A/C Service Station

AC636YF

Operating instructions

Please read the manual carefully before operation

Content

Important Safety Information's

This equipment is designed to be operated by qualified and trained personnel. Which should have enough knowledge of air conditioning repair & maintenance, refrigeration and electronics w/high pressure.It should only be operated after reading and understanding the safety warnings and operating procedures in this instruction manual and the vehicle's service manual.

When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

The unit is extremely simple and reliable in selecting and performing all its functions.Therefore, the user is not exposed to any risk, if the general safety guidelines reported below are followed, in association with proper use and maintenance of the unit (improper use and maintenance will reduce the safety of the unit).

1. Checking the unit PAG oil always before operation.Avoid working process without enough oil or with bad quality oil.
2. The refrigerant tank must be only filled to 80% of maximum effective capacity in order to avoid the serious accident caused by the additional pressure arising from enviromental factors.
3. Keep all soft tubes/hoses away from hot parts and rotating elements, such as: cooling fans, radiators and etc.
4. Always checking the vacuum oil pump, run/work without oil is strictlly prohibited.
5. Checking power switch under normal working condition or not. The machine must be well connected with earth and installed against electric leakage to avoid high voltage hurt.
6. Do operate under the instruction to avoid refrigeration from polluted.
7. Polluted refrigeration is avoided from adding into the automobile A/C system.
8. Do avoid too high pressure of refrigerant tank caused by too much refrigeration or too high environmental temperature, which will cause damage of the tank and compressor
9. Make sure to place the vehicle's in "PARK"(if automatic) or "NEUTRAL" (if manual). Then, set the emergency parking brake and block the tires with chocks.
10. Warning: The warnings, cautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be under-stood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.
11. This unit is an advanced electromechanical product including precision control components. Never allow operator to make disassembly and service.

WARNINGS

ALLOW ONLY QUALIFIED PERSONNEL TO OPERATE THE UNIT. Before operating the unit, read and follow the instructions and warnings in this manual. The operator must be familiar with air conditioning and refrigeration systems, refrigerants, and the dangers of pressurized components. If the operator cannot read this manual, operating instructions and safety precautions must be read and discussed in the operator's native language.

PRESSURIZED TANK CONTAINS LIQUID REFRIGERANT. Do not overfill the internal storage vessel, because overfilling may cause explosion and personal injury or death. Do not recover refrigerants into nonrefillable containers; use only federally authorized refillable containers

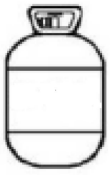
HOSES MAY CONTAIN LIQUID REFRIGERANT UNDER PRESSURE. Handle refrigerant with care as serious injury may occur. Wear protective equipment, including safety goggles,rubber gloves

DO NOT BREATHE REFRIGERANT AND LUBRICANT VAPOR OR MIST. Exposure may cause personal injury, especially to the eyes, nose, throat, and lungs. Use the unit in locations with mechanical ventilation that provides at least four air changes per hour. If accidental system discharge occurs, ventilate the work area before resuming service.

DO NOT USE AN EXTENSION CORD. An extension cord may overheat and cause fire. If you must use an extension cord, use the shortest possible cord with a minimum size of 14 AWG

TO REDUCE THE RISK OF FIRE, do not use the unit in the vicinity of spilled or open containers of gasoline or other flammable substances.

DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR LEAK TEST THE UNIT OR VEHICLE AIR CONDITIONING SYSTEM. Some mixtures of air and R1234yf refrigerant are combustible at elevated pressures. These mixtures are potentially dangerous and may result in fire or explosion causing personal injury or property damage.



To provent cross-contamination**, USE THIS UNIT WITH R1234yf REFRIGERANT ONLY. The** unit is designed to recover, recycle, and recharge only R1234yf refrigerant. 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.

HIGH VOLTAGE ELECTRICITY INSIDE THE UNIT HAS A RISK OF ELECTRICAL SHOCK. Exposure may cause personal injury. Disconnect the power before servicing the unit.

HORIZONTAL HOLD. During operation, the device must be on a level, flat surface so that the messurement can be made correctly

PROTECT THE DEVICE AGAINST RAIN Do not expose this machine to direct sunlight or rain. Used in a well ventilated area.

Brief Description

This fully automatic Air-conditioning (A/C) Service Station is a user-friendly tool specifically designed for the automotive air-conditioning technicians, to carry out the following functions:

- Testing air-conditioning system,
- Recover and recycling the refrigerant from air-conditioning system,
- separate the refrigerant in the AC system from oil and water, and purify it , make it can be reused.
- Vacuum air-conditioning system, test leakage of the AC system.
- automatically discharge the waste oil and recharge new oil in AC system
- Electronically charge into the AC system with a programmed amount of refrigerant

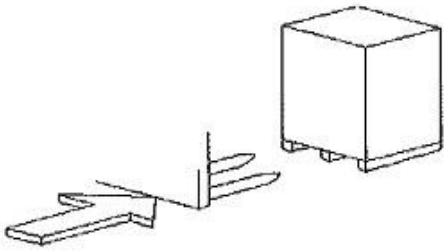
The unit is a microprocessor control system. This provides electronically controlled functions, whilst keeping the operator constantly informed and in full control.

