



Mobile Air-Con Service Solution

AC7000 Operation Manual



Cool-It Mobile HVAC Group

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1 About this operation manual

This operation manual details the use of the Cool-It Air-Con Service Station.

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

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

Also note the following:

- the operator should comply with the laws about the service of vehicle air- conditioning by local government.
- the operator should be familiar with basic technical information of vehicle air- conditioning
- Instructions from the refrigerant manufacturer
- Instructions from the car manufacturer
- 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 readily available.

1.1 Cool-It Hotline

If you need more information about the Air-Con Service Station that is not concerned in this manual, call the Cool-It Hotline: 1-855-NO2-IDLE or email us at: info@cool-it.ca.

1.2 For illustrating the symbols in this operation manual

Risk of damage to the machine or other material damage

Format	Meaning	Example
KEY	Symbols used on the device	Press 
„BOLD”	Display messages	„LANGUAGE”
■ Text ■ Text	List in any order	■ Pressure monitor ■ Pressure relief valves
1. Text 2. Text 3. Text	Actions to be carried out in the order shown	1. Connect the device. 2. Switch on the device. 3. Press the selection button.
Text (1)	Part number	Use the keypad (7) to enter the data.
Text (A)	Part designations which refer to the diagrams shown in the section describing the work	Remove the filter cartridge (E) on the left side.

Special information for using the device effectively

2 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.

AC1000
Air-Con Service Station
Blue hose with coupling for LP connection and red hose with HP connection
Container for air conditioning compressor oil (PAG oil)
Container for used oil
Inner tank refill connector
Power cord
operation manual

3. Safety



3.1 General Safety instruction:

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

Please note the following:

- the operator should comply with the laws about the service of vehicle air- conditioning by the local government.
- the operator should be familiar with technical information of vehicle air- conditioning
- Information from the refrigerant manufacturer
- Any special instructions on servicing vehicle air conditioning systems which applied at your company

And also please pay attention to these messages:

→Only use the device for its intended purpose.

→Only use genuine R134a refrigerant. If other refrigerants are mixed in, it can damage the Air-Con Service Station and the vehicle air conditioning system.

→Only use the performance of POLYOL ester type refrigerator oil (PAG oil) used with the R134a. If other oil are mixed in, it can damage the vehicle air conditioning system.

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

→Do not inhale refrigerant gas. Although the gas is non-toxic, it displaces the oxygen you need.

→Do not make modifications to the Air-Con Service Station.

→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.

→Only use approved refrigerant bottles with safety valves to refill the Air-Con Service Station.

→Drain the service hoses before you release connections.

→Do not operate the Air-Con Service Station in areas where there is a risk of explosions (for example battery charging rooms or spraying booths).

→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 switched on.

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

→Do not pump compressed air into the refrigerant lines of Air-Con Service Station or into the vehicle air-conditioning system. A mixture of compressed air and refrigerant can be flammable or explosive.

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

- Pressure monitor: switch the compressor off if the normal operation pressure is exceeded.
- 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 R134a refrigerant is used.



Cool-It International assumes no liability for damage resulting from the following:

- Use for purposes more than those described in this operation manual.
 - Modification to the Air-Con Service Station without the permission of Cool-It
 - Damage to the device resulting from external influences.
 - Incorrect operation
-

