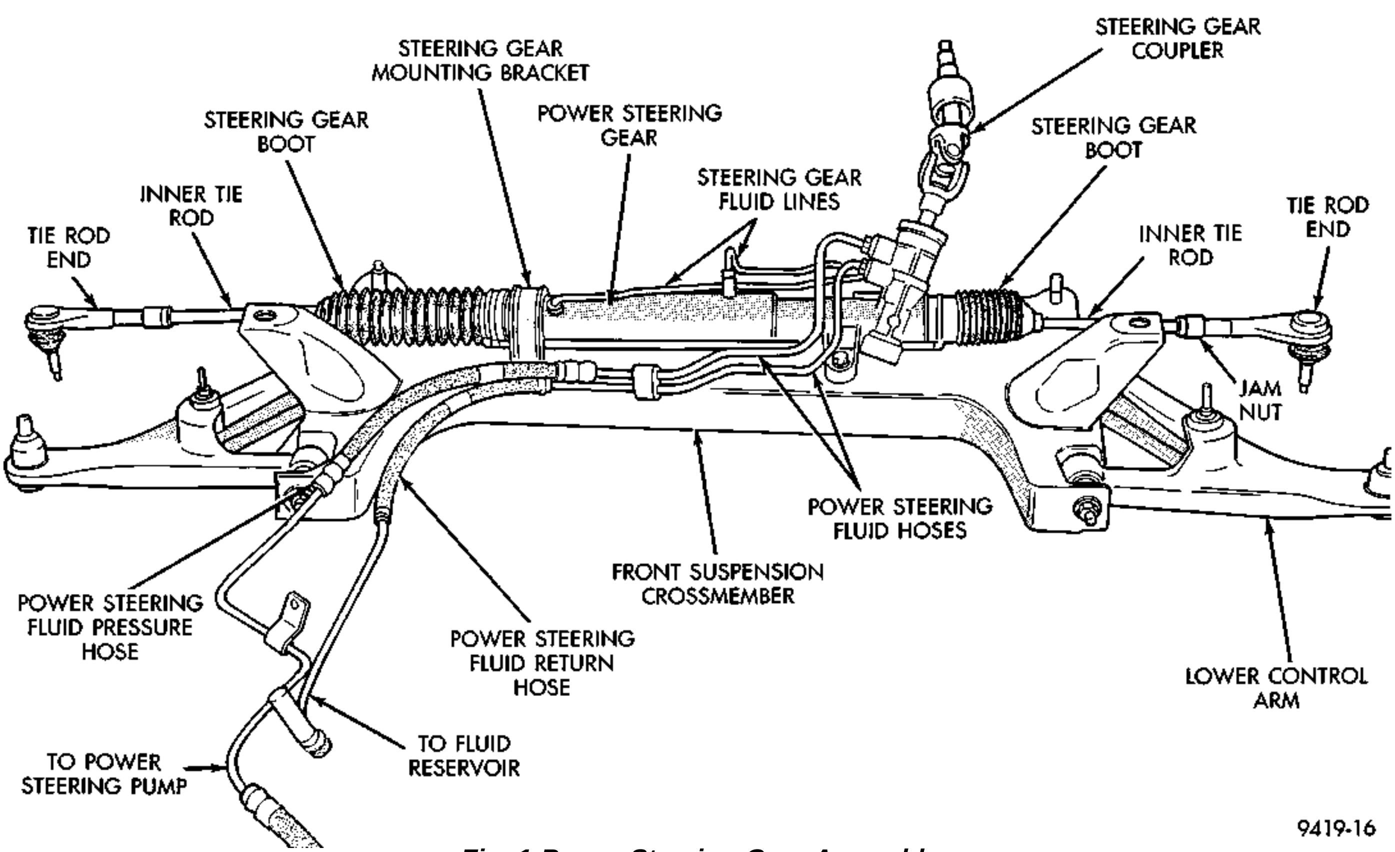


Fig. 1 Power Steering Gear Assembly

DIAGNOSIS AND TESTING (Continued)

