



*Original Instructions*  
*Original-Betriebsanleitung*  
*Istruzioni originali*  
*Instrucciones originales*  
*Instruções Originais*  
*Instructions d'origine*



**Model BAC 5100yf**

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



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## 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.

BAC 5100yf

Serial Number: \_\_\_\_\_ Year of Manufacture: \_\_\_\_\_

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# Table of Contents

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<b>Safety Precautions</b> .....	2
<b>Introduction</b>	
Technical Specifications .....	5
Features of the BAC 5100yf .....	6
Control Panel Functions .....	8
Setup Menu Functions .....	9
<b>Setup</b>	
Unpack the Machine .....	10
Unpack the Accessory Kit .....	10
Assemble the UV Dye Bottle and Two Oil Inject Bottles .....	10
Install the Oil Drain Bottle .....	11
Power Up the Machine .....	11
Language Selection .....	11
Units of Measure .....	11
Set Date & Time .....	12
Service Installation Cleaning .....	12
Tank Fill Adjustment .....	12
Tank Filling .....	13
Garage Data .....	14
<b>Operating Instructions</b>	
Refrigerant ID .....	15
Recover .....	18
Vacuum .....	20
Hose Flush .....	21
Charge .....	22
Automatic .....	23
System Flush .....	25
<b>Maintenance</b>	
Schedule .....	27
General .....	28
Electrical Protection .....	28
Lockout / Tag Out .....	28
Tank Fill Adjustment .....	28
Tank Filling .....	29
Filter Change .....	30
Refrigerant Identifier .....	32
Calibration Check .....	32
Change Vacuum Pump Oil .....	33
Edit Print Header .....	34
Replace Printer Paper .....	34
Calibrate Oil and Dye Inject Scales .....	35
Calibrate Oil Drain Scale .....	35
Pressure Decay Leak Test .....	36
<b>Replacement Parts</b> .....	37
<b>Glossary</b> .....	37
<b>Software Flow Chart</b> .....	38
<b>Troubleshooting</b>	
Messages .....	39
Procedures .....	41
<b>Storage and Transportation of Equipment</b> .....	47
<b>Disposal of Equipment</b> .....	48

# Safety Precautions

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## 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 Beissbarth is aware of. Beissbarth cannot know, evaluate, and 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 BAC 5100yf

	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 BAC 5100YF 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.



**DO NOT BREATHE REFRIGERANT AND LUBRICANT VAPOR OR MIST.** R1234yf reduces the oxygen available for breathing, resulting in drowsiness and dizziness. Exposure to high concentrations of R1234yf causes asphyxiation, injury to the eyes, nose, throat, and lungs, and can affect the central nervous system. Use the machine in locations with mechanical ventilation that provides at least one air change 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,** do not use this machine in ATEX classified zones or areas. Protect the machine from conditions that may cause electrical failure or other hazards relating to ambient interaction.



**DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR LEAK TEST THE MACHINE OR VEHICLE AIR CONDITIONING SYSTEM.** Mixtures of air and R1234yf refrigerant can be combustible at elevated pressures. These mixtures are potentially dangerous and may 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 may cause personal injury. Disconnect the 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. To ensure that unauthorized personnel cannot run the machine, use the Lockout / Tag Out feature.

**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.

# Safety Precautions

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CAUTION : To prevent equipment damage,

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**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.**

Further information regarding health and safety may be obtained from the refrigerant manufacturer.

## Protective devices

BAC 5100yf 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 depending on the country where the refrigerant tank is used. The system manager is responsible for respect of 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.

The BAC 5100yf machine is used on R1234yf equipped vehicles 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 R1234yf.

The machine includes a high vacuum pump for fast, thorough evacuation. The compressor first pulls the A/C system to 0 psi gauge; the compressor then works with the vacuum pump to pull a vacuum to an absolute pressure of less than 0.3 bar.

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



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## Technical Specifications

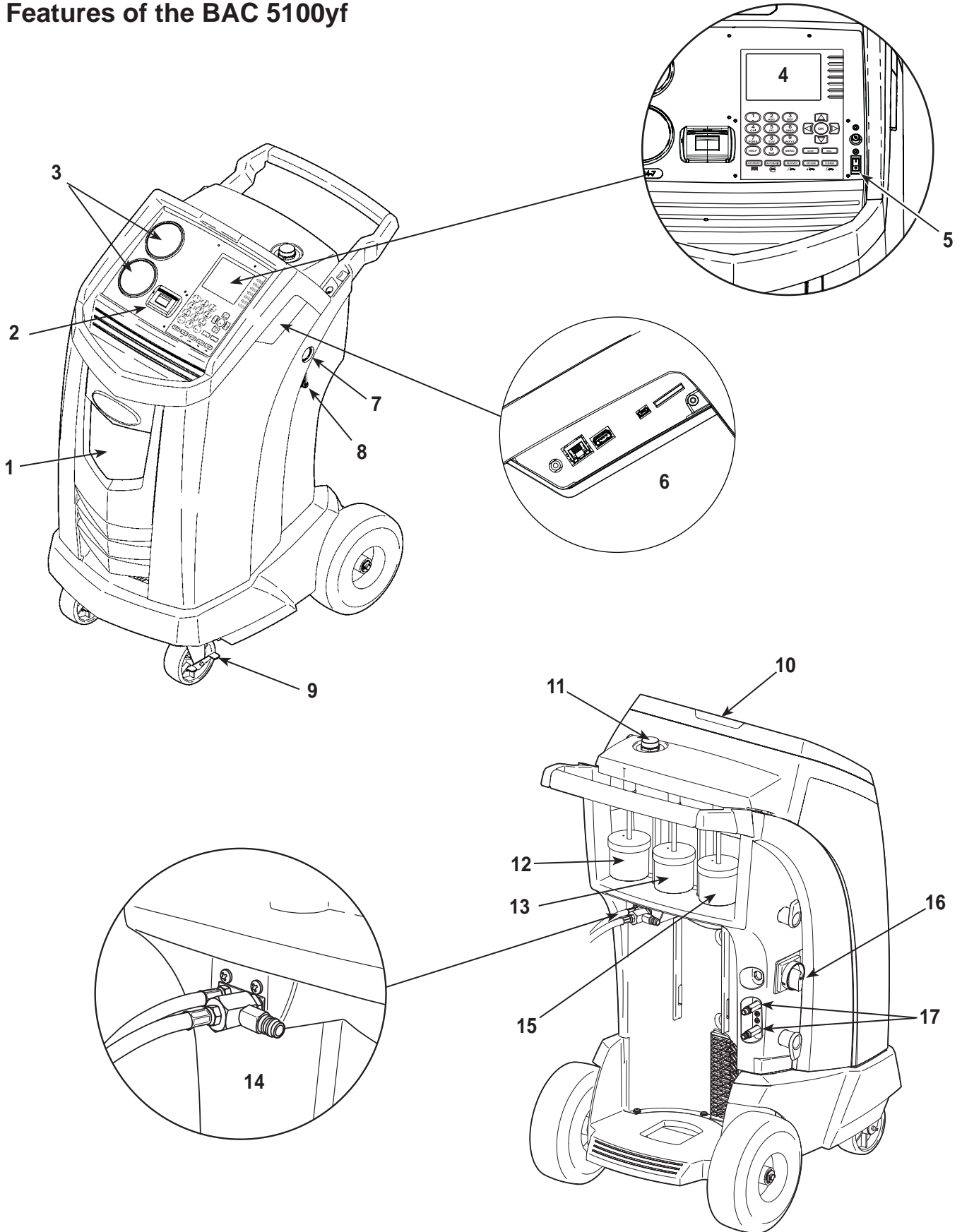
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<b>Compressor</b> .....	1/3 HP
<b>Dimensions</b> .....	107 cm x 61 cm x 76 cm
<b>Display</b> .....	.5.7 in. TFT 1/4 VGA graphic
<b>Filter</b> .....	.700 cc
<b>Humidity</b> .....	.32.2°C (90°F), 80% RH non-condensing
<b>Manometer</b> .....	.Ø 100 mm
<b>Maximum Altitude (above sea level)</b> ....	.2000 m (6561 ft.)
<b>Maximum Pressure</b> .....	.25 bar
<b>Noise</b> .....	.<70 dB(A)
<b>Nominal Voltage</b> .....	.230V, 50/60 Hz
<b>Oil Tank</b> .....	.3x 250 ml
<b>Operating Temperature</b> .....	.10°C to 50°C
<b>Power Consumption</b> .....	.1100 VA
<b>Pump Free-Air Displacement</b> ....	.6 CFM (170 l/m) 50 Hz
<b>Service Hoses</b> .....	.250 cm / SAE J2888
<b>Tank Capacity</b> .....	.9.09 kg (20.04 lb.)
<b>Weight</b> .....	.107 kg



# Introduction

## Features of the BAC 5100yf





## Features of the BAC 5100yf 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; 2224Vms double insulation in respect to main lines
7	Vacuum Pump Oil Sight Glass
8	Vacuum Pump Oil Oil Drain Fitting
9	Wheel Lock
10	Visual Alert
11	Vacuum Pump Oil Fill Cap and Port
12	Oil Inject Bottle 1 (white cover)
13	Oil Inject Bottle 2 (green color on cover)
14	Contaminant Recovery Port
15	UV Dye Inject Bottle 3 (yellow color on cover)
16	Lockout / Tagout
17	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 that helps the user set up an automatic recover / vacuum / leak test / charge sequence.



**CHARGE** activates the sequence that charges the vehicle A/C system with a programmed amount of refrigerant.

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

**HELP** displays information related to the current display.

**MENU** accesses additional functions and parameters.

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



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

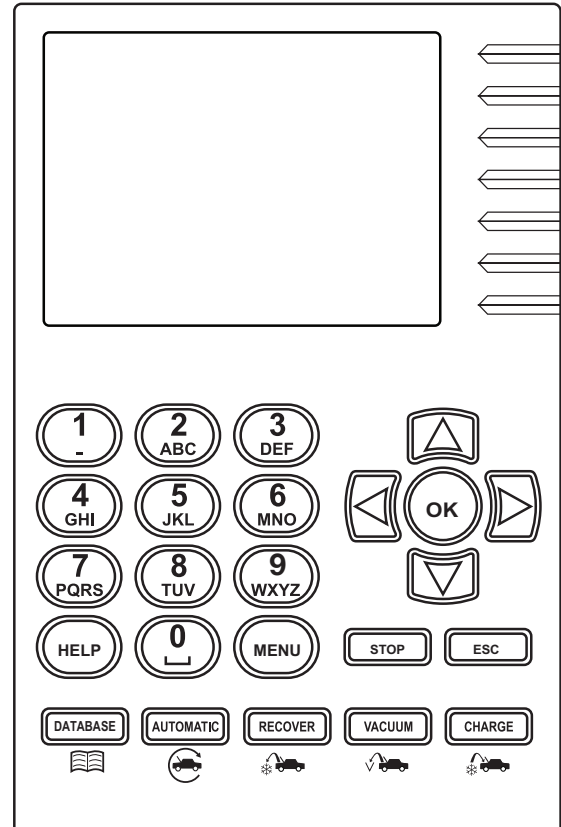


**DATABASE** supplies information regarding charge capacity by vehicle model.

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



**VACUUM** activates the sequence that pulls 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.

### Calibrate Oil Drain

User calibration of oil drain scale using the supplied calibration weight. Refer to *Calibrate Oil Drain* in the Maintenance section.

