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Installation and Operation Manual

Manual P/N R1234yf



DANGER

Read the *entire contents* of this manual *prior* to setup or operation. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death. Make sure all other operators also read this manual. Keep the manual near the product for reference. By proceeding with setup and operation, you agree that you fully understand the contents of this manual.

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1 About this operation manual

This operation manual describes the Katool Air-Con Service Station

This manual is for those who have the required professional ability of providing the maintenance service on vehicle air conditioning system.

This manual contains all the instructions necessary for safe and effective operating of the air Conditioning service Station. Read this operation manual carefully before putting the device into using for the first time.

Also note the following:

NOTICE the operator should comply with the laws about the service of vehicle air-conditioning by local government.

NOTICE the operator should be familiar with basic technical information of vehicle air-conditioning

NOTICE Instructions from the refrigerant manufacturer

NOTICE Instructions from the car manufacturer

NOTICE Any special instructions on servicing vehicle air conditioning systems which applied at your company


Keep this operation manual in the tool box of Air-Con Service Station, so that any information needed is always at your hand.


1.1 KATOOL Hot-line

If you need more information about the Air-Con Service Station that is not concerned in this manual, call the KATOOL Hot-line: 716-299-8852

2 Following are the symbols used in this manual :

 **DANGER** Calls attention to an immediate hazard that **will** result in injury or death.

 **WARNING** Calls attention to hazard or unsafe practice that **Could** result in injury or death.

 **CAUTION** Calls attention to hazard or unsafe practice that could result in minor personal injury, product, or property damage.

NOTICE Calls attention to a situation that, if not avoided, could result in minor personal injury, product, or property damage.

TIPS Calls attention to information that can help you use your product better.

2.1 Scope of delivery

The Air-Con Service Station and its accessories are carefully checked before shipping.

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

If any part is missing or damaged, notify the company responsible for transport immediately

| AC2100 |
|---|
| Air-Con Service Station |
| Blue hose with coupling for LP connection and red hose with HP connection |
| 2 Containers for new oil |
| Container for used oil |
| Inner tank refill connector |
| Power cord |
| operation manual |

3 Safety

3.1 General safety instructions

Read this operation manual carefully before starting up the Air-Con Service Station for the first time

Please note the following:

NOTICE the operator should comply with the laws about the service of vehicle air-conditioning by the local government.

NOTICE the operator should be familiar with technical information of vehicle air-conditioning

NOTICE Information from the refrigerant manufacturer

NOTICE Any special instructions on servicing vehicle air conditioning systems which applied at your company

And also please pay attention to these messages:

⚠WARNING Risk of injury, This equipment should only be operated by certified personnel.

⚠WARNING Only use the device for its intended purpose. To reduce the risk of injury, care should be taken when moving this equipment.

⚠WARNING For indoor use only.

⚠WARNING Wear personal safety equipment (goggles and gloves) and avoid touching refrigerant, as this can cause chilblains to your body.

⚠WARNING Use only KATOOL approved storage cylinder, part NO.5150998 with this refrigerant recovery unit.

⚠WARNING Only use genuine R1234yf refrigerant. If other refrigerants are mixed in, it can damage the Air-Con Service Station and the vehicle air condition system.

⚠WARNING The Equipment has mistake inside or a wrong operation of the equipment will cause a possible contamination of refrigerant in equipment and its cylinder. Contaminated R134-a DO NOT USE, MUST BE REPROCESSED.

⚠WARNING Only use correct type refrigerator oil (refrigerant oil) used with the R1234yf. If other oil are mixed in, it can damage the vehicle air condition system.

⚠WARNING This equipment should be used in locations with mechanical ventilation that provides at least four air changes per hour or the equipment should be located at least 18(457 mm) in above the floor. Do not inhale refrigerant gas. Although the gas is non-toxic, it displaces the oxygen you needed.

⚠️WARNING This equipment should NOT be used in the vicinity of spilled or open containers of gasoline.

⚠️WARNING To reduce the risk of fire, connect only to a circuit provide with 20 amperes maximum branch circuit over current protection in accordance with the National Electric Code, ANSI/NFPA 70.

⚠️WARNING Avoid the use of an extension cord because the extension cord may overheat. However, if you must use an extension cord, the cord shall be NO.14 AWG minimum.

⚠️WARNING Each time before you start up the device or add gas to the Air-Con Service Station, first check whether the device is undamaged and components are not lost. Do not start up the Air-Con Service Station if it is damaged.

⚠️WARNING Always use the main switch of the Air-Con Service Station for switching it on and off. Do not leave the device unattended when it is switch on.

⚠️WARNING Before you shut down the Air-Con Service Station, make sure that the selected program has ended. Otherwise, the refrigerant can leak.

⚠️WARNING Avoid breathing A/C refrigerant and lubricant vapor or mist, exposure may irritate eyes, nose and throat. To remove refrigerant from the A/C system, use only equipment certified for the type of refrigerant being removed to meet the requirements of SAE J2210(HFC-R1234yf recycling equipment.) Additional health and safety information may be obtained from refrigerant manufactures.

⚠️WARNING Do not pressure test or leak teat equipment and/or vehicle air conditioning system with compressed air. Some mixtures of air and refrigerant have been shown to be combustibile at elevated pressures. these mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant manufacturers.

⚠️WARNING Recover the service hoses before you release connections.

⚠️WARNING Do not make any modifications to the Air-Con Service Station.

3.2 Warnings on the Air-Con Service Station



Be careful



Observe the operation manual.



Protect the device against rain



Wear gloves when handling refrigerants.



Wear goggles when handling refrigerants.



Horizontal holding the station



Caution for fire

3.3 Safety devices

NOTICE Pressure monitor: switch the compressor off if the normal operation pressure is exceeded.

NOTICE Tank with pressure relief function: additional safety mechanism releaser to protect lines or vessels from bursting if the pressure continues to rise despite the action of the pressure monitor.

4 Proper use

The Air-Con Service Station is intended for performing maintenance on vehicle air-conditioning systems. The device is designed for commercial use.

The Air-Con Service Station may be operated by persons who have the required professional ability for servicing air-conditioning systems.

This Air-Con Service Station may only be used to service vehicle air-conditioning systems in which R1234yf refrigerant is used.

KATOOL assumes no liability for damage resulting from the following:

NOTICE Use for purposes more than those described in this operation manual.

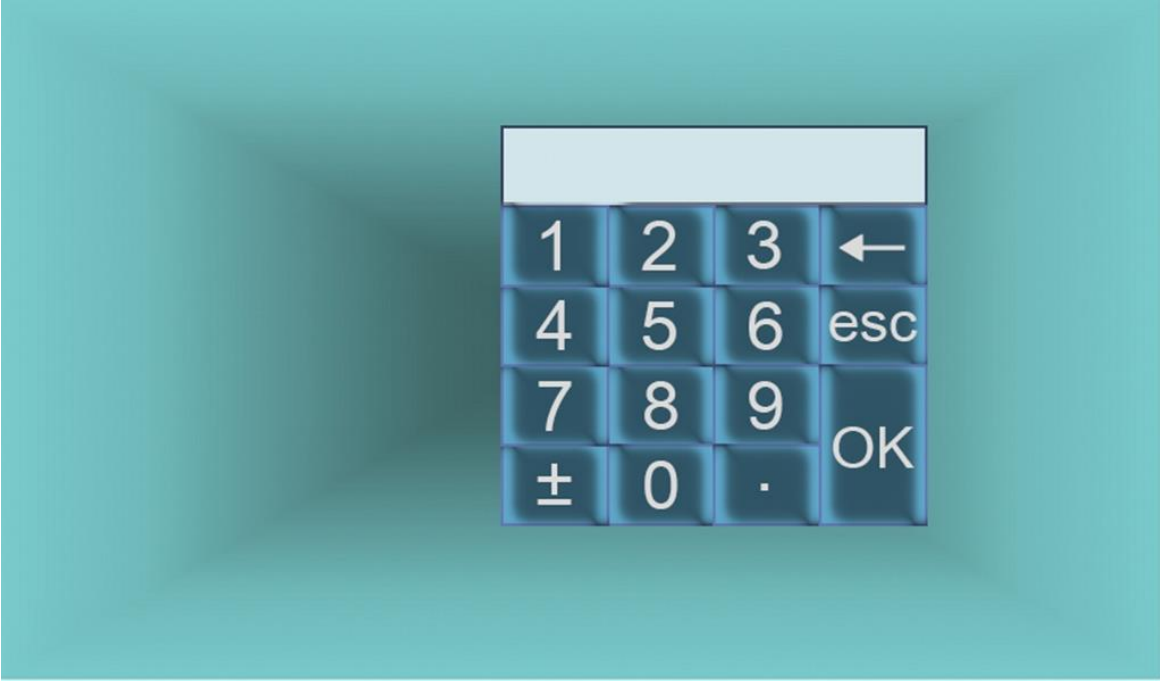
NOTICE Modification to the Air-Con Service Station without the permission of Katool

NOTICE Damage to the device resulting from external influences.

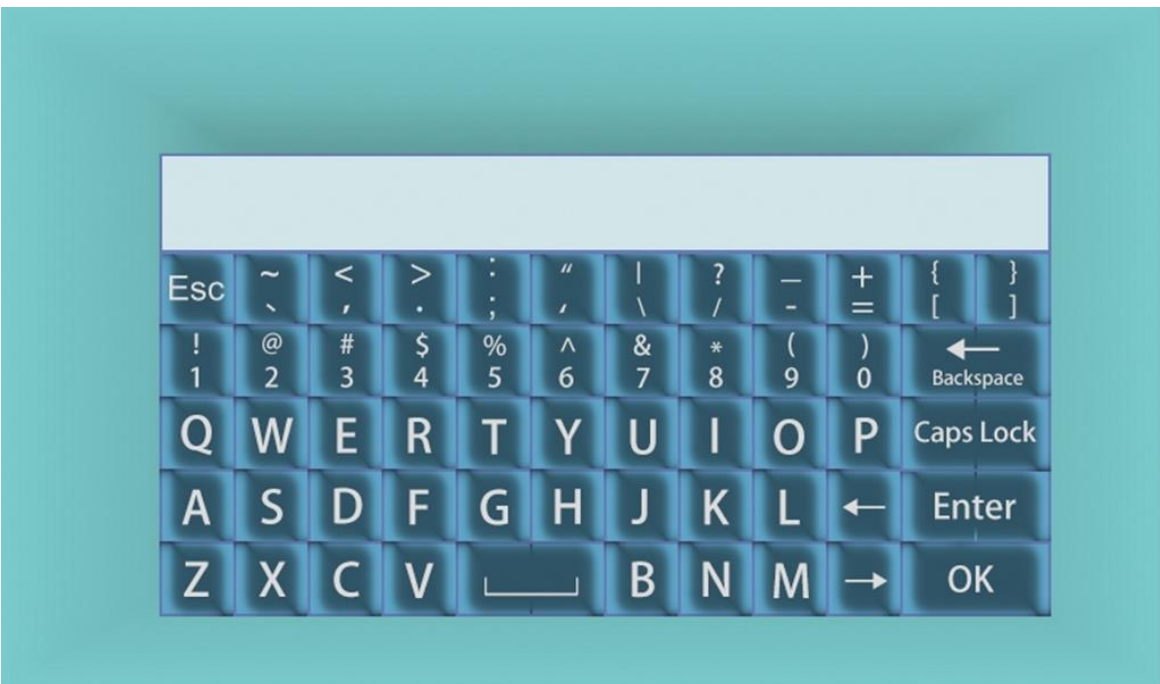
NOTICE Incorrect operation.

5. User input UI:

5.1 Number input



5.2 ASCII code input UI



5.2 User communication interface:



Auto key: one press operation for all steps automatically



Recovery: to recover the A/C refrigerant into the working tank



Vacuum: to extract Non-condensable gases from A/C system



New oil: to inject new oil into vehicle A/C system.



UV: to inject UV into vehicle A/C system.



Recharge key: to refill refrigerant into vehicle A/C system.



Print: Record the operations and to print receipt.



OK: it allows to start the operation step.



Stop: it allows to cancel the operation step.



Home: come to the main interface.



Back: back to the previous interface.

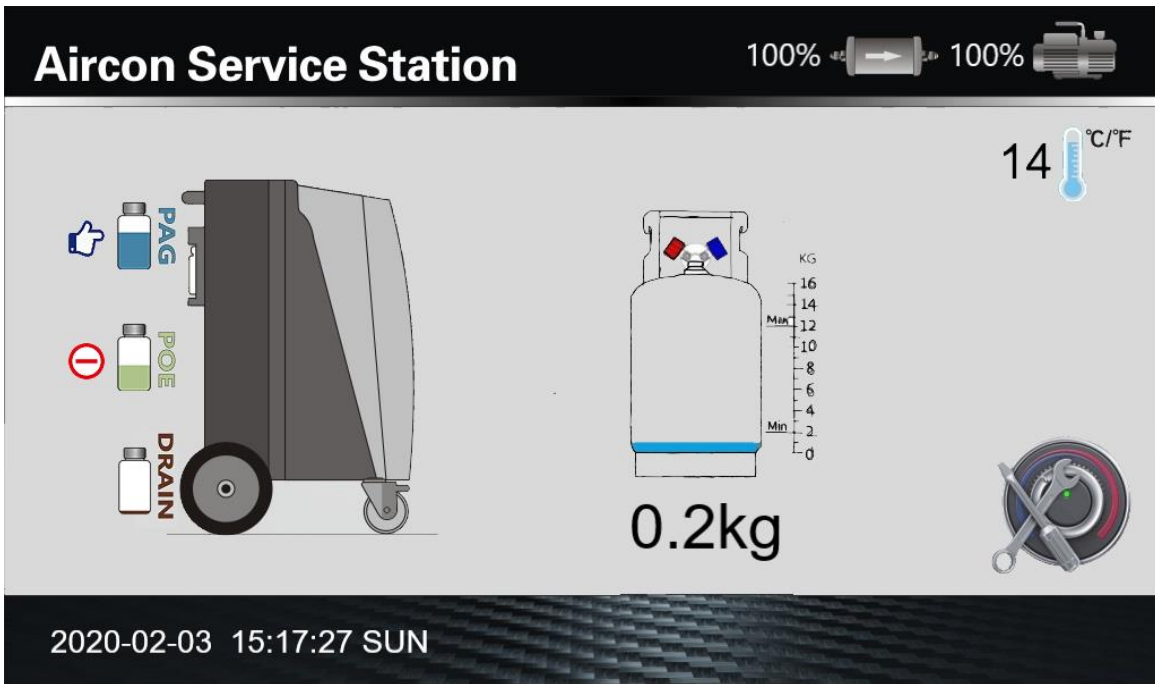


Next step: go to the next interface.

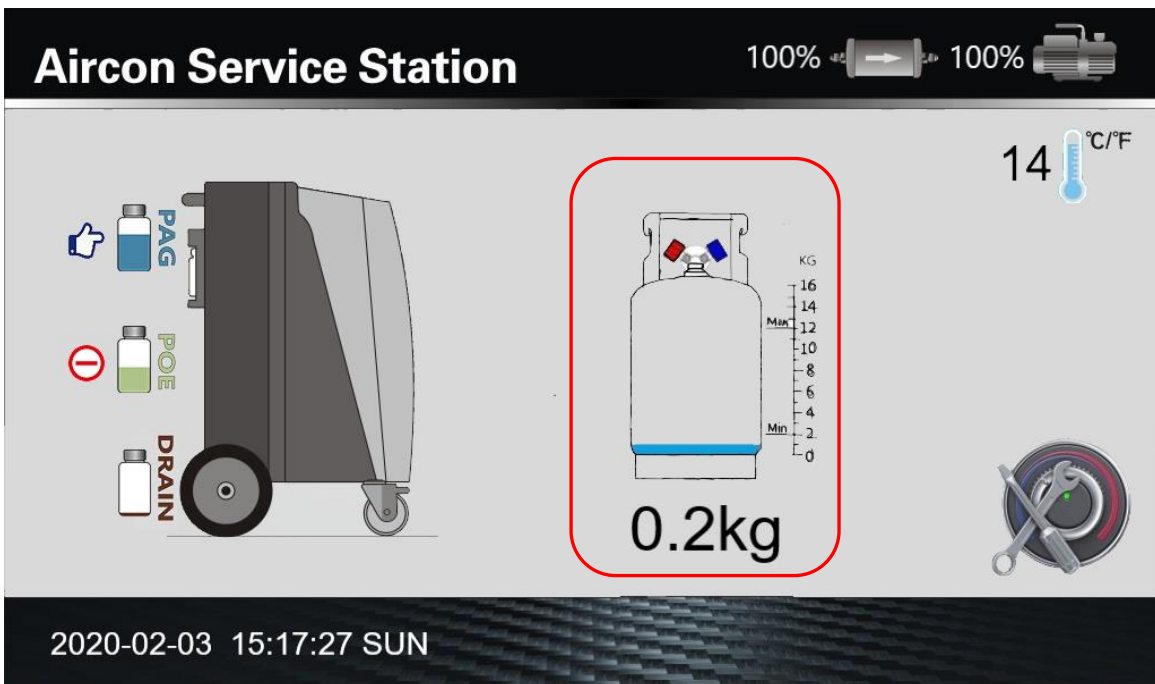


Menu: Access to functional interface.

5.3 Touch area sample
5.3.1) Original UI



5.3.2) Valid touch area illustration



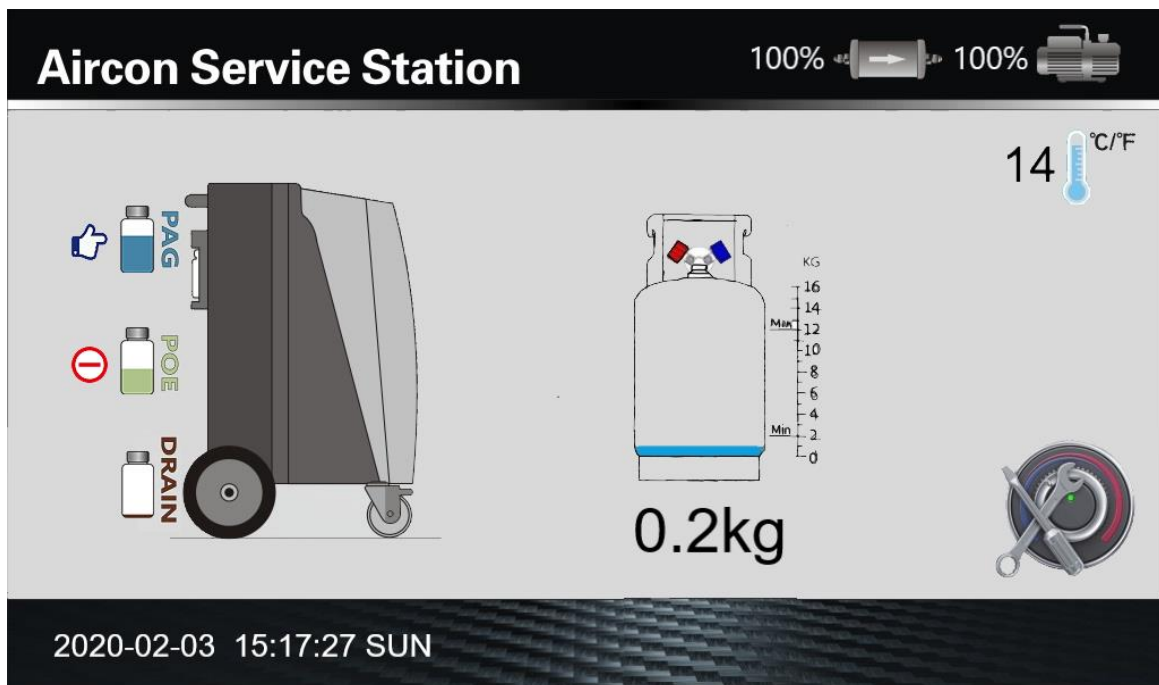
6 First start-up

6.1 Setting up and switching on

⚠️WARNING 110-120V 60Hz or 220-240V 50Hz Power supply must be firmly grounded. If not, it will cause the weight scale a incorrect operation; it also may cause an injury to operators from an electric shock.

