ECOBAT
BATTERY TECHNOLOGIES
EBT780 Battery Analyser

EBT780
Battery Analyzer
User Guide

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1 Introduction

The newly developed EBT780 Battery Analyzer from Ecobat Battery Technologies aims to test start-stop AGM and EFB batteries. It is developed to test 12V regular flooded, AGM flat plate, AGM spiral and gel batteries and 12V & 24V starting and charging system. Advanced conductance test and ripple voltage test provide a quick, easy and affordable solution for technicians to check battery health and detect faults of starting and charging system. Additionally, the built-in thermal printer allows technicians to print the test data at anytime and anywhere.

1.1 Tester Description

This section illustrates external features, ports and connectors of the tester.

A LCD Display - Shows menus, test results and operation tips.
B BACK Button - Exits a screen and generally returns to previous screen.
C MENU Button - Access the Main Menu options of the tester.
D ENTER Button - Executes a selected option and generally goes to the next screen.
E /H UP and DOWN Buttons - Selects an option or scroll to menu options.
F/G LEFT and RIGHT Buttons - Moves the cursor left or right to select characters when inputting the plate number of the car.
I PRINT Button - Prints test results through optional Bluetooth printer.
J Power Switch - Turn off/on battery for testing.
K Memory Card Port – Holds the memory card for data backup and software update

IMPORTANT

Do not use solvents such as alcohol to clean keypad or display. Use a mild nonabrasive detergent and a soft cotton cloth.

1.2 Accessory Description

This section lists the accessories that go with the tester. If you find any of the following items missing from your package, contact your local dealer for assistance.

1	**EBT780 Battery Analyser**
2	**User's Guide**
3	**Spare printer roll x3**
4	**USB card reader (for software update & results download)**

1.3 Specification

Display: 128 * 64 pixels, large, backlit display screen
Working Temperature: -20 to 60°C (-4 to 140°F)
Storage Temperature: -20 to 70°C (-4 to 158°F)
Power Supply: 8-30V DC
Dimensions (L*W*H): 90*240*45mm
Net Weight (with printer): 1.0KG

2 Operation

This section describes how to use the tester to perform tests on car batteries and 12V & 24V starting and charging systems. The menu-driven display will guide you step by step through the test process.

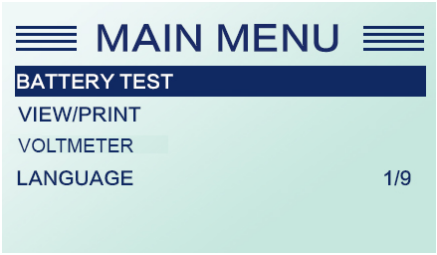
2.1 Connecting The Tester

The tester powers on automatically when it is correctly connected to a battery. The preferred test position is at the battery terminals. If the battery is not accessible, you may test at the jumper post; however, the power measurement may be lower than the actual value.

To connect the tester:

1. Clean the battery posts or side terminals.
2. Connect the red clamp to the positive (+) terminal and the black clamp to the negative (-) terminal.
3. Rock the clamps back and forth to make sure the clamps are firmly connected. A 'CHECK CONNECTION' message will display if a poor connection is made.
4. When the tester is correctly connected, it boots up automatically and shows the voltage of the battery.

5. Press the **MENU** button to go to the Main Menu.



NOTE

Do not connect the tester to a voltage source greater than 30V DC; otherwise you may damage the tester.

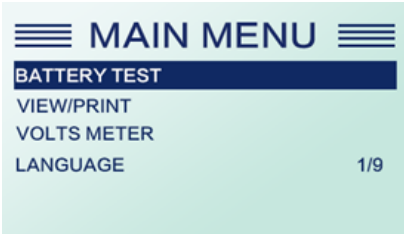
NOTE

If you are testing inside a vehicle, make sure all accessory loads are cut off, the key is not in the ON position and the doors are closed.

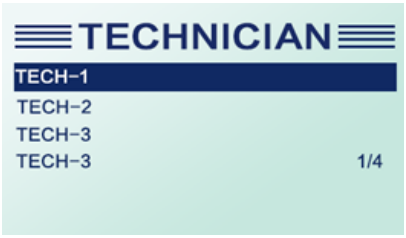
2.2 Battery Test

To start a battery test:

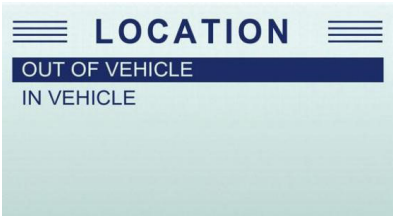
1. Scroll with the **UP** or **DOWN** button to highlight Battery Test from Main Menu and press the **ENTER** key.



