

FAN DRIVE VISCOUS CLUTCH (Continued)

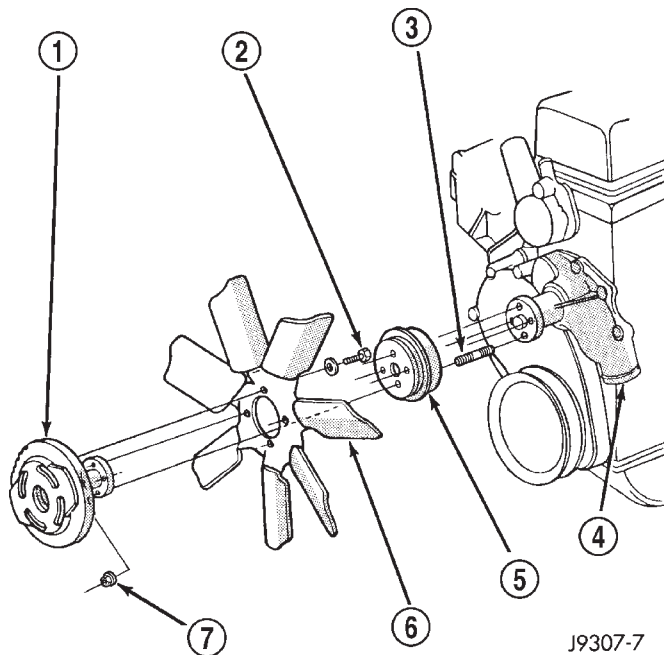


Fig. 12 Water Pump Mounted Fan Drive - 2.5L Engine

- 1 - THERMAL VISCOUS FAN DRIVE
- 2 - (4) FAN BLADE-TO-VISCOUS DRIVE BOLTS
- 3 - (4) FAN HUB-TO-PUMP PULLEY STUDS
- 4 - WATER PUMP
- 5 - WATER PUMP PULLEY
- 6 - FAN BLADE
- 7 - (4) FAN HUB-TO-PUMP PULLEY NUTS

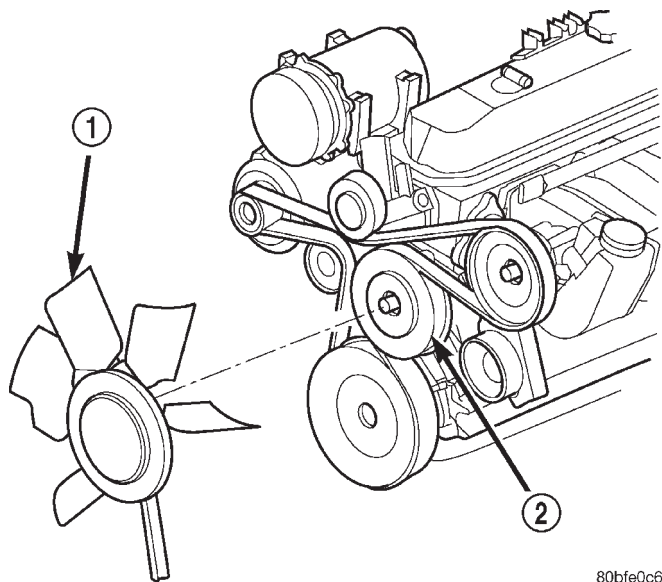
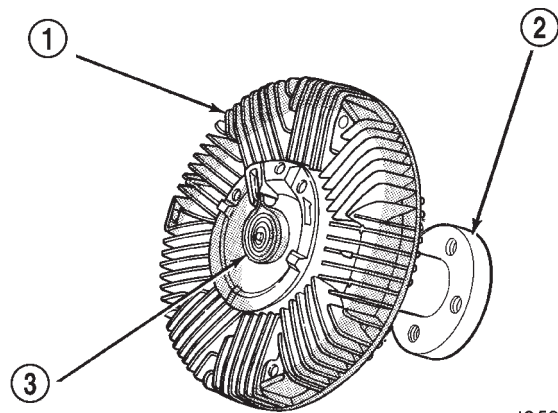


Fig. 13 Water Pump Mounted Fan Drive - 4.0L Engine

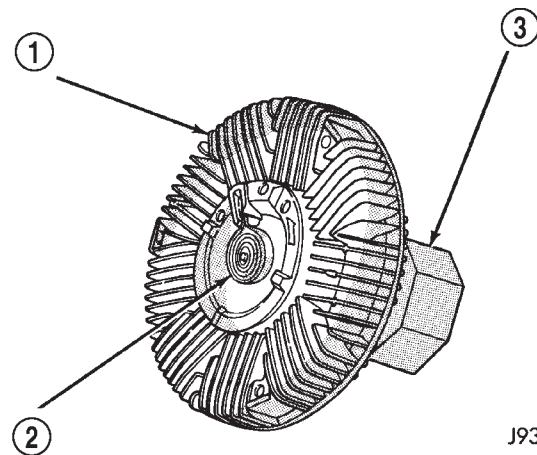
- 1 - FAN AND FAN DRIVE
- 2 - WATER PUMP PULLEY



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Fig. 14 Viscous Fan Drive - 2.5L Engine

- 1 - VISCOUS FAN DRIVE
- 2 - MOUNTING HUB
- 3 - THERMOSTATIC SPRING



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Fig. 15 Viscous Fan Drive - 4.0L Engine

- 1 - VISCOUS FAN DRIVE
- 2 - THERMOSTATIC SPRING
- 3 - MOUNTING NUT TO WATER PUMP HUB

DIAGNOSIS AND TESTING

VISCOUS FAN DRIVE

NOISE

NOTE: It is normal for fan noise to be louder (roaring) when:

- The underhood temperature is above the engagement point for the viscous drive coupling. This may occur when ambient (outside air temperature) is very high.
- Engine loads and temperatures are high such as when towing a trailer.

FAN DRIVE VISCOUS CLUTCH (Continued)

• Cool silicone fluid within the fan drive unit is being redistributed back to its normal disengaged (warm) position. This can occur during the first 15 seconds to one minute after engine start-up on a cold engine.

LEAKS

Viscous fan drive operation is not affected by small oil stains near the drive bearing. If leakage appears excessive, replace the fan drive unit.

TESTING

If the fan assembly free-wheels without drag (the fan blades will revolve more than five turns when spun by hand), replace the fan drive. This spin test must be performed when the engine is cool.

For the following test, the cooling system must be in good condition. It also will ensure against excessively high coolant temperature.

WARNING: BE SURE THAT THERE IS ADEQUATE FAN BLADE CLEARANCE BEFORE DRILLING.

