



BCT-460

Operator's Manual

Hand Held-Accuracy with a Pulsed 120 Amp Load Heavy Duty

The BCT-460 is the ultimate hand-held tester. It is the industry's answer to portability in a professionally accurate load tester and system analyzer.

CONGRATULATIONS!



You have purchased one of Auto Meter's hand-held Electrical System Analyzers. It is designed to test each component of a truck's electrical charging and starting system with speed and accuracy. If you should have any questions about your tester, testing procedures, or service see the last page of this booklet for contact information.

BCT-460

Load Test Capacity.....	120 Amp
Battery sizes.....	100-1600 CCA
Display	7" (1024X600) LED, Wide Viewing Angle
Volt Ranges.....	Digital 0-30
Cooling	Vented
Leads	Load Amp-4 ft., 6 Gauge
Size	19" X 9" X 3"
Internal Battery.....	7.4 Volt Lithium Ion
Weight	7 lbs.

What to Expect from the BCT-460:

The BCT-460 is a portable full-featured menu-driven battery tester, starting, and charging system analyzer that provides quick, professional load results using Auto Meter's Digital Pulse Load. The BCT-460 is user friendly. It guides you through the test and tells you what to do next.

Caution: The BCT-460 grill may get hot after repeated use. Be sure to hold the unit from the side grips only. Keep hands away from the grill. Keep oil and liquids away from the grill and load coils.

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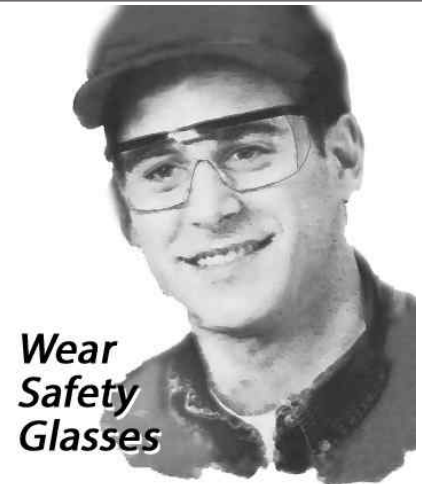


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Note: The BCT-460 performs a complete electrical system test that checks the battery bank, starter cable voltage drop, starter test, alternator cable voltage drop, and alternator test.

SAFETY

- Carefully read all operating instructions before using the BCT-460
- Wear eye protection when working around batteries.
- Be sure each test is completed before removing load clamps to prevent arcing and potential explosion from battery gases. Never remove load clamps while testing. Keep sparks flames, or cigarettes away from batteries.
- Keep hair, hands, and clothing as well as tester leads and cords away from moving blades and belts.
- Provide adequate ventilation to remove vehicle exhaust.
- In extremely cold temperatures, check for frozen electrolytic fluid before applying load. Do not attempt to Load Test or charge a battery under 20 degrees. Allow the battery to warm to room temperature before testing or charging.
- **Warning!** Never attach the BCT-460 to a battery that is connected to any other tester or charging unit. Damage may result.



**Wear
Safety
Glasses**

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.

CAUSE OF BATTERY FAILURE

- **Incorrect Application:** Wrong size battery may have inadequate cold cranking rating for original vehicle specifications.
- **Incorrect Installation:** Loose battery hold-downs cause excessive vibration, which can result in damage to the plates.
- **Improper Maintenance:** Low electrolytic fluid and corrosion on battery connections can greatly reduce battery life and affect battery performance.
- **Age of Battery:** If the date code on the battery indicates it is fairly old, the failure may be due to natural causes.
- **Overcharging:** Overcharging caused by a high voltage regulator setting or incorrect battery charging can cause excessive gassing, heat and water loss.
- **Undercharging:** Undercharging caused by a faulty charging system or low voltage regulation can cause lead sulfate to gradually build up and crystallize on the plates greatly reducing the battery's capacity and ability to be recharged.

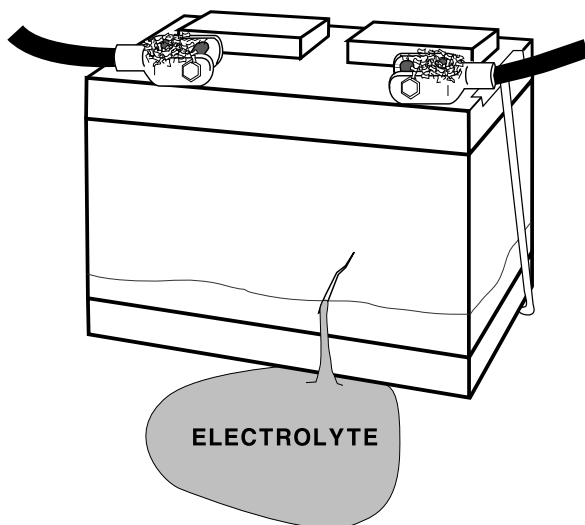
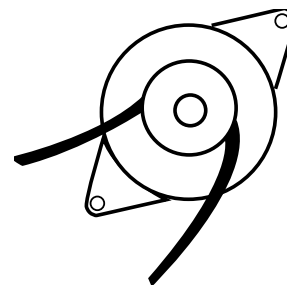
INSPECTION



- Valid heavy duty electrical system testing depends on all the components being in good operating condition. In addition, the battery **MUST** have sufficient charge for testing. Carefully perform the following steps before attempting any electrical diagnosis.

VISUAL CHECK

- **Inspect Belts** for cracks, glazed surface and fraying. Tighten loose belts.



- **Inspect Battery** for terminal corrosion, loose or broken posts, cracks in the case, loose hold-downs, low electrolyte level, moisture, and dirt around the terminals.
- If the battery terminals are corroded or dirty, clean terminals before performing any tests.

- **Inspect Starting System.** Check starter, solenoid, and regulator for loose connections, loose mounts and frayed or cracked wires.
- **Important Note:** A damaged battery must be replaced before proceeding.

WIRELESS COMMUNICATION



BLUETOOTH

The BCT-460 uses Bluetooth to communicate between the control module and load module. This allows you to make the connections, remove the control module and then run the tests from inside your vehicle.

The BCT-460 control module and load module come paired from the factory.

Bluetooth will work as long as the distance between the load module and control module is less than 30 feet. Walls, windows and other objects between the control module and load module will affect the range.

If you do experience any communication issues please look at the troubleshooting guide at the back of this manual on how to correct them.

Wi-Fi

The BCT-460 uses Wi-Fi to communicate between the control module and AMPNET server. The AMPNET service will provide firmware updates for the control module and the load module. You will need to pair the control module with your local wireless LAN. See Wi-Fi section for instructions on setting up the wireless connection.

AMPNET

The data from your BCT-460 can be downloaded to the data management software known as AMPNET (purchased separately). This software can be used to display and track your battery, starting system, and charging system test results in graphical form.

CONTROLS AND FUNCTIONS

**Control and Load Module
Mated and Latched**



**Control
Module
Latch**

Control Module



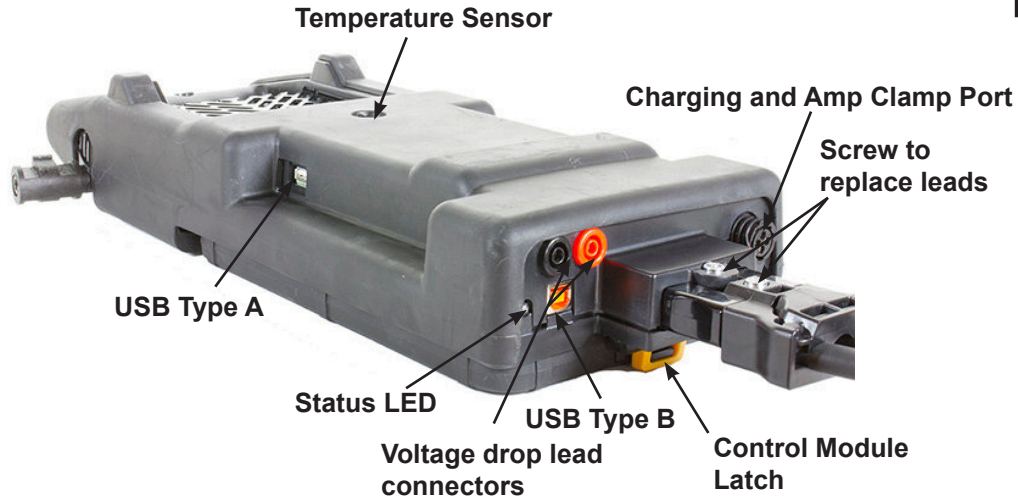
Load Module



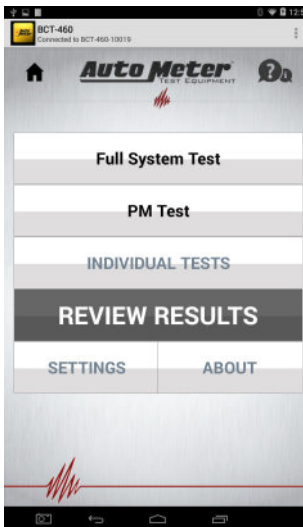
Load Module Push Button

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

CONTROLS AND FUNCTIONS cont.



LED Status	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



Main Menu: When the Control Module powers up it will go to the main menu. From here the user can access all of the units functions such as, run tests, setup the unit, and review past test data.

BCT-460 I/O Items

USB Type A - This port is used to connect USB memory sticks to save test data to, and for Control module application updates and Load module firmware updates. The Control module must be docked to the Load module to use this feature.

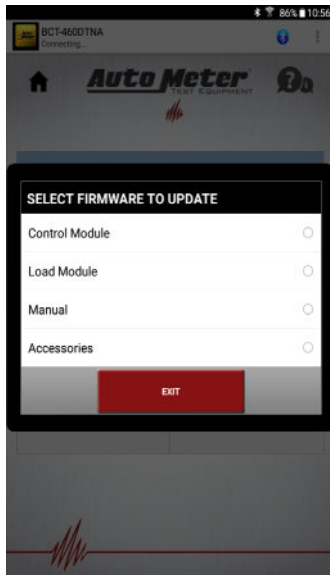
NOTE: The Load Module must not be connected to a battery or the battery charger to use the Type A USB Port.

USB Type B - Factory use only.

