

1 CONTENTS

1	CONTENTS	1	8.1.1	Positioning and connection	17
2	General instructions	3	8.2	Initial verification	17
2.1	General notes	3	8.3	New oil bottle filling	18
2.2	General instructions	3	8.4	UV dye bottle filling	19
2.3	Manufacturer identification	3	9	Setup	19
3	Safety conditions	3	10	A/C system charge	20
3.1	Personal safety information	3	10.1	Preliminary operations	20
3.1.1	Definitions	3	10.2	Non-condensable gas discharge	21
3.1.2	Personal safety information	4	10.3	Quick mode and zero tolerance charge mode	22
3.2	Important information on service equipment safety	7	11	Automatic cycle	22
3.3	Safety devices	7	11.1	Automatic cycle data loading	22
4	Layout of the manual	7	11.1.1	Database	22
4.1	Use of the manual	7	11.1.2	Last cycle	22
4.2	Symbols	8	11.1.3	My database	23
4.2.1	Safety	8	11.1.4	Direct input	23
4.3	Glossary	8	11.2	Automatic cycle data setting	23
4.4	Guidelines for the handling of refrigerant	9	11.2.1	Electric Compressor Function	23
4.4.1	Precautions for refrigerant storage	9	12	Manual cycle	24
4.4.2	Conditions of refrigerant and system	10	12.1	Recovery	24
4.4.3	Recycling capacity	10	12.2	Vacuum	24
5	Product description	10	12.3	Charge	24
5.1	Application	10	12.4	Flushing (with optional accessories)	25
5.2	Scope of delivery	10	12.5	Hoses drain	25
5.3	Description of the unit	10	13	Special test	25
5.4	User interface	11	13.1	AC performance test	25
5.4.1	Main menu	12	13.2	Refrigerant clean	26
5.5	E ³ connect quick couplers	13	14	Maintenance	26
6	Technical features	14	14.1	Report exporting	26
7	Installation	15	14.2	Internal cylinder fill	26
7.1	Equipment installation	15	14.3	Self leak test	27
7.1.1	Unpacking ACX150/250	15	14.4	Cylinder refrigerant view	27
	REFRIGERANT SCALE SCREW RELEASE	16	14.5	Air purge	27
8	Commissioning	16	14.6	Pressures zero	27
8.1	Connections	16	14.7	Counters	28
			14.8	E ³ pump - pump oil change	28
			14.8.1	Oil pump visual check	29
			14.9	Dryer filter replacement	29
			14.10	System info	30
			14.11	System update	30

14.12	Maintenance of printer	31
14.13	Periodic checks	31
14.14	Refrigerant type replacement	32
15	Disposal	32
15.1	A/c service unit disposal	32
15.2	Recycled materials disposal	32
15.3	Packaging disposal	32
16	Spare parts	32

2 General instructions

2.1 General notes

All rights reserved.

This manual may not be reproduced, in part or entirely, either in printed or digital form.

It may be printed out solely for use by the user and operators of the equipment to which it refers.

MAHLE and resources used for the drawing up of this manual will not be held responsible for the incorrect use of the manual while they guarantee that information in the manual have been duly checked.

The product can be subject to changes and improvements. MAHLE reserves the right to change without notice the information contained in the manual.

2.2 General instructions

Pressure equipment undergoes checks before commissioning and periodical checks during operation, in compliance with rules and law provisions in force in the country where the tool is used.

The operator is responsible for operating the equipment in conformity with local legislation.

The equipment is designed for recovering and recycling R1234yf/R134a refrigerant fluid from automotive A/C plant.

The equipment is intended to be used by automotive and similar repair and service workshops.

The switch between the two refrigerant types, from R134a to R1234yf, can only be performed by a technician of an

MAHLE

Authorised MAHLE Centre, in accordance with the practice described in Chapter 12 of this manual.

This equipment is intended solely for use by **professionally trained operators** familiar with the basics of refrigeration, refrigeration systems, refrigerants and the hazards associated with pressurised equipment.

Careful reading of the present manual by the owners, the users and the operators is required for a correct and safe use of the tool.

The user shall not be entitled to open the product since maintenance operations are reserved to the authorised service centre.

2.3 Manufacturer identification

The ACX equipment is manufactured by:
 MAHLE Aftermarket GmbH
 Service Solutions Europe
 Pragstr. 26 - 46, 70376 Stuttgart,
 Germany
 Phone: +49 711 501-14003

3 Safety conditions

3.1 Personal safety information

3.1.1 Definitions

DANGEROUS AREAS:

Any area within or close to the equipment implying risk for the safety and health of exposed persons.

EXPOSED PERSON:

Any person completely or partially standing in a dangerous area.

OPERATOR:

The person/s charged with operating the machine for its intended purpose.

CLASSIFICATION OF OPERATORS

The operator can be classified according to two main categories, which, in some cases, refer to one single person:

- The operator charged with the equipment operation has the duty to:
 - Start up and monitor the machine's automatic cycle;
 - Carry out simple setting operations;
 - Remove the causes of equipment stop not implying breakings of members but simple operating anomalies.
- Maintenance technician a technician trained by an authorised MAHLE centre, capable of working on the machine's mechanical and electrical components with its guards open to make adjustments and to service and repair it.

USER

Body or person legally responsible for the equipment.

3.1.2 Personal safety information

The MAHLE ACX 150/250 A/C service station is particularly simple and reliable due to its adjustments and functions. When used correctly it presents no hazard for the operator, provided he observes the following general safety instructions and that the service station is regularly serviced (incorrect maintenance/use compromise the equipment's safety). Before operating the service station for the first time, read

these instructions carefully. If any part of the instructions is unclear, contact your reseller or MAHLE.

This service station may be used by only one equipment operator, familiar with A/C and refrigeration systems and the hazards associated with refrigerants and high pressure equipment.



WORKPLACE: The station can work with both R134a and R1234yf (the two refrigerants cannot be stored within the station at the same time).

Refrigerant R1234yf is defined as flammable refrigerant.

Nonetheless, although refrigerant R134a is not defined as flammable, mixtures of air or oxygen with R134a may become flammable under very particular conditions.

The equipment must be operated outdoor or in a well-ventilated location (at least 1 air change per hour). The workshop has to be equipped with ventilation systems able to ensure air change in every environment area or carry out periodical ventilation by opening the areas.

Use the equipment away from heat sources or hot surfaces. The equipment must not be used in explosion risk environments (potentially explosive atmospheres). Before using it, put the equipment on a levelled plane and secure position, blocking it with suitable wheel stops.

Do not expose the tool to direct sunrays, heat sources, rain and jets of water. Do not smoke near the equipment and during operations (keep at a distance of at least 1 m).

The work area must be monitored by the operator while the equipment is operating.

ATTENTION: R134a and/or R1234yf refrigerant fumes/gases are heavier than air and can gather on the floor or inside cavities/holes and cause choke by reducing the oxygen available for breathing.

At high temperatures, the refrigerant breaks down releasing toxic and aggressive substances, harmful for the operator and the environment.) Avoid inhaling the system coolants and oils. Exposure can irritate eyes and the respiratory tract.