Technical specifications

Power Supply:	AC220V 50Hz 1PH
Vacuum pump:	90L/Min.
Compressor Power:	3/8hp
Refrigerant :	R1234yf
Accuracy of Refrigerant scale:	+/-5g
Max. Weight of the Refrigerant scale:	60kgs
Capacity of gas Tank:	10Kg
Recovery Speed:	180~420g/min.
Refilling Speed:	800~1500g/min.
Max. Pressure for HP gauge:	30bar
Max. Pressure for LP gauge:	20bar
Max. Pressure for TP gauge:	25bar
Max. Working Pressure:	17.5bar
N.W/G.W	75.5/83KGS
Dimension	600*570*1110mm

Transport and unpacking

1.The equipment should be carried by forklift for indicattion

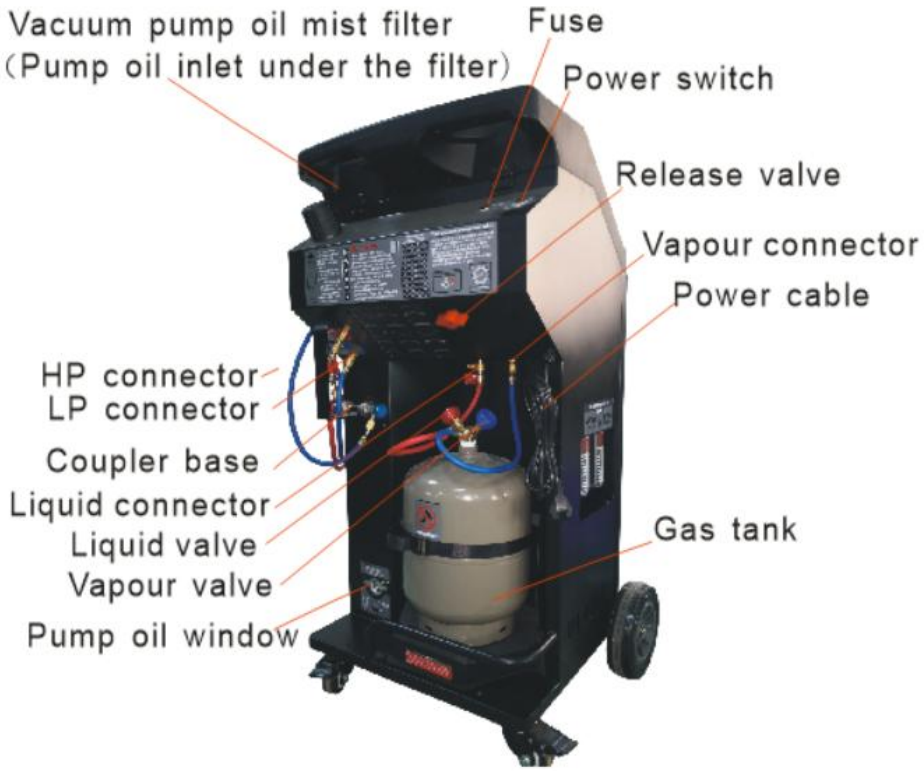


2.Using the right tools, wearing the safety gloves and other safety tools,when unpacking, the package should unpack the top board first then around board,

3. Make sure the product and acessary in box should be complete and identicaln whit the part list, if not please contact with the local distributor in time

4.the packing of the machine is woden package, the proper disposal of the packaging is the reponsibility of the customer

Overview of the A/C Service Station



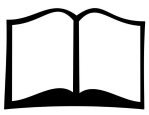
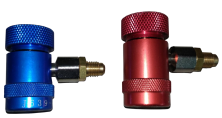
Keypad

	For selecting function or items or select car data
	For selecting function or items or select car data
	For page up or parameter setting(for all items)
	For page down or parameter setting(for all items)
	Quits current page and returns to previous menu
	To start a procedure or enter the next screen

Preparing the Machine for the First Use

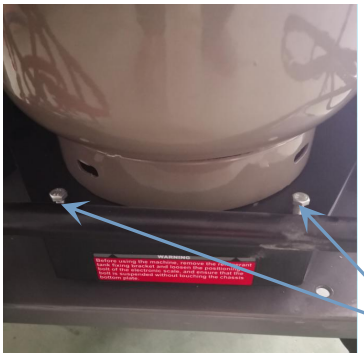
Perform the following steps to prepare the unit before the first use.

