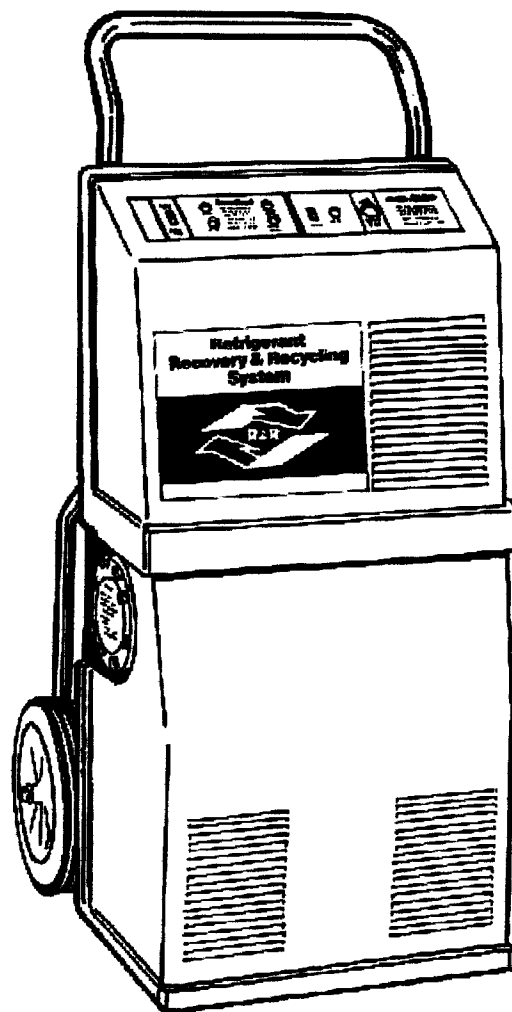


OPERATING INSTRUCTIONS



Refrigerant Recovery/Recycling System 17350C Series

Fully Enclosed Models

**For recovery and recycling
of R-12 Type refrigerant**

Instructions for Models:
17350C, 17351C, 17353C, 17354C, 17355C

SAFETY CONSIDERATIONS



PRESSURIZED TANK CONTAINS LIQUID REFRIGERANT. OVERFILLING OF THE TANK MAY CAUSE VIOLENT EXPLOSION AND POSSIBLE INJURY OR DEATH. Safety devices require the use of only authorized refillable refrigerant tanks. Refer to the instruction manual tank specifications and ordering information. Do not recover refrigerants into a non-refillable storage container! Federal regulations require refrigerant to be transported only in containers meeting DOT spec. 4BW or DOT spec. 4BA.

ALL HOSES MAY CONTAIN LIQUID REFRIGERANT UNDER PRESSURE. Contact with refrigerant may cause injury. Wear proper personal protective equipment, including safety goggles. Disconnect hoses with extreme caution.

HIGH VOLTAGE ELECTRICITY INSIDE PANELS. RISK OF ELECTRICAL SHOCK. Disconnect power before servicing unit. Refer to the instruction manual.

TO REDUCE THE RISK OF FIRE, avoid the use of extension cords less than No. 14 AWG to prevent overheating of the cord and keep the cord as short as possible. Do not use this equipment in the vicinity of spilled or open containers of gasoline or other flammable substances.

Use this equipment in locations with mechanical ventilation that provides at least four air changes per hour or locate the equipment at least 18 inches above the floor.

Make certain that all safety devices are functioning properly before operating the station. Before operating, read and follow the instructions and warnings in the manual.

CAUTION: SHOULD BE OPERATED BY QUALIFIED PERSONNEL. Operator must be familiar with A/C-R systems, refrigerants and the dangers of pressurized components.

Use only with refrigerant type R-12. This equipment is not designed for any other purpose than recovering or recycling refrigerants! Do not mix different refrigerant types in the same container.

