

**NOTE:**

- 1) Carefully read the user manual before using, and keep it well for future reference.
- 2) Carefully check the device parts list before using. For any doubt, contact SmartSafe distributor immediately.
- 3) Due to the product upgrade, tiny difference between the user manual and the device will not be further noticed. Take the device as standard.

Copyright reserved! Without written agreement from SmartSafe Tech Co., Ltd (Hereinafter refer to "SmartSafe"), any company or person is not allowed to copy and duplicate this user manual in any format (electronic, mechanical, video, record or other formats). The user manual is designed only for SmartSafe products. Any consequence caused by using the user manual to guide other device operation is not under the responsibility of SmartSafe.

SmartSafe and its branches are not responsible for the fees and expense of the device damage and loss due to private accident or from third party, misuse and abuse of the device, unauthorized change and repair, or any operation and maintenance not following SmartSafe standard.

SmartSafe is not responsible for device damage or problem due to the usage of any optional parts or consumables instead of SmartSafe original products or SmartSafe recognized products.

Declaration: Other product names mentioned in the user manual are aimed to describe the device usage. The registered trademarks still belong to the original company.

The device is for professional technicians or maintenance and repair personnel.

**Registered Trademark**

SmartSafe has registered its trademark in China and several other countries, logo is . Other SmartSafe trademarks, service marks,

dot names, Icons, company names mentioned in the user manual all belong to SmartSafe and its subsidiaries. In those countries where SmartSafe trademark, service mark, dot name, icon, company name not registered yet, SmartSafe declaim the right for its unregistered trademark, service mark, dot name, icon, and company name. Trademarks of the other products and company names mentioned in the user manual still belong to original registered company. Without written agreement from the owner, no person is allowed to use the trademark, service mark, dot name, icon and company name of SmartSafe or of other mentioned companies. You can visit <http://www.news-smartsafe.com> or write to Customer Service Center of SHENZHEN SMARTSAFE TECH. CO., LTD. at 3310, Building 11, Tianan Cloud Park, Bantian Street, Longgang District, Shenzhen, Guangdong, China, to get contact with SmartSafe for the written agreement on the usage of the User Manual.

## SAFETY

The following safety information is provided as guidelines to help you operate the equipment under the safest possible conditions. Any equipment that uses chemicals can be potentially dangerous to use when safety or safe handling instructions are not known or not followed. The following safety instructions are to provide the user with the information necessary for safe use and operation. Please read and retain these instructions for the continued safe use of your service system.

- A. The machine is designed to be used and repaired by qualified and trained personnel only.
- B. Pay attention to the refrigerant type (R134a or R1234yf) for the machine is designed to be used, do not use the wrong refrigerant.
- C. Fill the A/C system with the quantity of refrigerant recommended by the manufacturer.
- D. Check the vehicle user manual for the type of refrigerant. Do not mix different type of refrigerant otherwise it'll easily lead to malfunction of the machine.
- E. Keep away from moving parts and rotating elements such as cooling fans, alternators and heating components, etc to avoid harm.
- F. Wear protective clothing gloves and goggles.
- G. Avoid breathing A/C refrigerant and lubricant vapor mist.
- H. As automotive air conditioning pipe flushing, the operator must be fully familiar with automotive air conditioning system and operation of the machine. Check whenever the engine is turned off that the ignition key is turned to the full OFF position!
- I. Do not expose the machine to direct sunlight or rain. Use only in well-ventilated work areas.
- J. Never exceed 30 ° tilt in transit process upside down is strictly prohibited.
- K. Do not touch the machine high voltage power supply section, and do not maintain the machine as power on.
- L. Care of the manual.
- M. We reserve the right to modify the contents of this document without prior notice to customers.

# CONTENTS

<b>1. Introduction .....</b>	<b>1</b>
<b>1.1 Outline .....</b>	<b>1</b>
<b>1.2 Features .....</b>	<b>1</b>
<b>1.3 Specifications .....</b>	<b>1</b>
<b>1.4 Parts Introduction .....</b>	<b>2</b>
<b>1.5 Circuit Diagram .....</b>	<b>2</b>
<b>2. Preparations Before Operation .....</b>	<b>2</b>
<b>3. Home page .....</b>	<b>3</b>
<b>4. Recharge main tank refrigerant .....</b>	<b>4</b>
<b>5. Operation .....</b>	<b>5</b>
<b>5.1 Automatic Mode .....</b>	<b>6</b>
<b>5.2 Manual Mode .....</b>	<b>7</b>
<b>5.2.1 Wash .....</b>	<b>7</b>
<b>5.2.2 Recovery .....</b>	<b>8</b>
<b>5.2.3 Vacuum .....</b>	<b>9</b>
<b>5.2.4 New Oil .....</b>	<b>10</b>
<b>5.2.5 Refrigerant .....</b>	<b>11</b>
<b>6. Settings .....</b>	<b>12</b>
<b>6.1.1 Maintenance .....</b>	<b>12</b>
<b>6.1.2 Database .....</b>	<b>16</b>
<b>6.1.3 WIFI .....</b>	<b>17</b>
<b>6.1.4 Language .....</b>	<b>17</b>
<b>6.1.5 Device .....</b>	<b>18</b>
<b>6.1.6 User Manual .....</b>	<b>19</b>
<b>6.1.7 Brightness .....</b>	<b>19</b>
<b>6.1.8 Date and Time .....</b>	<b>20</b>
<b>6.1.9 Upgrade Center .....</b>	<b>20</b>



# 1. Introduction

## 1.1 Outline

A/C system maintenance equipment is with the latest design technique which uses the best control principle and the manufacturing process.

A/C System Maintenance Centre is intelligent equipment collecting of the A/C Wash, Recovery, Vacuum, Recharging and other functions in one. It's with the beautiful shape, humanized operation interface, and advanced manufacturing processes to make the A/C maintenance professional and simple.

