

ACM100m RECHARGING SYSTEM

OPERATING MANUAL

KingMore®

ACM100m

REFRIGERANT

RECOVERY & RECHARGING

SYSTEM

OPERATING MANUAL



Welcome to join the auto-service product family made by KingMore.

ACM100m refrigerant recovery & recharging system will make the auto AC-service procedure expedient and fast.

This manual includes many important safety regulations about operation, use and maintenance. Proper operating must be followed.

Failure to do so may make the system broken or may cause safety problems. Before operating this system, please READ this manual completely and keep this manual readily available.

ACM100m should be used only with Refrigerant 134a system. All interface and design accord with the UL authentication. Refrigerant 134a after recycling accords with the SAE standard.

KingMore will guarantee ACM100m for one year, in warranty period, all problems and troubles due to the quality will be maintained and repaired free. Artificial breakage will be charged for the fittings, man-hour and traveling.

DO NOT maintain the system privately without authorization by KingMore

ACM100m can carry out the following jobs:

- To recover residual refrigerant in the vehicle AC system. In recover procedure, the inner oil separator can separate oil from the recovered refrigerant and make the refrigerant reusable.
- To vacuum the AC system of vehicle by vacuum bump, to judge leakage of the AC system by observing the pressure gauge.
- To eliminate moisture, acid medium and impurity in the pipeline.
- To supply refrigerant oil into the AC system of vehicle.
- To recharge the system.
- To accord with the environment safety standard and to reduce the cost of service, the ACM100m system has recover and recycling functions. Refrigerant 134a after recycling accords with the SAE standard.

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1. GLOSSARY

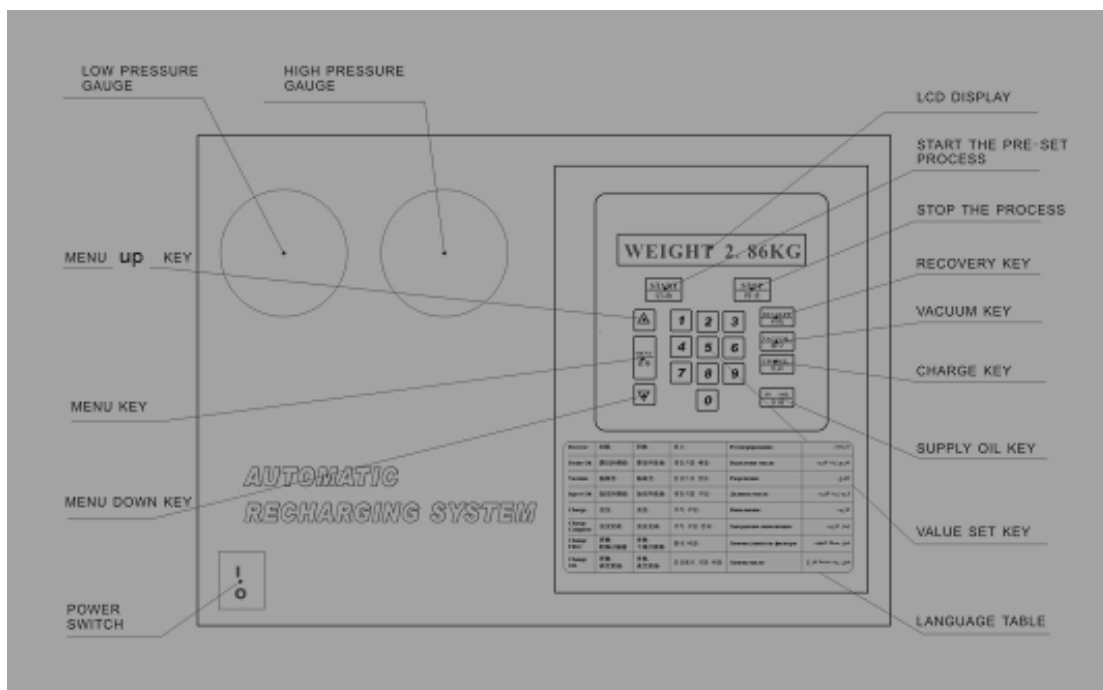
SYSTEM ——Refrigerant recovery, recycling and recharging equipment.

SOURCE TANK——A disposable tank with fresh refrigerant used for refilling work tank.

ELECTRONIC BALANCE——Measuring the weight of the refrigerant.

WORK TANK——Refillable refrigerant storage tank in the system. It is used to store refrigerant during recovery, and to recycle recovered refrigerant, recycled refrigerant reaches SAE standard. The tank has three outlets, gas outlet, liquid outlet and air discharge outlet.




2. CONTROL PANEL










3. SYSTEM INITIAL SETUP

For first time use of the system, the system initial setup is necessary. Main purposes of the initial setup are:

- 1) To inject vacuum pump oil (Done when manufactured)
- 2) To remove nitrogen in the work tank and the system
- 3) To fill fresh refrigerant into the work tank








STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1	Turn the power switch on	Turn the power switch on (Vacuum pump oil has been added when manufactured, oil should be at the middle level. Presses START key to start directly.)	CLEAR
2		Press START key to begin initiation process The screen will flash the words.	PLEASE WAIT
3		Now the system will Automatically remove nitrogen in the work tank and system Wait for 4 minutes The system will automatically finish initiation	PLEASE WAIT
4		After initiation, the system will automatically enter into waiting state (Now you need to add refrigerant to work tank) The display means the machine is at waiting state	WEIGHT 00.00 kg





5.		<p>Add refrigerant to work tank:</p> <ol style="list-style-type: none"> 1. Connect the transition coupler to the refrigerant source tank 2. Connect the low pressure quick coupler to the transition coupler 3. Open source tank valve and blue quick coupler valve 4. Put source tank upside down 5. 10.00Kg is the amount of refrigerant that the work tank can contain 	<div style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER 10.00 kg</div>
6		<p>Please make sure:</p> <ol style="list-style-type: none"> 1、 Low pressure hose is connected to the refrigerant source tank 2、 Source tank valve and blue quick coupler are open 3、 Source tank is upside down 	<div style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER 00.00 kg</div>
7		<p>Adding refrigerant to work tank The displayed number will increase</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER 00.0x kg</div>
8		<p>Suggested weight of refrigerant adding to work tank for the first time is 3 to 4 kg When the displayed weight is 03.xxkg to 04.xxkg, Close source tank valve and blue quick coupler When pressure decreases to 0 PSI, system will automatically complete recovery process.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER xx.xx kg</div>


