



# OPERATING MANUAL

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## Model 34134Z

Refrigerant Unit  
Recover, Recycle, and Recharge

# SPX ROBINAIR

## Recover, Recycle, and Recharge Unit

Model: 34134Z

Refrigerant: R-134a

Voltage: 115, 60 Hz

LISTED



80S2



Recycling Equipment Design  
Certified by Underwriters  
Laboratories Inc.® for  
Compliance with SAE-J2210  
(1991) for HFC-134a

**SAFETY DEFINITIONS:** Follow all **WARNING**, **CAUTION**, **IMPORTANT**, and **NOTE** messages in this manual. These messages are defined as follows: **WARNING** means you may risk serious personal injury or death; **CAUTION** means you may risk personal injury, property damage, or serious unit damage; **IMPORTANT** means you may risk unit damage; and **NOTES** provide clarity and helpful tips. These safety messages cover situations ROBINAIR is aware of. ROBINAIR cannot know, evaluate, and advise you as to all possible hazards. You must make sure all conditions and procedures do not jeopardize your personal safety.

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## ⚠️ WARNINGS ⚠️



**ALLOW ONLY QUALIFIED PERSONNEL TO OPERATE THE UNIT.** Before operating the unit, read and follow the instructions and warnings in this manual. The operator must be familiar with air conditioning and refrigeration systems, refrigerants, and the dangers of pressurized components. If the operator cannot read these instructions, operating instructions and safety precautions must be read and discussed in the operator's native language.

- *Si el operador no puede leer las instrucciones, las instrucciones de operación y las precauciones de seguridad deberán leerse y comentarse en el idioma nativo del operador.*
- *Si l'utilisateur ne peut lire les instructions, les instructions et les consignes de sécurité doivent lui être expliquées dans sa langue maternelle.*



**PRESSURIZED TANK CONTAINS LIQUID REFRIGERANT.** Do not recover or charge refrigerants into non-refillable containers; use only authorized refillable containers.



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



**DO NOT BREATHE REFRIGERANT AND LUBRICANT VAPOR OR MIST.** Exposure may cause personal injury, especially to the eyes, nose, throat, and lungs. Use the unit in locations with mechanical ventilation that provides at least four air changes per hour. If accidental system discharge occurs, ventilate the work area before resuming service.



**AVOID USING AN EXTENSION CORD.** An extension cord may overheat and cause fire. If you must use an extension cord, use the shortest possible cord with a minimum size of 14 AWG.

**TO REDUCE THE RISK OF FIRE,** do not use the unit in the vicinity of spilled or open containers of gasoline or other flammable substances.



**DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR LEAK TEST THE UNIT OR VEHICLE AIR CONDITIONING SYSTEM.** Some mixtures of air and refrigerant are combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion causing personal injury or property damage.



**USE THIS UNIT WITH ONLY R-134a REFRIGERANT.** The unit is for recovering, recycling, and recharging only R-134a refrigerant! Do not attempt to adapt the unit for another refrigerant. Do not mix refrigerant types through a system or in the same container; mixing of refrigerants will cause severe damage to the unit and the vehicle air conditioning system.



**HIGH VOLTAGE ELECTRICITY INSIDE THE UNIT HAS A RISK OF ELECTRICAL SHOCK.** Exposure may cause personal injury. Disconnect the power before opening the back door or servicing the unit.

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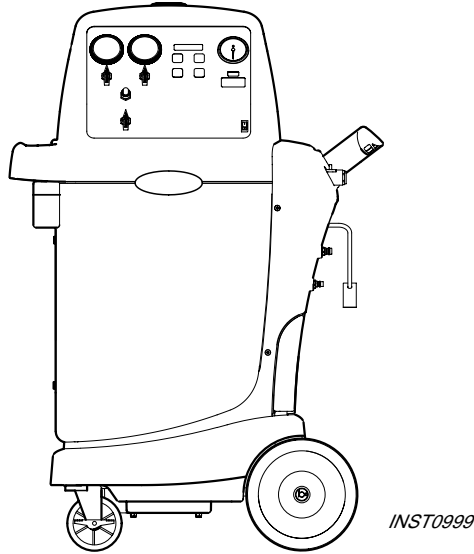
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Manufactured under one or more of the following US patents: US 4,938,031; 5,005,369; 5,248,125; 4,261,178; 4,768,347. Other US and foreign patents pending.

# Introduction

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## General Description



The 34134Z recovers, recycles, and recharges vehicle refrigerant in one hookup. It is compatible with existing service equipment and standard service procedures.

Throughout this manual U.S. measurements are used with metric equivalents in parenthesis.

## Glossary of Terms

**A/C System** — The vehicle air conditioning system being serviced.

**Hose Storage Fittings** — When not in use, the R-134a service hose fittings can be connected to these fittings for storage purposes.

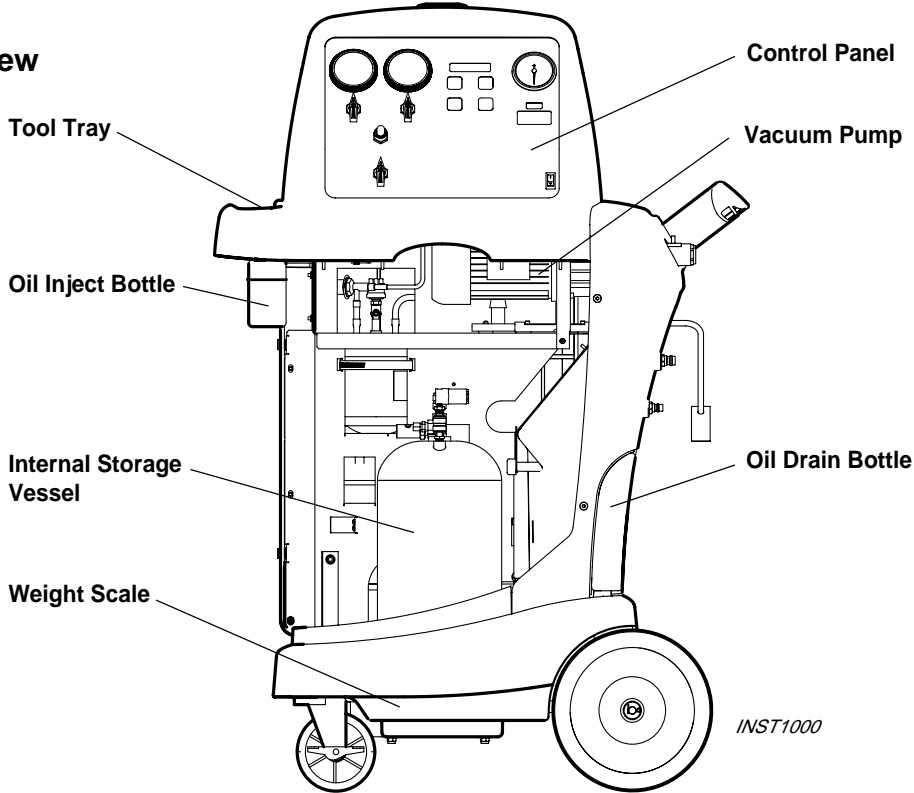
**Internal Storage Vessel (ISV)** — The refillable refrigerant storage vessel inside the unit.

**Panel Valves** — The high-side and low-side valves on the control panel, when described together.

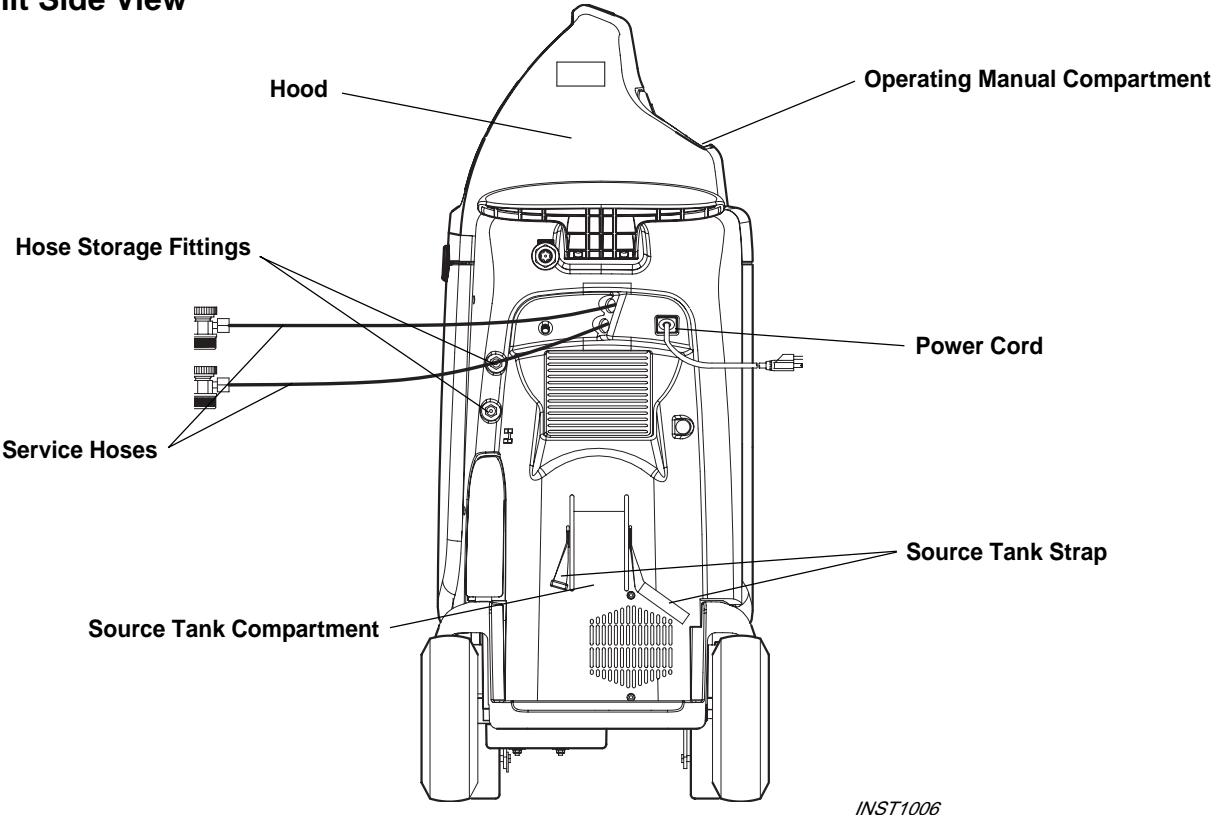
**Service Couplers** — The couplers on the service hoses used to connect the hoses to the A/C system or to a source tank.