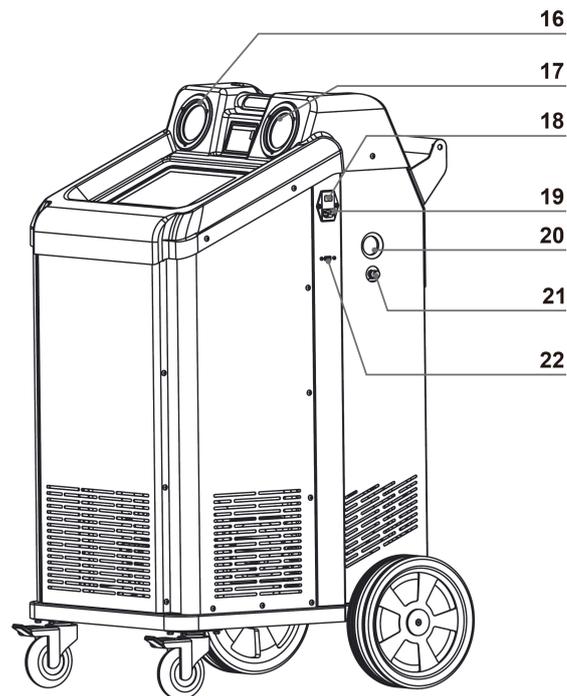
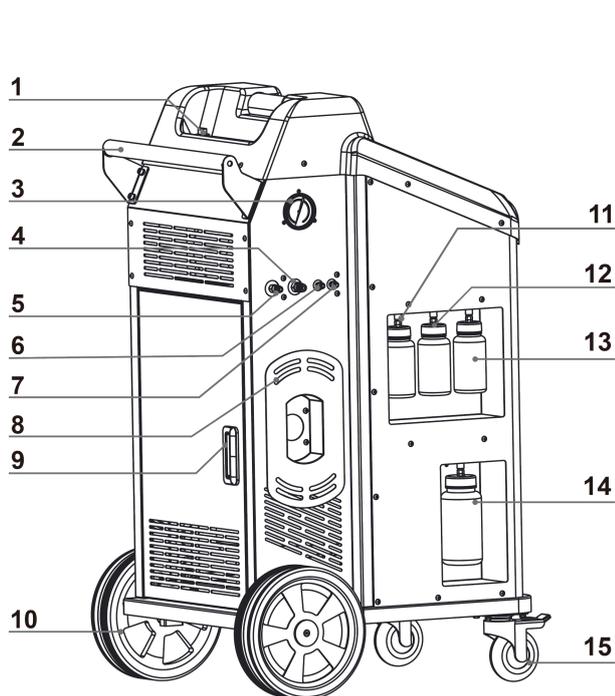
## 1.2 Features

- A Fully automatic, easy to operate.
- B Internal pipeline of A/C system Wash, effectively cleared the internal greasy and fouling, to restore the A/C system performance.
- C With forward flushing and reverse flushing functions, which greatly improve the cleaning effect.
- D Vertically installing the HP & LP gauges let the operator be able to observe the pressure parameters timely even in the car.
- E Unique design of the pipeline to achieve the high recycling rate no matter with the gas or the liquid.
- F Easy to operate with the concise operating interface.
- G Designed with large size LCD.
- H Built in database for easy maintenance and calling.
- I Program and database can be updated.
- J With printer.

## 1.3 Specifications

- A Working conditions:
  - Ambient temperature: 10~50°C
  - Relative humidity: <85%
- B Voltage input: AC220V ~50/60Hz      AC110V ~50/60Hz    (According to the equipment nameplate)
- C Compressor power: 1/2HP
- D Vacuum pumping capability: 128L/min for 50Hz, 142L/min for 60Hz
- E Electronic scale accuracy: ±10g
- F Main tank: 22kg
- G Filter processing capability: 120kg
- H UV dye bottle: 250ml
- I PAG oil bottle: 250ml
- J POE oil bottle: 250ml
- K Used oil bottle: 500ml
- L LCD display: 10.1-inch touch screen, 1280\*800

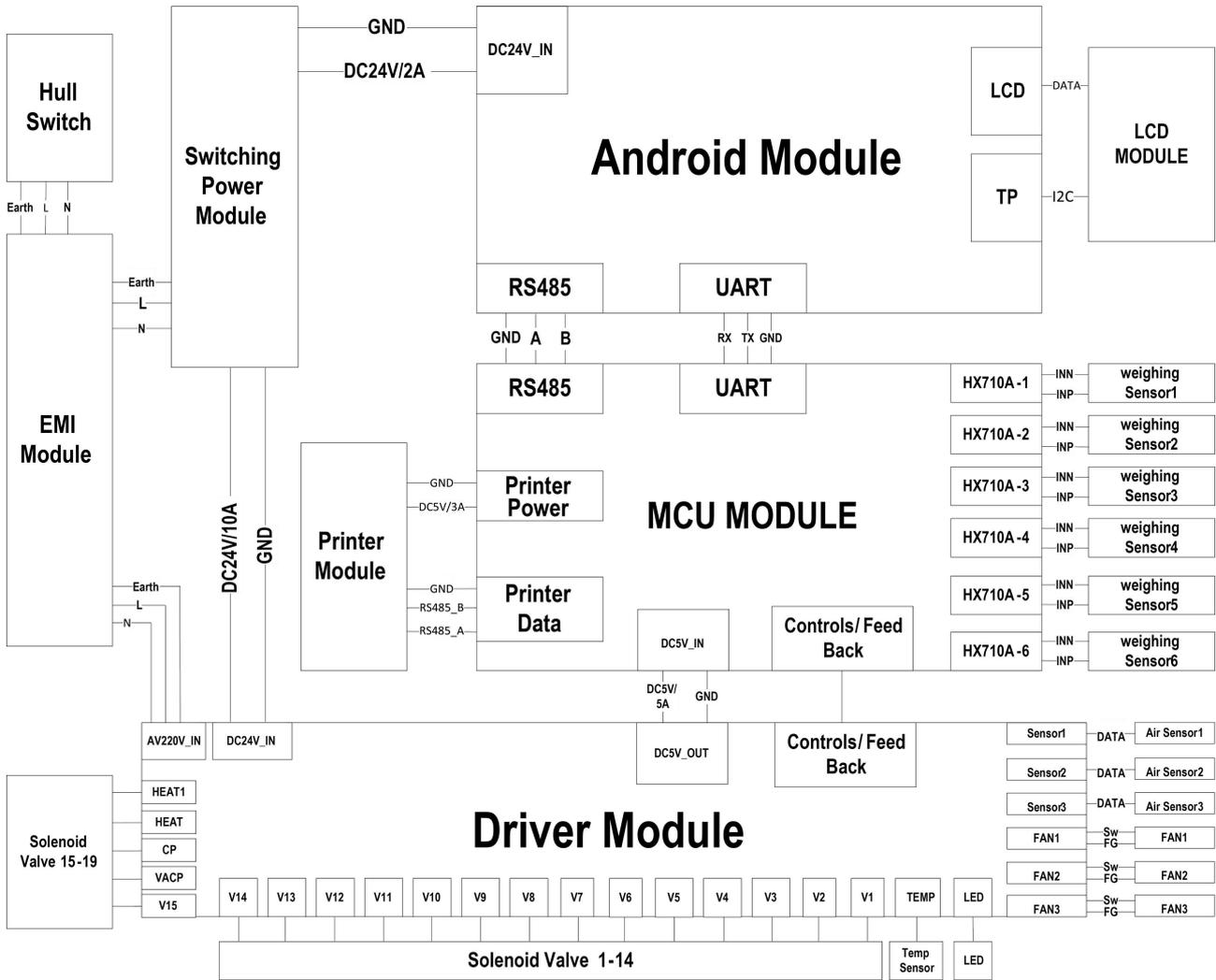
### 1.4 Parts Introduction



- 1 . Vacuum pump oil fill port
- 2 . Handle
- 3 . TP gauge
- 4 . HP port
- 5 . LP port
- 6 . LP tube storage port
- 7 . HP tube storage port
- 8 . Hose rack
- 9 . Rear door handle
- 10 . Rear wheel
- 11 . UV DYE bottle

