
AR100M

REFRIGERANT

RECOVERY&RECHARGING

SYSTEM

OPERATING MANUAL



AR100M can do 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 for recycling.**
- **To vacuum the AC system of vehicle by vacuum bump, to judge leaking 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 recharging the system.**
- **To accord with the environment safety standard and to reduce the cost of service, the AR100m system has recover and recycling function. Refrigerant 134a after recycling accord with the SAE standard.**

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1、GLOSSARY

SYSTEM --- Refrigerant recovery, recycling and recharging equipment

SOURCE TANK --- A disposable tank of new refrigerant used to refill the internal work tank

AC SYSTEM--- The air conditioning system being serviced

ELECTRONIC BALANCE --- Measuring the weight of the refrigerant

INTERNAL 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

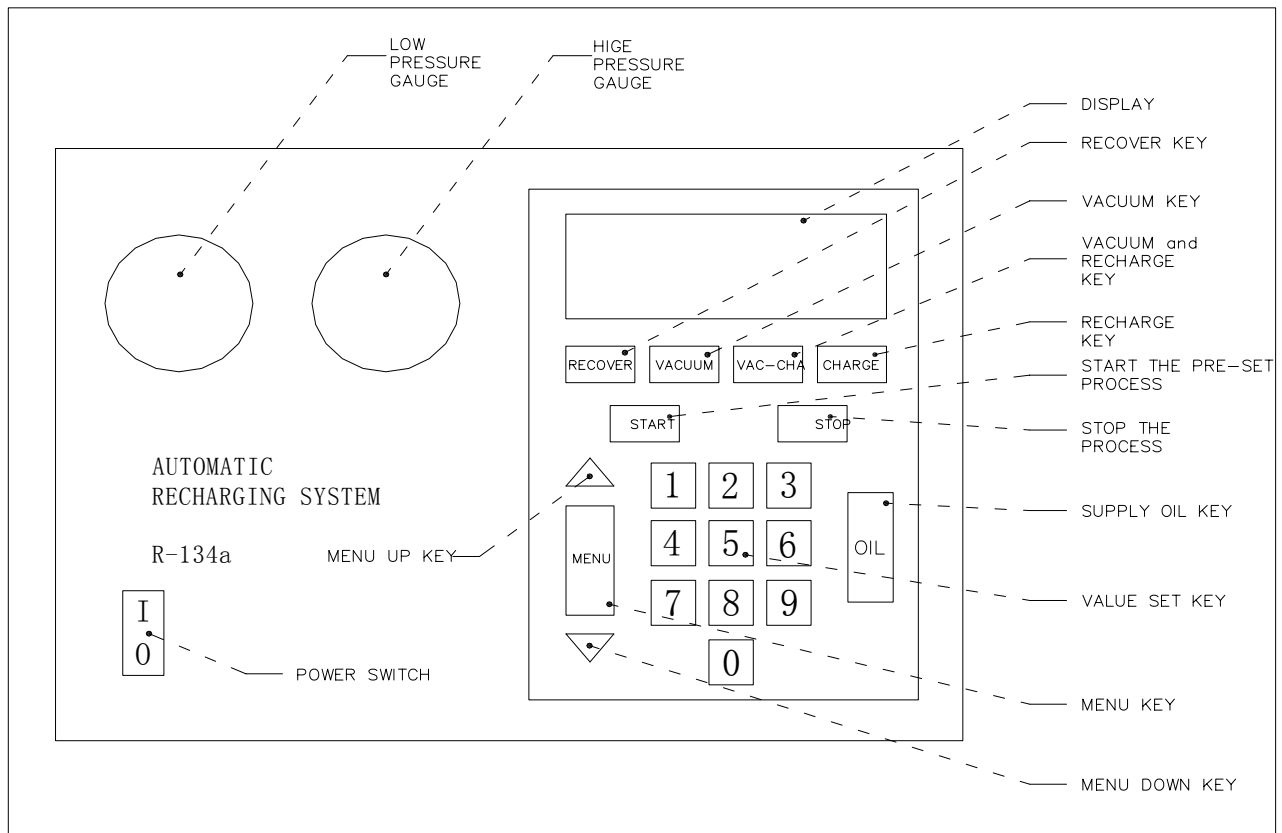








Diagram of the Control Panel

3、 SYSTEM INITIAL SETUP

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



- 1) To fill the vacuum oil (Done when manufactured)
- 2) To remove the 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 oil is added when manufactured, press START key to start directly)	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Welcome to Select KingMore Automatic Recharging System Version: 1.02</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>SYSTEM INITIATION VACUUM PUMP OIL ADDED THIS PROCESS WILL REMOVE ALL UNCONDENSIBLE GASES IN THE EQUIPMENT PRESS START TO BEGIN</p> </div>
2	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>START</p>  </div>	Press START key to begin initial setup	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>INITIATING PLEASE OBSERVE SIGHT GLASS ON THE VACUUM PUMP AND WAIT OIL SHOULD BE IN THE MIDDLE LINE</p> </div>
