



AirCon Service Center VAS 581 001A

Air conditioning service unit Operating manual

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Contents

1	About this operating manual.	5
1.1	Hotline	5
1.2	Explanation of symbols in this operating manual.	6
2	Safety.	7
2.1	General safety instructions	7
2.2	Operating the device safely	8
2.3	Handling refrigerant safely	9
2.4	Operational measures when using the unit	10
2.5	Warnings on the AirConServiceCenter	11
2.6	Safety devices	11
3	Scope of delivery	12
4	Accessories	13
5	Proper use.	13
6	Overview of the AirConServiceCenter.	14
6.1	Front	14
6.2	Rear and side view	15
7	Initial startup.	16
7.1	Procedure for internal leak test	16
7.2	Setting up and switching on.	16
7.3	Standby menu	17
7.4	Language selection	18
7.5	Setting the font.	18
7.6	Adjusting the buzzer audio volume	19
7.7	Entering company data	20
7.8	Entering the date and time.	21
7.9	Editing default values.	22
7.10	Inserting the containers for oil and UV additive	23
7.11	Entering the container size	24
7.12	Analyzing refrigerant	25
7.13	Verifying the analysis unit	27
7.14	Filling up the internal refrigerant container	28

8	Operation	30
8.1	Shutdown in case of repair, emergencies and malfunctions	30
8.2	Short selection	30
8.3	User codes	32
8.4	Creating a personal database	35
8.5	Transferring the consumption of refrigerant onto a USB stick	37
8.6	Displaying refrigerant consumption	39
8.7	Free selection	41
8.8	Flushing the air conditioning system	45
9	Service tasks	48
9.1	Leak test	48
9.2	Calibrating the oil scales	48
9.3	Changing the dryer filter	50
9.4	Filter maintenance	52
9.5	Calibrating the pressure transducer	53
9.6	Changing the vacuum pump oil	55
9.7	Meter readings	58
9.8	Filling level correction for longer service hoses	59
9.9	Updating the software via USB	60
9.10	Replacing the printer paper	61
9.11	Changing the drained oil receptacle	62
9.12	Cleaning and maintenance	63
10	Disposal	64
10.1	Disposing of used fluids	64
10.2	Disposing of packaging material	64
10.3	Disposal of the old unit	64
11	What to do, when?	65
12	Technical data	70

1 About this operating manual

This operating manual describes the VAS 581 001A air conditioning service station (AirConServiceCenter).

This manual is for those who perform maintenance on vehicle air conditioning systems and have the expertise required to do so.

It contains all the instructions necessary for safe and effective operation of the AirConServiceCenters. Before starting the air conditioning service unit for the first time, read this operating manual carefully.

Please also note the information in the current material safety data sheets. They can be found at:
dometic.com/sds

Keep this operating manual in the compartment of the AirConServiceCenter, so that any information you need is always at hand.

1.1 Hotline

If you need more information on the AirConServiceCenter that is not contained in this manual, please contact the hotline:

Phone: +49 (0) 25 72 / 8 79-1 91

1.2 Explanation of symbols in this operating manual



WARNING!

Safety instruction: Failure to observe this instruction can cause fatal or serious injury.



CAUTION!

Safety instruction: Failure to observe this instruction can lead to injury.



NOTICE!

Failure to observe this instruction can cause material damage and impair the function of the product.



NOTE

Supplementary information for operating the product.



Only qualified personnel may work on this unit.

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
1. Text 2. Text 3. Text	Actions to be carried out in the order shown	1. Connect the device. 2. Switch on the device. 3. Press the selection button.
✓ Text	Result of an action	✓ Unit is ready for operation.
Text (1)	Part numbers referring to the overview (page 14 and page 15).	Use the keypad (8) 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.

2 Safety

The manufacturer will not be held liable for claims for damage resulting from the following:

- Faulty assembly or connection
- Damage to the unit resulting from mechanical influences and excess voltage
- Alterations to the product without the express permission of the manufacturer
- Use for purposes and operating equipment other than those described in the instruction manual
- Repairs to the service unit which were not performed by qualified specialists

2.1 General safety instructions



WARNING!

- Observe national work safety regulations.
- Observe the safety instructions in this operating manual.
- The AirConServiceCenter may only be used by personnel who are able to demonstrate the appropriate specialist training and are familiar with the operation and basic principles of the AirConServiceCenter, of air conditioning systems and of refrigerants.
- The AirConServiceCenter may only be repaired by personnel authorized by Dometic.
- Only use the device for its intended purpose.



CAUTION!

- Do not make modifications to the AirConServiceCenter.
- Do **not** carry out maintenance work on the vehicle air conditioning system when the engine is at operating temperature.
When performing maintenance on the vehicle air conditioner, the surface temperature of attachment parts or surrounding parts must be less than 405 °C.
- **Risk of injury from bursting components if the permitted temperature limits are exceeded**
Only transport the AirConServiceCenter **without** refrigerant to avoid excess pressure.
- The AirConServiceCenter may **not** be stored outdoors.
- Store the service hoses in the hose pocket on the back when the AirConServiceCenter is not in use.

2.2 Operating the device safely



WARNING!

- Do not operate the AirConServiceCenter in areas where there is a risk of explosion (for example, battery charging rooms or spraying booths), see operating safety directive BGR 157/TRG 250, 280, 316.
- Do not pump compressed air into the refrigerant lines of the AirConServiceCenter or the vehicle air conditioning system. A mixture of compressed air and refrigerant can be flammable or explosive.
- **Risk of injury due to unplanned or unintended switching on of the air conditioning service unit**
Switch off the AirConServiceCenter prior to all maintenance work and disconnect the mains cable from the mains supply. Pull the plug from the socket or from the AirConServiceCenter.
- **Risk of burns from cold or hot components**
Wear protective gloves.



CAUTION!

- Do not start up the AirConServiceCenter if it is damaged.
- Each time you start up the unit or top up the AirConServiceCenter, first check whether the unit and all the service hoses are undamaged and that all valves are closed.
- Lay the service hoses in such a way that they pose no tripping hazard for other persons.
- **Serious injuries due to overturning or falling load**
The handle is not used to lift the unit. Only push the AirConServiceCenter on rollers to transport it.
- Always position the unit on level ground and secure the front wheels.
- Only use approved refrigerant vessels with safety valves to refill the AirConServiceCenter.
- Always use the main switch of the AirConServiceCenter to switch it on and off. Do not leave the device unattended when it is switched on.
- **Risk of injury from leaking fluids**
Leaking fluids on the floor can cause persons to slip and injure themselves.
Wipe up leaked or dripped fluids immediately or absorb them with a suitable binding agent.
Dispose of them in an environmentally sound manner.

**NOTICE!**

- Never expose the unit to heavy moisture.
- Do not operate the unit outdoors when it is raining.
- Do not operate the unit near heat sources (such as heaters) or in direct sunlight.
- Only use R-1234yf refrigerant. If other refrigerants are mixed in, this can damage the AirConServiceCenter and the vehicle air conditioning system.
- Before you shut down the AirConServiceCenter, make sure that the selected program has ended and that all valves are shut. Otherwise refrigerant can leak.
- When you modify values in the menus, always compare them with the specifications on the vehicle.
- When parking, use the brake lever on the front wheels to secure the AirConServiceCenter from rolling away.

2.3 Handling refrigerant safely

**WARNING!**

- Do **not** carry out maintenance work on the vehicle air conditioning system when the engine is at operating temperature.

When performing maintenance on the vehicle air conditioner, the surface temperature of attachment parts or surrounding parts must be less than 405 °C.

**CAUTION!**

- Wear personal safety equipment (safety goggles and protective gloves) and avoid coming into contact with the refrigerant. Contact with the refrigerant draws out body heat and the affected areas can freeze.
- Do not inhale refrigerant vapor. Although the vapor is non-toxic, it displaces the oxygen you need to breathe.
- Only use the device in well-ventilated areas.
- Refrigerant may **not** be used in low-lying spaces such as assembly pits or soakaways. Refrigerant is heavier than oxygen and therefore displaces the air you need to breathe. This can cause a lack of oxygen when working in unventilated assembly pits.

**NOTICE!**

- Make sure that refrigerant is not able to escape and leak into the environment during operation, when filling or draining refrigerant or during repair and service work.

This will protect the environment.

It also avoids the difficulty or impossibility of detecting leaks in the vehicle or in the unit due to the presence of refrigerant in the vicinity of the AirCon Service Center.

- Take suitable precautions to ensure that leaking refrigerant is not able to get into the drainage system.

**NOTE**

- Special information on refrigerant R-1234yf and safety measures as well as the protection of personnel and objects, including fire protection, can be found in the safety sheets of the refrigerant manufacturer.

2.4 Operational measures when using the unit

The operator must provide operating instructions according to TRG 402 for each filling system (AirCon Service Center). These operating instructions must be used to train personnel in handling the unit.

The operator must ensure that personnel are instructed in the following points at least once a year:

- Special dangers when dealing with compressed gases
- Safety guidelines when dealing with compressed gases
- Health precautions when dealing with compressed gases
- Operating the unit and performing service work on the unit

The operator must ensure that personnel appointed to perform service and repair work as well as leak inspections are certified to deal with refrigerant and filling systems.

Certification and knowledge of the applicable guidelines and standards can be acquired from a training course at a chamber of trade, chamber of industry and commerce or at any other recognized training facility.

The system operator must ensure that all service hoses are laid in such a way that they cannot be damaged when the unit is used.

2.5 Warnings on the AirConServiceCenter



Please note!
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.



Trained personnel!

2.6 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.
- Fan and electronic box (delay circuit): checks the fans work properly at start-up.
- Door opener contact prevents the front panel and dryer cover from opening while operating.

3 Scope of delivery

The AirConServiceCenter and its accessories are carefully checked before shipping.

The AirConServiceCenter was tested for leaks before shipping.

After delivery, check that all the parts listed below are present and undamaged.

If any parts are missing or damaged, notify the company responsible for transport immediately.

Designation
Adapter for 500 ml fresh oil and UV contrast agent bottle
Closed patented used oil container
Oil bottle set/UV container, 250ml
Protective device cover
Goggles/gloves
Operating manual

**NOTICE!**

For safe operation and calibration, you require R-1234yf refrigerant (**not** in scope of delivery).

Refrigerant vessels are currently supplied with various connecting threads and adapters; these are **not** in the scope of delivery.

4 Accessories

Available as accessories (not included in the scope of delivery):

Designation	Ref. number
Waste oil receptacle 500 ml	4440600131
Replacement filter with filter code for maintenance	4445900221
Protective device cover	4445900081
Spare printer roll (thermal paper) (VPE 4)	4445900088
Safety goggles	8885400066
Protective gloves	8885400065
Vacuum pump oil (1,000 ml)	8887200018

5 Proper use

The VAS 581 001A AirConServiceCenter (ref. number: ASE 581 001 01 000) is intended for performing maintenance on vehicle air conditioning systems. The device is designed for commercial use.

The AirConServiceCenter may only be operated by personnel who have the expertise required for servicing air conditioning systems.

This AirConServiceCenter may only be used to service vehicle air conditioning systems in which R-1234yf refrigerant is used.

The AirConServiceCenter is only suitable for approved operating fluids.