1. Unpack the equipment you will find the follow accessoris

Pic	Name	Qty
	Manual	1 set
	Power line	1 pc
	3m HP/LP hose	Each for 1pc
	HP/LP quick coupler	Each for 1pc
	Wheel with axle	2pcs

2. fix the two wheels on the machine

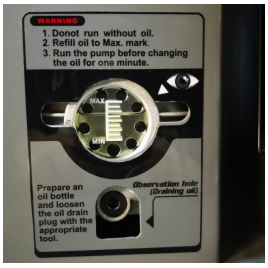
3. Remove the two electronic Scale protection screws (Reference above picture).



the protection boot

4. Check the vacuum pump oil level

Check the vacuum pump oil level , oil levelshould between with the line on the vacuumpump sight glass when the pump is not running.



5.Fill up refrigerant into refrigerant tank.

Refrigerant tank fitted on a platform is evacuated during the production process.

Note, please check if refrigerant tank is evacuated by view TP gauge (during transport, vacuum could be lost, If so, please contact your local distributor)

a. Remove the quick couple from the blue hose. Leave the red quick coupling on the red hose (see following figure)

b. make sure the other end of the red hose is connected with high-pressure port of the unit

c. connect the blue hose to the external refrigerant tank and the other end connected with low-pressure port of the unit.

d. Make sure the valve on external refrigerant tank is closed

e. Perform the Vacuum function 2 minites in manual mode

f. Turn external refrigerant tank upside down for liquid delivery, open the valve on the external refrigerant tank,

g. In manual mode press “Recovery” key and setup the 3kgs R1234yf to recovery, then press enter key
h. the equipment will automatic stop while reach the set weight.
i. Close the valve on the external tank and then running recovery again, when the machine shows followed interface press ESC key immediately
j. Now the procedure is completed

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

4. fill new coolant oil

Unscrew the new oil bottle then Add about 250cc of new coolant oil into the new oil bottle, the oil type should meet the requirements of maintenance of automotive air conditioning system.

5. connect the power

Connect the power supply and switch it on. now the equipment is ready to use

6. turn the printer switch to on position

Operation instructions

Manual mode

With this procedure, all functions (Refrigerant Recovery & Recycling, Recovered Oil Drain, A/C System evacuation, New Oil Injection and Refrigerant Charge) can be performed individually (step by step).

recover refrigerant from a Vehicle

The purpose of the Recovery mode is to recover refrigerant from the air conditioning system, which will condense,purify and store the liquid refrigerant in the storage cylinder ready for re-use.

1. Empty the oil drain bottle before starting a recovery. unscrew the oil drain bottle from the machine

Note: The machine gives an alert while enter the recovery process, but it is a good practice to completely empty the oil drain bottle before recovering an A/C system

2. Connecting to the A/C system

Use the service hose quick-connect couplers to connect the hoses to the A/C system service ports, bearing in mind that BLUE must be connected to the low-pressure (suction) side and RED to high pressure (discharge) side.

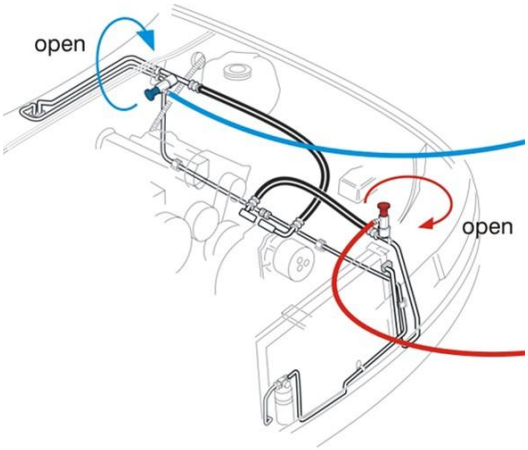
NOTE: Before connecting the quick couplers, clean the a/c ports of any foreign material

3. Open the coupler valves on the hoses by turning the collars clockwise.

Winding the quick coupler hand wheel clockwise, will allow the refrigerant to flow through the hoses. Turning hand wheel in opposite direction, the flow will be closed. If there is any refrigerant in the air-conditioning system, the pressure gauges will indicate a pressure rise.

IMPORTANT:

The unit gauges are important and useful instruments.The operator should have basic understanding between gauge reading and air-conditioning system operation, in order to correctly diagnose any possible system malfunction.



4. Turn on the power switch,30 seconds later the unit will show.

Pls check oil level! Gas in tank:*****g enter: next

5. Press ENTER key to enter the main menu page：

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

6. select manual mode by↑↓ keys, then press enter key it will slhow

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

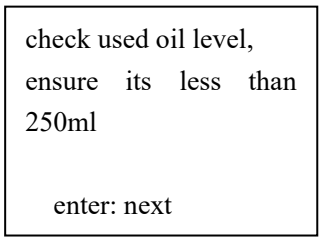
7. Select “recovery” then press enter key,the unit shouws

Recovery Connect HP/LP hose with auto A/C & open the HP/LP valve Ent: next, stop: back

8. while Connect the two hose with the car and opening the two quick coupler vavles then press enter key, it shows

Recovery Gas in tank: *****g Set Rec qty: *****g ← →:input, Ent: next

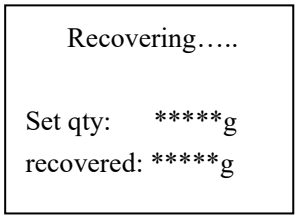
9. set the recovery qty(normally set maxim qty) by ← or →keys, then press enter key,the unit shows



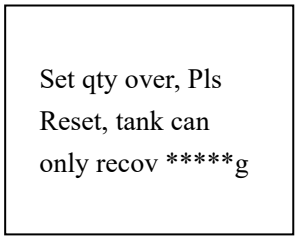
check used oil level, if it is over 250ml, pls empty the used oil bottle.

