



RecoverX-CAR™ Contaminated Automotive Refrigerant Recovery System



Operation and Maintenance Manual

(English)

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General Safety Instructions

- 1. Know your equipment.** Read and understand the operation manual and the labels affixed to the unit. Learn its applications and limitations, as well as the specific potential hazards of your equipment.
- 2. CAUTION** – Should be operated by certified personnel.
- 3. Use the correct hoses.** This equipment is to be used with the included 37827 hose kit, designed for recovery of contaminated R-134a and R-1234YF refrigerant from Motor Vehicle Air Conditioning (MVAC) systems.
- 4. Use properly marked recovery cylinder.** This equipment is to be used with the included 37826 recovery cylinder, which is labeled for use with contaminated refrigerant only.
- 5. Ground all equipment.** Plug the **RecoverX-CAR** into properly grounded receptacle with an appropriate plug.
- 6. Do not pressure test with compressed air.** Some mixtures of air and refrigerant have been shown to be combustible at elevated pressures.
- 7. Avoid breathing A/C refrigerant and lubricant vapor or mist.** Exposure may irritate eyes, nose and throat. To remove refrigerant from the A/C system, use only equipment certified for the type of refrigerant being removed. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.
- 8. Avoid dangerous environments.** To keep operator exposure to a minimum, use the **RecoverX-CAR** with sufficient ventilation. **Always perform recovery in well-ventilated areas.** Use this equipment only in locations with mechanical ventilation, providing at least four air exchanges per hour, or the equipment should be placed 18” above the floor. This equipment should not be used near open containers of gasoline or any other flammable liquid. Do not allow refrigerants to contact open flame. Refrigerant decomposition in flame results in phosgene gas. Breathing phosgene gas can be fatal.
- 9. Always wear safety goggles and gloves.** Personal protective equipment should be worn to protect operator from frostbite.
- 10. Use caution when connecting or disconnecting.** Improper usage may result in refrigerant burns (frostbite). If a major leak occurs, proceed immediately to a well-ventilated area.
- 11. Disconnect recovery machine from power before servicing.** An electrical shock hazard is present when the

- unit is disassembled.
12. **Repair damaged parts.** Do not operate the **RecoverX-CAR** with a defective part. Repair unit to proper operating conditions.
 13. **Use recommended accessories.** Follow the instructions that accompany all accessories. Improper use of accessories may damage equipment or create a hazard.
 14. **Use the RecoverX-CAR only with the proper refrigerants.** (See specifications for a complete list of compatible refrigerants).
 15. **Operate the RecoverX-CAR within the design parameters.** The **RecoverX-CAR** was designed to operate in a temperature range from 40°F (4°C) to 120°F (49°C). Do not operate in a wet location.
 16. **CAUTION** - Refrigerant may be contaminated with hydrocarbons and leak sealants
 17. **To minimize sparking potential, it is recommended that electrical equipment startup first by turning on switch, then plug power cord into outlet at least 3 meters away.** Locate vacuum pump outside of building.
 18. **Use an area fan to vent/diffuse any leakage during service**
Caution: All refrigerant hoses, recovery tanks, refrigerant lines, the **RecoverX-CAR**, and other vessels containing refrigerants should be handled as if under high pressure. Tanks containing refrigerant may have damaged valves. Always open valves slowly to prevent release of refrigerant should this be the case.
Caution: To avoid potential leakage to the atmosphere, the proper hoses and fittings should be used and checked for damage.
Caution: To avoid overfilling the refrigerant cylinder, read and follow the manufacturer recommended filling instructions for the refrigerant being recovered.
To prevent the risk of fire, DO NOT use and extension cord smaller than 16 AWG (1.276mm²) and longer than 25 ft (7.6m).

System Overview

The **RecoverX-CAR** offers significant flexibility to meet your contaminated R-134a and R-1234YF handling needs. Careful handling of these refrigerants is an important part of servicing Motor Vehicle Air Conditioning (MVAC) equipment. Specific regulations apply to refrigerant handling. Familiarize yourself with these regulations.

