

## **Instructions for functions**

### **Introduction of battery test operation**

#### **Connect device with the battery**

Put the red and black clamp to the battery to be tested. Red clamp for positive, black clamp for negative. It will show start-up interface on the screen.

The voltage of the battery to be tested should be lower than 6.0 V or the normal test is unable to proceed; Press OK to continue.



**According to the prompt of the device, select in proper order**

**Step1: Choose the testing state**

It refers to if the battery is inside the vehicle with load connected. If so, choose [Inside vehicle]. If not, choose [outside vehicle].

Choose the testing state
>Outside vehicle Inside vehicle
[ENT] [ESC] ▼ [1/2]

**Step2: Choose charge state**

It refers to if the charge of the battery is finished. If so, choose [After charge]. If not, choose [Before charge].

Choose charge state
>Before charge After charge
[ENT] [ESC] ▼ [1/2]

### Step3: Choose battery type

It refers to the battery type. Choose [Normal battery] in general.

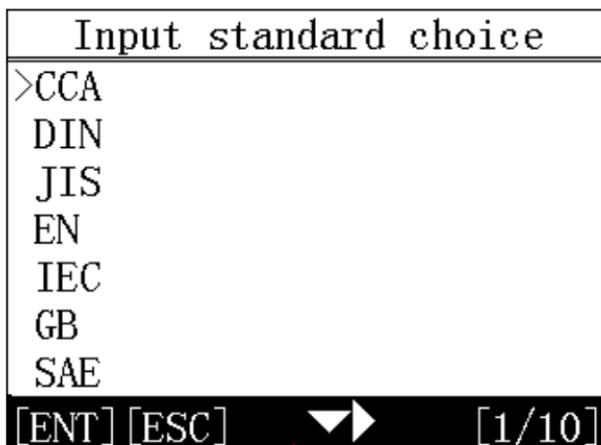
Choose battery type
>Normal battery
EFB
GEL
AGM wound battery
AGM flat plate battery

[ENT] [ESC] ▼ [1/5]

### Step4:Choose input standard

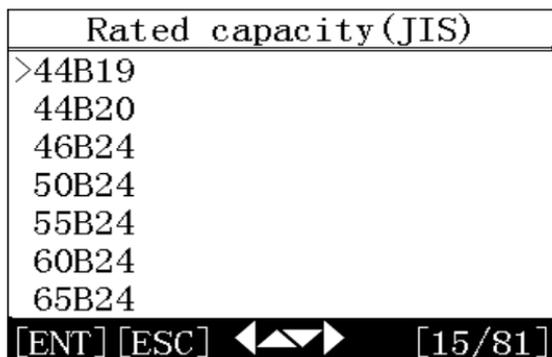
It refers to the factory marked standard for the battery, which is shown on the right above or the front battery. Choose the marked standard, such as CCA, JIS and etc.

If there is no standard shown, please select GB standard and input the Ah value to test. The error will be less when selecting GB standard.



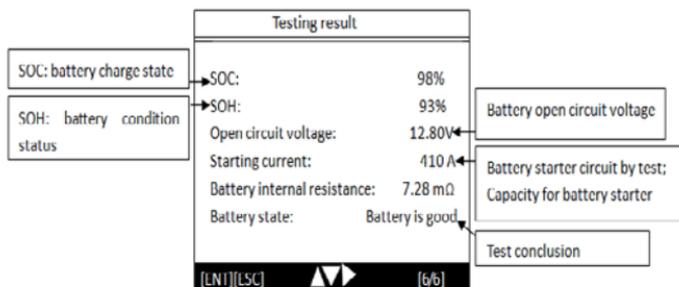
### Step5: Choose rated capacity

It refers to factory starting current standard, which is shown on the right above or the front battery. Such as 55B24.



**Step6:** Press ok to begin the test

### Test results interpretation



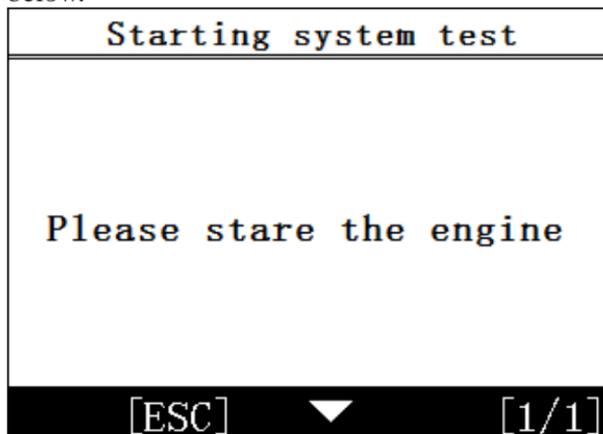
### Tip:

Notice: For some batteries in deep lack of power (the vehicle is not used for a long time, batteries are not charged in time; battery is in deep lack of power because of not turning off lamp and door that can not start the vehicle and etc), there will be a prompt “please replace the battery”. For this kind of battery, please consult with the battery manufacturer first and replace and charge the battery according to the method given by the manufacturer, and then begin the test.