- 12 . POE oil bottle
- 13 . PAG oil bottle
- 14 . Used oil bottle
- 15 . Front universal wheel
- 16 . HP gauge
- 17 . LP gauge
- 18 . Power switch
- 19 . Power interface
- 20 . Vacuum pump oil tank observation window
- 21 . Oil extraction tap of vacuum pump
- 22 . USB port

## 1.5 Circuit Diagram



## 2. Preparations Before Operation

- A Connect the high/low pressure refrigerant pipes of the equipment to the high/low pressure valve interfaces of the car air conditioning system, and unscrew the high and low pressure joints for conduction. Start the car, turn on the air conditioning, and idle for about 5 minutes.
- B Check if the high and low pressure of the car air conditioner are normal, and check if there is any abnormal noise when the compressor is working. If there is any abnormality, it must be repaired first.
- C Turn off the air conditioning and turn off the engine.
- D Empty the waste oil from the old oil bottle of the equipment. Power on the device and prepare for work.

### 3. Home page

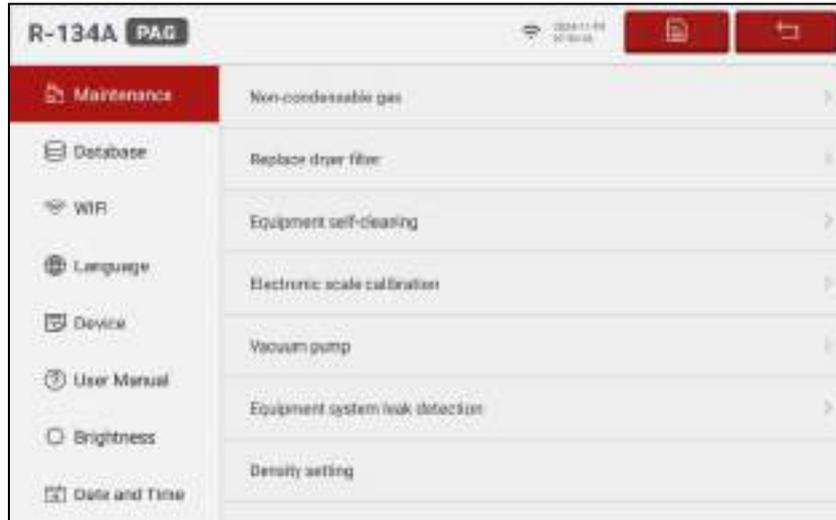
Press the power switch to power on the equipment, the equipment will be turned on and will enter to the home page as below.



- ① The type of refrigerant used by this equipment will be displayed here, please confirm not to use the wrong refrigerant.
- ② The WIFI icon (connected to a wireless network), time and date information will be displayed here, and can be set through the **Chapter 6 Settings** function.
- ③ Click  button to enter to the equipment status page, here the user can check the equipment information including HP/LP/TP value, tank capacity, recovery capacity, PAG/POE/UV oil capacity and used oil capacity. Click **Recharge** button can add refrigerant for the main tank, operation steps will be detailed in **Chapter 4 Recharge main tank refrigerant**.



- ④ Click  button to enter to the settings function interface, operation steps will be detailed in **Chapter 6 Settings**.

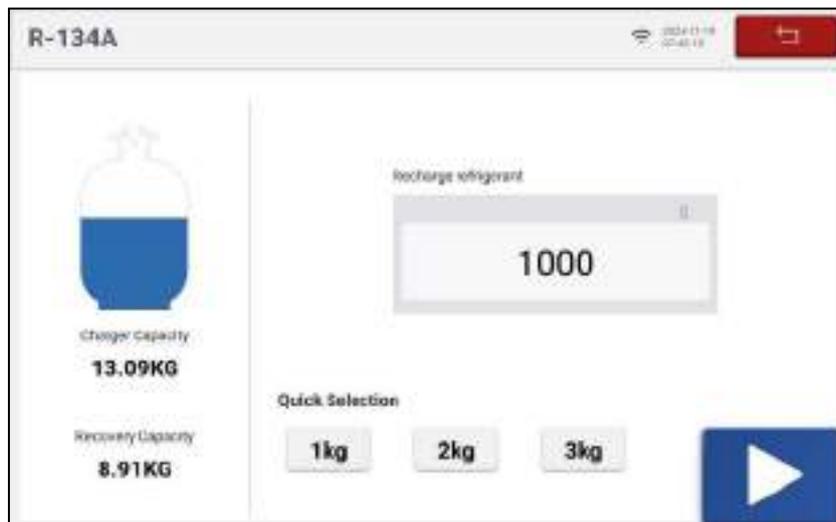


- ⑤ There are two kinds of refrigerant oil (PAG / POE) could be used for the equipment, please select the appropriate type of refrigerant oil based on the vehicle model.

#### 4. Recharge main tank refrigerant

Click button to enter to the equipment status page and then click **Recharge** button to enter to the Recharge refrigerant page as below.

**Note: This operation must be performed whenever the available refrigerant in the main tank is less than 4 KG and the "Insufficient refrigerant in main tank!" alarm is displayed..**



A The charger capacity and recovery capacity for main tank refrigerant will be displayed on the screen, if charger capacity is less than 4 KG, the Wash function can't run any more until supply enough refrigerant into the machine.

B There are two methods to supply the refrigerant.

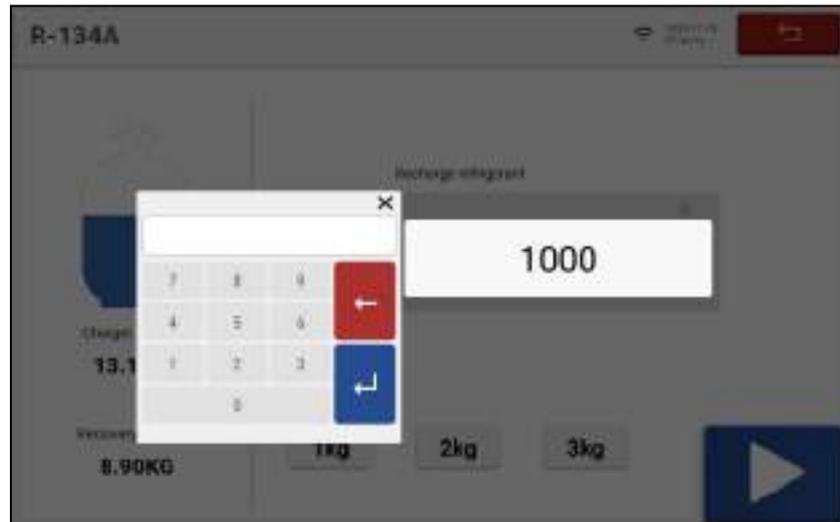
**Method 1:**

M1-1: Connect the port of fresh refrigerant tank to the LP port of equipment.