ELECTRICAL CONNECTION: Connect the power cord solely to a mains supply which conforms to the ratings on the machine's nameplate (mounted on its side). Make sure the mains socket is grounded.

Maximum impedance allowed in the point of connection to the mains shall comply with standard EN 61000-3-11. Starting currents can cause short voltage drops, which may affect other equipments under unfavourable conditions. If impedance in the point of connection to the mains is not compliant, this may lead to interference so please consult the electrical power network operator before connecting the equipment.

Never use the service station with a defective power cord or a different one from that supplied with the machine. If damaged, immediately have it replaced with an original spare part or equivalent by a MAHLE centre. Before opening the service station, extract completely the

supply cable from the plug, or you can get an electric shock.

Do not tamper with or bypass the safety equipment and settings.

Do not leave the machine powered up when not in use; shut off the power supply before leaving the equipment unused for a long time. Do not forget that the tool (pressure tool) must always be protected.



REFRIGERANTS AND LUBRICANTS - PERSONAL SAFETY EQUIPMENT AND PRECAUTIONS:

The refrigerants and the pressure cylinders have to be handled with care, otherwise there will be possible health risks.

The operator must wear safety glasses, gloves and protective clothing suitable to the work. Contact with the refrigerant can cause blindness (eyes) and other physical damages (freezing) to the operator. Avoid contact with the skin; the refrigerant's low boiling point (approx. $-26\text{ }^{\circ}\text{C}$ for R134a and approx. $-30\text{ }^{\circ}\text{C}$ for R1234yf) can cause freezing burns.

Further information about safety can be obtained from the safety sheets of lubricant and refrigerant producers.

Do not inhale refrigerant or oil vapour. Keep away from the vent valves and ventilation coupling, especially when non-condensable gas is being vented.

Never direct the quick couplings (taps) towards your face or other persons or animals.



OTHER PROHIBITIONS AND USE LIMITATIONS: Only use pure R134a or R1234yf refrigerants, refrain from using on vehicles containing other types of refrigerants or mixtures of the two refrigerants or other refrigerants. Mixture with other types of refrigerant produces serious damage to the conditioning and cooling systems. **Mixed refrigerants have to be disposed of according to the current regulations.** Never use ACX equipment with systems containing compressed air; mixtures of R134a or R1234yf with air or oxygen may be potentially flammable.

Do not modify calibration of safety devices. Do not remove seals of safety valves and of control systems. Do not use external tanks or other storage containers that are not type-approved or without safety valves.

Make sure the equipment's aeration and ventilation ports are not obstructed or covered while the equipment is operating.



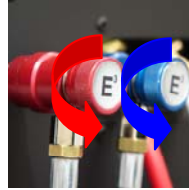
HOSE CONNECTIONS: Hoses may contain pressurised refrigerant. Before changing the service couplers, check the respective pressures in the hoses (pressure gauge).

Before connection to a car A/C system, to an external tank/cylinder, check that the quick couplers are closed (unscrewed HP and LP valves).

Scrupulously follow the instructions on the equipment's display.



QUICK COUPLERS CLOSING/OPENING:



Opening (connect to the vehicle):
clockwise

Closing (detach from the vehicle):
counter clockwise

MAINTENANCE/GENERAL CLEANING:

The equipment has to be serviced at the intervals indicated by the equipment itself. The service station maintenance has to be performed according to the procedures described in this manual and to the current safety regulations.

Use only MAHLE original parts.

When the equipment requires the drier filter and the vacuum pump oil to be changed, you have to be careful in the replacement.

A/C service station maintenance can be carried out exclusively by a trained operator or by a service man of a MAHLE certified seller.

Do not use chemical agents for the service station cleaning as they could attack the material or the surface.



STOP FOR LONG PERIOD: Store the equipment in a safe place, disconnected from the mains, away from excessive temperatures, humidity and the risk of damaging impact.

Contact the Technical Service to run a safety shutdown of the equipment, and if

scrapping the unit, to drain and recycle the R134a or R1234yf refrigerant as required by local legislation.

To resume operation, repeat the installation (there is no need to register the unit anew on the website) and run the commissioning trials and regular operational checks as required by local legislation.

3.2 Important information on service equipment safety

When using the equipment, the following operations are not allowed as they might cause, under certain circumstances, danger for persons and cause permanent damage to the equipment itself.



- Do not remove or make unreadable labels, signs and/or dangers signs placed on the equipment and in the area nearby.



- Do not disable the unit's safety equipment.



- The electrical system to which the service equipment is connected must be configured as provided by local legislation.



- Only operators or qualified staff instructed or certified for the equipment maintenance can open the equipment. The equipment contains parts which can cause electrocution: shut off power to the equipment before servicing/repairing it.



3.3 Safety devices

ACX 150/250 is equipped with the following safety devices:



SAFETY PRESSURE SWITCH: It stops the compressor in case of excessive pressure.

SAFETY VALVE: The safety valve opens when the pressure inside the system reaches a level higher than the fixed limits.

MAIN SWITCH: Switches the equipment off by interrupting the power supply. It is advisable to pull the power cord plug out of the mains socket in any case before starting maintenance work.



ANY TAMPERING WITH THE ABOVE-MENTIONED SAFETY DEVICES IS PROHIBITED.

Failure to observe any of the above safety instructions voids the equipment's warranty.

4 Layout of the manual

4.1 Use of the manual



This manual is an integral part of the equipment and must be kept in the equipment's immediate vicinity by the purchaser

- This manual shall accompany the equipment in case this is passed on to a new user.

- The content of this manual has been drawn up in compliance with the guide lines of the UNI standard 10893:2000.
- Diffusion, modification or use of this manual for own aims is forbidden.
- The manual uses symbols which call the reader's attention to specific points to facilitate its use.
- It includes all technical, operating, shutdown, maintenance, spare parts and safety information.
- In case of doubts on the correct interpretation of the instructions, please contact our technical service to obtain the required clarifications.



Operations which are potentially hazardous for the operator are highlighted with this symbol. Such operations can cause serious injury.



Operations requiring special attention are highlighted with this symbol.

Such operations shall be carried out correctly to avoid causing damage to objects or to the surrounding environment. This symbol also highlights information to which special attention must be paid.



Operations which require careful reading of the manual's instructions are highlighted with this symbol.

4.2 Symbols

This paragraph describes the safety symbols which may be posted on the service equipment.

4.2.1 Safety

	ALTERNATING CURRENT
	SAFETY GROUNDING
	CONSULT THE INSTRUCTIONS MANUAL
	ATTENTION! ELECTROCUTION HAZARD
	CAUTION !: DO NOT REMOVE THE COVER (maintenance technicians only)
	USE PROTECTIVE GLOVES WEAR PROTECTIVE GOGGLES
	USE ANTI-SMASH SAFETY SHOES

4.3 Glossary

To make the reading of this manual easier, we have prepared the list of the most important technical terms used in the manual.

Refrigerant: Refrigerant fluid used in advanced motor vehicle A/C systems.

