

MAHLE ACX1299KIA

EN

Operation Manual
A/C Service Units



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1. Information

1.1 Document warnings

Warning notices—Structure and meaning

Warning notices warn of dangers to the user or people in the vicinity. Warning notices also indicate the consequences of the hazard as well as preventive action. Warning notices have the following structure:

KEY WORD – Nature and source of hazard!

Warning symbol **Consequences of hazard in the event of failure to observe action and information given.**

- Hazard prevention action and information.

The key word indicates the likelihood of occurrence and the severity of the hazard in the event of non-observance:

Key word	Probability of occurrence	Severity of danger if instructions not observed
DANGER	Immediate danger impending	Death or severe injury
WARNING	Possible danger impending	Death or severe injury
CAUTION	Possible dangerous situation	Minor injury

Symbols in this documentation

Symbol	Designation	Explanation
	Attention	Warns about possible property damage.
	Information	Practical hints and other useful information.
1. 2.	Multi-step operation	Instruction consisting of several steps.
➤	One-step operation	Instruction consisting of one step.
⇨	Intermediate result	An instruction produces a visible intermediate result.
➔	Final result	There is a visible final result on completion of the instruction.

1.2 Product warnings

Observe all warning notices on products and ensure they remain legible.



- Wear protective goggles.



- Wear protective gloves.

1.3 Important notes



Before start up, connecting and operating MAHLE products it is absolutely essential that the Original instructions/owner's manual and, in particular, the safety instructions are studied carefully. By doing so you can eliminate any uncertainties in handling MAHLE products and thus associated safety risks upfront; something which is in the interests of your own safety and will ultimately help avoid damage to the device. When a MAHLE product is handed over to another person, not only the Original instructions but also the safety instructions and information on its designated use must be handed over to the person.

1.3.1 User group

The product may be used by skilled and instructed personnel only. Personnel scheduled to be trained, familiarized, instructed or to take part in a general training course may only work with the product under the supervision of an experienced person.

All work conducted on pressurized equipment may be performed by persons with sufficient knowledge and experience in the field of refrigeration, cooling systems and coolants and, also be aware of the risks involved in the use of pressurized devices.

1.3.2 Agreement

By using the product you agree to the following regulations:

Copyright

Software and data are the property of MAHLE or its suppliers and protected against copying by copyright laws, international agreements and other national legal regulations. Copying or selling of data and software or any part thereof is impermissible and punishable; in the event of any infringements MAHLE reserves the right to proceed with criminal prosecution and to claim for damages.

Liability

All data in this program is based—where possible—on manufacturer and importer details. MAHLE does not accept liability for the correctness and completeness of software and data; liability for damage caused by faulty software and data is ruled out. Whatever the event, MAHLE liability is restricted to the amount for which the customer actually pays for this product. This disclaimer of liability does not apply to damages caused by intent or gross negligence on the part of MAHLE.

1.4 Warranty

MSS Three-Year Limited Warranty

(Applies only to equipment owned and operated in North America)

During the Three-Year Warranty period, MAHLE Aftermarket Inc., Service Solutions (MSS) is solely responsible for costs associated with parts and labor for repairs needed due to defects in material and/or workmanship. MSS is not responsible for the costs associated with repairs needed due to improper use or a lack of normal maintenance. MSS's goal is to provide a timely turn-around of the covered product requiring warranty repair.

The Customer is responsible to ASSIST AND PARTICIPATE with MSS Technical Support in the over-the-phone diagnosis process of:

- A) Determining that a legitimate failure has occurred and that the complaint is not just the result of inadequate training and/or improper use that could be easily remedied by over-the-phone instructions.**
- B) Determining the nature of the failure and that it is reasonable for MSS Technical Support to judge over the phone that the failure is warrantable.**
- C) Determining the parts necessary to make the repairs so that those parts can be shipped via the appropriate expedited method at the expense of MSS if the failure is warrantable.**

During the Three Year Warranty period for failures that are deemed by MSS to be warrantable, MSS is solely responsible for providing Field Repair Service within a reasonable period of time after a warrantable failure is reported. Field Repair Service is generally available in all areas within 150 miles of major metropolitan areas of the US. A reasonable period of time will depend on the location of the customer and the time of the year. MSS maintains a large network of Service Providers in the US. When Field Repair Service is needed, in most locations near a major US metropolitan area, and during most times of the year, a reasonable period of time for Field Service is 24 to 48 hours after parts are received by the Customer.

Since repair parts from MSS will normally arrive 24 to 48 hours after the Customer reports a failure, the Customer may at his sole option and discretion, choose to make the necessary repairs, with over-the-phone support from MSS Technical Support so as to minimize downtime. In such case, MSS will compensate the Customer or the Customer's employee as appropriate for the time necessary to make repairs if the failure is covered by warranty.

It is the Customer's responsibility to maintain the MSS Equipment according to instructions in the MSS Operation Manual for the covered product as well as to operate the equipment in a commercially reasonable manner as generally described in the MSS Operation Manual. MSS provides free Technical Support over toll-free telephone lines in the US to assist the customer in this regard for the life of the covered product.

The Customer should review the legal Warranty Disclaimer for more details of coverage and limitations.

Ancillary accessories such as Refrigerant Identifiers, Leak Detector Lights and Leak Detectors must be returned to MSS for repair or replacement with a new or refurbished unit, at MSS's sole discretion, in case of a warrantable defect.

WARRANTY DISCLAIMER FOR PRODUCTS OF MAHLE AFTERMARKET INC., SERVICE SOLUTIONS (MSS)

1. MSS'S WARRANTY

This is to certify that MAHLE Aftermarket Inc., MSS Division warrants to the first retail purchaser only, the described new product manufactured by it to be free from defects in materials and workmanship, when properly maintained, **under normal use and service for a period of THREE YEARS**. All spare parts supplied by MSS will have a 90 day warranty. This warranty includes the reasonable cost of parts and materials as well as non-overtime labor. MSS shall be the sole judge of whether failure is warrantable.

2. PURCHASER'S REMEDY

Purchaser's sole and exclusive remedy under this warranty shall be limited to the repair or replacement, at MSS's option, of any defective part of the product. Purchaser shall call MSS Technical Support who will assist Purchaser in diagnosing the problem and, if deemed necessary, will immediately ship replacement parts for installation by Purchaser if so requested. If Purchaser requests Factory service, repairs under this warranty shall only be made at a location designated by MSS.

3. DURATION

This warranty will expire three years from date of delivery to the first retail purchaser.

4. PURCHASER'S DUTIES

- (a) Register product with MSS by returning completed Warranty Registration within 90 days of delivery of unit.
- (b) Transportation Expense: Transportation expenses to and from the MSS's facility are to be borne by the Purchaser.
- (c) Notice of breach: Purchaser shall give written notice to MSS of any alleged refusal or failure of MSS to repair or replace as promised by this warranty no later than fifteen days after the Purchaser learns of such alleged failure or refusal.

5. DISCLAIMER

THE EXPRESS WARRANTY HEREIN IS IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. NO IMPLIED WARRANTY OF MERCHANTABILITY IS MADE AND THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

6. EXCLUSIONS

The warranty and obligations stated here shall not apply to:

- (a) Any product not registered within 90 days of delivery.
- (b) Any product repaired or altered without prior approval of MSS so as to affect adversely its stability or reliability.
- (c) Any product subjected to misuse, abuse or accident as well as products used in a manner contrary to written instructions or normal operating procedure.
- (d) Any damage to product during original shipment or subsequent shipments to MSS's facility for service.
- (e) Portions of products which are subject to warranties, if any, given by their manufacturers. MSS does not adopt these warranties.
- (f) Parts, accessories or other items manufactured by others which are used or installed on the product as a result of Purchaser's specifications.
- (g) Used items furnished by the Purchaser for installation on the product.
- (h) Items which are not defective, but must be replaced during the warranty period as a result of fair wear and tear or scheduled maintenance.
- (i) Hoses, field service couplings, adapters, gaskets and O-rings carry a ninety day warranty.

- (j) Filters, vacuum pump oil and compressor oil are considered consumables and are not covered by any warranty.
- (k) The Warranty may be considered void if evidence of any refrigerant system sealer is found in any of the internal components of an MSS recovery/recycling machine.
- (l) Refrigerant loss is not covered. The Purchaser is responsible for detecting system leaks and advising MSS of same if warrantable repair is required.
- (m) Calibration of equipment, having integrated solid-state controls and load cells for weighing fluids, is not covered beyond the initial setup and commissioning of the equipment. The requirement for calibration of load cell controls is considered normal maintenance and is dependent on many factors, the main one being the care taken when moving the equipment about the shop.

7. EXCLUSION OF LOST PROFITS AND OTHER-CONSEQUENTIAL DAMAGES

MSS will have no liability for any lost profit, cargo loss, usage loss or other consequential damages alleged to have been caused by any defect in the product or any failure of MSS to meet any obligation under this agreement including the obligation to repair and replace set forth in Paragraph 2.

8. LIMITATIONS OF ACTIONS

No action for breach of this warranty shall commence more than three years after the accrual of the cause of action.

9. MERGER

This written warranty is the complete, final and exclusive agreement of the parties with respect to the quality or performance of the goods and any and all warranties and representations, except warranty extensions, if any, in writing as applicable.

10. NO ORAL MODIFICATIONS OR WAIVERS

No modification of this warranty or waiver of its terms shall be binding on either party unless approved in writing by an authorized official of the parties.

11. GOVERNING LAW

This warranty and the rights and duties of the parties under this warranty shall be governed by the law of Pennsylvania, the state of the MSS's principle place of business.

1.5 Safety regulations

1.5.1 ACX1299KIA

Always carefully study and follow all the safety regulations before using the MAHLE product.



Avoid all skin contact with the refrigerant. The low boiling point of the refrigerant (approx. $-30\text{ }^{\circ}\text{C}$) can lead to frostbite. Should refrigerant come into contact with the skin, remove any moistened clothing immediately and rinse the area of skin affected with generous amounts of water.

- Avoid all skin contact with the UV dye. Should UV dye come into contact with the skin, remove any moistened clothing immediately and rinse the area of skin affected with generous amounts of water.
- R1234yf is colorless, with weak characteristic smell and heavier than air. It may flow into repair pits. Should refrigerant escape, provide for sufficient ventilation (particularly in repair pits) and leave the workshop.



Never inhale refrigerant, dye and oil vapors. The vapors can irritate the eyes, nose and respiratory system. If liquid refrigerant or UV dye comes into contact with the eyes, rinse them thoroughly with water for 15 minutes. Then obtain medical attention even if no pain is felt.

- Never swallow UV dye. Should it be swallowed inadvertently, never attempt to induce vomiting. Drink generous amounts of water and obtain medical attention.
- Before connecting the ACX1299KIA to a vehicle air conditioning system or an external refrigerant bottle, make sure the quick-release couplings are not leaking. Only ever use external refrigerant bottles provided with safety valves and certified to the applicable standards.
- Before switching off the ACX1299KIA, make sure all charging and drainage operations have been completed. This prevents damage to the unit and reduces risk of refrigerant escaping into the environment.



Never use compressed air with R1234yf. Certain mixtures of air and R1234yf are highly flammable. Such mixtures are a potential hazard and may lead to fire or explosions and thus cause damage or injury.

- Refrigerant extracted from a vehicle air conditioning system may be contaminated with moisture, lubricant, dirt and traces of other gases.

- The ACX1299KIA is provided with a refrigerant identification system designed to prevent contamination with other refrigerants.
- If the refrigerant has been contaminated by being mixed with other gases, remove the contaminated refrigerant and add fresh R1234yf before using the ACX1299KIA for A/C service.
- R1234yf is not to be used in areas in which there is a danger of explosion. Fire, open flames and smoking are prohibited. Welding and soldering are not permitted.
- The ACX1299KIA unit should not be exposed to excess moisture or be operated in wet areas.
- High temperatures and UV radiation may chemically separate R1234yf. The resultant products can cause coughing and nausea.
- R1234yf is not to be mixed with other refrigerants. The mixing of refrigerants could damage the vehicle air conditioning system.



If high-voltage components or high-voltage wires are handled incorrectly, there is a risk of fatal injury from high voltage and the possible transmission of current through the body.

