

ROBINAIR®

*Original Instructions
Instrucciones originales
Instructions d'origine*



Model AC1234-6

**Recover, Recycle, Recharge Machine
for R1234yf A/C Systems**

Description: Recover, recycle, and recharge machine for use with R1234yf equipped air conditioning systems.

PRODUCT INFORMATION

Record the serial number and year of manufacture of this unit for future reference. Refer to the product identification label on the unit for information.

AC1234-6

Serial Number: _____ Year of Manufacture: _____

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Safety Precautions

Explanation of Safety Signal Words Used in this Manual

The safety signal word designates the degree, or level, of hazard seriousness.



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION: Used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

These safety messages cover situations Robinair is aware of. Robinair cannot know, evaluate, or advise you as to all possible hazards. You must verify that conditions and procedures do not jeopardize your personal safety.

Explanation of Safety Decals Used on the Machine

| | |
|--|--|
| | Carefully read the instructions. |
| | Do not use in open air in case of rain or high humidity. |
| | Wear gloves. |
| | Wear protection goggles. |
| | Alternating voltage. |
| | Grounding protection. |
| | Electrical shock hazard. |

Safety Precautions



WARNING : To prevent personal injury,



ALLOW ONLY QUALIFIED PERSONNEL TO OPERATE THE MACHINE. Before operating the machine, 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 this manual, operating instructions and safety precautions must be read and discussed in the operator's native language.



USE THE MACHINE AS OUTLINED IN THIS MANUAL. Using the machine in a manner for which it was not designed will compromise the machine and nullify the protections provided.



PRESSURIZED TANK CONTAINS LIQUID REFRIGERANT. Do not overfill the internal storage vessel (ISV), because overfilling may cause explosion resulting in personal injury or death. Do not recover refrigerants into nonrefillable containers; use only type-approved refillable containers that have pressure relief valves.



HOSES MAY CONTAIN LIQUID REFRIGERANT UNDER PRESSURE. Contact with refrigerant may cause personal injury, including blindness and frozen skin. Wear protective equipment, including goggles and gloves. Disconnect hoses using extreme caution. Ensure the phase has been completed before disconnecting the machine to prevent the release of refrigeration to the atmosphere.



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. 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.

DO NOT DISPERSE REFRIGERANT INTO THE ENVIRONMENT. Such a precaution is necessary to prevent the possible presence of refrigerant in the working environment.



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

TO REDUCE THE RISK OF FIRE, do not use 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 machine in the vicinity of flames and hot surfaces. Refrigerant can decompose at high temperatures and can free toxic substances to the environment which can be noxious to the user.

TO REDUCE THE RISK OF FIRE, do not use the machine in environments containing explosive gases or vapors.

TO REDUCE THE RISK OF FIRE, protect the machine from conditions that may cause electrical failure or other hazards relating to ambient interaction.



CAUTION—DO NOT PRESSURE TEST OR LEAK TEST EQUIPMENT AND / OR VEHICLE AIR CONDITIONING SYSTEMS WITH COMPRESSED AIR. Some mixtures of air and refrigerant have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage.



HIGH VOLTAGE ELECTRICITY INSIDE THE MACHINE HAS A RISK OF ELECTRICAL SHOCK. Exposure may cause personal injury. Disconnect power before servicing the machine.

NEVER LEAVE THE MACHINE LIVE IF AN IMMEDIATE USE IS NOT SCHEDULED. Disconnect the electrical supply before a long period of inactivity or before internal maintenance is performed.

DO NOT MODIFY THE PRESSURE RELIEF VALVE OR CHANGE THE CONTROL SYSTEM SETTINGS. Using the machine in a manner for which it was not designed will compromise the machine and nullify the protections provided.

**Additional health and safety information may be obtained
from refrigerant and lubricant manufacturers.**

Safety Precautions

CAUTION : To prevent equipment damage,



TO PREVENT CROSS-CONTAMINATION, USE THIS MACHINE WITH R1234YF REFRIGERANT ONLY.

The machine is equipped with special connectors to recover, recycle, and recharge only R1234yf refrigerant. Do not attempt to adapt the machine 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 machine and the vehicle air conditioning system.

DO NOT USE THIS MACHINE IN DIRECT SUNLIGHT. Position the machine far from heat sources, such as direct sunlight, which can cause excessive temperatures. The use of this machine under normal environmental conditions (10°C to 50°C) keeps pressures under reasonable limits.



DO NOT USE THIS MACHINE OUTDOORS DURING RAIN OR HIGH HUMIDITY. Protect the machine from conditions that may cause electrical failure or other hazards relating to ambient interaction.

DO NOT USE THIS MACHINE IN AREAS WHERE THERE IS A RISK OF EXPLOSION.

SET UP THE MACHINE ON AN EVEN SURFACE AND UNDER SUFFICIENT LIGHTING. LOCK THE FRONT WHEELS, AND DO NOT SUBJECT THE MACHINE TO VIBRATION.

**Additional health and safety information may be obtained
from refrigerant and lubricant manufacturers.**

Protective devices

The machine is equipped with the following protective devices :

- Over pressure valves.
- A maximum pressure switch stops the compressor when excessive pressure is sensed.



WARNING: Tampering with these protective devices could result in serious injury.

J2843 Requirement Regarding Lubricant

Only new lubricant, as specified by the system manufacturer, shall be installed in the MAC (Mobile Air Conditioning) system. Lubricant removed from the system and / or the equipment shall be disposed of in accordance with applicable federal, state, and local procedures and regulations.

This machine is designed and certified to SAE J2843 HFO-1234yf Recovery / Recycling / Recharging Equipment for Flammable Refrigerants for Mobile Air-Conditioning Systems.

The machine is designed to recover and recycle R1234yf refrigerant, evacuate air after the system has been open, and recharge refrigerant.

Other functions include system flush, diagnostic pressures, and retention of service data by vehicle VIN for recall and printout.

The machine is a single-pass system (i.e. refrigerant flows through a filter once) that meets SAE J2099 specifications for recycled refrigerant. The machine also meets oil cross-contamination requirements for high-voltage system charge. Follow recommended service procedures for the containment of R1234yf.

Note: R1234yf systems require special oils. Refer to the A/C system manufacturer's service manual for oil specifications.

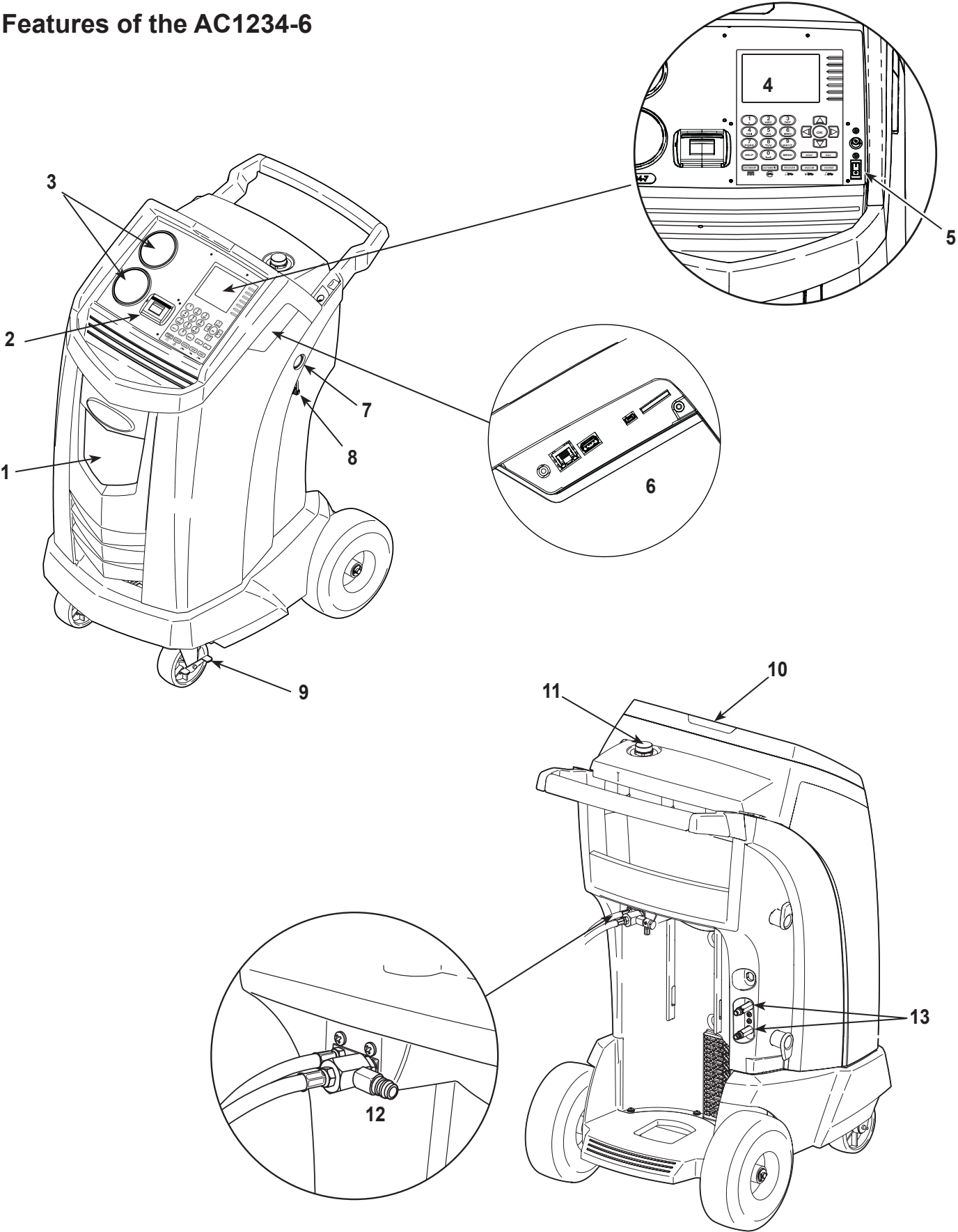


Technical Specifications

| | |
|----------------------------|--------------------------------------|
| Compressor | 1/3 HP |
| Dimensions | 107 cm x 61 cm x 76 cm |
| Display | 1/4 VGA color graphic |
| Filter Capacity | 150 kg |
| Humidity | 90°F (32.2°C), 86% RH non-condensing |
| Pressure Gauges | Ø 100 mm |
| Maximum Pressure | 25 bar |
| Noise | <70 dB(A) |
| Nominal Voltage | 103V—127V, 60 Hz |
| Oil Drain Bottle | 355 ml |
| Operating Temperature | 50°F to 122°F (10°C to 50°C) |
| Power Consumption | 1100 VA |
| Pump Free-Air Displacement | 1.5 CFM (35 l/m) |
| Service Hoses | 250 cm / SAE J2888 |
| Tank Capacity | 9.09 kg (20.04 lb.) |
| Weight | 107 kg (235 lbs.) |

Introduction

Features of the AC1234-6



Features of the AC1234-6 continued

| Item No. | Description |
|----------|---|
| 1 | Oil Drain Bottle |
| 2 | Printer |
| 3 | Low-side (blue) and High-side (red) Manifold Gauges |
| 4 | Graphic Display and Keypad |
| 5 | Power ON / OFF Switch |
| 6 | Audio, Ethernet, USB, Mini-USB, and SD Card Connections |
| 7 | Vacuum Pump Oil Sight Glass |
| 8 | Vacuum Pump Oil Drain Fitting |
| 9 | Wheel Lock |
| 10 | Visual Alert |
| 11 | Vacuum Pump Oil Fill Cap and Port |
| 12 | Contaminant Recovery Port |
| 13 | Service Hose Storage Ports |

Introduction

Control Panel Functions

ARROW UP moves selection of a menu item to the previous item; turns up audio volume.

ARROW DOWN moves selection of a menu item to the following item; turns down audio volume.

ARROW RIGHT scrolls to next screen; fast forwards the video.

ARROW LEFT scrolls to previous screen; rewinds the video.



AUTOMATIC activates a menu to set up an automatic recovery / vacuum / leak test / charge sequence.



CHARGE activates a sequence to charge the vehicle A/C system with a programmed amount of refrigerant.



DATABASE supplies information regarding charge capacity by vehicle model.

ESC returns the test sequence to the previous screen; or answers a query.

HELP displays information related to the current display.

OK highlights the menu item; answers a query; or starts the video.

MENU accesses additional functions and setup parameters.

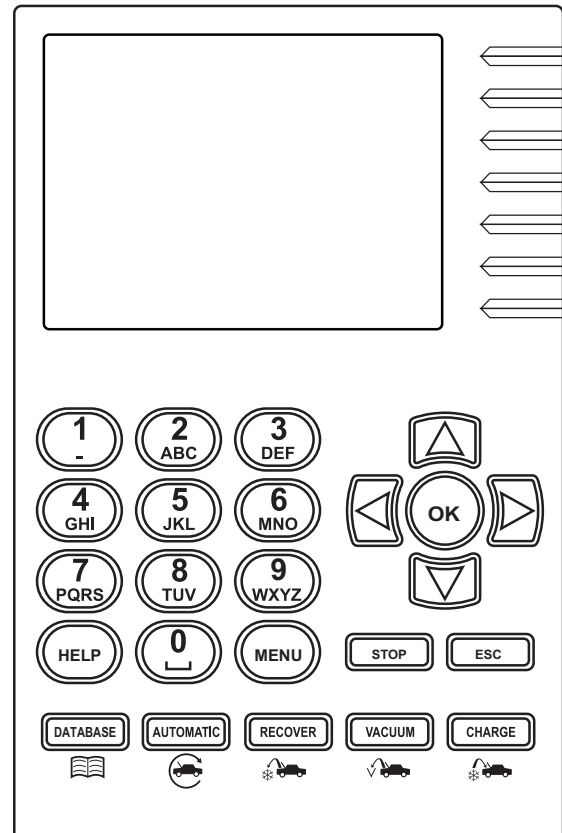


RECOVER activates a sequence to recover refrigerant from the vehicle A/C system.

STOP interrupts the active function. Press once to pause, twice to terminate.



VACUUM activates a sequence to pull a deep vacuum on the vehicle A/C system to remove air and moisture.



Control Panel Keypad

Setup Menu Functions

Access the following functions by pressing the Menu key and selecting Setup.

