

6. COOLING SYSTEM

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SERVICE INFORMATION

GENERAL

WARNING

Do not remove the radiator cap when the engine is hot. The coolant is under pressure and severe scalding could result. The engine must be cool before servicing the cooling system.

- Use only distilled water and ethylene glycol in the cooling system. A 50–50 mixture is recommended for maximum corrosion protection. Do not use alcohol-based antifreeze or an antifreeze with self sealing properties.
- Add coolant at the reserve tank. Do not remove the radiator cap except to refill or drain the system.
- Radiator, cooling fan and thermostat services can be made with the engine in the frame.
- Avoid spilling coolant on painted surfaces.
- After servicing the system, check for leaks with a cooling system tester.
- Refer to Section 21 for fan motor thermostatic switch and temperature sensor inspections.

SPECIFICATIONS

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|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radiator cap relief pressure | 0.75–1.05 kg/cm ² (10.7–14.9 psi) |
| Freezing point (Hydrometer test): | 55% Distilled water + 45% ethylene glycol: –32°C (–25°F) 50% Distilled water + 50% ethylene glycol: –37°C (–34°F) 45% Distilled water + 55% ethylene glycol: –44.5°C (–48°F) |
| Coolant capacity: | |
| Radiator and engine | 1.7 liters (1.80 US qt) |
| Reserve tank | 0.4 liters (0.42 US qt) |
| Total system | 2.1 liters (2.22 US qt) |
| Thermostat | Begins to open: 80° to 84°C (176° to 183°F) Valve lift: Minimum of 8 mm at 95°C (0.315 in at 203°F) |
| Boiling point (with 50–50 mixture): | Unpressurized: 107.7°C (226°F) Cap on, pressurized: 125.6°C (258°F) |

TOOLS

Special

Cooling system tester

Commercially available

TROUBLESHOOTING

Engine temperature too high

1. Faulty temperature gauge or gauge sensor
2. Thermostat stuck closed
3. Faulty radiator cap
4. Insufficient coolant
5. Passages blocked in radiator, hoses, or water jacket
6. Fan blades bent
7. Faulty fan motor

Engine temperature too low

1. Faulty temperature gauge or gauge sensor
2. Thermostat stuck open

Coolant leaks

1. Faulty pump mechanical seal
2. Deteriorated O-rings
3. Loose or too tight hose clamps