WAECO INTERNATIONAL GMBH

Service manual ASC 1000 / ASC 2000 / ASC 3000

V.03/15

Index

General information

This service manual supplies you with all information required for the maintenance and repair of the AirConServiceCenter ASC1000, ASC2000 and ASC3000

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The manual will be revised regularly in order to ensure that this service manual is up-to-date. You can obtain the latest information through the Internet at www.airconservice.de

This service manual is intended for those who perform maintenance at vehicle air conditioning service stations and have the expertise required to do so.

Also note the following:

- The WAECO training manual “Fundamental Technical Specifications - Vehicle Air-Conditioning”
- The WAECO information brochure “Fundamental Legal Specifications - Vehicle Air-Conditioning”
- Information from the refrigerant manufacturer
- Any special instructions on servicing vehicle air conditioning systems which apply at your company

Explanation of the symbols used in this operating manual

Format	Meaning	Example
Bold	Designations used on the device	Press **ENTER**.
“Bold”	Display messages	**“Short selection”**
Text Text	List in any order	Pressure monitor Pressure relief valves
Text 1 Text 2. Text 3	Actions to be carried out in the order shown	1. Connect the device 2. Switch on the device. 3. Press the selection button.
Text (1)	Part numbers, referring to the foldout pages at the front of this manual	Use the keypad (7) to enter the data.
Text (A)	Part designations which refer to the diagrams shown in the section describing the work	Remove the filter cartridge (E) on the left side.

Health or environmental hazard

Risk of damage to the machine or other material damage

Special information on using the device effectively

Should you have any comments or questions about this service manual, please contact:

WAECO International GmbH

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48282 Emsdetten, Germany
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Safety instructions

This service manual is intended for those who perform maintenance at vehicle air conditioning service stations and have the expertise required to do so. This refers specifically to knowledge of general safety regulations for maintenance work on electronic devices and air conditioning units.

Before performing any service tasks on the AirConServiceCenter, read the service manual thoroughly.

Also note the following:

- The WAECO training manual “Fundamental Technical Specifications - Vehicle Air-Conditioning”
- The WAECO information brochure “Fundamental Legal Specifications - Vehicle Air-Conditioning”
- Information from the refrigerant manufacturer
- Any special instructions on servicing vehicle air conditioning systems which apply at your company

Disconnect the power plug before opening the device. If you have to need the device connected to the power supply for certain service tasks, observe the circuit diagrams and maintain sufficient distance from live parts.

Only use spare parts and materials recommended by WAECO. If you use products other than those recommended and approved by WAECO, damage may be caused to the AirConServiceCenter or the vehicle air conditioner.

Wear personal safety equipment (safety goggles and protective gloves) when handling the refrigerant and avoid coming into contact with it. Contact with the refrigerant draws out body heat and the affected areas can freeze. Do not inhale refrigerant vapour. Although the vapour is nontoxic, it displaces the oxygen you need to breathe.

Do not perform any changes or modifications to the AirConServiceCenter that are not explicitly approved by WAECO.

Each time before operating the device, check whether all of the device's functions work properly. In particular, check functions which are relevant to safety. Only clear the device for use once you are certain it functions properly. Do not leave the device unattended if it does not function properly.

Warnings on the AirConServiceCenter

Caution

Observe the operating manual.

Only connect the device to a socket with 230 V / 50 Hz AC.

Protect the device against rain

Wear gloves when handling refrigerants

Wear goggles when handling refrigerants.

Safety devices

- Pressure monitor: switches the compressor off if the normal operating pressure is exceeded.
- Pressure relief valves: additional safety mechanism to protect lines or vessels from bursting if the pressure continues to rise despite the action of the pressure monitor.

Environmental protection and disposal

Used oil is hazardous waste. Do not mix used oil with other liquids. Until it is disposed of, keep used oil in suitable containers.

3.1 Disposing of packaging material

- The cardboard packaging material should be disposed of with other waste paper.
- Plastic packaging material should be added to other recyclable waste.

3.2 Scrapping the old unit

- If you wish to scrap the AirConServiceCenter, first completely drain it of all liquids and dispose of them in an environmentally responsible manner.

- Take the old device to your nearest recycling centre or contact WAECO customer services.

Support

WAECO International GmbH

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1 Overview of AirConServiceCenter

1.1 Front

1 Pressure gauge for low pressure

2 Red “Fill” lamp

3 Blue “Evacuate” lamp

4 Green “Suction” lamp

5 Pressure gauge for high pressure

6 Display

7 Keypad

8 Service coupling for low pressure connection (blue)

9 Service coupling for high pressure connection (red)

10 Knurled screw of transport lock (on the underside of the AirConServiceCenter)

11 Front wheels with wheel stops

12 Service hose for low pressure connection(blue)

13 Service hose for high pressure connection (red)

14 Front cover

15 Printer (ASC1000 option)

16 Display unit

1.2 Rear

17 Container for new oil

18 Container for UV additive

19 Container for used oil

20 Cover flap

21 Main switch

Maintenance intervals

Interval	Maintenance work	Comment
Every 4 weeks	Check service hoses.	Check the exterior condition.
Every 4 weeks	Calibrate load cells for refrigerant, oil and UV additive.	Set zero point.
Every 6 months	Check quick coupler.	Check exterior condition and functionality.
Every 6 months	Calibrate pressure transducer.	Carry this out on a monthly basis if device is subjected to strong vibrations.
According to display	Replace filter.	
According to display	Change vacuum pump oil.	

Putting in the containers for oil and UV additive

The current levels are shown in the info menu (see “Opening the info menu” on page 13).

1. Open the cover flap (20) on the left hand side and connect the containers to the snap locks:

- Container for new oil (17)
- Container for UV additive (18) and
- Container for used oil (19)

2. Close the cover flap (20).

Only for ASC 2000 and ASC 3000:

3. Enter the container size for fresh oil and UV contrast agent (see “Entering the container size” on page 6).

Entering the container size

Only applies to ASC 2000 and ASC 3000:

Fresh oil and UV additive can be kept in containers of 500 ml (B) or 250 ml (C). You must enter the container size in the AirConServiceCenter.

1. In standby mode, use the cursor keys ↑ or ↓ to select “**Other selections**”:

Short selection	☐
Free selection	☐
Other selections	■
ENTER-OK	

2. Press **ENTER** to confirm.

3. Use the cursor keys ↑ or ↓to select “**Service**”:

Int. vessel filling	☐
Flushing	☐
Reset scales.	☐
Service	■

4. Press **ENTER** to confirm.

5. Enter the password “**2688**”.

6. Use the cursor keys to activate the fields you want (dark fields are activated).

7. Press **ENTER** to confirm.

8. Press **STOP** to go to standby mode.

Filling up the intern refrigerant bottle

Note the instructions on the refrigerant vessels. The current supply quantities are displayed in the standby menu. There are three different types of refrigerant vessel available:

- Refrigerant bottles without rising pipe:

These refrigerant bottles have one connection.When filling the AirConServiceCenter, the connection must be on the bottom (turn the bottle upside down).

-Refrigerant bottles with rising pipe:

These refrigerant bottles have one connection. When filling the AirConServiceCenter, the connection must be at the top (place the bottle upright).

-Refrigerant bottles with rising pipe:

These refrigerant bottles have two connections. To top up the AirConServiceCenter, use

the connection marked with L (= liquid). When filling the AirConServiceCenter, the connection must be at the top (place the bottle upright).

1.In the basic menu, use the cursor keys to select “Otherselections”:

2. Press ENTER to confirm.

3. Use the cursor keys or to select “Int. vessel filling”:

4. Press ENTER to confirm.

5. Then follow the instructions in the display and provided here:

Connect the HP hose to the external tank then open the valve ENTER-OK STOP-EXIT

6.Press ENTER to confirm.

Set the quantity then confirm! g. 13620 ENTER-OK STOP-EXIT

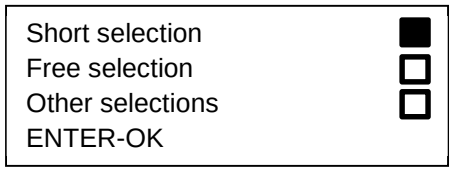
The maximum refrigerant quantity which can be added appears in the display. Enter the required amount and press ENTER to confirm.The internal refrigerant container is filled.When the filling process is finished, this will be confirmed by an acoustic signal.Close the valves and press ENTER to confirm.

6. After filling, the quantity of refrigerant in the internal container is displayed. Press STOP to exit the menu. Press STOP again to access the standby

Opening the info menu

The info menu shows you the current levels in the refrigerant, fresh oil and UV additive containers in the AirConServiceCenter.

You can open the info menu from standby mode.



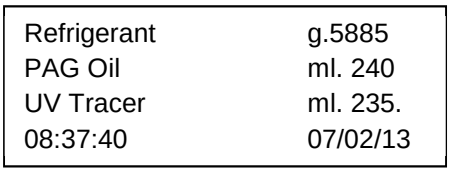
1. In standby mode, press “**i**” and hold it down.

The following is displayed with the ASC 1000:

- Refrigerant quantity
- Time
- Date

With the ASC 2000 and ASC 3000 the following is displayed:

- Refrigerant quantity
- Fresh oil quantity
- UV additive quantity
- Time
- Date

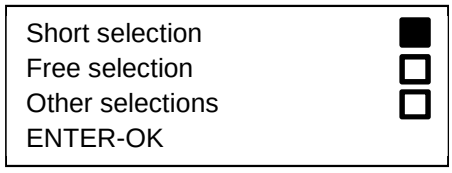


Short selection

Fully automatic air conditioning service is started with the “**Short selection**” menu. You only have to enter the filling quantity as shown on the label in the vehicle or the database. The following actions are performed automatically in succession in the “**Short selection**” menu:

- Extraction of the refrigerant
- Recycling of refrigerant (purity meets SAE J 2099)
- Pressure rise test
- Draining of used oil
- Evacuation of the system
- Leak test / vacuum check
- Filling with fresh oil to the required quantity
- Filling of UV additive
- Filling of refrigerant After every process is performed a service report is printed.

1. Remove the valve cap
2. First fit the connections of the AirConServiceCenter to the vehicle air conditioning system and open them.
3. In standby mode, use the cursor keys ↑ or ↓ to select “**Short selection**”:



4. Press **ENTER** to confirm.
5. Use the keypad (7) and the cursor keys to enter the vehicle data.
6. Press ENTER to confirm
7. Enter the refrigerant filling quantity. Either use the value shown on the filling quantities sticker in the vehicle and enteritusing the keypad (7) and the cursor keys, or use the AirConServiceCenter’s database.

If in doubt, use the value shown on the label in the vehicle.

8. Select the setting (which then flashes) and press ENTER to confirm. Then follow the instructions on the display (6).

9. If necessary, enter the desired data with the keypad (7) and cursor keys and press **ENTER** to confirm.

   If you do not want to enter any data here press **ENTER** to advance to the next program step.

✓ If you press "**i**" in database mode, the display (6) shows information on the oil quantities and oil types.

✓ After the air conditioning service has finished, you are prompted to disconnect the hoses (12) and (13) of the AirConServiceCenter from the vehicle air conditioning system.

10. Disconnect the service hoses (12) and (13) and press ENTER to confirm. The service hoses are then emptied. The device is then ready for further use.

11. Put the valve caps of the vehicle air conditioning system back on the connections.

Free selection

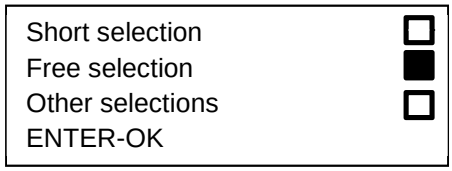
The “**Free selection**” menu is used to conduct air conditioner servicing step-by-step. You can perform the same processes as in the short selection menu, but also leave certain procedures out. In addition, it is possible to enter the values for eachindividual process using the keypad. You can also enter vehicle data for the service report in this menu. The following processes can be performed in the “**Free selection**” menu:

- Extracting and recycling the refrigerant, checking the pressure rise and draining the used oil
- Evacuation of the system
- Leak test / vacuum check
- Filling with fresh oil
- Filling of UV additive
- Filling of refrigerant

  After every process is performed a service report is printed.

