

NOTE:

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

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Chapter 1 Product Summary

1.1 Product Profile

BST-860 Battery Tester adopts currently the world's most advanced conductance testing technology to easily, quickly and accurately measure the actual cold cranking amps capability of the vehicle starting battery, healthy state of the battery itself, and common fault of the vehicle starting system and charging system, which can help maintenance personnel to find the problem quickly and accurately, thus to achieve quick vehicle repair.

1. Test all automotive cranking lead acid battery, including ordinary lead acid battery, AGM flat plate battery, AGM spiral battery, and Gel battery, etc.
2. Directly detect bad cell battery.
3. Polarity reverse connection protection, reverse connection will not damage the tester or affect the vehicle and battery.
4. Directly test the battery with loss of electricity, no need to full charge before testing.
5. Testing standards include currently the world's majority of battery standards, CCA, BCI, CA, MCA, JIS, DIN, IEC, EN, SAE, GB.
6. Support multi-languages, customer can select different language package, which includes:

European version A: English, Russian, French, Italian, German, Polish

European Version B: Dutch, Sweden, Finnish, Turkish, Danish, Norwegian

American version :English, Spanish, Portuguese, French

Asian version A: English, Chinese Simple, Chinese Traditional

Asian version B: English, Japanese, Korean

Other languages can also be customized according to user's need.

1.2 Product Function

Main functions of BST-860 battery tester include: battery test, cranking test, charging test and other additional functions.

Battery test is mainly targeted to analyze the battery healthy status to calculate the actual cold cranking capability of the battery and the aging extent, which provide reliable analysis evidence for the test and maintenance of the battery. It notifies the user to replace battery in advance when the battery getting aged.

Cranking test is mainly to test and analyze the starting motor. Through testing the actual required cranking current and cranking voltage of the starting motor, it can find out whether the starting motor works fine. There are several reasons why the starting motor is abnormal: lubricating system fault causing the starting loaded torque increasing or rotor friction of the starting motor causing the increasing friction of the starting motor itself.

Charging test is to check and analyze the charging system, including generator, rectifier, rectifier diode, etc., thus to find out whether the output voltage of the generator is normal, the rectifier diode works fine and the charging current is normal. Suppose one of the above mentioned parts is not in normal situation, it will lead to over charge or incomplete charge of the battery, thus the battery will be quickly damaged and also greatly shorten the using life of other loaded electrical appliance.

Additional functions include:

Review Data, Print Data, Export Data.

1.3 Technical Parameter:

1) Cold Cranking Amps Measure Range:

Measure Standard	Measure Range
CCA	100-2000
BCI	100-2000
CA	100-2000
MCA	100-2000
JIS	26A17--245H52
DIN	100-1400
IEC	100-1400
EN	100-2000
SAE	100-2000
GB	30-220Ah

2) Voltage Measure Range: 7-16VDC.**1.4 Working Environment Requirement**

Working Environment Temp.: -20°C-60°C

It is applicable for automotive manufacturers, automotive maintenance and repair workshops, automotive battery factories, automotive battery distributors, and educational organizations, etc.

Chapter 2 Tester Structure

BST-860 mainly consists of battery tester main unit, testing cables.





BST-860 Battery Tester main unit cover is made of ABS acid-resistant plastic.



USB Cable (With attached picture)



Key Description

-   Up and Down keys
Select upwards or downwards via white UP and DOWN keys.
-  Return key
Return to previous menu via blue RETURN key.
-  OK key
Confirm the selection via green OK key



-  MENU key

Enter additional function program via MENU key.

Chapter 3 Operation

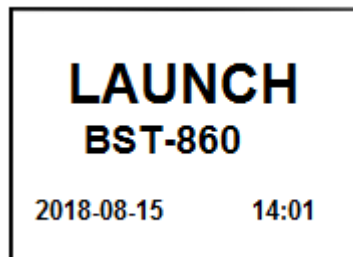
Connect the red test clamp with battery anode and the black one with cathode, the tester will power on automatically. Voltage battery below 7.0VDC can't be tested properly, then press OK key to continue.

According to the tester, you can press UP/DOWN key to choose:

- ① Battery Test
- ② Cranking Test
- ③ Charging Test
- ④ Review Data
- ⑤ Print Data
- ⑥ Export Data

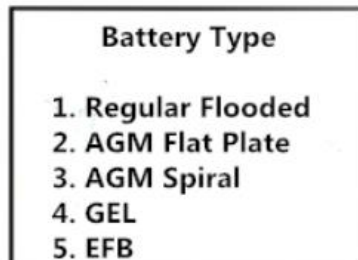
3.1 Battery Test

After entering battery test program, tester displays the tester model and time .



Select the battery test and press OK key to continue:

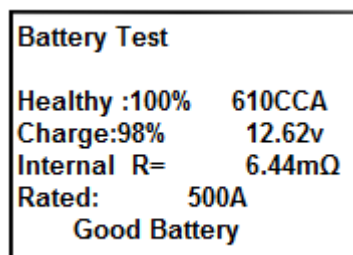
Battery Type: select your battery type, usually is “Regular Flooded”



Input testing standard: the standard which you can see the front of the battery ,such as CCA、 BCI、 DIN. If you can't find any info about the standard, you can choose GB (Chinese standard). Choose GB standards would lead little tolerance.

Input rated capacity: you can see the starting current standards in front of the battery .Such as CCA/500A.