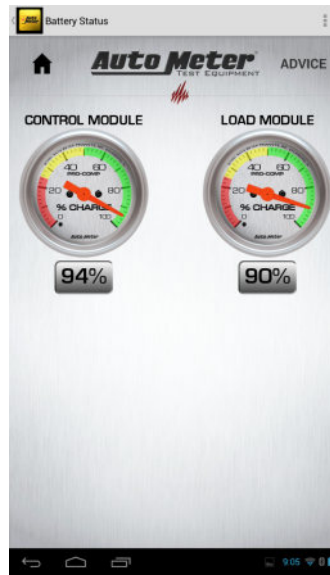
Temperature Sensor: The Load module has an IR temperature sensor that is used to measure the temperature of the battery you are testing.

Charging / Port: When the unit is not being used it should be placed on the charger (or optional charging station) to keep the batteries fully charged.

CONTROLS AND FUNCTIONS cont.



Update software screen allows the user to update both the Control modules application or the Load module firmware.



Battery Status screen shows the state of charge of the batteries in the Control module and the Load module.



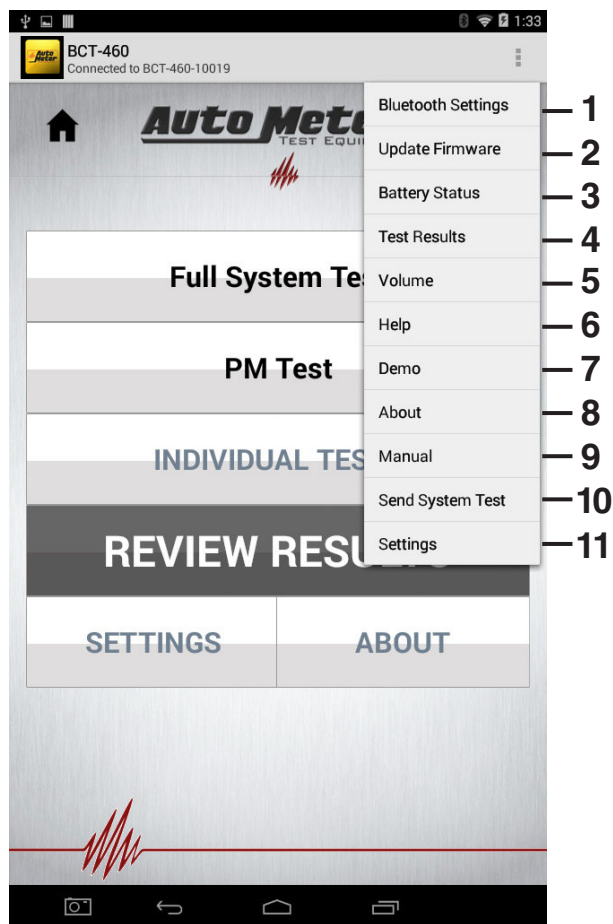
The Test Results screen shows a list of the test that have been done and allows the user to view all the details of the test.



The About screen give user the information about the applications version and how to contact Auto Meter.

SET UP

OPTION MENU DETAILS



1. Allows pairing to Bluetooth Devices.
2. Update Control Module and Load Module software.
3. Check Battery Status.
4. Show list of Test Results.
5. Adjust Control Module volume.
6. Quick Main Menu help.
7. Starts Demo Mode (if demo mode files are present)
8. About the Tester.
9. Opens Owner's Manual Viewer
10. Force upload of complete system tests.
11. Opens Tester Configuration Screen.

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 Wi-Fi 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 Wi-Fi

- From Main Menu press SETTINGS.
- Scroll down and press Wi-Fi Setup
- Select your local Wi-Fi from resulting list
- Enter password for your local Wi-Fi in resulting setting box
- Once password has been entered press Connect
- Press the Back Arrow  twice to return to the main menu

TESTER CONFIGURATION



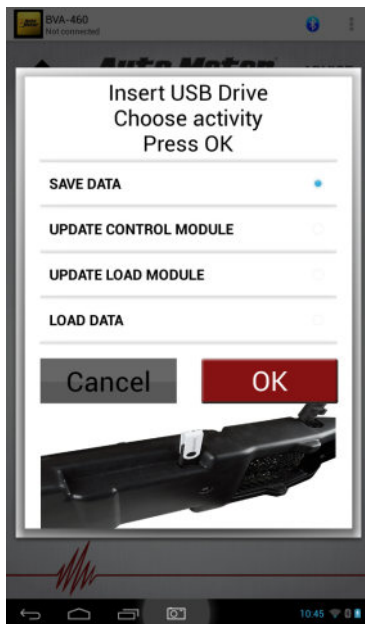
Tester Configuration		
Dealer Name Garage 1	1	
Address 413 West Elm Street		
City Sycamore		
State IL		
Zip Code		
Store Phone Number 815-895-8141	2	
AMPNET Account Number 90000		
AMPNET Location Number 1		
Default Email Do not send default email <input type="checkbox"/>		
Customer Email Do not send customer receipt <input type="checkbox"/>		
INDIVIDUAL TEST DATA ENTRY		
Vehicle ID Do not allow entry of vehicle ID <input type="checkbox"/>	3	
Technician ID Do not allow entry of technician number <input type="checkbox"/>		
Battery Date Code Do not allow entry of battery date code <input type="checkbox"/>		
Battery Serial Number Do not allow entry of battery serial number <input type="checkbox"/>		
Vehicle VIN Do not allow entry of vehicle VIN <input type="checkbox"/>		
Vehicle Odometer Do not allow entry of vehicle odometer <input type="checkbox"/>	4	
Visual Checks Do not show visual checks <input type="checkbox"/>		
TEST DEFAULTS		
Temperature Scale Fahrenheit		
Use Previous Rating Unit Rating defaults to CCA <input type="checkbox"/>		
Use Previous Rating Value Defaults to value used on previous test <input checked="" type="checkbox"/>	5	
Use Near End of Life as Result Battery results are either Good or Bad <input type="checkbox"/>	6	
Default CCA 600	7	
Calculate Cranking RPM User enters number of cylinders for calculation <input checked="" type="checkbox"/>	8	
Alternator Default Other	9	
MISCELLANEOUS SETTINGS		
Language English	10	
WiFi Setup *AMPNET* MAC Address 00:e0:4c:cb:45:a1	11	
Set Date and Time 05/03/2017 12:43PM	12	
PRINTERS		
Printer Preference AC-14/PR-12	13	

1. Store Information
2. For use with AMPNET. Set if email is desired for test result.
Default Email: Email will be sent to the account associated with AMPNET Subscription.
Customer Email: Allows the customer to provide a new email address to receive results.
3. Additional test data. Check to enable additional test data for individual tests.
4. Temperature °F of °C.
5. Set to default to use previously used battery rating unit. Clear to use previous rating value.
6. Set to default to use previously used rating value. Clear to use default rating value.
7. Set to show a Near End of Life result. Clear to show only Good and Bad battery result.
8. "Default CCA" Value.
9. Set will calculate cranking RPM starter result. Clear skips calculation.
10. Use to select default alternator setting in alternator test.
11. Choose language for tester.
12. Wi-Fi Setup.
13. Date and Time Setup.
14. Select print device.

SAVING DATA to a USB FLASH DRIVE

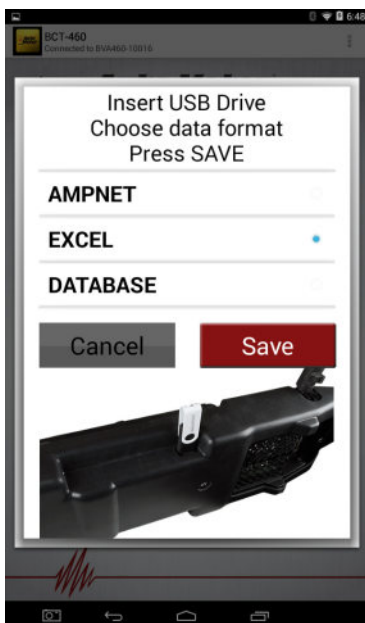


1. Control Module must be docked to Load Module.
2. Tester must be disconnected from all charging sources.
3. Plug USB flash drive into connector on the right side of tester.



4. Wait a few seconds for the USB flash drive to be detected. The following screen will be displayed.

5. Choose SAVE DATA and press OK.

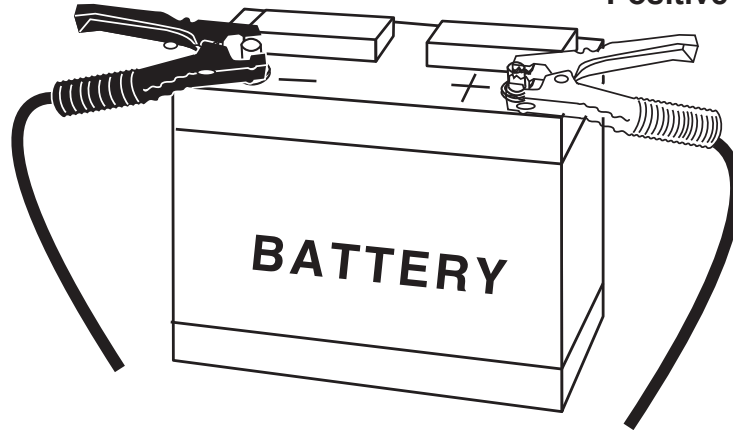


6. Choose data format and press SAVE.

7. Wait a few seconds and remove USB flash drive.

**Connect Black Clamp to
Negative (-) Terminal**

**Connect Red Clamp to
Positive (+) Terminal**

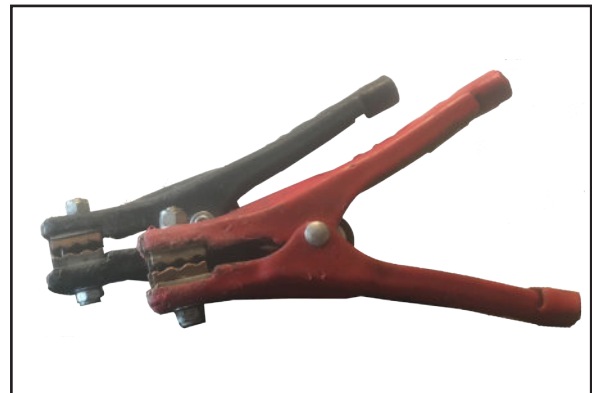


CONNECTION ERRORS

- If the clamps are reversed the Reversed Connection warning will be displayed on the Control Module with an audible beeping.
- If one or both of the clamps are not in complete contact (both of each clamp jaws) A "Check Connections" screen will appear on the control module.
- Clean battery terminals with a wire brush if battery terminals are corroded or dirty.
- Clean clamp jaws with 1 part ammonia and 10 parts water if clamp jaws are corroded or dirty.



