


## STANDARD PROCEDURE - FILLING

 **Special Tools:** Click to display a list of tools used in this procedure

[Click here to launch the form to order any tools you need.](#)



[8195 - Funnel](#)

Originally Shipped In Kit Number(s) 8273, 8273CC.

**WARNING:** ANTIFREEZE COOLANT IS HARMFUL IF SWALLOWED OR INHALED. IF SWALLOWED, DRINK TWO GLASSES OF WATER AND INDUCE VOMITING. IF INHALED, MOVE TO FRESH AIR AREA. SEEK MEDICAL ATTENTION IMMEDIATELY. DO NOT STORE IN OPEN OR UNMARKED CONTAINERS. WASH SKIN AND CLOTHING THOROUGHLY AFTER COMING IN CONTACT WITH ETHYLENE GLYCOL. KEEP OUT OF REACH OF CHILDREN. DISPOSE OF GLYCOL BASED COOLANT PROPERLY. CONTACT YOUR DEALER OR GOVERNMENT AGENCY FOR LOCATION OF COLLECTION CENTER IN YOUR AREA. DO NOT OPEN A COOLING SYSTEM WHEN THE ENGINE IS AT OPERATING TEMPERATURE OR HOT UNDER PRESSURE; PERSONAL INJURY CAN RESULT. AVOID RADIATOR COOLING FAN AND OTHER MOVING COMPONENTS WHEN ENGINE COMPARTMENT RELATED SERVICE IS PERFORMED; PERSONAL INJURY CAN RESULT.

**WARNING:** WEAR APPROPRIATE EYE AND HAND PROTECTION WHEN PERFORMING THIS PROCEDURE.

**CAUTION:** Do not use well water or suspect water supply in cooling system. A 50/50 mixture of the recommended antifreeze coolant and distilled water is recommended.

**NOTE:** Cooling system fill procedure is critical to overall cooling system performance.

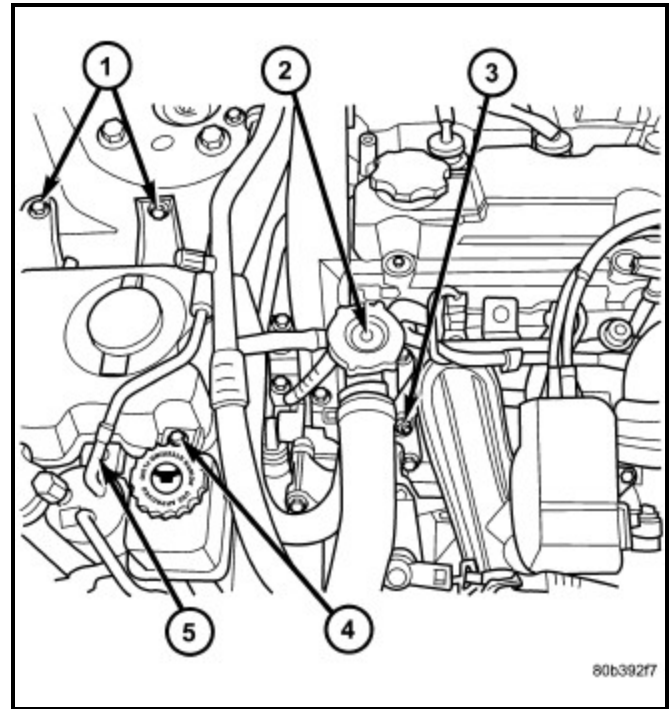
**NOTE:** Make sure all hoses are connected and radiator draincock is closed. Draincock should be hand tightened only.

### 2.4L

1. Close radiator draincock.
2. Open cooling system bleed valve.
3. Attach a 6.35 mm (0.250 in.) inside diameter clear hose that is 120.0 cm (48 in.) long to the bleed valve. Route the hose away from accessory drive belts and radiator fan. Position the other end of hose into a clean collecting container. The hose will prevent coolant from contacting accessory drive belts and other components.
4. Remove cooling system pressure cap and fill cooling system with recommended coolant mixture.
5. Slowly continue filling until a steady stream of coolant flows from attached hose on bleed valve.
6. Close bleed valve and remove hose.
7. Fill coolant to the top of pressure cap neck.
8. Install cooling system pressure cap.
9. Fill coolant recovery container to the MAX mark.

10. Start engine and allow to run until thermostat opens and radiator fans cycle.

**NOTE:** It may be necessary to add additional coolant to the coolant recovery container after three or four warm-up/cool down cycles to maintain coolant level between the MIN and MAX marks; as additional trapped air is removed from the system.