NOTICE Before operation the device must be on a level, flat surface so that measurement can be made correctly.

1. Place Air-Con Service Station to the workplace and lock the front casters.
2. Plug in the Air-Con Service Station.
3. Switch on the Air-Con Service Station.it come to the standby mode:



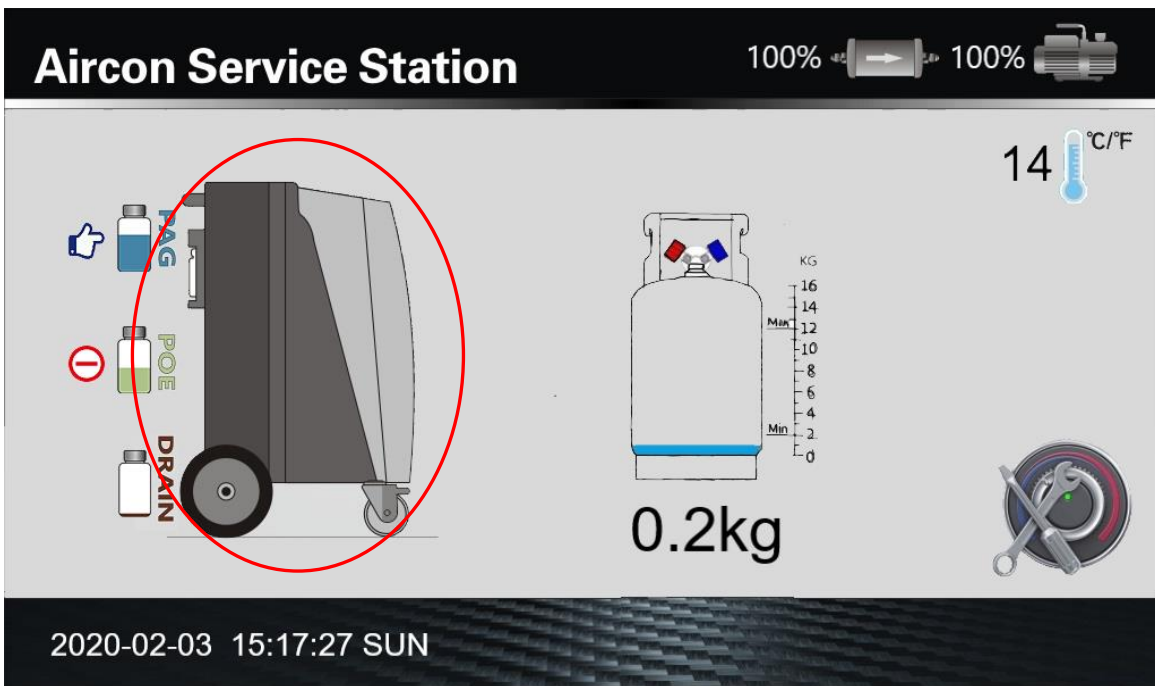
6.2 Installing in the bottle for new oil

Unscrew the refrigerant oil bottle, put about 150 ml new oil in and screw it back to the device.

6.3 Filling up the working tank

When the Air-Con Service Station is started for the first time, the internal refrigerant container is suggested be vacuumed and filled gas with at least 6 kg from an external refrigerant cylinder.

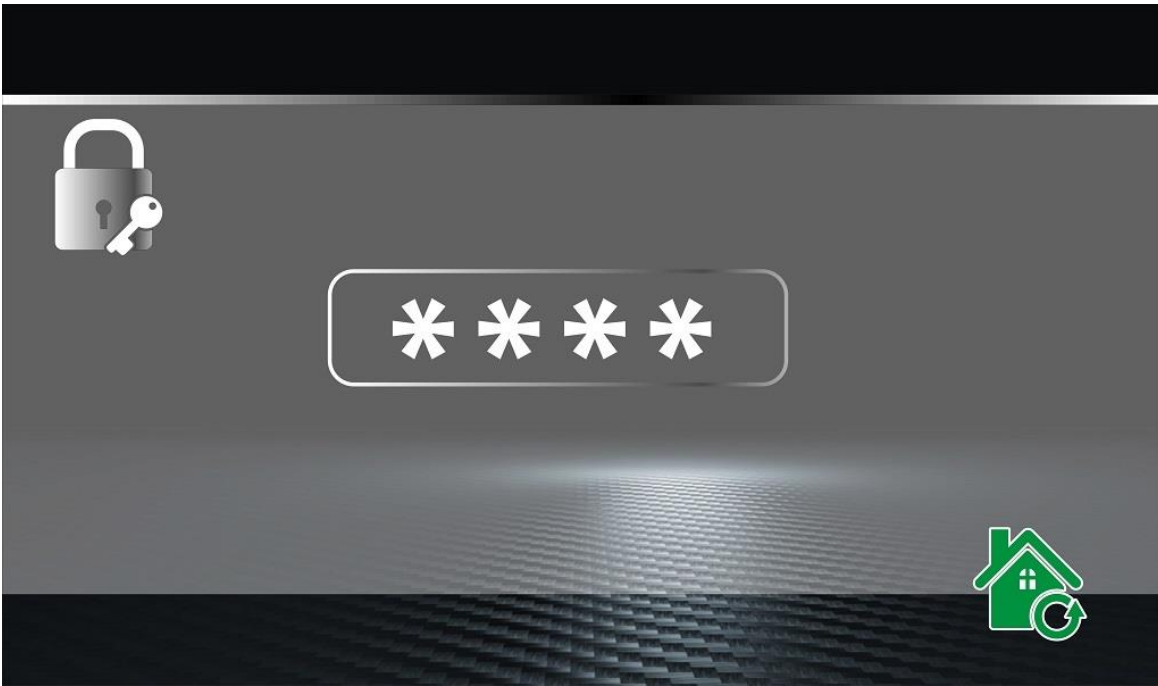
Before using the equipment, it must be confirmed that the inside of the equipment is in a vacuum state.



1. In the standby mode, touch the **RED AREA** 3 times continuously , the LCD show:




2. Press **OTHER** to choose other service



3.input password 7333 to Internal vacuum for 5 minutes.



After an automatic vacuum for 5 minutes, press  to back to the standby mode.

The current refrigerant quantity is shown in the standby mode.

NOTICE Refrigerant bottles without a rising pipe: These refrigerant bottles have one connection. When filling the Air-Con Service Station, the connection port must be at the bottom (turn the bottle upside down).

NOTICE Note the instructions on the refrigerant bottle.

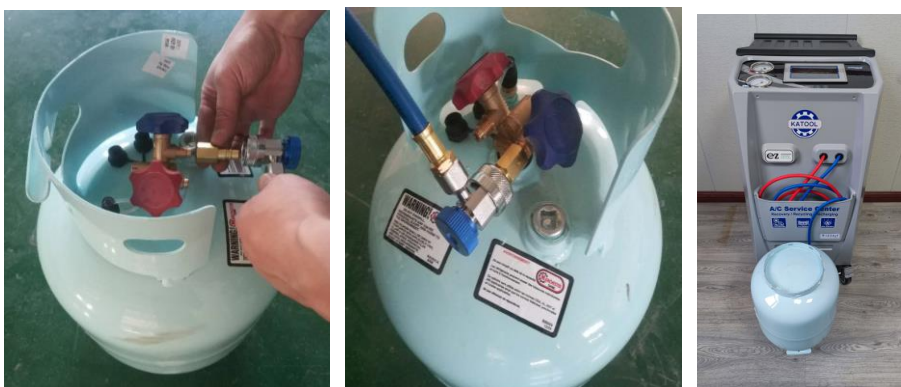


RED ONE IS THE **VAPOR** PORT OF THE SOURCE TANK

Only **LIQUID** refrigerant is recommended.

CAUTION If the gas is in vapor, the refill will cause an **over heat** to the equipment

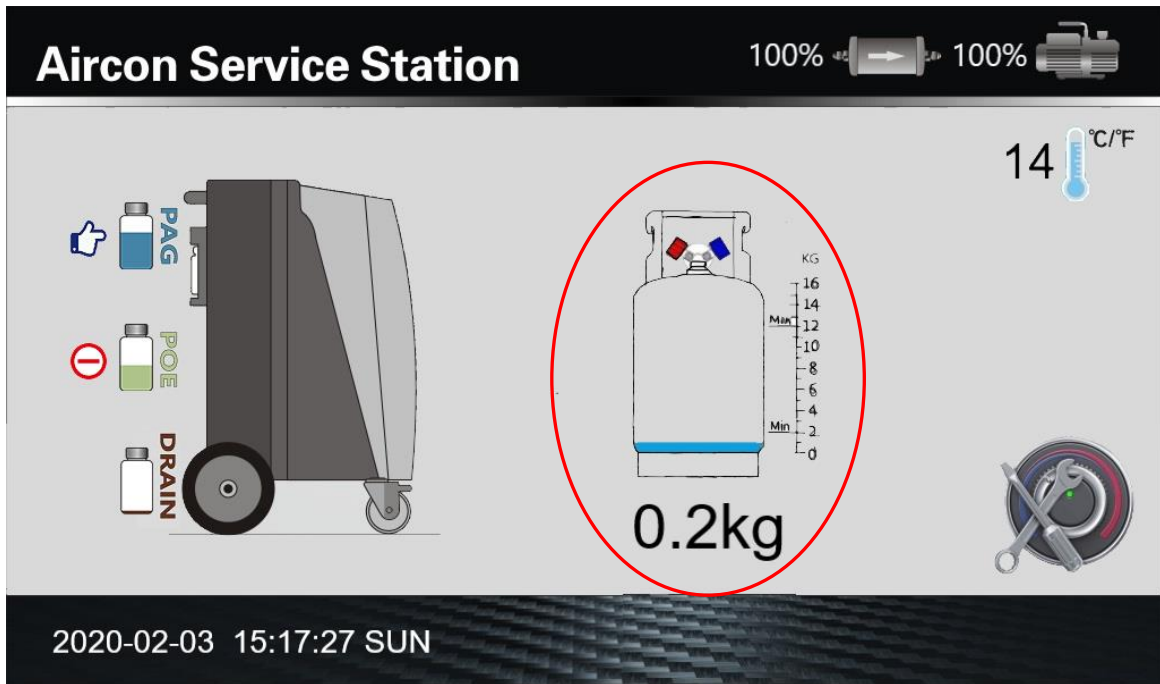
NOTICE For other type of source tank, be sure that Only **Liquid** port should be connected to the refill adapter.



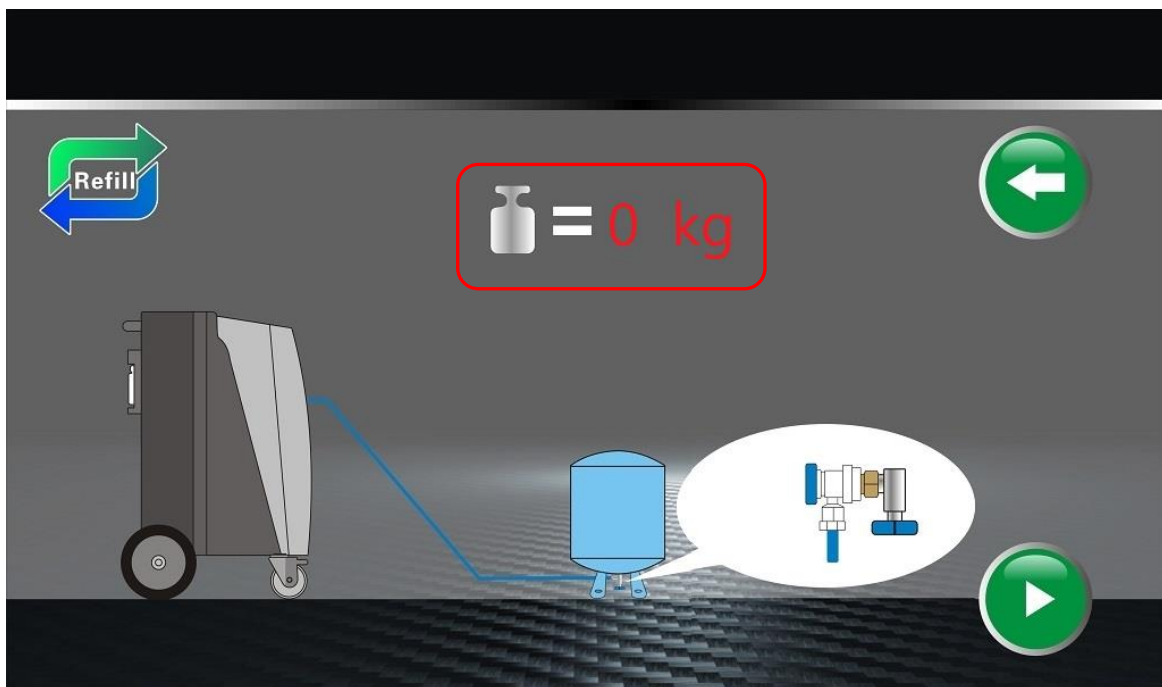
BLUE ONE IS THE **LIQUID** PORT OF THE SOURCE TANK

1. On standby mode, put the refill connector to the refrigerant bottle and fix it, then join the LP adapter with the Low pressure hose (blue) to the connector, open the adapter, open the

bottle valve and up side down it.




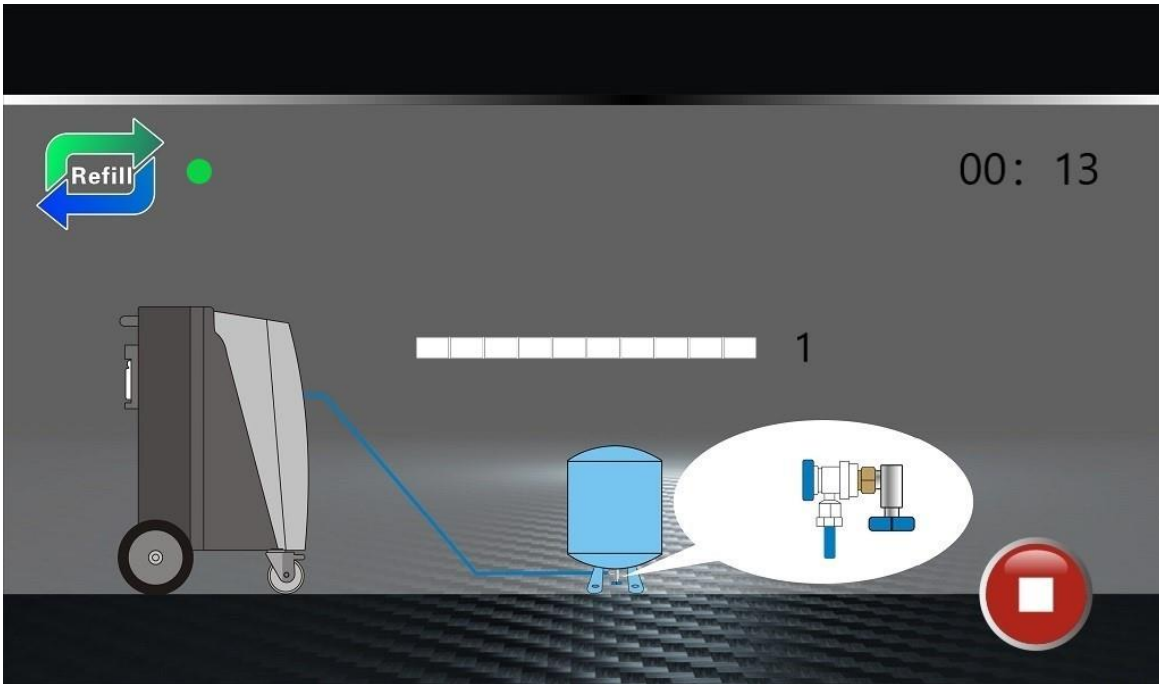
Touch the **RED AREA** 3 times continuously , the LCD will show



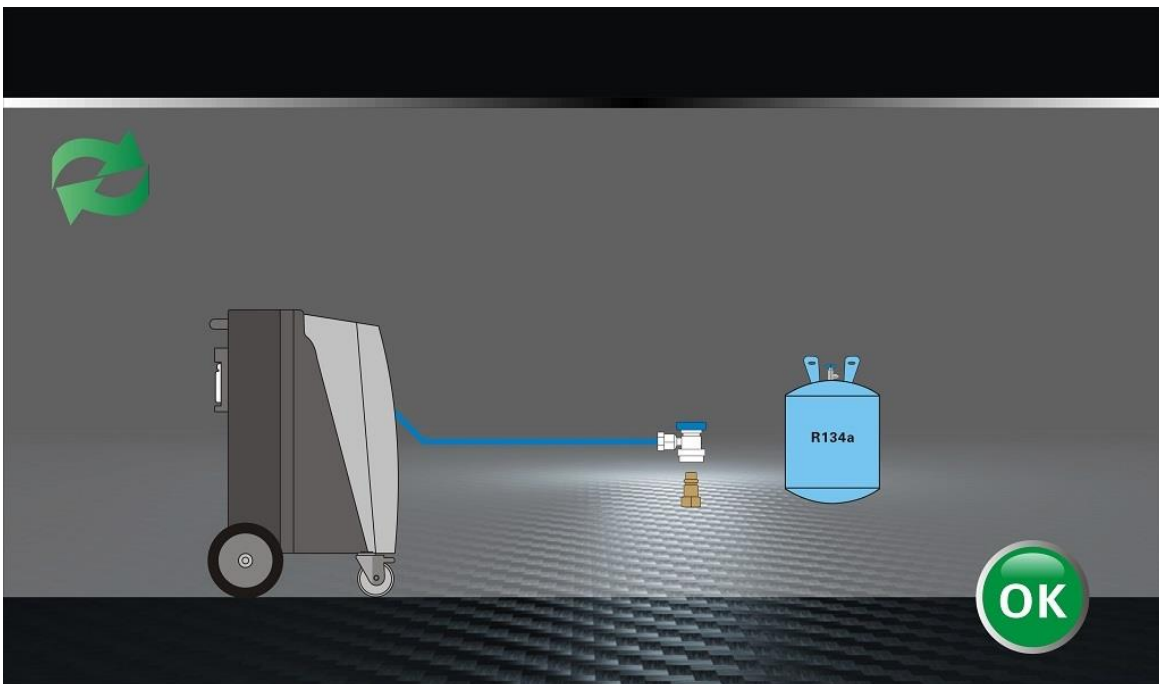
1. Touch **RED AREA** to input the gas amount that you want to refill into the working tank.



Then touch the  to confirm, Follow the instructions on the display.




Tip: The filling will stop automatically when the quantity of refrigerant is desired, the LCD will show




2. Close the refrigerant bottle valve and disconnect the LP adapter,

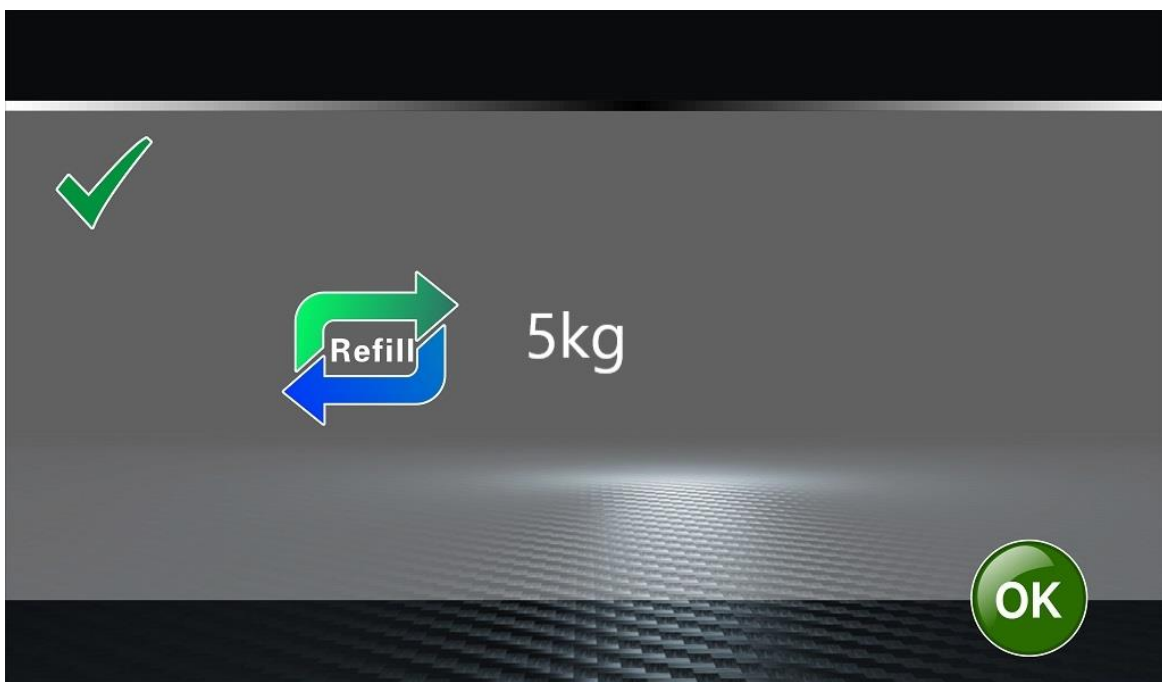


3. press  to confirm. And start hose cleaning operation to collect the gas reminded in hose !


