

INVENTO

TIP-TOPOL

INVENTO S120 R1234yf

AC Station Manual



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1. Instructions

1.1 Safety cautions

1) **ALLOW ONLY QUALIFIED PERSONNEL TO OPERATE THE MACHINE.** Before operation, read and follow the instructions and warnings in this manual. The operator must have knowledge about air conditioning and refrigeration systems, refrigerants, and the dangers of pressurized components. If the operator cannot read this manual, operating instructions and safety precautions must be read and discussed in the operator's native language.

2) **USE THE MACHINE AS OUTLINED IN THIS MANUAL.** Using the machine in a manner for which it was not designed will compromise the machine and nullify the protections provided.

3) **AVOID BREATHING IN A/C REFRIGERANT OR LUBRICANT VAPOR OR MIST.** Exposure can irritate eyes, nose, and throat. To remove refrigerant from the A/C system, use only equipment certified for the type of refrigerant being removed. Use the unit in locations with mechanical ventilation that provides at least four times ventilation per hour. If accidental system discharge occurs, ventilate the work area before resuming service.

4) **TO REDUCE THE RISK OF FIRE,** do not use the machine in the vicinity of spilled or open containers of gasoline or other flammable substances. Do not use an extension cord. Do not use the machine in the vicinity of flames and hot surfaces. Refrigerant can decompose at high

temperatures and free toxic substances to the environment that can be noxious to the user. Do not use the machine in environments containing explosive gases or vapors. Do not use this machine in ATEX classified zones or areas. Protect the machine from conditions that can cause electrical failure or other hazards relating to ambient interaction.

5) **DO NOT PRESSURE TEST OR LEAK TEST EQUIPMENT AND/OR VEHICLE AIR CONDITIONING SYSTEMS WITH COMPRESSED AIR.** Mixtures of air and R134a refrigerant can be combustible at elevated pressures. These mixtures are potentially dangerous and can result in fire or explosion causing personal injury and/or property damage.

6) **NEVER START THE MACHINE IF IT WILL NOT BE USED IMMEDIATELY.** Disconnect the electrical supply before a long period of inactivity or before internal maintenance is performed.

DO NOT MODIFY THE PRESSURE RELIEF VALVE OR CHANGE THE CONTROL SYSTEM SETTINGS.

Using the machine in a manner for which it was not designed will compromise the machine and nullify the protections provided.

7) **HOSES CAN CONTAIN LIQUID REFRIGERANT UNDER PRESSURE.** Contact with refrigerant can cause personal injury, including blindness and frozen skin. Wear protective equipment, including goggles and gloves. Disconnect hoses using extreme caution. Ensure the phase is complete before disconnecting the machine to prevent the release of refrigeration to the atmosphere.

8) PRESSURIZED TANK CONTAINS LIQUID REFRIGERANT. Do not overfill the internal storage vessel (ISV).

Overfilling can cause explosion resulting in personal injury or death. Do not recover refrigerants into nonrefillable containers; use only type-approved refillable containers that have pressure relief valves.

1.2 Safety signs

	Read carefully.
	Don't use it outside when it's raining.
	Wear gloves.
	Wear protection goggles.
	Grounding protection.
	Electrical shock hazard.

2. Product details

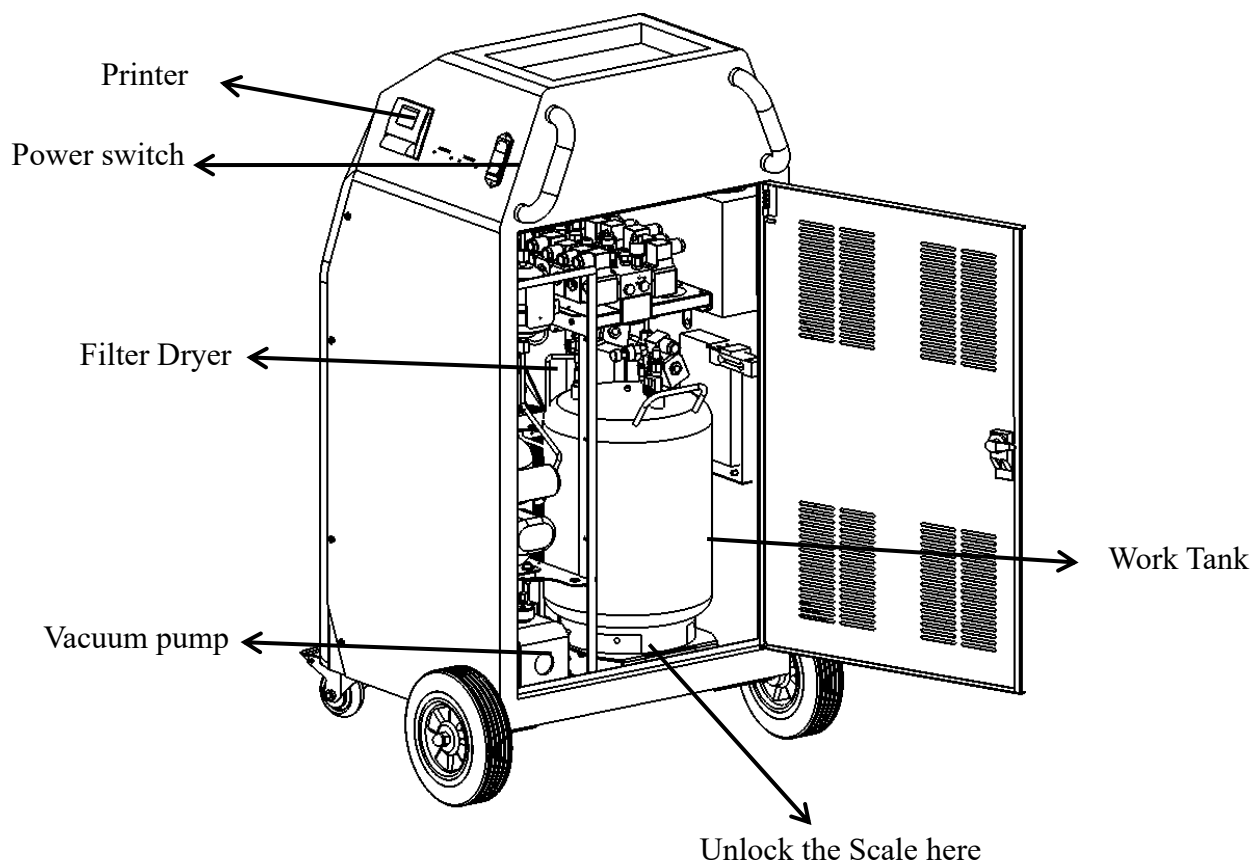
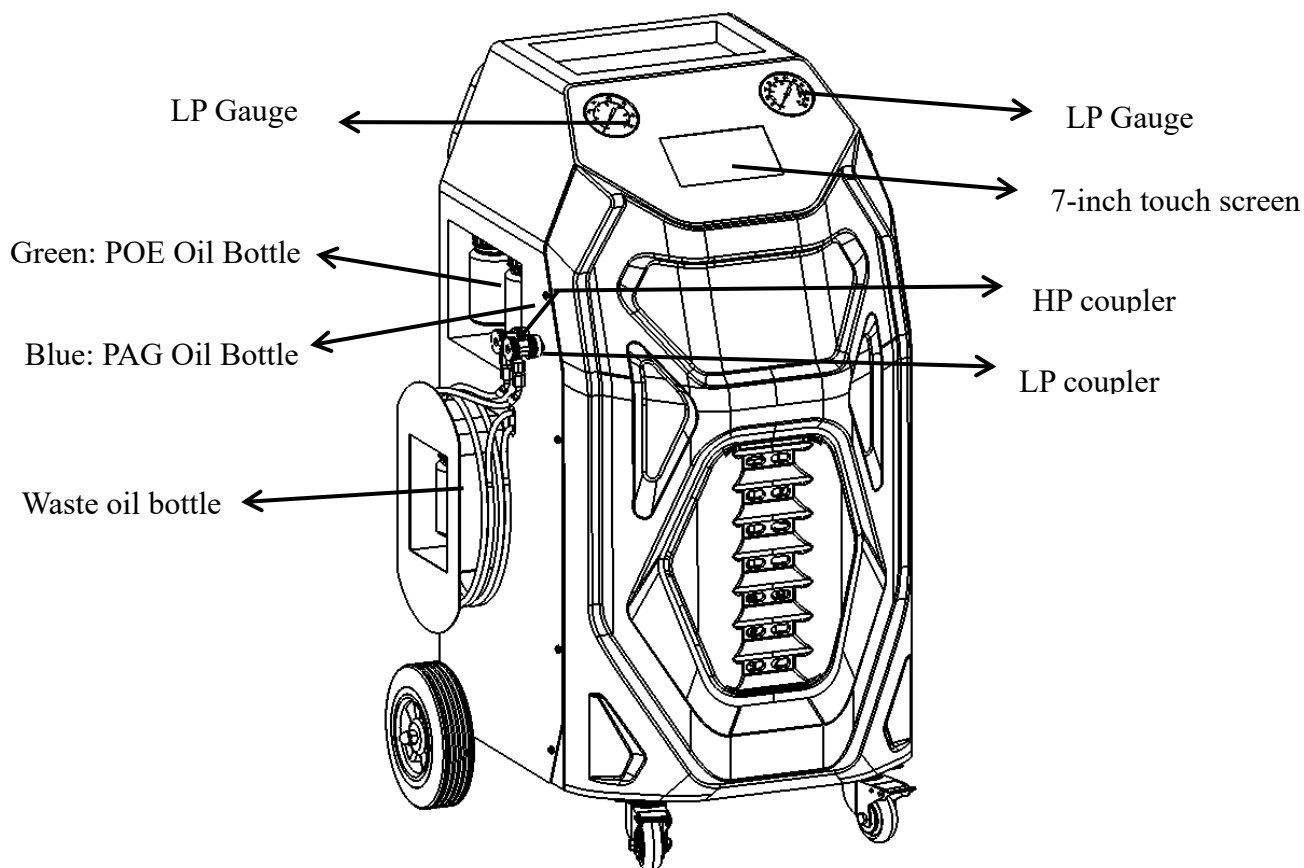
2.1 Functions