9		<ol style="list-style-type: none"> The screen will display the weight of the refrigerant added to work tank and reminding of draining AC system oil Wait for 10 seconds, system will automatically drain the AC system oil separated from refrigerant 	<div data-bbox="938 297 1342 383" style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER xx.xx kg</div> <div data-bbox="938 423 1342 508" style="border: 1px solid black; padding: 5px; text-align: center;">DRAIN OIL</div>
10		<ol style="list-style-type: none"> Draining oil takes 10 seconds, after 10 seconds, it will stop automatically Check oil level in the drain oil bottle, when there is no oil draining out, press STOP to exit 	<div data-bbox="938 734 1342 819" style="border: 1px solid black; padding: 5px; text-align: center;">DRAIN OIL</div>
11		<p>System enters into waiting state</p> <ol style="list-style-type: none"> XX.XXkg is the weight of the refrigerant in the work tank Remove blue quick coupler from source tank Put quick coupler on its station 	<div data-bbox="938 1088 1342 1173" style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>
12	<p>Up to now, initiation has been completed Preparation of the system is fully completed Note: For the normal operation of the system, the weight of the refrigerant in the work tank should not be less than 2kg for the best</p>		



4. FULLY AUTOMATIC OPERATION

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1	Turn the power switch on	Now the system enters into system self-checking state	VERSION 1.01
2	WAIT	After 3 seconds, the system will display: Connect red and blue quick couplers to high and low pressure hoses of the automobile air conditioner and open INJECTED Oil bottle should keep oil not less than 30ml.	WEIGHT xx.xx kg
3	START	Press START, to begin functional choice. Notice: In functional choice, ①-⑥ number keys are functional choice keys.	SELECT FUNCTION
4	1	Press number key ①. Recovery function will be chosen. Press number key ① again, Recovery function will be cancelled.	R
5	2	Press number key ②, vacuum-pumping will be chosen. Press number key ② again, vacuum-pumping will be cancelled.	R-V R-
6	3	Press number key ③, LP Keeping time will be chosen. Press number key ③ again, LP keeping will be cancelled.	R-V-LP R-V

7		<p>Press number key④, charging refrigeration oil will be chosen. Press number key④ again, charging refrigeration will be cancelled.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">R-V-LP-I</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">R -V-LP</div>
8		<p>Press number key⑤, high and low pressure charging will be chosen. Press number key ⑤ again, high and low pressure charging will be cancelled.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I-C</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I</div>
9		<p>Press number keys ⑥, low pressure charging will be chosen. It will turn off high and low pressure charging simultaneously. Press number keys ⑥ again, low pressure charging will be cancelled.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I- -LC</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I</div>
10		<p>If you want to quit all the above chosen functions, press STOP to go back to function choice state, and press START to enter into standby mode.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">SELECT FUNCTION</div> <div style="text-align: center; margin: 5px 0;">↓</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>
11		<p>If you want to confirm all the above chosen function, press START to enter into vacuum-pumping time set, and press number keys to set vacuum time.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">VACUUM 30:00</div>
12		<p>Press START to enter into weight charging set, and set charging weight by number keys.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE 00.90kg</div>




13		<p>Important Note: 1. Press START, machine will determine the rest refrigerant weight in the work tank automatically and decide whether rest weight of refrigerant in work tank can satisfy for the next recharge volume, If input recharge weight add 1.2kg is less than WEIGHT xx.xx kg, machine will warn that refrigerant in work tank can not satisfy recharge, press STOP to quit program, refer to 4.5, please add refrigerant into work tank.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">TANK EMPTY?</div>
14		<p>Press STRAT to enter into setting LP Keeping time, setting keeping time by number keys</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">LP KEEPING 15:00</div>
15		<p>Press START key to enter into refrigerant oil adding set up process, use value keys to input volume of oil needing to be added, xx ml</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">OIL xx ml</div>
16		<p>Important Note: Press START, equipment will determine whether rest refrigerant in vehicle AC system is lower than 0kpa, whether it is worth of recycling. If screen shows pressure is low, it proves rest refrigerant is not worth of recycling. Press STOP to quit , and choose function again.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">LOW PRESSURE</div>


17		<p>Press START, equipment will recycle rest refrigerant from vehicle A/C system automatically. When the recycling pressure is lower than 0 kpa, equipment will stop recycling automatically, and enter into next operation procedure.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER xx.xxkg</div>
18	<div style="border: 1px solid black; padding: 2px; text-align: center;">WAIT</div>	<p>After recovery is automatically completed, system will automatically enter into oil draining process. Screen will display the weight of refrigerant recovered this time and show that oil is going to be drained.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER xx.xxkg</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">DRAIN OIL</div>
19	<div style="border: 1px solid black; padding: 2px; text-align: center;">WAIT</div>	<p>Equipment will enter into Vacuum procedure according to program setting automatically, Vacuum time is operator setting time.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">VACUUM XX. XX</div>
20	<div style="border: 1px solid black; padding: 2px; text-align: center;">WAIT</div>	<p>Equipment will enter into LP Keeping procedure according to program setting automatically, LP Keeping time is setting time.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">LP KEEPING XX: XX</div>
21	<div style="border: 1px solid black; padding: 2px; text-align: center;">WAIT</div>	<p>Equipment will enter into charging refrigeration oil procedure automatically.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">INJECT OIL</div>
22	<div style="border: 1px solid black; padding: 2px; text-align: center;">WAIT</div>	<p>Equipment will enter into charging refrigerant procedure automatically, The charging weight of refrigerant is setting weight.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE xx.xx kg</div>

23		<p>When charging refrigerant weight reach setting weight, equipment will finish charge automatically.</p>	<div data-bbox="1026 255 1430 338" style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE xx.xx kg</div> <div data-bbox="1026 344 1430 427" style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE COMPLETE</div>
24		<p>Press down STOP key for 5 seconds to end recharging process and to enter into waiting state (Start vehicle A/C system, check the high and low pressure gauges to see if the readings are normal. Remove high and low quick couplers)</p>	<div data-bbox="1026 674 1430 757" style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>

5. OPERATING

5.1 Recover refrigerant and oil drain

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1	Turn the power switch on	Now the system enters into system self-checking state	VERSION 1.01
2	WAIT	After 3 seconds, the system will display: Connect red and blue quick couplers to high and low pressure hoses of the automobile air conditioner and open	WEIGHT xx.xx kg
3		Press RECOVER key to enter into recovery procedure If the pressure of the rest refrigerant in vehicle A/C system is lower than 0 kpa, the equipment will warn the pressure is low, press STOP to quit recycling procedure, and operator can re-program operating order.	LOW PRESSORE
4		Press RECOVER key to enter into recovery procedure xx.xxkg means how much more refrigerant the work tank can still contain	RECOVER xx.xx kg
5		Press START key to begin recovery When the pressure in the automobile air conditioner is lower than 0kpa, system will automatically complete recovery process.	RECOVER xx.xx kg

6	WAIT	<ol style="list-style-type: none"> 1. The screen will display the weight of refrigerant recovered this time and reminding of draining AC system oil 2. Wait for 10 seconds, system will automatically drain the AC system oil separated from refrigerant 	<div data-bbox="1010 315 1423 400" style="border: 1px solid black; padding: 5px; text-align: center;">RECOVER xx.xxkg</div> <div data-bbox="1010 445 1423 530" style="border: 1px solid black; padding: 5px; text-align: center;">DRAIN OIL</div>
7	WAIT	<ol style="list-style-type: none"> 1. Draining oil takes 10 seconds, after 10 seconds, it will stop automatically 2. Check oil level in the drain oil bottle, when there is no oil draining out, press STOP to exit 3. The amount of oil drained this time should be recorded 4. When you are reminded to add AC system oil after vacuuming is complete, add same amount of oil 	<div data-bbox="1010 920 1423 1005" style="border: 1px solid black; padding: 5px; text-align: center;">DRAIN OIL</div>
8		Press STOP key to go back to waiting state	<div data-bbox="1010 1341 1423 1426" style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>

CAUTION:




The set capacity of the filter-drier of this system is 68kg, when recovered refrigerant weight reaches 68kg, display will read:



CHANGE FILTER

Now filter-drier is no longer effective, and needs to be replaced, please refer to 5.2 for details. Otherwise the system will be damaged.