**Note: it should be connected to the liquid port of fresh refrigerant tank. If there's no liquid port, please place the fresh refrigerant tank upside down.**

M1-2: Block the HP port of equipment with a cap.

M1-3: Set supply amount through quick selection or keypad input.



**Note: Setting the amount based on the recovery capacity in the tank.**

M1-4: Press  button to start the recharging.

M1-5: When receiving the system alarm prompt, please close the valve of the refrigerant tank according to the requirements until it completes automatically.

#### Method 2:



Use the supplying connector

M2-1: Fitting the supplying connector to the port of fresh refrigerant tank.

**Note: It should be connected to the liquid port of fresh refrigerant tank. If there's no liquid port, please place the fresh refrigerant tank upside down.**

M2-2: Connect the HP (or LP) coupler to the supplying connector.

M2-3: Select the **Recovery** function and run it.

M2-4: When you see the total amount more than 4kg, close the valve of the refrigerant tank and until finished automatically.

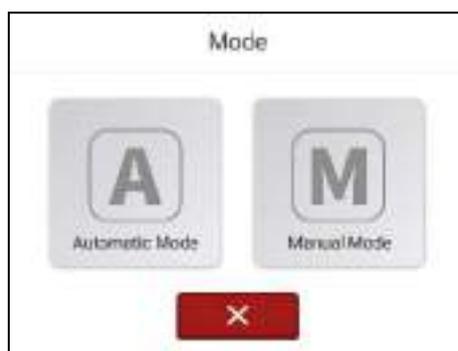
**Note: Main tank is installed in the machine which is used for the Wash, Recovery, Recharge functions.**

## 5. Operation

A On the home page, please select the appropriate type of refrigerant oil (PAG / POE) based on the vehicle model.

**Note: If the system detects that the type of refrigerant oil selected this time is different from the type of refrigerant oil used last time, then it will be required to perform the pipe cleaning.**

B After selected the type of refrigerant, it will pop out the **MODE selection** window on the screen, user can choose **Automatic Mode** or **Manual Mode** as needed, as shown in the following figure:



### 5.1 Automatic Mode

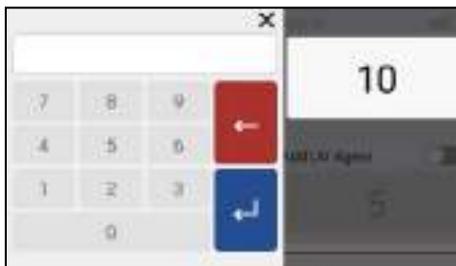
Under automatic mode, all the operations are performed automatically including cleaning, evacuation, recharge oil and recharge refrigerant.

**Note: Please make sure to completely drain the oil from the used oil bottle and fill the new bottle with enough new oil before running this function.**

After selecting the **Automatic Mode**, it will enter to the parameter settings page, as shown in the following figure.



Click the numerical display area of each parameter, and then use the keypad to modify the parameter.



There are three options for **Recharge Oil**: **Automatic**, **Custom** and **Manual**.

When **Automatic** is selected, the capacity of recharge oil is automatically set by the system and cannot be modified.

When **Custom** is selected, the user can customize the capacity of recharge oil.

When **Manual** is selected, there is no need to set the recharge oil capacity, and the user will manually click the **Press and Hold** button to drain the oil during the **Recharge Oil** phase.



After setting the parameter, click  button to run automatic procedure.

When the automatic procedure is completed, an A/C maintenance report will be generated. Press  button to modify the customer information, press  button to print the report.

**A/C Maintenance Report** 

**Service Company Info**

Name: abc  
 Phone: \*\*\* Time: 2024-11-19 07:26  
 Address: \*\*\*\*

**Customer Info**

Name: andy Phone: \*\*\*

Cleaning duration: 1min  
 Evacuation duration: 5min  
 Leak detection duration: 0min  
 Leak detection result:  
 Discharge old oil: 5ml  
 Charge new oil: 5ml  
 Charge UV: 0ml  
 Charge refrigerant: 10g





## 5.2 Manual Mode

Under manual mode, all the operations can be performed individually with the exception of the recovery phase, which is automatically followed by used oil discharge.



### 5.2.1 Wash

- A By this function, it will be able to clean out the refrigerant oil and oil sludge to exchange the refrigerant entirely to improve the performance of compressor. And also it will recover the refrigerant remained in the A/C system.
- B Before flushing the pipeline of automotive A/C system, please turn on A/C system and run it for 5 to 10 minutes. And set it as the lowest temperature and medium wind.
- C Turn off the automotive air conditioning.

**Warning: Do not start the air conditioning during the flushing process! Otherwise, it easily causes damages to the air-conditioning and risk of accident!**

- D In order to achieve good flushing performance, it is generally recommended to clean air conditioners with only front exhaust vents at least once, and air conditioners with rear exhaust vents at least twice. The more and longer the cleaning times, the better the cleaning effect.

**Note: The flushing takes about 30 minutes. This time does not include the time spent in the recycling process before and after the cleaning process.**

E Operations:

E-1: Select the **Wash** Function.

E-2: Set the cleaning duration.

E-3: Press  button to start.



F When finished, it'll stop automatically and an A/C maintenance report will be generated.



**Notice: it's normal for that there are action sound of the solenoid valve during the working process. Please do not stop it. The used oil can be drained out automatically.**

**Warning: If there is a sudden power outage or unexpected termination during the cleaning process, please perform the Wash function again and do not operate other functions.**

## 5.2.2 Recovery

A By this function, it will recover the refrigerant remained in the A/C system.

B Operations:

B-1: Select the **Recovery** Function.

B-2: Set inspection duration.

B-3: Press  button to start.



B-4: After Recovery over, it'll drain the used oil automatically.

C When finished, it'll stop automatically.

### 5.2.3 Vacuum

A By this function, it will clean the water vapor out from the A/C system.

B It should be more than 15 minutes. Generally, it needs 15 minutes at least for the air conditioning only with front wind and 20 minutes for with the front and rear wind.

C Operations:

C-1: Select the **Vacuum** Function.

C-2: Set the evacuation duration and leak detection time.