6 Overview of the AirCon ServiceCenter

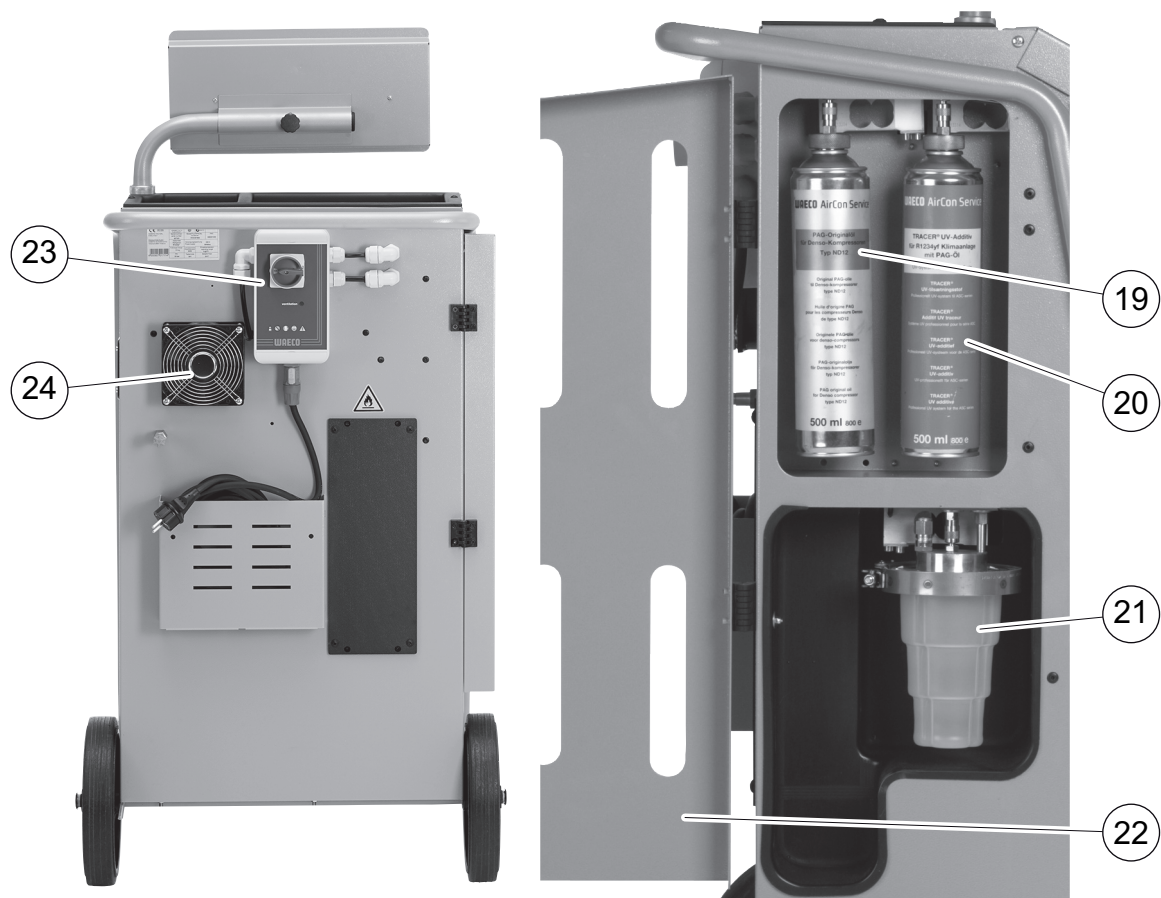
6.1 Front



- 1 Low pressure gage
- 2 Red "Fill" lamp
- 3 Blue "Evacuate" lamp
- 4 Yellow "ECO deep emptying" lamp
- 5 Green "Suction" lamp
- 6 High pressure gage
- 7 Display
- 8 Keypad
- 9 Gas analysis unit
- 10 Front cover

- 11 Front wheels with wheel stops
- 12 Service hose for low pressure connection (blue)
- 13 Service hose for high pressure connection (red)
- 14 Service coupling for high pressure connection (red)
- 15 Service coupling for low pressure connection (blue)
- 16 Printer
- 17 USB port
- 18 Display unit

6.2 Rear and side view



- 19 Fresh oil tin (500 ml)
- 20 Container for UV additive (500 ml)
- 21 Patented used oil container
- 22 Cover flap
- 23 Main switch
- 24 Fan

7 Initial startup

7.1 Procedure for internal leak test

The internal unit pressure test is performed automatically every week.

- Firstly, the service hose connections to an air conditioning system are checked and to see whether the service connectors are installed.
- If pressure is still in the hoses, it causes an error. If the service hoses are full, a refrigerant analysis is performed and the refrigerant is then recycled if the **“Analysis OK”** message appears. Afterwards, the vacuum test is performed. Several parts of the unit are evacuated. Once the vacuum test has been carried out successfully, the parts of the unit are filled with refrigerant – now a 6 minute pressure test is done with all the solenoid valves open to immediately determine a drop in pressure. After successful completion, the refrigerant is suctioned off and the unit is available for service work.

7.2 Setting up and switching on

1. Wheel the AirConServiceCenter to the workplace and lock the front wheels (11).



NOTE

During operation, the device must be on a level, flat surface so that measurements can be made correctly.

2. Connect the AirConServiceCenter to the mains.
3. To switch it on, set the main switch (23) to I.
The switch-on delay runs for 35 seconds and the housing is ventilated. The software version number then appears in the display (7) for several seconds:

Dometic Waeco Int.		
VAS	SW	VA5k0048
581 001A	DB	1dyf1701
SN660033	LF	12340060

“SW”: Software status

“DB”: Database

“SN”: Serial number

“LF”: Language file

The following message then appears:

```
Internal vessel
pressure
Please wait
```

- ✓ Afterwards the AirConServiceCenter runs a software test.

```
Software test.  
Please wait
```

- ✓ Afterwards a leak test is performed.

```
Tightness test  
Please wait
```

- ✓ When the start-up procedure is complete, the AirConServiceCenter displays the standby menu:

```
Refrigerant          g.      XXXX  
PAG oil              ml       XXX  
UV additive          ml       XXX  
11:56:35 AM                     03/10/17
```

**NOTE**

Ignore any error codes which occur during commissioning (see page 66) and skip by pressing **ENTER**.

7.3 Standby menu

The standby menu shows you the current supply quantities and the time settings of the AirConServiceCenter.

The following information is shown:

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

7.4 Language selection

1. Press cursor keys **↑** or **↓** to return to the basic menu.
2. In the basic menu, use the cursor keys **↑** or **↓** to select “**Other selections**”:

Short selection	☐
Free selection	☐
Other selections	☒
ENTER-OK	↓

3. Press **ENTER** to confirm.
4. Use the cursor key **↓** to select “**Service**”.
5. Press **ENTER** to confirm.
6. Enter the password “**5264**”.
7. Use the cursor keys **↑** or **↓** to select the desired language.
8. Press **ENTER** to confirm.
9. Press **STOP**. The selected language is active and the standby menu appears.

7.5 Setting the font

1. Press cursor keys **↑** or **↓** to return to the basic menu.
2. In the basic menu, use the cursor keys **↑** or **↓** to select “**Other selections**”:

Short selection	☐
Free selection	☐
Other selections	☒
ENTER-OK	↓

3. Press **ENTER** to confirm.
4. Use the cursor key **↓** to select “**Service**”.
5. Press **ENTER** to confirm.
6. Enter the password “**3667**”.

PAR	FONT
Mingliu	☐
Unifont	☒
ENTER-OK	↓

7. Use the cursor keys **↑** or **↓** to select the desired font:
 - Unifont
 - Mingliu
8. Press **ENTER** to confirm.
9. Press **STOP**. The selected font is active and the standby menu appears.

7.6 Adjusting the buzzer audio volume

1. Press cursor keys **↑** or **↓** to return to the basic menu.
2. In the basic menu, use the cursor keys **↑** or **↓** to select “**Other selections**”:

Short selection	☐
Free selection	☐
Other selections	☒
ENTER-OK	↓

3. Press **ENTER** to confirm.
4. Use the cursor key **↓** to select “**Service**”.
5. Press **ENTER** to confirm.
6. Enter the password “**2899**”.

PAR	Buzzer
Loud	☐
Quiet	☒
ENTER-OK	↓

7. Use the cursor keys **↑** or **↓** to select the desired audio volume.
8. Press **ENTER** to confirm.
9. Press **STOP**. The selected audio volume is active and the standby menu appears.

7.7 Entering company data

The company data is printed out with every service log.

1. In the basic menu, 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 key **↓** to select “**Service**”.
4. Press **ENTER** to confirm.
5. Enter the password “**3282**”.
6. The company data is shown in the third line of the display (7).
You can enter five lines, each with up to 20 characters.
The display shows the number of lines of company data after the message “**Enter company data**” (“01” to “05”).
Use the cursor keys **↑** or **↓** to select the line of company data you want.
7. Use the keypad (8) and the cursor keys to enter the data.
To switch between upper and lower case, press the Info key  .
To delete a character, briefly press the **C** key.
To delete the current line, press and hold down **C**.
8. Press **ENTER** to confirm.
9. Press **STOP**. The set data is activated.
10. Press **STOP** again to go to standby menu.

7.8 Entering the date and time

The date and the time are printed along with the company data on every service log.

1. In the basic menu, 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 key **↓** to select “**Service**”.
4. Press **ENTER** to confirm.
5. Enter the password “**8463**”.
6. Use the keypad and the cursor keys to enter the information.
7. Press **ENTER** to confirm.
8. Press **STOP** to go to standby menu.

7.9 Editing default values

The AirConServiceCenter has preset values for the most important service tasks. The default values appear automatically when you select the respective menu.

You can alter the following default values if necessary:

Parameter	Default value
Pressure increase Test time min.	1
Vacuum time min.	20
Leak test min.	4
PAG oil ml. (Extra amount)	0
UV additive ml.	0
Filling Qt. g.	500
Print recovery value?	Yes

1. In the basic menu, 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 key **↓** to select “**Service**”.
4. Press **ENTER** to confirm.
5. Enter the password “**3724**”.
6. Use the keypad and the cursor keys to enter the information.
7. Press **ENTER** to confirm.
8. Press **STOP** to go to standby menu.

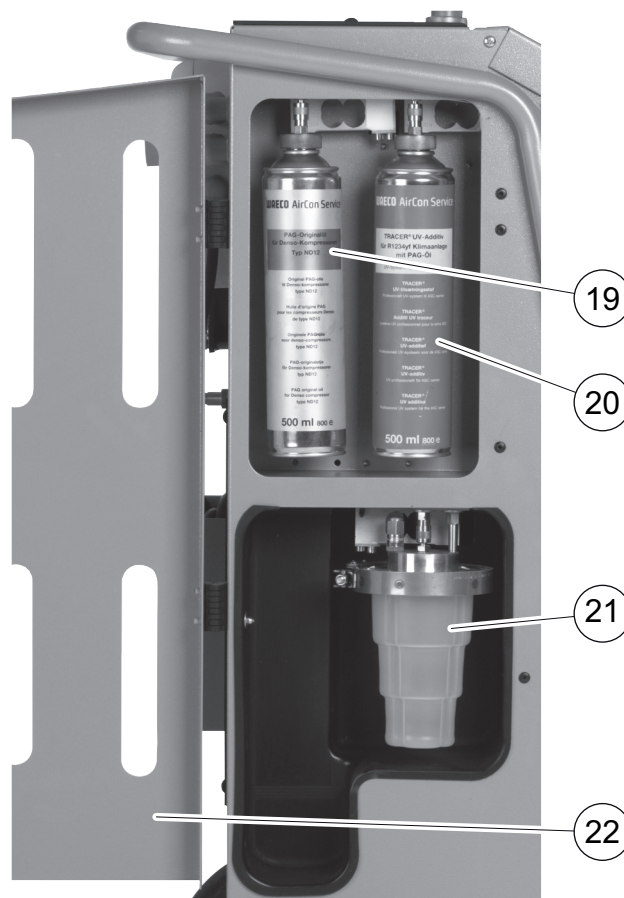
7.10 Inserting the containers for oil and UV additive

**NOTE**

Only use approved oils and UV additives for R-1234yf. Observe the manufacturer's instructions.

