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Removal

[Notes](#)

WARNING: DO NOT remove the [cylinder block](#) drain plugs or loosen the radiator draincock with the system hot and under pressure. Serious burns from the coolant can occur .

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

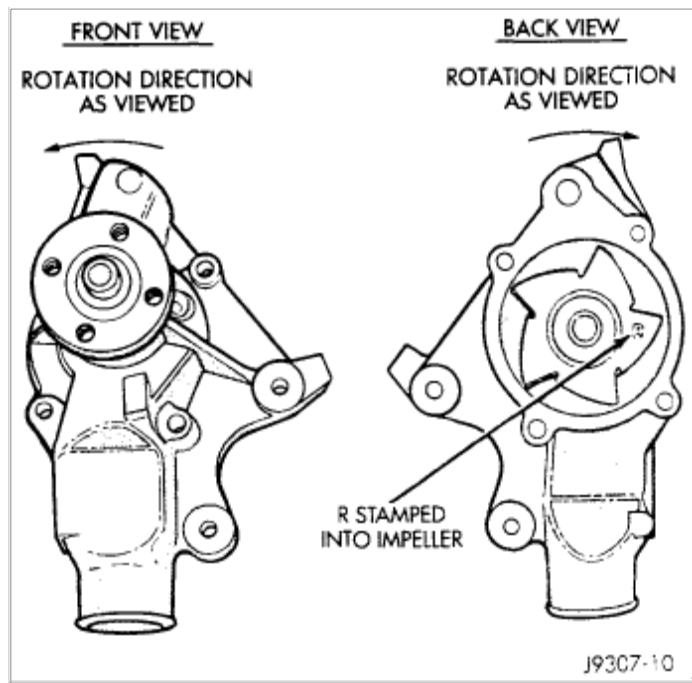
REMOVAL

CAUTION: If the water pump is replaced because of mechanical damage, the [fan blades](#) and viscous fan drive should also be inspected. These components could have been damaged due to excessive vibration.

NOTE:

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

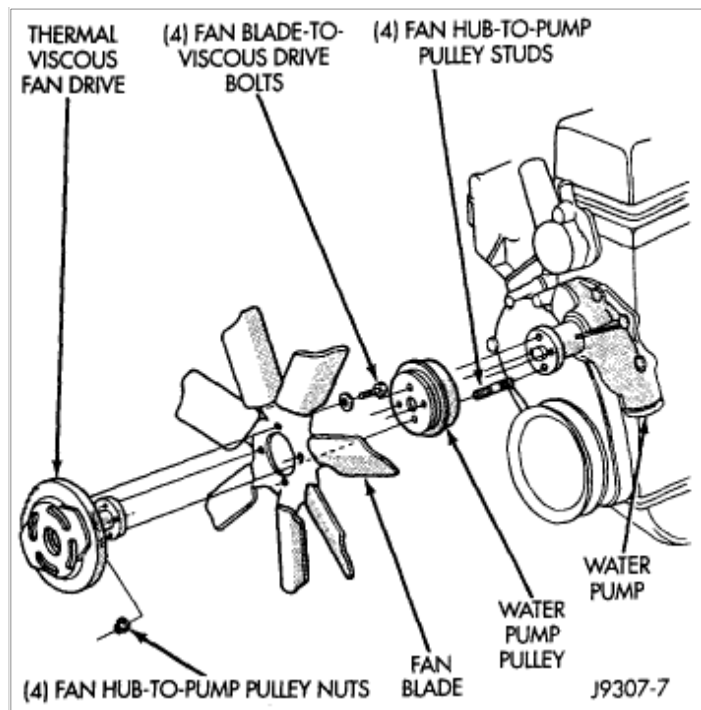
Fig. 1 Reverse Rotating Water Pump - 4.0L
6-Cylinder

[Zoom](#)[Sized for Print](#)

CAUTION: All engines have a reverse (counter-clockwise) rotating water pump. The letter R is stamped into the back of the water pump impeller 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.

1. Disconnect negative battery cable at battery.
2. Drain the [cooling system](#). Refer to **Draining Cooling System** .