(1) Drill a 3.18-mm (1/8-in) diameter hole in the top center of the fan shroud.

(2) Obtain a dial thermometer with an 8 inch stem (or equivalent). It should have a range of -18°-to-105°C (0°-to-220° F). Insert thermometer through the hole in the shroud. Be sure that there is adequate clearance from the fan blades.

(3) Connect a tachometer and an engine ignition timing light (timing light is to be used as a strobe light).

(4) Block the air flow through the radiator. Secure a sheet of plastic in front of the radiator (or air conditioner condenser). Use tape at the top to secure the plastic and be sure that the air flow is blocked.

(5) Be sure that the air conditioner (if equipped) is turned off.

WARNING: USE EXTREME CAUTION WHEN THE ENGINE IS OPERATING. DO NOT STAND IN A DIRECT LINE WITH THE FAN. DO NOT PUT YOUR HANDS NEAR THE PULLEYS, BELTS OR FAN. DO NOT WEAR LOOSE CLOTHING.

(6) Start the engine and operate at 2400 rpm. Within ten minutes the air temperature (indicated on the dial thermometer) should be up to 88° C (190° F). Fan drive **engagement** should have started to occur at between 74° to 85° C (165° to 185° F). Engagement is distinguishable by a definite **increase** in fan flow noise (roaring). The timing light also will indicate an increase in the speed of the fan.

(7) When the air temperature reaches 88° C (190° F), remove the plastic sheet. Fan drive **disengagement** should have started to occur at between 57° to

82° C (135° to 180° F). A definite **decrease** of fan flow noise (roaring) should be noticed. If not, replace the defective viscous fan drive unit.

CAUTION: Engines equipped with serpentine drive belts have reverse rotating fans and viscous fan drives. They are marked with the word REVERSE to designate their usage. Installation of the wrong fan or viscous fan drive can result in engine overheating.

CAUTION: If the viscous fan drive is replaced because of mechanical damage, the cooling fan blades should also be inspected. Inspect for fatigue cracks, loose blades, or loose rivets that could have resulted from excessive vibration. Replace fan blade assembly if any of these conditions are found. Also inspect water pump bearing and shaft assembly for any related damage due to a viscous fan drive malfunction.

REMOVAL

(1) **2.5L Engine** Loosen but do not remove at this time, the four fan hub mounting nuts (Fig. 16).

(2) **4.0L Engine** The thermal viscous fan drive/fan blade assembly is attached (threaded) to water pump hub shaft. Remove fan blade/viscous fan drive assembly from water pump by turning mounting nut counterclockwise as viewed from front. Threads on viscous fan drive are **RIGHT HAND**. Using a suitable fan wrench loosen the fan drive (Fig. 17).

(3) Remove accessory drive belt (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - REMOVAL).

(4) Some models with certain engines may require the removal of the fan shroud to remove the viscous fan drive. The fan shroud and fan blade/viscous fan drive should be removed from the vehicle as one assembly.

(5) **2.5L Engine** Remove four fan hub mounting nuts (Fig. 16) and remove fan/viscous fan drive assembly from vehicle.

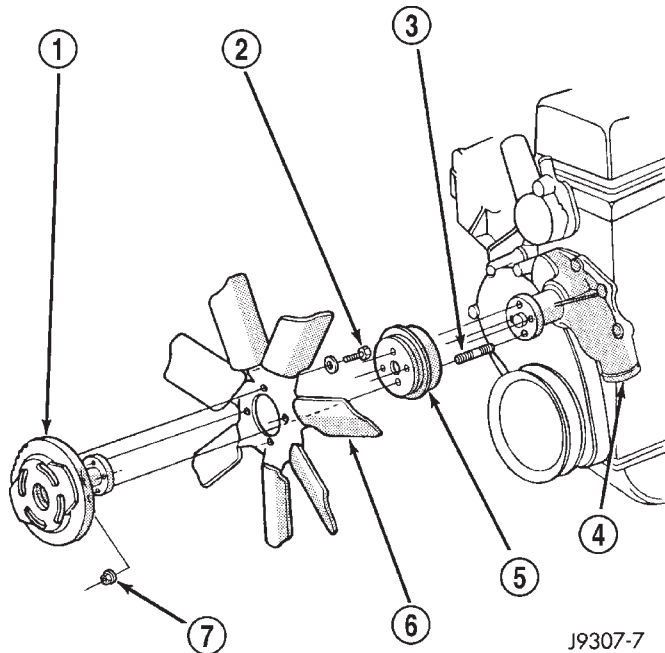
(6) After removing fan blade/viscous fan drive assembly, **do not** place thermal viscous fan drive in horizontal position. If stored horizontally, silicone fluid in viscous fan drive could drain into its bearing assembly and contaminate lubricant.

INSTALLATION

(1) Assemble fan blade to viscous fan drive. Tighten mounting bolts to 27 N·m (20 ft. lbs.) torque.

(2) **2.5L Engine** Position mounting flange of fan blade/viscous fan drive assembly onto hub. Install four nuts and tighten to 24 N·m (18 ft. lbs.) torque. Tighten the first two nuts 180 degrees apart. Then tighten last two nuts.

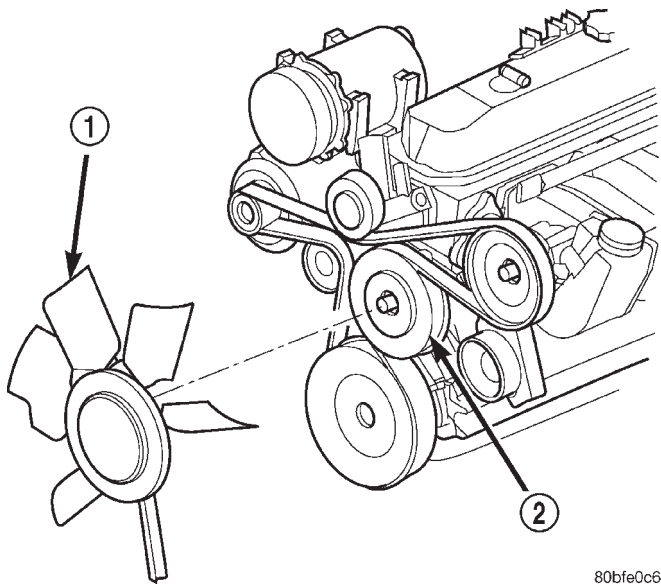
FAN DRIVE VISCOUS CLUTCH (Continued)



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Fig. 16 Fan Mount - 2.5L Engine

- 1 - THERMAL VISCOUS FAN DRIVE
- 2 - (4) FAN BLADE-TO-VISCOUS DRIVE BOLTS
- 3 - (4) FAN HUB-TO-PUMP PULLEY STUDS
- 4 - WATER PUMP
- 5 - WATER PUMP PULLEY
- 6 - FAN BLADE
- 7 - (4) FAN HUB-TO-PUMP PULLEY NUTS



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Fig. 17 Fan and Fan Drive - 4.0L Engine

- 1 - FAN AND FAN DRIVE
- 2 - WATER PUMP PULLEY

(3) **4.0L Engine** Thread the fan and fan drive onto the water pump pulley.