NOTICE: you should recover the refrigerant. If you do not recover the refrigerant inside the hose, it will cause refrigerant leakage when you release connections, as this can cause frosty.

NOTICE: you can not select the recovery operation to instead of this one, or it will speed up the usage of filter driers.

4. When the hose cleaning program finished, it will show and press  to come back to the standby mode.



NOTICE: If the gas amount that you inputted in the last step not finished, but the refrigerant bottle is empty ,the LCD will show

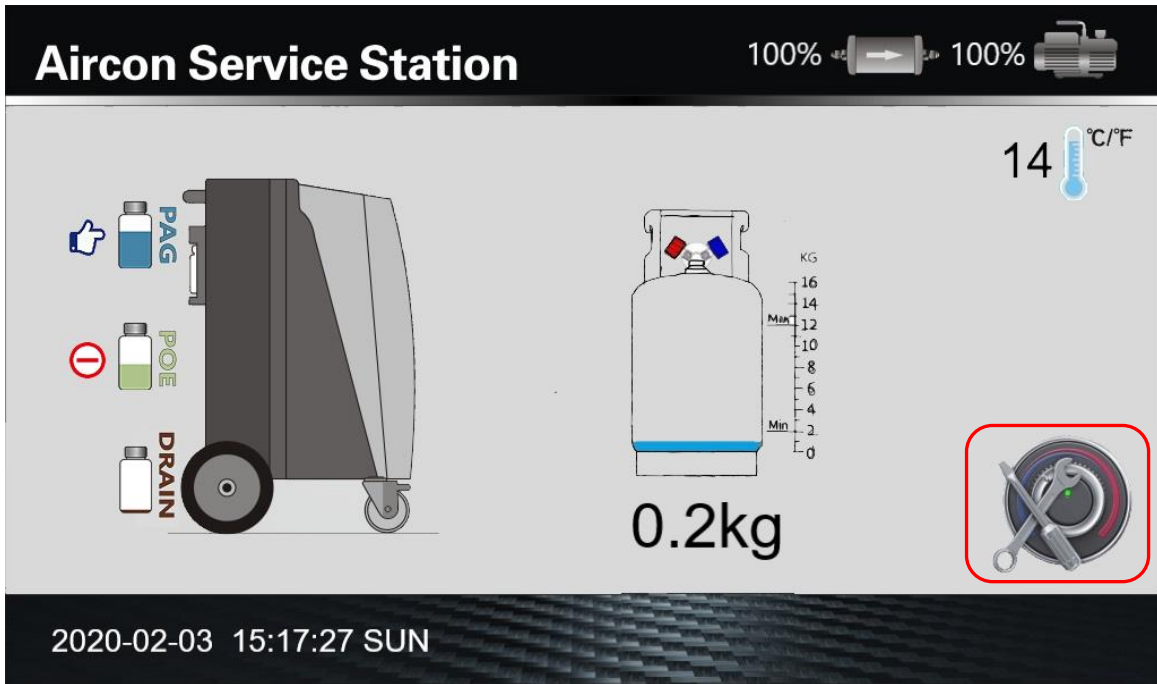
5. Press  to confirm, disconnect the LP adapter from the external refrigerant bottle. And the program will come back to the standby mode.



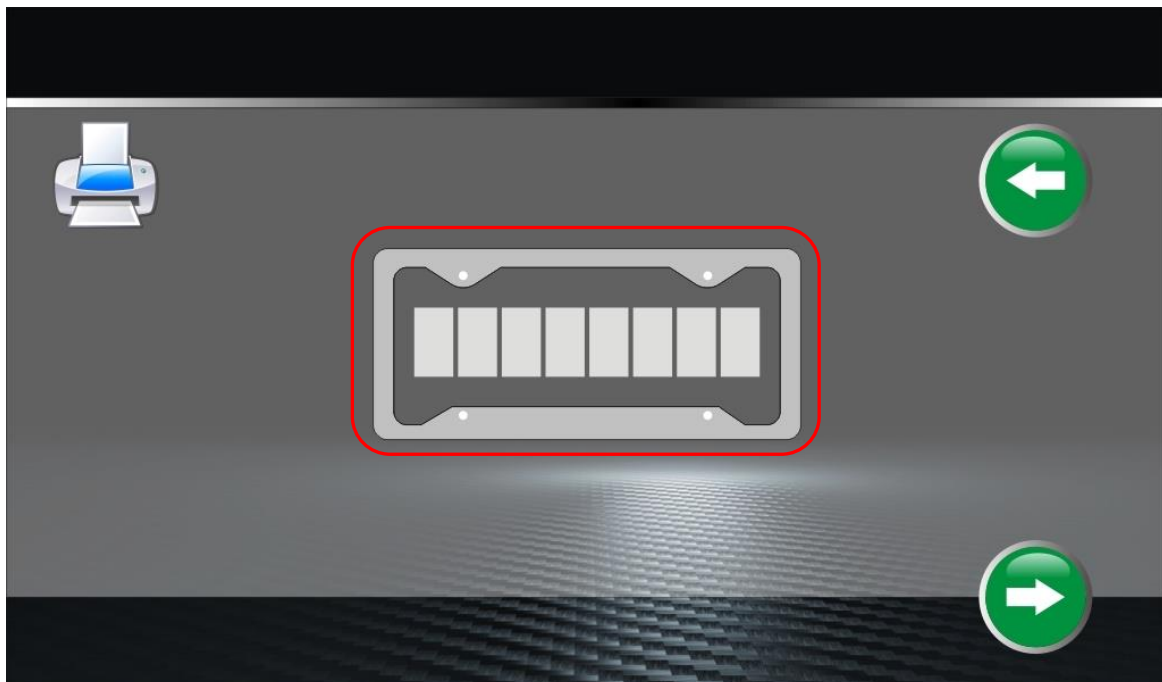
7 Operation


⚠WARNING When the automobile air-conditioning is serviced, the engine and the air-conditioning must be switched off.

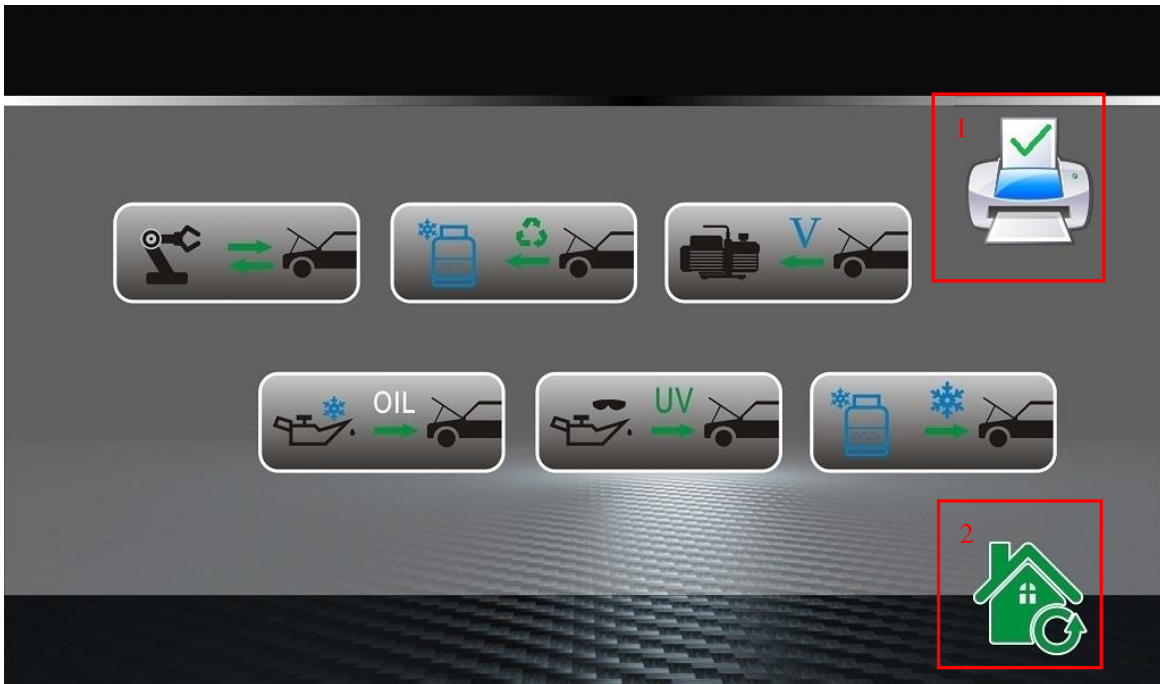
1. When you power on the machine, the LCD will stay at the standby mode.



2. Press the **RED AREA** to input the car plate, max 8 alphabets and only standard ASCII code is accepted.



4. when you finished your input, touch the  to the service menus.



Specially, the **No.1 RED AREA** is for printing out the signature info when finished all the service task. and the **No.2 RED AREA** is for backing to standby mode and for changing the car plate info when a new service work needed.

7.1 Recovery

Recovery operation is the process that the Air-Con Service Station sucks the refrigerant from the vehicle A/C system, purify it and storage the gas into the working tank. The equipment could automatically detect the gas in the serviced vehicle is enough or not for the operation. The MIN pressure should over 0.15 bar.

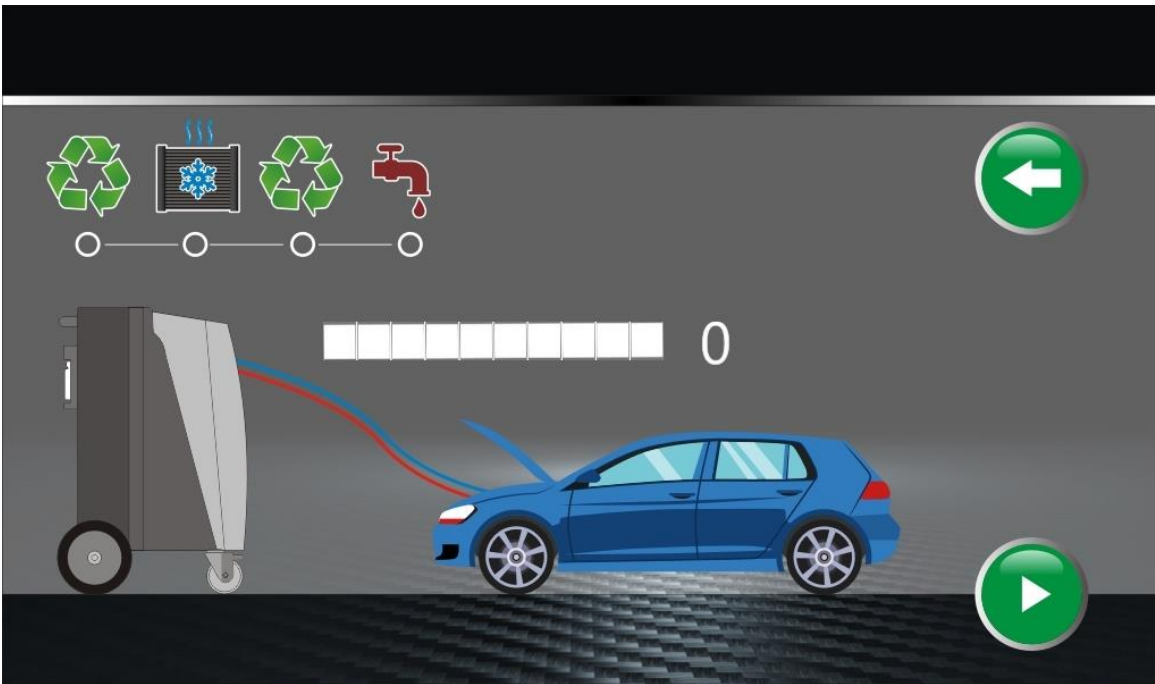
1. Unscrew the caps of the service port on vehicle and put on the LP/HP adapters of the Air-Con Service Station and open them.




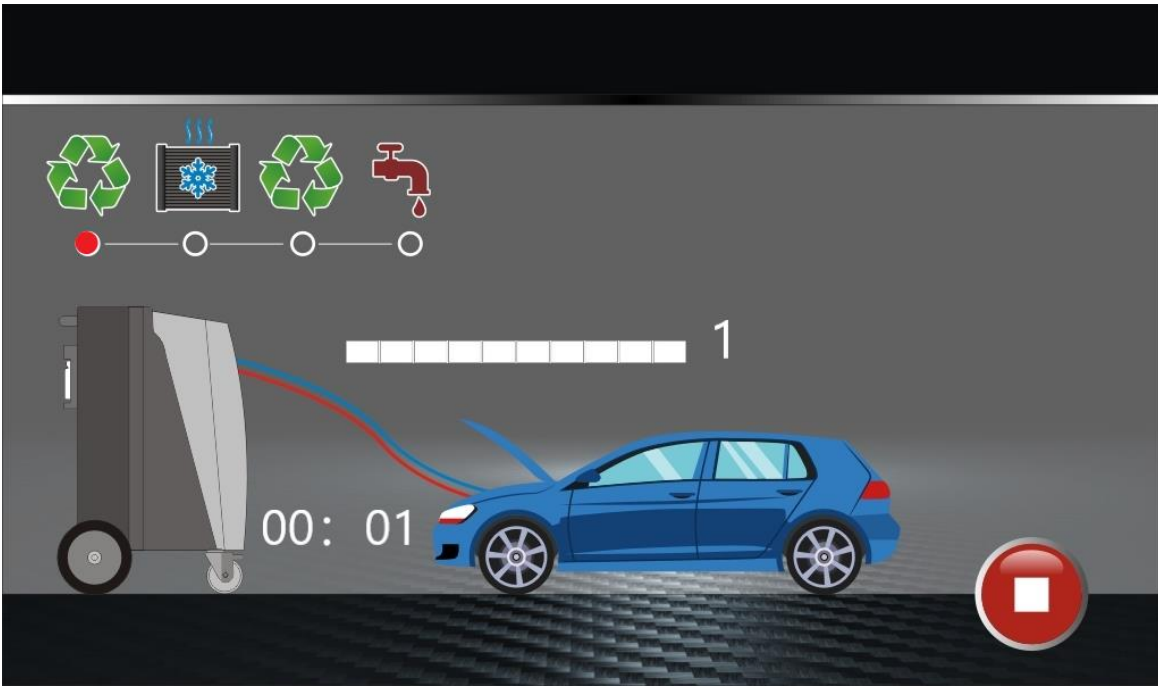


2. Check the HP and LP gauges. If the showed pressure is zero or about, it means that no refrigerant is in the air-conditioning system, you can select other functions directly. If there

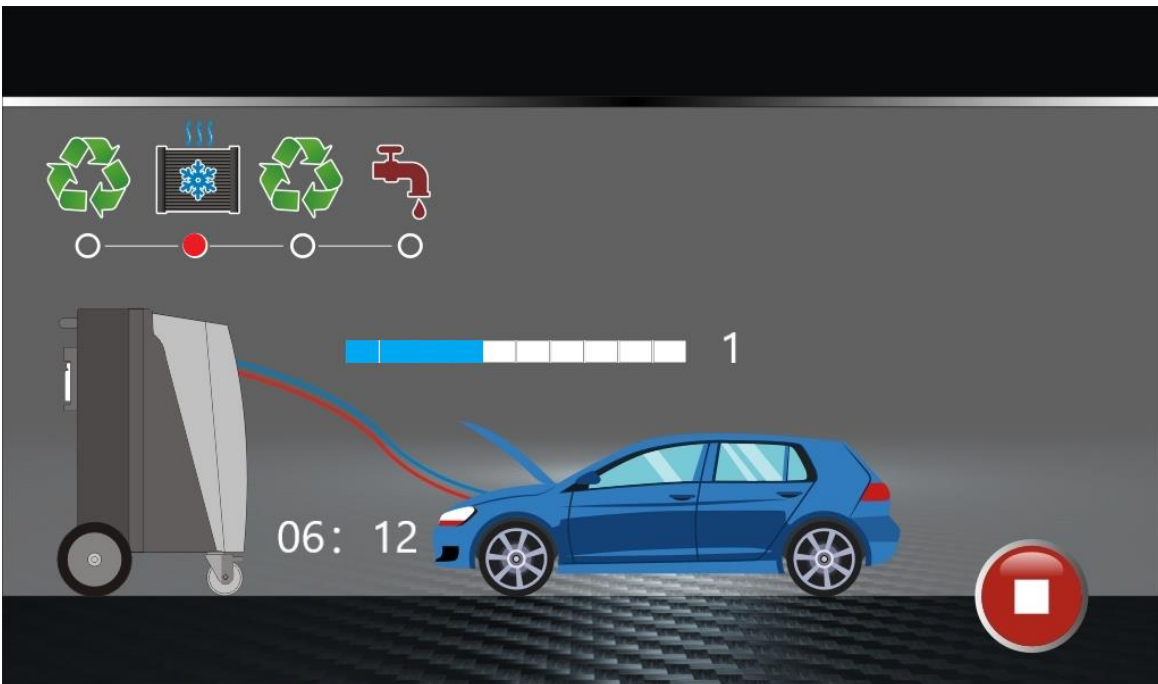
exist pressure inside, touch  key, the LCD show