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

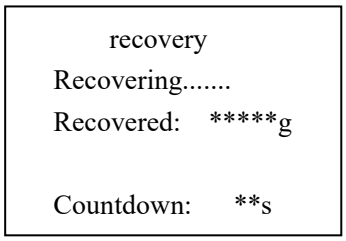
10. then press enter key,machine start recovering and it will shows the set qty and has recoverd qty



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

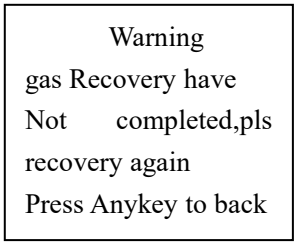


11. when the refrigerant of A/C system is completely recycled or recovered qty reached set qty, the unit will continue recovery 1min. and it display as figure followed，

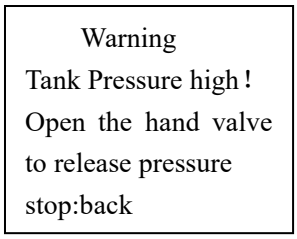


Note:

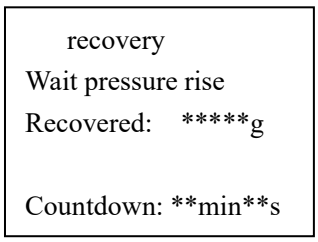
a. if the set recover qty less than the qty of R1234yf exist in the auto A/C system, the unit will stop recoverying automatically while recovered qty reached the set qty. and it display as followed, press any key back to recovery page



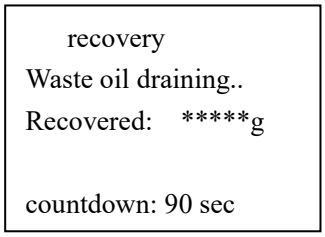
b. during the recovery process, if the machine stop working with beep sound and shows as followed fig, it means the unit tank pressure is equal to or more than 17.5bar, you can Press the hand valve fixed the rear of the machine to release tank pressure till 12 bar(by view TP gauge), then press stop key and the unit can perform recovery again



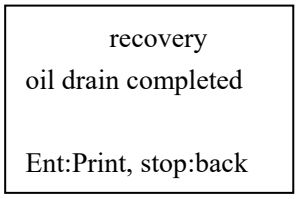
12. one minutes later,the unit shows as followed and waiting the a/c system pressure increase



13. 3 minute later,the unit begin to drain the waste oil out automatically, the unit shows as followed



14.90 seconds later, oil drained completed and the unit shows as followed, if necessary press enter key to print the result, otherwise press stop key back to the manual page

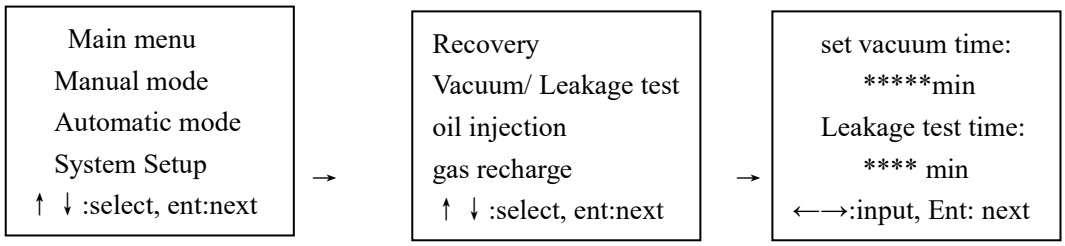


Evacuate the A/C System & leakage test

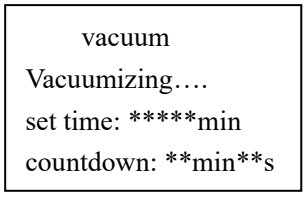
In the evacuation mode the air and moisture in the air conditioning system is removed and exhausted to the atmosphere. The evacuation mode runs for a predetermined time selected by the operator.