**Component Identification and Location**

**Unit Front View**



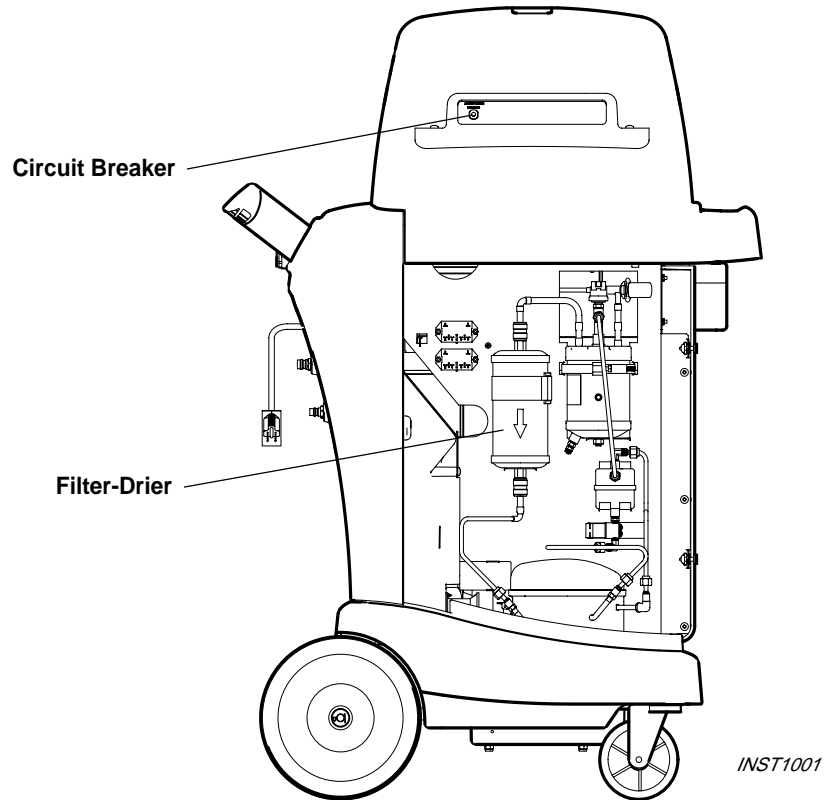
**Unit Side View**



# Introduction

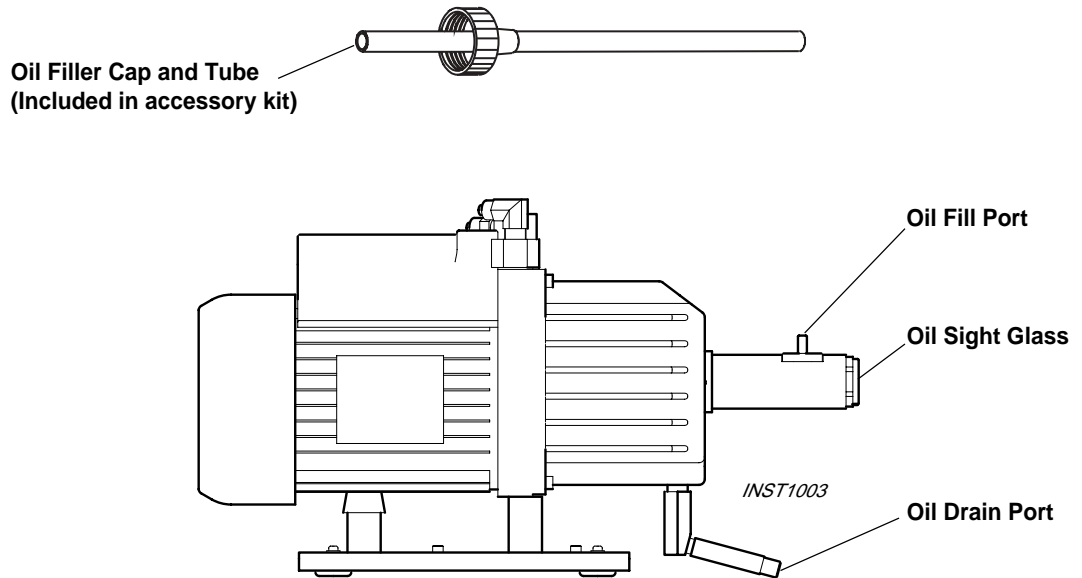
## Component Identification and Location *contd.*

### Unit Back View



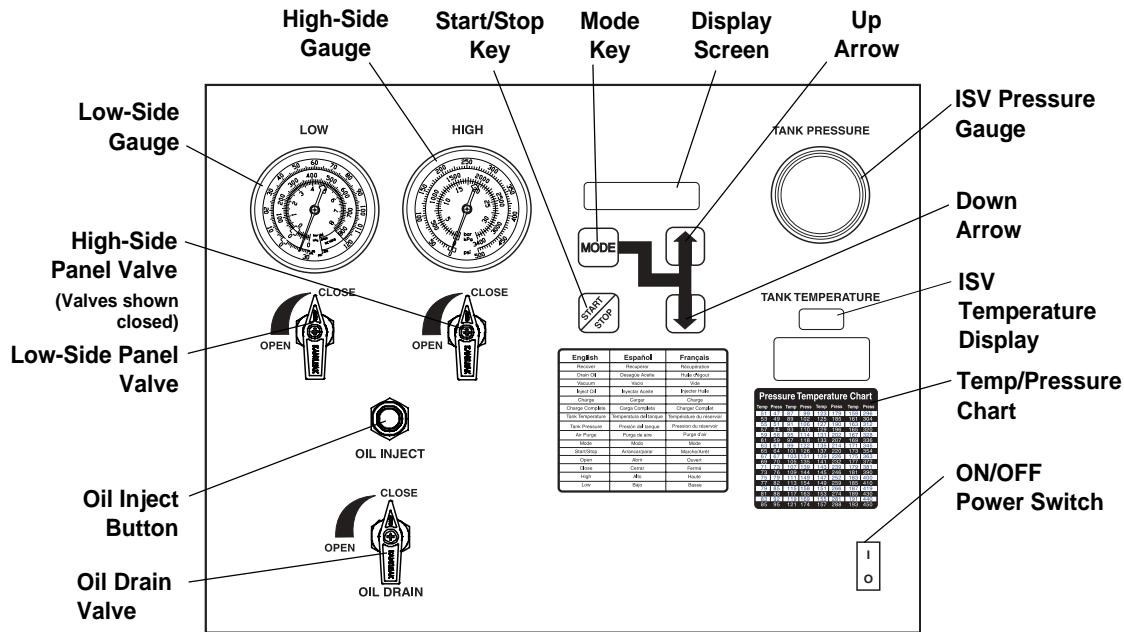
### Vacuum Pump

(Location shown on previous page)



## Component Identification and Location *contd.*

### Control Panel



**Low-Side Valve** — controls the flow between the A/C system's low side and the unit.

**High-Side Valve** — controls the flow between the A/C system's high side and the unit.

**Low-Side Gauge** — shows the A/C system's low-side pressure.

**High-Side Gauge** — shows the A/C system's high-side pressure.

**Oil Inject Button** — injects new oil into A/C system.

**Display Screen** — displays operational information.

**Keypad** — contains the following keys for performing specific functions:

**MODE** — chooses function options.

**START/STOP** — starts, stops, or exits a function.

**UP/DOWN Arrows** — adjusts operating parameters.

**ISV Pressure Gauge** — shows the pressure inside the internal storage vessel.

**Oil Drain Valve** — drains the A/C system's oil into the oil drain bottle.

**ISV Temperature Display** — displays the temperature inside the internal storage vessel.

**Temp/Pressure Chart** — displays the pressure of a refrigerant at a given temperature.

# Initial Setup

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## WARNING



This manual contains important procedures concerning the setup, operation, and maintenance of the unit. Read and follow all warnings at the beginning of this manual. Do not operate the unit until you have read and entirely understand the contents of this manual. If you do not understand any of the contents of this manual, notify your supervisor.

