

IGNITION SYSTEM

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DESCRIPTION AND OPERATION

IGNITION SYSTEM

DESCRIPTION

NOTE: The 2.5L engines use a fixed ignition timing system. Basic ignition timing is not adjustable. All spark advance is determined by the Powertrain Control Module (PCM).

The 2.5L engine uses a distributor, crankshaft sensor and ignition coil. **Basic ignition timing is not adjustable.** The system's main components are the distributor, distributor pickup, camshaft signal, crankshaft signal and ignition coil.

OPERATION

The crankshaft position sensor and camshaft position sensor are hall effect devices. The camshaft position sensor and crankshaft position sensor generate pulses that are inputs to the PCM. The PCM determines crankshaft position from these sensors. The PCM calculates injector sequence and ignition timing from crankshaft position. For a description of both sensors, refer to Camshaft Position Sensor and Crankshaft Position Sensor in this section.

SPARK PLUGS PLATINUM

DESCRIPTION

The engine utilize platinum spark plugs. Refer to the maintenance schedule.

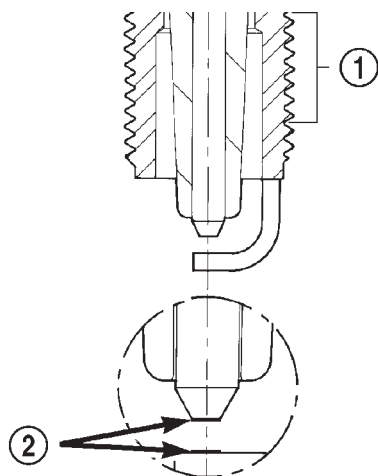
All engines use resistor spark plugs. They have resistance values ranging from 6,000 to 20,000 ohms when checked with at least a 1000 volt spark plug tester.

Do not use an ohm meter to check the resistance of the spark plugs. This will give an inaccurate reading.

The spark plugs are double platinum and have a recommended service life of 100,000 miles for normal driving conditions per schedule A in this manual. The spark plugs have a recommended service life of 75,000 miles for severe driving conditions per schedule B in this manual. A thin platinum pad is welded to both electrode ends as show in (Fig. 1). Extreme care must be used to prevent spark plug cross threading, mis-gaping and ceramic insulator damage during plug removal and installation.

CAUTION: Cleaning of the platinum plug may damage the platinum tip.

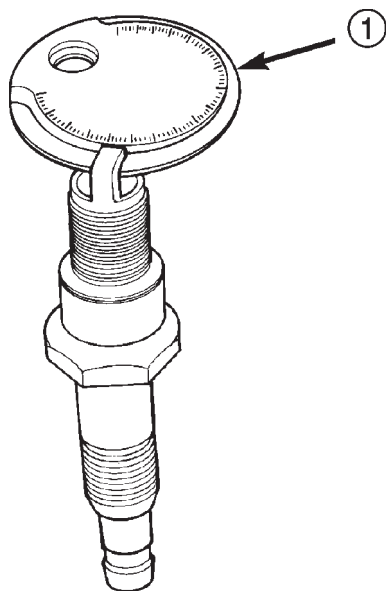
DESCRIPTION AND OPERATION (Continued)



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Fig. 1 Platinum Pads

- 1 - APPLY ANTI-SEIZE COMPOUND HERE ONLY
2 - PLATINUM SPARK SURFACE



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Fig. 2 Setting Spark Plug Electrode Gap

- 1 - TAPER GAUGE

SPARK PLUG CABLES**DESCRIPTION**

Spark Plug cables are sometimes referred to as secondary ignition wires. They transfer electrical current from the distributor or coil pack, to individual spark plugs at each cylinder. The resistor type, non-metallic spark plug cables provide suppression of radio frequency emissions from the ignition system.

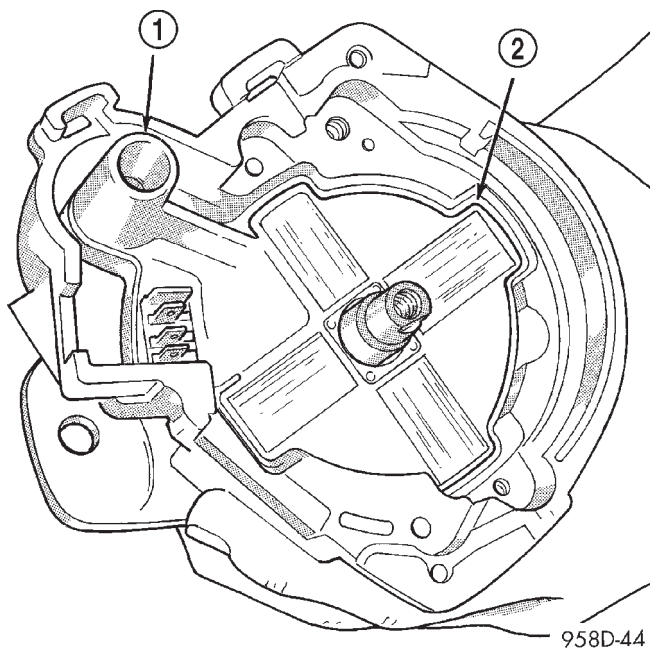
Check the spark plug cable connections for good contact at the coil or coil pack and distributor cap towers and at the spark plugs. Terminals should be

fully seated. The nipples and spark plug covers should be in good condition. Nipples should fit tightly on the coil or coil pack and distributor cap towers and spark plug cover should fit tight around spark plug insulators. Loose cable connections can cause ignition malfunctions by permitting water to enter the towers, corroding, and increasing resistance. **To maintain proper sealing at the terminal connections, the connections should not be broken unless testing indicates high resistance, an open circuit or other damage.**

Clean high tension cables with a cloth moistened with a non-flammable solvent and wipe dry. Check for brittle or cracked insulation. Plastic clips in various locations protect the cables from damage. When the cables are replaced the clips must be used to prevent damage to the cables.

IGNITION COIL—2.5L**DESCRIPTION**

The ignition coil is located inside the distributor. The distributor is mounted to the right end of the engine block behind the thermostat housing (Fig. 3).



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Fig. 3 Ignition Coil—2.5L Engine

- 1 - HIGH TENSION TOWER
2 - IGNITION COIL

OPERATION

The 2.5L engine uses an epoxy type coil. The coils are not oil filled. The windings are embedded in a heat and vibration resistant epoxy compound.

On a 2.5L The PCM controls ignition timing by turning on and off the transistor in the distributor.

DESCRIPTION AND OPERATION (Continued)

By switching the ground path for the coil on and off, the PCM adjusts ignition timing to meet changing engine operating conditions.

The PCM operates the ignition coil through the Auto Shutdown (ASD) relay. When the relay is energized by the PCM, battery voltage is connected to the ignition coil positive terminal. The PCM will de-energize the ASD relay if it does not receive an input from the distributor pick-up. Refer to Auto Shutdown (ASD) Relay and Fuel Pump Relay in this section.

AUTOMATIC SHUTDOWN RELAY

DESCRIPTION

The ASD relay is located in the PDC (Fig. 4). The inside top of the PDC cover has a label showing relay and fuse identification.

