PRESSURE CAP (Continued)

INSPECTION

Hold the cap in your hand, **right side up** (Fig. 17). The vent valve at the bottom of the cap should be normally closed. The vent valve should open with a slight pull with your finger nail. Replace the pressure cap for any of the following:

- Rubber gasket has swollen, preventing the valve from opening, replace the cap.
- ANy light can be seen between the vent valve and the rubber gasket.**Use only a replacement cap that has a spring to hold the valve shut**.
- Gasket on the bottom of the cal shows noticable thinning.
- Cap has been through more then one engine overheat.

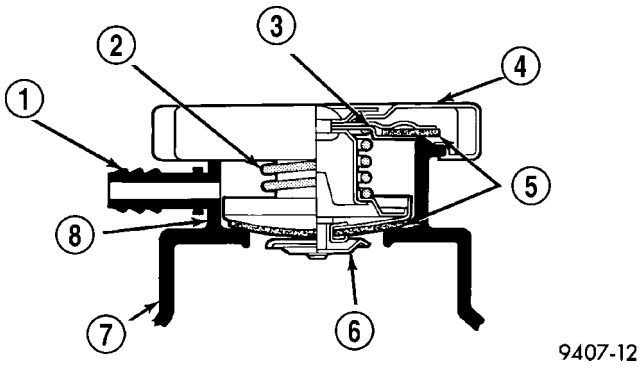

Fig. 17 Cooling System Pressure Cap

1 - OVERFLOW NIPPLE
2 - MAIN SPRING
3 - GASKET RETAINER
4 - STAINLESS-STEEL SWIVEL TOP
5 - RUBBER SEALS
6 - VENT VALVE
7 - COOLANT PRESSURE CONTAINER
8 - FILLER NECK

RADIATOR FAN RELAY

DESCRIPTION

The radiator fan relay is a solid state type and is located on the back of the bumper beam. Refer to WIRING DIAGRAMS for a circuit schematic.

OPERATION

The solid state radiator fan relay is controlled by the Powertrain Control Module (PCM) by way of a Pulse Width Modulated (PWM) signal. The relay control circuit supplies a 12 volt signal to the PCM. The PCM then pulses the ground circuit to achieve fan on time. The relay provides a voltage to the fan motors which is proportional to the pulse width it receives from the PCM. The duty cycle ranges from 50% for low speed operation, then ramps-up to 100% for high speed operation. This fan control system provides infinitely variable fan speeds, allowing for improved fan noise, A/C performance, better engine cooling, and additional vehicle power.

To control operation of the relay, the PCM looks at inputs from:

- Engine coolant temperature
- A/C pressure transducer
- Ambient temperature from the body controller
- Vehicle speed
- Transmission oil temperature

The PCM uses these inputs to determine when the fan should operate and at what speed.

REMOVAL

(1) Open hood.

(2) Disconnect and isolate the battery negative cable.

(3) Partiacially remove the front fascia to gain access to the radiator fan relay (Refer to 23 - BODY/EXTERIOR/GRILLE - REMOVAL).

(4) Disconnect the relay electrical connector (Fig. 18).

(5) Remove the rivet attaching the relay to the front bumper beam (Fig. 18).

(6) Remove the relay.

RADIATOR FAN RELAY (Continued)