CAUTION: When installing a serpentine accessory drive belt, the belt **MUST** be routed correctly. If not, the engine may overheat due to the water pump rotating in the wrong direction.

(4) Install accessory drive belt (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - INSTALLATION).

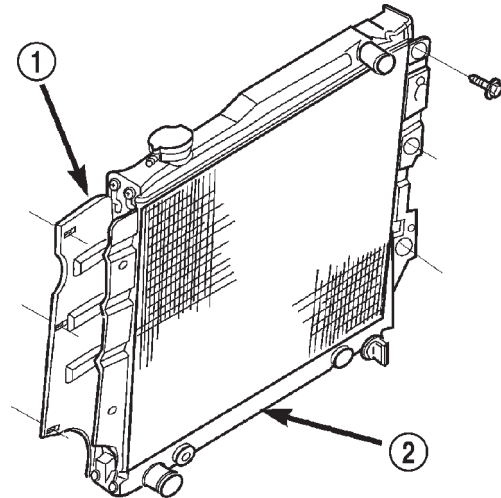
RADIATOR

DESCRIPTION

CAUTION: Plastic tanks, while stronger than brass, are subject to damage by impact, such as wrenches, mishandling, etc.

A heavy duty down-flow aluminum/plastic radiator is used (Fig. 18). The radiator consists of an aluminum core and plastic end tanks, which are fastened to the core with clinch tabs and sealed with a high temperature rubber gasket. On automatic transmission equipped vehicles, the lower tank contains a concentric-tube transmission oil cooler.

If the plastic tank has been damaged, individual parts are not available, and the radiator must be replaced.



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Fig. 18 Downflow Radiator - Typical

- 1 - DOWNFLOW RADIATOR
- 2 - INTEGRAL TRANSMISSION OIL COOLER (INTERNAL TO RADIATOR)

OPERATION

As air passes through the radiator core, the heat within the coolant is dissipated into the ambient air.

RADIATOR (Continued)

DIAGNOSIS AND TESTING - RADIATOR COOLANT FLOW

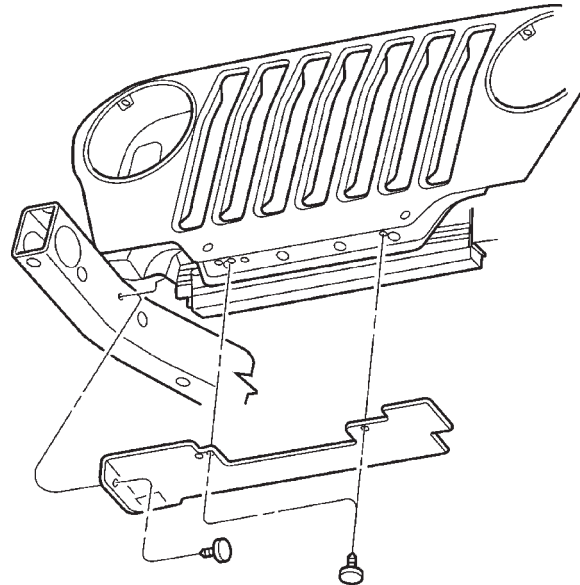
The following procedure will determine if coolant is flowing through the cooling system.

If engine is cold, idle engine until normal operating temperature is reached. Then feel the upper radiator hose. If hose is hot, the thermostat is open and water is circulating through cooling system.

REMOVAL

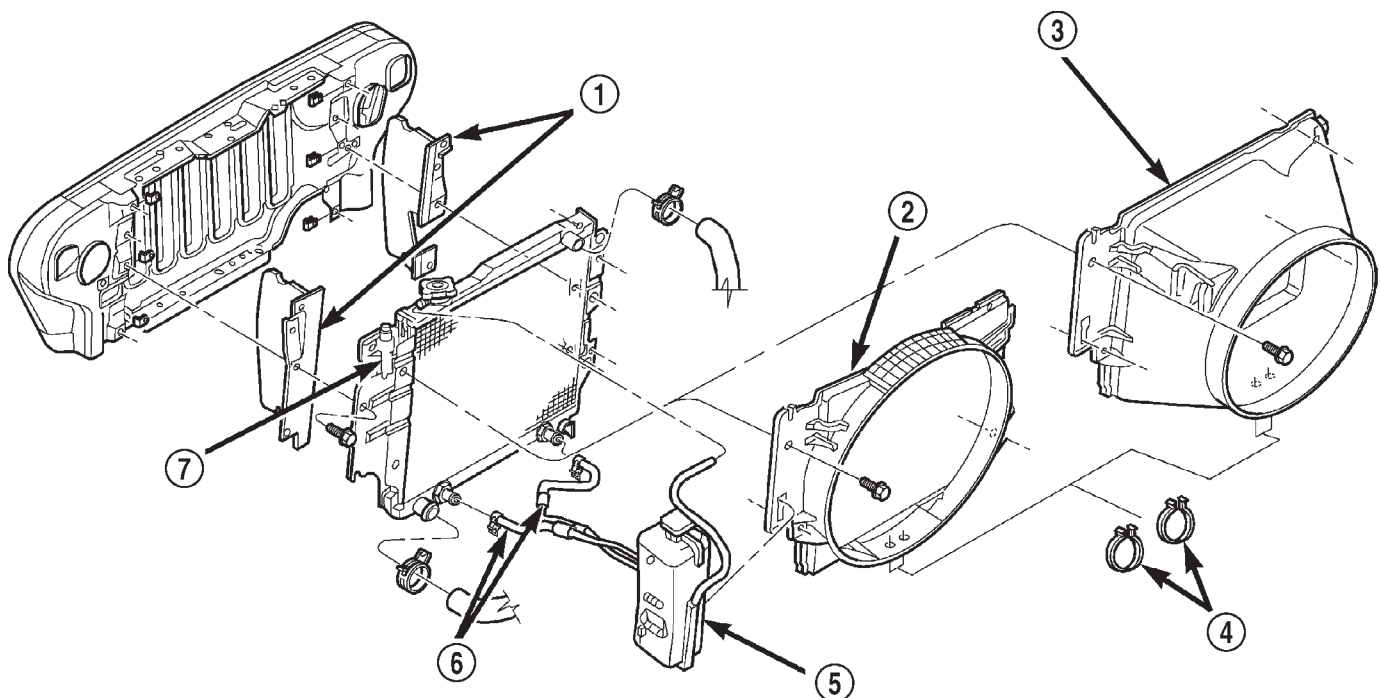
WARNING: DO NOT REMOVE THE CYLINDER BLOCK DRAIN PLUGS OR LOOSEN THE RADIATOR DRAINCOCK WITH THE SYSTEM HOT AND PRESSURIZED. SERIOUS BURNS FROM THE COOLANT CAN OCCUR.