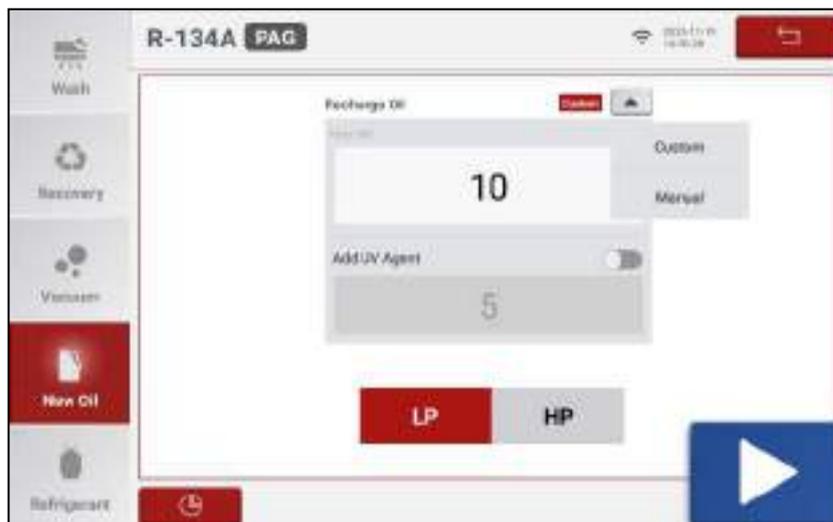
C-3: Press  button to start.



D When finished, it'll stop automatically and an A/C maintenance report will be generated.

### 5.2.4 New Oil

- A By this function, it will add an appropriate amount of refrigerant oil to the car A/C system to maintain A/C performance.  
**Warning: please do not press the switch of the new oil bottle anytime when the automotive air conditioning system is not in vacuum state, otherwise it have the risk of explosive bottles!**
- B Pour new oil into the new oil bottle.  
**Note: Add new oil more 20ml than the used oil drained out to avoid the air into the air conditioning system.**
- C Operations:
- C-1: Select the **New Oil** Function.
- C-2: Set capacity for recharge oil and UV dye.
- C-3: Select recharge options, **Custom** or **Manual**. When **Custom** is selected, the user can customize the capacity of recharge oil. When **Manual** is selected, there is no need to set the recharge oil capacity, and the user will manually click the **Press and Hold** button to drain the oil.
- C-4: Press  button to start.

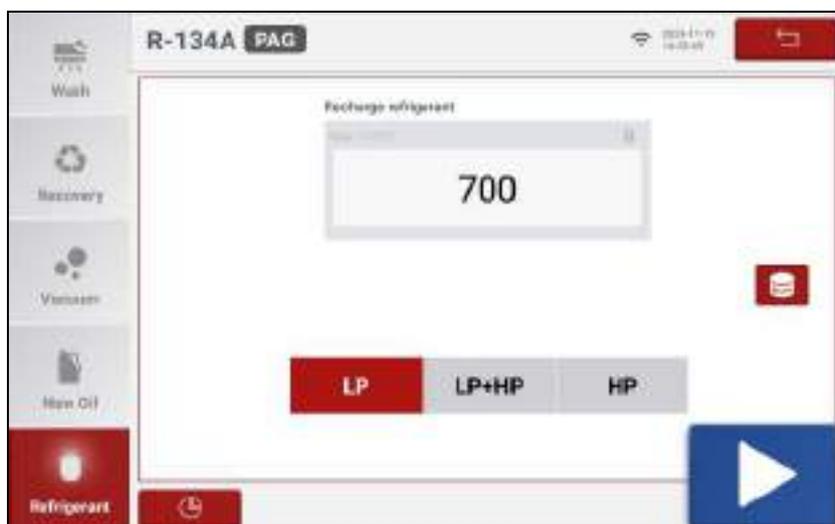


- D When finished, it'll stop automatically and an A/C maintenance report will be generated.



### 5.2.5 Refrigerant

- A Select the **Refrigerant** Function.
- B Set the recharge amount for refrigerant.
- C Press  button to start.



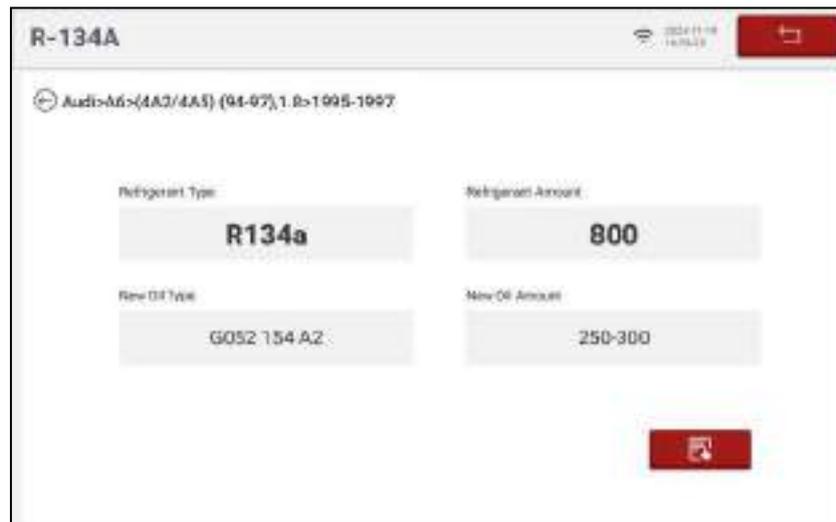
- D When finished, it'll stop automatically and an A/C maintenance report will be generated.



**Note: The refrigerant recharging amount setting as following:**

Method 1: Set the amount directly.

Method 2: Press  button to enter to the database. Select the brand and model for the vehicle to be tested according to the on-screen prompts, then the refrigerant related information of the vehicle A/C system will be provided.

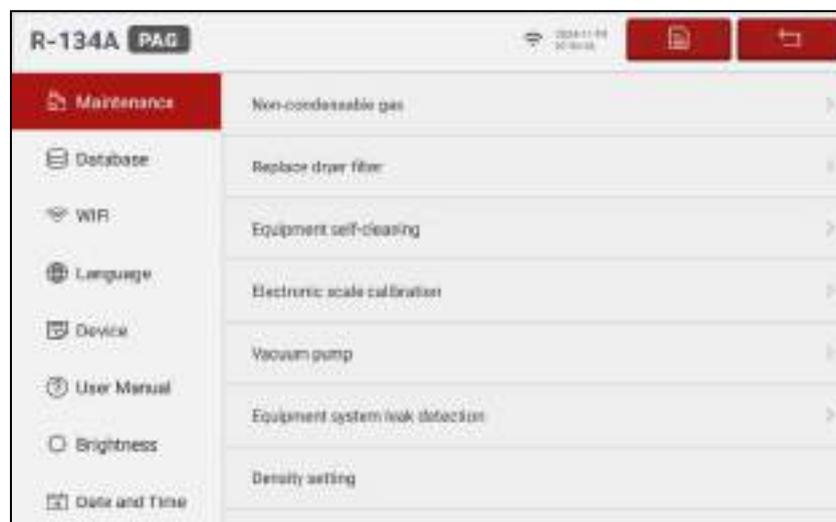


## 6. Settings

Click the  button in the upper right corner of the home page to enter the settings function interface.

