A/C Service Station for truck and bus

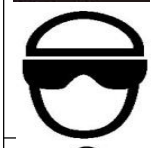
AC676

Operating instructions

Contents

GENERAL SAFETY INSTRUCTIONS

The AC676 is a professional equipment for car air conditioning service. It recovers refrigerant, vacuums A/C system, detects leaks by vacuuming, injects compressor lubricants and refrigerant. Read this manual carefully before any operation or maintenance of this unit.

	Read this user manual carefully.
	The tank's capacity is 20L which means the maximum injection volume of refrigerant is 20Kg. Overcharging can be dangerous.
	Wear goggles when operating.
	Breathing refrigerant can be dangerous.
	No open fire shall be conducted near the unit.
	It is prohibited to mix air into the A/C system.
	Use this unit with R134A refrigerant only.
	Non professionals are not allowed to operation this unit, or it can be dangerous.
	Use this unit on an uneven ground may cause large amount of measurement error.
	It is prohibited to store or use the equipment in the humid or wet place.

Wear goggles when using this unit. The high pressure refrigerant may exist in all hose. Be careful when disconnect the connectors. Please read and follow the warnings at the beginning of this manual before operating the unit.

Do not overcharge refrigerant to the built in tank. Overcharging may cause explosion and serious injury, even death. A prompt will be shown for telling the maximum recovery volume on the LCD screen. Please follow the prompt for recovery. Pay attention to the TP pressure gauge readings when performing recover. Once the readings reaches 17.5Bar, the equipment will stop working.

Do not recover or recharge refrigerant to a full tank. Do not overcharge refrigerant. Overcharging may cause explosion and serious injury.

Make sure to use this unit with R134a refrigerant only. Do not attempt to adapt the unit for another refrigerant. Do not mix refrigerant types through a system or in the same container. Mixing of refrigerants will cause severe damage to the unit and the vehicle air conditioning system.

NOTE：

For correct operation, please carefully read the user manual before operating this unit.
This unit is designed for R134a air conditioning system.
△ Check to ensure the refrigerant type used in vehicle air conditioning system, and turn off the car engine.
Be sure that the refrigerant level in the tank does not exceed 80% of the tank volume, so as to avoid serious accident caused by extra pressure from external factors.
△ Keep the hose far away from rotatable part and hot part, e.g. electric fan, radiator.
△ Check the oil level of vacuum pump before operation. It is prohibited to run the unit without oil.
Do not run recovery program more than 10 times per hour, or the compressor will be damaged.
△ Do not let children or intellectual disability close to or touch the unit when it is under operation.
△ The operator shall be familiar with the repair and maintenance of car air conditioning system, so as to avoid the damage of unit and car air conditioning system.
△ The unit is equipped with precision control components, do not disassemble the unit for maintenance without permission.
△ The unit should be placed in a vertical position, but not to be upside down.
△ Be careful, there is high voltage on the right side of the unit where the power supply comes from.
△ To ensure a better recharge function performance, it will not recharge refrigerant when the volume of refrigerant is less than 1Kg in the tank.

Introduction to functions

●Recovery mode: Recovery mode would be chosen to recycle and recover refrigerant from automobile air conditioning system and store the refrigerant in the tank for further use.
●Evacuate and leak test: This function is used to remove air and moisture from automobile air conditioning system and process leak check.
●Automatic recharge ration refrigerant: This function is used to recharge ration pure liquid refrigerant to the automobile air conditioning system.

●Oil injection: This function is used to inject oil to air conditioning system rapidly.
●Large LCD monitor is used to control recovery, vacuuming, oil injection and refrigerant recharging process. It is also used to fulfill a full cycle mode for recovery, vacuuming, oil and refrigerant injection after values were set completely, so that it is not necessary to request the operator to wait aside.
●User friendly interface gives prompts that the operator is able to follow the tips for operation and maintenance.
●Intelligent maintenance function.

Specification:

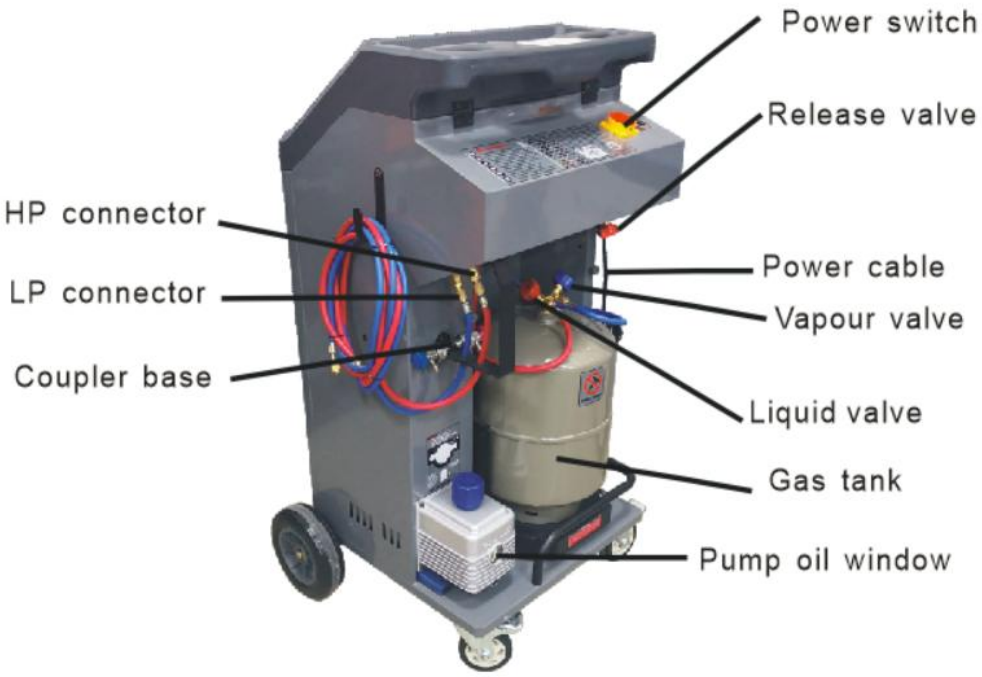
Power source:	AC 220V/50Hz
Vacuum pump:	240L/min.
Vacuum pump power:	750W
Ultimate vacuum:	0.2Pa
Compressor power:	315W
Refrigerants:	R134a
Accuracy of R134a scale:	+/-10g
Capacity of scale:	0~60kgs
Capacity of refrigerant tank:	20L
Recovery rate:	180~600g/min.
Recharging rate:	800-1500g/min.
Max. pressure of refrigerant tank:	17.5bar
Dimensions	650*580*1110mm