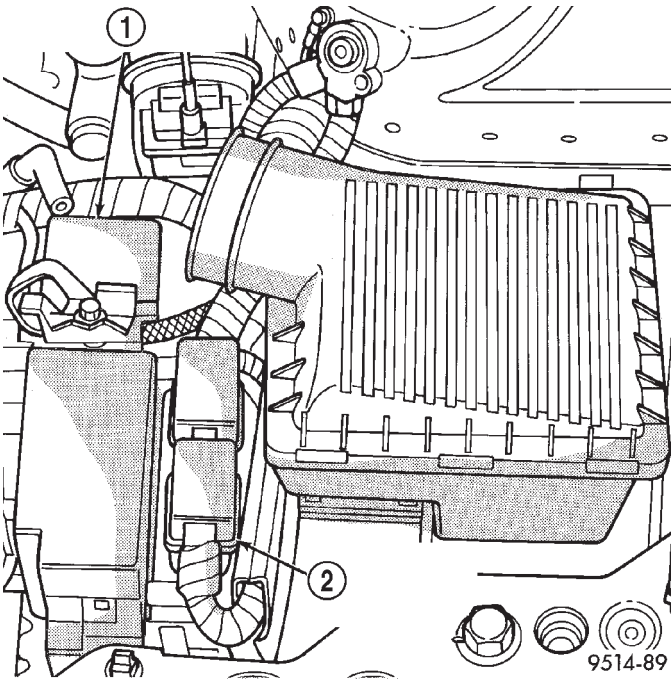


Fig. 4 Power Distribution Center (PDC)

- 1 - POWER DISTRIBUTION CENTER
- 2 - POWERTRAIN CONTROL MODULE

OPERATION

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

Refer to the Wiring Diagrams for circuit information.

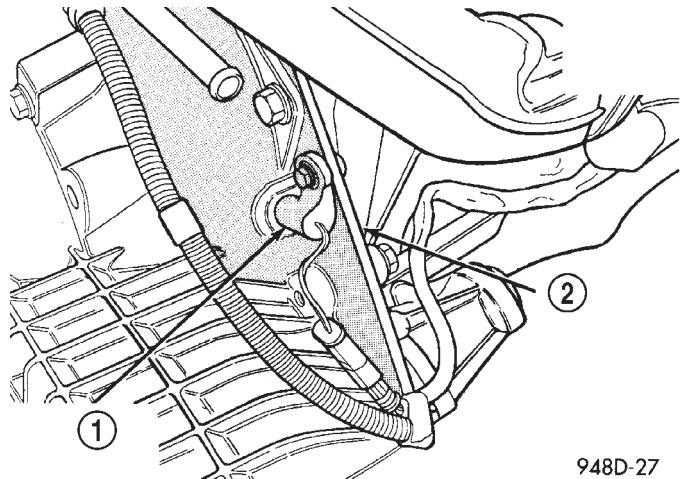
The PCM controls the ASD relay by switching the ground path for the solenoid side of the relay on and off. The PCM turns the ground path off when the ignition switch is in the Off position unless the O2 Heater Monitor test is being run. Refer to the

On-Board Diagnostics in the Emission Control section. When the ignition switch is in On or Start, the PCM momentarily turns on the ASD relay. While the relay is on 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.

CRANKSHAFT POSITION SENSOR—2.5L

DESCRIPTION

The crankshaft sensor is located on the rear of the transmission housing, above the differential housing (Fig. 5). The sensor connector has a christmas tree attached to the heater tube bracket. The bottom of the sensor is positioned next to the drive plate.



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Fig. 5 Crankshaft Position Sensor Location—Typical

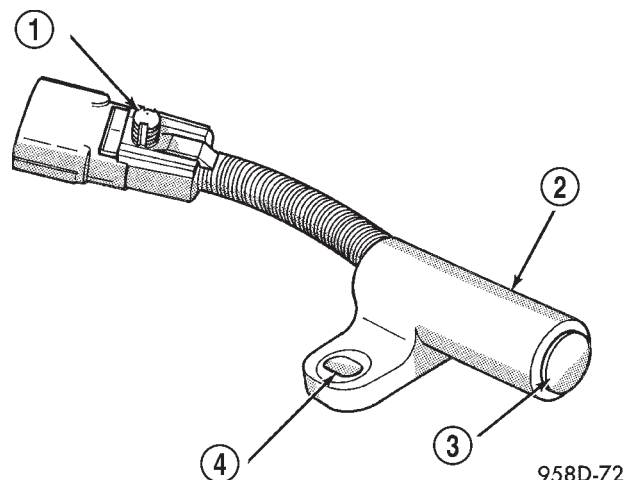
- 1 - CRANKSHAFT POSITION SENSOR
- 2 - TRANSAXLE HOUSING

OPERATION

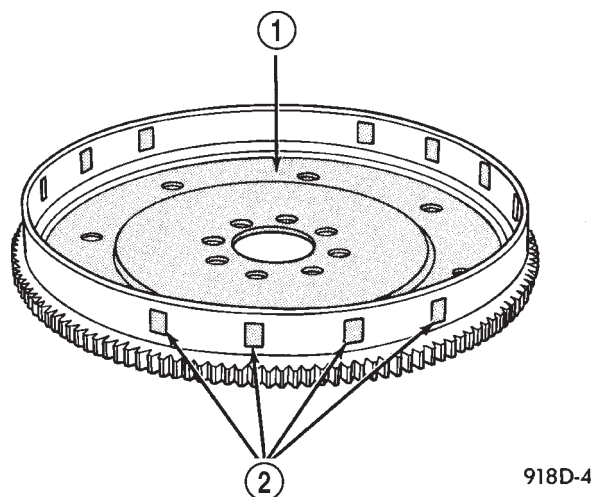
The crankshaft position sensor (Fig. 6) detects slots cut into the transmission driveplate extension. There are 3 sets of slots. Each set contains 4 slots, for a total of 12 slots (Fig. 7). Basic timing is set by the position of the last slot in each group. Once the Powertrain Control Module (PCM) senses the last slot, it determines crankshaft position (which piston will next be at TDC) from the camshaft position sensor input. The 4 pulses generated by the crankshaft position sensor represent the 69°, 49°, 29°, and 9° BTDC marks. It may take the PCM one engine revolution to determine crankshaft position.

The PCM uses crankshaft position reference to determine injector sequence, ignition timing and the presence of misfire. Once the PCM determines crankshaft position, it begins energizing the injectors in sequence.

DESCRIPTION AND OPERATION (Continued)

**Fig. 6 Crankshaft Position Sensor—Adjustable**

- 1 - PUSH ON CLIP
- 2 - CRANKSHAFT POSITION SENSOR
- 3 - PAPER SPACER
- 4 - ADJUSTMENT HOLE

**Fig. 7 Timing Slots**

- 1 - TORQUE CONVERTER DRIVE PLATE
- 2 - SLOTS

CAMSHAFT POSITION SENSOR—2.5L**DESCRIPTION**

The 2.5L engine is equipped with a camshaft driven mechanical distributor, containing a shaft driven distributor rotor. The distributor is also equipped with an internal camshaft position (fuel sync) sensor (Fig. 8). This sensor provides fuel injection synchronization and cylinder identification to the PCM.

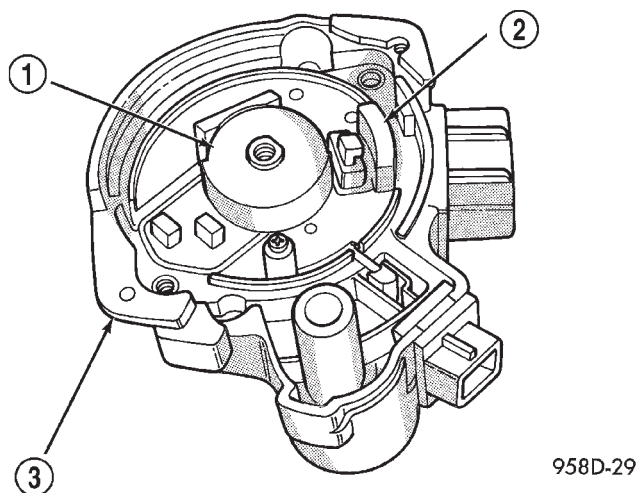
OPERATION

The PCM determines fuel injection synchronization and cylinder identification from inputs provided by the camshaft position sensor and crankshaft position sensor. From the two inputs, the PCM determines crankshaft position.

