

Original Instructions
Instrucciones originales
Consignes originales

Model: 34888HD



Recover, Recycle, Recharge Machine
for Heavy Duty R-134a A/C Systems

Description: Recover, recycle, and recharge machine for use with R-134a 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.

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, could result in minor or moderate injury.

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

These safety messages cover situations Robinair is aware of. Robinair cannot know, evaluate, or advise as to all possible hazards. The user must verify that conditions and procedures do not jeopardize 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 external storage vessel (tank). Overfilling can 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 CAN CONTAIN LIQUID REFRIGERANT UNDER PRESSURE. Contact with refrigerant can cause personal injury, including blindness and frozen skin. Wear protective equipment, including goggles and gloves. Disconnect hoses using extreme caution. Ensure the phase is complete before disconnecting the machine to prevent the release of refrigeration to the atmosphere.



AVOID BREATHING A/C REFRIGERANT AND LUBRICANT VAPOR OR MIST. Exposure can 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. 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 can overheat and cause fire. If an extension cord must be used, 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 free toxic substances to the environment that 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, do not use this machine in ATEX classified zones or areas. Protect the machine from conditions that can cause electrical failure or other hazards relating to ambient interaction.



CAUTION—DO NOT PRESSURE TEST OR LEAK TEST EQUIPMENT AND/OR AIR CONDITIONING SYSTEMS WITH COMPRESSED AIR. Mixtures of air and R-134a refrigerant can be combustible at elevated pressures. These mixtures are potentially dangerous and can result in fire or explosion causing personal injury and/or property damage.



HIGH VOLTAGE ELECTRICITY INSIDE THE MACHINE HAS A RISK OF ELECTRICAL SHOCK. Exposure can 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 can be obtained
from refrigerant and lubricant manufacturers.**

Safety Precautions

CAUTION : To prevent equipment damage,



TO PREVENT CROSS-CONTAMINATION, USE THIS MACHINE WITH R-134A REFRIGERANT ONLY. The machine is equipped with special connectors to recover, recycle, and recharge only R-134a 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 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 can 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.

TO AVOID CHEMICAL INCOMPATIBILITIES WITH THE INTERNAL COMPONENTS OF THE MACHINE, USE ONLY OILS APPROVED BY THE SYSTEM MANUFACTURER. Problems resulting from the use of non-approved oils will void the warranty.

Additional health and safety information can 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.

Refrigerant Tank Test

Official records and recurring tests necessary for pressurized instruments are governed by laws and/or national regulations dependent upon the country where the refrigerant tank is used. The system manager is responsible for compliance with laws, regulations, and technical rules. During normal service, refrigerant tanks do not need maintenance. Refer to the Maintenance section of this manual for more information.

Requirement Regarding Lubricant

Only new lubricant, as specified by the system manufacturer, shall be installed in the MAC 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 used on high-capacity R-134a mobile A/C systems and is designed to be compatible with existing service equipment and standard service procedures. This machine is a single-pass system (i.e. refrigerant flows through a filter once) that meets specifications for recycled refrigerant. Follow recommended service procedures for the containment of R-134a.

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

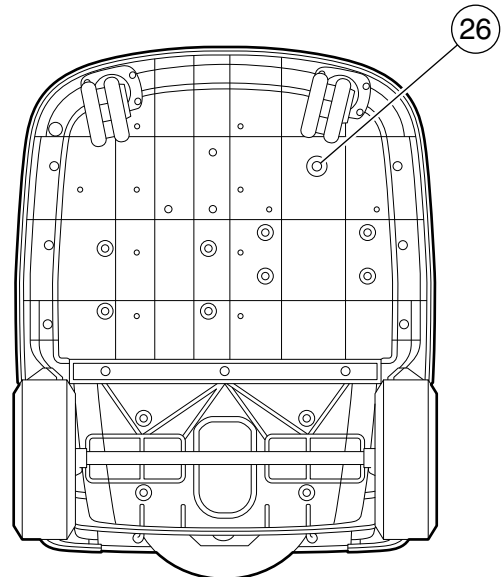
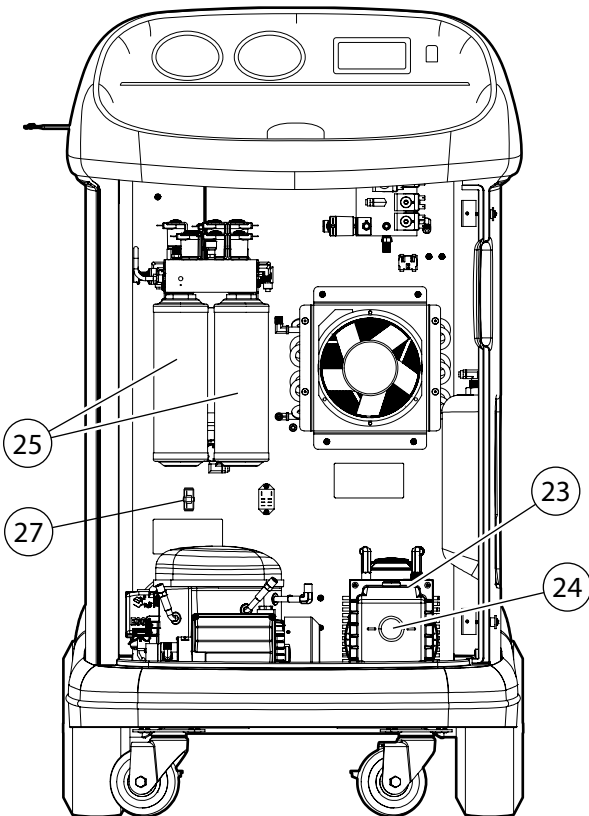
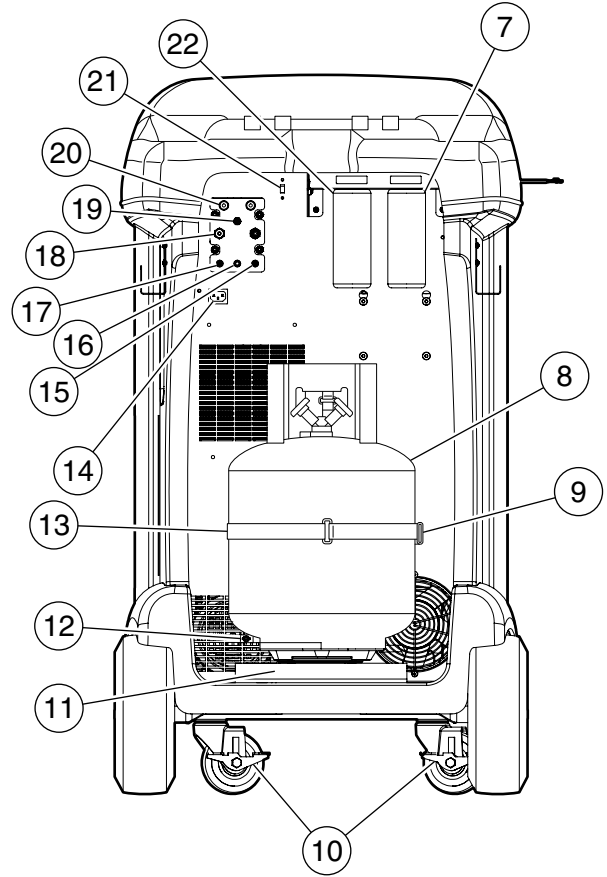
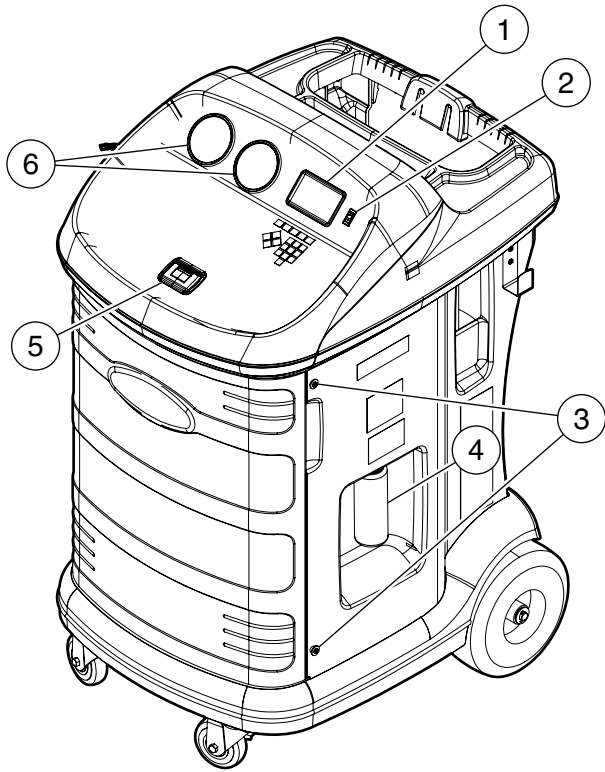