2. Scroll with the **UP** or **DOWN** button to highlight the Technician from Main Menu and press the **ENTER** Key.



3. Scroll with the **UP** or **DOWN** button to highlight **OUT OF VEHICLE** or **IN VEHICLE** from **BATTERY LOCATION** menu and press **ENTER** to select the battery location.



4. Scroll with the **UP** or **DOWN** button to highlight the **Regular** or **Stop-Start** and press the **ENTER** key.

5. Scroll with the **UP** or **DOWN** button to highlight **TOP POST** or **SIDE POST** and press **ENTER** to select the battery post type.

6. Scroll with the **UP** or **DOWN** button to select **BATTERY TYPE** menu and press **ENTER** to confirm.

7. Scroll with the **UP** or **DOWN** button to select **BATTERY STANDARD** and press **ENTER** to confirm. Not all rating systems are available for each application.

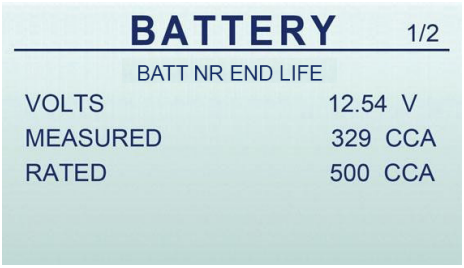
You may find the battery type and battery rating label on every battery.

Global Rating Systems

No.	Standard	Description	BT780 Testing Range
1	CCA	Cold Cranking Amps, as specified by SAE. The most common rating for cranking batteries at 0°F (-18°C)	100-2000
2	BCI	Battery Council International standard	100-2000
3	CA	Cranking Amps standard. The effective starting current value at 0°C (32°F).	100-2000
4	MICA	Marine Cranking Amps standard. The effective starting current value at 0°C(32°F).	100-2000
5	JIS	Japanese Industry Standard, shown on a battery as a combination of numbers and letters	26A17--245H52
6	DIN	Deutsche Industrie-Norm	100-2000
7	IEC	International Electrotechnical Commission	100-2000
8	EN	Europa-Norm	100-2000
9	SAE	Society of Automotive Engineers	100-2000
10	GB	China National Standard	100-2000

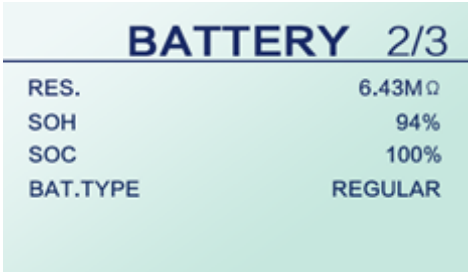
8. Use **UP** or **DOWN** button to change CCA rating. Press **ENTER** to start the test.

9. Depending on battery status, one of the following test results may display.



NO.	TEST RESULTS	INTERPRETATION
1	GOOD BATTERY	The battery is in good condition.
2	GOOD RECHARGE	The battery is in good condition but low current. Fully charge the battery and return it to service.
3	CHARGE AND RE TEST	The battery is not charged sufficiently to carry out a successful test. Fully charge the battery then retest. If after charging and retesting this message continues to appear consider replacing battery after checking age and usage.
4	BATT NR END LIFE	The battery's capacity is below the recommended threshold and may soon need replacing. Check age and battery usage before replacing.
5	BAD CELL REPLACE	The battery has a bad cell. Replace battery.

10. Use **UP** or **DOWN** button to check the second page of battery test result which includes state of health (**SOH**), state of charge (**SOC**), and resistance (**RES**).



11. Press the **BACK** button to return to Main Menu. Or, press the **ENTER** button for cranking test if you are performing in a-vehicle test.

NOTE
The tester keeps the results of last test only. When you start a new test, the last results are overwritten.

2.3 Cranking Test

NOTE
Before starting the test, inspect the alternator drive belt. A belt that is glazed or worn, or lacks the proper tension, will prevent the engine from achieving the rpm levels needed for the test.

After an in-car battery test, the display alternates between the battery test results and the message PRESS **ENTER** FOR CRANKING TEST.

To start cranking test:

1. Press the **ENTER** button for cranking test.
2. Start the engine when prompted.
3. The tester displays the result of the starter system, cranking voltage, and cranking time in seconds.