Packing and transportation

1.Follow the label instruction regarding packing and transportation on the outer package. Being exposed to rain and store upside down are prohibited.

Use forklift move the unit.

Apparent and interface



Control panel and Keypad

	Up：select functions from menu and vehicle models from database
	Down： select functions from menu and vehicle models from database
	Left：scrolling page or input data
	Right：scrolling page or input data
Esc	ESC：stop or return to previous menu
Enter	ENTER：steps completed successfully

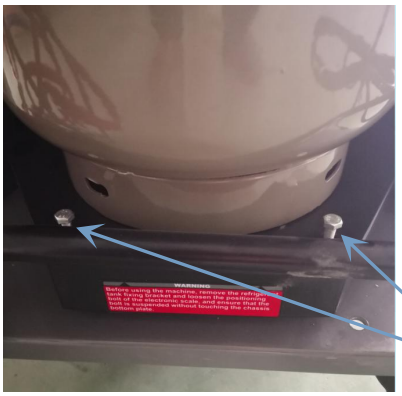
Accessories：

Item	Description	Qty
	User manual	1 unit
	2.5m high/low pressure refrigerant hose	2 units
	High/low pressure quick connectors	2 units
	8" caster with axle shaft	2 units

Initial equipment preparation

1.Install casters

Remove the two protection screws (M6) from electric scale (put the two screws on for long distance transportation)



Protection screws on scale

2.Check if the vacuum pump oil is emulsified or contaminated. Refill oil if the oil level is below 3mm.

3. Fill proper amount of new refrigerant oil to the new refrigerant oil bottle. The type of refrigerant oil shall be complied with the requirement of automobile air conditioning system which is to be maintained.

4. Adding refrigerant to machine refrigerant tank

★It requires to add refrigerant to the tank for new machine or when refrigerant amount is around 1Kg.

Steps as follows:

A. Connect one end of high pressure hose with quick connector, the other end, with machine high pressure connector (refer to the figure on the right)

B. Prepare a tank of R134a refrigerant, connect it with a blue low pressure hose. Connect the other end of the low pressure hose to the low pressure connector on the rear of the machine. Do not open the valve on the tank .

C. Run vacuuming program for 1 minute.

D. Completely open the valve of the external refrigerant tank and put the tank upside down (refer to the figure on the right)

E. Run recovery program under manual mode. Set recovery amount as 5000g. The machine will stop s

running once it reaches the set amount, and gives prompt 'R134a Recovery have not completed, please recovery again, recovery to back'. Now close the valve of the external refrigerant tank, and press ENTER key to continue to recover the refrigerant in the hose.

Warning
R134a Recovery have
Not completed,pls
recovery again
recovery to back

Once recovery is completed, the compressor will stop running automatically and enter into used oil draining program. Now please press STOP key and return. There is no need to drain oil.

recovery
Waste oil draining..
it will take about
60s, pls wait…..
countdown: **sec

F. Disconnect the refrigerant hose from the external refrigerant tank, and put the low pressure quick connector on. Now the machine is ready for use.

Operating instruction

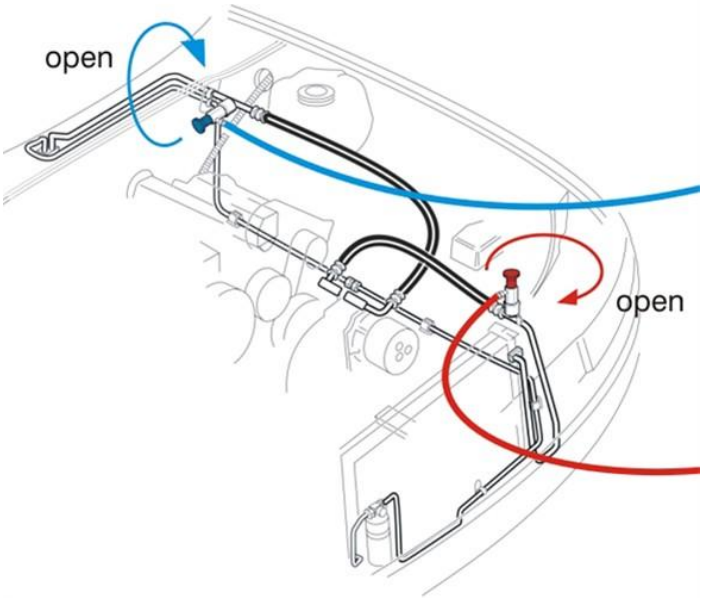
Manual mode

Under the manual mode, you can complete recovery, vacuuming, oil and refrigerant injection separately.