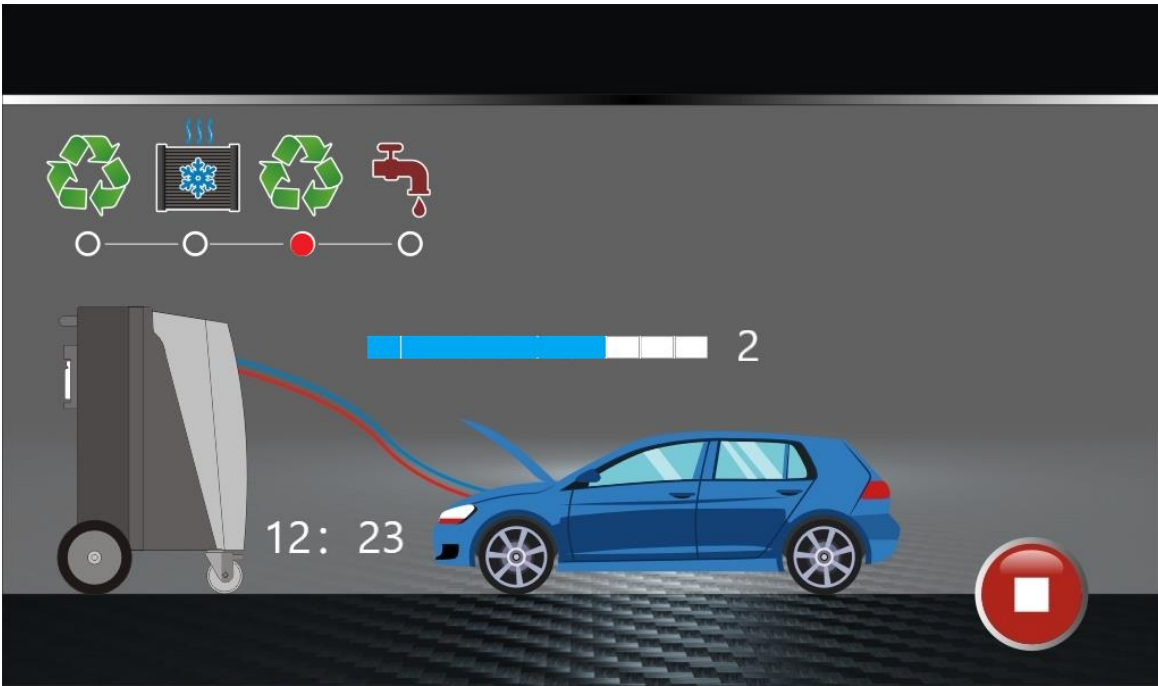


3. Press  to confirm, the device will start the recovery and recycling process.it will show the below information

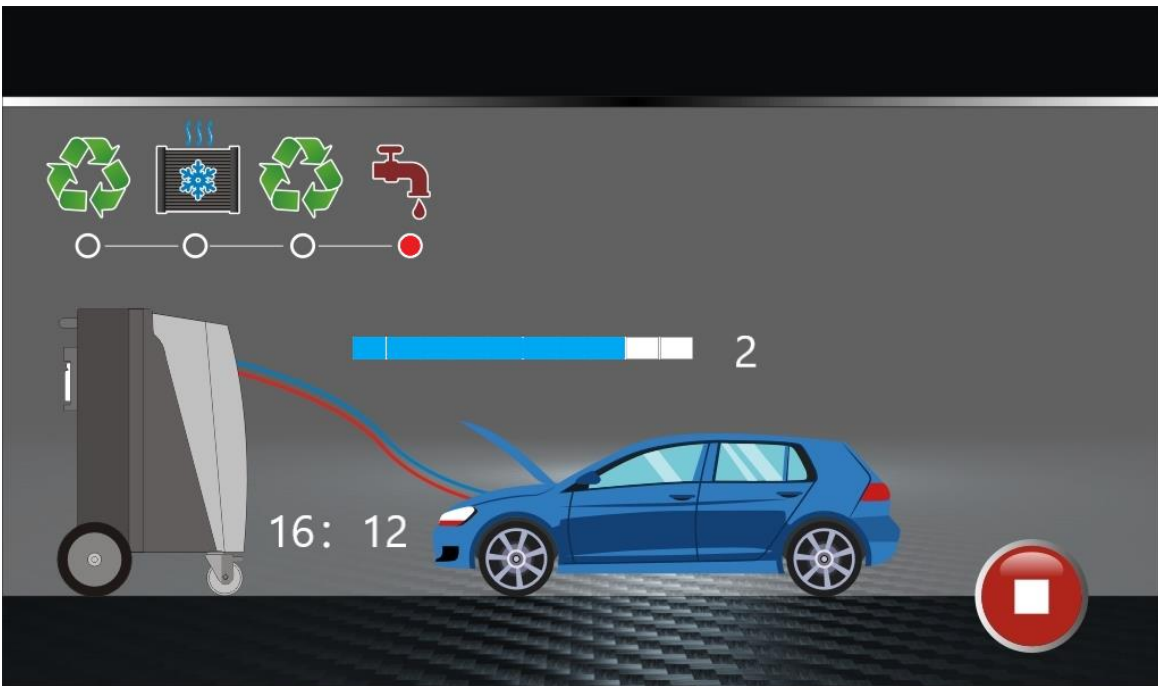


4. After first phase of recovery, you need to spend some minutes, just waiting for more refrigerant evaporating into vapor, if the pressure inside the A/C raised, the equipment will repeat the recovery process until the pressure will not raise any more.



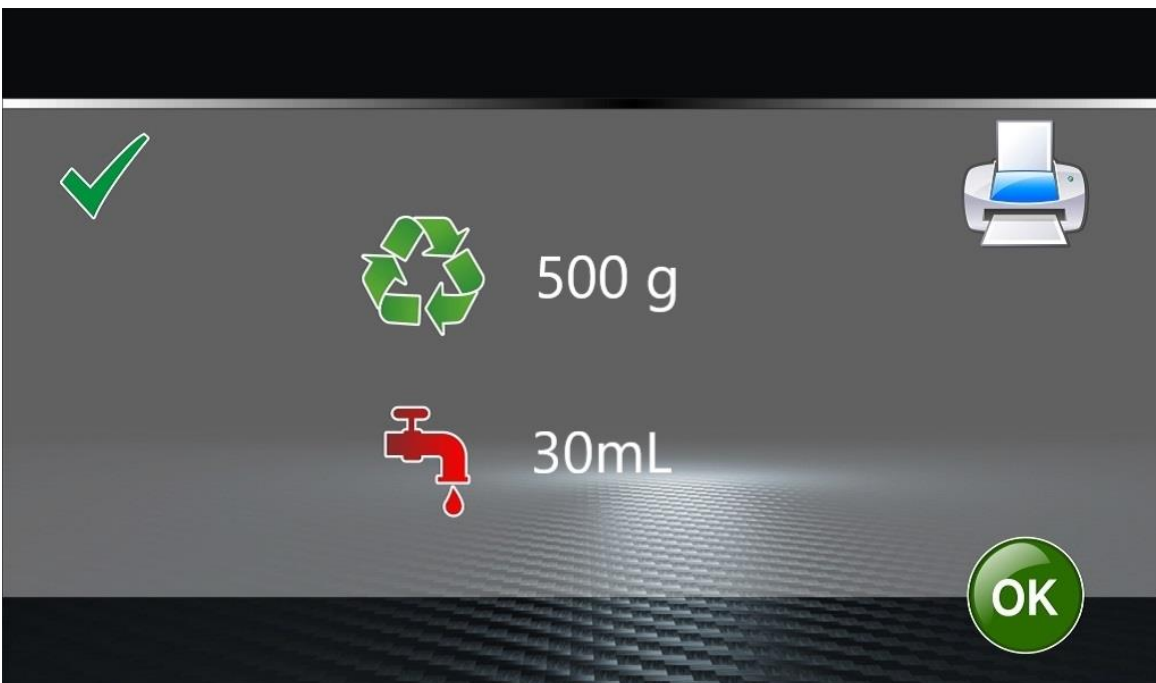




5. When the recovery process is over, it will discharge used refrigerant oil automatically.





6. For about 30-50 seconds, The oil draining process would be finished.



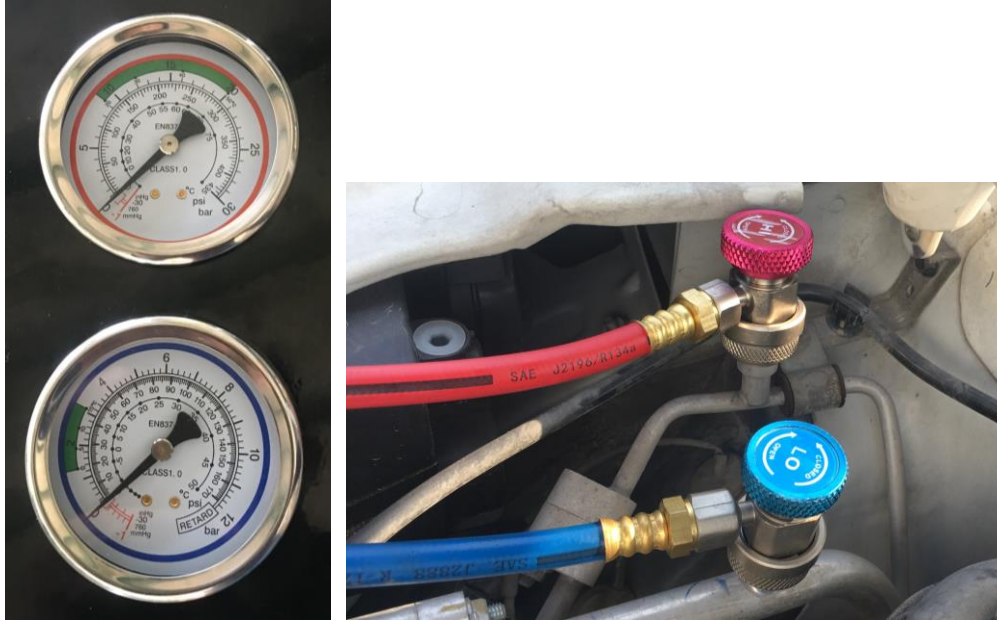
7. Touch  key to stop the alarm buzzer, or touch  key to print, then the recovery process finished!


7.2 Vacuum and Vacuum Test

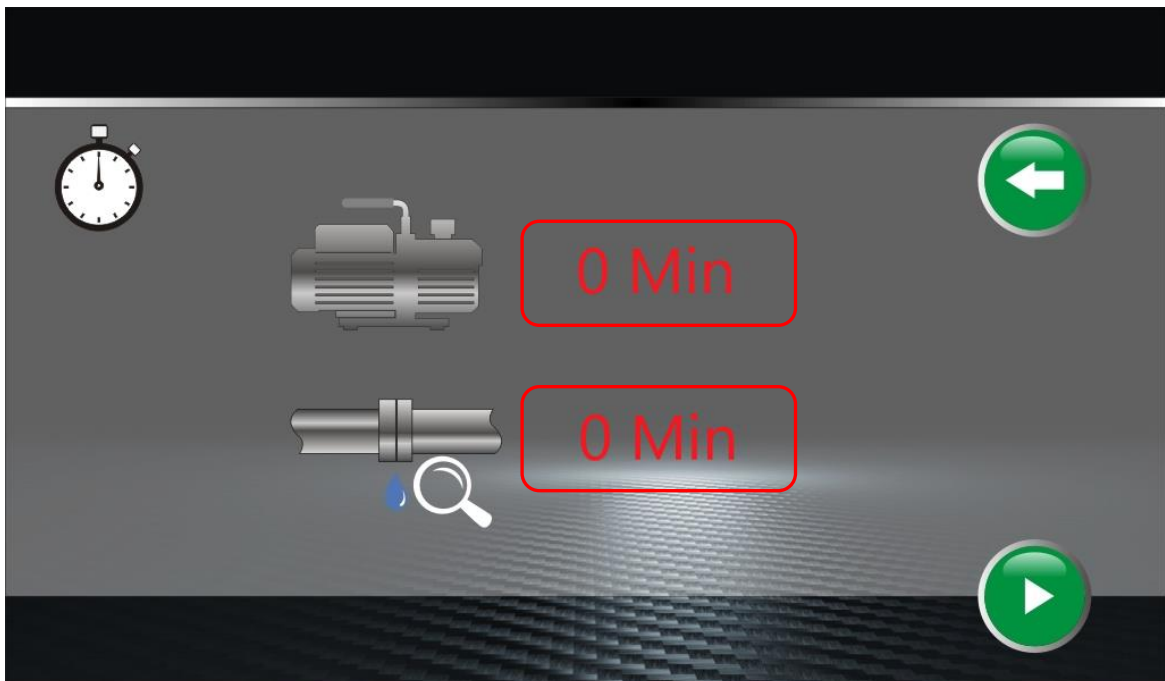
Vacuum operation is the process that the Air-Con Service Station evacuate the vehicle A/C system into a vacuum state. The small quantity gases are exhausted outside. In the process, the pressure inside the A/C changes from the relative zero to absolute zero.

There is a vacuum test function after the operation, which is a easy way to check if there exist some leakage in the A/C system.


The equipment could automatically detect the pressure is suitable or not for operation. the Max beginning pressure should less than -0.2 bar.

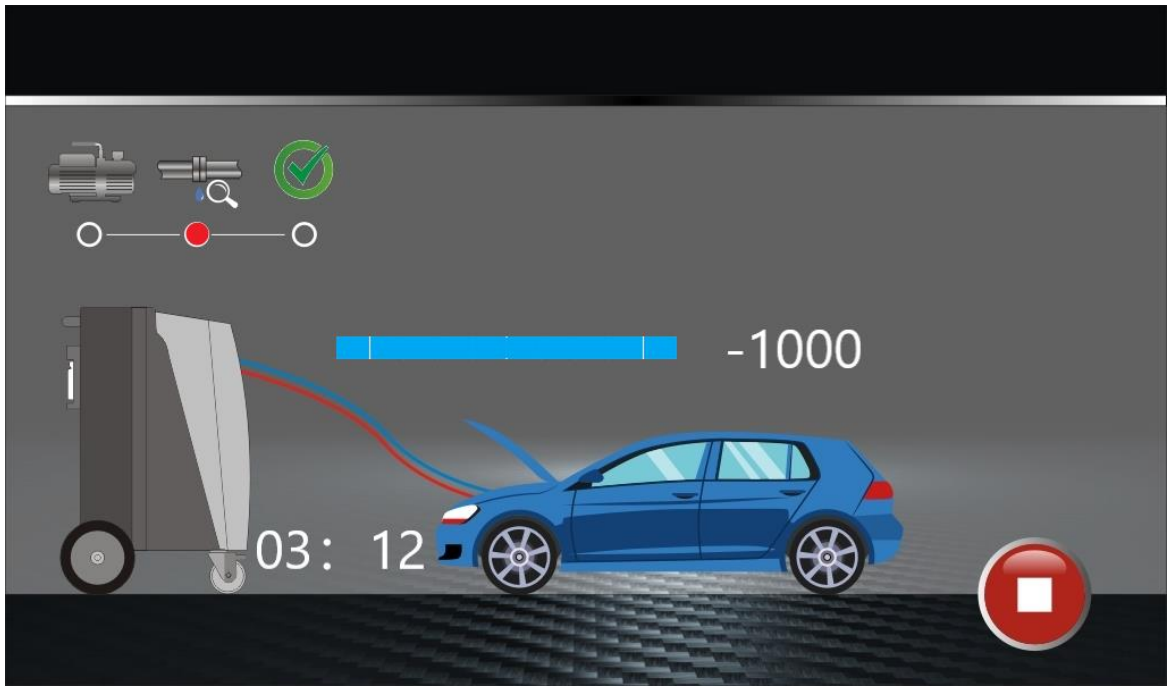
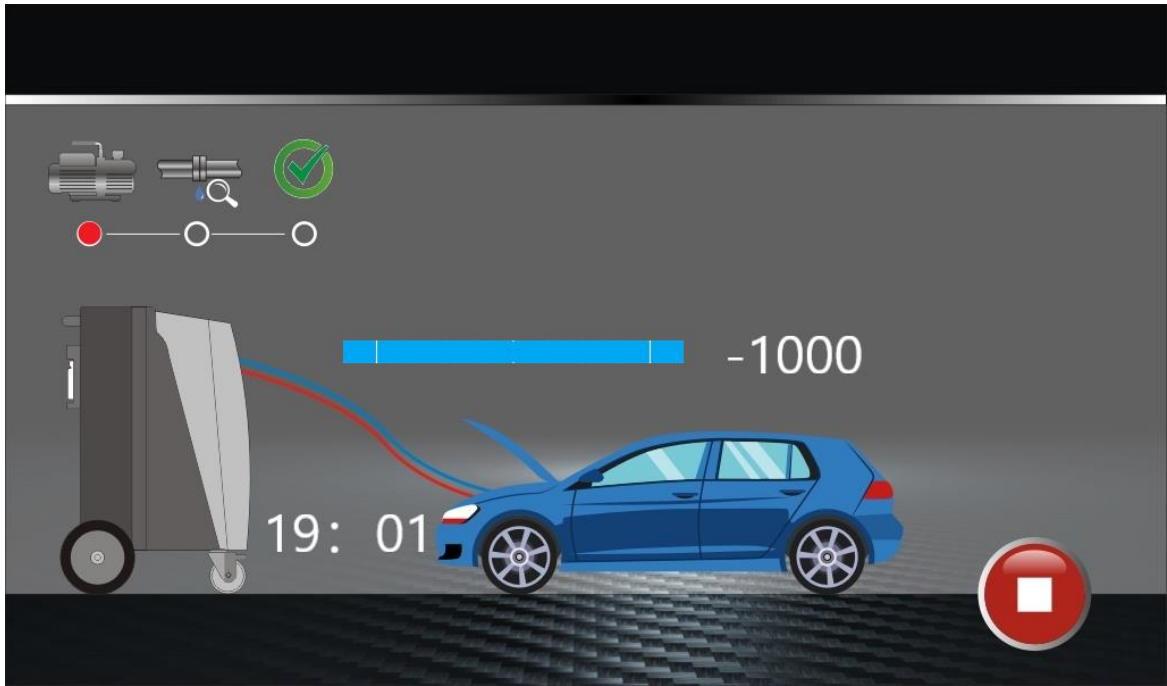


1. Press  key, the device comes to vacuum mode.

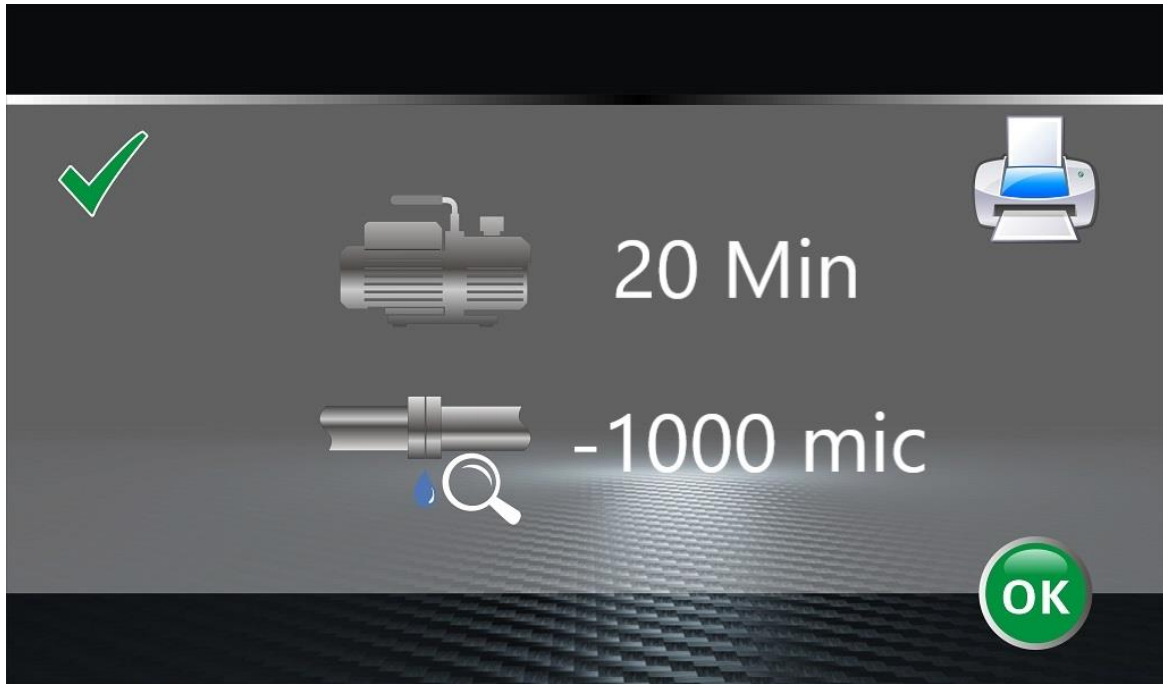


2. **RED AREA** is for setting the vacuum time and test time,

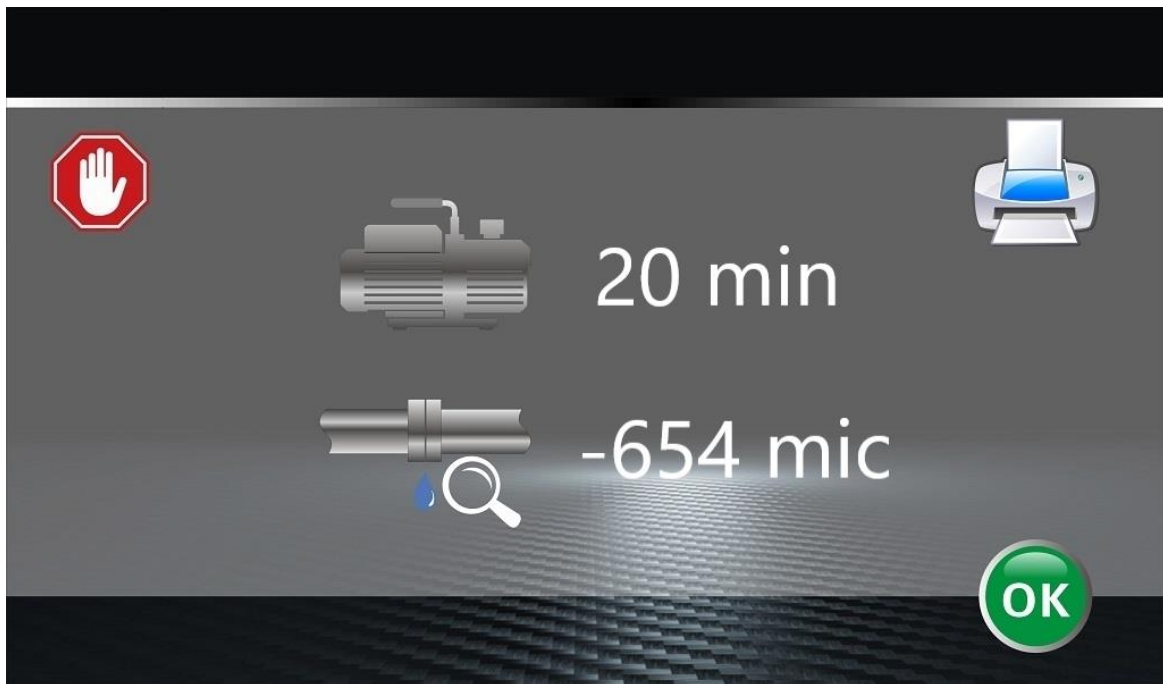
3. Finished the input, touch  to confirm, It comes from the vacuum and to the test automatically. The device will show the blow information after expiry of the test time.