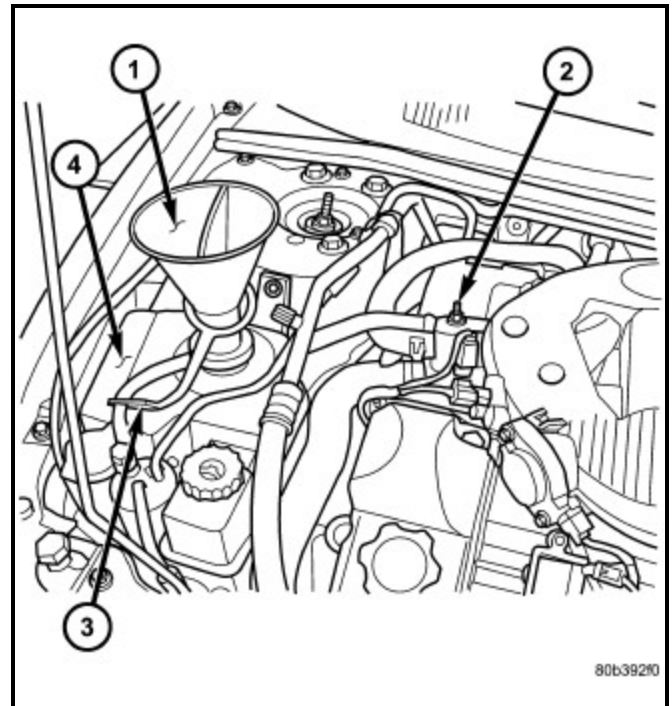
## 2.7L/3.5L/2.0L

**NOTE:** Draincock should be hand tightened only.

1. Close radiator draincock by turning clockwise.

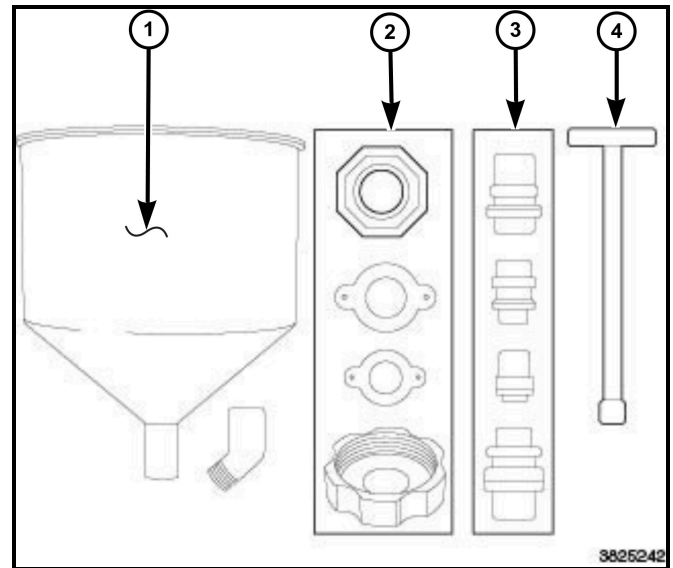
**NOTE:** It is imperative that the cooling system air bleed valve be opened before any coolant is added to the cooling system. Failure to open the bleed valve first will result in an incomplete fill of the system.

2. Open cooling system bleed valve.
3. Attach a 6.35 mm (0.250 in.) inside diameter clear hose that is 120.0 cm (48 in.) long to the bleed valve. Route the hose away from accessory drive belts and radiator fan. Position the other end of hose into a clean collecting container. The hose will prevent coolant from contacting accessory drive belts and other components.
4. If using funnel 8195:
  - a. Remove cooling system pressure cap. Attach Filling Aid Funnel [Funnel 8195](#) , to coolant pressure container filler neck.
  - b. Use the supplied clip to pinch overflow hose that connects between the two chambers of the pressure container.
  - c. Pour coolant into the larger section of Filling Aid Funnel (the smaller section of funnel is to allow air to escape).
  - d. Continue filling until a steady stream of coolant flows from attached hose on bleed valve.
  - e. Close bleed valve and continue filling system to top of Filling Aid Funnel. DO NOT overtighten. Tighten to 12.4 N·m (110 lbs. in.).



- f. Remove clip from overflow hose.
- g. Allow coolant in Filling Aid Funnel to drain into overflow chamber of pressure container.
- h. Remove Filling Aid Funnel [Funnel 8195](#)
- i. Install the pressure cap.

5. If using funnel 8195A: **NOTE: The 8195A does not require pinching off the overflow hose. The adapter seal prevents liquid from entering the overflow during coolant fill.**
- a. Select the appropriate fitting extension (3), locking ring (2) and attach to the fill neck of the cooling system.
  - b. Make sure the adapter seal fits firmly against the inside of the fill neck base to ensure a good seal. After the extension and locking ring are installed, make sure the extension can not be moved. This will confirm a good seal.
  - c. Attach the funnel (1) to the extension (3) and fill with coolant.
  - d. Continue filling until a steady stream of coolant flows from attached hose on bleed valve.
  - e. Close the bleed valve.
  - f. Remove the funnel, inserting the stopper (4) into the funnel will prevent any fluid that is left in the funnel from spilling out when separated from the extension.
  - g. Remove the extension and locking ring and install the pressure cap.



- 6. Remove hose from bleed valve.
- 7. Start engine and allow to run until thermostat opens and radiator fans cycle.

**NOTE:** The engine cooling system will push any remaining air into the pressure container within about one half hour of normal driving. As a result, a drop in coolant level in the pressure container may occur.

**If the engine cooling system overheats and pushes coolant into the overflow chamber of the pressure container, this coolant will be sucked back into the cooling system ONLY IF THE PRESSURE CAP IS LEFT ON THE PRESSURE CONTAINER. Removing the pressure cap breaks the vacuum path between the two chambers of the pressure container and the coolant will not return to the cooling system.**

- 8. Shut off engine and allow it to cool down. This permits coolant to be drawn into the pressure chamber.
- 9. With engine COLD, observe coolant level in pressure chamber. Coolant level should be within MIN and MAX marks. Adjust coolant level as necessary.