The current supply quantities are displayed in the standby menu.

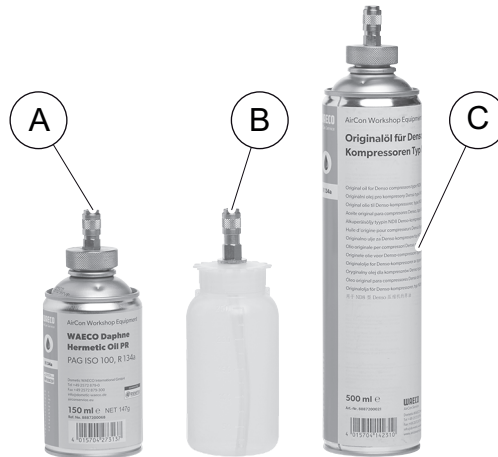
1. Open the cover flap (22) on the left side and push the containers into the snap locks:
 - Container for fresh oil (19)
 - Container for UV additive (20) and
 - Used oil container (21)



2. Close the cover flap (22).
3. Enter the container size for fresh oil and UV contrast agent (see chapter "Entering the container size" on page 24).

7.11 Entering the container size

Fresh oil and UV contrast agent can be kept in containers of 150 ml (**A**), 250 ml (**B**) or 500 ml (**C**) (accessories). You must enter the size of the container in the AirConServiceCenter.



1. In the basic menu, 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 key **↓** to select “**Service**”.

Refrigerant Test	☐
Hybrid service	☐
Service.	☒
ENTER-OK STOP-EXIT	↓

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).

Oil bottle					
150ml	☒	250ml	☐	500ml	☐
UV bottle					
150ml	☐	250ml	☐	500ml	☒

7. Press **ENTER** to confirm.
8. Press **STOP** to go to standby menu.

7.12 Analyzing refrigerant

**NOTE**

The AirConServiceCenter analyzes the purity level of the refrigerant before draining. If it is below 95 %, the unit does not accept the refrigerant.

Each time before draining the vehicle or filling the internal refrigerant vessel, the refrigerant analysis starts automatically.

```
Refrigerant Test
```

```
Warm up
```

```
Please wait!
```

```
Refrigerant Test
```

```
Please wait!
```

```
STOP-EXIT
```

If “**Please wait**” is flashing, the refrigerant is being analyzed.

7.12.1 Refrigerant analysis passed

If the refrigerant is not contaminated, the AirConServiceCenter displays the following at the end of the analysis:

```
Refrigerant Test
```

```
OK!
```

The AirConServiceCenter can be used.

7.12.2 Refrigerant analysis failed

If the refrigerant fails the analysis, the AirConServiceCenter displays the following:

```
Refrigerant Test
Fail
Try again?
ENTER-OK No
```

1. Confirm **“Try again”** with **ENTER**.

The AirConServiceCenter checks up to three times. If the third analysis is still not successful, the AirConServiceCenter displays the following:

```
WARNING !
Bad refrigerant!
Read user manual!
```

2. Press **STOP**.

```
PLS contact the car
manufacturer!
ENTER-OK
```

3. Connect the waste container to the waste terminal and press **ENTER** to confirm.
4. Once the AirConServiceCenter has disposed of the sample, disconnect the AirConServiceCenter from the vehicle and drain the service hoses.
5. Switch off the unit and take unit outside.



CAUTION!

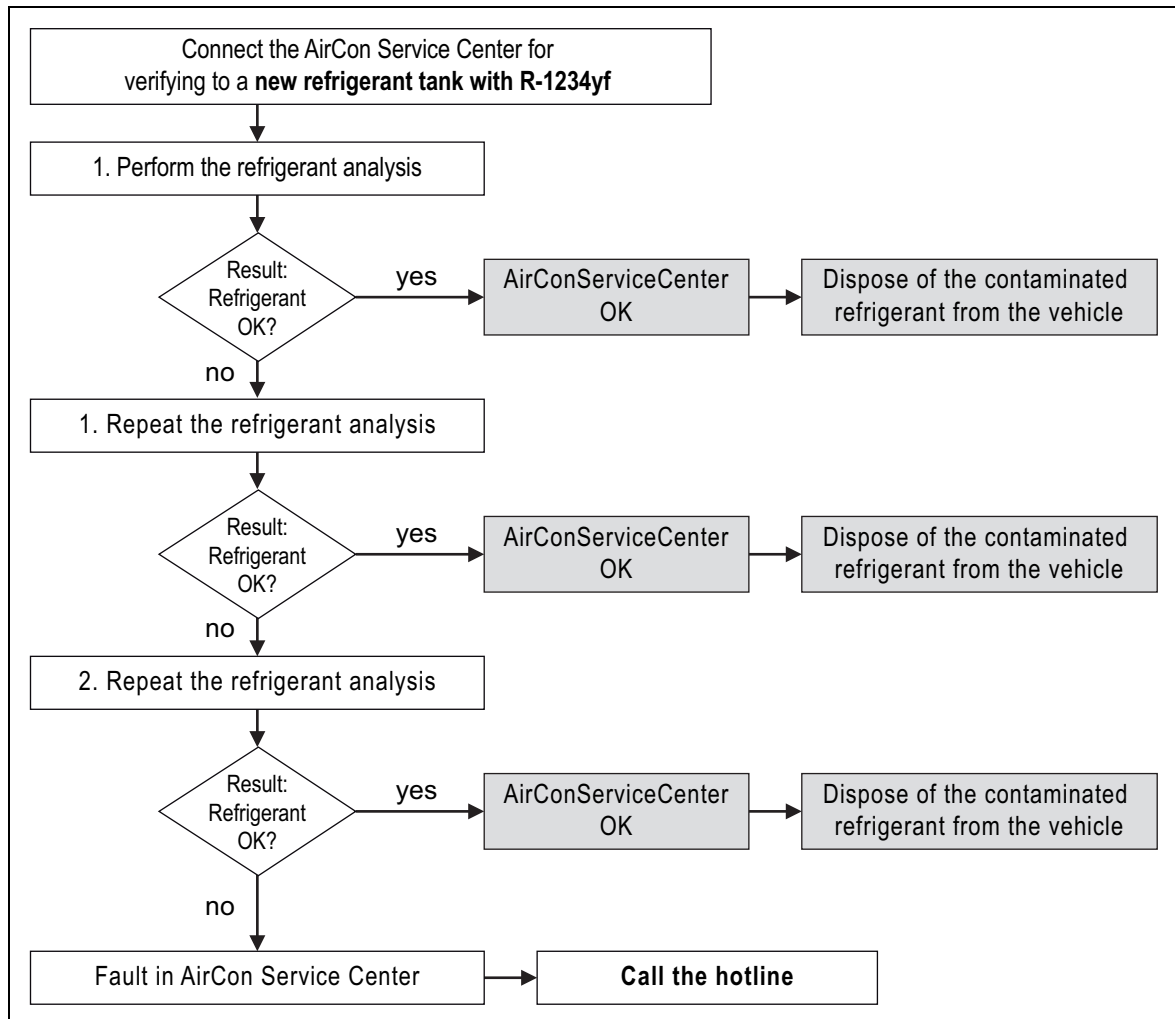
Wear protective gloves and safety glasses.

6. Loosen the high and low pressure service connection carefully and release the gas.
7. Verify the analysis unit of the AirConServiceCenter: see chapter “Verifying the analysis unit” on page 27.

7.13 Verifying the analysis unit

This step uses fresh R-1234yf to test whether the analysis unit of the AirCon Service Center is working properly.

1. Connect the AirCon Service Center to a new refrigerant vessel with R-1234yf for verifying and then carry out the analysis, see figure:



2. If the analysis fails here three times, contact the hotline (see chapter "Hotline" on page 5).

7.14 Filling up the internal refrigerant container



NOTE

The AirConServiceCenter analyzes the purity level of the refrigerant. If it is below 95 %, the unit does not accept the refrigerant. The contaminated mixture must be disposed of externally.

When the AirConServiceCenter is started for the first time, the internal refrigerant vessel must be filled from an external refrigerant vessel with at least 2,000 g of refrigerant.

The unit displays error message 12.

Press **STOP** to confirm.



NOTE

Note also the instructions on the refrigerant bottles.
Refrigerant bottles for the R-1234yf refrigerant have a left-hand thread!

The current supply quantities are displayed in the standby menu.

There are three different types of refrigerant vessel available:

- Refrigerant vessels without rising pipe:
These refrigerant bottles have **one** connection.
When filling the AirConServiceCenter, the connection must be on the bottom (turn the vessel upside down).
- Refrigerant vessels with rising pipe:
These refrigerant bottles have **one** connection.
When filling the AirConServiceCenter, the connection must be at the top (place the vessel 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 vessel upright).

1. In the basic menu, 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 “**Int. vessel filling**”:

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

4. Press **ENTER** to confirm.
5. Then follow the instructions on the display and here.

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

Press **ENTER** to confirm.

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

The display shows the max. refillable amount of refrigerant.

Enter desired amount and press **ENTER** to confirm.

The internal refrigerant vessel is filled.

When the filling process is finished, this will be confirmed by an acoustic signal after the analysis.

Close the valves and press **ENTER** to confirm.

6. After filling, the quantity of refrigerant in the internal container is shown. Press **STOP** to quit the menu.
Press **STOP** again to access the standby menu. The device is now ready for operation.

8 Operation

**NOTICE!**

When the air conditioning is serviced, the engine and the air conditioning must be switched off.

8.1 Shutdown in case of repair, emergencies and malfunctions

1. To ensure that the device is disconnected from the power supply for repairs, switch it off using the main switch and also pull out the power plug.
2. To turn off the unit in an emergency or malfunction, turn off the main switch.

8.2 Short selection

**NOTE**

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.

The following actions are performed automatically in succession in the “**Short selection**” menu:

- Performing the refrigerant analysis (see chapter “Analyzing refrigerant” on page 25)
- Extraction of the refrigerant
- Recycling the refrigerant (purity = SAE J 2099)
- Pressure rise test
- Draining of used oil
- Evacuating the system
- Before working on the vehicle air conditioner, a leak inspection must be carried out. The air conditioner is filled with a sample refrigerant for this. The pressure in the air conditioner must remain constant over a period of 5 minutes. The air conditioning unit can only be completely filled if this test has been successfully completed. The sample filling is then drained and the air conditioner evacuated. The final filling quantity is completely filled up to ensure high filling accuracy.
- Leak test / vacuum check
- Filling with new oil to the required quantity
- Filling UV additive
- Filling refrigerant

After each process has been performed, a service report is printed. Subsequent actions are only initiated once the preceding action has been completed successfully.