Technical Specifications

Dimensions	117 cm x 66 cm x 85 cm
Display	5 × 9 cm (4.3-in. diag) graphical LCD
Filter	136 kg (300 lb)
Humidity	32.2°C (90°F), 80% RH non-condensing
Manometer	Ø 100 mm (3.9 in.)
Maximum Pressure	17.9 bar (260 psi)
Noise	<72 dB(A)
Nominal Voltage	115V, 60 Hz
Oil Bottle Capacity	355 ml (12 oz)
Operating Temperature . . .	10°C to 50°C (50°F to 122°F)
Power Consumption	1380 W
Vacuum Pump Free-Air Displacement	5.0 CFM (142 L/m) @ 60 Hz
Service Hoses	5.5 m (18 ft) / SAE J2196
Tank Capacity	20 kg (44 lb)
Weight	100 kg (220 lb)

Introduction

Features



Item No.	Description
1	Graphic Display and Keypad
2	Power Switch
3	Door Screw
4	Vacuum Exhaust Bottle
5	Printer
6	Low-side (blue) and High-side (red) Manifold Gauges
7	Oil Inject Bottle
8	Tank
9	Tank Temperature Probe
10	Wheel Lock
11	Scale
12	Scale Thumb Screw
13	Tank Temperature Probe Strap
14	Power Cord Receptacle
15	Bulkhead Liquid Port
16	Bulkhead Vapor Port
17	Bulkhead Air Purge Port
18	Service Hose Storage Ports
19	Nitrogen Inject Port
20	Service Hoses
21	USB Connection
22	Oil Drain Bottle
23	Vacuum Pump Fill Cap and Port
24	Vacuum Pump Oil Sight Glass
25	Filters
26	Vacuum Pump Drain Fitting
27	Circuit Breaker

Introduction

Control Panel Functions

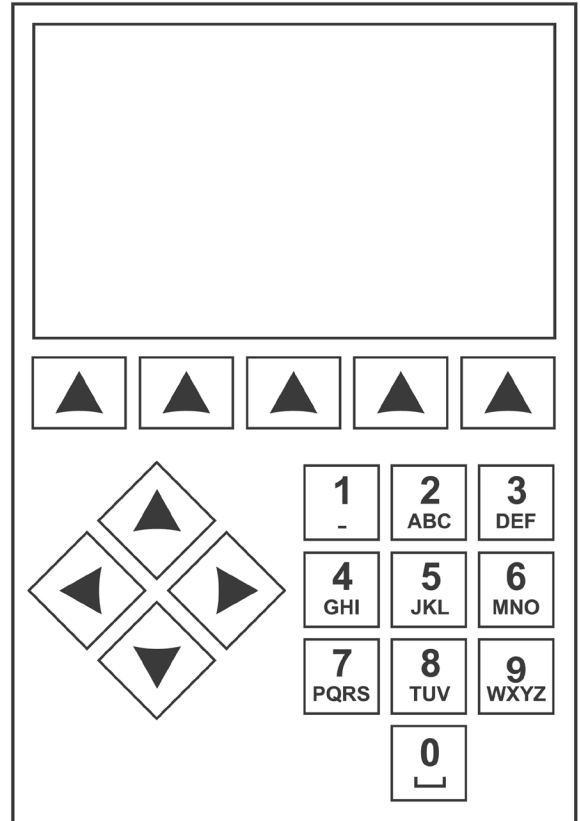
ARROW UP highlights the previous item.

ARROW DOWN highlights the following item.

ARROW RIGHT scrolls to next screen.

ARROW LEFT scrolls to previous screen.

SELECTIONARROWS make a selection or answer a query.



Control Panel Keypad

Icon Legend



AUTOMATIC ICON

Pressing the key under this icon will enter the automatic refrigerant recovery, vacuum, and charge process.



RECOVER ICON

Pressing the key under this icon will enter the refrigerant recovery process.



VACUUM ICON

Pressing the key under this icon will enter the system vacuum process.



CHARGE ICON

Pressing the key under this icon will enter the refrigerant charge process.



N2/N2H2 LEAK TEST ICON

Pressing the key under this icon will enter the N2 or N2H2 leak test process.



VCI ICON

Pressing the key under this icon will connect to the optional wireless OBDII interface.



NEXT/FORWARD ICON

Pressing the key under this icon will proceed to additional menu selection options, or proceed to an additional step in a function or process.



BACK ICON

Pressing the key under this icon will return to previously seen menu selection options, or return to the previous screen within a function or process.



HELP ICON

Pressing the key under this icon will provide help and information corresponding to the current screen and/or function being viewed or performed.



DATABASE ICON

Pressing the key under this icon will enter the database retrieval process.



SETUP MENU ICON

Pressing the key under this icon will enter the Setup Menu.



YES/ACCEPT ICON

Pressing the key under this icon will accept any choices made on the current screen and proceed to the next step of the function.



NO/CLOSE ICON

Pressing the key under this icon will reject any choices made on the current screen and return to the previous step of the function or the Main Menu.



RETRY ICON

Pressing the key under this icon will retry the current process or function.



CHARGE PATH SELECTION ICON

Pressing the key under this icon will toggle the desired path of refrigerant charge between high side, low side, and both side.



ON/OFF ICON

Pressing the key under this icon will toggle the highlighted function on or off as desired.



BACKSPACE ICON

Pressing the key under this icon will delete a text character to the left of the current selection.



PAUSE ICON

Pressing the key under this icon will pause the current process.



RESUME ICON

Pressing the key under this icon will resume a process that has been paused.



PRINT ICON

Pressing the key under this icon will print a summary corresponding to the current completed process.



DELETE ICON

Pressing the key under this icon will delete a selected entry from the memory of the machine.



CHANGE UNITS ICONS



Pressing the key under one of these icons will toggle the unit of measurement for the current entry field.

Introduction

Setup Menu Functions

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

Adjust Zero Offset

Allows user to set the zero offset of the oil inject and drain load cells.

Air Purge Information

Displays current tank pressure and temperature along with calculated nominal pressure.

Calibration Check

Use to verify internal scale calibration. Refer to Calibration Check in the Maintenance section of this user manual.

Date and Time

Program the machine for current date and time.

Display Title Information

Temporarily display the unit sensor information. Sensor information will default to not being displayed if the machine is turned off.

Edit Print Header

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

Filter Maintenance

The filter removes acid, particulates, and moisture from the refrigerant. To meet requirements, it is mandatory to replace the filter after 136 kg (300 lb) 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 Maintenance in the Maintenance section.

Flush Hoses

Flushes residual oil from the machine's service hoses to prepare for service of next system.

Hose Equalize

Use this Setup Menu item to recover refrigerant from the service hoses back into the A/C system. This item is useful after performing diagnostics which do not require the need to recover the A/C system into the RRR machine. The user will be prompted to connect the low side service hose to the appropriate port and to start the A/C system on max.

Leak Check

Use this function to test the machine for leaks. Components containing refrigerant are pressurized and monitored for pressure decay, which could indicate a leak.

Production Menu

For Robinair production use only.

Pump Maintenance

Displays the amount of time remaining until the next vacuum pump 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.

Refrigerant Management

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

Replace Service Hoses

This function ensures that there is no residual pressure in the service hoses before replacement. Initiate this process before attempting to replace the service hoses and follow the on-screen prompts.

Select Language

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

Service Menu

For Robinair service center use only.

Select Units

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

Set Buzzer

Turn audible alerts on and off.

Set Default Vacuum Time

Allows the user to change the default vacuum time. The initial default time is set to 10 minutes.

Set Up Wireless Dongle

Use this function to configure the optional Wi-Fi/Bluetooth radio.

System Flush

Provides a method of removing oil by forcing liquid refrigerant through an A/C system or components of an A/C system. After flushing, the refrigerant is recovered by the machine and filtered by the recycling circuit.

System Information

Displays the revision level of the software in the machine.

Tank Fill

Use this Setup Menu item to transfer refrigerant from a source tank to the tank. The tank fill value may be adjusted up or down to suit the user's needs. Refer to Tank Fill in the Maintenance section.

Unit Activation

Failure to register and activate the machine within 30 days of initial startup will cause the machine to lock out and no longer function. Select this Setup Menu item and follow the prompts before the trial period expires.

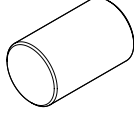
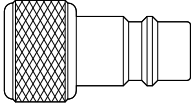
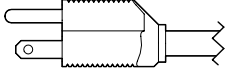
View Service Data

Displays A/C system information that was entered into the Enter Service Data screen. Systems are displayed by date of service and VIN or ID number. The database stores 25 entries.