### Calibrate Oil Inject 1

User calibration of oil injection scale number one using either the supplied calibration weight or a user-provided weight. Refer to *Calibrate Oil and Dye Inject Scales* in the Maintenance section.

### Calibrate Oil Inject 2

User calibration of oil injection scale number two using either the supplied calibration weight or a user-provided weight. Refer to *Calibrate Oil and Dye Inject Scales* in the Maintenance section.

### Calibrate UV Dye Inject

User calibration of the UV dye scale using either the supplied calibration weight or a user-provided weight. Refer to *Calibrate Oil and Dye Inject Scales* in the Maintenance section.

### 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.

### 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 Beissbarth service center use only.

### Tank Fill Adjustment

The tank fill value may be adjusted up or down to suit the user’s needs. The default is 6.1 kg (13.4 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 Unit

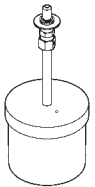
1. Remove the bandings from the box.
2. Remove the top carton infold, the molded pulp tray, and the angle boards.
3. Remove the sleeve from the bottom carton infold.
4. Gently roll the unit forward and off the pallet, avoiding any sudden shocks to the machine.

## Unpack the Accessory Kit

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

- Calibration weight (533 g).
- Four bottles—oil drain bottle, oil inject bottle 1, oil inject bottle 2, UV dye inject bottle 3.
- Plastic pouch containing a warranty card (to be completed and mailed), applicable MSDS sheets, and a service center listing.
- Oil drain scale calibration bracket.
- Dust cover.

## Assemble the UV Dye Inject Bottle and Two Oil Inject Bottles



Follow these instructions to install each oil inject bottle, as well as the UV dye inject bottle. Refer to Figure 1.

1. Unthread the cover from the reservoir and remove the piston.
2. Fill the reservoir only to the MAX FILL line. Overfilling the reservoir may cause air to be injected into the vehicle system.
3. Spread a thin film of oil / dye on the piston o-ring (to reduce seal drag), and insert the piston into the reservoir. Thread the cover onto the reservoir.
4. Slowly push the piston into the reservoir until you see oil / dye at the connector.
5. Inspect the bottle to ensure there are no air bubbles between the piston and the liquid—the piston should be in direct contact with the liquid.
6. Hold the assembly by the plastic bottle, and insert the connector into the magnetic coupler on the machine.



**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.

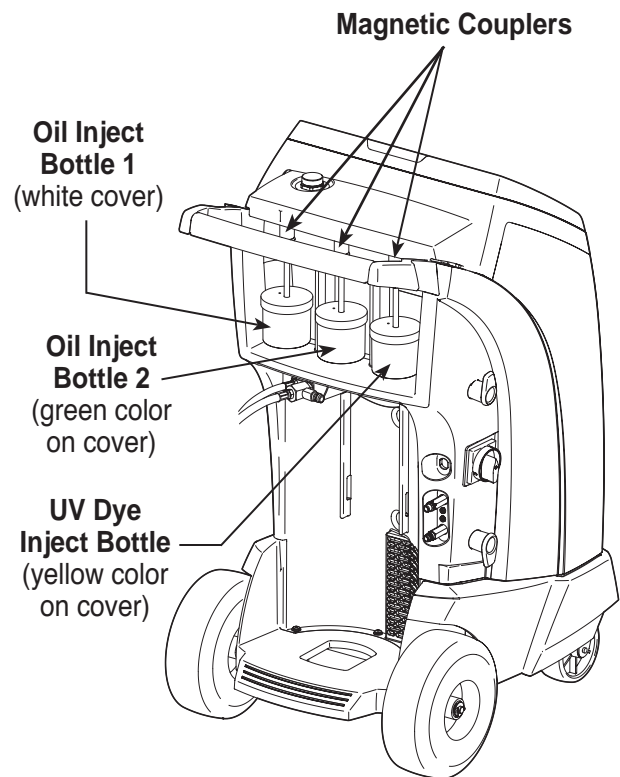


Figure 1

**CAUTION:** To avoid chemical incompatibilities with the internal components of the machine, use only UV dyes and oils approved by the vehicle manufacturer. Problems resulting from the use of non-approved UV dyes and oils will cancel the warranty.

## Install the Oil Drain Bottle

1. Hold the oil drain bottle straight, and insert the connector into the hole until it snaps into place. See Figure 2.

## 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 the Lockout / Tag Out lever clockwise (CW) to switch it ON.
5. Turn ON the main power switch.

The first time the machine is powered up, it displays the license agreement for your approval and then launches into the initial **Setup** mode.

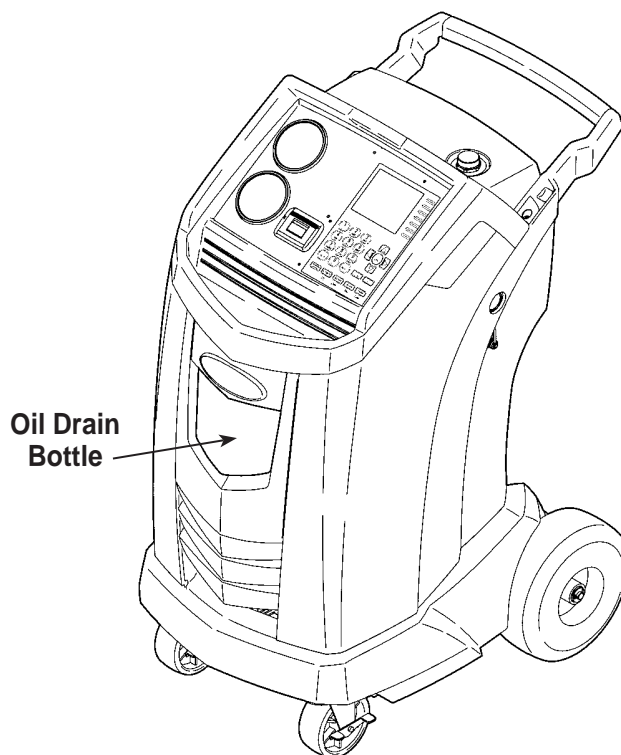


Figure 2

## 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.

## 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 kilograms or pounds.
2. Press **OK** to choose the displayed unit of measure.

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**⚠ 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.

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# Setup

## Date and Time Setup

The machine is programmed at the factory for the local time zone, using a 24-hr. clock, and date. *Note: The date changes only by scrolling through an entire day.*

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

## Service Installation Cleaning

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 3.
2. 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.

3. Check the vacuum pump oil level sight glass and verify the oil level is correct.

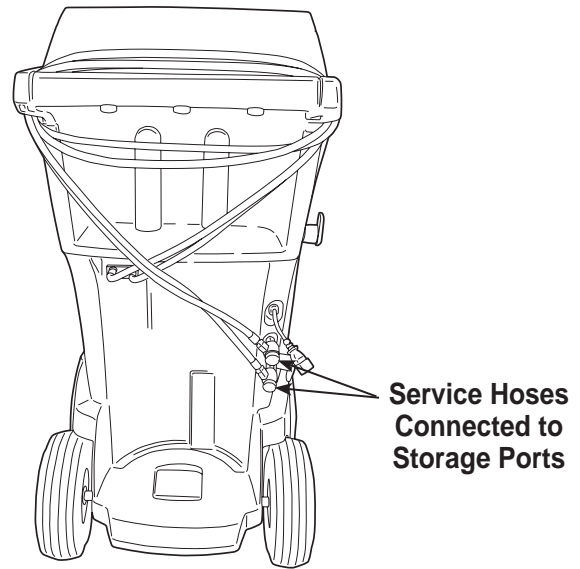


Figure 3

## Tank Fill Adjustment

The operator may either accept the machine's pre-set default weight of 6.1 kg (13.4 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 6.1 kg, which leaves room for additional recovery.

1. The machine displays

6.1 KG

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

## Tank Filling

1. The machine displays,

ENTER THE QUANTITY TO BE RECOVERED  
 MAX. RECOVERABLE QUANTITY  
 XX.XX KG  
 QUANTITY TO RECOVER  
 0000 GR

Connect the low-side (blue) hose to the liquid connector on the source tank.

2. Open the coupler valve on the hose by turning the collar clockwise. Open the source tank valve.
3. Position the source tank in such a way that liquid refrigerant is supplied to the connection.
4. Press **OK**. The machine checks the refrigerant in the source tank to verify it is R1234yf and not contaminated. The machine displays,

WARM UP  
 CALIBRATION IN PROGRESS  
 GAS IDENTIFY

- If the machine detects a problem with the refrigerant in the source tank, refer to the *Operating Instructions — Refrigerant ID* section of this manual.
  - If the machine does not detect a problem with the refrigerant, it begins filling the internal storage vessel (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. Close the coupler valves by turning the collars counterclockwise.
  7. Press **OK** to return to the Setup Menu.

The machine is ready for operation.

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

*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. The cursor is blinking in the first fill field. Refer to Figure 4.
2. Press the **Menu** key and a virtual keyboard appears as shown in Figure 5.
3. 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.
4. 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**. Then it will be possible to enter specific vehicle information, such as the VIN and license plate number.

Figure 4 shows a screen with six input fields. The fields are labeled Workshop, Address, Town, Tel, Fax, and E-mail. The Workshop field is the first and is indicated by an arrow and the text 'First Fill Field'.