- De-energizing is only to be performed by a qualified electrician, a qualified electrician for specific tasks (hybrid) or a power systems engineer.
- Work on vehicles with high-voltage components is only ever to be performed in a safe, de-energized condition by persons with the minimum qualification "Trained to perform electrical work".
- Even after deactivating a high-voltage vehicle electrical system, the high-voltage battery may still be live.
- Operating condition cannot be established from any running noise, as the electric machine is silent when stationary.
- In gear positions "P" and "N" the engine or electric motor may start spontaneously depending on the charge of the high-voltage battery.
- Never open or damage high-voltage batteries.
- On vehicles that have been in an accident, never touch high-voltage components or exposed high-voltage wires before deactivating the high-voltage vehicle electrical system.
- The ACX1299KIA must be constantly monitored when in operation. Never leave the ACX1299KIA unattended when in operation.
- Vehicle A/C service using the ACX1299KIA must be prepared and implemented such that the vehicle air conditioning system circuit does not have to be opened (for example by removing the radiator or engine).
- Position the ACX1299KIA on all four wheels on a flat, vibration-proof surface so that proper operation of the scales is guaranteed.

- The ACX1299KIA can be secured in position by locking the caster brake.
- The ACX1299KIA must always be transported in its operating position. Never lay the ACX1299KIA on its side, as oil could then escape from the vacuum pump or the built in compressor could be damaged.
- There are no additional safety systems for protecting the ACX1299KIA against damage resulting from natural catastrophes.
- Never remove any components from inside the ACX1299KIA except for maintenance or repair purposes.
- Follow the pertinent legal regulations or directives to ensure safe handling of pressurized devices.
- We recommend calibrating the scales at least once per year. Contact customer service for calibration of the scales.
- The ACX1299KIA must be subjected to regular maintenance by service personnel or authorized agents to ensure the safety of the unit.
- Disconnect power before performing any maintenance or service to unit.
- Never perform any maintenance work which is not expressly recommended in this manual. Contact customer service if components have to be replaced other than in the course of maintenance work.
- ACX1299KIA must be connected to a properly grounded electrical connection.
- If there is damage to the ACX1299KIA, terminate usage immediately and contact customer service.
- The service hoses and service quick-release couplings must be regularly checked for wear and replaced if damaged.
- The ACX1299KIA must be operated in an environment that will provide at least four air changes per hour.
- Observe local laws or directives as to ensure the safety of the pressurized device.
- For safety reasons it is advisable to use a residual current operated circuit breaker (RCCB) with the following specifications:

Parameters	Specification
Rated voltage	120VAC \pm 10%
Rated frequency	50/60 Hz
Rated current	10 A
Rated tripping current	30 mA
Tripping switch	C

- Avoid using an extension cord with the unit. If necessary, use a good condition (three wire grounded, #14AWG or larger) extension cord of the shortest possible length. In addition, the current drawn by all devices connected to the wall socket must not exceed 15A total.

1.5.2 Refrigerant identification unit

- Inspect the outside diameter of the white sample filter element before and after each use of this unit. As soon as red spots begin to appear on any portion of the white element outside diameter, the filter requires replacement. Failure to replace the filter when so indicated may result in damage to the identification unit (out of warranty).
- This unit requires connection of the sample fitting to the LP side port of the source vehicle or refrigerant cylinder. Connection of the test hose to the high, or liquid, port of the source vehicle or refrigerant bottle will result in damage to the unit (out of warranty).
- Inspect the test hose before and after each use of the unit. Immediately replace the hose if it appears cracked, obstructed, or fouled with oil.
- Never use a test hose other than those approved for use with the Identifier.
- Never connect the Identifier to any refrigerant source that exceeds 300 psi pressure.

1.6 Safety devices

Description	Function
Air flow sensor	The ACX1299KIA contains an air flow sensor which detects whether or not there is a sufficient flow of air in the housing of the ACX1299KIA.
Pressure switch	Switches the compressor off if the normal operating pressure is exceeded.
Safety valve	The safety valve opens if the design pressure is exceeded.
Circuit Breaker	Interrupts the power supply if overcurrent is applied to the ACX1299KIA.
Vents	The ACX1299KIA is provided with vents in the bottom of the housing to ensure the exchange of air even when switched off.

1.7 Proper disposal

This product is subject to the European directive 2002/96/EC (WEEE).

Old electrical and electronic devices, including cables, accessories and batteries, must be disposed of separately from household refuse.



- Please make use of the return and collection systems operating in your region.
- Proper disposal of old devices can help to avoid environmental pollution and health risks.

1.7.1 Disposal of LCD screen

Please dispose of the LCD screen in accordance with the local regulations governing the disposal of hazardous waste.

1.7.2 Disposal of refrigerants, UV dye, lubricants and oils

Refrigerants which can no longer be used must be returned to the gas supplier for disposal.

The lubricants and oils removed from air conditioning systems must be returned to official collection points. The UV dye must always be disposed of in accordance with the local regulations governing the disposal of hazardous waste.

1.7.3 Disposal of combo filter

Dispose of the filter via official collection points or in accordance with the local regulations.

1.8 Technical data

1.8.1 ACX1299KIA Technical Data

Feature	Value/Range
Dimensions H x W x D	1016 x 580 x 840mm
Weight	110kg
Operating voltage	120VAC ± 10%
Frequency	50/60 Hz
Workplace emission sound pressure level (as per EN ISO 11204)	< 70 dB(A)
Refrigerant	R1234yf
Pressure sensor (PT1)	-1 – 10.3 bar
Pressure sensor (PT2)	0 bar – 34.5 bar
Pressure sensor (PT3)	-1 bar – 10.3 bar
Low-pressure gauge	-1 bar – 16 bar ±1% of final value
High-pressure gauge	-1 bar – 40 bar ±1% of final value
Capacity of internal refrigerant bottle	10.5kg
Maximum system pressure PS	20 bar
PSspec	18 bar
Power	900W
Operating temperature	10°C – 50°C
Optimum R1234yf filling weight for operation	4kg – 9.5kg

1.8.2 Refrigerant identification unit technical data

Feature	Value/Range
Refrigerant	R1234yf
Measurement accuracy	98.5% ± 0.5%
Sensor	Optical (infrared)
Operating temperature	10°C – 50°C

1.9 Glossary

- **Recovery phase:** The refrigerant is extracted from the vehicle air conditioning system, cleaned and routed into the internal bottle of the ACX1299KIA. The refrigerant oil collected in the process is drained into the used oil bottle at the ACX1299KIA.
- **Vacuum phase:** A vacuum is generated in the vehicle air conditioning system. Measurement of the drop in pressure begins as soon as the vacuum has been generated.
- **Charging phase:** A certain quantity of refrigerant is added to the vehicle air conditioning system.

2. Product description

2.1 Application

ACX1299KIA is suitable for vehicles with a conventional engine as well as for hybrid and electric vehicles. ACX1299KIA features all the functions required for vehicle A/C service.

The following functions can be implemented:

- Refrigerant recovery and recharging.
- Vacuum generation.
- Flushing.
- Print reports.
- Refrigerant identification.

⚠ The ACX1299KIA can only be operated with R1234yf. The ACX1299KIA is not to be used for service work on vehicles with air conditioning systems employing refrigerants other than R1234yf, as this will cause damage. Prior to A/C service check the type of refrigerant used in the vehicle air conditioning system.

2.2 Scope of delivery

Description
Handle
Service hose (high pressure)
Service hose (low pressure)
Quick-release coupling (high pressure)
Quick-release coupling (low pressure)
Used oil bottle
Quick start guide
Roll of paper for printer (pre-installed in printer)
Adapter (external bottle) US Acme 1/2 LH
Calibration check ball
Inline filter set (2x)
Integrated refrigerant identification unit
Hex key for handle installation
TechPRO VCI module
Refrigerant leak detector (LD-2)

2.3 Description of unit

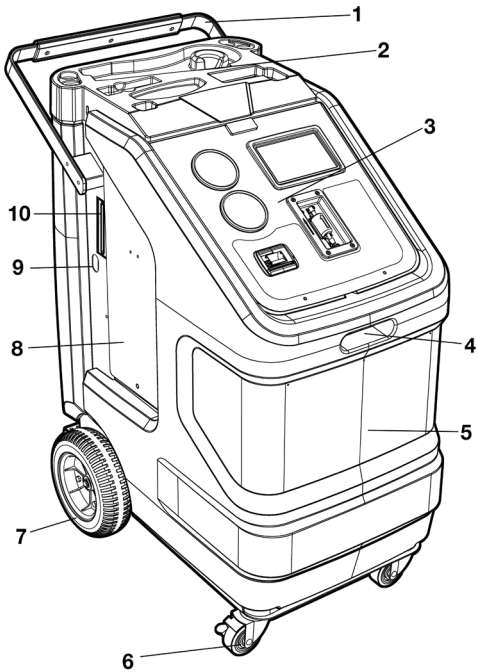


Fig. 1: Front view

- 1 Rear handle and grip
- 2 Tool tray and storage
- 3 Display and operating unit
- 4 Front handle
- 5 ACX1299KIA front housing
- 6 Locking caster
- 7 Rear wheel
- 8 Service door
- 9 Vacuum pump sight glass viewing window
- 10 Port box (1 RJ45 (ethernet) and 2 USB connections)

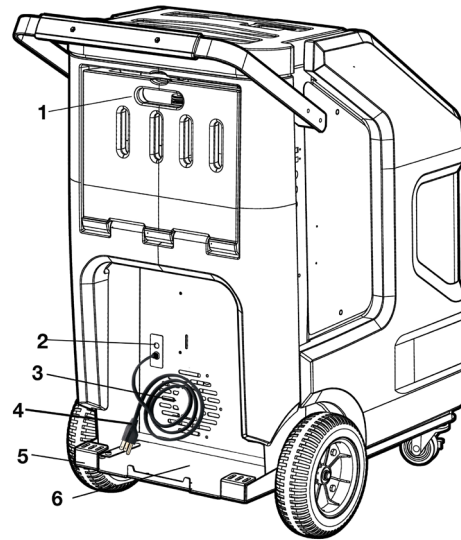


Fig. 2: Rear view

- 1 Service door for used oil and vacuum pump oil
- 2 Power supply cable inlet, circuit breaker
- 3 Fan
- 4 Power cord
- 5 Kick plate
- 6 Spare refrigerant bottle/Flush device storage shelf

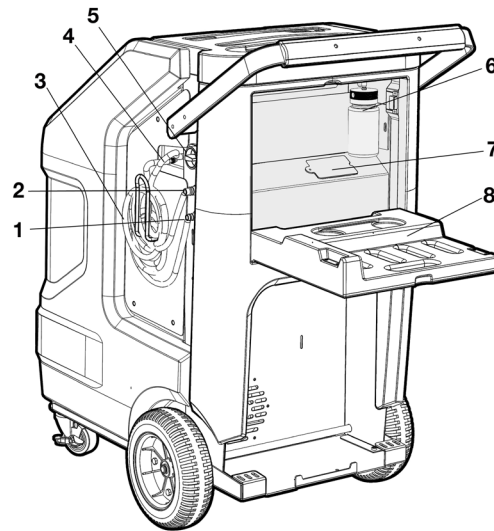


Fig. 3: Left-rear view

1. Low-side parking/flush adapter
2. High-side parking/flush adapter
3. Service hose
4. Service hose connections
5. Main switch
6. Used oil load cell and bottle
7. Vacuum pump oil fill access port
8. Service door for oil bottles and vacuum pump

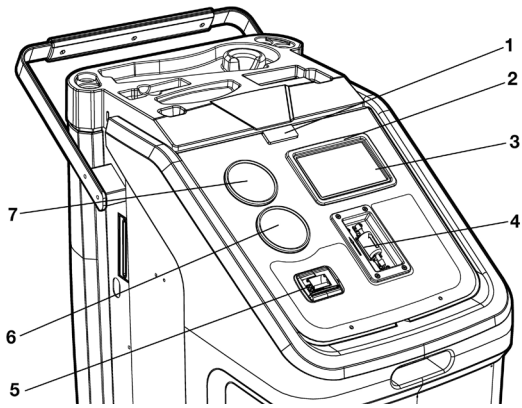


Fig. 4: Display and operating unit

- 1 Status and warning light
- 2 LCD bezel
- 3 LCD touchscreen display
- 4 Refrigerant identifier
- 5 Printer
- 6 Low-pressure gauge
- 7 High-pressure gauge

The pressure gauges (Fig. 4, Pos. 6, 7) 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 touchscreen (Fig. 4, Pos. 3).