The following refrigerant fluids may be used:

- **R-1234yf** CH₂CF₃ 2,3,3,3-Tetrafluoropropene.
- **R-134a** C₂H₂F₄ - 1,1,1,2-

Tetrafluoroethane

A/C system: air conditioning system.

Equipment: *ACX 150/250* service station for recovering, recycling, draining and charging the A/C system.

External tank: Refrigerant bottle used to fill the internal tank.

Internal cylinder: cylinder for refrigerant storage.

Phase: Performance of a single function.

Cycle: Sequence of steps.

Recovery: Extraction of refrigerant from the vehicle.

Recycling: Cleaning of refrigerant, includes: separating out oils, removal of non-condensable gas and single/multiple pass through filters to reduce humidity, acidity and particulate content of the fluid.

Disposal: disposal of refrigerant for storage followed by destruction/scraping by an authorised waste management centre.

Vacuum cycle: Draining out of a motor vehicle A/C system and separation out of condensed matter and humidity, using only the vacuum pump.

Oil charge: Charge of oil into an A/C system to ensure the correct charge as specified by the vehicle's manufacturer.

Charge: filling of refrigerant into the A/C system in the amount specified by the manufacturer.

System flushing: Cleaning phase for the removal of possible polluting substances from the A/C system or parts of it.

Non condensable gas: Refrigerant stored in gaseous phase, including air and nitrogen.

4.4 Guidelines for the handling of refrigerant

4.4.1 Precautions for refrigerant storage

The refrigerant removed from the A/C system must be handled with care to prevent or minimise the risk of mixing with other refrigerants.

This machine is suitable for treating R134a or R1234yf refrigerants, individually (not simultaneously).

The external cylinders used to store the refrigerants must be clearly marked to prevent mixing different refrigerants.

Cylinders shall be free from oil or other contaminants and clearly marked so as to identify the refrigerant contained.



ATTENTION: when handling, using and storing **R-134a** or **R-1234yf** refrigerant and dealing with emergency situations, **MAKE SURE** to refer to the product's safety sheet.

GET THE SAFETY SHEET FROM YOUR REFRIGERANT SUPPLIER AND FOLLOW ITS INSTRUCTIONS.

REFRIGERANT R1234YF IS DEFINED AS FLAMMABLE REFRIGERANT.

4.4.2 Conditions of refrigerant and system

The condition of the refrigerant is critical to the operation of the vehicle's A/C system. Running repairs properly following failure or damage safeguards the quality of the refrigerant itself (particulates, acids and water).

4.4.3 Recycling capacity

The service equipment's filtering systems must be replaced regularly (see maintenance messages) to ensure effective recycling.

5 Product description

5.1 Application

ACX150/250 is suitable for vehicles with a conventional engine. ACX150/250 features all the functions required for vehicle A/C service.

The following functions can be implemented:

- Refrigerant recovery and recharging.
- Vacuum generation.
- Flushing.

5.2 Scope of delivery

Description
Service hose (high pressure)
Service hose (low pressure)
Quick-release coupling (high pressure)
Quick-release coupling (low pressure)

New oil bottle (2pcs)
UV dye bottle
Used oil bottle
Original instructions
Adapter for external bottle connection
Hose Flushing Adapter (built-in)
Safety goggles
Safety gloves
Dust cover

5.3 Description of the unit

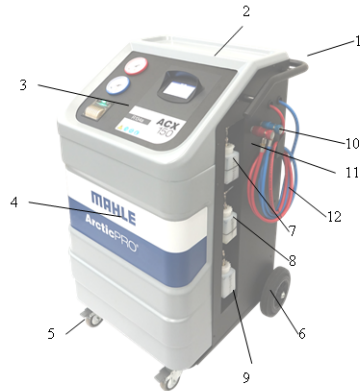


Fig. 1: Left-Front view

- 1 Rear handle and grip
- 2 Tool tray and storage
- 3 Display and operating unit
- 4 ACX150/250 front housing
- 5 Locking caster
- 6 Rear wheel
- 7 New oil bottle
- 8 UV dye bottle
- 9 Used oil bottle
- 10 Low-side parking
- 11 High-side parking
- 12 Service hose



DO NOT USE THE UNIT UNLESS THE CHARGING HOSES (HP - LP) ARE CORRECTLY CONNECTED

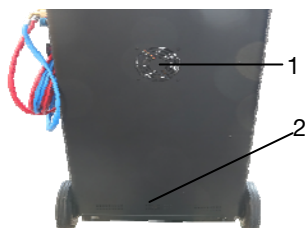


Fig. 2: Rear view (detail)

- 1 Fan
- 2 Vents



Fig. 3: Right-front view (detail)

- 1 Power cord connector and Power switch
- 2 USB type B (Device port to PC)
- 3 USB type A (Host port to USB Memory Stick)



The USB type-A connector can only be used with USB 2.0 portable memory devices with Mass storage service for reports export and station update, or for connection to MAHLE refrigerant identifier. Do not connect other types

of devices, such as USB keyboards or other units.

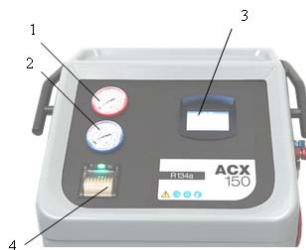


Fig. 4: Display and operating unit

- 1 High-pressure gauge
- 2 Low-pressure gauge
- 3 LCD Display with Touch screen
- 4 Printer






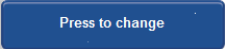







The pressure gauges (Fig. 4, Pos. 1, 2) of the display and operating unit are used to monitor the pressure during the individual vehicle A/C service phases. The status of the various service phases during maintenance is displayed on the multicolor LCD screen (Fig. 4, Pos. 3). The menu selection and the necessary entries are made by way of the touch screen (Fig. 4, Pos. 3) integrated in the LCD display. MAHLE supplies a USB stick for updating the ACX150/250 software. If required, the USB stick can be inserted in the USB type A socket (Fig. 3, Pos. 4) to perform updating of the firmware/software.

5.4 User interface

All settings, controls and service functions are available on the touch screen display. It also displays the service equipment's status, the progress of A/C system service and any alarms and error messages.

The touch screen is the basic operator interface and can be operated with the fingers.

When a button is pressed, a beep sounds. The following functions keys are available:

	To move up in the menu options
	To move down in the menu options
	Scroll bar to move in the menu options
 DATA VALUE 	Arrows to decrease or increase the data value
	To enter in the data changing or switching the data to next option
	To return to the previous page
	To save the programmed cycle in a personal memory
	To confirm and to go head
	To begin the cycle
	To answer NO to the displayed question
	To answer YES to the displayed question
	To interrupt the operation in progress


To select a function in the menu press the text name of the function, the selection occurs when the finger is released, the selected entry is pointed out with a different colour (from grey to blue) and the menu screen page changes.

If there are descriptions that need more space on the screen page, for example the manual cycle list (see the screen page below), or in case of setup, it is possible to display the different entries by moving the scroll bar to the right side. For this reason, it is necessary to touch the blue point on the scroll bar and slide up or down with the finger.

Lift the finger when you are on the desired position.