Figure 4

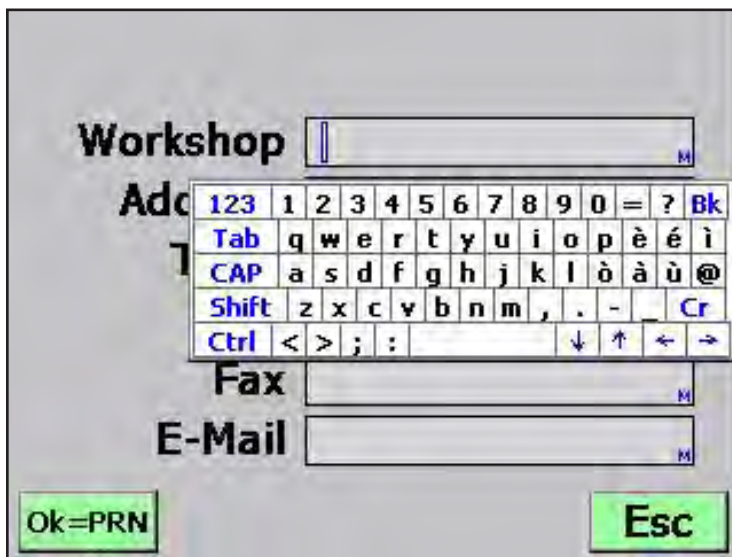


Figure 5

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.



# Operating Instructions — Refrigerant ID

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## Refrigerant Identification

Before performing a recovery, tank fill, or the automatic function, the refrigerant identifier in the machine checks the purity of the refrigerant in the vehicle to be serviced (during recovery and automatic) or in the external source tank (during tank fill).

*Note: This sequence was written using screens that apply to the recovery or automatic functions. The screens displayed during tank fill are slightly different, although the procedure is the same.*

The machine displays

GAS IDENTIFY

If the refrigerant passes the purity test, the machine displays

REFRIGERANT PURITY ACCEPTABLE

and proceeds with the function requested.

## If the Refrigerant Fails the Purity Test

If the refrigerant fails the purity test, the machine automatically repeats the test two more times.

The machine displays

REPEATING GAS IDENTIFY

and

LAST GAS IDENTIFY

as it repeats the purity test.

- If the refrigerant passes the purity test after either of the two tests, the machine proceeds with the function requested.
- If the refrigerant fails the purity test three times, the user has the option to test the operation of the refrigerant identifier in the machine or exit from the function. The machine displays

TEST FAILED  
PRESS OK TO VERIFY REFRIGERANT IDENTIFIER  
IS WORKING CORRECTLY

Select **OK** to test the refrigerant identifier, or select **ESC** to exit the function.

# Operating Instructions — Refrigerant ID

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## Testing the Refrigerant Identifier

If the refrigerant fails the purity test three times, the user has the option to verify that the refrigerant identifier in the machine is working correctly. This sequence may also retest up to three times.

The machine displays

DISCONNECT A/C SERVICE STATION  
FROM VEHICLE  
DRAIN SERVICE HOSES  
PRESS OK WHEN OPERATION IS COMPLETED

1. Disconnect the high- and low-side service couplers from the refrigerant supply, and drain the service hoses. Press **OK**.
2. The machine displays

CONNECT TANK  
THAT CONTAINS 1234YF TEST REFRIGERANT  
PRESS OK TO CONFIRM

Follow system prompts to connect the refrigerant identifier to a known pure (non-contaminated) source of R1234yf. Press **OK** to begin testing the refrigerant identifier.

## Testing Determines the Refrigerant Identifier is Working Correctly

1. If testing determines that the refrigerant identifier in the machine is working correctly, the machine displays

REFRIGERANT IDENTIFIER IS OK  
CLOSE TANK VALVE

Close the valve on the source tank and press **OK**.

2. The machine displays

DISCONNECT HP/LP HOSES

Disconnect the high- and low-side service couplers from the refrigerant supply, and press **OK**.

# Operating Instructions — Refrigerant ID

## Testing the Refrigerant Identifier contd.

3. The machine displays

DRAIN CONTAMINATED REFRIGERANT  
FROM VEHICLE FOR DISPOSAL

Refer to the vehicle service manual for instructions to remove contaminated refrigerant from the vehicle. Dispose of the refrigerant according to applicable laws and regulations.

4. Follow the instructions in this manual – *Troubleshooting Procedures, Purity Test Failed* – to remove the contaminated refrigerant from the A/C machine and service hoses.
5. The machine cancels the requested function. The user has the option to print out refrigerant purity test results by pressing **OK**. See Figure 6.

REFRIGERANT TEST

Identifier verified  
Refrigerant tested  
three times  
Vehicle refrigerant:  
NOT OK

Figure 6

*Printout showing the refrigerant identifier is working correctly but the refrigerant in the vehicle [or tank] is contaminated.*

## Testing Determines the Refrigerant Identifier is Not Working Correctly

1. If testing determines that the refrigerant identifier in the machine is not working correctly, the machine displays

REFRIGERANT IDENTIFIER  
IS DEFECTIVE  
PLEASE CONTACT  
EQUIPMENT MANUFACTURER SERVICE  
PRESS OK TO TERMINATE

Press **OK** to terminate the function.

2. The machine displays

DISCONNECT A/C UNIT  
DRAIN SERVICE HOSES  
PRESS OK WHEN OPERATION IS COMPLETED

3. Disconnect the high- and low-side service hoses from the refrigerant supply. Drain the service hoses. Press **OK**.
4. The machine cancels the requested function.
5. Contact a Beissbarth authorized service center for repair.

# Operating Instructions — Recover



## 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.

*Note: The machine sounds an alert when the oil drain bottle is full, but it is a good practice to completely empty the oil drain bottle before recovering an A/C system.*

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.



**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

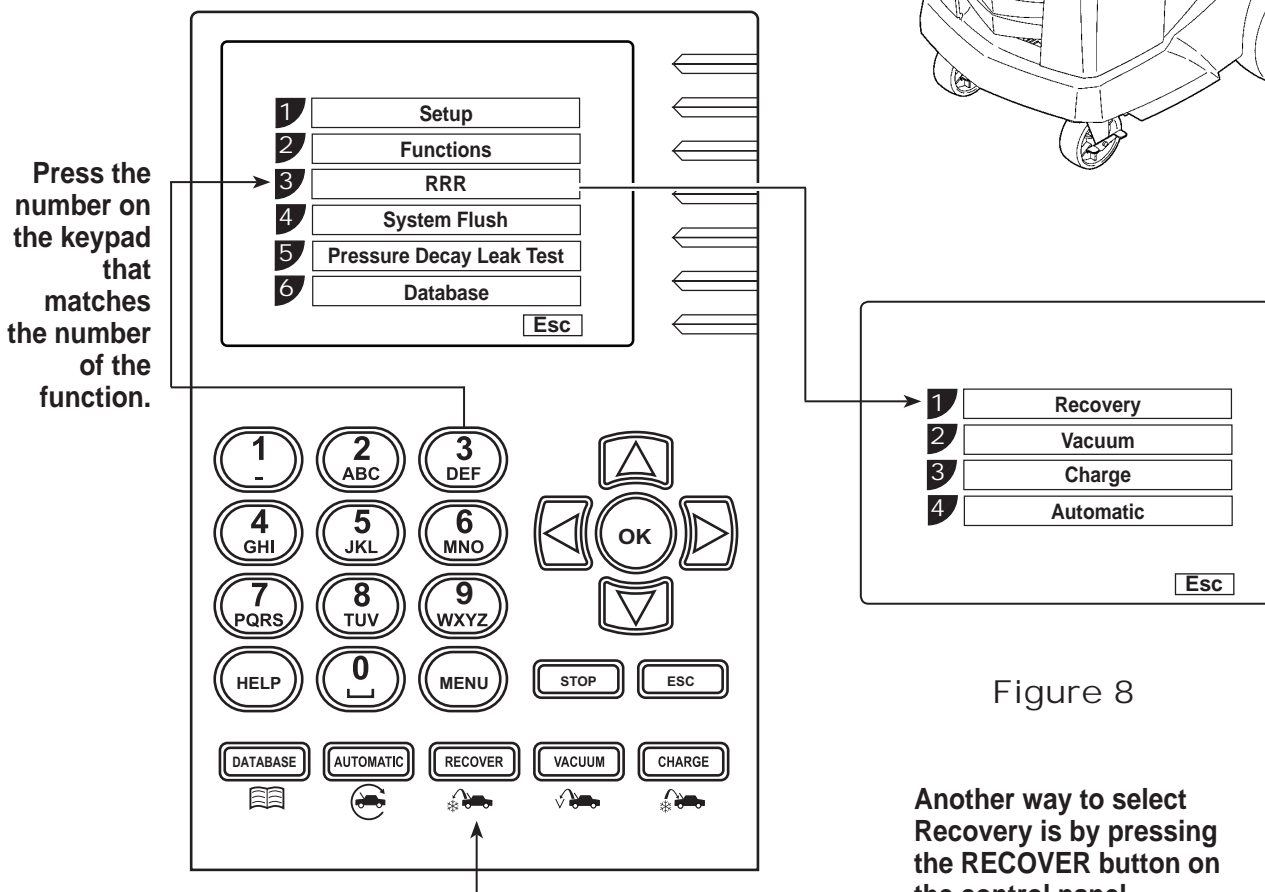
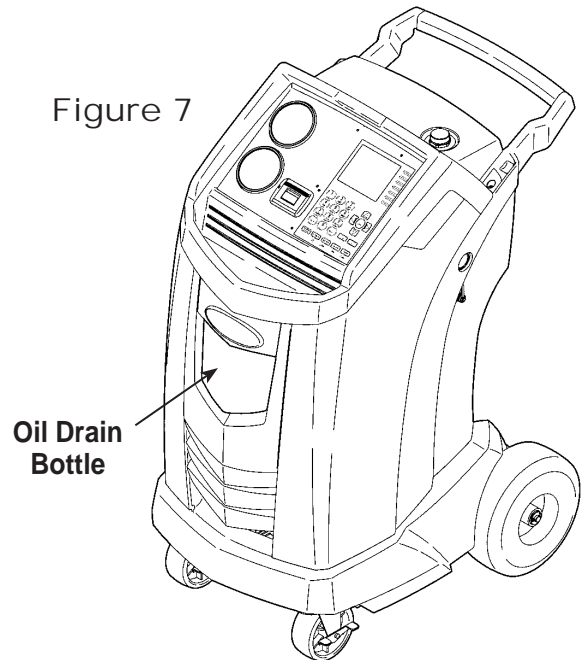


Figure 8

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

# Operating Instructions — Recover

## Recover Refrigerant from a Vehicle continued

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

WARM UP  
CALIBRATION IN PROGRESS  
GAS IDENTIFY

- If the machine detects a problem with the refrigerant in the vehicle, refer to the *Operating Instructions — Refrigerant ID* section of this manual.
  - If the machine does not detect a problem with the refrigerant in the vehicle, it begins the recovery process. The clicking noise indicates the solenoid is opening and closing — this is normal.
6. The machine runs a self-clearing cycle to clear any internal refrigerant from its internal plumbing.
  7. When the system has recovered to 0 psi, the vacuum pump starts and runs until recovery is complete.
  8. The machine displays

CHECK OIL BOTTLE  
PRESS OK TO CONFIRM

Press **OK** to start the oil drain—this may require up to 90 seconds to complete.