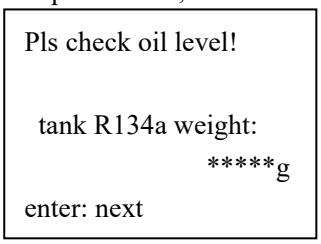
Recovery:

Recover and filter refrigerant from automobile air conditioning system, then store it into the machine tank. Steps as follows.

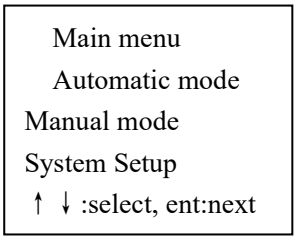
1. Check the used oil level. Empty the used oil bottle if oil level exceeds 250ml.
2. Run automobile air conditioning for 5 minutes.
3. Connect the high/low pressure hose to the high-side and low-side port of automobile air conditioning system. Red hose connect to the high-side, blue, to the low-side. Then turn clockwise to open the quick connector on the high/low pressure hose. (refer to the figure below)



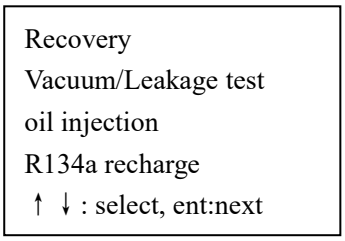
4. Turn on the machine's power, and finds the prompt as below,



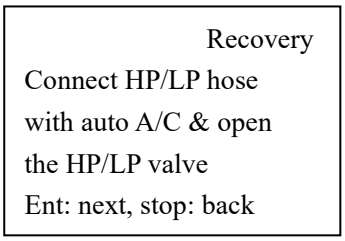
5. Press ENTER key to turn to the main menu:



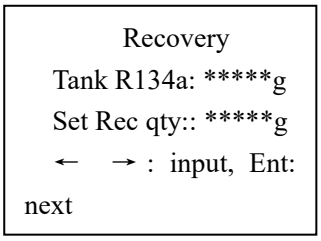
6.Press ↑↓ key to select MANUAL MODE, and press ENTER key, a prompt shows



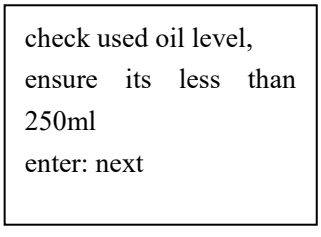
7. Select RECOVERY and press ENTER key, a prompt shows



8. Now press ENTER key, a prompt shows



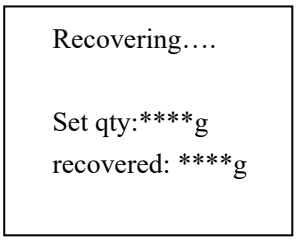
9. Press ← or → keys to set recovery amount, then press ENTER key, a prompt shows



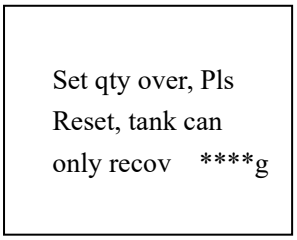
check used oil level, if it is over 250ml, pls empty the used oil bottle.

Note: it is a good practice to completely empty the used oil bottle before recovery

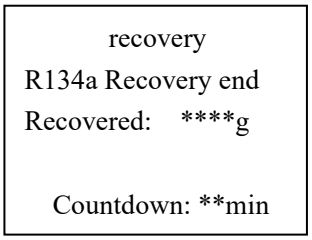
10. then press enter key,machine start recovering and it will shows the set qty and has recovered qty



Note: maybe it will gives an alert as followed, point out a max recovery qty, pls press enter key and re-set the recovery qty

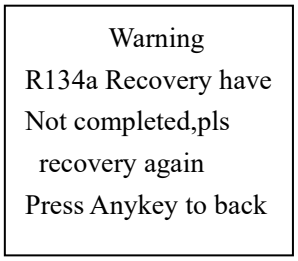


11. When recovery is completed, a prompt shows as below and the machine will keep on recovering for 60 seconds.

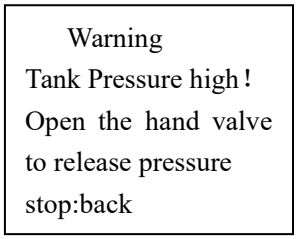


Note:

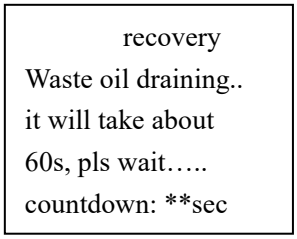
a. If the pre-set amount is insufficient, when it reaches the pre-set amount and there is still refrigerant in the A/C system, a prompt will be shown as below. Now press ESC key to return to the setting menu; If it requires further recovery, please go to the next step, if not, press ESC to return to previous menu.



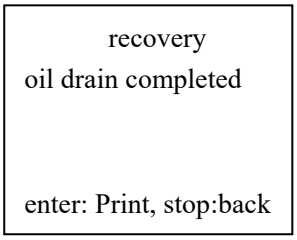
b When the pressure in the unit is equal to or greater than 17.5bar during recovery, the process will be stopped and a prompt shows as below. Wait till the unit cools down or open the pressure relief valve to bleed off the excess air. When the unit pressure goes down to 12bar, the recovery process will start again.



12. Wait one minute after recovery, and a prompt shows as below. A one minute oil draining program will be started.



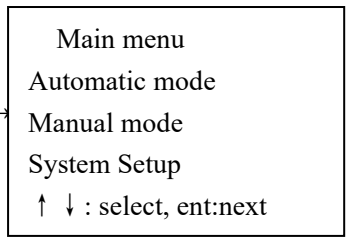
13. One minute later when oil draining is completed, please mark down the amount of the oil drained. A prompt shows as below. Please press ENTER to print if necessary, or press STOP to return.