- (1) Disconnect negative battery cable at battery.
- (2) Observe the previous **WARNING**. Remove the radiator cap.
- (3) Remove the condenser lower seal from the lower core support (Fig. 19).
- (4) Drain cooling system (Refer to 7 - COOLING - STANDARD PROCEDURE) drain coolant into a clean container for reuse.
- (5) Remove radiator upper and lower hose clamps. Remove radiator hoses.

**Fig. 19 Condenser Lower Seal**

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- (6) Disconnect coolant reserve/overflow tank hose from radiator.
- (7) Remove the four fan shroud mounting bolts (Fig. 20). On some models the power steering fluid reservoir tank is attached to the side of the fan shroud. Tie the reservoir back to prevent spillage. Position the fan shroud back over the fan blades.

**Fig. 20 Radiator - Remove/Install**

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- | | |
|--|---|
| 1 - A/C CONDENSER SEALS | 5 - COOLANT RECOVERY BOTTLE |
| 2 - FAN SHROUD (4.0L) | 6 - TRANSMISSION COOLER LINES (IF EQUIPPED) |
| 3 - FAN SHROUD (2.5L) | 7 - FRONT AXLE VENT HOSE |
| 4 - TRANSMISSION OIL COOLER LINES RETAINER CLIPS | |

RADIATOR (Continued)

(8) If equipped, disconnect and plug automatic transmission fluid cooler lines.

(9) Remove six radiator mounting bolts. Position the front axle vent hose (Fig. 20) to the side.

(10) Lift radiator straight up and out of vehicle taking care not to damage radiator fins.

(11) When removing radiator, note position of the rubber seals located on the top and bottom of radiator (on certain models only) (Fig. 20). To prevent possible overheating, these seals must be installed to their original positions.

CLEANING

Clean radiator fins. With the engine cold, apply cold water and compressed air to the back (engine side) of the radiator to flush the radiator and/or A/C condenser of debris.

INSPECTION

The radiator cooling fins should be checked for damage or deterioration. Inspect cooling fins to make sure they are not bent or crushed, these areas result in reduced heat exchange causing the cooling system to operate at higher temperatures. Inspect the plastic end tanks for cracks, damage or leaks.

Inspect the radiator neck for damage or distortion.

INSTALLATION

(1) Position the radiator. Install and tighten the six mounting bolts (Fig. 20) to 8 N·m (72 in. lbs.) torque.

(2) Close radiator draincock.

(3) Position fan shroud and power steering reservoir tank (if equipped). Install and tighten four mounting bolts to 8 N·m (72 in. lbs.) torque.

(4) If equipped, remove plugs and connect automatic transmission fluid cooler lines and constant tension clamps.

(5) Connect radiator hoses and install hose clamps.

(6) Position and install the condenser lower seal (Fig. 19).

(7) Connect battery negative cable.

(8) Fill cooling system with correct coolant (Refer to 7 - COOLING - STANDARD PROCEDURE).

(9) Connect coolant recovery bottle hose.

(10) Install radiator cap.

(11) Check and adjust automatic transmission fluid level (if equipped).

(12) Start engine and check for leaks.

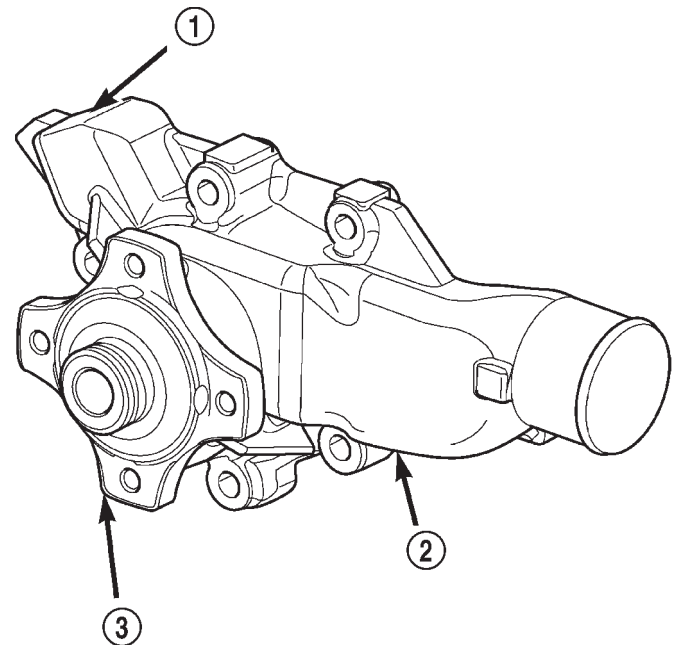
WATER PUMP - 2.5L

DESCRIPTION

CAUTION: The 2.5L 4-cylinder and the 4.0L 6-cylinder engines are equipped with a reverse (counter-clockwise) rotating water pump and thermal viscous fan drive assembly. REVERSE is stamped or imprinted on the cover of the viscous fan drive and inner side of the fan. The letter R is stamped into the back of the water pump impeller. Engines from previous model years, depending upon application, may have been equipped with a forward (clockwise) rotating water pump. Installation of the wrong water pump or viscous fan drive will cause engine over heating.

This aluminum water pump (Fig. 21) is the heart of the cooling system. The water pump is located at the front of the cylinder block, above the timing chain cover

The water pump impeller is pressed onto the rear of a shaft that rotates in bearings pressed into the housing. The housing has two small holes to allow seepage to escape. The water pump seals are lubricated by the antifreeze in the coolant mixture. No additional lubrication is necessary.



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Fig. 21 Water Pump

1 - HEATER HOSE FITTING BORE

2 - WATER PUMP

3 - WATER PUMP HUB

WATER PUMP - 2.5L (Continued)

OPERATION

A centrifugal water pump circulates coolant through the water jackets, passages, intake manifold, radiator core, cooling system hoses and heater core. The pump is driven from the engine crankshaft by a single serpentine drive belt on all engines.