The menu selection and necessary entries are made by way of the LCD touchscreen LCD (Fig. 4, Pos. 3).

The status and warning light (Fig. 4, Pos. 1) indicates the service status:

Status and warning light display color	Maintenance status
Red light	Error/warning
Flashing green	Operation in progress
Green light	Operation completed/Attention Operator

If a situation arises where the unit software requires updated, the unit should be connected to an online network via a wireless or wired connection to the port on the side of the unit. If an update is available, it will automatically download and prompt operator to complete the installation.

⚠ Do not turn off power to unit during software update. Update is complete once ArcticPRO software is loaded and unit displays main menu.

2.4 User interface

2.4.1 Selection and function keys

All settings, controls and service functions are available on the LCD touchscreen display. Data entry and moving of the cursor is performed with user's finger or some other object such as a pen or stylus. The LCD displays the service equipment's status, the progress of A/C system service and any error messages.

⚠ Do not use a sharp, pointed object on the touchscreen. Damage may occur!

2.4.2 Input selection

To select a function in the menu, press the text name of the function and the selection occurs when finger is released.

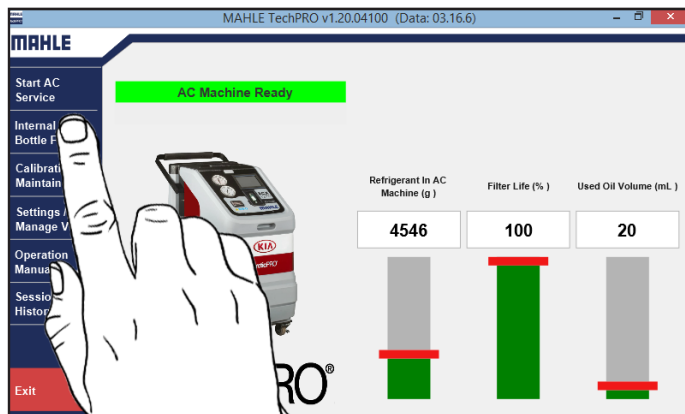


Fig. 5: Selecting items on screen

ⓘ If there are menus that cannot fit on one screen, there will be a scroll bar located on the right-hand side of the screen. By placing finger on the scroll bar button and moving finger up or down, screen options will also move. By touching the arrows at the top and bottom of the scroll bar, the screen will move up or down one line at a time.

2.4.3 Entering text

If text needs to be entered on the display, a keyboard will automatically appear (i.e. for entering garage data or at the end of the service cycle).

2.4.4 Display screen - menu

To select a function in the menu, touch the desired selection to enter that function.

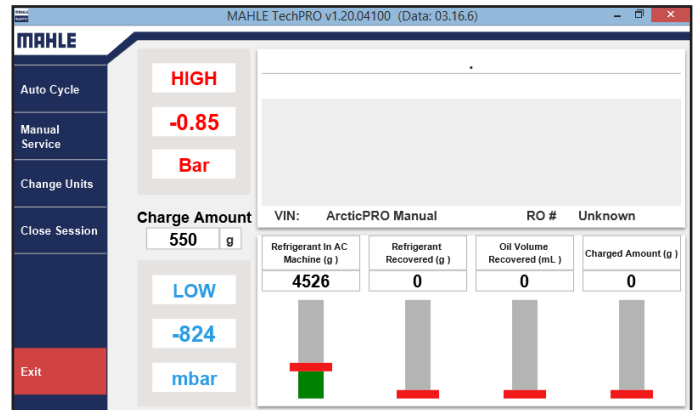


Fig. 6: A/C service menu screen

2.4.5 Main menu options

The main menu of the user interface allows user to select the following functions:

- Start A/C Service
- Internal Bottle Fill
- Calibration / Maintenance
- Settings / Manage VCI
- Operation Manual
- Session History

Each of the menu options will be described in detail later in the manual.

⚠ The ACX1299KIA can only be operated with R1234yf. The ACX1299KIA is not to be used for service work on vehicles with air conditioning systems employing refrigerants other than R1234yf, as this will cause damage. Prior to A/C service check the type of refrigerant used in the vehicle air conditioning system.

2.5 Unit features

2.5.1 EcoLOCK® quick couplers

EcoLOCK® is the intelligent coupler, that with the suitable automated procedure in the software enables to:

- reduce the amount of non-condensable gases formed inside the cylinder,
- avoid the refrigerant (loss) dispersion in the air during the disconnection of the couplers (puff-effect),
- check possible Schrader valve leaks before disconnection.



Fig. 7: EcoLOCK® couplers

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 (Fig. 8).

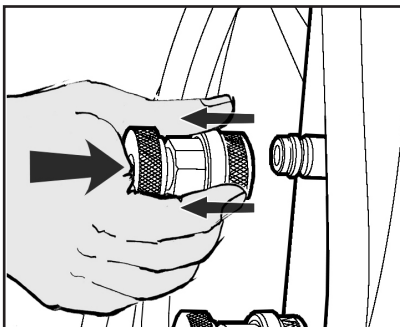


Fig. 8: Fastening quick-release coupling

i The service quick-release couplings are connected to the service connections of the vehicle air conditioning system during A/C service. When not in use, the service quick-release couplings can be connected to the parking/flush couplers.

i To remove the service quick-release couplings from the parking/flush coupler, press the coupling slightly towards the connection and carefully pull the knurled section back to unfasten it from the coupler.

2.5.2 Locking caster brakes

Rolling of the ACX1299KIA can be prevented by locking the caster brakes (Fig. 1, Pos. 6) at the front wheels.

2.5.3 Power supply cable and switch

The power supply cable is connected to the main power input. When not in operation, the power supply cable can be disconnected and hung on the handle. The ACX1299KIA is switched on by toggling the rocker switch to the on position.

2.5.4 Printer

i Service reports can be printed out.

⚠ Protect thermal printer paper against direct sunlight, heat, oils, greases, tanning agents and materials containing plasticizers (e.g. PVC folders).

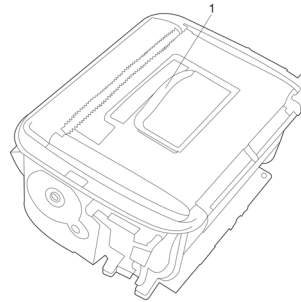


Fig. 9: Printer

1 Cover

2.5.5 Service doors

i There are two service doors: One on the left side and one on the rear of the housing.

i Tools can be placed on the upper cover.

i The service door on the side provides access to the internal refrigerant bottle, and the filter drier.

i The service door on the rear permits access to the vacuum pump oil fill/drain and used oil.

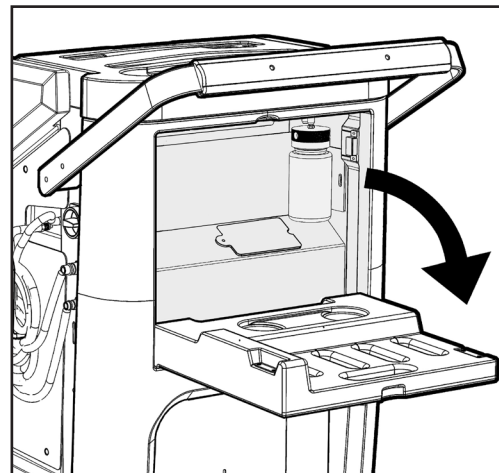


Fig. 10: Opening service door on back

To open the service door on the cover, remove the two Phillips head screws and take out the service door.

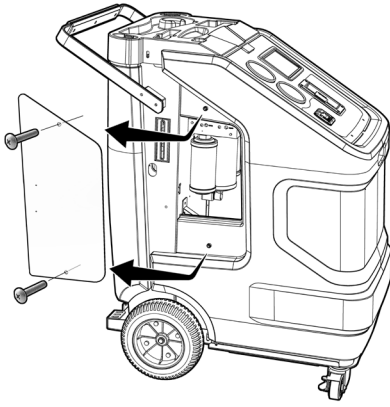


Fig. 11: Removing service door on side

⚠ Never attempt to operate the ACX1299KIA without service doors, as this would make the working area dangerous. The housing of the ACX1299KIA was designed with a built-in ventilation fan to prevent the accumulation of potentially flammable R1234yf refrigerant vapors.

2.5.6 Scales for used oil and refrigerant

There are various scales for checking the quantities of refrigerant and used oil.

Used oil bottle

i To remove the used oil bottle, pull the connection (Fig. 12) upwards slightly and detach the bottle downwards.

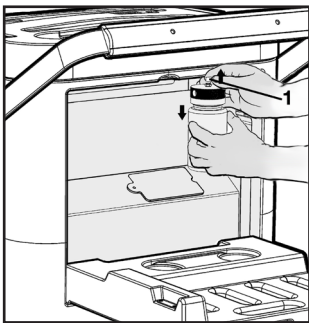



Fig. 12: Removing used oil bottle

1 Connection

Symbol	Description
	Used oil bottle

2.5.7 Inline filters

The service hoses are connected to the ACX1299KIA by way of the inline filters. The inline filters prevent the ingress of fine particles into the internal hydraulic circuit of the ACX1299KIA.

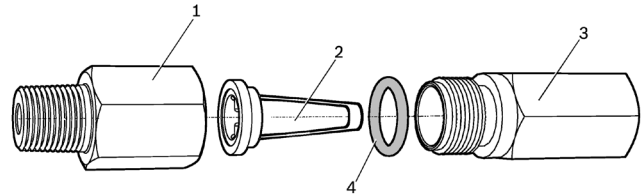


Fig. 13: Inline filter

- 1 Adapter for connection
- 2 Filter element
- 3 Adapter for hoses
- 4 Sealing ring

2.6 Ref. ID unit

The refrigerant identification unit permits precise determination of the type of refrigerant as to prevent cross contamination by other refrigerants.

⚠ Only after successful identification of refrigerant, service hoses may be connected to the vehicle.

📌 The refrigerant identification unit is incorporated into the service procedure and thus always to be used for A/C service.

2.6.1 Delivery

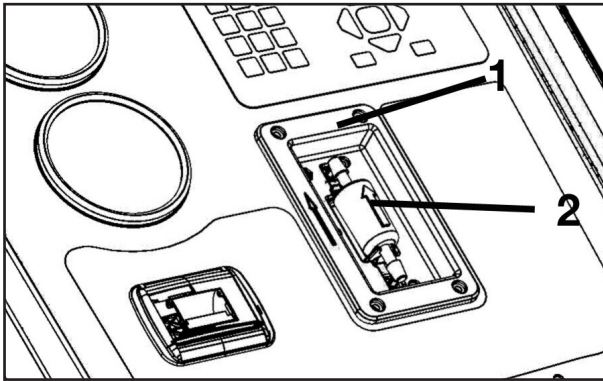


Fig. 14: Refrigerant identification unit—delivery

- 1 Refrigerant identification unit
- 2 White sample filter

2.7 Functional description

The refrigerant recovered from the air conditioning system passes through the combo filter to remove suspended particles and moisture.

The purpose of the vacuum pump is to generate a vacuum in the air conditioning system which removes excess moisture and to detect possible leaks in the vehicle air conditioning system.

Used oil separated from the vehicle refrigerant recovered drains into the used oil bottle.

Oil removed from the vehicle A/C system compressor during the recovery process should be manually injected into the A/C system prior to recharging the system.

(MSS P/N: 026 80707 00 - R1234yf Oil and Injector Master Kit)

The vehicle air conditioning system is partly filled with UV dye to facilitate the detection of leaks in the event of damage to the vehicle air conditioning system.

The refrigerant in the internal refrigerant bottle is used for filling the vehicle air conditioning system.

The purging unit for the non-condensable gases, consisting of a temperature sensor, pressure sensor, coil and orifice, always takes effect when the internal refrigerant bottle pressure is higher than the saturation pressure.

Refrigerant identification is a menu-driven process implemented by a refrigerant identification unit which is integrated into the ACX1299KIA.

2.8 Commissioning

i All the operations described in this section must be performed prior to first A/C service.