The camshaft position sensor contains a hall effect device called a sync signal generator. This sync signal generator detects a rotating pulse ring (shutter) on the distributor shaft. The pulse ring rotates 180 through the sync signal generator. Its signal is used in conjunction with the crankshaft position sensor to differentiate between fuel injection and spark events. It is also used to synchronize the fuel injectors with their respective cylinders.

When the leading edge of the shutter enters the sync signal generator, the interruption of magnetic field causes the voltage to switch high. This causes a sync signal of approximately 5 volts.

When the trailing edge of the shutter leaves the sync signal generator, the change of magnetic field causes the sync signal voltage to switch low to 0 volts.

**Fig. 8 Camshaft Position Sensor—2.5L Engine**

- 1 - PULSE RING
- 2 - SYNC SIGNAL GENERATOR
- 3 - DISTRIBUTOR

Since the shutter rotates at half crankshaft speed, it may take 1 engine revolution during cranking for the PCM to determine the position of piston number 6.

KNOCK SENSOR**DESCRIPTION**

The knock sensor threads into the cylinder block.

DESCRIPTION AND OPERATION (Continued)

OPERATION

When the knock sensor detects a knock in one of the cylinders, it sends an input signal to the PCM. In response, the PCM retards ignition timing for all cylinders by a scheduled amount.

Knock sensors contain a piezoelectric material which constantly vibrates and sends an input voltage (signal) to the PCM while the engine operates. As the intensity of the crystal's vibration increases, the knock sensor output voltage also increases.

NOTE: Over or under tightening affects knock sensor performance, possibly causing improper spark control.

LOCK KEY CYLINDER**DESCRIPTION**

The lock cylinder is inserted in the end of the housing opposite the ignition switch.

OPERATION

The ignition key rotates the cylinder to 5 different detents (Fig. 9) :

- Accessory
- Off (lock)
- Unlock
- On/Run
- Start

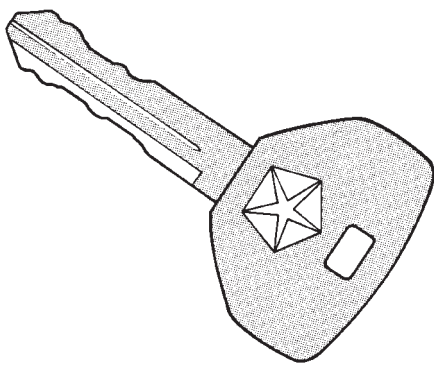
● UNLOCK

● ON/RUN

● START

● OFF

● ACCESSORY



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Fig. 9 Ignition Lock Cylinder Detents

IGNITION INTERLOCK**OPERATION**

All vehicles equipped with automatic transaxles have an interlock system. The system prevents shifting the vehicle out of Park unless the ignition lock cylinder is in the Off, Run or Start position. In addition, the operator cannot rotate the key to the lock

position unless the shifter is in the park position. On vehicles equipped with floor shift refer to the - Transaxle for Automatic Transmission Shifter/Ignition Interlock.

REMOVAL AND INSTALLATION**SPARK PLUGS AND CABLES—2.5L**

When replacing the spark plug and coil cables, route the cables correctly and secure them in the appropriate retainers. Failure to route the cables properly can cause the radio to reproduce ignition noise, cross ignition of the spark plugs or short circuit the cables to ground.

CAUTION: Never attempt to file the electrodes or use a wire brush for cleaning platinum plugs. This would damage the platinum pads which would shorten spark plug life.

Never force a gap gauge between the platinum electrodes or adjust the gap on platinum spark plugs without reading the 2.5L Spark Plug Gap Measurement procedures below.

Always tighten spark plugs to the specified torque. Over tightening can cause distortion resulting in a change in the spark plug gap. Overtightening can also damage the cylinder head. Tighten spark plugs to 28 N·m (20 ft. lbs.) torque.

Due to the engine packaging environment for the 2.5L engines, extreme care should be used when installing the spark plugs to avoid cross threading problems.

2.5L SPARK PLUG GAP MEASUREMENT

CAUTION: The Platinum pads can be damaged during the measurement of checking the gap if extreme care is not used.

- Use only a taper gap gauge (Fig. 2)
- Never force the gap gauge through the platinum pads. Only apply enough force until resistance is felt.
- Never use a wire brush or spark plug cleaner machine to clean platinum spark plugs
- Use an OSHA approved air nozzle when drying gas fouled spark plugs.

If gap adjustment is required of platinum plug, bend only the ground electrode. DO NOT TOUCH the platinum pads. Use only a proper gapping tool and check with a taper gap gauge (Fig. 1).

Apply a very small amount of anti-seize compound to the threads when reinstalling the vehicle's original spark plugs that have been determined good. **Do not apply anti-seize compound to new spark plugs.**

REMOVAL AND INSTALLATION (Continued)

NOTE: Anti-seize compound is electrically conductive and can cause engine misfires if not applied correctly. It is extremely important that the anti-seize compound doesn't make contact with the spark plug electrodes or ceramic insulator.

SPARK PLUG REMOVAL—#2, #4 or #6

Always remove the ignition cable by grasping at the spark plug boot turning, the boot 1/2 turn and pulling straight back in a steady motion.

(1) Prior to removing the spark plug spray compressed air around the spark plug hole and the area around the spark plug.

(2) Remove the spark plug using a quality socket with a rubber or foam insert.

(3) Inspect the spark plug condition. Refer to Spark Plug Condition in this section.

INSTALLATION

(1) To avoid cross threading, start the spark plug into the cylinder head by hand.

(2) Tighten spark plugs to 28 N·m (20 ft. lbs.) torque.

(3) Install ignition cables over spark plugs.

SPARK PLUG REMOVAL—#1, #3 or #5

(1) Disconnect negative cable from auxiliary jumper terminal.

(2) Remove the intake manifold, refer to the Engine Section for the procedure.

(3) Always remove the ignition cable by grasping at the spark plug boot turning, the boot 1/2 turn and pulling straight back in a steady motion.

(4) Prior to removing the spark plug spray compressed air around the spark plug hole and the area around the spark plug.

(5) Remove the spark plug using a quality socket with a rubber or foam insert.

(6) Inspect the spark plug condition. Refer to Spark Plug Condition in this section.

SPARK PLUG INSTALLATION

(1) To avoid cross threading, start the spark plug into the cylinder head by hand.

(2) Tighten spark plugs to 28 N·m (20 ft. lbs.) torque.

(3) Install ignition cables over spark plugs.

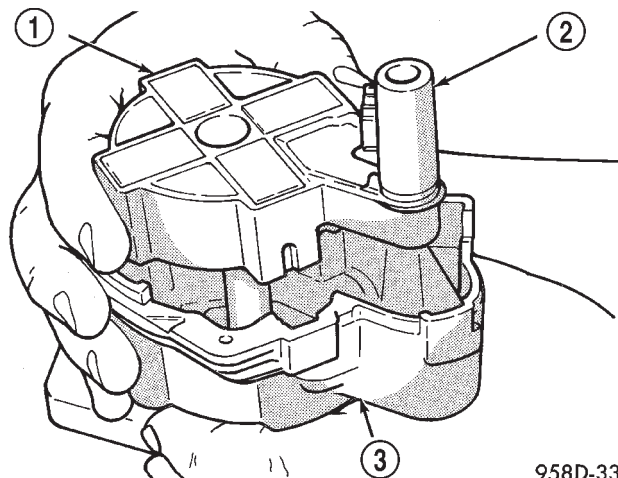
(4) Install the intake manifold, refer to the Engine section

(5) Tighten air inlet tube clamps to 3 N·m $\pm$ 1 (25 $\pm$ 5 in. lbs.) torque.

(6) Connect negative terminal to auxiliary jumper terminal.

IGNITION COIL—2.5L

The ignition coil is located in the distributor housing (Fig. 10).



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Fig. 10 Ignition Coil

- 1 - IGNITION COIL
- 2 - COIL TOWER
- 3 - DISTRIBUTOR HOUSING

If ignition coil is defective, replace distributor assembly. Refer to Distributor Service.