9. After the oil drain is complete, a summary is displayed of gas recovered and oil drained. At this point you may print out recovery information and pre-recover 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.
10. The amount of oil that was removed from the A/C system is the amount of new oil that can 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.

# Operating Instructions — Vacuum

---



## Evacuate the Vehicle A/C System

1. Connect the service hoses from the machine to the vehicle's service ports.
2. Open the coupler valves by turning the collars clockwise.
3. Press **VACUUM**.
4. Press **OK** to accept the default evacuation time (30-minute default; 5-minute minimum), or enter the desired vacuum time using the number keys, and press **OK**.
5. The machine gives you the option of doing a leak test after evacuation. Press **OK** for yes; press **ESC** for no. If **OK** is selected, program the amount of time for the leak test.

If the leak test fails, the machine will repeat the vacuum process and leak test two more times. If the leak test fails the third time, the test is interrupted so the leak may be corrected.

6. Time starts when an vacuum of 5 mbar absolute is reached. The machine pulls a vacuum on the A/C system for the programmed amount of time. Pressure is displayed on the display screen. 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.

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# Operating Instructions — Hose Flush

## Flushing the Hoses

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

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 **HOSE FLUSH** from the Setup Menu. The machine displays

CONNECT BOTH SERVICE HOSES  
TO STORAGE PORTS  
AND OPEN BOTH COUPLER VALVES.  
PRESS OK TO CONFIRM

4. Select **OK** to begin the hose flush process, which runs for three minutes, followed by a recovery.
5. When the hose flushing process is complete, the display reads

HOSE FLUSHING OK  
PRESS OK TO CONFIRM

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

6. Close the coupler valves by turning the collars counterclockwise.
7. Press **OK** to return to the Setup 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.

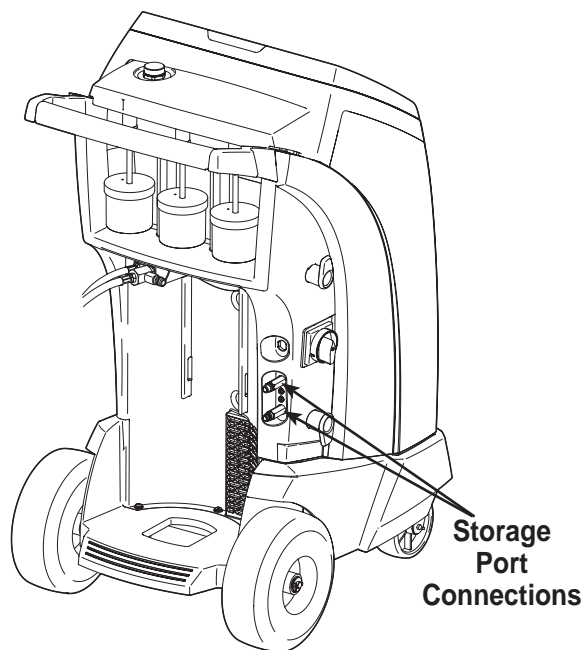


Figure 9

# Operating Instructions — Charge



## Recharge the Vehicle A/C System

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

Automatic leak tests will be performed. To avoid false failures, the temperatures of the vehicle system and the recovery machine should be within  $\pm 5$  degrees C.

1. Connect **both** service hoses to the vehicle's service ports and turn the quick couplers clockwise.
2. Press **CHARGE**. (Charge mode after injecting oil allows only a high-side charge.) The display shows

1	HP
2	LP
3	HP + LP
4	Oil
5	Oil (2)
6	UV Dye
7	Refrigerant

3. Refer to vehicle A/C system specifications to determine which service hose(s) to charge through. Use the number keys 1–3 on the keypad to enter that specification. For selections 4–7, enter a value and press **OK**.
4. Press **OK** to lock in the values and begin 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.
5. Close the coupler valves. When prompted, remove service hoses from the A/C system, and install the hoses on machine's storage ports.
6. Press **OK** to begin clearing hoses to prepare the machine for the next service. When hoses are clear, the display shows a summary of charge results, which can be printed out.

The vehicle 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.

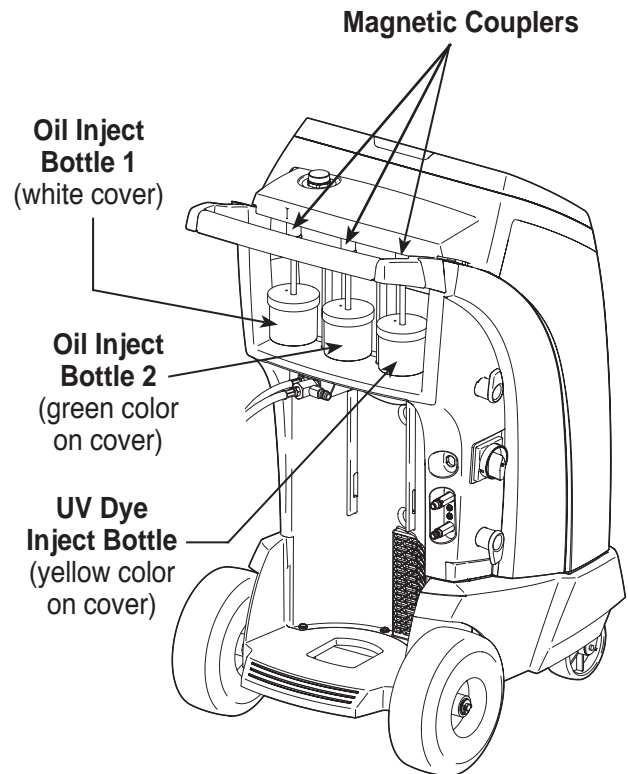


Figure 10

**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 — Automatic



## 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 to complete.

1. Connect high-side (red) and low-side (blue) service hoses to the A/C system, and open coupler valves.
2. Press **AUTOMATIC**. The machine displays

1	HP
2	LP
3	HP + LP
4	UV Dye
5	Refrigerant
6	Vacuum
7	Extra Oil
8	Extra Oil (2)

3. Use the number keys on the keypad to make selections 1–3 for the vehicle's A/C system. For selections 4–8, enter a value and press **OK**.
4. The display shows an overview of the functions, with the selected functions highlighted. Select **OK** to start.
5. The machine checks the refrigerant in the vehicle to verify it is R1234yf and not contaminated. The machine displays the following screens:

WARM UP  
CALIBRATION IN PROGRESS  
GAS IDENTIFY

- If the machine detects a problem with the refrigerant in the vehicle, refer to the *Operating Instructions — Refrigerant ID* section of this manual.



**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 — Automatic

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## Automatic continued

- If the machine does not detect a problem with the refrigerant in the vehicle, it continues with the requested functions.
- 6. Follow instructions on the display. The unit will pause prior to oil injection for the user to confirm oil quantity. After five seconds, the Automatic sequence begins.
- 7. When the sequence is complete, close the high-side (red) and low-side (blue) coupler valves.
- 8. When prompted, remove the service hoses from the A/C system, and install the hoses on the machine's storage ports.
- 9. Select **OK** to begin clearing hoses. This prepares the machine for the next service.
- 10. The machine displays a summary of actions performed during the automatic sequence.

## Information About the Automatic Function

- The **CHARGE** function for vehicles equipped with a single-service fitting should be carried out manually according to procedures in the vehicle manufacturer's service manual.
- The amount of oil recovered during **RECOVER** is automatically injected before the **CHARGE** cycle. The user may choose to have extra oil injected.
- **CHARGE** mode after injecting oil allows only a high-side charge.
- 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, 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.
- Post-recovery leak tests are automatic.

# Operating Instructions — System Flush

## System Flush

The **SYSTEM FLUSH** function is performed using a vehicle manufacturer-approved flushing adapter. Refer to the instructions included with the adapter also as you perform the following steps.

1. Verify the flusher filter and strainer are not plugged.
2. Mount the flusher to the rear of the Beissbarth machine. Do not make any connections at this time.
3. Remove the oil drain bottle (see Figure 11) from the Beissbarth machine. Drain the oil bottle, and dispose of oil according to regulations in your area.
4. Recover all refrigerant from system to be flushed.
5. Note the amount of oil collected during recovery. This amount must be replaced, as well as any oil collected during flush.

*Note: The amount of oil collected and reported during System Flush does not include the amount of oil collected during the initial recovery.*

6. To complete an effective system flush, verify the Beissbarth machine has at least 5.9 kg (13 lb.) of chargeable refrigerant in the ISV.

*Note: If the machine does not have at least 5.9 kg (13 lb.) of refrigerant on-board, see the section of this manual titled Tank Filling.*

7. Disconnect the Beissbarth machine from the vehicle.
8. Refer to the vehicle service manual, and connect the appropriate flushing adapters and bypasses.
9. Connect the low-side (blue) service hose directly to the filter of the flushing kit.
10. Remove the high-side (red) service coupler, and connect the high-side (red) service hose to the system suction line adapter.
11. Use the supplied hose to connect the system discharge adapter to the flusher inlet.
12. Connect hoses according to the instructions



**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.

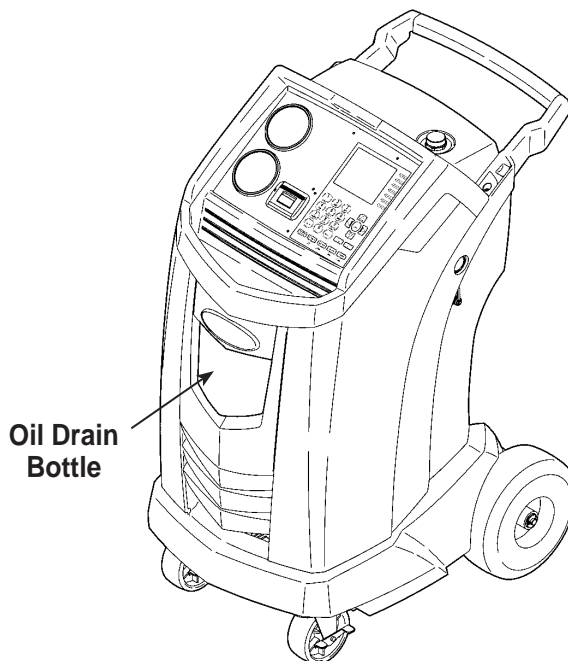


Figure 11

# Operating Instructions — System Flush

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included with the flush kit.