### 6.1.1 Maintenance

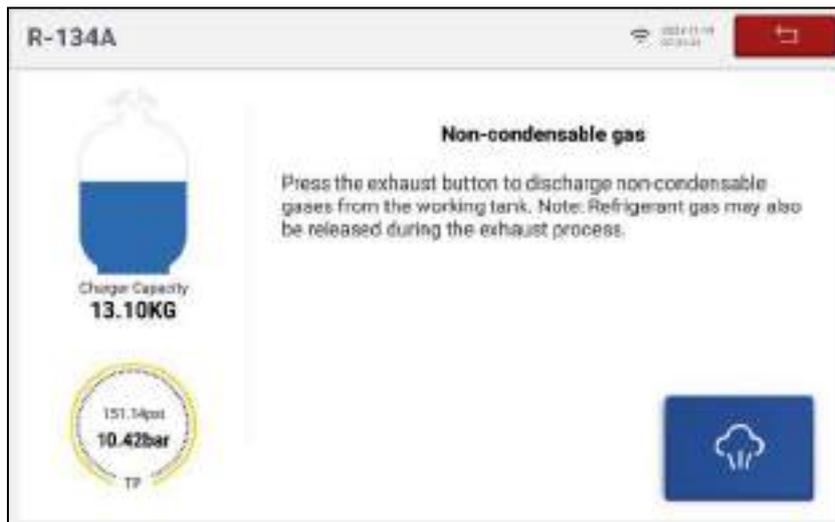
After entering the settings interface, the initialized setting option is for Maintenance, including **Non-condensable gas**, **Replace dryer filter**, **Equipment self-cleaning**, **Electronic scale calibration**, **Vacuum pump**, **Equipment system leak detection** and **Density setting**.



#### 6.1.1.1 Non-condensable gas

Select the **Non-condensable gas** option and press  button to discharge non-condensable gases from the working tank.

**Note: Refrigerant gas may also be released during the exhaust process.**



**6.1.1.2 Replace dryer filter**

When the dryer filter reaches its life time, the equipment will give prompt message. Please replace the dryer filter right now. If not replace the dryer filter timely, it will not be able to run the recovery, flushing and supplying functions.

Operations:

- A Select **Replace dryer filter** option, it will pop out the message window as below, press ✓ button to the next step.



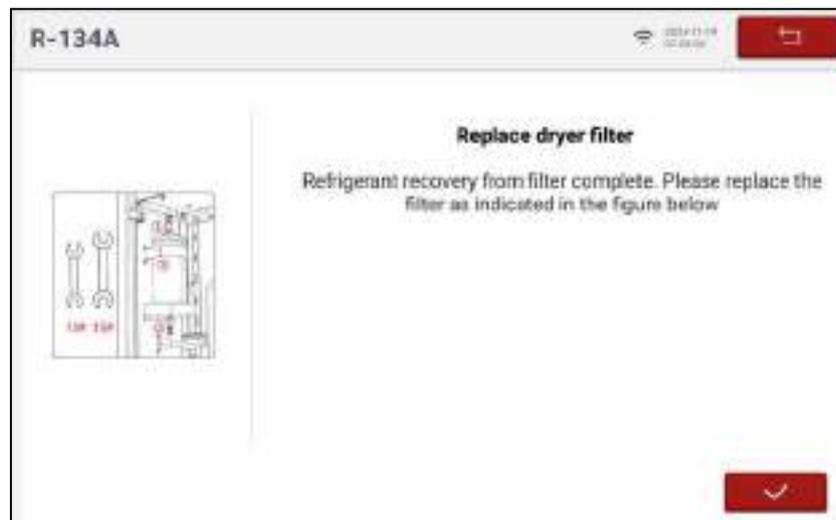
- B Recovering refrigerant from the filter.

**Warning: An accidental leakage of refrigerant may cause serious damage to skin and eyes. Please wear protective gloves and goggles.**

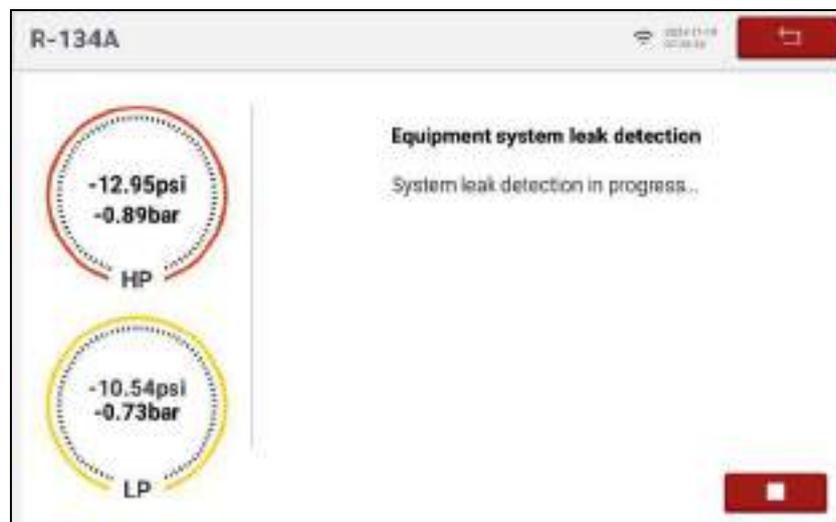


C Replace the filter according to the on-screen instructions.

**Note: Please attention the mounting direction of the dryer filter.**



D After replacing the filter, the equipment will perform the system leak detection automatically.



### 6.1.1.3 Equipment self-cleaning

After using for a period of time, such as two months, this function should be run. It can clean up the pipe line of the equipment.

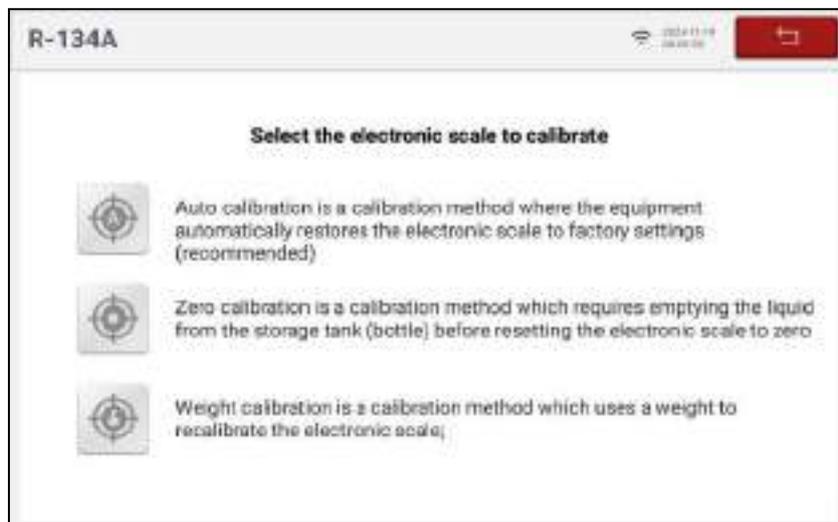
- A Select the **Equipment self-cleaning** option, it will pop out the prompt message to connect the HP and LP tubes.
- B Connect red HP tube and blue LP tubes into one pipe with two-way connector as the on screen instructions, and then press ✓ button to run the **Equipment self-cleaning** function.