Air Purge Info

Displays internal storage vessel (ISV) pressure and temperature. Use to check ISV for excessive pressure.

Backlight

Adjusts the contrast on the display screen.

Beeper Setting

Turns the audio “beep” OFF and ON.

Calibration Check

Use to verify internal scale calibration. Refer to *Calibration Check* in the Maintenance section.

Change Vacuum Pump Oil

Displays how long the vacuum pump has operated since the last oil change, and the amount of time remaining until the next oil change is needed. For maximum vacuum pump performance, change vacuum pump oil every time the filter is replaced. Refer to the *Change Vacuum Pump Oil* in the Maintenance section.

Date and Time Setup

Program the machine for current date and time.

Default Charge Target

Change the default charge amount that appears on the charge programming screen.

Filter Change

The filter removes acid, particulates, and moisture from the refrigerant. To meet requirements, it is mandatory to replace the filter after 150 kg (331 lbs.) of refrigerant has been filtered.

This menu item displays the filter capacity remaining until the machine locks down and no longer functions. Refer to *Filter Change* in the Maintenance section.

Garage Data

Programs information that will appear on the printout each time the print function is used.

Hose Flush

Flushes residual oil from the machine to prepare for the service of next vehicle.

Language Selection

Select a language for screen prompts. English is the default language.

Refrigerant Management

Displays the amount of refrigerant recovered, charged, and replenished (for the life of the machine), and filtered since the last filter change.

Service

For Robinair service center use only.

System Information

Displays the revision level of the software in the machine.

Tank Fill Adjustment

The tank fill value may be adjusted up or down to suit the user's needs. The default is 4.5 kg (10 lbs.). Refer to *Tank Fill Adjustment* in the Maintenance section.

Tank Filling

Transfer refrigerant from the source tank to the ISV. Refer to *Tank Filling* in the Maintenance section.

Unit of Measure


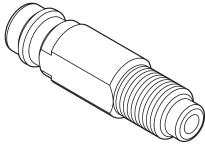
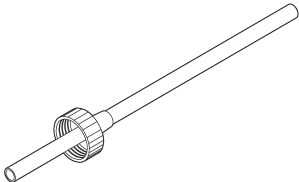


Program the machine to display units of measure in kilograms or pounds. The default display is kilograms.

Setup

Unpack the Accessory Kit

Unpack the accessory kit from the box, and remove the plastic packaging.

Accessory Kit

| | | | |
|-----------------------------|---|--|---|
| Calibration Weight 533 g |  | Tank Fill Hose Adapter |  |
| Cap and Filler Tube |  | Vacuum Pump Oil 16 oz. |  |
| Oil Drain Bottle |  | Pouch containing a warranty card to be filled out and mailed, MSDSs, EPA information, MACS information, and a service center list. | |

Install Oil Drain Bottle

1. Hold the oil drain bottle straight and insert the connector into the hole behind the shroud until it snaps into place. See Figure 1.

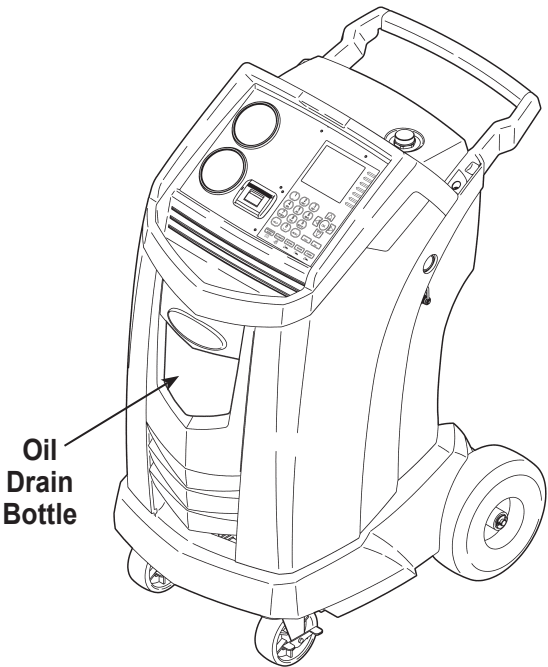


Figure 1

Power Up the Machine

1. Unwind the power cord from the handle, and plug it into a correct voltage, grounded outlet.
2. Position the machine so the plug and the main power switch are of easy access for the operator. Verify the fan vents on the rear of the machine are not obstructed.
3. Lock the front wheels.
4. Turn ON the main power switch.

CAUTION: The machine is programmed to run the setup procedure as outlined here. To prevent personal injury, do NOT operate the machine without the oil fill port plug installed, because the vacuum pump is pressurized during normal operation.

Register the Machine

When the Product Activation screen appears on the display, follow on-screen prompts to register the machine.

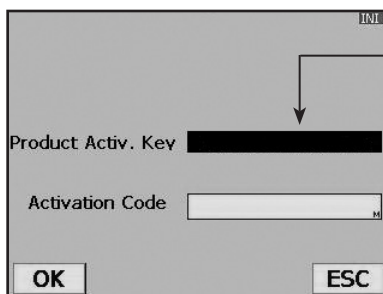
1. Open a web browser on a personal computer. Enter the web address shown in the Activation Process screen on the AC1234-6 machine.
Enter your user name and password, and log in to the website.

If you are a first-time user, click the REGISTER button to create a user name and password.

2. On the AC1234-6 machine, press **OK**. The machine displays fields for the product activation key and an activation code.
3. Enter the product activation key into the correct field on the web page. This generates an activation code.
4. Enter the activation code into the field on the AC1234-6 display and press **OK**. *Note: Capitalization is required.*
5. Record the product activation key and code on a piece of paper and file it in a secure place.
6. Press **OK**. The AC1234-6 has been activated.



Failure to register and activate the AC1234-6 within 30 days of initial startup will cause the machine to lock out and no longer function.



The Product Activation Key will be displayed in this field.



Setup

Language Selection

The operator selects the language for the screen prompt displays. English is the default language.

1. Use the **UP** or **DOWN** arrow key to toggle through the available languages.
2. Press **OK** to set the selected language.
3. The license agreement is displayed for your approval, after which the machine continues with **SETUP** mode.

Unit of Measure

The operator sets the display for units of measure. Metric is the default.

1. Use the **UP** or **DOWN** arrow key to toggle Metric or English units.
2. Press **OK** to choose the displayed unit of measure.

Date and Time Setup

The machine is programmed at the factory for the local time zone, using a 24-hr. clock, and date.

1. Use the **LEFT** and **RIGHT** arrow keys to modify the minutes displayed.
2. Use the **UP** and **DOWN** arrow keys to modify the hour displayed.

Note: The date changes only by scrolling through an entire day.

3. Press **OK** to accept the date and time.

Service Installation Clearing

At this point the machine clears its internal plumbing before proceeding with setup.

1. When prompted, connect the service hoses from the machine to their storage ports as shown in Figure 2.
2. Check the vacuum pump oil level sight glass and verify the oil level is correct.
3. Open the service couplers.

The machine performs an internal clearing of its plumbing, and then sounds an alarm when the Tank Fill Adjustment screen is displayed.

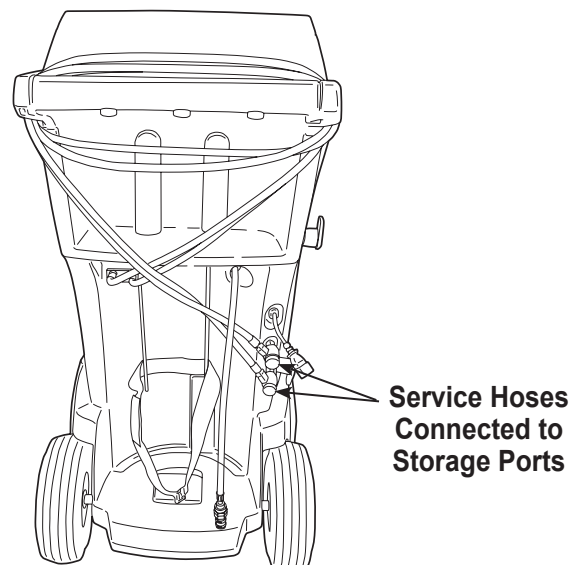


Figure 2

Tank Fill Adjustment

The operator may either accept the machine's pre-set default weight of 4.5 kg (10 lbs.) of refrigerant stored in the ISV, or change to a lesser amount to accommodate the application. The maximum amount allowed for new refrigerant is 6.8 kg, which leaves room for additional recovery.

1. The machine displays

4.5 KG

Press **OK** to accept the default amount, or use the keypad to enter an amount and press **OK**.

2. The machine displays

CONNECT SOURCE TANK TO FILL HOSE

Press **OK** to continue or **ESC** to exit.

Tank Filling

The internal storage vessel (ISV) maximum fill of new refrigerant may be adjusted between 1.8 kg and 6.8 kg by using the keypad. *Note: The lower the ISV fill level setting, the greater the ISV capacity for recovery. Maximum recovery is 9.09 kg.*

1. Position the source tank on the rear of the machine so liquid refrigerant is supplied to the connection.
2. Use the strap shown in Figure 3 to secure the tank in place, being careful to not block air flow from the vents on the lower right side.
3. Connect the tank fill hose to the source tank fitting, and open the tank valve.
4. Press **OK**. The machine checks the refrigerant in the source tank to verify it is R1234yf and it is not contaminated. The machine displays

WARM UP
CALIBRATION IN PROGRESS
GAS IDENTIFY
REFRIGERANT PURITY ACCEPTABLE

and after five seconds, begins filling the ISV. Add at least 3.6 kg of refrigerant to ensure enough is available for charging. This process takes 15 – 20 minutes.

5. The machine stops when the designated amount of refrigerant has been transferred to the ISV, or when the source tank is empty. Follow the messages on the display screen.
6. Press **OK** to return to the Functions Menu. The machine is ready for operation.

Note: There is no need to calibrate the scale; it was calibrated at the factory.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

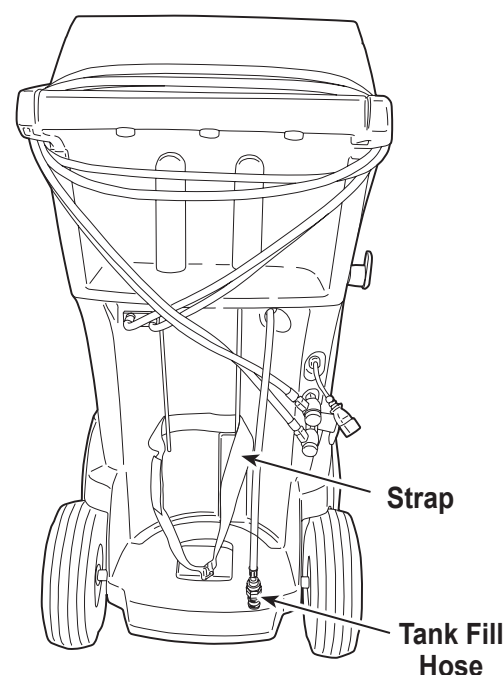


Figure 3

Note: After the tank fill process is complete, the display will not show the same amount as the programmed fill level.

*The display shows the amount of refrigerant that is **available** for charging, which is approximately 0.91 kg less than the total amount of refrigerant in the tank.*

Setup

Garage Data

This machine has the capability to print out recovery, vacuum, charge, and flush information for each vehicle tested. The information entered in the fill fields on the Garage Data screen will appear on each printout.

1. Press **MENU**, select Setup, and press the right arrow twice until Garage Data appears.
2. The cursor is blinking in the first fill field. Refer to Figure 4.
3. Press the **MENU** key and a virtual keyboard appears as shown in Figure 5.
4. Use the arrow keys on the machine's keypad to move around the keyboard. Press **OK** to enter a character. The cursor will move to the next character.
5. Press the **MENU** key to exit the virtual keyboard. Press **OK** to save the data and move to the next field. Press **ESC** to return to the Setup Menu.

A printout may be obtained any time the display screen shows **OK=PRN**.

First Fill Field

| | |
|---------|--|
| Garage | |
| Address | |
| City | |
| Tel | |
| Fax | |
| E-mail | |

Figure 4

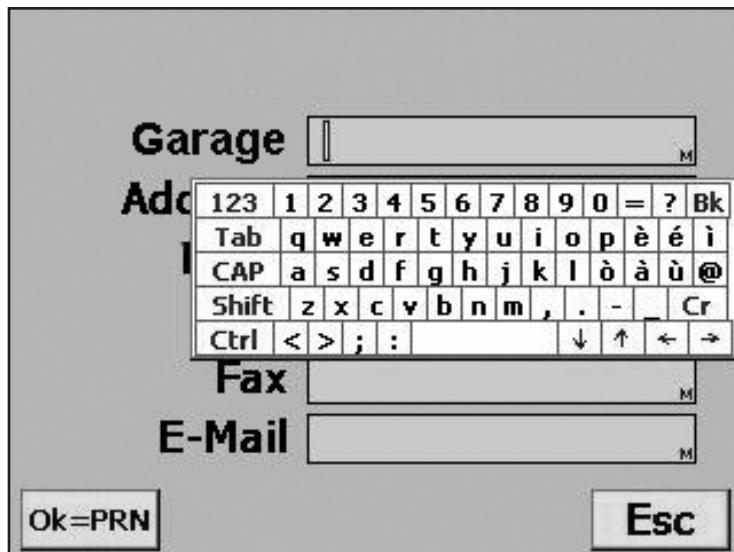


Figure 5

Use the arrow keys in the virtual keyboard to move the cursor within the fill field.

Use the arrow keys on the machine's keypad to move around the virtual keyboard.



VIN Entry

After selecting any service function, information about the vehicle and the vehicle identification number (VIN) may be entered into the machine. Entering the VIN activates the **Stored Data** feature.

| | |
|-------|----------------------|
| Year | <input type="text"/> |
| Make | <input type="text"/> |
| Model | <input type="text"/> |
| VIN | <input type="text"/> |

Entering a VIN when you see this screen activates the Stored Data feature.

- To skip this step and not store vehicle data, press **OK**.
- To store vehicle service data, use the arrow keys to select a field, use the virtual keypad to enter information, and press **OK**.

Stored Data

The machine stores service data for the last 20 VINs that were logged into the VIN Entry screen. Complete service results may be printed at the end of the vehicle's entire service by selecting the VIN from the **STORED DATA** menu.