1. First fit the connections of the AirConServiceCenter to the vehicle air conditioning system and open them.

2. In standby mode, use the cursor keys ↑ or ↓ to select “**Free selection**”:



3. Press ENTER to confirm.

4. Then follow the instructions in the display: Select the setting (which then flashes) and press **ENTER** to confirm.

5. If necessary, enter the desired data with the keypad and cursor keys and press **ENTER** to confirm. If you do not want to enter any data here press **ENTER** to advance to the next program step.

✓ After the air conditioning service has finished, you are prompted to disconnect the hoses of the AirConServiceCenter from the vehicle air conditioning system.

6. Disconnect the service hoses (12) and (13) and press ENTER to confirm.

✓ The service hoses are then emptied. The device is then ready for further use.

7. Put the valve caps of the vehicle air conditioning system back on the connections.

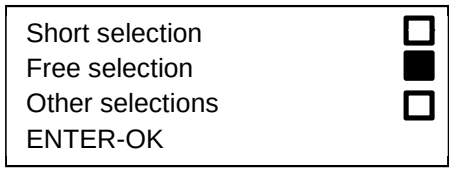
Flushing the air conditioning system

The “**Fluxing**” menu is used to flush the vehicle air conditioning system with fresh refrigerant. Flushing is especially suitable for replacing old compressor oil or removing most metallic residue from the system. **WAECO recommends the use of the WAECO Recycle Guard (item no. 8885200060**).

Before flushing, the refrigerant must first be extracted from the vehicle air conditioning system. Afterwards the system components which cannot be flushed must be disconnected from the refrigerant circuit (for example, the compressor or filter). After that, the components to be flushed are connected to the service ports of the AirConServiceCenter using special adapters to form a flushing circuit.

1. First fit the connections of the AirConServiceCenter to the vehicle air conditioning system and open them.

2. In standby mode, use the cursor keys ↑ or ↓ to select “**Free selection**”:



3. Press **ENTER** to confirm.

4. If necessary, enter the desired data with the keypad (7) and press **ENTER** to confirm. If you do not want to enter any data here, press **ENTER** to advance to the next program step.

5. Select “**Rec/Recycling phase**” (which then flashes) and press **ENTER** to confirm.

6. For the “**Pressure increase Test time**”, enter **1** minute and press **ENTER** to confirm.

7. Deselect “**Vacuum phase**” with **No** (the chosen setting flashes) and press **ENTER** to confirm.

8. Deselect “**Filling phase**” with **No** (the chosen setting flashes) and press **ENTER** to confirm.

9. Select “**Process start**” with **ENTER**.

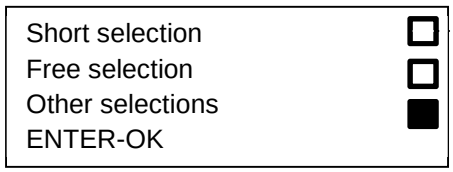
✓ After flushing is completed, the AirConServiceCenter goes into standby mode.

10. Disconnect the system components from the refrigerant circuit which cannot be flushed. These components are, for example:

- Compressor
- Line filter
- Fixed choke
- Collection containers
- Filter drying units
- Expansion valve

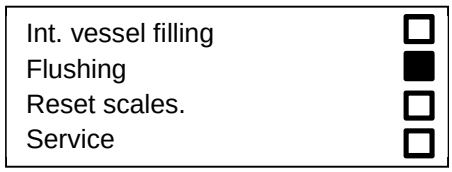
11. Connect the components to be flushed to the service ports (8) and (9) of the AirConServiceCenter using special adapters to form a flushing circuit.

12. In standby mode, use the cursor keys ↑ or ↓ to select "**Other selections**":



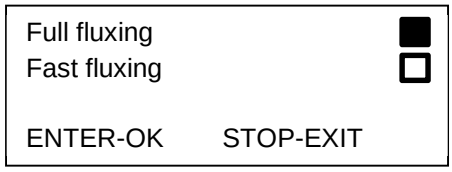
13. Press **ENTER** to confirm.

14. Use the cursor keys ↑ or ↓to select "**Fluxing**":



15. If necessary, enter the desired data with the keypad (7) and press **ENTER** to confirm. If you do not want to enter any data here, press **ENTER** to advance to the next program step.

16. Use the cursor keys ↑ or ↓ to select whether to flush the entire air conditioning system or just individual components:



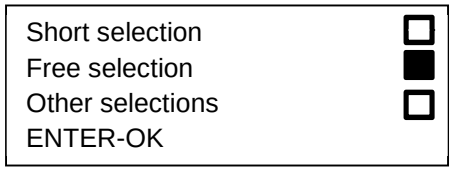
17. Press **ENTER** to confirm.

18. Follow the instructions in the display.

✓ After flushing is completed, the AirConServiceCenter goes into standby mode.

19. If necessary, remove the adapter from the flushing circuit and reconnect all the components to the refrigerant circuit. Fit the connections of the AirConServiceCenter to the vehicle air conditioning system and open them.

20. In standby mode, use the cursor keys ↑ or ↓ to select "**Free selection**":



21. Press **ENTER** to confirm.

22. If necessary, enter the desired data with the keypad (7) and press **ENTER** to confirm. If you do not want to enter any data here, press **ENTER** to advance to the next program step.

23. Deselect "**Rec/Recycling phase**" with **No** (the chosen setting flashes) and press **ENTER** to confirm.

24. Select "**Vacuum phase**" (the chosen setting flashes) and press **ENTER** to confirm.

25. If necessary, enter the desired data with the keypad (7) and press **ENTER** to confirm. If you do not want to enter any data here, press **ENTER** to advance to the next program step.

26. Select "**Filling phase**" (the chosen setting flashes) and press **ENTER** to confirm.

27. Enter the refrigerant filling quantity.

28. Then follow the instructions in the display (6): Select the setting (which then flashes) and press **ENTER** to confirm.

29. Select "**Process start**" with **ENTER**.

✓ After the filling is complete, you are prompted to disconnect the hoses of the AirConServiceCenter from the vehicle air conditioning system.

30. Disconnect the service hoses (12) and (13) and press **ENTER** to confirm. The service hoses are then emptied. The device is then ready for further use.

31. Put the valve caps of the vehicle air conditioning system back on the connections.

Air conditioning system test without refrigerant service

The air conditioning can only be tested on vehicles with a low pressure port and a high pressure port, or with a low pressure port only.

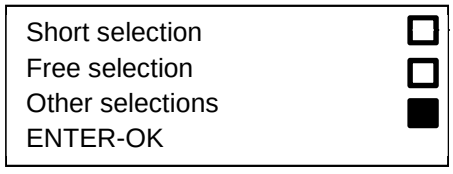
The air conditioning test is a test to check a vehicle air conditioning system. No refrigerant is either extracted or added during this process.

The existing standard function processes “Short selection” and “Free selection” already have a compensation function for service hoses, which means the final air conditioning function test can be carried out in the usual manner (air conditioning hoses are drained by the device).

1. Fit the connections of the AirConServiceCenter to the vehicle air conditioning system and open them.

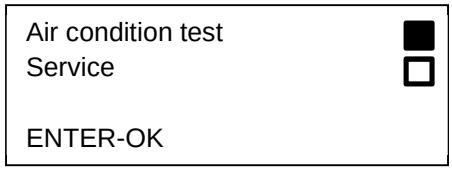
2. Start the vehicle's engine and switch on the air conditioner.

3. In standby mode, use the cursor keys ↑ or ↓ to select “**Other selections**”:

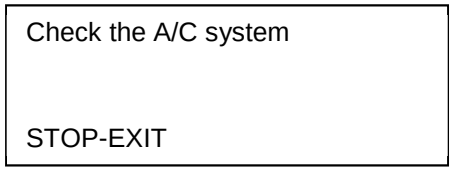


4. Press **ENTER** to confirm.

5. Use the cursor keys ↑ or ↓to select **“Air conditioning system test”**:



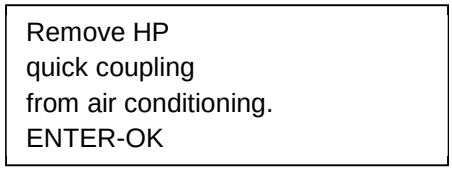
✓ A request appears asking you to check the air conditioning system:



6. Check the high and low pressure system of the air conditioning system.
7. To end the air conditioning system test, press **STOP**.

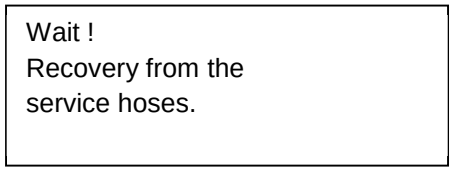
✓ A request to remove the HP quick coupling of the air conditioner appears:

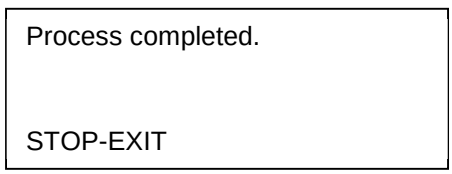
8. Close the HP quick coupling and detach it from the air conditioner.
9. Press **ENTER** to confirm.



If you have turned off the vehicle engine to uncouple the HP quick coupling, restart the engine and turn on the air conditioner.

✓ The following display messages are shown:





10. To end the air conditioning system test press **STOP**.

Error Codes

Fault	Cause	Remedy
The display shows “Error 02”	Pressure increased again with pressure increase test. It is not possible to reduce pressure sufficiently.	Check air conditioner and connections for leaks, constrictions and ice build-up.Check pressure transducer calibration.
The display shows “Error 03”	No data is coming from the refrigerant scale.	Check the scale.
The display shows “Error 04”	It is not possible to lower the pressure when flushing takes place.	Check air conditioner and connections for leaks, constrictions and ice build-up. Check pressure transducer calibration.
The display shows “Error 04”	It is not possible to lower the pressure when flushing takes place.	Check air conditioner and connections for leaks, constrictions and ice build-up. Check pressure transducer calibration.
The display shows “Error 05”	Pressure too low at the external nitrogen connection.(< 4 bar)	Check the setting of the pressure reducer of the external bottle. Check the connections and valves.
The display shows “Error 07”	Pressure too high at the external nitrogen connection.(> 14 bar)	Check the setting of the pressure reducer of the external bottle.
The display shows “Error 08”	An attempt was made to set the refrigerant scale to ist zero position without relieving it first.	Relieve the refrigerant scale by tightening the knurled screw of the transport lock (i present) under the station all the way.
The display shows “Error 09”	During the flushing process, no pressure could be ascertained at the low pressure connection of the air conditioning service unit.	Connect low pressure hose to the flush container and open valve.
The display shows “Error 10”	During the software test, the compressor failed to reduce the internal pressure sufficiently.	Residual pressure on the pressure gauges? Check pressure transducer calibration.Check internal bottle pressure. Check the compressor and the corresponding solenoid valves.

The display shows “Error 11”	It was not possible to drain any used oil during the software test.	Is there residual oil in the distillator? Was the draining of used oil interrupted during the last process? Was the used oil bottle inserted correctly? Check that the solenoid valve can move freely. Is there an unclogged vent hole in the used oil container?
The display shows “Error 12”	It was not possible to remove any refrigerant from the internal tank during the software test.	Check pressure transducer calibration. Check whether the tank valve on the internal tank is open. Check the RE valve. Is the ambient temperature below 10 °C?
The display shows “Error 60”	During the hybrid service (flushing the service hoses with hybrid oil), a vacuum could not be achieved.	Are the service hoses connected to the hybrid flush container? Is the hybrid flush container fitted the right way round? Check the connections for leaks.
The display shows “Error 61”	Pressure increase during the hybrid service (flushing the service hoses with hybrid oil).	Are the service hoses connected to the hybrid flush container? Is the hybrid flush container fitted the right way round? Are the service couplings open?

Adjust the oil scales (set the zero point)

NOTE

In order for the oil quantities and the UV additive to be measured correctly, the zero point of the scales must be checked regularly and reset if necessary.