AUTOMATIC SHUTDOWN RELAY

The relay is located in the Power Distribution Center (PDC) (Fig. 11). The PDC is located in the engine compartment. For the location of the relay within the PDC, refer to the PDC cover for location. Check electrical terminals for corrosion and repair as necessary.

CRANKSHAFT POSITION SENSOR—2.5L**REMOVAL**

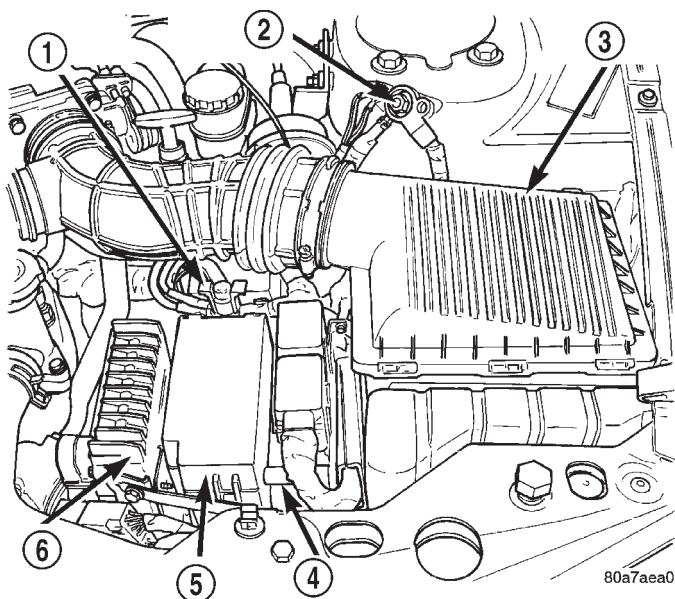
(1) Remove speed control servo from driver's side strut tower.

(2) Remove crankshaft position sensor retaining bolt (Fig. 12).

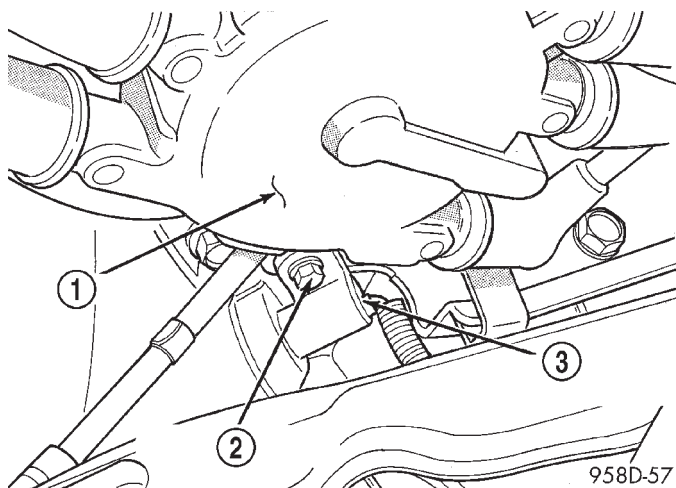
(3) Pull crankshaft position sensor straight up out of the transaxle housing.

(4) (Disconnect crankshaft position sensor electrical connector from the wiring harness connector.

REMOVAL AND INSTALLATION (Continued)

**Fig. 11 Power Distribution Center (PDC)**

- 1 - BATTERY POSITIVE
- 2 - BATTERY GROUND
- 3 - AIR CLEANER
- 4 - PCM
- 5 - PDC
- 6 - TCM

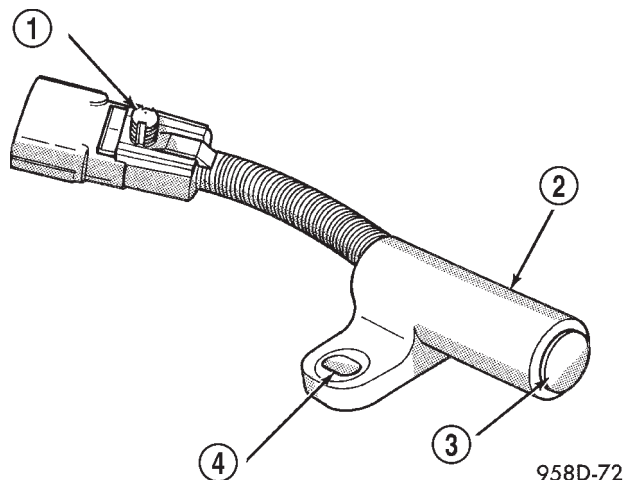
**Fig. 12 Crankshaft Position Sensor**

- 1 - DISTRIBUTOR
- 2 - HOLD DOWN BOLT
- 3 - CRANKSHAFT POSITION SENSOR

INSTALLATION—ADJUSTABLE

All vehicles will be equipped with an adjustable crankshaft position sensor. This can be identified by an elongated mounting hole in the sensor.

NOTE: If the removed sensor is to be reinstalled, clean off the old spacer on the sensor face. A **NEW SPACER** must be attached to the sensor face before installation. If the sensor is being replaced, confirm that the paper spacer is attached to the face of the new sensor (Fig. 13).

**Fig. 13 Crankshaft Position Sensor and Spacer**

- 1 - PUSH ON CLIP
- 2 - CRANKSHAFT POSITION SENSOR
- 3 - PAPER SPACER
- 4 - ADJUSTMENT HOLE

(1) Install sensor in transaxle and push sensor down until contact is made with the drive plate. While holding the sensor in this position, install and tighten the retaining bolt to 12 N·m (105 in. lbs.) torque.

(2) Connect crankshaft position sensor electrical connector to the wiring harness connector.

(3) Attach connector to heater tube bracket.

(4) Install speed control servo. Tighten nuts to 9 N·m (80 in. lbs.) torque.

DISTRIBUTOR—2.5L**REMOVAL**

(1) Remove bolt holding air inlet resonator to intake manifold.

(2) Loosen clamps holding air cleaner cover to air cleaner housing.

(3) Remove PCV make-up air hose from air inlet tube.

(4) Loosen hose clamp at throttle body.

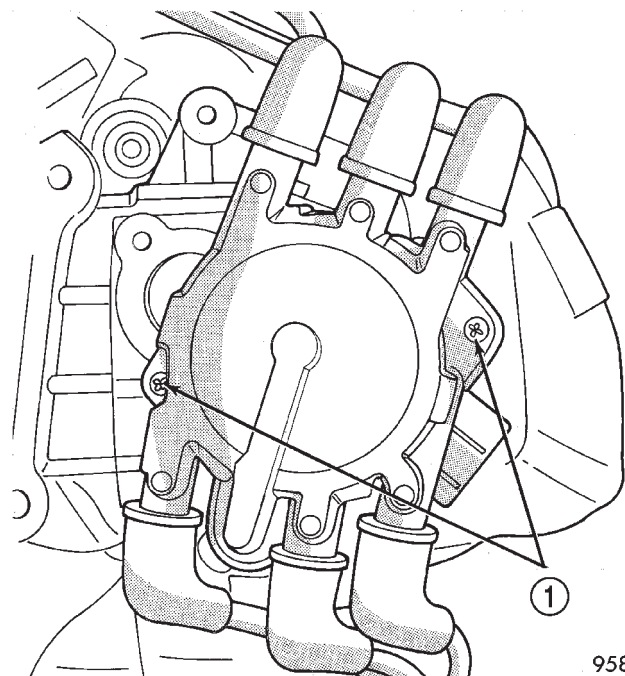
(5) Remove air inlet tube, resonator and air cleaner cover.

(6) Remove EGR tube.

(7) Remove spark plug cables from distributor cap.

(8) Loosen distributor cap holddown screws and remove cap (Fig. 14).

REMOVAL AND INSTALLATION (Continued)

**Fig. 14 Distributor Cap Screws**

1 - DISTRIBUTOR CAP SCREWS

(9) Mark the rotor position and remove rotor. The mark indicates where to position the rotor when reinstalling the distributor.