The self-cleaning procedure will recover the refrigerant in the service hose into the work tank, this process will ensure that electronic balance weighs the recovered refrigerant accurately.

5.2 Vacuum AC system and supply oil

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		Waiting state	WEIGHT xx.xx kg
2		<p>Make sure: If the pressure in the air conditioning system is higher than 0kpa, screen will show that the pressure is high,operator should observe the Gauge, if operator confirm the pressure is lower than 50kpa, operator can press START to enter Vacuum program for 3 times, or press STOP key to exit vacuuming process and carry out 4.1 (recovery process). After the recovery process is automatically completed, vacuuming process then can be carried out normally.</p>	<div data-bbox="943 1070 1350 1153" style="border: 1px solid black; padding: 5px; text-align: center;">HIGH PRESSURE</div> <div data-bbox="943 1198 1350 1281" style="border: 1px solid black; padding: 5px; text-align: center;">VACUUM 15:00</div>
3		<p>Press Number keys to set Vacuum time. Press START key to begin vacuuming process</p>	<div data-bbox="943 1697 1350 1780" style="border: 1px solid black; padding: 5px; text-align: center;">VACUUM xx.xx</div>
4		<p>Set time is over (Waiting time depends on the time set)</p>	<div data-bbox="943 1921 1350 2004" style="border: 1px solid black; padding: 5px; text-align: center;">INJECT OIL</div>

5		<ol style="list-style-type: none"> 1. Check the oil level in the INJECTED OIL bottle 2. Press OIL to supply oil immediately 3. The amount of oil to be injected should refer to the amount of oil drained during recovery 	<div style="border: 1px solid black; padding: 5px; text-align: center;">INJECT OIL</div>
6		<ol style="list-style-type: none"> 1. After finishing injection of oil, press STOP to enter into waiting state 2. Check pressure gauge to see if air conditioner has any leakage 3. Now you can press CHARGE key to charge refrigerant to automobile air conditioner 	<div style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>

CAUTION:






- 1) If the vacuum pump running time accumulates to 600 minutes, the system displays:



CHANGE OIL

Now the vacuum pump oil needs to be replaced. Please refer to section 5.4 for details. If vacuum pump oil is not replaced for a long time, the vacuum pump will be damaged.

- 2) If AC system pressure is higher than 50kpa (0.5kg), screen will show: HIGH PRESSURE, please operate according to 4.2 Vacuum AC system and supply oil

5.3 Recharge AC system

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		<ol style="list-style-type: none"> 1. Press RECHARGE key to enter into refrigerant recharging procedure 2. Use value keys to set the weight of the refrigerant needed to be recharged to AC system 3. If input the charge weight adds 1.2kg is less than WEIGHT xx.xx kg, equipment will warn that refrigerant in work tank can not be charged, press STOP to quit program, refer to 4.5Add refrigerant to work tank 	TANK EMPTY?
2		<ol style="list-style-type: none"> 1. Press RECHARGE key to enter into refrigerant recharging procedure 2. Use value keys to set the weight of the refrigerant needed to be recharged to AC system 	CHARGE 00.90kg
3		Showing low pressure charge, press START to confirm, or press ▲ or ▼ to choose high and low pressure charge mode.	LP CHANGE
4		Press ▲ to choose high and low pressure charge mode, and press START to confirm.	LP.HP CHANGE
5		Press START to carry out low pressure recharging procedure	CHARGE 00.00kg

6		<p>When recharging refrigerant weight reach setting value, equipment will stop charge automatically and indicates the result at the same time.</p>	<div data-bbox="1023 255 1425 331" style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE xx.xx kg</div> <div data-bbox="1023 342 1425 418" style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE COMPLETE</div>
7		<p>Press down STOP key for 5 seconds to end recharging process and to enter into waiting state (Start AC system, check the high and low pressure gauges to see if the readings are normal. Remove high and low quick couplers)</p>	<div data-bbox="1023 689 1425 766" style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>




CAUTION:

If the system displays TANK EMPTY when you press CHARGE key to begin charging process, it



TANK EMPTY



means the refrigerant in the work tank is not sufficient, press STOP key to exit the recharging process, and add refrigerant to the work tank, please refer to section 4.5 for details.

5.4 System self-cleaning

STEP	OPERAE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		Waiting state 1. Make sure that high and low quick couplers have no connections with other equipments 2. Make sure that high and low quick couplers have no leakage	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">WEIGHT xx.xx kg</div>
2		Press RECOVER key to enter into recovery procedure xx.xxkg means how much more refrigerant the work tank can still contain	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">RECOVER xx.xx kg</div>
3		Press START to begin self-cleaning Check pressure gauge When the pressure is lower than 0kpa, system will automatically complete recovery process.	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">RECOVER xx.xx kg</div>
4	<div style="border: 1px solid black; padding: 2px; display: inline-block;">WAIT</div>	The screen will display the weight of the refrigerant cleaned out this time and reminding of draining AC system oil	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">RECOVER xx.xx kg</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto; margin-top: 10px;">DRAIN OIL</div>
5		Press STOP key down for 3 seconds to go back to waiting state System self-cleaning is finished	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">WEIGHT xx.xx kg</div>




5.5 Add refrigerant to work tank

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1	Turn the power switch on	(Now the system enters into self-checking)	VERSION: 1.01
2	WAIT	<ol style="list-style-type: none"> 1. Connect the transition coupler to the refrigerant source tank 2. Connect low pressure quick coupler to the transition coupler 3. Open source tank valve and blue quick coupler valve 4. Put source tank upside down 	WEIGHT xx.xx kg
3		Press RECOVER key to enter into refrigerant adding procedure xx.xxkg means how much more refrigerant the work tank can still contain	RECOVER xx.xx kg
4		<ol style="list-style-type: none"> 1. Press START to begin refrigerant adding process 2. Wait till the displayed weight is between 03.xxkg to 04.xxkg, close source tank valve, system will automatically complete recovery process. 	RECOVER xx.xx kg
5	WAIT	<ol style="list-style-type: none"> 1. The screen will display the weight of the refrigerant recovered this time and reminding of draining oil separated from the refrigerant 2. Wait for 10 seconds, the system will automatically drain oil separated from refrigerant 	RECOVER xx.xx kg DRAIN OIL