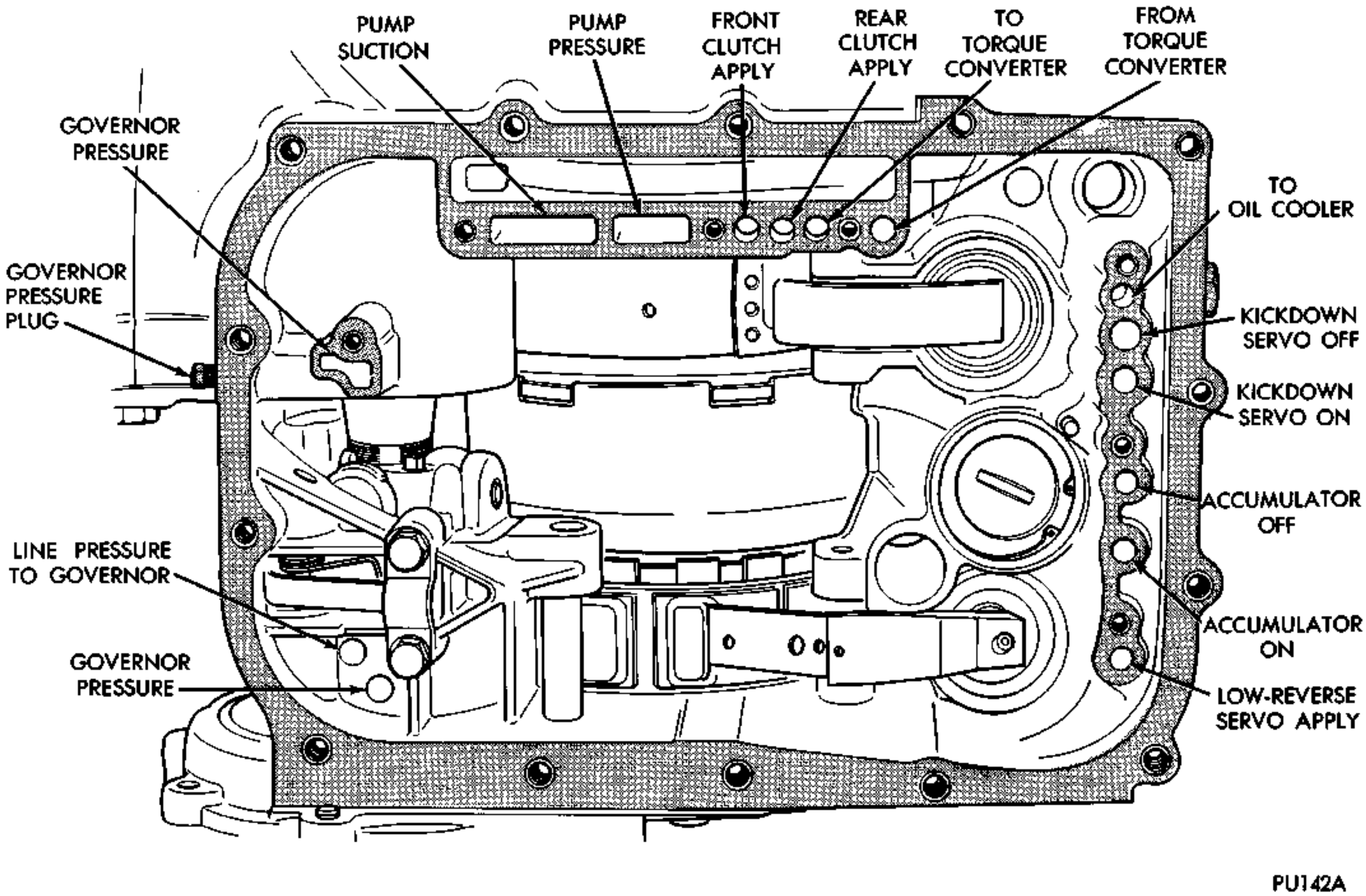


Fig. 5 Air Pressure Tests

INTERLOCK SYSTEM OPERATION CHECK

(1) Place shifter in PARK, the ignition switch should rotate freely from OFF to LOCK position. When the shifter is moved to the DRIVE position, the ignition switch should not rotate from OFF to LOCK.

(2) Moving shifter out of PARK should be possible only when ignition switch is in the OFF or the RUN position. Movement of the shifter from the PARK position should not be possible when the ignition switch is in the LOCK or the ACCESSORY position.

(3) If the interlock system, operates in any way other than as described above, repair of the interlock system is required. See Adjustment and Repair procedures in this section for the required procedures.

SERVICE PROCEDURES

FLUID AND FILTER CHANGE

NOTE: Only fluids of the type labeled Mopar ATF PLUS (Automatic Transmission fluid) type 7176 should be used. A band adjustment and filter change should be made at the time of the oil change. The magnet (inside of oil pan) should be cleaned with a clean, dry cloth.