Table of Contents

Safety Considerations.....	1	Recovering Refrigerant	6
Glossary Of Terms Used In This Manual	2	<i>Diagram of Unit/System Hook-Up</i>	6
Introduction	3	<i>Diagram of Recovery and Recycling</i>	
<i>Diagram of Unit's Components</i>	3	<i>Sequences</i>	7
Operating Tips.....	4	Recycling Refrigerant	8
Using The Control Panel	4	Replacing The Filter-Drier Core	9
<i>Diagram of Control Panel</i>	4	Calibrating The Scale Platform	10
Original Installation of Filter-Drier Core	5	<i>Diagram of Scale Platform and</i>	
<i>Diagram of Filter-Drier's Components</i>	5	<i>Trip Switch Mechanism</i>	10
Original Installation of New Refillable		Replacement Parts List	11
Refrigerant Tank	5	A Troubleshooting Guide To The Unit	12
<i>Diagram of Tank's Hose Connections</i>	5	Recovery Operation	12
		Recycling Operation	13
		Limited Warranty	14

Glossary Of Terms Used In This Manual

A/C-R:	Air conditioning or refrigeration system
System:	The A/C-R system being serviced
Tank:	The refillable refrigerant tank
Unit:	The refrigerant recovery/recycling station

Introduction

The Refrigerant Recovery/Recycling Station recovers and recycles R-12 type refrigerant only. Refrigerant recovery and recycling processes are separate functions with separate controls. The unit is designed to be simple to operate and dependable. Its components are illustrated in the diagram below.

Replace the hoses on your present manifold or charging station with the red, yellow, and blue hoses with Quick Seal™ fittings that are furnished with the unit. Connect the standard hose end to your present manifold or charging station, and connect the Quick Seal™ (large) end to the A/C-R system service ports or to your recovery unit or other service equipment.