Fig. 4 Fan Mounting Nuts

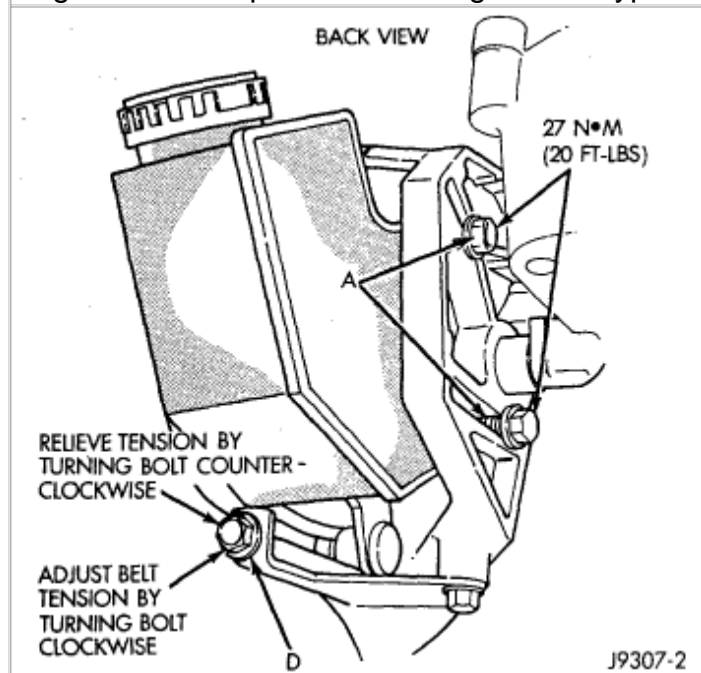


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- Loosen (but do not remove at this time) the 4 fan hub to water pump pulley mounting nuts. **NOTE:** The engine accessory drive belt must be removed prior to removing the fan or fan pulley.
- Remove engine [drive belt](#) as follows:

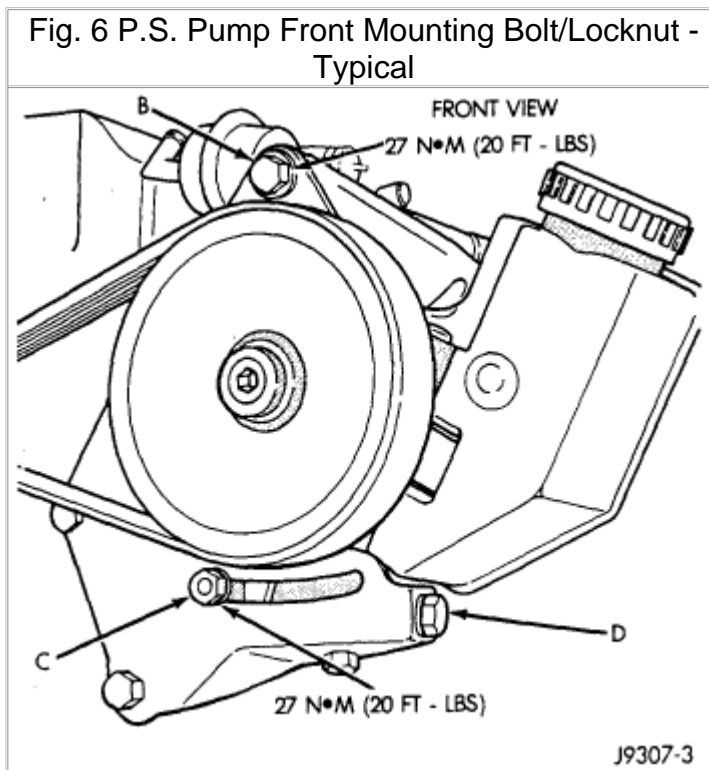
Fig. 5 P.S. Pump Rear Mounting Bolts - Typical



Zoom

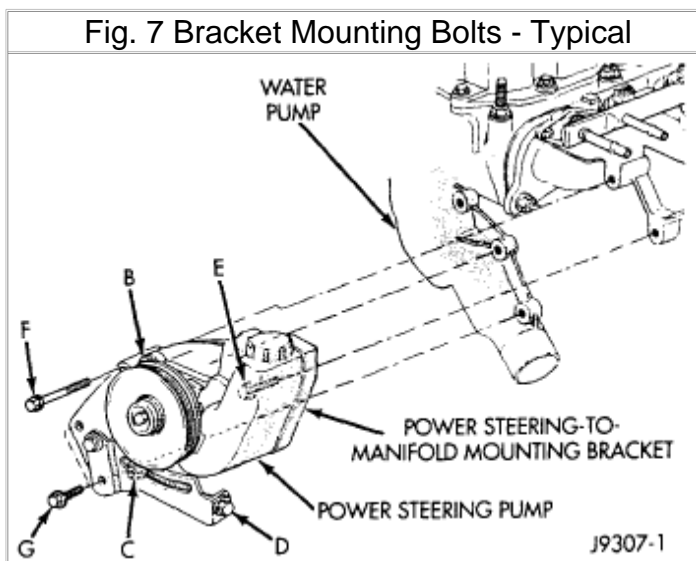
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- a. Loosen two rear power steering pump mounting bolts A.



