



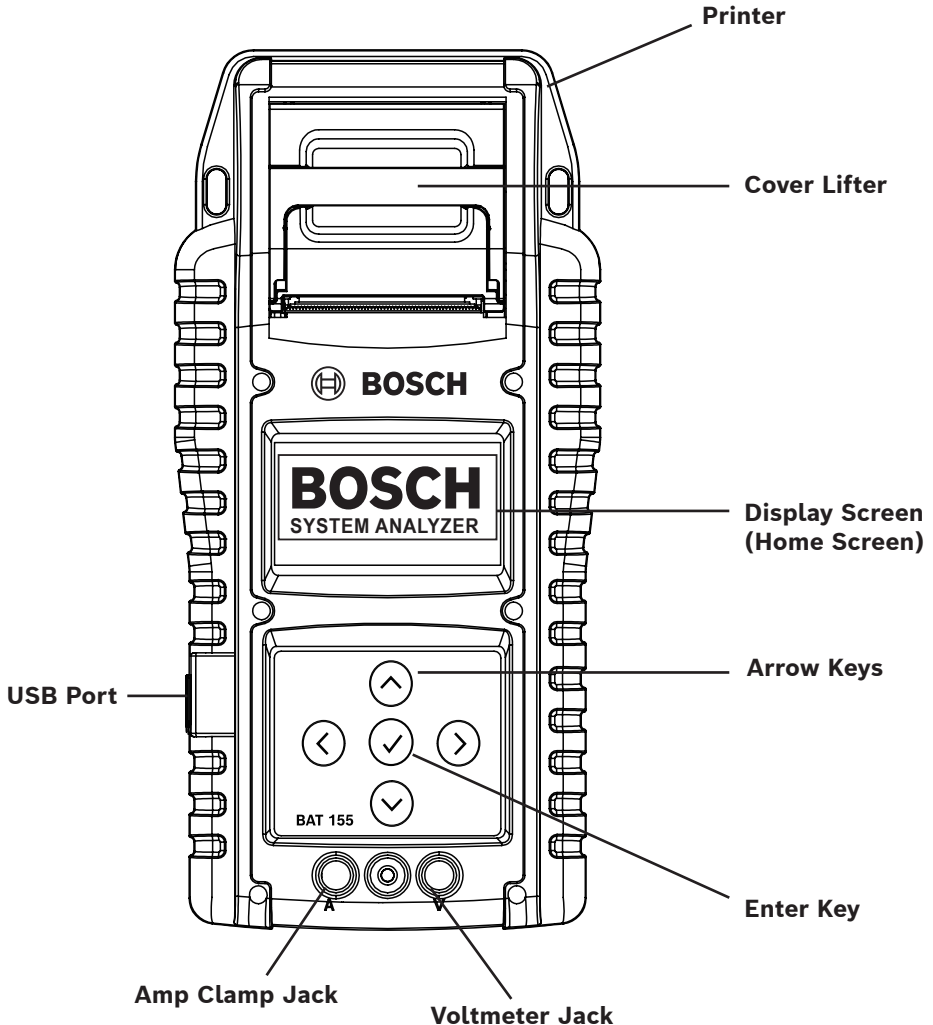
BAT 155 Battery Tester Operating Instructions

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1 Introduction

The BAT 155 Battery Tester is used to test 6 and 12 volt batteries, and to test 12 and 24 volt charging systems. (ONLY 12 volt for battery pack testing) The suggested operation range is from 0 degrees Centigrade (32 degrees Fahrenheit) to 50 degrees Centigrade (122 degrees Fahrenheit) in ambient temperature.



2 Safety Warnings and Instructions



WARNING

This product can expose you to chemicals including arsenic, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov.



CAUTION

Do not expose the tester to rain or snow.

- ▶ Working in the vicinity of a lead acid battery is dangerous. Batteries generate explosive gases during normal operation. For this reason it is important that you refer back to these instructions if you have any questions on tool operation.
- ▶ To reduce risk of battery explosion, follow these instructions, those published by the battery manufacturer, and the manufacturer of any equipment you intend to use in the vicinity of the battery. Observe cautionary markings on these items.
- ▶ Another person should be within range of your voice or close enough to come to your aid when you work near a lead acid battery.
- ▶ Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- ▶ Wear safety glasses and protective clothing.
- ▶ If battery acid contacts your skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flood the eye with running cold water for at least ten minutes and seek immediate medical attention.
- ▶ NEVER smoke or allow a spark or flame in vicinity of the battery or engine.
- ▶ Be extra cautious to reduce the risk of dropping a metal tool onto the battery. It could spark or short-circuit the battery or other electrical parts and could cause an explosion.
- ▶ Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead acid battery. These items can produce a short-circuit current high enough to weld a ring or like to metal causing a severe burns.