Resetting is necessary:

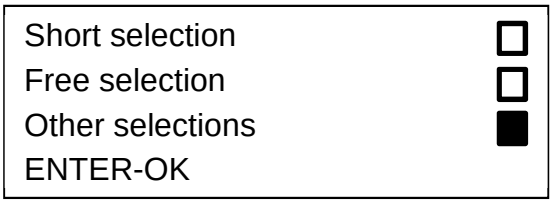
- If the quantity in a container deviates by more than 10 ml from the target value

  Attention!

  Gram and milliliter are not the same, 10 ml ≈ 9 g (10 ml / 1,14 g/ml = 8,77 g)

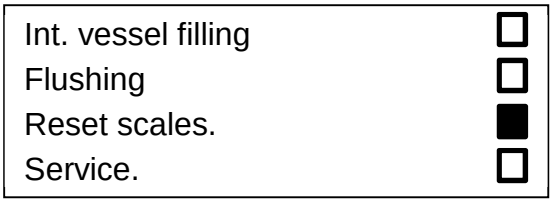
- After transport
- Every four weeks

1. In the basic menu, use the cursor keys to select “Other selections”:

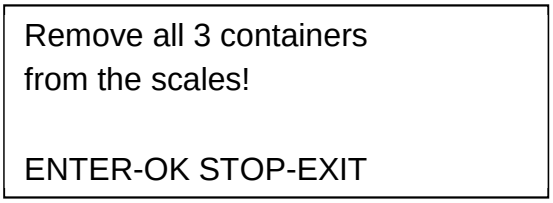


2. Press **ENTER** to confirm.

3. Use the cursor keys or to select “**Reset scales**”:



4. Then you are then prompted to remove the containers from the scale:



5. Open the cover on the left side and remove the containers from the scales:

- Container for new oil (17)
- Container for UV additive (18)
- Container for used oil (19)

After all containers are removed **wait at least 10 sec!** Then press **ENTER.**

✓ Once you have set the zero point, the selection menu for the scales appears again.

6. Return the containers to the operating positions:

Reattach the containers for oil (17), the UV additive (18) and used oil bottle (19) to the snap locks and close the cover.

7. Press STOP twice to access the standby menu.

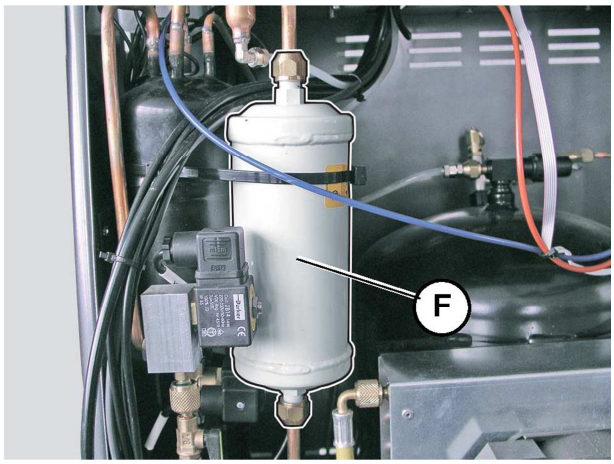
Changing the internal filter

Switch off the device before opening it and pull out the mains plug.

1. Take off the front panel: Unscrew the tool storage tray screws (C) and remove the tool storage tray. Unscrew the keypad screws (D) and lift it up. Then undo the screws

   (E) on the bottom of the front panel and take it off.

2. Remove the filter cartridge (F) on the left side and replace it with a new one (WAECO filter item no. 4440400008). When inserting a new filter cartridge, pay attention to the flow direction (**FLOW** arrow must point downwards).



3. Check the connections do not leak.

4. Put the front panel, the tool storage tray and control panel back on and reconnect the power plug.

Changing the vacuum pump oil

Switch off the AirConServiceCenter and unplug it from the power supply before opening the housing.

1. Take off the front panel: Unscrew the tool storage tray screws (C) and remove the tool storage tray. Unscrew the keypad screws (D) and lift it up. Then undo the screws

   (E) on the bottom of the front panel and take it off.

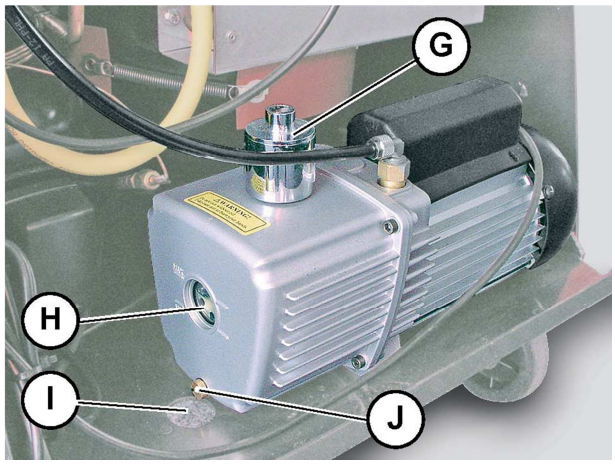
2. Place a receptacle with a capacity of at least 1/2 litre under the AirConServiceCenter. The oil from the vacuum pump flows through the opening (**I**) in the base of the device.

3. Unscrew the oil filling plug (**G**).

4. To drain the oil, unscrew the oil drain plug (**J**).

5. Once the oil has been completely drained from the pump housing, screw the oil drain plug (**J**) back in.
6. Top up with new vacuum pump oil (vacuum pump oil item no. 8887200003, quantity 400 ml) to the middle of the sight glass (**H**) and screw the oil filler plug (**G**) back in.

7. Put the front panel, the tool storage tray and control panel back on and reconnect the power plug.



Calibrating the pressure transducer

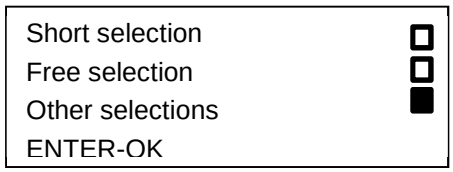
NOTE

The pressure transducer (S1) has to be correctly calibrated in order to make accurate pressure measurements.

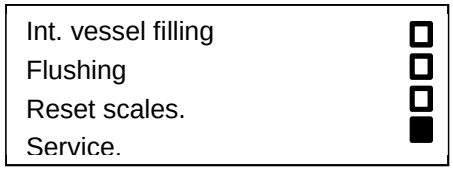
Calibration is required:

- Every four weeks
- If the Aircon Service Center has been subjected to heavy shaking
- Every time the vacuum pump oil is changed
- If the display shows implausible pressure readings

1. In the basic menu, use the cursor keys to select “Other selections”:



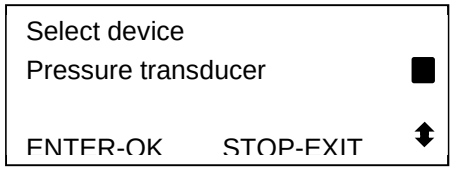
2. Press **ENTER** to confirm.



3. Use the cursor keys to select “**Service**”:

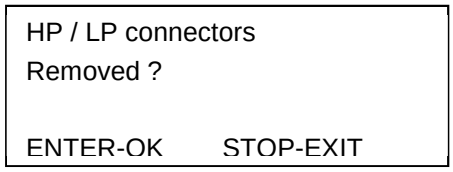
4. Press **ENTER** to confirm.

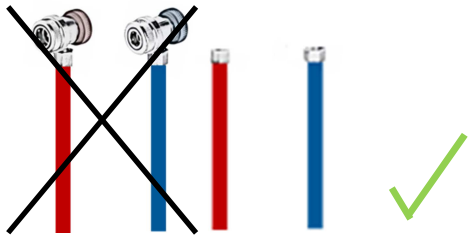
5. Enter the password “**2224**”.



6. Press ENTER to confirm.

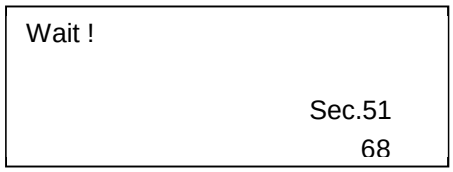
- Then the display shows:



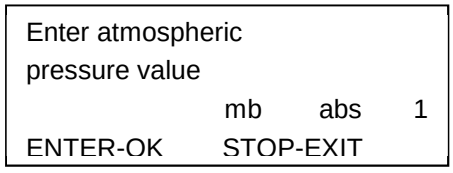


7. Disconnect the service couplings from the service hoses and press ENTER to confirm.

- Then the display shows:



- When the process is finished, the counter is down to zero the and display shows:

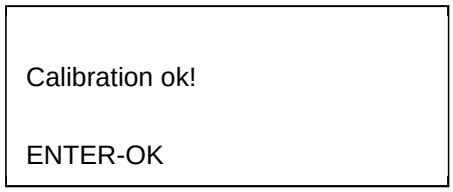


8. Use the keypad to enter the current local atmospheric pressure (e.g. 1000 mb) and press ENTER to confirm.

NOTE

You can look up the current atmospheric pressure for your region on the Internet, for example at http://www.meteo24.de/wetter/ under “air pressure”.

Then the display shows:



Press ENTER to confirm.

9. When calibration has been completed, press ENTER to exit the menu.

10. Press STOP twice to access the standby menu.

11. Screw the service couplings hand-tight onto the service hoses. Take care not to mix up the colours of the couplings and hoses.

12. When the process is done, start a vacuum phase to empty the services hoses (the hoses are filled with air).

- Free selection
- Vacuum phase

Finish the vacuum phase manually with the **STOP** button when the pressure reaches1 mbar.

Identify the weighing technology

Units are built before 2005 have the old weighing technic with transport look.

These units have in the second position of the serial number a zero.

Example :1 0 XXXXX

These units have in the second position a point in the software version.

Example : 1 . XX

Units are built after 2005 have the new weighing technic without transport look.

These units have in the second position of the serial number a one or higher.

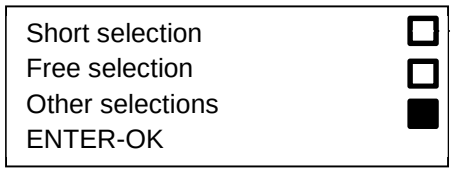
Example : 1 1 XXXX

These units have in the second position an X in the software version.

Example : 1 x XX

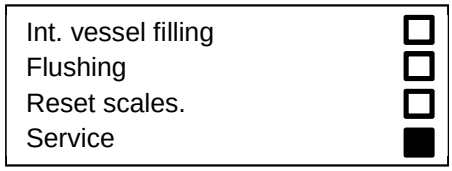
Calibrating the refrigerant scale "old weighing technology"

1. In standby mode, use the cursor keys ↑ or ↓ to select "**Other selections**":



2. Press **ENTER** to confirm.

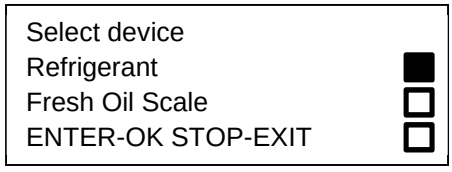
3. Use the cursor keys ↑ or ↓to select "**Service**":



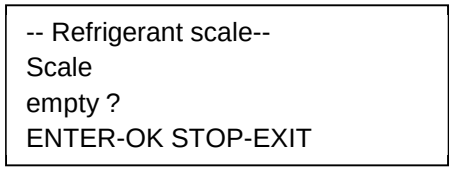
4. Press **ENTER** to confirm.

5. Enter the password "**5623**".

6. Use the cursor keys ↑ or ↓to select "**Refrigerant**":



7. Press **ENTER** to confirm.



8. Screw on the knurled screw (10) of the transport lock on the bottom of the AirConServiceCenter as far as it will go.

   - Wait ten seconds so the load cell can stabilise.

9. Press **ENTER** to confirm.

   ✓ The display flashes four times:

Wait! Don`t touch the unit !

