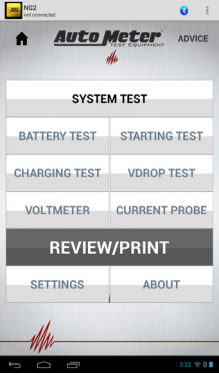
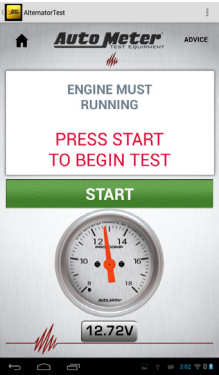


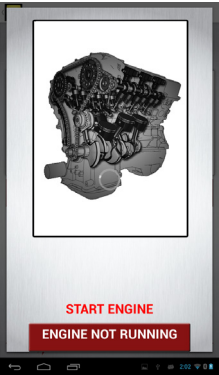
How to Use the Tester -Charging Test-



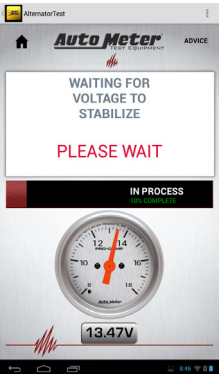
Select the Charging Test from the menu



Make sure the Load Module is connected to the battery and that the engine is running. Press the START button to start the test.



If the engine is not running, the BVA-460 will detect that and display the following screen.

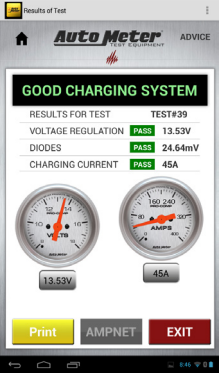


The BVA-460 will wait for the vehicles system voltage to stabilize. This can take up to 30 seconds.

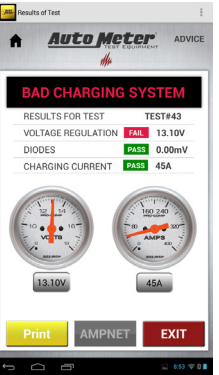
Note: Please see manual located in the Control Module Option Menu for additional information.



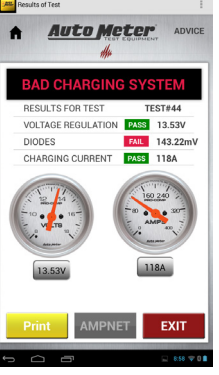
Charging Test Results



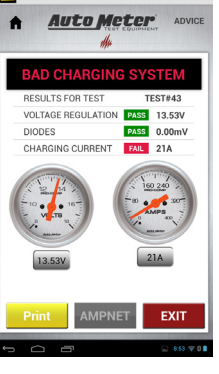
This screen will appear if the Charging System tests good.



This screen will appear if the voltage regulation is bad.



This screen will appear if the voltage ripple is high which is an indicator of a diode failure in the alternator.



If the charging system fails for low charging current, rerun the test while holding the engine at a fast idle speed. (1500-2000 RPM)

Auto Meter Products Inc.
413 West Elm St Sycamore, IL 60178
Service (815) 899-0801
Toll Free (866) 883 TEST (8378)



BVA-460 Hand-Held Battery & System Analyzer CONTROLS AND FUNCTIONS



Control and Load Module Mated and Latched



Units may be totally discharged when received. Use the wall charger to fully charge unit before use.

Control Module

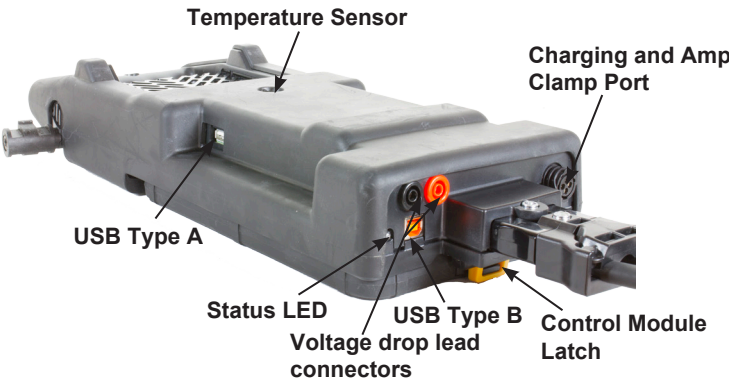


Control Module Push Button
Power on: Push down red button for 3 seconds.
Power off: Push down red button for 2 seconds.
Note: Control module must be removed from load module to power down.