13. Refer to Figure 12 and select SYSTEM FLUSH from the main menu. Press **OK**.
14. Accept the default vacuum time or program a greater amount of time. Press **OK**.
15. The recovery machine pulls a vacuum for the programmed amount of time and then performs a 5-minute leak test. Failure of the leak test indicates a leak in the system or connections, or possibly a pressure rise due to system out-gassing. In that case, check and tighten all connections and restart the vacuum process.
16. After a successful vacuum and leak test, the machine automatically runs a pressure test and recovery of the flushing circuit using a small amount of refrigerant.

After a successful pressure test and recovery, the machine performs four flushing cycles in the opposite direction of normal system flow. Each flushing cycle uses a maximum of 3 kg of refrigerant and is followed by a recovery.

At the end of this procedure, the system will be recovered and evacuated.

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**CAUTION: The flushing kit has a replaceable filter as well as a debris strainer, both of which can get 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- and low-side (blue) hoses. Then service the filters and repeat the flush process.**

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17. Upon completion of a successful flush and system reassembly, replace any oil lost during the process. Refer to the vehicle service manual for additional instructions.

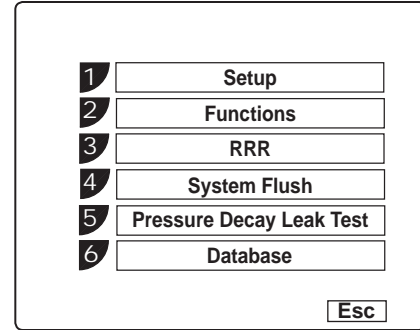


Figure 12  
*The Main Menu*

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

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## Maintenance Schedule

Maintenance Task	Recommended Interval
<b>Calibrate oil and dye inject scales</b>	Monthly. Refer to <i>Calibrate Oil and Dye Inject Scales</i> in the <i>Maintenance</i> section of this manual.
<b>Calibrate oil drain scale</b>	Monthly. Refer to <i>Calibrate Oil Drain Scale</i> in the <i>Maintenance</i> section of this manual.
<b>Change filter</b>	After 150 kg (331 lbs.) of refrigerant has been filtered. Refer to <i>Filter Change</i> in the <i>Maintenance</i> section of this manual.
<b>Change vacuum pump oil</b>	When the filter is replaced. Refer to <i>Change Vacuum Pump Oil</i> in the <i>Maintenance</i> section of this manual.
<b>Check casters and wheels for ease of operation</b>	Monthly.
<b>Check internal scale calibration</b>	Monthly. Refer to <i>Calibration Check</i> in the <i>Maintenance</i> section of this manual.
<b>Check machine for leaks</b>	Monthly. Check hoses and connections for leakage. Disconnect power, remove the shroud, and use an electronic leak detector to check fittings.
<b>Clean air intake panels</b>	Monthly. Use a clean cloth.
<b>Clean cabinet and control panel</b>	Monthly. Use a clean cloth.
<b>Inspect power cord and hoses for cuts and abrasions</b>	Daily.
<b>Lubricate wheel bearings and brake components</b>	Monthly.
<b>Pressure Test</b>	Every 10 years — performed by an authorized Beissbarth service center.



# Maintenance

## General Maintenance

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

## Electrical Protection

The machine is equipped with a circuit breaker on the control panel above the ON/OFF switch. If the breaker trips, its button will pop out. A tripped circuit breaker will cause the machine to lose all power. Press the circuit breaker button to reset.

## Lockout / Tag Out

To ensure that unauthorized personnel cannot run the machine, use the Lockout / Tag Out feature. Refer to Figure 13.

1. Turn the Lockout / Tag Out lever counterclockwise (CCW).
2. Insert a padlock or other item through the aligned holes so the lever cannot be turned clockwise (CW) to start the machine.

## Tank Fill Adjustment

The maximum capacity of the ISV is 6.1 kg (13.4 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. See Figure 14.
2. The machine displays the default amount of refrigerant:



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

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 **WARNING:** To prevent personal injury, only qualified personnel may perform inspections and repairs to this machine.

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 **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.

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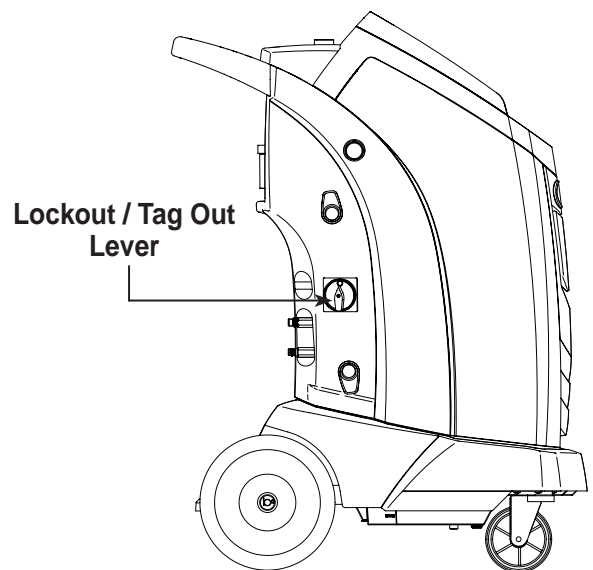


Figure 13

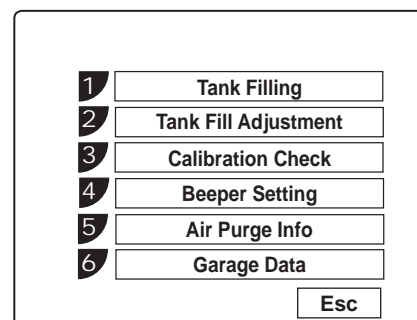


Figure 14  
*The Setup Menu*

## Tank Filling

This menu item is used to transfer refrigerant from a source tank to the ISV.

1. Connect the low-side (blue) hose to the liquid connector on a full source tank.
2. Position the source tank in such a way that liquid refrigerant is supplied to the connection. Open the source tank valve.
3. Select **TANK FILLING** from the Setup Menu. The machine displays

FILL AMOUNT (KG)  
XX.XXX  
CONNECT LOW SIDE HOSE  
TO SOURCE TANK  
OK TO CONTINUE ESC TO QUIT

4. Enter the quantity to recover, and press **OK**. Add at least 3.6 kg of refrigerant to ensure enough is available for charging.
5. 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

- If the machine detects a problem with the refrigerant in the source tank, refer to the *Operating Instructions* — *Refrigerant ID* section of this manual.
  - If the machine does not detect a problem with the refrigerant, it begins filling the internal storage vessel (ISV). This process takes 15–20 minutes.
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. Close the valve and remove the hose from the source tank.

# 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 125 kg (276 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.

### 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.

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

### 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  
FILTER SERIAL #

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 ASSEMBLY

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 Beissbarth No. SP01100355 filters in this machine. All performance tests and claims are based on using this specific filter.**

Remove the four screws holding the shroud.

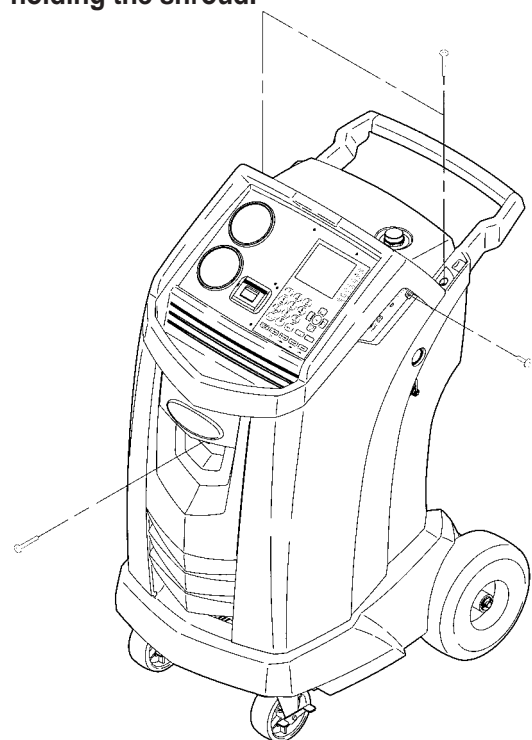


Figure 15

## 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. Refer to Figure 17 while examining the new filter. Verify both o-rings are lubricated, correctly located in the grooves as shown, and not damaged. (The o-rings have been lubricated with ISO6743-3 DVA / DVC oil.)
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.
7. Recycle the filter that was removed from the machine according to the laws in your jurisdiction.

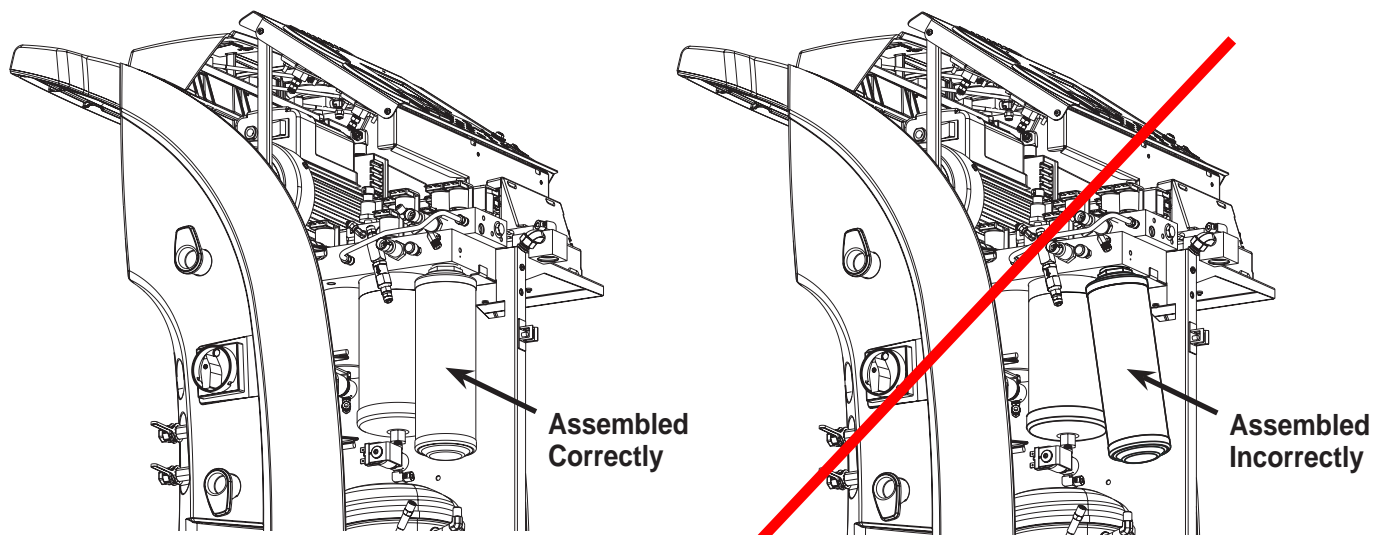
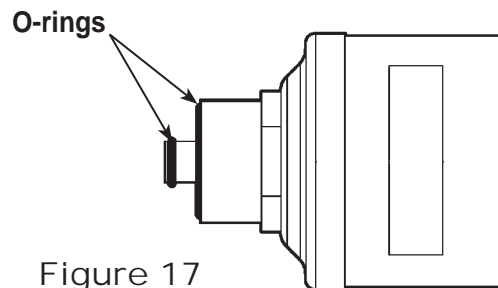
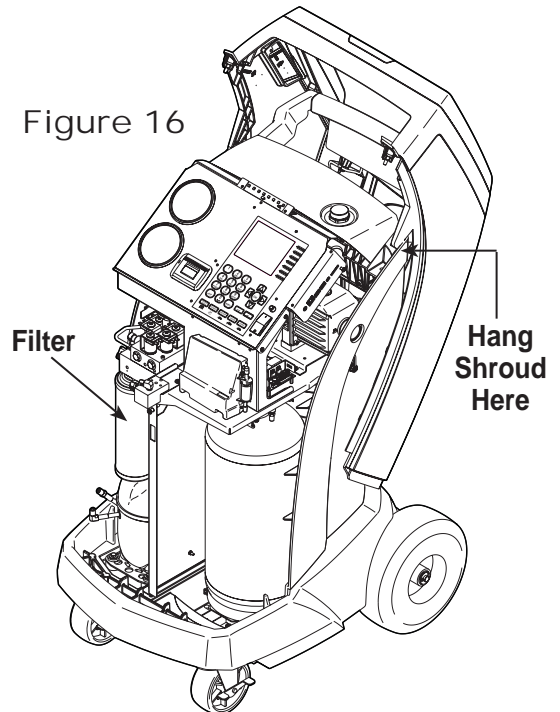