1. Ensure service hoses are connected to the vehicle A/C system, and coupler valves are OPEN.

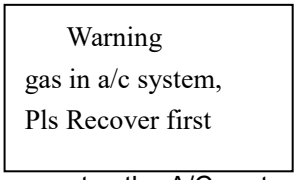
2.enter the manual mode and select vacuum/leakage test by ↑↓ keys, then press enter key, unit shows



3. Set vacuum time by←and→keys, then press ENTER key to ensure, then set the Leakage test time by←and→keys, then pPress enter key to start the prosess, now the display shows as followed



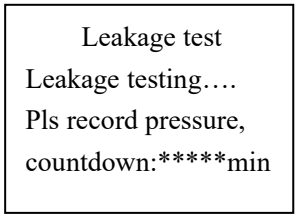
Note: if the a/c system exist refrigerant, the unit will refuse to perform the vacuumizing and gives an alert as followed, press enter key back to the recovery page



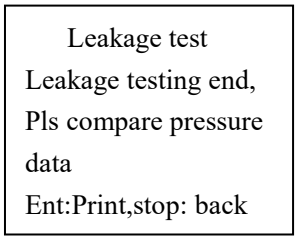
4. The unit evacuates the A/C system and stops when the specified amount of time has elapsed. the unit enter the leakage test procedure

Note: **At any time the evacuation can be paused or cancelled by pressing the stop key**

5. **after the vacuum the unit will automatic enter the leakage testing under the manual mode**, and the machine display as figure, pls record the vacuum degree(view HP/LP gauge)



6. while the specified amount of time has elapsed the unit display as followed fig, pls ciompare the read of HP and LP gauge, if the read become higher , it means that leakage exist in A/C system, pls repair first.



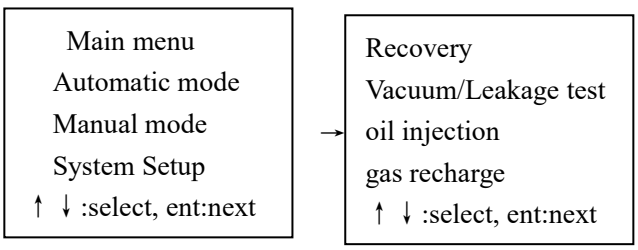
Oil injection

The purpose of this function is fill refrigerant oil from the oil reservoir to the vehicle air-conditioning system.

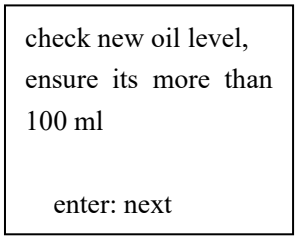
Important: The unit requires that the air conditioning system has previously been evacuated to a maximum vacuum before this function can be carried out.

1. Make sure there is enough new oil in the oil bottle

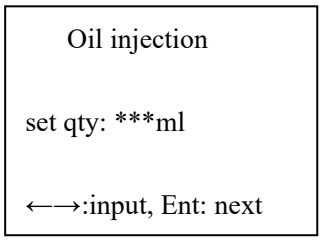
2. .enter the manual mode and select “oil injection” by ↑ ↓ key



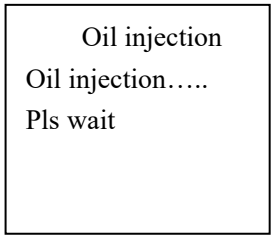
3. press enter key, LCD shows as figure, pls ensure the new oil level is more than 100 ml



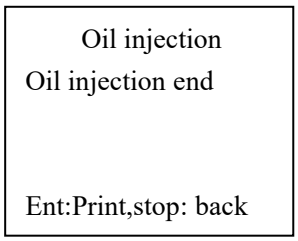
4. press enter key, LCD shows as figure, set the oil qty by ← or →keys



5. then press enter key, LCD shows as figure, And the unit begin to adding oil



6. After completion of oil injection, the unit will show as followed fig



Conditions that will prevent oil injection

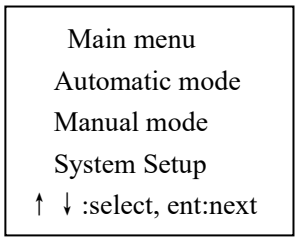
- The unit will not inject oil if the following conditions exist:
- Insufficient vacuum.
- quick coupler valve on service hose are closed

Recharge the A/C System

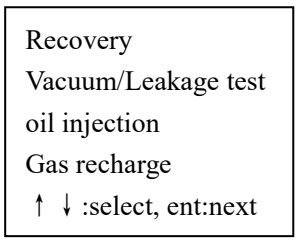
The purpose of this function is to batch a user defined weight amount of refrigerant into the air-conditioning system.

It is recommended that the A/C system is always properly evacuated before refrigerant is charged in to the A/C system.