(10) Remove 2 harness connectors from distributor (Fig. 15).

(11) Remove 2 sets of distributor holddown nuts and washers from studs.

(12) Remove bolt and spark plug cable mounting bracket from top of distributor housing.

(13) Remove bolt and transmission dipstick tube.

(14) Carefully remove distributor from engine.

INSTALLATION

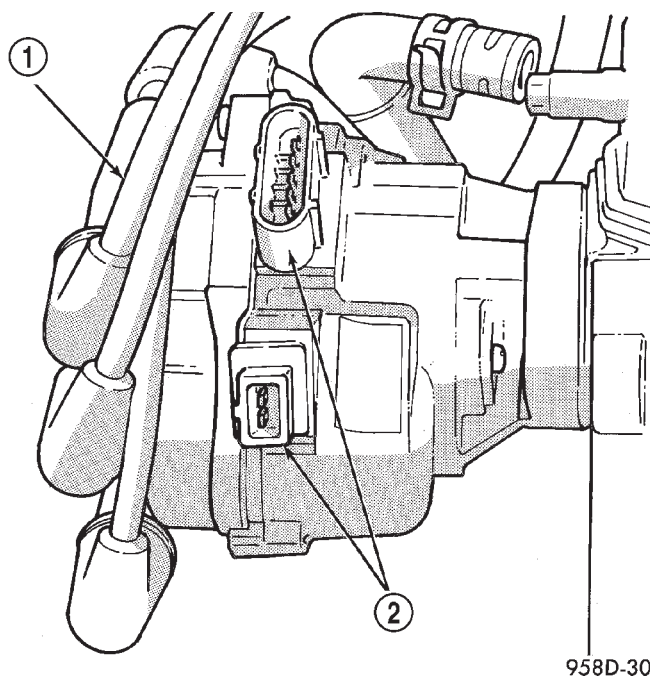
(1) Install rotor on shaft.

(2) Position distributor in engine. Make certain that O-ring is properly seated on distributor. If O-ring is cracked or nicked replace with a new one.

(3) Carefully engage distributor drive with slotted end of camshaft. When the distributor is installed properly, the rotor will be in line with previously scribe line on air intake plenum. **If engine was cranked while distributor was removed, establish proper relationship between the distributor shaft and Number 1 piston position as follows:**

(a) Rotate the crankshaft until number one piston is at top of compression stroke.

(b) Rotate rotor to number one rotor terminal.

**Fig. 15 Distributor Electrical Connectors—Viewed From Rear of Distributor**

1 - SPARK PLUG CABLES

2 - DISTRIBUTOR CONNECTORS

(c) Lower distributor into opening, engaging distributor drive with drive on camshaft. With distributor fully seated on engine, rotor should be under the number 1 terminal.

(4) Install distributor holddown washers and nuts. Tighten nuts to 13 N·m (9 ft. lbs.).

(5) Install spark plug cable bracket.

(6) Install 2 harness connectors to distributor.

(7) Install distributor cap.

(8) Install spark plug cables onto distributor cap. The cap is numbered as well as the cables. Ensure sure all high tension wires are firmly in the cap towers.

(9) Install transmission dipstick tube.

(10) Install EGR tube to intake manifold. Tighten bolts to 11 N·m (95 in. lbs.) torque.

(11) Install air inlet tube, resonator and air cleaner cover.

(12) Tighten hose clamp at throttle body.

(13) Install PCV make-up air hose from air inlet tube.

(14) Tighten clamps holding air cleaner cover to air cleaner housing.

(15) Install bolt holding air inlet resonator to intake manifold.

REMOVAL AND INSTALLATION (Continued)

DISTRIBUTOR CAP—2.5L**REMOVAL**

- (1) Remove bolt holding air inlet resonator to intake manifold.
- (2) Loosen clamps holding air cleaner cover to air cleaner housing.
- (3) Remove PCV make-up air hose from air inlet tube.
- (4) Loosen hose clamp at throttle body.
- (5) Remove air inlet tube, resonator and air cleaner cover.
- (6) Remove EGR tube.
- (7) Remove spark plug cables from distributor cap.
- (8) Loosen distributor cap holddown screws and remove cap (Fig. 14).
- (9) Transfer cables from old cap to new cap. The cap is numbered and so are the cables.

INSTALLATION

- (1) Install distributor cap.
- (2) Install EGR tube.
- (3) Install air inlet tube, resonator and air cleaner cover.
- (4) Tighten hose clamp at throttle body.
- (5) Install PCV make-up air hose from air inlet tube.
- (6) Tighten clamps holding air cleaner cover to air cleaner housing.
- (7) Install bolt holding air inlet resonator to intake manifold.

DISTRIBUTOR ROTOR—2.5L**REMOVAL**

- (1) Remove bolt holding air inlet resonator to intake manifold.
- (2) Loosen clamps holding air cleaner cover to air cleaner housing.
- (3) Remove PCV make-up air hose from air inlet tube.
- (4) Loosen hose clamp at throttle body.
- (5) Remove air inlet tube, resonator and air cleaner cover.
- (6) Remove EGR tube.
- (7) Remove spark plug cables from distributor cap.
- (8) Loosen distributor cap holddown screws and remove cap (Fig. 14).

- (9) Mark the rotor position and remove rotor. The mark indicates where to position the rotor when reinstalling the distributor.

INSTALLATION

- (1) Install rotor on shaft.
- (2) Install distributor cap.
- (3) Install spark plug cables onto distributor cap. The cap is numbered as well as the cables. Ensure sure all high tension wires are firmly in the cap towers.
- (4) Install EGR tube to intake manifold. Tighten bolts to 11 N·m (95 in. lbs.) torque.
- (5) Install air inlet tube, resonator and air cleaner cover.
- (6) Tighten hose clamp at throttle body.
- (7) Install PCV make-up air hose to air inlet tube.
- (8) Tighten clamps holding air cleaner cover to air cleaner housing.
- (9) Tighten bolt holding air inlet resonator to intake manifold.

IGNITION SWITCH

The ignition switch attaches to the lock cylinder housing on the end opposite the lock cylinder (Fig. 16). For ignition switch terminal and circuit identification, refer to Group 8W, Wiring Diagrams.

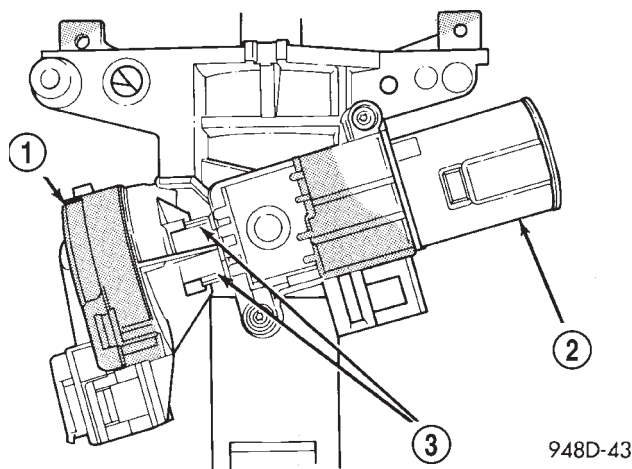


Fig. 16 Ignition Switch—Viewed From Below Column

- 1 – IGNITION SWITCH
- 2 – LOCK CYLINDER HOUSING
- 3 – RETAINING TABS

REMOVAL AND INSTALLATION (Continued)

REMOVAL

(1) Disconnect negative cable from auxillary jumper terminal on driver's side strut tower.

(2) Remove fuse panel cover from left end of instrument panel. Remove screw holding end of instrument panel top cover (Fig. 17).

