

February 26, 2020

Version 5

A/C Leak Detection

Supersedes 07-025, dated February 14, 2020, see REVISION SUMMARY.

AFFECTED VEHICLES

All vehicles with conventional A/C Compressors

REVISION SUMMARY

Under LEAK DYE, information was added.

LEAK DETECTION TYPES

There are several A/C leak detection tools available.

- Refrigerant Gas Leak Detector
- Ultrasonic Leak Detector
- Leak Dye

REFRIGERANT GAS LEAK DETECTOR

A refrigerant leak detector can sense refrigerant gas leaking from the A/C system.

- It is a good alternative if the vehicle cannot accept leak dye.
- The system must be pressurized to use this type of leak detector.

NOTES

- Refer to the Acura Tool and Equipment Program for the most current, approved tool.
- Refer to the tool manufacturer's information for correct usage.

ULTRASONIC LEAK DETECTOR

An ultrasonic leak detector listens for leaks in the A/C system.

- It is a good alternative if the vehicle cannot accept leak dye.
- The system must be under vacuum to use this type of detector.

NOTES

- Refer to the Acura Tool and Equipment Program for the most current, approved tool.
- Refer to the tool manufacturer's information for correct usage.

CLIENT INFORMATION: The information in this bulletin is intended for use only by skilled technicians who have the proper tools, equipment, and training to correctly and safely maintain your vehicle. These procedures should not be attempted by "do-it-yourselfers," and you should not assume this bulletin applies to your vehicle, or that your vehicle has the condition described. To determine whether this information applies, contact an authorized Acura automobile dealer.

LEAK DYE

Dye is injected into the A/C system. System leaks are visible with an ultraviolet light.

There are specific leak dye kits for the R-134a and R-1234yf A/C systems. Make sure you are using the right kit for the system you are working on. Here are your choices:

- R-134a - OPTIMAX Jr.™ A/C Leak Detection Kit (P/N TRP124893)
- R-1234yf - R-1234yf Leak Detection Kit (P/N TRP1234YF)

NOTES

- Only the dyes mentioned below from Tracer Products (Tracerline®) are approved for use in Acura vehicles. Other dyes contain solvents that may contaminate the system's refrigerant oil, leading to component failure.
- Adding excessive amounts of dye can lead to compressor damage and failure.

Leak Dye Application Chart

Not all models allow leak dye. Use this chart to determine if it can be used.

Model	Year	Leak Dye Kit Number
3.2 CL	2001-03	TRPTP3860P12
ILX	2013-18	TRPTP3860P12
	2019 and later	Dye use not allowed
ILX Hybrid	ALL	Dye use not allowed
Integra	2000-01	TRPTP3860P12
MDX	2001-2018	TRPTP3860P12
	2019-2020	TRPTP9811P12
MDX Sport Hybrid	ALL	Dye use not allowed
NSX	2000-05	TRPTP3860P12
	2017 and later	Dye use not allowed
RDX	2007-18	TRPTP3860P12
	2019-20	TRPTP9811P12
3.5 RL	2000-04	TRPTP3860P12
RL	ALL	TRPTP3860P12
RLX	ALL	TRPTP3860P12
RLX Sport Hybrid	ALL	Dye use not allowed
RSX	ALL	TRPTP3860P12
3.2TL	2000-03	TRPTP3860P12
TL	ALL	TRPTP3860P12
TLX	ALL	TRPTP3860P13
TSX	ALL	TRPTP3860P13

Model	Year	Leak Dye Kit Number
ZDX	ALL	TRPTP3860P13

OPTIMAX JR. A/C LEAK DETECTION KIT

The OPTIMAX Jr.™ R-134a A/C Leak Detection Kit (P/N TRP124893) is a required special tool. The kit is used to add small amounts of dye to A/C systems to help locate smaller leaks that an electronic leak detector may not find.

When searching for leaks, always begin by using an electronic leak detector. Refer to service bulletin 18-036, *Bosch ROBLD020 Dual Mode Refrigerant Gas Leak Detector*, for tips on using this tool, then follow up with the OPTIMAX Jr.

This detection kit complements but does not replace the electronic leak detector.

OPTIMAX Jr. A/C Leak Detection Kit (P/N TRP124893) includes these items:

- TRP8640CS - OPTIMAX Jr.™ cordless, fluorescent leak detection flashlight lamp (includes 3 standard AA batteries)
- TRP38600601 - (6) 0.06 oz. (1.7 g) Tracer-Stick® R134a/PAG A/C dye capsules with ID labels
- TRP3887 - R-134a Universal Connect Set™
- TRP120884 - GLO-AWAY™ dye cleaner
- TRP9940 - fluorescence-enhancing glasses
- TRP1143 - (1) empty Tracer-Stick dye capsule



Using the OPTIMAX Jr.