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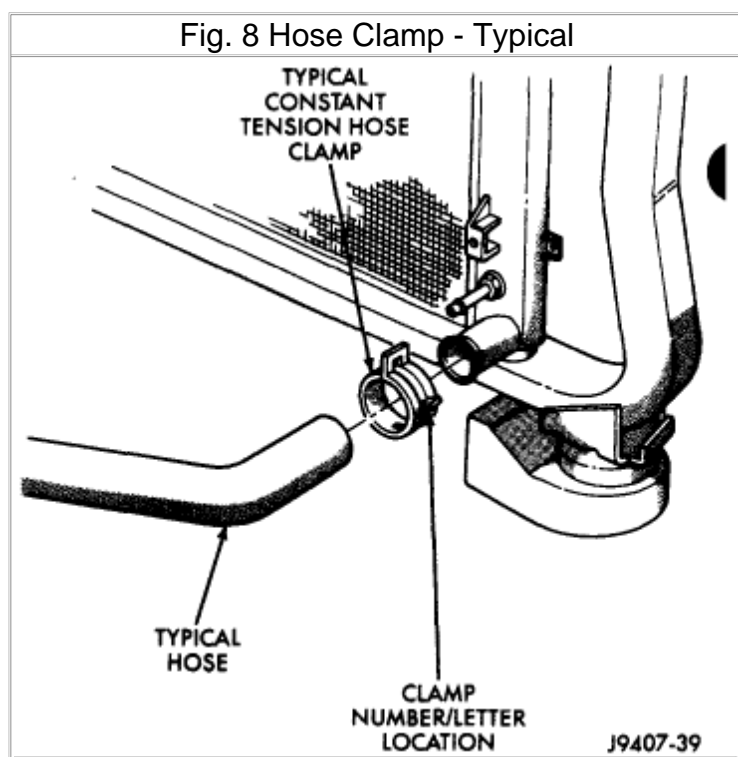


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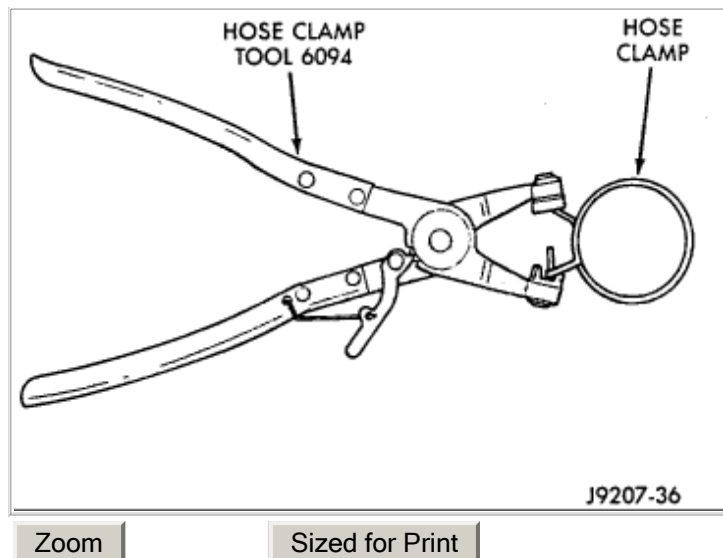
- b. Loosen upper pump pivot bolt B and lower lock nut C.
c. Loosen pump adjusting bolt D until belt can be removed.
d. Remove belt.

5. Check condition of all pulleys.
6. The power steering pump must be removed from its cast mounting bracket to gain access to bolt E. Bracket mounting bolt E is located behind the power steering pump.
7. Remove two bolts A.
8. Remove locknut C and belt adjustment bolt D.
9. Remove bolt B. Position power steering pump to the side. Hold pump in position with wire. Do not disconnect hydraulic lines from pump.
10. Remove bolts E, F and G and remove pump mounting bracket.
11. Remove [idler pulley](#) mounting bolt and remove idler pulley. This must be done to gain clearance for the water pump mounted [heater hose](#) fitting when water pump is being removed. Note position of pulley spacers after removal.

