

## Engine Cooling - Cooling System Draining, Filling and Bleeding - General Procedures

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### Subarticles

- [Draining](#)
- [Filling and Bleeding with RADKITPLUS](#)
- [Filling and Bleeding without RADKITPLUS](#)

SECTION 303-03: Engine Cooling	2005 Explorer/Mountaineer Workshop Manual
GENERAL PROCEDURES	Procedure revision date: 06/29/2004

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### Cooling System Draining, Filling and Bleeding

#### Special Tool(s)

 ST2818-A	RADKITPLUS 078-00497
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#### Draining

**WARNING:** To avoid personal injury, do not unscrew the coolant pressure relief cap while the engine is operating or hot. The cooling system is under pressure; steam and hot liquid can come out forcefully when the cap is loosened slightly. Failure to follow these instructions may result in personal injury.

**CAUTION:** The coolant must be recovered in a suitable, clean container for reuse. If the coolant is contaminated, it must be recycled or disposed of correctly.

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

**NOTE:** The addition of Cooling System Stop Leak Pellets VC-6 darkens Motorcraft Premium Gold Engine Coolant from yellow to golden tan.

**NOTE:** Less than 80% of the coolant capacity can be recovered with the engine in the vehicle. Dirty, rusty or contaminated coolant requires replacement.

1. Make sure the engine is cool.
2. Wrap a thick cloth around the coolant pressure relief cap on the degas bottle. Slowly turn the cap counterclockwise (left) until the pressure begins to release.
3. Step back while the pressure releases.
4. When you are sure all the pressure has been released, use the cloth to turn and remove the cap.
5. Place a suitable container below the radiator draincock. Drain the coolant.
  - Tighten the radiator draincock when finished.

### Filling and Bleeding with RADKITPLUS

1. Using the special tool, install the RADKITPLUS and follow the RADKITPLUS manufacturer's instructions to fill and bleed the cooling system.

### Filling and Bleeding without RADKITPLUS

**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. When adding engine coolant, use a 50/50 mixture of clean drinkable water and engine coolant.

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

- Add Motorcraft Premium Gold Engine Coolant VC-7-A (in California and Oregon VC-7-B, in Canada VC-7-C) or equivalent meeting Ford specification WSS-M97B51-A1 (yellow color). Always fill the cooling system with the same type of coolant that was drained from the system. Do not mix coolant types.
- The addition of Cooling System Stop Leak Pellets VC-6 darkens Motorcraft Premium Gold Engine Coolant from yellow to golden tan.
- Do not add orange-colored Motorcraft Specialty 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.
- Do not mix with recycled coolant unless it meets the requirements of Ford specification WSS-M97B51-A1. Not all coolant recycling processes meet these Ford specifications. Use of such a coolants may harm the engine and cooling system components.

**CAUTION:** Turn the pressure cap clockwise until clicks are heard. Failure to tighten the pressure relief cap may result in engine damage.

1. Fill the radiator through the degas bottle until the coolant level is at the COLD FILL range mark.
2. Install the pressure relief cap.

3. Select the maximum heater temperature and blower motor speed settings. Position the control to discharge air from the A/C vents to the instrument panel.
4. **CAUTION: If the air discharge remains cool and the engine coolant temperature gauge does not move, the engine coolant level is low in the engine and must be filled. Stop the engine, allow it to cool and fill the cooling system.**

Run the engine until it reaches operating temperature.

5. **WARNING: To avoid personal injury, do not unscrew the coolant pressure relief cap while the engine is operating or hot. The cooling system is under pressure; steam and hot liquid can come out forcefully when the cap is loosened slightly. Failure to follow these instructions may result in personal injury.**

Turn off the engine and allow the cooling system to cool. When the pressure has been released, remove the pressure relief cap.

6. Add more coolant mixture to the degas bottle until the coolant level is at the COLD FILL range mark.

7. Install the pressure relief cap.

8. Start the engine and allow it to idle. While the engine is idling, feel for hot air from the A/C vents.

- Hot air should discharge from the A/C vents. The engine coolant temperature gauge should maintain a stabilized reading in the middle of the NORMAL range and the upper radiator hose should feel hot to the touch.

9. Check the engine coolant level in the degas bottle and fill it as necessary.

10. Repeat previous 5 steps as necessary.
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