Service data includes

- VIN
 - vehicle information, if entered
 - ambient temperature and humidity
 - high-side and low-side vehicle diagnostic pressures
 - refrigerant purity
 - recovered amount
 - vacuum time
 - charged amount
1. The **STORED DATA** menu is accessed by pressing **MENU** and choosing **FUNCTIONS**.
 2. The choices under **STORED DATA** are:
 - **PRINT DATA RECORD** — a list of VINs is displayed. Use the UP or DOWN arrow to highlight the VIN for which you wish to print service data.
 - **DELETE DATA RECORD** — following the prompts for this option permanently deletes a VIN and any records associated with it.
 - **CLEAR ALL DATA** — following the prompts for this option permanently deletes all VINs and any records associated with them.

Operating Instructions

Diagnostic Pressures

Diagnostic Pressures mode is used to capture and print vehicle system operating pressures. The following values are available for printing :

- vehicle information
- system high-side pressure
- system low-side pressure
- ambient temperature and humidity

When Diagnostic Pressures mode is selected at the start of **RECOVERY** or **AUTOMATIC** recovery, the values are available for printing until the end of the recovery.

The capture of diagnostic pressures is recommended at the end of **CHARGE** or **AUTOMATIC** charge.

When Diagnostic Pressures mode is selected from **MENU**, values may be printed after capturing pressures. The machine also requires hose equalization and hose clear, necessary to reduce charge loss due to the diagnostic procedure.

Note:

- *Diagnostic pressures will be available in Stored Data only when captured with a VIN entry in Recovery, Automatic, or Charge modes.*
- *Diagnostic pressures captured from **MENU** can be printed immediately after the diagnostic pressures are taken, but they will not be stored.*
- *When running Diagnostic Pressures from **MENU**, refrigerant identification occurs before clearing hoses.*

Printouts

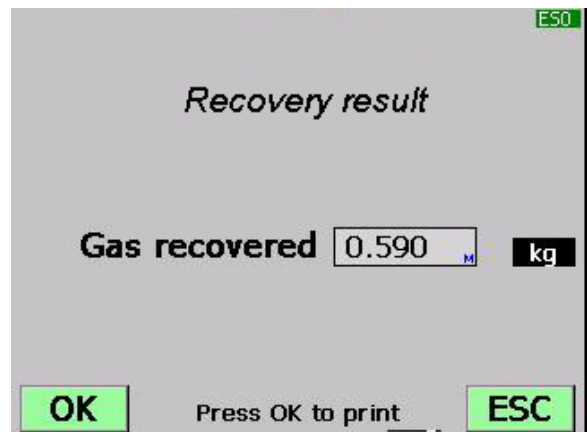
At the End of Every Function

Data for the function just completed may be printed from the results screen by pressing **OK** on the machine's control panel. See Figure 6.

After the Last Complete Service Mode

A summary of the complete service may be printed from **STORED DATA** if the VIN was entered into the machine when prompted:

1. Press **MENU** on the machine's control panel.
2. Select **FUNCTIONS**.
3. The choices under **STORED DATA** are:
 - **PRINT DATA RECORD** — a list of VINs is displayed. Use the UP or DOWN arrow to highlight the VIN for which you wish to print service data.
 - **DELETE DATA RECORD** — following the prompts for this option permanently deletes a VIN and any records associated with it.
 - **CLEAR ALL DATA** — following the prompts for this option permanently deletes all VINs and any records associated with them.



Press OK to print data for the function just completed.

Figure 6

Operating Instructions — Recovery



Recover Refrigerant from a Vehicle

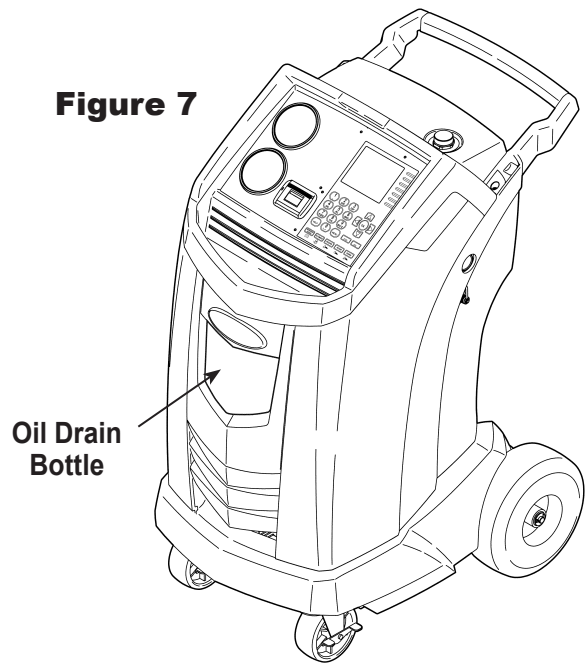
1. Empty the oil drain bottle before starting a recovery.
Remove the oil drain bottle from the machine by pulling the bottle straight down — do not use a twisting or rocking motion. Refer to Figure 7.
2. Connect the high-side (red) and low-side (blue) hoses to the vehicle A/C system.
3. Open the coupler valves on the hoses by turning the collars clockwise.
4. Select the **RECOVERY** function by pressing the Recover button on the control panel, or by selecting Recovery from the RRR menu as shown in Figure 8.
5. The machine displays a VIN entry screen. To store vehicle service data by VIN, use the arrow keys to select a field, use the virtual keypad to enter information, and press **OK**.

Entering a VIN is optional; press **OK** to skip this step and not activate the Stored Data feature.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

Figure 7



Oil Drain Bottle

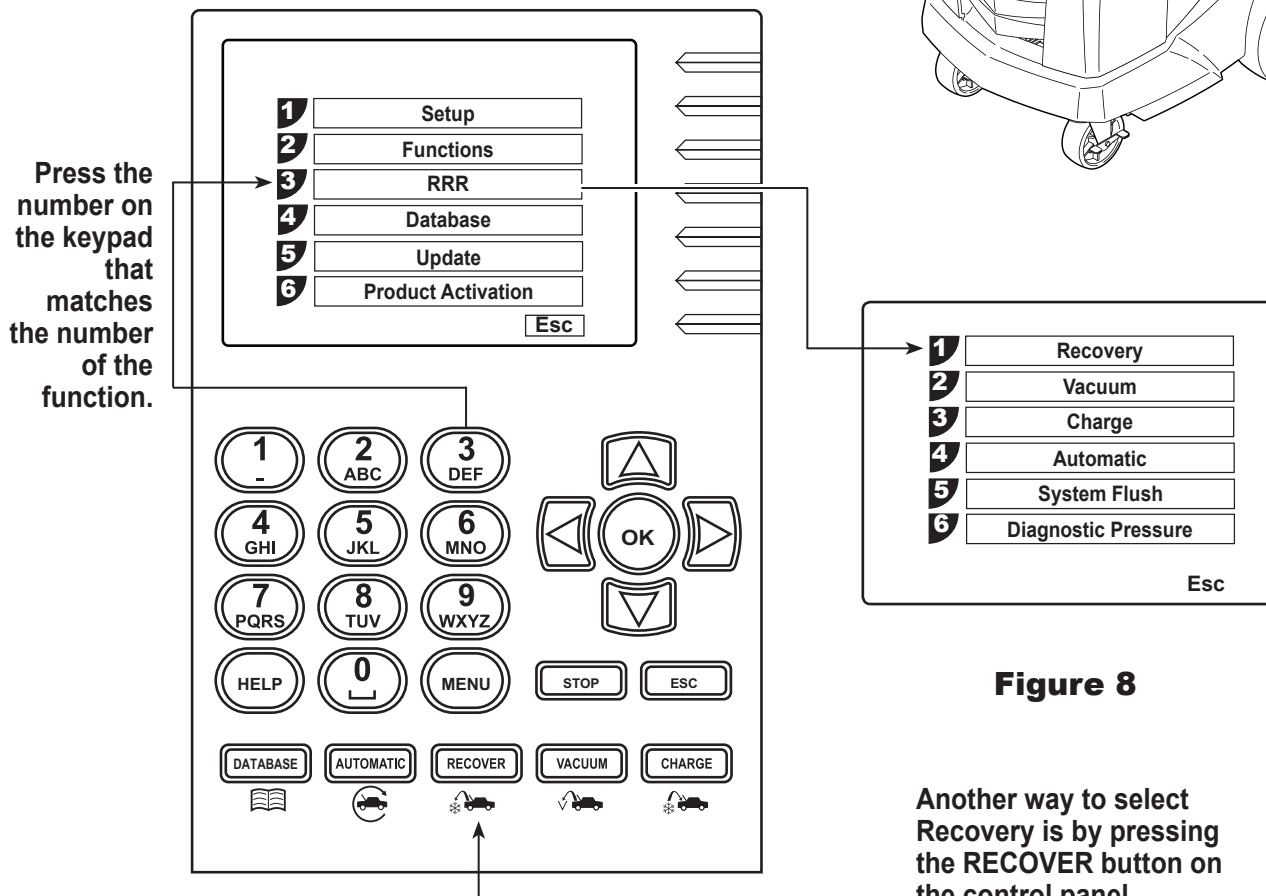


Figure 8

Another way to select Recovery is by pressing the **RECOVER** button on the control panel.

Operating Instructions — Recovery

Recover Refrigerant from a Vehicle continued

6. The machine displays

RUN DIAGNOSTIC PRESSURES?

To print diagnostic pressures at this point, follow the prompts to start the vehicle and set the A/C system according to service manual A/C performance test requirements. Press **OK**.

The machine displays when to capture the values and when they may be printed.

Note: Diagnostic pressures will be available for printing only until the end of the recovery function unless a VIN was entered in Step 5.

7. The machine checks the refrigerant in the vehicle to verify it is R1234yf and not contaminated, and displays the following screens:

CALIBRATION IN PROGRESS
GAS IDENTIFY
REFRIGERANT PURITY ACCEPTABLE

After five seconds the machine begins the recovery process. The clicking noise indicates the solenoid is opening and closing — this is normal.

8. The machine runs a self-clearing cycle to clear refrigerant from its internal plumbing.
9. When the system has recovered to 0 psi, the vacuum pump starts and runs until recovery is complete.
10. After oil drain is complete, the machine displays a summary of gas recovered. At this point you may print out recovery information and pre-recovery diagnostics by selecting **OK**. The displayed recovered weight can vary depending on ambient conditions and should not be used as an indicator of scale accuracy.
11. The amount of oil that was removed from the A/C system is the amount of new oil that should be charged into the A/C system after evacuation is complete.
- Use only **new** oil to replace the oil removed during the recycling process.
 - Dispose of used oil according to government regulations.

Recovery is complete.



Evacuate the Vehicle A/C System

1. Connect the service hoses to the vehicle's service ports.
2. Open the coupler valves by turning the collars clockwise.
3. Press **VACUUM**.
4. The machine displays a VIN entry screen. To store vehicle service data by VIN, use the arrow keys to select a field, use the virtual keypad to enter information, and press **OK**.

Entering a VIN is optional; press **OK** to skip this step and not activate the Stored Data feature.

5. Press **OK** to accept the default evacuation time (10-minute default; 5-minute minimum), or enter the desired vacuum time using the number keys, and press **OK**.
6. The machine pulls a vacuum on the A/C system for the programmed amount of time. During the vacuum process, the machine may perform an air purge, if needed.
7. The machine stops when the specified amount of time has elapsed. At this point you may print out vacuum information by selecting **OK**. Press **ESC** to return to the main menu.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

*Note: When the vacuum pump has operated for 10 hours, the machine prompts for an oil change. Select **OK** to proceed with an oil change; select **ESC** to continue with the vacuum process. Refer to Change Vacuum Pump Oil in the Maintenance section of this manual.*

Operating Instructions — Hose Flush

Flushing the Hoses

If the machine will be used to service a high-voltage compressor system, it is very important that residual oil (such as PAG) from the previous service is flushed out of the hoses and plumbing before beginning the high-voltage service.

At the beginning of every charge process, the machine displays

CHARGING A HIGH VOLTAGE SYSTEM
WITH POE OIL?

If **OK** is selected, the machine guides you through the Hose Flush procedure.

Note: The Hose Flush procedure may also be selected from the Setup menu.

1. Connect the service hoses to the machine's storage port connections (shown in Figure 9).
2. Open the coupler valves by turning the collars clockwise.
3. Select **OK** to begin the hose flush process, which runs for three minutes, followed by a recovery.
4. When the hose flushing process is complete, the display reads

HOSE FLUSHING OK
PRESS OK TO CONFIRM

Press **OK** to confirm the display messages.

5. Close the coupler valves by turning the collars counterclockwise.
6. Press **OK** to return to the previous menu.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

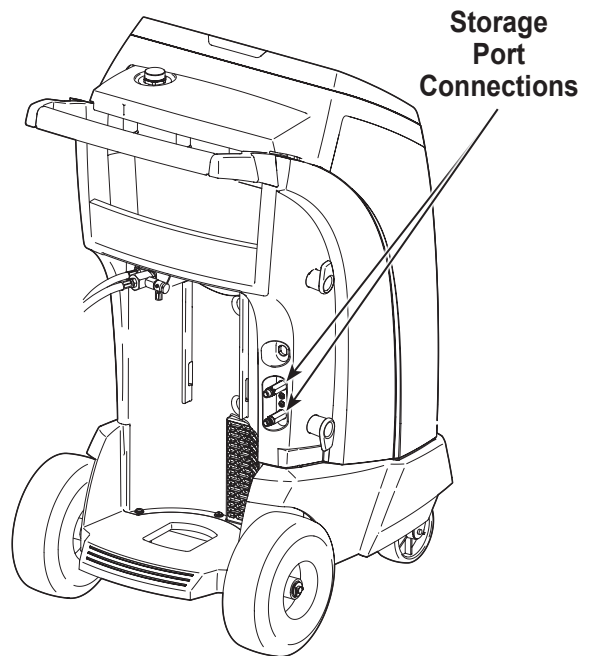


Figure 9



Recharge the Vehicle A/C System

The following tests are automatic and performed as required by SAE J2843:

- vacuum that runs 5 – 20 minutes to achieve the correct level
- 5-minute vacuum rise test
- 15% charge
- manual leak test using a leak detector certified to SAE J2913

Notes:

- *J2843 leak testing is intended to find a gross leak before charge, for safety reasons. It is not intended to take the place of other established leak test practices.*
- *The 15% charge is automatically recovered before recharging the programmed amount.*
- *To avoid false failures, the temperatures of the vehicle system and the recovery machine should be within ± 5 degrees C.*

Refer to the vehicle service manual for specific vehicle instructions.