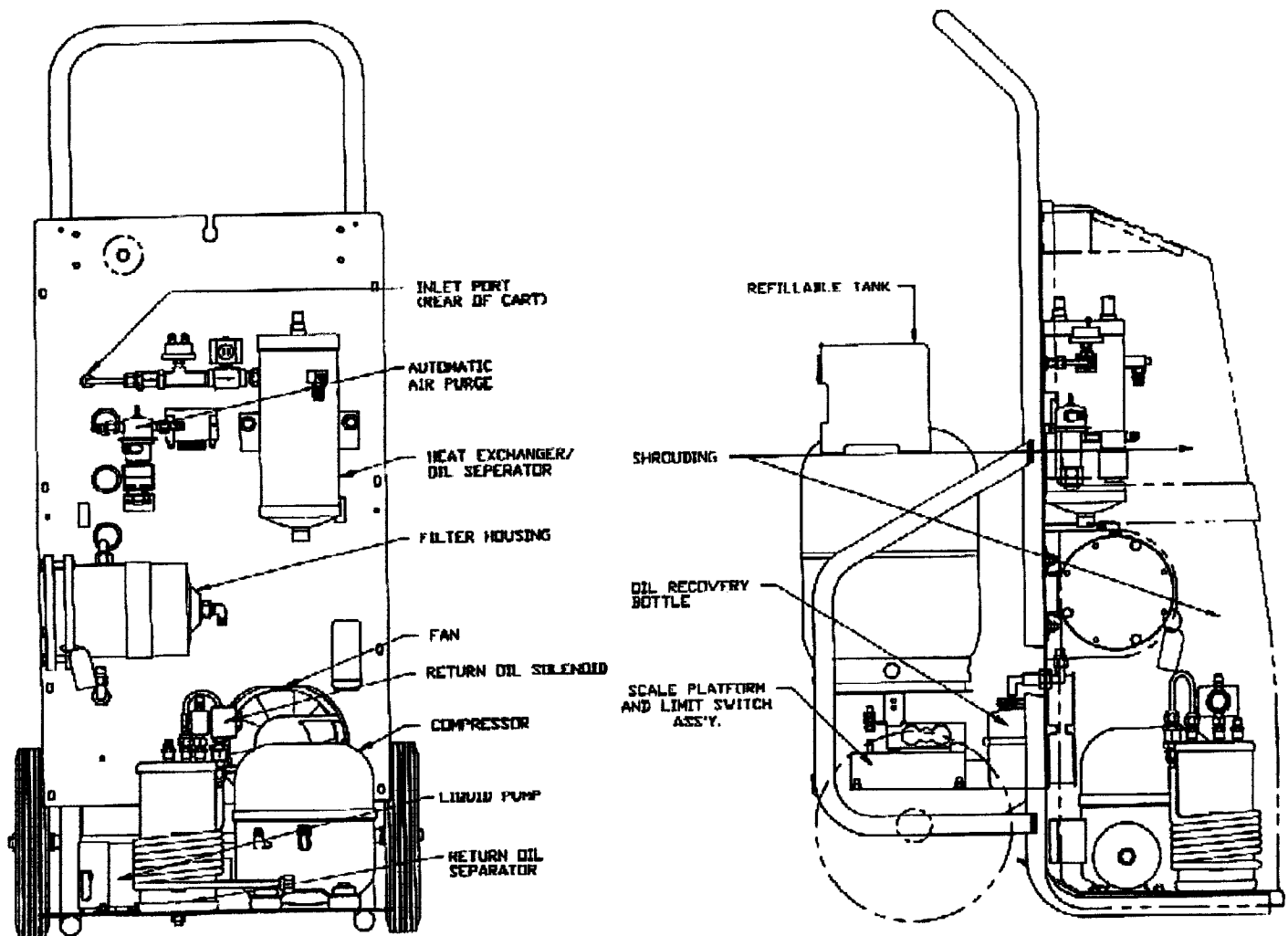


Diagram of Unit's Components

Operating Tips

This recovery and recycling station is designed to be used with a manifold gauge set or with a charging station.

Follow the SAE J1989 recommended service procedure for containment of R-12.

As soon as the A/C-R system has been charged, the refrigerant should be recovered from the manifold and hoses.

When the tank is full and recycling is complete, use only charging equipment which draws LIQUID out of the tank.

Following normal recycling procedures, a filter core has an expected life of 250 to 300 lbs. of processed refrigerant.

The recovery compressor *is not* a vacuum pump. Only a vacuum pump will deliver the required level of *total system evacuation necessary to remove air from the unit's components.*

Using The Control Panel

This section explains the functions of lights and switches on the unit's control panel, which is illustrated below.

1. **MAIN POWER**—Supplies electrical power to the control panel.
2. **RECOVERY START Switch**—Energizes the compressor.
3. **Compressor ON Light**—Lights when the compressor is energized.
4. **HIGH PRESSURE Light**—Lights if the system shuts down due to over-pressurization.
5. **Recovery TANK FULL Light**—Lights when the recovery tank is full.
6. **RECYCLE START Switch**—Energizes the recycling pump.
7. **Recycling Pump ON Light**—Lights when the recycling pump is energized.
8. **MOISTURE INDICATOR**—Shows if the refrigerant is wet or dry.

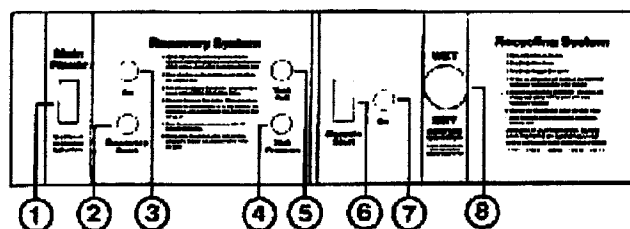


Diagram of Control Panel

Original Installation of Filter-Drier Core

CAUTION! USE ONLY PART NO. 17130 FILTER-DRIER CORES. Use of any other cores could give unsatisfactory results and will void the warranty.

1. Remove the eight (8) hex head bolts holding the filter cap to the shell. Inside you will find a filter-drier core bracket (attached to

the cap), and a piece of cardboard separating the bracket and the filter cap.

2. Discard the cardboard and install the filter-drier core, following the instructions in "Replacing the Filter-Drier Core," Steps 7 through 14.