Load Module



Load Module Push Button
Power on: Push and hold button for 1 second
Power off: Push and hold for more than 5 seconds
Reboot/Reset: Push and hold button for 3 to 4 seconds



Set Date/Time & Time Zone

- Time Zone**
- From Main Menu press SETTINGS.
 - Scroll down and press Set Date and Time
 - From Date & Time menu press Select Time Zone
 - From resulting list choose your local time zone
- Date and Time**
- If the tester will have a WiFi connection to the internet leave Automatic date & time selected (check mark)
 - If there will be no internet connection press Automatic date & time to deselect option and continue to set the local date and time.
- Date**
- Press Set date and enter today's date in the resulting setting box.
- Time**
- Press Set time and enter the local time in the resulting setting box.
 - Press the Back Arrow  twice to return to the main menu.
- Setup Wifi**
- From Main Menu press SETTINGS.
 - Scroll down and press WiFi Setup
 - Select your local WiFi from resulting list
 - Enter password for your local WiFi in resulting setting box
 - Once password has been entered press Connect
 - Press the Back Arrow  twice to return to the main menu

BVA-460 I/O Items

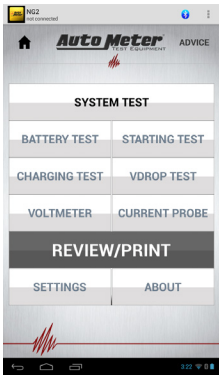
- USB Type A** - This port is used to connect USB memory sticks to save test data to. The Control module must be docked to the Load module to use this feature.
- USB Type B** - Factory use only.
- Temperature Sensor:** The Load module has an IR temperature sensor that is used to measure the temperature of the battery you are testing.
- Charging / Amp Clamp Port:** This connector serves two purposes. When

the unit is not being used the included AC charger can be connected to this port and the Control module and Load module batteries will be charged automatically. This port also connects to the optional charging station. When running tests with the unit, the optional Amp clamp can be connected.

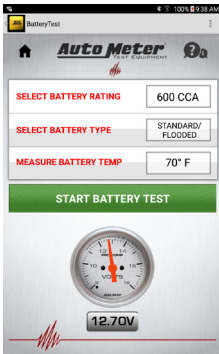
Status LED	Load Module Mode
Off	Off
Solid Yellow	Initial boot-up or test in progress
Fast Blinking Green	Re-Flashing/Firmware Updated
Solid Green	Bluetooth Disconnected
Blinking Green (Double Flash)	Bluetooth Connected
Blinking Green (Slow, once/sec)	Sleeping/Low Power
Solid Red	Internal Battery Charging
Blinking Red (Slow, once/sec)	Control Module Battery Charging
Blinking Red (Fast, twice/sec)	Initializing Bluetooth

WARNING!
TESTING OF HYBRID VEHICLES
DO NOT test the starter, alternator and/or 12 volt starting battery while it is in the vehicle.
DO NOT remove, service or test the hybrid battery pack under any circumstances.
Remove the 12 volt starting battery, starter or alternator from the vehicle prior to testing.

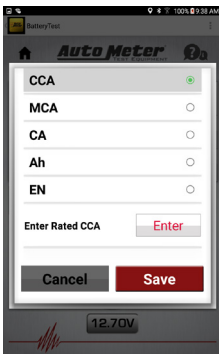
-How to Use the Tester- -Battery Test-



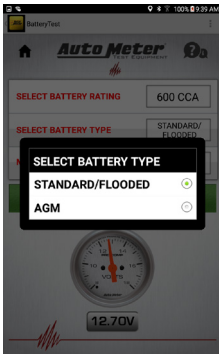
Select Battery Test from the main menu



The following screen will appear for entering values for the battery rating, type and temperature. These can be entered by pressing the button on the right for the value you want to change. Press the Start Battery Test when all the entries are correct and you are ready to test the battery.



When the Select Battery Rating area is pressed, the battery rating type can be changed by tapping on the rating type you need. The rating can be changed by pressing the rating button, then a keyboard will appear and the rating can be typed in. Press save to go back to the Battery Test screen.



When the Select Battery Type area is pressed, the battery type can be selected. Press the battery type you are testing and the unit will go back to the Battery Test screen. The battery types the BVA-460 can test are Standard Flooded and AGM.



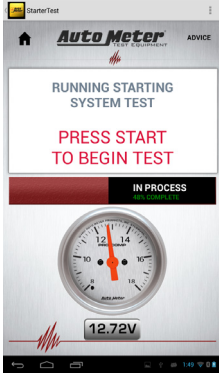
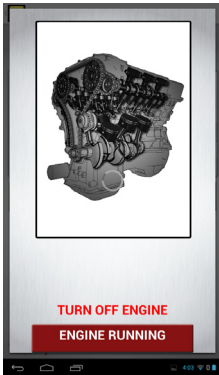
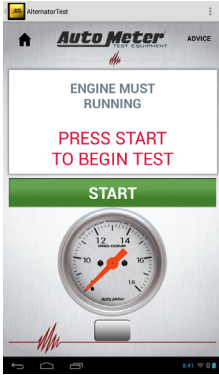
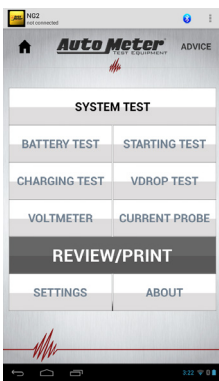
When the Measure Battery Temp area is pressed. The temperature probe screen is activated. Aim the probe at the battery from a distance of 4 to 6 inches. Press save to store the temperature reading and go back to the Battery Test screen.