1. Connect service hoses to the vehicle's service ports and open the couplers.
2. Press **CHARGE**.
3. The machine displays a VIN entry screen. To store vehicle service data by VIN, use the arrow keys to select a field, use the virtual keypad to enter information, and press **OK**.

Entering a VIN is optional; press **OK** to skip this step and not activate the Stored Data feature.

4. The machine displays

| | | |
|----------|-------------|----------|
| 1 | HP | |
| 2 | LP | |
| 3 | HP + LP | |
| 7 | Refrigerant | 0.590 kg |

Use the number keys on the keypad to make selections 1–3 for the vehicle A/C system. For selection 7, enter a value and press **OK**.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

Operating Instructions — Charge

Charge continued

5. The machine displays

**CHARGING A HIGH VOLTAGE SYSTEM
THAT USES POE OIL?**

If **OK** is selected, the machine prompts for a Hose Flush procedure. Connect high-side (red) and low-side (blue) service hoses to the storage ports, and open the coupler valves. Press **OK**. If **ESC** is selected, the machine continues with **CHARGE**.

6. After Hose Flush is complete, move service hoses to the vehicle's service ports and open the couplers. Press **OK**. The machine performs automatic tests on the system as required by SAE J2843.
7. When prompted, perform a manual leak test using a leak detector certified to SAE J2913. Once the leak test has been completed, **CHARGE** continues.
- Moving or bumping the machine at this point may result in an inaccurate charge. When the charge cycle gets close to the desired weight value, the machine slows down. It will charge, settle, charge again, settle, etc.
8. At the end of **CHARGE**, the machine prompts through a Diagnostic Pressures test.
9. Follow prompts to equalize liquid refrigerant into the vehicle A/C system for maximum charge accuracy.
10. When prompted, close the coupler valves and remove the service hoses from the A/C system. Install the hoses on machine's storage ports.
11. Press **OK** to begin clearing hoses to prepare the machine for the next service.
12. When the hoses are clear, the display shows a summary of charge results, which may be printed by pressing **OK**.

*Note: If a VIN was entered when prompted, complete service results may be printed at the end of the vehicle's entire service by selecting the vehicle VIN from the **STORED DATA** menu.*

*The **STORED DATA** menu is found by pressing **MENU** and choosing **FUNCTIONS**.*

The vehicle A/C system is now ready for use.

Note: The charge process includes an automatic vacuum leak test, after which the system is pressurized with a small amount of refrigerant for a manual leak test.

- *If the leak test passes, the refrigerant is automatically recovered and the selected charge is added.*
- *If the leak test fails, the refrigerant needs to be recovered and the vehicle needs to be checked for leaks by using an electronic leak detector.*

CAUTION: If the low-side (blue) or high-side (red) coupler valve is left open during the hose clearing process, the system will pull refrigerant back out of the vehicle.



Automatic Function

The **AUTOMATIC** function allows a user to program an automatic recovery, vacuum, leak test, and / or charge sequence. The user may choose to skip any step in the automatic operation during the programming. A total automatic sequence may take up to an hour.

1. Connect service hoses to the vehicle's service ports and open the couplers.
2. Press **AUTOMATIC**.
3. The machine displays a VIN entry screen. To store vehicle service data by VIN, use the arrow keys to select a field, use the virtual keypad to enter information, and press **OK**.

Entering a VIN is optional; press **OK** to skip this step and not activate the Stored Data feature.

4. The machine displays

| | |
|---|---------|
| 1 | HP |
| 2 | LP |
| 3 | HP + LP |

| | | |
|---|-------------|----------|
| 5 | Refrigerant | 0.590 kg |
| 6 | Vacuum | 10 min. |

Use the number keys on the keypad to make selections 1–3 for the vehicle A/C system. For selections 5–6, accept the default values, or enter values and press **OK**.

5. **If no pressure is detected**, the machine proceeds to the next programmed mode (**VACUUM** or **CHARGE**).

If pressure is detected, the machine prompts to run diagnostic pressures before recovery:

RUN DIAGNOSTIC PRESSURES?

Running diagnostic pressures before **RECOVERY** is optional; diagnostic pressures should be run when prompted after **CHARGE**.

Press **OK** to run diagnostic pressures; press **ESC** to continue with **RECOVERY**.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

Note: If problems are encountered during the automatic sequence, the machine will “beep” three times, the red lights on the front of the machine will blink, and the control panel readout will pinpoint the problem encountered. The sequence remains paused until the user enters a decision regarding how to proceed.

Operating Instructions — Automatic

Automatic continued

6. If **OK** was selected, follow prompts to start the vehicle and set the A/C system according to service manual A/C performance test requirements. Press **OK** after pressure stabilizes. Press **OK** again to print data; press **ESC** to continue with **RECOVERY**.
7. The machine checks the refrigerant in the vehicle to verify it is R1234yf and not contaminated, which is required by SAE J2843. The machine displays the following screens:

WARM UP
CALIBRATION IN PROGRESS
GAS IDENTIFY
REFRIGERANT PURITY ACCEPTABLE

If the purity reading is acceptable, the machine performs a recovery, and system oil is drained at the end. If vacuum time was programmed, the machine performs a vacuum.

8. If **CHARGE** was selected, the machine displays

CHARGING A HIGH VOLTAGE SYSTEM
THAT USES POE OIL?

If **ESC** is selected, the machine continues with **CHARGE**. If **OK** is selected, the machine prompts for a hose flush procedure. Connect high-side (red) and low-side (blue) service hoses to storage ports on the machine. Open coupler valves. Press **OK**.

9. Reconnect service hoses to the vehicle's A/C system. Open coupler valves. Press **OK**. The machine performs automatic tests on the system as required by SAE J2843.
10. When prompted, perform a manual leak test using a leak detector certified to SAE J2913. Once the leak test has been completed, **CHARGE** continues.
11. At the end of **CHARGE**, the machine prompts through a Diagnostic Pressures test.
12. Follow prompts to equalize liquid refrigerant into the vehicle A/C system for maximum charge accuracy.
13. When the sequence is complete, close the high-side (red) and low-side (blue) coupler valves.
14. When prompted, remove service hoses from the A/C system and install them on the machine's storage ports. Select **OK** to begin clearing hoses. This prepares the machine for the next service.
15. The machine displays a summary of actions performed during the automatic sequence.

Note: Diagnostic pressures will be available for printing only until the end of the Automatic function unless a VIN was entered in Step 3.

CAUTION: If the low-side (blue) or high-side (red) coupler valve is left open during the hose clearing process, the system will pull refrigerant back out of the vehicle.

Operating Instructions — System Flush

System Flushing Process

This machine provides a method of removing oil by forcing liquid refrigerant through an A/C system, or components of an A/C system. A special flushing adapter (purchased separately) accesses the A/C system at the compressor block. After flushing, the refrigerant is recovered by the machine and filtered by the recycling circuit, returning it to SAE purity levels.

A/C systems vary and may require the adapting and flushing of individual components. Refer to service bulletins as needed during this procedure.

Notes:

- *The machine must have at least 4.5 kg (10 lbs.) of refrigerant available in the ISV (as indicated on the display) for charging.*
- *If the flush process is interrupted by an accidental power-down or other fault, use the Recovery mode to remove the refrigerant from the vehicle.*

Setup

1. Verify the oil drain bottle on the front of the machine is empty. See Figure 10. Recover refrigerant as outlined in this manual under *Recover Refrigerant from a Vehicle*.
2. Close service coupler valves and disconnect hoses from vehicle access ports.
3. Close the valve on the external source tank.

Note: During this procedure, up to 4.5 kg (10 lbs.) of refrigerant is charged into the vehicle A/C system. If the flushing cycle is stopped before it is complete and the external source valve is open, the machine automatically adds refrigerant to the ISV, and there will be no room to recover the refrigerant used for flushing.

4. Remove the A/C system expansion device, and reconnect the fittings to create a bypass.
5. Disconnect the compressor block at the rear of the compressor.
6. Attach the compressor block adapter (from the flushing kit) to the system side of the compressor block.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

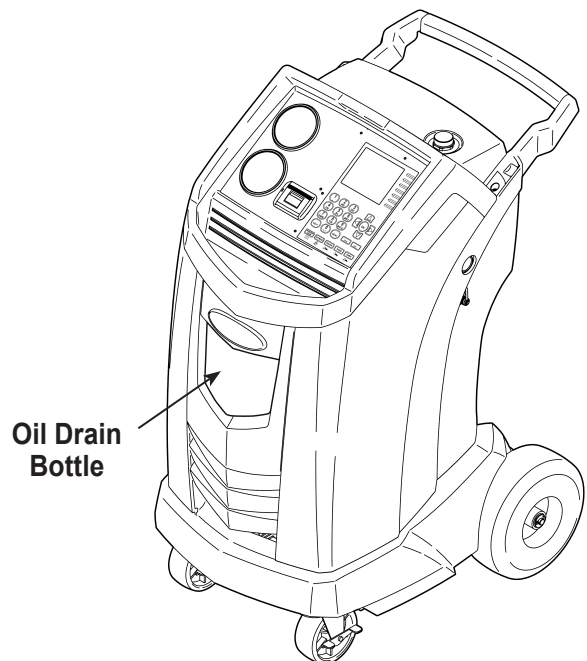


Figure 10

Operating Instructions — System Flush

7. Configure the block connectors to provide forward- or back-flushing of the refrigerant, which flows from the machine through the red high-side connection hose. Open the red service coupler.
8. Connect the filter housing to the desired return side of the adapter block and to the blue low-side hose. Open the blue service coupler.
9. Verify that a flushing filter is correctly installed in the flushing filter housing. Open the isolation valve on the hose.

Operating Instructions

1. Select **SYSTEM FLUSH** from the RRR menu. See Figure 11.

2. The machine displays a VIN entry screen. To store vehicle service data by VIN, use the arrow keys to select a field, use the virtual keypad to enter information, and press **OK**.

Entering a VIN is optional; press **OK** to skip this step and not activate the Stored Data feature.

3. Select **START** to accept the default flush time of 10 minutes, or enter the desired flush time using the keypad and select **START**.

4. The vacuum pump runs for five minutes to remove air from the A/C system, if needed.

5. The machine flushes the system for the designated length of time, and then enters a recovery mode.

6. Oil that has been collected drains into the graduated oil drain bottle. Remove the bottle and measure oil.

Dispose of oil according to the laws in your jurisdiction. It is the responsibility of the user to determine if a material is a hazardous waste at the time of disposal.

7. When the machine displays FLUSH COMPLETE, close service couplers, remove hoses, and reassemble the vehicle's A/C system to its original state.

8. Open the valve on the source tank.

9. Evacuate and recharge the vehicle according to the instructions in this manual.

CAUTION: To prevent vehicle damage, use an oil inject tool to replace the system oil. Flushing removes all oil from the system except what remains in the compressor.

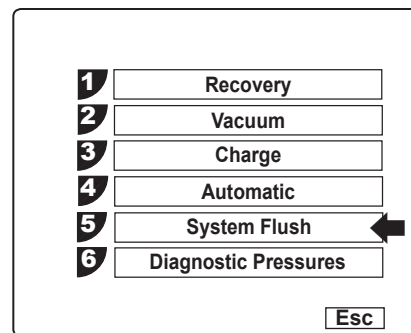


Figure 11

The RRR Menu

! WARNING: Do NOT disconnect service couplers during the flushing process. Refrigerant could spray out of the fittings, and exposure may cause personal injury.

Operating Tips

If the external flushing filter is plugged, the unit displays

SYSTEM FLUSH

POSSIBLE CLOGGED FLUSH FILTER
OR CLOSED COUPLER VALVE
ESC TO RECOVER REFRIGERANT
PRESS OK TO RETRY

After the filter is cleared or replaced, restart System Flush from the menu shown in Figure 11.

General Maintenance

Wipe off the machine often using a clean cloth to remove grease and dirt.

Periodically check hoses and connections for leakage. Use a J2913 electronic leak detector to check fittings when the unit has been disconnected from its power source and the shroud has been removed. If you detect a leak that you can't repair, contact a Robinair authorized service center.

Electrical Protection

The machine is equipped with a fuse located inside the front shroud. Try to determine the cause of the fuse failure, such as an incorrect power source or an extension cord that is too long.

1. Disconnect the machine from its power source.
2. Remove the oil drain bottle.
3. Remove the four screws shown in Figure 12, and remove the shroud.
4. Locate the fuse on the center sheet metal. Replace the fuse with the same amperage and type.
5. Replace the shroud and the oil bottle.

Tank Fill Adjustment

The maximum setting for tank fill is 6.8 kg (15 lbs.). This value may be adjusted to suit the application. The minimum value is 1.8 kg (4 lbs.).

1. Select **TANK FILL ADJUSTMENT** from the Setup menu.
2. The machine displays the default amount of refrigerant:

| |
|----------------------|
| TANK LEVEL 4.5 KG |
|----------------------|

3. Select **OK** to accept the default amount, or use the keypad to enter an amount and select OK.



WARNING: To prevent personal injury,



- Only qualified personnel may perform inspections and repairs to this machine.



- Read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.



- Do not operate the machine when the shroud has been removed.

Remove the four screws holding the shroud.

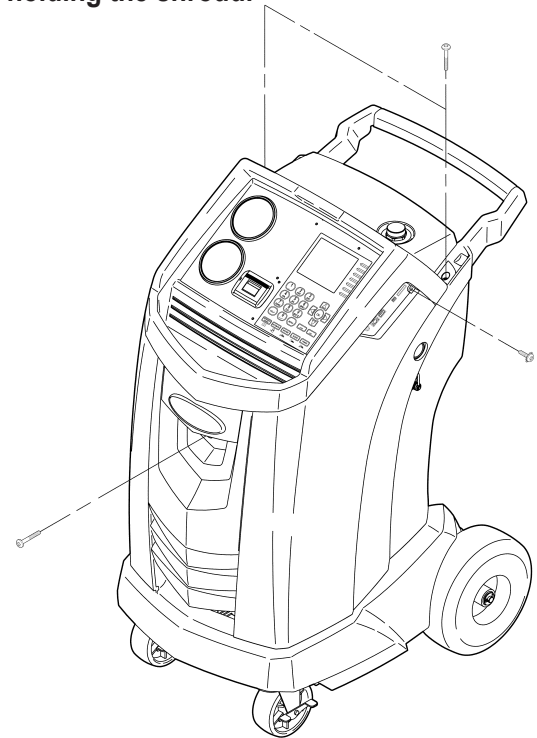


Figure 12

Maintenance

Tank Filling

This menu item is used to transfer refrigerant from a source tank to the ISV. This procedure works only if the ISV contains less than the maximum amount of refrigerant programmed under Tank Fill Adjustment. (See previous page.)