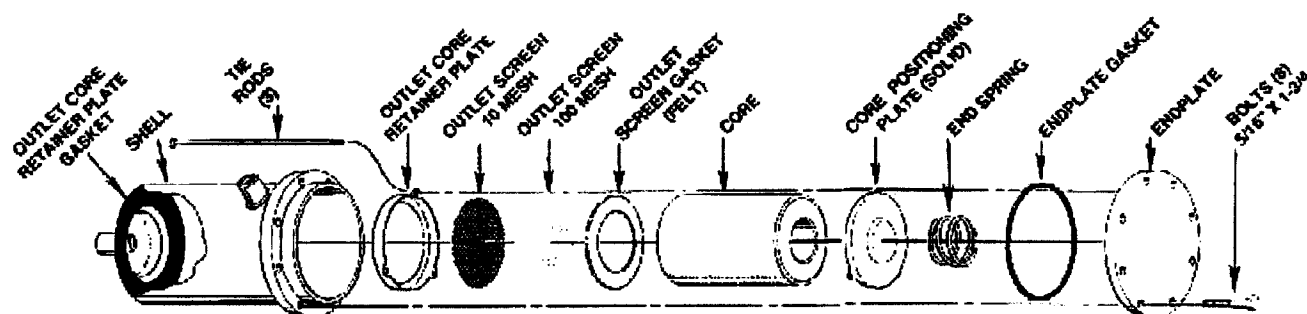


Diagram of Filter-Drier's Components

Original Installation Of New Refillable Refrigerant Tank

On tanks that are being reused (versus new tanks), purging the nitrogen charge (Step 1) and pulling a vacuum (Steps 3 and 4) are *not necessary*. Simply attach the hoses as shown in the diagram below. When changing to a *new* tank, bleed the nitrogen and pull a vacuum on the tank *only*.

WARNING! USE ONLY AUTHORIZED REUSABLE REFRIGERANT TANKS BECAUSE THEY ARE AN INTEGRAL PART OF THE UNIT. Use of other tanks could cause personal injury and will void the warranty. Refer to the replacement parts list for the part number.

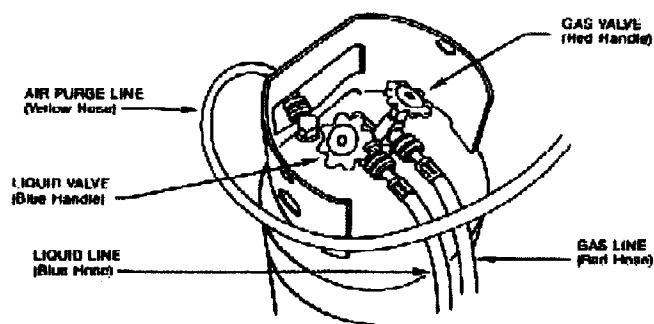


Diagram of Tank's Hose Connections

1. The recovery tank comes with a charge of 10 to 15 p.s.i. of dry nitrogen to keep it clean and dry during shipment. Before installing the tank on the unit, purge the nitrogen charge by opening either valve on the tank.
2. Place the tank on the scale platform at the rear of the unit. Place the bottom lip of the tank around the outside diameter of the stand-off welded to the platform. This centers the tank automatically. Loosely fasten the strap around the tank to prevent it from tipping over. Do not tighten the tank strap too tightly or the scale accuracy may be affected.

3. Attach the red hose from the back of the unit to a vacuum pump. Attach the blue hose from the back of the unit to the tank's LIQUID port. Attach the yellow hose to the elbow on the tank.
4. Open the LIQUID valve on the tank. Turn on the vacuum pump. Pull a vacuum on the tank and station for approximately ten (10) minutes

to remove all unwanted air from the tank and from the unit.

5. Disconnect the vacuum pump while it is still running to ensure a vacuum in the system. Disconnect the red hose from the pump, attach it to the tank's GAS (vapor) port and open the tank's GAS (vapor) valve.

Recovering Refrigerant

Follow these steps to properly operate your unit and recover refrigerant. The unit's recovery and recycling sequences are illustrated in the diagram opposite.

WARNING! USE ONLY AUTHORIZED REFILLABLE REFRIGERANT TANKS. Use of other tanks could cause personal injury and void the warranty.

Note: Run the A/C-R system for a few minutes before starting the refrigerant recovery process. Tests show more refrigerant is recovered if this action is taken. Turn the A/C-R system off before proceeding.

1. As shown in the diagram below, attach a manifold gauge set to the A/C-R system and attach the center hose of the manifold to the inlet on the rear of the unit.

Note: Make certain the A/C-R system has pressure in it before starting the recovery process. If there is no system pressure, there is no refrigerant in the system to recover.

2. Open both valves of the manifold gauge set. Make certain the GAS (vapor) and LIQUID valves on the refrigerant tank are open.
3. Be sure the oil drain valve is closed.
4. Be sure the RECYCLE START switch is turned off.