- 1) Fully automatically recover, vacuum, charge and leak test R134a refrigerant.
- 2) Applied to fuel cars, hybrid cars or electric cars
- 3) 7 inches touch screen, fully digital display and operation prompts.
- 4) 4 digital scales, respectively for refrigerant, PAG oil, POE oil and waste oil
- 5) Deep recovery function and the recovery rate is high to 95%.
- 6) Three charge modes: LP charge/HP charge/LP+HP Charge
- 7) 200,000 car models for data bank. And users can edit the databank by a SD card.
- 8) Built-in printer, and users can print out the service report.
- 9) Operation records, which the users can refer to at any time.
- 10) Patented new designed oil bottles, prevent any air to go in to contaminate the oil.
- 11) High accurate pressure sensor to detect leaks in the a/c system or in the machine.
- 12) Intelligent prompts for filter and vacuum pump oil changing.

2.2 Parameter

Refrigerant type: R134a	Recovery: 3/8HP
Voltage: AC 220V	Vacuum: 180L/min
Power: 1100W	Tank capacity: 10kgs
Temperature: -20°C~+60°C	Filter life:150kg
LCD: 7 inches touch screen	Scales: 4pcs (for refrigerant, PAG, POE and waste oil)
Recovery rate: 95% or above	G.w.: 95kg
Oil bottles: 3 pcs at 350ml (PAG, POE, Waste oil)	Dimension: 1200mm(Height)*660mm(Depth)*740mm(Width)
Scale accuracy:10g	

2.3 Appearance



3. How to connect to the car

- (1) Connect the red and blue quick connectors to the red and blue service hoses.
- (2) Connect the high-side (red) and low-side (blue) service hoses to the vehicle A/C system.

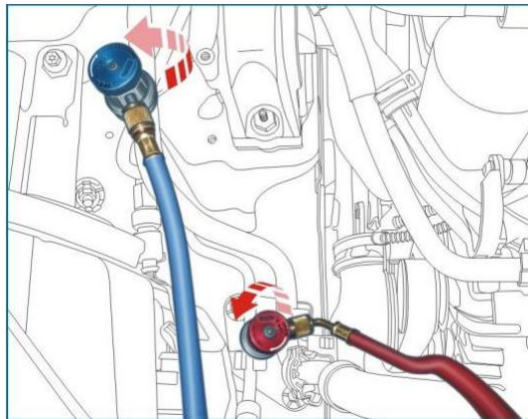
High and low side valve operation guidelines

During the operation, the system will prompt "close high and low side valves" and "open high and low side valves" for many times, which means:

“Close high and low side valves”:

As shown in the picture, tighten the high and low side valves counterclockwise, which is the opposite direction of the arrows on the high and low side valves (arrows marked "open").

Close the A/C system quick connector

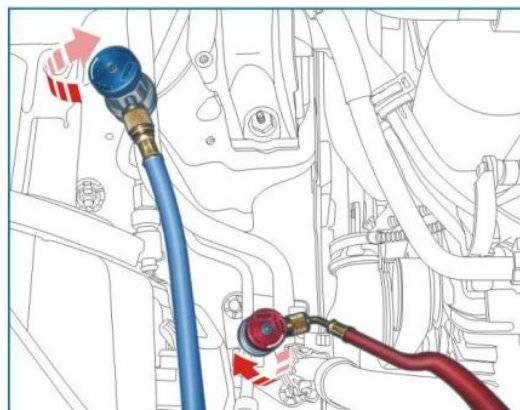


Tighten the A/C system quick-connector counterclockwise

“Open the high and low side valves”:

As shown in the picture, tighten the high and low side valves clockwise, which is the direction of the arrows on the high and low side valves (arrows marked "open")

Open the A/C system quick connector

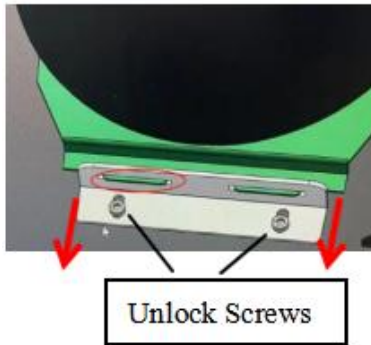


4. Initial Setup

Please follow the steps to install a new machine.

4.1 Unlock the scale

Use a hexagon tool to loosen the protection screws below:



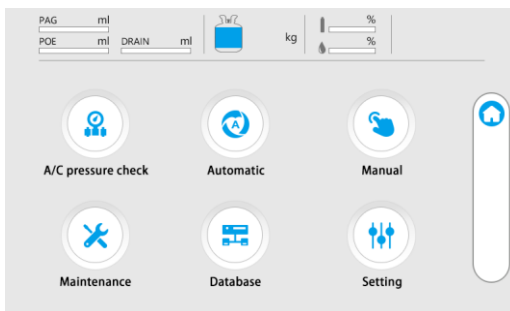
4.2 Tank filling

Please refill 3-6kgs refrigerant into the new machine before charge.

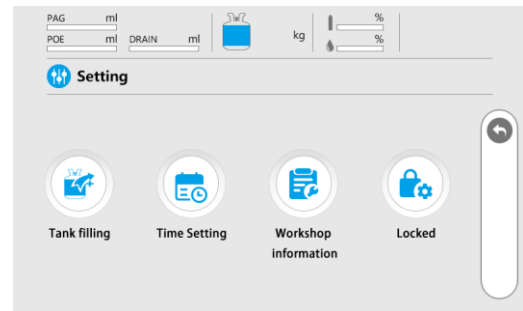
1) Start the machine and select the required oil type.



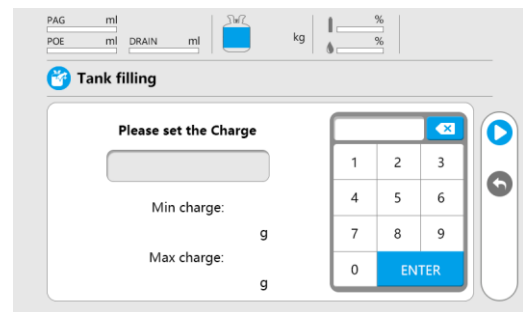
2) Choose the menu “Maintenance”.



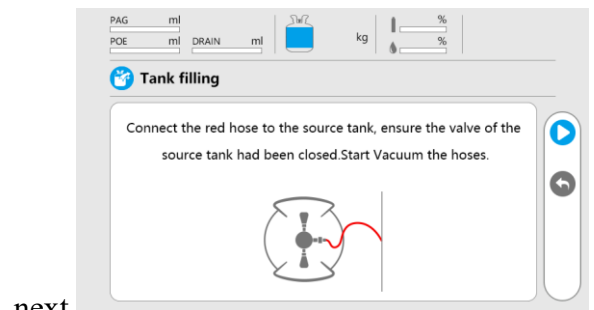
3) Choose “Tank Filling”.



4) Follow the instruction and press

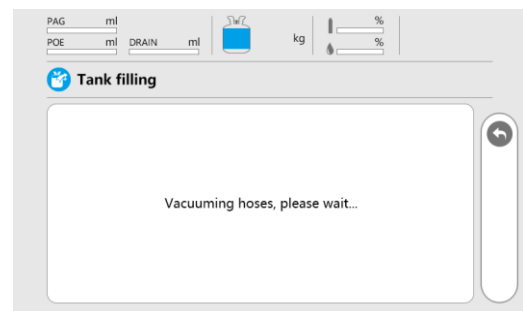


5) After following the system prompts, click

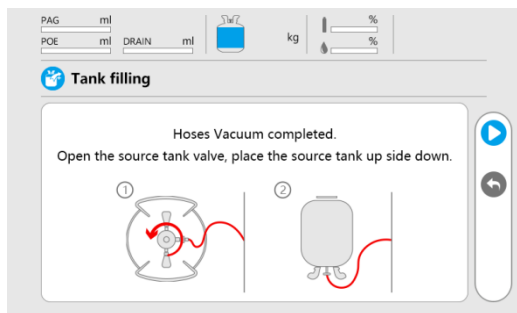


next.