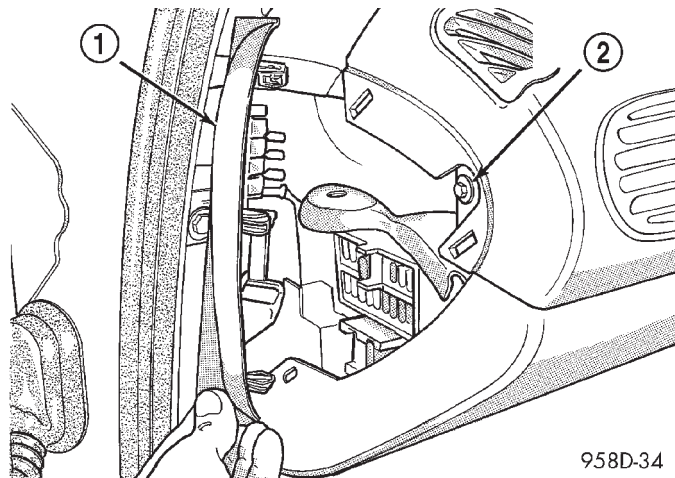


Fig. 17 Instrument Panel Top Cover—Left End

- 1 - FUSE PANEL COVER
2 - TOP COVER SCREW

(3) Pull center bezel off (Fig. 18).

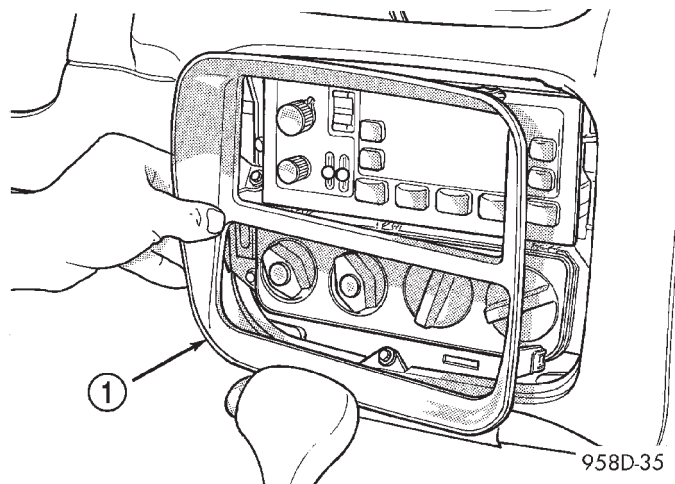


Fig. 18 Center Bezel

- 1 - CENTER BEZEL

(4) Remove screws holding instrument panel top cover to center of instrument panel (Fig. 19).

(5) Pull instrument panel top cover up enough to gain access to knee bolster screws (Fig. 20).

(6) Remove lower knee bolster screws and knee bolster.

(7) Remove screws from lower steering column shroud (Fig. 21).

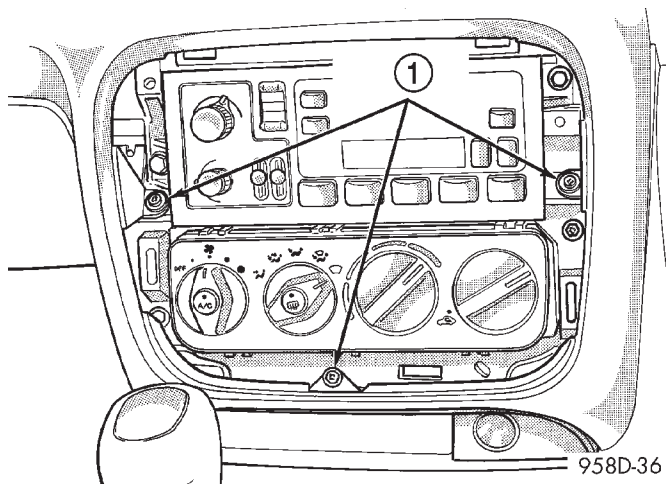


Fig. 19 Instrument Panel Top Cover—Center

- 1 - TOP COVER SCREWS

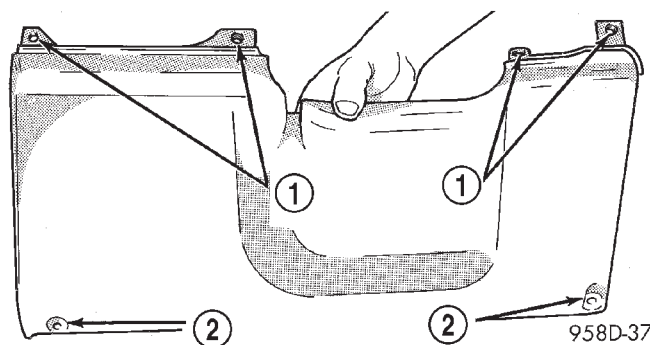


Fig. 20 Knee Bolster Attaching Points

- 1 - KNEE BOLSTER SCREW LOCATIONS UNDER TOP COVER
2 - LOWER SCREW LOCATIONS

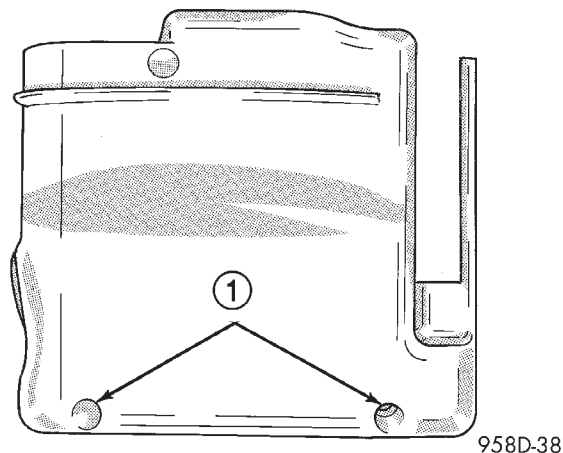


Fig. 21 Lower Steering Column Shroud Screw Locations

- 1 - LOWER STEERING COLUMN SHROUD SCREW LOCATIONS

REMOVAL AND INSTALLATION (Continued)

(8) Pull lower shroud to clear ignition cylinder and key release, if equipped (Fig. 22).

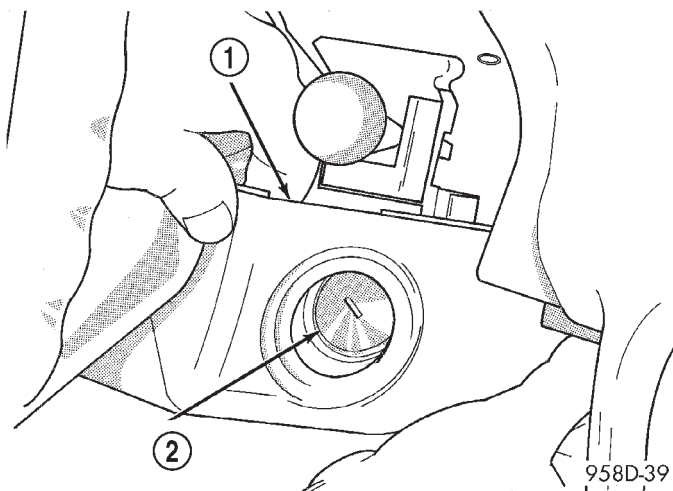


Fig. 22 Remove Lower Shroud From Ignition Cylinder

- 1 - LOWER SHROUD
- 2 - KEY CYLINDER

(9) Hold tilt wheel lever down and slide lower shroud forward to remove it from column (Fig. 23).

