Component Procedures: Fan Clutch

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Parts and Labor (itype_189)

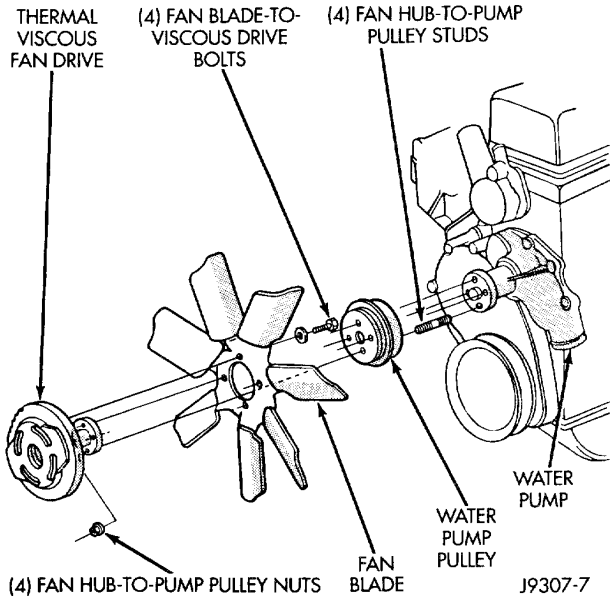
Parts

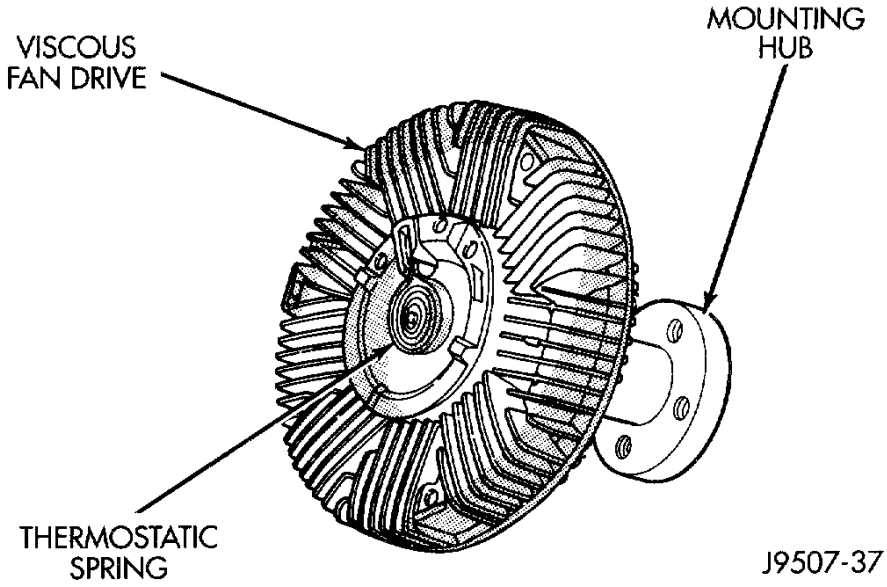
Qualifier	Part #	Name	Price	Note
Fan Clutch	52027890AB	8 - Fan Clutch	73.70	

Labor

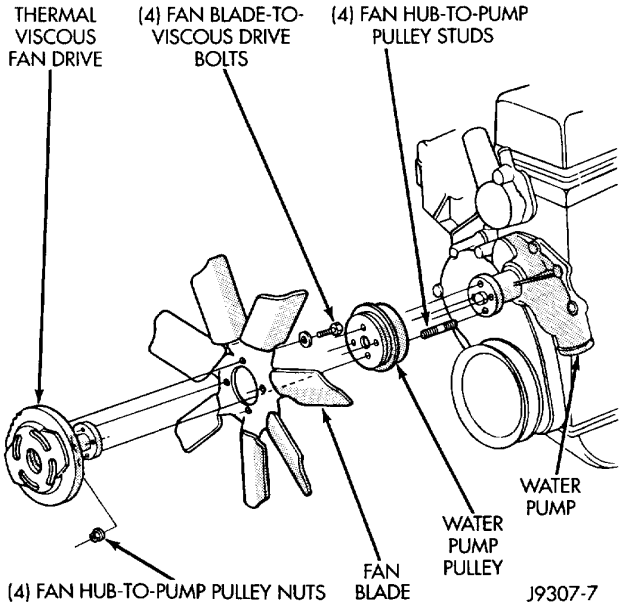
Operation	Qualifier Path	Skill	Std Hrs	Wty Hrs
Replace	Fan Clutch, R&R	C	0.7	0.4

Components (itype_392)





Viscous Fan (Article 2071895)



Viscous Fan Drive (Article 2071896)

VISCOUS FAN DRIVE
Viscous Fan
Drive Fluid Pump Out Requirement: After installing a new viscous fan drive, bring the engine speed up to approximately 2000 rpm and hold for approximately two minutes. This will ensure proper fluid distribution within the drive.

Mechanical (including Torque) (itype_28)

Viscous Fan Drive -to- Water Pump 200 in.lb
Viscous Fan Drive To Water Pump 100 in.lb

Component Tests and General Diagnostics (itype_383)

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.
^ 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 blade
s 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 inch) 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.
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.