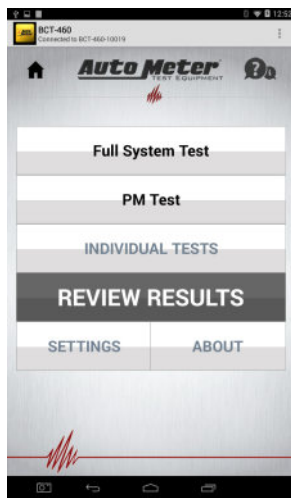
Clean Clamps



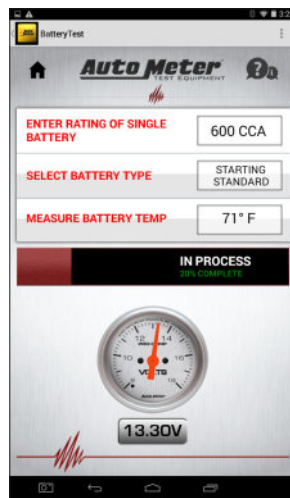
Corroded Clamps

PM TEST

The PM test should only be used during a time when the vehicle is in the shop for a PM service, NOT when the vehicle is having electrical system issues. For a vehicle with a suspected electrical problem use the Full System Test.



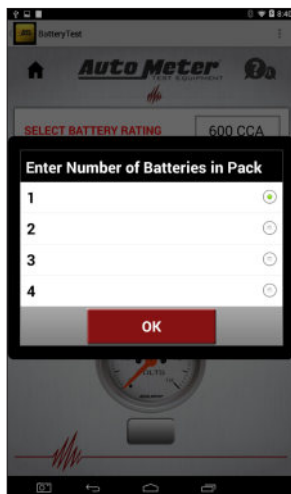
Select PM test from the main menu.



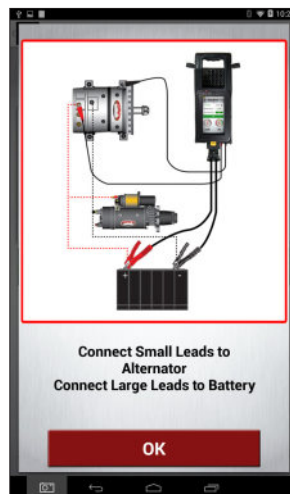
The BCT-460 will now test the battery bank.



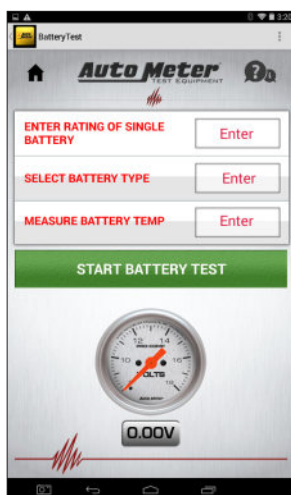
The BCT-460 will ask you to start the engine.



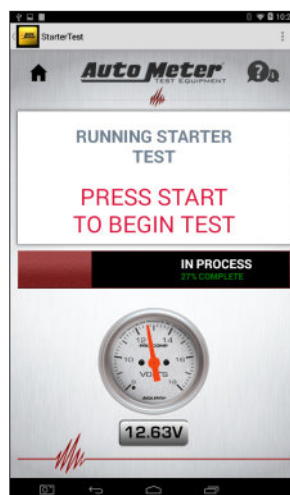
Enter the number of batteries in the bank



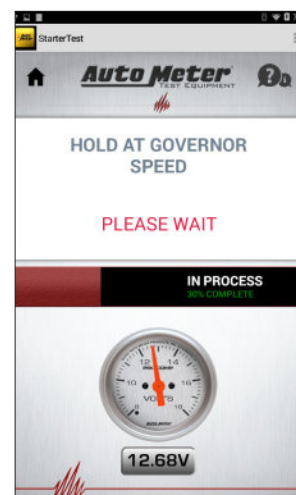
It will ask you to rev the engine to the governor speed.



Enter the individual battery information, and then press Start Battery test to test the battery bank.

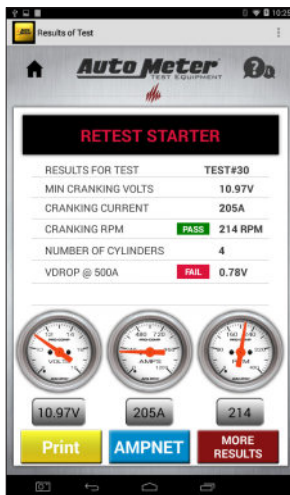


The BCT-460 will now do some measurements to prepare for the starter test.

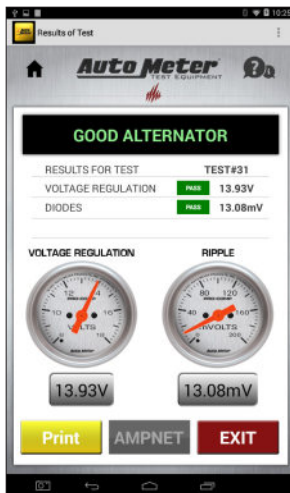


Keep the engine revving at governor speed for about 10 seconds while the BCT-460 tests the alternator

PM TEST

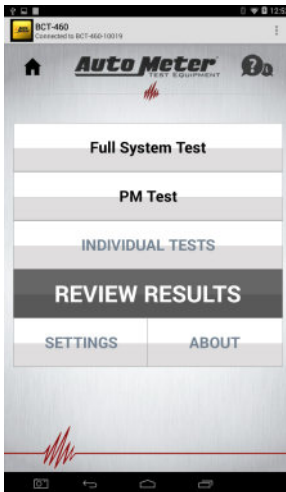


The BCT-460 will prompt you to return the engine speed to idle speed and then complete the alternator test.

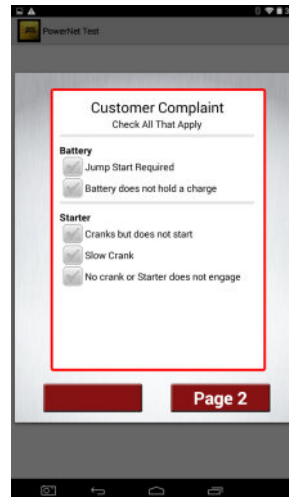


The BCT-460 will now display the results of the PM Test.

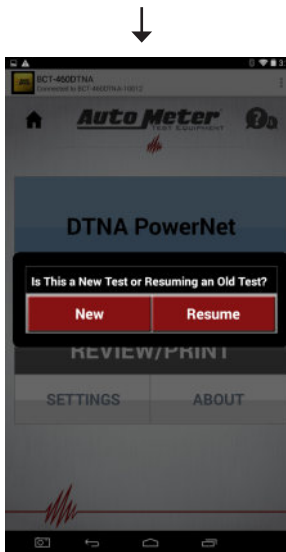
FULL SYSTEM (BATTERY BANK TEST)



Main Menu screen. Click on the Full System Test Button to start.

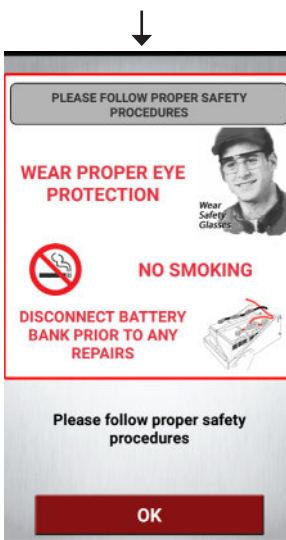
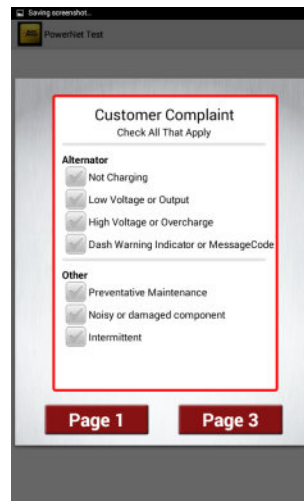
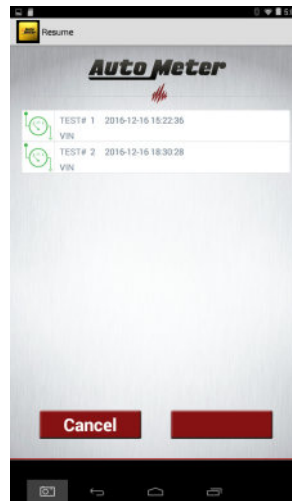


These two screens allow user to check off customers complaints. The buttons on these screens allow the user to move back and forth between them.



The user will be asked if the is a new test or does he want to resume a previous test.

If Resume is chosen a list of active tests will appear and the user can choose the test he wants to resume



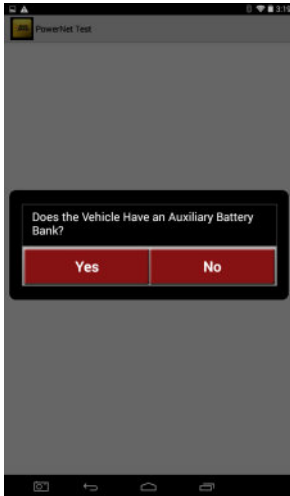
Safety Screen



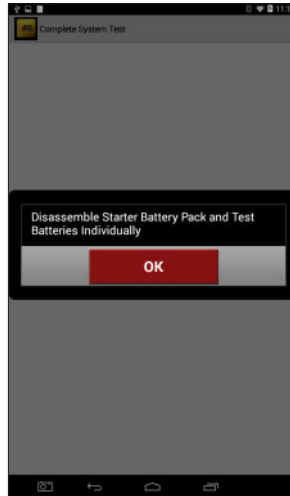
The user can enter the VIN, odometer reading, and any comments. If entering VIN a full valid VIN is required.

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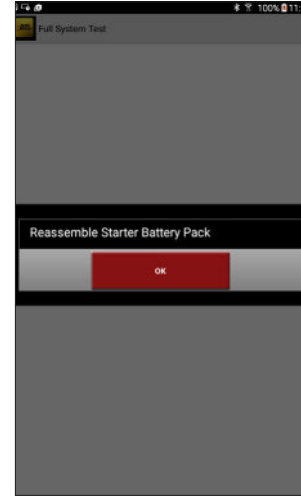
FULL SYSTEM (BATTERY BANK TEST)



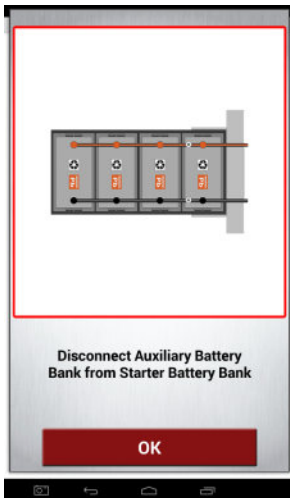
This unit will ask if the vehicle has an auxiliary battery bank.