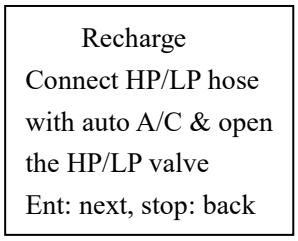
1. press enter key enter the main menu,then select maual mode by ↑ ↓ key



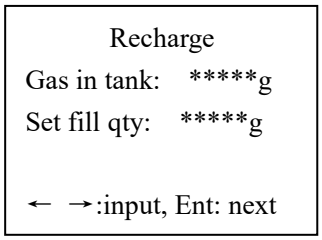
2. press enter key, LCD shows as figure,



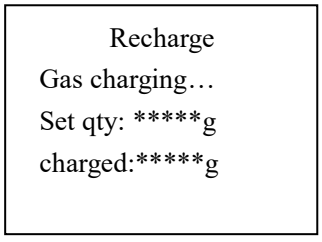
select “gas recharge” by ↑ ↓ keys, press enter key LCD will show:



press enter key LCD will show

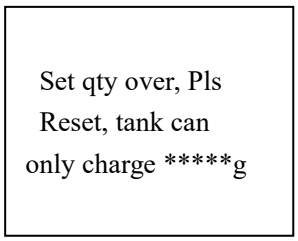


3. set the amount of refrigerant to be charged into the a/c system by ← → keys, then press enter key,machine start recharge and it will shows the set qty and has recharged qty

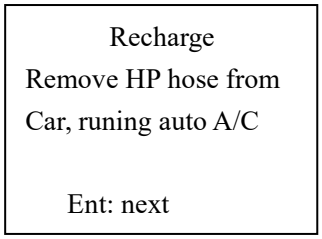


Note:

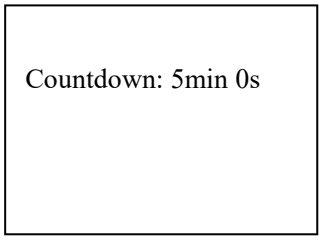
maybe the screen display the followed fig pointing the max charging weight, it means there is not enough Refrigerant in tank,pls recovery more into the tank or re-set the charging qty



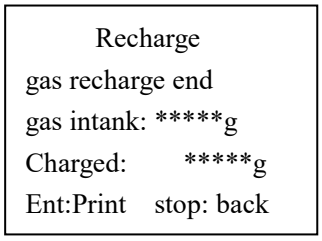
4. when gas recharged qty reached set amount, the equipment stops recharge with beep sound and screen display as figure followed, pls remove the HP hose from car and running auto ac to suction the refrigerant exist in the service hose



5.then press enter key the unit display as followed,



6. 5 min later, the unit shows



Operating tips

Anytime when recharging slowly or stop rechaging but no any indicator, you can remove the HP service hose from A/C system and running car A/C system to accelerate rechargeing speed

Automatic mode

In the Automatic cycle mode, all the operations will be performed one after the other.
(Refrigerant Recovering and Recycling, Recovered Oil Drain, System Evacuation, New Oil Injection and Refrigerant Charging) are performed automatically, in one cycle.

1. press enter key enter the main menu,then select “Automatic mode” by ↑ ↓ key

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

1. press enter key The LCD disply

Pls ensure new oil more than 100ml & used oil less than 250ml
enter: next

2. press enter key The LCD disply

Automatic mode
Manual input
database
↑ ↓ :select, ent:next

4.Select “Manual input” by arrow key, followed enter key, it will show

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

5. If select “database” then press enter key the unit shows as followed,

Alfa romeo
Audi
Bedford
Bmw
chrysler

press← → keys For page up/page down, press ↑ ↓ key to select car brand ,then press enter key, it will shows the car model :

145
146
147
155
156

Select model then press enter key, the unit display

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

6.Select the the displacement and year, then press enter, it shows

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

7.pls set parameter by ← → key then press enter key to conform, machine will enter automatic cycle, then the unit runs recovering, discharging oil, vacuum, adding oil , recharging automatically by sequence.

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 gas charging… Set qty: *****g charged:*****g

In this procediure there is no need the person stay front of the unit, while the machine stop automatically, the unit display as followed with beep sounds; pls remove the HP hose from car and running auto ac to suction the refrigerant existed in the service hose

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

8.then press enter key the unit display as followed,

Countdown: 4min 60s

5 min later, the unit shows

Automatic
gas recharge end
gas intank: *****g
Charged: *****g
Ent:Print,stop: back

the hole automatic cycle completed

System Setup

1.Turn on the unit, the LCD display as figure, pls the new oil and used oil level

Pls check oil level! Gas in tank: *****g enter: next

2. enter the main menu and select “system setup” then press enter key

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

3. press enter key The LCD disply

Clear filter value Clear vacuum time gas scale calibrate Clear gas tank sys self test

4. replace the dry filter

System will caculate and record total quantity of refrigerant recovered automatically. When total recoverd Refrigerant amout over 98kgs, the unit will display

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

4.1 When the machine shows above interface, press ENTER button to continue operation. Then Replace the filter after finishing operation

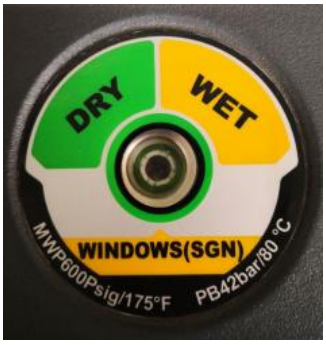
4.2 Dismantle the cover of the unit and remove the old dry filter, replacing with a new one.

