Clima-Tech Plus / Hd Evolution

User's Manual

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1 INTRODUCTION

Congratulations on your choice!
The equipment that you selected is a result of our industry experience and the choice of this specific equipment is a guarantee of a long and efficient operation.
The device was designed and manufactured to guarantee continuous reliability and assuring maximum safety for employees. Therefore, MAGNETI MARELLI (apart from applying high safety indices) carefully selected the material and components. The device was created under a management system, whereby by continuous inspections, from the material incoming to the plant, through warehousing operation up to the application in the service workshop, guarantees a product free from any defects.
The efficiency is guaranteed by strict inspections that the equipment undergoes.
Therefore, the only task of the user is to use and maintain the device correctly, according to the indications in this manual. That is why, it is important to stress at the beginning that:
• Before any use of the device you must read all parts of this manual.
• It is essential and an obligation of the user to use the device according to the manual and in line with the intended use specified in this document. MAGNETI MARELLI is not responsible for any use of this device that is not compliant with its intended purpose.
The purpose of this manual is to provide the user with all information necessary for using the equipment.
The manual was prepared to help the personnel using the device. If you have any questions or need technical assistance, please contact our Technical Support Department.

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2 WARRANTY CONDITIONS

This device consists of several assemblies installed **inside** the housing and accessible only after the front and top covers (fixed with screws) are removed, and of several assemblies installed **outside** and presented in the figure below.

3.1. Warranty period and duration

Magneti Marelli AfterMarket provides a warranty for "CLIMA-TECH TOP" cooling/air-conditioning installation diagnostic and maintenance station for 12 months from the purchase date as in the Magneti Marelli network sales document. Performing one or more warranty interventions during the warranty period doe not impact the warranty expiry period.

3.2. Repairs

The warranty covers repair or replacement, free of charge, of the components which, according to an undisputable opinion of Magneti Marelli, show defects in material or workmanship; the warranty does not cover the replacement of the whole device. Warranty repairs are performed on the premises of Magneti Marelli Technical Support service. Repairs at the customer's premises are permitted only if performed or approved by authorized Magneti Marelli service. Technical Support does not guarantee any minimum repair time, however they are required to perform the repairs in possibly the shortest time.

3.3. Obtaining warranty service

To avail of the warranty service, the customer must arrange a shipment of the device to the Magneti Marelli Technical Service on reporting the failure. The device must be shipped in appropriate packaging that protects it against possible damage in transport. Magneti Marelli shall not be responsible for any possible damage in transport. The device sent to warranty service shall be sent together with a copy of the proof of purchase. Return of the repaired part shall be paid for by the recipient.

3.4. Warranty exclusions

The warranty does not cover damages caused by using the device in conditions which do not comply with the manufacturer's specifications. Other cases not covered with the warranty include:

- Damage in transport due to securing the item incorrectly
- Incorrect use of the product
- Atmospheric discharge, flood, fire
- Incorrect installation or maintenance
- Mechanical damage
- Calibration performed by unauthorized service station
- Repairs and/or changes performed by unauthorized service station
- Damages caused by rough operation or humidity, dust, voltage variations or conditions unforeseen in the technical specification
- Usage in inappropriate environmental conditions
- Display damage
- Any other damages outside the direct responsibility of Magneti Marelli Sp. z o.o.

If a product sent for warranty repair which is not covered by the warranty scope, the client shall be informed that the repair may be performed outside the warranty in which case the client must cover the cost of repair. Also, unfounded warranty complaint shall result in charging the costs of diagnostic activities.

3 DEVICE DESCRIPTION

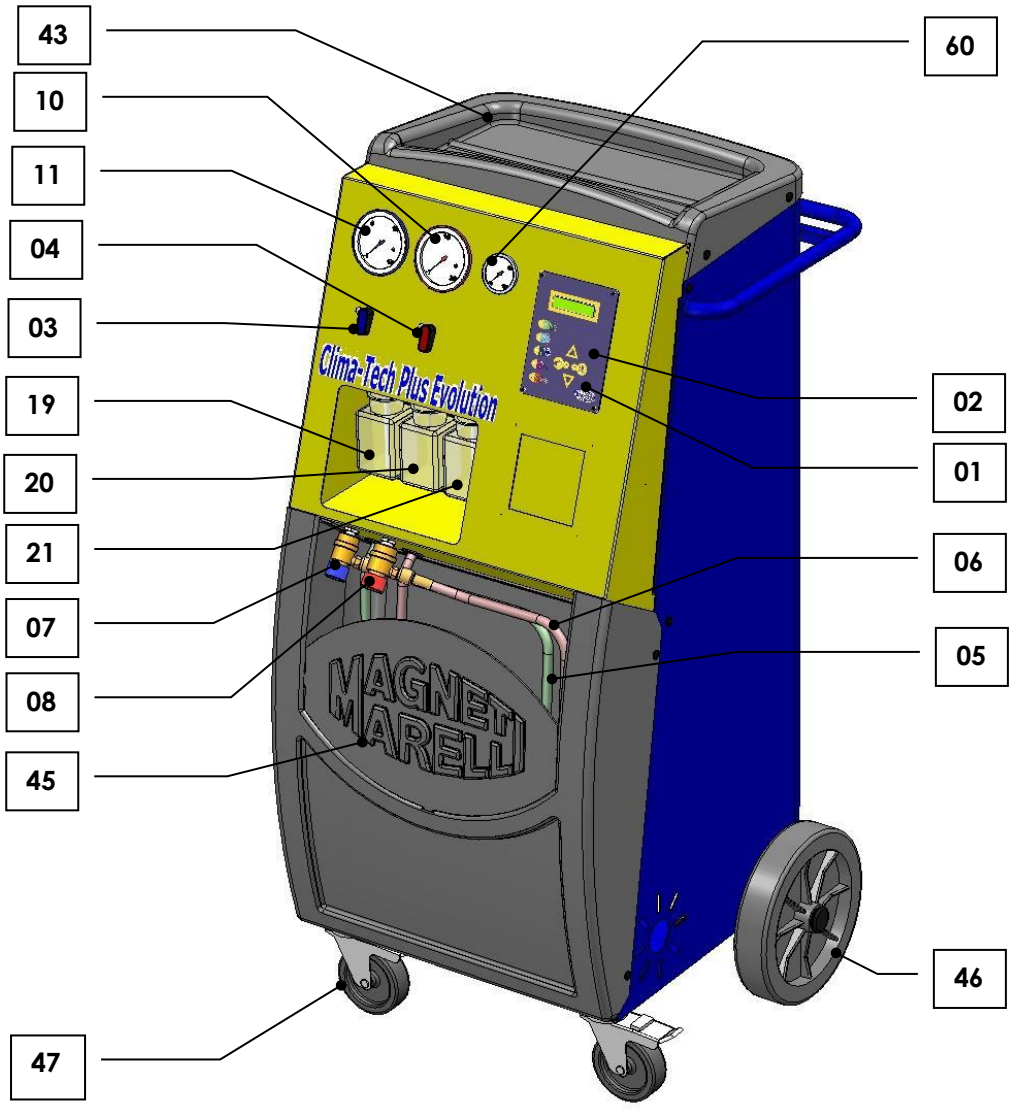
3.1 INTENDED PURPOSE

CLIMA-TECH TOP is a fully automatic device designed for automotive air-conditioning installation maintenance.
Recovery, recycling, emptying, oil injection, UV additive injection, installation charging and washing are the functions which can be performed by CLIMA-TECH TOP in a completely safe way and with maximum efficiency, exceptional in other similar equipment.