3	WAIT	Wait for 5 minutes. The system will automatically finish initiation	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>INITIATION COMPLETE WARNING: CONNECT LOW PRESSURE HOSE TO REFRIGERANT SOURCE TANK. OPEN SOURCE TANK VALVE. PUT SOURCE TANK UPSIDE DOWN. PRESS STOP TO EXIT. PRESS MENU TO ENTER FILLING PROCESS</p> </div>
4	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>STOP</p>  </div>	Press STOP key to exit process (now, the WORK TANK needs to be added with refrigerant)	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>REFRIGERANT WEIGHT 00.00 KG</p> </div>

5		<p>Press MENU key, connect low pressure hose to refrigerant source tank, open source tank valve and blue quick coupler, put source tank upside down.</p>	<p>1. ADDING REFRIGERANT TO WORK TANK PRESS START KEY TO BEGIN PRESS STOP KEY TO EXIT</p>
6		<p>Press START key, XX.XXkg represents the weight of the refrigerant that the work tank can contain.</p>	<p>REMAINING SPACE XX.XXKG CONNECT LOW PRESSURE HOSE TO SOURCE REFRIGERANT TANK OPEN SOURCE TANK VALVE INPUT WEIGHT</p>
7	<p>WAIT</p>	<p>After 2 seconds, the system displays: Use number keys to input weight adding to work tank, suggest 3-4 kg at the first time, for example: input 0300</p>	<p>INPUT WEIGHT XX.XX KG PRESS START KEY TO BEGIN</p>
8		<p>Press START key, now the system will automatically add refrigerant to work tank</p>	<p>REFRIGERANT WEIGHT XX.XX KG ADDING REFRIGERANT</p>
9	<p>WAIT</p>	<p>System will automatically stop adding refrigerant when set weight is reached. Close source tank valve, remove blue quick coupler.</p>	<p>REFRIGERANT WEIGHT XX.XX KG ADDING REFRIGERANT COMPLETE PRESS STOP TO EXIT</p>
10		<p>Press STOP key to return to waiting state</p>	<p>REFRIGERANT WEIGHT XX.XX KG</p>
11	<p>Now the initiation process has been totally completed. Recover refrigerant in high and low pressure hoses into work tank. Please refer to 4.1 for details.</p>		

