

2002-04 ENGINE COOLING

Electric Cooling Fans - Ranger

DESCRIPTION & OPERATION

The electric cooling fan system consists of a single speed cooling fan controlled by Powertrain Control Module (PCM). One relay controls fan operation. The electric cooling fan is activated when ignition switch is in ON position and engine coolant exceeds a specified temperature. Cooling fan is also active when A/C is on.

The PCM monitors certain parameters (such as engine coolant temperature, vehicle speed, A/C on/off status, A/C pressure, etc.) to determine engine cooling fan needs. The PCM controls the fan operation through the engine cooling fan control output.

COMPONENT LOCATIONS

The engine cooling fan relay is in the battery junction box located in left rear of engine compartment.

TROUBLE SHOOTING

NOTE: To trouble shoot mechanical cooling system components, see **GENERAL COOLING SYSTEM SERVICE** article in **ENGINE in GENERAL INFORMATION**.

PRELIMINARY INSPECTION

Verify customer complaint by operating suspected system. Visually inspect for obvious signs of mechanical and electrical damage. Inspect for blown fuses and damaged relays. See **WIRING DIAGRAMS** . Inspect for loose or corroded connections, damaged wiring harness and/or switches. Check for a broken or partially broken wire inside insulation, which could cause system malfunction but prove good in a continuity/voltage check with system disconnected. Ensure any aftermarket electronic equipment is properly installed. If fault is found, repair as necessary. If no fault is found, see **DIAGNOSTIC SYSTEM** .

DIAGNOSTIC SYSTEM

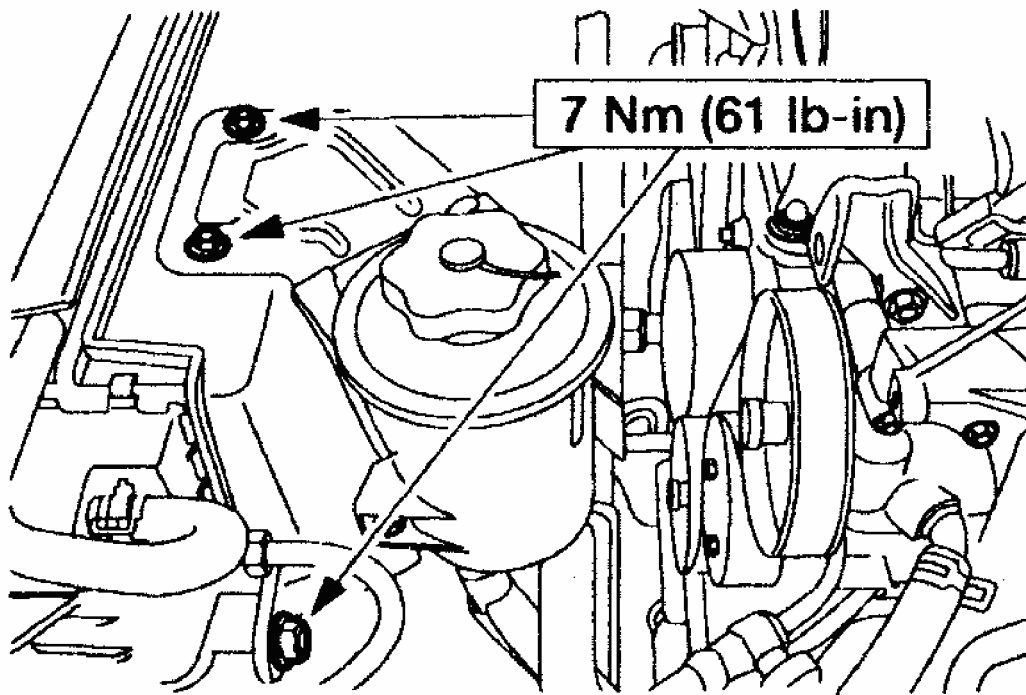
For cooling fan electrical diagnostics, see SYMPTOMS in appropriate TROUBLE SHOOTING - NO CODES article in ENGINE PERFORMANCE.