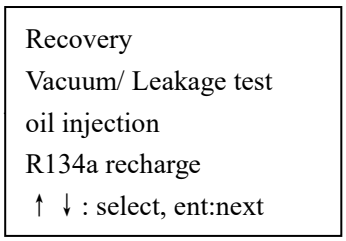


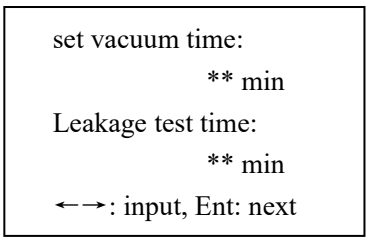
Evacuate the A/C System & leak test

Proceed evacuation after recovery is to remove the residual moisture and create a vacuum system for refrigerant injection later. Leak test is a program that used to check if there is any leakage in the system after evacuation. Steps as below

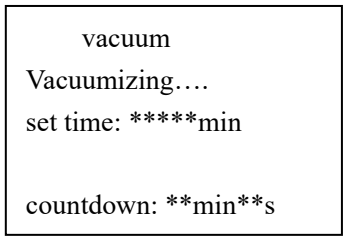
1. Check if good connection between the unit and A/C system, if the valve on quick connector of the hose is opened.
2.Select manual mode from main menu, then select vacuum/leakage test, and press ENTER to confirm.



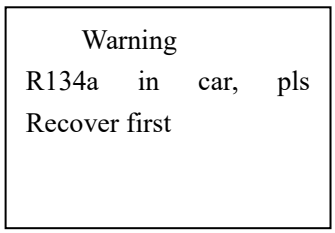




3. Set vacuuming time by ←and→keys (normally it requires 5-10 minutes for passenger cars), press ENTER to confirm, a prompt will be shown as below, and vacuuming starts.



Note: If the vacuuming does not proceed and a prompt shows as below, it indicates there is refrigerant in the A/C system, please recover refrigerant before vacuuming.



4. Vacuuming stops when time is up. The unit will enter into leak check interface automatically
   Note: Press ESC key to stop vacuuming any time during the process.

5. The interface of leak test as below shows. Now please mark down the readings of the vacuum gauge.

```
      Leakage test
Leakage testing…..
Pls record pressure,
countdown:**sec**min
```

6. When countdown ends, a prompt shows as below. Please compare the readings with the one marked before leak test. If the readings after leak test drops greater than 0.01MPA, it indicates that there is a leak in the A/C system.

```
     Leakage test
Leakage testing end,
Pls compare pressure
data
Ent:Print,stop: back
```

Oil injection

Oil injection mode is to add refrigerant oil to the car A/C system. As it will carry a certain amount of refrigerant oil from the car A/C system during recovery, it is necessary to add relevant amount of oil.
Make sure the A/C system is vacuumed before oil injection, otherwise, the unit is not able to add coolant oil.
1. Make sure there is sufficient refrigerant oil in the new oil bottle.
2. Press ENTER key to enter into main menu, then select MANUAL MODE by ↑ ↓ keys.

```
   Main menu
   Automatic mode
Manual mode
System Setup
 ↑ ↓ : select, ent:next
```

3. Press ENTER key and a prompt shows as below, select OIL INJECTION by ↑ ↓ keys.

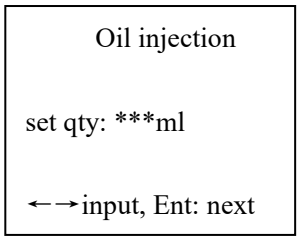
```
Recovery
Vacuum/Leakage test
oil injection
R134a recharge
 ↑ ↓ : select, ent:next
```

4. Press ENTER key and a prompt show as below, make sure the amount of new refrigerant oil is more than 100ml.

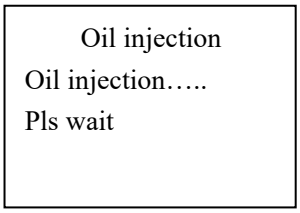
```
check new oil level,
ensure its more than
  100 ml

   enter: next
```

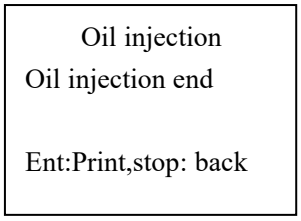
5. Press ENTER key, enter the desired amount of oil injection by ← and → keys (normally it should be 20ml more than used oil that drained out in previous step)



6. Press ENTER key and the unit starts to add refrigerant oil



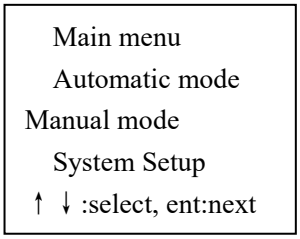
7. The program ends automatically when oil injection is completed, and a prompt shows as below. Press ENTER key to print, or press ESC to return



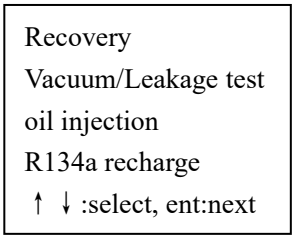
Refrigerant injection

This function is used to add certain amount of refrigerants to car A/C system refers to user manual that provided by car manufacturer. Make sure vacuuming is completed before refrigerant injection, otherwise, it is not able to add refrigerant. Steps as below

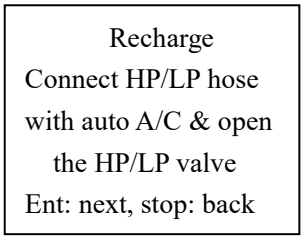
1. Press ENTER key to the main menu, select MANUAL MODE by ↑↓ keys



