



SERVICE BULLETIN

Classification: HA02-002c	Reference: NTB02-047c	Date: March 7, 2007
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2002 – 2006 ALTIMA; POOR HEATER PERFORMANCE

This bulletin has been amended. The Applied Vehicles and Service Procedure sections have been changed. Please discard all previous versions.

APPLIED VEHICLES: 2002 – 2006 Altima (L31)

IF YOU CONFIRM

Air from the heater on an Applied Vehicle:

- Takes a long time to warm up after an engine cold start, or
- Output air cools down and is not warm enough while the engine is at idle, or
- Output air is not warm enough at any engine speed,

ACTIONS:

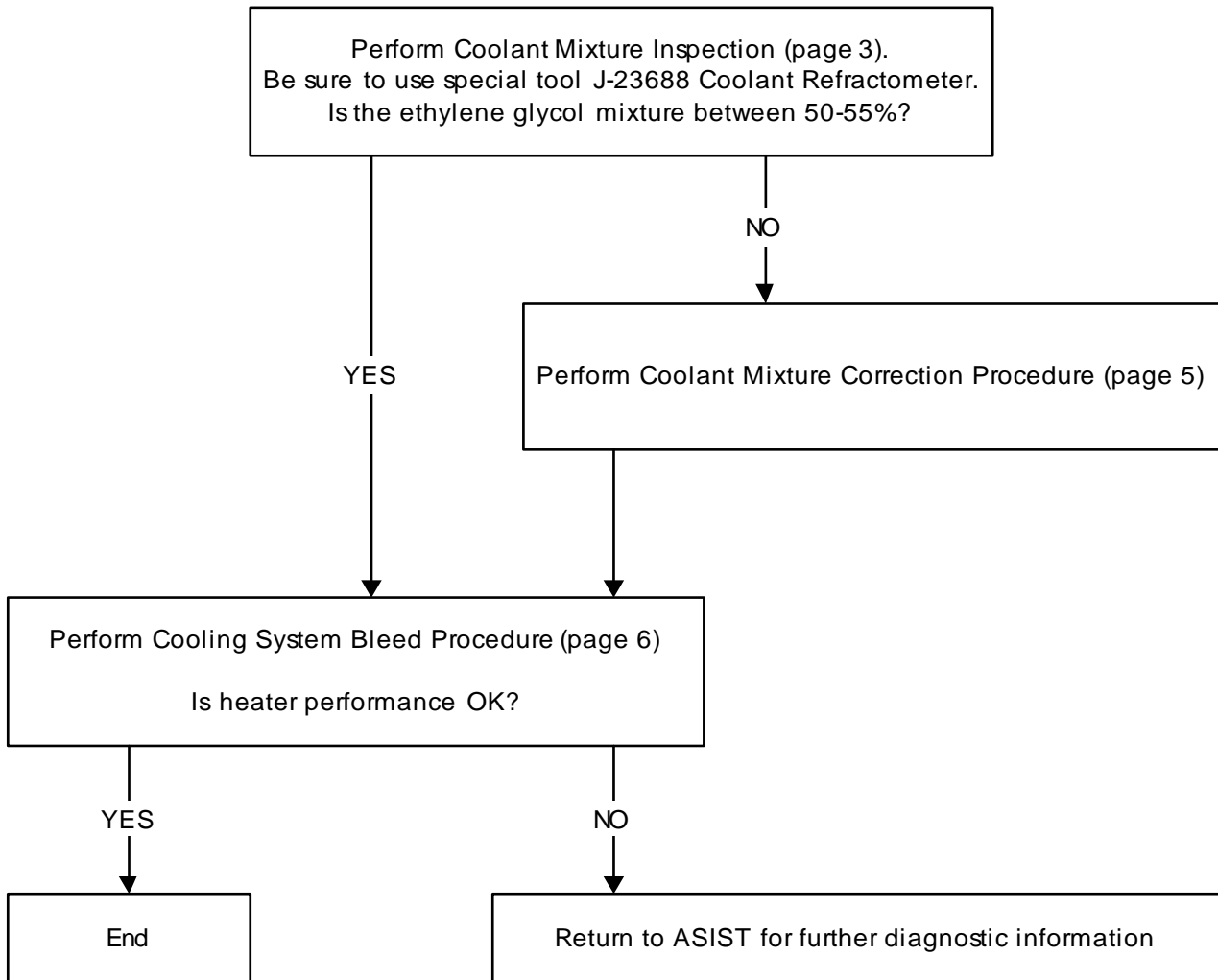
Refer to the **DIAGNOSTIC FLOWCHART** on page 2 to determine the course of repair. That course may include all or some of the following:

- Coolant Mixture Inspection procedure (page 3).
- Coolant Mixture Correction procedure (page 5).
- Cooling System Bleed Procedure (page 6).