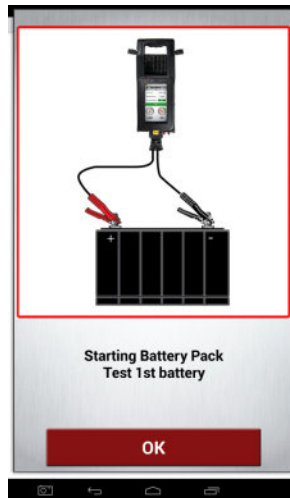
Disassemble battery pack and test batteries individually



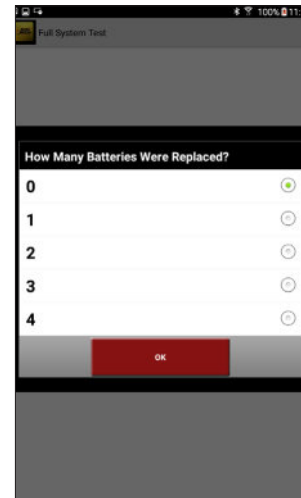
Reassemble the battery pack



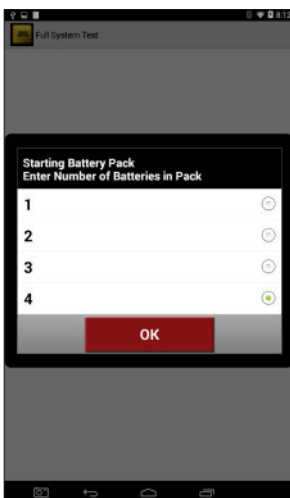
If does then the unit will instruct the user to disconnect the auxiliary bank from the starter bank.



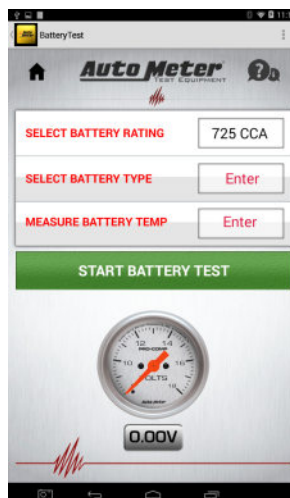
This unit will show the user how to connect up to the battery bank.



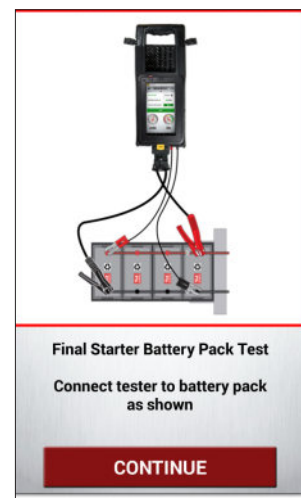
Note how many batteries replaced



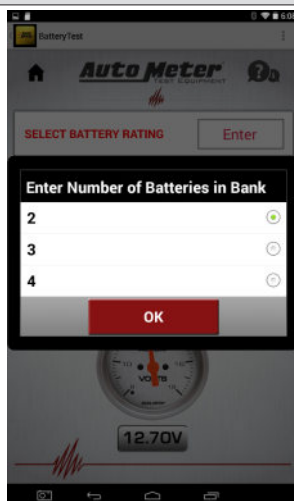
This unit will ask how many batteries are in pack.



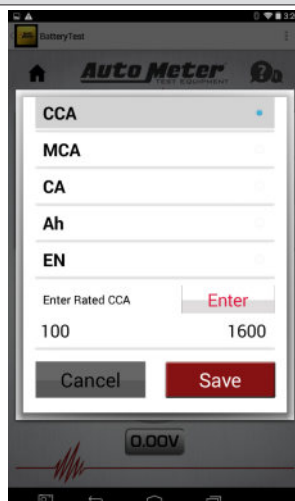
Continue with individual battery test as referenced in individual test (battery test) section of this manual. Continue testing batteries for all batteries in pack.



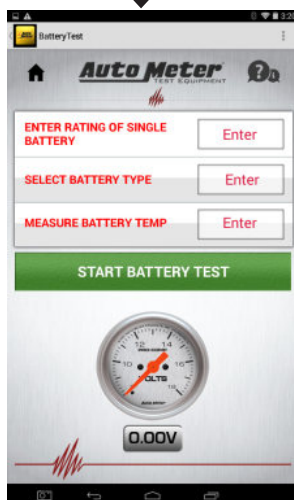
FULL SYSTEM (BATTERY BANK TEST)



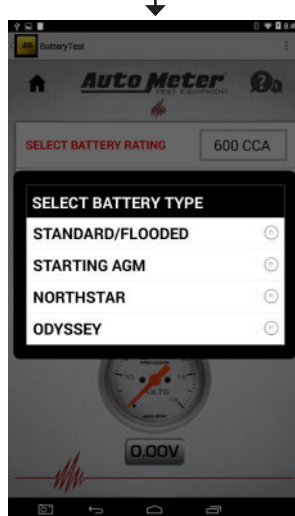
The user will be asked how many batteries are in the bank.



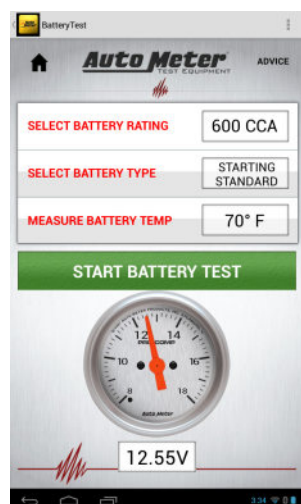
The user can enter the rating of a single battery in the bank. He can also choose the type of rating the battery has.



On this screen the user will enter the information needed to run the test.



The user can enter the type of battery in the bank.



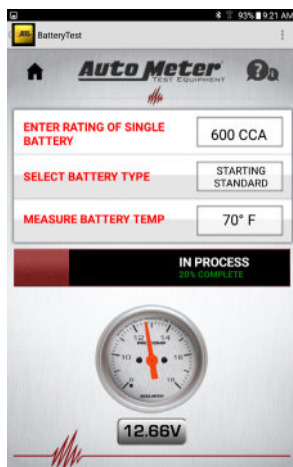
The entered information is now displayed on the screen.



The unit will continuously read the temperature from the IR temperature sensor and display it.

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FULL SYSTEM (BATTERY BANK TEST)



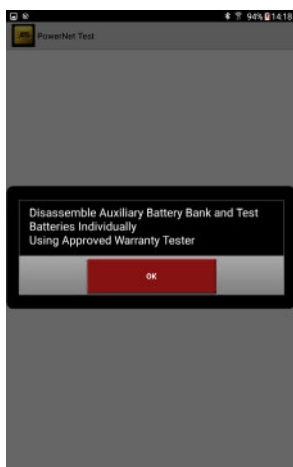
The BCT-460 will now do the final test of the starter bank. It will then ask you to repeat the test on the auxiliary bank if the vehicle has one. If this is the final test of either the starter bank or auxiliary bank, the unit will show the test results.



This screen shows the results of the final battery bank test.

After the final starter pack test, if the vehicle has an auxiliary battery bank, the user will be instructed to disassemble the auxiliary bank and test batteries individually.

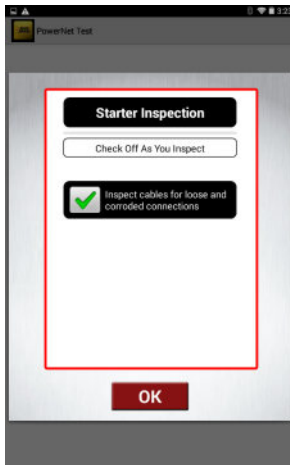
If the vehicle does not have an auxiliary bank or when the auxiliary bank final test is complete then the user can proceed to the next test.



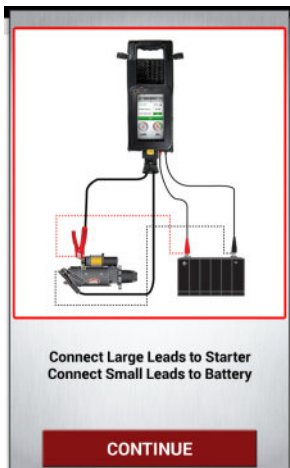
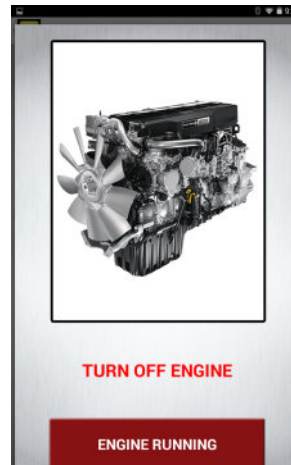
NOTE: If this is the first pass or if a starter repair was needed then the unit will go to the starter test. If the starter passed but an alternator repair was needed, then the unit will proceed to the alternator test.

NOTE: The BCT-460 will do the starter bank test first and then the auxiliary bank.

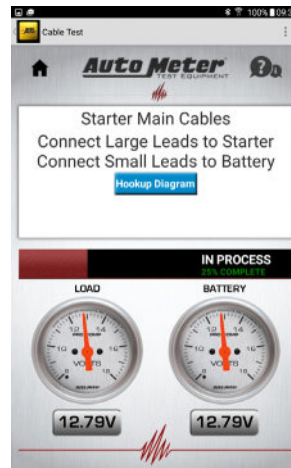
FULL SYSTEM (STARTER CABLE VOLTAGE DROP TEST)



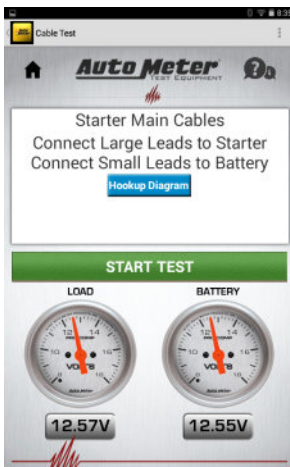
The BCT-460 will instruct the user to visually check the starter cables and connections. The user must check off to proceed.



The BCT-460 will show the user how to connect up to the starter. The larger red clamp goes on the positive (+) starter post. Larger black clamp goes on the negative (-) starter ground. The small red clamp goes to the Battery Bank positive (+). The small black clamp goes to the Battery Bank negative (-).



The BCT-460 will conduct a starter cable voltage drop test.