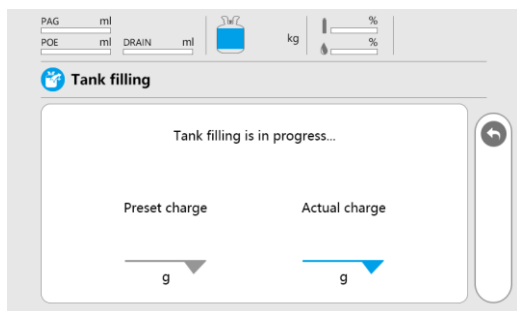
6) Follow the instruction to next step. Press



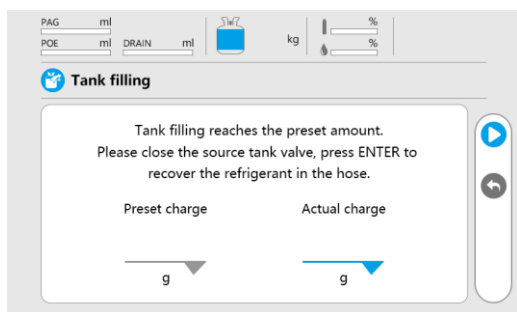
7) Vacuum completed, press  to next step.



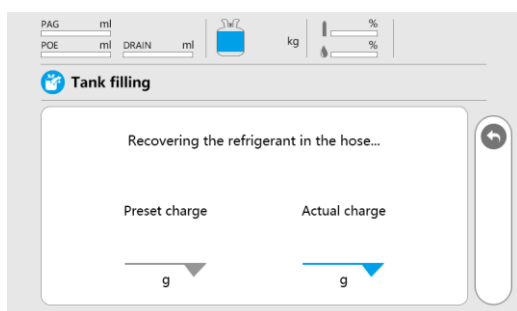
8) Refilling, please wait.



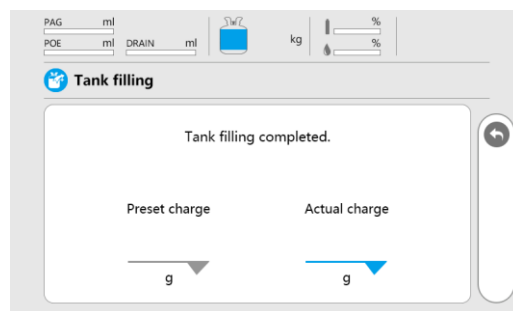
9) Tank filling reaches the preset amount and click  next.



10) Recovering the refrigerant in the hose, please wait.

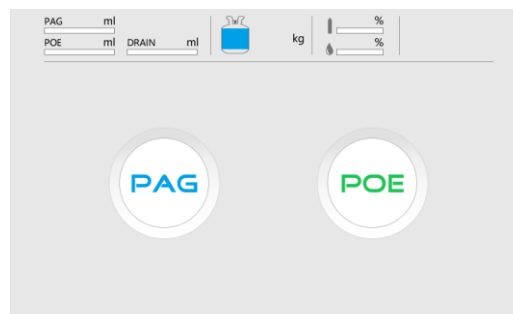


11) Tank filling completed. You can use the machine.



5. Internal Flushing

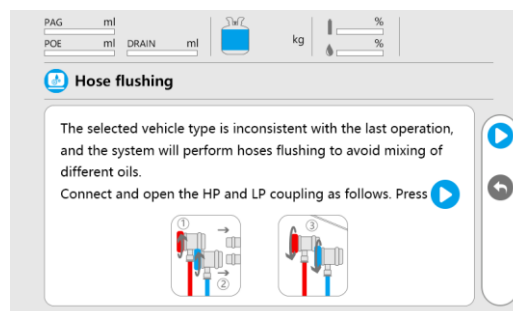
1) The unit is compatible with PAG and POE oil, please select the type of oil you need before use.



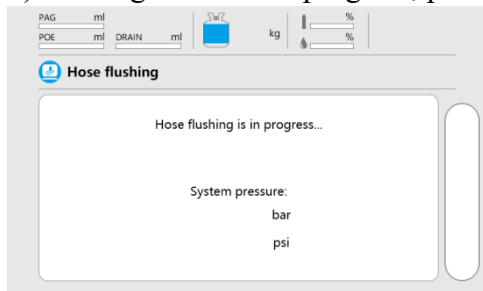
2) If the oil type selected this time is the same as that selected in the previous operation, you can go to the next step directly.

3) If the selected vehicle type is different from the last vehicle, system will automatically prompt.

Press  to the next step.

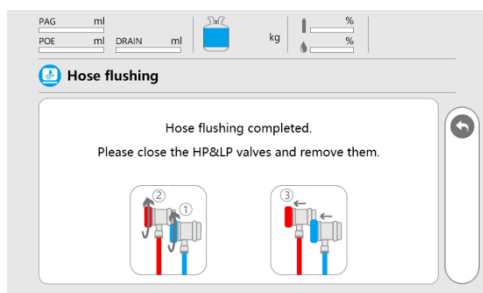


4) Flushing Hoses is in progress, please wait.

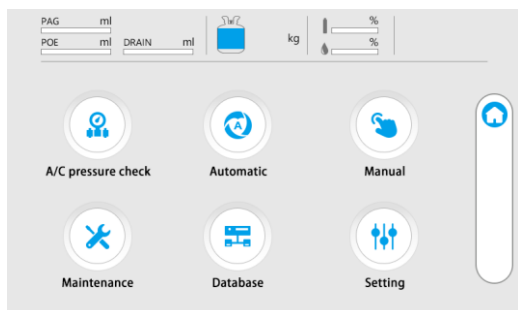


5) Flushing hoses completed. Close and disconnect HP

and LP coupling. Click  to continue.



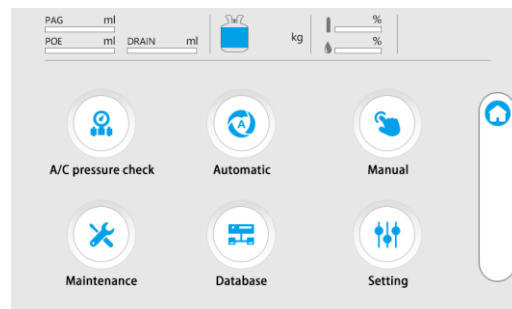
6) If you need to re-select the type oil, click  to back to the interface for selecting the oil.



6. Operation Introduction

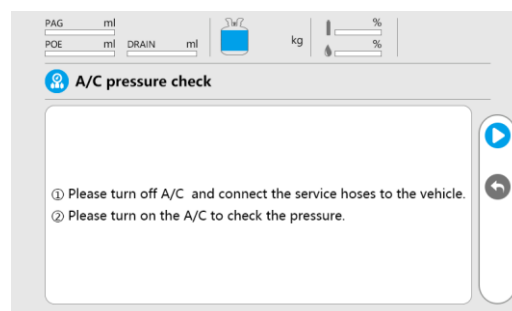
6.1 A/C Pressure Check

1) Choose the menu “A/C PRESURE CHECK”.

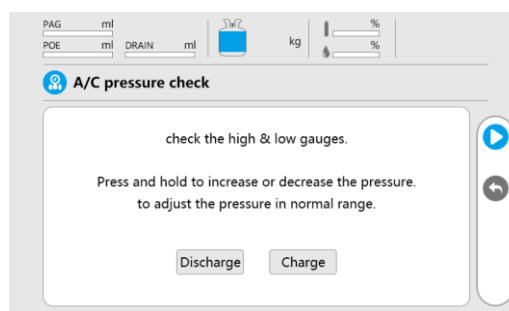


2) Please operate according to the prompt. Press

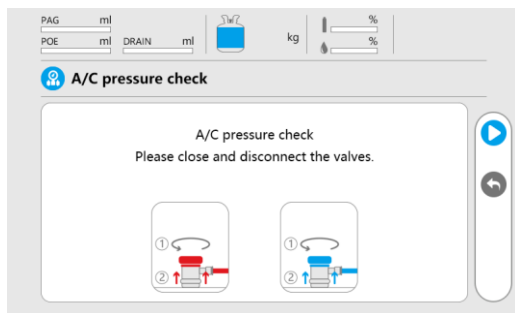
 to the next step.



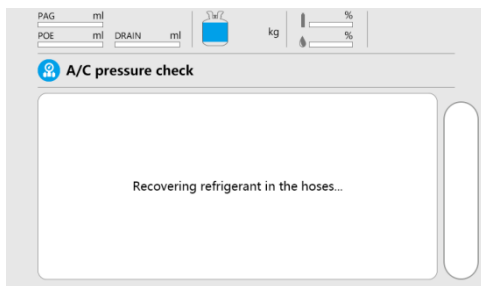
3) Follow the instruction to check and adjust the LP and HP pressure.



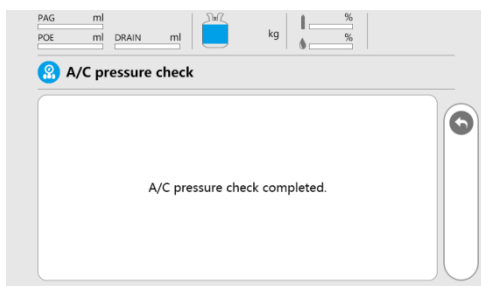
4) Adjustment completed, press  to continue.



5) Recovery refrigerant in the hose ,please wait.