NOTE: If the transaxle is disassembled for any reason, the fluid and filter should be changed, and the band(s) adjusted.

FLUID DRAIN AND REFILL

(1) Raise vehicle on a hoist (See Group 0, Lubrication). Place a drain container, with a large opening, under transaxle oil pan.

(2) Loosen pan bolts and tap the pan at one corner to break it loose allowing fluid to drain, then remove the oil pan.

(3) Install a new filter and gasket on bottom of the valve body and tighten retaining screws to 5 N·m (40 inch-pounds).

(4) Clean the oil pan and magnet. Reinstall pan using new sealant. Tighten oil pan bolts to 19 N·m (165 in. lbs.).

(5) Pour four quarts of Mopar ATF PLUS (Automatic Transmission Fluid) type 7176 into the transaxle filler tube.

DIAGNOSIS AND TESTING (Continued)

VACUUM CONTROL SYSTEM

Use an adjustable vacuum test set (Special Tool C-3707) and a suitable vacuum pump to test the heater-A/C vacuum control system. With a finger placed over the end of the vacuum test hose probe (Fig. 16), adjust the bleed valve on the test set gauge to obtain a vacuum of exactly 27 kPa (8 in. Hg.). Release and block the end of the probe several times to verify that the vacuum reading returns to the exact 27 kPa (8 in. Hg.) setting. Otherwise, a false reading will be obtained during testing.

ONE-WAY CHECK VALVE

(1) Disconnect the heater-A/C vacuum supply (Black) tube in the engine compartment. This tube passes through an opening in the dash panel.

(2) Remove the one-way vacuum check valve. The valve is located on the (Black) vacuum supply hose at the brake power booster.

(3) Connect the test set vacuum supply hose to the heater side of the valve. When connected to this side of the check valve, no vacuum should pass and the test set gauge should return to the 27 kPa (8 in. Hg.) setting. If OK, go to step Step 4. If not OK, replace the faulty valve.

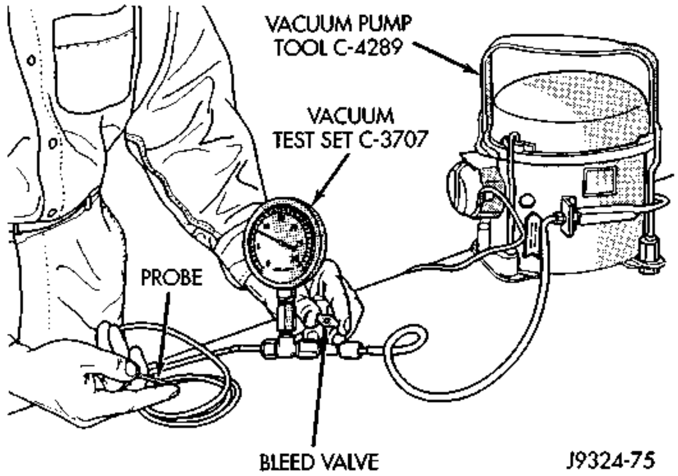


Fig. 16 Adjust Vacuum Test Bleed Valve

(4) Connect the test set vacuum supply hose to the engine vacuum side of the valve. When connected to this side of the check valve, vacuum should flow through the valve without restriction. If not OK, replace the faulty valve.

CONDITION	POSSIBLE CAUSES	CORRECTION
NO FORCED AIR IN HEAT POSITION	1. Vacuum line pinched or leaking.	1. Locate and repair vacuum leak or pinched line.
	2. Faulty heat defroster or mode door.	2. Test actuators and door operation. Repair as necessary.
	3. Faulty selector switch.	3. Test selector switch and replace if necessary.
	4. Vacuum check valve.	4. Test check valve and replace if necessary.
NO FORCED AIR IN PANEL POSITION	1. Vacuum line pinched or leaking.	1. Locate and repair vacuum leak or pinched line.
	2. Faulty mode door.	2. Test actuator and door operation. Repair as necessary.
	3. Faulty selector switch.	3. Test selector switch and replace if necessary.
	4. Vacuum check valve.	4. Test check valve and replace if necessary.
NO FORCED AIR IN DEFROST POSITION	1. Vacuum line pinched or leaking.	1. Locate and repair vacuum leak or pinched line.
	2. Faulty heat defroster or mode door.	2. Test actuators and door operation. Repair as necessary.
	3. Faulty selector switch.	3. Test selector switch and replace if necessary.
	4. Vacuum check valve.	4. Test check valve and replace if necessary.

Heater-A/C Vacuum System Diagnosis