2.8.1 Removing transportation packaging

⚠ When removing the packaging, use care to ensure there is no damage caused to the ACX1299KIA unit or any of the included accessories.

i Do not unplug any electrical connections and only have internal components opened and repaired by trained service personnel.

i Contact customer service in the event of any transportation damage (e.g. oil leakage).

2.8.2 Attaching handles

1. Remove plastic bubble wrap from handle.
2. Locate hex (Allen) key included in document packet of unit.
3. Using included hex (Allen) key, remove bolt from rear handle mounting hole (both sides of ACX1299KIA unit).
4. Rotate handle upwards and over top of the handle mounting spacers.

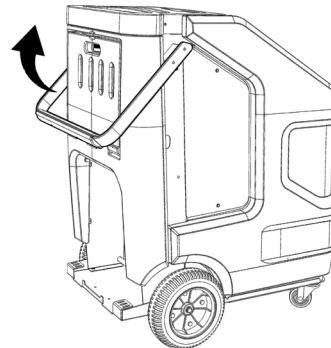


Fig. 15: Setting up handle

5. Insert the bolt on each side through handle and the spacer and tighten.

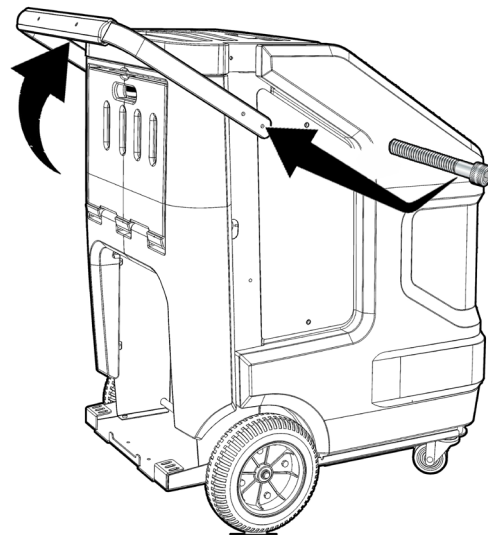


Fig. 16: Insert bolt and tighten

6. Tighten the bolt at the front side of the handle to ensure it does not come loose at a later time.

2.8.3 ACX1299KIA

⚠ The ACX1299KIA is designed for 120VAC \pm 10%, 50/60Hz. Follow the information on the ACX1299KIA rating plate.

1. Set the ACX1299KIA on a flat, vibration-proof surface.
2. Actuate the caster brake to stop the ACX1299KIA from rolling.
3. Connect the power supply cable to the power supply.
4. Switch on the main switch.
 - ⇒ The self-test starts automatically. The menu appears following successful completion of the self-test.
 - ⇒ The fan is switched on.

ⓘ The fan runs while the ACX1299KIA is switched on.



Fig. 17: ArcticPRO main menu screen

Setting language

⚠ At this time, English is the only language currently available on the ACX1299KIA unit.

Setting date and time

ⓘ Upon initial startup, the operator will select the time zone for their specific region. The operating system will automatically adjust the time when connected to a network.

Setting garage data

ⓘ Upon initial startup, the operator will be prompted to enter the data for the garage. This data will show up on printouts.

ⓘ Data can be modified by selecting **SETTING/MANAGE VCI** from the main screen. Then select **USER SETTINGS** on the screen that appears. Select the **SHOP CONTACT INFORMATION** tab. Click inside the box to modify information.

2.8.4 Checking type of connection of external refrigerant bottle

ⓘ Follow the instructions below for filling the internal refrigerant bottle.

- **Refrigerant bottle with one valve:** Always turn the external refrigerant bottle upside down when filling the internal refrigerant bottle.
- **Refrigerant bottle with two valves:** Use the adapter set to connect the service hose (LP) to the external refrigerant bottle. In doing so, turn the external refrigerant bottle such that the connections are facing upwards.

⚠ The internal refrigerant bottle should only be replaced if it is severely damaged. The internal refrigerant bottle must always be filled using an external refrigerant bottle.

⚠ During filling, the external refrigerant bottle must be firmly positioned and the operator must ensure that the service hoses are safely routed to avoid the danger of the external refrigerant bottle falling over.

2.8.5 Filling internal refrigerant bottle



Warning – Risk of frostbite from escaping refrigerant

Refrigerant causes severe frostbite on the skin.



- Check the service hoses for damage.
- Firmly connect the service quick-release couplings to the service hoses.
- Wear protective goggles.
- Wear protective gloves.

i Before the ACX1299KIA can be used, the internal refrigerant bottle must be filled with liquid refrigerant. Use only R1234yf refrigerant.

i A menu-driven refrigerant check is performed before filling the internal refrigerant bottle.

i The refrigerant can be obtained from your gas supplier. It can be stored normally and transported in bottles with connection fittings.

i To ensure a reliable procedure, it is advisable to use the optimum quantity of refrigerant. The optimum quantity of refrigerant for the ACX1299KIA is 4kg – 9.5kg (8.8lbs – 20.9lbs).

i An inadequate quantity may make efficient filling of the vehicle air conditioning system impossible. Also, if there is an insufficient quantity, the ACX1299KIA may not be able to operate efficiently. In the event of an excessive quantity, there may not be sufficient space for the refrigerant recovered from the vehicle air conditioning system.

⚠ Generally speaking, the actual quantity of refrigerant added exceeds the set quantity by approx. 200g (0.4lbs) as there is no refrigerant in the internal refrigerant circuit. Add 200g (0.4lbs) to the set quantity when filling with refrigerant for the first time.

1. From the main menu select **INTERNAL BOTTLE FILL**.
2. Touch inside blank box to enter desired fill amount. A keyboard will appear to type refrigerant amount in grams.

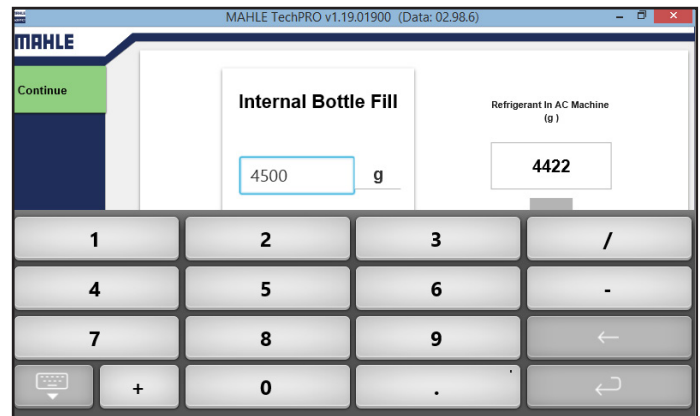


Fig. 18: Internal bottle fill value adjustment

3. Press **CONTINUE** to accept value.
4. Follow the on-screen instructions.

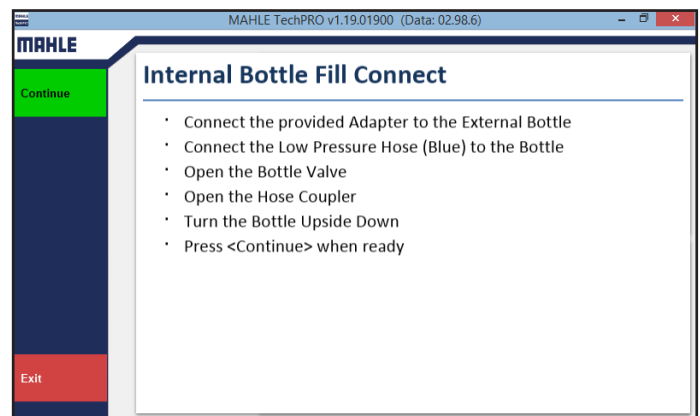


Fig. 19: Internal bottle fill connection instruction screen

5. After all steps listed have been completed, press **CONTINUE** to begin process.

i The current pressure inside the external refrigerant bottle is indicated on the low-pressure gauge.

i Any amount of refrigerant between 100g (0.2lbs) and 10500g (23.1lbs) can be added.

⚠ Do not interrupt the automatic filling process prior to automatic termination by the ACX1299KIA.

3. A/C service

3.1 Preparation



Warning – Risk of burns from hot engine components

Contact with hot engine components will cause severe burns.



- Allow the engine to cool down.
- Wear protective goggles.
- Wear protective gloves.



Warning – Risk of frostbite from escaping refrigerant

Refrigerant causes severe frostbite on the skin.



- Check the service hoses for damage.
- Firmly connect the service quick-release couplings to the service hoses.
- Wear protective goggles.
- Wear protective gloves.

Perform the following preparatory work prior to vehicle A/C service:

⚠ Service hoses must be constructed of the proper materials and have the lengths as supplied with the unit. Hoses must have shutoff devices (quick-release couplers) at the connection point to the A/C to minimize the introduction of air into the ACX1299KIA and to minimize the amount of refrigerant released while disconnecting the hoses.

⚠ Inspect hoses for signs of damage prior to performing A/C service. Use of damaged hoses will result in the loss of refrigerant and the possibility of refrigerant contamination.

ⓘ Follow the vehicle manufacturer's recommendations for A/C service on vehicles with a low-pressure connection only.

1. Set the ACX1299KIA on a flat, vibration-proof surface.
2. Actuate the caster brake to stop the unit from rolling.
3. Connect the power supply cable to the power supply.
4. Switch on the main switch.

ⓘ Follow the manufacturer's instructions for the corresponding vehicle before performing A/C service.

⚠ The ACX1299KIA is only to be operated with R1234yf refrigerant. Check which refrigerant is used for the vehicle before performing A/C service.

⚠ The ACX1299KIA cannot be used for air conditioning systems repaired using a chemical sealant. These sealants may cause serious damage to the ACX1299KIA if they are present. Detection devices are available to check for chemical sealants. Non compliance will void the warranty.

⚠ Never attempt to close the valves of the internal refrigerant bottle while the ACX1299KIA is in operation.

⚠ Only new lubricant, as specified by the system manufacturer, shall be installed in the MAC (Mobile air conditioning) system. Lubricant removed from the system and/or equipment shall be disposed of in accordance with the applicable federal, state, and local procedures and regulations.

3.2 Air purge

ⓘ Purging takes place automatically in the ACX1299KIA on the basis of a pressure and temperature algorithm. The purged non-condensable gases are routed to the built-in ventilation fan and removed from the ACX1299KIA.

ⓘ Air purge is a necessary process to ensure ideal working parameters for the ACX1299KIA. Presence of non-condensable gases will increase tank (vapor) pressure and reduce efficiency of recharge cycles.

3.3 Ref. ID unit

3.3.1 Refrigerant analysis

⚠ Oil contamination will damage the refrigerant identification unit! If the refrigerant sample is supplied to the unit from the recycling equipment directly, it must be protected from oil that comes from vehicles or accumulate in service hoses!

⚠ The operator must periodically examine the test hose and white sample filter for oil contamination and stop immediately if any oil is observed!

ⓘ The gas pressure should be between 1.7 – 16 bar (24.6–232PSI). Accurate gas analysis can be achieved with less than 1.7bar (24.6PSI) but additional time must be provided. In this case start the flow of gas and then wait for 20 seconds before instructing the refrigerant identification unit to test the gas.

1. Switch on the ACX1299KIA.
2. In the **MANUAL SERVICE** menu, select **RECOVERY**.
3. Follow the menu prompting of ACX1299KIA to allow the unit to perform a Refrigerant Identification.
4. If a test of the refrigerant was all that was necessary, disconnect couplers from source and allow compressor to remove pressure from hoses. Otherwise, allow process to run to completion.

3.4 Service phases

- **Recovery phase:** Refrigerant is extracted from the vehicle, cleaned and routed into the internal refrigerant bottle.
- **Vacuum phase:** A vacuum is generated in the vehicle air conditioning system and the system is checked for leaks.
- **Recharge phase:**
 - Refrigerant: The vehicle air conditioning system is filled with a specified amount of R1234yf refrigerant.