1. First fit the service hoses for the AirConServiceCenter to the vehicle air conditioning system, and open the service couplings.
2. Press cursor key $\uparrow$ or $\downarrow$ to return to the basic menu.
3. In the basic menu, use the cursor keys $\uparrow$ or $\downarrow$ to select “**Short selection**”:

Short selection	☒
Free selection	☐
Other selections	☐
ENTER-OK	$\updownarrow$

4. Press **ENTER** to confirm.
5. Use the keypad (8) and the cursor keys to enter the vehicle data.
6. Press **ENTER** to confirm.
7. Enter the refrigerant fill quantity. Use the value shown on the filling quantities sticker in the vehicle and enter it using the keypad (8) and the cursor keys and press **ENTER**.
8. Use the cursor keys $\uparrow$ or $\downarrow$ to select whether the air conditioning system has twoconnections (high pressure and low pressure) or only one connection (high pressure or low pressure).

HP/LP	PORT	☒
HP	PORT	☐
LP	PORT	☐
ENTER-OK	STOP-EXIT	$\updownarrow$

Confirm with **ENTER**.

- ✓ Fully automatic air conditioning service is started.
The refrigerant is analyzed during the air conditioning service (see chapter “Analyzing refrigerant” on page 25).
 - ✓ After the air conditioning service has finished, you will be prompted to disconnect the hoses (12) and (13) of the AirConServiceCenter from the vehicle air conditioning system.
9. Disconnect the service hoses (12) and (13) and press **ENTER** to confirm.
The service hoses are then emptied. The unit is then ready for further use.
 10. Put the valve caps of the vehicle air conditioning system back on the connections.

8.3 User codes

It is possible to protect the air conditioning service station against unauthorized access using personal user codes. If the function is activated, the user code is requested after switching on. Without the code, the station can not be started up. Up to 10 different users can be created with individual codes.

8.3.1 Creating user codes

1. In the basic menu, 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 key to select **↓** “**Service**” and press **ENTER** to confirm:

Flushing	☐
Reset scales.	☐
Service.	☒
ENTER-OK STOP-EXIT	↑ ↓

4. Enter password “**9786**” confirm and with **ENTER** to access the administrator menu “**ADM**”:

Service.

5. Enter administrator code “**0000**” (factory setting) and confirm with **ENTER**:

Insert ADM Code



NOTE

For security reasons, a new administrator code must be selected each time, but not “**0000**” as this will deactivate the entire function. Users can be created using the administrator code.

6. Enter new administrator code:

ADM AREA
Insert new code

7. Confirm administrator code:

```
ADM AREA
Confirm new code
-----
```

8. Use the cursor keys **↑** or **↓** to select the respective user.

```
ADM AREA
User number 1
```

9. Create the four-digit personal user code (once a code is created here, the unit can then only be operated using this code).

```
ADM AREA
User number 1
Insert new code
-----
```

10. Confirm new user code:

```
ADM AREA
User number 1
Confirm new code
-----
```

**NOTE**

Use the yellow info button to switch between upper and lower case.

11. Enter the associated user name and confirm with **ENTER**:

```
ADM AREA
User number 1
User name
John Smith
```

```
ADM AREA
User number 1
John Smith
```

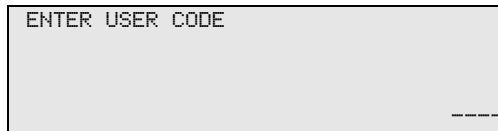
**NOTE**

The user has been created and the menu changes back to the user selection. You can now create another user or exit the menu by pressing **STOP**.

8.3.2 Entering a user code

When you switch on the air conditioning service station, the unit data appears in the display. If user codes have been created, a code must now be entered to enable the station.

1. Enter the respective user code.



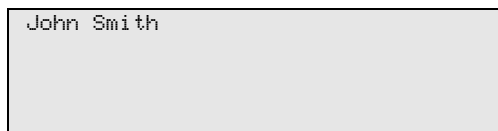
ENTER USER CODE

If the wrong user code is entered, the following error message is displayed.



WRONG CODE

After successful entry, the station is activated and starts up. The user's name is displayed:



John Smith

8.4 Creating a personal database

Up to 100 customer-specific vehicles with the associated fill capacities can be created in this database.

1. In the basic menu, use the cursor keys $\uparrow$ or $\downarrow$ to select “**Short selection**”:

Short selection	☒
Free selection	☐
Other selections	☐
ENTER-OK	$\updownarrow$

2. Press **ENTER** to confirm.
3. After entering the vehicle registration number (can also be left blank in this case), confirm with **ENTER**.

CAR DATA
PLATE NR:

4. Use the cursor keys $\uparrow$ or $\downarrow$ to select “**Database**” and press **ENTER** to confirm.

Filling Qt.	g.	500
Database	☒	
ENTER-OK STOP-EXIT		$\updownarrow$

5. Select “**Personal DB**” and press **ENTER** to confirm.

Personal DB	☒
ALFA ROMEO	☐
ASTON MARTIN	☐
AUDI	☐

6. In this empty database, use the cursor keys $\uparrow$ or $\downarrow$ to select the respective entry and press **ENTER** to confirm.

0	☒
1	☐

7. Press yellow “**Info**” button to change the entries.

0			0
g	---		0
i-DB set			

8. Enter the vehicle data (model, type) in the free fields and press **ENTER** to confirm.

-----			0

-----	g	---	0

9. Enter the refrigerant fill capacity and confirm with **ENTER**.

AUDI		0
A4 (8E)		
2000-2004	g.	500

- ✓ The entry has been created.

AUDI	0	☒
A4 (8E)	1	☐

You can now create another entry (select with the cursor keys, then continue as described) or leave the menu using the **“STOP”** button. The personal entries are saved on the board, not on the flash memory card. The entries are therefore retained even when the software is updated.

The entries are stored chronologically (not alphanumerically).

8.5 Transferring the consumption of refrigerant onto a USB stick

Each time a suction or filling process (single process or fully automatic) is completed, the station stores all the data in the internal memory. A report can be generated using this data and transferred to a USB stick.

**NOTE**

The USB stick must be formatted with the FAT32 file system.

Each report is saved in two formats:

- as an HTML file (to be opened with any Internet browser)
- as an XLS file (to be opened with Microsoft Excel)

**NOTE**

The report may contain a logo (e.g. the workshop logo) if a graphic is copied to the USB flash drive that meets the following requirements.

- File format: JPEG format
- File name: logo.jpg (note upper and lower case)
- Image size: 370 x 50 pixels

The company address in the report is taken from the station (see chapter "Entering company data" on page 20).

8.5.1 Reports after the year has changed

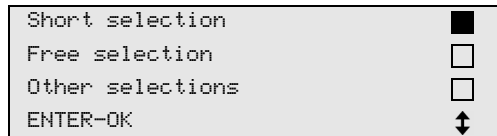
After the year has changed, the station indicates that the data stored from the previous year should be transferred to a USB stick. When you transfer the annual data onto a USB stick, it is then deleted from the station's internal memory.

1. Insert the USB stick in the USB port (17).
2. The instructions appear on the display.

8.5.2 Manual reports

You can transfer a monthly or annual report onto a USB stick manually anytime.

1. Insert the USB stick in the USB port (17).
2. In the basic menu, use the cursor keys **↑** or **↓** to select “**Other selections**”:



3. Press **ENTER** to confirm.
4. Use the cursor key to select **↓** “**Service**” and press **ENTER** to confirm:
5. Enter the password and press **ENTER** to confirm.
 - “**4910**”: Monthly report
 - “**4918**”: Annual reportIf a USB stick has not been inserted or is not recognized, the “**Error 52**” message appears.
6. Use the cursor keys **↑** or **↓** to select the required entry and press **ENTER** to confirm.
7. The instructions appear on the display.
8. Switch back to the previous selection using **STOP**.

8.6 Displaying refrigerant consumption

The station stores the data of the filled and extracted refrigerant quantities. These can be printed out directly as an annual overview or monthly overview.

1. In the basic menu, 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 key to select **↓** “**Service**” and press **ENTER** to confirm:

Flushing	☐
Reset scales.	☐
Service.	☒
ENTER-OK STOP-EXIT	↓

4. Enter the password “**9051**” and press **ENTER** to confirm:

Service.	-----
----------	-------

5. Use the cursor keys **↑** or **↓** to select the desired year and press **ENTER** to confirm.

2017	☒
------	-------------------------------------

Example

```
R1234 from system
Total                2017
g-                  18650
←PRINT STOP-EXIT
```

“**R1234 from system**” shows the quantity of refrigerant extracted. Here a total of 18,650 g of refrigerant was extracted by the station in 2017.

With the cursor key ↓ the total amount of refrigerant filled for the corresponding year is displayed next:

```
R1234 to system
Total                2017
g-                  9000
←PRINT STOP-EXIT
```

By pressing the cursor key ↓, the monthly overview is shown on the display:

```
From system
                                01/2017
g-                             2400
←PRINT STOP-EXIT
```

Here a total of 2400 g of refrigerant was extracted in January 2017.

The filled and extracted quantity is always shown alternately in the monthly overview.

Press “**Enter**” to print out the overview at any time. The overview is ended with the “**STOP**” button.

8.7 Free selection



NOTE

The “**Free selection**” menu is used to conduct air conditioning servicing step-by-step. You can perform the same processes as in the short selection menu, but also omit individual procedures. In addition, it is possible to enter the values for each individual process using the keypad. You can also enter the vehicle data for the service report in this menu.

The following four processes can be run in isolation from the “**Free selection**” menu:

- Rec/Recycling phase: analyzing the refrigerant (see chapter “Analyzing refrigerant” on page 25), extraction, recycling of the refrigerant, pressure rise test, draining the waste oil.
- Vacuum phase: evacuating the system, leak test/vacuum check.
- Filling phase: Before working on the vehicle air conditioner, a leak inspection must be carried out. The air conditioner is filled with a sample refrigerant for this. The pressure in the air conditioner must remain constant over a period of 5 minutes. The air conditioning unit can only be completely filled if this test has been successfully completed. The sample filling is then drained and the air conditioner evacuated. The final filling quantity is completely filled up to ensure high filling accuracy.
Filling with fresh oil, filling of UV additive, filling of refrigerant.
- Select connections: Air conditioning has high and low pressure connection, only high pressure or only low pressure connection

After each process has been performed, a service report is printed.

1. Start by fitting the connections of the AirConServiceCenter to the vehicle air conditioning system, and opening them.
2. In the basic menu, use the cursor keys **↑** or **↓** to select “**Free selection**”:

Short selection	☐
Free selection	☒
Other selections	☐
ENTER-OK	↑ ↓

3. Press **ENTER** to confirm.
4. Enter the vehicle data and press **ENTER** to confirm.

8.7.1 Extraction process

1. Select desired settings and press **ENTER** to confirm.

Rec/Recycling	Yes
phase?	No
ENTER-OK STOP-EXIT	
	↑↓

2. If **“Rec/Recycling phase”** has been selected, enter the preferred waiting time for the pressure increase (standard is 1 min.) in the following menu and press **ENTER** to confirm, otherwise continue with chapter “Vacuum process” on page 42.