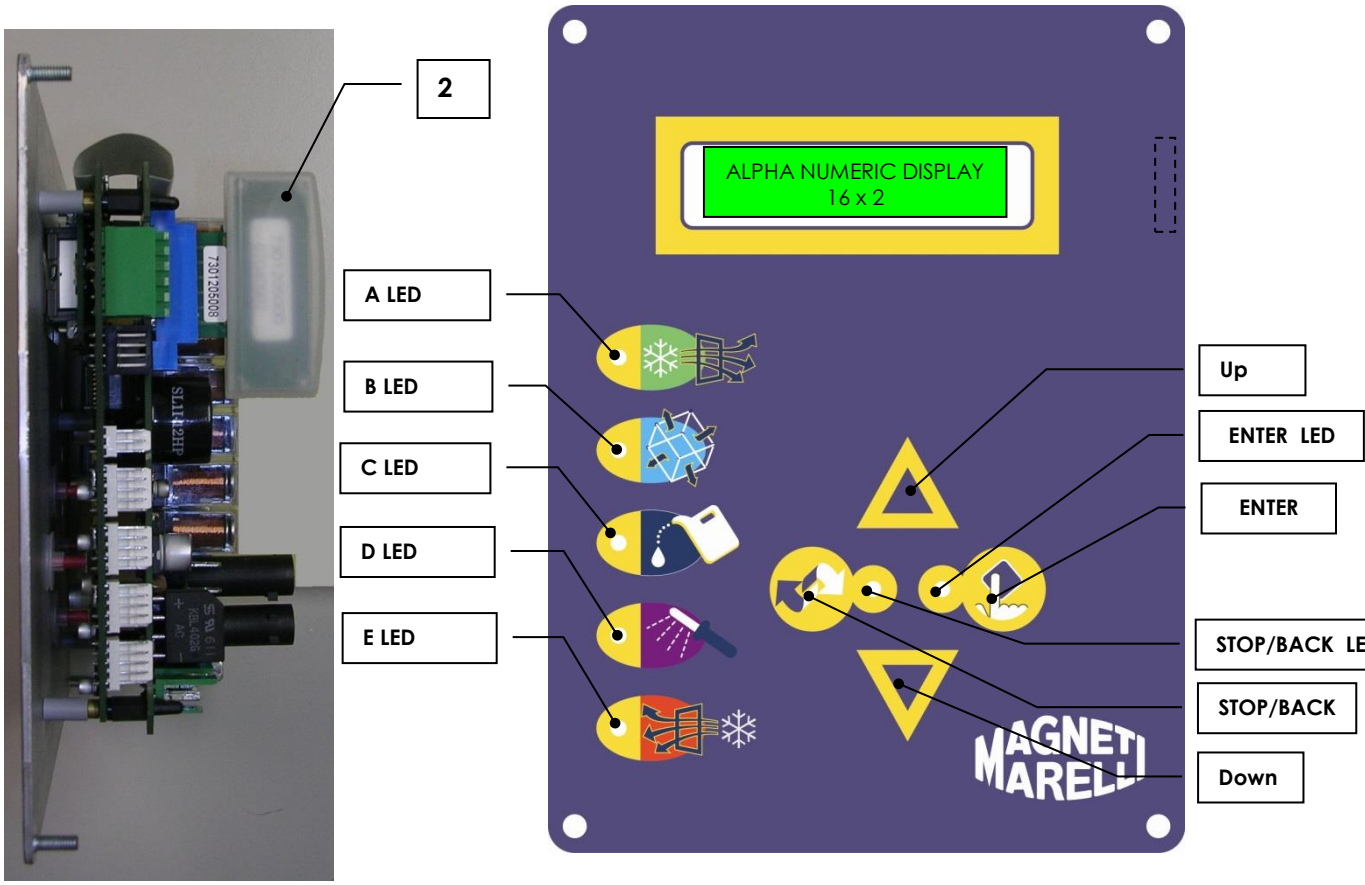
The device was not designed for disposal! (see Glossary section)

3.2 Description and layout of components

This device consists of several assemblies installed inside the housing and accessible only after the front and top covers (fixed with screws) are removed, and of several assemblies installed outside and presented in the figure below.



NO.	CODE |	DESCRIPTION
1		logic board
2		MEMORY CARD (OPTION)
3		LOW PRESSURE VALVE
4		HIGH PRESSURE VALVE
5		BLUE HOSE 3000
6		RED HOSE 3000
7		LP QUICK CONNECTOR
8		HP QUICK CONNECTOR
10		D80 HP PRESSURE GAUGE
11		D80 LP PRESSURE GAUGE
12		PRESSURE SENSOR –1/20 BAR
13		KPL DISTILLER
14		OIL SEPARATOR
15		FILTER
16		COMPRESSOR
17		VACUUM PUMP
18		WEIGHT 60 kg
19		OIL INJECTION RESERVOIR
20		USED OIL RESERVOIR
21		UV CONTRAST RESERVOIR
22		EXPANSION VALVE
25		RUBBER HOSE
26		RUBBER HOSE
27		CONDENSER FAN
28		HP SAFETY DEVICE
29		MECHANICAL FILTER
31		M/F CHECK VALVE
32		CHECK VALVE
33		NON-CONDENSED GASSES VALVE
34		INTERNAL RESERVOIR
42		TWO-STAGE SWITCH
43		PANEL
44		CONTROL PANEL
45		LOWER PANEL
46		REAR WHEEL
47		WHEEL WITH A BRAKE
50		VALVE SET
53		Safety valve
60		PRESSURE GAUGE IN INTERNAL CYLINDER



DOWN	Decrease/enter parameters
UP	Increase/enter parameters
ENTER	Confirm function or menu
STOP/BACK	Select or exit menu
S LED	Power supply
STOP/BACK LED	F
A LED	Recycling phase indication.
B LED	Emptying phase indication.
C LED	Oil injection indication.
D LED	UV additive injection indication.
E LED	Installation charging indication.

3.3 Technical specifications

3.3.1 Main specifications

Refrigerant:	**R134a**
Refrigerant electronic scales:	**Accuracy +/- 10 g**
Electronic vacuum meter:	**class 1.0**
Low pressure / high pressure gauge:	**class 1.6**
PLUS EVOLUTION Internal reservoir capacity:	**12.4 l**
HD EVOLUTION Internal reservoir capacity:	**27.2 l**
Maximum volume of R134a medium:	**10 kg**
Maximum volume of R134a medium: HD version:	**25 kg**
Pump capacity:	**6 m^3/h 3.5 CFM – 100 l/min**
Pump capacity: HD version:	**13 m3/h 3.5 CFM - 226 l/min**
Final vacuum:	**5 Pa – 0.05 mbar**
Filtration unit:	**2 filters in series**
DIMENSIONS:	**1222x629x628 mm**
Weight:	**90 kg**
Weight - HD version:	**105 kg**

3.3.2 Energy consumption

Supply voltage :	**230 V 50/60 Hz**
Power:	**770 W**

3.3.3 Power: Noise level

Device noise level was measured in reference to the operator's location (at the front).

Measured parameters:	**53.5 dB (A)**
Microphone distance above ground:	**1.40 m**
Microphone distance from the device:	**1.00 m**

3.3.4 Technical specifications of measuring instruments used

Technical specifications of measuring instruments used

(in accordance with the recommendations of IEC 651 Group1).

Precision integrating phonometer B.&.K.

Condenser dielectric-bias microphone.

4 Safety

The advanced technology adopted on design and production of ***CLIMA-TECH PLUS/HD EVOLUTION*** makes this unit extremely simple and reliable performing of all operations.
The user is therefore not exposed to any risk provided that the general safety rules indicated below are followed and that the unit is properly used and maintained.

4.1 Safety rules

- The device described in this manual is to be used only by **qualified employees,** who are required to know the basics of refrigeration industry, cooling systems and refrigerants and have knowledge concerning possible damages that may be caused by pressurized equipment.
- Users are requested to carefully read this manual to assure proper and reliable use of the device .
- use only refrigerant marked as R134a. Mixing the refrigerant with other refrigerating media may result in serious damage to the air-conditioning and refrigerating installations and to the service hardware.
- It is recommended that appropriate personal protective equipment, such as goggles and gloves is used as the contact with the refrigerant may result in bodily damage and even loosing one's sight.
- Avoid skin contact as low boiling point (approx -30°C) may cause frostbite.
- Avoid inhaling refrigerant vapors.
- Before connecting the unit to the air-conditioning installation or external tank, check if all valves are closed.
- Before disconnecting the unit check if all operations were finished and if all valves al closed to avoid spilling the refrigerant.
- Do not re0callibrate safety valves and control systems.
- Do not use external tanks or any other reservoirs without certification or uncertified safety valves.
- Do not leave the unit powered if you do not plan to use it another time. If the unit will not be used for a longer period of time, disconnect the power supply.
- All flexible parts (hoses) may contain pressurized refrigerant:

  Be extremely careful when disconnecting hoses and tubes
- Service equipment and vehicle air-conditioning systems using R134a refrigerant should not be checked using compressed air. Certain R134a-air mixes turn out to be inflammable in high pressure conditions. Such mixes may be dangerous and may create potential fire and explosion risk causing injuries to people and damages to property. For more information on hazards, refer to lubricants and refrigerants manufacturers.

4.2 Refrigerants handling instruction

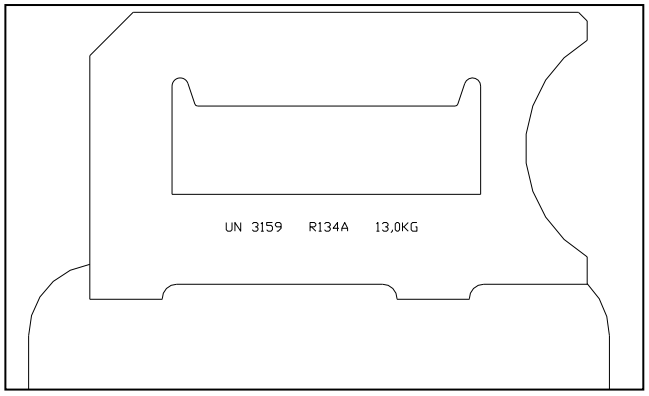
4.2.1 Glossary

- **Refrigerant:** cold-generating liquid to be only used in the device (e.g. R134a).
- **A/C system:** air-conditioning system in a vehicle.
- **Device:** *CLIMA TECH EVOLUTION* used for pumping out, cleaning and charging A/C system.
- **External tank:** tank not designed to be refilled with a fresh refrigerant (e.g. R 134a), which is used for filling the internal tank.
- **Internal tank:** tank designed specifically for storage of the refrigerant.
- **Phase:** performing a specific operation.
- **Cycle:** sequential performance of individual phases.
- **Emptying**: emptying an a/c system and storage of the removed refrigerant in the external tank, without analyzing it or any other processing.
- **Recycling**: removal of contamination present in the refrigerant by separation of oil and non-condensing substances and single or multiple filtration through a special device which reduces humidity, acids and particles.
- **Removal**: phase in which a refrigerant is sucked-off from the A/C system and gathered in the internal tank and then disposed of.
- **Vacuum phase:** a phase in which condensing substances and moisture are removed from an A/C system using only the vacuum pump.
- **Oil injection:** refilling oil in A/C system to restore the oil quantity recommended by the manufacturer.
- **Filling:** pouring in an A/C system the refrigerant in the quantity recommended by the manufacturer.
- **Washing:** A/C system cleaning phase completed to remove any possible contamination.
- **Non-condensing gasses:** air removed from A/C system or tanks which is not gathered as a result of refrigerant evaporation.