REMOVAL & INSTALLATION

FAN ASSEMBLY

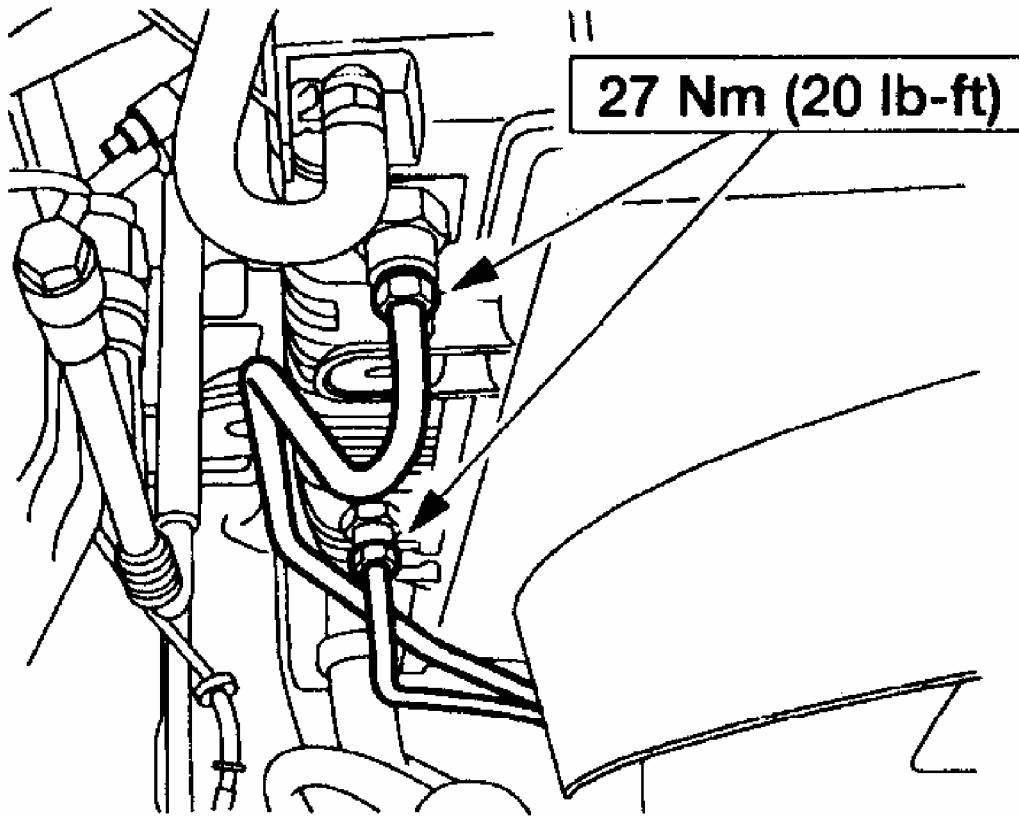
Removal & Installation

Disconnect the battery ground cable. Remove the air intake tube. Disconnect the electric cooling fan electrical connector. Remove the bolts and position the power steering reservoir aside. See **Fig. 1** . On vehicles equipped with an automatic transmission, disconnect the transmission cooling line from the radiator. See **Fig. 2** . On all vehicles, remove the right side cooling fan shroud mounting bolt and lift the shroud and electric cooling fan assembly from the vehicle. See **Fig. 3** . To install, reverse the removal procedure. Tighten bolts to specification. See **TORQUE SPECIFICATIONS** .



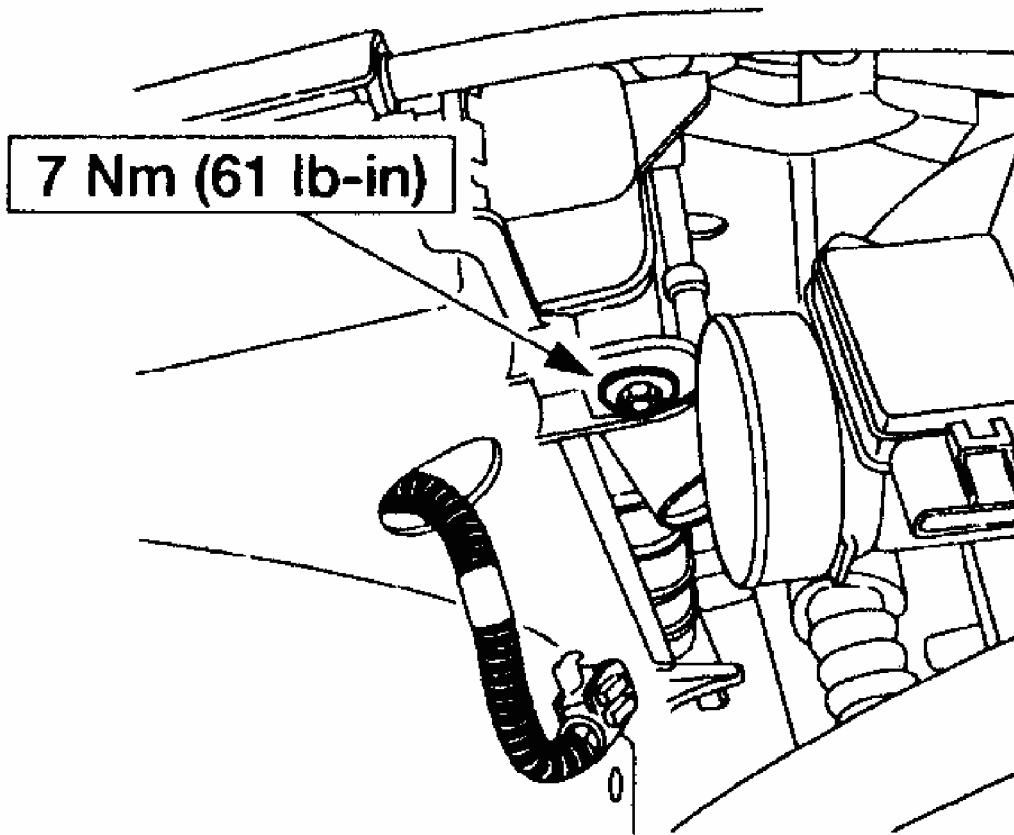
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Fig. 1: Locating Power Steering Reservoir Bolts
Courtesy of FORD MOTOR CO.



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Fig. 2: Locating Transmission Cooler Lines
Courtesy of FORD MOTOR CO.



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Fig. 3: Locating Right Fan Shroud Mounting Bolt
 Courtesy of FORD MOTOR CO.

TORQUE SPECIFICATIONS

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Application	Ft. Lbs. (N.m)
Transmission Cooler Line Fittings	20 (27)
	INCH Lbs. (N.m)
Fan Shroud Screws	61 (7)
Power Steering Reservoir Bolts	80 (9)

WIRING DIAGRAMS

2002

For wiring diagrams, see **COOLING FAN** in SYSTEM WIRING DIAGRAMS article in

2002 Ford Ranger

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ELECTRICAL.

2003

For wiring diagrams, see **COOLING FAN** in SYSTEM WIRING DIAGRAMS article in ELECTRICAL.

2004

For wiring diagrams, see COOLING FAN in SYSTEM WIRING DIAGRAMS article in ELECTRICAL.