If the operator cannot read these instructions, all instructions and safety precautions must be read and discussed in the operator's native language.

## Unpacking the Accessory Kit

Unpack the accessory kit from the bag and remove the plastic packaging. The accessory kit consists of the following:

- Vacuum pump oil, oil filler cap, and tube
- Plastic pouch containing a warranty card, applicable MSDS sheets, a service center listing, and an envelope of MACS information.
- Low side tank adapter

## Registering the Unit

To comply with federal law governing A/C system service, you must complete and mail the MVAC Certification Form included in the accessory kit. You must also make sure your technicians are certified with the Mobile Air Conditioning Society (MACS). For more information, read the MACS information included in the accessory kit, or visit the MACS web site at [www.macsw.org](http://www.macsw.org).

To validate the warranty provided by SPX ROBINAIR, complete the warranty card included in the accessory kit, and mail it within ten days from the purchase date.

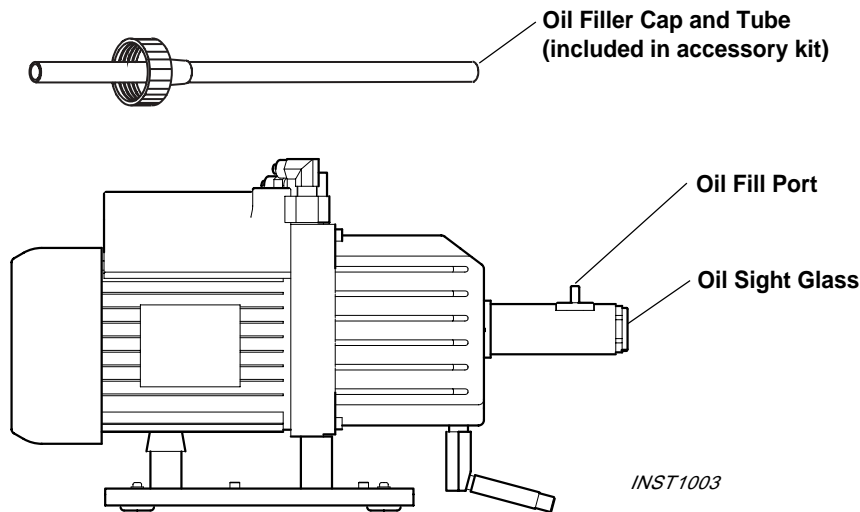


## Adding Vacuum Pump Oil

After registering the unit, use the following steps to add oil to the vacuum pump.

**IMPORTANT:** For maximum unit performance, change the vacuum pump oil after every 10 hours of operation. (The unit will prompt a vacuum pump oil change after every 10 hours of operation.)

1. Plug the unit's power cord into a correct voltage outlet.



**Vacuum Pump**

2. Remove the plastic plug from the oil fill port.
3. Attach the oil filler cap and tube to a vacuum pump oil bottle, and pour about 6 ounces (175 mL) of oil into the oil fill port.
4. Turn the unit's power switch on.
5. On the control panel, verify both panel valves are open, and verify the service couplers are disconnected from the vehicle. Screen will display:

CLEAR 02.00

6. Press **Start/Stop** key to start the vacuum pump.

---

**CAUTION!**  
Avoid using an extension cord. An extension cord may overheat and cause fire. If you must use an extension cord, use the shortest possible cord with a minimum size of 14 AWG.

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**IMPORTANT!**  
The vacuum pump is shipped without oil in the reservoir. To avoid pump damage, add oil before starting the pump.

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# Initial Setup

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## Adding Vacuum Pump Oil *contd.*

*Note: The unit's weight default is in pounds. To change to kilograms:*

1. Press the **Up** and **Down** arrow keys at the same time.

UNITS LBS

*will be displayed.*

2. Press the **Up** or **Down** arrow key to toggle to KG.

3. Press **Mode** key until display reads EXIT.

*NOTE: At this time, the unit is also automatically evacuating all air from the unit.*


7. With the vacuum pump running, slowly add oil until the level rises to the center of the oil sight glass.
8. When the vacuum pump countdown reaches zero, the vacuum pump will stop and the unit display will change to the recover function.
9. Replace the plastic plug in the oil fill port.

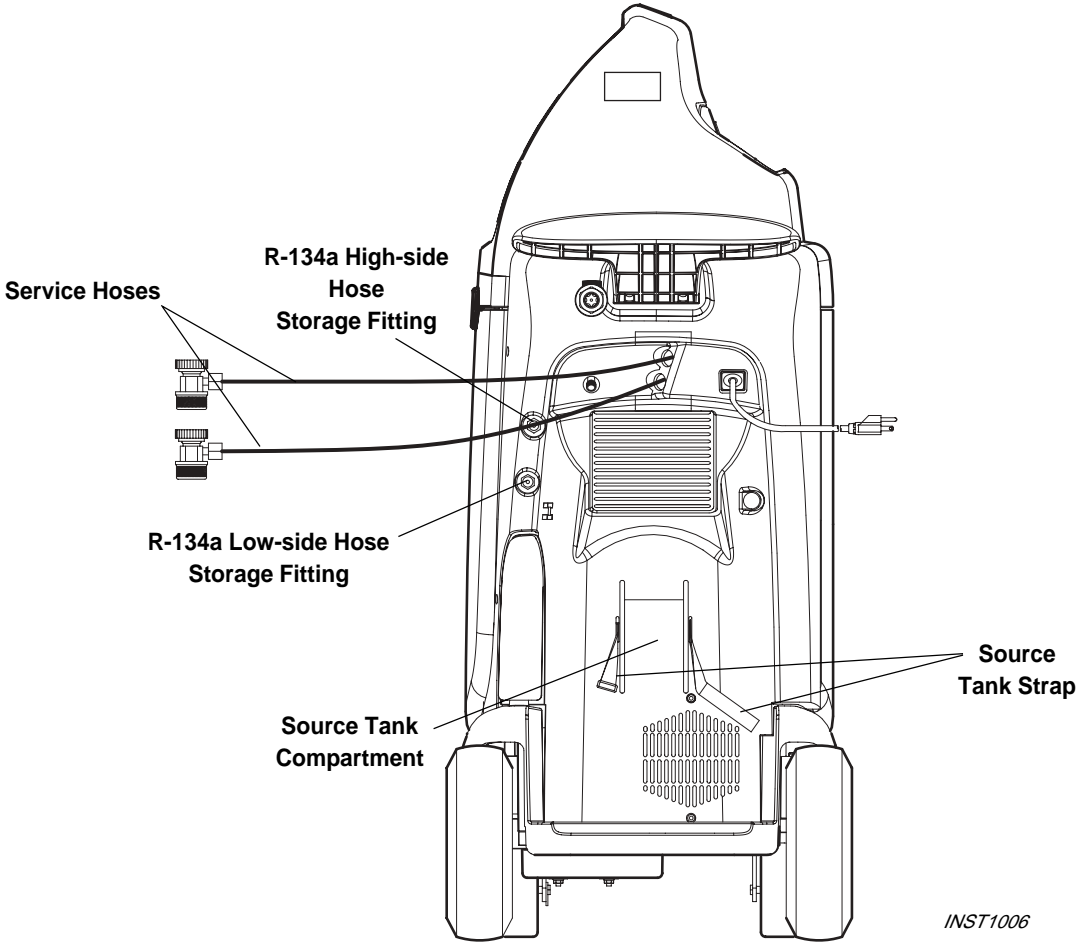
After adding oil to the vacuum pump, add refrigerant to the internal storage vessel. Refer to the instructions on the next page.

## Adding Refrigerant to the Internal Storage Vessel

Add refrigerant to the internal storage vessel (ISV) after adding oil to the vacuum pump. After the initial refrigerant fill, refill the ISV as necessary. (Refer to *Adding Additional Refrigerant to the ISV* in this manual.)

**⚠ WARNING ⚠**

 **Wear safety goggles when working with refrigerant. All hoses may contain liquid refrigerant under pressure. Disconnect hoses using extreme caution. Read and follow all warnings at the beginning of this manual before operating the unit.**