3.5 Precautions

⚠ Before connecting service hoses proceed as follows:

1. Perform refrigerant identification.
- ⚠ Only after successful identification of refrigerant, service may begin on the vehicle.
- ⓘ The contamination of the service hoses on the ACX1299KIA unit can only be removed by following the decontamination process.
- ⚠ The contamination of the ACX1299KIA internal bottle can only be removed by a service provider at additional cost.
- ⓘ The service parameters (recharge quantity) can be found in the owner's manual or the vehicle repair manual.
- ⓘ The refrigerant identification unit is incorporated into the service procedure and required to be used for A/C service.

3.6 Automatic A/C setup

- ⓘ Access to the Automatic A/C service mode is available through the main menu by selecting **START AC SERVICE** and then **AUTO CYCLE**. The following screen will be displayed:

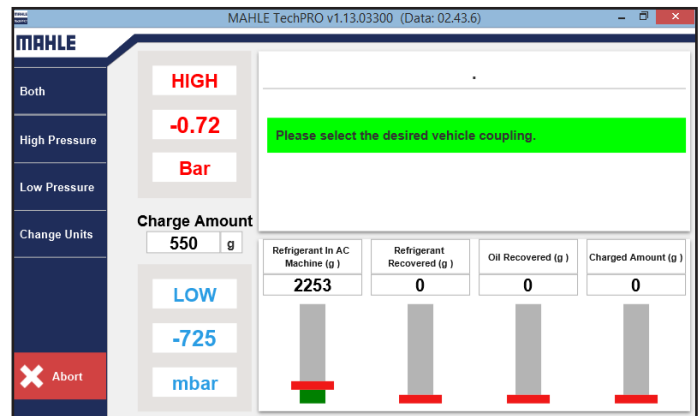


Fig. 20: Service coupling selection

1. Select whether the process is to be performed on **HIGH PRESSURE** (RED - HP), **LOW PRESSURE** (BLUE-LP) or **BOTH** by touching the desired selection on the left hand side of screen.
2. When prompted, connect the couplers to the vehicle A/C service ports.

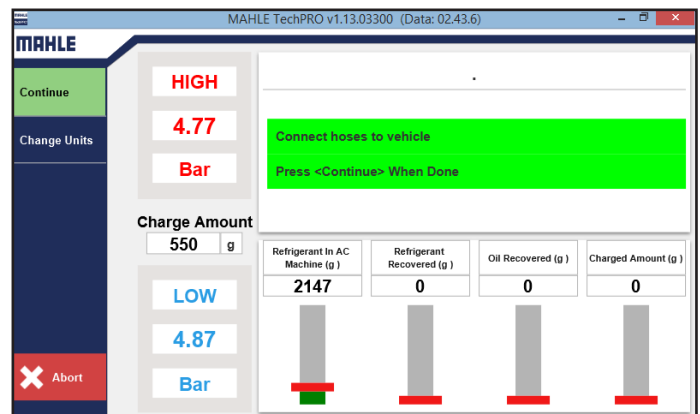


Fig. 21: Connect hoses

3. After hoses are connected, press **CONTINUE**.
- ⓘ If unit does not detect pressure, it will automatically proceed to the Vacuum process.
- ⚠ If pressure is detected at the beginning of the Automatic Cycle, service may begin on the vehicle only after successful identification of refrigerant.
- ⓘ The service parameters (recharge quantity) can be found in the owner's manual or the vehicle repair manual.

3.7 Automatic A/C cycle

Below is a chart that breaks down the individual parts of an automatic cycle (not necessarily in correct order).

Phases	Automatic mode	Manual mode		
		Recovery	Vacuum	Recharge
Checking of air conditioner pressure	X	X	X	X
Extraction of refrigerant	X	X	-	-
Pressure increase test	X	X	-	-
Separation of oil from refrigerant	X	X	-	-
Drainage of oil into used oil bottle	X	X	-	-
Formation of vacuum	X	-	X	X
Maintenance of vacuum	X	-	X	X
Addition of refrigerant (test quantity 15% of total recharge quantity)	X	-	-	X
Implementation of pressurized leak test	X	-	-	X
Extraction of refrigerant (test quantity 15% of total recharge quantity)	X	-	-	X
Recharging refrigerant	X	-	-	X

Tab. 1: Automatic/manual mode overview
x = is implemented

3.7.1 Recovery

The pressure in the vehicle air conditioning system is checked prior to the recovery phase. The vacuum phase commences automatically (in Auto Cycle mode only!) if the air conditioning system is depressurized (empty).

Used oil must be disposed of in accordance with local regulations!

3.7.2 Vacuum

A vacuum is generated and maintained for at least 5 minutes.

Make sure recovery has been performed before generating the vacuum.

3.7.3 Charging with refrigerant

Service phases: Vacuum (5 minute minimum), Vacuum hold (3 minutes), 15% of total charge test fill, leak test, extraction of test fill, clearing, and final charging.

If pressure is detected in the vehicle air conditioning system during charging, recovery must be performed in order to continue.

3.8 Manual A/C cycle

Access to the manual A/C service mode is available through the main menu by selecting **START AC SERVICE**, entering VIN number or skipping VIN entry, then selecting **MANUAL SERVICE**. The following screen will be displayed:

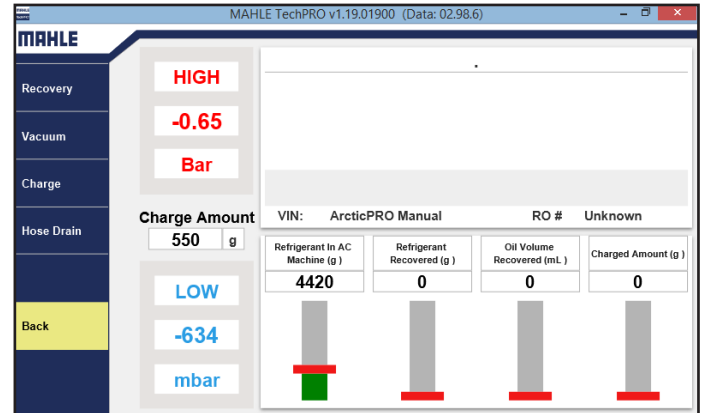


Fig. 22: Manual A/C service selection screen

3.8.1 Recovery process

- In the **MANUAL SERVICE** menu, select **RECOVERY**.
- Select whether the service is to be performed on **HIGH PRESSURE** (RED - HP), **LOW PRESSURE** (BLUE-LP) or **BOTH** by touching the desired selection on the left hand side of screen.

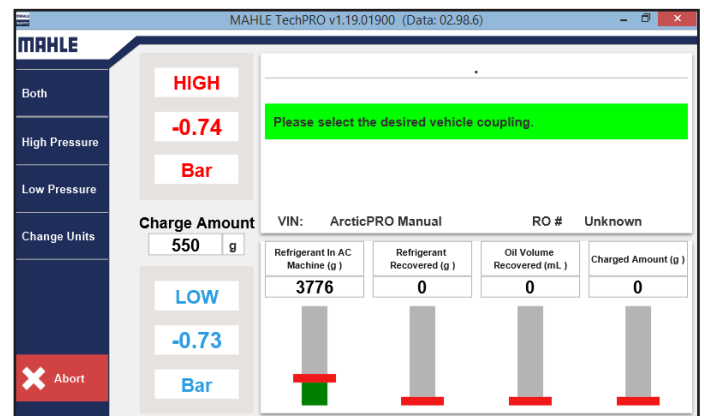


Fig. 23: Service coupling selection

- After coupler selection is complete, unit will prompt technician to connect unit to vehicle. Once connection is complete, press **CONTINUE** to begin.

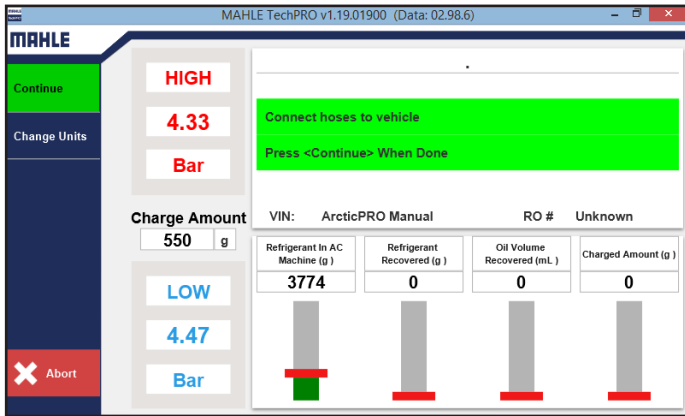


Fig. 24: Connect hoses

- ❗ If no pressure is detected, this function will not start. Technician should ensure couplers are open. If the system is empty, operator must exit and select a vacuum process.
- 4. After unit checks for pressure, a screen will prompt technician to inspect the refrigerant ID filter for oil contamination. If the filter has red dots or visible oil, replace the filter immediately or identifier damage may occur. Press **CONTINUE** to begin recovery.

⚠ There is potential for unit to display an error during this service for high internal pressure. This can occur due to high operating temperatures or hot refrigerant gasses entering the ACX1299KIA.

- ❗ R1234yf can only be added to an air conditioning system in which there is a vacuum. The vacuum phase must therefore be implemented before filling with R1234yf.

3.8.2 Vacuum process

1. In the **MANUAL SERVICE** menu, select **VACUUM**.
2. Connect HP and LP couplers to the vehicle A/C system and open.
3. The unit will display a screen for technician to adjust the length of vacuum time and vacuum test time. Modify values for Vacuum creation time and vacuum test time by touching inside the blank box. A keyboard will appear to type in desired value. Press **CONTINUE** to accept values and begin service.

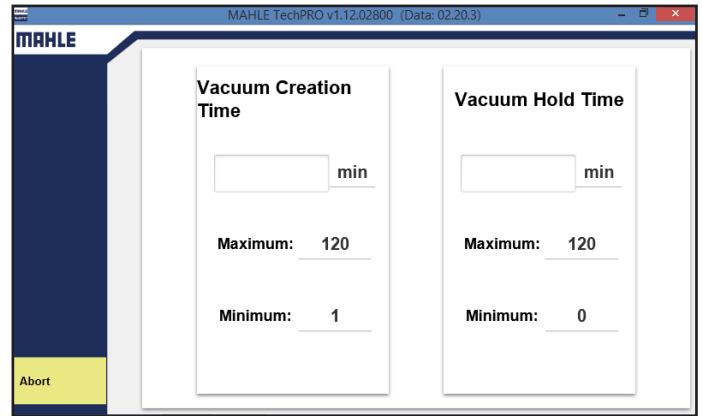


Fig. 25: Vacuum setup screen

- ❗ Be sure recovery has been performed prior to running a vacuum cycle.
- ❗ Vacuum time can be adjusted to any value between 1 minutes and 120 minutes in 1 minute increments.
- ❗ Vacuum test time can be adjusted to any value between 0 minutes and 120 minutes in 0 minute increments.

3.8.3 Charge

1. In the **MANUAL SERVICE** menu, select **CHARGE**.
2. Touch inside blank box to enter desired charge amount. A keyboard will appear to type refrigerant value.
3. Press **CONTINUE** to accept value.

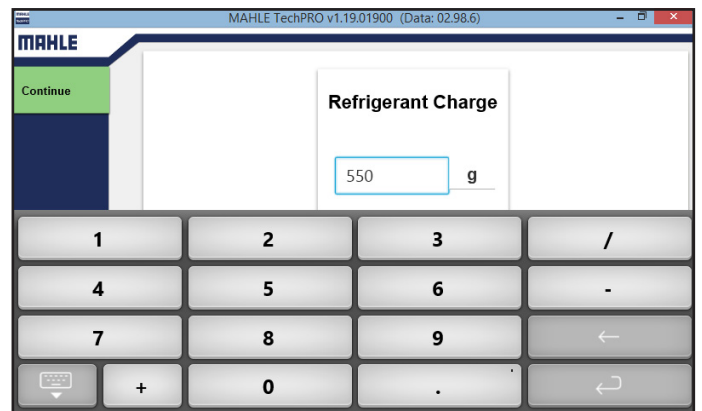


Fig. 26: Manual charge setup screen

4. Select whether the charge is to be performed on **HIGH PRESSURE** (RED - HP), **LOW PRESSURE** (BLUE-LP) or **BOTH** by touching the desired selection on the left hand side of screen.
5. Connect HP/LP coupler(s) to the vehicle A/C system and press **CONTINUE** to begin.
6. Follow on-screen instructions to complete service.