If testing passed, you will see



If testing not passed, you will see



Whatever the result, you can choose to touch the  key to print or press  to confirm and come back to the option menu.

In fully auto mode, If the result is OK, the operation can go ahead, but if failed, the operation stopped and will return to standby interface.

NOTICE: If the A/C system is not opened to air, the suggested vacuum time is 5-10 minutes.

If it was, the minutes should usually be 20-30 min.

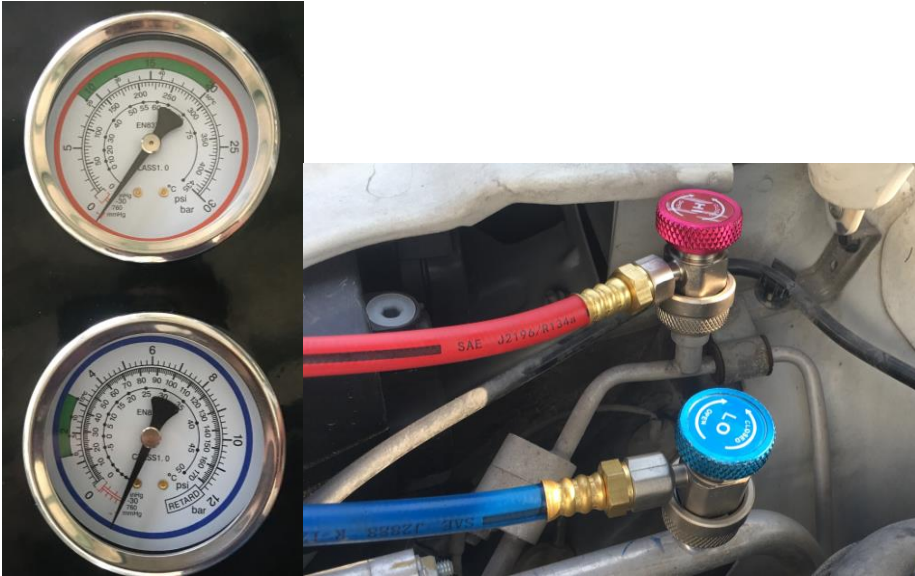
NOTICE: If there is a heating belt for the equipment, the suggested minutes is at least 10 minutes. The heating belt only work during the vacuum process.

7.3 Oil injection

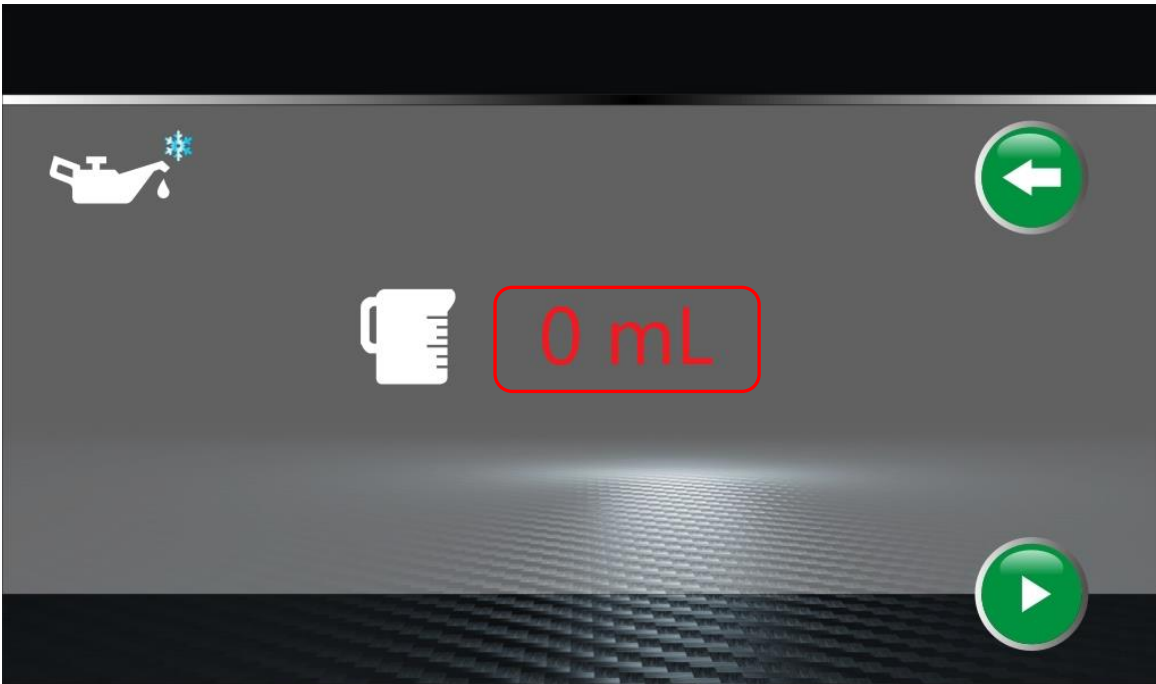
This operation is to make up of new refrigerant oil into vehicle A/C system through the Air-Con Service Station. It must be a vacuum state that the new oil could be added into the A/C system.

1. Check the new oil bottle, make sure that the refrigerant oil is more than 50ml inside.

Press  key.

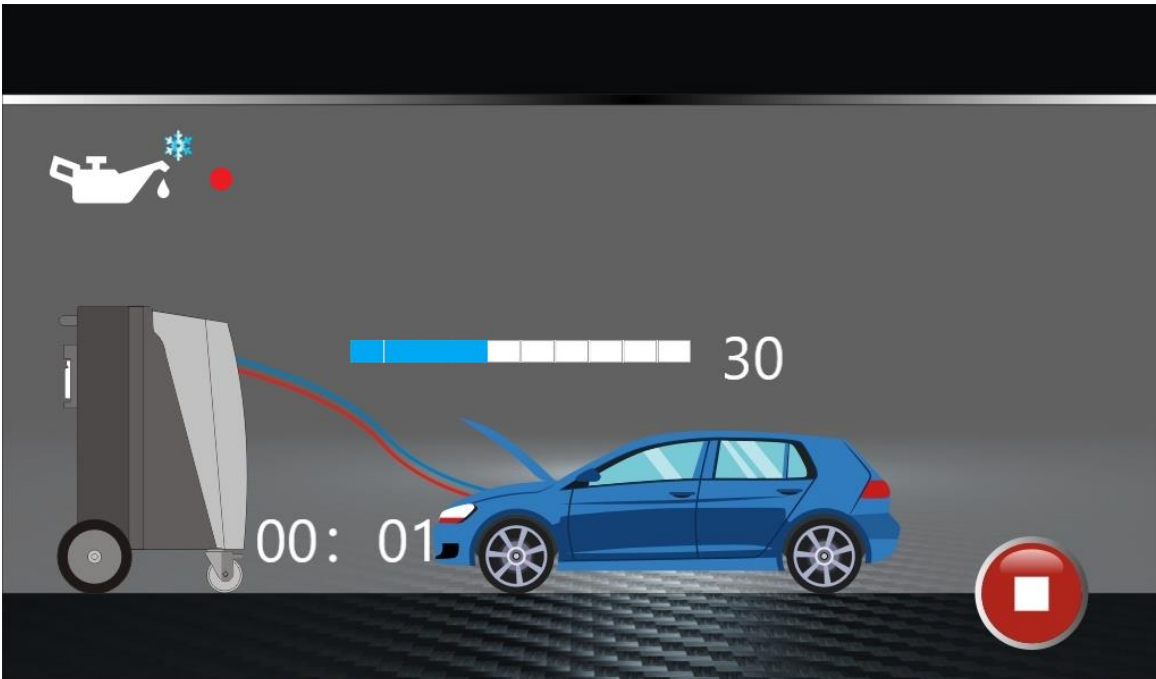


more than 50ml

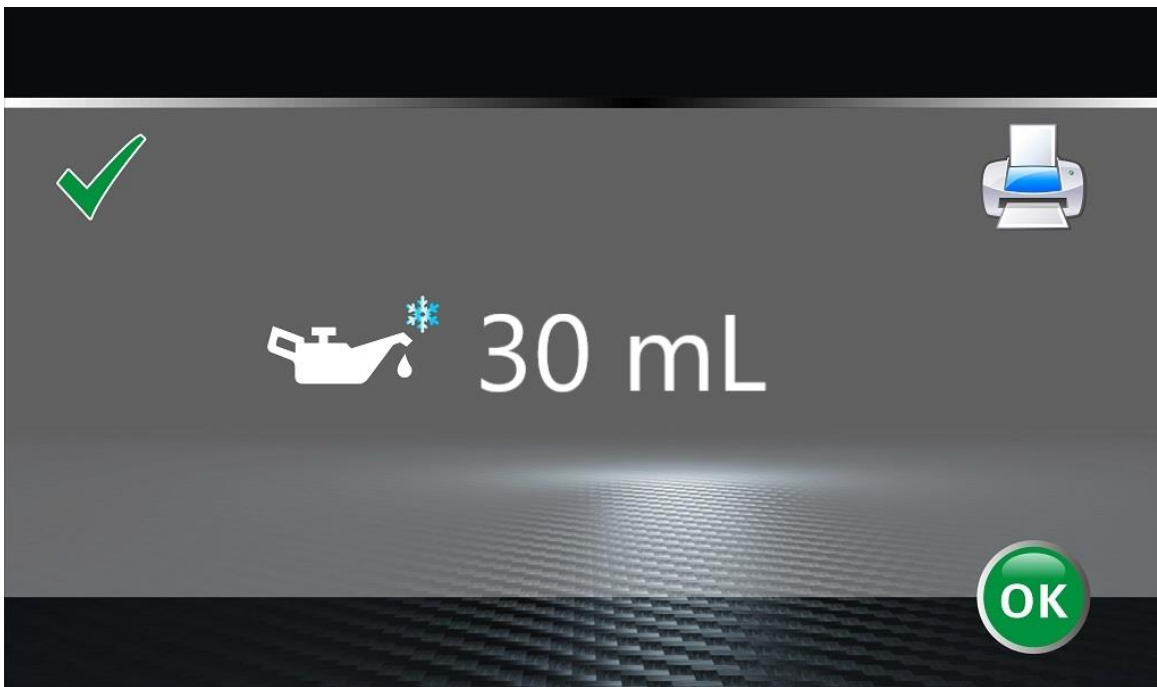


2. **RED AREA** is for inputting the oil quantity,

3. Confirmed the quantity, then touch  bottom, the new refrigerant oil would be sucked into the A/C system.



4. Watch the scale of the PAG bottle, when the oil is added with the desired quantity, stopped the operation. it will finish automatically.



5. Touch the  key to print or touch  to confirm and come back to the standby mode.

7.4 UV injection

This operation is to make up of UV oil into vehicle A/C system through the Air-Con Service Station. It must be a vacuum state that the UV could be added into the A/C system.

1. Check the UV bottle, make sure that the UV oil is more than 50ml inside. Press



key.

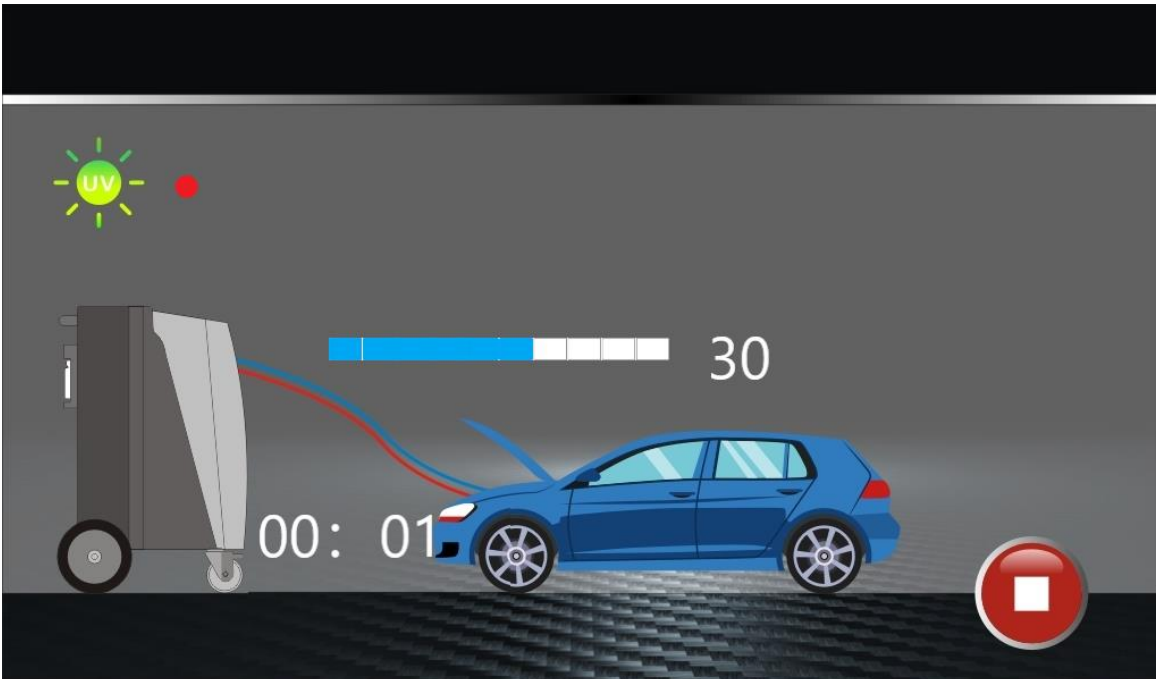


more than 50ml

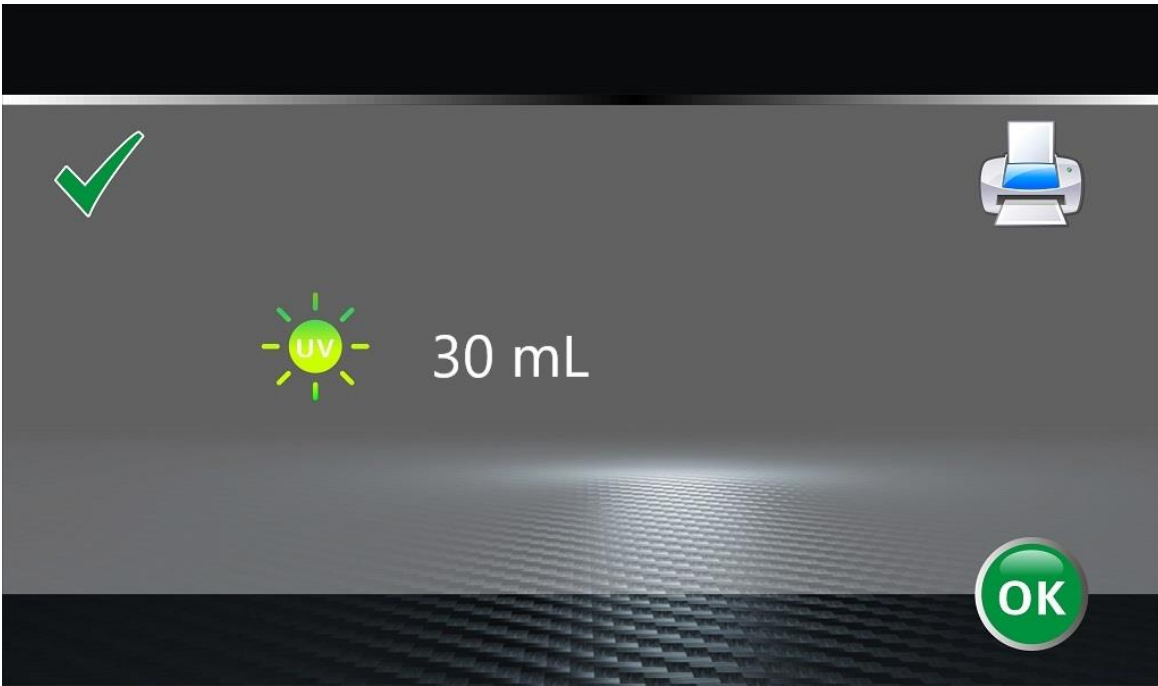




2. **RED AREA** is for setting the oil quantity,

3. Confirmed the quantity, then touch  bottom, the new refrigerant oil would be sucked into the A/C system.



4. Watch the scale of the UV bottle, when the UV oil is added with the desired quantity, stopped the operation. it will finish automatically.




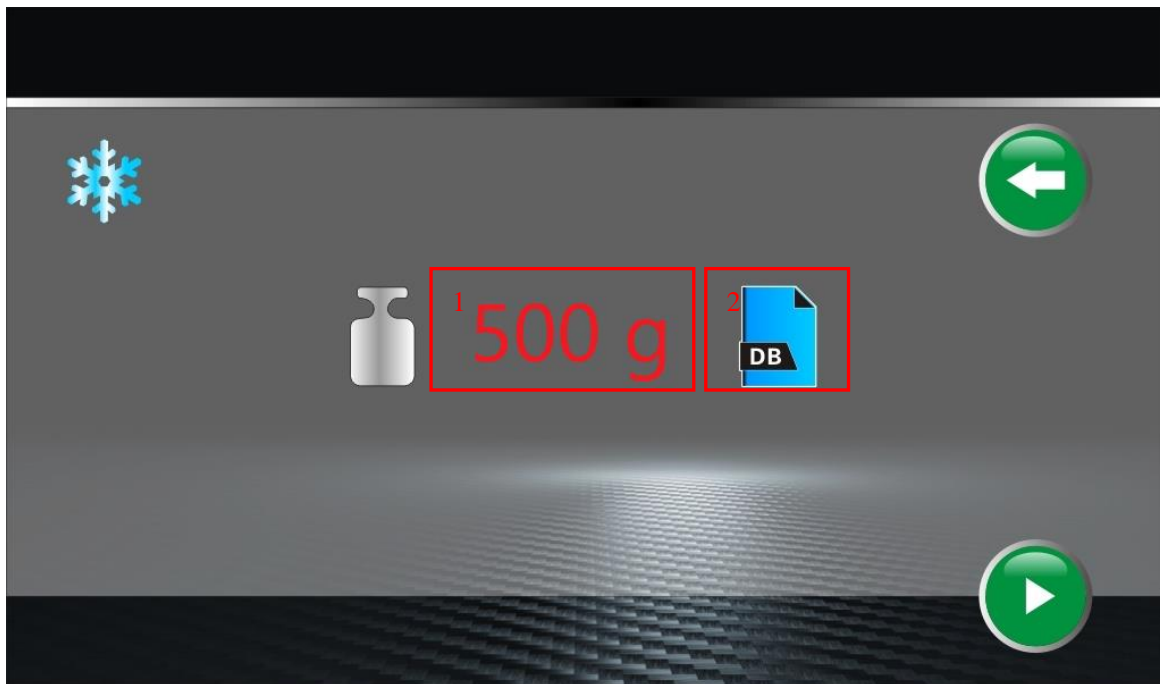
5. Press the  key to print or press  to confirm and come back to the standby mode.