[Zoom](#)[Sized for Print](#)

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 (# 6094). Snap - On clamp tool (# HPC - 20) may be used for larger clamps. **ALWAYS WEAR** safety glasses when servicing constant tension clamps .

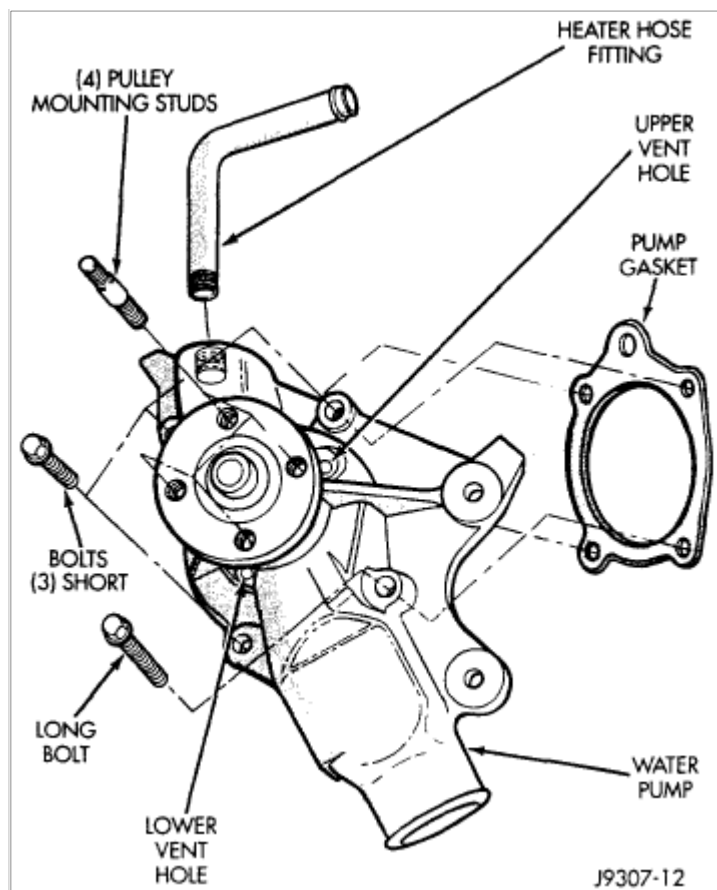
Fig. 7 Hose Clamp Tool - Typical



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

12. Remove lower radiator hose from water pump. Remove [heater hose](#) from water pump fitting.
13. Remove four nuts or bolts (refer to the previous step # 3).
14. Remove the [fan blade](#) assembly and pulley from the vehicle. **NOTE:** 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.

Fig. 10 Water Pump Remove/Install - Typical

[Zoom](#)[Sized for Print](#)

15. Remove the four pump mounting bolts and remove pump from vehicle. Discard old gasket. Note that one of the four bolts is longer than the other bolts.
16. If pump is to be replaced, the [heater hose](#) fitting must be removed. Note position of fitting before removal.

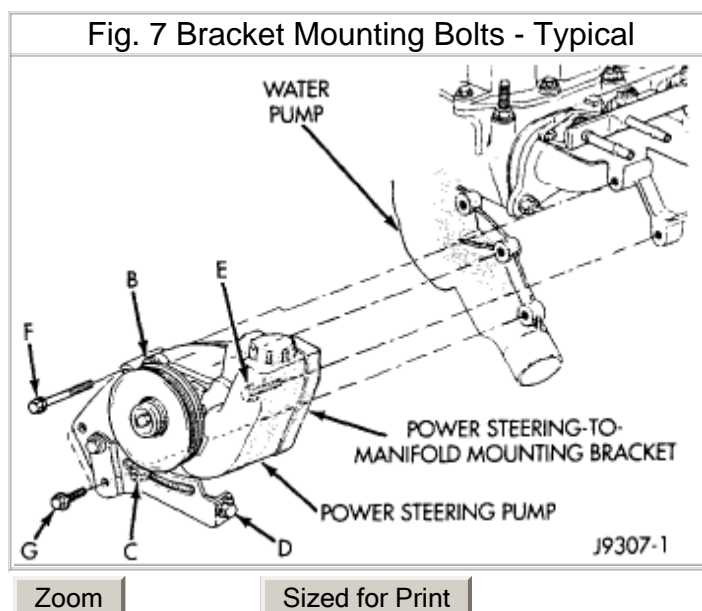
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Installation