The BCT-460 will make sure the engine is off, if it isn't the following screen will appear, if it is press the start button.

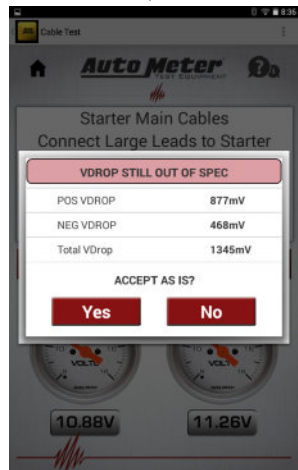


The BCT-460 will display the results. If the voltage drop is good the user will be instructed to start the engine

FULL SYSTEM (STARTER CABLE VOLTAGE DROP TEST)

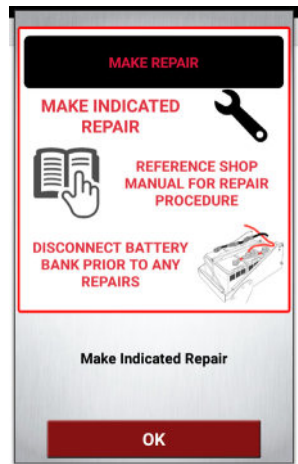


If the voltage drop is high , the user will be instructed to repair the cable on the first pass.

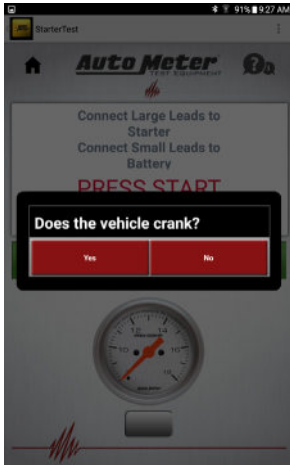


On the 2nd or later tries the user is given the option to Accept "As Is" the VDrop to continue the test.

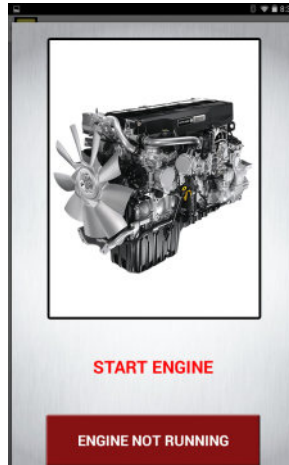
After the repair is made the user will need to repeat the Voltage Drop Test.



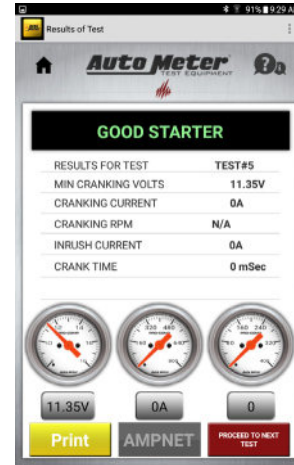
FULL SYSTEM (STARTER TEST)



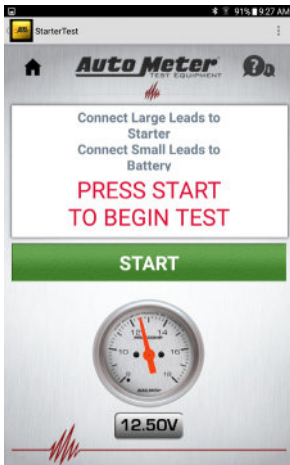
The BCT-460 will ask if the vehicle cranks. If no, follow no crank situation.



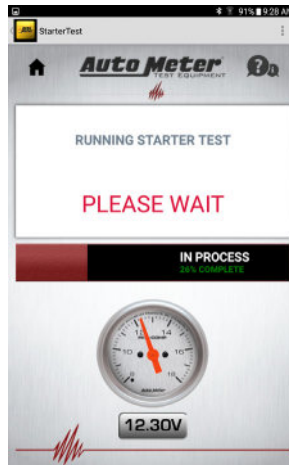
Start the Engine



When the starter passes the user then can proceed to the alternator cable voltage drop test.

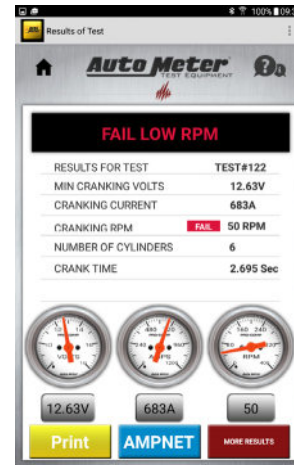


Press the Start key to begin the test. The unit will take some preliminary measurements.

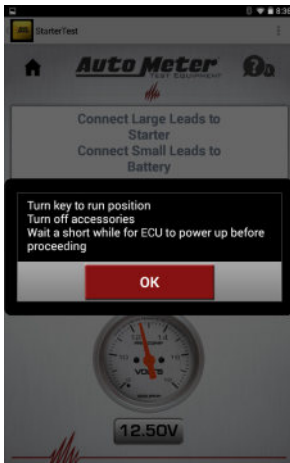


The BCT-460 will monitor the starter current and voltage while the engine is cranking.

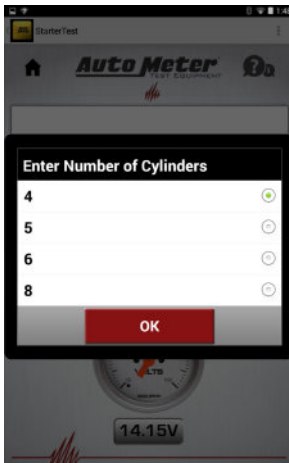
The BCT-460 will use the logged data to determine the cranking current, cranking voltage, cranking time, and cranking RPM



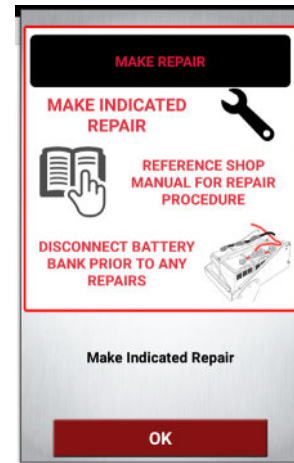
If the starter fails the user will be asked to make a repair.



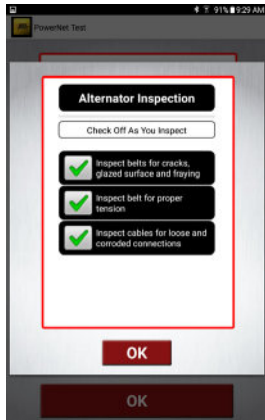
Turn the key to the run position. Wait for the ECU to power up and grid heater/glow plugs to turn off.



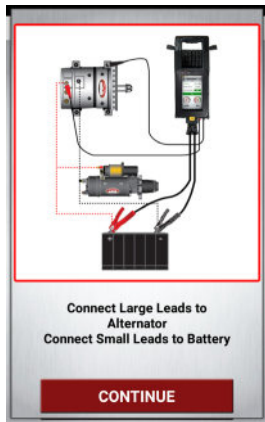
If the engine starting RPM was detected, the BCT-460 will ask how many cylinders the engine has to determine the starting RPM. If not then the BCT-460 will ask the user to repeat the test.



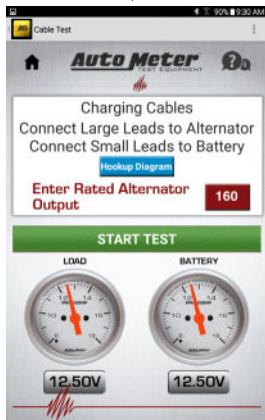
FULL SYSTEM (ALTERNATOR VOLTAGE DROP TEST)



The BCT-460 will instruct the user to visually check the belt and alternator cables and connections. The user must check these off to proceed.



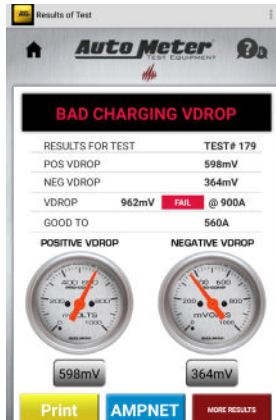
The BCT-460 will show the user how to connect to the alternator. Place the large Red clamp to the alternators positive (+) terminal. Place the large black clamp to the ground.. Place the small red clamp to the battery bank (+) and the small black clamp to the battery bank (-).



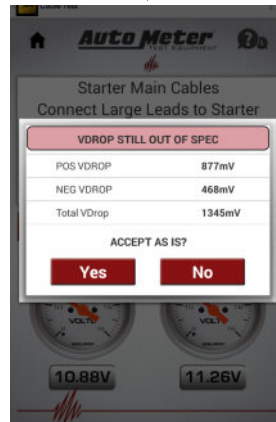
The BCT-460 will need the user to enter the rated output of the alternator.



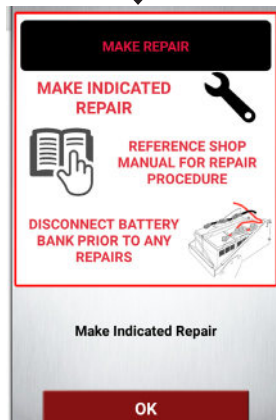
The BCT-460 will conduct a alternator cable voltage drop test.



If the voltage drop is high, the user will be instructed to repair the cable on the first pass.

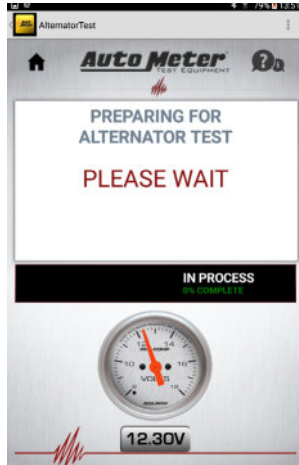


On the 2nd or later tries the user is given an option to Accept "As Is" the high VDrop to continue with the test.

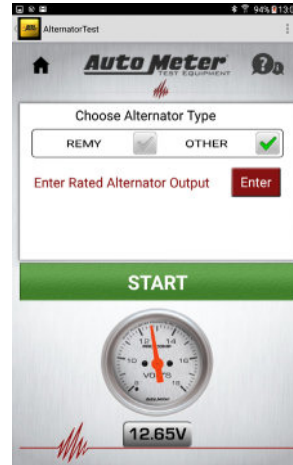


The BCT-460 will display the results. If the voltage drop is good the user will be instructed to start the engine.