7.5 Recharge

This operation is to fill with the refrigerant into the vehicle A/C system through the Air-Con Service Station. the quantity is measured by load cell and it must be a vacuum state that the gas could be added into the A/C system.

Usually, if the tank pressure is over than 6 bar, the recharge will be done quickly, or it need some special solution to resolve it.

1. Press  key to come to recharge process.




The **No1.RED AREA** is for setting the recharge gas amount. And the **No.2 RED AREA** is for select the gas amount from the database.

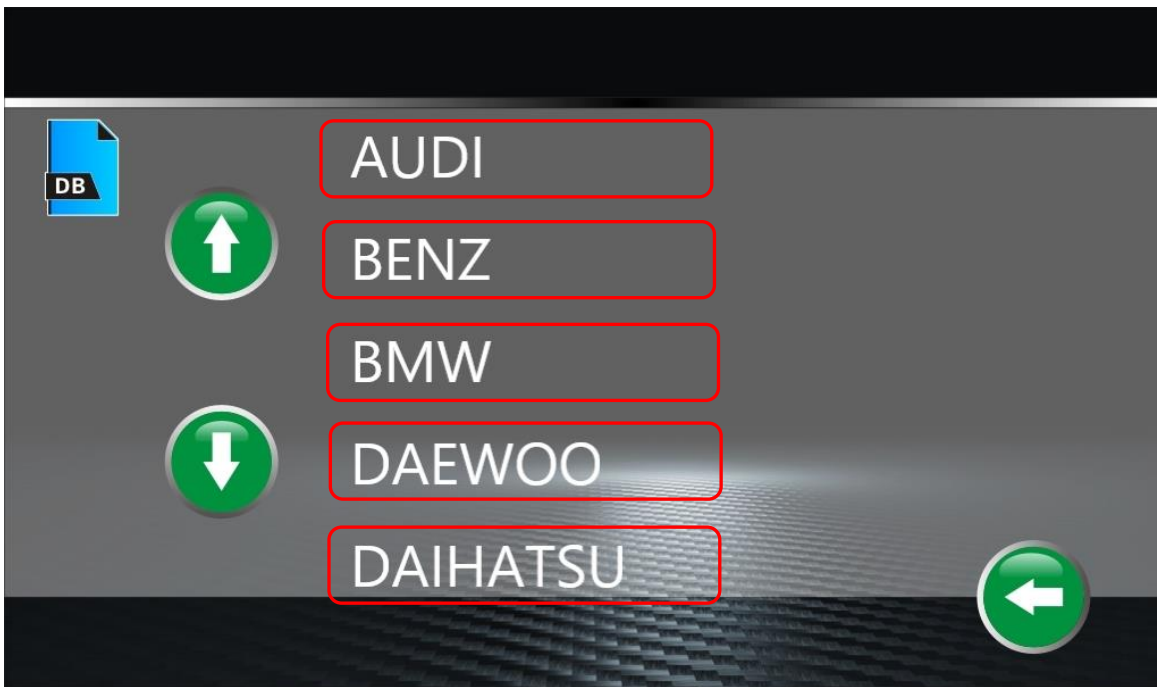
NOTICE: for this operation, the work tank should have at least 3.5 kg gas inside. It will show the information if the requirement does not satisfy and the rest operation is not allowed. It will release some gases if necessary.




If the machine is available for charge, you can touch the number to adjust the refrigerant

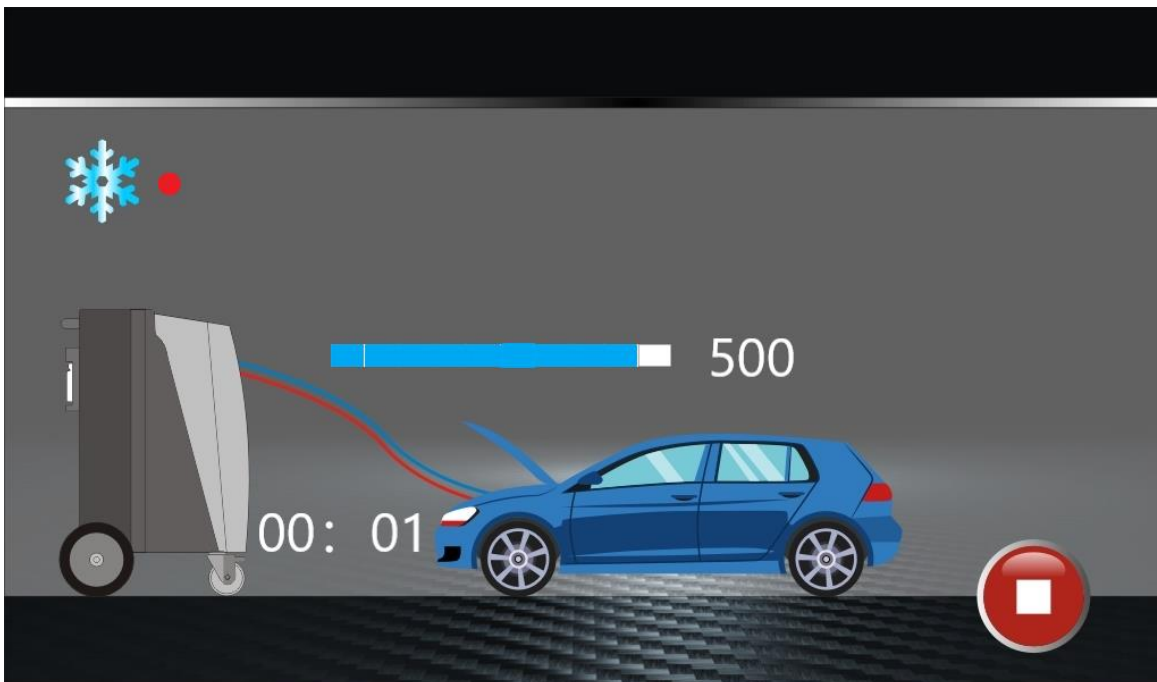
quantity that you could check the amount on the vehicle, or you can touch  key to use the database.



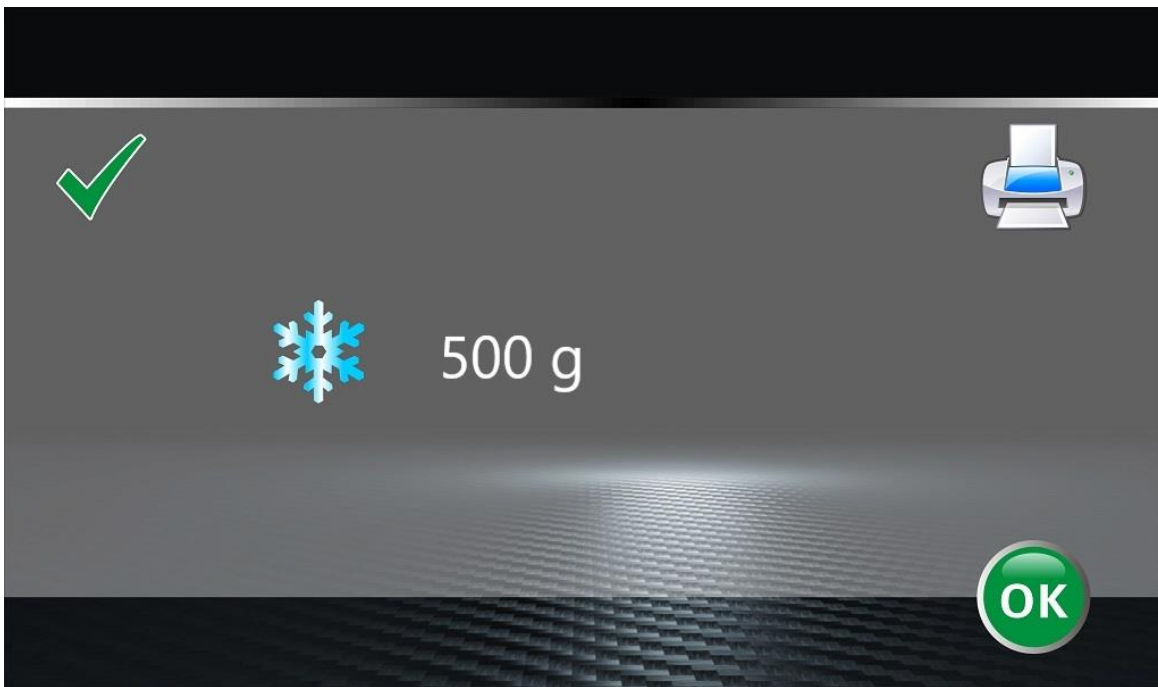


RED AREA is for select the car brand. mode and year in database.

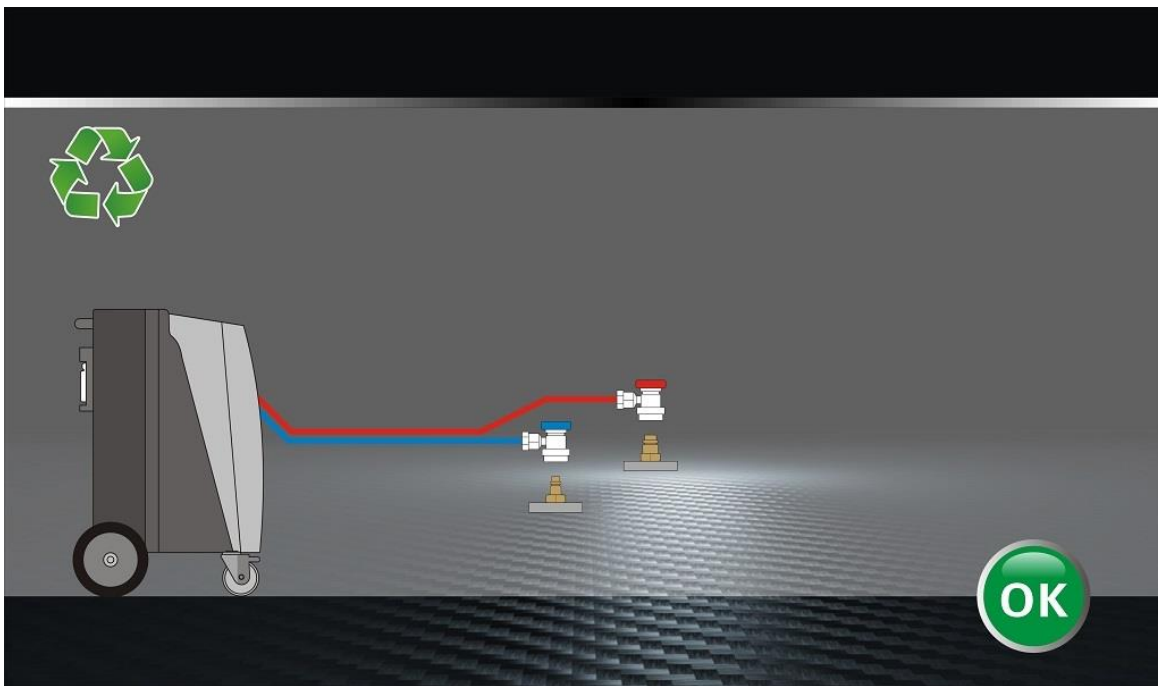
2. When all are ready, press  to confirm. it will recharge the air-conditioning with the refrigerant.



The process will be stopped automatically when the set quantity of refrigerant is completely filled into the A/C system.




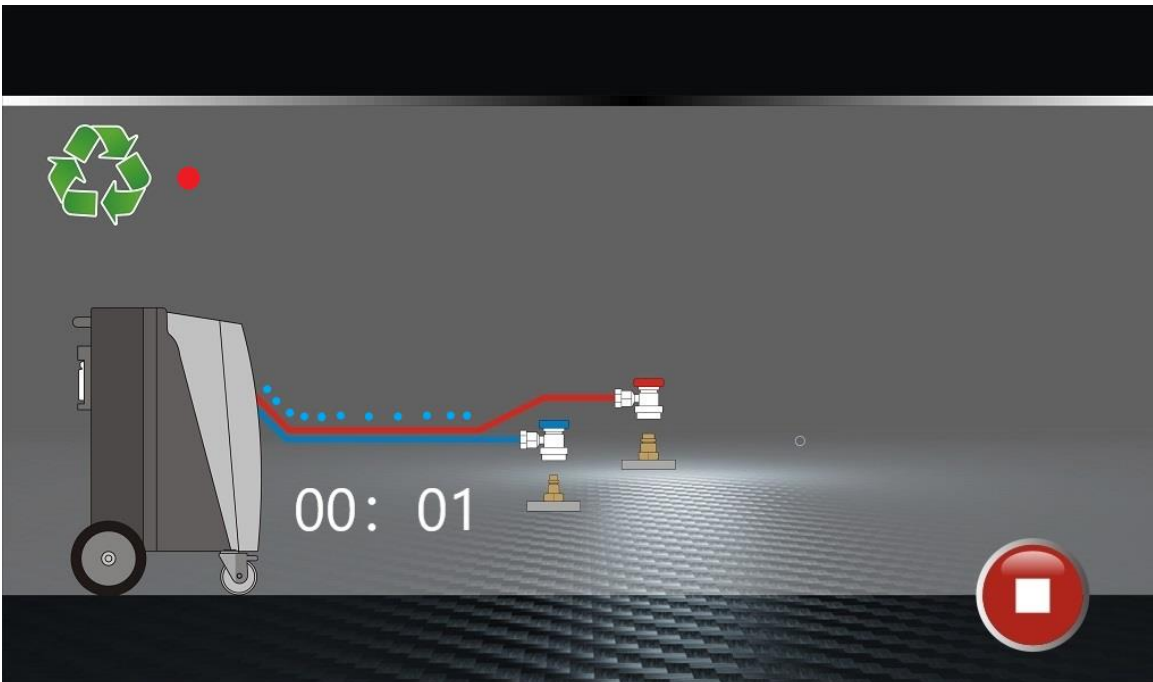
Touch  key to print or touch  to confirm, and you will see



This tip is to tell you take off the quick couples from the A/C system and screw back the valve caps to the service port. And empty the service hoses by recovery operation. The device is then ready for further use.



3. When all are ready, press  to continue.



the hose-cleaning operation will finish automatically and come back to the operation menu.

NOTICE: some time the recharge maybe not finished in time, and the bellow information displayed:



This is because of tank pressure is not enough for the operation. Please go on the process by starting the automobile engine and A/C,

⚠CAUTION CLOSE AND TAKE OFF THE HP ADAPTER FROM THE AC , only let the Low side to suck the gas into A/C system, it will automatically stop if the set gas quantity is finished

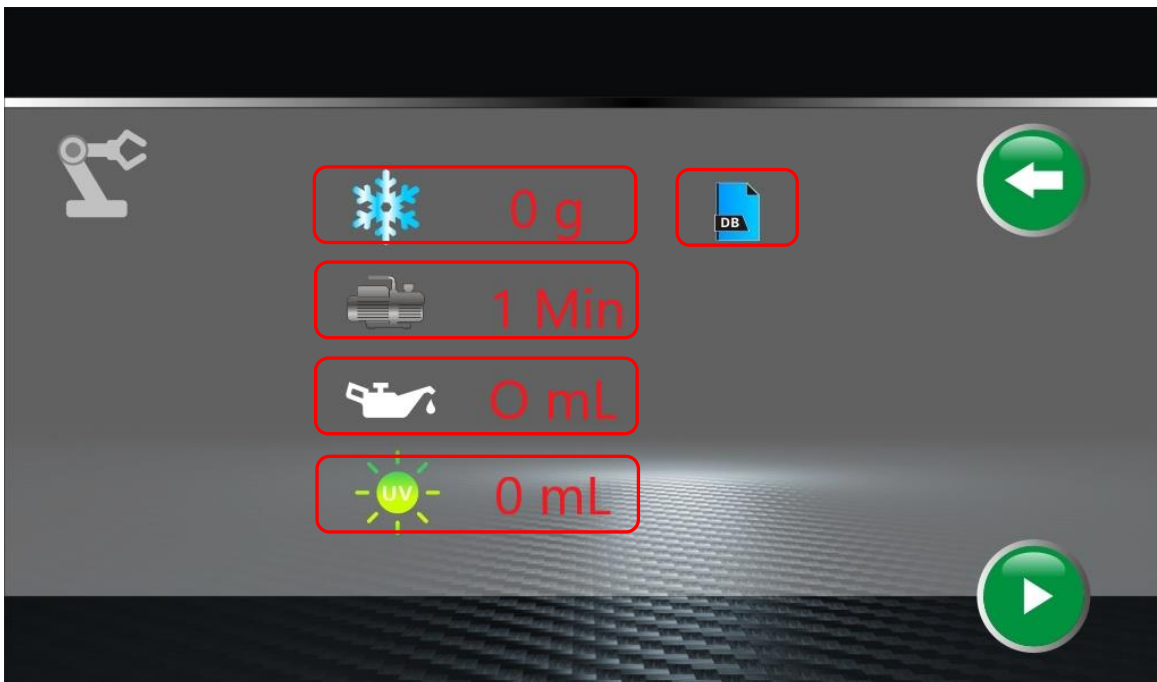


7.6 Fully AUTO


The automatic operation is including recovery, oil drain, vacuum and vacuum test, oil injection, and recharging, all steps are in one press. Before operation, you must confirm that the new refrigerant oil and the UV are enough, or it has risk that the air would be sucked into the vehicle A/C system.