By touching the arrows, the menu moves one line up or down depending on whether it is touched on the arrow up or on arrow down.

If you need to enter free text or identify a set of data, a keypad automatically appears (for example, for entering workshop data (if the printer is present) or at the end of the service cycle).

If this key  is active, it is possible to switch to the symbols keyboard.

5.4.1 Main menu

The Main menu of the graphical user interface allow to select the following functions:

- Automatic cycle
- Manual cycle
- Special tests
- Setup
- Maintenance
- Service

Each function will be described in the next chapters.

5.5 E³ connect quick couplers

E³ CONNECT is the INTELLIGENT COUPLER, that with the suitable automated procedure in the software enables to:

- reduce the non condensable gas formation inside the cylinder ;
- avoid the refrigerant dispersion in the air during the disconnection (puff effect);
- check possible SCHRADER valve leaks before disconnection.



To connect the coupling, position the coupling on the parking coupler, pull back the knurled section of the coupling element and press carefully onto the connection.



6 Technical features

Cylinders for R134a or R1234yf fluids	
R134a or R1234yf cylinder capacity	20 l
Maximum operating pressure (PS)	20 bar
PED category (Dir.97/23/EC)	III
Weight of refrigerant content	Scale
Safety valve	
Type	AIRTEK - VS14NPT20HN BRPED4 20bar R 1/4 NPT
Calibration pressure	20 bar
PED category (Dir.97/23/EC)	IV
Containers for oil and detection dye	
Recovered PAG oil container	250 ml
New PAG oil container	250 ml, with OIL CARE valve
UV detection dye container capacity	250 ml, with OIL CARE valve
Pneumatic circuit	
Vacuum pump flow rate	170 l/min double stage
Vacuum level	0.02 mbar
Vacuum pump oil life	60h – extensible to max 1000 h with Pump Monitoring System procedure
Refrigerant recovery compressor cubic capacity	14 cc

Drier filter	Every 150Kg of refrigerant recovered
Non condensable gas discharge	Automatic, with solenoid valve
HP and LP taps	Automatic
Safety pressure switch	
Type	13/18bar 1/4SAE
Trip pressure	18 bar
PED category (Dir.97/23/EC)	IV
Pneumatic fittings	
Net length of external HP and LP hoses	4,5 m
HP and LP pressure gauges	Analog 80 mm, pulse-free, 1.0 class
Display	Graphic 4,3" TFT WideScreen 480x272, 65536 colours
Keypad	Touch screen
Software updating	USB type-A with USB 2.0 key USB type-B with direct connection to PC.
Printer (optional)	Thermal, 24 columns
Functions and features	
Recovered oil measurement	Automatic weighing, 1 g res., 5 g acc.
New oil automatic charge	With automatic scale, 1 g res., 5g acc.
UV dye automatic charge	Timed
Electric compressor function	With integrated flushing system

Flushing	“Regular” function (standard) High intensity flushing available with external accessory (option)
Database	Autodata, complete electronic (cars and industrial vehicles only)
AC Performance Test	Manual and automatic
Recovered oil measurement	Automatic weighing, 1 g res., 5 g acc.
Sound level	< 70 dB (A)
Battery type for internal Real time clock	Lithium CR-2032 3V 180mAh 3g.
Overall dimensions	
WxDxH	1050 x 655 x 850 mm
Loadless weight	about 87 kg
Power supply	
Frequency	50 Hz
Voltage	230 V ~
Power	800 W
Protection	Thermal
Installation category	II
Environmental conditions	
Operating temperature	10-50°C
Humidity	10-90% R.H. (non condensing)
Ambient pressure	75 kPa until 106 kPa

7 Installation

7.1 Equipment installation

7.1.1 Unpacking ACX150/250

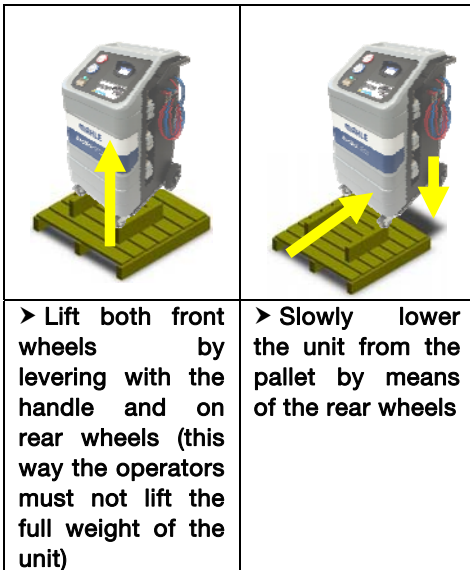


RISK OF OVERTURNING

The manufacturer disclaims all responsibility for damage to objects and/or persons resulting from the equipment being wrongly removed from the pallet, or from the operation being made by unsuitable personnel, with

improper means/protections and without complying with the existing laws on manual handling of loads and with the operations described in this manual.

- Cut the strap and remove the carton.
- Cut the straps securing the unit to the pallet.
- Remove the equipment from the pallet (2 operators required)



- Keep the pallet, carton and scratch protection film for use when returning the unit. The unit rolls on wheels; the two smaller wheels can be locked.

ACX150/250 is supplied with the accumulation tank empty. This prevents problems in shipping the unit.

REFRIGERANT SCALE SCREW RELEASE



The tool is transported, with the scale blocked by a locking screw to avoid the load cell damage. The scales locking screw is placed on the equipment bottom/right side (see the box shown above) and is formed by a bolt. For commissioning, unscrew the screws.





8 Commissioning

8.1 Connections


The unit has to be positioned on a horizontal surface to ensure the correct operation.

The unit has to be connected to the electric mains following instructions on the identification plate of the unit applied next to the main switch, mainly as to applicable voltage and power.

8.1.1 Positioning and connection

	<p>HANDLING: During handling, the minimum devices required for correct handling shall be ensured, as provided for by accident prevention provisions.</p>
	<p>POSITIONING: Place the unit in a stable place. The location must be well ventilated, with a good rate of change of air. The unit must be located at least 10 cm from any potential obstacles to its internal ventilation. Keep the unit away from rain and excessive humidity as they can irreparably damage it. In addition, the equipment must never be directly exposed to the sunrays or to excessive dust.</p>
	<p>INSTALLATION: the unit must be installed by a specialised technician in scrupulous observance of in accordance with electrical engineering principles. The use of the equipment in explosive atmosphere is forbidden.</p>
	<p>CONNECTIONS: since the unit is connected to the main power supply, it must be properly grounded with its power plug GND pin. Failure to ground the unit can damage it and constitutes a risk of fatal injury to the operator. Position the unit so that the power plug is easy for the operator to access.</p>




 **ATTENTION:** Leave the quick coupling taps closed when the unit is not in use and at the end of vehicle service operations.

8.2 Initial verification


Execute the following actions in sequence by following the display guided procedure and the illustrations on the screen of the equipment:

- Refrigerant weight check
- Oil weight check
- First tank filling

It is possible to interrupt the initial check and print a report with the equipment printer in which the checking status is reported. The equipment cannot operate in automatic mode until all the steps of the initial check have been completed.