5 Overview of the Air-Con Service Station

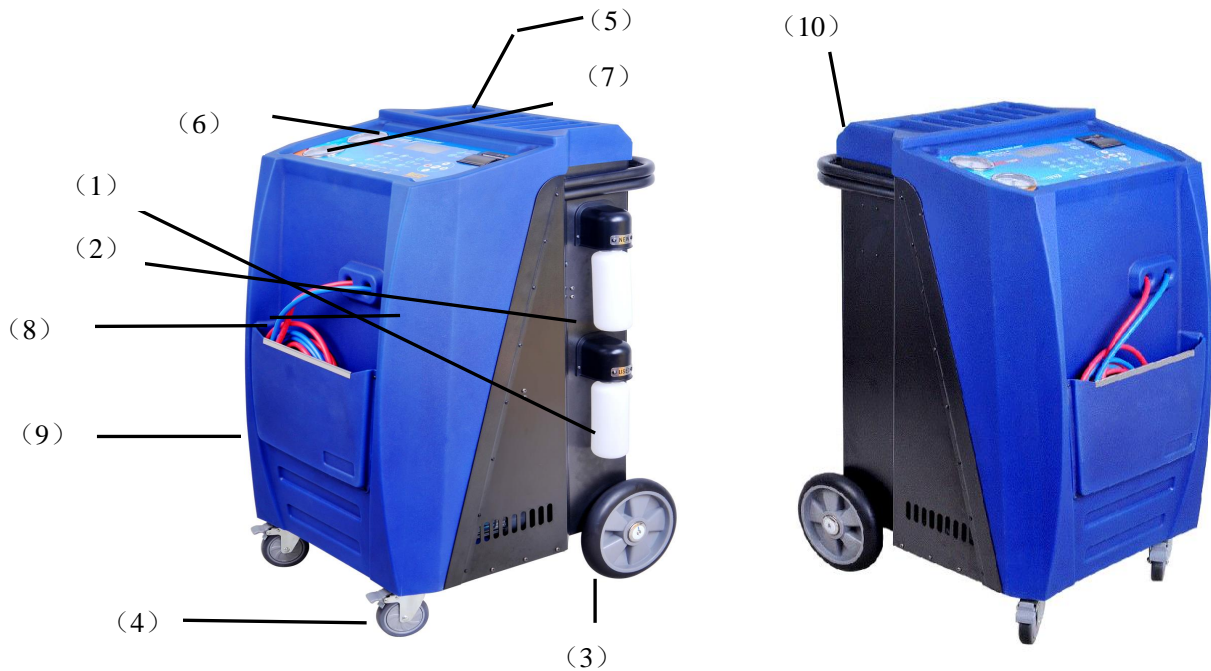
_____ (5)



Cool-It assumes no liability for damage resulting from the following:

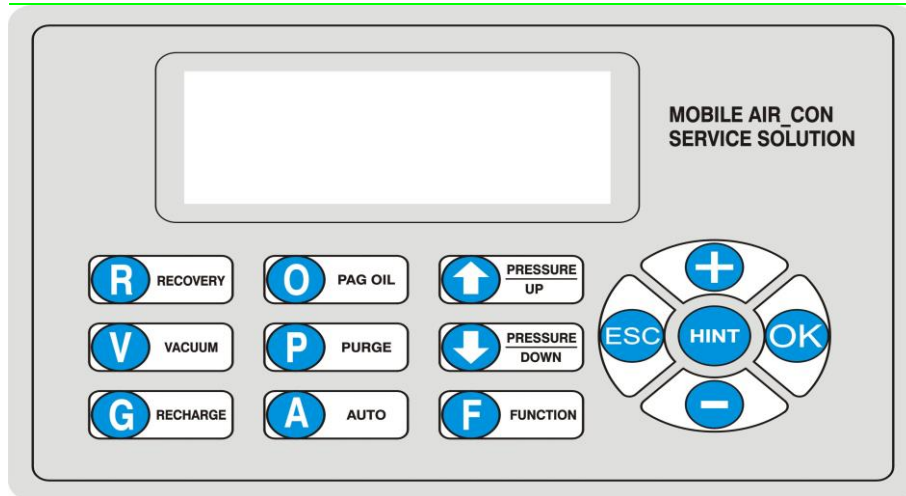
- Use for purposes more than those described in this operation manual.
- Modification to the Air-Con Service Station without the permission of Cool-It
- Damage to the device resulting from external influences.
- Incorrect operation

5 Overview of the Air-Con Service Station



- | | |
|------------------------------------|---|
| (1) used oil bottle | (2) new oil bottle |
| (3) rear wheel | (4) front wheel |
| (5) pressure gauge for HP | (6) keypad cover |
| (7) pressure gauge for LP | (8) HP and LP pressure pipe |
| (9) the blue cover | (10) pressure gauge for tank, located on the back |
| (11) Freon Cylinder located inside | |

USER COMMUNICATION INTERFACE:



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



Vacuum key: to extract gases from A/C system



Purge key: to release non-condensable gases from working tank



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



PAG/Ester oil key: to inject new oil into A/C system.