3.9 Hose drain

i Run this function in the instance where a small amount of refrigerant remains inside the hoses of the unit after a System Leak test, Flush procedure or other process.

1. In the **MANUAL SERVICE** menu, select **HOSE DRAIN**.

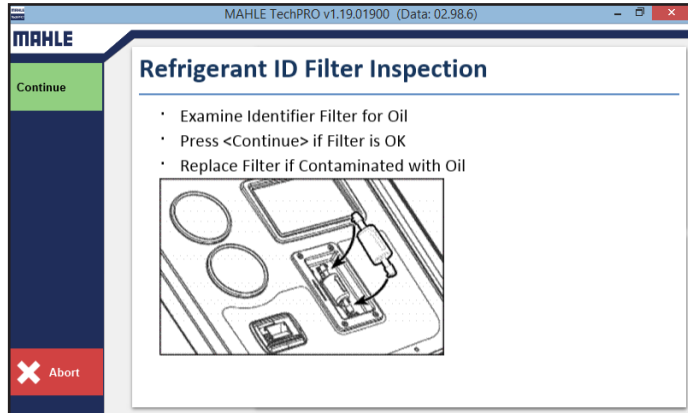


Fig. 27: Check refrigerant ID filter

2. Disconnect the hoses from any external source and press **CONTINUE**.
3. Unit will perform a refrigerant identification. After successful refrigerant ID, the Hose drain process will start.

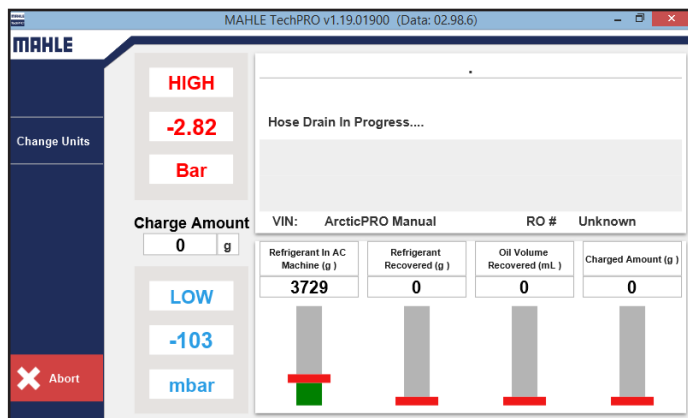


Fig. 28: Hose drain in progress

4. Allow process to run to completion.

3.10 Flushing

i Access to the flush menu is available through the main menu by selecting **CALIBRATION/MAINTENANCE**, then select **MAINTENANCE** and then **FLUSH**.

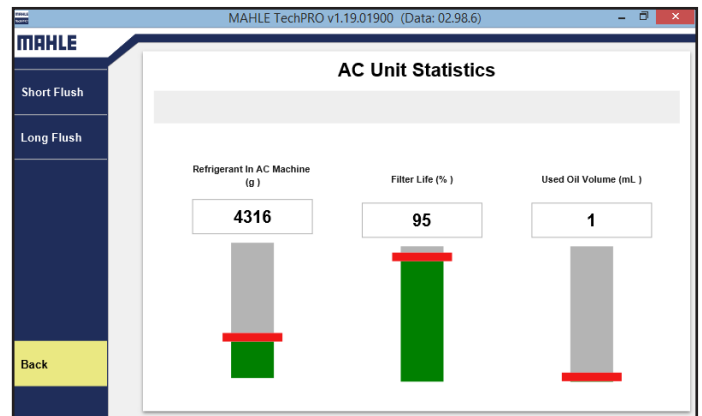


Fig. 29: Flush process selection

⚠ When servicing a vehicle, the type of oil in the vehicle's A/C system should be noted to prevent a cross-contamination inside the ACX1299KIA. For example, if a PAG system is serviced and another vehicle with a POE system is to be serviced next, a short flush routine must be performed to prevent a cross-contamination of the oils.

⚠ If the ACX1299KIA is not flushed, the internal hydraulic system and the vehicle air conditioning system could be damaged as a result of cross-contamination. MAHLE cannot accept liability for any such damage.

i The short flushing procedure is used to clear out the ACX1299KIA hoses when changing oil types. The Extended Flushing procedure is used to perform liquid refrigerant flushing on A/C system components.

i The MAHLE R1234YF Flushing Kit is available to be purchased separately and used in conjunction with the Long Flush to separate dirt from inside the A/C system components.

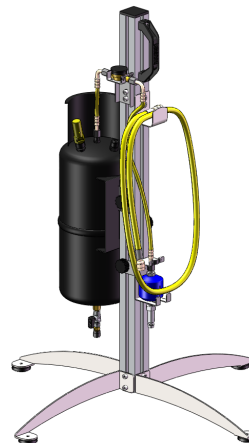


Fig. 30: R1234yf flush device

3.10.1 Short flush

1. In the **FLUSH** menu, select **SHORT FLUSH**. The unit will begin a vacuum process.
2. The high and low side hoses should be connected to the flush block on the left side of the unit. Open the couplers.
3. After the vacuum process completes, the unit will charge refrigerant through the hoses and then recover the refrigerant.

3.10.2 Long flush

1. In the **FLUSH** menu, select **LONG FLUSH**. A screen will appear to adjust the desired flushing parameters.

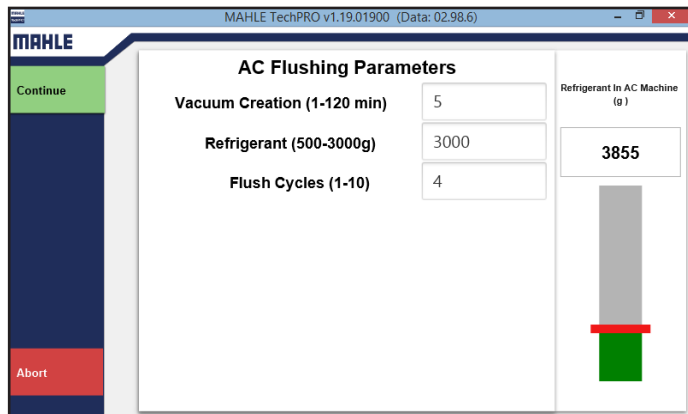


Fig. 31: Long flush parameter adjustment

2. After adjusting all parameters to the desired value, press **CONTINUE**. The following screen will appear.

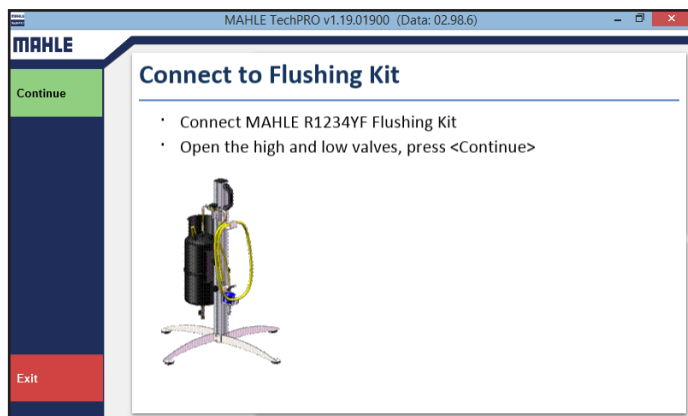


Fig. 32: Connect to flush kit

3. After connecting as shown in Fig. 33, press the **CONTINUE** button.

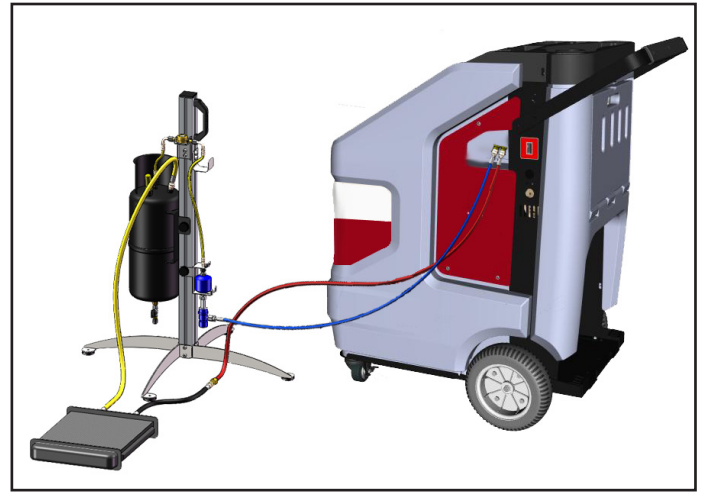


Fig. 33: Unit connected to flush device and condenser

4. Unit will perform a vacuum process, then precharge the system with a set precharge amount and monitor the system for a drop in pressure that would indicate a leak in the system. After the system passes the leak test, the unit will continue charging the system until it reaches the set value. The refrigerant will be recovered and an oil drain will occur. If the unit was set to perform multiple cycles, the unit will repeat the cycle the specified number of times.

4. Maintenance

i Please contact an authorized technical support center for purchasing factory replacement parts.

4.1 Maintenance interval

Description	Period
Calibration of scales	1 x per year
Vacuum pump oil replacement and system leak test	After 60 hours of service
Inline filter replacement	Refer to filter drier
Combo filter replacement and system leak test	After 68kg (150lbs) of refrigerant processed
System leak test	As required
White sample filter of refrigerant identification unit	As soon as red spots begin to appear on any portion of the white element

⚠ Make sure ACX1299KIA is disconnected from power before removing plastic housing.

⚠ Never perform any maintenance work which is not expressly recommended in this section.

⚠ Contact customer service if components have to be replaced other than in the course of maintenance work.

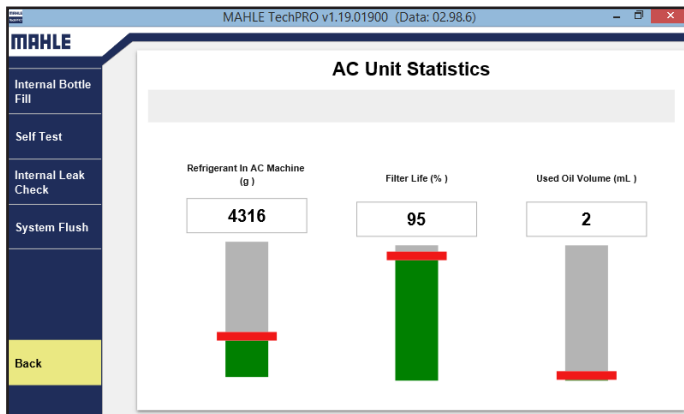


Fig. 34: Maintenance menu

4.2 Filling internal refrigerant cylinder



Warning – Risk of frostbite from escaping refrigerant

Refrigerant causes severe frostbite on the skin.



- Check the service hoses for damage.
- Firmly connect the service quick-release couplings to the service hoses.



- Wear protective goggles.
- Wear protective gloves.

i Before the ACX1299KIA can be used, the internal refrigerant bottle must be filled with liquid refrigerant. Use only R1234yf refrigerant.

i A menu-driven refrigerant check is performed before filling the internal refrigerant bottle.

i The refrigerant can be obtained from your gas supplier. It can be stored normally and transported in bottles with connection fittings.

i To ensure a reliable procedure, it is advisable to use the optimum quantity of refrigerant. The optimum quantity of refrigerant for the ACX1299KIA is 4kg – 9.5kg (8.8lbs – 20.9lbs).

i An inadequate quantity may make efficient filling of the vehicle air conditioning system impossible. Also, if there is an insufficient quantity, the ACX1299KIA may not be able to operate efficiently. In the event of an excessive quantity, there may not be sufficient space for the refrigerant recovered from the vehicle air conditioning system.

⚠ Generally speaking, the actual quantity of refrigerant added exceeds the set quantity by approx. 200g (0.4lbs) as there is no refrigerant in the internal refrigerant circuit. Add 200g (0.4 lbs) to the set quantity when filling with refrigerant for the first time.

1. In the **MAINTENANCE** menu, select **INTERNAL BOTTLE FILL**.
2. Touch inside blank box to enter desired fill amount. A keyboard will appear to type refrigerant amount in grams.