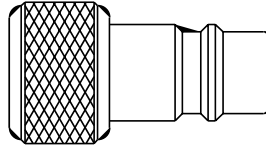


Unit Components - Side View

# Initial Setup

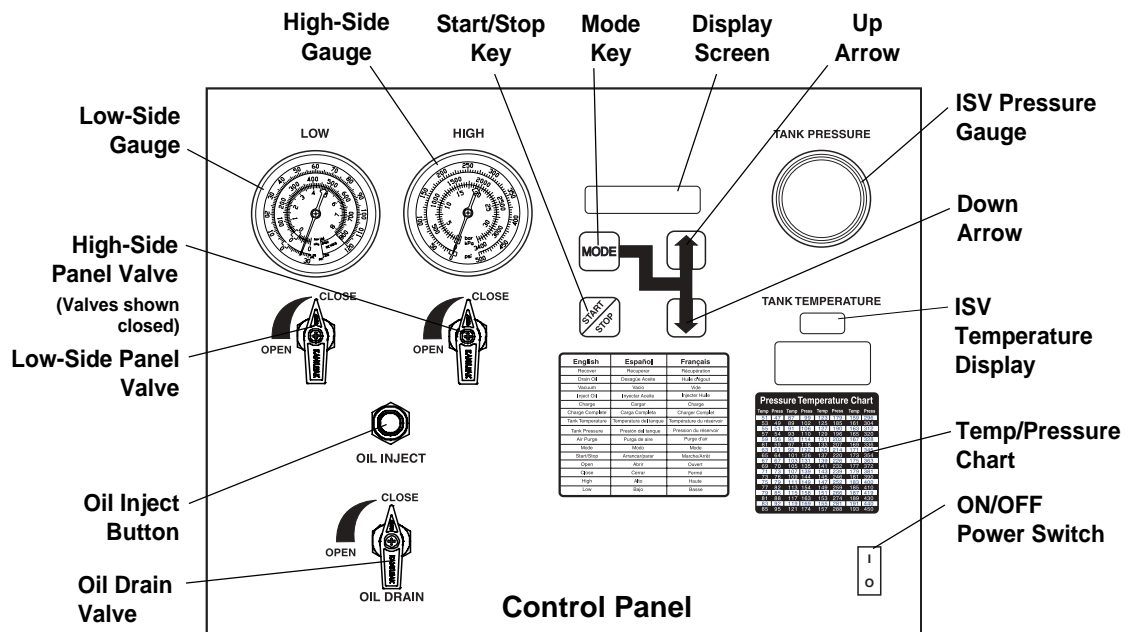
## Adding Refrigerant to the Internal Storage Vessel *contd.*

1. Connect the low-side tank adapter (from the accessory kit) to the liquid valve on the refrigerant source tank. *NOTE: If using a refillable source tank, connect the tank adapter to the vapor valve.*



**R-134a Tank Adapter**

2. Connect the service coupler of the low-side hose (blue) to the refrigerant source tank.
3. Open the valve on the source tank, and place the tank upside down in the source tank compartment. Secure the source tank in place by wrapping the strap around the tank, and then fastening the strap.
4. The screen should display RECOVER XX.XXLBS. If it does not, scroll through the functions by pressing the **Mode** key until RECOVER XX.XXLBS is displayed.
5. Press the **Arrow** keys to adjust the recover weight to 15 lbs. (7 kg).
6. On the control panel, open the low-side valve; verify the high-side valve is closed.



## Adding Refrigerant to the Internal Storage Vessel *contd.*

7. Press the **Start/Stop** key. The internal storage vessel begins filling, and the screen displays the amount of refrigerant being transferred to the internal storage vessel.
8. The unit will automatically stop when 15 lbs. (7 kg) has been transferred to the internal storage vessel. The display will flash between:

RECOVER XX.XXKG
-----------------

 and 

DRAIN OIL
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*NOTE: Do not drain oil until the following steps are complete. Drain oil instructions are at the bottom of this page.*

9. Unstrap the source tank, remove it from its compartment, then close the source tank valve.
10. Disconnect the hose from the tank.
11. Cap the source tank with its original tank cap. For storage, place the source tank upright in the source tank compartment. Secure the source tank in place by wrapping the strap around the tank, and then fastening the strap.
12. Do the following to clear the service hoses:

- a. Press **Mode** key to:

RECOVER XX.XXLBS
------------------

- b. Press **Start/Stop** key to start hose clearing.
  - c. Watch the low-side gauge. When the gauge pressure reaches 10 in. Hg (34 kPa) vacuum, press **Start/Stop** key to stop the clearing process.
13. Close the low-side panel valve.

## Drain Oil




1. On the control panel, open the oil-drain valve. Watch the oil drain into the oil-drain bottle. It may take 30 seconds or more for the oil to start draining.
2. When oil stops draining, close the oil-drain valve.

# Initial Setup

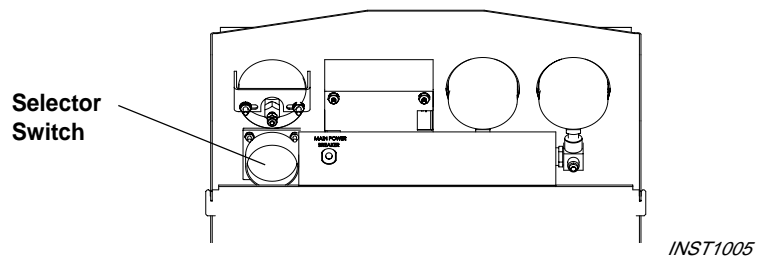
## Changing the Temperature Scale (Fahrenheit or Celsius)

The temperature scale is set to Fahrenheit at the factory. Use the following steps to toggle the temperature scale to Celsius.

1. Disconnect the unit's power cord from the outlet.

	<b>WARNING</b>	
	<b>High voltage electricity inside the unit has a risk of electrical shock. Disconnect the power before servicing the unit.</b>	

2. Remove the four screws that secure the top section of the unit's protective covering and remove the covering.
3. Locate the selector switch on the back of the tank temperature display.



**Control Panel — Inside, Back View**

4. Change the position of the switch to change the temperature scale.
5. Replace the top section of the unit's protective covering, and replace the four screws that secure the covering.



## WARNING



This manual contains important procedures concerning the setup, operation, and maintenance of the unit. Read and follow all warnings at the beginning of this manual. Do not operate the unit until you have read and entirely understand the contents of this manual. If you do not understand any of the contents of this manual, notify your supervisor.

If the operator cannot these instructions, all instructions and safety precautions must be read and discussed in the operator's native language.

## Operating Guidelines

For best results when operating the unit, use the following guidelines along with the operation instructions contained in this manual.

- The recovery compressor is *not* a vacuum pump. The compressor pulls the A/C system to a partial vacuum only. Use the Vacuum function for a minimum of 15 minutes to remove moisture from the A/C system. Refer to ***Evacuating the A/C System*** in the “**Operation**” section of this manual.
- The unit includes a 3 cfm high vacuum pump for fast, thorough evacuation. Change the vacuum pump oil after every 10 hours of vacuum pump use. The unit displays a CHANGE OIL message as a reminder. Refer to ***Changing the Vacuum Pump Oil*** in the “**Maintenance**” section of this manual.
- The unit is equipped with a circuit breaker button, located on the back of the unit. If the circuit breaker trips, the unit will not function correctly and will lose all power. If necessary, press the circuit breaker button to reset the unit.
- This unit should be operated between the ambient temperatures of 50–120° F (11–49° C). At temperatures exceeding 104° F (40° C), wait 10 minutes between recovery jobs.
- Follow the SAE-J2211 recommended service procedure for the containment of R-134a refrigerant.
- During normal use, periodically inspect the unit for leaks. At a minimum, inspect the unit every three months. Refer to ***Checking for Leaks*** in the “**Maintenance**” section of this manual.

# Operation

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## Operating Guidelines *contd.*

- During operation, any of the following messages may appear on the display screen. If a message appears, immediately take the appropriate action.

**CHANGE FILTER** — This message appears after every 150 lbs. (68.0 kg) of refrigerant has been recovered, indicating that the filter-drier needs to be replaced. Refer to ***Replacing the Filter-Drier*** in the “**Maintenance**” section of this manual.

*NOTE: To avoid service delays, keep extra filter-driers on hand.*

**CHANGE OIL** — This message appears after every 10 hours of vacuum pump use. Refer to ***Changing the Vacuum Pump Oil*** in the “**Maintenance**” section of this manual.

**DRAIN OIL** — This message appears after recovering refrigerant from an A/C system. For more information, refer to ***Draining the A/C System Oil*** in the “**Operation**” section of this manual.

**HIGH PRESSURE** — This message appears if the internal storage vessel’s pressure rises to 435 psig (30 bar) or higher. Let the unit cool down for 30 minutes. Then press the **Mode** key and the **Up** arrow key to clear the message from the display screen. If the message does not clear, contact a manufacturer-authorized service technician.

**OVERLOAD** — This message appears if the weight of the internal storage vessel reaches 43 lbs. (19.5 kg), or if the unit’s weight scale is damaged, disconnected, or out of calibration. Immediately remove refrigerant from the internal storage vessel. Then press the **Mode** key and the **Up** arrow key to clear the message from the display screen. If the message does not clear, contact a manufacturer-authorized service technician.



## Recovering the A/C System Refrigerant

### ⚠ WARNING ⚠



Wear safety goggles when working with refrigerant. All hoses may contain liquid refrigerant under pressure. Disconnect hoses using extreme caution. Read and follow all warnings at the beginning of this manual before operating the unit.



Do not overfill the internal storage vessel. Overfilling may cause explosion and serious personal injury or death. If the message **OVERLOAD** appears in the display screen, the internal storage vessel is too full — remove refrigerant. If the message **HIGH PRESSURE** appears in the display screen, let the unit cool down. If the message does not clear, call an authorized service technician.