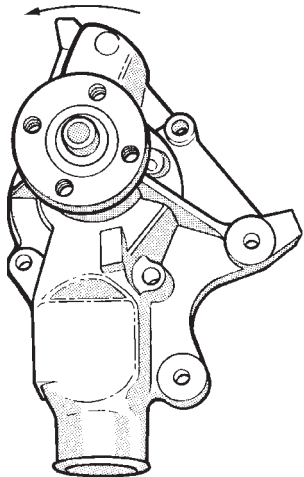
REMOVAL

The water pump can be removed without discharging the air conditioning system (if equipped).

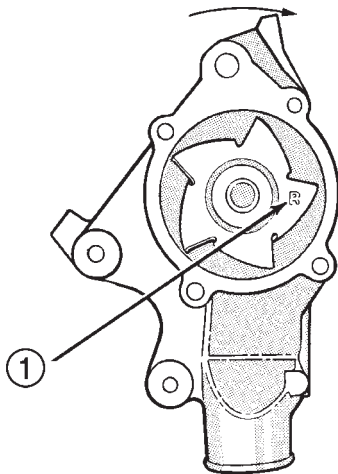
CAUTION: All engines have a reverse (counterclockwise) rotating water pump. The letter R is stamped into the back of the water pump impeller (Fig. 22) to identify. Engines from previous model years, depending upon application, may be equipped with a forward (clockwise) rotating water pump. Installation of the wrong water pump will cause engine over heating.

FRONT VIEW

ROTATION DIRECTION
AS VIEWED

**BACK VIEW**

ROTATION DIRECTION
AS VIEWED



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Fig. 22 Reverse Rotating Water Pump

1 - R STAMPED INTO IMPELLER

The water pump impeller is pressed on the rear of the pump shaft and bearing assembly. The water pump is serviced only as a complete assembly.

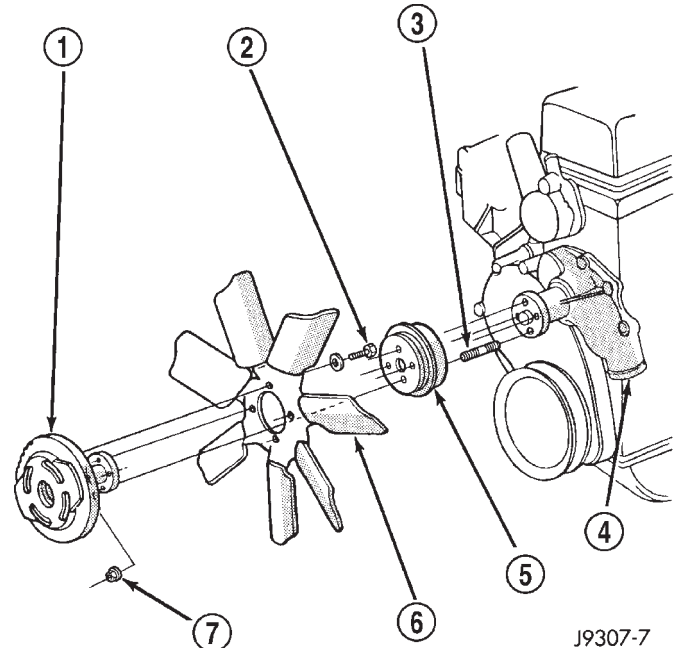
WARNING: DO NOT REMOVE THE BLOCK DRAIN PLUG(S) OR LOOSEN RADIATOR DRAINCOCK WITH THE SYSTEM HOT AND UNDER PRESSURE. SERIOUS BURNS FROM COOLANT CAN OCCUR.

DO NOT WASTE reusable coolant. If the solution is clean, drain coolant into a clean container for reuse.

(1) Disconnect negative battery cable at battery.

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

(3) Loosen (but do not remove at this time) the four fan hub-to-water pump pulley mounting nuts (Fig. 23).



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Fig. 23 Fan Mounting Nuts

- 1 - THERMAL VISCOUS FAN DRIVE
- 2 - (4) FAN BLADE-TO-VISCOUS DRIVE BOLTS
- 3 - (4) FAN HUB-TO-PUMP PULLEY STUDS
- 4 - WATER PUMP
- 5 - WATER PUMP PULLEY
- 6 - FAN BLADE
- 7 - (4) FAN HUB-TO-PUMP PULLEY NUTS

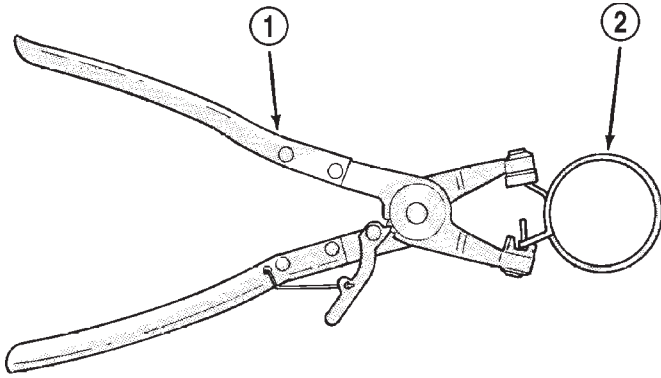
NOTE: The engine accessory drive belt must be removed prior to removing the fan.

(4) Remove accessory drive belt (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - REMOVAL).

(5) Remove power steering pump.

WARNING: CONSTANT TENSION HOSE CLAMPS ARE USED ON MOST COOLING SYSTEM HOSES. WHEN REMOVING OR INSTALLING, USE ONLY TOOLS DESIGNED FOR SERVICING THIS TYPE OF CLAMP, SUCH AS SPECIAL CLAMP TOOL (NUMBER 6094) (Fig. 24) SNAP-ON CLAMP TOOL (NUMBER HPC-20) MAY BE USED FOR LARGER CLAMPS. ALWAYS WEAR SAFETY GLASSES WHEN SERVICING CONSTANT TENSION CLAMPS.