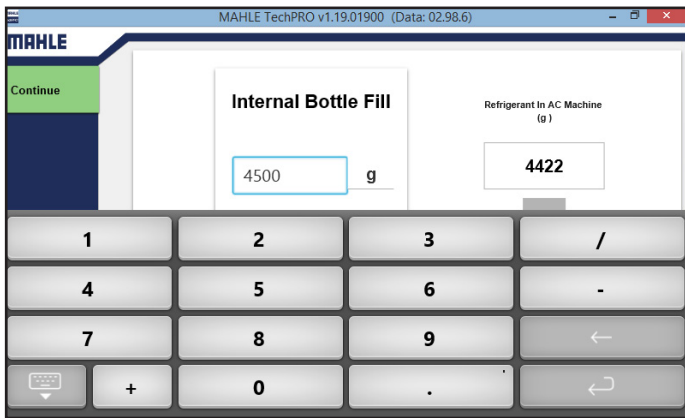


Fig. 35: Internal bottle fill value adjustment

3. Press **CONTINUE** to accept value.
4. Follow the on-screen instructions.

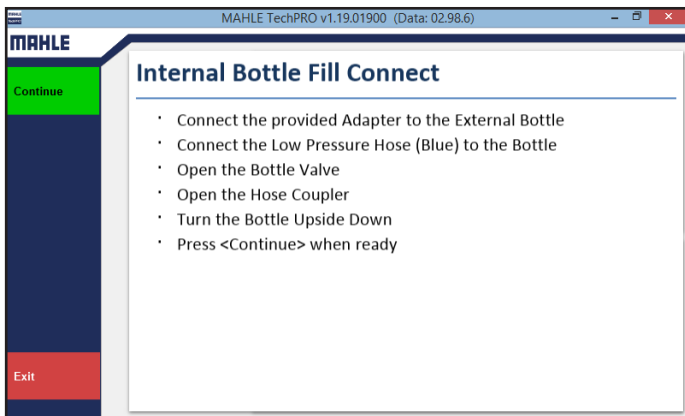


Fig. 36: Internal bottle fill connection instruction screen

5. After all steps listed have been completed, press **CONTINUE** to begin process.

- ❗ The current pressure inside the external refrigerant bottle is indicated on the low-pressure gauge.
- ❗ Any amount of refrigerant between 100g (0.2lbs) and 10500g (23.1lbs) can be added.
- ⚠ Do not interrupt the automatic filling process prior to automatic termination by the ACX1299KIA.

4.3 Self test

⚠ Self test is not currently functional. It is to be added during a later software release.

- ❗ The self test can be performed to make sure all internal solenoids are functioning as designed from the factory. The test will pulse each solenoid with power to check that each one is functional.

- ❗ In the maintenance menu, select **SELF TEST** to perform this test.

4.4 Internal leak check

⚠ Internal leak check is not currently functional. It is to be added during a later software release.

- ❗ The ACX1299KIA performs an internal leak check to test that none of the components carrying refrigerant are leaking. After 68kg (150lbs) of refrigerant has been processed, after combo filter replacement or after 60 hours of vacuum time, the operator is requested to perform an "Internal leak check". The operator can conduct an "Internal leak check" at any time on completion of a process phase.

- ❗ The internal leak check takes roughly 30 minutes.

➤ In the **MAINTENANCE** menu, select **INTERNAL LEAK CHECK**.

➔ The leak test process is started.

The following action must be taken if the leak test is unsuccessful:

1. Check the service hoses and filter connections for leaks.
2. The valves of the service quick-release couplings must be closed.
3. Repeat the internal leak check.

- ❗ Contact customer service if the system leak test is again unsuccessful.

4.5 Remove contamination

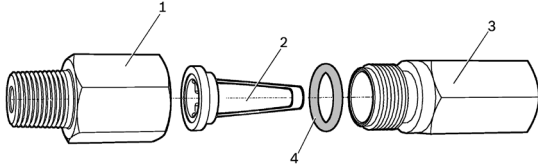
⚠ This function is not currently available on the ACX1299KIA units. It will be enabled during a later software update.

- ❗ Perform this procedure to remove contaminated refrigerant from the service hoses and couplers.

4.6 Replace inline filters

- ❗ The inline filters must always be changed when replacing the filter drier.

The inline filters consist of a filter element fitted in the hose adapter.



- | | |
|--------------------------|---------------------|
| 1 Adapter for connection | 3 Adapter for hoses |
| 2 Filter element | 4 Sealing ring |

1. Drain the service hoses.
2. Disconnect the service hoses from the inline filters.

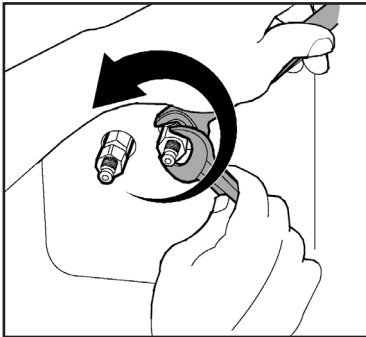


Fig. 37: Removing adapter

3. Remove the filter element.
4. Install the new filter element.

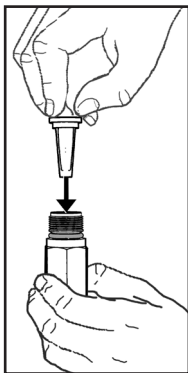


Fig. 38: Installing filter element

- ❗ Make sure the sealing ring is correctly positioned at the adapter and not damaged. Replace the sealing ring if it is damaged.

5. Screw the inline filter onto the adapter.
6. Attach the service hoses to the adapter.

4.7 Vacuum pump maintenance

4.7.1 Changing vacuum pump oil



Attention – Risk of burns from hot surfaces
Contact with the hot surface of the vacuum pump will cause severe burns.



- Allow the vacuum pump to cool down.
- Wear protective gloves.

- ❗ The vacuum pump oil must be changed after 60 hours of operation. The message "Change vacuum pump oil" appears on the screen when the vacuum pump oil needs changing.

- ❗ Use the vacuum pump oil specified by MAHLE (part number 011 80070 00).

1. Place a container under the drain on back side of unit.
2. Open rear service door and slide open cover to expose oil fill port.
3. Open the drain plug and filler plug of the vacuum pump.
4. Drain all the oil.
5. Close the drain plug.
6. Pour vacuum pump oil into oil fill port until oil level is somewhere between the min and max lines.
7. Turn on unit and start a vacuum process.
8. Check oil level.

- ❗ Oil level is accurate when level is midway on the viewing window.

➔ Oil change completed.

4.8 Combo-filter maintenance



Warning - Risk of frostbite from escaping refrigerant

Refrigerant causes severe frostbite on the skin.



- Check the service hoses for damage.
- Firmly connect the service quick-release couplings to the service hoses.



- Wear protective goggles.
- Wear protective gloves.

i Unit operation is disabled at the end of the filter service life. Each filter is marked with a unique code. This code must be entered when replacing the filter. It is not possible to operate the ACX1299KIA if the same code is re-used. It is advisable to keep a supply of filters in stock to avoid downtimes due to the unit being disabled.

i The ACX1299KIA is disabled once 68kg (150lbs) of R1234yf refrigerant have passed through the filter. A new filter must be installed and its unique code entered in the ACX1299KIA before vehicle A/C service can be performed.

i The message "Replace combo filter soon" appears once 57kg (125lbs) of refrigerant have passed through the filter prior to the start of any recovery process. As soon as this warning message is displayed, contact customer service to order a new filter. The contact data can be found on the rating plate.

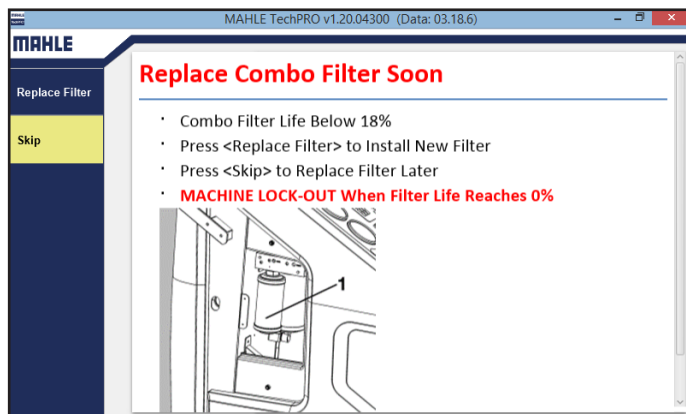


Fig. 39: Filter life reminder

⚠ Pay attention to correct positioning of the two O-rings when installing new filter!

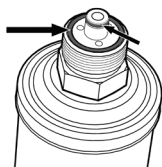


Fig. 40: O-Rings

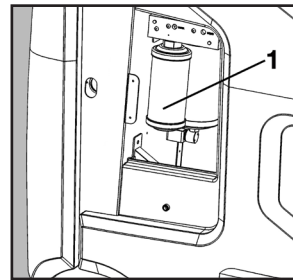


Fig. 41: Replacing filter

1. Combo filter

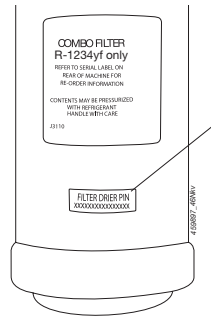


Fig. 42: Location of PIN number on filter

1 Code

1. Drain the service hoses.
2. Remove the right service door.
3. Loosen the filter, using a 1-3/8" (35 mm) wrench.
4. Remove the filter.

i Make sure the old sealing rings are removed before securing the new filter.

5. Insert a new filter.
6. Tighten the filter to 74 ft-lbs (100 N-m).
7. Secure the service door.
8. Press **REPLACE FILTER** and when the screen below appears, type code from the filter into the boxes and press **CONTINUE**.

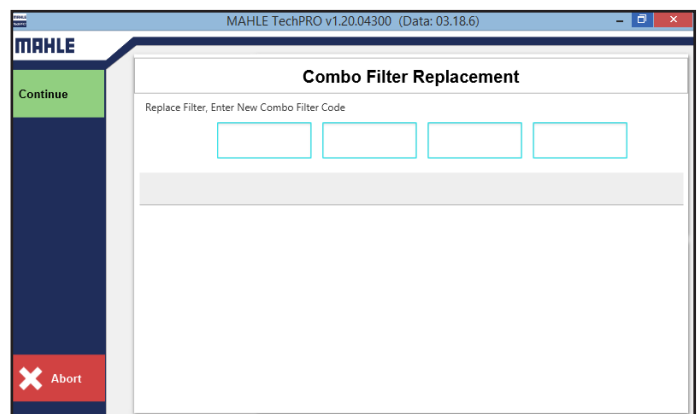


Fig. 43: Combo filter code entry

⚠ Take care not to damage any hoses or electrical connections when changing the filter.

⚠ Never re-use an old filter.

4.9 Replacing printer paper

⚠ Avoid excessive force as not to damage the lever.

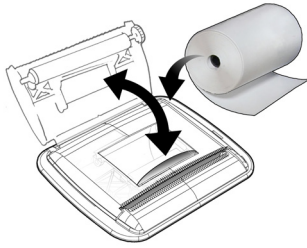


Fig. 44: Changing paper

1. Pull the printer lever until the cover is released.
2. Insert new roll of paper as shown in the above image.
3. Close the cover and tear off excess paper.

4.10 Replace ID sample filter (Refrigerant identification unit)

⚠ The need to replace the white ID sample filter may indicate oil contamination in the test hose. Replace the test hose if oil entrapment is found.

1. Switch off the ACX1299KIA unit.
2. Remove old filter by pulling it straight out of the retaining clip.
3. Discard the used filter.

ⓘ Align the arrow on the filter with the arrow on the unit.

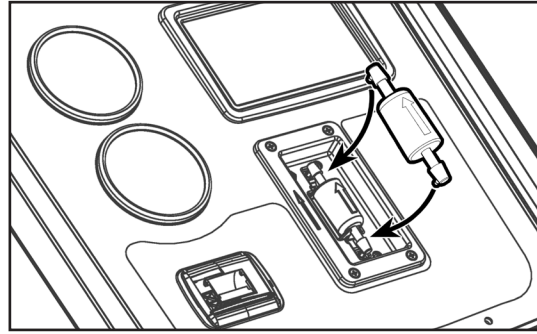


Fig. 45: Changing ref. ID filter

4. Position the filter into its retaining clip on the unit case.
5. Remove the 4 screws that attach the plastic tool tray.
6. Remove the 2 screws that attach the front display unit.
7. Carefully open the front display. NOTE: This step may require operator to loosen the 2 locking-nuts at the pivot point to be able to open the display.
8. Once unit is open, inspect clear hose coming from back side of identifier down to solenoid assembly mounted on the center panel.
9. Replace if necessary.
10. Fold display down and install 2 screws to front plastic.
11. Tighten locknuts at pivot point if they were loosened.
12. Reinstall tool tray and the 4 screws.