The **RecoverX-CAR** is used to recover contaminated refrigerant from MVAC systems. The refrigerant is transferred to a holding tank. For field service, this tank is normally a portable refrigerant recovery cylinder.

Because the refrigerants are contaminated, they must be reclaimed and are not to be re-used.

Use care when recovering refrigerant into a portable tank. As stated in the warnings, overfilling a tank can be extremely

dangerous. The best method for monitoring tank level is a scale that continually monitors the weight of the tank.

Your **RecoverX-CAR** has an umbilical cord to connect to the Tank Overfill Switch (TOS) located on your recovery tank. When connected to the recovery cylinder, this switch will automatically turn off the recovery machine when the tank has reached its recommended maximum fill level.

The **RecoverX-CAR** is designed for recovery of both liquid and vapor refrigerant from MVAC systems. During the refrigerant recovery process, there is often system oil that is recovered with the refrigerant. You can determine how much oil was removed from a system by measuring the amount of oil in the Oil Separator Drain. If oil was removed, replace with the appropriate type and amount into the MVAC system.

RecoverX-CAR Operating Guide

Direct Liquid/Vapor Recovery

The **RecoverX-CAR** can recover vapor and liquid contaminated refrigerant. Use your **RecoverX-CAR** to pull refrigerant directly out of the MVAC system and transfer it into your 37826 recovery cylinder for contaminated refrigerant.

MVAC system recovery can be done by connecting to both the low side and high side of the MVAC system using hose assembly 37827. See diagram on the following page.

Ensure you have the capacity to recover all of the refrigerant in the system being serviced. In the USA, the recovery cylinders can only be filled to 80% capacity.

Follow the steps below and refer to the “LED Light Meanings” table on page 6:

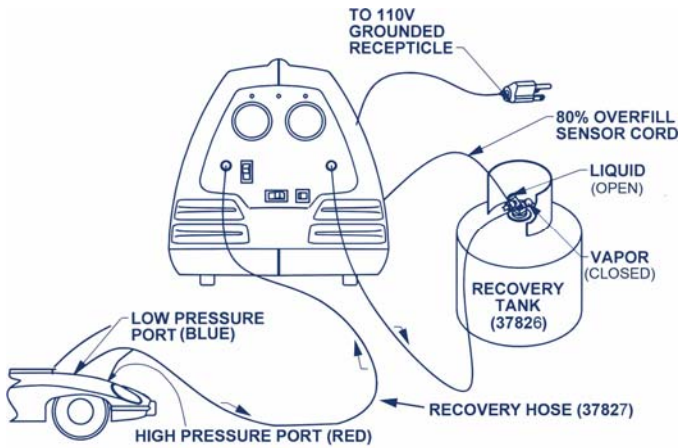
1. Ensure the **RecoverX-CAR** unit *Power Switch* is off (○) and the MVAC system is not running.
2. Check the Oil Separator Drain and empty the reservoir if there is any oil present. ****Note**** Pull the **RecoverX-CAR** unit into vacuum before removing the brass cap on the Oil Separator Drain. The Oil Separator Drain is normally under high pressure. Tilt the **RecoverX-CAR** unit back about 10 degrees to ensure that all of the oil is drained from the reservoir. Reattach the brass cap once the oil has been drained.