4、 OPERATING

4.1 Recover refrigerant and oil drain

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1	Turn POWER SWITCH on	(Now the equipment enters into system self-checking state)	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Welcome to Select KingMore Automatic Recharging System Version: 1.02</p> </div>
2	WAIT	After 3 seconds, the system displays: Connect red, blue quick couplers to high and low pressure hoses of the automobile air conditioner and open	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>REFRIGERANT WEIGHT XX.XX KG</p> </div>
3	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> RECOVER </div> 	Press RECOVER key to enter recover process (Now you can wait till self-cleaning is complete, then automatically enter into recovery state, or press START again to enter into recovery state directly)	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>CLEANING IN PROGRESS PRESS START TO BEGIN RECOVERY</p> </div>
4	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> START </div> 	Press START key to begin recovery process.	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>RECOVERING RECOVERED XX.XX KG</p> </div>
5	WAIT	When the pressure in the automobile air conditioner is lower than 0 kpa, recovery process will stop automatically, and the display will show the recovered refrigerant weight, wait for 20 seconds.	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>RECOVERY COMPLETE RECOVERED XX.XX KG SYSTEM WILL DRAIN USED OIL IN REFRIGERANT PLEASE WAIT.....</p> </div>
6	WAIT	Oil draining takes 10 seconds, or if there is no oil draining out, press STOP to exit oil drain process.	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>DRAINING USED OIL IN REFRIGERANT PLEASE RECORD THE OIL LEVEL PRESS STOP TO EXIT</p> </div>

7	WAIT	Wait for 10 seconds or press STOP key	<div style="border: 1px solid black; padding: 5px; text-align: center;"> OIL DRAIN COMPLETE PRESS STOP TO EXIT </div>
8	<div style="border: 1px solid black; padding: 5px; text-align: center;"> STOP  </div>	Press STOP key to finish recovery and oil drain processes, and enter into waiting state.	<div style="border: 1px solid black; padding: 5px; text-align: center;"> REFRIGERANT 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:

**REPLACE THE FILTER-DRIER
REFRIGERANT WEIGHT
XX.XX KG**

Now filter-drier has been used out, and needs to be replaced, please refer to section 5.2-5.3. Otherwise the system will be damaged.

- 1) The self-cleaning procedure will recover the refrigerant in the service hose into the WORK TANK. This process will make the electronic balance weigh the recovered refrigerant accurately.
- 2) If the refrigerant remaining in the AC system is very little, and the program will display in the 3rd step:

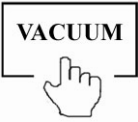

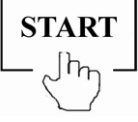


**LOW SYSTEM PRESSURE
PRESS START TO BEGIN
PRESS STOP TO EXIT**



OPERATE ACCORDING TO THE DISPLAY CONTENT!

Press START key: start recovery procedure, continue to recovery the little refrigerant in the AC system.

Press STOP key: exit recovery procedure, and enter into waiting state.

4.2 Vacuum the AC system and supply oil

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		Waiting state	REFRIGERANT WEIGHT XX.XX KG
2		Press VACUUM key to start the vacuum procedure. Now you can press number keys to set up the vacuum time needed, this set value will be the default value to enter this process for next time.	VACUUM TIME XX:XX PRESS START TO BEGIN OR INPUT NEW TIME
3		Press START key to begin the vacuum procedure.	VACUUMING VACUUM TIME XX:XX.
4	WAIT	Set time is over (Waiting time depends on the set time)	VACUUM COMPLETE PRESS START TO ADD OIL TO A/C SYSTEM PRESS STOP TO CHARGE
5		Press START key to start oil supply procedure.	PLEASE OBSERVE THE OIL LEVEL PRESS "IN OIL" TO ADD OIL PRESS STOP TO CHARGE
6		Press OIL key continuously to supply oil Check oil bottle	ADDING OIL TO A/C SYSTEM
7		Press STOP key to enter recharge process. Now you can use number keys to input recharge weight needed, this set value will be the default value to enter this procedure for next time.	CHARGE WEIGHT XX.XXKG PRESS START TO BEGIN OR INPUT NEW WEIGHT

8		Press START key to begin recharging	<div style="border: 1px solid black; padding: 5px; text-align: center;"> CHARGE IN PROGRESS CHARGED XX.XX KG </div>
9	WAIT	When set value is reached, the screen will display:	<div style="border: 1px solid black; padding: 5px; text-align: center;"> CHARGE COMPLETE CHARGED XX.XXKG PRESS STOP TO EXIT </div>
10		Press STOP key to enter into waiting state	<div style="border: 1px solid black; padding: 5px; text-align: center;"> REFRIGERANT WEIGHT XX.XX KG </div>

CAUTION:

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

**REFRIGERANT WEIGHT
XX.XX KG
REPLACE VACUUM PUMP OIL**

Now the vacuum pump oil needs to be replaced.