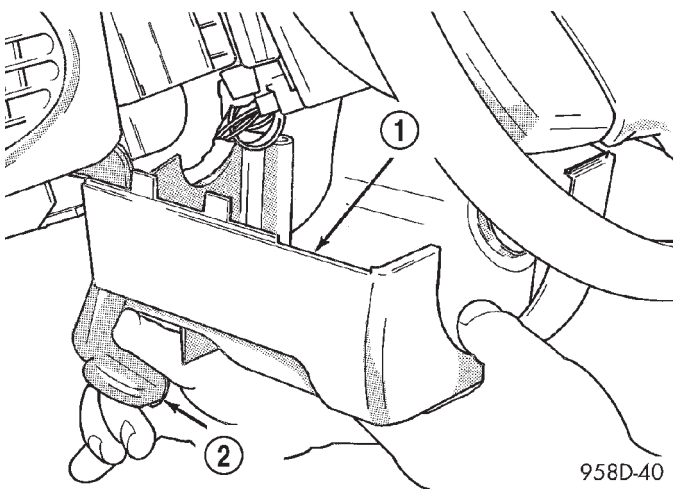


Fig. 23 Lower Shroud Removal

- 1 - LOWER SHROUD
- 2 - TILT LEVER

(10) Tilt wheel to full down position and remove upper steering column shroud.

(11) Remove screws holding multi-function switch to lock housing (Fig. 24).

(12) Place key cylinder in RUN position. Depress lock cylinder retaining tab and remove key cylinder (Fig. 25).

(13) Disconnect electrical connectors from ignition switch (Fig. 26) and (Fig. 27).

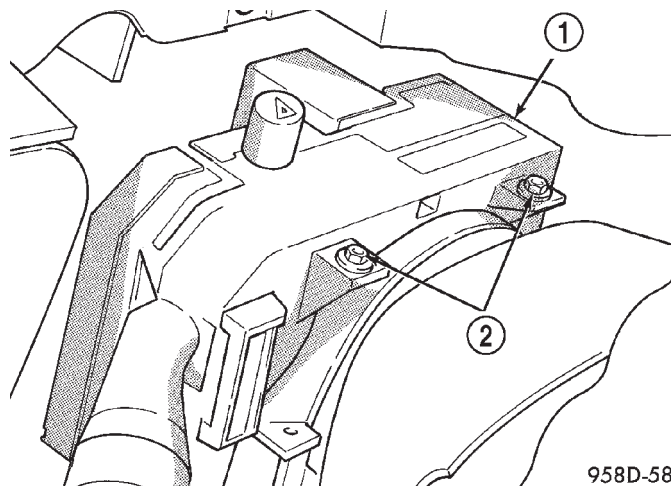


Fig. 24 Multi-Function Switch Removal/Installation

- 1 - MULTI-FUNCTION SWITCH
- 2 - ATTACHING SCREWS

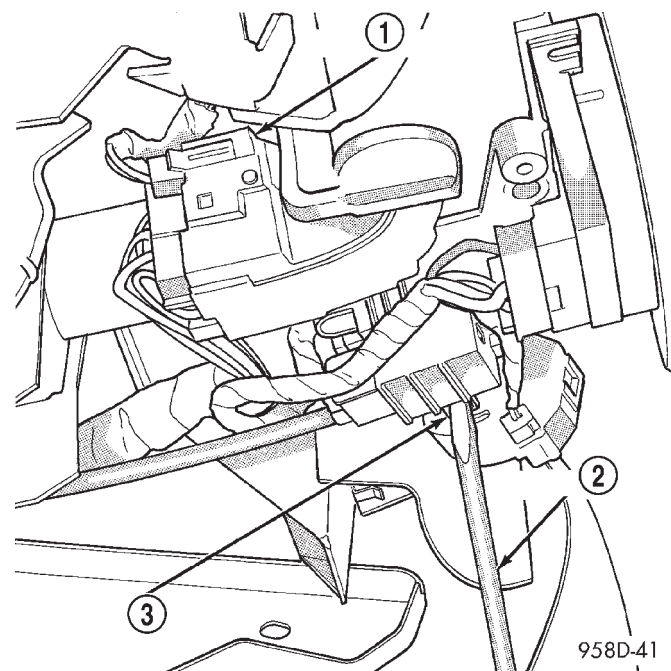


Fig. 25 Lock Cylinder Removal

- 1 - IGNITION SWITCH
- 2 - SCREWDRIVER
- 3 - LOCK CYLINDER RETAINING TAB

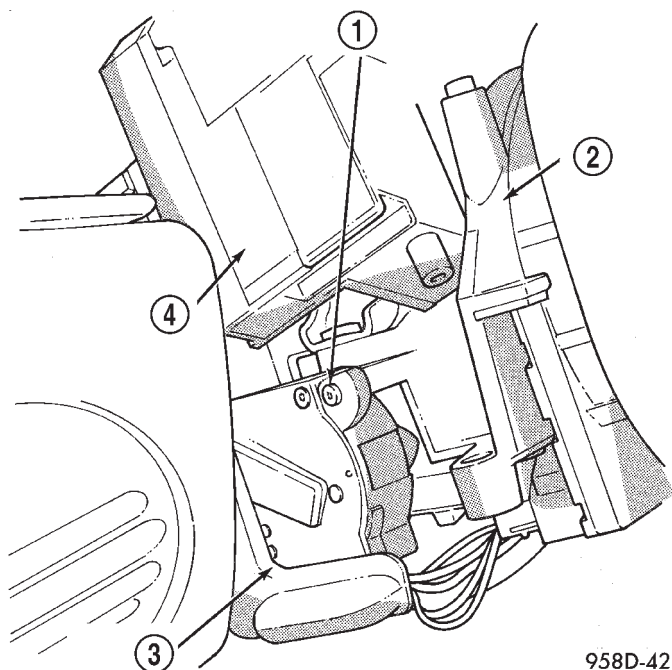
(14) Remove ignition switch mounting screw (Fig. 26) with a #10 Torx® tamper proof bit.

(15) Depress retaining tabs (Fig. 16) and pull ignition switch from steering column.

INSTALLATION

(1) Ensure the ignition switch is in the RUN position and the actuator shaft in the lock housing is in the RUN position.

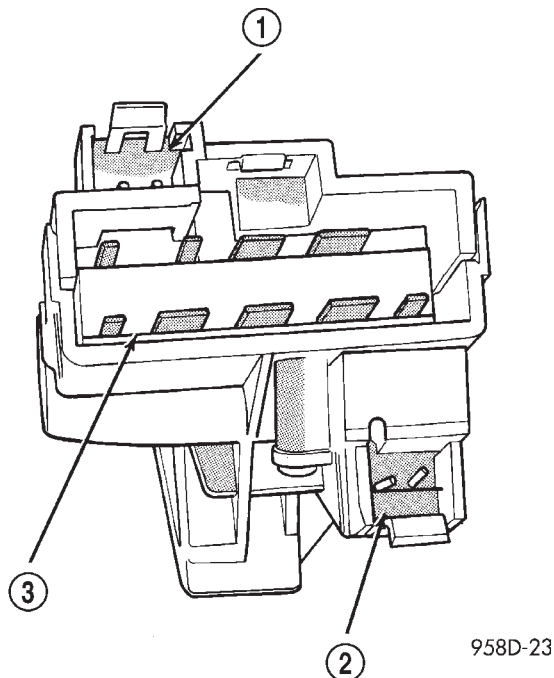
REMOVAL AND INSTALLATION (Continued)



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Fig. 26 Ignition Switch

- 1 - ATTACHING/GROUNDING SCREW
- 2 - LOCK HOUSING
- 3 - IGNITION SWITCH
- 4 - MULTI-FUNCTION SWITCH



958D-23

Fig. 27 Ignition Switch Connectors

- 1 - KEY IN SWITCH
- 2 - PRNDL SWITCH
- 3 - IGNITION SWITCH

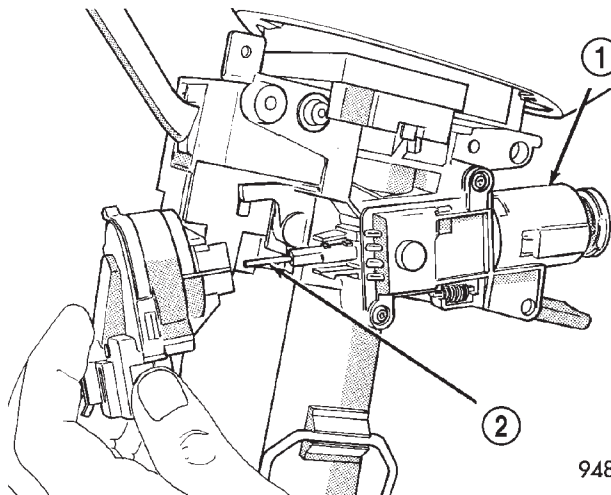
(2) Carefully install the ignition switch. The switch will snap over the retaining tabs (Fig. 28). Install mounting screw (Fig. 26).