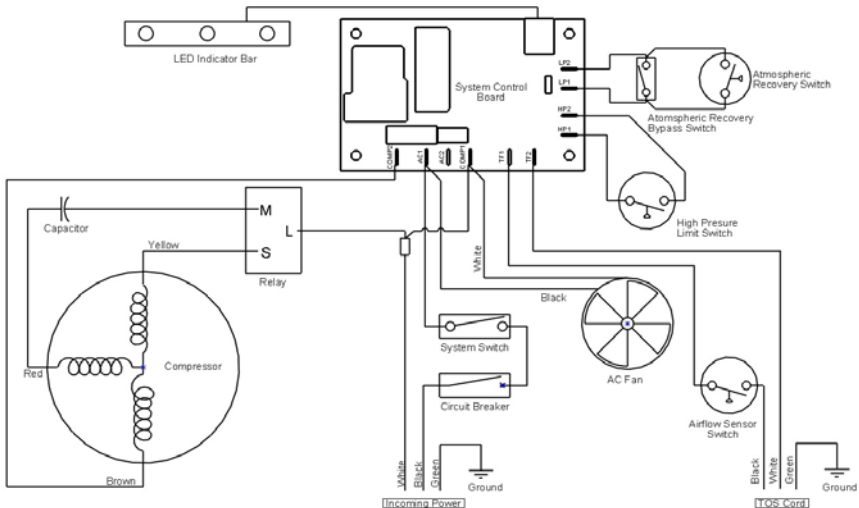
3. Plug the **RecoverX-CAR** into a 110V power supply.
4. Set the ambient pressure override switch as needed for the MVAC system being recovered. If the system has a known leak, turn the override switch off (○). This will shut off the **RecoverX-CAR** unit when the suction pressure has reached a pressure slightly above atmospheric pressure (3-5 psig) and will prevent air from being recovered into the recovery cylinder. If the system is not leaking, turn the override switch on (I). This will allow a full recovery to the desired vacuum level.
5. Connect the recovery unit to the MVAC system as shown in the Refrigerant Recovery diagram on page 5.
6. Connect the Tank Overfill Sensor (TOS) cord as shown in the TOS Install diagram on page 6.
7. Connect the discharge hose between the **RecoverX-CAR** discharge fitting and the liquid port on the recovery cylinder. Open the liquid valve on the recovery cylinder.
8. Turn the *Power Switch* on (I). **** Note**** Upon power up, the machine fan will run for six seconds before the compressor startup to ventilate its enclosure and to help prevent the buildup of potentially flammable mixtures of gasses.
9. If the ambient pressure override switch is turned on, monitor the low-side pressure until the desired vacuum level is achieved. If the ambient pressure override switch is turned off, the yellow and red lamps will flash alternately when the system has reached 3-5 psig and the compressor will be stopped.
10. Turn the *Power Switch* off (○) once the recovery is complete.

10. Wait five (5) minutes to ensure the pressure does not rise above zero.
11. If the pressure rises above the required vacuum level, continue the recovery Steps 8-11.
12. If the pressure remains below the required level, close the valve on the recovery tank.
13. Disconnect the hoses from the MVAC system and the recovery cylinder. ****Note**** Ensure that all valves are closed.
14. Because oil can be removed from the MVAC system during recovery, the Oil Separator Drain port should be drained after every usage. Drain this oil into the included oil fill bottle to determine how much refrigerant oil was removed from the MVAC system.
15. If oil was removed, replace with the appropriate type and amount into the MVAC system.

LIQUID OR VAPOR RECOVERY DIAGRAM



WIRING DIAGRAM



LED LIGHT MEANINGS

Green Light Flashing	System startup ventilation.
Solid Green Light	System Recovering
Solid Yellow Light	System loss in airflow detected or recovery tank full. Check system fan and tank weight.
Alternating Red and Yellow Lights	Atmospheric recovery complete.
Solid Red Light	High pressure cutout reached.

TOS INSTALL DIAGRAM



Umbilical Mounted to Tank



Umbilical with Shorting Cap

SUCTION FILTER

The **RecoverX-CAR** is equipped with a built-in particulate strainer located behind the suction port. Unscrew the suction port by using a 11/16 wrench to unscrew the hex head port to remove. This prevents contaminants, copper shavings, carbon, and other foreign objects from making their way to the **RecoverX-CAR** compressor and causing permanent damage.

Like a filter drier, this strainer **MUST** be cleaned or replaced often. Failure to do this can cause the strainer to become too clogged for refrigerant to

flow freely. A sure sign that the straining device is clogged is the freezing of the suction port and the filter cover.

Before replacing, check the condition of the o-ring. Replace if necessary.

Note: Make sure to use a strainer in the **RecoverX-CAR** for every job! Filter strainers and o-rings are available from your supplier.