Figure 18

# 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.

8. 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.*

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

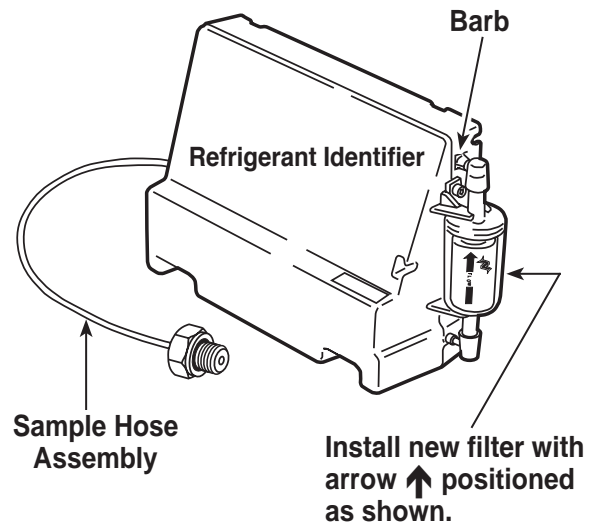


Figure 19

**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 Beissbarth service center for assistance.

4. Remove the calibration weight from the scale.

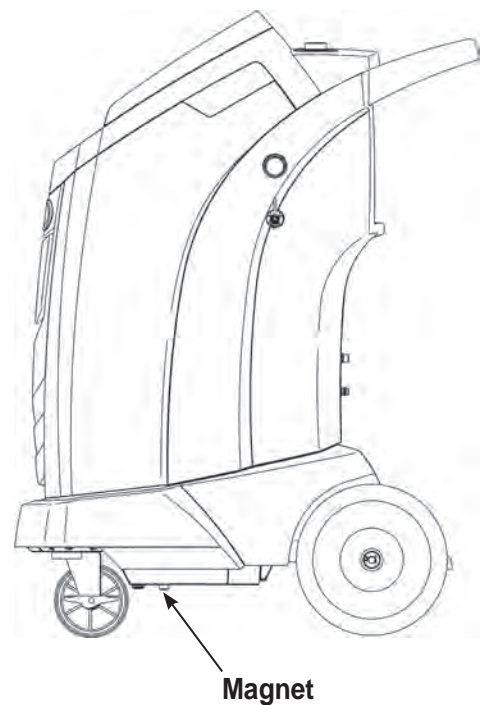


Figure 20

## 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  
0 HOURS 0 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 21.
4. The display shows

DRAIN THE USED PUMP OIL  
AT THE END ADD ABOUT 550 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 550 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**.

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**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.

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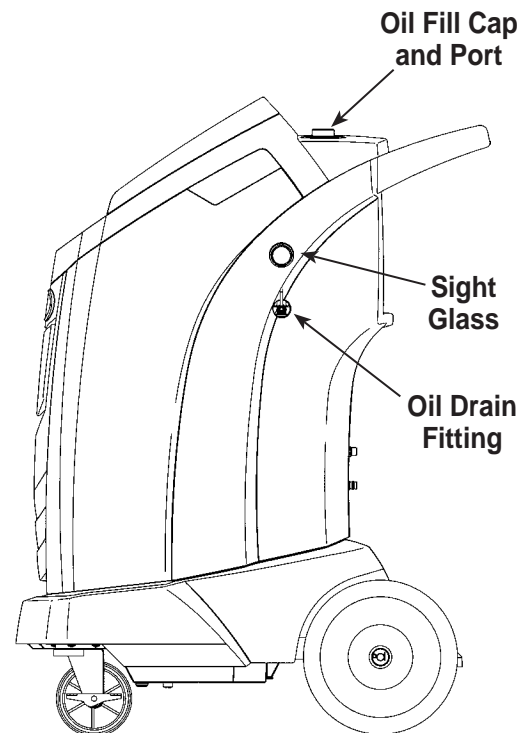


Figure 21

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**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.

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# Maintenance

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## 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 22.
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.

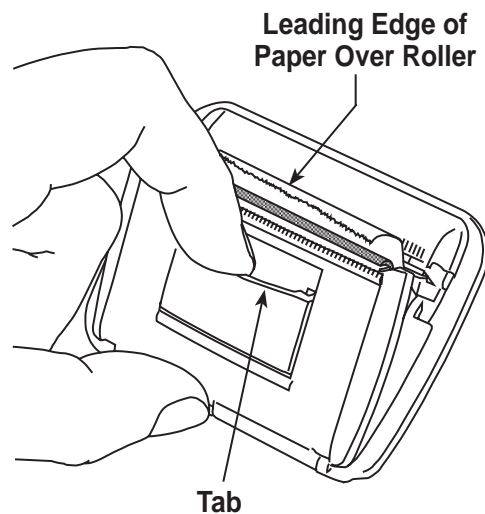


Figure 22



## Calibrate Oil and Dye Inject Scales

1. Remove the dye inject and oil inject bottles from their scales. See Figure 23.
2. Select **CALIBRATE OIL INJECT 1** from the Setup menu.
3. When prompted for the first weight, accept

0 GRAMS

as the default, and press **OK**.

4. When prompted for the second weight, attach the calibration weight supplied with the machine to the magnetic connector for the Oil Inject 1 scale.
5. Program

533 GRAMS

and press **OK**.

6. When prompted that the calibration is complete, press **OK** to exit.
7. Repeat this procedure for the other two load scales by selecting **CALIBRATE OIL INJECT 2** and **CALIBRATE UV DYE INJECT** from Setup menu.

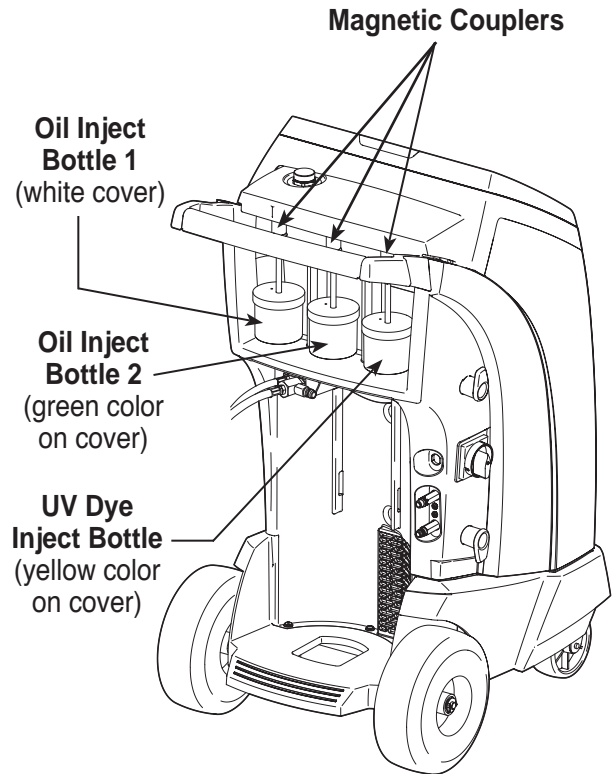


Figure 23

## Calibrate Oil Drain Scale

1. Remove the oil drain bottle from the scale.
2. Hook the notch in the end of the oil drain calibration bracket (supplied) around the oil drain inlet fitting as shown in Figure 24.
3. Select **CALIBRATE OIL DRAIN** from the Setup menu.
4. When prompted for the first weight, enter

53 GRAMS

as the default, and press **OK**.

5. When prompted for the second weight, place the calibration weight supplied with the unit on the bracket as shown, and enter the following value :

586 GRAMS

6. When prompted that the calibration is complete, press **OK** to exit.
7. Remove the calibration weight and bracket, and replace the oil drain bottle.

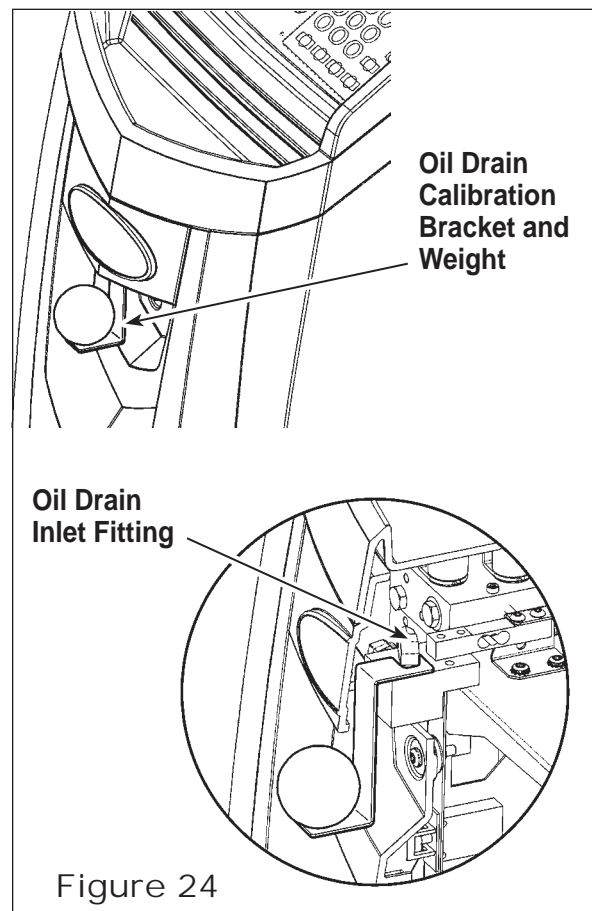


Figure 24

# Maintenance

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## Pressure Decay Leak Test

To ensure a safe, environmentally friendly and economic operation, the unit performs a software-controlled self-test in regular intervals (every 10 days). During this test, the components containing refrigerant are pressurized and monitored for pressure decay, which could indicate a leak.