Pressure increase		
Test time	min.	1
ENTER-OK STOP-EXIT		



NOTE

The waiting time ensures that any remaining refrigerant can evaporate and then be extracted. The evaporating residual refrigerant triggers an increase in pressure.

8.7.2 Vacuum process

1. Select desired settings and press **ENTER** to confirm.

Vacuum phase	Yes
	No
ENTER-OK STOP-EXIT	
	↑↓

2. If **“Vacuum phase”** has been selected, enter the preferred vacuum time (standard is 20 min.), otherwise continue with chapter “Filling process” on page 43.
3. With the cursor key ↓, enter the desired leak test time.
4. Confirm both settings with **ENTER**.

Vacuum time	min.	20
Vacuum test time	min.	4
ENTER-OK STOP-EXIT		
		↑↓



NOTE

The air conditioning system is deeply drained by the vacuum pump. This is used to remove any foreign gases or moisture and to prepare the air conditioning system for the filling process. Any residual refrigerant extracted which is still bonded in the refrigerant oil is collected by the AirCon ServiceCenter and recycled.

8.7.3 Filling process

1. Select desired settings and press **ENTER** to confirm.

Filling phase?	Yes
	No
ENTER-OK STOP-EXIT	
	↑

2. If **"Filling phase"** has been selected, enter the desired values, otherwise continue with chapter "Selecting connections" on page 44.
3. Enter the amount of refrigerant oil which was previously drained or which is required.
4. Press the cursor key ↓.
5. Enter the amount of additive.
6. Press the cursor key ↓.
7. Enter the amount of refrigerant.
8. Confirm all settings with **ENTER**.

PAG oil	ml.	0
UV additive	ml.	7
Refrigerant	g.	500
ENTER-OK STOP-EXIT		↑



NOTE

- If an extraction process takes place in the same process, the quantity of fresh oil counts as an extra filling quantity, which is added to the previously extracted quantity of used oil. If you set this value to 0, the exact amount of oil that has been extracted is also refilled.
- To add fresh oil or UV additive, a vacuum process must be performed in the same process sequence. If no vacuum process has been selected, only refrigerant can be selected in the filling menu.

8.7.4 Selecting connections

1. Select parameters according to the existing connections of the air conditioning system:
 - Air conditioning system has a high pressure and a low pressure connection:
Select **LP/HP**.
 - Air conditioning system only has a high pressure connection:
Select **HP**.
 - Air conditioning system only has a low pressure connection:
Select **LP**.
2. Confirm with **ENTER**.

HP/LP	PORT	☒
HP	PORT	☐
LP	PORT	☐
ENTER-OK STOP-EXIT		↑ ↓

3. When all settings have been made, start the operations with **ENTER**.

Process start?
ENTER-OK STOP-EXIT

8.7.5 After the completion of the air conditioning service

- ✓ After the air conditioning service has finished, you are prompted to disconnect the hoses of the AirCon ServiceCenter from the vehicle air conditioning system.
1. Disconnect the service hoses (**12**) and (**13**) and press **ENTER** to confirm.
- ✓ The service hoses are then emptied. The unit is then ready for further use.
2. Screw the valve caps of the air conditioning system back on the connections.

8.8 Flushing the air conditioning system



NOTE

The “**Flushing**” 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.

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. Start by fitting the connections of the AirConServiceCenter to the vehicle air conditioning system, and opening them.
2. In the basic menu, use the cursor keys **↑** or **↓** to select “**Free selection**”:

Short selection	☐
Free selection	☒
Other selections	☐
ENTER-OK	↑ ↓

3. Press **ENTER** to confirm.
4. If necessary, use the keypad (8) to enter the data and press **ENTER** to confirm.
If no data is to be entered, press **ENTER** to switch to the next program step.
5. Select “**Rec/Recycling phase**” (the chosen setting 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**” using **No** (the chosen setting flashes) and press **ENTER** to confirm.
9. Select “**Process start**” with **ENTER**.
10. Disconnect the station from the vehicle after the extraction process is complete.

11. Disconnect the system components which cannot be flushed from the refrigerant circuit. These components include:
 - Compressor
 - Line filter
 - Fixed choke
 - Collection container
 - Filter dryer
 - Expansion valve
12. Connect the components for flushing to the service ports (14) and (15) of the AirConServiceCenter using special adapters and in accordance with the manufacturer's specifications to form a flushing circuit.

**NOTE**

Observe the guidelines on repairs from the vehicle manufacturer.

13. In the basic menu, use the cursor keys ↑ or ↓ to select “**Other selections**”:

Short selection	☐
Free selection	☐
Other selections	☒
ENTER-OK	↓

14. Press **ENTER** to confirm.
15. Use the cursor keys ↑ or ↓ to select “**Flushing**”:

Flushing	☒
Reset scales.	☐
Service.	☐
ENTER-OK STOP-EXIT	↓

16. If necessary, use the keypad (8) to enter the data and press **ENTER** to confirm.
If no data is to be entered, press **ENTER** to switch to the next program step.
17. Use the cursor keys ↑ or ↓ to select whether to flush the entire air conditioning system or just individual components:

Full flushing	☒
Fast flushing	☐
ENTER-OK STOP-EXIT	↓

18. Press **ENTER** to confirm.
19. Follow the instructions in the display.

20. Before working on the vehicle air conditioner, a leak inspection must be carried out. For the flushing process, the flushing circuit is filled with a sample filling of refrigerant. The pressure in the air conditioner must remain constant over a period of 5 minutes. Performing the flushing process is only possible if this test has been passed successfully.
- ✓ After flushing is completed, the basic menu for the AirConServiceCenter appears.
21. 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.
22. In the basic menu, use the cursor keys **↑** or **↓** to select **“Free selection”**:

Short selection	☐
Free selection	☒
Other selections	☐
ENTER-OK	↓

23. Press **ENTER** to confirm.
24. If necessary, use the keypad **(8)** to enter the data and press **ENTER** to confirm.
If no data is to be entered, press **ENTER** to switch to the next program step.
25. Deselect **“Rec/Recycling phase”** using **No** (the chosen setting flashes) and press **ENTER** to confirm.
26. Select **“Vacuum phase”** (the chosen setting flashes) and press **ENTER** to confirm.
27. If necessary, use the keypad **(8)** to enter the data and press **ENTER** to confirm.
If no data is to be entered, press **ENTER** to switch to the next program step.
28. Select **“Filling phase”** (the chosen setting flashes) and press **ENTER** to confirm.
29. Enter the refrigerant filling quantity (note the oil filling quantity of the compressor).
30. Then follow the instructions on the display **(7)**.
Select the setting (which then flashes) and press **ENTER** to confirm.
31. Select **“Process start”** with **ENTER**.
- ✓ After filling is complete, you will be prompted to disconnect the hoses of the AirConServiceCenter from the vehicle air conditioning system.
32. Disconnect the service hoses **(12)** and **(13)** and press **ENTER** to confirm.
The service hoses are then emptied. The unit is then ready for further use.

33. Screw the valve caps onto the connections of the vehicle air conditioning system.

9 Service tasks

9.1 Leak test

Check the AirCon Service Center once a year for leaks in accordance with the applicable legal requirements. Use an electronic leak detector for this purpose.

9.2 Calibrating the oil scales



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
- If the AirCon Service Center has been shaken, for example during transport on bumpy roads
- Every four to six weeks

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

Short selection	☐
Free selection	☐
Other selections	☒
ENTER-OK	↑ ↓

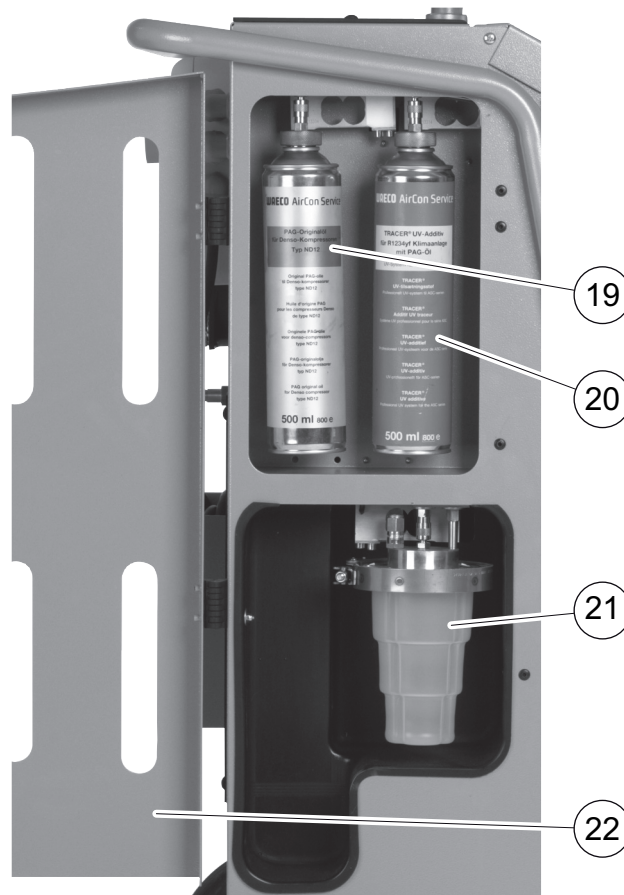
2. Press **ENTER** to confirm.
3. Use the cursor keys **↑** or **↓** to select “**Reset scales**”:

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

- ✓ You are then prompted to remove the containers from the scales:

Remove the 3 Oil/UV glasses from scales.
ENTER-OK STOP-EXIT

4. To check the zero point of the scales for oil and UV additive, open the cover (22) on the left side and take the containers off the catches:
 - Container for fresh oil (19)
 - Container for UV additive (20) and
 - Used oil container (21)



When the scales are unloaded, press **ENTER** to confirm. The prompt to remove the containers from the scale flashes.

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

5. Return the containers to the operating positions.
Attach the containers for oil (19) and (21) and for the UV additive (20) to the snap locks again and close the cover (22).
6. Press **STOP** twice to go to standby menu.

9.3 Changing the dryer filter

1. In the basic menu, use the cursor keys **↑** or **↓** to select **“Free selection”**:

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

2. Press **ENTER** to confirm.
3. Skip the query requesting **“Car data”**.
4. Select **“Rec/Recycling phase”**.
5. Set the **“Pressure increase Test time”** to **“1”**.
Press **ENTER** to confirm.
6. Deselect **“Vacuum phase”** with **“No”**.
Press **ENTER** to confirm.
7. Deselect **“Filling phase?”** with **“No”**.
Press **ENTER** to confirm.
8. Select **“Process start ?”**.
Press **ENTER** to confirm.

The service hoses will now be drained and the AirConServiceCenter basic menu will be activated. The compressor has produced a slight internal vacuum so that the filter can be replaced with minimal refrigerant loss.