Filter Strainer and O-Ring - Part #95457

TROUBLESHOOTING GUIDE

Condition	Possible Problem	Possible Solution
No power to unit	Power cord not plugged in	Plug in power cord
	Outlet not energized	Reset outlet breaker
Compressor will not start	Compressor thermal overload is tripped	Allow compressor to cool down until thermal overload resets
	ATM Recovery switch is tripped (yellow and red alternating lights)	Atmospheric recovery is complete, re-pressurize the suction side to above 20 psi to reset switch
	Unit has not completed cabinet ventilation (flashing green light)	The RecoverX-CAR internal fan will run for approximately 6 seconds before the compressor starts up to clear any potentially flammable gasses from building up inside cabinet
	Unit is shut down on tank full or loss of airflow (solid yellow light)	Check shorting cap or TOS connection to tank, if connections are good, there may be a problem with the airflow sensor or unit fan
	Unit is shut down on high pressure (solid red light)	Check discharge pressure gauge, unit will trip around 500 psi discharge, check for restrictions including closed valves
Unit trips breaker upon start up	Compressor is in a locked-rotor condition	Contact customer service for repair
Unit runs but does not recover refrigerant	Suction filter clogged	Contact customer service for repair
	Restriction in suction hose set or system	Check coupler connections, make sure the couplers are fully engaged on the service ports and the knobs on the couplers are turned clockwise until they stop
Unit will not pull a vacuum	ATM recovery switch is tripped	Use the ATM Recovery Override switch to bypass the ATM Recovery switch if it is desired to pull the system into a vacuum
	Leak in MVAC system	Locate and repair and leak(s) in the system

TECHNICAL DATA

Compressor:	½ HP Reciprocating Oil-Less Twin Cylinder
Power Source:	115V AC 50/60 Hz 1 Phase
Size:	Height: 12.50"
	Width: 12.50"
	Depth: 19.25"
	Weight: 29.9 lb
Approved Refrigerants:	Contaminated R-134a & R-1234YF
Certifications:	SAE J2851 & UL 1963

IMPORTANT NOTICE TO PURCHASER

Check for damage immediately. Prior to shipment, all YELLOW JACKET **RecoverX-CAR** Refrigerant Recovery Systems are completely tested and inspected to assure compliance with Ritchie Engineering factory specifications.

If the recovery system carton is damaged, check contents immediately. Note damage on shipper's Bill of Lading and have shipper sign statement. Notify carrier immediately of the damage to arrange inspection of the recovery system and packaging. The CARRIER ALONE is responsible for handling and settling your claim. Ritchie Engineering will cooperate in assessing damage if the recovery system is returned to the factory prepaid.

Carton contents include:

- ... **RecoverX-CAR** Contaminated Automotive Recovery Machine
- ... Warranty Registration Card
- ... 37826 Contaminated Refrigerant Recovery Cylinder with TOS
- ... 37827 Hose Kit with R-134a & R-1234YF Couplings
- ... Oil Fill Bottle (for Measurement of Recovered System Oil)

To validate warranty, mail registration card within 10 days.

Ritchie Engineering guarantees YELLOW JACKET products to be free of defective material and workmanship which could affect the life of the product when used for the purpose for which it was designed. Warranty does not cover items that have been altered, abused or returned solely in need of field service maintenance.

The RecoverX-CAR Contaminated Automotive Recovery Machine (UPC 37825) is covered by a one year warranty for parts and labor.

The following exceptions will not be covered under this warranty: Recovery products that have been altered, misused, or improperly maintained.

The following must be done before returning unit:

- 1) Call our technical service personnel at (800) 769-8370 to assess if the problem can be resolved over the phone.
- 2) Obtain an RGA number from Ritchie Engineering for the return of the product.
- 3) Fax a copy of the original invoice to (800) 322-8684.

If at any time after the warranty period you have problems with your YELLOW JACKET recovery unit, call our technical service department for help in selecting the correct replacement parts, or to arrange for its repair at reasonable costs.

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