WATER PUMP - 2.5L (Continued)

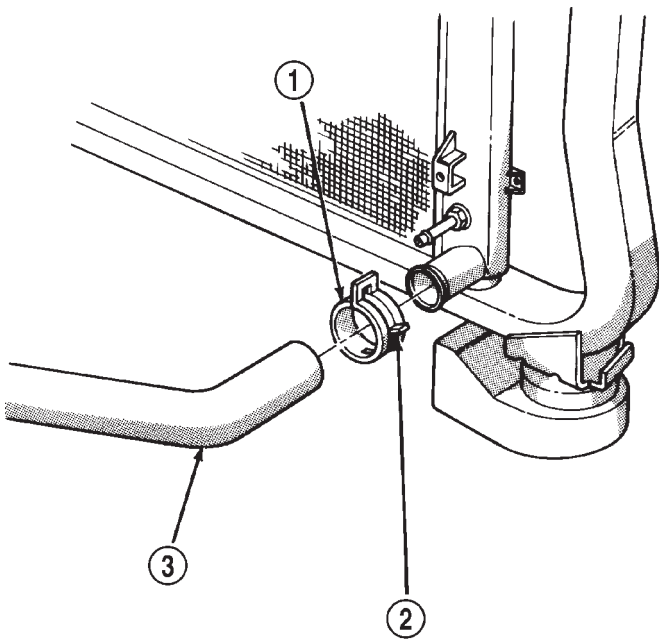


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Fig. 24 Hose Clamp Tool – Typical

- 1 - HOSE CLAMP TOOL 6094
- 2 - HOSE CLAMP

CAUTION: A number or letter is stamped into the tongue of constant tension clamps (Fig. 25). If replacement is necessary, use only an original equipment clamp with matching number or letter.



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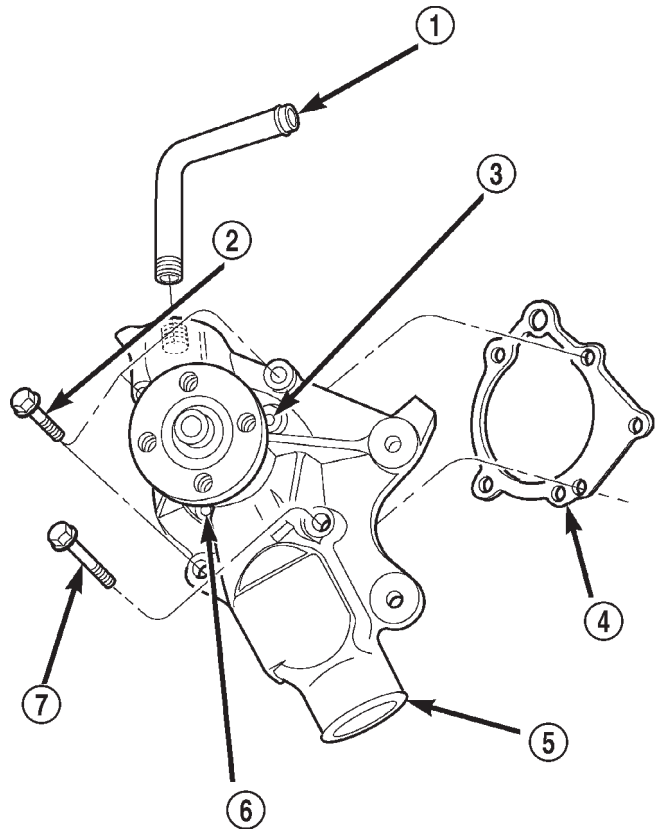
Fig. 25 Clamp Number/Letter Location

- 1 - TYPICAL CONSTANT TENSION HOSE CLAMP
- 2 - CLAMP NUMBER/LETTER LOCATION
- 3 - TYPICAL HOSE

- (6) Remove lower radiator hose from water pump. Remove heater hose from water pump fitting.
- (7) Remove four nuts previously loosened and remove the fan blade assembly and pulley.

(8) After removing fan blade/viscous fan drive assembly, **do not** place thermal viscous fan drive in horizontal position. If stored horizontally, silicone fluid in viscous fan drive could drain into its bearing assembly and contaminate lubricant.

(9) Remove the four pump mounting bolts (Fig. 26) and remove pump from vehicle. Discard old gasket. Note that one of the four bolts is longer than the other bolts.



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Fig. 26 Water Pump Remove/Install

- 1 - HEATER HOSE FITTING
- 2 - UPPER VENT HOLE
- 3 - PUMP GASKET
- 4 - WATER PUMP
- 5 - LOWER VENT HOLE
- 6 - LONG BOLT
- 7 - BOLTS (3) SHORT

(10) If pump is to be replaced, the heater hose fitting must be removed. Note position of fitting before removal.

INSTALLATION

(1) If pump is being replaced, install the heater hose fitting to the pump. Use a sealant on the fitting such as Mopar® Thread Sealant With Teflon. Refer to the directions on the package.

(2) Clean the gasket mating surfaces. If the original pump is used, remove any deposits or other for-

WATER PUMP - 2.5L (Continued)

eign material. Inspect the cylinder block and water pump mating surfaces for erosion or damage from cavitation.

(3) Install the gasket and water pump. The silicone bead on the gasket should be facing the water pump. Also, the gasket is installed dry. Tighten mounting bolts to 23 N-m (200 in. lbs.) torque. Rotate the shaft by hand to be sure it turns freely.

(4) Connect the radiator and heater hoses to the water pump.

(5) Position water pump pulley to water pump hub.

(6) Install fan and four nuts to water pump hub. Tighten or nuts to 27 N-m (20 ft. lbs.) torque.

(7) Install power steering pump.

CAUTION: When installing the serpentine engine accessory drive belt, the belt **MUST** be routed correctly. If not, the engine may overheat due to the water pump rotating in the wrong direction (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - INSTALLATION). You may also refer to the Belt Routing Label in the vehicle engine compartment.

(8) Install accessory drive belt (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - INSTALLATION).

(9) Fill cooling system (Refer to 7 - COOLING - STANDARD PROCEDURE).

(10) Connect battery cable to battery.

(11) Start and warm the engine. Check for leaks.

WATER PUMP - 4.0L

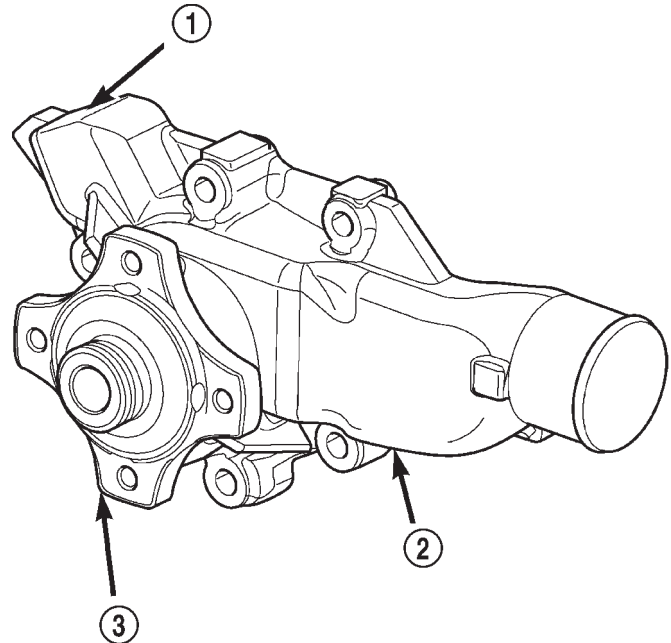
DESCRIPTION

CAUTION: The 2.5L 4-cylinder and the 4.0L 6-cylinder engines are equipped with a reverse (counterclockwise) rotating water pump and thermal viscous fan drive assembly. **REVERSE** is stamped or imprinted on the cover of the viscous fan drive and inner side of the fan. The letter R is stamped into the back of the water pump impeller. Engines from previous model years, depending upon application, may have been equipped with a forward (clockwise) rotating water pump. Installation of the wrong water pump or viscous fan drive will cause engine over heating.