#### 6.1.1.4 Electronic scale calibration

When the load cell is not precise, it needs to be calibrated.

- A Select the **Electronic scale calibration** option, a verification code is needed to run this function. Please contact our company's after-sales department to obtain the verification code.
- B There are three methods to calibrate the electronic scale: Auto calibration, Zero calibration and Weight calibration. Please choose one method and perform the calibration according to the on-screen instructions step by step.



#### 6.1.1.5 Vacuum pump

When the vacuum pump oil becomes creamy or the equipment displays corresponding maintenance information, the vacuum pump oil must be replaced. If the vacuum pump oil is not replaced in time, the vacuum pump is easily damaged.

Operation steps:

- A Unscrew the cap of vacuum pump oil fill port.
- B Observe the oil level through the observation window, and fill the new oil slowly into the vacuum pump until the oil level reach at the center site.

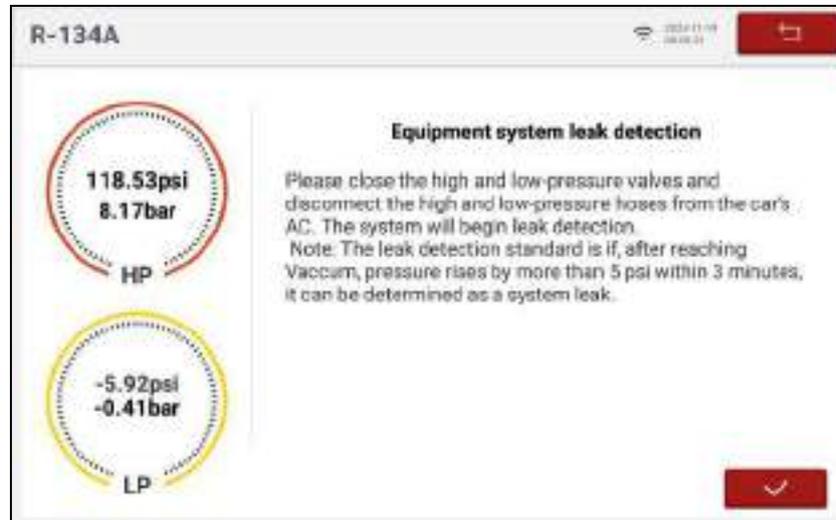
**Note: The new vacuum pump oil cannot be filled too much into the vacuum pump otherwise it will spray out when working.**

- C Re-back the cap to the fill port.

### 6.1.1.6 Equipment system leak detection

This function is used to detect leakage in the vehicle's air conditioning pipelines. Please follow the steps as below:

- A Select **Equipment system leak detection** option.
- B Follow the the on-screen instructions to close the high pressure valve and low pressure valve, and disconnect the high and low pressure hoses from the vehicle's A/C, and then press **✓** button to start the leak detection.

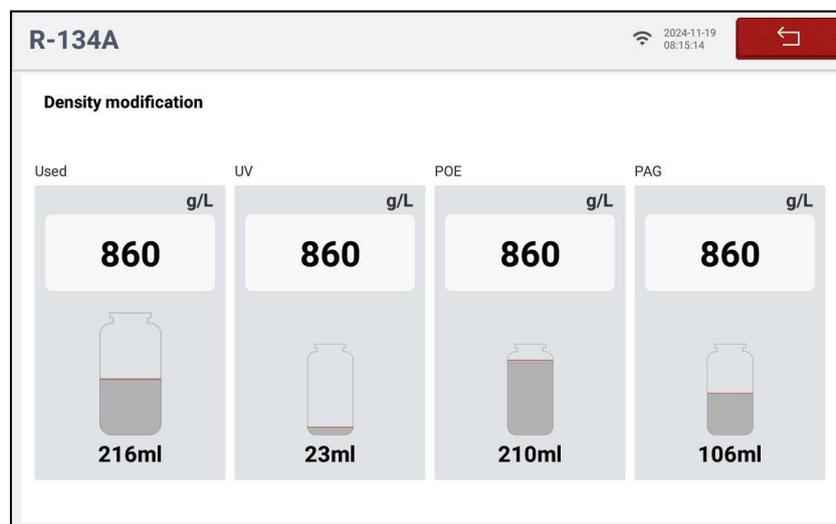


- C The system will automatically perform pressure rise leak checks after vacuuming. When the pressure rises by more than 5 psi within 3 minutes during leak detection process, it is determined that there is a leak in the system and an alarm will be issued.

**Note: Vacuuming for less than 15 minutes will result in inaccurate leak detection.**

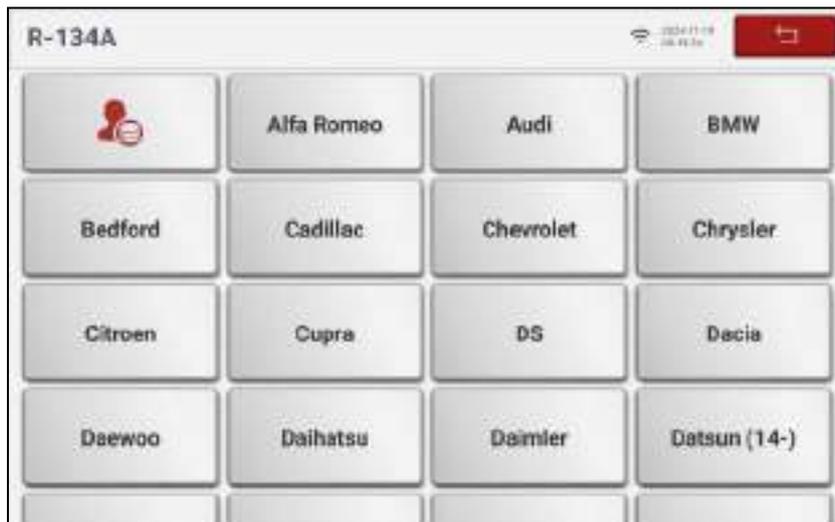
### 6.1.1.7 Density setting

This function is used to modify the oil density, so as to .