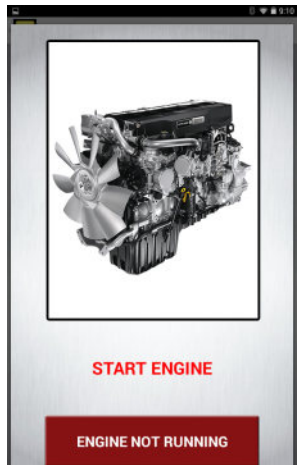
FULL SYSTEM (ALTERNATOR TEST)



The BCT-460 will make some preliminary measurements to prepare for the alternator test.



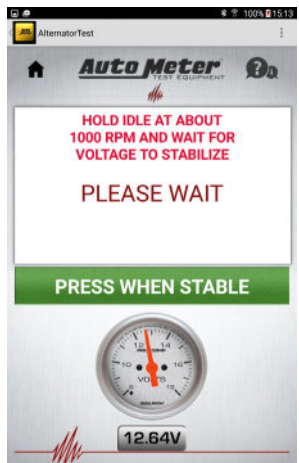
The BCT-460 will need to know if the alternator is a Remy or other, then press start to continue.



Start the Engine



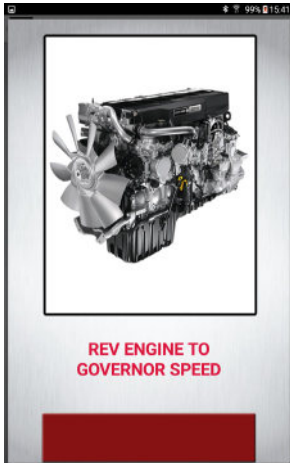
If the BCT-460 determines that more loads are needed to fully test the alternator, it will ask the user to turn on the loads such as the headlights and fans. If the loads are OK the the unit skips this screen and proceeds to the governor speed portion of the test.



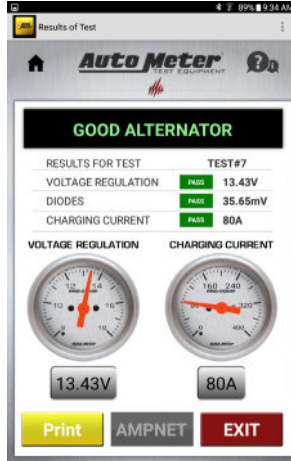
The BCT-460 will instruct the user to hold the engine RPM at 1000 and wait for the voltage to stabilize. The user then can press the button when the voltage is stable



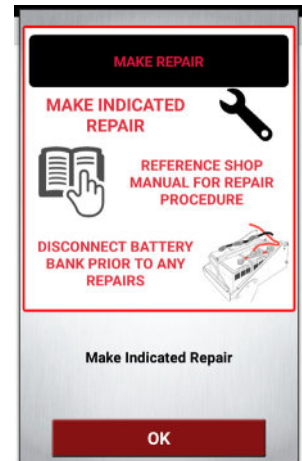
FULL SYSTEM (ALTERNATOR TEST)



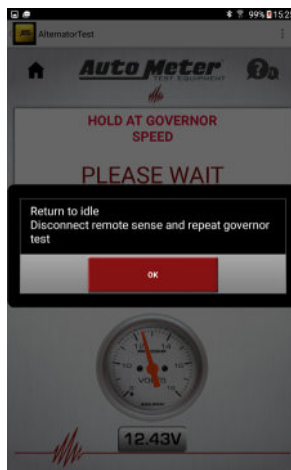
The BCT-460 will instruct the user to rev the engine to governor speed and hold it there.



The results of the test will be displayed. Any failure will be highlighted in red.

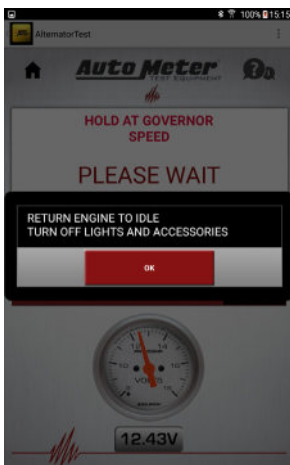


While the engine is at governor speed the unit will look for low and high regulation and measure the output current and the ripple.

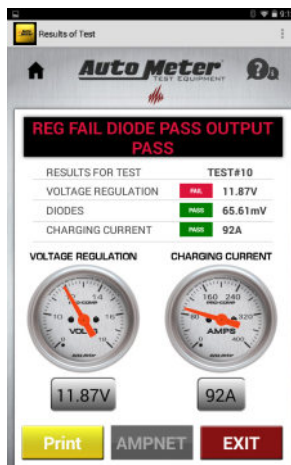


If the alternator fails due to high voltage regulation and it has remote sense the BCT-460 will instruct the user to disconnect the remote sense wire and repeat the governor speed test.

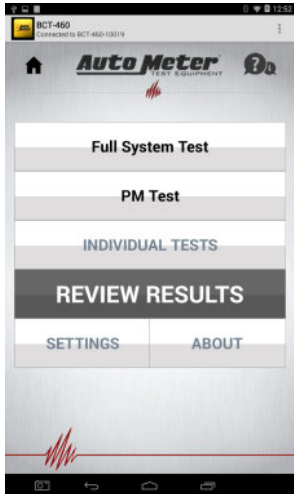
If the alternator fails for low voltage regulations high ripple voltage, or low output current, the user will be directed to repair the alternator



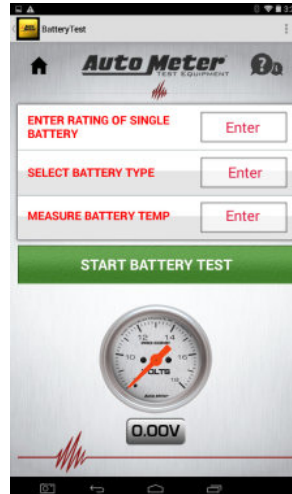
When the test is complete the BCT-460 will instruct the user to return to idle. If loads were requested to turn on, this screen will remind the user to turn them off.



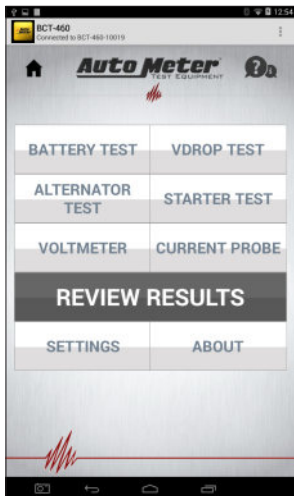
INDIVIDUAL TESTS (BATTERY TEST)



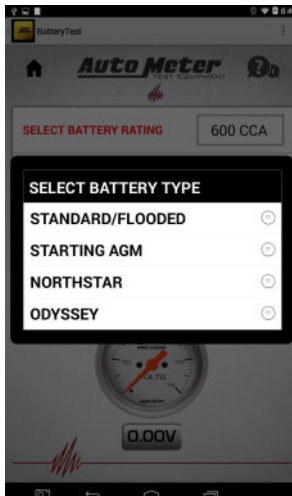
Select Individual Tests from the main menu. Then select battery test.



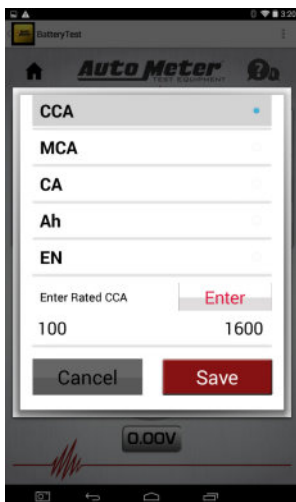
The following screen will appear with default values for the the battery rating, type and temperature. These can be changed by pressing the button on the right for the value you want to change. Press the Start Battery Test when all the entries are correct and you are ready to test the battery.



Select battery test.



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 BCT-460 can test are Starting Standard and Starting AGM.



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 Enter, then a keyboard will appear and the rating can be typed in. Press save to go back to the Battery Test screen.



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.

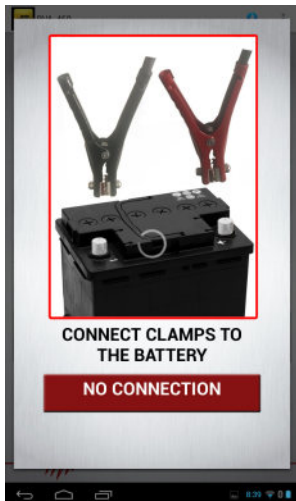


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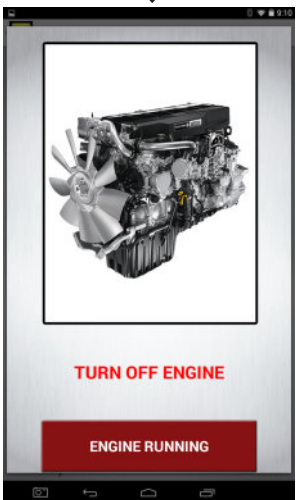
INDIVIDUAL TESTS (BATTERY TEST)



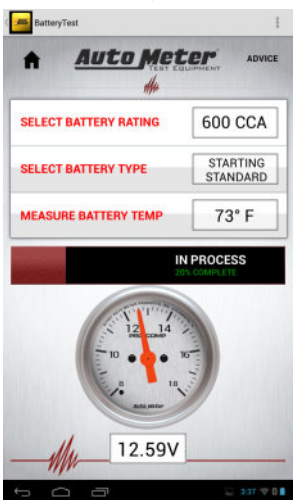
These screens show the results the BCT-460 will return after a battery test. The information shown is test number, measured capacity, rated capacity, the state of health and the battery's initial voltage. All tests are saved internally in the BCT-460.



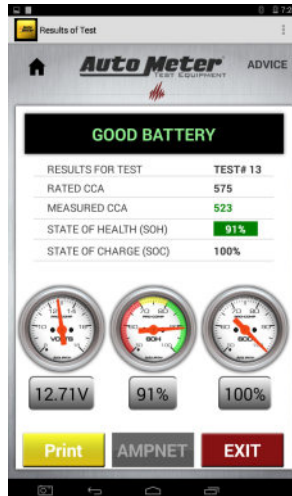
If there is a connection issue the following screen will appear. Check the connections and make sure the battery post and clamps are clear of any corrosion.



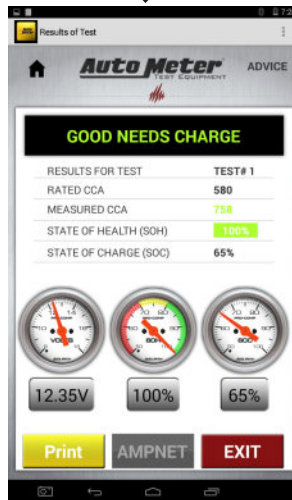
If the engine is running the charging system will affect the battery test. The BCT-460 will detect that and prompt you to shut off the engine before running the battery test.