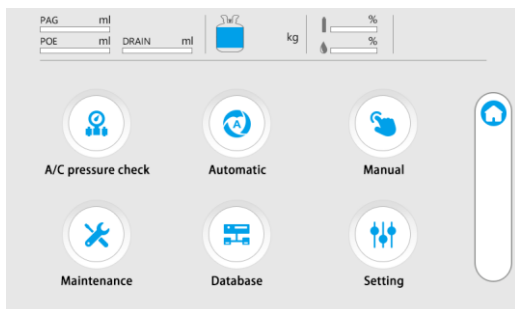


6) AC pressure check completed, press  to back to exit.

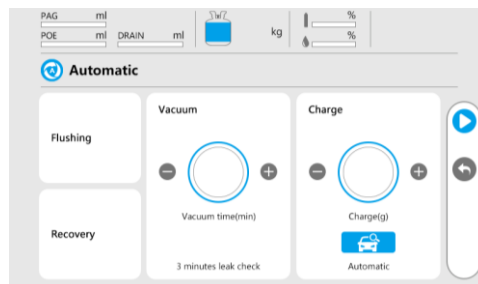


6.2 Full automatic operation

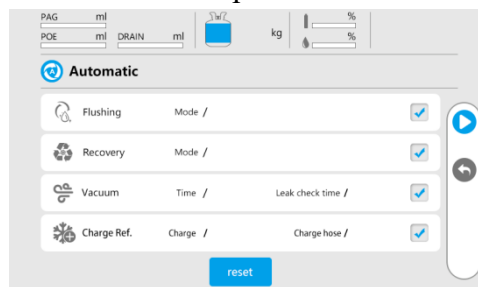
1)Choose "Automatic".



2)Select and set parameters as required, and press  to continue.

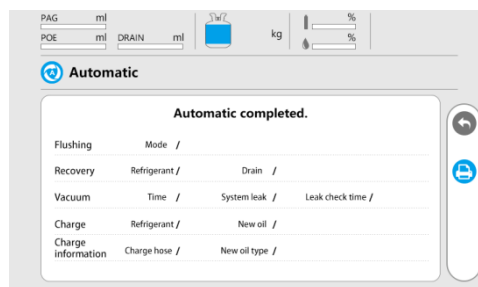


3)Ensure the value being correct and then press  to continue. If there is an error, press "Reset" to return to reset the parameters.



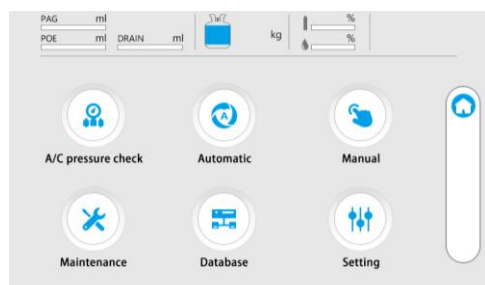
4) Follow the prompted instructions to operate.

5)Full automatic operation completed. Press  to print. Or press  to exit to Main Menu.

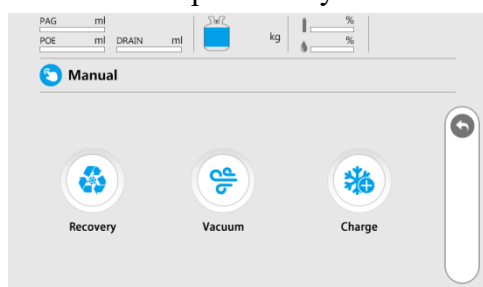


6.3 Manual operation

Choose menu of “MANUAL”.

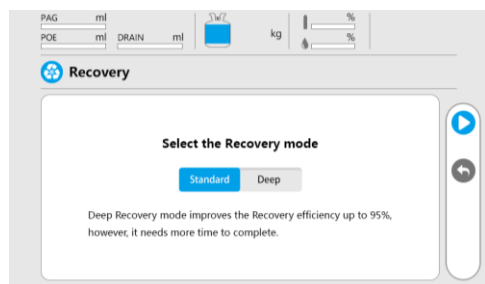


Choose the process you want to operate.

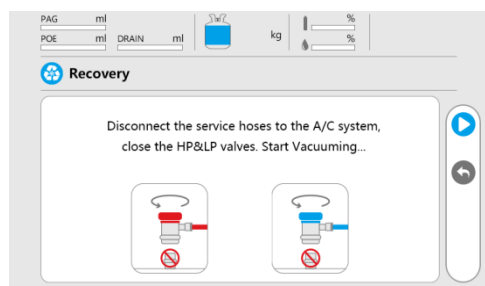


6.3.1. Recovery

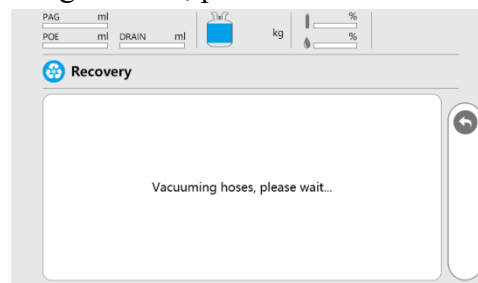
1) Choose the mode of recovery, press  to next.



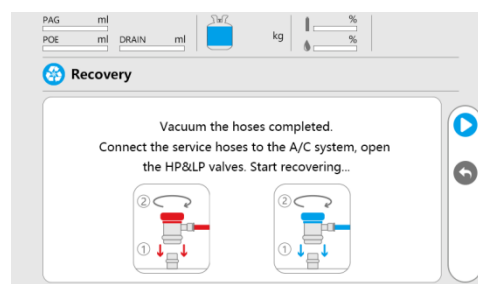
2) Follow the instructions and press  to next step.



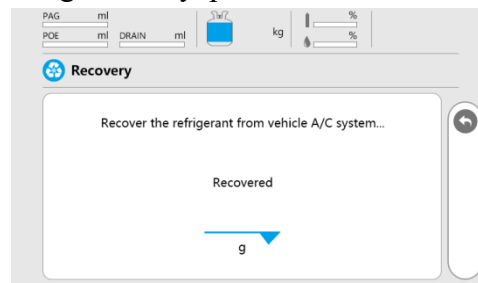
3) Doing vacuum, please wait.



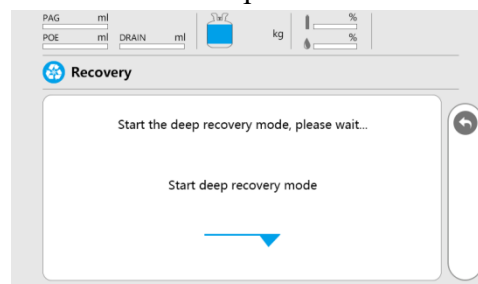
4) Vacuum completed. Follow the instructions and press  to next step.



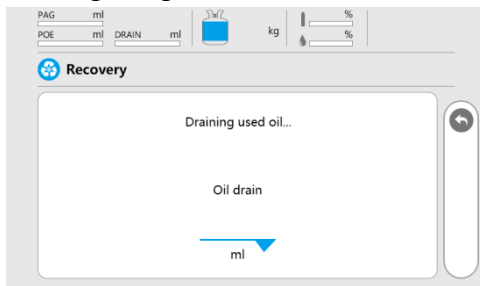
5) Doing recovery, please wait.



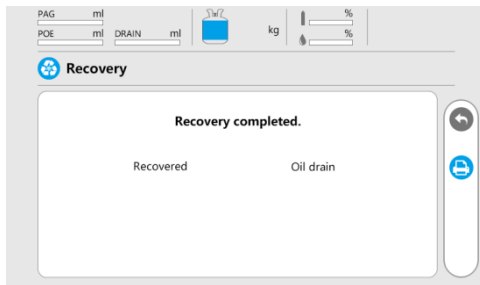
6) If you use the mode of deep recovery, it takes more time. Please be patient.



7)Draining oil, please wait.

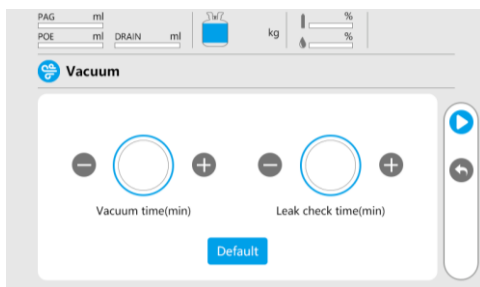


8)Recovery completed. Check the recovery amount and oil drain amount. Press to print, or press to exit.

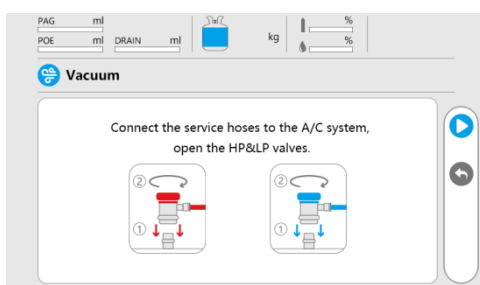


6.3.2 Vacuum

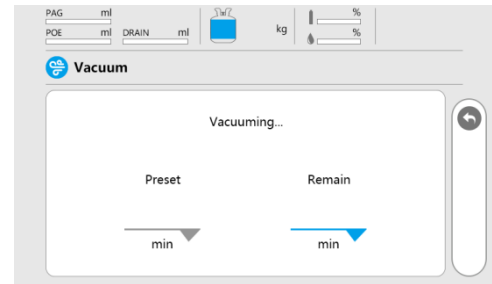
1)Set the parameter as required. Or use the default setting. Then press to continue.