Introduction

Unpack the Accessory Kit

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

Calibration Check Weight 533 g (1.18 lb)	
Low-side Connection Port Assembly	
Power Cord	
Pouch containing SDSs, EPA information, MACS information, and a service center list.	

Power Up the Machine

1. Install the power cord into the receptacle on the unit.
2. Plug the power cord into a grounded outlet of the correct voltage.
3. Position the machine so the plug and the power switch are of easy access for the operator. Verify the fan vents on the rear of the machine are not obstructed.
4. Lock the front wheels.
5. Toggle the power switch on the control panel to turn the machine ON.

The machine launches into the initial Setup mode.

Tank Installation

A 50-lb DOT-4BA-400 tank with an air purge port must be installed for this unit to function. Using a different tank can result in degraded system function. Using a smaller tank can result in accidental tank overflow and potential injury. Discard the plastic surrounding the tank included with this unit and install by completing the following procedure.


1. Open the vapor valve on the tank to purge the 5 to 10 psi of nitrogen that ships with the tank to prevent contamination. Vent the nitrogen to atmosphere and close the valve once venting is complete. The tank will vacuum to purge the remaining nitrogen during initial setup.
2. Place the tank on the scale in the orientation shown in Figure 1. Tighten the thumb screw on the scale.
3. Loop the tank retention strap through the tank handle and secure the clip back to the strap ring. See Figure 1.
4. Remove the bubble wrap from the tank hoses ends and connect the hoses to the appropriate ports on the tank. Open the tank valves after connecting the hoses.

Note: Incorrect installation of the hoses may result in degraded machine function.

Figure 2 shows the appropriate configuration for 34888HD.

- Red Hose – Vapor port on tank
 - Blue Hose – Liquid port on the tank
 - Yellow Hose – Air purge port on the tank
5. Remove the temperature probe assembly and strap from its packaging and install on the tank. The unit will not function properly without the tank temperature probe. See Figure 1 for the correct probe position.
 - Place the tank temperature probe assembly in contact with the tank slightly above the mid-line tank weld. Metal to metal contact between the probe and tank is required for accurate tank temperature measurements.
 - Secure the probe assembly to the tank with the probe strap included.

Note: Do not allow the power cord, service hoses, or any other component to come into contact with the tank during operation. This may influence the scale readings and affect charge or recovery accuracy.



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.

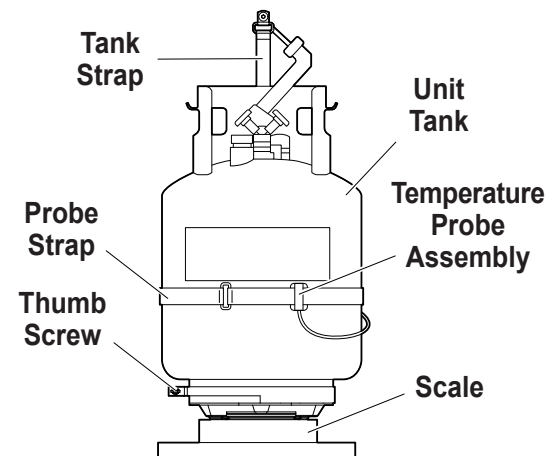


Figure 1

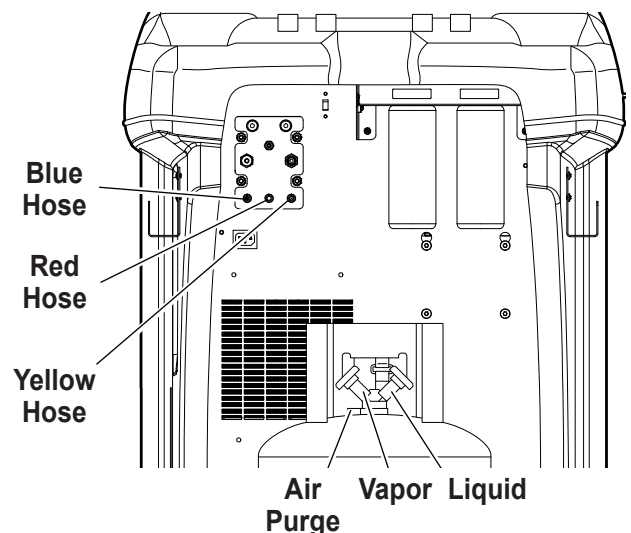


Figure 2

Initial Setup

Select Language

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 one line at a time.
2. Select ✓ to set the selected language.

Note: To update an existing language or to add a new language, refer to Load Language in the Maintenance section of this manual.

Approve Licensing Agreement

Review the licensing agreement at the end of this manual and select ✓ to agree.

Select Units

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

1. Use the Arrow UP or Arrow Down key to toggle Imperial or Metric units.
2. Select ✓ to choose the displayed unit of measure.

Set Date and Time

Use the arrow keys to move the cursor. Use the keypad to modify the information displayed.

1. Use the Arrow up and Arrow Down keys to select which item to change: day, month, year, or time. Select I/O to toggle between AM and PM.
2. Use the multi-tap interface on the numeric keypad to modify the information.
3. Select ✓ to save.

Edit Print Header

This function allows the user to customize the print header. The information loaded into Edit Print Header will appear on each printout.

1. Enter text by using the arrows and the multi-tap interface on the numeric keypad:
 - **ARROW LEFT** and **X** key act as backspace key.
 - **ARROW RIGHT** moves the cursor to the right.
 - **0 (ZERO)** acts as a space bar when pressed twice.
 - **ARROW UP** and **DOWN** navigate between the rows.
2. Select **✓** to save/exit the function; select **X** to return to the previous header without saving data.

Service Vacuum

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

1. Check the vacuum pump oil level sight glass and verify the oil level is at the center of the sight glass.
2. When prompted, connect the service hoses from the machine to their storage ports as shown in Figure 3. Verify tank hoses are connected and valves are open. Select **▶▶** to continue.
3. The machine enters a 15-minute vacuum and will automatically enter the next set-up process when complete.



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.

Service Hoses
Connected to
Storage Ports

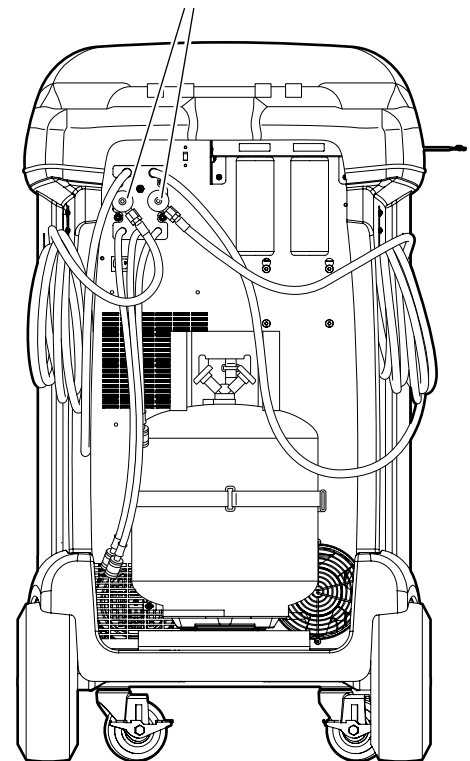


Figure 3

Initial Setup

Tank Fill

This procedure transfers refrigerant from a source tank to the tank on the machine. The maximum capacity of the tank is 20 kg (44 lb). Use arrow keys to move the cursor; use the keypad to enter a value.

1. The machine displays fields for desired tank fill amount, charge capacity, and the amount of recoverable refrigerant (recover capacity) within the tank. Enter the desired tank fill amount.

Note: Add at least 2.10 kg of refrigerant, in addition to the desired charge amount, to ensure sufficient refrigerant for charging.

2. Install the 1/2-in. ACME to low-side adapter on the source tank and connect the blue service hose to the adapter.

Note: Some source tanks have different valve configurations. Be sure to connect the blue hose to the liquid valve. The valve may be red on some tanks and blue on others.

3. Position the source tank in such a way that liquid refrigerant is supplied to the connection.
 4. Open the source tank valve.
 5. Select ✓ to start the tank fill process. The machine begins filling the tank. Add at least 2.1 kg of refrigerant to ensure enough is available for charging. This process takes 5–40 minutes.
 6. The machine stops when the designated amount of refrigerant has been transferred to the tank or when the source tank is empty. Follow the messages on the display.
 7. Close the source tank valve.
 8. Select ✓ to return to the Setup Menu.
 9. Once complete, shut the valve on the source tank and remove the hose.
 10. Select ►► to recover any refrigerant remaining in the hose.
- The machine is ready for operation.

Note:

- *There is no need to calibrate the scale; it is calibrated at the factory.*
- *After the tank fill process is complete, the display does 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 2.10 kg (4.6 lb) less than the total amount of refrigerant in the tank.