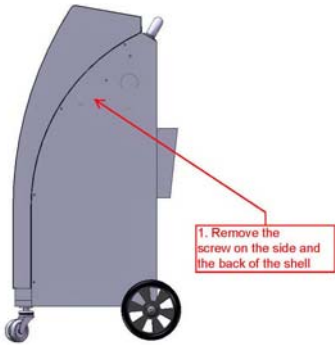
6		<ol style="list-style-type: none"> 1. Draining oil takes 10 seconds, after 10 seconds, it will stop automatically 2. Check oil level in the DRAIN OIL bottle, when there is no oil draining out, press STOP to exit 	<div style="border: 1px solid black; padding: 5px; text-align: center;">DRAIN OIL</div>
7		<p>Wait for 10 seconds or press STOP to go back to waiting state</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>

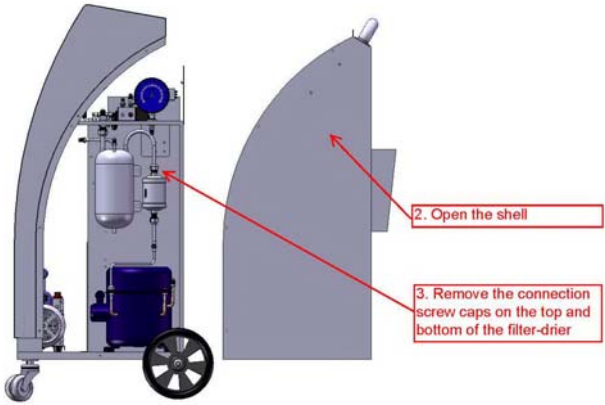
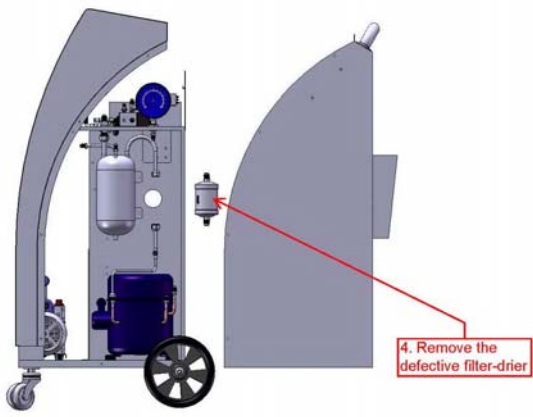
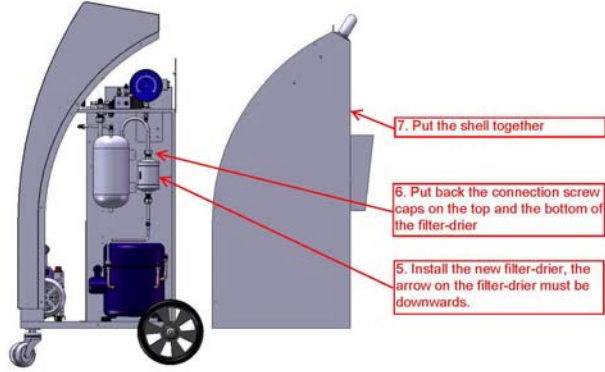
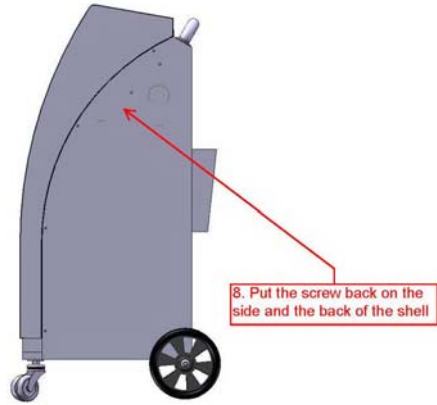
6. SETUP AND DAILY MAINTENANCE




6.1 Check the capacity of the filter-drier

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		1. At System Standby, press MENU to enter into system organizing procedure 2. XX.XX kg represents the weight of the refrigerant the filter-drier has filtered Please note after 68Kg the Filter Drier becomes less effective and requires replacement.	FILTER xx.xx kg
2		Filter-drier requires replacement	CHANGE FILTER
3		Press STOP to enter into System Standby	WEIGHT xx.xx kg


6.2 Change filter-drier




STEP	OPERATING DESCRIPTION
	1) Carry out 4.4 System self-cleaning, wait until it is complete. 2) Change Filter following the steps below
1	

2	 <p>2. Open the shell</p> <p>3. Remove the connection screw caps on the top and bottom of the filter-drier</p> <p>Detailed description: This diagram shows a side view of the machine with its protective shell partially open. A red arrow points from the text '2. Open the shell' to the top edge of the shell. Another red arrow points from the text '3. Remove the connection screw caps on the top and bottom of the filter-drier' to the top and bottom of the filter-drier assembly.</p>
3	 <p>4. Remove the defective filter-drier</p> <p>Detailed description: This diagram shows the filter-drier assembly being removed from the machine. A red arrow points from the text '4. Remove the defective filter-drier' to the filter-drier component.</p>
4	 <p>5. Install the new filter-drier, the arrow on the filter-drier must be downwards.</p> <p>6. Put back the connection screw caps on the top and the bottom of the filter-drier</p> <p>7. Put the shell together</p> <p>Detailed description: This diagram shows the new filter-drier being installed and the shell being closed. Three red arrows point from the text boxes to the filter-drier and the shell. The text '5. Install the new filter-drier, the arrow on the filter-drier must be downwards.' has an arrow pointing to the filter-drier. The text '6. Put back the connection screw caps on the top and the bottom of the filter-drier' has an arrow pointing to the top and bottom of the filter-drier. The text '7. Put the shell together' has an arrow pointing to the top edge of the shell.</p>
5	 <p>8. Put the screw back on the side and the back of the shell</p> <p>Detailed description: This diagram shows the final step of reassembly. A red arrow points from the text '8. Put the screw back on the side and the back of the shell' to the side and back of the machine's shell.</p>