NOTICE

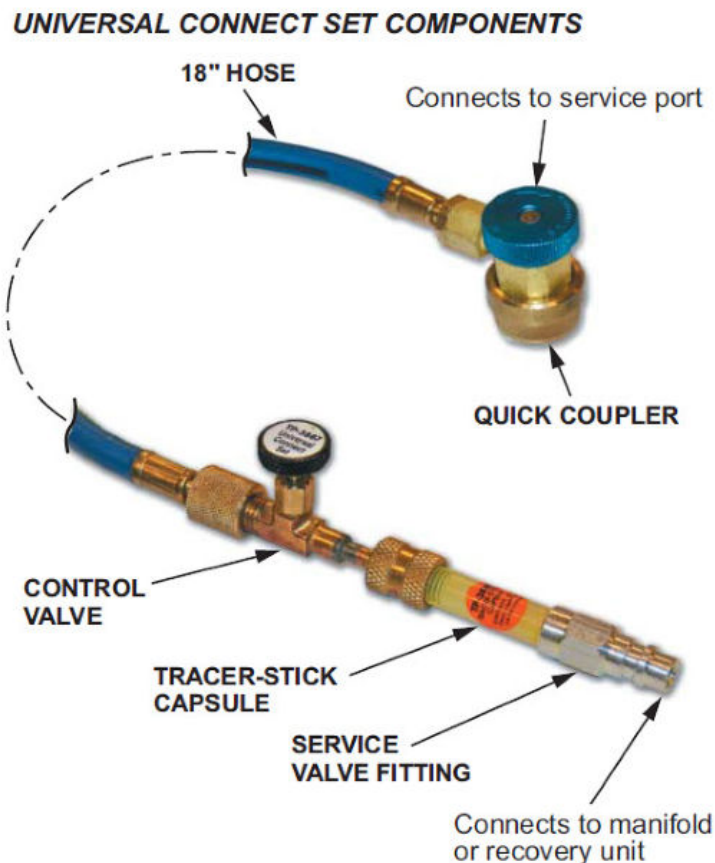
- Read and review all safety related information provided in the kit before operation.
 - Do not run the A/C system while the dye injector is connected or is being used.
 - Do not connect the dye injector to a system that is evacuated.
 - The system must contain enough refrigerant to run the compressor and circulate the dye in order to find leaks.
 - The dye may damage the paint and finishes on the vehicle, as well as staining hands and clothing.
 - Store in a cool place, away from sunlight.
1. Before adding any leak-detection dye, check if there is dye in the system now.
 - Check for a label in the engine compartment indicating that fluorescent leak-detection dye has been added to the system.
 - Dye may have been added even though no label is present. To confirm this, do the following:
 - Put on the fluorescence-enhancing glasses, and remove the low-side service port sealing cap.

- Direct the ultraviolet lamp into the valve stem area. If dye has been previously added, the lubricant traces will have a bright yellow fluorescent glow. You may need to press the port's valve stem briefly to release some lubricant and dye from the system.
 - If there is no dye in the system, go to step 2.
 - If there is dye in the system, go to step 5. **Do not add more dye.**
2. Add the dye.

NOTE

Air and moisture must be evacuated from the universal connect set if it is being used for the first time, or if it has been stored with the control valve open. If the air and moisture have been evacuated, go to step 3; otherwise, do the following:

- 2.1. Attach the empty dye capsule (provided in the dye kit) to the control valve fitting.
 - 2.2. Attach the service valve fitting (provided in the kit) to the empty dye capsule.
 - 2.3. Attach the low-side hose of the A/C recovery and charging station, and open the quick coupler's hand-wheel valve. Then, open the control valve (black knob) on the universal connect set.
 - 2.4. Following the manufacturer's instructions for your recovery and charging station, evacuate the universal connect set for about **3 minutes**.
 - 2.5. When evacuation is complete, be sure the set's control valve is closed (finger tight), and disconnect the A/C recovery and charging station.
 - 2.6. Remove the service valve fitting and the empty dye capsule from the set, and store them for future use.
3. Connect the universal connect set and the Tracer-Stick dye capsule:



- 3.1. Be sure the quick coupler and control valves on the set are closed.