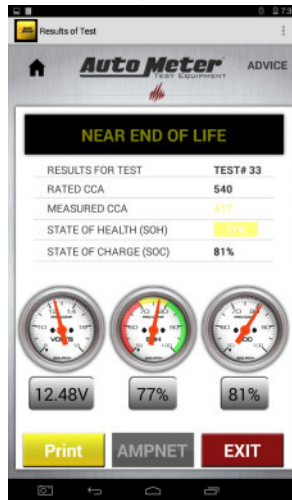
The BCT-460 will display the progress of the battery test



The battery passed the test and can be returned to service.



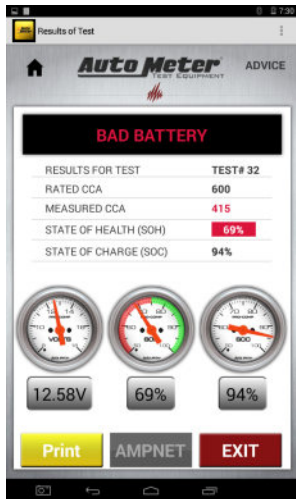
The battery passed the test but had a low initial voltage. Charge the battery and then return to service.



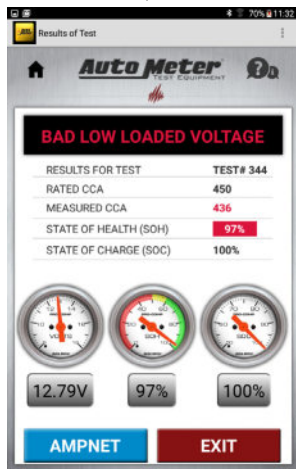
The battery passed the test, but is near its end of life. The battery is OK for mild conditions, but may not start a vehicle in hot or cold conditions.

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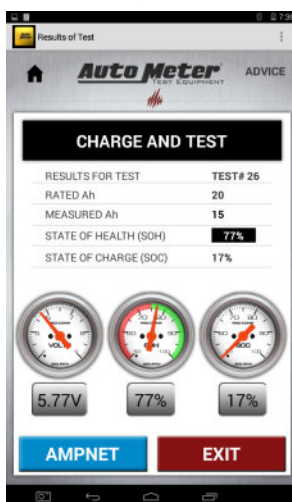
INDIVIDUAL TESTS (BATTERY TEST)



The battery did not have sufficient remaining capacity to pass the test. The battery should be replaced immediately.

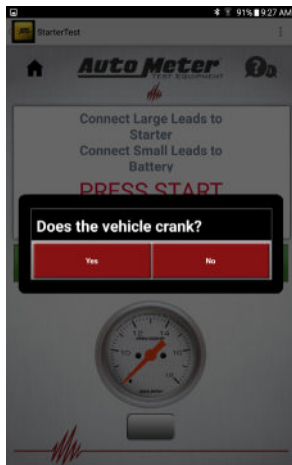


The battery did not have sufficient remaining capacity to pass the loaded portion of the test. The battery should be replaced immediately

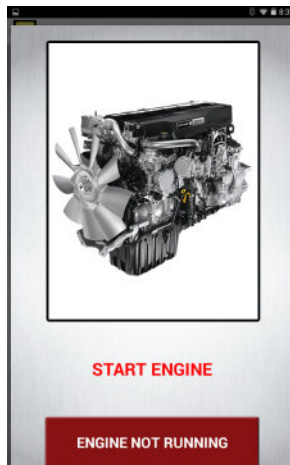


The battery did not have a sufficient charge to do an accurate test. Charge the battery and then test the battery.

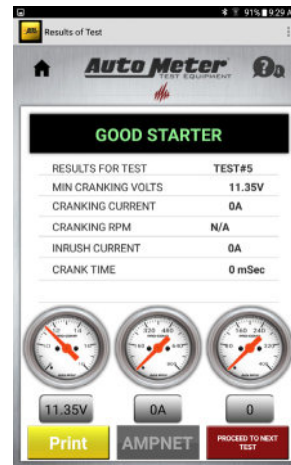
INDIVIDUAL TESTS (STARTER TEST)



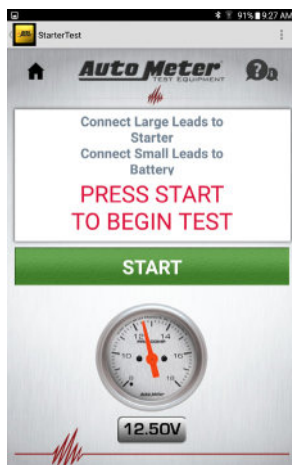
The BCT-460 will ask if the vehicle cranks. If no, follow no crank situation.



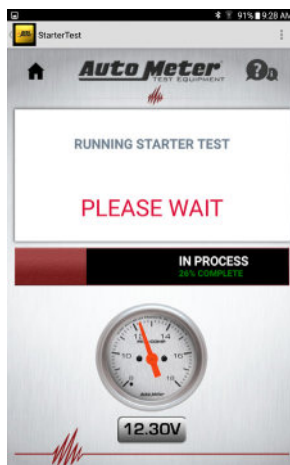
Start the Engine



Good Starter.

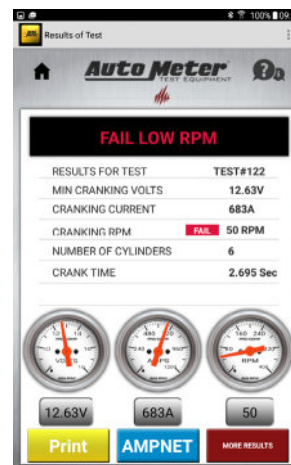


Press the Start key to begin the test. The unit will take some preliminary measurements.

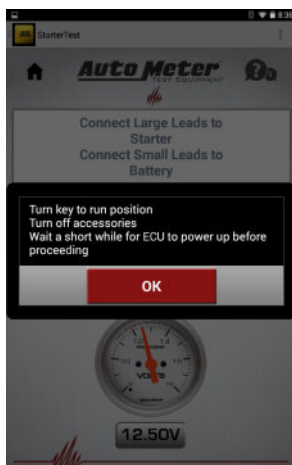


The BCT-460 will monitor the starter current and voltage while the engine is cranking.

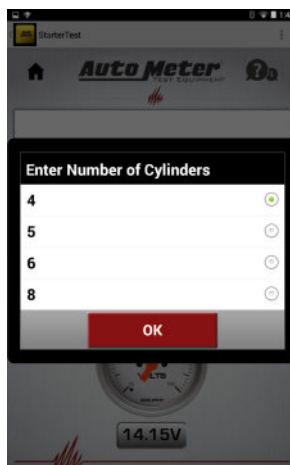
The BCT-460 will use the logged data to determine the in-rush current, cranking current, cranking time, and cranking RPM



Failed Starter



Turn the key to the run position. Wait for the ECU to power up.

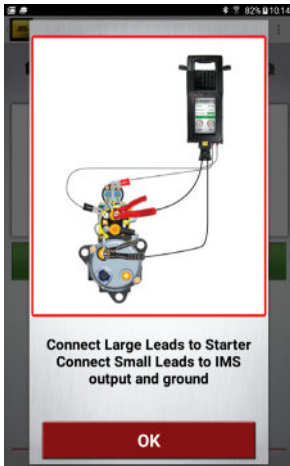


If the engine starting RPM was detected, the BCT-460 will ask how many cylinders the engine has to determine the starting RPM. If not then the BCT-460 will ask the user to repeat the test.

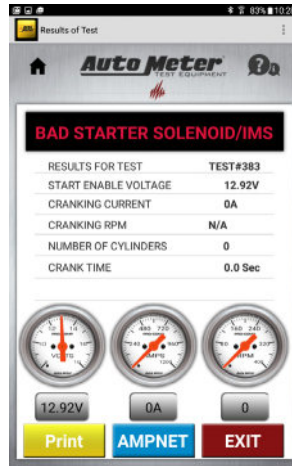


INDIVIDUAL TESTS (STARTER TEST)

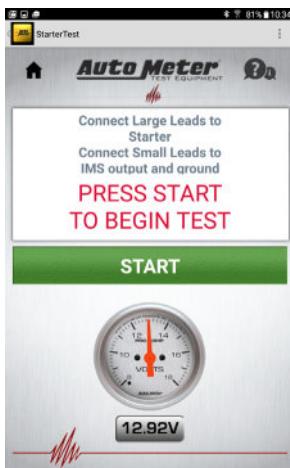
No Crank Situation



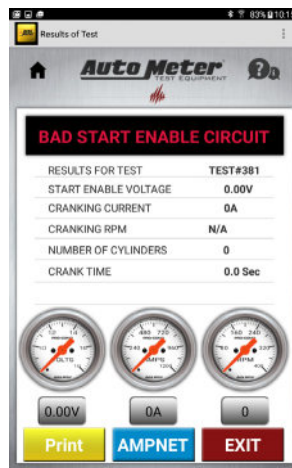
The BCT-460 will show the user how to connect large red clamp to starter positive. Connect large black clamp to starter ground. Connect small red clamp to IMS output. Connect small black clamp to starter ground.



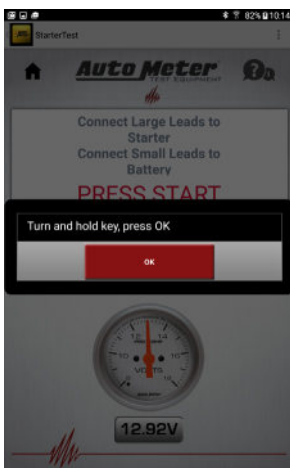
The test will determine whether the problem is with the starter.



Press the Start to begin the test.



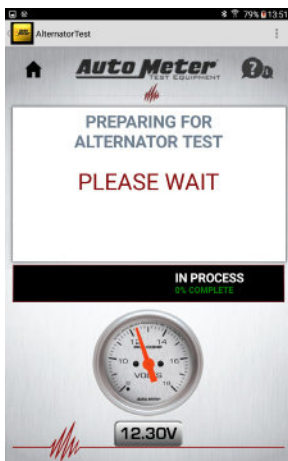
Or whether the problem is in the start enable circuit.