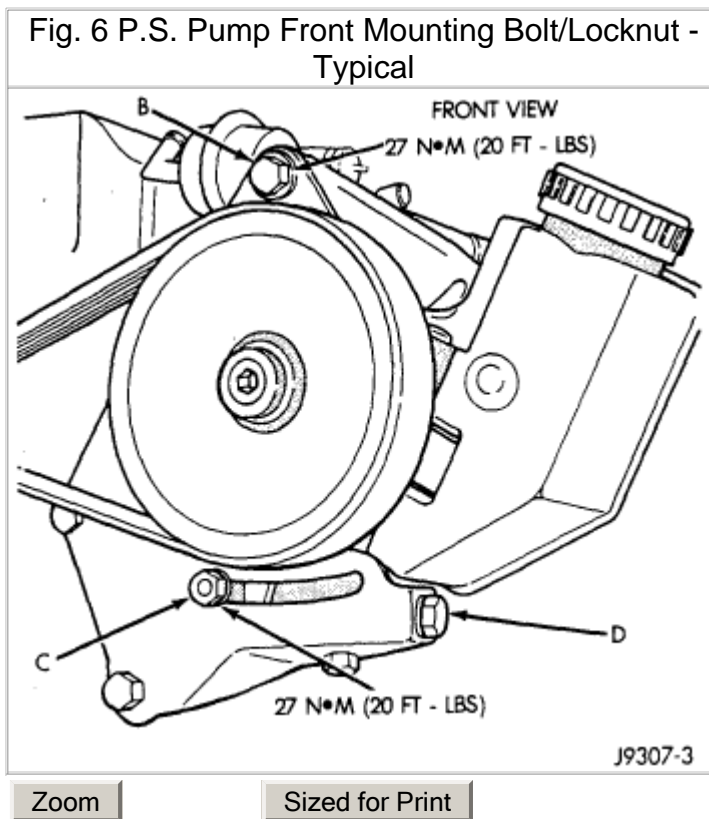
[Notes](#)

INSTALLATION

1. If pump is being replaced, install the [heater hose](#) fitting to the pump. Use a sealant on the fitting such as Mopar **(TM)** 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 mounting bolts to **30 N.m (22 ft. 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 nuts to **27 N.m (20 ft. lbs.)** torque.

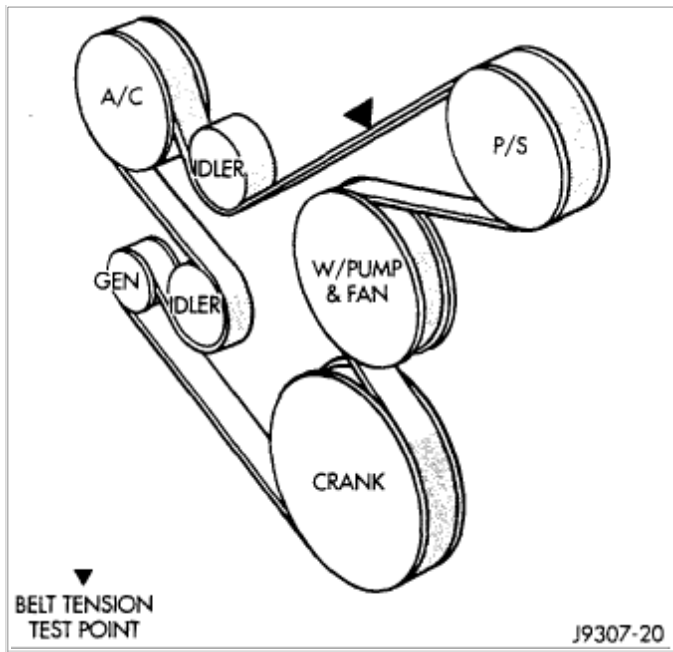


7. Position power steering pump bracket to engine. Install bolts E, F and G. Tighten bolts F and G to **38 N.m (28 ft. lbs.)** torque. Tighten bolt E to **27 N.m (20 ft. lbs.)** torque.