IMPORTANT: The purpose of “ACTIONS” (above) is to give you a quick idea of the work you will be performing. You **MUST** closely follow the entire Service Procedure (starting on page 2) as it contains information that is essential to successfully completing this repair.

Nissan Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Nissan dealer to determine if this applies to your vehicle.

DIAGNOSTIC FLOWCHART



CLAIMS INFORMATION

If only the coolant inspection and system air bleed are done, submit a Primary Operation (PO) line claim using the following claims coding:

DESCRIPTION	OP CODE	SYM	DIA	FRT
Coolant Inspection and cooling system air bleed only	WX07AA	ZL	57	0.4 hrs

OR

If the coolant inspection, coolant replacement and system air bleed are done, submit a Primary Operation (PO) line claim using the following claims coding:

DESCRIPTION	OP CODE	SYM	DIA	FRT
Coolant Inspection, coolant replacement and cooling system air bleed	WX12AA	ZL	57	0.6 hrs

SERVICE PROCEDURE

Coolant Mixture Inspection

1. Take a sample of coolant from the radiator and check the percentage of ethylene glycol.

- Use “Refractometer” (J-23688)—engine coolant and battery tester (see page 4 for tool information).
- The refractometer has the percentage of ethylene glycol written on the scale (see Figure 1).

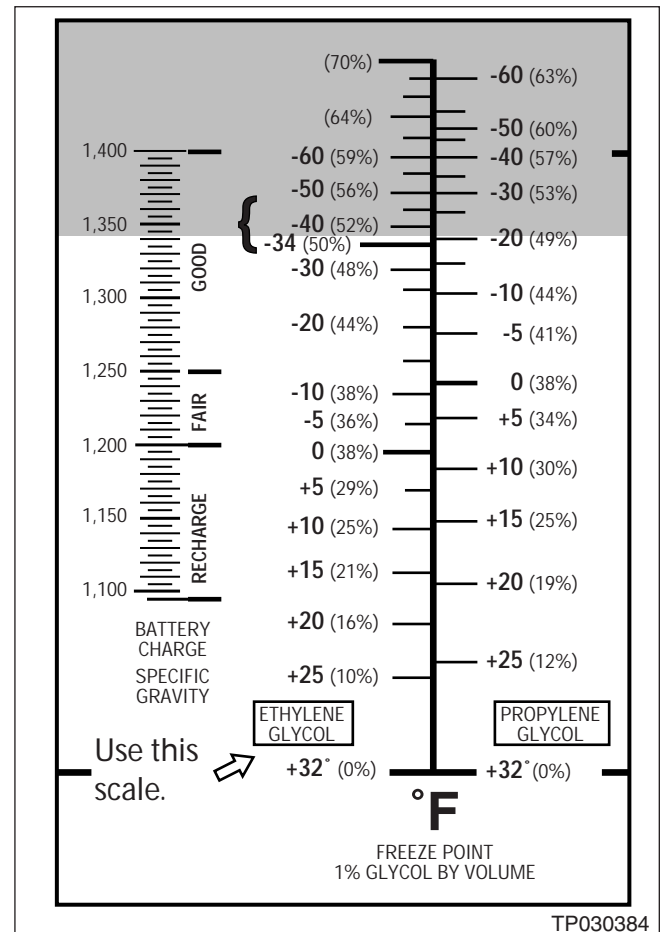


Figure 1

- Don't use the old style bulb and disc/ball type hydrometers, or pH test strips. These devices are not precise enough to provide the readings required for the critical balance between freeze protection and heater performance.
- If the coolant mixture **is not** between 50-55% ethylene glycol, correct the mixture by performing the Coolant Mixture Correction procedure on page 5. Then perform Cooling System Bleed procedure.
- If the mixture **is** between 50-55% ethylene glycol, go to Cooling System Bleed Procedure (starting on page 6).
- If engine coolant and battery tester (refractometer) J-23688 is not available, perform the Coolant Mixture Correction procedure on page 5. Then perform Cooling System Bleed procedure starting on page 6.

