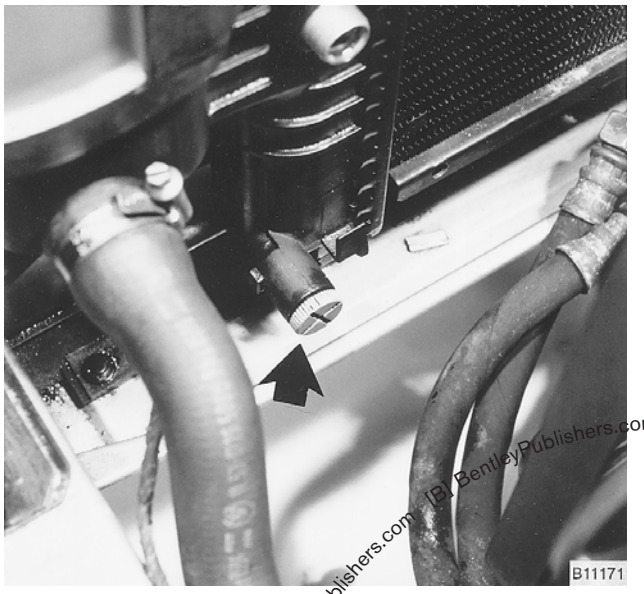

Fig. 6. Radiator drain plug (**arrow**).

WARNING —
Coolant is poisonous. It is especially lethal to pets. Clean up spills immediately and rinse the area with water.

NOTE —
The block drain plug is located on the exhaust side of the engine, near the rear of the engine.

4. Reinstall radiator and engine block drain plugs using new sealing washers. Leave heater controls on full warm.

5. Using a coolant mixture of 50% antifreeze and 50% distilled water, fill system slowly. On radiator with integral expansion tank, bleed cooling system as described below.

NOTE —
- *Tap water may cause corrosion of radiator, engine and coolant hoses.*
- *Coolant can often be reused provided it is clean and less than two years old. Do not reuse coolant when replacing damaged engine parts. Contaminated coolant may damage the engine or cooling system.*

Table d. Cooling System Capacities

Engine	Capacity
4-cylinder	6.5 liters (6.9 qt)
6-cylinder M50/M52 S50US/S52US	 10 liters (10.6 qt) 10.5 liters (11.1 qt)

Tightening Torques
- Radiator drain plug to radiator . . .2-3 Nm (18-27 in-lb)
- Engine block drain plug to block . . . . 25 Nm (18 ft-lb)

Cooling system, bleeding

Air may become trapped in the system during filling. Trapped air can prevent proper coolant circulation and overheating. Whenever the coolant is drained and filled, the system should be bled of trapped air.

CAUTION —
Always use genuine BMW coolant or its equivalent to avoid the formation of harmful, clogging deposits in the cooling system. Use of other antifreeze solutions may be harmful to the cooling system.

1. With engine cold, loosen plastic bleed screw on radiator expansion tank. See Fig. 7.

NOTE —
- *On M3 models, the plastic bleed screw is located on the external expansion tank.*
- *On some models, the expansion tank may not have a plastic bleed screw. Check for a bleed screw on the thermostat housing and bleed the system by loosening screw as described here. If no bleed screw is available, the system is designed to be self bleeding via the vent hose on the expansion tank.*