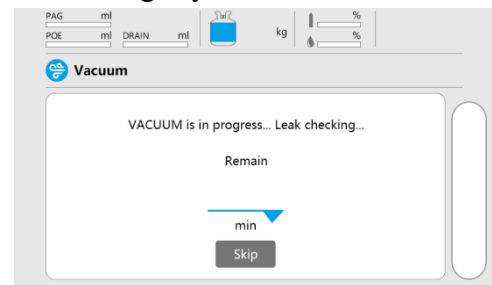
2)Follow the instruction, and press to next step.



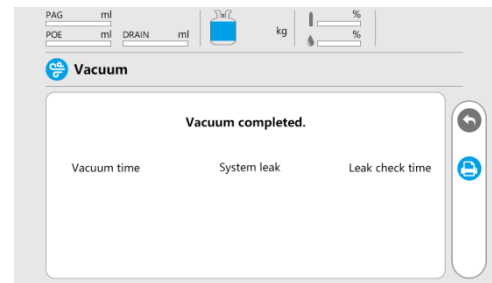
3)Vacuum in process, wait.



4)Leak testing if you have chosen that function.

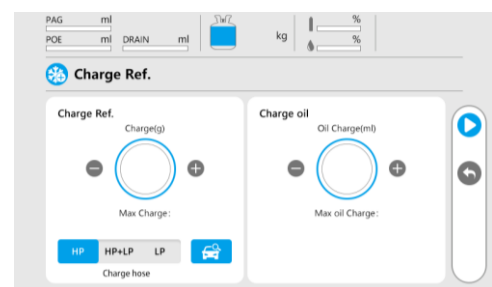


5)Vacuum completed. Double check all the parameters. Press to print, or press to Main menu.

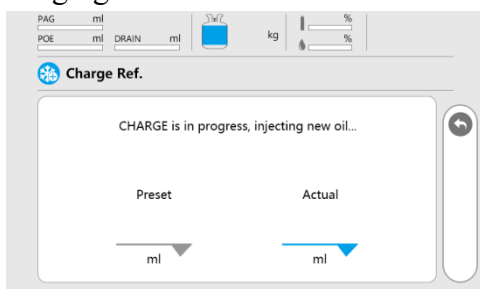


6.3.3. Charge

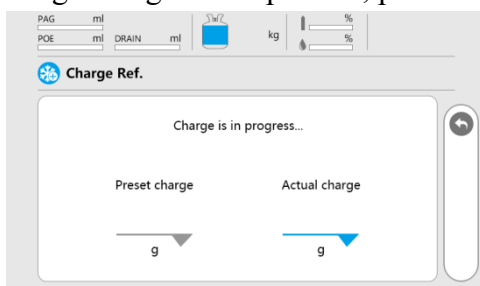
1)Set the parameters as required, or use default parameters. Then press to next step.



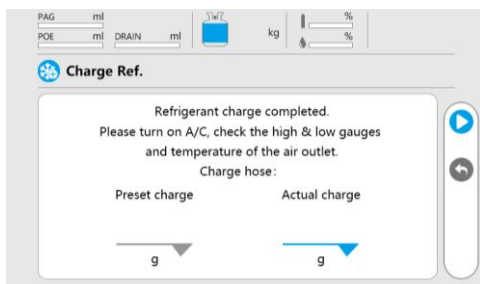
2)Charging the new oil. Please wait.



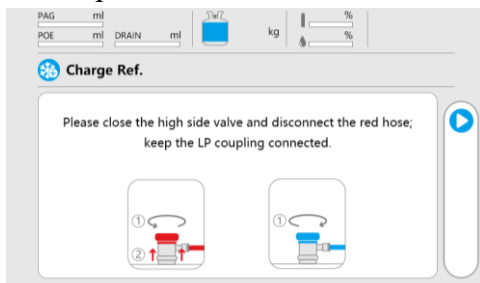
3)Charge refrigerant in process, please wait.



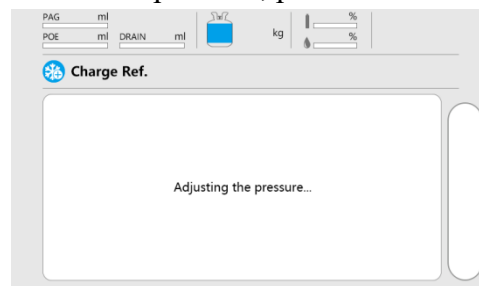
4)Follow the instruction to operate, then press  to continue.



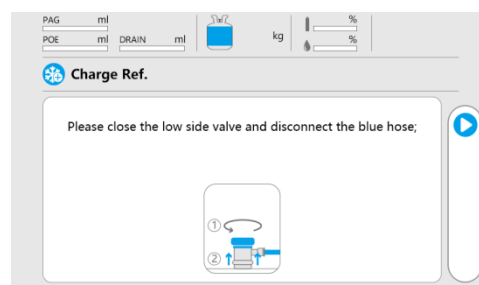
5)Follow the instruction to operate, then press  to next step.



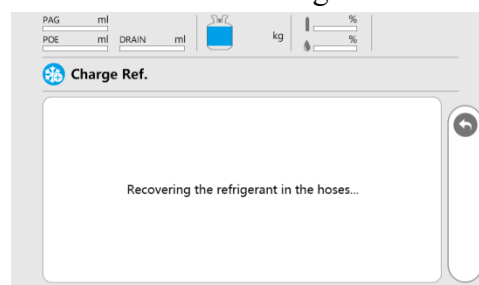
6)Balance the pressure, please wait.



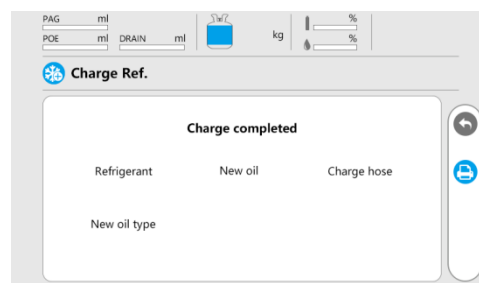
7)Follow the instruction to operate and then press  to next step.



8)Recover the residue refrigerant from hoses.

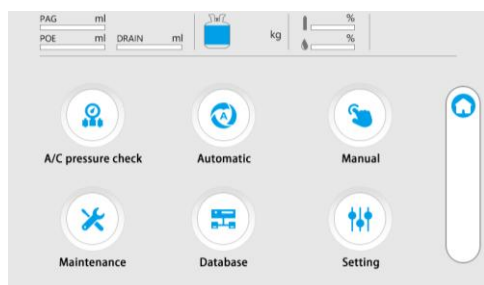


9)Charge completed. Double check all the parameter. Press  to Print it or press  to exit.

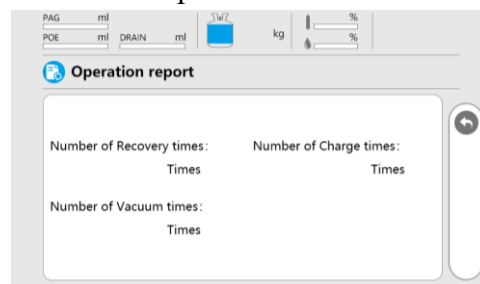


7. Database

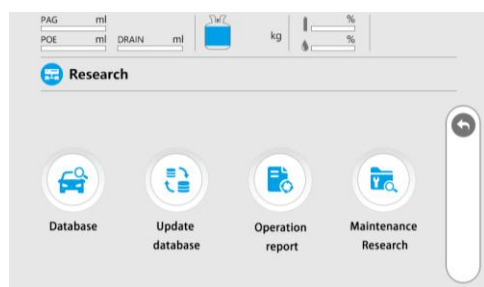
1) Back to main menu.



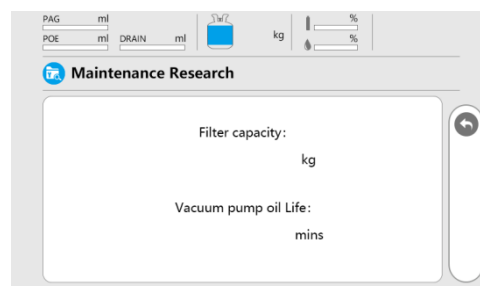
6) The service report is available.



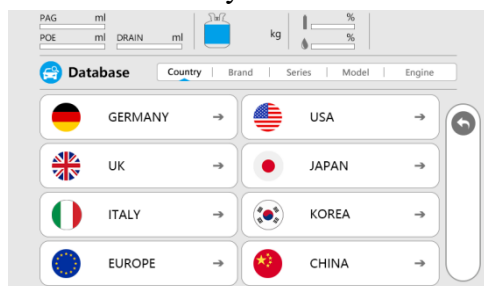
2) Choose "Database".



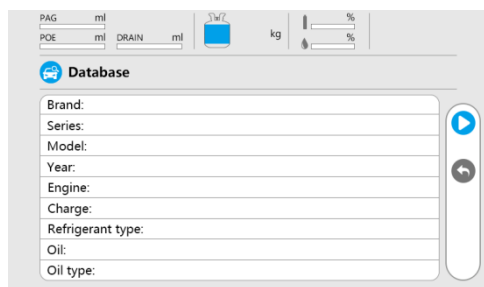
7) Maintenance information available.