Function key: it allows to start the other service operation.



Auto key: one press operation for all steps automatically



Pressure up key: to add pressure into A/C system.



Pressure down key: to reduce the A/C system pressure.



Select keys: to shift the service items or edit the number inputted.



Start key: it allows to start the service step.



Stop key: it allows to cancel the service step.



Hint key: Help information for operations

6 First start-up

6.1 Setting up and switching on



110v Power supply must be firmly grounded

1. Drive the Air-Con Service Station to the workplace and lock the front wheels.




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

2. Plug in the Air-Con Service Station to the power mains.
3. Switch it on, the Air-Con Service Station comes to standby mode:



“Refrigerant **. ** KG” describes the quantity of refrigerant hold in working tank.

Note: The highlight "H" on the lower right LCD corner is the prompt that means you can now press  key to get the help information about the current operation.

6.2 Putting in the bottle for new oil

Unscrew the PAG 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 must be filled with at least 6 kg from an external refrigerant cylinder.

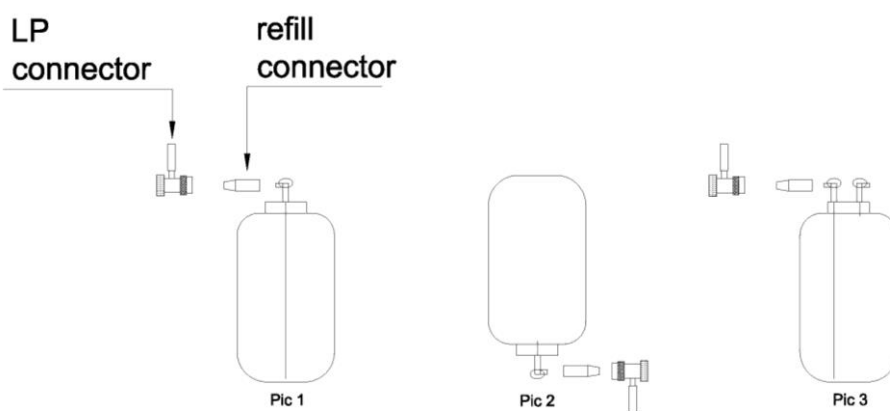


Also note the instructions on the refrigerant bottle.