This aluminum water pump (Fig. 27) is the heart of the cooling system. The water pump is located at the front of the cylinder block, above the timing chain cover

The water pump impeller is pressed onto the rear of a shaft that rotates in bearings pressed into the housing. The housing has two small holes to allow

seepage to escape. The water pump seals are lubricated by the antifreeze in the coolant mixture. No additional lubrication is necessary.



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Fig. 27 Water Pump

- 1 - HEATER HOSE FITTING BORE
- 2 - WATER PUMP
- 3 - WATER PUMP HUB

OPERATION

A centrifugal water pump circulates coolant through the water jackets, passages, intake manifold, radiator core, cooling system hoses and heater core. The pump is driven from the engine crankshaft by a single serpentine drive belt on all engines.

REMOVAL

The water pump can be removed without discharging the air conditioning system (if equipped).

CAUTION: All engines have a reverse (counterclockwise) rotating water pump. The letter R is stamped into the back of the water pump impeller (Fig. 28) to identify. Engines from previous model years, depending upon application, may be equipped with a forward (clockwise) rotating water pump. Installation of the wrong water pump will cause engine over heating.

The water pump impeller is pressed on the rear of the pump shaft and bearing assembly. The water pump is serviced only as a complete assembly.

WATER PUMP - 4.0L (Continued)

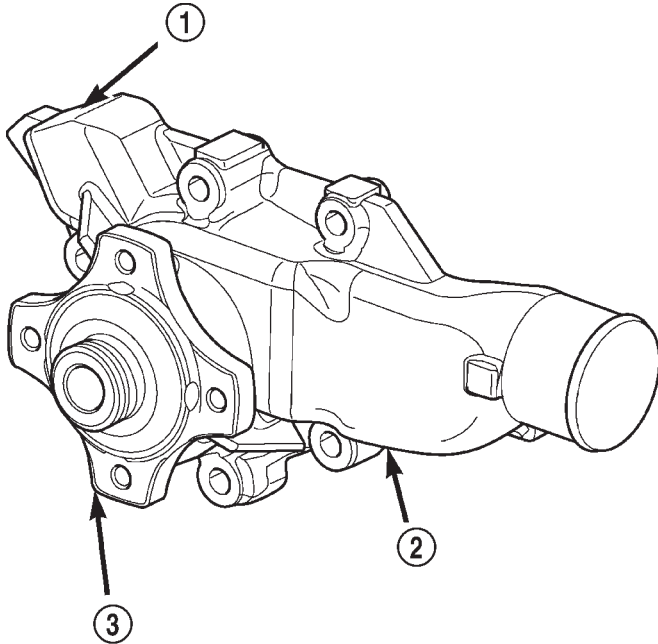
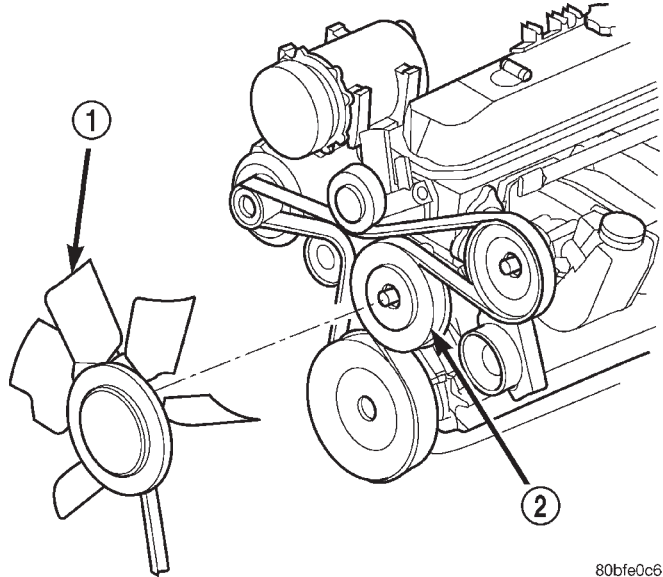


Fig. 28 Water Pump - 4.0L Engine

- 1 - HEATER HOSE FITTING BORE
- 2 - WATER PUMP
- 3 - WATER PUMP HUB

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Fig. 29 Fan and Fan Drive Mounting - 4.0L Engine

- 1 - FAN AND FAN DRIVE
- 2 - WATER PUMP PULLEY

WARNING: DO NOT REMOVE THE BLOCK DRAIN PLUG(S) OR LOOSEN RADIATOR DRAINCOCK WITH THE SYSTEM HOT AND UNDER PRESSURE. SERIOUS BURNS FROM COOLANT CAN OCCUR.

DO NOT WASTE reusable coolant. If the solution is clean, drain coolant into a clean container for reuse.

- (1) Disconnect negative battery cable at battery.
- (2) Drain the cooling system (Refer to 7 - COOLING - STANDARD PROCEDURE).

NOTE: The engine accessory drive belt must be removed prior to removing the fan.

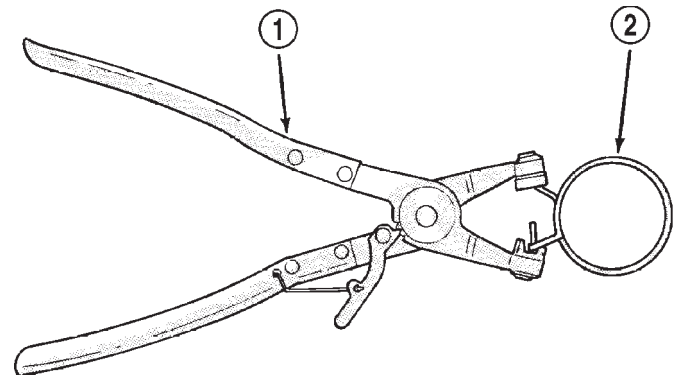
(3) Remove accessory drive belt (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - REMOVAL).