(3) Install electrical connectors to ignition switch.

(4) Install upper and lower shrouds.

(5) Install key cylinder (cylinder retaining tab will depress only in the RUN position).

(6) Connect negative cable to battery.



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Fig. 28 Ignition Switch Installation

- 1 - LOCK CYLINDER HOUSING
- 2 - SHAFT

(7) Check for proper operation of ignition switch and key-in warning switch.

LOCK KEY CYLINDER**REMOVAL**

(1) Disconnect negative cable from auxillary jumper terminal.

(2) Remove upper steering column shroud.

(3) Pull lower shroud down far enough to access lock cylinder retaining tab.

(4) Place key cylinder in RUN position. Depress retaining tab and remove key cylinder (Fig. 29).

INSTALLATION

(1) Install key in lock cylinder. Turn key to run position (retaining tab on lock cylinder can be depressed).

(2) The shaft at the end of the lock cylinder aligns with the socket in the end of the housing. To align the socket with the lock cylinder, ensure the socket is in the Run position (Fig. 30).

(3) Align the lock cylinder with the grooves in the housing. Slide the lock cylinder into the housing until the tab sticks through the opening in the housing.

REMOVAL AND INSTALLATION (Continued)

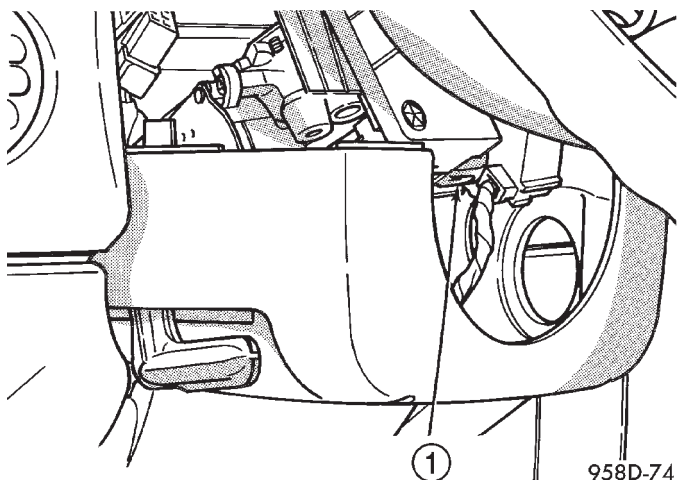


Fig. 29 Lock Cylinder Retaining Tab

1 - LOCK CYLINDER RETAINING TAB

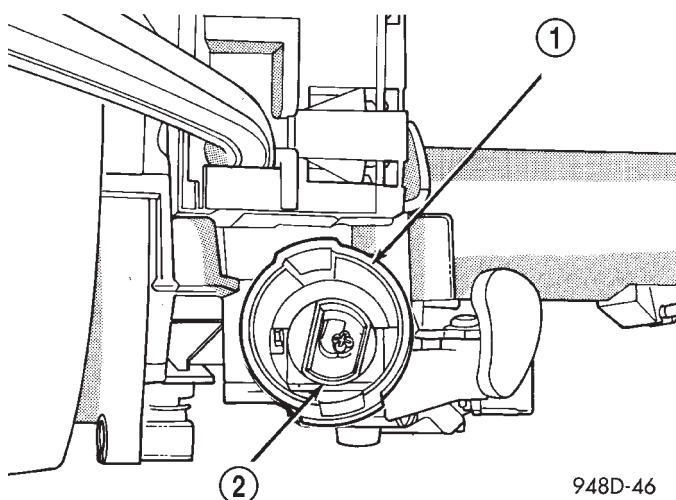


Fig. 30 Socket in Lock Cylinder Housing

1 - LOCK CYLINDER HOUSING
2 - SOCKET

(4) Turn the key to the Off position. Remove the key.

(5) Install steering column shrouds.

(6) Connect negative cable to auxillary battery terminal on shock tower.

IGNITION INTERLOCK

Refer to the Transaxle section for Shifter/Ignition Interlock Service.

LOCK CYLINDER HOUSING

Refer to Steering Column in Group 19, Steering, for Lock Cylinder Housing Service.

SPECIFICATIONS

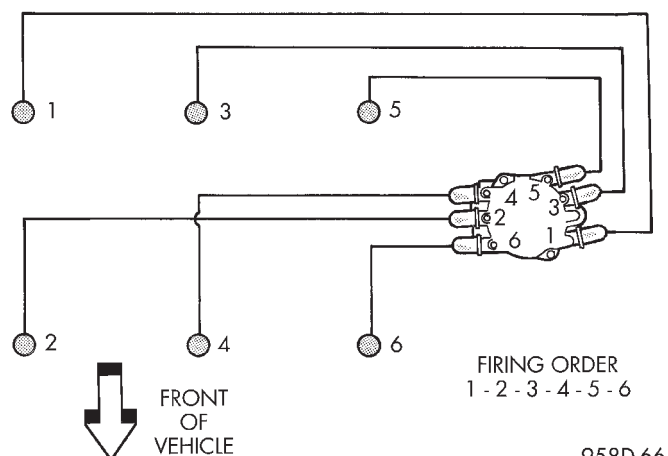
VEHICLE EMISSION CONTROL INFORMATION LABEL

DESCRIPTION

All models have a Vehicle Emission Control Information (VECI) Label. Chrysler permanently attaches the label in the engine compartment. It cannot be removed without defacing information and destroying the label.

The label contains the vehicle's emission specifications and vacuum hose routings. All hoses must be connected and routed according to the label.

FIRING ORDER



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FIRING ORDER—2.5L

TORQUE SPECIFICATION

DESCRIPTION

TORQUE

Air Inlet tube Clamp	3 N·m (25 in. lbs.)
Camshaft Position Sensor Screw	12 N·m (105 in. lbs.)
Coolant Sensor—2.5L	27 N·m (20 ft. lbs.)
Crankshaft Position Sensor Screw	12 N·m (105 in. lbs.)
Coolant Temp. Sensor	18.6 N·m (165 in. lbs.)
Distributor Holddown Nut—2.5L	13 N·m (9 ft. lbs.)
EGR Tube to Intake	11 N·m (95 in. lbs.)
IAT Sensor—2.5L	11.5 N·m (100 in. lbs.)
Knock Sensor	10 N·m (90 in. lbs.)
MAP Sensor—2.5L	3.4 N·m (30 in. lbs.)
Spark Plugs	28 N·m (20 ft. lbs.)

SPECIFICATIONS (Continued)

SPARK PLUG CABLE RESISTANCE—2.5L

MINIMUM	MAXIMUM
250 Ohms Per Inch	560 Ohms Per Inch
3000 Ohms Per Foot	6700 Ohms Per Foot

SPARK PLUGS

Engine	Spark Plug	Gap	Thread Size
2.4L	RC12YC5	0.048 TO 0.053	14mm (3/4 in.) reach
2.5L	RC10PYP4	0.038 TO 0.043	14mm (3/4 in.) reach

IGNITION COIL

Engines	Coil Manufacture	Primary Resistance at 21°C-27°C (70°F-80°F)	Secondary Resistance at 21°C-27°C (70°F-80°F)
2.5L	Melco	0.6 TO 0.8 Ohms	12,500 to 18,000 Ohms