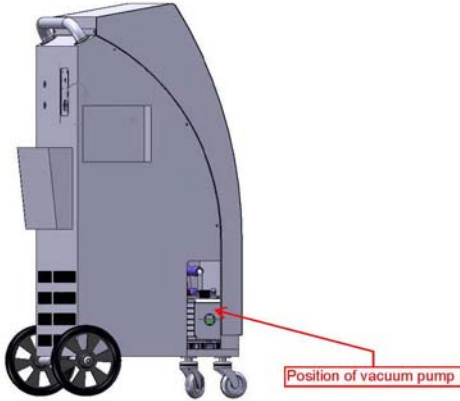
6		<ol style="list-style-type: none"> 1. At waiting state, press MENU to enter into system organizing procedure 2. XX.XX kg represents the weight of the refrigerant the filter-drier has filtered 	<div style="border: 1px solid black; padding: 5px; text-align: center;">FILTER xx.xx kg</div>
7		<p>Press Δ key to search Filter-drier replacement steps</p> <ol style="list-style-type: none"> 1. At waiting state, if the display says CHANGE FILTER, it means the filter-drier is no longer effective, it should be replaced 2. Carry out the system self-cleaning process (4.4) 3. Open the cover of the system, replace the filter-drier 4. Put the cover back 5. Input 3、3、3、3 6. Press START key 	<div style="border: 1px solid black; padding: 5px; text-align: center;">CHANGE FILTER</div>
8		<p>Press STOP to enter into waiting state Now filter-drier enters into next using period</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>

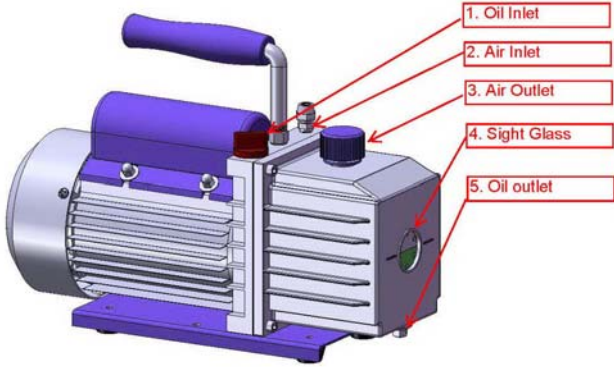
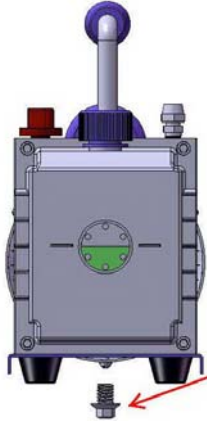
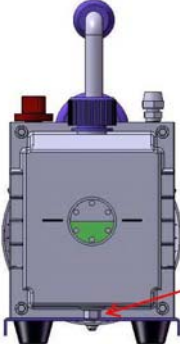
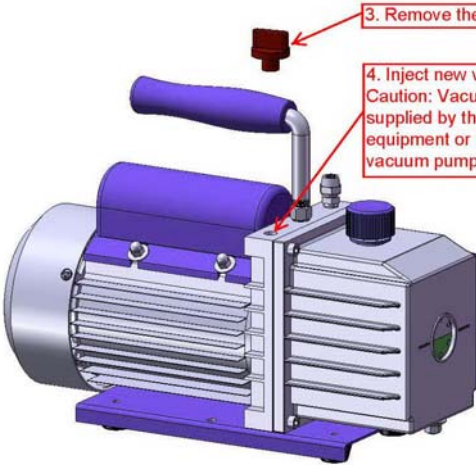
6.3 Check the Vacuum Pump Oil Usage

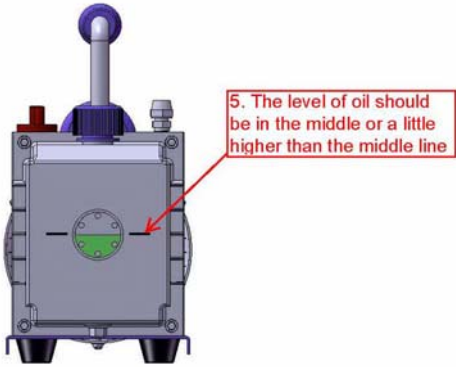
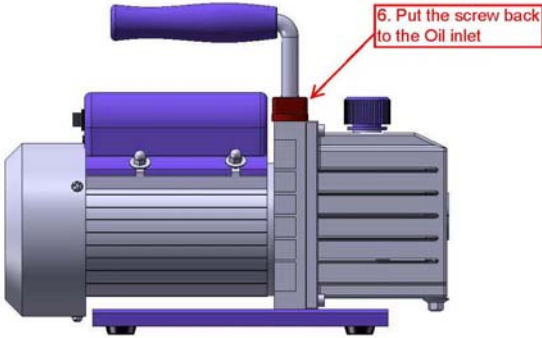



STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		<p>At System Standby, press MENU key to enter into system organizing and maintenance procedure</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;">FILTER xx.xx kg</div>


2		<p>Press Δ till the screen displays: XXX MIN represents the accumulated vacuum pump work time Please note that it is the Manufacturer's recommendation that the Vacuum Pump Oil is changed after 600 minutes use.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">OIL xxx MIN</div>
3		<p>Chang Vacuum Pump Oil</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">CHANGE OIL</div>
4		<p>1. Press STOP key to enter into System Standby</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;">WEIGHT xx.xx kg</div>

6.4 Replace vacuum pump oil

STEP	OPERATINGDESCRIPTION
	<p>1) Carry out 4.2 Vacuum AC system and supply oil, vacuum time should be set to 2 minutes, wait until it is complete</p> <p>2) Change vacuum pump oil following the steps below</p>
1	

<p>2</p>	 <p>1. Oil Inlet 2. Air Inlet 3. Air Outlet 4. Sight Glass 5. Oil outlet</p>
<p>3</p>	 <p>1. Remove the screw on the Oil Outlet, discharge the waste oil.</p>
<p>4</p>	 <p>2. Put the screw back on the Oil Outlet</p>
<p>5</p>	 <p>3. Remove the screw on the Oil Inlet</p> <p>4. Inject new vacuum pump oil Caution: Vacuum pump oil should be supplied by the manufacturer of the AC equipment or high quality high speed vacuum pump oil may be used.</p>

6			
7			
8		<p>At waiting state, press MENU key to enter into system organizing procedure</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>FILTER xx.xx kg</p> </div>
9		<p>Press Δ till the screen displays: XXX MIN represents the accumulated vacuum pump work time</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>OIL xxx MIN</p> </div>
10		<p>Press Δ key to search Vacuum pump oil replacement procedure</p> <ol style="list-style-type: none"> 1. At waiting state, if the screen displays CHANGE Oil, it means that vacuum pump oil is no longer effective, it should be replaced 2. Remove pump oil, and put fresh oil into pump. 3. Input 4、4、4、4 4. Press START 	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>CHANGE OIL</p> </div>

11		<ol style="list-style-type: none"> 1. Press STOP key to enter into waiting state 2. Now vacuum pump enters into next using period 	<div style="border: 1px solid black; padding: 5px; text-align: center;">WEIGHT xx.xx kg</div>
----	---	---	---

VACUUM PUMP OIL:

This special type of pump oil is strongly recommended since it is specially mixed to ensure viscosity of the oil stays at the maximum at the normal operation temperature of the pump and for start up of the pump at the low temperature.

IMPORTANT:

The system should be checked and maintained periodically, by qualified personnel and in accordance with prevailing EU Environmental Laws.