Refractometer J-23688 (Engine Coolant and Battery Tester) Tool Information

- Nissan requires coolant and battery tester (refractometer) J-23688 be used for the Coolant Mixture Inspection procedure in this bulletin.
- Refractometer J-23688 is automatically “temperature compensated”. Other refractometers may not be temperature compensated, and will not be precise enough to provide the readings required for the critical balance between freeze protection and heater performance.

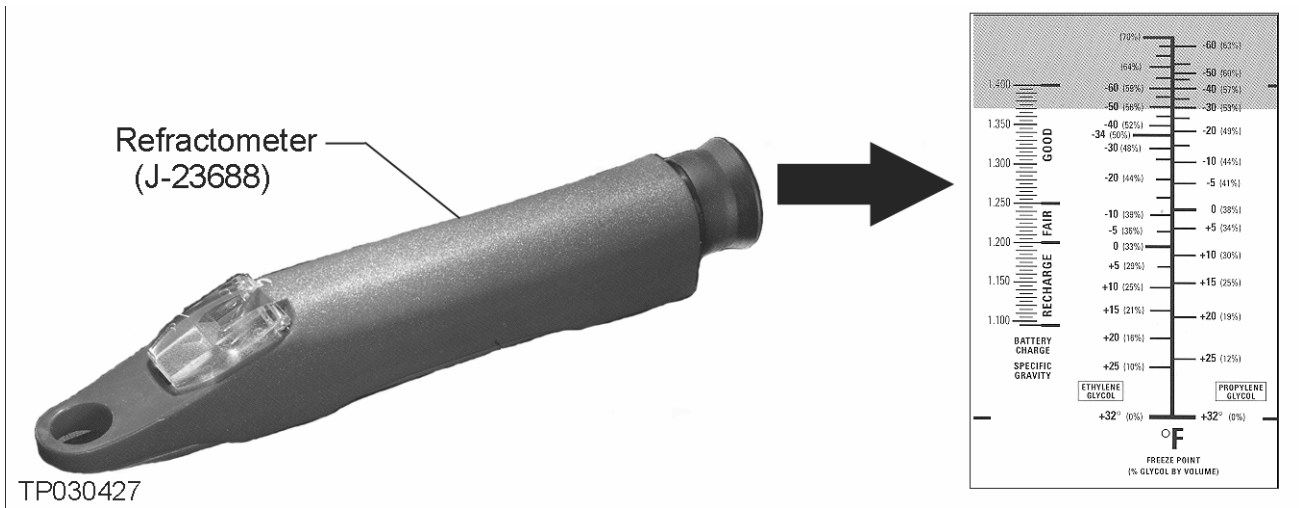


Figure 2

- Refractometer J-23688 is an essential tool that was automatically sent to all Nissan dealers late September 2003.
- If you cannot find the tool at your dealership they are available from Tech-Mate at 1-800-662-2001.

Coolant Mixture Correction

1. Drain the entire cooling system (radiator, coolant reservoir tank, and cylinder block).
 - Refer to the applicable Service Manual (ESM), section MA, for coolant drain locations.
2. Refill the engine cooling system using Genuine Nissan Anti-freeze Coolant, mixed **50/50** with distilled water or de-mineralized water.
 - Use Engine Coolant Refill Tool #J-45695 to fill the radiator.
 - Refer to NTB02-011a for Engine Coolant Refill Tool #J-45695 information.

IMPORTANT:

- It is very important that the engine cooling system be filled with a mixture that is no more than 55% coolant (ethylene glycol). **Please be “precise” (accurate) when measuring.**
- **In most areas it is best to use a 50% coolant / 50% water mixture.** The freezing point of a 50/50 mixture is –34 degrees F.
- If freeze protection down to –47 degrees F is needed, a 55% coolant / 45% water mixture may be used.
- To account for spillage during refill, and the extra mixture needed to **keep the refill tool and “bleed” tool from running dry**, we recommend a full mixture: 12 quarts / 3 gallons.
- The following measurements will give you 12 quarts / 3 gallons of a 55/45 mixture.