(4) The thermal viscous fan drive/fan blade assembly is attached (threaded) to water pump hub shaft. Remove fan blade/viscous fan drive assembly from water pump by turning mounting nut counterclockwise as viewed from front. Threads on viscous fan drive are **RIGHT HAND**. Using a suitable fan wrench loosen the fan drive (Fig. 29).

(5) Remove power steering pump (Refer to 19 - STEERING/PUMP - REMOVAL).

WARNING: CONSTANT TENSION HOSE CLAMPS ARE USED ON MOST COOLING SYSTEM HOSES.

WHEN REMOVING OR INSTALLING, USE ONLY TOOLS DESIGNED FOR SERVICING THIS TYPE OF CLAMP, SUCH AS SPECIAL CLAMP TOOL (NUMBER 6094) (Fig. 30) SNAP-ON CLAMP TOOL (NUMBER HPC-20) MAY BE USED FOR LARGER CLAMPS. ALWAYS WEAR SAFETY GLASSES WHEN SERVICING CONSTANT TENSION CLAMPS.



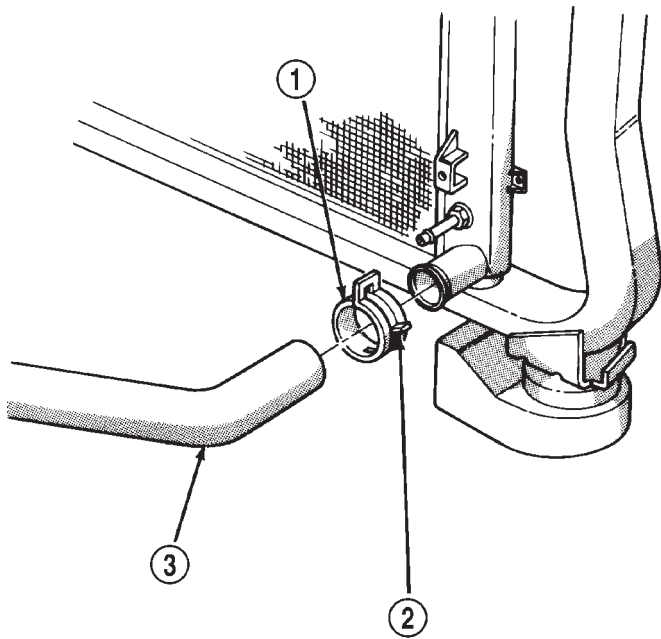
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Fig. 30 Hose Clamp Tool - Typical

- 1 - HOSE CLAMP TOOL 6094
- 2 - HOSE CLAMP

CAUTION: A number or letter is stamped into the tongue of constant tension clamps (Fig. 31). If replacement is necessary, use only an original equipment clamp with matching number or letter.

WATER PUMP - 4.0L (Continued)



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Fig. 31 Clamp Number/Letter Location

- 1 - TYPICAL CONSTANT TENSION HOSE CLAMP
- 2 - CLAMP NUMBER/LETTER LOCATION
- 3 - TYPICAL HOSE

(6) Remove lower radiator hose from water pump. Remove heater hose from water pump fitting.

(7) After removing fan blade/viscous fan drive assembly, **do not** place thermal viscous fan drive in horizontal position. If stored horizontally, silicone fluid in viscous fan drive could drain into its bearing assembly and contaminate lubricant.

(8) Remove the four pump mounting bolts (Fig. 32) and remove pump from vehicle. Discard old gasket. Note that one of the four bolts is longer than the other bolts.

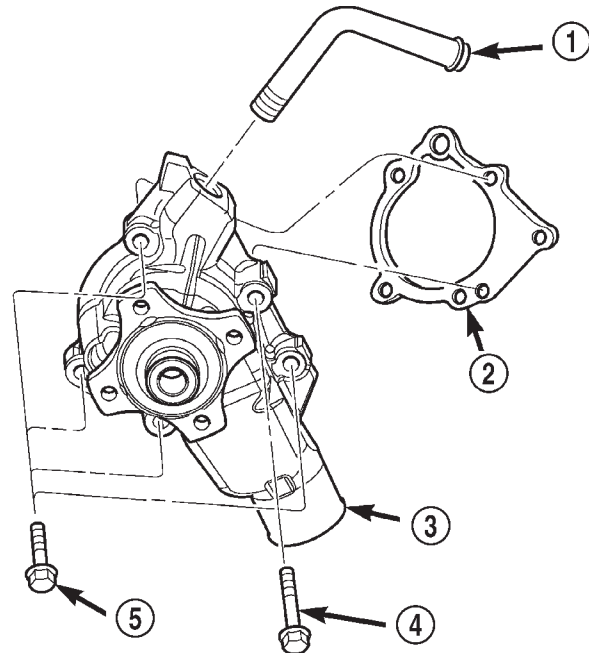
(9) If pump is to be replaced, the heater hose fitting must be removed. Note position of fitting before removal.

INSTALLATION

(1) If pump is being replaced, install the heater hose fitting to the pump. Use a sealant on the fitting such as Mopar® Thread Sealant With Teflon. Refer to the directions on the package.

(2) Clean the gasket mating surfaces. If the original pump is used, remove any deposits or other foreign material. Inspect the cylinder block and water pump mating surfaces for erosion or damage from cavitation.

(3) Install the gasket and water pump. The silicone bead on the gasket should be facing the water pump. Also, the gasket is installed dry. Tighten



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Fig. 32 Water Pump Remove/Install - 4.0L Engine

- 1 - HEATER HOSE FITTING
- 2 - PUMP GASKET
- 3 - WATER PUMP
- 4 - LONG BOLT
- 5 - BOLTS (4) SHORT

mounting bolts to 23 N·m (200 in. lbs.) torque. Rotate the shaft by hand to be sure it turns freely.

(4) Connect the radiator and heater hoses to the water pump.

(5) Install power steering pump (Refer to 19 - STEERING/PUMP - INSTALLATION).

(6) Thread the fan and fan hub into the water pump hub shaft.

CAUTION: When installing the serpentine engine accessory drive belt, the belt **MUST** be routed correctly. If not, the engine may overheat due to the water pump rotating in the wrong direction. For appropriate belt routing. You may also refer to the Belt Routing Label in the vehicle engine compartment.

(7) Install accessory drive belt (Refer to 7 - COOLING/ACCESSORY DRIVE/DRIVE BELTS - INSTALLATION).

(8) Fill cooling system with coolant (Refer to 7 - COOLING - STANDARD PROCEDURE).

(9) Connect battery cable to battery.

(10) Start and warm the engine. Check for leaks.