Note: If a source tank is connected to the tank fill hose while the machine is sitting idle, the machine automatically adds refrigerant up to the level set during Tank Fill Adjustment.

1. Connect an R1234yf source tank to the tank fill hose at the rear of the machine. *Note: The tank fill hose and the tank access port have left-hand threads.* Hand tighten the tank fill hose.
2. Open the tank valve.
3. Mount the source tank on the shelf at the rear of the machine, oriented to supply liquid refrigerant to the connection. Tighten the holding strap around the source tank. Verify the tank does not restrict air flow from the vent.
4. Select **TANK FILLING** from the Functions menu. The machine displays

FILL AMOUNT
XX.XXX
CONNECT SOURCE TANK TO FILL HOSE

5. Press **OK**. The machine checks the refrigerant in the source tank to verify it is R1234yf and not contaminated. The machine displays the following screens:

WARM UP
CALIBRATION IN PROGRESS
GAS IDENTIFY
REFRIGERANT PURITY ACCEPTABLE

and after five seconds begins filling the internal storage vessel (ISV).

6. The machine automatically stops when the preset tank fill level is reached. To stop the tank fill before the preset level is reached, select **ESC**.
7. If using a non-refillable tank, the machine must display SOURCE TANK EMPTY before the tank may be discarded.

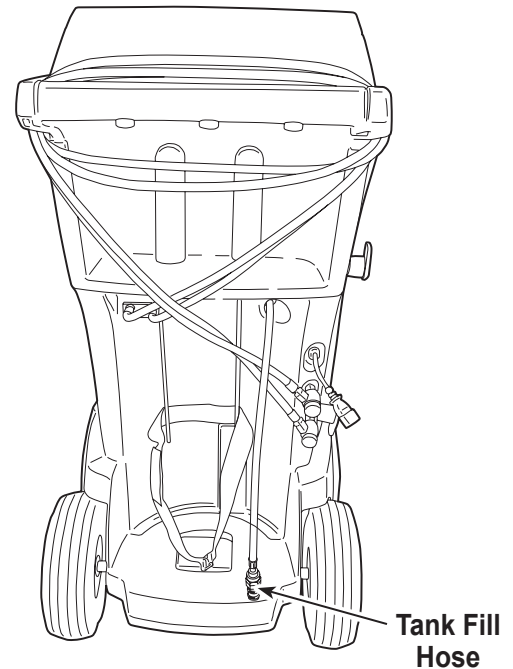


Figure 13

Tank Fill Hose Filter Service

The tank fill hose at the rear of the machine (see Figure 13) contains a filter that can be cleaned when it appears that refrigerant flow is restricted.

When the machine senses low flow, it may display one of the following messages:

- SOURCE TANK EMPTY, but yet you know the source tank contains refrigerant, connections are secure, and the source tank valve is open.
- REPLACE IDENTIFIER FILTER, but yet you know the refrigerant identifier filter is not restricted, the source tank contains refrigerant, connections are secure, and the source tank valve is open.

The cause may be that the tank fill hose filter is plugged.

Cleaning the Tank Fill Hose Filter

1. First ensure that pressure does not exist in the line. Disconnect the external source tank, and perform a manual tank fill to capture any refrigerant in the line.
2. Disassemble the tank fill hose at the filter housing as shown in Figure 14.
3. Remove and clean the filter.
4. After the filter has been installed back into the filter housing, torque the housing assembly to 8.5 N•m (6 ft. lbs.).

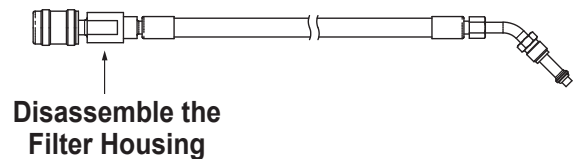


Figure 14

Maintenance

Filter Change

The filter is designed to trap acid and particulates, and to remove moisture from refrigerant. To meet the mandate for adequate moisture and contaminant removal, the filter must be replaced after 150 kg (331 lbs.) of refrigerant has been filtered.

The machine gives a warning when 100 kg (220 lbs.) of the filter capacity has been used; the machine locks down when the 150 kg (331 lb.) filter capacity has been reached and will no longer function.

WARNING: The components in the machine are under high pressure. To prevent personal injury, change the filter only when the machine prompts.

Check Remaining Filter Capacity

1. Select **FILTER CHANGE** from the Setup Menu or when the machine prompts. The machine displays

FILTER LIFE TIME: X.XX KG
REPLACE FILTER?

The machine displays the amount of filter capacity remaining until the machine locks down.

2. When prompted, select **OK** to change the filter; select **ESC** to resume using the machine.

Replace the Filters and Sample Hose Assembly

1. If **OK** was selected to change the filter, the machine clears the filter, then prompts for the new filter code to be entered.

WAITING FOR FILTER TO BE CLEARED
SERIAL NR. FILTER

Use the keypad to enter the serial number that appears on the new filter and select **OK**. If **SERIAL NUMBER WRONG** is displayed, the serial number has been incorrectly entered, or the filter has already been used in this machine.

2. The machine displays

TURN UNIT OFF
REMOVE SHROUD AND REPLACE FILTER,
IDENTIFIER FILTER, AND
IDENTIFIER SAMPLE HOSE

Shut off the machine. Remove the oil bottle. Remove the four screws holding the shroud. See Figure 15.



WARNING: To prevent personal injury while working with refrigerant, read and follow the instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

Caution: To prevent equipment damage, use only authentic Robinair No. 34724 filters in this machine. All performance tests and claims are based on using this specific filter.

Remove the four screws holding the shroud.

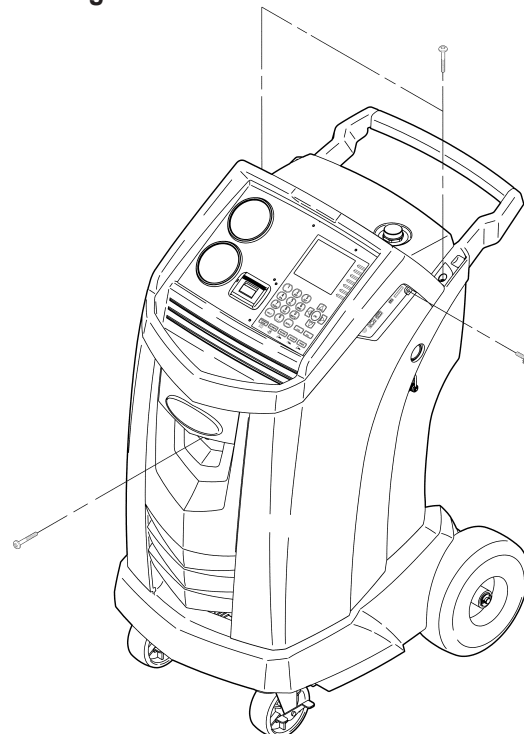


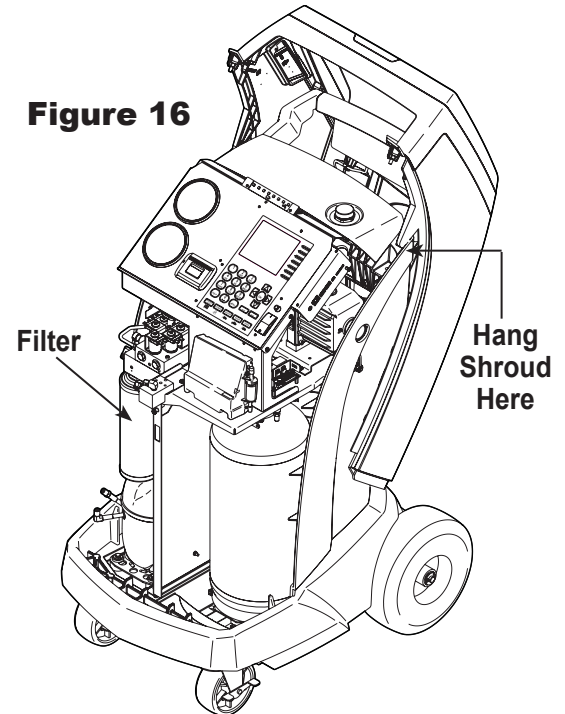
Figure 15

Filter Change continued

3. Hang the shroud on the back of the machine as shown in Figure 16.
4. Remove the filter by turning it counterclockwise (as viewed from the bottom of the filter).
5. Look at the new filter—verify both o-rings are lubricated and correctly located in the grooves as shown in Figure 17.
6. Install the new filter by threading it clockwise into place. Verify the filter is positioned correctly as shown in Figure 18. Tighten the filter to 20 N•m.

Filter Change continues on next page

Figure 16



O-rings

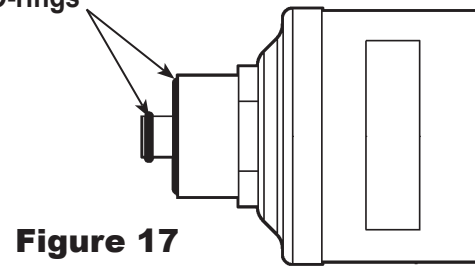


Figure 17

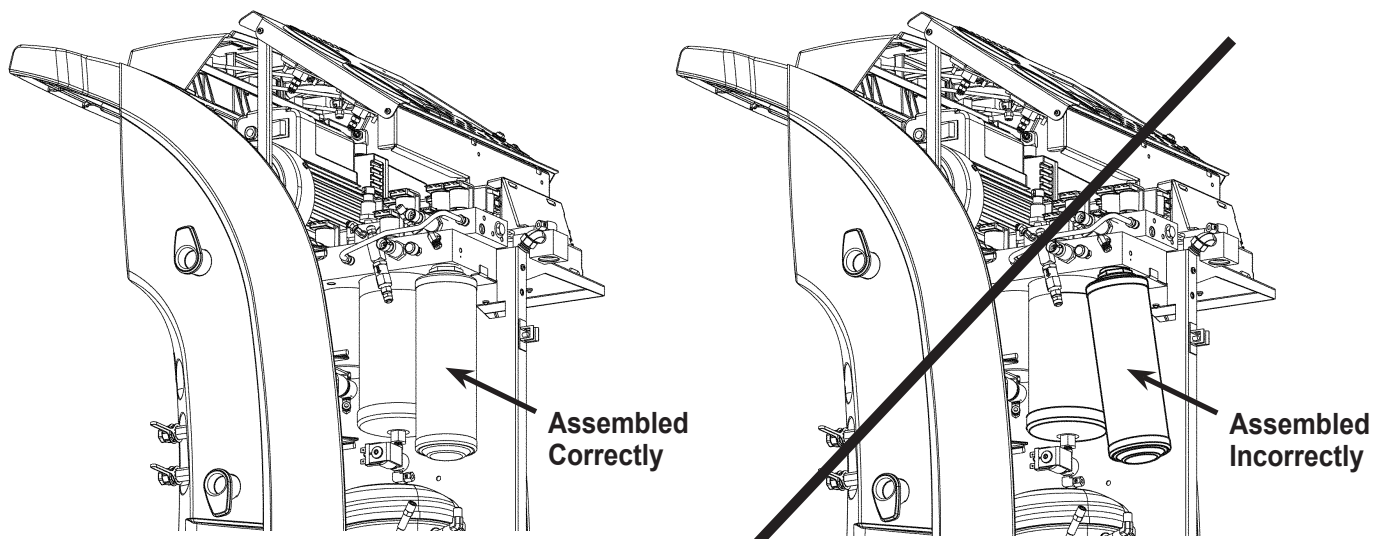


Figure 18

Maintenance

Refrigerant Identifier

The refrigerant identifier samples refrigerant going into the ISV to verify it is R1234yf and that it is not contaminated. Replace the sample hose assembly during every filter change and also if prompted by an error message saying the hose is clogged. See Figure 19.

7. Disconnect the existing sample hose assembly between the solenoid and the refrigerant identifier, and install a new sample hose assembly.

Note: If the filter is any color but white, the filter needs to be replaced.

8. Pull the filter out of the brackets while removing the barbs from the rubber connectors.
9. Install a new filter with the arrow pointing upward as shown. Push the filter barbs into the rubber connectors.
10. Install the shroud on the machine and switch the power ON.

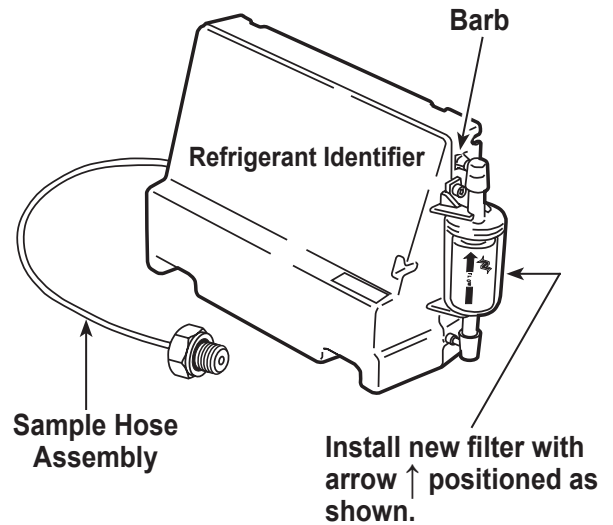


Figure 19
Replace the sample hose assembly during every filter change.

Calibration Check

This function is used to ensure the machine's internal scale is always calibrated. During this test, use only the calibration weight that is provided with the machine.

1. Select **CALIBRATION CHECK** in the Setup menu.
The machine displays

PLACE SAMPLE WEIGHT ON SCALE
PRESS OK TO TEST PRESS ESC TO QUIT

2. Refer to Figure 20, and verify the magnet on the bottom of the machine is clean.
3. Attach the calibration weight to the magnet on the bottom of the machine. Select **OK**.
- If the display shows

PROCEDURE COMPLETED

the scale is in calibration. Select **OK**.