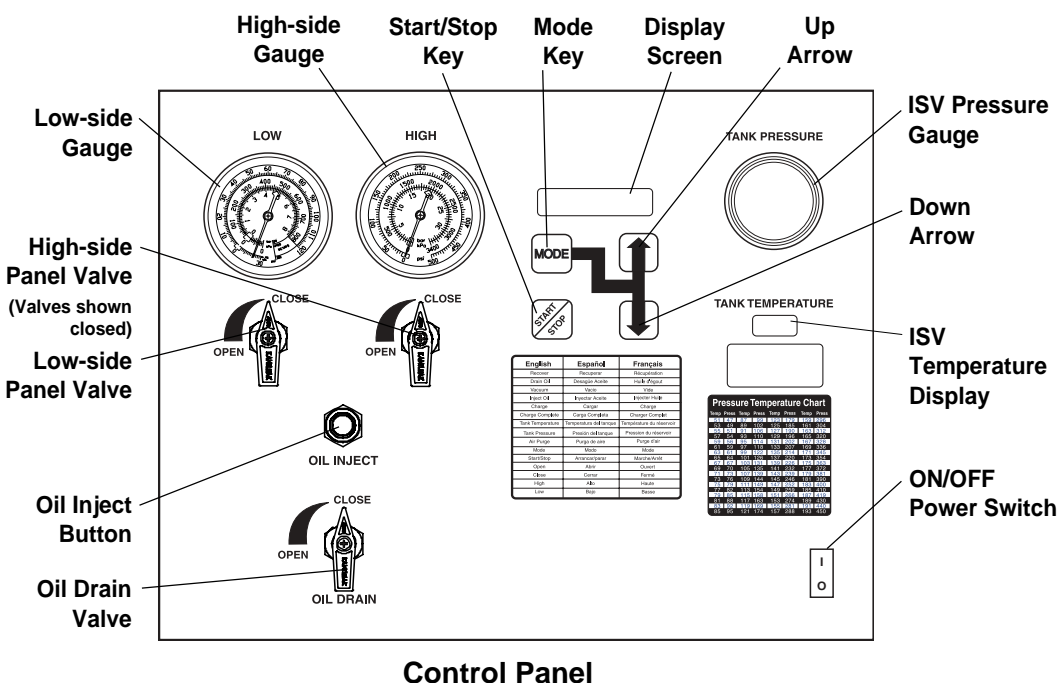
Do not recover or charge refrigerants into nonrefillable containers; use only authorized refillable refrigerant containers. Do not overfill refrigerant containers. Overfilling may cause explosion and serious personal injury or death.



Use the unit only with R-134a refrigerant. The unit is for recovering, recycling, and recharging only R-134a refrigerant! Do not attempt to adapt the unit for another refrigerant. Do not mix refrigerant types through a system or in the same container; mixing of refrigerants will cause severe damage to the unit and the vehicle air conditioning system.

Use the following steps to recover refrigerant from the vehicle's A/C system.

1. Plug the power cord into a correct voltage outlet.
2. Turn the unit on.
3. Connect the service hoses to the A/C system. **IMPORTANT: Connect the red service hose to the A/C system's high side and the blue service hose to the low side.**



# Operation

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## Recovering the A/C System Refrigerant *contd.*

4. Verify the oil drain valve is closed.
5. On the control panel, open both panel valves.
6. Press the **Mode** key until RECOVER X.XX LBS is displayed. (X.XX is the amount of refrigerant capacity remaining in the internal storage vessel [ISV].) Press the **Start/Stop** key to begin the recovery operation. Once recovery begins, the RECOVER X.XXLBS changes from the amount in the ISV to the amount being recovered.

*Note: Verify there is enough capacity in the ISV by comparing the amount of refrigerant in the A/C system to the amount on the display screen. The amount in the A/C system should not be greater than the amount initially displayed. If the amount is greater, charge some of the refrigerant from the ISV into another refillable refrigerant tank.*

**IMPORTANT: The recovery compressor is *not* a vacuum pump. The compressor pulls the A/C system to a partial vacuum only. You must use the unit's vacuum (evacuate) cycle to remove moisture from the A/C system.**

7. Watch the low-side gauge. When the pressure gauge reaches 10 in. Hg (34 kPa) vacuum, press the **Start/Stop** key. The display screen will indicate how much refrigerant has been recovered, and then toggle between:

RECOVER XX.XXLBS
------------------

 and 

DRAIN OIL
-----------

*NOTE: Drain oil after the recovery is complete; refer to the next page for instructions regarding draining the oil.*

8. Close both panel valves.
9. Wait 5 minutes, and then check the low-side gauge for a rise in pressure to above zero. If there is a rise in pressure, repeat steps 5 through 9 as needed until the pressure holds below zero for 2 minutes.

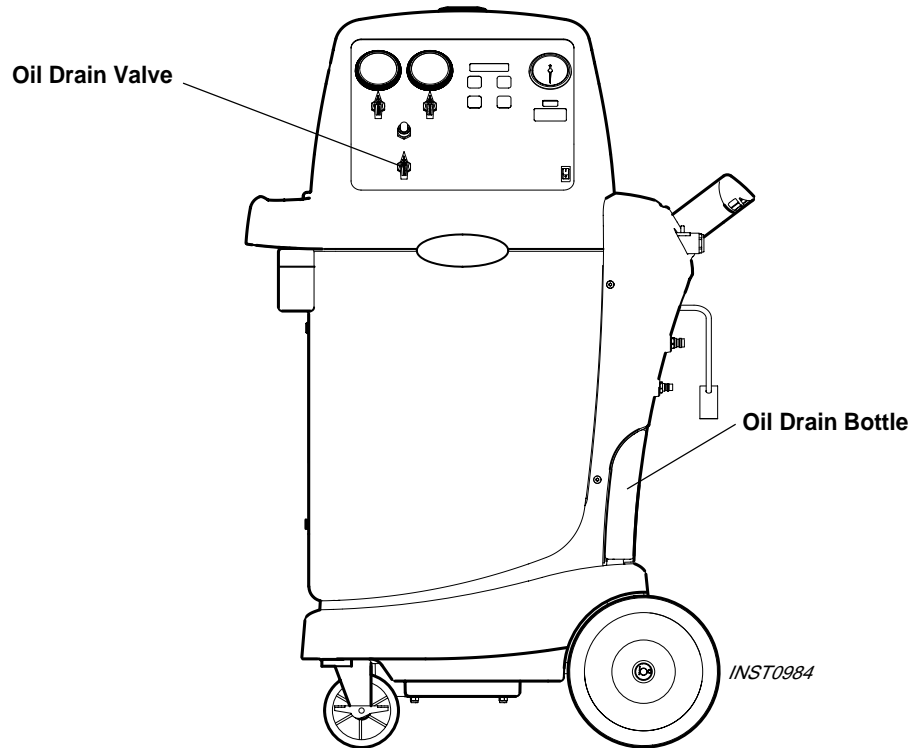
*NOTE: If the pressure does not drop to 10 in. Hg (34 kPa) vacuum or does not hold at 10 in. Hg (34 kPa) vacuum for at least 2 minutes, there was freezing in the A/C system during recovery or the A/C system requires repair. Repeat recovery or repair the A/C system as necessary.*

After recovering all refrigerant from the A/C system, drain the A/C system oil. Refer to the instructions on the next page.

*Note: The displayed recovered weight can vary, depending on ambient conditions, and should not be used as an indicator of scale accuracy.*

## Draining the A/C System Oil

After recovering the refrigerant from the A/C system, use the following steps to drain the A/C system oil into the unit's oil drain bottle.



**Oil Drain Bottle Location**

1. Make sure the oil drain bottle is empty. Remove, empty, and replace the oil drain bottle if necessary.

*NOTE: Dispose of oil according to current local regulations.*

2. On the control panel, open the **Oil Drain** valve. Watch the oil drain into the oil-drain bottle. It may take 30 seconds or more for the oil to start draining.
3. When the oil stops draining, close the **Oil Drain** valve.
4. Check the oil-drain bottle, and record the amount of oil removed. This is the amount of oil that must be added to the A/C system after evacuating the A/C system. Refer to step 2 in **Replenishing the A/C System Oil** in this manual.
5. Remove, empty, and replace the oil-drain bottle.

After draining the oil, evacuate the A/C system. Refer to the instructions on the next page.

# Operation

## Evacuating the A/C System

After recovering all refrigerant from the A/C system, draining the oil from the system, and making repairs to the A/C system, use the following steps to evacuate (VACUUM) the A/C system.

### **WARNING**



**Wear safety goggles when working with refrigerant. All hoses may contain liquid refrigerant under pressure. Disconnect hoses using extreme caution. Read and follow all warnings at the beginning of this manual before operating the unit.**

1. Verify the power cord is plugged into a correct voltage outlet, and the service hoses are correctly connected to the A/C system. **Important: Connect the red service hose to the A/C system's high side, and the blue service hose to the low side.**
2. On the control panel, open both panel valves.
3. Press the **Mode** key until the VACUUM screen displays. Press the **Arrow** keys to set the amount of time desired for the vacuum. Fifteen minutes is recommended, but the time may vary depending on environmental conditions.

VACUUM 15:00

*NOTE: The display screen shows the time as mm:ss; where "mm" represents minutes and "ss" represents seconds. Setting vacuum time to 0 (zero) will result in continuous vacuum pump operation.*

**IMPORTANT: Check gauges to verify they are equal to or less than zero to prevent damage to the vacuum pump.**

4. Press the **Start/Stop** key to begin the vacuum operation. Watch the vacuum time on the display. The display will count down the amount of time it will take to evacuate the A/C system.

VACUUM 00.00

5. When the evacuation is complete, the unit will automatically shut off, and INJECT OIL will display on the screen.
6. Close both panel valves on the control panel.
7. Note the pressure on the low-side gauge and then wait 5 minutes.
8. After waiting 5 minutes, check the low-side gauge for a rise in pressure. If the pressure remains stable, the evacuation is complete. If there is a rise in pressure, the A/C system may need further repairs or the evacuation may need to be repeated. Repeat the evacuation if necessary.