5. Plug the station into the proper voltage outlet and turn on the MAIN POWER switch.
6. Press the RECOVERY START switch. The amber ON light will come on and the compressor will start. The compressor will shut off automatically when recovery is complete (at approximately 17 in. Hg). Hold for five (5) minutes and watch the manifold gauges for a rise in pressure above "0" p.s.i.g. If a rise occurs, repeat Step 6.
7. To drain the oil separator, slowly open the oil drain valve and drain the oil into the oil recovery bottle. When all of the recovered oil has been completely drained, close the valve.

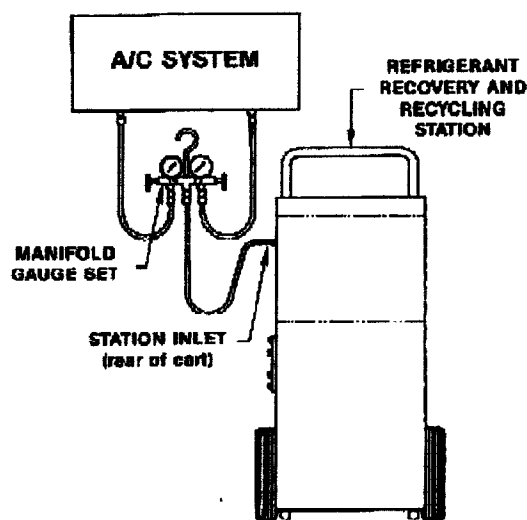


Diagram of Unit/System Hook-Up

Note: The oil lost during the recovery process must be replaced with *new oil* as part of A/C-R system recharging. After each refrigerant recovery procedure, measure the amount of oil in the oil recovery bottle. Add the same amount of *new compressor oil* to the system, following the manufacturer's recommendations. Be sure to dispose of recovered oil in an appropriate manner.

8. Recover refrigerant from a number of jobs until the tank is full. When the recovery tank is full, the scale platform trip (limit) switch will shut off the compressor and the TANK FULL light will come on.