4.11 Reset circuit breaker.

1. Switch off the ACX1299KIA and unplug from receptacle.
2. Allow unit to sit for a minute.
3. Look above fan on back of unit for the white button
4. Press white circuit breaker button back in to reset.
5. Plug in unit and turn back on.

4.12 Scale calibration

i If a calibration of the main bottle is required, a special kit is available through MAHLE that includes a 4000g weight for the main bottle and a 1000g weight for the used oil bottle scale. Contact MAHLE Technical Support in the event a calibration of the unit is necessary. 1-800-468-2321 x 1.

i Access to the Calibration menu is available through the main menu by selecting **CALIBRATION/MAINTENANCE** and then **CALIBRATION**. The following screen will be displayed:

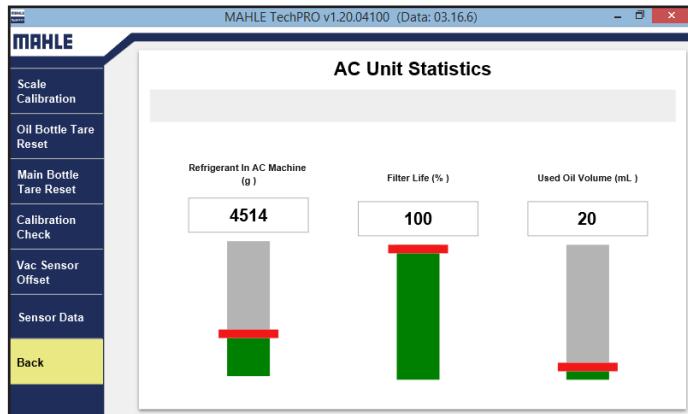


Fig. 46: Calibration menu

4.12.1 Calibrating internal refrigerant bottle

i The internal refrigerant bottle is calibrated at the factory.

1. In the **CALIBRATION** menu, select **SCALE CALIBRATION**.
2. Select the **MAIN BOTTLE**.
3. The screen below will appear and prompt technician to enter the weight of the calibration weight. Touch inside the blank box to enter calibration weight. A keyboard will appear to enter value. Type in the weight of the calibration weight.

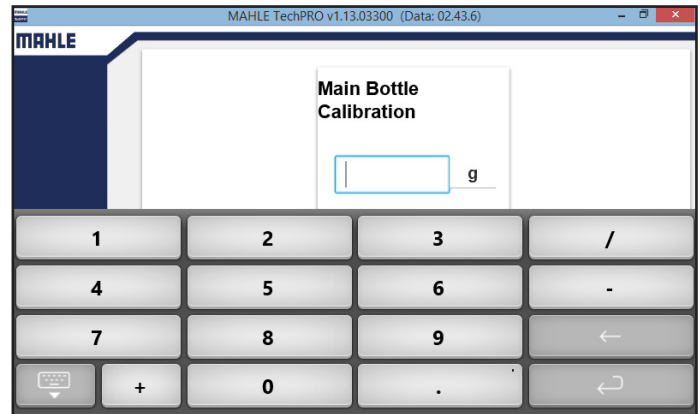


Fig. 47: Input calibration weight value

4. Press **CONTINUE**.
5. A screen will appear prompting technician to connect the standard calibration weight. Attach the calibration weight and press **CONTINUE**.

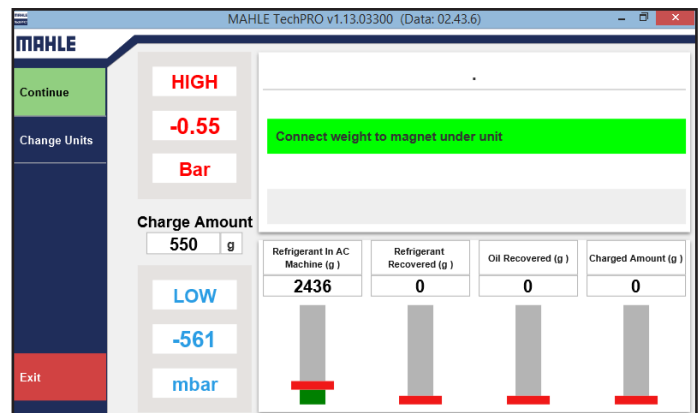


Fig. 48: Attach calibration weight

6. Calibration complete.
7. Remove the calibration weight.

4.12.2 Calibrating used oil bottle scale

1. In the **CALIBRATION** menu, select **SCALE CALIBRATION**.
2. Select the **USED OIL BOTTLE**.
3. Open the rear access panel and remove used oil bottle.

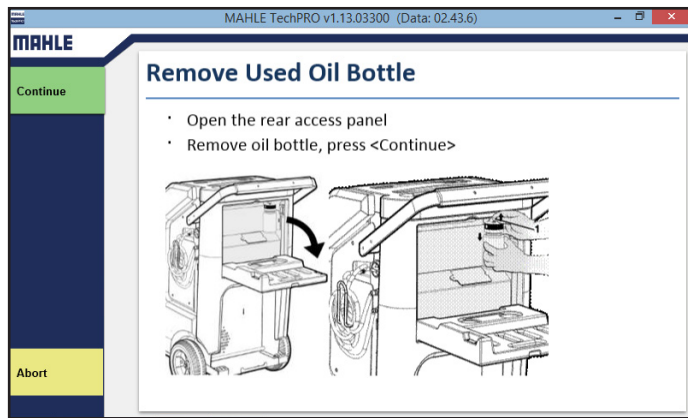


Fig. 49: Used oil bottle scale calibration instruction screen

4. Press **CONTINUE**.
5. The screen below will appear and prompt technician to enter the weight of the calibration weight. Touch inside the blank box to enter calibration weight. A keyboard will appear to enter value. Type in the weight of the calibration weight.

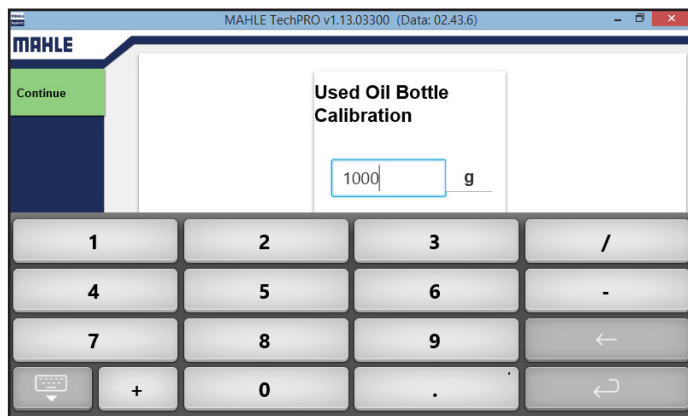


Fig. 50: Used oil bottle calibration weight entry

6. Press **CONTINUE**.
7. A screen will appear prompting technician to connect the standard calibration weight. Attach the calibration weight and press **CONTINUE**.
8. Calibration complete.
9. Remove the calibrating weight.
10. Reattach the oil bottle and close rear access panel.

4.12.3 Oil bottle tare reset

1. In the **CALIBRATION** menu, select **OIL BOTTLE TARE RESET**.
2. Open the rear access panel and attach an **EMPTY** oil bottle.

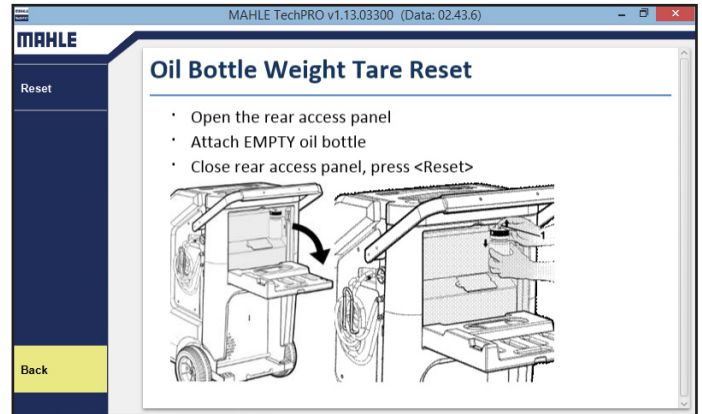


Fig. 51: Used oil bottle tare reset instruction screen

3. Press **RESET**

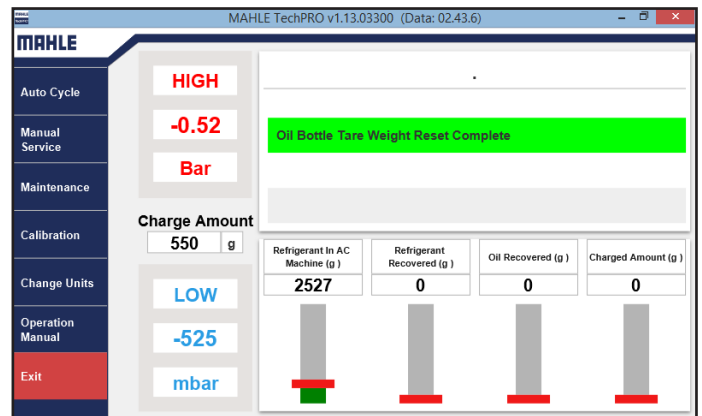


Fig. 52: Used oil bottle tare reset complete

➔ Tare reset completed.

4.12.4 Main bottle tare reset

⚠ Prior to resetting the main bottle tare weight, the cylinder must be fully emptied of all refrigerant.

⚠ This process is password protected and should only be performed by qualified personnel.

1. In the **CALIBRATION** menu, select **SCALE CALIBRATION**.
2. Select the **MAIN BOTTLE**.
3. Follow steps in the scale calibration section to complete main bottle calibration process.
4. After calibration process is completed, from the **CALIBRATION** menu, select **MAIN BOTTLE TARE RESET**.
5. Enter password for process and press **CONTINUE**.
6. The screen below will appear. Verify all steps have been completed and press **CONTINUE**.

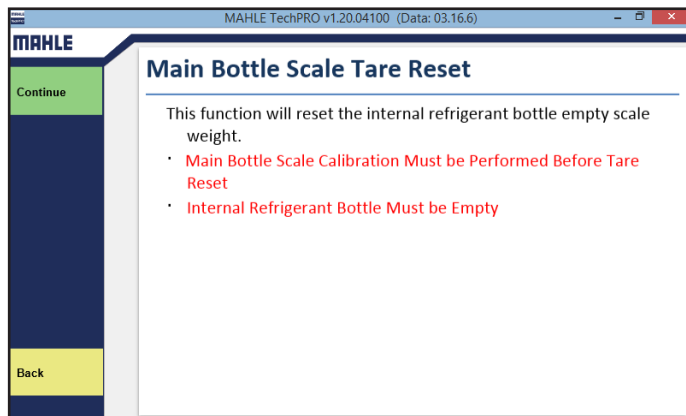


Fig. 53: Main bottle tare reset

7. Refrigerant in A/C machine value should be reset to 0 after the tare reset is completed.

4.12.5 Calibration check

ⓘ Only internal refrigerant bottle.

1. In the **CALIBRATION** menu, select **CALIBRATION CHECK**.
2. When prompted, attach the calibration check ball to the magnetic post on the bottom of the ACX1299KIA.
3. Press **CONTINUE**.

➔ Calibration check completed.

ⓘ Getting message "calibration check failed", calibration check should be performed again and if it still fails a second time, a calibration of the internal refrigerant bottle scale should be performed.

4.12.6 Vacuum sensor offset

⚠ This function is not applicable to the ACX1299KIA units.

4.12.7 Change units

ⓘ Press the **CHANGE UNITS** button to change between SAE and metric units. This can be changed on any screen where the button appears.

4.12.8 Sensor data

ⓘ To view up to date sensor values, in the **CALIBRATION** menu, select **SENSOR DATA**.



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