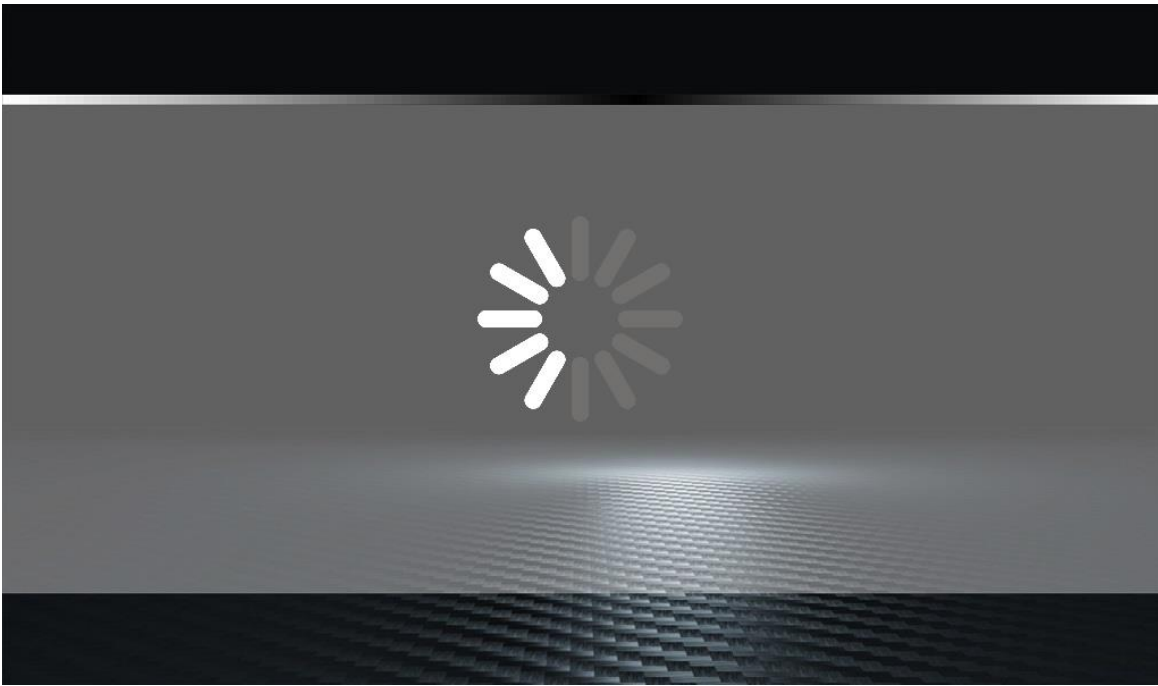


1. In operation menu, press  key to come to auto mode.

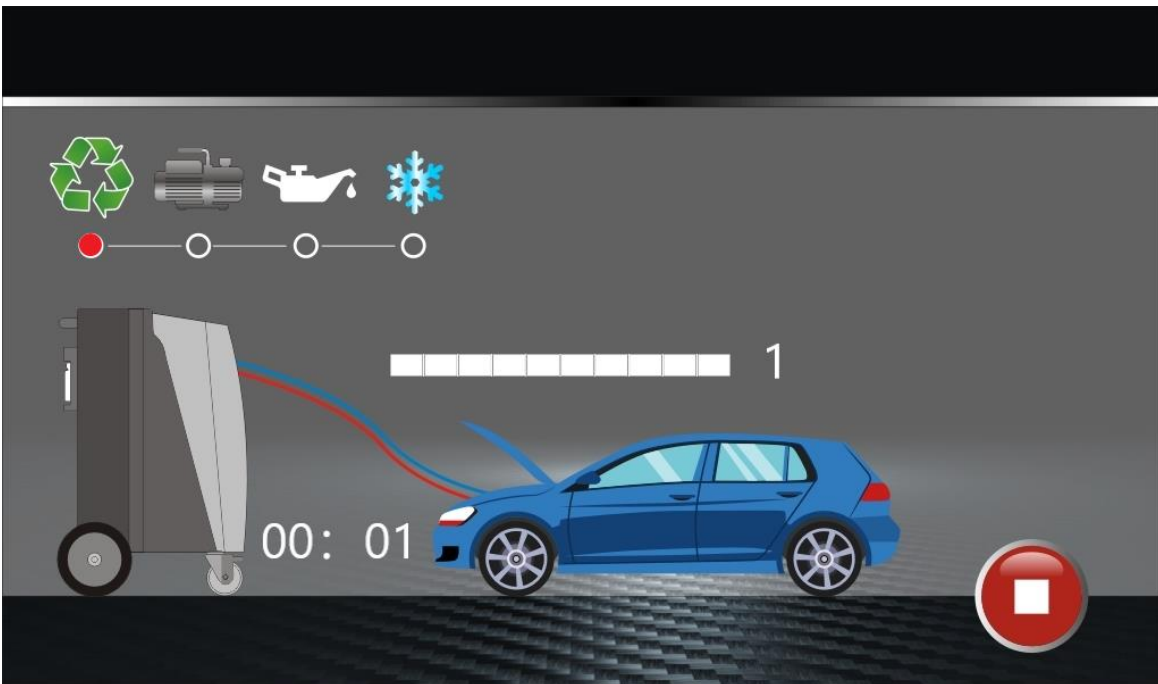


2. Touch the **RED AREA** for specification setting.

3. then touch the  key to start, the device will automatically run the recovery, oil drain, vacuum and test, oil injection, recharging phases.



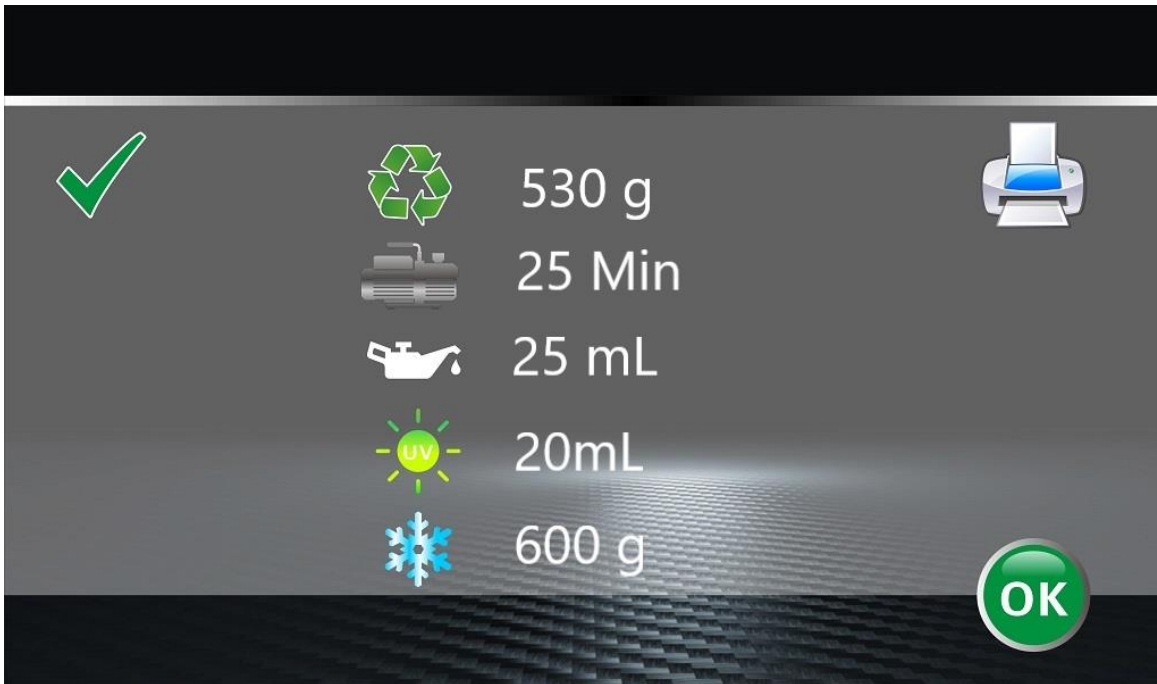
This display indicates that the machine is diagnosing itself whether it is available for automatic. If it is ok, it will start automatically.




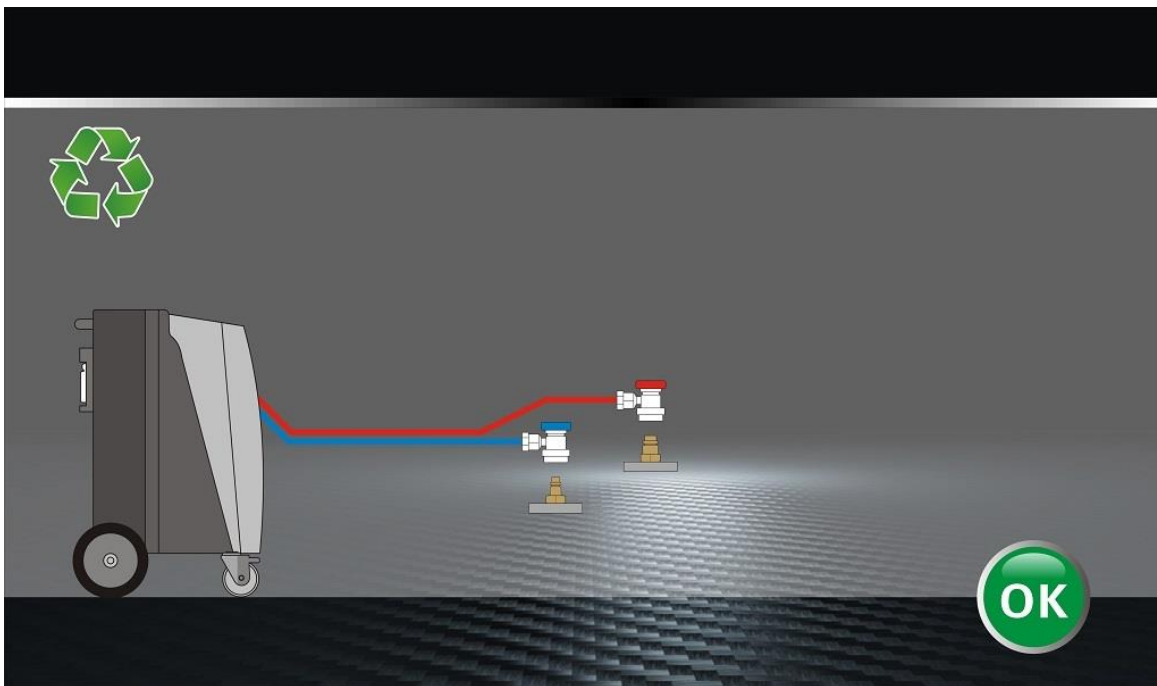
NOTICE: If the vacuum test result is OK, the operation can go ahead, but if failed, the operation stopped and will return to standby mode.

After all the steps finished, it will give you all the data for confirming, you can take off the quick couples from the A/C system and screw back the valve caps to the service port. And empty the service hoses by hose-cleaning operation. The device is then ready for further

use. you can press  key to print



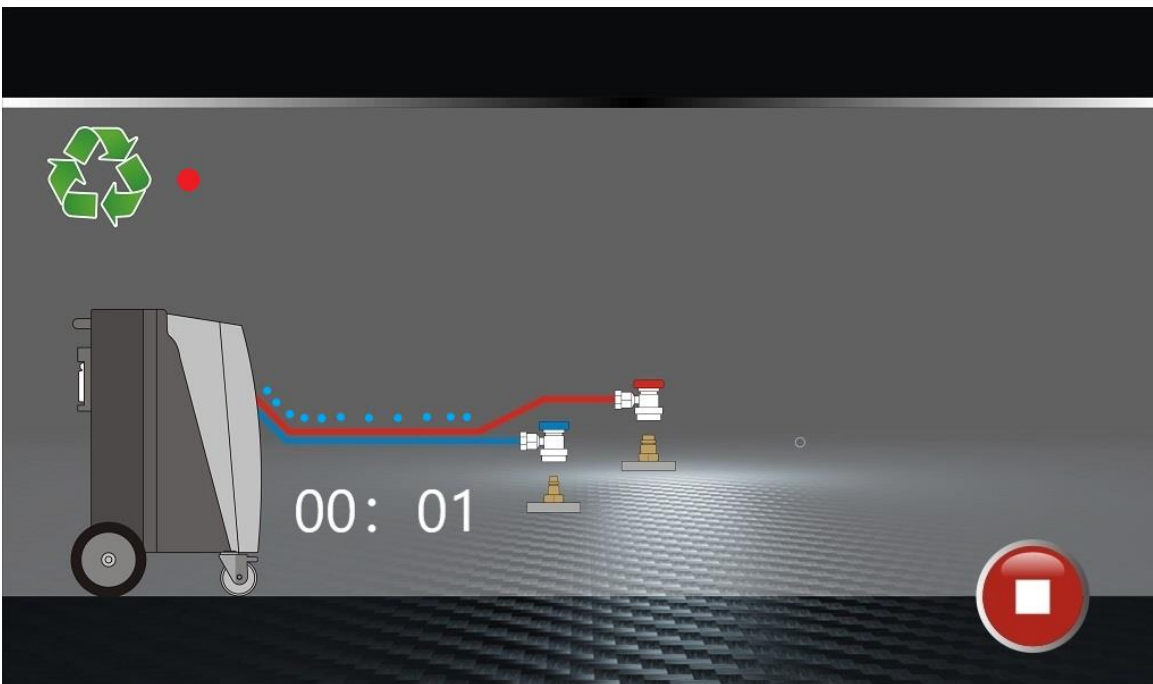
or press  to confirm the hose cleaning.



This tip is to tell you take off the quick couples from the A/C system and screw back the valve caps to the service port. And empty the service hoses by recovery operation. The device is then ready for further use.



4. press  to continue.



the hose-cleaning operation will finish automatically and come back to the operation menu.



7.7 Weight Scale verification

This operation is for checking the output of the weigh sensor. If it does not work correctly, an additional calibration is needed.

You need something with a known weight. for example, prepare a 200 g standard sample weight.



3. Make sure the tank is fixed on the scale properly without any disturbance or leaning against.

4. In the standby mode, touch the RED AREA 3 times continuously, the LCD show:

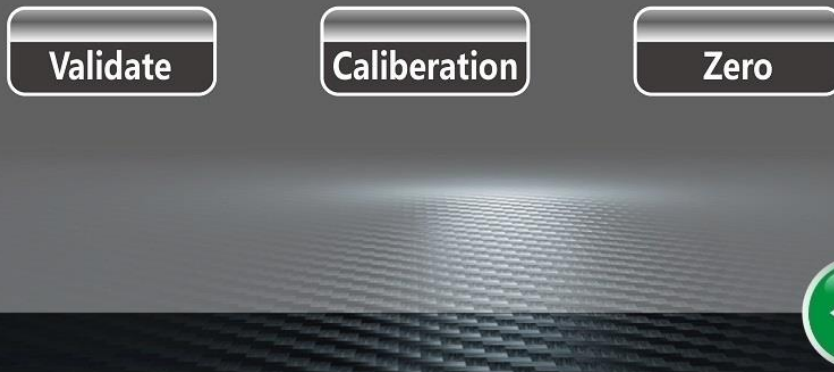


You can touch the sensor to choose which wight sensor for checking.

Sensor Service



for example, we choose the sensor of the tank, touch the W1 to enter.



3.Touch the validate to check

Validate

The Gas

Line 1150

Zero 6700

Tare 9000

Data 0



It will show a 0 ± 5 as default, then put the **sample weight** on the tank.

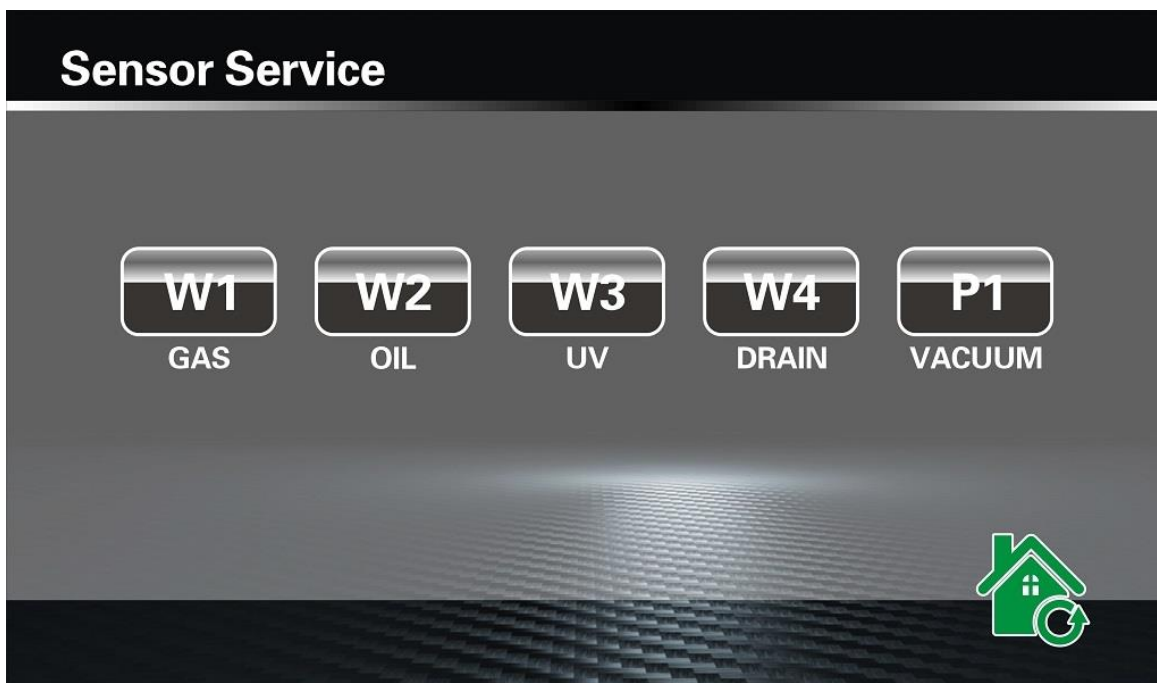


It shows 200 ± 5 , it means the sensor is working well. If the total error is out of 5 grams, an additional calibration is needed.



5. Press  key to quit this operation.

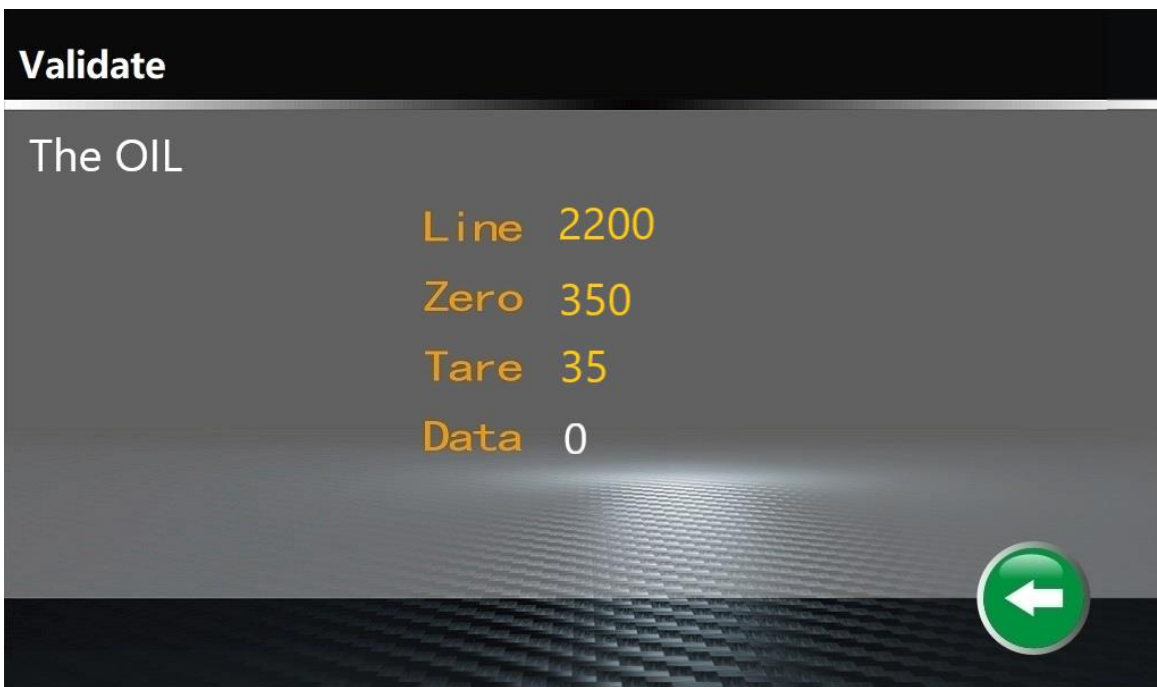
If you need to check the oil loadcell, just choose the other button,



for example, we choose the sensor of PAG oil, touch the W2 to enter.



3.Touch the validate to check



It will show a 0 ± 5 as default, then screw the **sample weight** on the bottle cap.



It shows 200 ± 5 , it means the sensor is working well. If the total error is out of 5 grams, an additional calibration is needed.



6. Press  key to quit this operation.

7.8 Weight Scale Zero and Pressure Sensor Zero

7.8.1 Weight Scale Zero

In order to make sure the refrigerant quantities correctly, the zero point of the scales must be checked regularly filter change and reset if necessary.