The display then shows:

Scale charged ?   ENTER-OK

10. Undo the knurled screw (10) of the transport lock on the bottom of the AirConServiceCenter as far as it will go.

1. Press **ENTER** to confirm

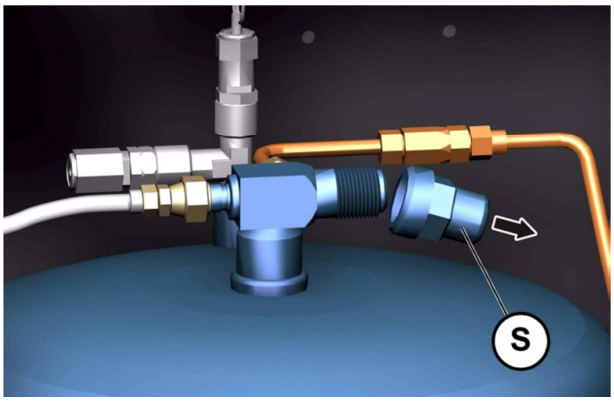
   The display flashes four times:

Wait! Don`t touch the unit !

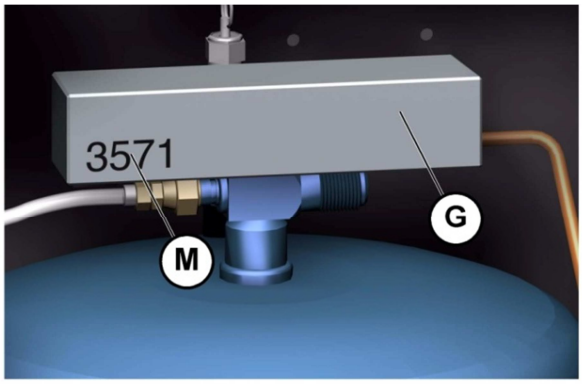
✓ The display then shows:

--Refrigerant— Place the sample weight on the scale.

2. Unscrew the screw cap (**S**) from the tank valve.



3. Lay the sample weight (**G**) horizontally on the tank value.



The sample weight has a different weight. The specific weight is indicated on each sample weight (M).

14. After placing the sample weight down, press **ENTER** to confirm. The display flashes four times:

Wait! Don`t touch the unit !

• The display then shows:

--Refrigerant scale— Enter the right value ! g. 0 ENTER-OK STOP-EXIT

15. Enter the weight (**M**) of the sample weight using the keypad.

- Wait ten seconds so the load cell can stabilise.

16. Press **ENTER** to confirm. The display blinks four times:

Calibration ok ! ENTER-OK STOP-EXIT

- When calibration has been completed, press **ENTER** to quit the menu.

18. Press **STOP** twice to go to standby mode.

19. Remove the sample weight and screw the screw top back onto the tank valve.

Calibration of refrigerant scale “new weighing technology”

To calibrate the scale you need a sample weight between 10 and 25 kg

- Note safety precautions when handling refrigerants!
- Use protective gloves and goggles!

To calibrate the refrigerant scale, you have to remove the refrigerant tank

1. Remove the front cover, open the 4 screws.

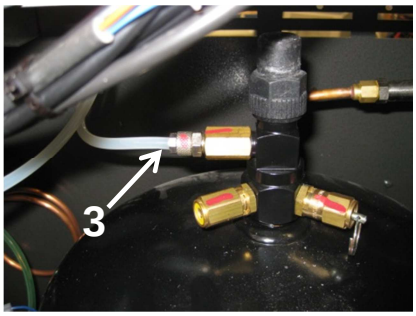
Warning! Stay away from parts under current during the complete process!

Close Remove cap (1) and close valve clockwise

Note: when opening the fitting (2&3) liquid refrigerant will come out!

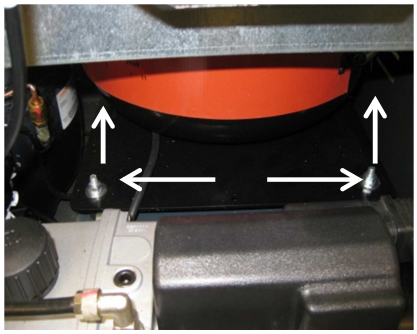
Use protective gloves and goggles!

Close manual valve (2) and open fitting



Open connecting hoses (3).

Disconnect heating belt and the connecting wire from the fan.

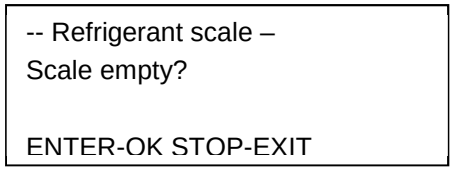


Warning! 230V (Isolate the open connectors!)

Remove the four 6 mm nuts from the refrigerant tank platform and move out the refrigerant tank.

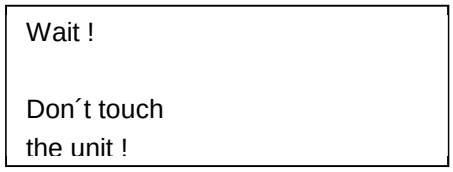
Switch on the ASC Station

1. In standby mode, use the cursor keys to select “Other selections”:
2. Press ENTER to confirm.
3. Use the cursor keys to select “Service”:
4. Enter the password “**5623**”. Use the cursor keys to select “Refrigerant”:
5. Press ENTER to confirm.
6. Use the cursor keys to select “**Refrigerant**”:
7. Press **ENTER** to confirm.

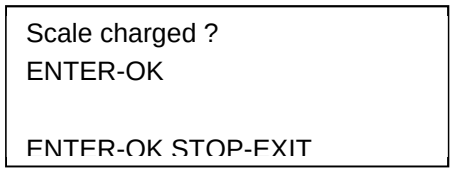


9. Press **ENTER** to confirm.

- **The display flashes four times:**

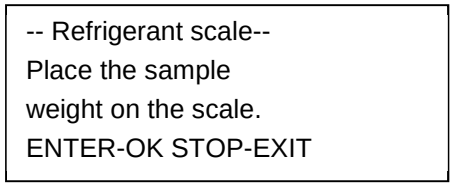


- **The display flashes four times:**



10. Press **ENTER** to confirm. (**Only press ENTER**)

- **The display shows:**

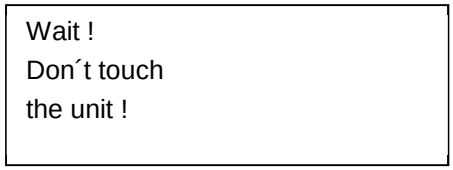


11. Put the sample weight on centre of the scale.

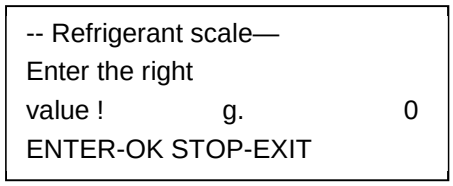
Wait ten seconds so the load cell can stabilise!

Press **ENTER** to confirm.

- **The display flashes four times:**



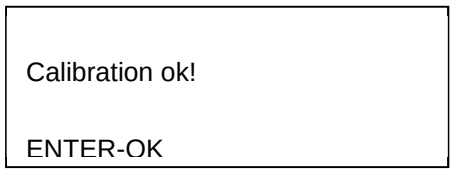
- **The display shows:**



12. Enter the weight of the sample weight using the keypad.

13. Press **ENTER** to confirm.

- **The display flashes four times**:



After calibrating mount the refrigerant tank back in the machine and connect the hoses, heating belt, the electric plugs…..

Note:

Don’t forget to open the manual valve of the yellow hose. Open the tank valve too and install the protection cap!

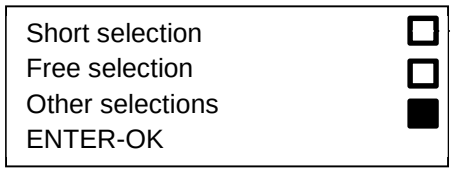
Calibrating the oil scale

It is not necessary to calibrate the oil scales of the ASC 1000 series.

The following section describes the calibration process for the fresh oil scale. This description also applies to the contrast agent and old oil scale.

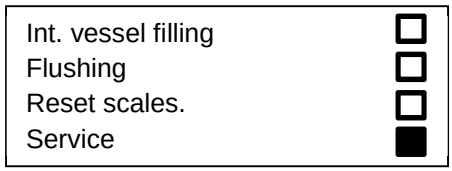
• Required tools: Sample weight 300 g.

1. In standby mode, use the cursor keys ↑ or ↓ to select "**Other selections**":



2. Press **ENTER** to confirm.

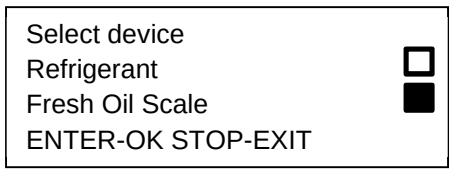
3. Use the cursor keys ↑ or ↓to select "**Service**":



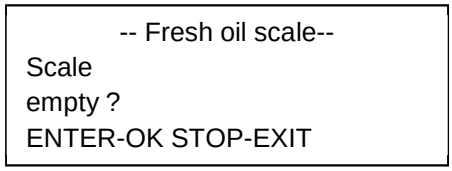
4. Press **ENTER** to confirm.

5. Enter the password "**5623**".

6. Use the cursor keys ↑ or ↓ to select the desired scale (for example: "**Fresh oil**"):



7. Press **ENTER** to confirm. The display shows:



8. Remove the cover flap (20) on the left hand side and connect the relevant containers to the snap locks:
    - Container for new oil (17)
    - Container for UV additive (18)
    - Container for used oil (19)

9. Disconnect the container for fresh oil (17) from the fresh oil scale and remove it from the device.

- Wait ten seconds so the load cell can stabilise.

10. Press **ENTER** to confirm. The display flashes four times:

Wait! Don`t touch the unit !

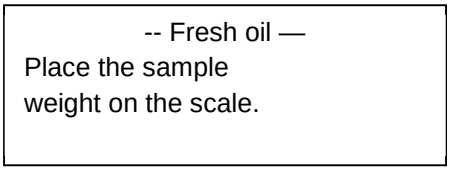
- The display then shows:

-- Fresh oil scale-- Scale empty ? ENTER-OK STOP-EXIT

11. Press **ENTER** to confirm. The display flashes four times again:

Wait! Don`t touch the unit !

- The display then shows:

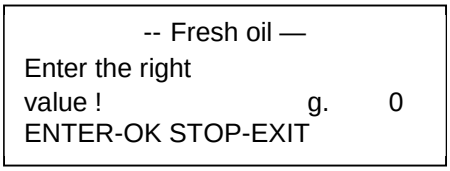


12. Connect the sample weight to the fresh oil scale.

- Wait ten seconds so the load cell can stabilise.

13. After connecting sample weight, press **ENTER** to confirm. The display flashes four times:

- The display then shows:
-



14. Enter the weight (300 g) of the sample weight using the keypad.

- Wait ten seconds so the load cell can stabilise.

15. Press **ENTER** to confirm. The display flashes four times:

16. When calibration has been completed, press **ENTER** to quit the menu.

17. Press **STOP** twice to go to standby mode.

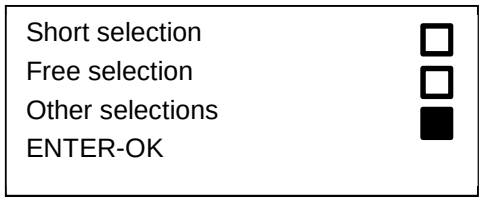
18. Remove the sample weight and reconnect the oil container.