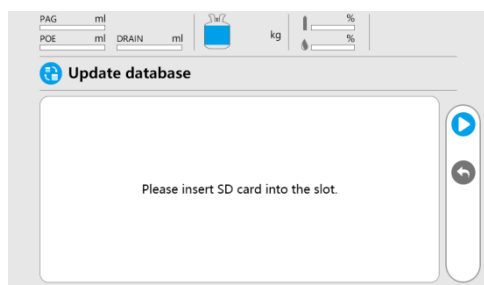
3) Choose the country of the car model.



4) Check all the information.

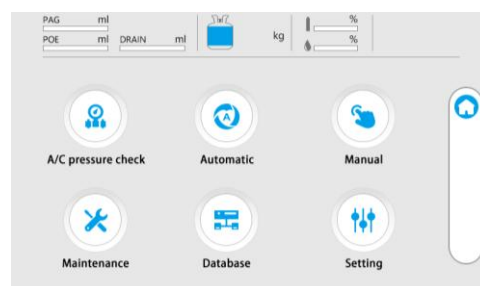


5) Insert SD Card to update database. This is only for manufacturer's use. The users don't need to operate.

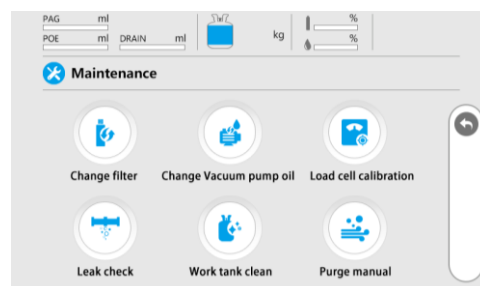


8. Maintenance

Choose "Maintenance" in main menu.

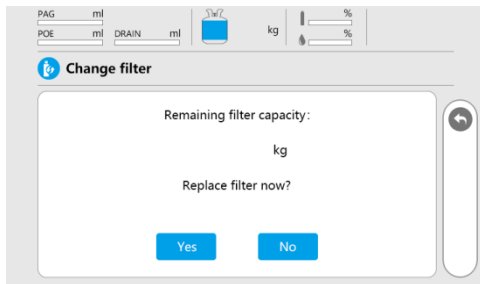


Choose the desired function.

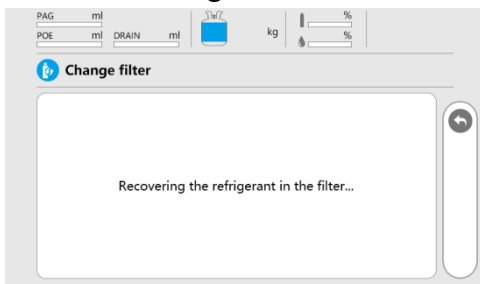


8.1 Change filter

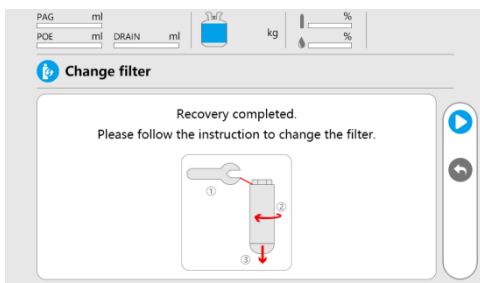
- 1) Check the rest lifetime of filter.
For replacement, press “Yes”.



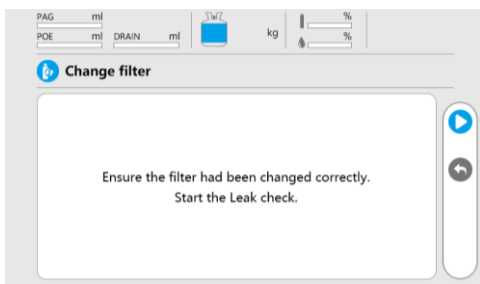
- 2) Recover the refrigerant from filter.



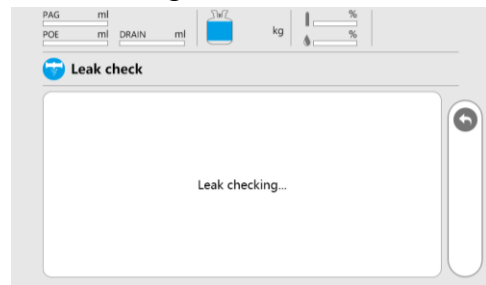
- 3) Recovery completed. Follow the instructions and press  to continue.



- 4) Ensure the filter had been changed correctly and press  to start the leak check.

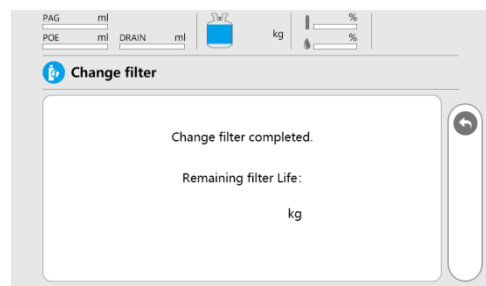


- 5) Leak checking. Please wait.



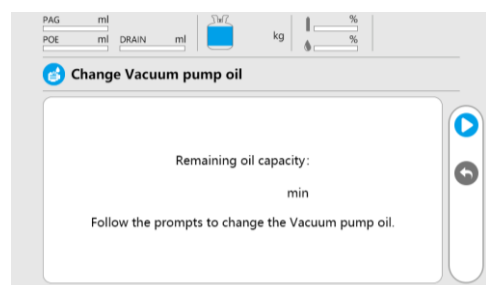
- 6) Filter drier replacement completed.

Press  to exit.

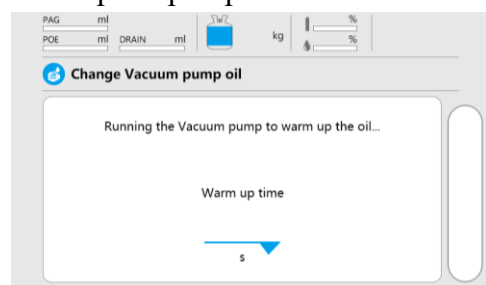


8.2 Change vacuum pump oil

- 1) Check the rest pump oil lifetime. If necessary, press  to continue.

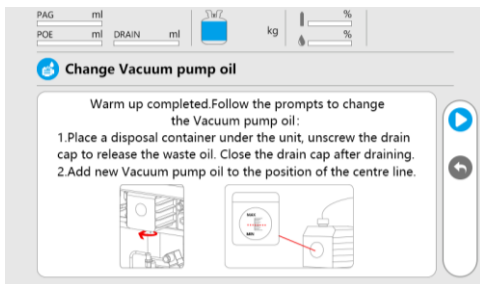


- 2) Warm up the pump oil.

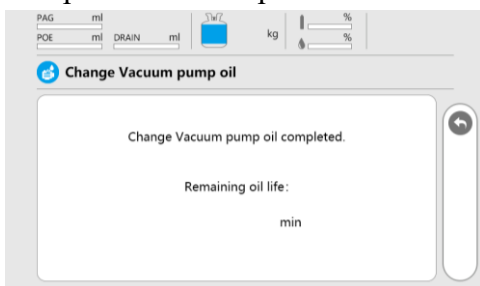


3) Warm up completed. Follow the instruction,

press  to next step.

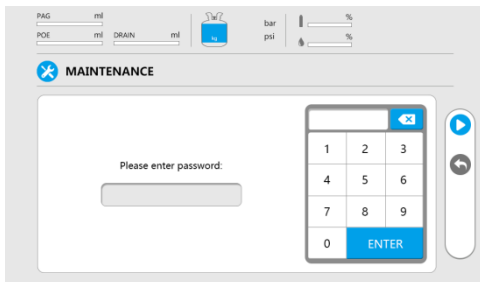


4) Oil replacement completed.

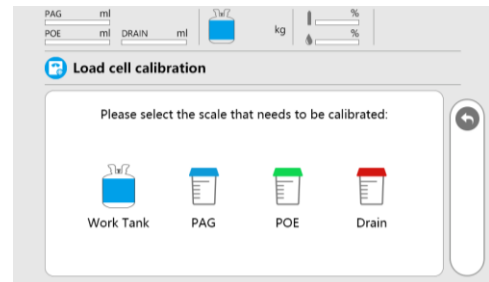
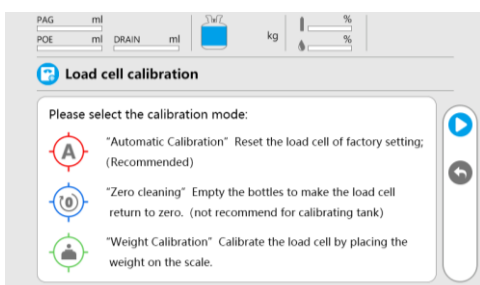


8.3 Load cell calibration

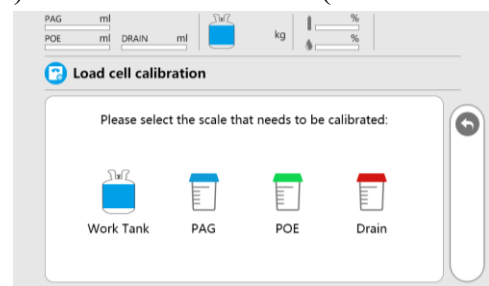
1) Please input the password. (Contact the dealer for the password)



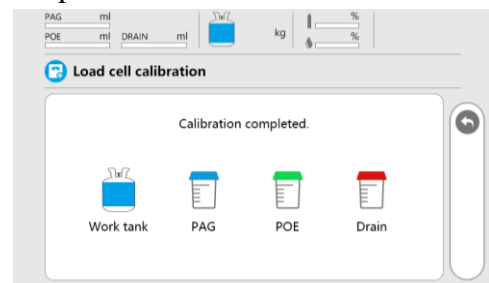
2) Choose the desired calibration method and scale.