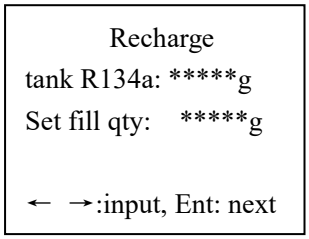
2. Press ENTER key and a prompt shows as below, select R134a RECHARGE by ↑ ↓ keys



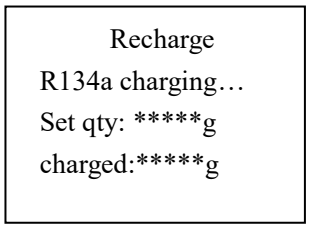
Then press ENTER key and a prompt will be shown as below



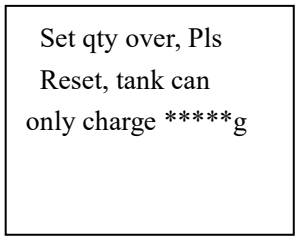
Confirm by pressing ENTER key and a prompt shows as below



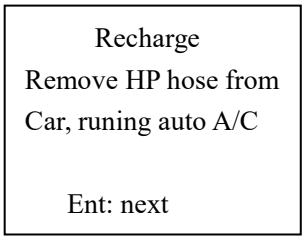
3. Enter the desired amount of refrigerant injection by ← → keys, press ENTER key to start injection, and a prompt will be shown as below



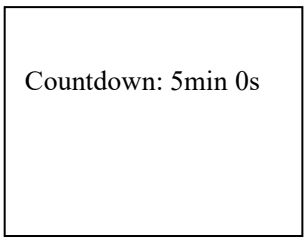
Note: If it prompts below information after you press ENTER key, it indicates the set amount is too much, press ENTER key to reset the value



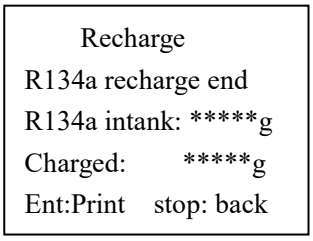
4. When the injection is completed, a warning will be shown as below. Now disconnect the connectors of high/low pressure hoses from the car, and starts the A/C system



5. Then press ENTER key and a prompt shows as below. A 5 minutes countdown begins.



6. The injection is finished after 5 minutes. Turn off the A/C system. Press ENTER to print, or press ESC to return



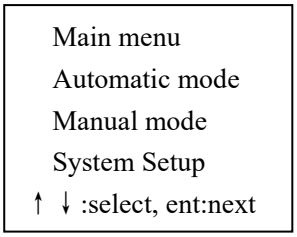
Tips

Anytime when the injection is too slow, disconnect the high side connector of high pressure hose from the car, then start the A/C system and inject the refrigerant from the low side.

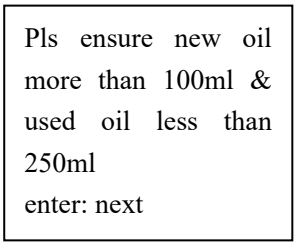
Automatic mode(only available when no leaks in the A/C system)

Under the Automatic mode, it allows one key to operate recovery, vacuuming, refrigerant oil and refrigerant injection after settings is done. Operator is not necessary to wait aside the machine.

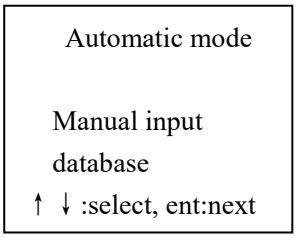
1. Press ENTER key to enter into main menu, select AUTOMATIC MODE by ↑↓ keys



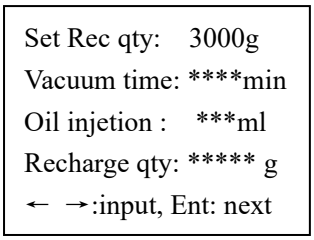
2. Then press ENTER key and a prompt shows as below



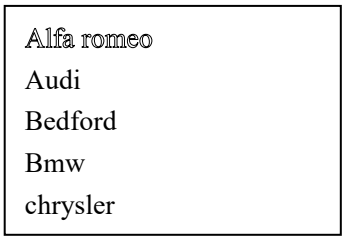
3. Check and confirm, then press ENTER key and a prompt shows as below

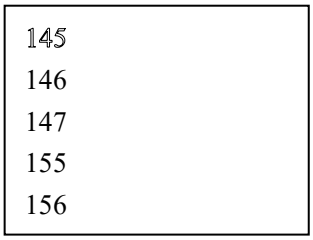


4. Select MANUAL INPUT and press ENTER key, a prompt will be shown as below. Select items by ↑↓ keys, and enter desired amount by ← → keys. Press ENTER key when the last settings is done.



If the desired amount of refrigerant injection is unknown, select DATABASE and press ENTER, the interface shows as below, Select car model by ↑↓ keys, roll pages by ← → keys





Select date of manufacture by ↑↓ keys, roll pages by ← → keys

1.3/1994~97 700
1.4/1994~97 700
1.6/1994~97 700
1.7/1994~97 700
JTD/1998~01 800

Then press ENTER key and refrigerant amount will be come out automatically, e.g. 'Recharge qty: 700 g'

Set Rec qty: 3000g
Vacuum time: 10min
Oil injetion : 0ml
Recharge qty: 700 g
← →:input, Ent: next

5. Then press ENTER key, the unit will start recovery, vacuuming, oil and refrigerant injection step by step as below table shows

Automatic Recovering….. Set qty: ****g recovered: ****g	Automatic Waste oil draining.. it will take about 60s, pls wait….. countdown: **sec	Automatic Vacuumizing…. set time: **min countdown:**min**s	Automatic Oil injection… Pls wait	Recharge R134a charging… Set qty: *****g charged:*****g

It does not require the operator to wait aside in the whole process. A beep sound will be heard when refrigerant injection is completed, and a prompt will be shown as below. Prompt the operator to disconnect the connector of high pressure hose from the car and start the A/C system

Recharge Remove HP hose from Car, runing auto A/C

6.Then press ENTER key and a prompt shows as below, a 5 minutes countdown begins.