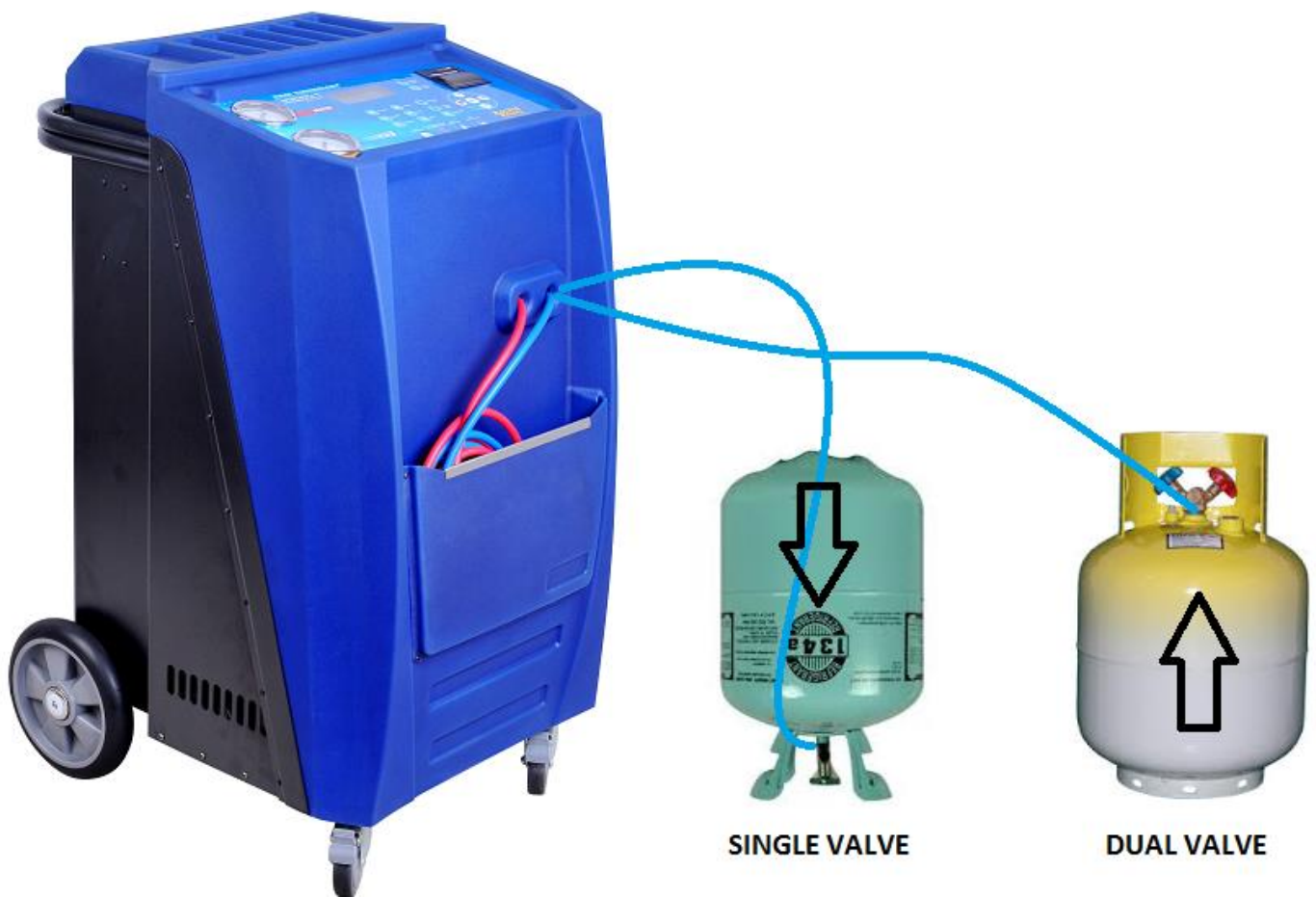
The current refrigerant quantity is shown in the standby mode.

There are three different types of external refrigerant bottle available:

- 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). As Pic 1
- Refrigerant bottles with rising pipe: These refrigerant bottles have one connection. When filling the Air-Con Service Station, the connection port must be on the top (place the bottle upright). As Pic 2
- Refrigerant bottles with rising pipe: These refrigerant bottles have two connections. To refill the Air-Con Service Station, use the connection marked with L (= liquid). When filling the Air-Con Service Station, the connection must be on the top (place the bottle upright). As Pic 3




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, as Pic 4




Pic 4

Open the adapter, open the bottle valve and upside down it. Press the **F** FUNCTION 设置 key, use the **+** or **-** key to select the item you want (highlight field is activated), select "INTERNAL TANK REFILL"

FUNCTION
1. INNER TANK REFILL
2. LANGUAGE SELECT
3. ZERO BALANCE

2. Press  to confirm. Follow the instructions on the display.

INNER TANK REFILL
CONNECT THE LP HOSE TO
THE SOURCE TANK, OPEN THE
VALVE UP_SIDE DOWN IT .