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:

Charge Capacity: *The amount of refrigerant in the tank that can be charged into an A/C system.*

Recover Capacity: *The amount of additional refrigerant that could be recovered into the tank.*

Unit Activation

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

1. Select Unit Activation from the Setup Menu. The machine displays

XX Days Left on Trial
Period to activate unit.
Activate Now?

2. Select to start the activation process. The machine displays

Product Activation

Personal product code:
XXXXXXXXXXXX

Enter code:
XXXXXXXXXXXX

3. Open a web browser on a personal computer and enter <https://register.servicesolutionsportal.com>.
4. Enter the user name and password, and log in to the website.
Note: If a first-time user, select REGISTER to create a user name and password.
5. On the personal computer, enter the Personal Product Code of the machine into the Product Activation key box on the website to receive an activation code.
6. On the machine, enter the activation code into the correct field. Note: Enter the code exactly as received. Capitalization is required.
7. Record the activation code on a piece of paper and file it in a secure place. Select .
8. The machine displays

Activation successful.

Select **▶▶**. The machine has been activated.

Operating Instructions

Enter Service Data

After selecting any service function, information about the A/C system may be entered into and stored in the machine's database.

The machine displays

Enter service data new

1. Select ✓ to enter a new record, or scroll to select a previously serviced A/C system and then select ✓. The highlighted selection will be in red. The machine displays

Enter service data

ID/VIN: _____

Mileage: _____

Make: _____

Model: _____

2. Use the arrow keys to move between rows and the multi-tap keypad to enter text.

Information entered on this screen is stored by date and identification number or vehicle identification number (VIN). The database stores the latest 25 entries, with the most recent at the top of the list.


The information will also appear on service summary printouts.



Recover Refrigerant from A/C System

1. Empty the oil drain bottle before starting a recovery. Remove the oil drain bottle by unscrewing it from the unit. Reinstall the oil drain bottle. Refer to Figure 4.

Note: Use caution when removing/installing oil drain bottle. Excessive force may damage internal load cell.

2. Connect the high-side (red) and low-side (blue) service hoses to the A/C system.
3. Open the coupler valves on the hoses by turning the collars clockwise.
4. Select **RECOVER**  from the **MAIN MENU**.

5. The machine will enter the service data entry form. Enter all applicable data and select to continue.


6. The machine will ask whether to record diagnostic pressures. Select to continue recovery process or select to record operating pressures of the A/C system. Follow on-screen prompts and system service manual specifications to continue.

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

The machine runs a self-clearing cycle to clear any internal refrigerant from its internal plumbing.

System recovery begins and includes a timed vacuum, deep recovery process.

After recovery, the machine will perform an oil drain, which may require up to 90 seconds to complete.

7. After the oil drain is complete, a summary is displayed showing the total amount of refrigerant and oil recovered. Recovery information and pre-recover diagnostics can be printed by selecting . Select **▶▶** to return to the Main Menu.

Notes:

- *The displayed recovered weight can vary depending on ambient conditions and should not be used as an indicator of scale accuracy.*
- *Depending on the capacity of the system the recovery process may be interrupted if the oil drain bottle is full and needs to be emptied.*



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.

Oil Drain Bottle

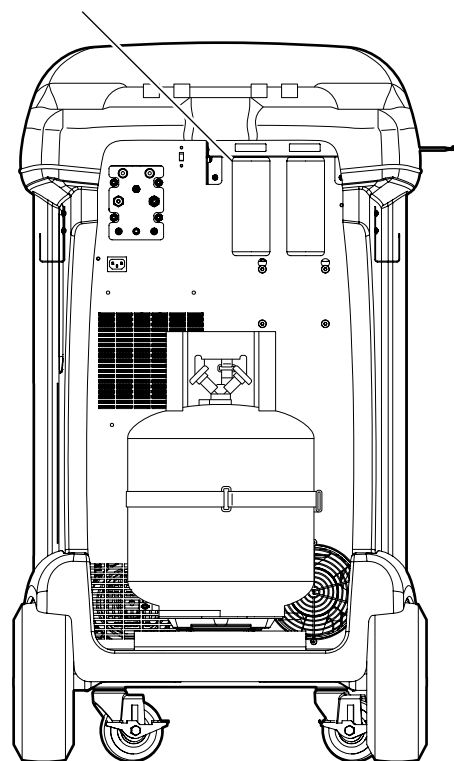



Figure 4

Operating Instructions




Evacuate the A/C System

1. Connect the service hoses to the system's service ports.
2. Open the service hose coupler valves by turning the collars clockwise.
3. Select **VACUUM**  from the **MAIN MENU**.
4. The user will be prompted to enter service data. Once complete, select ✓ to continue.
5. Select Vacuum Leak Check, if desired, to automatically perform a 5-minute pressure rise leak check after the vacuum.
6. Select ✓ to accept the 10-minute default evacuation time, or enter a desired vacuum time using the number keys.

Note: The vacuum process will halt if pressure rises above .35 bar (5 psi). Recover refrigerant before proceeding.

The machine pulls a vacuum on the A/C system for the programmed amount of time.

Vacuum information can be printed by selecting  on machines equipped with a printer.

7. Select ►► 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.

Flushing the Hoses

If the next system to be serviced contains a different type of oil than the previous system serviced, it is recommended the service hoses be flushed of residual oil to prevent contamination.

1. Select **FLUSH HOSES** from the **SETUP MENU**. The machine displays

Connect service hoses to storage ports and open coupler valves.

2. Connect the service hoses to the machine's storage port connections as shown in Figure 5.
3. Open the service hose coupler valves by turning the collars clockwise.
4. Select to begin the hose flush process, which runs for three minutes, followed by a recovery.

When the hose flushing process is complete, the display reads

FLUSH HOSES
Complete

5. Select **▶▶** to return to the Setup Menu.
6. Close the coupler valves by turning the collars counterclockwise.

Service Hoses
Connected to
Storage Ports

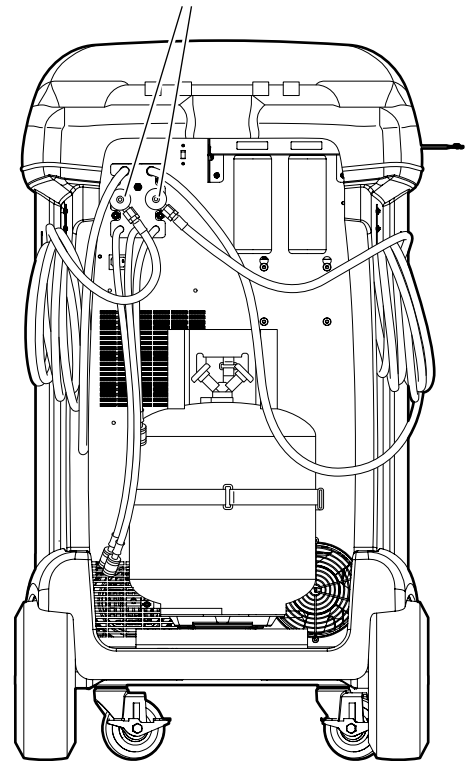




Figure 5






Operating Instructions



Recharge the A/C System

1. Connect both service hoses to the system's service ports.
2. Select **CHARGE**  from the **MAIN MENU**.
3. The user will be prompted to enter service data. Select  once complete to continue. The display shows

Charge: XX.XXX kg on High Side
Oil Amount: XXX ml
Min Charge quantity 10g

4. Use the arrow keys and the numeric keypad to enter the desired charge amount. Select **kg|lbs|oz** to change units.
5. Using the arrow keys, maneuver to the charge path selection. High Side is default. To change, select **HSL** on the control panel. This will allow the user to toggle between high, low, and both side charge paths. The current selection is indicated on the display.
6. Oil can also be injected into the system during the charge. Use the numeric keypad to enter the desired oil inject amount. Select **ml|oz** to change units. Make sure there is available oil in the inject bottle located on the rear of the machine.
7. Select  to start the charge process. 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. When charge is complete, the user will be given the option to perform system diagnostics.
8. When prompted, select  to perform hose equalization.
9. The user will be prompted to close the coupler valves and disconnect the hoses from the system. Select  to recover any remaining refrigerant from the hoses.
10. When the **CHARGE COMPLETE** screen appears, it includes a summary of charge results. Select  to print the summary. Select  to proceed to clear the service hoses. Once the hose clear is complete, the machine will return to the Main Menu.

The A/C system is now ready for use.



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: The charging process differs from system to system. Charge function for systems equipped with a single service fitting should be carried out manually. Refer to the system service manual for specific instructions.

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 A/C system.