4.2.2 **Refrigerant storage precautions**

Do not allow mixing various types of refrigerants removed from A/C systems.

CLIMA TECH EVOLUTION is designed to support only R134a.
To avoid mixing various refrigerants, it is recommended to store them in separate cylinders. Cylinders may not contain oil or other contaminants and the refrigerant they contain must be clearly indicated.



4.2.3 **Conditions for further usability of refrigerant**

Knowing the origin and the age of the A/C system is very important for deciding about further usability of refrigerant. A/C system repairs and maintenance greatly impact the refrigerant quality.
If the system was not emptied correctly or not properly cleaned, the refrigerant and oil may be highly contaminated. If you do nit know the history of the A/C system, recycle the removed refrigerant in at least one cycle before it is reintroduced in the system.
If the operator is not certain how much contaminated the refrigerant is, it may be checked using a special acidity and water content measurement set.

4.2.4 Recycling remarks

Replace the recycling system filter set regularly (see "Messages" section), to assure correct operation of the device.
Refrigerant recycling should be carried out even if all parameters indicate that it is not necessary.

4.2.5 General information

Before the refrigerant is introduced in the system, make sure the system was cleaned and emptied.
All recommendations specified in this manual must be complied with to assure that the system is not contaminated before filling it with the refrigerant.
Regularly clean and maintain the device if it is frequently in contact with contaminants; it is important that the contamination remaining after the last interference in the system is not transferred to the new refrigerant

4.3 Safety devices

CLIMA TECH EVOLUTION is equipped with the following safety devices:
• Pressure sensor: switches off the compressor if excessive pressure builds up.
• Pressure relief valves
• Main switch: allows to disconnect the power supply if it is necessary to interfere in the device.

It is forbidden to introduce any design changes in the above safety devices.

.

4.4 Operational environment

• The device may only be operated in open or well-ventilated areas (minimum 4 air exchanges per hour).
• The device is adapted to use in the following climate conditions:
height up to 1000 m a.s.l., ambient temperature between +5°C and +40°C, humidity of up to 50% at +40°C.
• The device shall be operated in a place with sufficient lighting (average workshop lighting value shall be 500-750-1000 lx).
• Do not operate the device near open fire or hot surfaces. At high temperatures refrigerant dissolves and releases dangerous, aggressive substances, which are hazardous to health of the operator and the environment.
• Do not inhale the refrigerant and lubricating oil because they cause irritation of eyes and respiratory tracts.

5 Use

5.1 Unpacking

Remove the device from the packaging and make sure all equipment is included:

- operation manual
- memory card
- 2 R134a ball valves
- power supply cable

5.2 Storage

Remove the device from the base.
The device is fitted with 4 wheels; both front wheels are equipped with brakes.
If placed on an uneven surface, CLIMA TECH EVOLUTION may be inclined and moved on rear wheels only.
The device is designed in such a way that the heaviest components are located in its bottom part which assures low center of gravity.

Nevertheless, there is a risk that inclined device may fall down.

5.3 Preparation for operation

As soon as CLIMA TECH EVOLUTION is placed next to the A/C system to be maintained, place it with four wheels on a level surface to ensure proper operation of the scales.

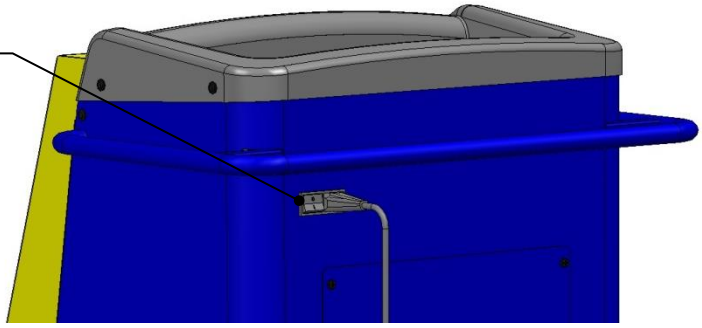
.

Then, plug the device plug into the socket of the installation complying with the parameters specified on the rating plate, next to the main switch of the device. Pay special attention to the voltage, frequency and the power.

.

Modello **Type**	228	**Alim./Elec. Feed.** **Potenza/Power**	**230 V** **50-60 HZ** **0,77 Kw**
N. di serie **Serial N.**		**T. esercizio** **Operating temp.**	+5 /+50°C
Fluido **Fluid**	**R134a**	**Collaudatore** **Tester**	**02**
PS	**20 bar**	**Anno** **Year**	

5.4 Start-up



Place the device with empty oil tanks on a level surface. Connect the device to the power network, set the main switch (42) into ON (I)

Do not remove or insert the memory card when the device is on.

During the first start-up, select the language version from among the available ones. The default language is Italian

```
SELECT LANGUAGE
   Polski
```

Press **UP–DOWN** to select the desired language version. Confirm by pressing **ENTER**

```
Vacuum in process
              XX
```

The device performs vacuum phase.

```
calibration ok!
```

Press **ENTER** to confirm.

```
Display shows the installed software version, date and time for a couple of
seconds
CLIMA TECH EVO
SW xx xx xx xx
```

Then the display shows available resources (stand-by).

```
Refrigerant
g                xxx
```

At the first startup, the device checks if there is new software on the card and may install it on the logic board.

5.5 Switching off

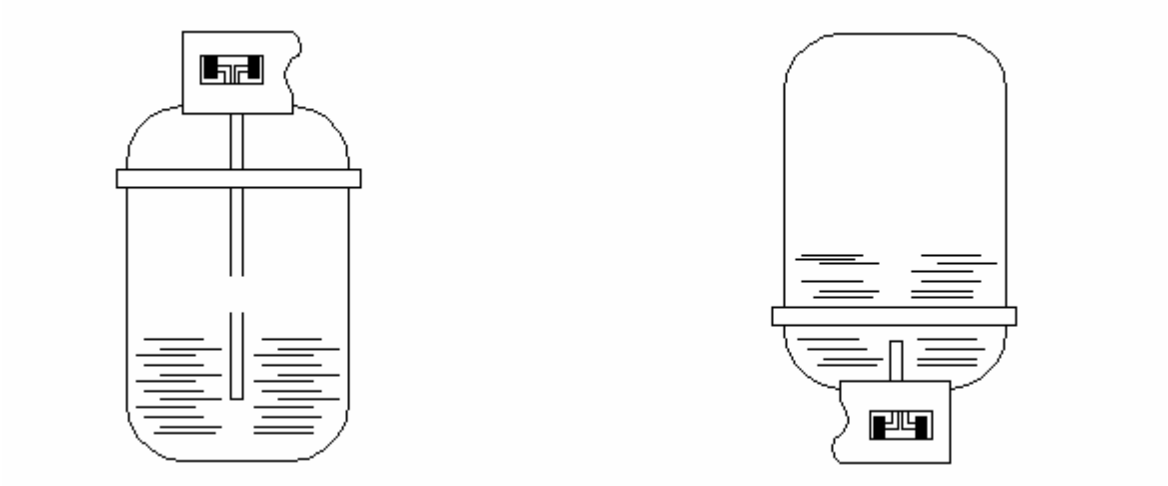
To stop the operation of the device, turn the main switch (42) into off position (0).
Until the device is stopped **under no circumstances** disconnect the plug from the socket.

5.6 Filling the internal tank

WARNING! FOLLOW THE INDICATIONS BELOW TO AVOID EMISSION OF THE REFRIGERANT TO THE ATMOSPHERE!

After the operations described in the previous section, connect **HP** quick connector (red) of the device to the external tank using a supplied adapter.
Open the coupling by twisting the valve clockwise.
Open the valve on the external tank.
There are two different tanks available: with and without suction pipe.
tanks with **suction pipe** must be positioned straight to let the liquid refrigerant flow. These tanks must be connected to **L** (liquid) coupling.
tanks **without suction pipe** have only one valve and therefore must be put with their top down to let the liquid refrigerant flow.