3. Press  to confirm. The quantity of refrigerant in the inner tank is shown.

REFILL
RUNNING **: **
RECOVERED *****G
Press ESC to exit

4. The filling will stop automatically when the quantity of refrigerant is 6 KG

INNER TANK REFILL
FINISHED!

PRESS OK TO CONFIRM

5. Close the refrigerant bottle valve, press  to confirm. Press  key to start recovery operation!

Note: you should recover the refrigerant. If you do not recycle the refrigerant inside the hose, it will cause refrigerant leakage when you release connections, and this can cause frost.

6. Disconnect the LP adapter from the external refrigerant bottle. The device now is ready for operation.

7 Operation



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

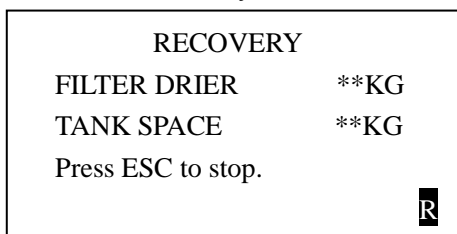
7.1 Recovery

Recovery operation is the process that the Air-Con Service Station sucks the refrigerant from the vehicle A/C system, purifies it, and stores the gas into the working tank. The equipment could automatically detect if there is enough gas for the operation.


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 high and low pressure gauges. If the pointer is zero or about, it means that no refrigerant is in the air-conditioning system, you can select other functions directly. If there is

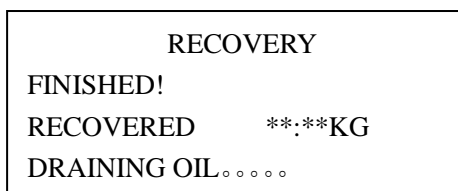
pressure inside, press  key, the device will start the recovery and recycling process.



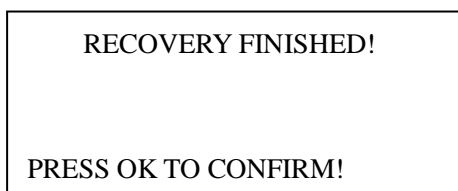
Note: The highlight "R" on the lower right corner is the prompt that means you can press and hold the

 key for recovery. The recovery is only through the low side service port, and the operation will stop if the held key is released. The gas quantity cannot be measured in the process.

3. When the recovery process is over, it will discharge used PAG oil automatically.



4. After about 5 seconds, the oil draining process would be finished.




5. Press  key to stop the alarm buzzer, then the recovery process is finished!

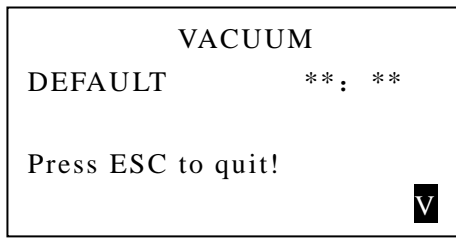
Note: After first phase of recovery, wait for any excess to evaporate into gas. If the pressure inside the A/C machine is raised, the equipment will go on the recovery process, or it will go to the next step.


7.2 Vacuum




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

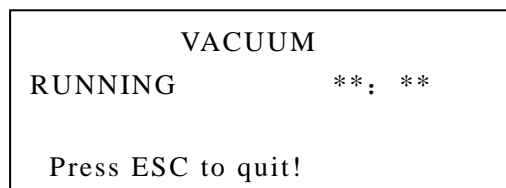
The equipment can automatically detect if the pressure is suitable or not for operation.


1. Press  key. The device enters vacuum mode.

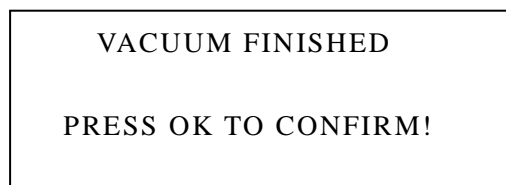


Note: at the lower right LCD corner there is a highlight "V", this also is a prompt that means you can hold the  key for a manual vacuum. If you do so, whatever the pressure is, the gas will be exhausted outside. Be careful for this operation, the introduced pressure is less than 0.5 bar, or when the gases rush out, the vacuum pump oil would spray.