4.3 After replace the dry filter, press enter key enter system set up, then select clear filter then press enter key the unit shows

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

then press enter key to clear the value,then press stop key to save

Tips: normally the H detector shows green, anytime when you find the H detector shows yellow that means the dry filter must be replaced



note:

1. should apply dry filter of same specification as original parts
2. note mount direction of dry filter
3. use two wrenches at removing/mounting dry filter adaptors

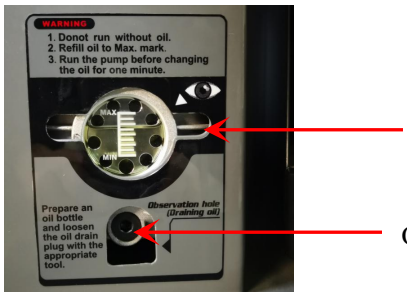
5. Change Vacuum Pump Oil

For maximum vacuum pump performance, change the vacuum pump oil after every 10 hours of operation. System will caculate and record total time of “vacuum” operation

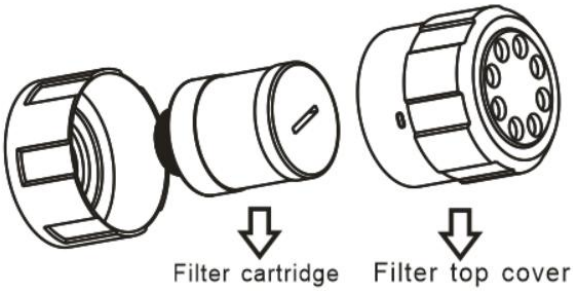
And it will remind you to replace oil after 10hours accumulated working times since the last oil change,when the followed figure display means that you should change the pump oil, follow is the changing step

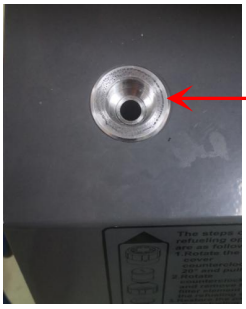
warning Vacuum pump has been running 10 hours,Pls change pump oil Enter: next,stop: back

1. Program hints to replace the pump oil when the vacuum pump runs 10 hours total from last time oil replaced
2. Press ENTER button to continue operation. Replace the vacuum pump oil after finishing vacuum operation
3. Place an oil container under the oil drain outlet of vacuum pump
4. Unscrew the oil drain plug fixed under the observe window, the wasted vacuum pump oil will flow to the oil container



5. Recover the oil drain plug after finish draining wasted oil
6. turn the oil mist filter top cover anticlockwise about 1cm then take it away
7. turn the filter cartridge anticlockwise and take it away
8. pour the new pump oil into the vacuum pump from the filter fixed hole. (Please use 100# vacuum pump oil)





9. Screw down the filter cartridge when the oil exceed the oil level line. then recover the filter top cover
10. turn on the power switch and enter into the operation interface
11. After change the pump oil, press enter key enter system set up and select “clear vacuum time”

Clear vacuum time The vacuum pump has running: ****h Ent:clear,stop:back

12.then press enter key shows above fig, then press enter key to clear the value,then press stop key to save

6. calibrate the refrigerant scale

Any time you doubt the Refrigerant scale’s accuracy, you may do a calibration as followed steps

a. press enter key enter system set up, then select gas scale calibrate

Clear filter value Clear vacuum time Gas scale calibrate Clear gas tank sys self test

b. press enter key the unit display

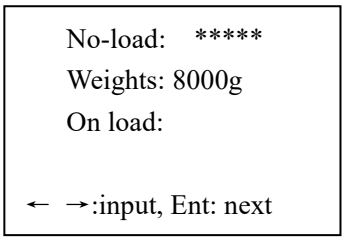
Pls remove the tank From the gas scale & ensure nothing on the scale plate Ent:next,stop:back

Then remove the refrigerant tank from scale plate by unscrew the three fixing scrows(no need to dismantle the two hose fixed on the tank) and make sure there is nothing on the scale plate

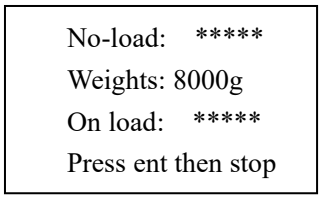
c. Then press enter key LCD displays

No-load: ***** Weights: On load: Ent:next,stop:back

d. Press enter key then Input the value of the weight which you have(for example 8000g), then put the weight (which whight equqals you input value) on the scale plate



e. Then press enter key LCD displays as followed, the calibration is completed, then press stop key to back previous menu