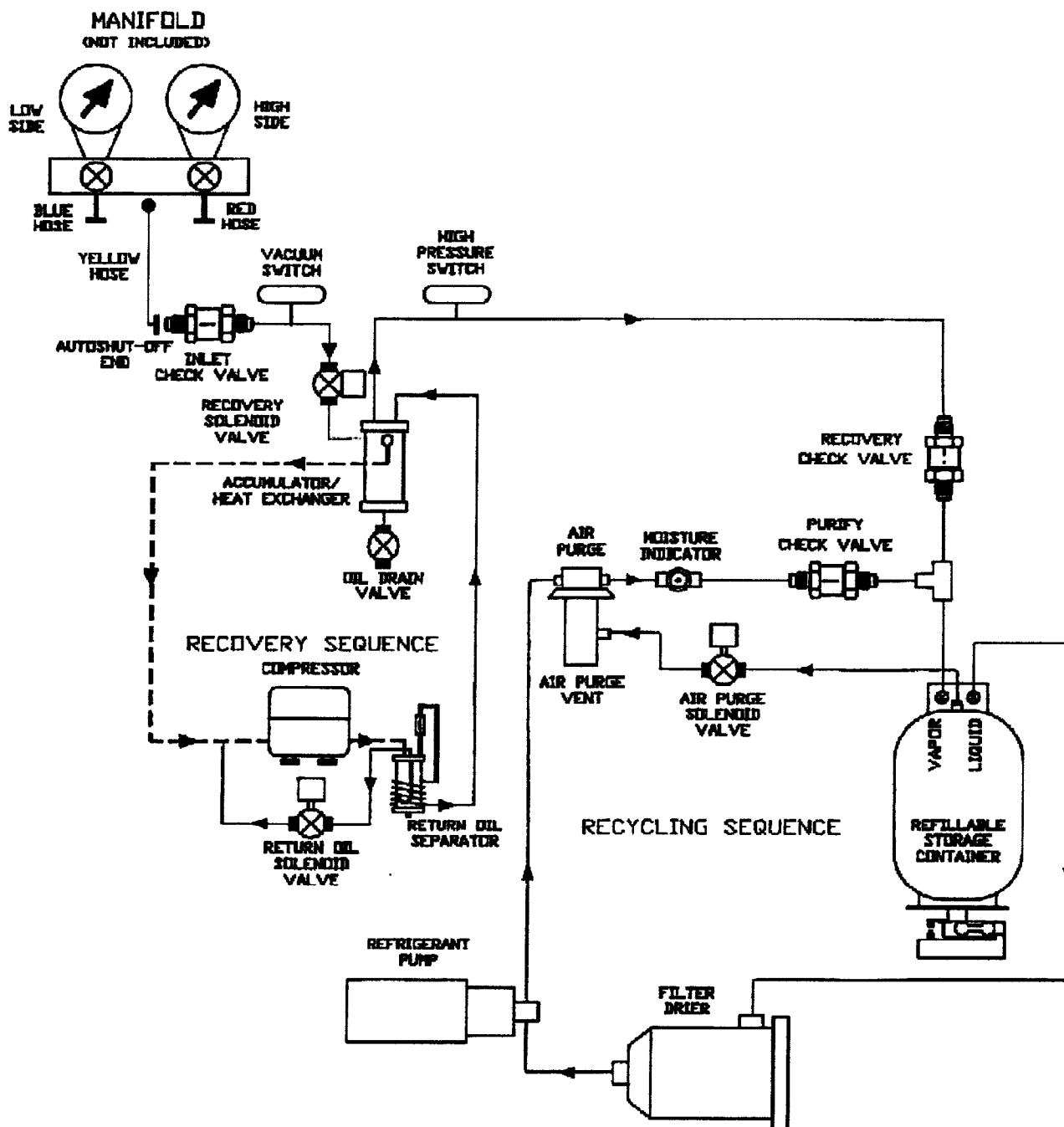


Diagram of Recovery and Recycling Sequences

Recycling Refrigerant

The recycling of reclaimed refrigerant is essential in order to assure that moisture and non-condensibles standards are met (SAE J1990 and UL Standard 1963).

Note: For maximum efficiency, full tanks of recovered refrigerant should be recycled. If necessary, however, tanks containing a minimum of eight (8) pounds of refrigerant can be recycled.

Follow these steps to properly operate your unit and recycle refrigerant.

1. Open both valves on the recovery tank.
2. Turn on the MAIN POWER switch, then the RECYCLE START switch. The amber recycling ON light will come on and the refrigerant pump will start.

You will be able to see refrigerant passing through the moisture indicator at start-up. If there is a sufficient supply of refrigerant, the bubbles in the moisture indicator will clear after a few seconds. When the bubbles clear, you'll know that the refrigerant pump is operating at maximum efficiency. If the bubbles don't clear, make sure all the valves are open and that you have an adequate supply of refrigerant.

3. Let the unit run until the dot in the center of the moisture indicator turns green (match the color to the surrounding decal on the moisture indicator).

Always run the recycling process a minimum of 30 minutes. If the moisture indicator starts out yellow, it could take as long as two hours to turn green, depending on the moisture content of the refrigerant. If the moisture indicator does not change colors after two hours of running time, change the filter-drier core, as described in "Replacing The Filter-Drier Core."

4. Close the tank valves. Clip the "Recycled Refrigerant" tag on the top of the tank. This indicates that the refrigerant is ready for reuse.

After the recycled refrigerant has been used to recharge the A/C-R system, remove the "Recycled Refrigerant" tag from the empty tank and clip it onto another tank of recycled refrigerant.

Note: Automatic Air Purge—As an integral part of the recycling sequence, the air purge device activates automatically, releasing any trapped air or non-condensibles from the recovery tank. There will be some air exhaust noise associated with this routine process.

Replacing The Filter-Drier Core

The filter-drier on these stations has been designed to trap moisture, acid, and particulates. Naturally, this means the filter core must be changed as needed to assure adequate moisture and contaminant removal from used refrigerant. For proper contaminant removal, we recommend replacing the filter-drier core after recycling a *maximum* of 300 pounds of refrigerant.

If the moisture indicator does not change to green after two hours of filtering time, the filter-drier core is probably saturated with moisture and should be changed.

Follow these steps to replace the filter-drier core in the unit's filter-drier shell, which is illustrated below.

CAUTION! Use only authorized filter-drier cores (part no. 17130). Use of other cores could give unsatisfactory results and will void the warranty.

Note: Do not remove the new filter from the can until you are ready to install it in the recycling unit.

1. Close the LIQUID valve on the tank.

WARNING! STEPS 2 AND 3 ARE CRITICAL TO AVOID POSSIBLE HAZARDOUS RELEASE OF REFRIGERANT!