**WARNING!**

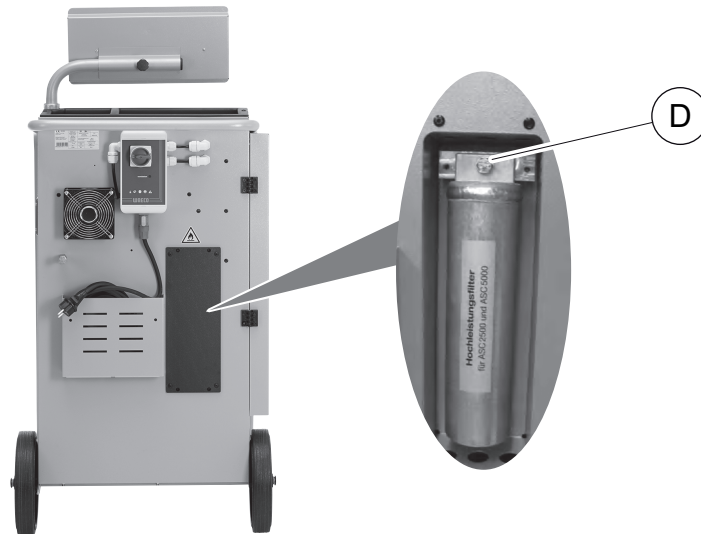
Switch off the AirConServiceCenter and unplug it from the power supply before opening the housing.

9. Switch off the unit.
10. Pull out the mains plug.
11. Remove the rear cover.

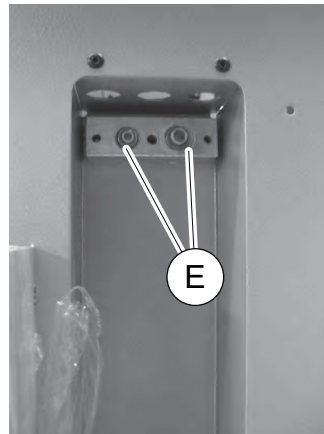


The following steps may only be performed by qualified personnel. Wear protective gloves and goggles.

12. Unscrew the screw (D) from the holder, and pull the dryer filter straight out.



13. Replace the O-rings (E). Moisten new O-rings with refrigerant oil before installing.



14. Insert the new dryer and tighten the screw to 15 Nm.
15. Reconnect the power plug.
16. Switch on the unit.
- ✓ The device carries out a self-test.
17. Fasten the cover again.

9.4 Filter maintenance



NOTE

After finishing the service tasks, you must delete the respective service messages (counter reset). To do this, switch to “**Other selections**” – “**Service**” and enter the code “**7782**”. Use the cursor keys **↑** or **↓** to select the required entry and press **ENTER** to confirm. Follow the display instructions, and press and hold the **ENTER** button for 3 seconds. Switch back to the previous selection using **STOP**.

When the filter is changed, the counter “**R1234 from system**” must be reset.

After changing the filter, perform a leak test (see chapter “Leak test” on page 48).

```
R1234 from system
                                07/03/17
g-                               4155
STOP-EXIT
```

“**R1234 from system**” indicates how many grams of refrigerant have been extracted from air conditioning systems using the menu item “**Short selection**” or “**Free selection**” since the last reset (see date).

```
R1234 from tank
                                07/03/17
g-                               3395
STOP-EXIT
```

“**R1234 from tank**” indicates how many grams of refrigerant were added to the unit using the menu item “**Int. vessel filling**” since the last reset (see date).

```
R1234 to system
                                07/03/17
g-                               1200
STOP-EXIT
```

“**R1234 to system**” indicates how many grams of refrigerant have been added to the air conditioning systems using the menu item “**Short selection**” or “**Free selection**” since the last reset (see date).

```
Vacuum time
                                07/03/17
min.                             79
STOP-EXIT
```

“**Vacuum time**” indicates how long the vacuum pump has operated since the last reset (see date).

```
Service completed:
                                08/03/17
Number                             4
STOP-EXIT
```

“**Service completed**” displays the amount of service work performed using the air conditioning service unit since the last reset (see date).

9.4.1 Entering the filter code

To reset the filter counter, you need to enter a 12-digit code. This special code is located on the new filter. A “**Code entry**” prompt appears in the menu. If a code is not entered, the unit is taken out of operation. Each code only works once.

9.4.2 Leak test

After changing the filter, perform a leak test with an approved testing device.

9.5 Calibrating the pressure transducer



NOTE

The pressure sensor has to be correctly calibrated in order to make accurate pressure measurements.

Calibration is required:

- Every four weeks
- If the AirConServiceCenter 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 **↑** or **↓** to select “**Other selections**”:

Short selection	☐
Free selection	☐
Other selections	☒
ENTER-OK	↓

2. Depressurize the unit (as described in chapter “Changing the dryer filter” on page 50).
3. Press **ENTER** to confirm.
4. Use the cursor keys **↑** or to select **↓** “**Service**”:

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

5. Press **ENTER** to confirm.
6. Enter the password “**2224**”.
7. Select “**Pressure transducer**” with **ENTER**.

8. Then follow the instructions in the display.
 - Unscrew the service couplings **(14)** and **(15)** from the service hoses **(12)** and **(13)**.
 - Use the keypad **(8)** to enter the current local atmospheric pressure 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”.

9. When calibration has been completed, press **ENTER** to quit the menu.
10. Press **STOP** twice to go to standby menu.
11. Screw the service couplings **(14)** and **(15)** hand-tight onto the service hoses **(12)** and **(13)** again, taking care not to mix up the red and blue markings on the couplings and hoses.

9.6 Changing the vacuum pump oil

**WARNING! Danger of fatal electric shock**

Touching uninsulated parts may result in serious injury. Switch off the AirConServiceCenter and unplug it from the power supply before opening the housing. The AirConServiceCenter may only be repaired by personnel authorized by Dometic.

1. Before changing the oil, let the vacuum pump run for about 10 minutes (manually using the menu).

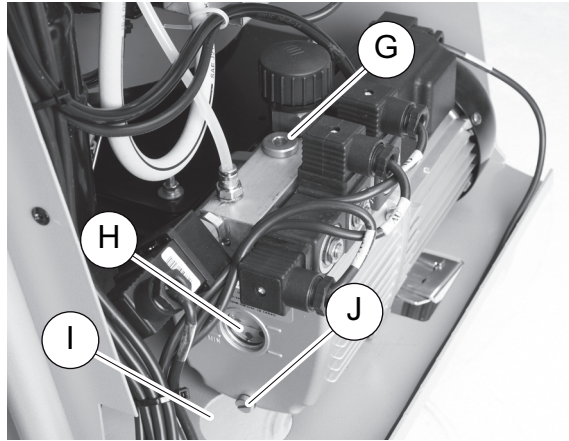


The following steps may only be performed by qualified personnel.

2. Take off the front panel:
Undo the screws (**D**) on the control panel and lift it up. Then undo the screws (**E**) on the bottom of the front panel and take it off.



3. Place a receptacle with a capacity of at least ½ liter under the AirConServiceCenter. The oil from the vacuum pump flows through the opening (I) in the base of the device.



4. Unscrew the oil filling plug (G).
5. To drain the oil, unscrew the oil drain plug (J).
6. Once the oil has been completely drained from the pump housing, screw the oil drain plug (J) back in.
7. Top up with new vacuum pump oil to the middle of the sight glass (H) and screw the oil filler plug (G) back in.
8. Put the front panel and control panel back on and reconnect the power plug.

**NOTE**

After finishing the service tasks, you must delete the respective service messages (counter reset). To do this, switch to “**Other selections**” – “**Service**” and enter the code “**7782**”. Use the cursor keys **↑** or **↓** to select the required entry and press **ENTER** to confirm. Follow the display instructions, and press and hold the **ENTER** button for 3 seconds. Switch back to the previous selection using **STOP**. When changing the vacuum pump oil, the counter “**Vacuum time**” must be reset.

R1234 from system	07/03/17
g-	4155
STOP-EXIT	

“**R1234 from system**” indicates how many grams of refrigerant have been extracted from air conditioning systems using the menu item “**Short selection**” or “**Free selection**” since the unit was produced (see date).

R1234 from tank	07/03/17
g.	3395
STOP-EXIT	

“**R1234 from tank**” indicates how many grams of refrigerant were added to the unit using the menu item “**Int. vessel filling**”.

R1234 to system	07/03/17
g.	1200
STOP-EXIT	

“**R1234 to system**” indicates how many grams of refrigerant have been filled into air conditioning systems using the menu item “**Short selection**” or “**Free selection**”.

Vacuum time	07/03/17
min.	79
STOP-EXIT	

“**Vacuum time**” indicates how long the vacuum pump was operating in total.

Service completed:	08/03/17
Number	4
STOP-EXIT	

“**Service completed**” indicates the amount of service work performed with the air conditioning service unit.

9.7 Meter readings



NOTE

The unit saves various meter readings. To access the total values – consecutively, since the unit was produced – enter the menu “**Other selections**” – “**Service**” and enter the code “**7783**”. Use the cursor keys ↑ or ↓ to select the desired entry.

These meter readings cannot be reset. To access the meter readings which can be reset, enter the code “**7782**” under “**Service**”. Also see chapter “Changing the vacuum pump oil” on page 55 or chapter “Changing the dryer filter” on page 50.

```
R1234 from system
Total                07/03/17
g-                  1455
STOP-EXIT
```

“**R1234 from system**” indicates how many grams of refrigerant have been extracted from air conditioning systems using the menu item “**Short selection**” or “**Free selection**” since the last reset (see date).

```
from ext. vessel
Total                03/07/17
g-                  3395
STOP-EXIT
```

“**R1234 from tank**” indicates how many grams of refrigerant were added to the unit using the menu item “**Int. vessel filling**” since the last reset (see date).

```
Filled in system
Total                03/07/17
g-                  1200
STOP-EXIT
```

“**R1234 to system**” indicates how many grams of refrigerant have been filled into air conditioning systems using the menu item “**Short selection**” or “**Free selection**” since the last reset (see date).

```
Vacuum time
Total                03/07/17
minutes              79
STOP-EXIT
```

“**Vacuum time**” indicates how long the vacuum pump has operated since the last reset (see date).

Service performed:	03/07/17
Qty	4
STOP-EXIT	

“**Service completed**” displays the amount of service work performed using the air conditioning service unit since the last reset (see date).

9.8 Filling level correction for longer service hoses



NOTE

- If longer or shorter service hoses are required for the device, 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 **↑** 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 “**7732**”.
6. Enter the hose length in centimeters.
7. Press **ENTER** to confirm.

9.9 Updating the software via USB

The software is updated using a USB stick.

**NOTE**

The USB stick must be formatted with the FAT32 file system.

When updating the software, the following data is stored in the internal memory of the station:

- the current software of the AirConServiceCenter
- the current database with all the common vehicle types and corresponding filling quantities

You can update the software and the database separately.

1. Copy the current software on the USB stick.
2. Insert the USB stick into the USB connection (17) and switch on the device.



- ✓ The station will scan the USB stick for a later version. If the software on the USB stick is more up-to-date, the following menu is displayed:

```
New firmware release  
found  
ENTER upgrade STOP EXIT  
AS5k0058
```

If the database on the USB stick is more up-to-date, the following menu is displayed:

```
New database release  
found  
ENTER upgrade STOP EXIT  
ldyf1701
```

The current version is displayed in black on the bottom line.