2. Use  or  to set the vacuum time (suggest at least 10 minutes).
3. Press , the device will start vacuum operation.



4. The device will be finished automatically after expiry of the vacuum time,
Press  return to the standby mode.




5. Wait about five minutes and check the state changing from the LP gauge indicator, if the pressure is rising, you need to confirm the air-conditioning's leakage. If leakage happens, you should repair it. If not, continue the next process.


7.3 Oil injection

This operation is to put new PAG oil into vehicle A/C system through the Air-Con Service Station. It is through the vacuum state from the previous step that the new oil can now be added into the A/C system.

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


OIL INJECTION
PLEASE LONG_PRESS 0 KEY


2. When all are ready, hold the  key. The new PAG oil will be sucked into the A/C system. Watch the scale of the PAG bottle. When the oil is added to the desired quantity, stop the operation.

3. Press the  key back to re-enter standby mode, continue to the next step.


7.4 Recharge




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


1. Press the  key to begin the recharge process.

RECHARGE
DEFAULT *****G
PRESS F KEY TO USE
DATABASE! 

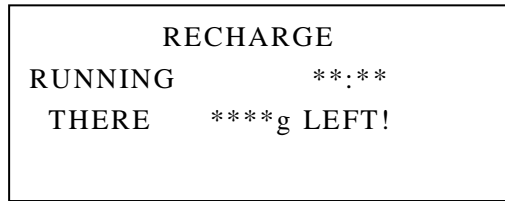
Note: The highlight "G" at the lower right corner is the prompt that means you could specially recharge the


gas by holding the  key. Charge the system only from the low side port.

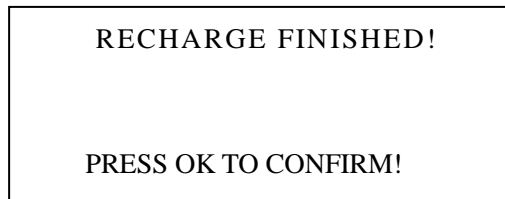
2. Press the  or  key to adjust the refrigerant filling quantity. Check the amount on the vehicle, or press the  key to use the database embedded.

3. When all are ready, press  to start. The machine begin to recharge the air-conditioning

system with refrigerant.



4. The process will be stopped automatically when the set quantity of refrigerant is completely filled into the A/C system .Press  to return to standby mode.

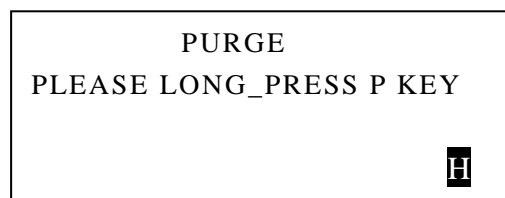



5. Take off the quick couples from the A/C system and screw the valve caps back onto the service port. Empty the service hoses through the recovery operation. The device is now ready for further use.


7.5 Purge

The purge operation is designed to discharge the mixed non-condensable gases in the inner tank. It is harmful for the A/C station when the tank pressure is exceeded. It must release some pressure until it returns to a normal level. You do not need to do this operation every time you service a vehicle, but you need to check the tank pressure through the gauge in the morning before using it. If the tank pressure is too high in some cases, you must stop all other to purge operation.

1. In stand-by mode, press  key to purge mode.




Note: The highlight "H" on the lower right corner is the prompt that you can hold down the  key to get help information about the current operation.

2. Press the  key, the display will show the ambient temperature and the calculated relative

pressure of refrigerant in theory.

Hints:*****
THE TEMP IS **. * °C
REFRIERANT PURSSURE
SHOULD BE **. ** Bar


3. Check the tank pressure. If the gauge pressure is no higher than displayed value, it means that no mixed gases in the tank. You can stop the operation and select the other ones. If the gauge pointed pressure is higher than displayed value, hold down the  key. The device will start to release the gases, until the pointed pressure returns near to the relative valve on the display.