Please refer to the section “5.4-5.5”, if vacuum pump oil is not replaced for a long time, the vacuum pump will be damaged.

- 2) If the AC system pressure is higher than 50kpa(0.5kg), press **VACUUM** key, the system will display:

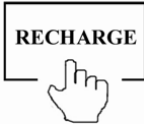
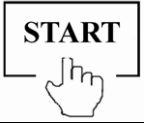

**HIGH SYSTEM PRESSURE
PLEASE RECOVER
PRESS STOP TO EXIT**

Now press **STOP** key to quit the vacuum procedure.

Then press **RECOVER** key to start recover procedure.

Refer to the section “4.1 Recover refrigerant and oil drain” for operation.

4.3 Recharge the AC system

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		Press CHARGE key to enter recharging procedure, use number keys to set the weight of the refrigerant needing to be recharged, the set value will be the default value to enter this procedure for next time.	CHARGE WEIGHT XX.XXKG. PRESS START TO BEGIN OR INPUT NEW WEIGHT
2		Press START key to start recharging	CHARGE IN PROGRESS CHARGED XX.XX KG
3	WAIT	The pre-set recharging weight has been reached	CHARGE COMPLETE CHARGED XX.XX KG PRESS STOP TO EXIT
4		Press STOP key to end the recharging procedure and to enter into waiting state. (Start AC system, check the high and low pressure gauges to see if the readings are normal, remove the high and low pressure quick couplers)	REFRIGERANT WEIGHT XX.XX KG

CAUTION:

If the system displays the following content when pressing “CHARGE” key:


**INSUFFICIENT REFRIGERANT
CHARGE CAN NOT BE COMPLETED
PLEASE ADD REFRIGERANT
PRESS STOP TO EXIT**

This content shows that the refrigerant in the **WORK TANK** is in shortage.

Press **STOP** key to quit recharging procedure and then press **MENU** key to start adding refrigerant to the **WORK TANK**. Please refer to section 5.1.

4.4 Complete vacuum-recharge at once





If the AC system can be confirmed that there is no leakage and no need to add oil, press VAC-CHA combination key to complete the vacuum and the recharge procedures at once by ignoring the other operations.

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		Waiting state	<div style="border: 1px solid black; padding: 5px; text-align: center;">REFRIGERANT WEIGHT XX.XX KG</div>
2	<div style="border: 1px solid black; padding: 5px; text-align: center;">VAC-CHA </div>	The model you have purchased does not have this function, if it is necessary, contact the manufacturer to upgrade your system.	<div style="border: 1px solid black; padding: 5px; text-align: center;">ACCESS DENIED</div>








5、 SYSTEM SETUP AND DAILY MAINTENANCE


- 1 . Add refrigerant to WORK TANK
- 2 . Capacity of filter-drier
- 3 . Replace filter-drier
4. Vacuum pump oil time
5. Replace vacuum pump oil
6. Cleaning and recycling
7. Language select
8. Cooling type setup
9. Parameter setup
10. Electronic balance calibration

5.1 Add refrigerant to WORK TANK

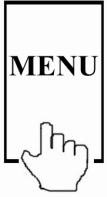





STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		Add refrigerant to the WORK TANK	<p>1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT</p>
2		Observe reminding XX.XX KG represents the refrigerant weight the WORK TANK can contain	<p>REMAINING SPACE XX.XXXKG CONNECT LOW PRESSURE HOSE TO SOURCE REFRIGERANT TANK OPEN SOURCE TANK VALVE INPUT WEIGHT</p>
3	WAIT	Use number keys to input refrigerant weight needing to be added (3-5kg refrigerant is suggested at the first time use, i.e. input 0300).	<p>INPUT WEIGHT 00.00KG PRESS START TO BEGIN</p>
4		Enter into refrigerant adding procedure	<p>REFRIGERANT WEIGHT XX.XX KG ADDING REFRIGERANT</p>
5	WAIT	When the pre-set value is reached, the screen will display:	<p>REFRIGERANT WEIGHT XX.XX KG ADDING REFRIGERANT COMPLETE PRESS STOP TO EXIT</p>
6		Enter into waiting state	<p>REFRIGERANT WEIGHT XX.XX KG</p>



