R-134A A/C SYSTEM REFRIGERANT DYE LEAK DETECTION

This amended version of NTB99-011 adds “Claims Information” regarding the use of a specific “Expense Code” for reimbursement. Please discard all paper copies of NTB99-011.

APPLIED VEHICLES: All with R-134a A/C system

SERVICE INFORMATION

A new leak detection tool is now available to assist in locating A/C refrigerant leaks. Using Kent-Moore kit #J-43926, fluorescent dye can be injected into the A/C system and if a leak exists the dye can be externally detected using a special ultraviolet lamp. This method of leak detection can save time as the entire A/C system can be quickly scanned to identify the location of leaks.

NOTE: This tool is not a replacement for the Nissan-approved electronic leak detector, and it should be used with an electronic leak detector to pin-point refrigerant leaks.

This bulletin provides an operating procedure for the Kent-Moore leak detection kit and outlines precautionary measures associated with its use.

Figure 1
IMPORTANT CAUTIONS:

Kit Usage Precautions

• For your safety, read the manufacture’s operating instructions and precautions provided with the tool prior to performing any work.

• Use extreme care when handling fluorescent dye. If it is left on surfaces (such as exterior or interior paint/clear coat, painted plastic parts, painted bumper facias, interior plastic, etc.) for extended periods of time, it cannot be removed and a permanent stain will result. If a spill occurs, clean immediately with the supplied cleaning agent (#J-43872 or 3M™ dye cleaner P/N 051135-0899 can be used as an alternate). Do not spray these cleaning agents on hot surfaces (engine exhaust manifold, etc.).

• Leak detection dyes for R-134a and R-12 A/C systems are different. Do not use R-134a leak detection dye in R-12 A/C systems or R-12 leak detection dye in R-134a A/C systems or A/C system damage may result.

• Do not use more than one refrigerant dye bottle (1/4 ounce / 7.4 cc) per A/C system.

• Always wear UV goggles when operating the UV light; never stare into the UV light beam.

Additional Information

• The A/C system may already contain a fluorescent leak detection dye for locating refrigerant leaks. (An ultraviolet (UV) lamp is required to illuminate the dye when inspecting for leaks.)

• The fluorescent properties of the dye will remain for over three years unless a compressor seizure occurs, in which case new dye should be installed to guarantee fluorescence.

• A compressor shaft seal that exhibits dye leakage should ONLY be repaired after the leak is confirmed using an approved electronic leak detector.

• Always remove any dye from the leak area after repairs are complete to avoid mis-diagnosis during a future service.

• The receiver dryer currently used in the Nissan R134a A/C systems has an operating life of approximately 10 years. It is not necessary to replace the receiver dryer in an R-134a system during routine service. Refer to NTB98-106 for more information.

Preliminary Checks

• Perform a visual inspection of all refrigerant parts, fittings, hoses and components for signs of A/C lubricant leakage, damage and corrosion. A/C lubricant leakage may indicate an area of refrigerant leakage. Allow extra inspection time in these areas when using either an electronic refrigerant leak detector or fluorescent dye leak detector.
Preliminary Checks (cont’d)

• When searching for leaks, do not stop when one leak is found but continue to check for additional leaks at all system components and connections.

• If dye is observed, confirm the leak with an approved electronic leak detector. It is possible a prior leak was repaired and not properly cleaned.

• When searching for refrigerant leaks using an electronic leak detector, move the probe along the suspected leak area at 1 to 2 inches per second and no further than ¼ inch from the component.

NOTE: Moving the electronic leak detector probe slower and closer to the suspected leak area will improve the chances of finding a leak.

SERVICE PROCEDURE

1. Verify the A/C system pressure (with the A/C system off) is 50 psi. Add refrigerant as needed to achieve 50 psi pressure.

2. Check the vehicle’s A/C system to determine if refrigerant dye was previously installed.

NOTE: Vehicles equipped with refrigerant dye: (1) have an identification label (see Figure 1) installed near the Original Equipment (OE) A/C system charge label (2) have refrigerant dye residue inside the low side service fitting*.

* It is normal for a small amount of refrigerant to be present in the low side service fitting. If refrigerant dye is present in the low side service fitting, this condition does not indicate a leak.

   A. If the A/C system has refrigerant dye in it, proceed with step 4 (i.e., “With the engine off, check all components, fittings and lines for leaks …”).

   B. If the A/C system does NOT have refrigerant dye, inject refrigerant dye as follows, then proceed with step 3 (i.e., “Operate the A/C system for 20 minutes…”).

1. Pour one bottle (1/4 ounce / 7.4 cc) of the A/C refrigerant dye into the injector tool (J-41459).

2. Connect the injector tool to the A/C LOW PRESSURE side service fitting.

3. Start the vehicle and turn on the A/C system (A/C compressor operating).

4. Inject the dye into the A/C system.

5. Disconnect the injector tool from the service fitting.

CAUTION: Do not allow dye to drip or spray when disconnecting the injector tool.

6. Install the refrigerant dye identification label next to the (OE) A/C system charge label (indicating the vehicle is now equipped with refrigerant leak detection dye).
7. Use a permanent marker to write the dye installation date on the dye identification label.

**NOTE:** If the A/C system refrigerant loop is “opened” due to a repair, the refrigerant dye can be poured directly into the open part of the A/C system.

3. Operate the A/C system for 20 minutes to allow the dye to mix with the refrigerant oil.

**NOTE:** Depending on the leak size, operating conditions and location of the leak, it may take from minutes to days for the dye to leak to a point that it is visible.

4. With the engine off, check all components, fittings and lines for leaks using the UV lamp and safety goggles in a shaded area.

**NOTES:**
- The dye appears as a bright green/yellow fluorescent area at the point of leakage.
- Fluorescence detected coming from the A/C evaporator drain tube typically indicates a leak in the evaporator core, tubes, fittings or TXV (Thermal Expansion Valve).
- If it is difficult to shine the UV lamp directly on the suspected area, try using an adjustable mirror to reflect the light or wipe the area with a clean cloth and check for dye fluorescence on the cloth.

5. Repair confirmed refrigerant leaks.

6. Remove all residual dye using the recommended dye cleaner to prevent future misdiagnosis.

7. Perform an A/C system performance test and confirm the leak repairs are successful using an approved electronic leak detector. Refer to the HA section of the applicable service manual for the A/C system performance procedure.

**NOTE:** Moving the electronic leak detector probe slower and closer to the suspected leak area will improve the chances of finding a leak.

**PARTS INFORMATION**

The Kent-Moore A/C system refrigerant dye leak detection kit (J-43926*) is an essential tool and will automatically be sent to all dealers.

**NOTE:** This kit does not contain the leak detection dye for R-12 A/C systems. To obtain the R-12 A/C system leak detection dye, order #J-39475 separately.

* Kit includes:
- Ultra-violet lamp with shield/fluorescent enhancing safety goggles #J-42220
- Refrigerant dye injector #J-41459
- R-134a refrigerant dye #J-41447 (qty. 24)
- Refrigerant dye cleaner #J-43872

**NOTE:** Refrigerant dye identification labels (qty. 30) are included with the refrigerant dye.
CLAIMS EXPENSE INFORMATION

To claim reimbursement for the single-use bottle of tracer dye as obtained from Kent Moore, use the following Expense Code information:

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<th>DESCRIPTION</th>
<th>EXPENSE CODE</th>
<th>AMOUNT</th>
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<td>¼ oz. Bottle Tracer Dye</td>
<td>023</td>
<td>$3.25</td>
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