The BVA-460 will display the progress of the battery test

Battery Test Results

- | | |
|----------------------------|---|
| 1. Good Battery: | The battery passed the test and can be returned to service. |
| 2. Good Needs Charge: | The battery passed the test but had a low initial voltage. Charge the battery and then return to service. |
| 3. Near End of Life: | The battery passed the test, but is near its end of life. The battery is OK for mild conditions, but may not start a vehicle in hot or cold conditions. |
| 4. Bad Battery: | The battery did not have sufficient remaining capacity to pass the test. The battery should be replaced immediately. |
| 5. Bad Low Loaded Voltage: | The battery did not have sufficient remaining capacity to pass the loaded portion of the test. The battery should be replaced immediately. |
| 6. Charge and Test: | The battery did not have a sufficient charge to do an accurate test. Charge the battery and then test the battery. |



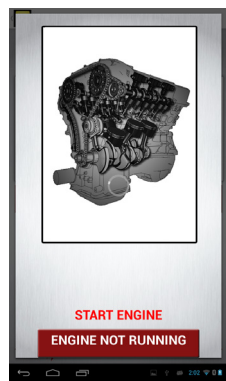
Disconnect the Control Module from the Load Module. Make sure the engine is off. Connect the Large clamps of the Load Module to the battery. Place the load module in a stable location in the engine compartment so it will not fall when the engine is started. Take the Control Module with into the vehicle. From the main menu press the Starting Test button.

When you are ready to run the Starting test; for gasoline engines, make sure the ignition key is in the off position and all accessories are off. Press the Start button. For diesel engines, turn off all the accessories, turn the ignition key to the run position and wait for the glow plugs to turn on then turn off. Press the Start button.

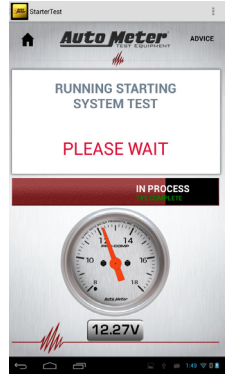
If the engine is running the BVA-460 detects that and displays this screen. Once the engine is off this screen will clear and the test will continue.

Once the starting test begins, The BVA-460 does some preliminary measurements. This takes about 7 seconds.

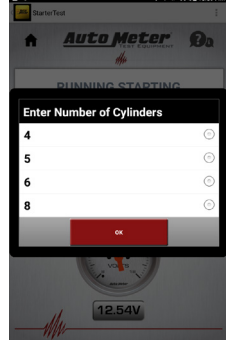
How to Use the Tester -Starting Test-



When the BVA-460 is ready it will prompt you to start the engine.



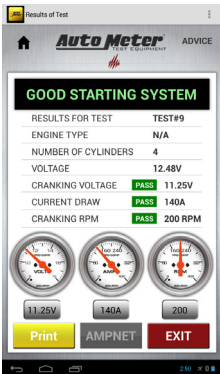
The BVA-460 will finish the starting test.



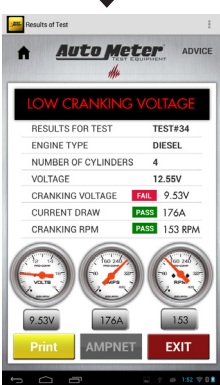
If the engine compression strokes were detected, The BVA-460 will ask how many cylinders the engine has so it can calculate the engine's cranking speed.



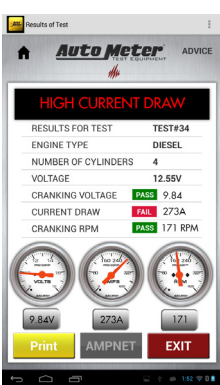
Starting Test Results



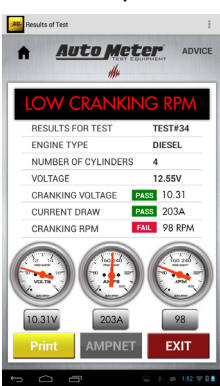
The Starting System passed.



This screen will appear if the battery voltage during cranking was too low.



This screen will appear if the starter current draw was too high.



If the tester detected the engine compression strokes during cranking, the result screen will show the engine cranking RPM. This screen will appear if the engine cranking speed during starting was too low.