Check internal tank pressure

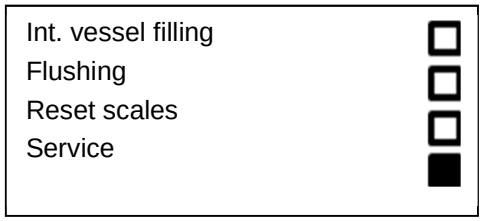
- What problems can result from a too high tank pressure?
- During the software test the unit starts with the error code 10
- The Unit recycles the refrigerant very slowly (particularly at high ambient temperature)

Check internal tank pressure

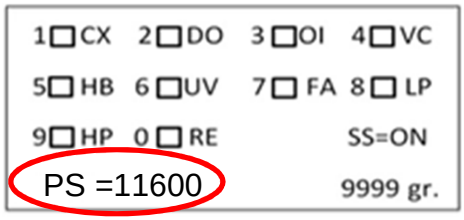
1. In standby mode, use the cursor keys to select “Other selections”:



2. Press ENTER to confirm

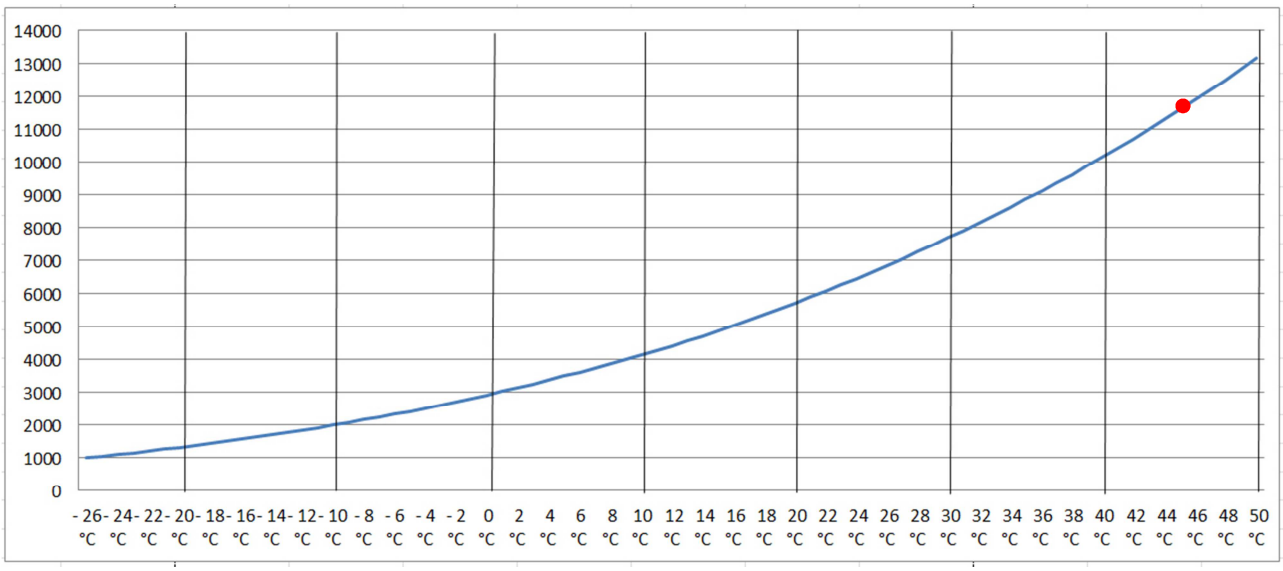


3. Use the cursor keys to select “Service”:
4. Enter the password “1212”.
5. Press ENTER to confirm



Press and hold the button 0 (RE) so long as the pressure increases (Display PS).

Pressure chart 134a



Is the pressure not in line with the pressure chart of 134a you have to release the NCG (not condensable gases)

Example:

Pressure at 20°C ambient temperature = 5720 mbar (normal)

Pressure at 20°C ambient temperature = 11600 mbar (too much)

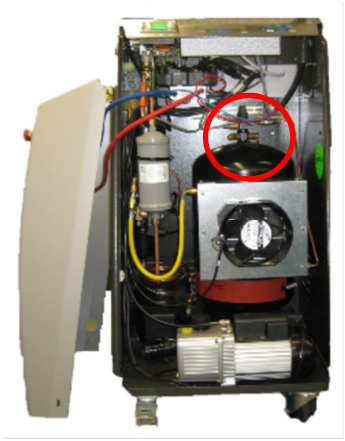
Inside the tank is 11600 mbar – 5720 mbar = 5880 mbar not condensable gas (NCG).

This 5880 have to release.

Release the NCG

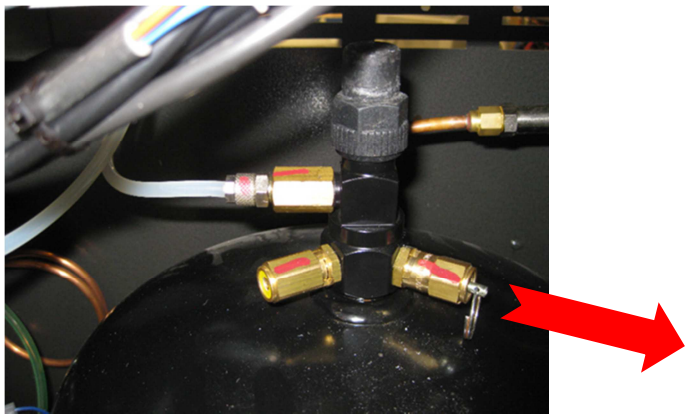
1. Disconnect the frond cover.
   To remove the front cover, open the 4 screws.

Warning! Stay away from parts under current during the complete process!



Warning!
Wear goggles and gloves.

2. Pull the small ring for 3 - 5 seconds to release pressure.

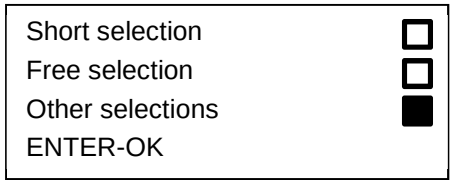


3. Check internal tank pressure again.
   Is the Pressure at 20°C ambient temperature between 5720 - 7720 mbar the intern tank pressure is ok. (Two bar NCG is allowed)

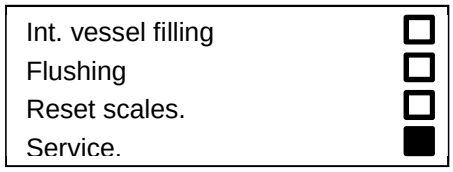
Function control

The following section describes the function control of all solenoid valves and processes. This description is for the purpose of accessing the individual processes without having to connect the device to an a/c.

1. In standby mode, use the cursor keys to select “Other selections”:



2. Press ENTER to confirm.



3. Use the cursor keys to select “Service”:

4. Enter the password “1212”.

5. Press **ENTER** to confirm

Key assignments:

Button	Bez.	Modul	Driven Modul
1	CX	compressor	compressor (1), valves (CX)+(7)+(9)
2	DO	oil drain	valve (14)
3	OI	fresh oil	valve (OI)
4	VC	vacuum	vacuum pump (17), valves (VC)
5	HB	heating belt	heating belt (53)
6	UV	UV	valve (UV)
7	FA	fan	fan (65)
8	LP	low-pressure	valve (LP)
9	HP	high-pressure	valve (HP)
0	RE	refrigerant	valve (RE)
SS=ON		Pressure safety switch(13) (ON<15bar, OFF=15bar)	
PS= mbar		current value of the pressure sensor	
9999g		current value of the refrigerant scale	

Press STOP twice to go to standby mode.

Attention!

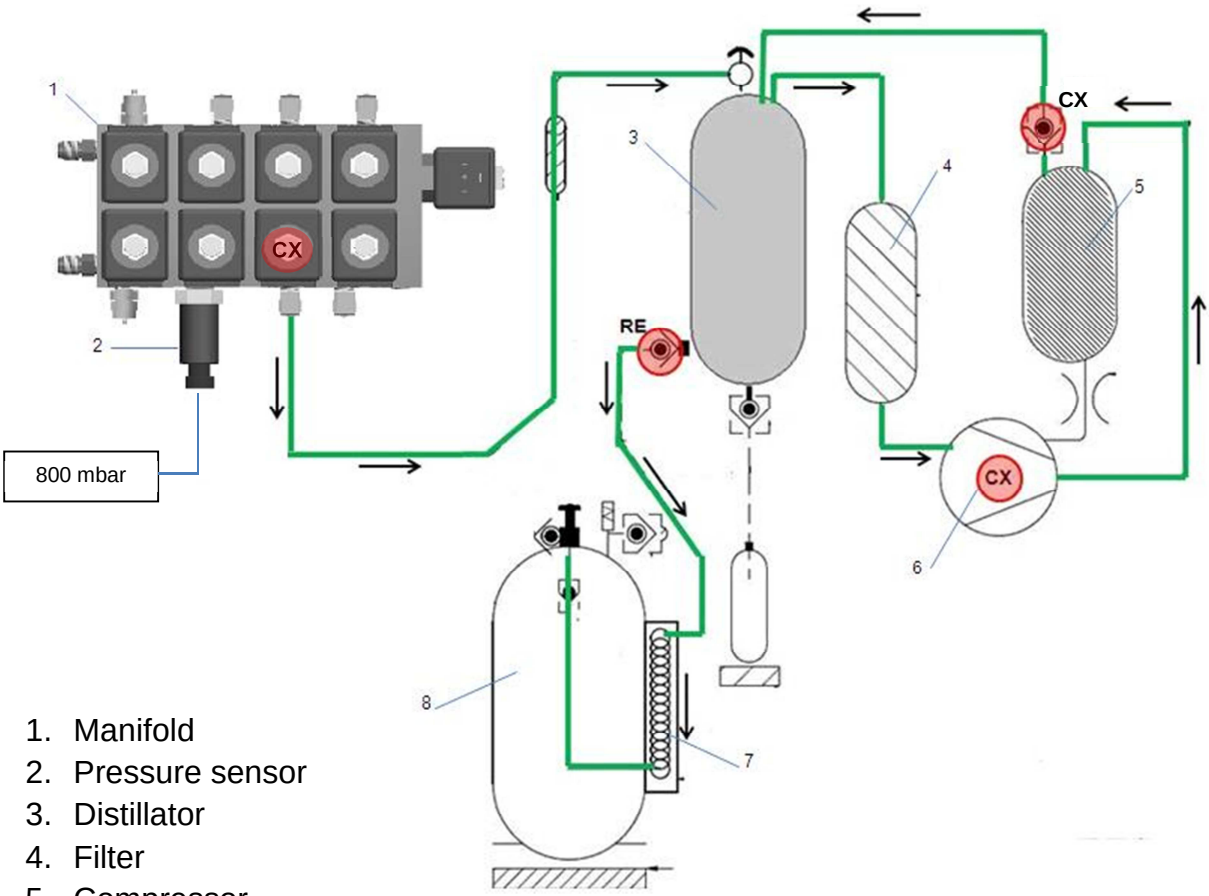
If you press more than two buttons at a time it is not guaranty that the function is correct. Watch the display for other highlighted buttons!

Compressor test

Push button **0(RE)** for one second, then keep button **1 CX** and watch the pressure indication (P) in the display. At the beginning the pressure shut be higher than 5000 mbar .The compressor shut be able to reduce the pressure to about 800 mbar in a short time.

If the pressure does not go down please check the following:

- Calibrating of the pressure senor
- Compressor
- Valves
- Tank pressure



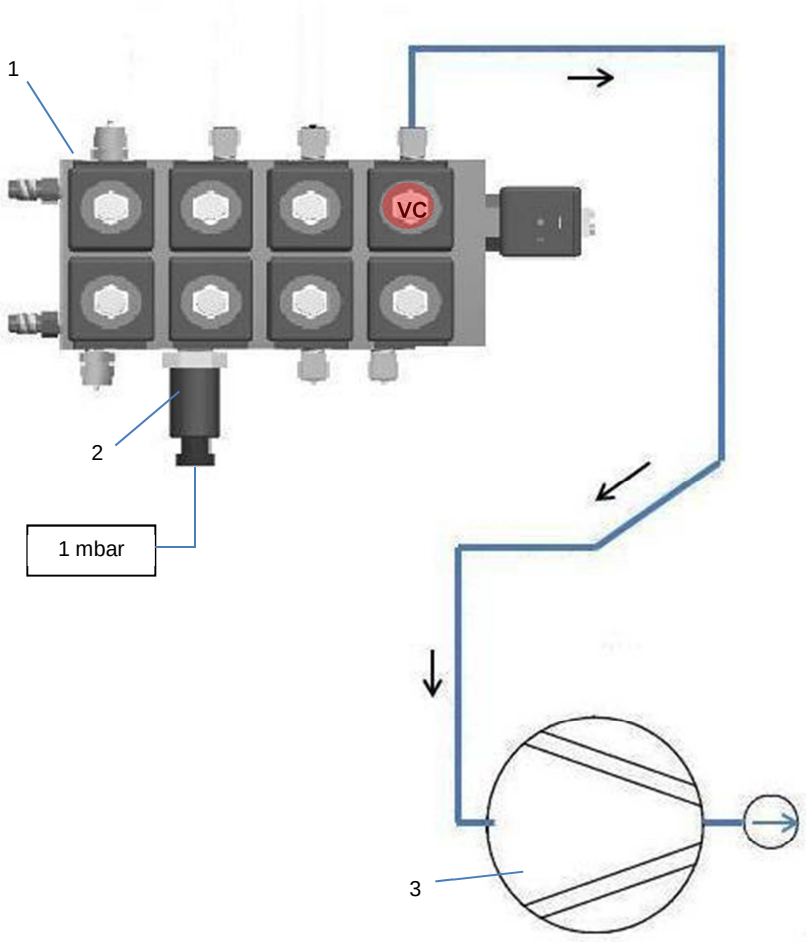
1. Manifold
2. Pressure sensor
3. Distillator
4. Filter
5. Compressor
6. Oil separator
7. Condensor
8. Refrigerant tank

Vacuum pump test

Keep and hold button **4 (VC)** and watch the pressure indication (P) in the display. The vacuum pump shut be able to reduce the pressure to about 1 mbar in a short time.