NO.	TEST RESULTS	INTERPRETATION
1	CRANKING NORMAL	The starter voltage is normal and the battery is fully charged.
2	LOW VOLTAGE	The starter voltage is low and the battery is fully charged.
3	CHARGE BATTERY	The starter voltage is low and the battery is discharged. Fully charge the battery and repeat the starter system test.
4	BATTERY NR END LIFE	The battery's capacity is below the recommended threshold and may soon need replacing. Check age and battery usage before replacing.
5	NO START	No vehicle start detected.
6	CRANKING SKIPPED	A start was not detected.

4. Press **ENTER** button to proceed with the charging system test, then Print button to print the test results, **BACK** button to return to the main menu.

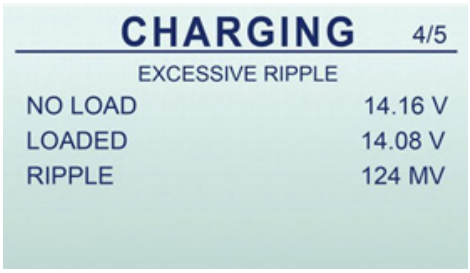
NOTE

For an in-vehicle test, the display alternates between the test results and the message. Press **ENTER** for charging test.

2.4 Charging System test

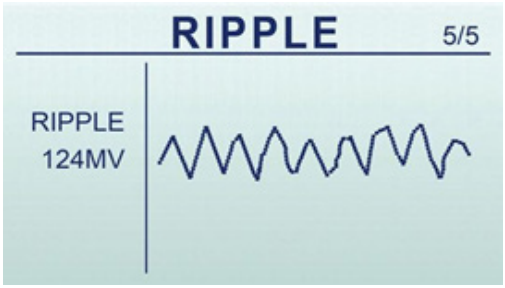
Once you have completed an in-vehicle cranking test, the display alternates between the battery test results and the message press **ENTER** for charging test. Press **ENTER** to proceed with the charging test.

1. Follow the on-screen prompts to rev the engine.
2. Turn on high beam headlights and the blower fan.
3. Rev engine with loads on.
4. Idle engine and turn off loads.
5. The charging system results are displayed at the end of the procedure.



NO.	TEST RESULTS	INTERPRETATION
1	NO PROBLEMS	System is showing normal output from the alternator.
2	NO OUTPUT	No alternator output detected. Check all connections to and from the alternator, especially the connection to the battery. If the connection is loose or heavily corroded, clean or replace the cable and retest. If the belts and connections are in good working condition, replace the alternator. (Older vehicles use external voltage regulators, which may require only replacement of the voltage regulator.)
3	LOW OUTPUT	Alternator not providing sufficient to power the system's electrical loads and charge the battery. Check the belts to ensure the alternator is rotating with the engine running. Replace broken or slipping belts and retest. Check the connections from the alternator to the battery. If the connection is loose or heavily corroded, clean or repair the cable and retest.
4	HIGH OUTPUT	Alternator voltage output exceeds the normal limits. Make sure there are no loose connections and the ground connection is normal. If there are no connection problems, replace the regulator. Most alternators have a built-in regulator. In older vehicles that use external voltage regulators, you may need to replace only the voltage regulator.
5	EXCESSIVE RIPPLE	Excessive AC ripple detected. One or more diodes in the alternator are not functioning or there is stator damage.

6. Use **UP** or **DOWN** button to check the RIPPLE.



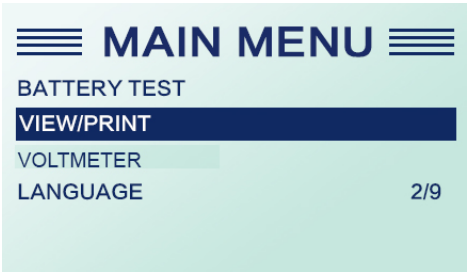
7. Press **ENTER** to print the test results or **BACK** to return to the main menu.

3 View/Print Test Results

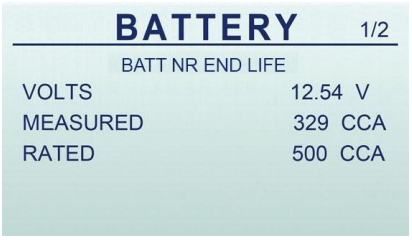
The View/Print menu lets you view test results and print the data.