1. Follow the on-screen prompts to connect the hose service couplers to the storage connectors at the rear of the machine. Open the hose couplers by turning the collars clockwise.
2. Press **OK** to start the test. The machine displays

LEAK TEST IN PROGRESS

As the machine clears the internal components, it displays

CLEARING PRESSURE FOR LEAK TEST

A controlled pressure is then applied to the internal components. The machine displays

LEAK TEST IN PROGRESS.  
PRESSURIZING.

This pressure is held for five minutes and monitored for decay. The minutes and seconds count down on the display.

- If an acceptable pressure decay is detected, the machine displays

LEAK TEST PASSED

After a brief pause, the machine recovers refrigerant and then returns to the Main menu, ready for normal operation.

- If an unacceptable pressure decay is detected, the machine displays

LEAK TEST FAILED

Take the machine to an authorized Beissbarth service center for repair. After the leak is repaired, select Leak Test from the Setup menu, and repeat the test.

The machine will prompt to run the pressure decay leak test again after 10 days have passed.

*Note:*

- *The Pressure Decay Leak Test may also be selected at any time from the Setup menu.*
- *If you press **ESC** and decline to run the pressure decay leak test when prompted, the machine will continue to prompt for the test at each power-up until the test is completed.*



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

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# Replacement Parts and Glossary

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## Parts List

Component	Replacement Part No.
Calibration Weight	SP01100090
Oil / Dye Inject Bottle Assembly	SP01100108
Filter	SP01100355
Oil Drain Bottle	SP01100162
Oil Drain Calibration Bracket	SP01100260
Printer Paper (1 roll)	SP00100087
Adapter (1234YF LS J639 male to W21.8-1/14LH)	SP00100699
Nylon Gasket (PA6 for DIN 477-1 fitting)	SP00100366
Adapter (1234YF LS J639 male 12.7mm ACME16)	SP00100698
Gasket (1/4 hose)	SP01100020
Adapter (1234YF LS J639 male M26.2x1.8)	SP00100703
Teflon Gasket (for CGA 660 - 670 fittings)	SP00100367
Vacuum Pump Oil (600 ml)	SP00100086
Vacuum Pump Oil (0,6L - 12 cans)	SP00100088
Vinyl Dust Cover	SP01100250



**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 Beissbarth.

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## Glossary

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**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.

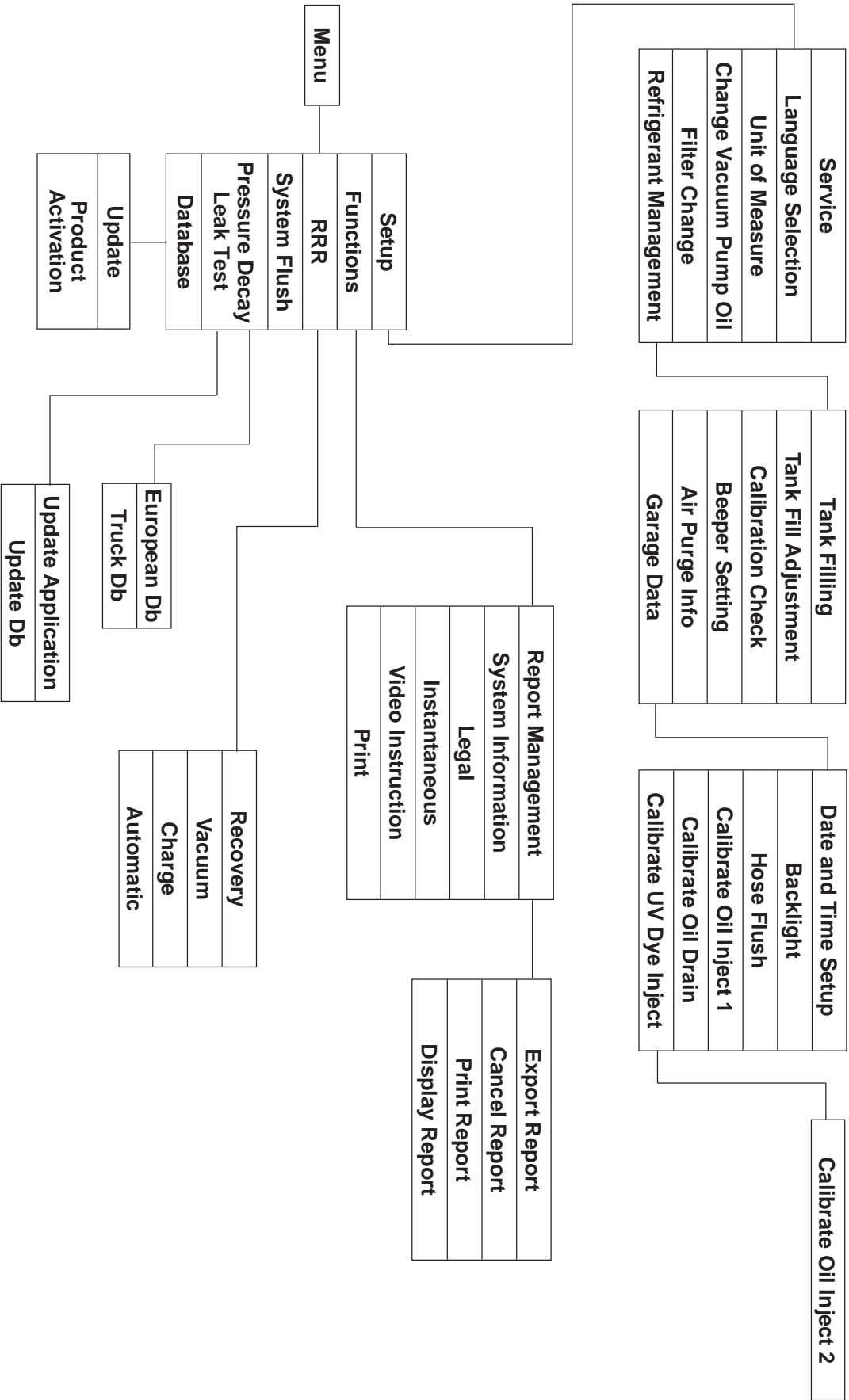
**Machine :** Model No. BAC 5100yf.

**Pressure Decay Leak Test :** Components containing refrigerant are pressurized and monitored for pressure decay, which could indicate a leak.

**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 and contact a Beissbarth authorized service center for repair.</i>
ANALYZER ERROR 1 UNSTABLE OUTPUT	Possible electromagnetic or RF (radio frequency) interference.	<i>Move unit away from any EMF or RFI sources.</i>
ANALYZER ERROR 2 HIGH OUTPUT	Possible electromagnetic or RF (radio frequency) interference.	<i>Move unit away from any 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 out of operating range.	<i>Check unit ventilation and ambient conditions.</i>
ANALYZER ERROR 5 REPLACE IDENTIFIER FILTER AND SAMPLE HOSE ASSEMBLY	Sample hose or filter inside the refrigerant identifier is possibly plugged or contaminated with oil.	<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>
CHECK OIL BOTTLE	1) After selecting <b>INJECT OIL</b> , oil inject bottle is not in correct position. 2) After selecting <b>INJECT OIL</b> , there is an insufficient amount of new oil in oil inject bottle	1) <i>Verify the oil inject bottle is attached to the machine as explained in the Setup section.</i> 2) <i>Fill the oil inject bottle with new oil as explained in the Setup section.</i>
INSUFFICIENT PRESSURE	If pressure is less than 0.7 bar, the refrigerant cannot be identified.	<i>Refer to Vacuum section and follow instructions to evacuate the system.</i>
ISV CONDITION	Machine is circulating refrigerant to build ISV pressure for a charge cycle.	<i>The charge process is automatically interrupted and the machine operates in a mode to build tank pressure. Once tank pressure is sufficient, the machine automatically completes the charge.</i>
PRESSURE 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 Messages

Display	Cause	Solution
PRESSURE TOO HIGH	Excessive pressure has been detected.	Press <b>ESC</b> . Refer to Recover section and recover refrigerant before proceeding.
PURITY TEST FAILED	Refrigerant in vehicle is either not R1234yf, or it is contaminated.	Refer to Recover section in this manual. Connect a suitable external recovery device to access port on the back of the BAC 5100yf, and recover refrigerant.
REFRIGERANT INSUFF.	After selecting <b>CHARGE</b> 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.	Refer to Manually Fill the Internal Storage Vessel (ISV) in the Maintenance section.
REFRIGERANT IDENTIFIER IS DEFECTIVE	Machine has determined that the internal refrigerant identifier is not working correctly.	Exit current test and contact a Beissbarth authorized service center for repair.
REPLACE IDENTIFIER FILTER	Filter inside the refrigerant identifier is plugged.	Refer to Maintenance section for instructions to change identifier filter.
SYSTEM PRESSURE TOO LOW TO CONTINUE	If pressure is less than 0.7 bar, the refrigerant cannot be identified.	If vehicle is very cold, allow vehicle to warm up and then retest. Otherwise enter Vacuum mode and evacuate system.
TEST FAILED	Machine has detected the possibility of refrigerant that is contaminated or not R1234yf.	Refer to section of this manual titled Operating Instructions — Refrigerant ID.
VACUUM DECAY TEST FAILED	A leak in the vehicle A/C system.	Exit current test and perform repairs on the vehicle A/C system.