- If the display shows

CALIBRATION REJECTED!

the scale is out of calibration. Contact an authorized Robinair service center for assistance.

4. Remove the calibration weight from the scale.

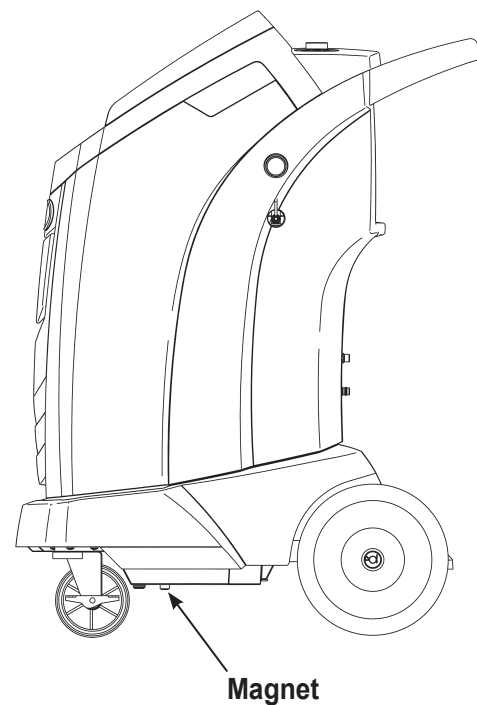


Figure 20

Replace the Oxygen Sensor in the Refrigerant Identifier

The refrigerant identifier in the machine contains a replaceable oxygen sensor that may affect the way the machine works if the sensor is not functioning correctly.

- If the machine displays the following message, immediately replace the oxygen sensor :

OPERATING TIME OF THE IDENTIFIER AND UNIT
ARE LIMITED
REPLACE ID O2 SENSOR SOON
UNIT WILL BECOME NONFUNCTIONAL

- If the machine displays the following message, the oxygen sensor has expired. Neither the identifier nor the machine is able to recover or add refrigerant to the internal tank.

ANALYZER ERROR 6
O2 SENSOR FAILURE
SENSOR MUST BE REPLACED
UNIT WILL NOT RECOVER OR ALLOW TANK FILL
SEE MANUAL

Remove four screws holding shroud.

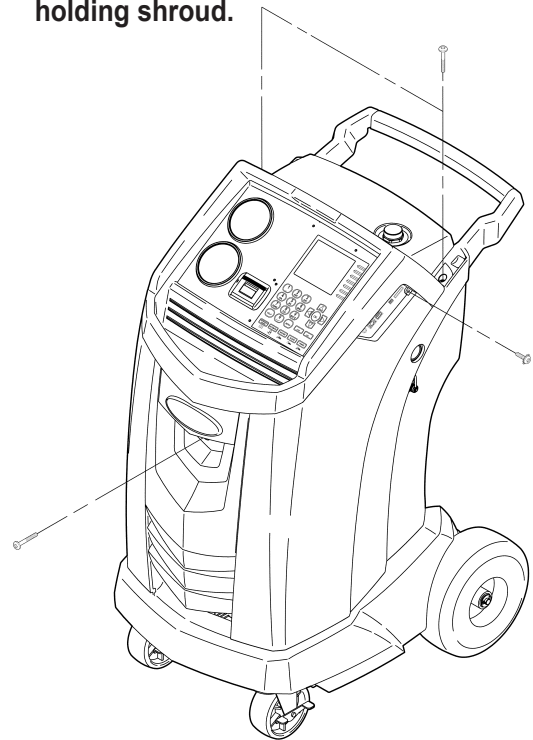


Figure 21

Replace the Oxygen Sensor

1. Disconnect the machine from its power source.
2. Remove the oil bottle, and remove the four screws holding the shroud. See Figure 21. Hang the shroud on the back of the machine.
3. Disconnect the wire harness, USB connector, and sample hose from the identifier. See Figure 22.
4. Remove the two screws holding the identifier to the machine, and remove the identifier.
5. Carefully pry the oxygen sensor cap from the housing. Gently pull on the cap and wires until the connector exits the housing.

CAUTION: The wire connected to the cap is connected internally to the identifier. To prevent equipment damage, do NOT pull on this wire.

Disconnect wire harness,
USB connector,
and sample hose.

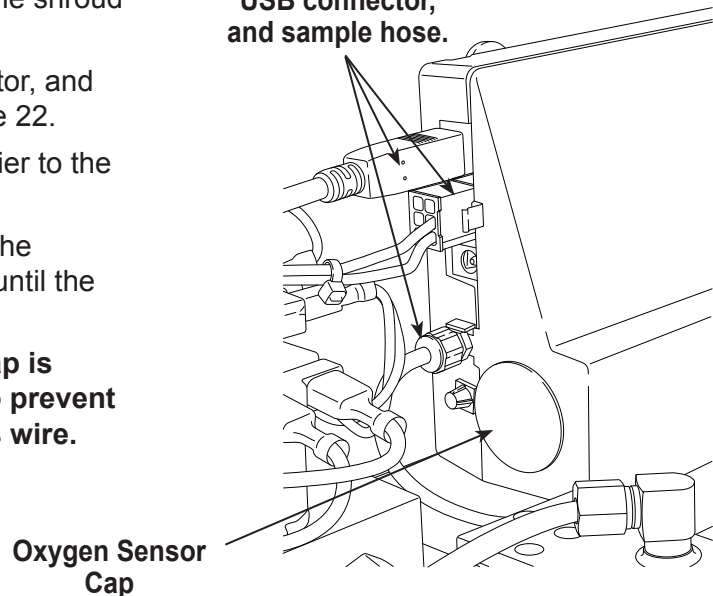


Figure 22

Maintenance

Replacing the Oxygen Sensor continued

6. Disconnect the wire harness at the connector by pressing on the center tab. Pull the connectors apart. See Figure 23.
7. Move the cap and harness aside. Hold the lead from the sensor, and use a flat-blade screwdriver to unthread and remove the oxygen sensor. See Figure 24.
8. Remove the pink protective film from the threaded end of the new oxygen sensor.
9. Install the new oxygen sensor, using the screwdriver to thread it into place. Tighten the sensor to 4 in.lbs.
10. Reconnect the lead at the connector, and tuck the wires into the opening.
11. Replace the cap and push until it “clicks” into place. Install the identifier onto the machine, and reconnect the wire harness, USB connector, and sample hose.
12. Verify the wiring is not binding, and replace the shroud.

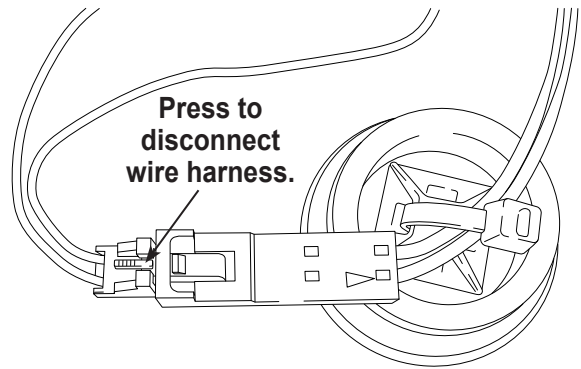


Figure 23

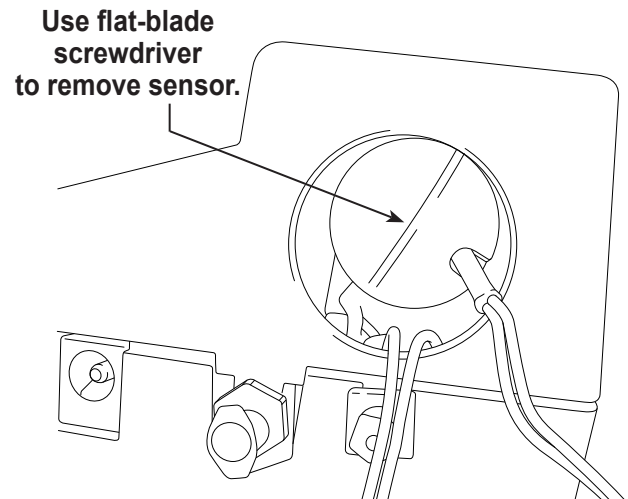


Figure 24

Change Vacuum Pump Oil

1. Select **CHANGE VACUUM PUMP OIL** from the Setup menu or when prompted. The display shows how long the vacuum pump has operated since the last oil change.

OIL LIFE TIME
X HOURS X MINUTES
CHANGE OIL?

2. Press **OK**. If the machine displays

OIL CHANGE
WAIT . . .

allow the vacuum pump to run for 30 seconds to warm up the oil. If the oil is already warm, the display shows

OIL CHANGE
UNIT CLEARING
WAIT

while the compressor runs to eliminate any pressure in the vacuum pump.

3. After the compressor stops, **slowly** open the oil fill cap to verify there is no pressure in the machine. Then carefully remove the cap. See Figure 25.
4. The display shows

DRAIN THE USED PUMP OIL
AT THE END ADD ABOUT 150 ML OF NEW OIL
PRESS OK TO CONFIRM

Remove the oil drain fitting cap, and drain the oil into a suitable container for disposal. Replace the cap and close tightly.

5. Slowly add approximately 150 ml of vacuum pump oil to the pump through the oil fill port. Press **OK** to start the vacuum pump.
6. The display shows

POUR OIL IN THE PUMP
UP TO THE CORRECT LEVEL
PRESS ESC TO QUIT

Slowly add vacuum pump oil to the pump through the oil fill port until the oil level rises to the center of the sight glass.

7. Install the cap on the oil fill port and close tightly. Press **ESC**.

CAUTION: To prevent personal injury, do **NOT** operate the machine at any other time without the oil fill port cap installed, because the vacuum pump is pressurized during normal operation.

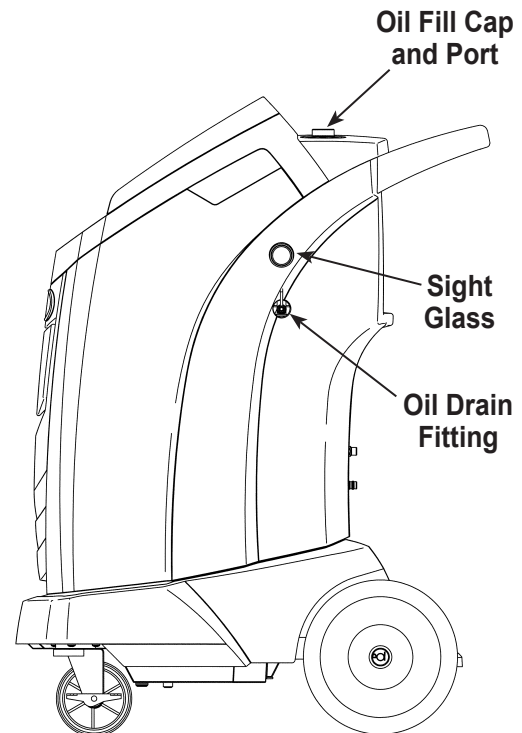


Figure 25

Caution: It is the responsibility of the user to monitor vacuum pump oil level and clarity. If contaminated oil is not removed from the vacuum pump and replaced, the vacuum pump will be permanently damaged.

Maintenance

Edit Print Header

To make changes to the text that appears in the header on each printout:

1. Select **GARAGE DATA** from the Setup menu.
2. The cursor is blinking in the first field. Press the **Menu** key to display a virtual keyboard.
3. Use the arrow keys to move around the keyboard. Press **OK** to enter a character.
4. Press the **Menu** key to exit the keyboard and move to the next fill field.
5. Press **OK** to save the data and press **ESC** to exit the keyboard.

This procedure is explained in more detail in the Setup section of this manual under Garage Data.

Replace Printer Paper

To install a new paper roll in the printer:

1. Remove the cover on the printer by pulling out on the tab as shown in Figure 26.
2. Remove the paper core.
3. Install the new roll of paper with the end of the paper at the top of the roll.
4. Assemble the cover onto the printer with the leading edge of the paper over the roller.

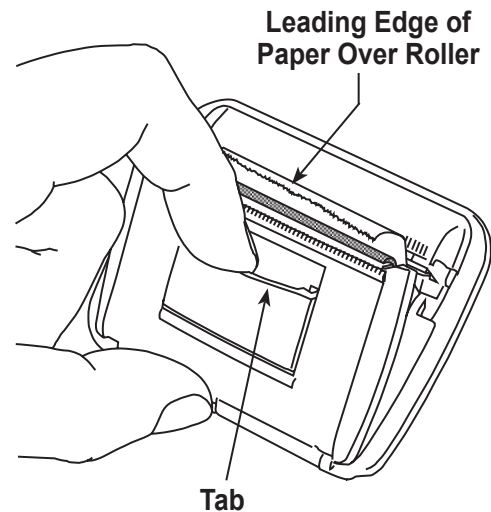


Figure 26

Replace Service Hoses and / or Service Couplers

Ensure pressure has been removed from service hoses before disconnecting a hose or coupler from the machine. Pressure gauges must read at or below 0 psig.

If pressure exists, recover the refrigerant from the hoses before disconnecting a hose or coupler.

Replacement Parts and Glossary

Parts List

| Component | Replacement Part No. |
|---|----------------------|
| Calibration Weight | 16214 |
| Contaminated Refrigerant Tank <i>(optional)</i> | 17990 |
| Filter | 34724 |
| Filter Maintenance Kit <i>(includes filter and vacuum pump oil)</i> | 13172 |
| Identifier Filter | 16913 |
| Identifier Oxygen Sensor | 16916 |
| Identifier Sample Hose Assembly | 16106 |
| Oil Drain Bottle | 19100 |
| Printer Paper (1 roll) | 34214 |
| Service Coupler, High-Side <i>(red)</i> | 18123 |
| Service Coupler, Low-Side <i>(blue)</i> | 18122 |
| Service Coupler Set <i>(high-side [red] and low-side [blue]) couplers)</i> | 18124 |
| Service Hose <i>(low-side, blue)</i> | 70123 |
| Service Hose <i>(high-side, red)</i> | 70124 |
| Service Hose Set <i>(high-side [red] and low-side [blue]) hoses)</i> | 71234 |
| Tank Fill Hose Filter | 10233 |
| Vacuum Pump Oil <i>(quart)</i> | 13203 |
| Vacuum Pump Oil <i>(gallon)</i> | 13204 |
| Vinyl Dust Cover <i>(optional)</i> | 17499 |



CAUTION: To prevent personal injury, use only those repair parts called out in this parts list. Items found in this parts list have been carefully tested and selected by Robinair.