Automatic Function





The **AUTOMATIC** function allows a user to perform an automatic recovery, vacuum, leak test, and/or charge sequence. A total automatic sequence may require an extended period of time to complete.

1. Connect high-side (red) and low-side (blue) service hoses to the A/C system.
2. Open the service hose coupler valves by turning the collars clockwise.
3. Select **AUTOMATIC**  from the **MAIN MENU**. The display shows:

Vacuum Time: XX:XX
Vacuum Leak Test: ON
Charge: XX.XXX kg on High Side
Additional Oil: XXX ml
Min Vacuum time is 1 sec

4. Use the numeric keypad to enter the desired length of vacuum.
5. Using the arrow keys, maneuver downwards to choose whether to perform a vacuum leak test or not. ON is the default setting. To toggle, select **I/O** on the control panel.
6. Using the downwards arrow key, maneuver to the “charge amount” entry field. Use the arrow keys and numeric keypad to enter the desired charge amount. Select **kg|lbs|oz** to change units.
7. Using the arrow keys, maneuver to the “charge path selection.” High Side is default. To change, select **HSL** on the control panel. This will allow the user to toggle between high, low, and both side charge paths. The text on the display will change to the current selection.
8. Using the arrow keys, maneuver to the “additional oil” entry field. Use the numeric keypad to enter the desired additional oil inject amount. Select **ml|oz** to change units. Make sure there is available oil in the oil inject bottle located on the rear of the machine.

Note: Additional oil amount specified is in addition to the amount recovered. If no additional oil is specified, the machine will inject the same amount of oil as was recovered (automatic mode only).

9. Select  to begin the **AUTOMATIC** cycle. The unit will now automatically proceed through all applicable functions: **RECOVER**, **VACUUM**, and **CHARGE**. The system will automatically skip steps not required.
10. The user will be prompted to close the coupler valves and disconnect the hoses from the system. Select  to recover any remaining refrigerant from the hoses.
11. When the **AUTOMATIC COMPLETE** screen appears, it includes a summary of results. Select  to print the summary. Select  to proceed. Once the cycle is complete, the machine will return to the Main Menu.

The A/C system is now ready to use.

Notes:

- The **CHARGE** function for systems equipped with a single-service fitting should be carried out manually according to procedures in the manufacturer’s service manual.
- If **RECOVER** was not performed, the amount of oil to be injected may be entered while programming the **CHARGE** information.
- If problems are encountered during the automatic sequence, an audio alert sounds three times. The sequence remains paused until the user enters a decision regarding how to proceed.

Operating Instructions

System Flush

The **SYSTEM FLUSH** function is performed using a manufacturer-approved flushing adapter. Refer to the instructions included with the adapter while the following steps are performed.

1. Verify the flusher filter and strainer are not plugged.
2. Mount the flusher per the manufacturer's recommendation.
3. Dispose of any oil in the drain bottle according to applicable regulations. See Figure 6.

4. Recover all refrigerant from system to be flushed.

Note: A system flush removes all oil in the system. Replace oil per the manufacturer's recommendation.



5. Verify there is sufficient refrigerant in the machine. The machine will not be able to complete a system flush without enough refrigerant in the tank to allow liquid to flow through the system.
6. Disconnect the machine from the system.
7. Refer to the system service manual, and connect the appropriate flushing adapters and bypasses.
8. Connect the low-side (blue) service hose directly to the outlet of the flushing kit to protect the ACS machine.
9. Remove the high-side (red) service coupler, and connect to the flushing adapter inlet.
10. Connect hoses according to the instructions included with the flush kit.

CAUTION: To prevent damage to the ACS machine, ensure that the flushing adapter has a filter or screen to remove any debris from the A/C system.

11. Select **SYSTEM FLUSH** from the **SETUP MENU**. The unit will prompt for any service data entry, if desired. Select to continue to the system flushing process. The user will be prompted to enter in a Flush Time.

The machine will then automatically enter the **VACUUM** process and proceed to a leak test.

Once the vacuum and leak tests are completed, the unit will enter the system flushing process, followed by an oil drain.

12. When the Flush Complete screen appears, it includes a system flush result summary. Select  to print the summary. Select  to return to the **SETUP MENU**.

The A/C system has been flushed.



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.

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

Oil Drain Bottle

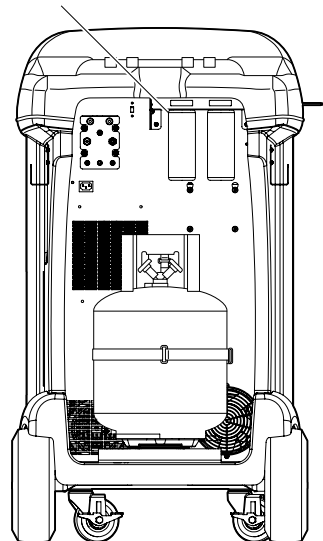


Figure 6

CAUTION: The flushing kit must have a replaceable filter as well as a debris strainer, both of which can become plugged. At the end of the flush cycle, check the high-side (red) gauge for system pressure, and check the adapter for complete removal of refrigerant.

If pressure exists or refrigerant remains, exit the flushing cycle and enter the recovery mode to recover refrigerant through both the high-side (red) and low-side (blue) hoses. Then service the filters and repeat the flush process.

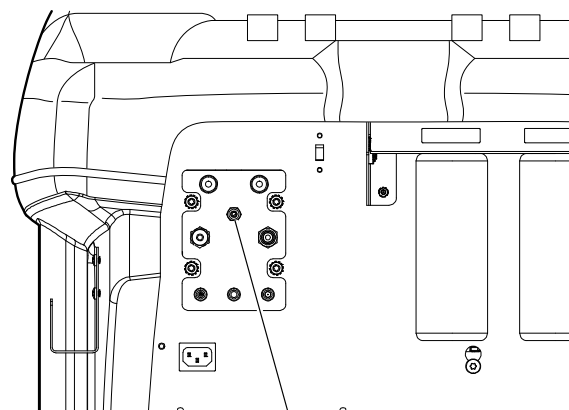
N2 and N2H2 Leak Test

This unit has the ability to pressurize an A/C system with N2 or N2H2 for the purpose of leak detection. A separate, optional, leak detection kit is required.

1. Connect the high-side (red) and low-side (blue) service hoses to the A/C system. Open the coupler valves on the hoses by turning the collars clockwise. Do not attempt to remove these connections while pressurized during the N2 or N2H2 leak test.
2. Adjust the N2 or N2H2 supply tank regulator to an output of 6–9.5 bar. Do not exceed 9.5 bar of pressure and ensure N2H2 has H2 content <5%. N2 or N2H2 supply tanks are not included with this unit.
3. Connect the supply tank to the port on the ACS unit as shown in Figure 7. This port utilizes a ¼" flare fitting per SAE J513.
4. Select **N2LEAKTEST** from the **MAIN MENU**. The machine will enter to service data entry form. Enter the applicable data and select ✓ to continue. Use the control arrows to select N2 Leak Test or N2H2 Leak Test and select ✓ to continue
5. Follow on-screen prompts and the system service manual specifications to continue. Select ►► to proceed with the test. The machine begins to pressurize the system.
 - For the N2 Leak Test, the machine monitors system pressure and records any decay indicative of a leak.
 - For the N2H2 Leak Test, the user will be prompted to use a leak detector to search for leaks and enter the results back into the system.
6. Upon completion of the leak test, a summary of the results is displayed. Select 🖨 to print the results or ►► to continue and vent N2 or N2H2 from the system. The vacuum pump is engaged to assist in purging N2 or N2H2 from the system. After venting is complete, select ►► 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.



N2 and
N2H2 Port

Figure 7

⚠ WARNING: Do NOT use air or any gas besides N2 or N2H2 to pressurize the system. Mixtures of air and refrigerant can be combustible at elevated pressures. These mixtures are potentially dangerous and can result in fire or explosion causing personal injury and/or property damage.

Maintenance

Maintenance Schedule

Maintenance Task	Recommended Interval
Change filters	After 136 kg (300 lb) of refrigerant has been filtered. Refer to Filter Maintenance in the Maintenance section of this manual.
Change vacuum pump oil	When the filter is replaced. Refer to Change Vacuum Pump Oil in the Maintenance section of this manual.
Check casters and wheels for ease of operation	Monthly.
Check internal scale calibration	Monthly. Refer to Calibration Check in the Maintenance section of this manual.
Check machine for leaks	Monthly. Check hoses and connections for leakage. Disconnect power, remove the door screws, open the door, and use an electronic leak detector to check fittings.
Clean airflow outlet panel (see Figure 8)	Monthly. Use a clean cloth.
Clean cabinet and control panel	Monthly. Use a clean cloth.
DOT tank inspection	Verify DOT tank inspection
Inspect power cord and hoses for cuts and abrasions	Daily.
Pressure test	Every 10 years. Performed by an authorized Robinair service center.