7.6 AUTO


The automatic operation includes recovery, oil drain, vacuum, oil injection, and recharging, all in one press of a button. Before operation, you must confirm that there is a sufficient amount of new PAG oil, or risk air being sucked into the vehicle A/C system.

1. In stand-by mode, press the  key to start auto mode

IMPORTANT
PLEASE CONFIRM THE PAG
OIL IS MORE THAN 150 ml
PRESS OK TO NEXT

2. Check the PAG oil bottle to confirm it holds more than 150 ml of oil in it. Press the  key to continue.

PLEASE INPUT
REFRIGERANT ***g
PRESS F TO USE DATABAS
PRESS OK TO START

3. Confirm the right quantity of refrigerant in the A/C system, then press the  key. The device will automatically run the recovery, oil drain, vacuum, oil injection, and recharging phases.

7.7 PRESSURE UP

When the A/C system pressure is lower than desired, due only to a shortage of refrigerant inside the A/C system, you do not need to redo all recovery/recycling/recharging processes. You


could add some gas into the system and let the pressure rise to normal. The operation is only from the LP service port. The filled gas cannot be measured.

1. When the HP and LP pressure gauges indicate a level lower than normal, press the



key to add some gas into the A/C system:

PRESSURE INCREASE
PLEASE LONG PRESS UP KEY
RELEASE IT WHEN
PRESSURE IS DESIRED

2. Hold the  key, until the desired pressure is reached.

7.8 PRESSURE DOWN

When the A/C system pressure is higher than desired, only due to too much refrigerant inside the A/C system, you do not need to redo all recovery/recycling/recharging processes. You can remove some gas from the system to the inner tank and let the pressure drop to normal levels. The operation is only from the LP service port. The removed gas cannot be measured.


1. When the HP and LP pressure gauge indicates levels higher than normal,

press the



key to reduce pressure from the A/C system:

PRESSURE DOWN
PLEASE LONG PRESS DOWN
KEY, RELEASE IT WHEN
PRESSURE IS DESIRED

2. Hold the  key, until the desired pressure is reached.

8 Service tasks

Other service are included this items as:

1. INNER TANK REFILL
2. LANGUAGE SELECT
3. ZERO BALANCE
4. VACUUM PUMP OIL
5. FILTER DRIVER
6. HOSE COMPENSATION
7. PRESSURE RISE WAIT
8. OTHER SERVICE.”

To access these items, press the  key and use  or  to select and enter it.

8.1 Inner tank refill

Refer to 6.3

8.2 Language select

You can select Chinese or English according to custom.




8.3 Zero balance

HINT


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

Resetting is necessary:

- If the quantity deviates by more than 10g from the target value
- If the Air-Con Service Station has been shaken, for example during transport on bumpy roads
- Every four to six weeks

-
1. In standby mode, press the  key, and use the  or  key to select “**ZERO BALANCE**”

ZERO BALANCE
PRESS OK WHEN PREPARED!

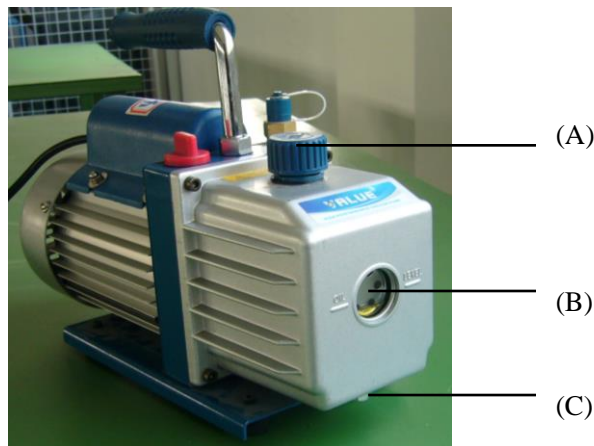
2. Remove the fix screw and lift the tank off from the scale plate. Make sure that there is nothing on the scale, and press the  key.
Once you have set the zero point, the standby mode appears again.
3. Place back the tank on the scale plate and fix it in place.