If the pressure does not go down please check the following:

- Calibrating of the pressure senor
- Leakages
- Vacuum pump
- Valves



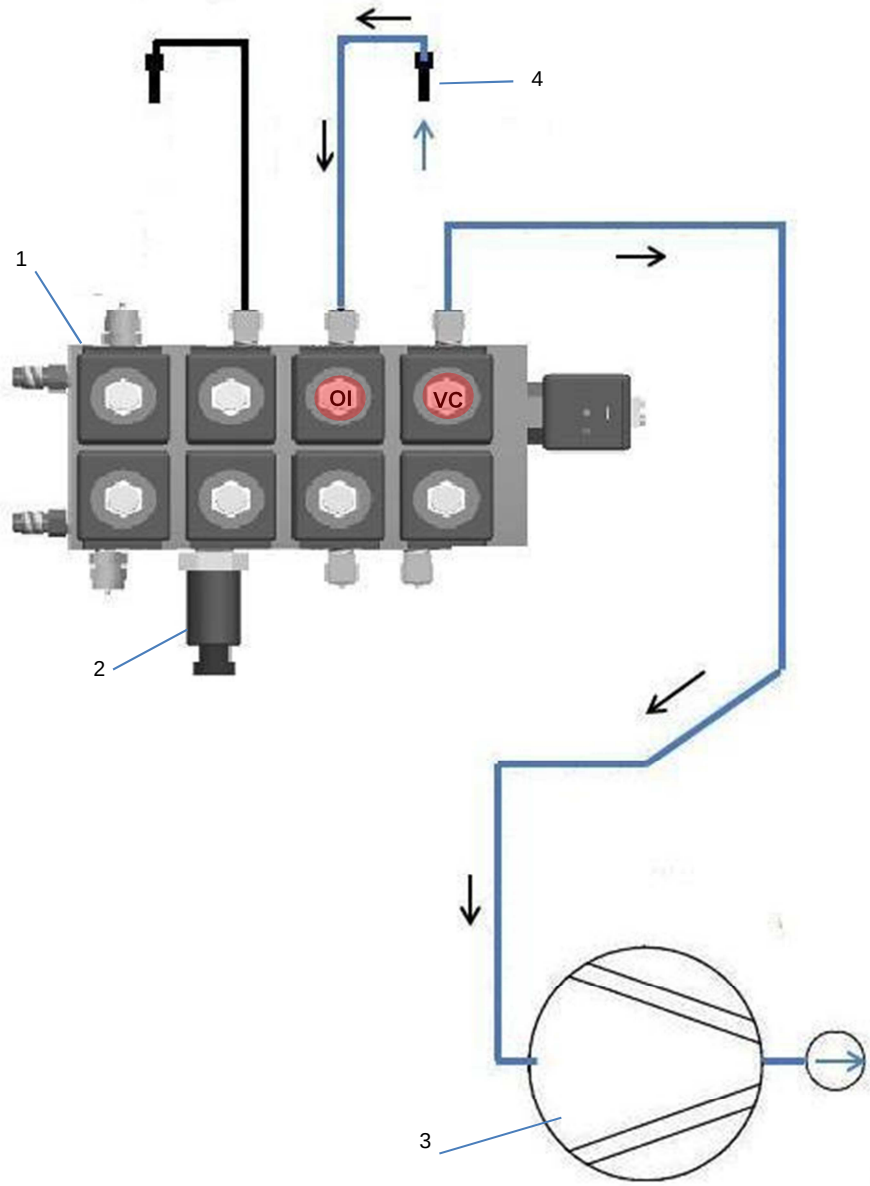
1. Manifold
2. Pressure sensor
3. Vacuum pump

Fresh oil test

Disconnect the fresh oil bottle. Keep the buttons **4 (VC)** and **3 (OI)** pressed at a time. Check if there is airflow at the fresh oil connector.

If there is no airflow check the following:

- Blockage of the hose or connector
- Function of the valves



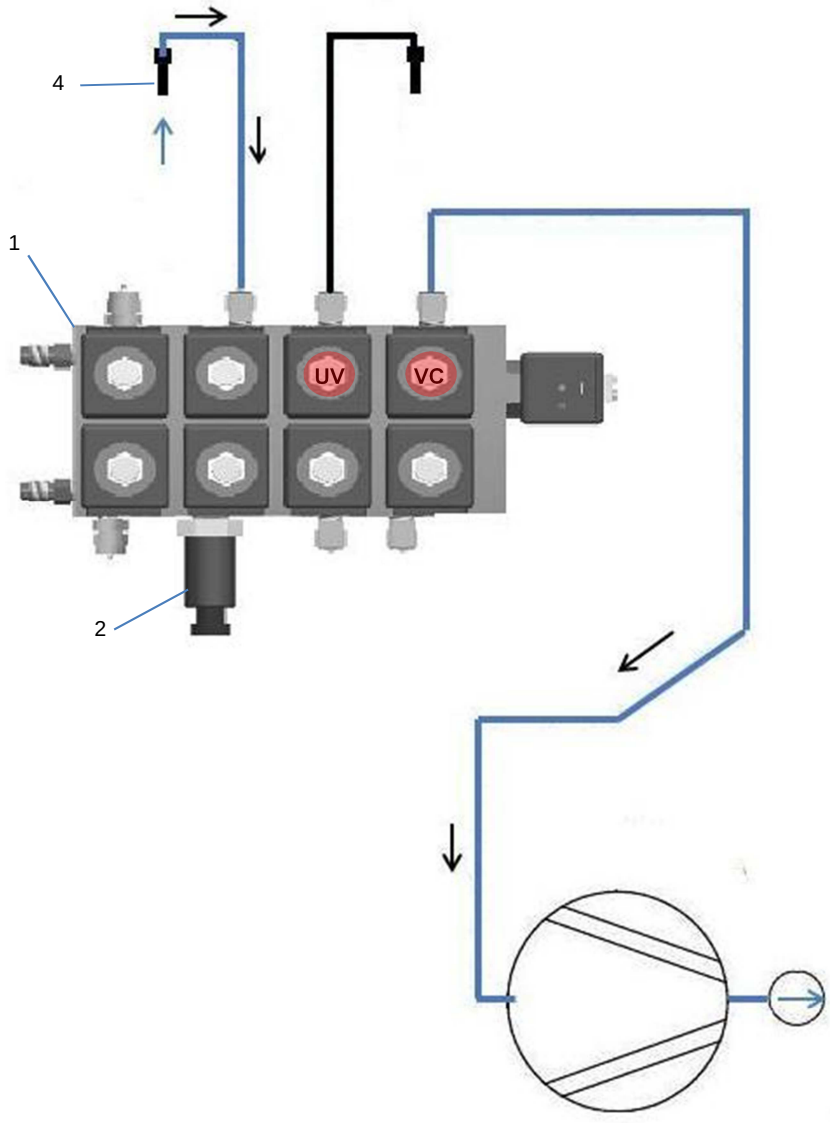
1. Manifold
2. Pressure sensor
3. Vacuum pump
4. Fresh oil bottle connector

UV test

Disconnect the fresh oil bottle. Keep the buttons 4 (VC) and 6 (OI) pressed at a time. Check if there is airflow at the fresh oil connector.

If there is no airflow check the following:

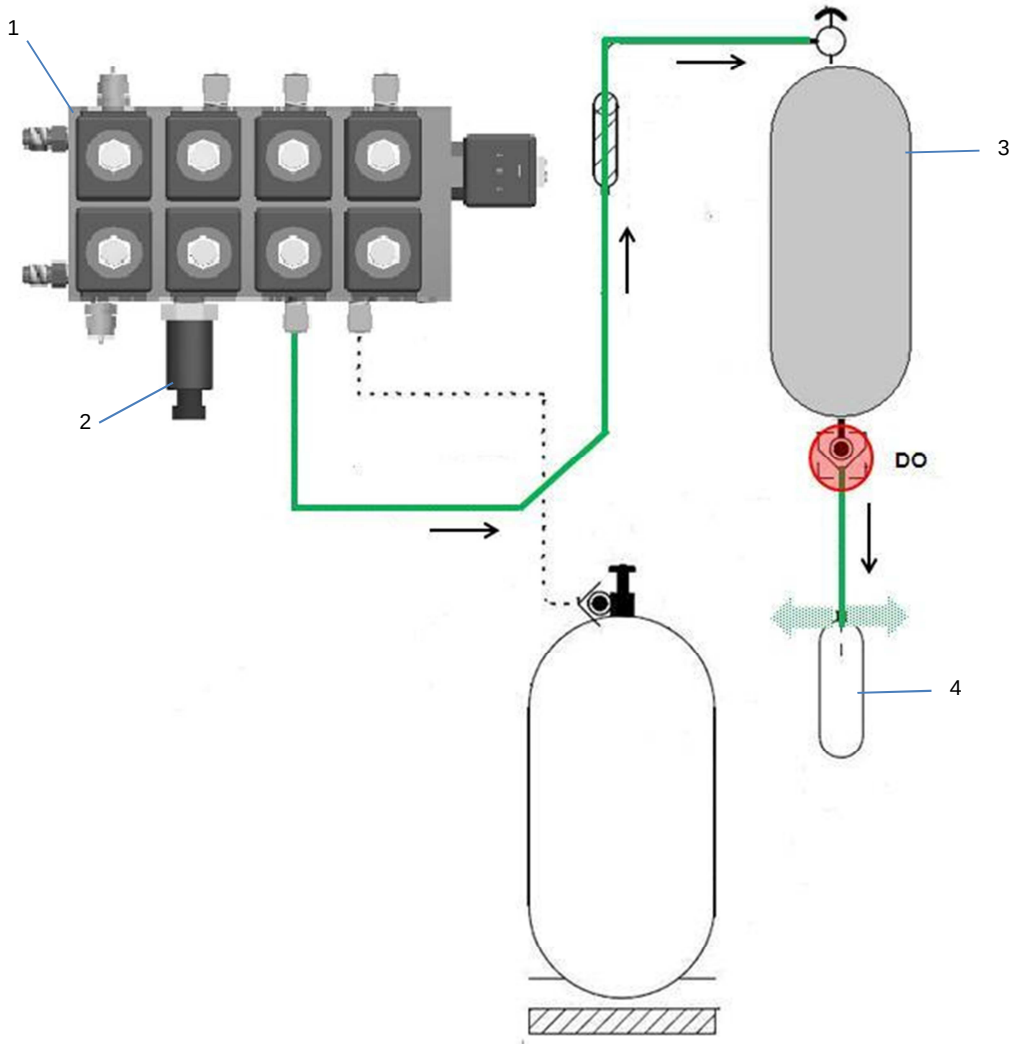
- Blockage of the hose or connector
- Function of the valves