(Figure 1)



(Figure 2)

3 Paper Loading/Replacement

Do the following to load paper:

1. Connect BAT 155 to battery. (See Pg. 5 for connection instructions.)
2. Pull up the cover lifter to open the clear cover. (See Fig. 1) Insert a new paper roll into the printer compartment with the leading edge coming out from under the paper roll. Pull a short length of paper from the compartment and press down the clear cover to close and snap in place.

Note: Tester will not print if cover is not snapped in place. (See Fig. 2)

Note: Replacement thermal paper rolls are available at most office supply retailers. The paper is 2 1/4 in. wide, with a maximum roll length of 98 ft.

4 Before Testing Begins

1. Install/verify that there are 6 AA alkaline 1.5V batteries installed into the tester battery chamber located on the back of the unit. Li-Ion or lithium batteries are not recommended because of the initial 1.7 Volt output. When the batteries are weak, the screen will display "POWER LOW." Replace all 6 batteries at the same time. **Note:** Nothing will be seen on the display until the tester is connected to a vehicle battery. Each time the tester is connected to a battery, the tester will run a quick cable verification to ensure a proper connection through the output cables to sensors in the clamp jaws. If the connection checks out OK, the display will momentarily flash and proceed to the Home Screen. In operation the tester will only show three results: CHECK CLAMPS / VOLTAGE HIGH / VOLTAGE LOW.
2. Ensure that the area around the vehicle battery is well ventilated while the battery is being tested.
3. Clean battery terminals. Be careful to keep corrosion from coming in contact with your eyes.




4. Inspect the battery for cracked or broken case or cover. If the battery is damaged, do not use the tester.
5. If the battery is not a sealed maintenance free type, add distilled water in each cell until the battery acid reaches the level specified by the manufacturer. This helps purge excessive gas from cells. Do not overfill.
6. If necessary to remove battery from vehicle to test, always remove the ground terminal from the battery first. Make sure all accessories in the vehicle are off to prevent arcing.

5 Testing One Battery



CAUTION

Before testing a battery in a vehicle, turn off the ignition and all accessories and loads. Close all vehicle doors and the trunk lid.

1. Ensure the battery terminals are clean. Wire brush them if necessary. Clamp the red load lead to the vehicle positive battery terminal. Clamp the black load lead to the vehicle negative battery terminal.
2. Use **Arrow Keys** to select **Battery Test** , then press **the Enter Key** .
3. Follow screen instructions to perform a battery test. **Note:** Answer “NO” to the “Pack Test Prompt.” To cancel test procedure press and hold **Left Arrow Key** .

INTERPRETING TEST RESULTS:

TEST RESULT
GOOD & PASS
SOH:
SOC:
VOLTAGE:

The battery is good and capable of holding a charge.

TEST RESULT
GOOD & RECHARGE
SOH:
SOC:
VOLTAGE:

The battery is good but needs to be recharged.

TEST RESULT
BAD & REPLACE
SOH:
SOC:
VOLTAGE:

The battery will not hold a charge. It should be replaced immediately.

TEST RESULT
MARGINAL
SOH:
SOC:
VOLTAGE:

The battery may be serviceable but with decreased capacity to start the engine. The battery might fail under extreme climate conditions or with a poor connection between the vehicle and the battery to affect the charging function. Possible battery replacement and/or charging system analysis may be needed.

TEST RESULT
RECHARGE AND RETEST
SOH:
SOC:
VOLTAGE:

Battery is discharged. The battery condition cannot be determined until it is fully charged. Recharge and retest the battery.

TEST RESULT
BAD CELL REPLACE
SOH:
SOC:
VOLTAGE:

The battery has at least one cell short circuit. It should be replaced immediately.

6 Testing Multiple Batteries in a Vehicle







CAUTION

Before testing a vehicle with multiple batteries, turn off the ignition and all accessories and loads. Close all vehicle doors and the trunk lid.

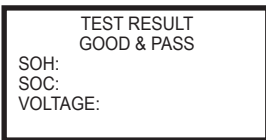
Ensure the battery terminals are clean. Wire brush them if necessary. Leaving all the batteries connected to each other, select one battery to connect the tester to. Clamp the red tester lead to that battery's positive terminal. Clamp the black tester lead to the corresponding negative battery terminal.

Note: Battery pack testing can only be performed on 12V systems.