3. Press **ENTER** to update the software or database.

✓ The station shows the progress of the update:

```
Wait...  
Erase flash... Erased!  
Writing          1      63488  
                  7%    762751
```

After the update, the station sets the default settings:

```
Wait!  
loading default  
parameters
```

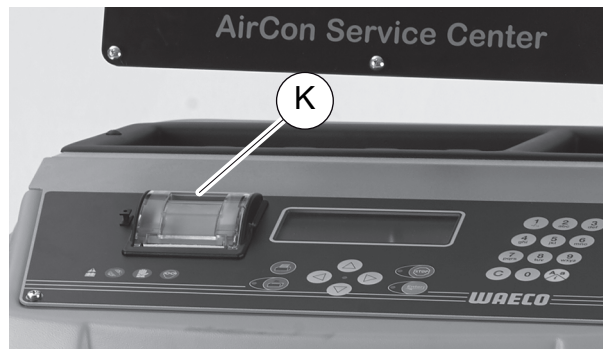
The station then restarts and the standby menu appears.

4. Remove the USB stick.

✓ The station is ready for operation.

9.10 Replacing the printer paper

1. To replace the printer paper roll (**16**), open the cover (**K**).



2. Put in the new paper roll and close the cover (**K**).

9.11 Changing the drained oil receptacle

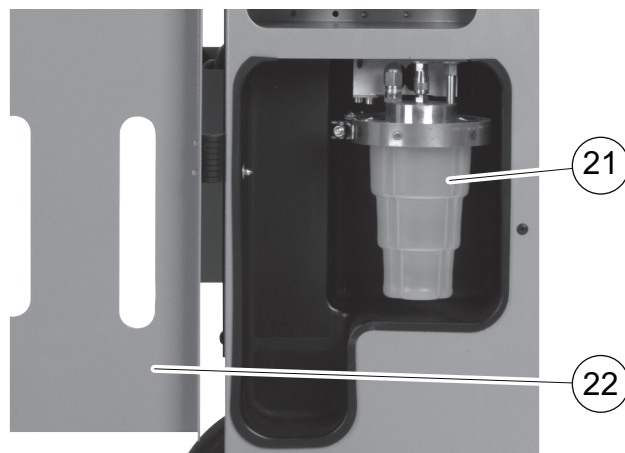
**NOTE**

- Replace the drained oil receptacle and the O-ring in the lid every 6 months.
- If the used oil container is damaged, replace it immediately.

The used oil container (**21**) is tight even with negative and positive pressure. A safety valve ensures safe operation.

The drained oil receptacle must be changed every 6 months.

1. Open the cover flap (**22**) on the left side and pull used oil container (**21**) on snap lock:



2. Undo bracket (**M**) and remove cover (**N**).



3. Replace the drained oil receptacle (**O**) and the O-ring (**P**).



4. When putting on the cover (**N**), pay attention to correct positioning of the tab (**Q**).



5. Attach the used oil container to the snap lock.

9.12 Cleaning and maintenance

- Clean the exterior of the device with a damp cloth as required. If necessary, use a small amount of dishwashing detergent. Do not use solvents or scouring agents.
- Regularly check the service hoses (**12**) and (**13**) and the service couplings (**14**) and (**15**) for damage. Do not start up the AirConServiceCenter if it is damaged.

10 Disposal

***NOTICE! Protect the environment!***

All operating fluids and components may only be disposed of by qualified personnel in accordance with national regulations.

10.1 Disposing of used fluids

- Used oil is hazardous waste.
- Do not mix used oil with other fluids.
- Keep used oil in suitable containers prior to disposal.

10.2 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.

10.3 Disposal of the old unit

- If you wish to scrap the AirConServiceCenter, first completely drain it of all liquids and dispose of them according to national regulations.
- Have the old unit disposed of by qualified personnel in accordance with national regulations or contact customer service.



11 What to do, when?

Fault	Cause	Solution
The display shows “Warning! Internal vessel over- pressure”	This message is normal during the recycling process.	To continue, press ENTER for three seconds. If this message appears repeatedly, notify customer services.
The display shows “Warning! Internal vessel full!”	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 remedy is necessary. The process continues automatically.
The display shows “Warning! Pressure inside the A/C system!”	Message during the vacuum process. There is pressure in the air conditioning system.	No remedy is necessary. The process continues automatically.
The display shows “Not enough vacuum! Carry on?”	Message that appears during the vacuum process if 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! Carry 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 glas 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 “Quantity too large. Fill internal vessel!”	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	Solution
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.	Top up the fresh oil container with a suitable oil type.
The display shows “Max. filling time exceeded! Carry on?”	Message that 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 still contains 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 (see chapter “Changing the dryer filter” on page 50). To skip this, press ENTER for 3 seconds.
The display shows “Change the vacuum pump oil. Carry on?”	This message appears when you switch on the AirConServiceCenter.	Change the vacuum pump oil as soon as possible (see chapter “Changing the vacuum pump oil” on page 55). To skip this, press ENTER for 3 seconds.
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 cover is closed properly.
The display shows “Error 01”	Refrigerant was put in before draining was completed.	Repeat the draining procedure; do not interrupt it this time.
The display shows “Error 02”	The air conditioning system is leaking. There is still refrigerant in the air conditioning system.	Eliminate the leak.

Fault	Cause	Solution
The display shows "Error 09"	Low pressure connection not connected to the rinsing container during the rinsing process.	Connect low pressure hose to the rinse box and open valve.
The display shows "Error 10"	It was not possible to reduce the pressure sufficiently during the software test.	Residual pressure on the pressure gages? 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.	Insert the used oil container correctly. Check that the solenoid valve can move freely. Check scale function.
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 if the valve on the internal vessel is open. Check the RE valve.
The display shows "Error 20"	The compressor could not reduce the internal pressure enough.	Check the compressor and pressure transducer.
The display shows "Error 21"	Low pressure hose is leaking or connected to an (empty) air conditioning unit. Vacuum could not be reached.	Disconnect service hose from the unit.
The display shows "Error 22"	High pressure hose is leaking or connected to an (empty) air conditioning unit. Vacuum could not be reached.	Disconnect service hose from the unit.
The display shows "Error 23"	Not enough vacuum.	Check device and used oil container for leaks. Check the vacuum pump.
The display shows "Error 24"	Pressure increase during vacuum test.	Check device for leaks.
The display shows "Error 25"	Not sufficient pressure for refrigerant pressure test.	Check device for large leaks. Check the refrigerant quantity. Is the ambient temperature more than 10 °C?

Fault	Cause	Solution
The display shows "Error 30"	Pressure drop during leak test.	Check device for leaks.
The display shows "Error 35"	Residual pressure in the air conditioning system.	Drain and evacuate.
The display shows "Error 40"	Pressure drop during pressure test.	Check air conditioning system and connections for leaks.
The display shows "Error 41"	Pressure drop during pressure test.	Check air conditioning system and connections for leaks.
The display shows "Error 42"	Pressure drop during pressure test.	Check air conditioning system and connections for leaks.
The display shows "Error 43"	The device was not able to reduce the pressure sufficiently to begin with the vacuum phase.	Check air conditioning system and connections for leaks. Check pressure sensor calibration.
The display shows "Error 52"	No USB stick was found/recognized	Insert the USB stick. Make sure that USB stick has been formatted with the FAT32 file system.
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?
The display shows "Error G1"	A connection to the analysis module could not be made.	Check the connections. Are the LEDs on the module activated?
The display shows "00001"	The readings are unstable.	Keep possible electrical sources of interference, such as mobile phones or welding equipment, away from the device.

Fault	Cause	Solution
The display shows "00002"	The readings are excessively high.	Keep possible electrical sources of interference, such as mobile phones or welding equipment, away from the device.
The display shows "00003"	Calibration with the ambient air failed.	Ensure the device is adequately ventilated. Leave any leaking refrigerant to drain off.
The display shows "00004"	The device is operating outside the recommended temperature range.	Only use the device in temperature-controlled rooms (10 °C – 45 °C). Ensure sufficient ventilation.
The display shows "00005"	The refrigerant sample has a very high content of air or the amount of refrigerant was too low for testing.	Make sure that there is enough refrigerant pressure. Make sure that all the hoses are connected, not kinked and free of oil.

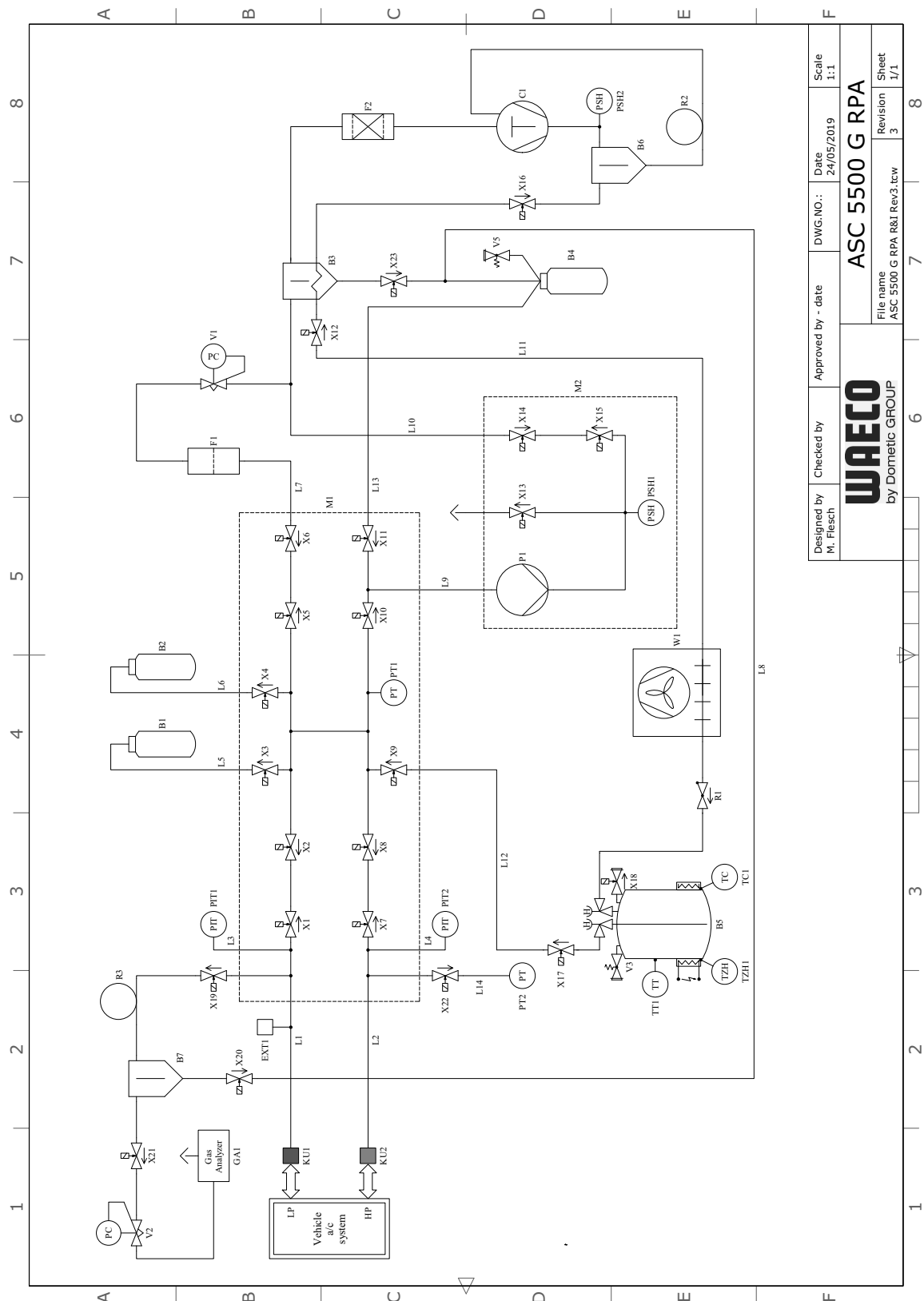
12 Technical data

	AirCon Service Center VAS 581 001A
Reference number:	ASE 581 001 01 000
Dimensions (width x height x depth):	560 mm x 1,300 mm x 650 mm
Weight:	100 kg
Power supply:	230 V/240 V – 50 Hz/60 Hz
Refrigerant extraction rate:	30 kg / hr
Vacuum pump output:	5 cars / hr
Hermetic compressor output:	0.32 kW
Drier filter output:	150 kg
Vacuum pump oil service life:	60 hours
Filling cylinder accumulator capacity:	16 kg
Noise emission*:	62 dB (A)
Accuracy of the electronic scales for refrigerant:	±10 g
Accuracy of the electronic scales for old/new oil:	±1 g
Accuracy of the electronic scale for UV additive:	±1 g
Maximum permissible pressure:	–1 bar to +20 bar
Refrigerant:	R-1234yf
Oil:	any refrigerating unit oil used in the motor vehicle sector
Maximum permissible operating temperature:	+5 °C to +40 °C

* In accordance with DIN EN ISO 3746, the workplace-related emission value LpA of an air-conditioning service station was determined in various operating conditions. Both the average dB(A) values and the maximum dB(C) peak values are well below the maximum permissible exposure values.