## Replenishing the A/C System Oil

Before recharging the A/C system, replenish the A/C system oil. Add only the amount of oil that was removed during recovery. If no oil was removed, do not add any oil.

### NOTES:

- Refer to the A/C system manufacturer for correct oil replacement procedures and oil specifications.
- Replacing A/C system components may require adding more oil. Refer to component manufacturer for recommendations.

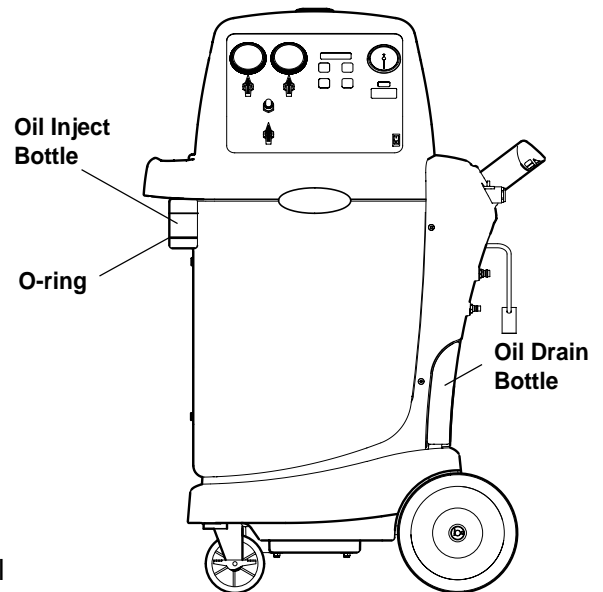
1. Refer to amount of oil that was removed during recovery (see step 4 in **Draining the A/C System Oil**).
2. Fill oil inject bottle with new oil:
  - Add 1–2 ounces (30–60 mL) more oil than was recovered.
  - Add any additional oil required by an A/C component change.
3. Note the level of new oil in the bottle.
4. Place an o-ring around the oil inject bottle at the level the oil will be at after replenishing the system.

*For example, if the bottle's oil level is at 4 ounces, and you need 1/2 ounce of oil to replenish the A/C system, place the o-ring at the 3-1/2 ounce level.*

5. Open the appropriate panel valve per the A/C system manufacturer's recommendations.
6. Push and hold the **Oil Inject** button until the system is replenished with the desired amount of oil.

*NOTE: To avoid getting air into the A/C system, do not remove all the oil from the oil inject bottle.*

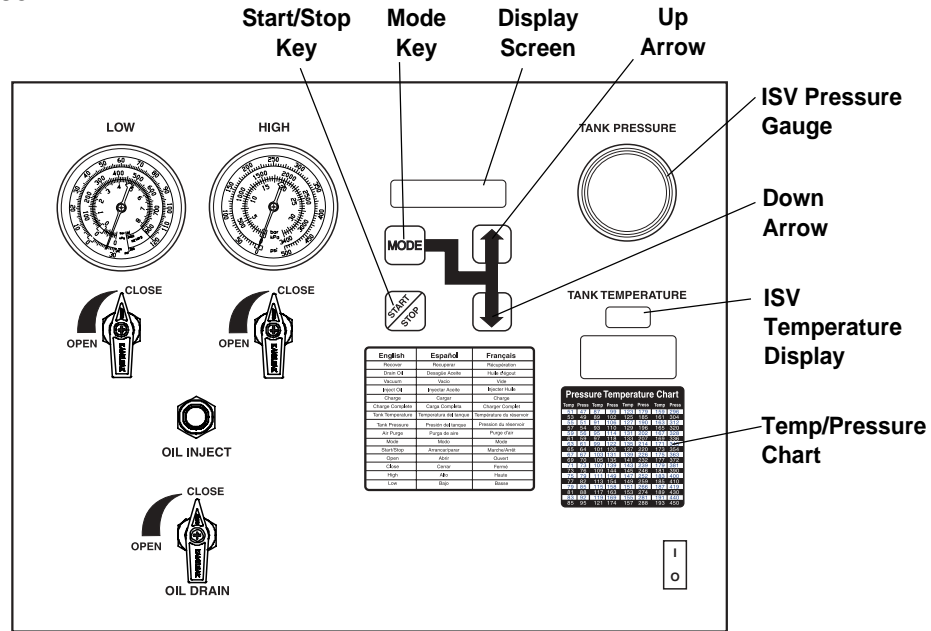
To ensure the replenishment of oil into the A/C system, recharge the A/C system, leaving the panel valves in the same position as the A/C system manufacturer's recommendations. Refer to instructions on the next page to purge the air from the internal storage vessel prior to recharging.



# Operation

## Purging Air from the Internal Storage Vessel

Use the following steps to purge unwanted air from the internal storage vessel.



1. On the control panel, note the internal storage vessel temperature in the ISV temperature display.

*NOTE: The ISV temperature display can show Fahrenheit or Celsius degrees. Refer to **Changing the Temperature Scale** in this manual.*

2. Use this temperature to find the correct refrigerant pressure on the Temperature/Pressure Chart located in this manual or on the control panel.
3. Compare the pressure from the chart to the pressure shown on the unit's tank pressure gauge. If the pressure from the chart is lower than the gauge pressure, the internal storage vessel contains air.
4. To purge the air from the internal storage vessel, press **Mode** until PURGE AIR appears.
5. Press and hold the **START/STOP** button until the gauge pressure drops to the correct pressure from the chart. Then release the **START/STOP** button.
6. Wait 5 minutes to allow the temperature and pressure to stabilize. Check the temperature and pressure again.
7. If necessary, repeat the steps until the pressure is correct for the temperature.

After purging the air, recharge the system.

## Recharging the A/C System Refrigerant



### WARNING



Wear safety goggles when working with refrigerant. Hoses may contain liquid refrigerant under pressure; disconnect hoses using extreme caution. Read and follow all warnings at the beginning of this manual before operating the unit.

After replenishing the A/C system oil as necessary and purging the A/C system, use the following steps to recharge the A/C system's refrigerant.

*NOTE: For maximum unit performance during recharging, make sure the refrigerant level in the source tank is at least 3 lbs. (1.4 kg) more than the amount required for recharging the vehicle being serviced.*

1. Refer to the A/C system manufacturer's service manual to determine the required amount of refrigerant to recharge.
2. Verify the unit's power cord is plugged into a correct voltage outlet, and the service hoses are correctly connected to the A/C system. **IMPORTANT: Connect the red service hose to the A/C system's high side and the blue service hose to the low side.**
3. Verify the unit is turned on.
4. On the control panel, press the **Mode** key until the CHARGE XX.XX (XX.XX refers to the charge weight) screen displays. Use the **Arrow** keys to program how much to charge. Refer to the vehicle manufacturer's specifications on the amount to charge.
5. Open the appropriate panel valve(s) per the A/C system manufacturer's specifications.
6. Press the **Start/Stop** key to begin charging. The screen displays the amount of refrigerant being charged.
7. Watch the display screen. When the required amount appears, the screen will toggle between CHARGE COMPLETE and the amount that has been charged.

CHARGE COMPLETE

and

CHARGE XX.XX

8. Close the panel valves.

### **IMPORTANT!**

This unit is designed for R-134a systems. Do not attempt to adapt the unit for another refrigerant — system failure will result!

# Operation

## Recharging the A/C System Refrigerant *contd.*



### WARNING



Before starting the vehicle's engine, verify the vehicle is in **PARK** or **NEUTRAL**, with the emergency brake **ON**.



To prevent personal injury or death, never run a vehicle without adequate ventilation in the work area.

9. Start the vehicle's engine, turn the A/C system on for maximum cooling, and do the following:
  - a. Watch the high-side and low-side gauges on the unit's control panel. Refer to the A/C system manufacturer's service manual to determine the correct pressures.
  - b. Check the evaporator outlet temperature to be sure the A/C system is operating correctly. Refer to the A/C system manufacturer's service manual to determine the correct temperature.

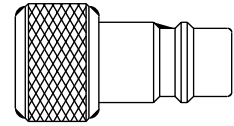
*NOTE: If the pressures and temperature are not correct, the A/C system may still require repair. Complete the remaining steps, and then investigate and make any repairs as necessary.*
10. Stop the vehicle's engine.
11. Open both panel valves until gauges equalize.
12. Close the coupler valves, and disconnect the service hoses from the A/C system.
13. Do the following to clear the service hoses:
  - a. Press the **Mode** key and scroll to RECOVER XX.XX. Press the **Start/Stop** key.
  - b. When the low-side gauge pressure reaches 10 in. Hg (34 kPa) vacuum, press the **Start/Stop** key. All refrigerant should be removed from the hoses.
  - c. Close the panel valves.



## Adding Additional Refrigerant to the Internal Storage Vessel

Periodically, the internal storage vessel (ISV) will require additional refrigerant. Use the following steps to add refrigerant to the ISV.

1. Connect the R-134a tank adapter to the liquid valve on the refrigerant source tank.
2. Connect the service coupler of the low-side hose (blue) to the adapter.  
*NOTE: If using a refillable source tank, connect to the vapor valve.*
3. Open the valve on the source tank, place the tank upside down in the source tank compartment, and secure the source tank strap around the tank.
4. Press the **Mode** key until RECOVER XX.XXLBS (KG) is displayed. (XX.XX is the amount of refrigerant capacity remaining in the ISV.)
5. Press the **Arrow** keys to adjust to the desired recover weight.