Countdown: 5min 0s

The 5 minutes countdown ends and a prompt shows as below. The whole process is completed. Turn off the A/C system. Press ENTER to print, or press ESC to return

Automatic R134a recharge end R134a in tank: *****g Charged: *****g Ent:Print,stop: back

System setup

1. **Zero the dry filter**

If a prompt shows as below during recovery, it indicates that it is time to replace the dry filter. Now press ENTER to continue recovering till it is finished. Turn off the machine and replace the dry filter

The dry-filter has filtered R134a over98 kg, please replace the dry-filter Enter: next,stop: back

Open the top of machine and find the dry filter. Mark down the installation direction of the dry filter. Use two wrenches to screws off the copper nuts on the two ends of the filter, then install the new dry filter follow the original installation direction of the used filter.

Clear filter value The dry-filter has filtered R134a *****kg Ent:clear,stop:back

Press ENTER to zero, then press ESC to return

Notes for replacing filter:

Replace with the same type of dry filter

Keep the same installation direction when remove or install the dry filter

Use two wrenches when remove or install the filter, screw it tightly to prevent leaks.

1.1. Turn on the machine when replacement is finished, and a prompt shows as below

Pls check oil level! tank R134a weight: *****g enter: next

1.2. Press ENTER key to enter into MAIN MENU, select SYSTEM SETUP by ↑ ↓ keys

Main menu Automatic mode Manual mode System Setup ↑ ↓ :select, ent:next

1.3. Press ENTER key and a prompt shows as below. Select Clear filter value

Clear filter value Clear vacuum time R134 calibrate Clear R134a tank sys self test

1.4 Press ENTER key and a prompt shows as below

Clear filter value The dry-filter has filtered R134a *****kg Ent:clear,stop:back

1.5 Press ENTER key to zero, then press ESC key to return

Tips：Under normal circumstance, the color of H detector is green. Once it turns to yellow, it indicates that it is time to replace the dry filter, even if the cumulative recovery amount does not reach 98kg.

2. **Zero the vacuuming total time**

2.1 If a prompt shows as below during vacuuming, it indicates that it is time to replace the vacuum pump oil

Vacuum pump has been running 10 hours,Pls change pump oil Enter: next,stop: back

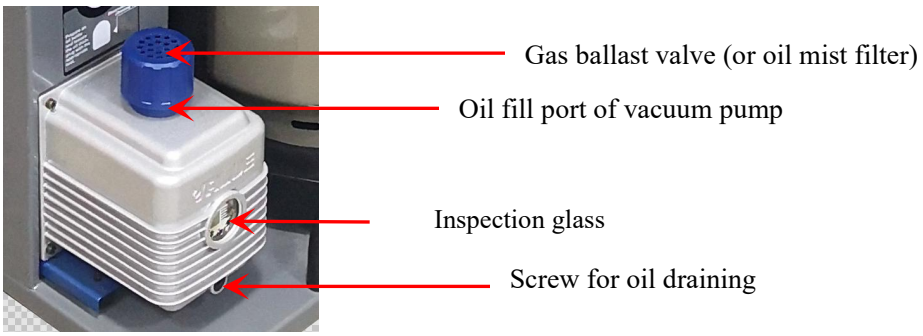
Press ENTER key to continue vacuuming till it is finished. Then replace the vacuum pump oil

2.2 Place a oil collector under the vacuum pump oil drain outlet

2.3 Use wrench to screw off the screw under the vacuum pump as below figure shows, let the used oil drain into the oil collector

2.4 Install the screw when oil draining is completed.

2.5 Screw off the oil mist filter anticlockwise from the vacuum pump, now the oil fill port of vacuum pump is appeared.

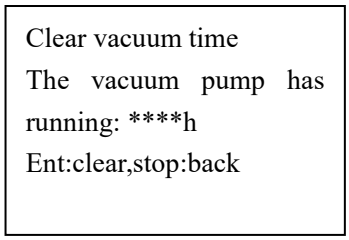


2.6 Add new vacuum pump oil to the specified mark by using a funnel slowly. (please add vacuum pump oil 100#)

2.7 Install the oil mist filter on the vacuum pump oil fill port

2.8 Plug in and turn on the power supply

2.9 .Enter into the system setup interface and select CLEAR VACUUM TIME, press ENTER and a prompt shows as below

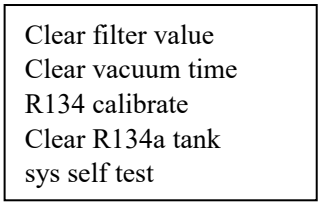


2.10 Press ENTER to zero and press ESC to return

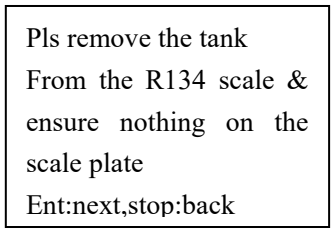
3. **Calibrate the refrigerant scale**

Enter into the electric scale calibration program for calibration once it is found to be out of calibration. Steps as the follows

a. Enter into the system setup interface, then press ENTER key to below page

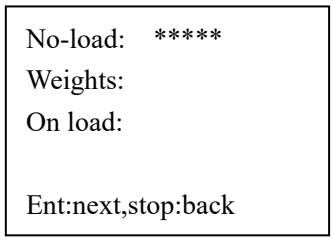


b. Select R134a CALIBRATE, then press ENTER key and a prompt shows as below

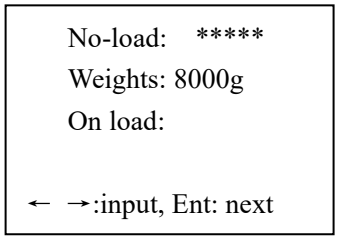


Remove the refrigerant tank from the scale, make sure there is no other objects on the scale