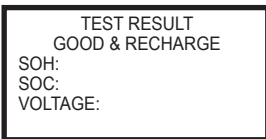
4. Select **Battery Test** , then press **the Enter Key** .
5. Follow screen instructions. **Note:** Answer "YES" to the pack test question. To cancel test procedure press and hold **Left Arrow Key** .
6. Tester screen will turn red if there is an issue with one of the batteries and individual battery tests will then need to be performed.
7. Before testing the individual batteries, disconnect all cables from the batteries.

8. Determine the order in which the individual batteries will be read. The tester screen will go blank between each individual battery test. It will record and display the results in the order the batteries were tested. Reconnect the red tester lead to the positive terminal, and the black tester lead to the negative terminal of the first individual battery to be tested. Follow the screen instructions. Press **the Enter Key**  to advance to the next screen.
9. Repeat step 7 for the remaining batteries.

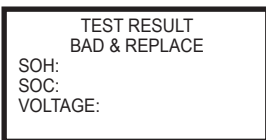
INTERPRETING TEST RESULTS:



The battery is good and capable of holding a charge.



The battery is good but needs to be recharged.






The battery will not hold a charge. It should be replaced immediately.

7 System Test



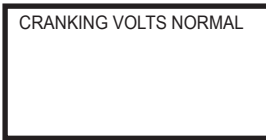
CAUTION


Before testing a battery in a vehicle, turn off the ignition and all accessories and loads. Close all vehicle doors and the trunk lid.

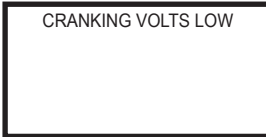
1. Ensure the battery terminals are clean. Wire brush them if necessary. Clamp the black load lead to the vehicle negative battery terminal. Clamp the red load lead to the vehicle positive battery terminal.
2. Use **Arrow Keys** to select **System Test** , then press **the Enter Key** .
NOTE: To cancel test procedure press and hold **Left Arrow Key** .

3. Follow screen instructions to check **CRANKING VOLTS**.

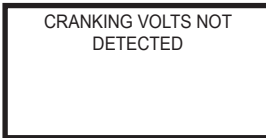
INTERPRETING TEST RESULTS:



The system is showing a normal draw. Press **the Enter Key**  to perform the charging system test.



The cranking voltage is below normal limits, troubleshoot the starter with manufacturer's recommended procedure.



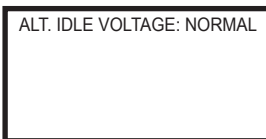
Cranking voltage is not detected.


4. Follow screen instructions to perform a **CHARGING SYSTEM TEST** at Idle.

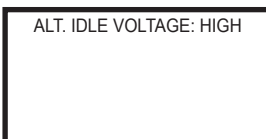
INTERPRETING TEST RESULTS:



The alternator is not providing sufficient current to the battery. Check the belts to ensure the alternator is rotating with engine running. If the belts are slipping or broken, replace the belts and retest. Check the connections from the alternator 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 condition, replace the alternator.



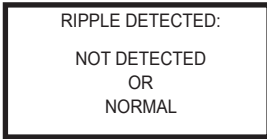
The system is showing normal output from the alternator, no problems detected. Press **the Enter Key**  to advance to the next screen.




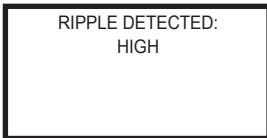
The voltage output from the alternator to the battery exceeds the normal limits of a functioning regulator. Ensure all connections are tight and that there is a good ground connection. Alternator may need to be replaced.

5. Follow screen instructions to continue testing the **CHARGING SYSTEM** with accessory loads.

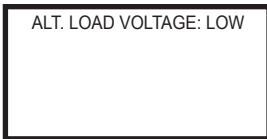
INTERPRETING TEST RESULTS:



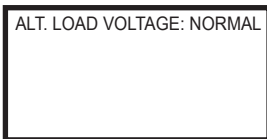
The system is showing a normal draw. Press **the Enter Key**  to continue testing the charging system with accessory loads.




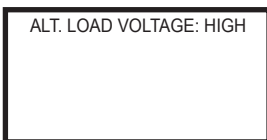
One or more diodes in the alternator are not functioning or there is stator damage. Check to ensure the alternator mounting is affixed securely and that the belts are in good shape and functioning properly. If the mounting and belts are good, replace the alternator.



The alternator is not providing sufficient current for the system's electrical loads and the current for the battery. Check the belts to ensure the alternator is rotating with engine running. If the belts are slipping or broken, replace the belts and retest. Check the connections from the alternator 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 condition, replace the alternator.



The system is showing normal output from the alternator, no problem detected. Press **the Enter Key**  to advance to the next screen.