Coolant	6 quarts 19 ounces
Water	5 quarts 13 ounces
Total 55/45 mixture	12 quarts or 3 gallons

- If a refractometer is available, it is best to recheck the coolant mixture after mixing to confirm it is within 50 to 55% ethylene glycol.
- Engine coolant capacity (with reservoir tank) is:
 - 7.5 liters (7 7/8 quarts) for vehicles equipped with the 4-cylinder engine (QR25DE)
 - 8.1 liters (8 5/8 quarts) for vehicles equipped with the 6-cylinder engine (VQ35DE)
- Reservoir tank capacity is:
 - 0.7 liters (3/4 quart) for both the QR25DE and VQ35DE engines

Cooling System Bleed Procedure

- Steps 3 through 9 in this procedure describe making and using a cooling system “bleed” tool.
- However, you can use a commercially available funnel-type coolant refill “bleed” tool, such as Lisle® Spill-Free Funnel Tool #285-LIS-22150. See Figure 3.
- The above tool is available from TECH-MATE by calling 1-800-662-2001 and pressing option 4 to order.
- If a funnel-type tool is used, refer to the instructions that come with the tool for proper usage.

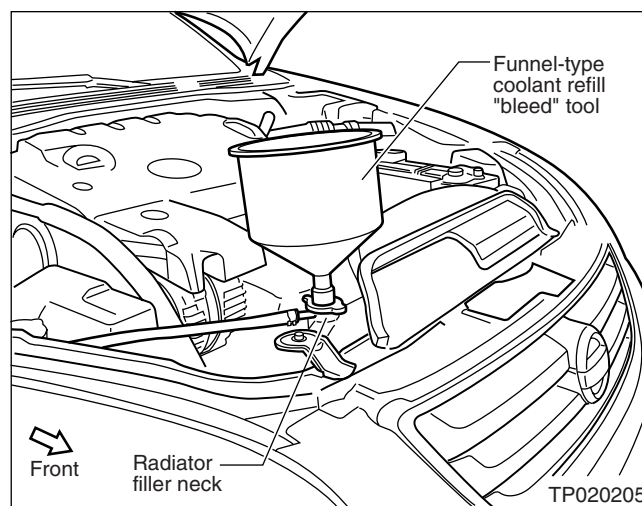


Figure 3

Remove All Air Bubbles (Bleed) the Cooling System as Follows:

1. Check the coolant level in the radiator (see Figure 4, next page).
 - a. If the coolant level is up to the radiator filler neck, proceed with step 3 on page 8.
 - b. If the coolant level is NOT up to the radiator filler neck, perform step 2 on the next page, and then proceed with step 3 on page on 8.
 - c. If, for whatever reason, the radiator is drained, use Engine Coolant Refill Tool #J-45695 to fill the radiator, and then proceed with step 3 on page 8.

NOTE: Refer to NTB02-011a for Engine Coolant Refill Tool #J-45695 information.

2. Slowly fill the radiator and reservoir tank to the specified level (see Figure 4).

- Make sure to use a 50/50 coolant mixture.
- Pour coolant into radiator filler neck slowly (less than 3 liters—3 1/8 quarts per minute) to allow air in the cooling system to escape.
- Gently squeeze the upper radiator hose while filling. This will help purge air from the system.
- Continue to fill until the coolant level stays up at the top of the radiator filler neck.