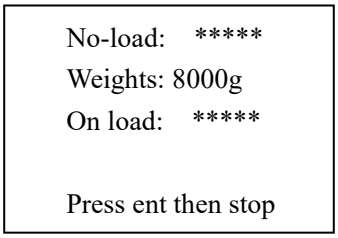
c. Then press ENTER key and a prompt shows as below



d. Place a known weight on the scale, e.g. an 8 kg weight, then enter the weight by ← → keys, e.g. 8000g



e. Then press ENTER key and a prompt shows as below. Then press ENTER key to store. Now the calibration is completed.

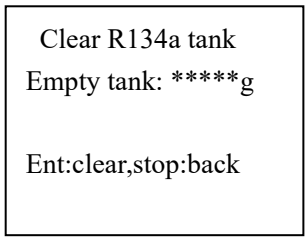


4 Clear R134a tank

This function is used to zero the weight of refrigerant tank (taring) after calibration is completed and the refrigerant tank is placed back on the scale. So that the machine will display the actual refrigerant weight.

a. Remove the weight from the pan, and secure the refrigerant tank on the scale.

b. Then enter into the system setup page and select CLEAR R134a TANK, then press ENTER key and a prompt shows as below



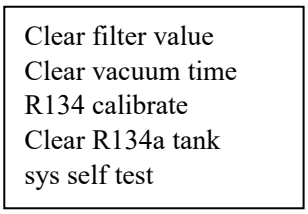
C. Press ENTER key to zero and return to previous menu

Note: It is not necessary to empty the refrigerant tank. It has no effect even if there is refrigerant in the tank as the weight of refrigerant tank has been stored in the machine system at the factory.

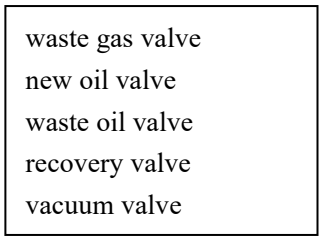
5 System self-test

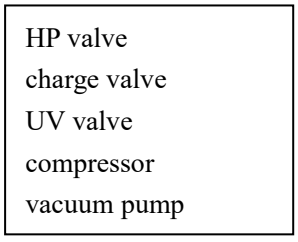
This function is used to check if the solenoid valves, vacuum pump and compressor work well during maintenance.

a. Enter into the system setup page, then press ENTER key to below page

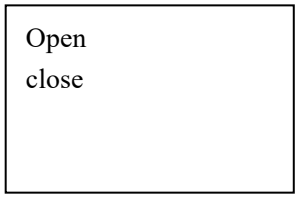


b. Select SYSTEM SELF-TEST by ↑↓keys, then press ENTER key to enter into below page, roll pages by ← → keys.





c. Select the solenoid valve to be inspected, then press ENTER key to enter into below page



d. Select OPEN or CLOSE by ↑ ↓ keys, then press ENTER key to test and press ESC key to return

Maintenance

1. Replace the vacuum pump oil mist filter (if has)

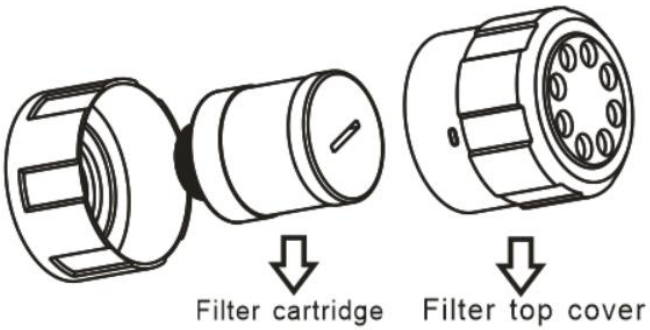
The filter is installed above the vacuum pump oil fill port, used to filter the oil mist that escaped from vacuum pump. It is recommended to replace it every half year. The step as follows:

Turn the top of vacuum pump oil mist filter at 20 degree anticlockwise and remove the cover

Now turn the filter cartridge anticlockwise and remove it

Screw the new filter cartridge on clockwise tightly

Screw the cover of oil mist filter on



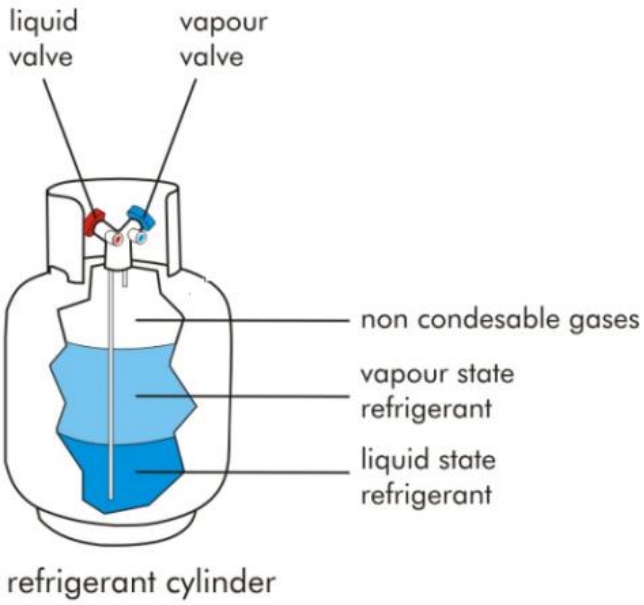
2. Non-condensable gases purge

Check if there is non-condensable gases (air) in the refrigerant tank weekly

First, measure the ambient temperature. Then read the refrigerant tank pressure on the TP gauge, and compare it with the temperature /pressure chart which can be found on the back of the machine.

