DESCRIPTION AND OPERATION

Engine Cooling

⚠ CAUTION: Vehicle cooling systems are filled with Motorcraft Premium Gold Engine Coolant VC-7-A (in California, Oregon and New Mexico VC-7-B, in Canada CVC-7-A) or equivalent meeting Ford specification WSS-M97B51-A1 (yellow color). Always fill the cooling system with the same coolant that is present in the system. Do not mix coolant types.

The 4.0L (SOHC) cooling system components include the:

- block heater.
- engine coolant temperature (ECT) sensor.
- cooling fan motor and shroud assembly.
- radiator.
- heater tube assembly.
- pressure relief cap.
- thermostat housing assembly.
- radiator draincock.
- coolant pump.
- coolant thermostat.
- oil filter adapter.
- radiator overflow hose.
- degas bottle.
- upper radiator hose.
- lower radiator hose.

The radiator overflow hose circulates the coolant.

The coolant thermostat:

- controls the engine coolant temperature.
- allows for quicker engine warm-up.

The degas bottle:

- provides a location for service fill.
- contains coolant expansion and system pressurization.
- provides air separation during operation.
- replenishes the engine coolant to the system.

The engine coolant flows:

- from the lower radiator hose to the coolant pump.
- from the coolant pump to the engine block and the cylinder heads.

The 4.6L (3V) cooling system components include the:

- block heater.
- cylinder head temperature (CHT) sensor.
- fan motor and shroud assembly.
- radiator.
- radiator cap.
- radiator draincock.
- coolant pump.
- coolant thermostat.
- oil filter adapter.
- radiator overflow hose.
- degas bottle.
- upper radiator hose.
- lower radiator hose.

The fan blade draws air through the radiator to help cool the engine coolant.

The fan motor:

- operates only when the ignition switch is in the RUN position.
- will not operate with the switch in the OFF position.

The engine coolant:

- flows through the radiator tubes and is cooled by passing air over the cooling fins.
- is then circulated from the radiator outlet tank through the coolant pump and into the cylinder block to complete the circuit.

A closed coolant thermostat returns the engine coolant to the coolant pump. An open coolant thermostat allows the engine coolant to flow to the radiator.

⚠ CAUTION: Engine coolant provides freeze protection, boil protection, cooling efficiency, and corrosion protection to the engine and cooling components. In order to obtain these protections, the engine coolant must be maintained at the correct concentration and fluid level in the degas bottle.

When adding engine coolant, use a 50/50 mixture of engine coolant and deionized water.

DESCRIPTION AND OPERATION (Continued)

To maintain the integrity of the coolant and the cooling system:

- Add Motorcraft Premium Gold Engine Coolant VC-7-A (in California, Oregon and New Mexico VC-7-B, in Canada CVC-7-A) or equivalent meeting Ford specification WSS-M97B51-A1 (yellow color). Use the same coolant that is present in the cooling system. Do not mix coolant types.
- Do not add/mix orange-colored Motorcraft Speciality Orange Engine Coolant VC-2 or equivalent meeting Ford specification WSS-M97B44-D. Mixing coolants may degrade the coolant's corrosion protection.
- Do not add alcohol, methanol or brine, or any engine coolants mixed with alcohol or methanol antifreeze. These can cause engine damage from overheating or freezing.
- Ford Motor Company does NOT recommend the use of recycled engine coolant in vehicles originally equipped with Motorcraft Premium Gold Engine Coolant since a Ford-approved recycling process is not yet available.

The engine coolant temperature sensor (4.0L) or cylinder head temperature sensor (4.6L) provides a signal to the temperature gauge.

The optional block heater:

- electrical heating element is installed in the core plug opening.
  - — uses a standard 110V electrical supply
- keeps the engine coolant warm during cold weather.