8.4 Vacuum Pump Oil



Switch off the Air-Con Service Station and unplug it from the power supply before opening the housing.




Before changing the oil, let the vacuum pump run for about 10 minutes (manually using the menu).



1. Take off the front cover. Place a vessel with capacity of at least 1/2 liter under the Air-Con Service Station. The used oil in the vacuum pump will flow through the outlet in the base of the device.
2. Unscrew the outlet plug (A).
3. To drain the oil, unscrew the oil drain plug (C).
4. Once the oil has been completely drained from the pump housing, screw the oil drain plug (C) back in.
5. Feed up new oil into the vacuum pump, until the oil level is at the middle of the sight glass (B)

and screw the outlet plug (A) back.




6. Put the front cover back in place and reconnect the power plug.

7. In function mode, to use the  or  key to select "**VACUUM PUMP OIL**". Press  to reset the count

8.5 Replace the filter drier



Switch off the device before opening it and pull out the mains plug.

1. Take off the front panel. Remove the filter cartridge on the left side and replace it with a new one. When inserting a new filter cartridge, observe the flow direction (FLOW arrow must point downwards).
2. Conform that the new filter drier is well fixed.
3. Put the front panel back on and reconnect the power plug.
4. In function mode, to use the  or  key to select "**FILTER DRIER**". Press the  key to reset the count.

8.6 Hose compensation

You can service the system yourself by inputting a new quantity of refrigerant as a compensation when the recharging occurs.

Note: We strongly suggest the default setting of compensation

8.7 Pressure rise wait

Set the waiting time during which the refrigerant evaporates in the A/C system during the recovery

operation phase.

8.8 Other service

Additional operations require a password to be entered. If you want to use this option, you call the hotline to request the password.

8.9 Cleaning and maintenance

- Clean the exterior of the device with a damp cloth as required. If necessary, use a small amount of cleaning liquid. Do not use solvents or scouring agents.
- Regularly check the service hoses and adapters for damage. Do not start up the Air-Con Service Station if it is damaged.

9. Disposal

9.1 Disposing of used fluids



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


9.2 Disposing of packaging material

- The cardboard packaging material should be disposed of with other waste paper.
- Plastic packaging material should be added to other recyclable waste.

9.3 Scrapping the old unit

- If you wish to scrap the Air-Con Service Station, first completely drain it of all liquids and dispose of them in an environmentally responsible manner.
- Take the old device to your nearest recycling center.

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, ensuring 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. Release some gas 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 in the internal tank.
The display shows „WARNING! CODE:W03 PRESSURE IN SYSTEM RECOVERY START.”	Message during the vacuum. It means that there is refrigerant in the A/C system.	Recover of the refrigerant first.

11.

11. Specifications

12.

Dimensions (width x height x depth)	600 mm x 1150 mm x 700 mm
Weight	80 kg
Power supply	220 V- 50 Hz
Refrigerant	R134a
Vacuum pump	1L / min
Compressor	3/8 P
Filling cylinder accumulator capacity	80 kg
LCD back-lit display	192*64
Manometers	80mm
Tank manometers	40mm
Scale resolution	1g
Service hose	2.5m

Spare parts

NO.	Parts	Specification
1	Vacuum pump	VE115
2	Vacuum pump oil	330mL
3	Filter drier	302
4	Service hose for high pressure side(red)	2.5m
5	Service hose for low pressure side(blue)	2.5m
6	Oil bottle	250mL
7	Hermetic compressor	QD-10
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, SV1.6B
14	Liquid hose(red)	0.3m
15	Vapor hose (blue)	0.3m

Cool-It, Always your Mobile HVAC Solution

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