CAREFULLY ABIDE BY THE FOLLOWING INSTRUCTIONS TO AVOID DANGER TO PERSONS, THE DISCHARGE OF REFRIGERANT IN THE ATMOSPHERE



Let us consider as first filling the one carried out during the initial check with internal tank of the equipment free of refrigerant and containing air.

Set the quantity of refrigerant to fill (at least 3 kg) and follow the guided procedure shown on the display.

Check that the equipment hoses are not connected and positioned in the hose winder. Start the procedure that initially implies the creation of vacuum in the internal tank. This phase will take 15 minutes and will act on the whole equipment.

Only when the message appears asking to connect the charge tank, connect the HP quick coupler (colour red) of the unit to an external refrigerant tank using the supplied adaptor.

When the message occurs open the coupler by turning the knob clockwise. Open the valve on the external tank.

Just right before reaching the planned quantity of refrigerant, the unit will stop and ask the user to close the external refrigerant tank. Then, the device will continue the recovery from the hoses and ends when these are empty. Hence, it is necessary to open the HP quick-coupler and disconnect it from the external tank. Thanks to the E³ CONNECT function, the refrigerant - usually kept between the cylinder fitting and the hose quick-coupler until the end of the process - will not be released in the environment.

There may be two types of source tanks: with plunger and without plunger.

Tanks **with plunger** shall remain upright to be able to transfer liquid refrigerant; for this type of tanks connect to the L (liquid) coupler.

Tanks **without plunger** have only one valve, so they must be turned upside down to transfer the liquid refrigerant.



The **LP** gauge indicates the pressure inside the external tank.

After some minutes the unit will automatically end the function.

At the end the weight of the charged refrigerant will be displayed.

8.3 New oil bottle filling

To fill the new oil bottle (Fig.1 Pos. 7) it has to be extracted from its housing by means of the quick coupler on the top of the bottle; slightly press downward the coupler ring nut to extract it.



Fill the bottle by paying special attention to the “oil care” valve.

This valve is made of a silicon polymer membrane; it compensates pressure variations within the bottle and stops humid air infeed inside thus preserving the new oil inside.



After filling, close the bottle and place it back in its seat.

8.4 UV dye bottle filling

The UV Dye is a substance made up of a yellow-green coloured fluorescent pigment, which means that, when lit by an ultraviolet lamp, it becomes fluorescent and thus visible.

The UV dye can therefore be used to detect leaks of a small entity inside the auto vehicle A/C system.

To fill the UV dye bottle (Fig.1 Pos. 6) it has to be extracted from its housing by means of the quick coupler on the top of the bottle; slightly press downward the coupler ring nut to extract it.



Fill the bottle by paying special attention to the “oil care” valve.

This valve is made of a silicon polymer membrane; it compensates pressure variations within the bottle and stops humid air infeed inside thus preserving the new oil inside.



After filling, close the bottle and place it back in its seat.

9 Setup

From the SETUP menu it is possible to select parameters and activations before starting cycle:

ELECTRIC COMPRESSOR FUNCTION

- by selecting this entry, one may change the type of Oil to inject into the A/C system.

E³ CONNECT

- by selecting this entry, you can enable the E³ CONNECT function (the E³ CONNECT quick coupler must be present on the car).

CHARGE MODE

- by selecting this entry, one may decide whether to enable use of the Quick Mode or Zero Tolerance charge method

AC PERFORMANCE TEST

- by selecting this entry, one can enable or disable the AC PERFORMANCE TEST.

REFRIGERANT CLEAN

- by selecting this entry, one may decide whether or not to enable the refrigerant clean function, which enables an additional recycling, within the station itself, started in automatic when it is switched on but not in use. This function ensures a higher level of purity of the recycled refrigerant to the advantage of the service quality.

RECOVERED GAS AND OIL PRINTING

- selecting this entry, you can choose whether you want to enable displaying and printing of the recovered gas quantity. Setting available only with printer installed.

REPORTS SAVING MODE

- by selecting this entry, you can save the reports of the performed charges (automatic cycle or Reg. 842/2006).

REPORT DATA

- select what data you would like to include in the saved and printed report: -license plate, -km, -client's name, -technician's name

HOSES LENGTH

- by selecting this entry, it will be possible to change the length of the charge hoses.

UNIT OF MEASURE

- selecting this entry, you can modify the pressure unit of measurement (switching from Bar to PSI)

CLOCK ADJUSTMENT

- by selecting this entry, date and time of the station may be changed.

GARAGE DATA

- by selecting this entry, one can enter the garage data to be printed on the end of cycle report.

LANGUAGE

- by selecting this entry, any language present in the database may be set. In case you choose a language with unintelligible characters. Switch off the equipment , keep pressed the touch screen and switch on the equipment in the meanwhile, you will be directed to the language setting menu.

RIGHT / LEFT-HAND DRIVE

- It allows setting the database for operations on A/C systems of vehicles with right-hand or left-hand drive and return the exact value of gas and oil to be injected.

STARTUP SCREEN

- By selecting this entry, you can decide whether the startup screen of the unit will be the databank page or the main menu page.

DATABASE ACTIVATION

- by selecting this entry, you will receive the "database activation request code" to be provided to your distributor in order to be able to buy the database activation/update and subsequently receive the "ACX activation key".

GAS TYPE:

- by selecting this entry, you can learn the type of gas the unit is set for, to change the type of gas contact an Authorised MAHLE Service Centre.

DEFAULT SETUP

- By selecting this entry, you can restore the unit default settings.



MAHLE reserves the right to add new parameters to make the equipment increasingly versatile and adaptable to market's needs.

10 A/C system charge

10.1 Preliminary operations

The recovery and charge operations have been carried out after the car /AC system has run for some time; however, an excessively hot A/C system has to be avoided since the next charge phase could be adversely affected by high pressures.

The vehicle must not be prepared in a special way; connecting hoses have to be

attached by identifying their position. Vehicle details necessary for the performance of the charge/recovery/vacuum cycle are the amount of refrigerant and the type and quantity of oil. These data are often found on the engine compartment plate or on the technical manuals.

As to oil quantity technical manuals of cars, systems as well as available details in general indicate the total quantity of oil in the system.

Indeed the amount of oil to be charged is that extracted during the refrigerant recovery phase which is very small. In the car A/C system you have to add only the oil amount necessary to restore the amount set by the car manufacturer

FEATURES

Your new A/C service station is equipped with new E³ CONNECT quick couplers. These new couplers offer the following functions:

1. Avoid dispersion of the refrigerant, allowing the recovery by the tool (thus protecting the environment and saving refrigerant).
2. Automatic leak test of the car A/C system valve at the end of the service.

After connecting the quick couplers to the (high pressure) HP and (high pressure) LP connectors of the vehicle, screw the valves only when required by the messages on the tool display.

10.2 Non-condensable gas discharge

The station is equipped with the AIR PURGE SYSTEM function, which allows

automatically detecting and purging non-condensable gas (mainly air) accumulated within the tank.