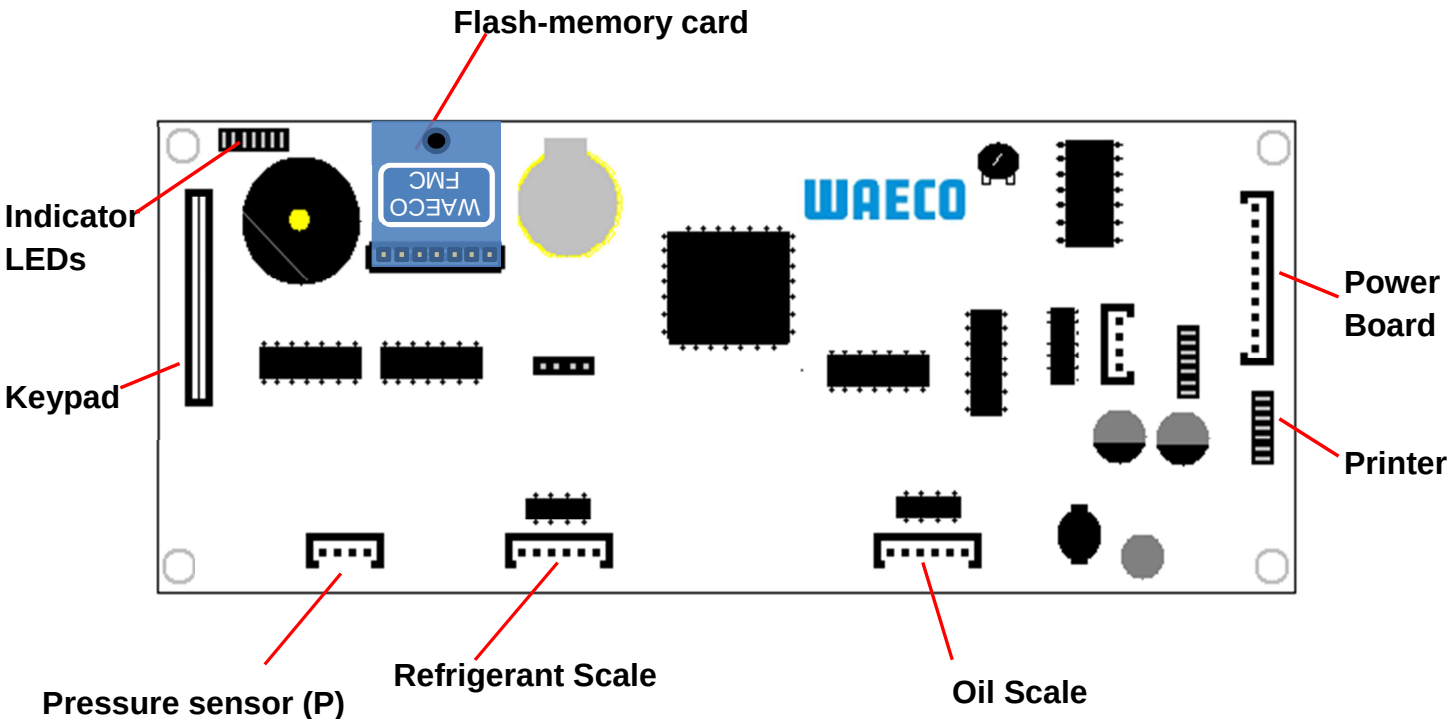
1. Manifold
2. Pressure sensor
3. Vacuum pump
4. UV oil bottle connector

Oil drain

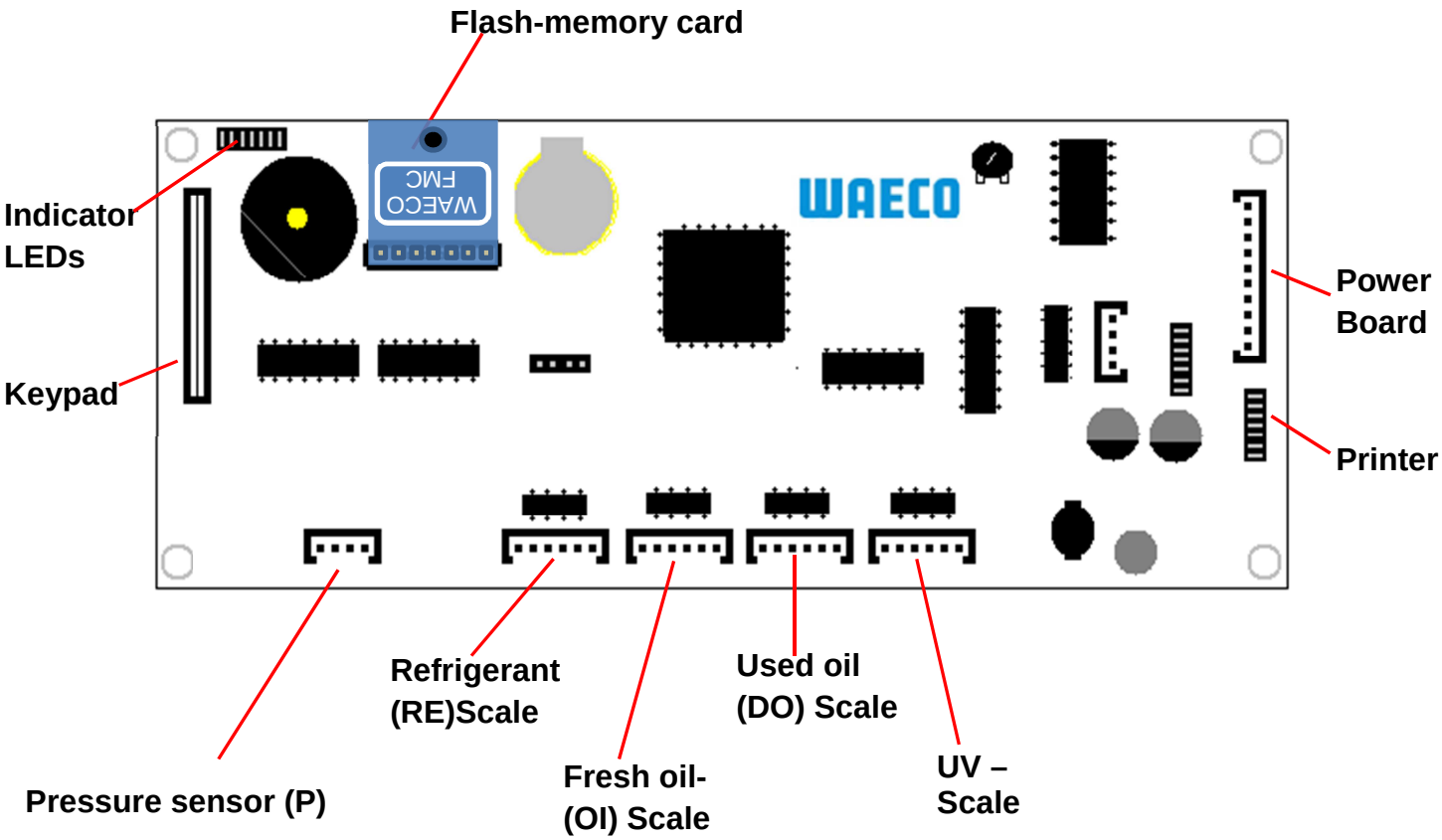
Push the button **2(DO)** and you can hear that oil and refrigerant drain out.



Electronic board ASC 1000



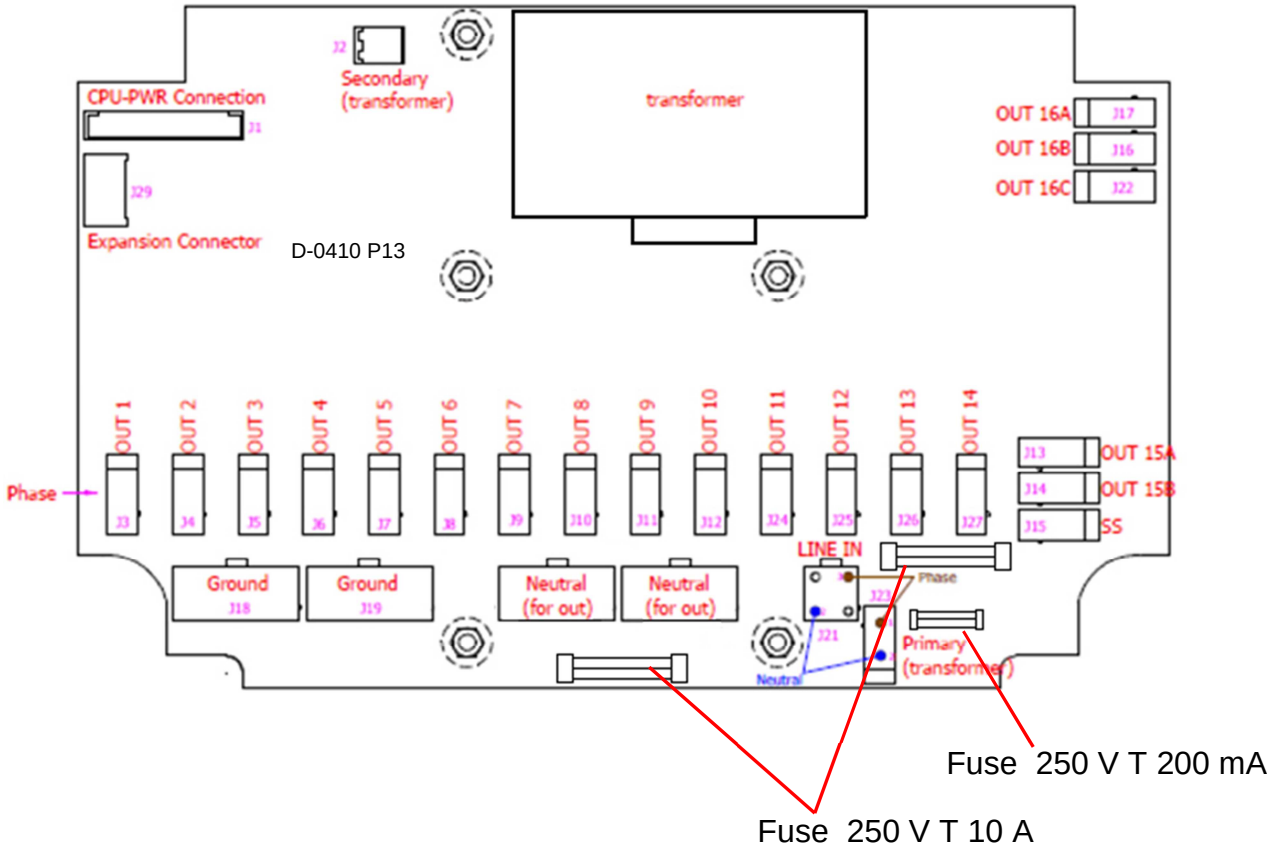
Electronic board ASC 2000 / ASC 3000



Power Board

WARNING!

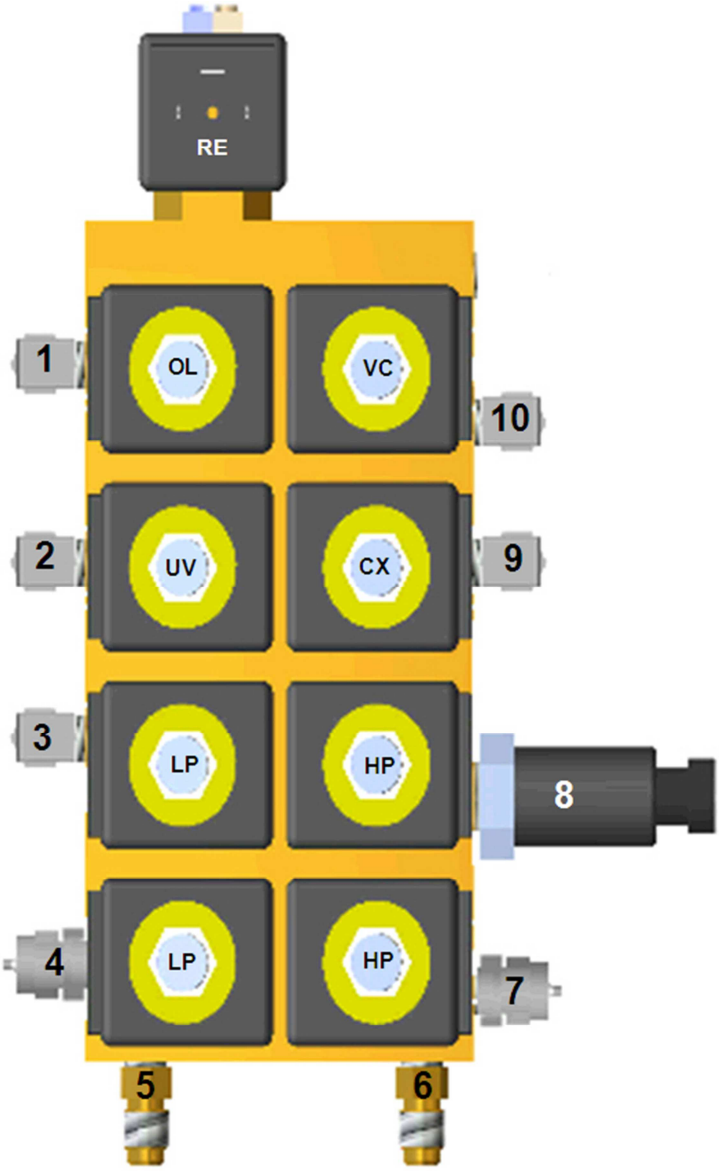
All outputs switch 230V !