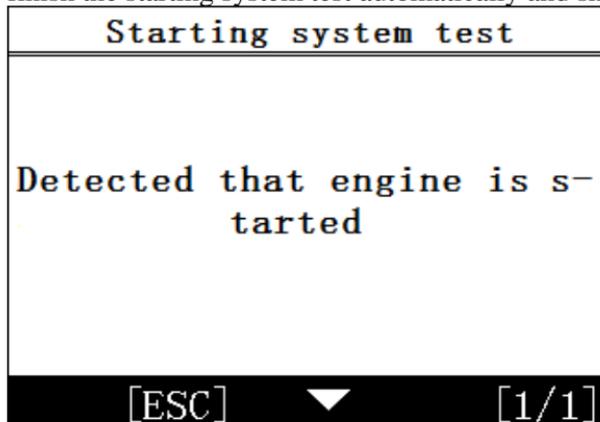
### Start system test

**Step1:** After the battery test is finished, please press [OK] to enter starting system test if the testing state is inside vehicle as shown

below.



**Step2:** Start the engine according to the prompt and the device will finish the starting system test automatically and show the result.



**Step3:** Test result includes start time, start voltage and voltage state.(In general, start voltage lower than 9.6v is abnormal, higher than 9.6v is normal.)

Testing result	
> Start time:	5598 ms
Start volage:	10.95V
Volage state:	Normal
[ENT] [ESC] ▼ [1/3]	

**Step4:** If the starting system test is abnormal, the battery test results are displayed.

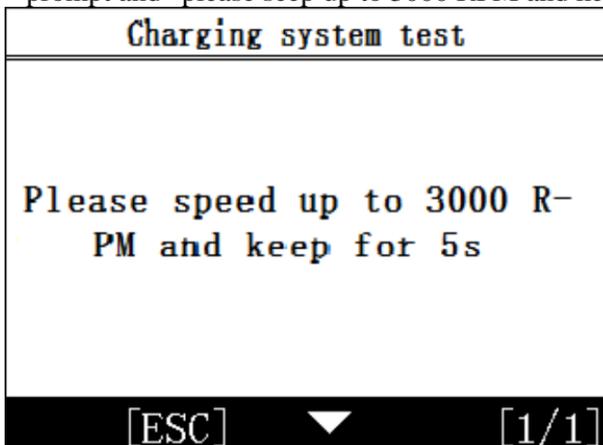
Testing result	
> Start time:	5346 ms
Start volage:	9.32V
Volage state:	Low
[ENT] [ESC] ▼ [1/3]	

In this way, the maintenance personnel can quickly determine the overall condition of the starting system according to this data.

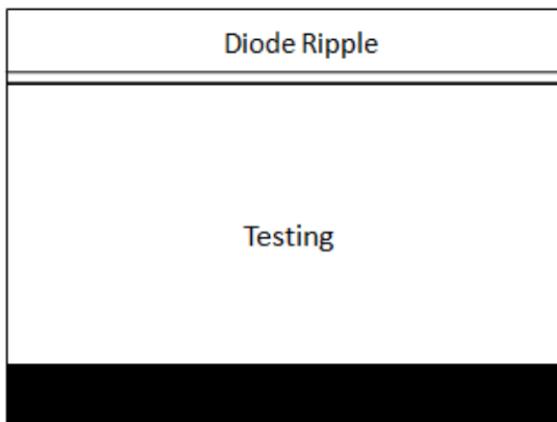
### **Charging system test**

(1) After starting system test is finished, please press [OK] to

enter Charging system test and operate according to the prompt and “please seep up to 3000 RPM and keep for 5s”



- (2) After test is finished, the device will show charging voltage, on-load voltage and diode ripple as shown below.



Testing result	
> Charging voltage:	Normal
On-load voltage:	14.21V
Diode ripple:	Normal

[ENT] [ESC] ▼ [3/3]

Notice: If the device can not detect the engine speed, there is probably something wrong with the engine regulator or the connection breakdown with the battery. If the device can not detect the charging voltage, the device can skip the engine speed test, then the result will show “No voltage input”. Please check the connection between engine and battery and then test again.

## Results for charging system test

### Charging voltage: normal

The charging system shows that the output of the generator is normal and no problems are detected.

### Charging voltage: low

Insufficient charging voltage of charging system

Please check whether the generator belt is skidding or disconnecting, check whether the connection between the generator and the battery is normal.

If the transmission belt and circuit is connected well, please troubleshoot the generator according to the manufacturer's suggestion.

**Charging voltage: high**

The voltage for generator output is too high.

As most generators in the cars use a built-in regulator, it needs to replace the generator assembly (some older cars which use external regulators, please replace the regulator directly).

The limit of usual high voltage limit in a car regulator is 14.7v. Charging too high will make the battery go through charging, thus shortening the life of the battery and causing it to malfunction.

**No voltage output:**

The generator voltage output is not detected. Table check whether generator connections and generator belts are normal.

**Diode testing:**

The tester can detect whether the diode is normal by charging current waveform. If the diode wave voltage is too high, then at least one diode has been damaged, please check and replace the diode. So far, the test is completed.