**R-134a Tank Adapter**

*Note: Although the display shows the refrigerant capacity remaining in the ISV, the ISV should not be filled to this level. At least 9 lbs. (4 kg) of refrigerant capacity should be available in the ISV after filling to allow space for the next A/C recovery. Therefore, adjust the unit to fill the ISV to a level at least 9 lbs. (4 kg) less than what the display shows as the remaining refrigerant capacity.*

6. On the control panel, open the low-side valve; verify the high-side valve is closed.
7. Press the **Start/Stop** key. The ISV begins filling, and the screen displays the amount of refrigerant being transferred to the ISV.
8. The unit will automatically stop when the desired amount has been transferred to the ISV. The display will flash between:

RECOVER XX.XXLBS

and

DRAIN OIL

*NOTE: Drain oil after the internal storage vessel is filled.*

9. Unstrap the source tank, remove it from its compartment, then close the source tank valve.
10. Disconnect the hose from the tank.
11. Cap the source tank with its original tank cap. For storage, place the source tank upright in the source tank compartment, and secure the source tank strap around the tank.

# Operation

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## Adding Additional Refrigerant to the Internal Vessel *contd.*

12. Do the following to clear the service hoses:

a. Press **Mode** key to:

RECOVER XX.XXLBS

b. Press **Start/Stop** key to start hose clearing.

c. Watch the low-side gauge. When the gauge pressure reaches 10 in. Hg (34 kPa) vacuum, press **Start/Stop** key to stop the clearing process.

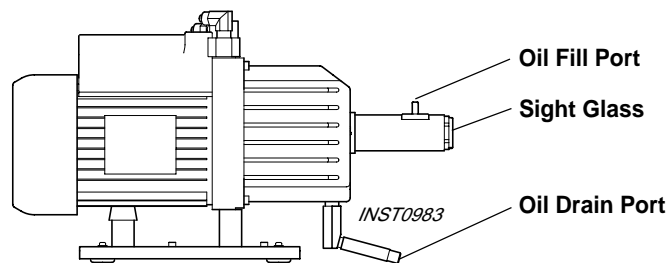
13. Close the low-side panel valve.

### Drain Oil

1. On the control panel, open the oil-drain valve. Watch the oil drain into the oil-drain bottle. It may take 30 seconds or more for the oil to start draining.
2. When oil stops draining, close the oil-drain valve.

## Changing the Vacuum Pump Oil

For maximum unit performance, change the vacuum pump oil after every 10 hours of operation. The unit keeps track of vacuum pump running time and will notify the user on the display screen when it is time to change oil. For optimum performance, use only Robinair Premium High Vacuum Oil. Use the following steps to change the vacuum pump oil.



**Vacuum Pump**

1. Remove the cap from the oil-drain port, and drain the oil into a suitable container (16 ounces [474 mL] or larger) for disposal according to current federal, state, and local regulations.

*NOTE: Review current local, state, and federal statutes, cases, laws, and regulations to determine the correct disposal procedure for pump oil. It is the responsibility of the user to determine if a material is a hazardous waste at the time of disposal. Ensure you are in compliance with all applicable laws and regulations.*

2. Replace the cap on the oil-drain port.
3. Remove oil fill cap.
4. Add 6 ounces of oil.
5. Verify panel gauges read less than 0.
6. Press **Mode** key until screen displays VACUUM XX.XX. Press **Start/Stop** key.
7. With the vacuum pump running, slowly add oil until the level rises to the center of the oil sight glass.
8. Press **Start/Stop** key.
9. Replace cap.

After changing the vacuum pump oil, reset the vacuum pump oil timer.

# Maintenance

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## Resetting Oil Time

Every time the vacuum pump oil is changed, the vacuum pump oil timer should be reset. Use the following steps to reset the oil timer.

1. Simultaneously press and hold the **Up** and **Down** arrow keys until the display shows UNITS LBS (KG).
2. Press the **Mode** key until the screen displays OIL XXX (XXX is minutes).
3. Simultaneously press and hold the **Up** and **Down** arrow keys until the screen displays OIL 600 (minutes).
4. Press **Mode** key until EXIT displays.

## Replacing the Filter-drier

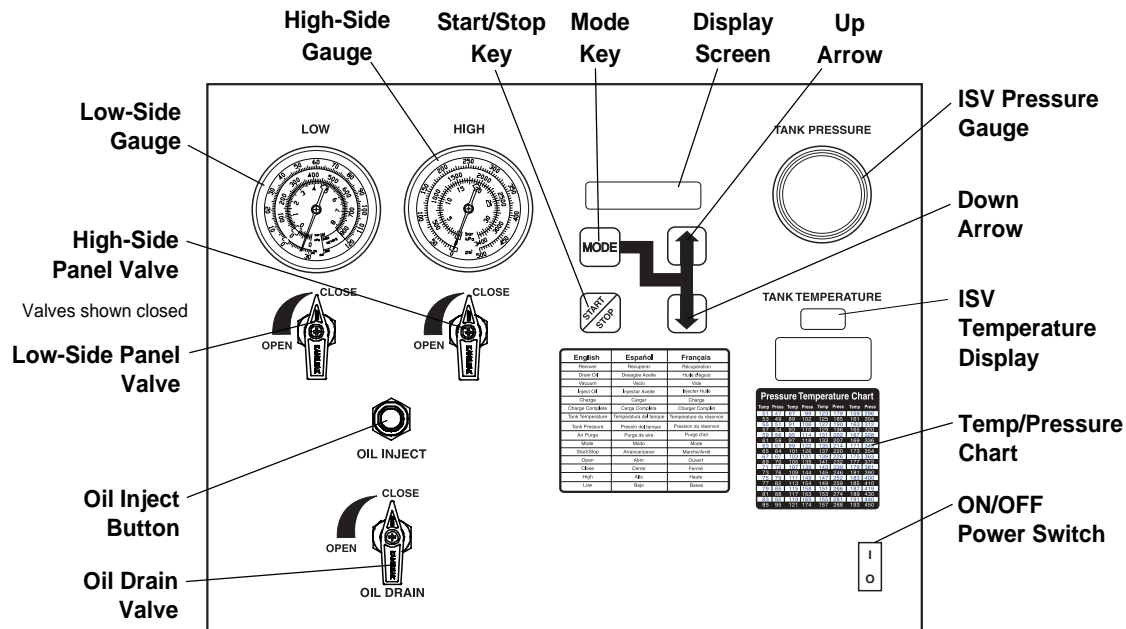
The filter-drier inside the unit removes acid, particulates, and moisture from refrigerant during the recovery function. To provide adequate contaminant and moisture removal, the filter-drier must be replaced after every 150 lbs. (68 kg) of refrigerant recovered. The following will appear in the display:

**CHANGE FILTER**

Use the following steps to replace the filter-drier.

*NOTE: For maximum unit performance, use only No. 34430 SPX/ROBINAIR filter-drier. To avoid service delays, keep extra filter-driers on hand. Refer to the Replacement Parts section of this manual.*

1. Plug the power cord into a correct voltage outlet, and turn the unit on.
2. Verify the service hoses are NOT connected to a vehicle.



**Control Panel**

3. On the control panel, open both panel valves.
4. Press the **Mode** key until RECOVER XX.XX displays on the screen.
5. Press the **Start/Stop** key.
6. Watch the low-side gauge. When the gauge pressure reaches 10 in. Hg (34 kPa) vacuum, close both panel valves.
7. Turn the unit's power switch off.
8. Remove the unit's power cord from the outlet.

# Maintenance

## Replacing the Filter-drier *contd.*

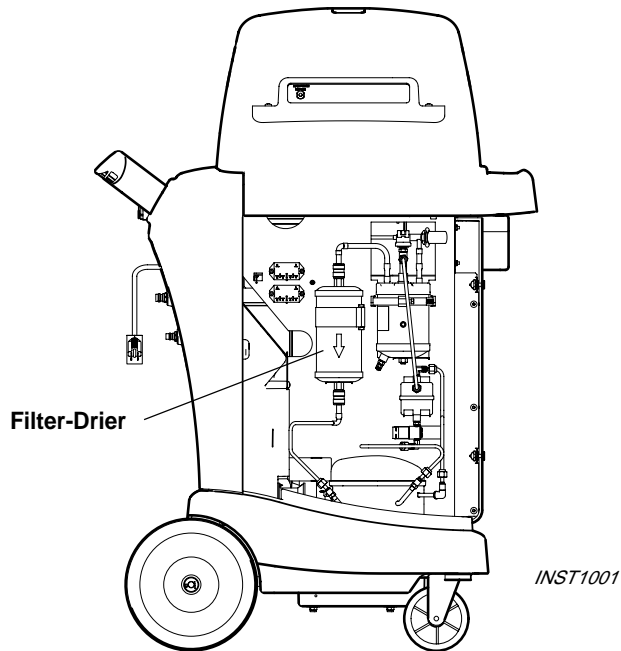


**WARNING**

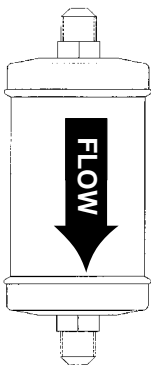


High voltage electricity inside the unit has a risk of electrical shock. Disconnect the power before opening the back door or servicing the unit.