ASC	Power Board	OUT 1	OUT 2	OUT 3	OUT 4	OUT 5	OUT 6	OUT 7	OUT 8	OUT 9	OUT 10	OUT 11	OUT 12	OUT 13	OUT 14	OUT 15A	OUT 15B	OUT 16A	OUT 16B	OUT 16C	SS
1000 2000 3000	^ D-0410 P11	LP	HP	DO	OI	UV	RE	FA		HB						VC	VC	CX	CX	CX	SS
2000 RPA	D-0410 P12	LP	HP	DO	OI	UV	RE	FA	GD	HB	AU					VC	VC	CX	CX	CX	SS
2500	D-0410 P13	LP	HP	DO	OI	UV	RE	VO	GD	HB	AU	Z1	Z2			VC		FA CX	CX	CX	SS
5000	D-0410 P13	LP	HP	DO	OI	UV	RE	VO	GD	HB	AU	Z1	Z2	CX	GA	VC	GA2	CX			SS

	Modul	Driven Modul
CX	compressor	compressor valves CX
DO	oil drain	valve
OI	fresh oil	valve (OI)
VC	vacuum	vacuum pump valves (VC)
HB	heating belt	heating belt
UV	UV	valve (UV)
Z2 **(ASC2500)**	connection to recycle unit	valve (Z2)
LP	low-pressure	valve (LP)
HP	high-pressure	valve (HP)
RE	refrigerant	valve (RE)
Z1 **(ASC2500)**	suction line oil container	valve (Z1)
AU **(ASC2500)**	connection between the VC and recycle unit	valve (AU)
GD **(ASC2500)**	Non-condensable gases	valve (GD)
VO **(ASC2500)**	Atmospheric outlet air VC	valve (VO)

Manifold



1. VC Vacuum pump connection
2. Oil connection
3. UV connection
4. LP manometer
5. LP service hose
6. HP service hose
7. HP manometer
8. Pressure sensor
9. Connection to the distiller
10. RE Refrigerant

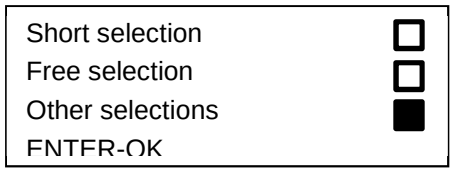
Correcting the filling quantity for long service hoses

NOTE

If longer or shorter service hoses are required for the unit, you need to adjust the filling quantities to the new hose lengths.

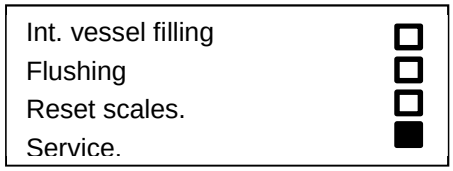
The service hoses for the high and low pressure sides must always be of the same length, as otherwise the filling quantities will not be correctly measured.

1. In the basic menu, use the cursor keys to select “Other selections”:



2. Press ENTER to confirm.

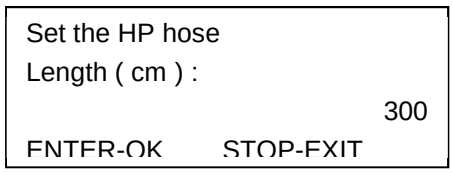
3. Use the cursor keys to select “**Service**”:



4. Press ENTER to confirm.

5. Enter the password “7732”.

- Then the display shows:



6. Enter the hose length in centimetre.

7. Press ENTER to confirm.

Replace printer paper

1. To replace the printer paper roll (15), open the cover (**K**).

2. Put in the new paper roll (paper roll item no. 4445900088) as shown and close the cover (**K**).

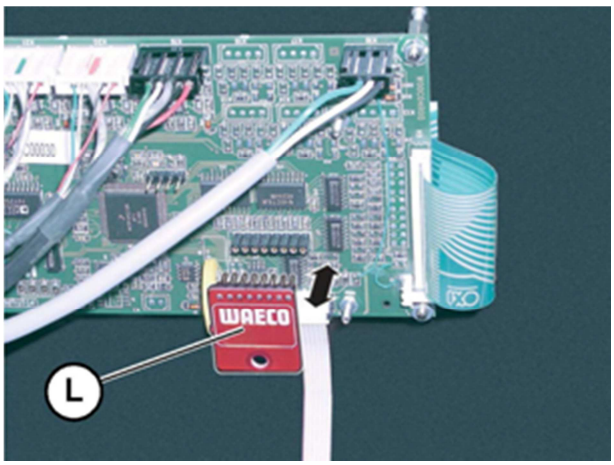
Changing the flash memory card

WARNING!

Before opening the unit, switch it off and pull out the mains plug.

1. Open the screws (D) on the control panel and lift it up.

2. Open the fastener for the flash memory card and pull out the card (L).

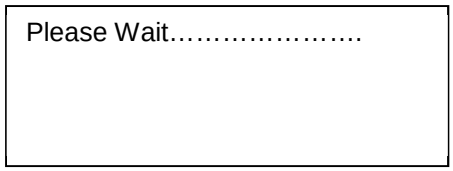


3. Insert a new flash memory card.

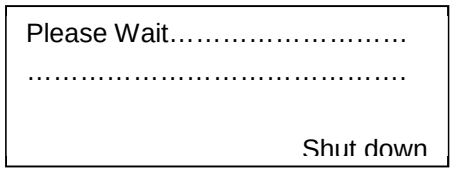
5. Close the control panel and reconnect the power plug.

6. Switch on the unit

- Then the display shows:



After a few seconds the display shows:



Follow the display instructions, and switch off the unit to restart.

NOTE

When you switch it on again, the values should be copied from the flash memory card to the unit. To do this, switch to “Other selections” - “Service” and enter the password “1518”. Press ENTER to confirm.

Attention!

The code 1518 sets the unit back to the factory defaults. Please check all customized configurations:

- **Service hose length**
- **Oil bottle size**
- **Default values for extra oil filling, UV, vacuum / leak check time and refrigerant**

Fault table

Fault	Cause	Remedy
The display shows “**WARNING! Internal vessel overpressure**.”	This message is normal during the recycling process.	To continue, press **ENTER** for three seconds. If the message appears more than once, inform a technician.
The display shows “**WARNING! Internal vessel filled.**”	The internal refrigerant container is too full to hold the quantity to be extracted.	Drain the internal refrigerant container in the proper manner.
The display shows “**WARNING! Pressure inside the A/C system. Recovery start.**”	This message is normal at the start of the vacuum process. There is still pressure present in the air conditioning system.	No action is required. The process continues automatically.
The display shows “**WARNING! Pressure inside the in A/C system**.”	Message during the vacuum process. There is pressure in the air conditioning system.	No action is required. The process continues automatically.
The display shows “**Not enough vacuum to carry on?**”	This message appears during the vacuum process when the pressure in the air conditioning system after 8 minutes is still more than 50 mbar.	Check the air conditioning system or the connections between it and the AirConServiceCenter for leaks.
The display shows “**A/C system leakage. cary on?**”	Message at the end of the vacuum process. The air conditioning system shows a vacuum loss of more than 120 mbar during the checking time.	Check the air conditioning system or the connections between it and the AirConServiceCenter for leaks.
The display shows “**Drained oil glass emptying.**”	This message appears during the extraction or recycling process if there is more than 150 ml of used oil in the container.	Dispose of the content of the used oil container in an environmentally responsible manner.
The display shows “**WARNING! Not enough vacuum for injection!**”	This message appears during the filling phase if the vacuum in the air conditioning system is insufficient to end the process.	Check the air conditioning system or the connections between it and the AirConServiceCenter for leaks.
The display shows “**Not enough refrigerant. Add.**”	This message appears during the process input if there is not enough refrigerant in the internal container to complete the process.	Fill the refrigerant container.

Fault	Cause	Remedy
The display shows "**Not enough UV. Add.**"	This message appears during the filling process if there is not enough UV additive in the container to finish the process.	Fill the UV additive container.
The display shows "**Not enough oil. Add.**"	This message appears during the filling process if there is not enough fresh oil in the container to finish the process.	Fill the oil container.
The display shows "**Max. filling time exceeded! Carry on?**"	This message appears during the filling process if the set amount of refrigerant cannot be filled.	Check that AirConServiceCenter connections are not blocked.
The display shows "**External tank empty or closed valve ! Check!**"	This message appears at the start or during the filling of the internal refrigerant container if the set refrigerant quantity cannot be attained.	Check if the external refrigerant container enough refrigerant or if the valves of the external refrigerant container are open.
The display shows "**Change the equipment drier filter. Go on ?**"	This message appears when you switch on the AirConServiceCenter.	Change the internal filter as soon as possible.
The display shows "**Change the vacuum pump oil! Gon on ?**"	This message appears when you switch on the AirConServiceCenter.	Change the vacuum pump oil as soon as possible.
The display shows "**Printer not in line. Carry on ?**"	This message indicates a printer fault.	Check if there is paper in the printer. Check if the printer is switched on (yellow LED must light up constantly) Check that the flap is closed properly.
No print image.	Wrong printing paper installed.	Install correct thermal paper.
The yellow lamp of the printer flashes.	Flap not closed.	Close flap.
	Paper missing.	Install new paper roll.
	Serial data transmission incorrect.	
The unit doesn't start dark display	no current	Check main plug and fuses in the Power Box
.		
Recovery phase does not end; pressure gauge shows less than 0 bar.	Pressure transducer not calibrated.	Calibrate pressure transducer.
	Pressure transducer defective.	Replace pressure transducer.

Fault	Cause	Remedy
Recovery phase does not end; pressure gauge shows more than 0 bar.	Defective compressor.	Replace compressor.
	Solenoid valve “Fill” not closed.	Remove solenoid valve and clean it; install replacement where necessary.
Recovery phase does not end, but pressure gauge shows more than 0.6 bar.	Pressure transducer not calibrated.	Calibrate pressure transducer.
	Pressure transducer defective.	Replace pressure transducer.
Fresh oil is not injected.	Pressure transducer is incorrectly calibrated or defective.	Calibrate pressure transducer; replace where necessary.
	Solenoid valve does not open.	Check the electronic controls for the solenoid valve; clean solenoid valve.
	No pass between the fresh oil container and the solenoid valve block.	Check the hose in the fresh oil container, the quick coupling of the fresh oil container and the connection hose to the solenoid valve block all have enough space.
	Scale measures an incorrect valve.	Check tare setting; reset zero point.
Contrast agent is not injected.	Pressure transducer is incorrectly calibrated or defective.	Calibrate pressure transducer; replace where necessary.
	Solenoid valve does not open.	Check the electronic controls for the solenoid valve; clean solenoid valve.
	Scale measures an incorrect valve.	Check tare setting; reset zero point.
	No pass between the UV contrast agent container and the solenoid valve block.	Check the hose in the contrast agent container, the quick coupling of the contrast agent container and the connection hose to the solenoid valve block all have enough space.
	No pass between the fresh oil container and the solenoid valve block.	Check the hose in the fresh oil container, the quick coupling of the fresh oil container and the connection hose to the solenoid valve block all have enough space.