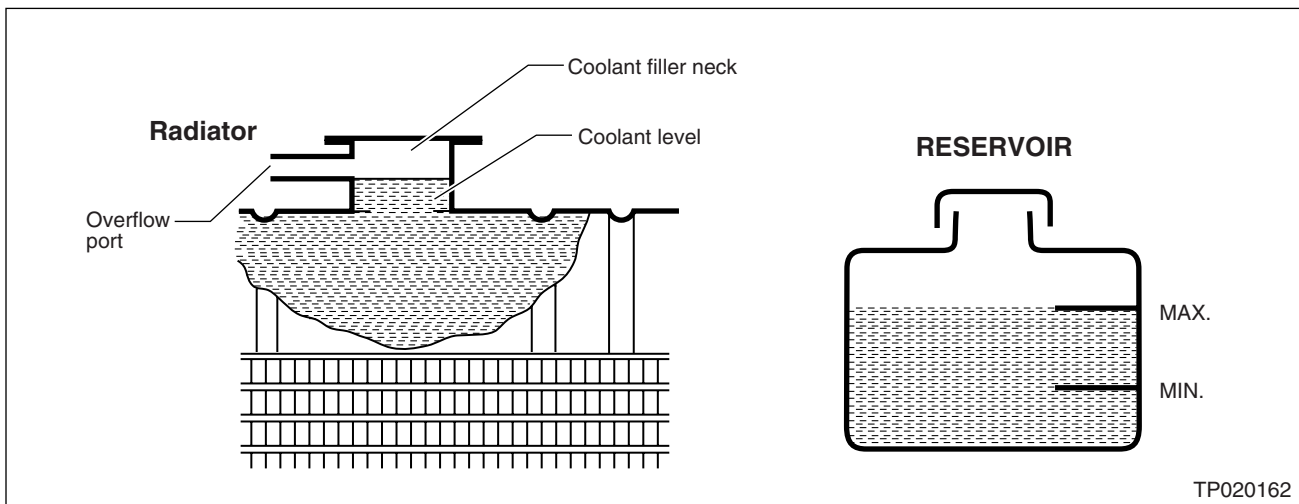


Figure 4

NOTE:

- Use Genuine Nissan Anti-freeze Coolant, mixed 50/50 with distilled water or demineralized water.
- Refer to the MA section of the applicable Service Manual (ESM) under “Recommended Fluids and Lubricants” for additional information.
- Engine coolant capacity (with reservoir tank) is:
7.5 liters (7 7/8 quarts) for vehicles equipped with the 4-cylinder engine (QR25DE)
8.1 liters (8 5/8 quarts) for vehicles equipped with the 6-cylinder engine (VQ35DE)
- Reservoir tank capacity is:
0.7 liters (3/4 quart) for both the QR25DE and VQ35DE engines

3. Install a wire under the radiator cap pressure valve to allow air and coolant to flow through freely (see Figure 5).

NOTE: Make sure the wire you install is at least 2 mm [0.079 in] in diameter. A wire less than 2 mm in diameter will not allow air to escape quickly and will not bleed the cooling system properly. Do not use a paper clip or other thin wire for this operation.

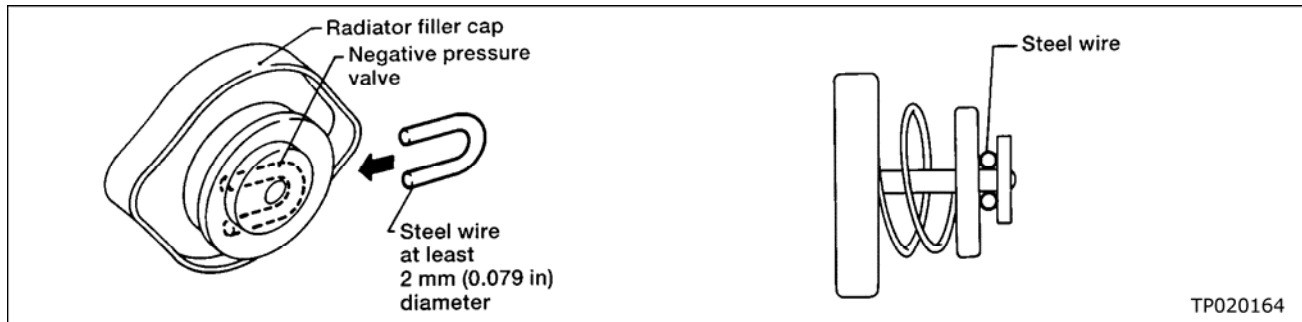


Figure 5

4. After installing the wire in the radiator cap, install the cap on the radiator
5. Disconnect the coolant reservoir hose from the radiator filler neck overflow port.
6. Make a coolant system “bleed” tool as follows:
 - a. Obtain a one-gallon plastic bottle (e.g., empty windshield washer fluid bottle, etc.).

NOTE: If available, you can use an old coolant overflow reservoir bottle, as long as the drain is at the bottom of the bottle.
 - b. Obtain a length (approximately 3 feet) of rubber hose that will fit onto the radiator filler neck overflow port.
 - c. Cut a hole in the bottom of the plastic bottle that is smaller in diameter than the outside diameter of the rubber hose. It has to seal.
 - d. Insert the rubber hose into the hole in the bottom of the plastic bottle. There should be a tight fit (interference fit) between the hose and bottle hole that will prevent leakage.
 - e. Connect the other end of the hose to the radiator filler neck overflow port.
7. Fill the modified one-gallon bottle to about $\frac{3}{4}$ full with a 50/50 coolant mixture.

8. Hang the bottle from the hood latch (see Figure 6).

WARNING: Make sure the hood is properly supported to hold the additional weight of the bottle filled with coolant mixture.