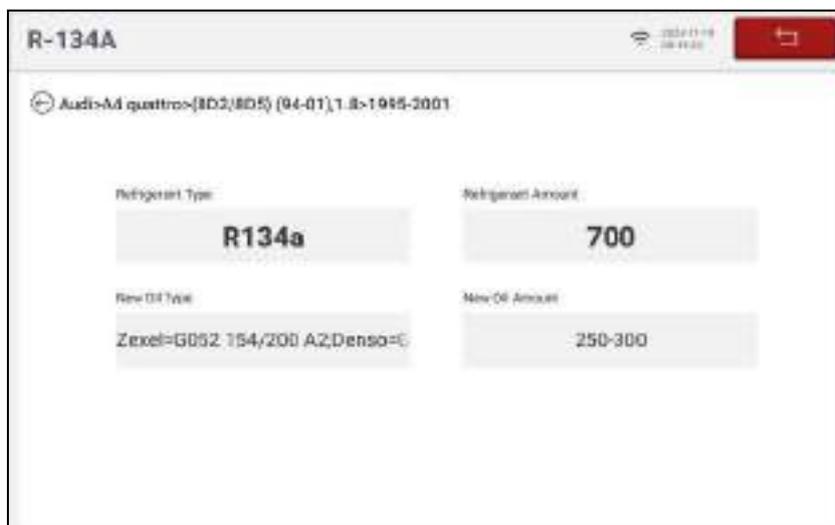


## 6.1.2 Database

Click the **Database** button, select the corresponding vehicle brand and model based on the tested vehicle.

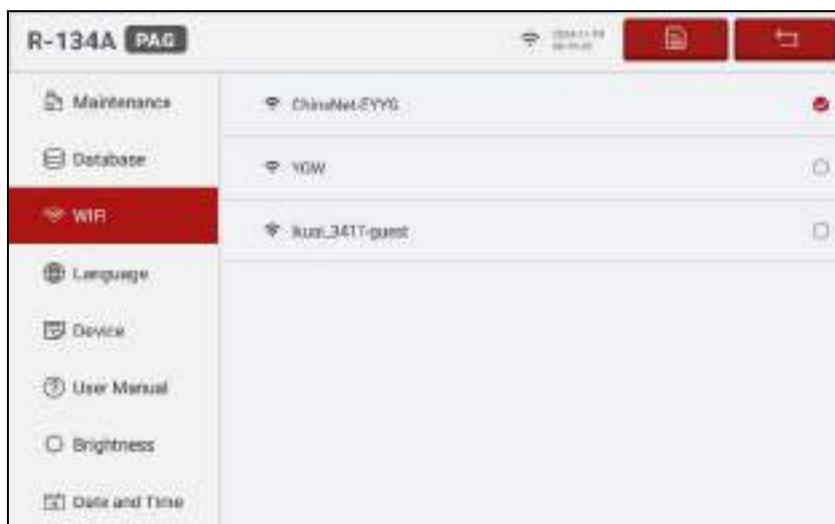


After selecting the vehicle model, it will display the information about the the refrigerant type and filling amount, the refrigerant oil type and filling amount of relevant vehicle models' A/C.



### 6.1.3 WIFI

Click the **WIFI** button, and the user can select the network they want to connect to.



### 6.1.4 Language

Click the **Language** button to enter the language switching page. After selecting the language you need, the circle on the right side of

that language will turn red. Then click  button, and the system will switch to the language you selected.



### 6.1.5 Device

This function is used to check the system information and service information.



#### 6.1.5.1 System inquiry

Here you can check the working status of the machine.



### 6.1.5.2 Service information

Here you can check the information about service provider.



### 6.1.6 User Manual

This function is used to check the electronic version of the user manual.



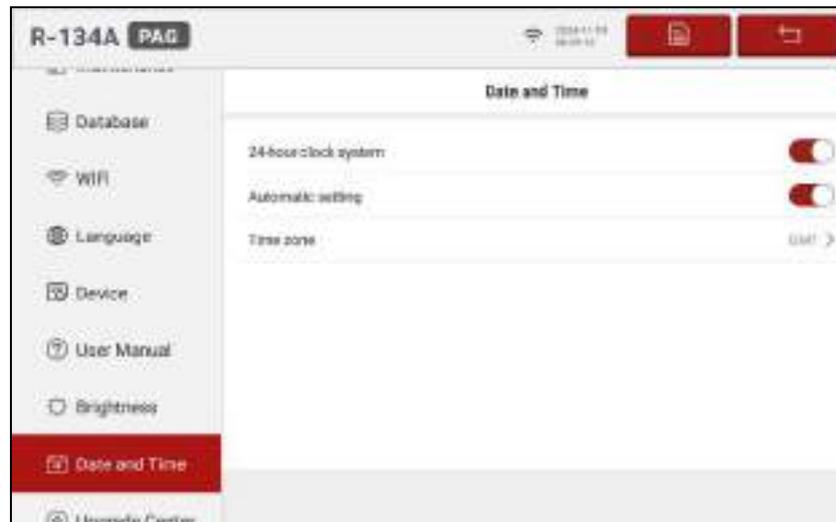
### 6.1.7 Brightness

This function is used to adjust the screen brightness.



### 6.1.8 Date and Time

This function is used to set the date, time and time zone.



### 6.1.9 Upgrade Center

This function is used for APP upgrade, firmware upgrade and OTA upgrade. For APP and firmware, there are two upgrade options: online upgrade and USB upgrade.

Select online upgrade, the system will automatically verify the APP and firmware version, and if a higher version is available, the system will automatically download and install it.

Select USB upgrade, it will need to insert the installation USB memory stick to update the APP and firmware to the new version.



## Warranty Clause

The warranty clause is only applicable to users and distributors who purchased SmartSafe products via the regular process. Within 1 year since the delivery, SmartSafe guarantee the products damaged due to the material or craft defects. Any damage to the device or part due to abuse, unauthorized change, usage other than designed to, operation not following the user manual, etc. is out of the warranty compensation for the auto instrument damage due to the device defect is limited to repair or replacement, SmartSafe is not responsible for any indirect or accidental loss. SmartSafe will clarify the device damage according to the specified test method. Any distributor, employee and business representative of SmartSafe are not entitled to do any confirmation, presentation or promise related to SmartSafe products.

## Statement of Disclaimer

The above warranty clause can substitute for any other form of warranty clauses.

## Purchase Order

Replaceable parts and optional parts are available from SmartSafe authorized suppliers. Purchase order should include:

Order quantity

Part number

Part name

## Customer Service Center

Any question during the operation, please call +86-755-89589810.

For maintenance and repair, please send back to SmartSafe with Warranty Card, Product Qualified Card, Purchase Invoice and problem description. SmartSafe will maintain and repair the device for free when it is within the warranty. Otherwise, SmartSafe will charge the maintenance and repair and the shipping.

SmartSafe address:

SHENZHEN SMARTSAFE TECH. CO., LTD.

3310, Building 11, Tianan Cloud Park, Bantian Street, Longgang District, Shenzhen, Guangdong, China, 518109.

SmartSafe website: <http://www.newsmartsafe.com>

## Statement:

SmartSafe reserves the right to change product designs and specifications without prior notice. The physical appearance and color may differ from those shown in the manual. Please refer to the actual product. We have tried our best to make all the descriptions in the book accurate, but there are still some inconveniences. If you have any questions, please contact the dealer or SmartSafe Service Center. The company will not bear any consequences due to misunderstanding.