If the station detects non-condensable gas in the tank, it will automatically run the non-condensable gas discharge procedure.

Running this procedure is very important to ensure the ideal working parameters for the station operation. The presence of non-condensable gas in the tank will increase the pressure inside the tank and, therefore, will slow down and reduce the efficiency of charge cycle on the vehicle.

The procedure will take a few minutes, and its duration may vary according to the amount of non-condensable gas within the tank.



	<p>WARNING: Leave the quick coupling taps closed when the unit is not in use and at the end of vehicle service operations.</p>
	<p>WARNING: For the Air Purge System procedure to be executed manually, the station must have been off for at least one hour.</p>

10.3 Quick mode and zero tolerance charge mode

ACX150/250 can apply two different refrigerant charge modes; the first one is called Quick mode and features the opening of the charge valve by charging refrigerant through the HP port. By the Quick Mode part of the refrigerant remains into the hoses and is compensated by software calculation.

Whenever the charge is not completed the UNIT shifts automatically to the Zero Tolerance mode.

The Zero Tolerance function is the second charge procedure, an alternative to the Quick Mode.

It features a more accurate charge and guarantees a successful charge (it however requires a longer time and the operator's intervention).

If the car A/C system is equipped with both couplers or with LP coupler only, there are two slightly different working modes; in any case if only the HP coupler is available the Zero Tolerance mode is not applicable.

With both HP and LP couplers available the Zero Tolerance features the charge of the selected refrigerant amount into the system through the HP hose; then refrigerant remained into the HP hose is sucked by the car system – engine and compressor running – through LP (after disconnecting and closing the HP coupler).

In case the LP coupler only is available the station charges the system with 50% of the selected amount with car compressor off and waits for 10 minutes before recalling the operator. This wait time – quite rare since most of cars are equipped with HP coupler too – allows the refrigerant charged near the

compressor – that is LP side – to evaporate to prevent any damage to the compressor during the admission of liquid phase refrigerant. Then, after car and A/C system switch ON charge continues through timed charge of refrigerant through hose LP, such charges start exclusively if the LP pressure is lower than 3 bar (this threshold is adjustable).

11 Automatic cycle

The access to Automatic cycle can be achieved selecting Database, Last Cycle or My database (a 100 personal automatic cycle) .

11.1 Automatic cycle data loading

11.1.1 Database

MAHLE offers customers purchasing ACX150/250 the possibility of enhancing potentials of the UNIT through the database.

This database contains all data related to the A/C system of most vehicles. Hence, it will be possible to speed up the charge operations of the system with the aid of the data provided by the database.

- Make
- Model
- Version / engine capacity
- Year
- System

11.1.2 Last cycle

It loads the parameters of the last automatic cycle.

11.1.3 My database

It allows loading the parameters of the automatic cycle previously saved by the user.

11.1.4 Direct input

It loads the default parameters of automatic cycle.

11.2 Automatic cycle data setting

After selecting the type of A/C system the main page is shown with the following preset values

- Vacuum phase (recommended values but changeable – they do not depend by the car selected)
- Vacuum duration
- Leak test duration
- Oil Charge mode and quantity of oil that will be charged into the system
 - OIL: <value> g. It charges the quantity of oil that has been set.
 - REC. + <value> g. It charges the quantity of recovered oil plus the quantity of oil that has been set
 - NO OIL. No oil is charged during the charge cycle
- Oil type: It sets the oil type being used. PAG (ISO46/100/150) or POE, it does depends by the selected vehicle.

It is possible to select the charge of the UV dye (a single shot of about 8 g.)

- amount of refrigerant that will be charged into the system and the amount of refrigerant available in the inner tank of the UNIT.
- Charge type: It allows selecting from which hose the service is carried out, according to the type of system.
 - Charge from HP hose (red)
 - Charge from LP hose (blue)
 - Charge from HP hose (red) and LP hose (blue)
 - Charge from HP hose (red) on the system low pressure side. Specific for some Renault models.

At the end of the setup, press the “START” button to start the automatic cycle.

Or press Save if you want to save this cycle with a name in a My Database record.

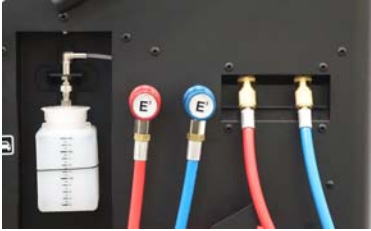
11.2.1 Electric Compressor Function

Before connecting the ACX150/250 hoses to the A/C system of the vehicle, select the Vehicle Compressor Type.

If the selected type is Electric (high voltage), a special function named “Electric Compressor Function” will be executed to clean the hoses from any previous oil residue.

When the following message appears:

Connect LP and HP quick coupler to their support connectors on ACX150/250.




After the connection, press “YES” to proceed and follow the instructions showed on the screen.

12 Manual cycle

The access to manual cycle can be achieved selecting the functions in the Manual Cycle menu.

12.1 Recovery

In the MANUAL CYCLE menu select RECOVERY function. Press and start the recovery function and follow the tool instructions. If there is no pressure inside the system, this function cannot be started.



	POSSIBLE ERROR INDICATION Too high pressure in the A/C service unit.
	Valves or couplers closed or system empty.

12.2 Vacuum

From the main menu select MANUAL CYCLE and press VACUUM. Connect the HP – LP couplers or the single coupler to the vehicle system and screw the couplers. Now set the time for the vacuum and control phase, if different

from the default settings. The vacuum phase is automatically followed by the “vacuum test” phase.

Press START to start the vacuum phase.

	POSSIBLE ERROR INDICATION System pressurised
	POSSIBLE ERROR INDICATION System not tight

12.3 Charge

In the main menu select MANUAL CYCLE and then CHARGE.

Set the following items :

- Charge mode and quantity of oil that will be charged into the system
 - OIL <value> g. It charges the quantity of oil that has been set.
 - REC. + <value> g. It charges the quantity of recovered oil plus the quantity of oil that has been set
 - NO OIL. No oil is charged during the charge cycle
- Oil type: It sets the oil type being used. PAG (ISO46/100/150) or POE
- UV: Option for the charge of UV dye
- Amount of refrigerant that will be charged into the system and the amount of refrigerant contained in the inner tank of the UNIT.
- Charge type: It allows selecting from which hose the service is carried out, according to the type of system.

- Charge from HP hose (red)
- Charge from LP hose (blue)
- Charge from HP hose (red) and LP hose (blue)
- Charge from HP hose (red) on the system low pressure side. Specific for some Renault models.

Connect the couplers to the vehicle fittings and follow the instructions on the screen page.

Press START to begin the refrigerant filling phase.



POSSIBLE ERROR INDICATION:

The amount of refrigerant in the A/C service units tank is less than that required. Closed hoses, charge impossible.



THIS PHASE HAS TO BE CARRIED OUT EXCLUSIVELY ON A/C SYSTEM UNDER VACUUM (AFTER A VACUUM PHASE HAS BEEN PULLED).

12.4 Flushing (with optional accessories)

After performing a lot of charge cycle or after replacing components or parts of the /AC circuit on a vehicle it is advisable to carry out a system flushing.