TANKS



Tank with a float **Tank without a float**

Open HP valve on the main panel
If the device is in stand-by, press **ENTER**

```
Registration no.     □
Other Menu           ■
```

Press **UP–DOWN** to select Other menu. Confirm by pressing **ENTER**.

```
Cylinder filling ■
Servicing        □
```

Push **UP–DOWN** to select cylinder filling. Confirm by pressing **ENTER**

```
Printing         □
Diagnostics      □
```

Printing and **Diagnostics** are available only if memory card and/or printer is installed
.

```
Connect high pressure hose
to the external cylinder
```

. Confirm by pressing **ENTER**

```
Open cylinder valve
```

Confirm by pressing **ENTER**.

```
Input desired refrigerant quantity
g            XXXXX
```

Push **UP–DOWN** to select quantity. Confirm by pressing **ENTER**

```
Recovery in process
```

```
Quantity of recovered refrigerant
g                XXXXX
```

```
Filling of external tank finished
```

Confirm by pressing **ENTER**.

```
Close cylinder valve
```

Follow the on-screen instructions. Confirm by pressing ENTER

```
Wait!Refrigerant recovery from tubes
```

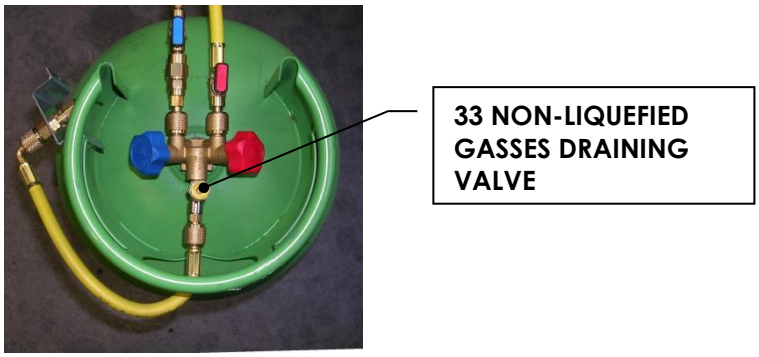
```
Process finished
```

Confirm by pressing ENTER

The maximum quantity of R134a refrigerant to be gathered in the internal tank is 25 kg. Please, note that after the message "Qty reached, close internal cylinder valve" appears, the device can recover up to 1 kg or more of the refrigerant.

5.7 Cylinder bleeding

Non-liquefied gasses draining valve (33) is calibrated at 12.8 bar for the standard version and for 16.8 bar for HD version; the valve was installed to allow gradual removal of non-liquefied gasses from the external tank.
The valve is automatically energized by the system each time there is non-liquefied gas in the tank and their pressure is greater than the calibration pressure.
The purpose of the non-liquefied gasses draining valve (33) is to allow gradual removal of non-liquefied gasses present inside the internal tank if their pressure exceeds the calibration pressure for 33 non-liquefied gasses draining valve.
.



6 MESSAGES

6.1 Error messages

```
WARNING! Maximum pressure
in the internal cylinder
```

Maximum pressure was reached in the internal tank. Wait approx. 30 minutes before restarting the refrigerant recovery function. If this does not eliminate the problem, contact Magneti Marelli technical support.

```
WARNING! Internal cylinder
is full
```

Maximum permitted quantity of refrigerant in the internal cylinder was reached. This value cannot be exceeded in any circumstances.

```
WARNING! Pressure in
the A/C system
```

Appears at the beginning of the vacuum phase, if pressure is detected in the A/C system. The device starts the recovery phase.

```
A/C-not tight! Continue?
mB          XXX
```

Vehicle A/C system is not tight. This message appears if the station detects a pressure growth in the system during vacuum leak test. Repair the A/C system.
Select **ENTER** to continue. Select **STOP/RETURN** to return to standby mode

```
Insufficient vacuum.
Continue?
mB           XXX
```

- This message appears after 10 minutes of vacuum build-up if the pressure in the A/C system is not lower than **100 mBar**.

Select **ENTER** to continue with the vacuum phase. Select **STOP/RETURN** to return to standby mode

```
WARNING!
Insufficient vacuum
```

Excessive pressure during pressure check before oil or contrast injection. This phase is only run in systems in which vacuum was achieved.

Select **ENTER** to continue. Select **STOP/RETURN** to return to standby mode

```
Insufficient refrigerant quantity!
Add refrigerant!
```

Too little refrigerant in the internal tank. Select **ENTER** to go to the phase of refrigerant filling from the external cylinder. Select **STOP/RETURN** to go to the next step.

```
External cylinder empty
or valve is closed!
Please check!
```

This message appears in the initial phase of filling the internal cylinder from the external cylinder, if the station detects no pressure or, while filling the internal cylinder, if the pressure is too low to fill the internal tank to the required degree.

Maximum recirculation
time exceeded!
Continue?

Maximum anticipated recirculation/recovery time. Check the readings on the pressure gauges – if they show a pressure, the station may be damaged (contact Magneti Marelli technical representative), if they show no pressure, the vehicle A/C system or valve set may be leaking.
Select **ENTER** to continue with the recirculation/recovery phase. Select **STOP/RETURN** to return to standby mode

Filling time exceeded
Continue?

Close HP valve

Start the A/C system

Open LP valve

These messages appear during filling phase if the target refrigerant quantity was not filled despite the maximum duration, if **HP-LP** A/C system is selected.
The remaining refrigerant will be sucked in to the system by the compressor. Follow the indications on the display. Select **ENTER** to continue with the filling phase. Select **STOP/RETURN** to return to standby mode

Filling time
exceeded
Continue?

This message appears during filling phase if the target refrigerant quantity was not filled despite the maximum duration, if **HP** A/C system is selected.
Select **ENTER** to continue with the filling phase. Select **STOP/RETURN** to return to standby mode

Filling time
exceeded
Continue?

Select **ENTER** to continue.

Start the A/C system

This message appears during filling phase if the target refrigerant quantity was not filled despite the maximum duration, if **LP** A/C system is selected.
The remaining refrigerant will be sucked in to the system by the compressor. Follow the indications on the display.

6.2 Functional messages

Replace the drying filter!
Continue?

Replace vacuum pump filter!
Continue?

This message appears after starting the station, once it has reached the scheduled maintenance interval. After replacing the component, reset the counter.
See **11.4.2 Resetting counters**

Pressure sensor auto-calibration?

This message appears after starting the station. Select **ENTER** to allow the station to perform auto-calibration of the pressure sensor.

Start operation?

Select **ENTER** to start the planned process or cycle.

Process finished!

Select **ENTER** to go to standby mode.

A new database
version is
available.

This message appears one year after database memory card activation.
Select **ENTER**

Please contact
the distributor.

Select **ENTER** to go to standby mode. See **Replacing memory card**. Replacing the memory card into a card with a new database will disable the message automatically.

Printer
does not work!

The message appears only when optional printer is installed

Printer is not available (printer led flashes). Possible reasons include open printer cover or no paper.
Select **ENTER** to continue with the next phase. Select **STOP/RETURN** to return to standby mode.
If there are no paper in the printer, lift the printer cover to secure the head.

Use only paper available in Magneti Marelli Aftermarket offer. This message is accompanied with a warning sound.
Select ENTER to exit.

7 DESCRIPTION OF OPERATION

In standby mode the device displays the quantity of refrigerant available.

7.1 Description of functions

The station remembers selected A/C system filling parameters, linking them to the registration numbers entered in the database. When servicing vehicle with the same registration number again, it is possible to restore the parameters selected previously during maintenance.

The station may also operate in the following modes:

- **Automatic program:**
  A vehicle with previously saved settings may be selected or a desired refrigerant quantity may be input. The program will automatically calculate the time necessary to achieve vacuum for the specific quantity of refrigerant.

- **Manual program:**
  The user selects the phases to be performed for a specific vehicle.

After selecting of the programs, follow the instructions on the display.

7.1.1 Memory card functions (optional)

For installed memory card, in the automatic program, specific car model may be selected from the database. Moreover, a diagnosis mode is available, which allows checking the A/C system operating parameters, suggesting possible causes of failures.

7.2 Software functionality

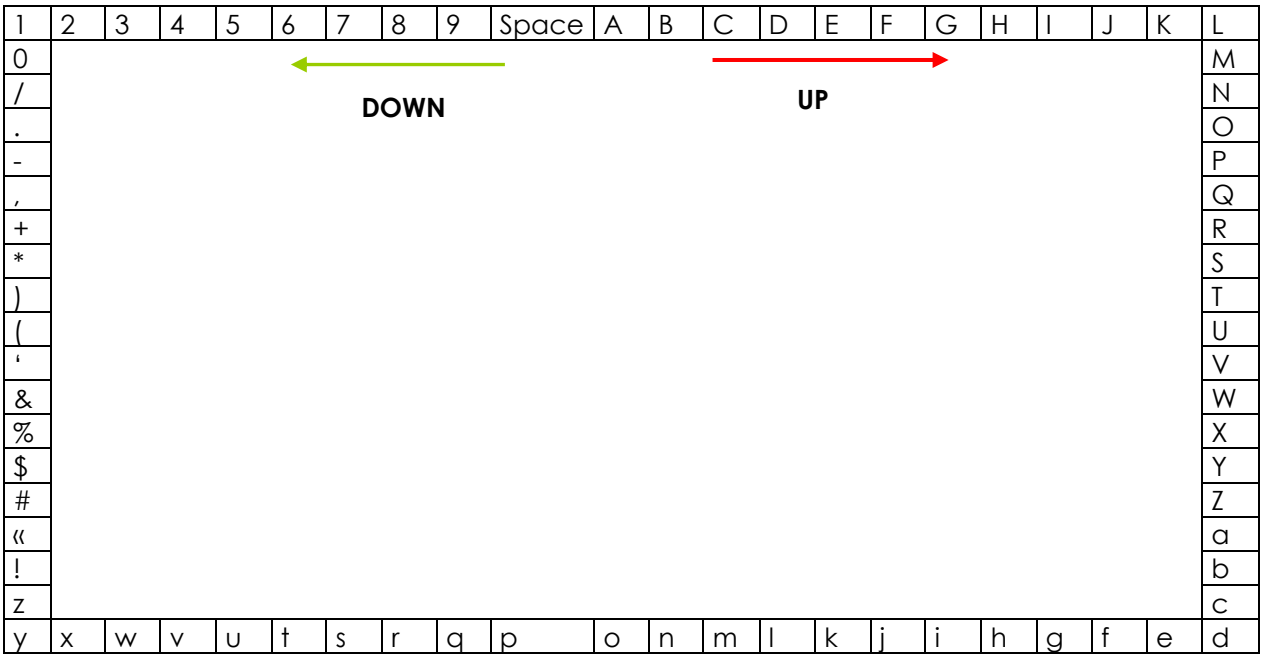
- Use **UP** and **DOWN** buttons to select the desired program.