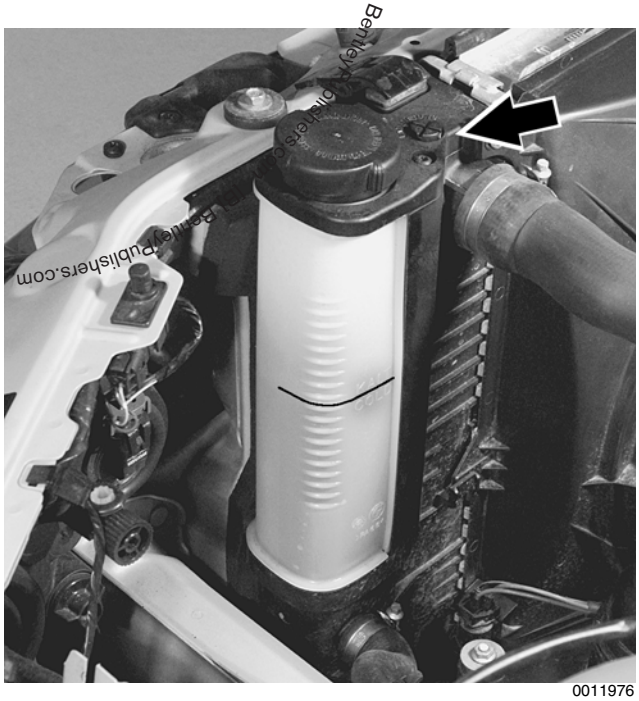

Fig. 7. Cooling system bleed screw on radiator (**arrow**). Note cold level mark on expansion tank.

2. Set temperature controls in passenger compartment to full warm and turn ignition to on position (do *not* start engine).

3. Slowly add coolant until it spills from bleed screws. When coolant spilling from bleed screws is free of air bubbles, tighten screw.

NOTE —
Coolant level should be at or slightly above COLD (KALT) mark on tank.

4. Run engine until it reaches operating temperature. Run heater blower and check that hot air is present at vents (indicates coolant is circulating through system).

5. Repeat bleeding procedure if necessary.

6. After engine has cooled, recheck coolant level and top up until level reaches COLD (KALT) mark on tank.

Tightening Torque

- Bleed screw (plastic) to expansion tank . . . . . 2 Nm (1.5 ft-lb)
- Bleed screw (metal) to thermostat housing . . . . . 8 Nm (71 in-lb)

Belt-driven cooling fan, replacing

1. Using a 32 mm wrench on fan clutch nut, turn wrench quickly in a clockwise direction (working from front of car) to loosen. Spin fan off pump. See Fig. 8.

NOTE —
- *The radiator cooling fan nut (32 mm wrench) has left-hand threads.*
- *The nut may be difficult to loosen. Use a tool to hold the coolant pump pulley stationary. BMW has a special tool for this purpose (BMW special tool no. 11 5 030).*

2. Remove expansion rivets holding shroud to radiator. See Fig. 9. Remove fan and shroud together.

NOTE —
Store the removed fan clutch assembly in an upright (installed) position to prevent loss of clutch fluid.

3. To replace fan clutch, remove fan mounting bolts and separate clutch from fan.

4. Installation is reverse of removal.

Fig. 8. Radiator cooling fan nut (**arrow**). Nut has left-hand threads.

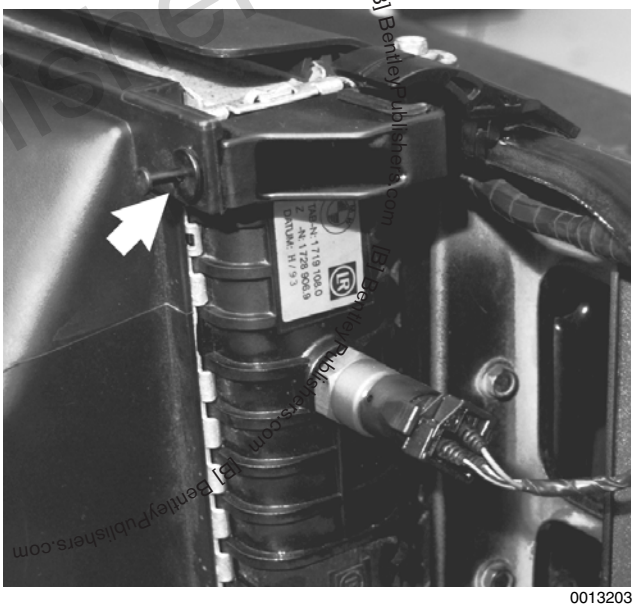

Fig. 9. Fan shroud retaining rivet (**arrow**). Pry out center pin and remove rivet. Rivet design may vary depending on model and model year.

Tightening Torques

- Clutch nut to coolant pump (left-hand threads)
  Without BMW tool no. 11 5 040 . . . . . 40 Nm (29 ft-lb)
  With BMW tool no. 11 5 040. . . . . 30 Nm (22 ft-lb)
- Fan to viscous clutch . . . . . 10 Nm (89 in-lb)