2. Disconnect the blue hose at the tank and attach it to the recovery inlet of the unit.
3. Press the RECOVERY START switch and recover into the tank all refrigerant remaining in the unit. Allow the compressor to operate until it shuts off.

4. Remove the eight (8) hex head bolts holding the cap to the filter-drier shell. The filter-drier core and brackets are attached to the filter cap.
5. Remove the three (3) tie rods from the filter cap and remove the filter-drier core from the bracket. Dispose of the filter properly.
6. Clean all internal parts with a dry towel.
7. Remove the filter-drier core from the sealed can.
8. Replace the filter cap gasket with each filter change. New gaskets are also included with each filter-drier core.
9. Center the spring on the filter cap. Then place the upper bracket on the spring, with the center boss of the bracket fitting into the coil and the edges of the plate facing up.
10. Position the filter-drier core on the upper bracket nearest the cap. Position the screened lower bracket on the filter-drier core and re-install the three (3) tie rods. Tighten the tie rods until they stop.
11. Install the filter-drier core assembly into the filter-drier shell. Replace the eight (8) hex head bolts and tighten them evenly to 15 ft. lbs. Tighten them in a star pattern.
12. Attach the blue hose to a vacuum pump. Evacuate for approximately ten minutes to remove any air that entered the unit during the filter change-out.
13. Re-attach the blue hose to the tank's LIQUID port and open the tank's LIQUID valve.

You are now ready to continue recycling with the unit.

Calibrating The Scale Platform

You should check the scale platform for accuracy at least every three months. This calibration assures that the compressor shuts off when the tank is full.

1. Place 42 pounds on the center of the platform. The switch should not trip (a clicking sound). If it does, you need to calibrate the scale according to the directions in Step 3 below.
2. Add one (1) additional pound of weight. The switch should trip (a clicking sound). If it does not, you need to calibrate the scale according to the directions in Step 3 below.
3. To calibrate the scale, place exactly 42 pounds on the scale and loosen the locknut on the adjusting screw. Turn the screw until the switch just trips (a clicking sound). Remove one (1) pound and the switch should click again.
4. Tighten the locknut and recheck the mechanism.

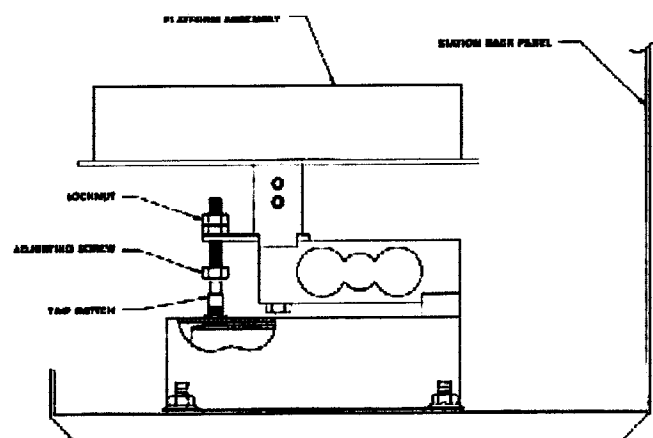


Diagram of Scale Platform and Trip Switch Mechanism

Replacement Parts List

The following is a list of replacement parts you may need to service or maintain your Refrigerant Recovery/Recycling Station.

Component	115-Volt Part No.	220-Volt Part No.
30-Pound Refillable Refrigerant Tank	17105	17105
Filter-Drier Core (carton of six)	17130	17130
Compressor	17110	17134
Refrigerant Pump	17115	17139
Red Hose with Quick-Seal™ fitting (station to tank)	68336	68336
Blue Hose with Quick-Seal™ fitting (station to tank)	68236	68236
Yellow Hose with Quick-Seal™ fitting	68136	68136
96" Red Hose with Quick-Seal™ fitting	68396	68396
96" Blue Hose with Quick-Seal™ fitting	68296	68296
96" Yellow Hose with Quick-Seal™ fitting	68196	68196
Oil Drain Valve	40804	40804
Oil Recovery Bottle	17419	17419
Return Oil Solenoid Valve	17522	17578
Main Power Switch	40994	17135
Compressor Start Switch	17111	17138
Moisture Indicator	17577	17577
Red Light	17106	17136
Amber Light	17107	17137
Check Valve	17112	17112
Limit Switch	17114	17114
Air Purge Assembly	17073	17073
Fan	17416	17516

The 30-pound refillable refrigerant tank (part no. 17105) is the only tank you should use with this recovery/recycling station. The overfill limitation mechanism has been calibrated specifically for use with this unit. This 30-pound tank, which meets DOT specification 4BW or 4BA, also works with charging stations using a 30-pound tank.