- Select **ENTER** to confirm.

- Select **STOP/BACK** to stop the selected function and return to standby mode.
  Select **STOP/BACK** to return to the previous screen in settings mode.

7.3 Editing

When entering vehicle registration numbers, the characters are selected successively as follows:
UP button – selecting successive letters/characters according to the diagram below, in clockwise direction
DOWN button - selecting successive letters/characters according to the diagram below, in anti-clockwise direction
ENTER – go to the next character
STOP/BACK – return to the previous character
Hold **ENTER** button for 3 seconds to confirm entered chain of characters.


1 2 3 4 5 6 7 8 9 Space A B C D E F G H I J K L
0 M
/ N
. O
- P
, Q
+ R
* S
) T
(U
‘ V
& W
% X
$ Y
# Z
« a
! b
z c
y x w v u t s r q p o n m l k j i h g f e d
DOWN
UP

8 PROGRAMS

Connect **LP-HP** coupling (or one of the couplings).
Open the flow to the coupling(s) by rotating appropriate wheels in the front panel of the station clockwise. **LP-HP** indicators (or one of the indicators, depending on the connection) indicate the pressure in both sections of the vehicle A/C system.

Press **ENTER** in standby mode.

> Due to frequent improvements to the station software, minor discrepancies between the data in the manual and the actual reality may occur.

```
Enter registration no.■
In Others menu        □
```

Use UP and DOWN buttons to select the desired menu. Confirm by pressing **ENTER**.

```
Registration no.
```

If you do not wish to enter the registration number, select **ENTER**.
Enter the registration number using **UP** – **DOWN** buttons. See **8.3 Editing**
Press and hold **ENTER** for 3 seconds to confirm the entry.

8.1 Recognizing overhauls performed in the past

If the station recognizes a registration number as already existing in the database, the following message is displayed:

```
Try again ■
Previous service data  □
```

- Select **TRY AGAIN** and confirm by pressing **ENTER** to start servicing according to previous maintenance parameters
- select **PREVIOUS SERVICE DATA** and confirm by pressing **ENTER** to display the last vehicle filling parameters.

UP and **DOWN** buttons allow viewing the following parameters:

- Quantity of refrigerant filled
- Vacuum generation time
- Leak test duration
- Pressure increase during the leak test
- Feed oil? Yes/No
- Feed contrast? Yes/No
- Quantity of refrigerant recovered from the system

> Some longer messages are displayed by scrolling the text on the display. In this manual these are presented as continuous strings.

Select ENTER to confirm overhaul completion. See chapter **10 SINGLE PHASES**
Select **STOP/BACK** to change the servicing parameters.
If no previous overhaul of the vehicle with specific registration number is found, or if the option of selecting the station service parameters again is chosen, the following message is displayed:

```
Connect HP/LP ■
      HP   LP   □
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**. See chapter:

- **Automatic program (without memory card),**
- **Automatic program (with a memory card),**
- **User program.**

8.2 Automatic program (without memory card),

When entering the program selection mode (see **9 PROGRAMS**) the following menu appears:

```
Auto Progr.       ■
User progr. □
```

Select using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
Specify refrigerant weight ■
User vehicles   □
```

Select using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
Specify refrigerant weight
Refrig. g       XXXX
```

Specify the correct refrigerant weight using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
Refrigerant qty g: XXXXX
Vacuum:        XX:XX
```

Vacuum generation time is calculated based on the refrigerant quantity specified.
Use **UP-DOWN** buttons to select the oil/UV injection program.
See **9.5 Programming oil/UV injection phase**.
Confirm by pressing **ENTER** to start the automatic program with manual oil/UV injection.

8.2.1 User's vehicles

```
Specify refrigerant weight □
Refrig.  g.          ■
```

Use **UP-DOWN** buttons to select the user's vehicle. Confirm by pressing **ENTER**.

```
> User's vehicle 1 <
  User's vehicle 2
```

Use **UP-DOWN** buttons to select the user's vehicle. Confirm by pressing **ENTER**.
If settings for the vehicle were previously input, the following screen will appear:

```
Refrigerant qty g: XXXXX
Vacuum:         XX:XX
```

Use **UP-DOWN** buttons to select programming of oil-UV injection phase. See **9.5 Programming oil-UV injection phase.**
To change previously entered data, press and hold **ENTER** button for 3 seconds while previous overhaul parameters are displayed.
To add a new user vehicle, select one of the empty slots in the model list and confirm by pressing **ENTER**. The display will show:

```
User vehicles
User vehicle 1
```

Press and hold **ENTER** for 3 seconds, the display will show:

```
Refrigerant qty g: 700
Vacuum:          20
```

Press and hold **ENTER** for 3 seconds, the display will show:

```
User vehicle:
```

Enter user model name using **UP** and **DOWN** buttons.
See Błąd! Nie można odnaleźć źródła odwołania.. **Editing**
Confirm the model by pressing and holding **ENTER** for 3 seconds.
The display will show:

```
Name
Refrigerant qty g: 700
```

Enter the correct value using **UP-DOWN** buttons. Confirm by pressing **ENTER**.

```
Name
Vacuum      20
```

Enter the correct value using **UP-DOWN** buttons. Confirm by pressing **ENTER**. Display will show the entered data.

```
Refrigerant qty g: 700
Vacuum:          20
```

Select **ENTER** to save the data. You will return to the user's vehicles selection list.

8.3 Automatic program (with a memory card),

When entering the program selection mode (see **9 PROGRAMS**) the following menu appears:

```
Auto Progr.          ■
User progr. □
```

Select using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
Specify refrigerant weight ■
User vehicles    □
```

Select using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
Specify refrigerant weight
Refrig. g XXXX
```

Specify the correct refrigerant weight using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
Refrigerant qty g: XXXXX
Vacuum:          XX:XX
```

Vacuum generation time is calculated based on the refrigerant quantity specified.
Use **UP-DOWN** buttons to select the oil/UV injection program.
See **9.5 Programming oil/UV injection phase.**
Confirm by pressing **ENTER** to start the automatic program with manual oil/UV injection.

8.3.1 Searching the vehicle model (Database)

Choose **select model** function to use the database.

```
Specify refrigerant weight ■
Select model       □
```

Select using **UP-DOWN** buttons.
Confirm by pressing **ENTER**.

```
User vehicles
```

```
> Alfa Romeo <
```

Use **UP-DOWN** buttons to select the brand or go to user vehicles.
Confirm by pressing **ENTER**.
After selecting the brand you need to repeat all successive operations to confirm system filling parameters.

```
Refrigerant qty g: XXXXX
Vacuum:        XX:XX
```

Vacuum generation time is calculated based on the refrigerant quantity specified.
Use **UP-DOWN** buttons to select the oil/UV injection program.
See **9.5 Programming oil/UV injection phase.**
Confirm by pressing **ENTER** to start the automatic program with manual oil/UV injection.

```
>User vehicles<
  Alfa Romeo
```

Use **UP-DOWN** buttons to select the user's vehicle.
Confirm by pressing **ENTER**.
See **9.2.1 User vehicles**.

8.4 User program

When entering the program selection mode (see **9 PROGRAMS**) the following menu appears:

```
Auto Progr.        ■
User progr. □
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**.

```
Recycle?   Yes
             No
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**.
If **NO** option is selected, the station will suggest going into **vacuum phase**.
If **YES** option is selected, the following message is displayed:

```
Control of min.
pressure growth
```

A 1-minute pressure growth test will be proposed before concluding the refrigerant recovery phase.
Use **UP-DOWN** buttons to select the desired value. Confirm by pressing **ENTER**.

```
Vacuum?      Yes
              No
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**.
If **NO** option is selected, the station will suggest going into **filling phase**.
If **YES** option is selected, the following message is displayed:

```
Vacuum time
min            20
```

A 20-minute vacuum phase will be suggested.
Use **UP-DOWN** buttons to select the desired value. Confirm by pressing **ENTER**.

```
System leaktightness
control min.      4
```

A 4-minute system leak test will be suggested at the end of vacuum phase. .
Use **UP-DOWN** buttons to select the desired value. Confirm by pressing **ENTER**.

```
Inject oil-UV? Yes
                  No
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**.
If **NO** option is selected, the station will suggest going into filling phase.
If **YES** option is selected, the following message is displayed:

```
Manual Oil-UV     ■
Synchro. Oil-Uv   □
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**.
If synchronized oil-UV feeding option is selected, the station will suggest switching into Synchronic oil-UV feeding phase.
See **9.5.2 Synchronic oil-UV feeding**.
If **Manual oil-UV** option is selected, the following message is displayed:

```
Specify refrigerant weight
Refrig.  g.     700
```

Use **UP-DOWN** buttons to enter refrigerant quantity. Confirm by pressing **ENTER**.

```
Start operation?
```

Confirm by pressing **ENTER**.