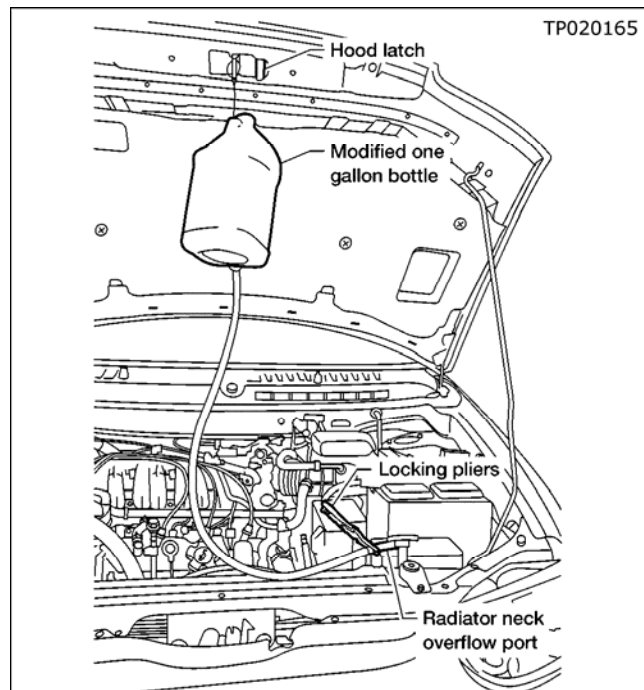


Figure 6

9. Set the heater controls as follows:

Vehicles with **Manual A/C:**

- A/C off.
- Temperature set to full HOT
- Mode control set to Floor/Defrost
- Fan speed set to HIGH

Vehicles with **Automatic A/C:**

- Temperature set to 90°F (30°C)
- Fan speed set to HIGH

10. Make sure the transmission is in the Park (“P”) position (for automatic transmission) or the Neutral (“N”) position (for manual transmission).

11. Firmly apply the parking brake and place blocks in front of and behind the rear wheels.

12. Raise the front of the vehicle

- The bottom of the front bumper “fascia” needs to be approximately 22 inches (558 mm) from the ground.
- This will help air bubbles (that may be “caught” in the cooling system) to escape.

13. Run the engine at 1,500 RPM (occasionally revving the engine).

- Make sure the coolant level in the plastic bottle does not drop below $\frac{1}{4}$ of the bottle's capacity.
- Keep the engine running until the cooling fans turn on (approximately 20 – 25 minutes), and
- Make sure that no more bubbles are seen in the “bleed” tool (bottle).
- To help dislodge air bubbles, gently squeeze the upper radiator hose a few times while the engine is running.

CAUTION: Watch the coolant temperature gauge to make sure the engine does not overheat.

14. Shut OFF the engine and allow it to cool to less than approximately 122°F (50°C).

- To reduce the amount of cool-down time, use a fan to blow air across the radiator.

Finish the Coolant Re-filling Procedure as Follows:

15. Crimp the bleed tool hose near the radiator and disconnect it from the filler neck overflow port

- The bleed tool (bottle and hose) will no longer be needed.

16. Carefully remove the radiator cap.

WARNING: Use extreme caution when removing the radiator cap.

17. Reconnect the coolant reservoir hose to the radiator filler neck overflow port.

- Confirm the reservoir tank is filled to the MAX level line with the specified coolant mixture (see Figure 4 on page 7).
- Then re-install the reservoir cap.

18. Fill the radiator with the specified coolant mixture to the top of the filler neck (see Figure 4 on page 7).

19. Remove the wire from the radiator cap (see Figure 7).

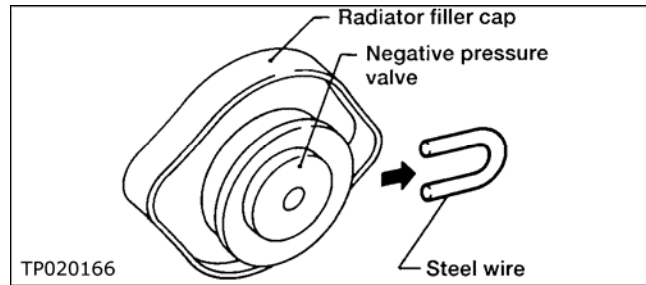


Figure 7

20. Inspect the radiator cap condition.

- A. The Black Rubber Gasket should be *smaller in diameter* than the Metal Plunger under it (see Figure A1).