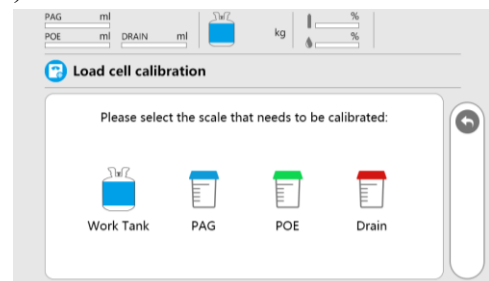
2-1) Automatic calibration .(recommended)



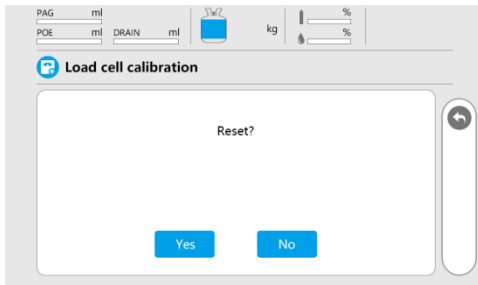
Calibration completed. Please double check all the parameters.



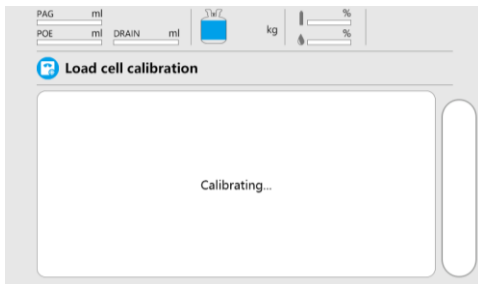
2-2) Zero calibration.



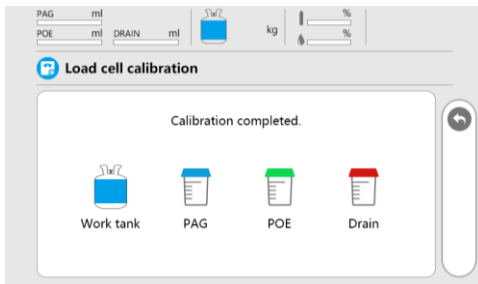
Ensure the bottle is empty and press “Yes” to reset.



Calibrating... Please wait.

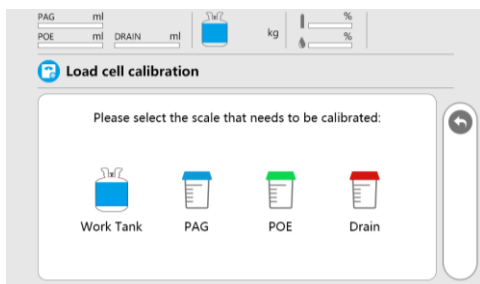


Calibration completed. Check the data to see if it is calibrated successfully.

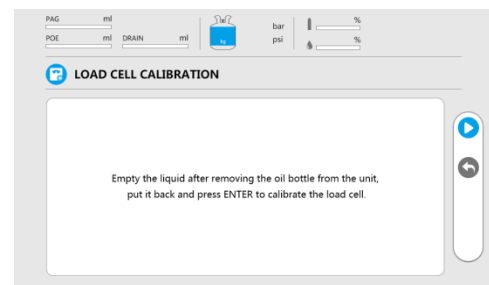
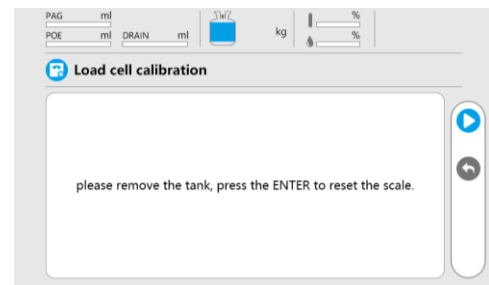


2-3) Calibrate the weights.

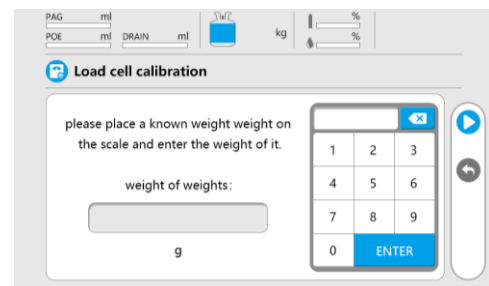
Select the scale that needs to be calibrated.



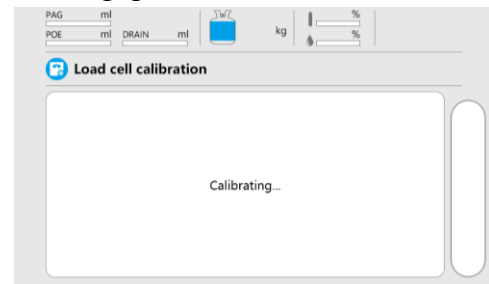
Follow the instruction. Press  to next step.



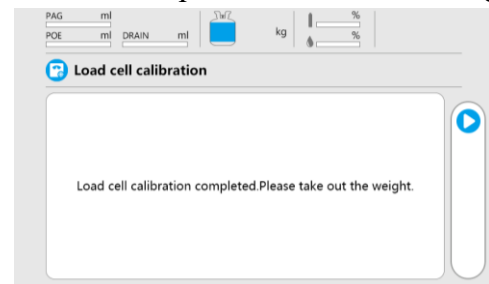
Prepare the weights and enter its correct weight. Press  to next step.



Calibrating, please wait.

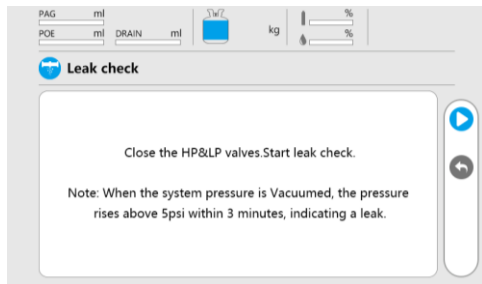


Calibration completed. Take out the weight.

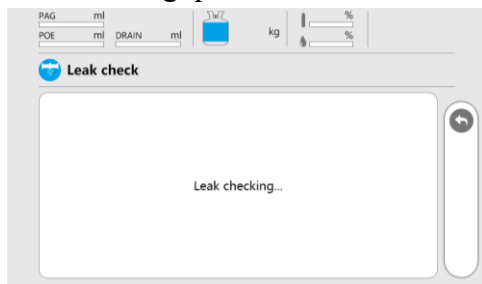


8.4 Leak check

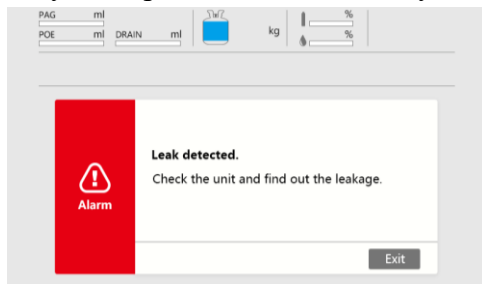
1) Follow the instructions to operate. Press  To next step.



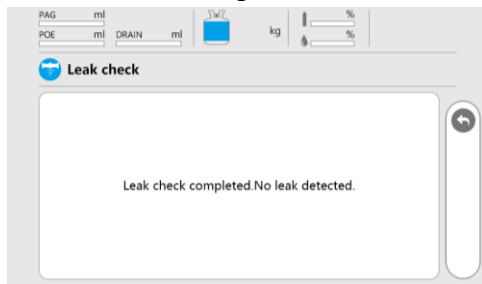
2) Leak checking, please wait.



3) If any leak, please check manually.

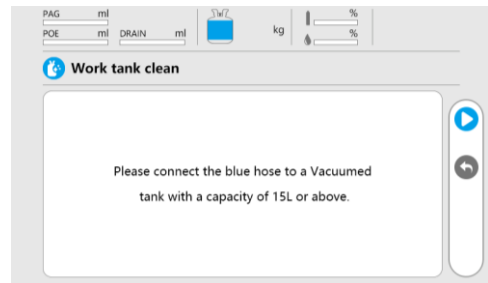


4) If no leak, test completed.