# Troubleshooting Procedures

## Setup Function

### Display Message: PURITY TEST FAILED

If the machine displays

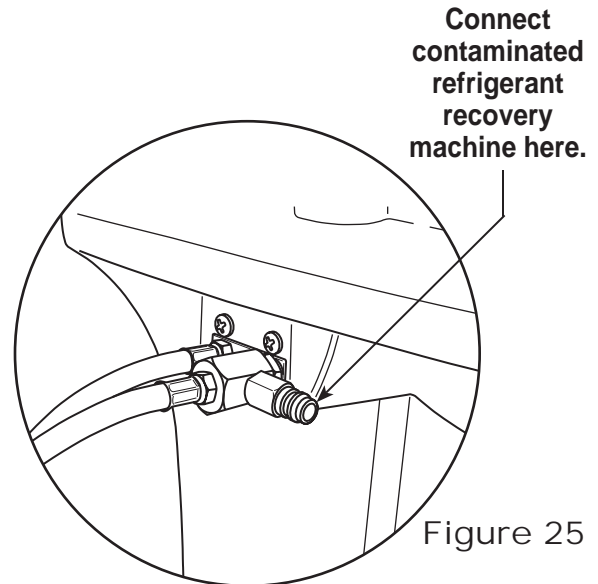
TEST FAILED  
VERIFY REFRIGERANT IDENTIFIER  
IS WORKING CORRECTLY?  
OK TO CONTINUE ESC TO QUIT

the refrigerant in the source tank or in the vehicle A/C system is either not R1234yf or it is contaminated. In either case, it should not be added to the internal storage vessel in the BAC 5100yf machine.

The contaminated refrigerant sampled by the BAC 5100yf refrigerant identifier must be removed. There are two options to accomplish this.

**A second recovery machine dedicated to contaminated refrigerant is required for the following steps:**

1. Connect the low-side (blue) coupler from the contaminated refrigerant recovery unit to the contaminant recovery port on the back of the BAC 5100yf. See Figure 25. Open the coupler valve.
2. Connect the discharge hose from the recovery unit to a tank designed to receive contaminated refrigerant.
3. Start the recovery unit and run a recovery according to instructions supplied with the unit.
4. Upon achieving a vacuum (or per the contaminated refrigerant recovery unit instructions), disconnect from the BAC 5100yf.



**If you do not have a second recovery machine dedicated to contaminated refrigerant, use following steps:**

1. Disconnect the high- and low-side couplers from the vehicle / refrigerant supply.
2. Connect the low-side coupler (blue) to the tank adapter fitting supplied with the machine.
3. In a well-ventilated area, open the low-side coupler with the port pointed away from you, allowing the contaminated refrigerant in the hoses to vent.
4. Once the pressure has escaped, remove the high-side coupler from the hose.
5. Blow air in one hose through the high- and low-side hoses to remove all refrigerant.
6. Assemble the high-side coupler to the hose.
7. Disconnect the tank adapter fitting from the low-side coupler.
8. Press **OK** on the keypad. The machine will vacuum the hoses.



# Troubleshooting Procedures

## Recover Function & Automatic Function

### Display Message: PURITY TEST FAILED

If the machine displays

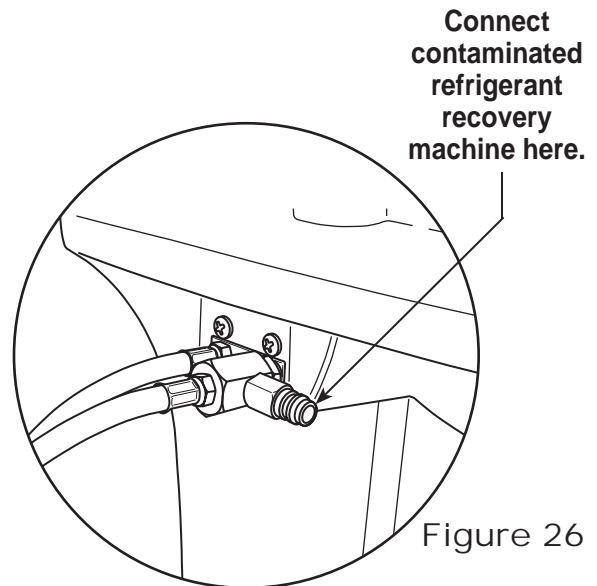
TEST FAILED  
VERIFY REFRIGERANT IDENTIFIER  
IS WORKING CORRECTLY?  
OK TO CONTINUE ESC TO QUIT

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 BAC 5100yf.

The contaminated refrigerant sampled by the BAC 5100yf refrigerant identifier must be removed. There are two options to accomplish this.

**A second recovery machine dedicated to handling contaminated refrigerant is required for the following steps:**

1. With the BAC 5100yf still connected to the vehicle and the couplers open, connect the low-side (blue) coupler from the second recovery machine to the contaminant recovery port on the back of the BAC 5100yf. See Figure 26. Open the coupler valves.
2. Connect the discharge hose from the second recovery machine to a tank designed to receive contaminated refrigerant.
3. Start the second recovery machine 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 second recovery machine from the BAC 5100yf.
5. Clear the vehicle of residual contamination according to the vehicle manufacturer's instructions before continuing service.



**If you do not have a second recovery machine dedicated to contaminated refrigerant, use following steps:**

1. Disconnect the high- and low-side couplers from the vehicle / refrigerant supply.
2. Connect the low-side coupler (blue) to the tank adapter fitting supplied with the machine.
3. In a well-ventilated area, open the low-side coupler with the port pointed away from you, allowing the contaminated refrigerant in the hoses to vent.
4. Once the pressure has escaped, remove the high-side coupler from the hose.
5. Blow air in one hose through the high- and low-side hoses to remove all refrigerant.
6. Assemble the high-side coupler to the hose.
7. Disconnect the tank adapter fitting from the low-side coupler.
8. Press **OK** on the keypad. The machine will vacuum the hoses.

# Troubleshooting Procedures

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## Recover 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 125 kg (276 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 125 kg (276 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  
PRESS 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

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## 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

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## Charge Function

The charge process includes a pre-charge leak test that fills the system with a small amount of refrigerant and then monitors pressure decay.

- **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.

## System Flush

### Display Message: NO FLOW DETECTED

If the external flushing filter is plugged, the machine displays

POSSIBLE CLOGGED FLUSH FILTER  
PRESS OK TO REPLACE  
PRESS ESC TO ABORT

The message repeats until the filter is replaced.

# Troubleshooting Procedures

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## Automatic 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! X.XX BAR  
CHECK CONNECTIONS.

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, Recover 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

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## 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 27.
3. Store the machine in a dry, stable area, away from flames and hot surfaces. The temperature of the storage area should range between  $-25^{\circ}\text{C}$  and  $60^{\circ}\text{C}$ .
4. Lock the front wheels.

## Transportation of Equipment

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

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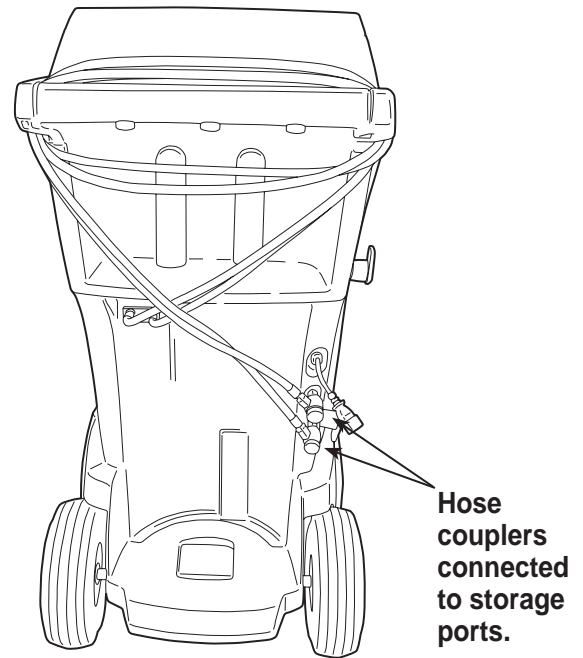


Figure 27

# Disposal of Equipment

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## Disposal of Equipment



At the end of its useful life, dispose of the Beissbarth No. BAC 5100yf 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.
- In accordance with European Directive WEEE 2002/96/EC, special collection sites are available for waste electrical / electronic equipment.
- 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.



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



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The Beissbarth 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.

Das Gerät von Beissbarth erfüllt die Normen für alle geltenden offiziellen Zertifizierungen, einschließlich der UL-Normen (Underwriter's Laboratories, Inc.), der SAE-Normen und der cUL-Normen. In bestimmten Staaten und Regionen ist der Gebrauch dieses Gerätes zum Verkauf von Kältemittel nach Gewicht gesetzlich nicht zulässig. Daher empfiehlt der Hersteller, alle Klimageschäfte auftragsweise abzurechnen. Die angegebene Gewichtsstaffel ermöglicht die Messung der Kältemittelmenge, die den Fahrzeugherstellerempfehlungen entsprechend für eine optimale Klimaanlageleistung benötigt wird.

La stazione Beissbarth risponde ai requisiti di tutte le pertinenti certificazioni normative: Underwriter's Laboratories, Inc., SAE Standards e CUL. Alcuni Stati e giurisdizioni locali vietano l'uso di questa stazione per la vendita di refrigerante a peso. Consigliamo di fare pagare per qualsiasi servizio su impianti A/C in base al lavoro eseguito. Questa bilancia consente di dosare la quantità di refrigerante necessaria per ottenere prestazioni ottimali dall'impianto A/C come consigliato dai produttori di apparecchiature originali (OEM).

La unidad Beissbarth 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.

A unidade Beissbarth está concebida para cumprir todas as certidões de agências aplicáveis, incluindo a Underwriter's Laboratories, Inc., Normas SAE e CUL. Algumas jurisdições estatais e locais ditam que usar este equipamento para vender refrigerantes ao peso poderá não ser permitido. Recomendamos a cobrança de qualquer assistência de A/C pelo trabalho realizado. Esta balança de pesagem oferece um meio de medição da quantidade de refrigerante necessária para um desempenho otimizado de sistema A/C conforme recomendado pelos fabricantes OEM.

Le modèle a été conçu pour répondre aux certifications applicables de la Underwriter's Laboratories, Inc., 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 les services de climatisation en fonction du travail effectué. Ce poids de tarification permet de calculer la quantité de réfrigérant nécessaire pour un rendement optimum de la climatisation, tel qu'il est recommandé par les fabricants de l'équipement d'origine.

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

Aufgrund ständiger Produktverbesserungen behält sich der Hersteller das Recht vor, die Bauart, Spezifikationen und Materialien jederzeit ohne Ankündigung zu verändern. A causa del nostro processo di miglioramento continuo dei prodotti, ci riserviamo il diritto di modificare senza preavviso le caratteristiche progettuali, i dati tecnici e i materiali.

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

Devido às constantes melhorias do produto, reservamos o direito de alterar o design, as especificações e materiais sem aviso.

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



BEISSBARTH GMBH  
HANAUER STRASSE 101, D-80993 MUENCHEN  
GERMANY