5.2-5.3 Check the capacity of the filter-drier and its replacement

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter system organizing procedure.	1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT
2		Press “△” key to search	2. PRESS START TO CHECK THE FILTER-DRIER
3		Press START key to display the present accumulated weight the filter- drier has filtered	CAPACITY OF THE FILTER-DRIER FILTERED XX.XX KG PRESS STOP TO EXIT
4		Press STOP key	2. PRESS START TO CHECK THE FILTER-DRIER
5		Press “△” key	3. REPLACE FILTER-DRIER PRESS START TO BEGIN PRESS STOP TO EXIT
6		Press START key	REPLACE THE FILTER-DRIER CLEANING THE FILTER-DRIER PLEASE WAIT.....
7	WAIT	30 seconds	FILTER-DRIER CLEAN PLEASE REPLACE PRESS STOP TO EXIT
8		Press STOP key	3. REPLACE FILTER-DRIER PRESS START TO BEGIN PRESS STOP TO EXIT




9		<p>The counter has been zeroed Please install new filter-drier Turn the power switch off</p>	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>REFRIGERANT WEIGHT XX.XX KG</p> </div>
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5.4-5.5 Vacuum time and vacuum oil replacement

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter the system organizing program.	<div style="border: 1px solid black; padding: 5px;"> <p>1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT</p> </div>
2		Press “△” key till the system displays:	<div style="border: 1px solid black; padding: 5px;"> <p>4. PRESS START TO CHECK THE VACUUM PUMP OIL TIME</p> </div>
3		Press START key to display the present accumulated vacuum pump running time	<div style="border: 1px solid black; padding: 5px;"> <p>VACUUM OIL TIME OIL TIME XXX PRESS STOP TO EXIT</p> </div>
4		Press STOP key to exit checking	<div style="border: 1px solid black; padding: 5px;"> <p>4. PRESS START TO CHECK THE VACUUM PUMP OIL TIME</p> </div>
5		Press “△” key to display	<div style="border: 1px solid black; padding: 5px;"> <p>5. REPLACE VACUUM PUMP OIL PRESS START TO BEGIN PRESS STOP TO EXIT</p> </div>
6		Press START key	<div style="border: 1px solid black; padding: 5px;"> <p>REPLACE VACUUM PUMP OIL PRE-HEATING VACUUM PUMP OIL PLEASE WAIT.....</p> </div>
7	WAIT	Pre-heat 60 seconds	<div style="border: 1px solid black; padding: 5px;"> <p>VACUUM PUMP OIL PRE-HEATED PLEASE REPLACE PRESS STOP TO EXIT</p> </div>




8		Press STOP key	5. REPLACE VACUUM PUMP OIL PRESS START TO BEGIN PRESS STOP TO EXIT
9		The counter has been zeroed	REFRIGERANT WEIGHT XX.XX KG
10	Replace vacuum pump oil	(1) Open the oil replacement cover on the left side of the system (2) Remove the filling cap and the drain cap. Drain out the old oil (3) Retighten the drain cap (4) Fill new vacuum oil into the vacuum pump, up to the middle level (5) Retighten the filling cap	