Glossary

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

Evacuation : Moisture and other non-condensables are removed from an A/C system by a vacuum pump capable of pulling the system to 5 mbar absolute.

Internal Storage Vessel (ISV) : The refillable refrigerant storage tank designed specifically for this machine; 9.09 kg (20.04 lb.) capacity.

Leak Test (Vacuum) : Components containing refrigerant are evacuated and monitored for pressure rise, which could indicate a leak.

Machine : Model No. AC1234-6.

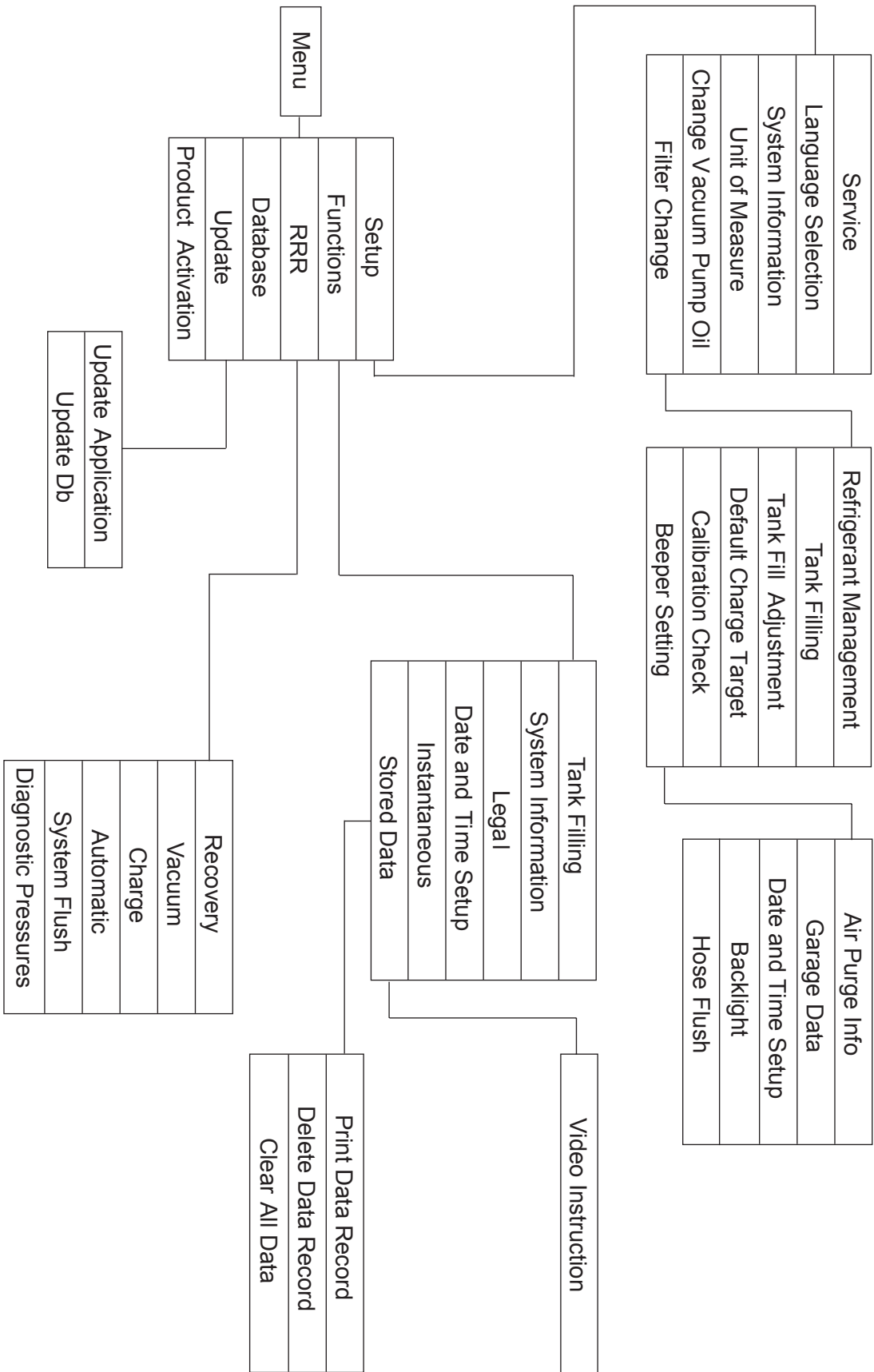
PAG : Polyalkylene Glycol

POE : Polyester Oil

Recovery / Recycling : Refrigerant is recovered from an A/C system, filtered, and stored in the ISV.

Refrigerant : R1234yf.

Software Flow Chart



Troubleshooting Messages

| Display | Cause | Solution |
|--|--|---|
| AIR FLOW ERROR | Fan is not working. Air flow is blocked. | <i>Exit current test. Contact Robinair authorized service center.</i> |
| ANALYZER ERROR 1 UNSTABLE OUTPUT | 1. Insufficient refrigerant flow to identifier. 2. Possible electromagnetic or RF (radio frequency) interference. | 1. <i>Check source tank for pressure and secure valve connections.</i> 2. <i>Move unit away from EMF or RFI sources.</i> |
| ANALYZER ERROR 2 HIGH OUTPUT | Possible electromagnetic or RF (radio frequency) interference. | <i>Move unit away from EMF or RFI sources.</i> |
| ANALYZER ERROR 3 AIR CALIBRATION LOW | Possible refrigerant in external calibration air. | <i>Check air ventilation and air flow.</i> |
| ANALYZER ERROR 4 IDENTIFIER OUT OF TEMPERATURE RANGE | Identifier temperature outside operating range. | <i>Check unit ventilation and ambient conditions.</i> |
| ANALYZER ERROR 5 REPLACE IDENTIFIER FILTER AND SAMPLE HOSE ASSEMBLY | 1. Insufficient refrigerant flow to identifier. 2. Sample hose or filter inside refrigerant identifier is plugged or contaminated with oil. | 1. <i>Check source tank for pressure and secure valve connections.</i> 2. <i>Follow maintenance procedure to change identifier filter and sample hose.</i> |
| CHARGE IN PROGRESS AIR PURGE | Non-condensable gas is present in ISV that could contaminate A/C system. | <i>Before it charges, the machine purges air out of the ISV.</i> |
| EMPTY SOURCE TANK | 1. Machine senses low pressure. 2. Filter in tank fill hose is plugged. | 1. <i>Check source tank for pressure and secure valve connections.</i> 2. <i>Refer to Tank Fill Hose Service in Maintenance section.</i> |
| INSUFFICIENT PRESSURE | If pressure is less than 0.7 bar, refrigerant cannot be identified. | <i>Refer to Vacuum section; follow instructions to evacuate system.</i> |
| ISV CONDITION | Machine is circulating refrigerant to build ISV pressure for a charge cycle. | <i>Charge process is automatically interrupted and machine operates in a mode to build tank pressure. Once tank pressure is sufficient, machine automatically completes charge.</i> |

Troubleshooting Messages

Troubleshooting Messages continued

| Display | Cause | Solution |
|--------------------------------|---|---|
| OIL OUT OF LIMIT | Vacuum pump has run for 10 hours; vacuum pump oil should be replaced. | <i>Refer to Change Vacuum Pump Oil in the Maintenance section for instructions.</i> |
| PRESSURE TOO HIGH | Excessive pressure has been detected. | <i>Press ESC. Refer to Recovery section and recover refrigerant before proceeding.</i> |
| PURITY TEST FAILED | Refrigerant in vehicle is either not R1234yf or it is contaminated. | <i>Refer to Troubleshooting Procedures section. Use 25700 external recovery machine to recover refrigerant.</i> |
| PURITY TEST FAILED 100% AIR | <ol style="list-style-type: none"> 1. Insufficient refrigerant flow to identifier. 2. Excessive air in source tank. | <ol style="list-style-type: none"> 1. Check source tank for pressure and secure valve connections. 2. Replace source tank with good refrigerant. |
| REFRIGERANT INSUFF | After selecting CHARGE and entering a desired weight, if the weight entered will leave less than .91 kg (2 lbs.) of refrigerant in ISV after charge, charge function will not start. | <i>Refer to Manually Fill the Internal Storage Vessel (ISV) in the Maintenance section.</i> |
| REPLACE IDENTIFIER FILTER | <ol style="list-style-type: none"> 1. Filter inside refrigerant identifier is plugged. 2. Filter in tank fill hose is plugged. | <ol style="list-style-type: none"> 1. Refer to Maintenance section for instructions to change identifier filter. 2. Refer to Tank Fill Hose Service in Maintenance section. |
| SYSTEM PRESSURE TOO LOW | If pressure is less than 0.7 bar, the refrigerant cannot be identified. | <i>If vehicle is very cold, allow vehicle to warm up and retest. Otherwise enter Vacuum mode and evacuate system.</i> |
| VACUUM DECAY TEST FAILED | A leak in the vehicle A/C system. | <i>Exit current test and perform repairs on the vehicle A/C system.</i> |

Troubleshooting Procedures

Setup, Tank Fill, and Background Tank Fill Functions

Display Message: PURITY TEST FAILED

During **SETUP**, **TANK FILL**, or **BACKGROUND TANK FILL**, if the machine displays

PURITY TEST FAILED
RECOVER CONTAMINATED
REFRIGERANT FROM SYSTEM
AND HOSES.
OK TO RETRY ESC TO QUIT

the refrigerant in the source tank is either not R1234yf or it is contaminated. In either case, it should not be added to the internal storage vessel (ISV) in the machine. The contaminated refrigerant sampled by the refrigerant identifier in the machine must be removed.

A refrigerant recovery machine (No. 25700) dedicated to contaminated refrigerant is required for the following steps. Refer to Figure 27.

1. Connect the tank fill hose adapter (provided in the Accessory Kit) to the low-side coupler of the 25700 refrigerant recovery machine.
2. Connect the other end of the adapter to the tank fill hose fitting on the AC1234-6.
3. Connect the discharge hose from the 25700 to a tank specified to receive contaminated refrigerant.
4. Start the 25700 and open the coupler valve. Run a recovery until the gauge on the 25700 indicates vacuum.
5. Shut off the 25700.
6. Slowly and carefully disconnect the adapter from the tank fill hose and the 25700. There may still be a small amount of pressure in the line.

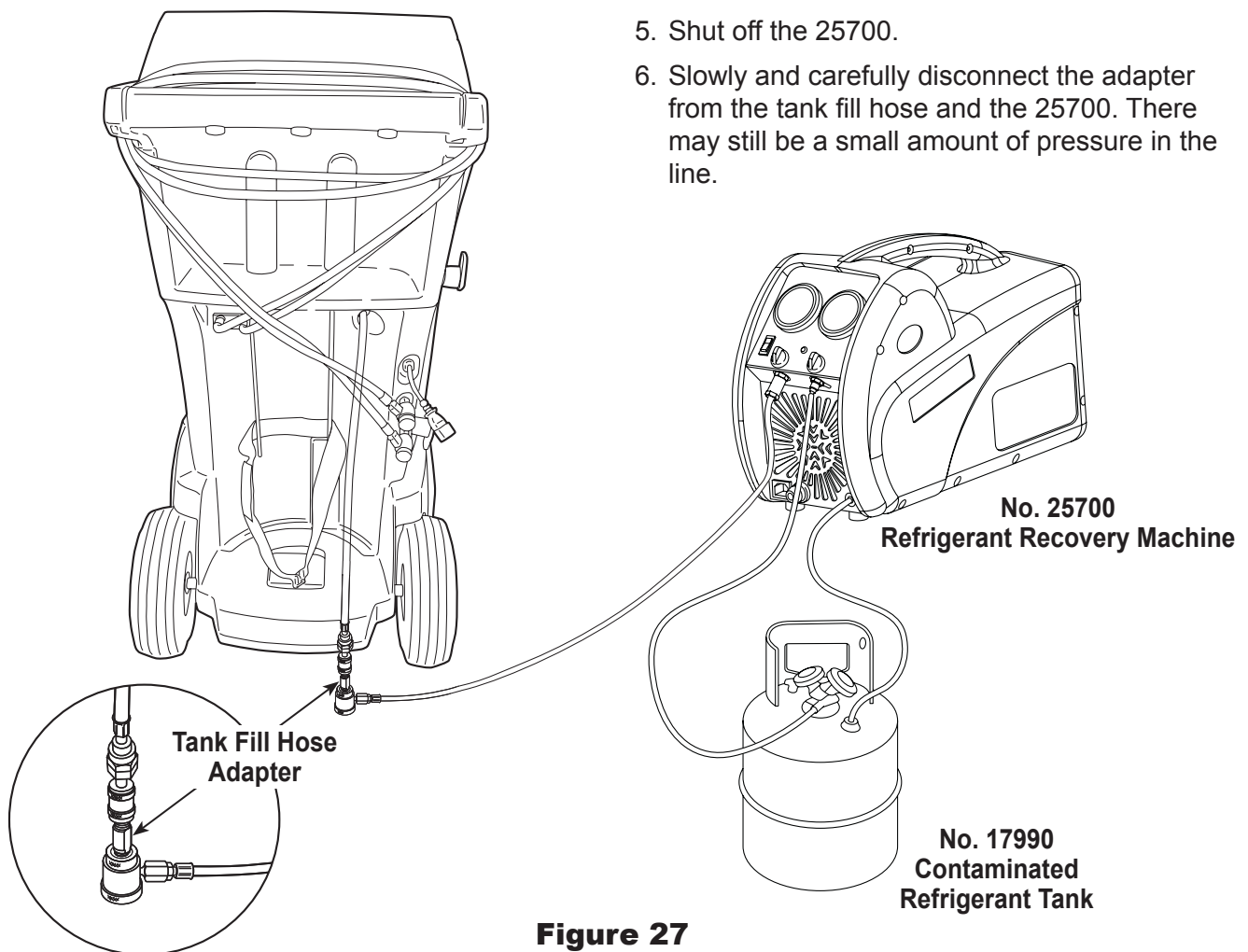


Figure 27

Troubleshooting Procedures

Recovery Function or Automatic Function

Display Message: PURITY TEST FAILED

During the **RECOVERY** function or **AUTOMATIC RECOVERY** function, if the machine displays

PURITY TEST FAILED
RECOVER CONTAMINATED
REFRIGERANT FROM SYSTEM
AND HOSES.
OK TO RETRY ESC TO QUIT

the refrigerant in the source tank or in the vehicle A/C system is either contaminated or it is not R1234yf. In either case, it should not be added to the internal storage vessel in the machine.