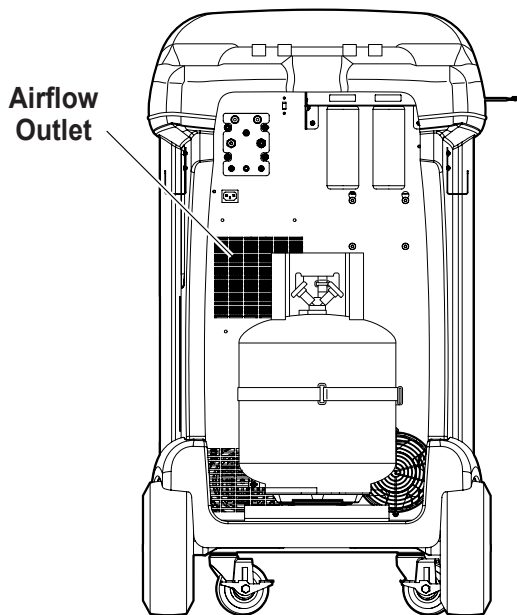


Figure 8



WARNING: To prevent personal injury only qualified personnel may perform inspections and repairs to this machine. Read and follow instructions and warnings in this manual, and wear protective equipment such as goggles and gloves.

Load Language

Use the following instructions to add or update a language from an SD card.

1. Turn the machine off. Remove the door access screws from the right side of the unit and open the door.
2. Remove the top panel retention screws and rotate the top panel about its hinge to access the SD card slot on the control panel. See Figure 9.
3. Insert the SD card containing the language data into the port on the control board. Rotate the top panel back to its original, closed position.
4. Turn the machine power on. Choose **SELECT LANGUAGE** from the **SETUP MENU**.
5. Use the arrow keys to scroll to **LOAD NEW**. Select **✓**.
6. Follow the prompts to select the language to load or update. If loading a new language, it will be necessary to select which language to replace.
7. Once the process is complete, turn the machine power off and remove the SD card. Re-install the top panel retentions screws and the door access screws.

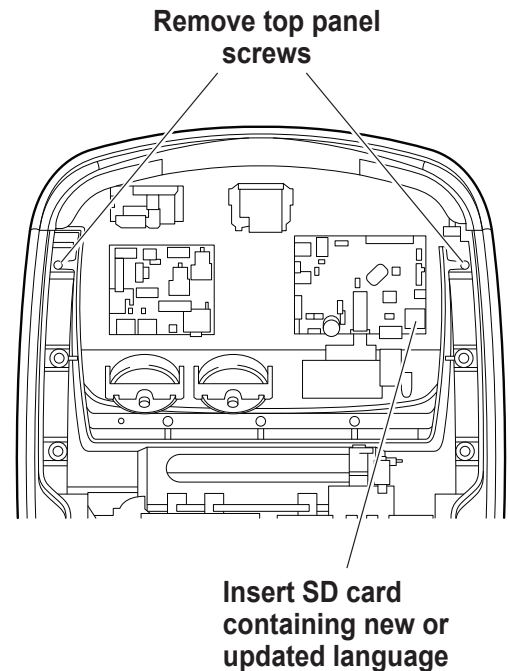


Figure 9

Edit Print Header

To make changes to text that appears in this screen:

1. Select **EDIT PRINT HEADER** from the **SETUP MENU**.
2. The cursor is in the first field. Update the text by using the arrows and the multi-tap interface on the numeric keypad:
 - **ARROW LEFT** and **✕** act as a backspace key.
 - **ARROW RIGHT** moves the cursor to the right.
 - **ZERO (0)** key acts as a spacebar.
 - **ARROW UP** and **DOWN** navigate between the rows.
3. Select **✓** to save the changes and return to the Setup Menu; select **✕** to return to the previous header and exit to the Setup Menu.

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 10.
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.

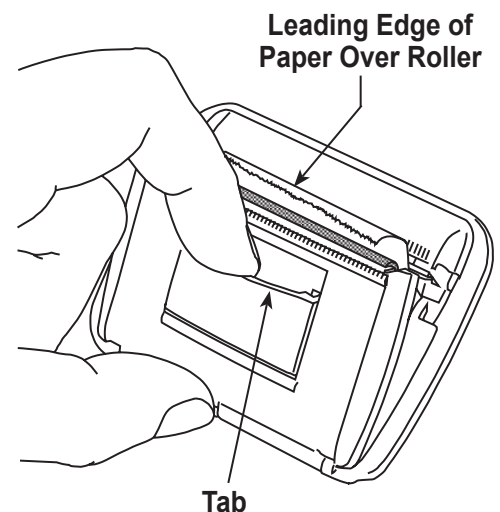


Figure 10

Maintenance

Filter Maintenance

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 136 kg (300 lb) of refrigerant has been filtered.

The machine gives a warning when 91 kg (200 lb) of the filter capacity has been used; the machine locks down when the 136 kg (300 lb) filter capacity has been reached and will no longer function.

Check Remaining Filter Capacity

1. Select **FILTER MAINTENANCE** from the **SETUP MENU** or when the machine prompts. The machine displays

Remaining Filter Capacity: XXX.XO kg
Replace filter now?

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

2. Select ✓ to change the filter; select ✕ to resume using the machine.

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



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.

Replace the Filter

1. If ✓ was selected to change the filters, the machine prompts for the new filter codes to be entered. One or two filter serial numbers may be entered depending on how many filters are replaced. If one filter is replaced, 68 kg (150 lb) of capacity is added to the machine. If both filters are replaced, 136 kg (300 lb) of capacity is added.

Use the keypad to enter the serial number(s) that appears on the new filter(s), and select ✓ to continue.

Note: If "Invalid serial number" is displayed, the serial number has been incorrectly entered, or the filter has already been used in this machine.

2. The machine clears the existing filter and displays:

Serial numbers accepted.

Turn power off and replace filters.

Turn off the machine. Remove the two door screws and open the door. See Figure 11.

3. Remove the filters by turning them counterclockwise (as viewed from the bottom of the filter).
4. Look at the new filters. Verify both o-rings are lubricated and correctly located in the grooves.
5. Install the new filters by threading them clockwise into place. Verify the filters are positioned correctly as shown in Figure 11. Tighten both filters to 20 Nm.
6. Power the machine on. The Change Vacuum Pump Oil operation will begin, and the screen will display

Warming oil for drain XX:XX

See the **CHANGE VACUUM PUMP OIL** section of this manual for more information.

The machine will then begin the Leak Check operation. See the **LEAK CHECK** section of this manual for more information.

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.

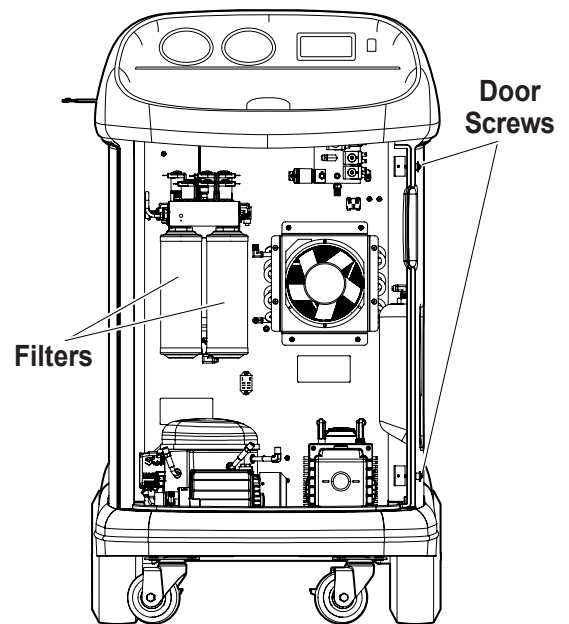


Figure 11

Maintenance

Calibration Check

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

1. Select **CALIBRATION CHECK** from the **SETUP MENU**.
The machine displays

Place calibration weight on the top of the tank.

2. Place the calibration weight on the tank near the valves.
Select ✓ to continue.

The machine displays

Remove calibration weight from the tank.

3. Remove the calibration weight from the tank. Select ✓ to continue.

4. If the machine displays

Calibration check passed

the scale is in calibration. Select ►► to return to the setup menu.

5. If the displays

Calibration check failed. Retry?

the scale is out of calibration. To retry, select ↺. If the calibration continues to fail, contact an authorized Robinair service center for assistance.

Change Vacuum Pump Oil

1. Select **PUMP MAINTENANCE** from the **SETUP MENU** or when prompted. The display show how long the vacuum pump has operated since the last oil change.

Oil life remaining:
XXX:XX (hhh:mm)
Change oil now?