9. Open the back door of the unit's protective covering. To unlock the door, turn the two screws 1/4 turn counterclockwise.



**Filter-drier Location  
(Back View of Unit)**



10. Remove the strap, disconnect the fittings from the filter-drier, and remove the filter-drier.

*NOTE: Dispose of the filter-drier according to current federal, state, and local regulations.*

11. Install the new filter-drier with the FLOW direction arrow pointing down, tighten the fittings, and secure with the strap.
12. Close and lock the back door of the unit's plastic covering. To lock the door, turn the two screws 1/4 turn clockwise.

After replacing the filter-drier, reset the filter-drier capacity. Refer to the instructions on the next page.

## Resetting the Filter-drier Capacity

The unit keeps track of the filter-drier's remaining capacity. As the unit filters refrigerant, the remaining capacity decreases from 150 lbs. (68 kg) to zero. When the capacity reaches zero, the unit will display:

CHANGE FILTER

Use the following steps to reset the filter-drier's capacity.

1. Plug the power cord into a correct voltage outlet, and turn the unit on.
2. Simultaneously press and hold the **Up** and **Down** arrow keys until UNITS LBS (KG) appears on the display.
3. Press the **Mode** key until FILTER XXX appears on the display.
4. Simultaneously press and hold the **Up** and **Down** arrow keys until FILTER 150 LBS (68 KG) appears on the display.
5. Press the **Mode** key until EXIT displays.
6. Press the **Start/Stop** key to exit the diagnostics function.

The unit is now ready to begin counting down the capacity of the new filter-drier.

# Maintenance

## Checking for Leaks

Over time, fittings can loosen as the unit is used and moved. During normal use, inspect the unit for leaks at a minimum of every three months (or as specified by current federal, state, and local regulations). Use the following steps to check the unit for leaks.

*NOTE: The manufacturer does not reimburse for lost refrigerant.*

1. Remove the power cord from the outlet.



### WARNING



**High voltage electricity inside the unit has a risk of electrical shock. Disconnect the power before opening the back door or servicing the unit.**

2. Remove the four screws that secure the hood.
3. Remove the hood.
4. Open the back door of the unit's protective covering, and lift the door off the unit. To unlock the door, turn the two screws 1/4 turn counterclockwise.
5. Remove the five screws that secure the front section of the unit's protective covering, and remove the covering.
6. Use a leak detector to trace all lines, and check all connections for refrigerant leaks. Tighten any fittings or connections if a leak is indicated.



### WARNING



**DO NOT use compressed air to pressure test or leak test the unit. Some mixtures of air and refrigerant are combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion.**

7. Replace the unit's protective covering as follows:
  - a. Replace the front section, and replace the five screws that secure the covering.
  - b. Replace, close, and lock the back door. To lock the door, turn the two screws 1/4 turn clockwise.
  - c. Replace the hood and the four screws that secure the hood.



## Calibrating the Weight Scale

The unit's weight scale is calibrated at the factory and requires no further calibration.

*NOTE: If the message OVERLOAD appears on the display screen on the control panel, the weight of the internal storage vessel is too high, or the unit's weight scale is damaged, disconnected, or out of calibration. Call a qualified service technician.*

## Cleaning the Unit

On a regular basis, wipe off the unit with a clean cloth to remove grease, dust, or other dirt.

## Replacement Parts

The following is a list of replacement parts and accessories for the unit. For ordering information, use the technical support telephone number listed on the back cover of this manual.

Part No.	Description
13204	Premium High Vacuum Pump Oil – Case of 4 Gallons
13203	Premium High Vacuum Pump Oil – Case of 12 Quarts
13201	Premium High Vacuum Pump Oil – Case of 12 Pints
17756	Oil Drain Bottle
18191A	High-side Service Coupler
18190A	Low-side Service Coupler
34430	Filter-Drier
522976	Blue Service Hose
522975	Red Service Hose

# R-134a Temperature / Pressure Table

Conversion Table	
OZ.	LBS.
0.5	0.03
1.0	0.06
1.5	0.09
2.0	0.13
2.5	0.16
3.0	0.19
3.5	0.22
4.0	0.25
4.5	0.28
5.0	0.31
5.5	0.34
6.0	0.38
6.5	0.41
7.0	0.44
7.5	0.47
8.0	0.50
8.5	0.53
9.0	0.56
9.5	0.59
10.0	0.63
10.5	0.66
11.0	0.69
11.5	0.72
12.0	0.75
12.5	0.78
13.0	0.81
13.5	0.84
14.0	0.88
14.5	0.91
15.0	0.94
15.5	0.97
16.0	1 lb.

Temperature		Pressure	Temperature		Pressure
F	C	PSIG	F	C	PSIG
45	7.2	40	125	51.7	185
47	8.3	42	127	52.8	190
49	9.4	44	129	53.9	196
51	10.6	47	131	55.0	202
53	11.7	49	133	56.1	207
55	12.8	51	135	57.2	214
57	13.9	54	137	58.3	220
59	15.0	56	139	59.4	226
61	16.1	59	141	60.6	232
63	17.2	61	143	61.7	239
65	18.3	64	145	62.8	246
67	19.4	67	147	63.9	252
69	20.6	70	149	65.0	259
71	21.7	73	151	66.1	266
73	22.8	76	153	67.2	274
75	23.9	79	155	68.3	281
77	25.0	82	157	69.4	288
79	26.1	85	159	70.6	296
81	27.2	88	161	71.7	304
83	28.3	92	163	72.8	312
85	29.4	95	165	73.9	320
87	30.6	99	167	75.0	328
89	31.7	102	169	76.1	336
91	32.8	106	171	77.2	345
93	33.9	110	173	78.3	354
95	35.0	114	175	79.4	363
97	36.1	118	177	80.6	372
99	37.2	122	179	81.7	381
101	38.3	126	181	82.8	390
103	39.4	131	183	83.9	400
105	40.6	135	185	85.0	410
107	41.7	139	187	86.1	419
109	42.8	144	189	87.2	430
111	43.9	149	191	88.3	440
113	45.0	154	193	89.4	450
115	46.1	158	195	90.6	461
117	47.2	163	197	91.7	472
119	48.3	169	199	92.8	483
121	49.4	174	201	93.9	495
123	50.6	179	202	94.4	500

## Robinair Limited Warranty Statement

*Rev. November 1, 2005*

This product is warranted to be free from defects in workmanship, materials, and components for a period of one year from date of purchase. All parts and labor required to repair defective products covered under the warranty will be at no charge. 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 be serviced and maintained as specified.
3. If the product fails, it will be repaired or replaced at the option of the manufacturer.
4. Transportation charges for warranty service will be reimbursed by the factory upon verification of the warranty claim and submission of a freight bill for normal ground service. Approval from the manufacturer must be obtained prior to shipping to an authorized service center.
5. Warranty service claims are subject to authorized inspection for product defect(s).
6. The manufacturer shall not be responsible for any additional costs associated with a product failure including, but not limited to, loss of work time, loss of refrigerant, cross-contamination of refrigerant, and unauthorized shipping and/or labor charges.
7. All warranty service claims must be made within the specified warranty period. Proof-of-purchase date must be supplied to the manufacturer.
8. Use of recovery/recycling equipment with unauthorized refrigerants or sealants will void warranty.
  - Authorized refrigerants are listed on the equipment or are available through the Technical Service Department.
  - The manufacturer prohibits the use of the recovery/recycling equipment on air conditioning (A/C) systems containing leak sealants, either of a seal-swelling or aerobic nature.

**This Limited Warranty does NOT apply if:**

- The product, or product part, is broken by accident.
- The product is misused, tampered with, or modified.
- The product is used for recovering or recycling any substance other than the specified refrigerant type. This includes, but is not limited to, materials and chemicals used to seal leaks in A/C systems.



Visit our web site at  
**www.robinair.com**

or

Call our Toll-Free  
**Technical Support Line at**  
**800-822-5561**

**in the continental U.S. or Canada.**

In all other locations, contact your local distributor. To help us serve you, be prepared to provide the model number, serial number, and date of purchase of your unit.

To validate your warranty, complete the warranty card attached to your unit, and return it within ten days from date of purchase.

#### **NATIONWIDE NETWORK OF AUTHORIZED SERVICE CENTERS**

If your unit needs repair or replacement parts, contact the service center in your area. For help in locating a service center, call the toll-free technical support line or visit our website.

Due to ongoing product improvements,  
we reserve the right to change design,  
specifications, and materials without notice.

The 34134Z units are designed to meet all applicable agency certifications, including Underwriter's Laboratories, Inc., SAE Standards, and CUL.

Certain state and local jurisdictions dictate that using this equipment to sell refrigerant by weight may not be permitted. We recommend charging for any A/C service by the job performed.

This weight scale provides a means of metering the amount of refrigerant needed for optimum A/C system performance as recommended by OEM manufacturers.



*SPX Corporation*  
*655 Eisenhower Drive*  
*Owatonna, MN 55060-0995 USA*  
*Technical Services: 1-800-822-5561*  
*Fax: 1-412-690-2001*  
*Customer Service: 1-800-533-6127*  
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*Web Site: www.robinair.com*