7. SPECIFICATIONS:

Model	ACM 100m
Recover rate	4.1g/S
Vacuum speed	2.0L/S
Charge rate	22g/S
Electronic balance sensitivity	±10g
Work tank capacity	10kg
Capacity of filter-drier refrigerant	68kg
Out port type	R-134a

1、术语解释

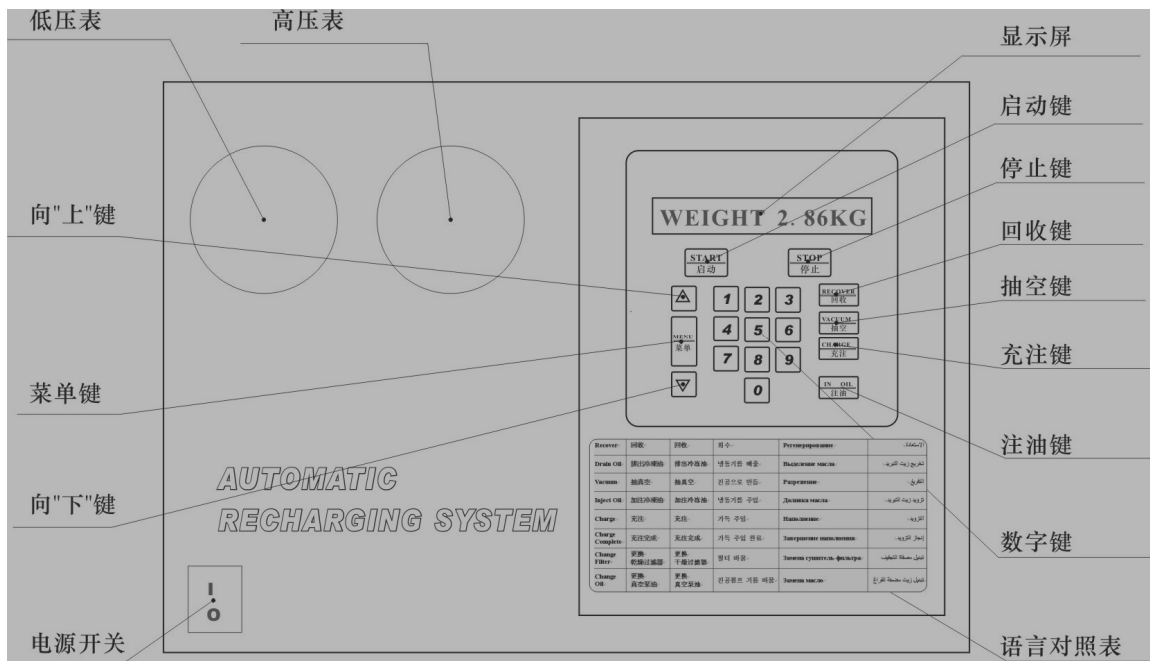
系 统——制冷剂回收、再生、充注机。

源 罐——装有制冷剂的一次性储存罐，用于向工作罐中添加制冷剂。

电子秤——计量制冷剂重量的秤。

工作罐——设备内置的制冷剂周转罐，回收时用于存储制冷剂，并将回收的制冷剂在其中再生处理，处理后的制冷剂符合 SAE 标准。罐上共三个界面，分别为：气态口、液态口和排空气口。

2、控制面板示意



控制面板示意图

3、系统初始化设置

设备第一次使用，要进行初始化设置。初始化设置的主要目的是：

- 1) 加入真空泵油（出厂时已加入）
- 2) 排除工作罐及系统内充入的氮气
- 3) 给工作罐加入制冷剂

系统初始化设置

步骤	操作	操作说明	显示屏显示内容
1	打开电源开关	开机 (在出厂时已加入真空泵油，泵油应在中线位置。可直接按“启动”键开始，不需要加泵油)	CLEAR
2		按“启动”键开始初始化程序	CLEAR
3	等待	此时设备将自动排除工作罐及系统内充入的氮气 等待4分钟 系统将自动完成初始化工作	CLEAR
4	等待	完成初始化工作后自动进入待机状态 (此时需给工作罐补充制冷剂) 此显示为待机状态	WEIGHT 00.00 kg
5		工作罐补液： 1. 将转换接头与制冷剂源罐连接 2. 用低压快速接头与转换接头连接 3. 打开源罐阀门和蓝色快速接头阀门 4. 倒置源罐 5. 10.00kg 是指工作罐内能容纳的制冷剂重量	RECOVER 10.00 kg

6		<p>确认：</p> <ol style="list-style-type: none"> 1. 低压歧管与制冷剂源罐连接 2. 源罐阀和蓝色快速接头打开 3. 源罐倒置 	RECOVER 00.00 kg
7	等待	正在给工作罐补充制冷剂 00.0x 将从最后一位增长	RECOVER 00.0x kg
8	等待	<p>建议第一次给工作罐补液重量 3—4 kg 待显示重量为： 03.xx kg—04.xx kg 时</p> <ol style="list-style-type: none"> 1. 关闭源罐阀和蓝色快速接头 2. 观察压力表，待压力降为 0 PSI 时设备自动停止补液程序。 	RECOVER XX.XX kg
9	等待	<ol style="list-style-type: none"> 1. 交替显示给工作罐补液重量和排除冷冻油提示 2. 等待十秒钟，系统将自动排除从制冷剂中分离出的冷冻油 	RECOVER XX.XX kg DRAIN OIL
10	等待	<ol style="list-style-type: none"> 1. 排油时间需要十秒钟，十秒钟后排油将自动停止 2. 观察排油瓶油位，待无油排出时可按“停止”键退出 	DRAIN OIL
11		<p>进入待机状态</p> <ol style="list-style-type: none"> 1. XX.XXkg 指工作罐内制冷剂重量 2. 从源罐上拆下蓝色快速接头 3. 将快速接头安放到快速接头卡座 	WEIGHT XX.XX kg
12	<p>至此初始化程序全部完成 现在设备的准备工作已全部完成 备注：为了使设备正常工作，工作罐内制冷剂重量最好不要低于 2 公斤</p>		

4、全自动操作

步骤	操作	操作说明	显示屏显示内容
1	打开电源开关	(此时设备进入系统自检状态)	VERSION 1.01
2	等待	1. 3秒后显示 待机状态 2. 将红、蓝快速接头与汽车空调的高、低压接头连接，打开高、低压接头 3. 注油瓶中的油不得少于 30ml。	WEIGHT xx.xx kg
3		按“启动”键进入功能选择	SELECT FUNCTION
4		按数字键①，回收功能将被选择。再按数字键①，回收功能将被取消。	R
5		按数字键②，抽空功能将被选择。再按数字键②，抽空功能将被取消。	R-V R-
6		按数字键③，低压保压功能将被选择。再按数字键③，低压保压功能将被取消。	R-V-LP R-V
7		按数字键④，注油功能将被选择。再按数字键④，注油功能将被取消。	R-V-LP-I R -V-LP