2. Select to change vacuum pump oil The machine displays

Warming oil for drain
XX:XX

allow the vacuum pump to run for two minutes to warm up the oil for more effective drainage.

3. Remove the door access screws from the right side of the unit and open the door.
4. Slowly open the oil fill cap to verify there is no pressure in the machine. Then carefully remove the cap. See Figure 12.
5. Remove the oil drain fitting cap and drain the oil into a suitable container for disposal. Dispose of the oil according to applicable regulations. Replace the drain fitting and close tightly. Add 225 mL of new vacuum pump oil and select **▶▶** to continue.
6. The machine displays

Fill vacuum pump to the center of the sight glass
Reinstall fill cap

Slowly add vacuum pump oil to the pump through the oil fill port until the oil reaches the center of the sight glass. Install the cap on the oil fill port and close tightly. Select **▶▶** to return to the **SETUP MENU**.

Note: For proper oil level, ensure the machine is on a flat, level surface.

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.



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.

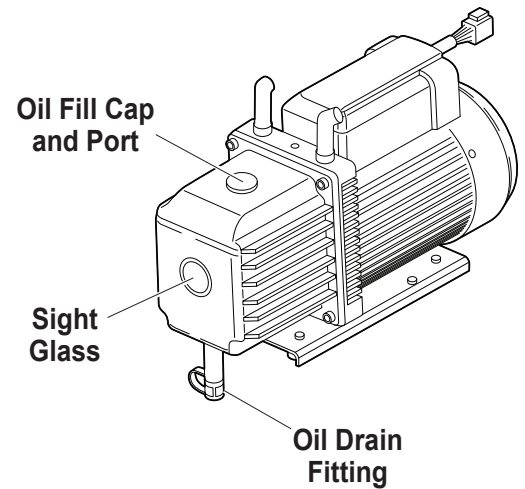


Figure 12

Maintenance

Empty Vacuum Pump Exhaust Bottle

A vacuum pump exhaust bottle is included with this unit, as shown in Figure 13, to capture any oil that may be expelled from the pump. The bottle should be emptied anytime a noticeable amount of oil accumulates.

1. Unscrew the bottle to remove it from the unit.
2. Dispose of the oil according to local, state, and federal regulations.
3. Check the vacuum pump sight glass to confirm that the oil level is sufficient. Refer to the **CHANGE VACUUM PUMP OIL** section of the manual for instruction to change or add vacuum pump oil.
4. Reinstall the empty vacuum pump exhaust bottle.

Tank Removal

To protect the scale from damage, the tank must be removed from the unit any time the unit is transported. Follow these steps to remove the tank.

1. Close the liquid and vapor valves on the tank and disconnect the tank hoses from the tank.
2. Unfasten the probe strap and remove the temperature probe assembly from the tank. Secure the temperature probe during transport.
3. Untether the tank by releasing the tank strap clip and pulling the strap through the tank handle.
4. Loosen the thumbscrew on the scale and remove the tank by lifting up.

Note: The nitrogen must be purged and the tank pulled into vacuum before a new tank can be used.

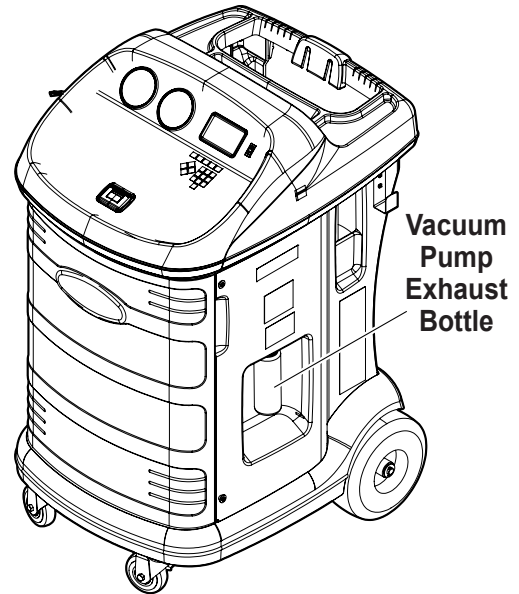





Figure 13


	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.
	
	

Leak Check

A leak test may be performed on the machine at any time. During this test, components containing refrigerant are pressurized and monitored for pressure decay, which could indicate a leak.

1. Select **LEAK CHECK** from the **SETUP MENU**. The machine displays

Connect service hoses to storage ports and open coupler valves

2. Connect the service hose couplers to the storage ports at the rear of the machine. Open the couplers by turning the collars clockwise.
3. Select  to start. The machine performs a self-recovery and displays

Recover in progress

The machine performs a 30-second vacuum test and displays

Vacuum leak check in progress


If the vacuum test fails, the machine will prompt to check for leaks.


Once the machine passes the vacuum test, a controlled pressure is applied to its internal components. The machine displays

Pressure leak check in progress

Pressure is held for five minutes and monitored for decay. Minutes and seconds count down on the display.

- If an acceptable pressure decay is detected, the machine recovers refrigerant and returns to the Setup Menu, ready for normal operation.
- If an unacceptable pressure decay is detected, the machine will prompt to check for leaks. Contact an authorized Robinair service center for repair.


 **WARNING:** 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.

 **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 R-134a.



A/C Service Functions

Replacement Parts





Component	Replacement Part No.
Calibration Weight	16214
Filter	34724
Hose Set without Couplers (high-side [red] and low-side [blue])	70130
Oil Bottle	19103
Printer	30038
Printer Paper (3 rolls)	34214
LP Service Coupler	18190A
HP Service Coupler	18191A
Service Coupler Set (high-side [red] and low-side [blue] couplers)	18192
Service Hose (low-side, blue)	70131
Service Hose (high-side, red)	70132
Tank Hose (blue)	70141
Tank Hose (red)	70140
Tank Hose (yellow)	70142
Tank, 50-lb R134a	34750
Vacuum Pump Oil (pint)	13119
Vacuum Pump Oil (quart)	13203
Vacuum Pump Oil (gallon)	13204
Vinyl Dust Cover (optional)	17490
1/2-in. ACME to low-side adapter	16301

 **WARNING:** 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.

Troubleshooting

Display	Cause	Solution
AIR PURGE ERROR DUE TO EXCESSIVE PURGE TIME	Possible poor sensor contact with tank.	Verify tank temp sensor is properly connected to the tank.
CALIBRATION CHECK FAILED	Tank scale is out of calibration.	Select  to retry calibration check. If calibration continues to fail, exit current test and contact a Robinair authorized service center for repair.
CHARGE STALLED!	Transfer from ACS to machine has stalled. Refrigerant is stalled in the tank or the machine.	Verify connections are secure and valves are in correct position. Verify that the circuit breaker is not tripped.
DATABASE NOT AVAILABLE	Machine is not shipped with database installed.	Contact a Robinair authorized service center for more information.
EXCESS TANK WEIGHT	Overfill safety circuit tripped. Machine is locked out because of too much refrigerant in tank.	Contact a Robinair authorized service center for more information.
FILTER CAPACITY EXHAUSTED, FILTER MUST BE REPLACED FILTER WEIGHT XXX.XYY REPLACE FILTER NOW?	136 kg (300 lb) or more refrigerant has been recovered since last filter change.	Refer to Filter Maintenance section of this manual for instructions to change filter.
FILTER SERIAL NUMBER HAS ALREADY BEEN USED. RE-ENTER OR EXIT	Filter serial number entered into the machine is not correct.	Filter has already been used on this machine. Obtain new Robinair filter No. 34724.
HIGH TANK PRESSURE	Machine is locked out because pressure in tank is too high, possibly because of high tank temperature or excess air in tank.	Allow machine to cool before performing additional A/C service. If problem continues, contact a Robinair authorized service center for more information.
INLET PRESSURE IS TOO HIGH FOR VACUUM	Before the machine begins evacuating the A/C system, it checks for pressure in the system that could damage the vacuum pump. In this case, system pressure is above 0.35 bar gauge.	Select  . Refer to Recover section of this manual to recover refrigerant before proceeding.