8. Position power steering pump to mounting bracket. Install pivot bolt B finger tight. Install locknut C and adjustment bolt D finger tight.
9. Install 2 adjustment bolts A finger tight.
10. Install [idler pulley](#) **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 the Belt Routing Label in the vehicle engine compartment.

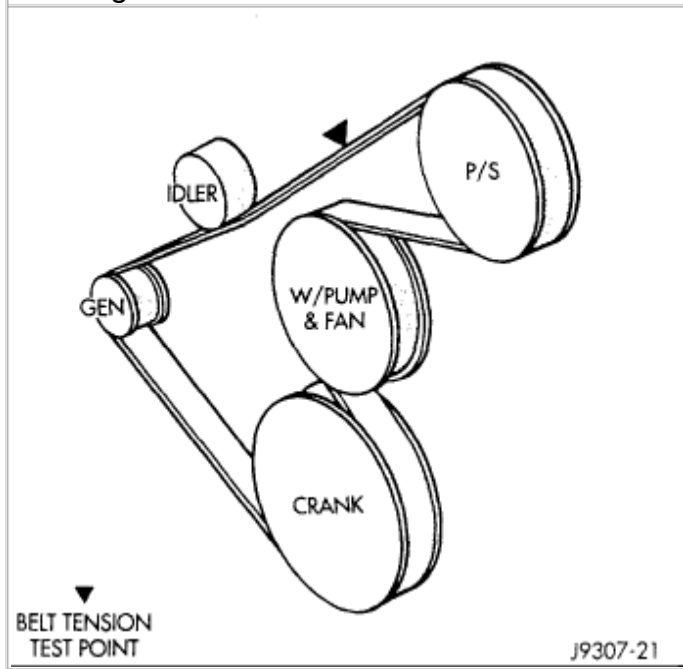
Fig. 11 YJ Models - With A/C



Zoom

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Fig. 12 YJ Models With - Without A/C

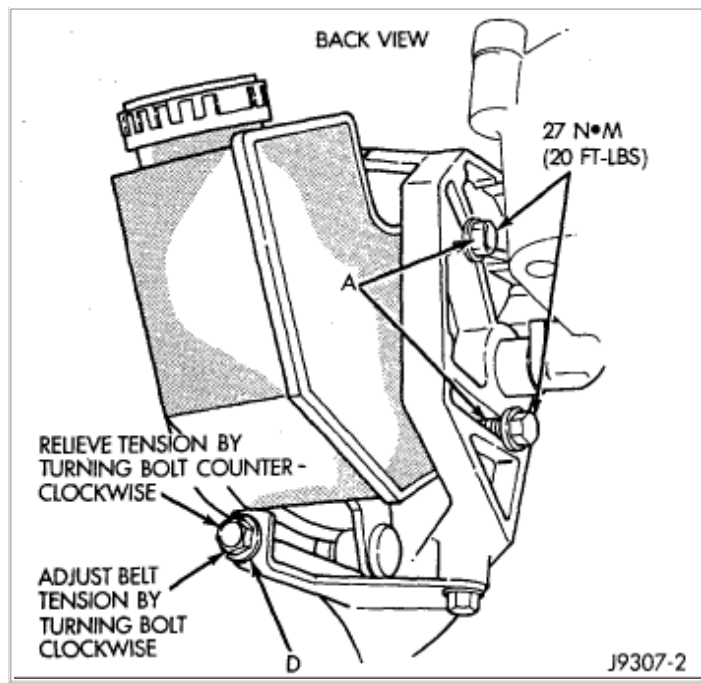


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11. Position [drive belt](#) to pulleys.

Fig. 5 P.S. Pump Rear Mounting Bolts - Typical

[Zoom](#)[Sized for Print](#)

12. Tighten belt adjustment bolt D to the proper tension. Refer to **Engine / Drive Belts, Mounts, Brackets and Accessories / Drive Belt / Specifications / Mechanical**. [See: Engine\Drive Belt\Specifications](#)
13. Tighten bolts A to **27 N.m (20 ft. lbs.)** torque.
14. Tighten pivot bolt B to **27 N.m (20 ft. lbs.)** torque.
15. Tighten locknut C to **27 N.m (20 ft. lbs.)** torque.
16. After the power steering pump has been tightened, recheck belt tension.
17. Fill [cooling system](#) with coolant and check for leaks. Refer to **Cooling System/Service and Repair** . [See: Service and Repair](#)
18. Connect battery cable to battery
19. Start and warm the engine. Check for leaks.