8.5 Synchronic oil-UV feeding.

8.5.1 Manual oil-UV feeding.

```
Manual Oil-UV     ■
Synchro. Oil-Uv □
```

Use **UP-DOWN** buttons to select **Manual Oil-UV**. Confirm by pressing **ENTER**.
After the vacuum phase the station will stop to allow manual feeding of oil -UV.

8.5.2 Synchronized oil-UV feeding

```
Manual Oil-UV     ■
Synchro. Oil-Uv □
```

Use **UP-DOWN** buttons to select **Synchronized Oil-UV**. Confirm by pressing **ENTER**.

```
ISO oil:
46 ■ 100 □ 150 □
```

Use **UP-DOWN** buttons to select oil ISO parameter. Confirm by pressing **ENTER**.

```
Specify oil qty
g             10
```

Use **UP-DOWN** buttons to select oil quantity to be introduced. Confirm by pressing **ENTER**.

```
Synchronized   Yes
UV feeding      No
```

Select using **UP-DOWN** buttons. Confirm by pressing **ENTER**.
If **NO** option is selected, the station will suggest going into the next phase.
If **YES** option is selected, the following message is displayed:

```
Contrast qty
to be introd. g   10
```

Use **UP-DOWN** buttons to select contrast quantity to be introduced. Confirm by pressing **ENTER**. The station will suggest going into the next phase.

Note: make sure oil and contrast in the tanks is sufficient to perform the feeding operation.

Synchronized feeding is done with the accuracy of +/- 15 g (at 20 to 30°).

If synchronized injection option is selected, changing the oil quantity is still possible during vacuum generation phase.
press and hold **ENTER** button for 3 seconds – planned quantity of oil to be fed is displayed.
Use **UP-DOWN** buttons to select oil quantity. Confirm by pressing **ENTER**.
Display will return to showing the remaining vacuum time.

9 RUNNING PROGRAMMED PHASES

Open **LP** and **HP** valves on control panel or one of the valves, depending on the A/C system type.

9.1 Recovery phase

```
Recycling phase
```

This message appears on the display for a few seconds.

```
Recycling in process – qty of recovered
refrigerant g                XXXXX
```

Recovery phase stops automatically when the station detects that the system was emptied. System leak test is then started.

```
Min. pressure
growth control
```

```
Oil recovery
in process
```

If increased pressure is detected, recovery phase is repeated.

The station will remove used oil to the used oil tank. (**21**).

```
Please wait!
```

```
Recycling finished!
g             XXXXX
```

Recovery phase is finished.

9.2 Vacuum phase

```
Vacuum generation!
Time          XX:XX
```

When the planned vacuum generation time is elapsed, the station starts system leak test.

```
Leaktightness check
s   XXX  mBar XXX
```

Data is presented on the display for a few seconds.

```
Vacuum finished!
mBar         XXX
```

If synchronized oil-UV injection at the end of vacuum is selected, the following message will appear on the screen:

Close LP valve

Follow the instructions. Confirm with Enter. If Enter is not pressed at the end of vacuum phase, the device stops working and the message is displayed again.

9.3 Oil-UV injection

9.3.1 Synchronized oil-UV injection

Injecting oil

This message appears during oil feeding.

Feeding new oil finished.

This message appears at the end of oil feeding phase. The device automatically switches to the next phase.

Synchronized UV feeding in process

This message appears during contrast feeding.

UV contrast feeding finished

This message appears at the end of contrast feeding phase. The device automatically switches to the next phase.

9.3.2 Manual oil- UV injection

Oil feeding?

Check if the quality of oil in the tank is sufficient. Press Enter to confirm switching into oil injection phase. To finish oil feeding release Enter and then press STOP/BACK button. Press STOP/BACK to skip the oil injection phase. The device will switch into manual contrast feeding mode.

UV contrast feeding

Check the quality of the contrast in the tank. Press and hold the button to go to UV injection phase. To finish contrast feeding release Enter and then press STOP/BACK button. Press STOP/BACK if you want to confirm UV filling. The device will automatically go to refrigerant feeding phase.

9.4 Refrigerant feeding phase

The device will finish operation before refrigerant feeding phase only if HP and LP tubes and manual oil-UV feeding was selected. The display will show the following messages:

Close LP valve

Follow the instructions and press Enter.

```
Filling phase in process
g              XXXX
```

The data is displayed during filling phase.

```
Filling phase finished
g             XXXXX
```

```
Process finished
```

Press ENTER to confirm.

If the pressure in the internal cylinder is not sufficient to perform filling, the procedure of stating the remaining amount should be performed through the „suction" port of the A/C system. Cf. Section 7.

If memory card is present in the device, system diagnostics phase may follow the refrigerant feeding phase. The system shows the following message:

```
System diagnostics? Yes
No
```

Select Yes to start system diagnostics phase. See Chapter Błąd! Nie można odnaleźć źródła odwołania. **Diagnostics.**

NB. It is suggested that a diagnosis of the installation is performed even without the expansion card. Close HP and LP valves. Start the motor and keep the rotational speed at 1 500/2000 r.p.m. Start the A/C system and set the maximum fan speed and minimum temperature. Wait for the A/C/system to stabilize. Check pressures on the pressure gauges and the temperature in the main air exit. Start motor and the A/C/system.

If memory card is not present or if No was selected, the following message is displayed:

Disconnect HP/LP tubes from the system.

Disconnect the device from the vehicle A/C system.
Open LP and HP valves.
Confirm with Enter.

Warning! Refrigerant recovery from tubes

This message confirms refrigerant recovery from tubes.

Close LP and HP valves

Follow the instructions and press Enter. The device will show the message about going into stand-by mode.

10 OTHER MENU

Press Enter in standby mode.

```
Enter the number      □
Other menu      ■
```

Press Up or Down button to select Other menu field. Confirm with Enter.

```
Filling in the internal cylinder.    ■
Service                              □
```

```
Printing □
Diagnostics □
```

Diagnostics and Printing fields are available only if there is a memory card and/or printer present in the system.
Press Up or Down button to select the desired option. Confirm with Enter.

10.1 Filling in the internal cylinder

Read paragraph Błąd! Nie można odnaleźć źródła odwołania. **Filling in the internal cylinder.**

10.2 Diagnostics

If the device is equipped with a memory card, there is an option of running diagnostics of the A/C system and obtaining indications concerning possible failures.

The diagnostics option is available after completing the filling phase or by selecting the appropriate menu option.

```
Close LP and HP valves
```

Follow the instructions. Press Enter to confirm. The messages below will be displayed only if Diagnostics option is available in the Other menu.

```
Connect HP/LP tubes to the A/C system
```

Follow the instructions. Press Enter to confirm.

```
Start the A/C system for checking
```

To verify correct operation of the A/C system start the engine and keep rotation speed at 1500/2000 r.p.m. Set the lowest cooling temperature in the system and the highest fan speed. Let the system operate for 10 min. Follow the instructions; confirm with Enter.
Check the values below:

- **T.E** External temperature, (C°)
- **T.I** Internal temperature in the main A/C system, (C°)
- **P.HP** Pressure shown on HP pressure gauge, (bar)
- **P.LP** Pressure shown on LP pressure gauge, (bar)

```
P.HP: bar __._
P.LP: bar __._
```

T.I.: °C __._
T.E.: °C __._

Enter the required values using Up and Down buttons. Confirm by pressing Enter each time after entering the value. Once all fields are filled in, confirm by pressing Enter for 3 seconds.

The device will analyze the data. If a failure is suspected, the station shows a message specifying the failure and possible cause of the error. Each case is supplemented with a separate message on the display.

Sample diagnosis message:

Possible causes:
Compressor tubes interchanged ↕

The possible causes message is displayed automatically.
Use Up or Down button to go to the next hint.
Press Enter to continue.

10.2.1 Emptying tubes

Disconnect HP/LP tubes from the system.

Disconnect the device from the system and confirm with Enter.

/
Open LP.HP valves

Follow the instructions. Confirm with **ENTER**.

Wait! Recovery of
refrigerant from HP/LP tubes

The device recovers the refrigerant from the tubes.
The display will show:

Close LP and HP valves

Follow the instructions. Confirm with **ENTER**.
The device starts operating in standby mode.

10.2.2 Refrigerant recovery

Select Diagnostics option in "Other menu" field to start recovery from the tubes at the end of the operation.

Disconnect HP tube
from the system

Follow the instructions. Confirm with **ENTER**.

Open LP/HP valves

Follow the instructions. Confirm with **ENTER**.
Wait for the station compressor to remove the refrigerant from HP/LP tubes. When the pressure on the pressure gauge reaches a stable value, press **ENTER**.

Switch off the
A/C system

Follow the instructions. Confirm with **ENTER**.

Disconnect LP tube
from the system

Follow the instructions. Confirm with **ENTER**.

Wait! Refrigerant is recovered
from the tubes

The device recovers the refrigerant still present in the tubes.
The display will show:

Close LP/HP valves

Follow the instructions. Confirm with **ENTER**.
Display will show stand-by mode.

10.3 PRINTER

The options below are available after selecting Other menu, provided the optional printer is fitted in the system. (007950014100).
CLIMA-TECH PLUS/HD EVOLUTION: using the built-in printer allows to obtain a confirmation of performing each phase. The following functionalities are available:

```
Repeat printing          ■
User's data              □
```

Use Up and Down buttons to select the desired option. Confirm with **ENTER**.