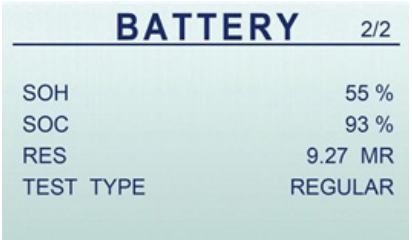
To view and print the test results:

1. Scroll with the **UP** or **DOWN** button to highlight View/Print from Main Menu and press the **ENTER** key.

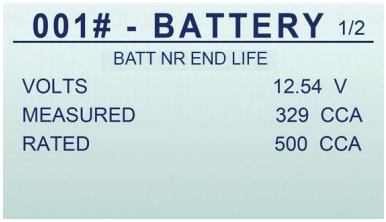


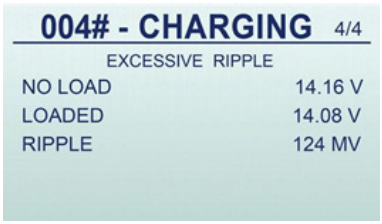
2. Review the test results on the screen. Use the **UP** or **DOWN** button to scroll back and forth through Battery Result, Charging Result and Cranking Result to view.



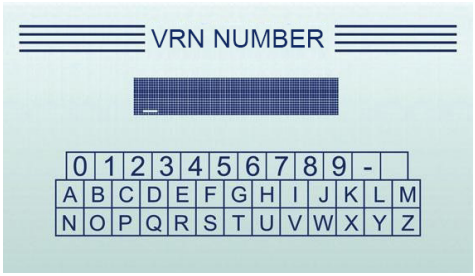


3. Press **Left button** or **Right button** to check different test results.





4. To print the test results, just press the **Print** button on the unit.



5. Select Yes to type in the VRN so the test ticket could show test result with the exact plate number. Or select No to quit typing plate number.

NOTE

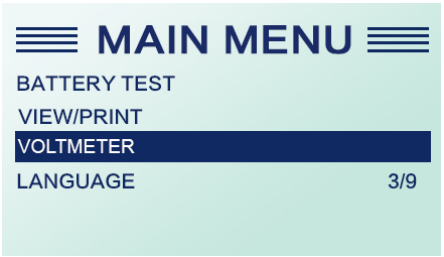
Built-in Battery is Alkaline Zinc-Manganese Dry Battery 9 volt. If the battery has no power please change it.

The results will be recorded even if the battery has no power.

4 VOLTMETER

The Voltmeter function lets you view the voltage of the battery.

1. Scroll with the **UP** or **DOWN** button to highlight Volts Meter from Main Menu and press the **ENTER** key.

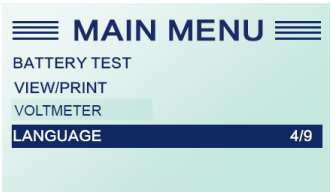


2. Review the test results on the screen.

5 Language

The Language menu lets you choose the system language. The tester menu is set to English by default. To change the language setting:

1. Scroll with the **UP** or **DOWN** button to highlight Language from **Main Menu** and press the **ENTER** key.

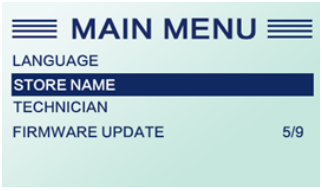


2. Use the **UP** or **DOWN** button to select the language you need and press the **ENTER** key to confirm and return. Or press **BACK** button to return without saving.

6 Store Name

Store name menu lets you input your workshop name and can be printed with the battery test.

1. Scroll with the **UP** or **DOWN** button to highlight Store name from Main Menu and press the **ENTER** key.



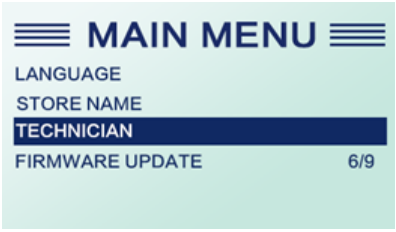
2. Follow the on-screen prompt to input the Store name. Press the **Back** key to delete if you input the wrong letter.

3. After entering the Store name, it will be printed with the battery test.

7 TECHNICIAN

Technician menu lets you input the name of a technician and can be printed with the battery test.

1. Scroll with the **UP** or **DOWN** button to highlight **technician** from Main Menu and press the **ENTER** key.



2. Choose one option from the list and press **ENTER** key to input the technician name (at most four technician names).

3. Follow the on-screen prompt to input the Store . Press **Back** key to input the technician name. **(Please fill the full spaces)**

4. After entering the Technician name, it will be printed with the battery test.

8 Version Info.

Version Info menu lets you view software information of the tester.

To check the software version:

Select Version Info from the main menu. The follow screen shows the version of the tester.





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