If the Metal Plunger can be seen around the edge of the Black Rubber Gasket, and the gasket is clean without any deposits of a waxy residue or foreign material, the gasket is OK.

NOTE: Make sure you pressure test the radiator cap and confirm it opens and closes at the correct specifications.

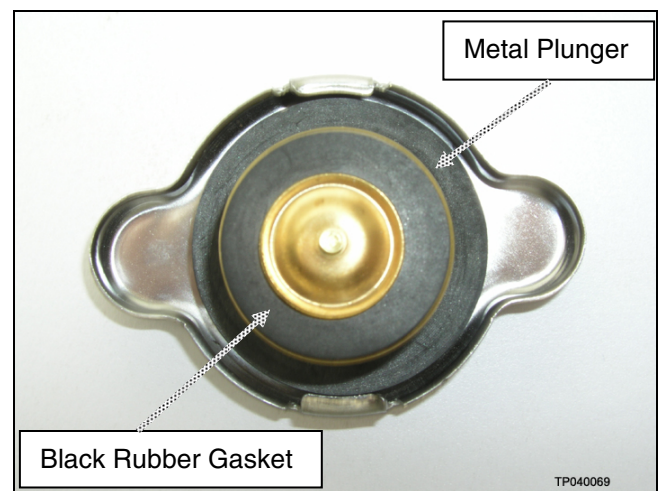


Figure A1

- B. If the Metal Plunger cannot be seen around the edge of the Black Rubber Gasket (see Figure A2), the radiator cap must be replaced.

- Thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.
- Install a new radiator cap.

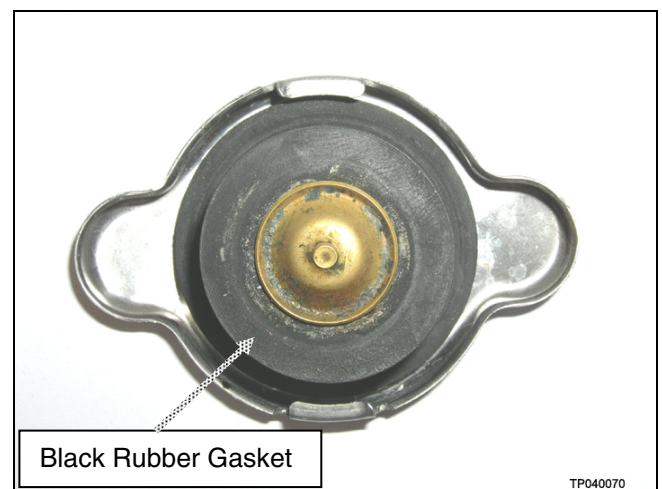


Figure A2

C. If the Metal Plunger can be seen around the edge of the Black Rubber Gasket, but there are deposits of waxy residue or foreign material on the gasket or the metal retainer (see Figure A3), the radiator cap must be replaced.

- Thoroughly wipe out the radiator filler neck to remove any waxy residue or foreign material.
- Install a new radiator cap.

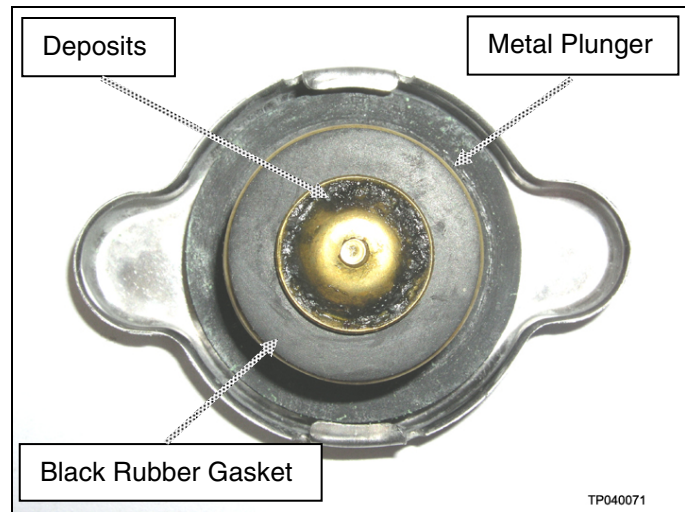


Figure A3

21. Install the radiator cap on the radiator, making sure it is turned to the fully locked position.

22. Clean/remove excess coolant from the engine and engine compartment.

23. Run the engine and check the cooling system for leaks.

24. Test the heater performance to verify the repair.