The system washing (Flushing) consists in purifying the vehicle cooling system through several R1234yf/R134a refrigerant flushes, by recovering it each time, so that the impurities can be filtered little by little through the additional filter.

Thanks to its specific design, ACX150/250 automatically manage the flushing process so that the process becomes fully automatic.

Once the (optional) flushing kit has been installed, as described in the instructions included in the kit, and after selecting the specific function for the kit being used, start the phase.

In case of problems or errors during this phase, a message will be displayed, identifying the type of error.

It is possible to interrupt the phase in progress at any time.

12.5 Hoses drain

To empty the charge hoses completely perform the HOSES DRAIN phase.

Select in the menu the HOSES DRAIN function. Wait the end of the procedure.

13 Special test

13.1 AC performance test

To check the vehicle A/C system status – for instance in case there is no flow of cold air from flaps – pressure values can be checked.

Connect the **HP - LP** couplers or the single coupler to the vehicle system. Under the sequence guided by the software perform the following preliminary operations on the vehicle:

1. Turn on the A/C system
2. Set temperature at minimum level.
3. Set fan speed at maximum level; close all the flaps except the central one and

set air distribution to central position.



4. Keep engine at accelerated idle at constant speed for at least 2 minutes.
5. Check the pressure values within about 3 - 5 minutes.


In the MANUAL CYCLES menu, select the AC PERFORMANCE TEST function.

Execute the AC PERFORMANCE TEST following the instruction.

And at the end make sure that both values on LP and HP gauges fall within the values shown on the display.

The access to manual cycle can be achieved selecting the functions in the Maintenance menu.

	INTERVENTIONS ON SERVICE STATION COMPONENTS WHICH ARE NOT MENTIONED IN THE FOLLOWING PARAGRAPHS ARE PROHIBITED.
	MAKE SURE THE TOOL IS UNPLUGGED FROM THE POWER MAINS BEFORE OPENING.

	PRESSURE VALUES CHANGE CONSIDERABLY WHEN AMBIENT TEMPERATURE CHANGES. KEEP THIS IN MIND WHEN CHECKING PRESSURE VALUES
--	--

It is possible to interrupt the phase in progress at any time.

13.2 Refrigerant clean

By selecting this function, you can start the refrigerant clean function, allowing for a further recycle, which is internal to the station itself. This mode guarantees a higher level of the service quality.

14 Maintenance

ACX150/250 is a remarkably reliable unit, manufactured using the highest quality components, making use of the most advanced production techniques.

Please contact an authorized technical service centre for purchasing original spare parts.

14.1 Report exporting

In the main menu select MAINTENANCE and press "REPORT EXPORTING".

By selecting this function, it is possible to export the report on USB Key and manage it on PC with ACX Manager.

14.2 Internal cylinder fill

In the main menu select MAINTENANCE and press "INTERNAL CYLINDER FILL".

Set the quantity of refrigerant to fill and follow the guided procedure shown on the display.

The set value is limited to avoid to fill too much the internal cylinder.

Only when the message appears asking to connect the charge tank, connect the HP quick coupler (colour red) of the unit to an external refrigerant tank using the supplied adaptor.

When the message occurs open the coupler by turning the knob clockwise. Open the valve on the external tank.

Just right before reaching the planned quantity of refrigerant, the unit will stop and ask the user to close the external

refrigerant tank. Then, the device will continue the recovery from the hoses and ends when these are empty. Hence, it is necessary to open the HP quick-coupler and disconnect it from the external tank. Thanks to the E³ CONNECT function, the refrigerant - usually kept between the cylinder fitting and the hose quick-coupler until the end of the process - will not be released in the environment.

There may be two types of source tanks: with plunger and without plunger.

Tanks **with plunger** shall remain upright to be able to transfer liquid refrigerant; for this type of tanks connect to the L (liquid) coupler.

Tanks **without plunger** have only one valve, so they must be turned upside down to transfer the liquid refrigerant.



The **LP** gauge indicates the pressure inside the external tank.

After some minutes the unit will automatically end the function.

At the end the weight of the charged refrigerant will be displayed.

14.3 Self leak test

In the main menu select MAINTENANCE and press “SELF LEAK TEST”.

A leak test is carried out on the internal components of ACX150/250.

This phase includes:

- Hoses emptying
- Vacuum test

This test allows to check the tightness of the internal circuits of the equipment from the solenoid valve, allowing the fluid outflow from the internal cylinder, to the manifold, (metallic component housing the check solenoid valves) to the compressor infeed, including the dryer filter leak test.

In case of failed leak test, it is necessary to check the charge hoses conditions and the quick couplers leak, and make the possible repair and then repeat the test.

14.4 Cylinder refrigerant view

In the main menu select MAINTENANCE and press “CYLINDER REFRIGERANT VIEW”.

The available refrigerant for next recharging is 2 kg less than the total contents of the cylinder.

Two kg is the minimum quantity that should be always left in an operating ACX150/250.

14.5 Air purge

In the main menu select MAINTENANCE and press “AIR PURGE”.

By selecting this function, is possible to check the non condensable gases condition (high level red area, low level green area) and if necessary start manually the discharge.

14.6 Pressures zero

In the main menu select MAINTENANCE and press “PRESSURES ZERO”.

This function allows to determine and store the atmospheric pressure value.

We recommend running this procedure every time the ACX150/250 will be moved from a location to another with a different altitude.

14.7 Counters

In the main menu select MAINTENANCE and press "COUNTERS".

In the COUNTERS page, at any time, the vacuum pump and compressor hours of life can be displayed; besides, remaining time before replacement of vacuum pump oil and dryer filter can also be displayed.

This is useful to understand if some maintenance activity should be performed.

14.8 E³ pump - pump oil change

The ACX150/250 is equipped with a special function named E³ PUMP that enables to optimize the vacuum pump oil use by avoiding the replacement every 60 hours of operation.

E³ PUMP is a special function allowing to extend even to 1000 hours the life of the pump oil used in the station. E³ PUMP function performance is suggested at the end of 60-hour operation intervals of the vacuum pump and can be manually activated in the MAINTENANCE menu pressing E³ PUMP.

E³ PUMP procedure has to be started only after checking and, if necessary, topping up the pump oil level and lasts 1 hour: during this time the tool cannot be used.

During the procedure the oil is automatically purified from the gaseous polluting residues absorbed during the emptying operations of vehicles air conditioning systems.

At the end of the procedure, the vacuum pump performance check is carried out and a result to the operator is signalled.

In case of negative result you have to replace the vacuum pump oil.

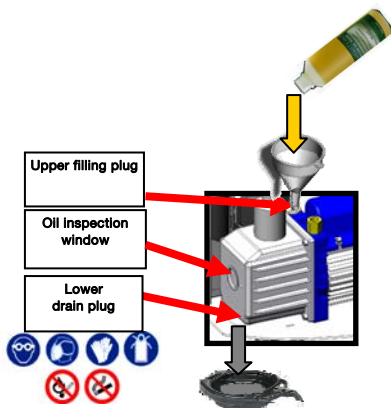
After 1000 hours of vacuum pump operation since the last oil change, the E³ PUMP procedure cannot be activated anymore and you have to replace the oil according to the following instructions.