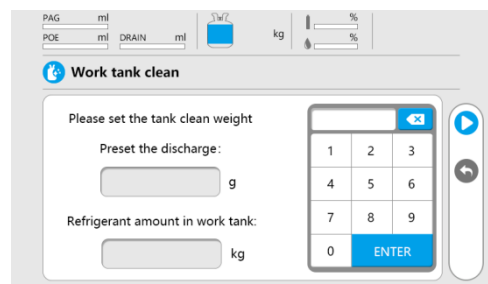


8.5 Clean tank

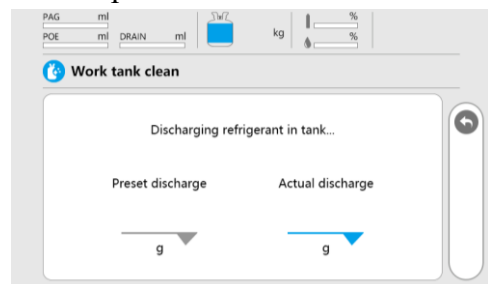
1) Please follow the instructions, press  to continue.



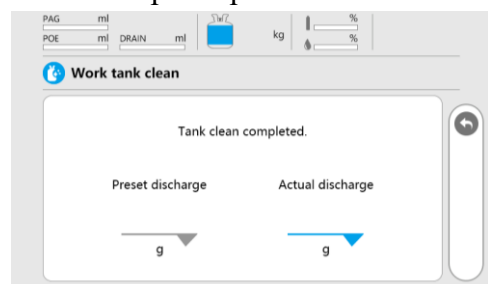
2) Set the weight needs to be cleanup. Press  to next step.



3) Clean in process. Please wait.

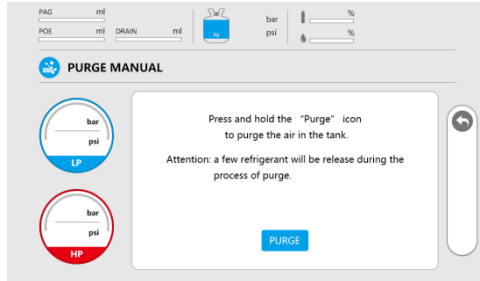


4) Tank cleanup completed.



8.6 Manual purge

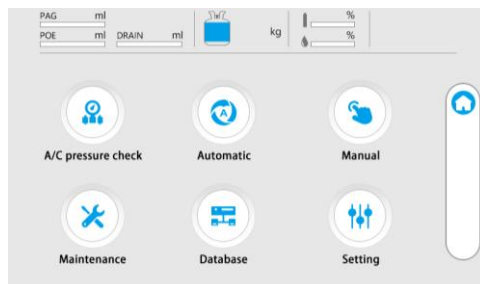
Press  to release non-condensable gas.



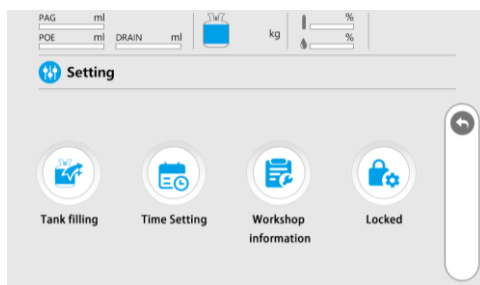
9. Setting

9.1 Lock setting

Choose “Maintenance” from Main menu.

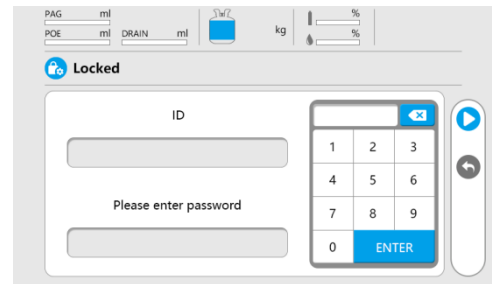


Choose the desired functions.

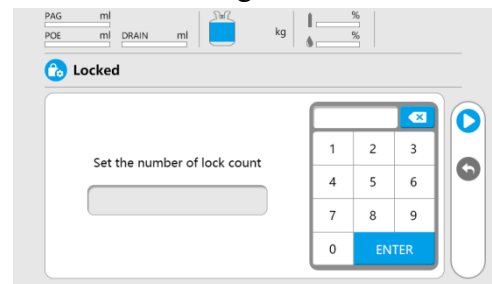


1)Refill the cylinder, please refer to the installation chapter

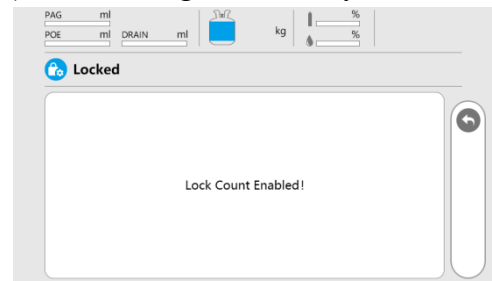
2-1)Input the management password, press  to continue.



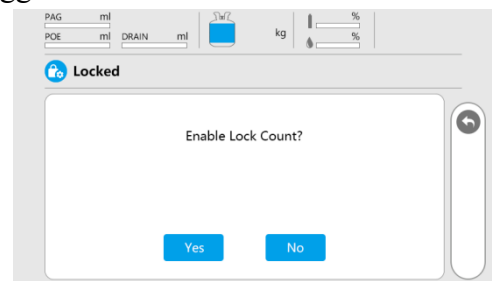
2-2)Set the using times for locking, press  will enable the setting.



2-3)Block setting successfully.



2)Lock setting. Please input the password to unlock it before operation. Normally we don't suggest to lock the machine.



9.2 Time setting

Time setting, press  to save the data.

PAG ml

POE ml DRAIN ml



bar psi

%

%

TIME

YEAR

20

MONTH

01

DATE

01

HOUR

00

MINUTE

00





9.3 Workshop information setting

Input the information as prompted.

PAG ml

POE ml DRAIN ml



bar psi

%

%

WORKSHOP INFORMATION

Please input the workshop information , which can be printed out as required.

NAME

ADD:

TEL:





PAG ml

POE ml DRAIN ml



bar psi

%

%

1 2 3 4 5 6 7 8 9 0 -

Q W E R T Y U I O P

Capri A S D F G H J K L

Z X C V B N M









10. Trouble Shooting

Display	Cause	Solution
1.RECOVERY FAILED	1.High tank pressure: full tank or poor refrigerant quality	Enter "Maintenance" - Manual Air purge
	2.Aging or damaged compressor	Change
	3.Relay fault	Change
	4.Solenoid valve leakage	Remove dirt or replace with a new solenoid valve
	5.The main board is faulty, recovery failed, but commands such as vacuum and charge can be performed.	Repair
	6.Poor wiring	Check wiring
	7.One-way valve or recovery solenoid valve blocked	Remove dirt or replace with new valve
2.Touch screen FAILED	1. Click the touch screen, no key sound	Replace the touchscreen
	2.Smashed by an object	Replace the touchscreen
	3.The screen does not display as a black screen, it may be a problem with the power supply of the motherboard	Repair the Main board and Check the Screen
	4.There is a key tone interface but no action.	Repair the Main board
3.The electronic scale is not accurate	1.Incorrect operation to zero the recovered refrigerant	Enter "maintenance" - "load cell calibration" - "automatic calibration"
	2.The chassis screws are loose, fix the stability sensor screws, and the liquid storage tank fixing screws are loose	Re-tighten tightening screws
	3.Transportation or loose fixing screws make the wall of the liquid storage tank contact other parts of the equipment	Tighten the fixing screws of the weight after adjustment,
	4.If you disassemble and repair without permission, you should pay attention to the arrow direction of the electronic scale is downward.	If it is installed in reverse, it needs to be adjusted and corrected
	5.Damaged load cell	Change
	6.Damaged main board	Repair
4.Charge FAILED	1.The refrigerant in the internal tank is less than 1kg	Recovery more than 1KG of refrigerant to the tank
	2.Fill Mini can refrigerant to the tank.	Some technicians fill mini can of refrigerant (refrigerant with a weight of less than 1KG) to the internal tank.This

		approach is wrong.Internal Tank should be filled with a standard source tank (usually weight 13.6KG)
	3. Filling valve is blocked or valve core is damaged	Clean or replace
	4.Damaged main board	Repair
	5.Manually close the hand valve of the internal tank	Reopen
	6.Incorrectly setting the filling amount to "zero"	Reset
5.VACUUM FAILED	1.Vacuum pump failure	Change
	2.Relay failure	Change
	3.Damaged main board	Repair
	4.Prompt that the pressure of the hose is too high and cannot be vacuum	Recovery or manually deflate the external hose to less than 0.5KG/CM2
	5.Can not maintain pressure for leak detection	1.Check A/C system for leaks 2.Whether the quick connector and hose of the refrigerant machine leak, or the leak of the vacuum pumping piping. 3.Check PAG POE and UV solenoid valve for leakage
	6.Filling valve leaks	Change
6.Smoky vacuum pump	1.The vacuum pump oil is deteriorated	Change
	2.Excessive vacuum pump oil, which accumulate vacuum pump oil in the vacuum pump for a long time when vacuuming the A/C system.	Drain oil from vacuum pump to middle scale line
	3 The connector of the pipes may be loose and ,which may cause smoke.	Check and tighten the relevant connector.
	4.The vacuum time is too long, and the heat will cause the vacuum pump oil to evaporate.	Ignore
	5.Car A/C systems keep too much gas for a long time The vacuum pump fixing screw is loose	Ignore
7.Noisy vacuum pump	The vacuum pump fixing screw is loose	Re-fasten the screws