The contaminated refrigerant sampled by the refrigerant identifier in the machine must be removed.

A refrigerant recovery machine (No. 25700) dedicated to contaminated refrigerant is required for the following steps:

1. With the machine still connected to the vehicle and the couplers open, connect the low-side (blue) coupler from the 25700 to the contaminant recovery port on the back of the AC1234-6. See Figure 28. Open the coupler valves.
2. Connect the discharge hose from the 25700 to a tank designed to receive contaminated refrigerant.
3. Start the 25700 and run a recovery according to instructions supplied with the machine.
4. Upon achieving a vacuum in the vehicle (or per recovery machine instructions), disconnect the 25700 from the AC1234-6.
5. Clear the vehicle of residual contamination according to the vehicle manufacturer's instructions before continuing service.

Connect No. 25700
contaminated refrigerant
recovery machine here.

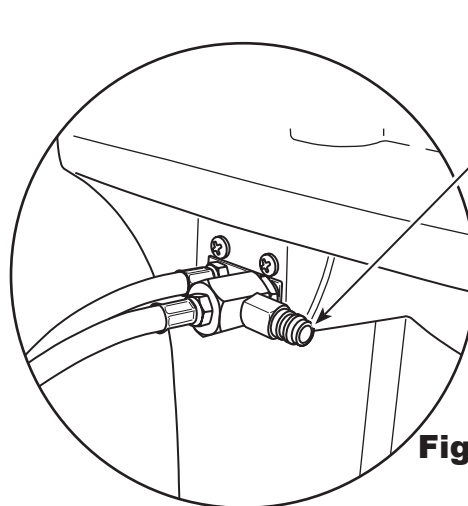


Figure 28

Recovery Function

Display Message: SYSTEM EMPTY

If system pressure is below 0 bar gauge, until pressure increases, the display reads

SYSTEM EMPTY
CHECK CONNECTIONS
RECOVER ANYWAY?

Verify high-side (red) and low-side (blue) hoses are connected and coupler valves open. Press **OK** to recover, select **VACUUM** to bypass **RECOVER**, or press **ESC** to exit.

Display Message: Filter Weight XXX LB

If 100 kg (220 lbs.) or more of refrigerant has been recovered since last filter change, display reads

FILTER WEIGHT XXX LB

To meet requirements, it is mandatory to replace the filter after 150 kg (331 lbs.) of refrigerant has been filtered. The machine gives a warning to replace the filter when filter weight reaches 100 kg (220 lbs.); when filter weight reaches 150 kg (331 lbs.), the machine locks out and ceases to operate. Refer to *Replace the Filter* in the Maintenance section.

Display Message: Replace Identifier Filter

If the machine displays

REPLACE IDENTIFIER FILTER
OK TO CONFIRM

the filter inside the refrigerant identifier needs to be replaced. Press **OK** to confirm, and refer to the *Maintenance* section of this manual for instructions.

Troubleshooting Procedures

Vacuum Function

Display Message: PRESSURE TOO HIGH

Before the machine begins evacuating the A/C system, it checks for pressure in the system that might damage the vacuum pump. If pressure greater than 0.7 bar is detected, the machine displays

PRESSURE TOO HIGH
CHECK CONNECTIONS

Select **OK**, and recover refrigerant before proceeding.

Display Message: Vacuum Time X:XX Min

If a leak test was programmed, and a leak is detected, the machine displays

VACUUM TIME X:XX MIN
LEAK TEST RESULT NEGATIVE

Press **ESC** to exit the automatic sequence and perform needed repairs. Press **OK** to continue the automatic sequence despite the failed leak test.

To ensure an accurate leak test, it is imperative that a thorough recovery and evacuation of the system be performed. During the recovery process, cold spots can develop in the A/C system. Pockets of refrigerant in desiccant and in system oil will continue to vaporize as the A/C system temperature equalizes toward ambient. As this occurs, A/C system pressure will increase, which may be interpreted by the machine as a leak. This will vary somewhat with ambient temperature conditions.

Troubleshooting Procedures

Automatic Function, System Flush, or Charge Function

Display Message: REFRIGERANT INSUFF

If the weight entered is more than the refrigerant available in the ISV, the charge function will not start. The display reads

REFRIGERANT INSUFF

Refer to Manually Fill the ISV in the Maintenance section.

Display Message: PRESSURE TOO HIGH FOR VACUUM

Before the machine begins evacuating the A/C system during the automatic sequence, it checks for any pressure in the system that may damage the vacuum pump. If pressure is detected, the machine displays

PRESSURE TOO HIGH FOR VACUUM!

Press **ESC**. Recover refrigerant before proceeding.

Display Message: VACUUM TIME X:XX MIN

If a leak test was programmed, and a leak is detected, the machine displays

VACUUM TIME X:XX MIN
LEAK TEST RESULT NEGATIVE

Press **ESC** to exit the automatic sequence and perform needed repairs. Press **OK** to continue the automatic sequence despite the failed leak test.

Display Message: PURITY TEST FAILED

Refer to *Troubleshooting Procedures, Recovery Function and Automatic Function*.

Information

To ensure an accurate leak test, it is imperative that a thorough recovery and evacuation of the system is performed. During the recovery process, cold spots can develop in the A/C system. Pockets of refrigerant in desiccant and in system oil will continue to vaporize as the A/C system temperature equalizes toward ambient. As this occurs, A/C system pressure increases, which may be interpreted by the machine as a leak. This varies somewhat with ambient temperature conditions.

Storage and Transportation of Equipment

Storage

Never leave the machine live if an immediate use is not scheduled.

1. Disconnect the machine from its power supply.
2. Loop the service hoses around the handle twice and attach them to the storage ports. See Figure 30.
3. Store the machine in a dry, stable area, away from flames and hot surfaces. The temperature of the storage area should range between -18°C and 66°C (0°F and 150°F).
4. Lock the front wheels.

Transportation of Equipment



WARNING: To prevent personal injury should the machine require transport to a local Robinair service center, follow local government regulations regarding transportation of equipment containing R1234yf.

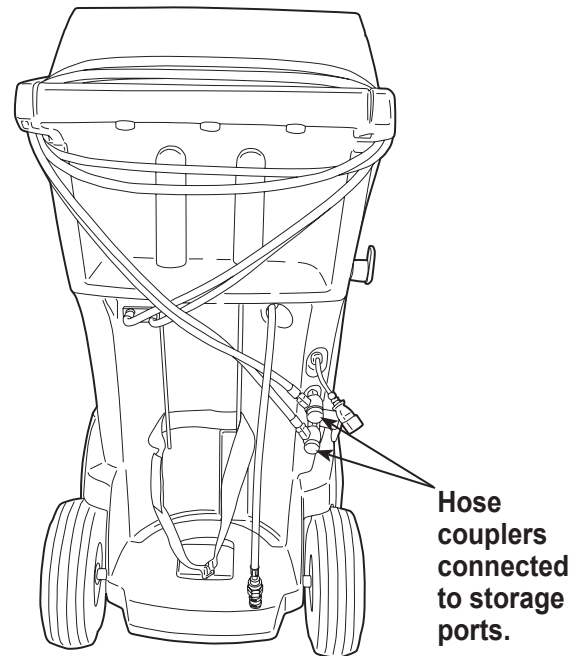


Figure 29

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.

Declaración de garantía limitada Robinair

Revisión del 1 de noviembre de 2005

Se garantiza que este producto no posee defectos de mano de obra, materiales y componentes por el período de un año a partir de la fecha de compra. Todas las partes y mano de obra requerida para reparar los productos con defecto cubiertos bajo la garantía no tendrán costo. Aplican las siguientes restricciones:

1. La garantía limitada aplica al comprador original únicamente.
2. La garantía aplica al producto en situaciones de uso normal únicamente, como lo indica el Manual de funcionamiento. Al producto se le debe dar servicio y mantenimiento como se especifica.
3. Si falla el producto, se debe reparar o reemplazar a discreción del fabricante.
4. Los cargos de transporte de servicio de garantía serán reembolsados por la fábrica al verificar el reclamo de garantía y presentar una boleta de flete por servicio terrestre regular. Se debe obtener la aprobación del fabricante antes de hacer el envío a un centro de servicio autorizado.
5. Los reclamos de servicio de garantía están sujetos a inspección de defectos del producto.
6. El fabricante no será responsable de los costos adicionales relacionados con fallas en el producto, que incluyen pero no se limitan a, tiempo improductivo, pérdida de refrigerante, contaminación de refrigerante y envío no autorizado o cargos por mano de obra.
7. Todo reclamo de servicio de garantía se debe hacer dentro del período de garantía establecido. Se debe proporcionar la fecha de la prueba de compra al fabricante.
8. El uso de equipo de recuperación/reciclaje con refrigerantes o selladores no autorizados anula la garantía.
 - Los refrigerantes autorizados se indican en el equipo o están disponibles a través del Departamento de servicio técnico.
 - El fabricante prohíbe el uso de equipo de recuperación/reciclaje en sistemas de aire acondicionado (A/C) con fugas de sellador, ya sea porque un sello se infla o es de naturaleza aeróbica.

Esta garantía limitada NO aplica si:

- El producto, o parte de éste, se rompe accidentalmente.
- El producto se usa incorrectamente, se adultera o modifica.
- El producto se usa para recuperar o reciclar cualquier sustancia que sea diferente al tipo de refrigerante establecido. Esto incluye, pero no se limita a materiales y productos químicos utilizados para sellar fugas en sistemas de A/C.

Énoncé de la garantie limitée de Robinair

Révisée le 1er novembre 2005

Ce produit est couvert contre les défauts de matériau, de fabrication et de composant pendant un an à compter de la date d'achat. Toutes les pièces et la main-d'œuvre nécessaires aux réparations sous garantie sont sans frais. Toutefois, les restrictions suivantes s'appliquent :

1. La garantie limitée s'applique uniquement à l'acheteur initial.
2. La garantie s'applique uniquement au produit utilisé dans des conditions de fonctionnement normales conformément au manuel d'utilisation. Il doit être réparé et entretenu conformément aux spécifications.
3. Si le produit subit une défaillance, il sera réparé ou remplacé à la discrétion du fabricant.
4. Les frais de transport pour les réparations sous garantie sont remboursés par l'usine après l'évaluation de la réclamation au titre de la garantie et après la soumission d'une facture de transport terrestre standard. L'approbation du fabricant est requise avant l'expédition du produit à un atelier de réparation autorisé.
5. Les réclamations au titre de la garantie sont sujettes à l'inspection du produit défectueux par un personnel autorisé.
6. Le fabricant ne peut être tenu responsable pour tout coût supplémentaire lié à la défaillance du produit incluant, sans toutefois s'y limiter, les interruptions de fonctionnement, la perte de liquide frigorigène, la contamination des liquides frigorigènes et l'expédition et/ou les frais de main-d'œuvre soumis par des ateliers non autorisés.
7. Toute réclamation pour des réparations au titre de la garantie doit être soumise durant la période de garantie. Une preuve d'achat doit être fournie au fabricant.
8. L'utilisation d'un appareil de récupération et de recyclage avec du liquide frigorigène ou des scellants non spécifiés annule la garantie.
 - Les liquides frigorigènes autorisés sont indiqués sur l'appareil, ou ils peuvent être obtenus auprès du Service technique.
 - Le fabricant interdit l'utilisation d'un appareil de récupération et de recyclage dans les systèmes de climatisation contenant des colmatants pour fuites, que ce soient des scellants à dilatation ou aérobiques.

Cette garantie limitée NE s'applique PAS si le produit :

- ou une partie du produit a été endommagée par un accident.
- a été utilisé de façon inadéquate, ou qu'il a été altéré ou modifié.
- est utilisé pour la récupération et le recyclage de substances autres que le type de liquide frigorigène spécifié. Ces substances comprennent, sans toutefois s'y limiter, les matériaux et les produits chimiques utilisés pour colmater les fuites des systèmes de climatisation.

The Robinair unit is 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.

La unidad Robinair está diseñada para cumplir con todas las certificaciones de agencia aplicables, incluyendo Underwriter's Laboratories, Inc., Estándares SAE y CUL. Ciertas jurisdicciones estatales y locales prescriben que el uso de este equipo para vender refrigerante por peso es posible que no sea permitido. Recomendamos que se cobre el trabajo realizado por dar servicio al aire acondicionado. Esta escala de peso proporciona un medio para medir la cantidad de refrigerante que se necesita para el rendimiento óptimo del sistema de aire acondicionado, tal como lo recomiendan los fabricantes OEM.

La machine Robinair a été conçue pour répondre à toutes les certifications applicables, y compris celles de l'organisation Underwriters Laboratories, Inc., ainsi qu'aux normes SAE et CUL. Certaines juridictions nationales et locales n'autorisent pas l'utilisation de cet équipement pour vendre du réfrigérant au poids. Nous recommandons de facturer l'entretien du système de climatisation en fonction du travail effectué. Ce poids de tarification permet de calculer la quantité de réfrigérant requise pour garantir le fonctionnement optimal du système de climatisation, conformément aux recommandations des fabricants de l'équipement d'origine.

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

Debido a las constantes mejoras del producto, nos reservamos el derecho de cambiar diseño, especificaciones y materiales sin aviso.

En raison des améliorations constantes apportées à nos produits, nous nous réservons le droit de modifier la conception, les spécifications et les matériaux sans préavis.



655 EISENHOWER DRIVE
OWATONNA, MN 55060-0995 USA

| | | | |
|------------------|-----|-----|------|
| TECH SERVICES | 800 | 822 | 5561 |
| FAX | 866 | 259 | 1241 |
| CUSTOMER SERVICE | 800 | 533 | 6127 |
| FAX | 800 | 322 | 2890 |

www.robinair.com