Then press OK key to start testing. You may get the testing result as following:

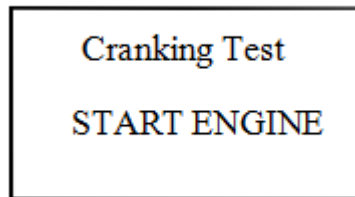


Continue to press OK key, you can print the testing result directly.

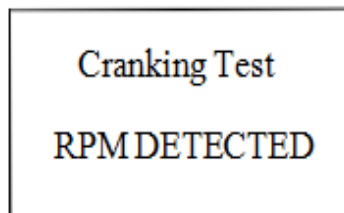
Note:

For power loss battery (such as a vehicle for a long time on hold, the battery is not charged in time; forget to close the lights, the doors resulting in serious loss of battery electric vehicle and can not be started, etc.), in the actual testing process may also be prompted to "Please replace the battery," for such batteries, please consult the battery manufacturers, and then tested.

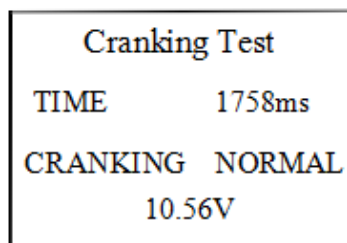
3.2 Cranking Test



After entering the second start system test function ,the press OK key as following:Starting the engine as prompted, tester will automatically complete the cranking test and display the result.



Normally, cranking voltage value lower than 9.6V is regarded as abnormal and it is OK if it is higher than 9.6V. Test result of the tester includes actual cranking voltage and actual cranking time.



When cranking test is abnormal, battery test result will also be displayed at the same time.

```

    Cranking Test
    TIME          1020ms
    CRANKING     LOW
                9.12V
    
```

This is for the convenience of the maintenance personnel to quickly know the whole state of the starting system according to the data.

If the engine starting can't be detected, there may be no output of charging voltage, you need to check the generator.

3.3 Charging Test

When enter the charging test, tester will prompt "Loaded testing"

```

    Charging Test
    LOADED TESTING
    *****
    
```

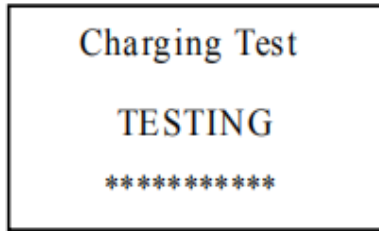
Note: Do not shut down the engine during the test. All electrical appliance and device are in OFF state. Turn on/off any electrical appliance in the vehicle during the test will affect the accuracy of the test result.

Operate accordingly to increase the engine rotating speed to 2500turns, and keep for 5 seconds.

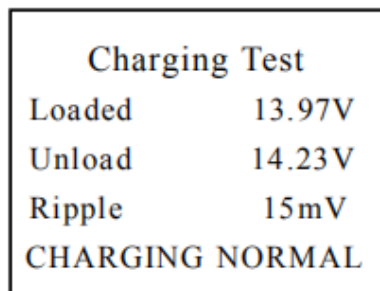
```

    Charging Test
    Increase RPM to 2500
    r/min and keep it 5 seconds.
    Press ENTER to continue.
    
```

Tester starts the charging volt test after increase rev detected.



After the test finished, tester displays the effective charging volts, ripple test result and charging test result.



Check the connection between generator and battery, then retest.

3.3.1 Charging Test Result

Charging Volt: Normal. The generator output normal, no problem detected.

Charging Volt: Low. Check drive belt of the generator whether slip or running off. Check the connection between generator and battery is normal or not. If both of the drive belt and the connection are in good condition, follow the manufacturer's suggestion to eliminate generator fault.

Charging Volt: High. Since most of the vehicle generators are using internal regulator, the generator assembly has to be replaced.(Some old style cars are using external regulator, then directly replace the regulator.) The normal high volt of the voltage regulator is maximum $14.7 \pm 0.5V$.If charging volt is too high, it will overcharge the battery. Therefore, the battery life will be shortened and troubles will be caused.

No Volt Output.No generator, volt output is detected.Check the generator connection cable, the drive belt of generator and engine whether normal or not.

Diode Test: Through the test of charging current ripple, tester will find out whether the diode is normal or not. When ripple volt is too high, it proves at least one diode is damaged. Check and replace the diode.

3.4 Review Data

After entering the forth function, then press OK key you can view the final test result.

3.5 Print Data

Press OK key you can print the last test result of this battery tester directly. It's easy to print the recent results without testing again. This is a unique separate print function of MICRO-860.

3.6 Export Data

Connect this battery tester to computer with our USB cable and export the testing data to computer. (Connect our company to get the latest documents, you can export the data after download software)

Chapter 4 Additional Function:

Press “Menu” to enter additional function

4.1 Set Language

This option is to let user select language.

European version A: English, Russian, French, Italian, German, Polish

European Version B: Dutch, Sweden, Finnish, Turkish, Danish, Norwegian

American version :English, Spanish, Portuguese, French

Asian version A: English, Chinese Simple, Chinese Traditional

Asian version B: English, Japanese, Korean

4.2 Time adjustment

Adjust system time

This option is to adjust and check the system date and time.

Adjustment is in the sequence of Year, Month, Date, Hour, Minute. This adjustment sequence does not affect the date and time format.

Chapter 5 Warranty Clause

The warranty clause is only applicable to users and distributors who purchased Launch products via the regular process.

Within 1 year since the delivery, Launch 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, Launch is not responsible for any indirect or accidental loss. Launch will clarify the device damage according to the specified test method. Any distributor, employee and business representative of Launch are not entitled to do any confirmation, presentation or promise related to Launch 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 Launch authorized suppliers.

Purchase order should include:

Order quantity

Part number

Part name