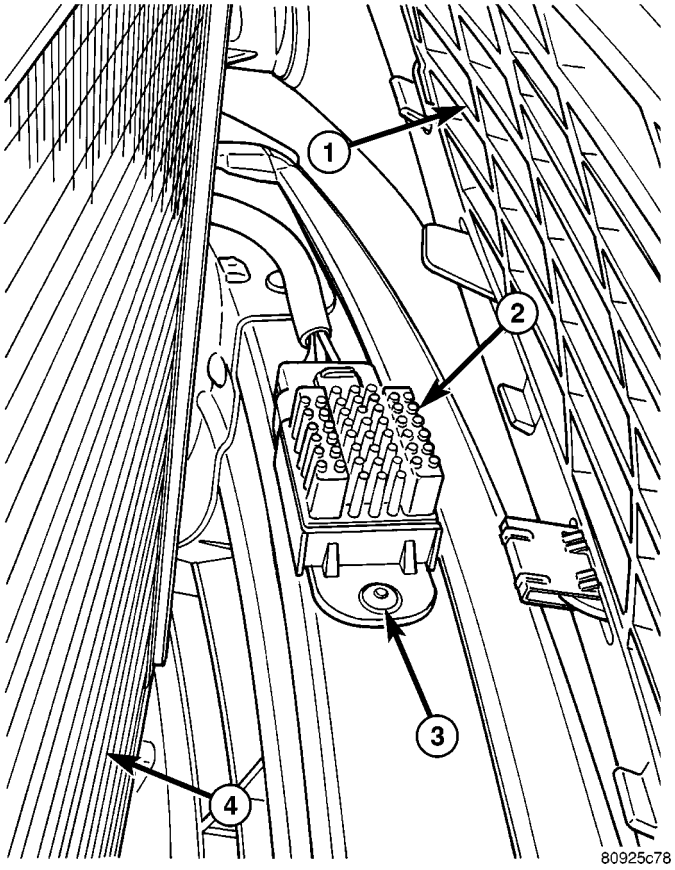

Fig. 18 RADIATOR FAN RELAY

1 - FRONT FASCIA
2 - FAN RELAY
3 - RIVET
4 - A/C CONDENSER (FRONT SIDE)

INSTALLATION

CAUTION: The relay mounting location is designed to dissipate heat. Ensure the relay is securely attached to prevent relay "thermal" shutdown and relay damage, resulting in possible engine overheating.

(1) Position relay and install a new rivet (Fig. 18).
(2) Connect electrical connector to relay.
(3) Install fron facia (Refer to 23 - BODY/EXTERIOR/GRILLE - INSTALLATION).
(4) Connect negative cable to battery.

WATER PUMP

DESCRIPTION

The 3.5L water pump has a die cast aluminum housing and a plastic swept vane impeller. It bolts directly to the right rear timing belt cover using an O-ring for sealing (Fig. 20). The water pump is driven by the engine timing belt.

REMOVAL

The water pump on all models can be replaced without discharging the air conditioning system.

WARNING: DO NOT REMOVE PRESSURE CAP WITH THE SYSTEM HOT AND UNDER PRESSURE BECAUSE SERIOUS BURNS FROM COOLANT CAN OCCUR.

NOTE: It is normal for the water pump to weep a small amount of coolant from the weep hole (black stain on water pump body). Do not replace the water pump if this condition exists. Replace the water pump if a heavy deposit or a steady flow of engine coolant is evident on water pump body from the weep hole (shaft seal failure). Be sure to perform a thorough analysis before replacing water pump.

(1) Drain cooling system (Refer to 7 - COOLING - STANDARD PROCEDURE).

NOTE: The water pump is driven by the timing belt.

(2) Remove engine timing belt (Refer to 9 - ENGINE/VALVE TIMING/TIMING BELT/CHAIN AND SPROCKETS - REMOVAL).
(3) Remove water pump mounting bolts (Fig. 19). Note position of longer bolt for proper re-installation.
(4) Remove water pump body from engine (Fig. 19).

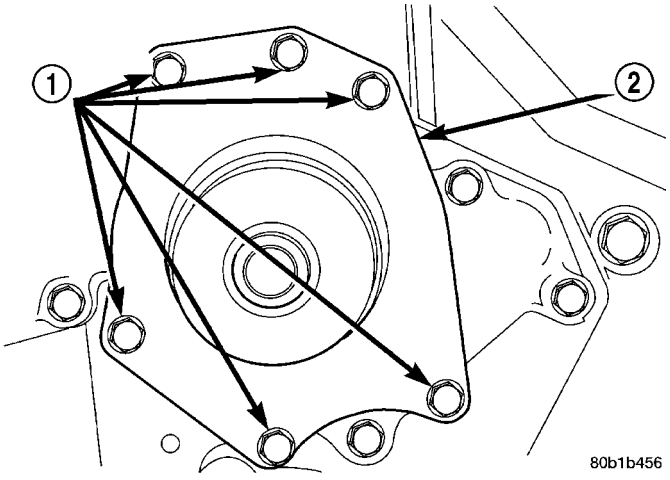

Fig. 19 Water Pump - 3.5L Engine

1 - SCREWS
2 - WATER PUMP BODY

INSPECTION

Inspect and replace the water pump if it has any of the following defects:
(1) Damage or cracks on the pump body.