It is essential for proper filtration that you use only authorized filter drier cores, part no. 17130. We suggest you keep several filter cores on hand so you will always be able to change filter cores and complete any recycling job that is in progress.

A Troubleshooting Guide To The Unit

Use the following chart to identify possible causes for system operating problems and to determine possible solutions.

RECOVERY OPERATION

Symptom	Cause	Cure
<i>Recovery compressor does not start</i>	<ul style="list-style-type: none"> • Recycle switch is on or main power switch is off • Power cord not plugged in or no power at plug • Tank full light is on • High pressure light is on 	<ul style="list-style-type: none"> • Be sure recycle switch is off and main power switch is on • Check circuit for power • Change the tank according to the instructions in "Replacing A Refrigerant Tank" • Recalibrate the weight platform according to the instructions in "Calibrating The Scale Platform" • Check the valves on the tank to be sure they are open • Recycle for 10 minutes to allow air and non-condensibles to purge • Check the scale calibration—see instructions in "Calibrating The Scale Platform"
<i>Runs a short time, but does not complete recovery (compressor light is off)</i>	<ul style="list-style-type: none"> • Tank valves not open 	<ul style="list-style-type: none"> • Open both valves on the tank
<i>Runs but won't shut off</i>	<ul style="list-style-type: none"> • Leak in vehicle system or manifold gauge set 	<ul style="list-style-type: none"> • Check that pressure is present in the manifold gauges before starting the recovery operation

RECYCLING OPERATION

Symptom	Cause	Cure
<i>Refrigerant pump does not appear to be running</i>	<ul style="list-style-type: none"> • Main power switch off • Power cord not plugged in or no power at plug • Tank valves not open • Faulty components (pump, switch, etc.) 	<ul style="list-style-type: none"> • Turn on the main power switch • Check circuit for power • Open the valves • Call factory
<i>Bubbles will not clear in the moisture indicator</i>	<ul style="list-style-type: none"> • Tank valves not open • Not enough refrigerant in tank—must have 8 pounds minimum 	<ul style="list-style-type: none"> • Open the valve, turn recycle switch off for 10 seconds, then back on • Recover more refrigerant before recycling
<i>Moisture indicator will not turn green after two (2) hours of recycling</i>	<ul style="list-style-type: none"> • Not enough refrigerant in tank—must have 8 pounds minimum • Faulty moisture indicator • Saturated filter cartridge 	<ul style="list-style-type: none"> • Recover more refrigerant before recycling • Remove and replace the moisture indicator • Remove and replace the filter cartridge according to the instructions in "Replacing The Filter-Drier Core"

For assistance in servicing or using your Refrigerant Recovery/Recycling Station, call the toll-free Service Line, 800-822-5561. In Canada, call 419-485-5561, Ext. 300. To help us serve you better, please be prepared to provide the model number, serial number and date of purchase.

Design, specifications and materials are subject to change without notice.

Refrigerant Recovery/Recycling Systems Limited Warranty

This product is warranted to be free from defects in workmanship, materials, and components for a period of one year from date of purchase. The following restrictions apply:

1. The limited warranty applies to the original purchaser only.
2. The warranty applies to the product in normal usage situations only, as described in the Operating Manual. The product must also be serviced and maintained as specified.
3. If the product fails, it will be repaired or replaced at the option of the seller.
4. Transportation charges for warranty service are the responsibility of the purchaser (prepaid to the factory).

5. Warranty service claims are subject to factory inspection for product defect(s).
6. All warranty service claims must be made within the specified warranty period. Proof-of-purchase date must be supplied to the seller.

This Limited Warranty does not apply if:

1. The product, or product part, is broken by accident.
2. The product is misused, tampered with, or modified.
3. The product is used for recovering and/or recycling any substance other than specified refrigerant types.

Note: Refillable refrigerant recovery/recycling tanks are reusable. Do not return them to the factory, unless the tank is defective.