The voltage output from the alternator to the battery exceeds the normal limits of a functioning regulator. Ensure all connections are tight and that there is a good ground connection. Alternator may need to be replaced.

CRANKING VOLTAGE XXX
ALT. IDLE VOLTAGE XXX

RIPPLE VOLTAGE XXX
ALT. LOAD VOLTAGE XXX




PRINT RESULT
YES
NO

Press **the Enter Key**  to display a summary of the system test results. Press the Arrow Down key to see remaining test results.

Press **the Enter Key**  to print test results or select NO to return to home screen.

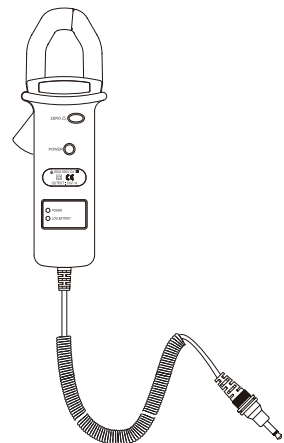
8 Amp/Volt Meter Testing

NOTE: BAT 155 Battery Tester must be connected to vehicle battery.

1. Install a 9V battery in the Volt/Amp Meter.
2. Plug Amp meter into the Amp Jack on the BAT 155.
3. Use **Arrow Keys** to select **Volt/Amp Test** , then press **the Enter Key** . **NOTE:** To cancel test procedure press and hold **Left Arrow Key** .

AMP METER TEST:

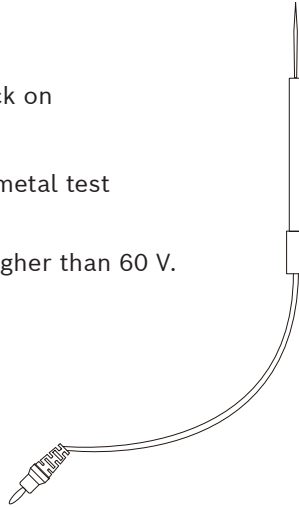
1. Press zero button on the Amp probe. Ensure the display on the BAT 155 displays a zero.
2. Press the side button to open jaws and clamp around a wire to be measured.



VOLT METER TEST:






1. Plug volt probe into volt meter jack on BAT 155 Battery Tester.
2. Touch probe tip to an accessible metal test point to measure voltage.

NOTE: Never check a system that is higher than 60 V. Damage to BAT 155 could occur.



9 Settings

NOTE: BAT 155 Battery Tester must be connected to vehicle battery.

1. Use **Arrow Keys** to select **Settings** , then press the **Enter Key** .
2. Use the Arrow Keys to scroll down through the list below: Press the **Enter Key**  to select a setting category. Use the **Arrow Keys** to navigate the options and press the **Enter Key**  to lock in the selection. **NOTE:** To return to the main settings screen press **Left Arrow Key** .
 1. LCD BACKLIGHT
 2. LANGUAGE SELECT
 3. CLOCK
 4. INFORMATION
 5. TEST COUNTER
 6. VERSION

10 Warranty Terms and Conditions

Any battery tester found defective in material or workmanship within one year from the date of purchase by a retail customer will be repaired or replaced according to published defective return test repair procedures. The existence of a defect shall be determined by the manufacturer in accordance with published warranty repair procedures. The warranty repair procedures are available upon request.

This warranty does not cover any unit that has been damaged due to accident, abuse, alternation, use for a purpose other than that for which it was intended, or failure to follow operating instructions. This warranty is expressly limited to original retail buyers. This warranty is not assignable or transferable. Proof of purchase is required for all alleged claims. Warranty cannot be authorized without proof of purchase. Warranty claims must be sent pre-paid with dated proof of purchase. Damage incurred during shipment is the responsibility of the shipper (customer returning unit) If the returned unit qualifies for warranty, the shipper will only incur shipping cost. The manufacturer reserves the right to substitute or offer alternative warranty options at its discretion.

The sole and exclusive remedy for any unit found to be defective is repair or replacement, at the option of the manufacturer. In no event shall the manufacturer be liable for any direct, indirect, special, incidental, or consequential damages (including lost profit) whether based on warranty, contract, tort, or any other legal theory.

Return Goods

Pack with sufficient over-pack to prevent damage during shipment. Damage incurred during return shipment is not covered under this warranty. Repair costs for such damages will be charged back to shipper.

WHEN RETURNING GOODS, INDICATE "RETURN GOODS" ON ALL INVOICES AND RELATED SHIPPING DOCUMENTS TO PREVENT ANY EXTRA CHARGE.



Bosch

Automotive Service Solutions, Inc.
655 Eisenhower Drive
Owatonna, MN 55060 USA

www.boschdiagnostics.com