10.3.1 Repeating the report

Press Repeat printing to print a copy of the confirmation for the last operation performed.

10.3.2 Personalizing report data

Select User's data to modify printout header. The header may contain 5 to 20 characters.

```
Repeat printing      □
User's data          ■
```

Use Up and Down buttons to select the desired option. Confirm with **ENTER**.
The following options appear on the display:

```
Enter data
Magneti Marelli
```

You can change one line at a time. Select the line to be edited using Up and Down buttons. Confirm with ENTER. The cursor appears in the first character's field.
Set the new confirmation printout header using Up and Down buttons.
See item Błąd! Nie można odnaleźć źródła odwołania. Błąd! Nie można odnaleźć źródła odwołania.**Edit**
Press and hold Enter for 3 sec. to confirm editing of the line is finished.
After entering all lines press STOP/BACK to return.

10.4 Service

```
Enter password
     XX
```

Enter the appropriate code using Up and Down buttons. Confirm with **ENTER**.

10.4.1 Changing language

Enter code **03**. Confirm with **ENTER**.

```
SELECT LANGUAGE
      Italiano
```

Use Up and Down buttons to select the desired language. Confirm with **ENTER**.

10.4.2 Resetting counters.

Enter code **05.** Confirm with **ENTER**.

```
Refrigerant counter          ■
Vacuum pump counter □
```

Use Up and Down buttons to select the counter to reset. Confirm with **ENTER**.
If refrigerant counter is selected, the display will show the following information:

```
Refrigerant counter, reset?
g             XXXXX
```

If vacuum pump counter is selected, the display will show the following information:

```
Vacuum pump counter reset?
min           XXXXXX
```

In both cases press **ENTER** to confirm.
The display will show:

```
Hold ENTER button
for 3 seconds!
```

```
Counter reset
```

Confirm with **ENTER**.

10.4.3 Restoring parameters

Parameter restore option is available only if memory card is installed.
Enter code **10.** Confirm with **ENTER**.

> It is suggested that the data is saved on the memory card periodically.

```
Save data,
User models?
```

Confirm with **ENTER**.

```
Transfer from mainboard  ■
to memory card.          □
```

Use Up and Down buttons to select the desired menu. Confirm with **ENTER**.

```
Save data?
```

Confirm with **ENTER**.

```
Saving
■ ■ ■ ■ ■ ■ ■
```

The device will switch into standby mode.

11 PREPARATION FOR A LONGER IDLE PERIOD

The station should be placed in a safe location, disconnect from the power mains, protect against excessive temperature, humidity and hitting by objects which may damage the station.
Make sure the valves at the internal tank are closed.
To ***restart*** the device, “activate” it ***only after opening the internal tank valves.***

12 MAINTENANCE

CLIMA-TECH PLUS/HD EVOLUTION is a highly reliable device, built using high quality components, using state-of-the-art technical solutions.
Therefore, the maintenance activities are limited to a minimum, and their frequency is very low; each activity performed periodically is monitored by counters. Once a counter has reached the maximum, display will show the following messages:

A)

```
Change oil
in the vacuum pump!
```

Maximum number of hours of emptying pump operation has been reached. It is recommended to change the oil and reset the appropriate counter.

B)

```
Replace drying
filter!
```

Maximum quantity of refrigerant passing through the drying filter has been reached.
It is recommended to replace the filter and reset the appropriate counter.
For other maintenance and repair activities (except as specified below) as well as purchasing spare parts we recommend contacting authorized Magneti Marelli service station.

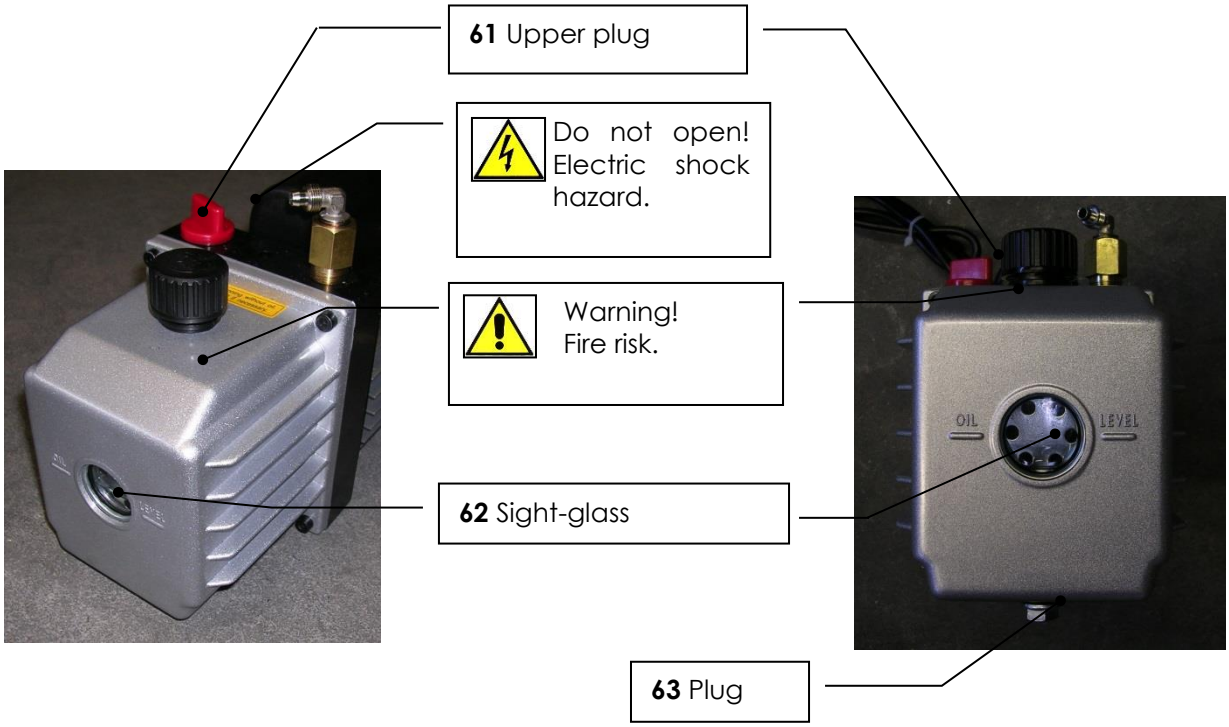
12.1 Vacuum pump oil change (code 007935090600)

Vacuum pump oil must be changed frequently to assure the best performance of the pump.
When it is time to change the vacuum pump oil, the display will show **Al. Oil** message.
When changing the oil, follow the instructions below:

it is forbidden to interfere with the components of the stations which are not specifically referred to in this section.

Required tools:
1 Phillips screwdriver
2 socket wrenches (12 mm)

1) Disconnect the station from the power mains.
2) Unscrew 4 screws fixing the bottom panel to the station body and remove the panel.
3) Put a tray under the plug (**63)**, open the plug and drain all oil from the vacuum pump.
4) After emptying the pump, insert the plug **(63)** and open the upper plug **(61).**
5) Fill the pump with oil, pouring it through the upper opening **(61)** until the middle position is reached in the sight-glass **(62).**
6) After filling the pump, close the upper plug **(61).**



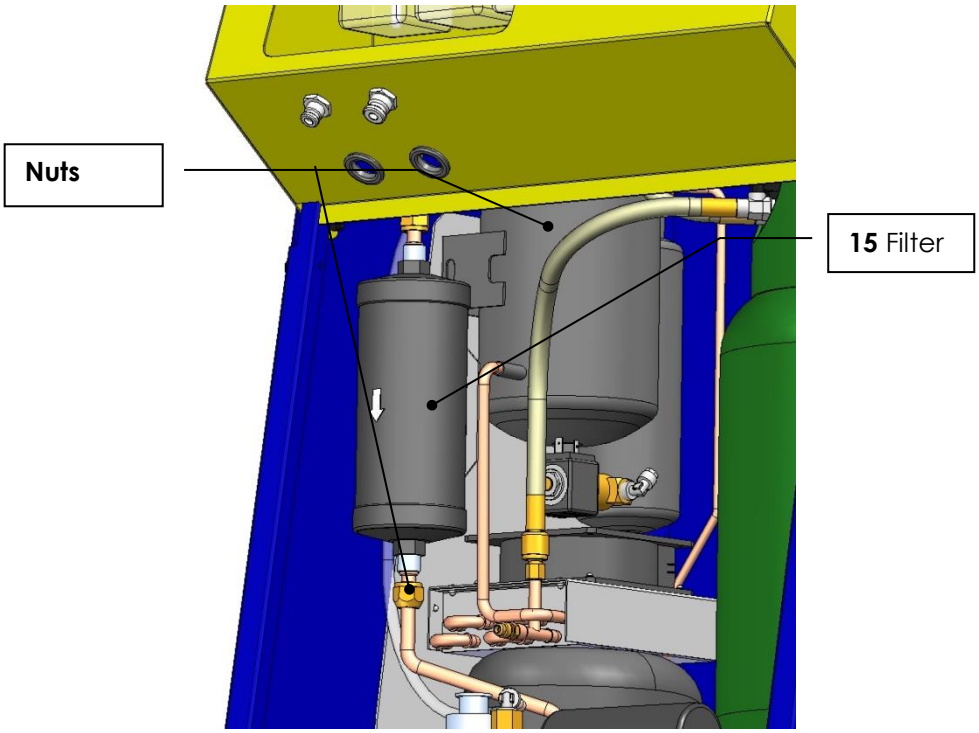
12.2 Replacing filters (code 007950013050)

Drier filter should be replaced when its properties of absorbing the humidity from the recycled refrigerant are depleted.
When it is time to replace the drier filter, the display will show **AL.FiLt** message.
When replacing the filter, follow the instructions below:

It is forbidden to interfere with the components of the stations which are not specifically referred to in this section.