- 3.2. Remove the low-side service port sealing cap, and connect the set to the low-side service port using the quick coupler.
- 3.3. Hold a new dye capsule so the embossed arrow is pointing up. Remove the black end cap, and carefully attach the capsule to the control valve fitting.

NOTE

The capsule must be held with the embossed arrow pointing up, or the dye will leak out of the capsule.

- 3.4. Turn the capsule so the embossed arrow is pointing down. Remove the orange end cap, and carefully attach the service valve fitting provided in the kit (finger tight).

NOTE

The capsule must be held with the embossed arrow pointing down, or the dye will leak out.

4. Connect the A/C service equipment:

- 4.1. With the universal connect set and dye capsule attached to the vehicle's low-side service port, connect the A/C refrigerant recovery and charging station's low-side hose quick coupler to the service valve fitting.
- 4.2. Open the blue hand-wheel valves on both quick couplers. Leave the control valve (black knob) on the universal connect set closed.

NOTES

- If you have recovered refrigerant to weigh as part of your diagnostics, or if there is a low charge, it is more efficient to recharge the system using normal procedures before installing the universal connect set. Dye can then be added using about **0.05 lb (0.02 kg)** of refrigerant.
 - You do not need to connect the service equipment's high-side hose to the vehicle to install the dye. If the high-side hose is connected, make sure its coupler valve is closed before proceeding.
 - Do not use the A/C recovery and charging station to recover or evacuate the A/C system when a full dye capsule is attached. The dye will be drawn into the service equipment instead of being added to the vehicle's A/C system.
5. Inspect the A/C system for leaks.
 - 5.1. Run the A/C system for **5 to 10 minutes** to circulate the dye through the system. Large leaks will be seen immediately as a fluorescent yellow glow.
 - 5.2. Smaller leaks may require at least **90 minutes** of vehicle operation before they become visible.

NOTES

- Based on the case, you may return the vehicle to the customer. Be sure to schedule a return visit **24 to 48 hours** later to ensure the dye has circulated through the system.
 - Turn the ECON button OFF before running the A/C system (If equipped).
- 5.3. Stop the vehicle's engine, and inspect the system for leaks using the ultraviolet (UV) lamp and fluorescence-enhancing glasses from the kit. Low ambient light conditions (a dark work area) will aid in locating the leak.

NOTE

Not all UV lamps work well with all types of fluorescent dye. Use only the lamp provided in the kit to inspect for leaks.

5.4. Inspect the entire system. Be sure to check these locations:

- damaged and corroded areas
- fittings
- hose-to-line couplings
- refrigerant controls
- service ports

- brazed or welded areas
 - areas near attachment points
- 5.5. Check for evaporator leaks from the evaporator drain tube area using the ultraviolet lamp and glasses.
- 5.6. After repairing a leak, remove any fluorescent residue using the GLO-AWAY dye cleaner from the kit and hot water. Follow the instructions on the bottle.

R-1234YF LEAK DETECTION KIT

The R-1234yf Leak Detection Kit (P/N TRP1234yf) is a required special tool. It is used to add small amounts of dye to A/C systems to help locate smaller leaks that an electronic leak detector might not find.

When searching for leaks, always begin by using an electronic leak detector. Refer to service bulletin 18-036, *Bosch ROBLD020 Dual Mode Refrigerant Gas Leak Detector*, for tips on using this tool, then follow up with the R-1234yf A/C Leak Detection Kit.

This detection kit complements but does not replace the electronic leak detector.

R-1234yf A/C Leak Detection Kit (P/N TRP1234yf) includes these items:

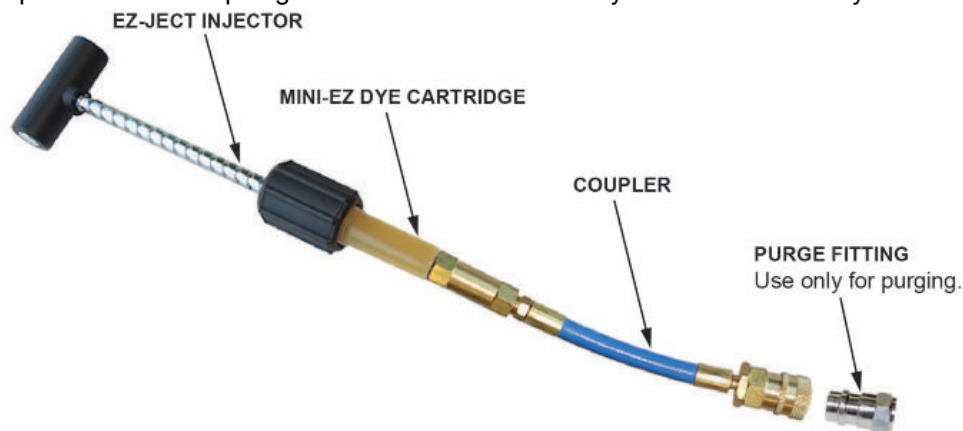
- TRP8655 - OPTI-PRO™ Plus Violet Light LED Leak Detection Flashlight
- TRP98110301 - (3) Mini-EZ™ R-1234yf A/C Dye Cartridges
- TRP9845 - EZ-Ject™ Injector Assembly
- TRP128021 - R-1234yf Hose/Coupler with Check Valve and Purge Fitting
- TRP127568 - Lithium-ion Rechargeable Battery
- TRP128508 - Smart A/C Charger
- TRP9940 - Fluorescence-enhancing Glasses
- TRP120884 - GLO-AWAY™ Dye Cleaner
- TRP121107 - Black Carrying Case



Using the R-1234yf A/C Leak Detection Kit

NOTICE

- Read and review all safety related information provided in the kit before operation.
 - Do not run the A/C system while the EZ-Ject dye injector is connected or is being used.
 - Do not connect the EZ-Ject dye injector to a system that is evacuated.
 - The system must contain enough refrigerant to run the compressor and circulate the dye in order to find leaks.
 - The dye may damage the paint and finishes on the vehicle, as well as staining hands and clothing.
 - Store in a cool place, away from sunlight.
1. Before adding any leak-detection dye, check if there is dye in the system now.
 - Check for a label in the engine compartment indicating that fluorescent leak-detection dye has been added to the system.
 - Dye may have been added even though no label is present. To confirm this, do the following:
 - Put on the fluorescence-enhancing glasses, and remove the low-side service port sealing cap.
 - Direct the ultraviolet lamp into the valve stem area. If dye has been previously added, the lubricant traces will glow bright yellow. You may need to press the port's valve stem briefly to release some lubricant and dye from the system.
 - If there is no dye in the system, go to step 2.
 - If there is dye in the system, go to step 13. **Do not add more dye.**
 2. Unscrew the handle on the EZ-Ject injector completely, and screw in the Mini-EZ dye cartridge.
 3. Holding the cartridge vertically, remove the cap and screw the cartridge firmly to the coupler.
 4. Insert the adapter/purge fitting into the coupler.
 5. Turn the handle to push forward the plunger until a small amount of dye exits the assembly.



6. Remove the adapter/purge fitting.
7. Clean any excess dye from the coupler.
8. The R-1234yf coupler is now purged, ready for use, and will be full of dye.

NOTE

If the dye charge is lost, repeat steps 2 through 7.

9. Connect the coupler to the service port on the vehicle.
10. Turn the plunger clockwise to inject the dye.
11. Use one 0.25 oz (7.4 ml) Mini-EZ dye cartridge for one vehicle.

12. Disconnect the coupler from the service port, and wipe both clean.
13. Start the engine, and run the A/C system on maximum for **5 to 10 minutes** to circulate the dye.
14. Turn the ignition to OFF.
15. Inspect for possible leaks with the OPTI-PRO Plus flashlight. Leaks will glow bright yellow. The fluorescence will be brightest under low-light conditions.
 - 15.1. Inspect the entire system. Be sure to check these locations:
 - damaged and corroded areas
 - fittings
 - hose-to-line couplings
 - refrigerant controls
 - service ports
 - brazed or welded areas
 - areas near attachment points
 - 15.2. Check for evaporator leaks from the evaporator drain tube area using the ultraviolet lamp and glasses.
16. Residual dye could give a false leak indication. Run the A/C system **5 to 10 minutes** and inspect with the ultraviolet light. If there is no visible glow, all leaks have been repaired.
17. To find smaller leaks, run the A/C system for a minimum of **90 minutes** and inspect it again.

NOTES

- Based on the case, you may return the vehicle to the customer. Be sure to schedule a return visit **24 to 48 hours** later to ensure the dye has circulated through the system.
 - Turn the ECON button OFF before running the A/C system (If equipped).
18. After the leaks are repaired, clean the residual dye (from the leak sites) with a cloth and GLO-AWAY Dye Cleaner. Check with the lamp to make sure all dye residue is removed.

END