8		按数字键⑤，高、低压充注功能将被选择。再按数字键⑤，高、低压充注功能将被取消。	<div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I-C</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I</div>
9		按数字键⑥，低压充注功能将被选择。高、低压充注功能将被同时取消。再按数字键⑥，低压充注功能将被取消。	<div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I- -LC</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">R -V- LP-I</div>
10		如果想退出以上所选择的功能，按停止键退到功能选择状态，按启动键进入待机状态	<div style="border: 1px solid black; padding: 5px; text-align: center;">SELECT FUNCTION</div> <div style="text-align: center;">↓</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">  WEIGHT xx.xx kg </div>
11		如果确认以上所选中的功能，按启动键进入抽真空时间设定 用数字键设定抽真空时间	<div style="border: 1px solid black; padding: 5px; text-align: center;">VACUUM 30:00</div>
12		按启动键进入注油设定，用数字键输入需要加注冷冻油的量， 10 ml	<div style="border: 1px solid black; padding: 5px; text-align: center;">OIL 10 ml</div>
13		按启动键进入充注重量设定 用数字键设定充注重量	<div style="border: 1px solid black; padding: 5px; text-align: center;">CHARGE 00.90kg</div>
14		按启动键，机器会自动确认工作罐中剩余制冷剂的量是否足够，如果输入的重量加上 1.2kg 大于 WEIGHT xx.xx kg，设备将提示工作罐制冷剂不足，请按停止键退出该过程，参照 4.5 对工作罐进行补液。	<div style="border: 1px solid black; padding: 5px; text-align: center;">TANK EMPTY?</div>
15		按启动键进入低压保压时间设定，用数字键设置保压时间。	<div style="border: 1px solid black; padding: 5px; text-align: center;">LP KEEPING 15:00</div>

16		重要提示： 按启动键，设备会根据空调中制冷剂的压力是否低于 0kpa，判断是否有制冷剂可以回收。如果屏幕显示压力低，说明没有制冷剂可以回收。按停止键退出，并重新选择功能。	LOW PRESSURE
17		按启动键，设备会自动回收空调中剩余制冷剂。当回收压力低于 0kpa，设备会自动停止回收，并进入下一个操作程序。	RECOVER xx.xxkg
18	等待	回收程序自动完成后，系统会自动进入排油程序。屏幕会显示本次回收的制冷剂重量，并显示排油。	RECOVER xx.xxkg DRAIN OIL
9	等待	排油程序自动完成后，设备将根据已经设定的抽空时间自动进入抽空程序。	VACUUM XX. XX
20	等待	抽真空程序自动完成后，设备将根据已经设定的低压保压时间自动进入低压保压程序。	LP KEEPING XX: XX
21	等待	低压保压程序自动完成后，设备将根据已经设定的注油量自动进入注油程序。	OIL 10 ml
22	等待	注油程序自动完成后，设备将根据已经设定的充注重量自动进入充注程序。	CHARGE xx.xx kg
23	等待	当充注制冷剂的重量达到设定的充注重量时，设备将自动停止充注	CHARGE xx.xx kg CHARGE COMPLETE
24		按“停止”键 5 秒结束充注程序，进入待机状态 (启动汽车空调系统，检查高、低压表读数是否正常。拆下高、低压快速接头)	WEIGHT xx.xx kg

5、操作过程

5.1 回收汽车空调系统内的制冷剂并排出废冷冻油

步骤	操作	操作说明	显示屏显示内容
1	打开电源开关	(此时设备进入系统自检状态)	VERSION 1.01
2	等待	3 秒后显示 将红、蓝快速接头与汽车空调的高、低压接头相连并打开	WEIGHT XX.XX kg
3		按“回收”键进入回收程序 xx.xxkg 是指工作罐内还能容纳的制冷剂重量	RECOVER XX.XX kg
4		按“启动”键开始执行回收工作 当汽车空调内的压力低于 0 kpa 时设备自动停止回收程序。	RECOVER XX.XX kg
5	等待	1. 交替显示本次回收重量和排除冷冻油提示 2. 等待十秒钟,系统将自动排除从制冷剂中分离出的冷冻油	RECOVE XX.XX kg DRAIN OIL
6	等待	1. 排油时间需要十秒钟,十秒钟后排油将自动停止 2. 观察排油瓶油位,待无油排出时可按“停止”键退出 3. 本次排油量应有记录 4. 抽空完成后提示补充冷冻油时,加入同等数量的冷冻油	DRAIN OIL
7		按“停止”键退回待机状态	WEIGHT XX.XX kg

注意:

本设备干燥过滤器设定的制冷剂过滤量为 68kg,

当回收的制冷剂重量达到 68kg 时, 显示屏将提示:

CHARGE FILTER



此时干燥过滤器已失效, 需更换新的干燥过滤器, 请查阅“5.2 更换干燥过滤器”。

否则将会对设备造成损坏。

自清过程是将充注系统管路内的制冷剂回收到工作罐, 这样可以保证电子秤准确的称量回收的制冷剂重量。

5.2 对汽车空调系统抽真空、补充冷冻油

步骤	操作	操作说明	显示屏显示内容
1		待机状态	WEIGHT XX.XX kg
2		<p>确认:</p> <p>1. 如果汽车空调系统压力高于 50 kpa (0.5 kg) 时, 为保护真空泵, 设备将不能进行抽真空操作, 同时提示高压, 可按停止键退出后执行 4.1 回收程序</p> <p>2. 当压力小于 (0.5 kg) 时, 按“抽真空”键进入抽真空程序 此时可按“数字”键设定所需的抽真空时间</p>	<div style="border: 1px solid black; padding: 5px; text-align: center; margin-bottom: 10px;">HIGH PRESSURE</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">VACUUM 15:00</div>
3		按“启动”键, 执行抽真空程序	VACUUM XX.XX
4	等待	设定时间到 (等待的时间取决于设定的时间)	INJECT OIL

5		<ol style="list-style-type: none"> 1. 请注意观察注油瓶油位！ 2. 按“注油”键立刻补充冷冻油 3. 注油量参照回收时排出的冷冻油数量 	INJECT OIL
6		<ol style="list-style-type: none"> 1. 注油完成后按“停止”键进入待机状态 2. 观察压力表,看汽车空调是否有泄漏 3. 此时可按“充注”键对汽车空调进行制冷剂充注 	WEIGHT XX.XX kg

注意:

1) 如果真空泵的累计运行时间达到 600 分钟,设备将提示:



此时需要更换新的真空泵油,请查阅“5.4 更换真空泵油”,长时间不更换泵油会损坏真空泵。

CHANGE OIL

2) 如果空调系统压力高于 50 kpa (0.5 kg) 时,请不要对汽车空调进行抽真空操作,否则将损坏真空泵。

5.3 对汽车空调系统充注制冷剂

步骤	操作	操作说明	显示屏显示内容
1		<ol style="list-style-type: none"> 1. 按“充注”键进入充注制冷剂程序 2. 显示低压充注模式,按▲选择高、低压充注模式 	LP CHANGE
2		按▲选择高、低压充注模式,充注模式确认后,按启动键进入充注程序。	LP.HP CHANGE
3		用“数字”键设定需充注制冷剂的重量	CHARGE 00.90kg
4		<p>如果输入的重量加上 1.2kg 大于显示重量</p> <p>WEIGHT xx.xx kg, 设备将提示工作罐制冷剂不足,请按停止键退出充注程序,参照 4.5 对工作罐进行补液。</p>	TANK EMPTY?