Troubleshooting

Display	Cause	Solution
INSUFFICIENT REFRIGERANT. 6.00 KG REQUIRED FOR SYSTEM FLUSH	Not enough refrigerant in the tank to perform a system flush.	<i>Refer to Tank Fill in Maintenance section of this manual.</i>
INSUFFICIENT REFRIGERANT AVAILABLE FOR CHARGE SELECTED: XX.XXYY AVAILABLE: XX.XXYY	After a desired weight is entered, if the charge process will leave less than 2.10 kg (4.6 lb) of refrigerant in tank, the charge function will not start.	<i>Refer to Tank Fill in the Maintenance section of this manual.</i>
INVALID CODE	Activation code entered into the machine is not correct.	<i>Verify activation code is entered exactly as received. Capitalization is required.</i>
INVALID SERIAL NUMBER!	Filter serial number entered into the machine is not correct.	<i>Verify serial number entered matches serial number on filter. Verify filter has not been used on machine previously.</i>
LEAK TEST FAILED	A leak in the A/C system.	<i>Exit current test and perform repairs on A/C system.</i>
NO PRESSURE ON INLETS CHECK CONNECTIONS RECOVER ANYWAY?	System pressure is below 0.35 bar gauge.	<i>Verify high-side (red) and low-side (blue) hoses are connected and coupler valves open. Select  to RECOVER; select  to bypass recover and proceed to VACUUM.</i>
OIL DRAIN HALTED	Accumulator pressure failed to rise above 1.10 bar within the minute before an oil drain was supposed to occur. Unit failed to drain recovered oil because of lack of pressure or an internal obstruction.	<i>Adequate pressure is required within the accumulator to force the oil, which has been separated from the refrigerant, out of the system. Select  to retry; select  to exit.</i>
OIL LIFE REMAINING XX:XXX CHANGE OIL NOW?	Display shows vacuum pump oil life remaining until oil should be replaced.	<i>Refer to Maintenance section of this manual for instructions to change vacuum pump oil.</i>
OUT OF RANGE ACCUMULATORPRESSURE	Accumulator pressure transducer is not reading pressure correctly.	<i>Exit current test and contact a Robinair authorized service center for more information.</i>

Troubleshooting

Display	Cause	Solution
OUT OF RANGE HS PRESSURE SENSOR	High side pressure transducer is not reading pressure correctly.	<i>Exit current test and contact a Robinair authorized service center for more information.</i>
OUT OF RANGE TANK PRESSURE	Tank pressure transducer is not reading pressure correctly.	<i>Exit current test and contact a Robinair authorized service center for more information.</i>
OUT OF RANGE TANK TEMPERATURE	Tank temperature sensor is not reading temperature correctly.	<i>Move unit to an environment within operating range or exit current test and contact a Robinair authorized service center for more information.</i>
OUT OF RANGE LS PRESSURE SENSOR	Low-side pressure transducer is not reading pressure correctly.	<i>Exit current test and contact a Robinair authorized service center for more information.</i>
POWER BOARD COMMUNICATION FAILED	Failed communication with relay board.	<i>Cycle power. If problem continues, contact a Robinair authorized service center for more information.</i>
PRESSURE LEAK TEST FAILED CHECK UNIT FOR LEAKS	A leak in ACS machine.	<i>Exit current test and identify source with a leak detector.</i>
SOURCE TANK IS EMPTY	Refrigerant cannot be transferred to the tank because the source tank is empty.	<i>Exit current test and replace the source tank.</i>
TANK FULL. REMOVE REFRIGERANT BEFORE CONTINUING	Tank is too full to recover additional refrigerant.	<i>Perform a charge process to remove refrigerant from tank before any further recovery attempts.</i>
TRIAL PERIOD EXPIRED UNIT ACTIVATION REQUIRED TO CONTINUE USE	Failure to register and activate the machine within 30 days of initial startup will cause the machine to lock out and no longer function.	<i>Select ✓ and refer to Unit Activation section in this manual to register the machine.</i>
VACUUM TEST FAILED. CHECK SYSTEM FOR LEAKS	A leak in A/C system.	<i>Exit current test and perform repairs on A/C system.</i>

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 14.
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 60°C (0°F and 140°F).
4. Lock the front wheels.

Transportation of Equipment

! **WARNING:** To prevent personal injury, should the machine require transport to a Robinair service center, follow local government regulations regarding transportation of equipment containing R-134a.

Service Hoses
Connected to
Storage Ports

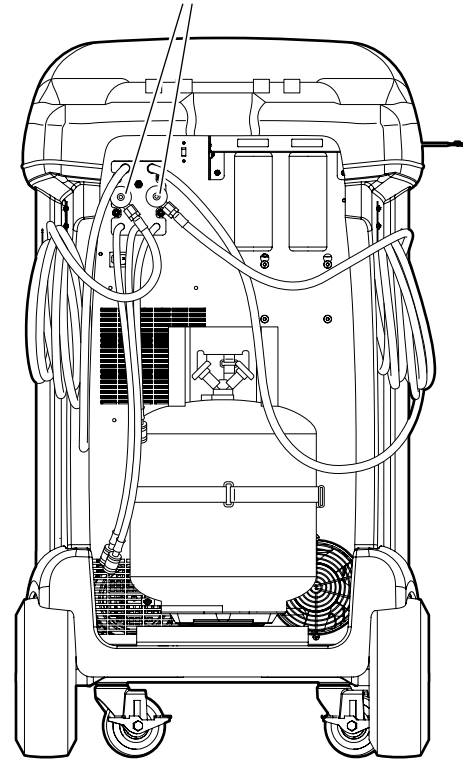


Figure 14

Disposal of Equipment



At the end of its useful life, dispose of the R-134a machine according to current government regulations.

- Public administration and producers of electrical / electronic equipment (EEE) are involved in facilitating the processes of the re-use and recovery of waste electrical / electronic equipment through the organization of collection activities and the use of appropriate planning arrangements.
- Do not dispose of this equipment as miscellaneous solid municipal waste. Arrange to have it collected separately. Unauthorized disposal of waste electrical / electronic equipment is punishable by law with appropriate penalties.
- The reuse and correct recycling of electrical / electronic equipment (EEE) is required for the protection of the environment and the well-being of humans.

Disposal of Recycled Materials

It is the responsibility of the user to determine if a material is a hazardous waste at the time of disposal. The user must ensure compliance with all applicable laws and regulations.

1. Deliver the refrigerant recovered from A/C systems to gas suppliers for recycling or disposal.
2. Deliver the lubricants extracted from A/C systems to used oil collection centers.
3. Review the laws in your jurisdiction to determine correct disposal procedures for pump oil.

Disposal of the Machine

1. Detach and vent the gas from the machine circuit. Completely discharge the refrigerant tank in compliance with current government regulations.
2. Deliver the machine to an appropriate disposal center.

Disposal of Batteries



At the end of their useful life, dispose of batteries according to current government regulations. Batteries must be recycled or disposed of correctly. Do not throw away batteries as part of normal refuse disposal.



WARNING: To prevent personal injury, do not throw batteries into open flame.

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Rev. May 15, 2015

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

Revisión del 15 de mayo de 2015

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

Révisée le 15 er mai 2015

Ce produit est couvert contre les défauts de matériel, de fabrication et de composant pendant un ans 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 endommagé 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.

Declaração de garantia limitada

Rev. 15 de maio de 2015

Garantimos que este produto está isento de defeitos de fabricação, de material e de componentes por um período de um ano a partir da data da compra. Todas as peças e a mão de obra necessárias para reparar produtos defeituosos cobertos pela garantia não gerarão nenhum custo. As seguintes restrições são válidas:

1. A garantia limitada aplica-se apenas ao comprador original.
2. A garantia se aplica ao produto apenas em situações normais de uso, como descrito no Manual de operação. O produto deve ser usado e mantido conforme especificado.
3. Em caso de defeito, o produto será reparado ou substituído a critério do fabricante.
4. Os custos de transporte para atendimento em garantia serão reembolsados pela fábrica após verificação da solicitação de garantia e apresentação de nota fiscal de despesa cobrindo transporte terrestre normal. O fabricante deverá aprovar com antecedência o envio para um centro de serviço autorizado.
5. As reivindicações de garantia estão sujeitas a inspeção de defeitos do produto por um representante autorizado.
6. O fabricante não se responsabiliza por nenhum custo adicional associado a falha do produto, incluindo, entre outros, perda de tempo de trabalho, perda de fluido refrigerante, contaminação de fluido refrigerante e transporte e mão de obra não autorizados.
7. Todas as reclamações do serviço de garantia devem ser feitas dentro do período de garantia especificado. Deverá ser apresentado um comprovante da data de compra ao fabricante.
8. A utilização de equipamento de recuperação/reciclagem com fluido refrigerante ou vedantes não autorizados invalidará a garantia.
 - Os fluidos refrigerantes autorizados estão listados no equipamento ou podem ser fornecidos por meio do departamento de atendimento técnico.
 - O fabricante proíbe o uso do equipamento de recuperação/reciclagem em sistemas de ar-condicionado (A/C) contendo vedantes de vazamento, tanto do tipo junta de expansão quanto aeróbico.

Esta garantia limitada NÃO se aplica caso:

- O produto, ou parte do produto, sofreu quebra por acidente.
- O produto seja mal utilizado, adulterado ou modificado.
- O produto seja utilizado para a recuperação ou reciclagem qualquer substância diferente do tipo de fluido refrigerante especificado. Isso inclui, entre outros, materiais e produtos químicos usados para vedação em sistemas A/C.

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