Required tools:

- 1 Hex screwdriver (2.5 mm)
- 1 Medium-sized flathead screwdriver
- 1 Hex key (10 mm)

For replacement, comply with the instructions outlined below:

1. Disconnect the unit from the mains.
2. Remove the six screws that fix the front door of the unit and remove it.
3. Place a bowl underneath the machine, right under the pump oil drain hole. Open the upper plug and then the lower plug to drain the used oil contained within the vacuum pump.



4. Once the pump has been emptied, screw the lower plug again.
5. Fill the pump with new oil through the upper opening, using a funnel if needed. Bring new oil level halfway through the oil inspection window.
6. Once the pump has been filled, close the upper plug.
7. Once oil has been replaced, switch on the unit and from the MAINTENANCE menu select PUMP OIL REPLACEMENT: press the "RESET" key to set the counter.

14.8.1 Oil pump visual check

Without opening the equipment is always possible to remove the rubber tap in the following position to check level and the clearness of the oil inside the pump.



14.9 Dryer filter replacement

The dehydrator filter must be replaced after having dehydrated 150 kg of refrigerant fluid, since the filter capacity to keep the humidity present in the refrigerant will run out.

To replace the dryer filter, from the MAINTENANCE menu select DRYER FILTER REPLACEMENT: press "START" to set the counter to zero and to start the filter replacement procedure. Insert the code of the new filter. Now you can replace the filter.

Required tools:

- 1 Hex screwdriver (2.5 mm)
- 1 regular or torque Hex key (24 mm)
- 1 Hex key (17 mm)

For replacement, comply with the instructions outlined below:

1. disconnect the HP and LP hoses from other systems/circuits or vehicles and close the quick couplers
2. wait the ends the hoses emptying.
3. confirm to have already worn the personal protective equipment (PPE) and follow the safety regulations in force.



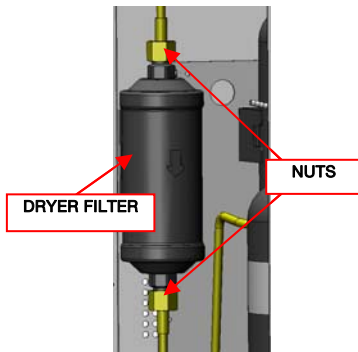
DANGER OF CONTACT WITH R134a REFRIGERANT and motor vehicle A/C system oil

- Before opening the doors of the equipment, switch off the equipment, and **disconnect the power supply cord.**



DANGEROUS VOLTAGE HAZARD

- Remove the six screws that fix the front door of the unit.
- Unscrew the 2 connection nuts of the filter by means of the hex keys.
- Remove the straps that wind up the filter



- Install the new filter paying attention to the position of gaskets and to the direction of the arrow indicating the fluid flowing direction.
- Screw the two connection nuts of the filter.
- Replace the front panel
- Carry out the automatic leak test requested by the software when switched on again after the filter replacement.

14.10 System info

In the main menu select MAINTENANCE and press “INFO”.

In the INFO page, at any time, the software version and the serial number can be displayed.

14.11 System update

The firmware (software) can be updated by way of a USB stick.(where the new version is stored).

- Insert the USB stick in USB port (fig.3 pos.4)
- Power on ACX150/250.
- In the main menu select MAINTENANCE and press “SYSTEM UPDATE”.
- A message will appear that the unit is loading an update.
- The unit may load an updated language file, database file and configuration file while updating.
- Once unit is updated, the software version string on the introduction screen during power up will change.

14.12 Maintenance of printer

To change the roll of paper follow instructions below:

1. Open the lid of the printer as shown



2. Position the roll of paper inside the housing in the rotation direction indicated in the picture;



3. Pull the paper out of the housing as indicated in the picture and close the lid ;



4. The printer is ready for printing.



14.13 Periodic checks

A/C service stations (pressure equipment set) must be checked over regularly as provided by local legislation.

According the local legislation contact the technical customer service or the competent body for at least the following checks.

- Make sure no corrosion or leakage are present in the tank and in the other cylinder and metallic part of the equipment; under normal conditions of use, the tank life is at least 20 years (in the absence of wear and other types of damages).
- If the automatic safety valve trips, contact technical service to have the unit checked over, resolve any problems and replace the valve if necessary.



- Check presence of the device with references indicated above, wholeness of connection cables and connector, and the correct connection to the equipment printed circuit board. In case the pressure switch must intervene, please contact the technical customer service that will check the equipment and remove any defect.

- Periodically check that the external charging hoses, red (HP) and blue (LP), are in good order and undamaged. In case damages to the hoses are detected, stop using ACX150/250 and contact the technical customer service for the related replacement.
- Verify that the lubricants (pump oil) and filters (dryer) have been replaced according to the scheduled periodicities for a proper functioning of the equipment.

14.14 Refrigerant type replacement

Your ACX150 station is supplied with the standard fittings to operate with refrigerant R134a, but it can be easily adapted to be used with refrigerant gas R1234yf.

Contact an authorized Service Centre to ask for the adaptation kit.

The adaptation must be performed by a technician of an Authorised Mahle Service Centre, who will install the specific components for use of R1234yf. He will also carry out all configurations and verifications required by the refrigerant type replacement procedure.

15 Disposal

15.1 A/c service unit disposal

At the end of its service life, this equipment must be disposed of as follows:

- Contact the service center to have the refrigerant in the unit recovered and recycled.
- Consign the unit to an authorized collection center according to local legislation.

15.2 Recycled materials disposal

Consign the refrigerant recovered from the unit to the refrigerant supplier for proper disposal or recycling. Lubricants extracted from vehicles' A/C systems must be consigned to an used oil collection center.

15.3 Packaging disposal

Electronic and electrical A/C service equipment must never be disposed of with domestic waste, but recycled appropriately.

The packaging must be disposed of in conformity with local legislation.

This contributes to protecting the environment.

16 Spare parts

Spare parts available to the user:

- 4.5 m red charging hose



- 4.5 m blue charging hose



USING NON ORIGINAL/UNAPPROVED SPARE PARTS OR ACCESSORIES CAN COMPROMISE THE SAFETY OF ACX150/250.

- Blue LP quick coupler and red HP quick coupler



- Dryer filter



- Vacuum pump oil

Consumables available to the user:

- Vehicle A/C system oil
- UV dye
- Thermal paper rolls

Further spare parts are available through the Service Centers authorised by MAHLE or by its reseller.

MAINTENANCE FORM			
Refrigerant receiver load cell check			
Date	Result of check (pass/fail)	Maintenance technician identification	Maintenance technician signature and stamp

MAINTENANCE FORM				
Other checks/maintenance/repairs				
Job	Date	Result of check (pass/fail)	Maintenance technician identification	Maintenance technician signature and stamp

MAINTENANCE FORM**Other checks/maintenance/repairs**

Job	Date	Result of check (pass/fail)	Maintenance technician identification	Maintenance technician signature and stamp