5.6 Cleaning and recycling



STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter the system organizing procedure.	1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT
2		Press “△” key till the system displays: (Used to clean and recycle the refrigerant in the work tank)	6. CLEANING AND RECYCLING PRESS START TO BEGIN PRESS STOP TO EXIT
3		Press START key to begin the recycling of the refrigerant in the work tank	CLEANING AND RECYCLING SYSTEM CLEANING AND RECYCLING PLEASE WAIT.....
4	WAIT	Cleaning and recycling complete after 10 minutes	CLEANING AND RECYCLING COMPLETE PRESS STOP TO EXIT





5		Press STOP key	6. CLEANING AND RECYCLING PRESS START TO BEGIN PRESS STOP TO EXIT
6		Press STOP key to quit the cleaning and recycling procedure and to enter into the waiting state	REFRIGERANT WEIGHT XX.XX KG

5.7 Language select




STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter the system organizing procedure.	1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT
2		Press “△” key till the system displays:	7. LANGUAGE SELECT PRESS START TO BEGIN PRESS STOP TO EXIT
3		Press START key to set up, this model only provides English, if you need other languages, please contact the manufacturer.	ENGLISH PRESS STOP TO EXIT



5.8 Cooling type setup

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter the system organizing procedure.	1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT
2		Press “△” key till the system displays:	8. COOLING TYPE SETUP PRESS START TO BEGIN PRESS STOP TO EXIT





3		Press START key	<div style="border: 1px solid black; padding: 5px;"> <p>COOLING TYPE SETUP SUMMER SPRING AND AUTUMN WINTER PRESS START TO CONFIRM</p> </div>
4		Press “△” key to select summer, spring and autumn, winter.	<div style="border: 1px solid black; padding: 5px;"> <p>COOLING TYPE SETUP SUMMER SPRING AND AUTUMN WINTER PRESS START TO CONFIRM</p> </div>
5		Press START key	<div style="border: 1px solid black; padding: 5px;"> <p>8. COOLING TYPE SETUP PRESS START TO BEGIN PRESS STOP TO EXIT</p> </div>
6		Press STOP key The fan will work according to the chosen mode	<div style="border: 1px solid black; padding: 5px;"> <p>REFRIGERANT WEIGHT XX.XX KG</p> </div>

5.9 Parameter setup

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter the system organizing procedure.	<div style="border: 1px solid black; padding: 5px;"> <p>1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT</p> </div>
2		Press “△”key till the system displays:	<div style="border: 1px solid black; padding: 5px;"> <p>9. PARAMETER SETUP PRESS START TO BEGIN PRESS STOP TO EXIT</p> </div>
3		Press START key This function is not open to customers (Need to input password)	<div style="border: 1px solid black; padding: 5px;"> <p>INPUT PASSWORD</p> </div>

4		Press STOP key to exit	9. PARAMETER SETUP PRESS START TO BEGIN PRESS STOP TO EXIT
5		Press STOP key to return to the waiting state	REFRIGERANT WEIGHT XX.XX KG

5.10 Electronic balance calibration

STEP	OPERATE	OPERATING DESCRIPTION	DISPLAY CONTENT
1		At waiting state, press MENU key to enter the system organizing procedure	1. ADDING REFRIGERANT TO WORK TANK PRESS START TO BEGIN PRESS STOP TO EXIT
2		Press “△” key till the system displays: Warning: wrong calibration will cause serious result, this function will not be open to customers.	10. ELECTRONIC SCALE CALIBRATION PRESS START TO BEGIN PRESS STOP TO EXIT
3		Press START key	INPUT PASSWORD
4		Press STOP key to exit Balance has been calibrated when manufactured	REFRIGERANT WEIGHT XX.XX KG

Warning:

The system should be checked for leakage every three months .When checking, please turn the power switch off and open the system cover, then check the system with refrigerant leakage detector.

6、 SPECIFICATIONS

Model: AR100m

Recover rate: 5g/S

Recycle rate: 6g/S

Vacuum speed: 2.0L/S

Charge rate: 26g/S

Electronic balance sensitivity : ± 10 g

Work tank capability : 10kg

Capacity of filter-drier: 68kg R-134a

Out port type : R-134a