Resetting is necessary:

NOTICE If the quantity deviates by more than 10g from the target value

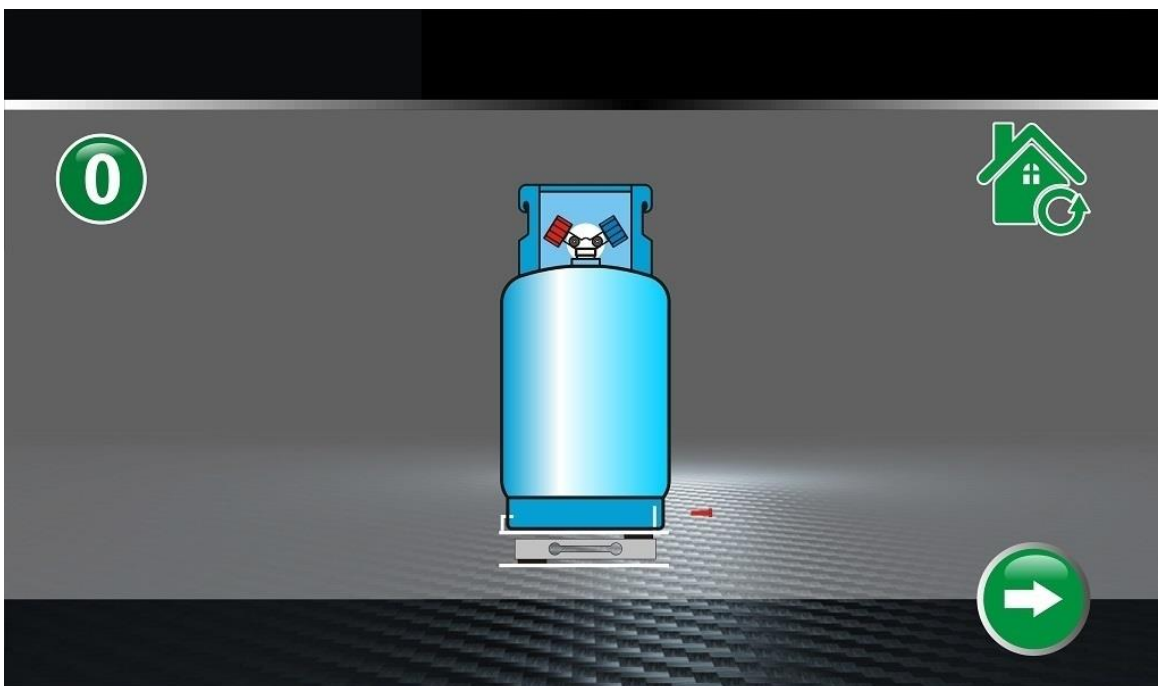
NOTICE If the Air-Con Service Station has been shaken, for example during transport on bumpy roads

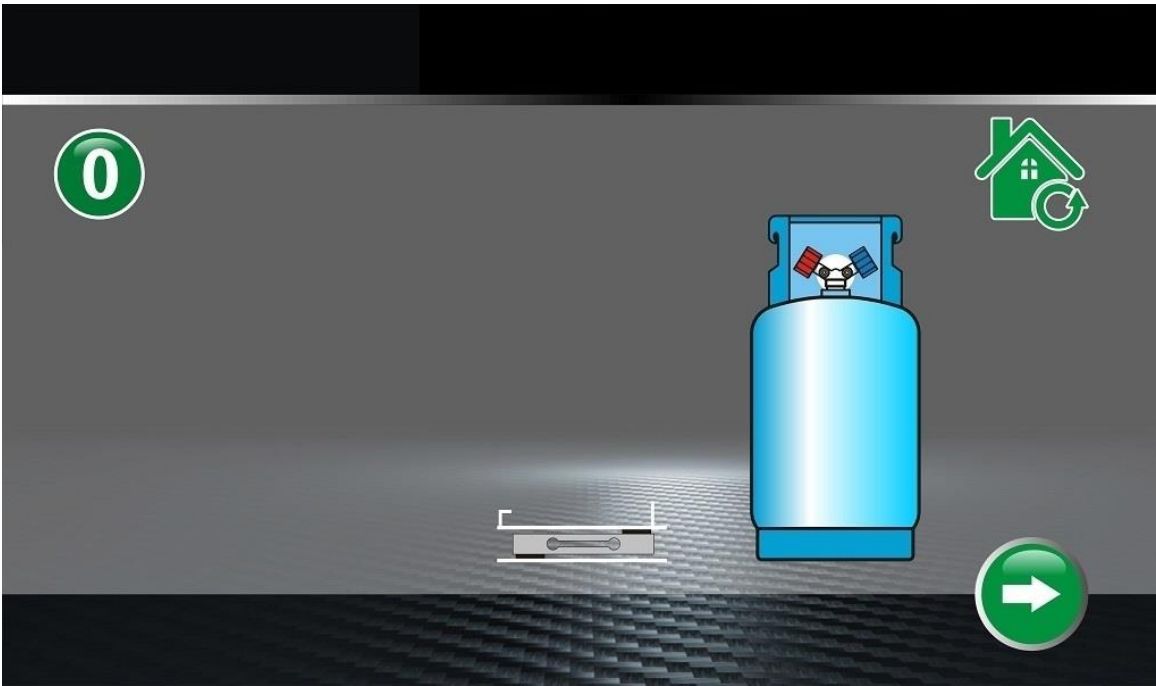
NOTICE Every four to six weeks filter change.

1. In the sensor mode, touch zero,



The LCD will show you the following flash





2. The device prompts you to remove the fix screw and lift the tank off from the scale plate.




3. Make sure that there is **NOTHING** on the scale, press  key.

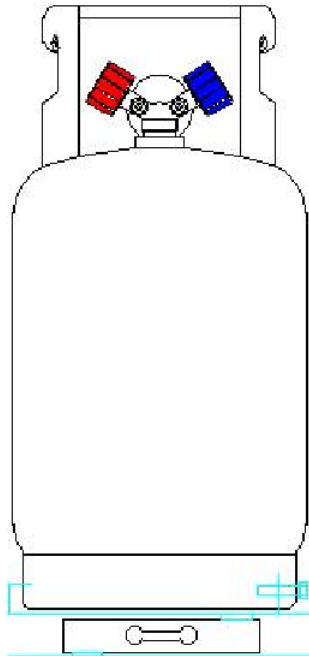
⚠CAUTION If something is on the scale, that will cause incorrect reading of gas amount inside the tank.

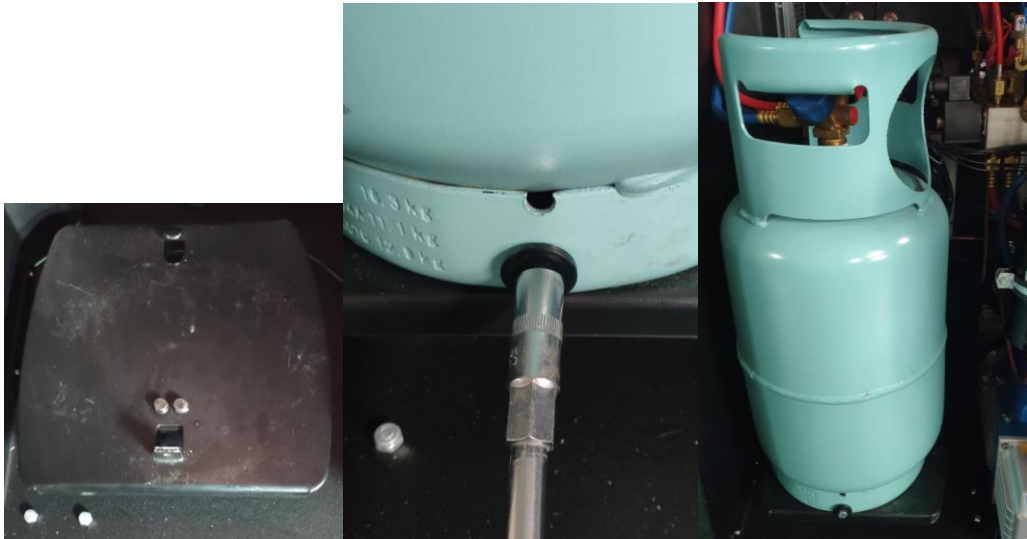
After finishing it, the LCD will warn you a flash to put back the screws and the tank, then the LCD will come to the sensor mode automatically.



Touch the  come back to the standby mode.

4. place back the tank on the scale plate and fix the screw back. Please make sure that the tank is placed vertically without touching any wall.





7.8.2 Pressure Sensor Zero

In order to make sure the pressure measure work correctly, the zero point of the pressure sensor must be checked regularly and reset if necessary.

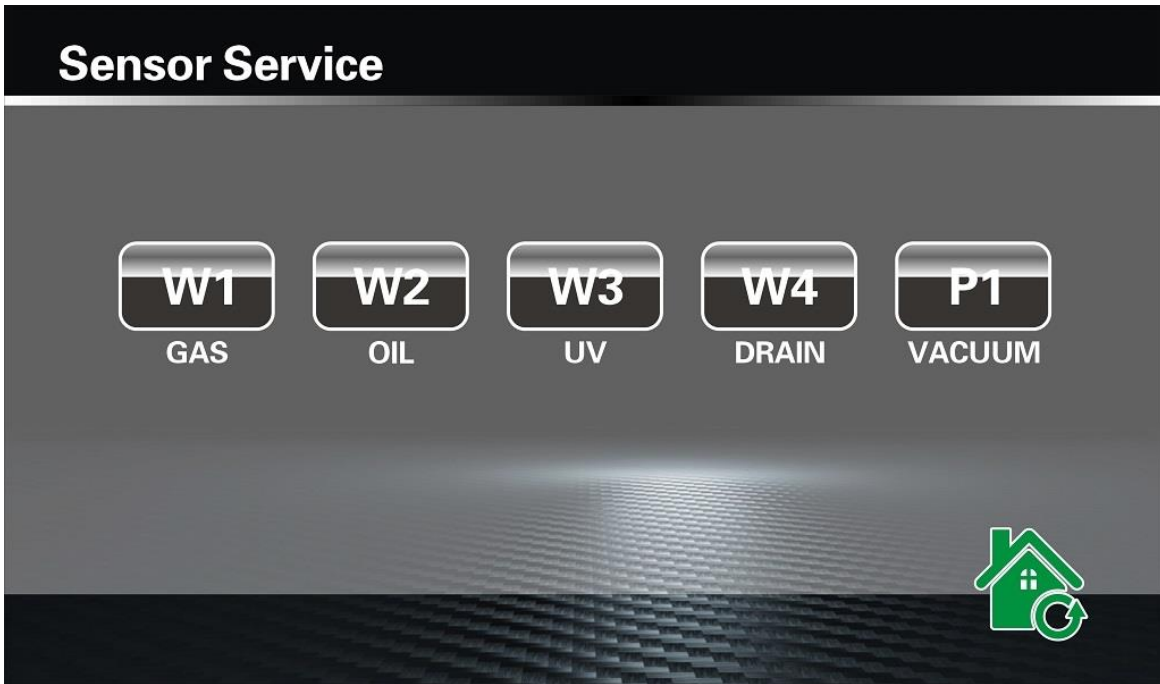
Resetting is necessary:

NOTICE If the quantity deviates by more than 20mBar from the target value

NOTICE If the Air-Con Service Station has been shaken, for example during transport on bumpy roads

NOTICE Every four to six weeks

1. In sensor mode, touch the P1




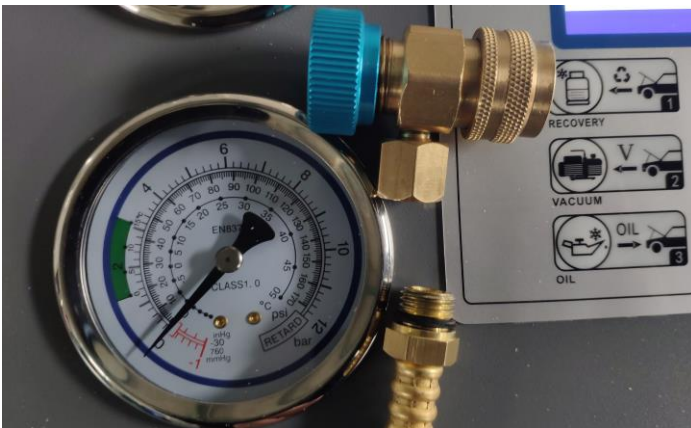
2. It will show you



3. Touch the zero, it will show you



4. The device prompts you to remove the low adapter and make sure that the hose is well connected to ATM, then press  key .



After finishing it, the LCD will come to the sensor mode automatically, put back the low adapter to the hose.



7.9 SD info

NOTICE The database provided by KATOOL is not covering full car modes, user can do the database

Edit work by yourself. A max 4G volume SD card is recommended.

7.9.1 User company info

In SD card, there is an “**userinfo.txt**” file, you can open it through your PC and edit it, change the name, address and tell to your own info. This info will print out on the service tickets.

Note: only 32 alphabets in one line and all the lines should be strictly aligning.

7.9.2 Service ticket

In SD card, there is an “**ticket.txt**” file, you can open it through your PC and edit it, change the default English language to your local language. This info will print out on the service tickets.

Note: only 32 alphabets in one line and all the lines should be strictly aligning. And only standard ASCII code is accepted.

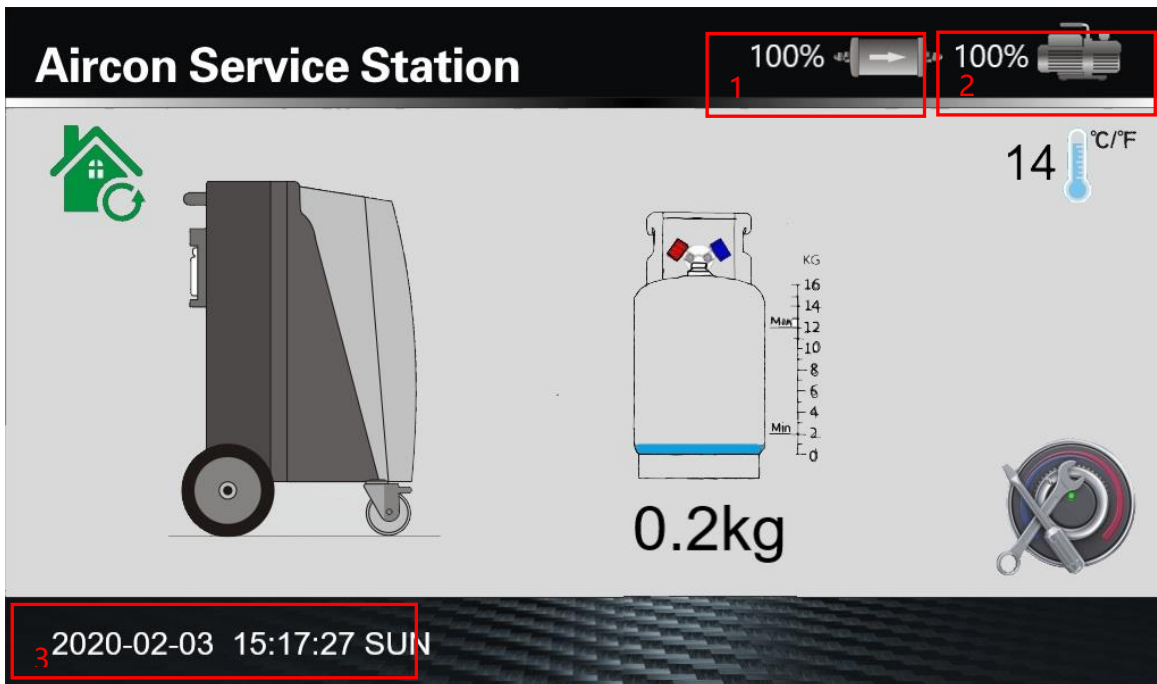
7.10.3 Database

In SD card, there is an “**database**” folder, you can open it through your PC and update the database, more info please ask KATOOL service team.

3. Use your computer for data editing. Open the data card and you will see a lot of car-branded notepads. Create a new notepad file of your own, open and edit in the following format.

The spaces, punctuation, and end alignment should be exactly the same as the above format. If the last box is a space, you must also enter the space bar.

8 Service tasks



Touch the **No.1 RED AREA** is for resetting the filter drier, the **No.2 RED AREA** is for resetting the pump oil, the **No.3 RED AREA** is for resetting the time and date.

8.4 Other service

This operation is needed the password, if you want to use this you can call the Katool hot line to ask for the password.

9. Disposal

9.1 Disposing of used fluids

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

⚠️WARNING Disposing of used fluids should comply the local government laws.

⚠️WARNING Disposing of used filter should comply the local government laws.


9.2 Disposing of packaging material

NOTICE: The cardboard packaging material should be disposed of with other waste paper.

NOTICE: Plastic packaging material should be added to other recyclable waste.

NOTICE: Disposing of packaging material should comply the local government laws.

10 Trouble shooting

| Fault | Cause | Remedy |
|--|---|--|
| The display shows „ WARNING! CODE: W16 NOT ENOUGH PRESSURE TO RECOVERY! ” | This message is normal, during the recovery process. | Press  to continue other operations. If you make sure that there is no refrigerant in A/C system. |
| The display shows „ WARNING! CODE:02 INNER TANK FILLED. ” | The inner tank is full of refrigerant. | Drain the internal refrigerant container in the proper manner. |
| The display shows „ WARNING! CODE: W01 TANK PRESSURE IS TOO HIGHT ” | This message is normal during the recovery process. | Stop and wait for the tank cooling down. And release some gases if necessary. |
| The display shows „ WARNING! CODE: W08 REFRIGERANT IS NOT ENOUGH. ” | Message during the recharge. The quantity of refrigerant is less than 2KG | Refill the refrigerant into the internal tank. |
| The display shows „ WARNING! CODE: W03 PRESSURE IN SYSTEM RECOVERY START. ” | Message during the vacuum. It means that there has refrigerant in the A/C system. | Recovery the refrigerant first. |
| The display shows „ WARNING! CODE: W20A RECOVERY TIMEOUT. ” | Message during the recovery. It means that the machine recovery slowly. | Purge/leakage check/compressor damaged |
| The display shows „ WARNING! CODE: W20B RECOVERY ERROR. ” | Message during the recovery. It means that the machine do not recovery. | Compressor damaged |

| | | |
|---|--|---|
| <p>The display shows „WARNING! CODE: W20C DRAINING TIOME OUT.“</p> | <p>Message during the draining oil. It means that the machine do not draining.</p> | <p>Drain solenoid blocked</p> |
| <p>The display shows „WARNING! CODE: W20C PURGE TIOME OUT.</p> | <p>Message during the purge. It means that the machine do not purge.</p> | <p>Purge solenoid blocked or gas is not enough</p> |
| <p>The display shows „WARNING! CODE: W20E RECHARGE TIOME OUT.</p> | <p>Message during the recharge. It means that the machine recharge slowly.</p> | <p>Recharge solenoid or pipe line blocked or gas is not enough or gas scale is not correct.</p> |
| <p>The display shows „WARNING! CODE: E06 OIL/UV INJECT TIOME OUT.</p> | <p>Message during the inject oil or UV. It means that the machine inject slowly.</p> | <p>Oil/UV solenoid or pipe line blocked or Oil/UV is not enough or the scale is not correct. or vacuum has been lost.</p> |
| <p>The display shows „WARNING! CODE: W10 NOT ENOUGH VACUUM.</p> | <p>Message during the recharge. It means that the vehicle vacuum is too low.</p> | <p>Do the vacuum again and maintain the vacuum degree.</p> |

11 Technical data

| | |
|-------------------------------------|---------------------------|
| Dimensions (width x height x depth) | 550 mm x 1100 mm x 750 mm |
| Weight | 120 kg |
| Power supply | 220 V- 50 Hz |
| Refrigerant | R1234yf |
| Vacuum pump | 120L / min 2Stage |
| Compressor | 1/2 HP |
| tank capacity | 14.6 kg (30 lbs) |
| Filter driers ability | 80kg |
| HP/LP gauges size | 80mm |
| Tank gauge size | 40mm |
| Scale resolution | 3g |
| Service hose | 3m |

12 Spare part list

| NO. | Parts | Specification |
|-----|--|---------------|
| 1 | Vacuum pump | VPD230 |
| 2 | Vacuum pump oil | 330mL |
| 3 | Filter drier | 302 |
| 4 | Service hose for high pressure side(red) | 3m |
| 5 | Service hose for low pressure side(blue) | 3m |
| 6 | Oil bottle | 250mL |
| 7 | Hermetic compressor | FF112 |
| 8 | High pressure gauge | 80mm |
| 9 | Low pressure gauge | 80mm |
| 10 | Tank pressure gauge | 40mm |
| 11 | Service coupling for low pressure | QC-ML |
| 12 | Service coupling for high pressure | QC-MH |
| 13 | Solenoid valve | Sv3 |
| 14 | Liquid hose(red) | 0.75m |
| 15 | Vapor hose (blue) | 0.75m |