If the pressure inside the tank is greater than the correspondent pressure under the same measured temperature, it indicates that there is non-condensable gases (air) in the refrigerant tank. Open the red pressure relief valve which is equipped on the rear of machine and release the waste gas from the refrigerant tank till the pressure drops to the correspondent readings, then close the valve.

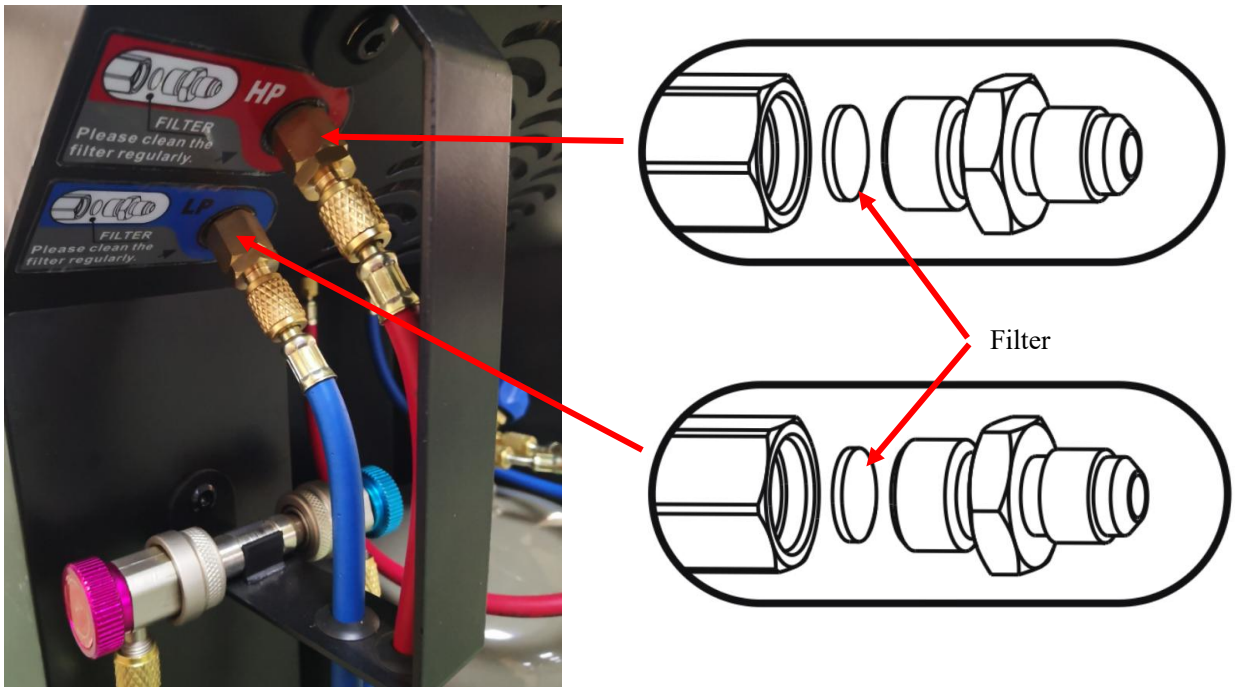
Note: It is a normal phenomenon when the pressure inside the refrigerant tank is greater than the correspondent pressure under the same measured temperature during the recovery.



3．Regularly clean the filter

Clean the filter at the inlet of refrigerant regularly to ensure the machine working normally.

During recovery, check if the filter at the inlet of refrigerant is choked when it finds the recovery rate becomes slower or the refrigerant cannot be recovered. If yes, please clean and clear the filter timely for further use.



TROUBLE SHOOTING

	fault	cause	remedy
A	LCD CAN'T LIGHT	A1- no power	- check the power supply
		A2- power connector fech away	- connect well
		A3- fuse melt	- replace a new one
		A4- cpu board or LCD WRONG	- replace a new one
B	Can't display the refrigerant weight	B1- scale protecton bolt has not remove	- take off the protecton bolt
		B2- sensor connector fech away	- connect well
		B3- sensor fault	- replace a new one
		B4- cpu board fault	- replace a new one
C	Can't perfom recovery	C1- solenoid valve not work	- check the relative relay
			- chenge the solenoid valve
		C2- expansion valve jam	- reversed flush
			- ice jam, 30min later recovery again
		C3- copressor no power	- check the relative relay
		C4- compressor fault	- replace a new one
D	No oil drain	D1- solenoid vavle not work	- check the relative relay
E	Can't vacuumize	E1- solenoid vavle not work	- check the relative relay
			- replace a new one
		E2- pump can not work	- check the relative relay
			- replace a new vacuum pump
			-change the pump oil
F	No display	F1- power connector fech away	- connect well
		F2- transformer fault	- change a new one
		F3-cant see any character	- adjusting the potentiometer of cpu board
G	Can't charge refrigerant	G1- refrigerant not enough	-Fill refrigerant into refrigerant tank
		G2- weight scale fault	- change a scale
		G3- solenoid vavle not work	- check the relative relay
			- replace a new solenoid valve
H	Too much noise	Vacuum Pump lack oil	- add enough pump oil
		Pump screws loose	- tighten the screws
		durty in solenoid valve	- change a new solenoid valve
		Fan blade touched rear cover	- check and repair