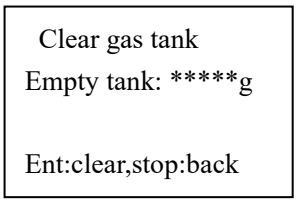


7. Clear gas tank

The function is used for Eliminate tank weight of the refrigerant scale after the calibtation finish, step as follow

a. remove the weight and put the empty refrigerant tank on the scale plate then fixed the three screws on

b. enter the" system setup", then select "**Clear gas tank",** press enter key LCD as fig followed



C. then press enter key to clear the value,then press stop key to save

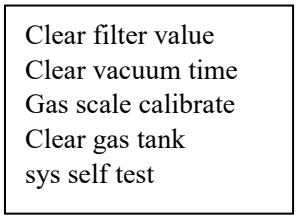
Note: if the tank contains refrigerant, the clear function will not be effected unless replaced with a different tank

8. system self-test

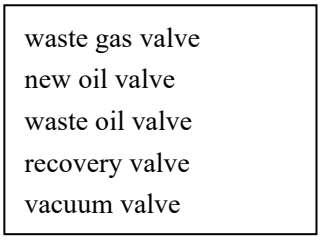
it is convenient tor the rapairer to sevice the unit while the unit emerge any problems

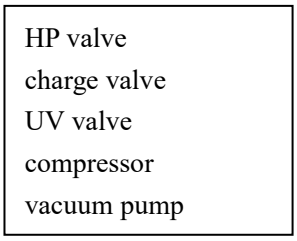
it is used for diagnostic the 8pcs of magnetic valve and 2 motors wether works normally

a. turn on the unit, press enter key enter system set up, the unit display as follow



b. select "system self-test" by ↑ ↓ key press enter key LCD display as followed or page down by press →key





c. select an item then press enter key the unit display

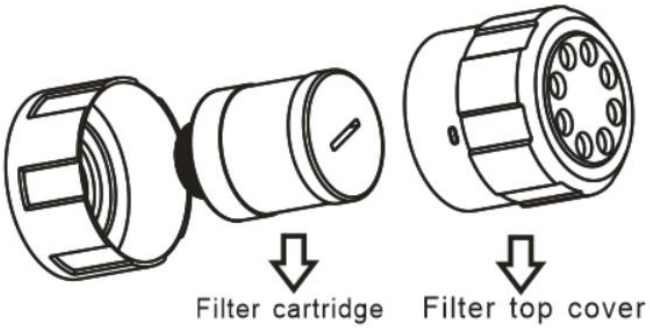
Open close

d. select the valve state by ↑ ↓ key then press enter key to open or close the parts

9. Replace the vacuum pump oil mist filter

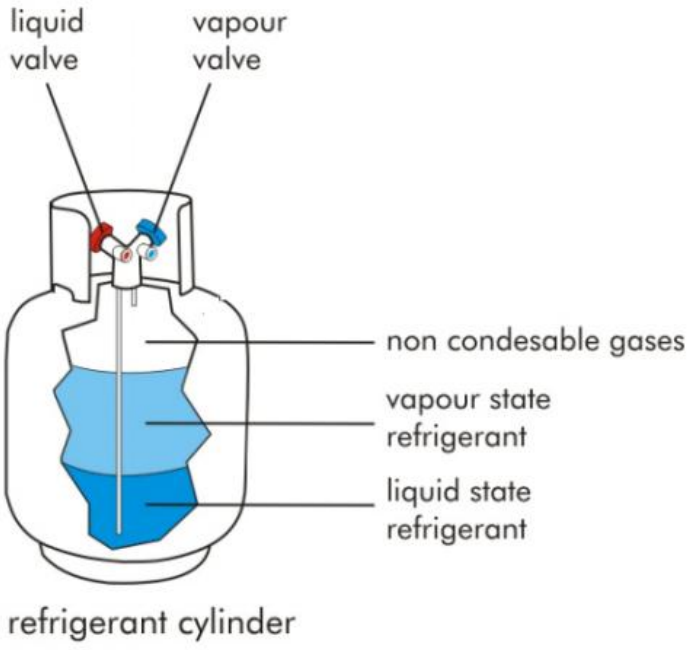
the vacuum pump oil mist filter is mounted on the rear of the equipment, It is recommended that to replace the vacuum pump oil mist filter every half a year, please refer the follow description to replace the filter

1. turn the oil mist filter top cover anticlockwise about 1cm then take it away
2. turn the filter cartridge anticlockwise and take it away
3. screw down a new filter cartridge instead previous
4. then recover the filter top cover



Cylinder Air Purge

Once a week check if there is non-condensable (air) build up in the refrigerant cylinder.
First, measure the ambient temperature. Then read the tank pressure on TP gauge and compare it with the temperature pressure chart, affixed to the machine.
If the cylinder pressure is higher than the pressure/temperature chart, there are non-condensable gases (air) in the refrigerant tank. Press the green button fixed the rear of the machine to purge the waste gases from the tank and bring back the pressure to the recommended chart values.
NOTE: After recovery process it is normal that cylinder pressure is higher than the pressure/temperature chart shows. Always read the tank pressure gauge first thing in the morning before operating the machine.



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