5		按“启动”键执行充注制冷剂程序，完成对汽车空调的充注。	CHARGE 00.00 kg
6	等待	<ol style="list-style-type: none"> 1. 达到设定的充注重量时设备将自动停止充注 2. 充注完成后设备将自动提示充注完成和本次的充注重量 	CHARGE XX.XX kg CHARGE COMPLETE
7		按“停止”键 5 秒结束充注程序，进入待机状态 (启动汽车空调系统，检查高、低压表读数是否正常。拆下高、低压快速接头)	WEIGHT XX.XX kg

注意：

按“充注”键执行充注制冷剂程序时若系统显示：

TANK EMPTY

表示工作罐内制冷剂重量不足。此时按“停止”键退出充注制冷剂程序

给工作罐补充制冷剂，请参阅“4.5 工作罐补液”。

5.4 设备自清

步骤	操作	操作说明	显示屏显示内容
1		待机状态 <ol style="list-style-type: none"> 1. 确认高、低压快速接头与外设无连接 2. 确认高、低压快速接头无泄漏 	WEIGHT XX.XX kg
2		按“回收”键进入回收程序 xx.xxkg 是指工作罐内还能容纳的制冷剂重量	RECOVER XX.XX kg

3		按“启动”开始执行自清工作 观察压力表 当压力表压力低于 0 kpa 时,设备自动停止自清程序。	RECOVER XX.XX kg
4	等待	交替显示本次自清重量和排除冷冻油提示	RECOVER XX.XX kg DRAIN OIL
5		按“停止”键三秒退回待机状态 设备自清结束	WEIGHT XX.XX kg

5.5 工作罐补液

步骤	操作	操作说明	显示屏显示内容
1	打开电源开关	(此时设备进入系统自检状态)	VERSION 1.01
2	等待	1、将转换接头与制冷剂源罐连接 2、用低压快速接头与转换接头连接 3、打开源罐阀门和蓝色快速接头阀门 4、倒置源罐	WEIGHT XX.XX kg
3		按“回收”键进入补液程序 xx.xxkg 是指工作罐内还能容纳的制冷剂重量	RECOVER XX.XX kg
4		1. 按“启动”键开始执行补液程序 2. 待显示重量为 03. xx kg—04. xx kg 时, 关闭源罐阀 3. 观察压力表, 待压力降为 0 PSI 时设备自动停止补液程序	RECOVER XX.XX kg

5	等待	<ol style="list-style-type: none"> 1. 交替显示本次回收重量和排除冷冻油提示 2. 等待十秒钟,系统将自动排除从制冷剂中分离出的冷冻油 	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">RECOVER XX.XX kg</div> <div style="border: 1px solid black; padding: 5px;">DRAIN OIL</div>
6	等待	<ol style="list-style-type: none"> 1. 排油时间需要十秒钟,十秒钟后排油将自动停止 2. 观察排油瓶油位,待无油排出时可按“停止”键退出 	<div style="border: 1px solid black; padding: 5px;">DRAIN OIL</div>
7		10 秒钟后或按“停止”键退回待机状态	<div style="border: 1px solid black; padding: 5px;">WEIGHT XX.XX kg</div>

6、系统设置及日常维护

系统设置的项目：

- 1、干燥过滤器的性能
- 2、更换干燥过滤器
- 3、真空泵油使用时间
- 4、更换真空泵油
- 5、自清
- 6、电子秤标定
- 7、工作罐重量

6.1—6.2 干燥过滤器的性能查看及更换




步骤	操作	操作说明	显示屏显示内容
1		<ol style="list-style-type: none"> 1、待机状态下，按“菜单”键进入系统整理程序 2、xx.xx kg 指干燥过滤器已过滤制冷剂的重量 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> FILTER XX.XX kg </div>
2		<p>按“△”键 查找更换干燥过滤器程序</p> <ol style="list-style-type: none"> 1. 如果在待机状态下显示：CHANGE FILTER时，表示干燥过滤器已失效，应当更换 2. 执行 4.4 设备自清程序 3. 打开机箱，更换新的干燥过滤器 4. 恢复机箱连接 5. 输入 3、3、3、3 6. 按“启动”键 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> CHANGE FILTER </div>
3		<ol style="list-style-type: none"> 1、按“停止”键进入待机状态 2、此时干燥过滤器进入下一使用周期 	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> WEIGHT XX.XX kg </div>

6.3—6.4 真空泵油工作时间的查看及真空泵油的更换

步骤	操作	操作说明	显示屏显示内容
1		待机状态下，按“菜单”键进入系统整理程序	FILTER XX.XX kg
2		按“△”键直到显示： OIL XXX MIN 指当前真空泵的累计工作时间	OIL XXX MIN
3		按“△”键 查找 更换真空泵油程序 1. 如果在待机状态下显示： CHANGE OIL 时，表示真空泵油已失效，应当更换 2. 排除真空泵中的泵油，更换新的真空泵油 3. 输入 4、4、4、4 4. 按“启动”键	CHANGE OIL
4		1、按“停止”键进入待机状态 2、此时真空泵进入下一使用周期	WEIGHT XX.XX kg

6.5—6.7 参数设定

步骤	操作	操作说明	显示屏显示内容
1		待机状态下，按“菜单”键进入系统整理程序	FILTER XX.XX kg
2		按“△”键直到显示： 出厂时已经设定，无需更改	CLEAR

3		按“△”键直到显示： 电子秤标定 出厂时已经标定，无需更改	CALIBRATE SCALE
4		按“△”键直到显示： 工作罐重量 出厂时已经标定，无需更改	TANK WEIGHT
5		按“停止”键返回待机状态	WEIGHT XX.XX kg

警告：

设备每使用三个月，就应进行检漏。检漏时关闭电源，打开机壳，然后用检漏仪仔细检漏。

6 技术参数:

型号:	ACM 100m
回收速度:	4.1g/S
抽真空速度:	2.0L/S
充注速度:	22g/S
电子称精度:	±10g
工作罐容量:	10kg
干燥过滤器处理	68kg
接口:	R-134a

附录：存档栏

设备的型号和序列号打印在设备的背板上，为方便设备日常维护和检修，您可以在以下空白处填好型号和序列号，同时将购买发票的复印件贴在下留的空白处。并将说明书作为永久记录保存，以备使用。

型号：_____ 序列号：_____

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