Required tools:
1 Phillips screwdriver
2 socket wrenches (12 mm + 19mm)

1) Disconnect the station from the power mains.
2) Unscrew 4 screws fixing the bottom panel to the station body and remove the panel.
3) Unscrew 2 nuts fixing the filter (15) using hexagonal wrenches.
4) Cut the band on the support
5) Install a new filter, making sure the sealing O-ring is placed as indicated by the arrow.
6) Tighten the nuts fixing the filter (15) using hexagonal wrenches.
7) Install a new band.



12.3 Replacing memory card.

The device is optionally equipped with database of vehicle models.
The database is updated annually and once it is out of date, the device will show the following message

```
New database version
is available
```

Press **ENTER**.

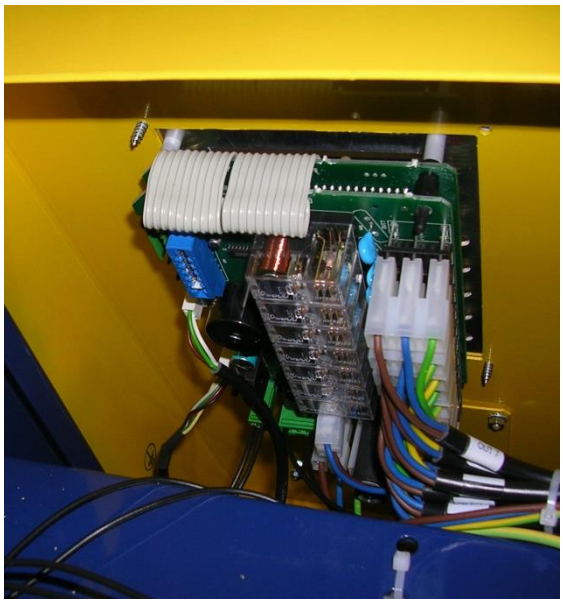
```
Please contact
dealer
```

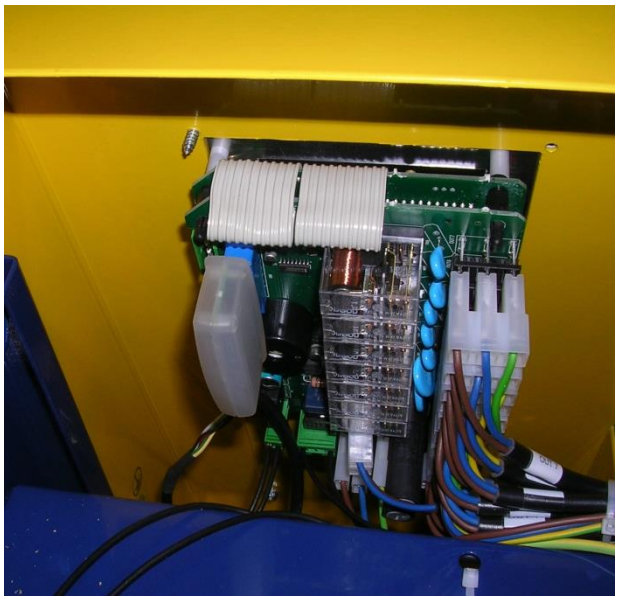
Press **ENTER**.
To replace the memory card proceed as follows

It is forbidden to perform activities on the device components which are not specifically referred to in this section

Required tools:
1 Phillips screwdriver

1. Disconnect the device from the power mains.
2. Unscrew 4 screws fixing the plastic device cover and remove the cover.
3. Remove the memory card from the logic board.
4. Insert the new memory card into the logic board.
5. Replace the plastic cover and fix it with screws.
6. Once the device is started, the updated data is available immediately.



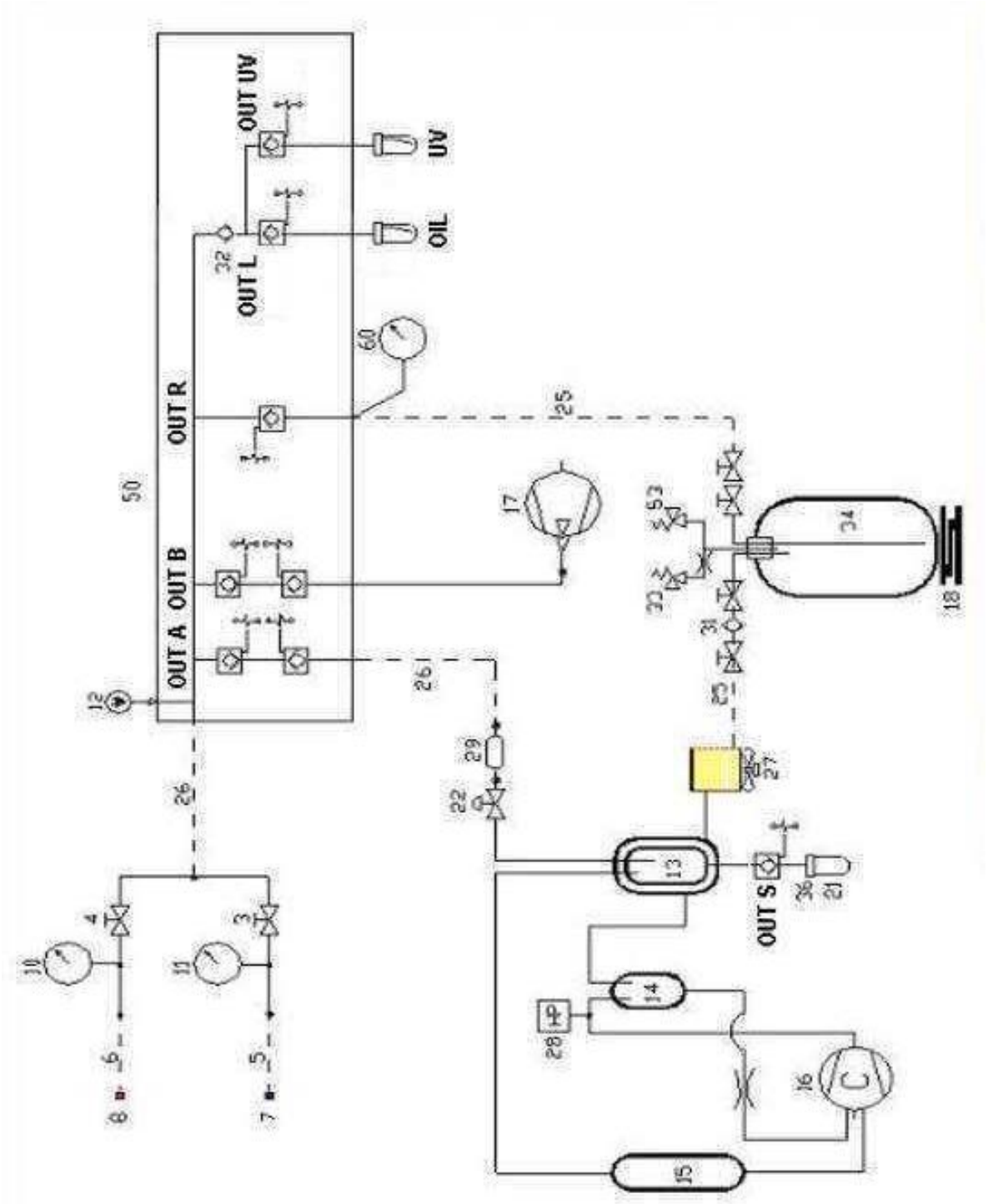


13 DISPOSAL

13.1 Environmental considerations

This product may contain substances that may be harmful for the environment and health if not disposed of properly.
Therefore, we provide you with the information below to avoid releasing such substances and to improve the usage of natural resources.
Electrical and electronic equipment must not be mixed with regular municipal waste, but it should be disposed of to the specifically designated collection locations.
Crossed rubbish bin symbol on shown the product and here indicates that proper disposal of used product is required.
This allows to avoid improper disposal of the substances in the product or improper use of its components, which might result in harmful consequences for health and safety. Besides, it facilitates recycling of many materials present in the product.
Thus, the electrical and electronic equipment manufacturers arrange for appropriate systems for collection of these devices for disposal.
At the end of life of your product, contact your distributor to obtain information on the product collection method.
Moreover, when you purchase the product, your distributor will provide you with the information concerning return of used equipment for disposal, free of charge, as long as the device is similar or performing similar functions to the purchased product.
Disposal otherwise than as specified above shall be subject to administrative sanctions provided for in the regulations applicable in the specific country.
We also recommend to use other, environmentally-friendly solutions: recycling of product internal and external packaging.
With your help the natural resources used to manufacture the electrical and electronic equipment as well as the usage of product disposal sites may be limited, and the quality of life improved by avoiding the release of potentially harmful substances to the natural environment.

DIAGRAM



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