Measurements: 62 dB(A), 74 dB(C)

12.1 Flow chart

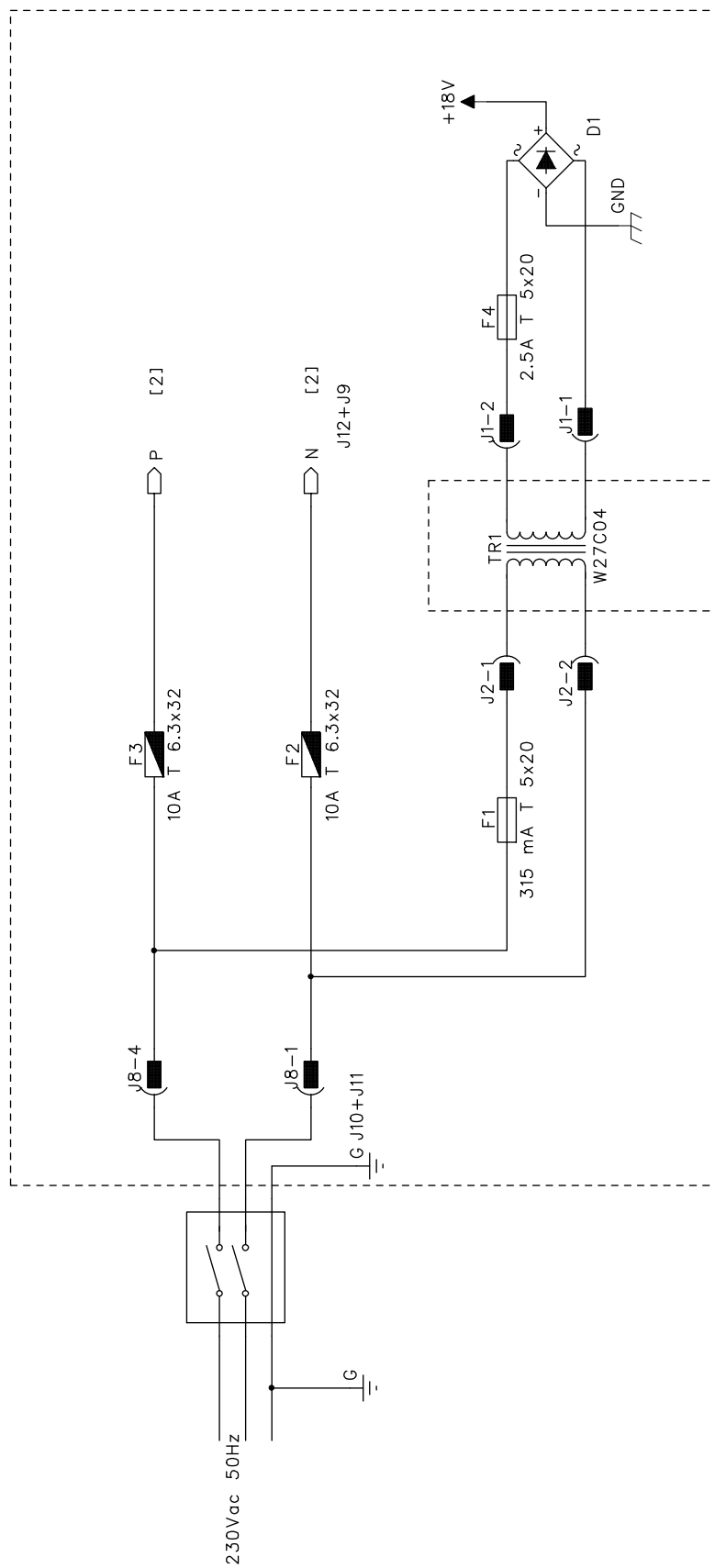


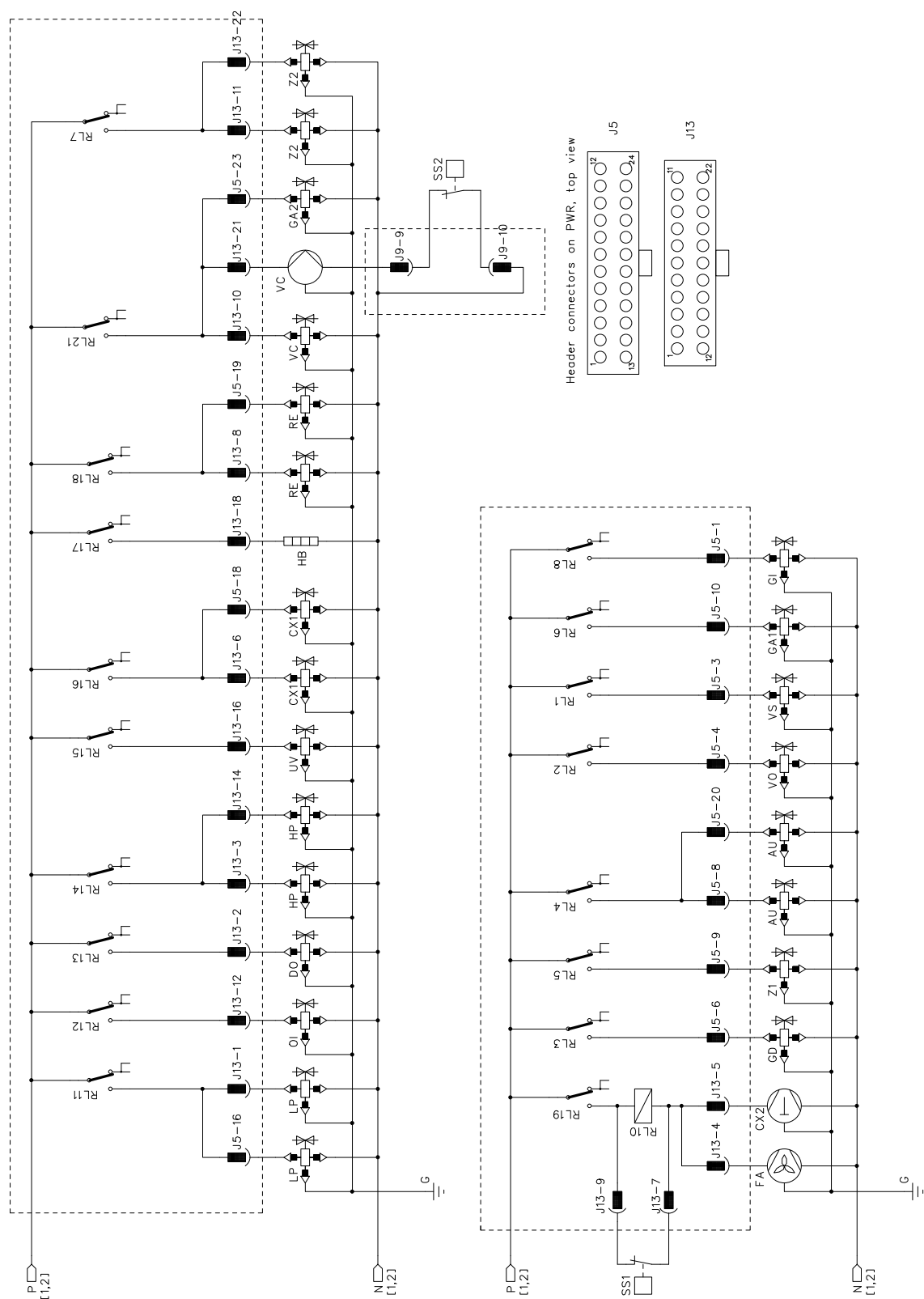
Key

Item	Description
B1	UV container
B2	Fresh oil container
B3	Oil separator / heat exchanger
B4	Used oil container
B5	Refrigerant tank
B6	Compressor oil separator
B7	Analysis oil separator
C1	Compressor
EXT1	External connection
F1	Coarse filter
F2	Dryer filter
GA1	Gas analysis
KU1	LP service coupling
KU2	Service coupling, high-pressure
L1	Service hose, low-pressure
L10	LE supply line
L11	Compressor hose, yellow
L12	Refrigerant supply line
L13	Z1 supply line
L14	Vacuum sensor line
L2	Service hose, high-pressure
L3	Pressure gage hose, low-pressure
L4	Pressure gage hose, high-pressure
L5	UV medium supply line
L6	Fresh oil supply line
L7	Recycling unit supply line
L8	GA line
L9	Vacuum pump supply line
M1	Valve block
M2	Vacuum pump valve block
P1	Vacuum pump
PIT1	Low-pressure gauge
PIT2	High-pressure gauge
PSH1	High-pressure switch
PSH2	High-pressure switch

Item	Description
PT1	Pressure transducer
PT2	Vacuum sensor
R1	Refrigerant tank return valve
R2	Capillary tube
R3	Capillary tube
TC1	Klixon
TT1	Temperature sensor
TZH1	Temperature fuse
V1	Expansion valve
V2	Pressure reducer
V3	High-pressure safety valve
V5	High-pressure safety valve
W1	Condenser
X1	LP solenoid valve
X10	VC solenoid valve
X11	Z1 solenoid valve
X12	CY solenoid valve
X13	VO solenoid valve
X14	AU solenoid valve
X15	AU solenoid valve
X16	CY solenoid valve
X17	RE solenoid valve
X18	NCG discharge valve
X19	GI solenoid valve
X2	LP solenoid valve
X20	GA solenoid valve
X21	GA solenoid valve
X22	VS solenoid valve
X23	DO solenoid valve
X3	UV solenoid valve
X4	Oil solenoid valve
X5	Z2 solenoid valve
X6	Z2 solenoid valve
X7	HD solenoid valve
X8	HD solenoid valve
X9	RE solenoid valve

12.2 Electrical circuit diagram





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