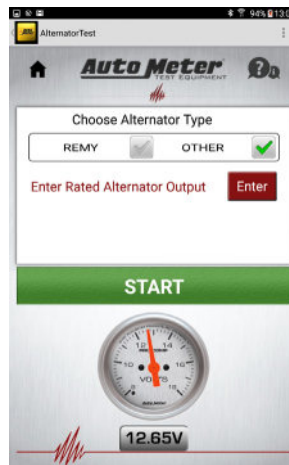
The BCT-460 will prompt you to turn and hold key. Press OK while holding key.



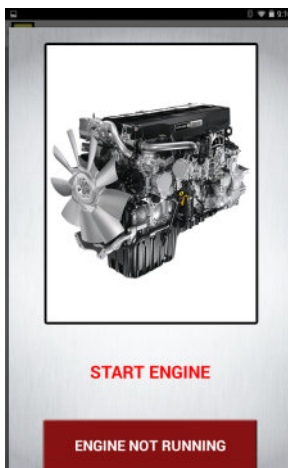
INDIVIDUAL TEST (ALTERNATOR TEST)



The BCT-460 will make some preliminary measurements to prepare for the alternator test.



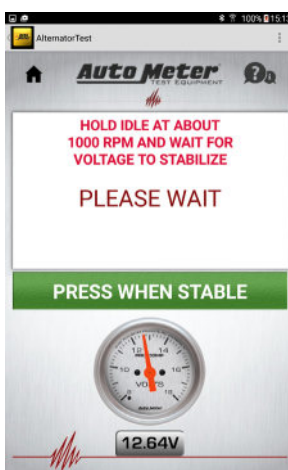
The BCT-460 will need to know if the alternator is a Remy or other, then press start to continue.



Start the Engine



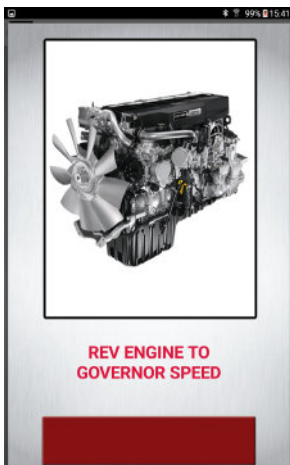
If the BCT-460 determines that more loads are needed to fully test the alternator, it will ask the user to turn on the loads such as the headlights and fans. If the loads are ok the the unit skips this screen and proceeds to the governor speed portion of the test.



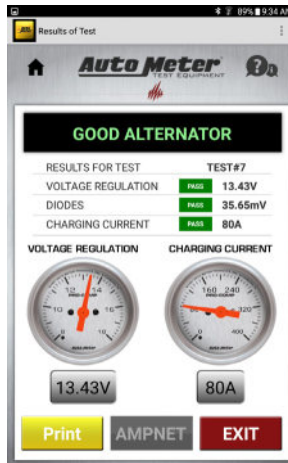
The BCT-460 will instruct the user to hold the engine RPM at 1000 and wait for the voltage to stabilize. The user then can press the button when the voltage is stable



INDIVIDUAL TEST (ALTERNATOR TEST)



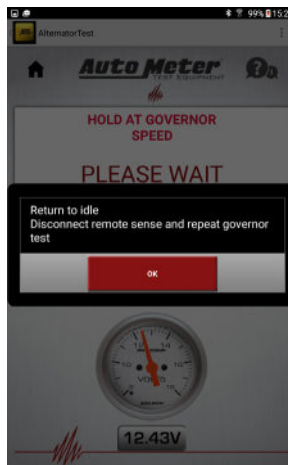
The BCT-460 will instruct the user to rev the engine to governor speed and hold it there.



The results of the test will be displayed. Any failure will be highlighted in red.

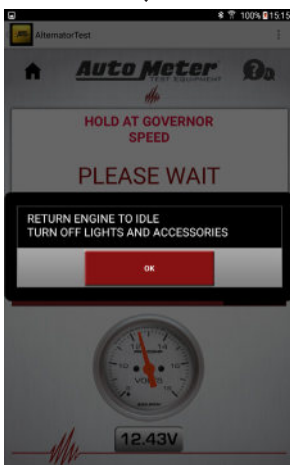


While the engine is at governor speed the unit will look for low and high regulation and measure the output current and the ripple.

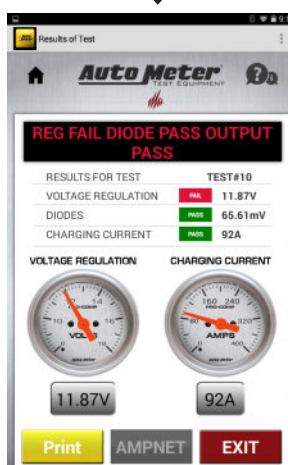


If the alternator fails due to high voltage regulation and it has remote sense the BCT-460 will instruct the user to disconnect the remote sense wire and repeat the governor speed test.

If the alternator fails for low voltage regulations high ripple voltage, or low output current, the user will be directed to repair the alternator



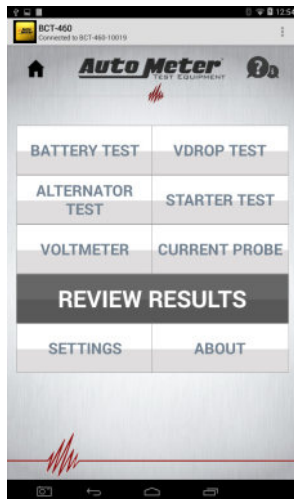
When the test is complete the BCT-460 will instruct the user to return to idle. If loads were requested to turn on, this screen will remind the user to turn them off.



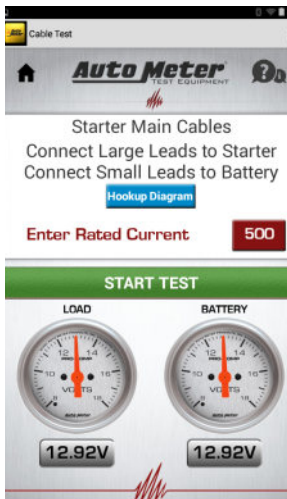
VOLTAGE DROP TEST (Starter Cable Test)



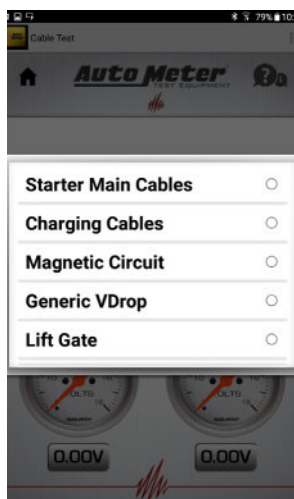
The voltage drop test allows you to measure the voltage drop across both the positive and negative cables running from the battery to the starter and alternator or any other device within your vehicle. This test can be used to determine if the cables or connections are the cause of any problems.



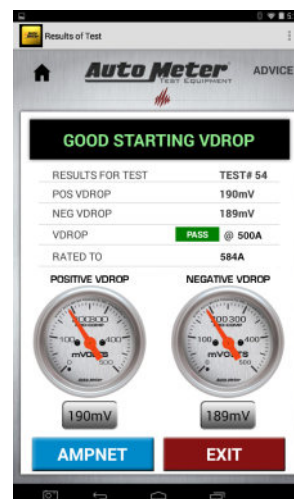
Select individual tests, then select the V DROP Test from the main menu.



Test in process, please wait.



Select Starting Cable Test.



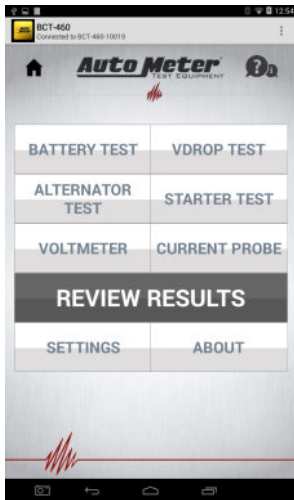
If the combined voltage drop of the positive and negative circuit is less than 500mV, the voltage drop test passes. If the voltage drop test fails you should start by troubleshooting and repairing the side of the circuit with the highest voltage drop.

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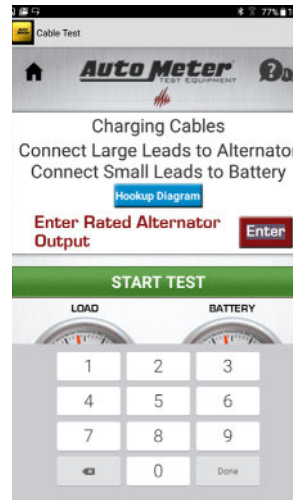


The screen will show you where to make your connections. The large clamps need to be connected to the starter terminals. The red clamp to the starter positive terminal, black to the starter ground. The small clamps need to be connected to the battery posts. The small red clamp to the battery +, the small black clamp to the battery.

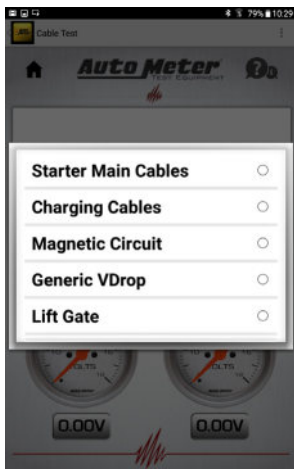
VOLTAGE DROP TEST (Charging Cable Test)



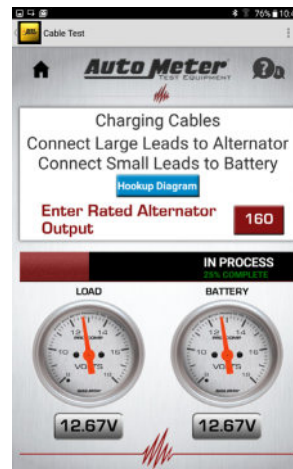
Select individual tests, then select the V DROP Test from the main menu.



To set the test current, press the Test current box and a numeric keypad will appear. Enter in the alternator output for the vehicle you are testing. Press the Done button and then press the Start Test button.



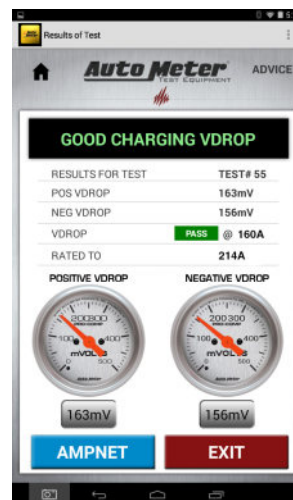
Select Charging Cable Test.



Test in process, please wait.



The screen will show you where to make your connections. The large clamps need to be connected to the alternator terminals. The red clamp to the alternator positive terminal, black to the alternator ground. The small clamps need to be connected to the battery posts. The small red clamp to the battery +, the small black clamp to the battery.

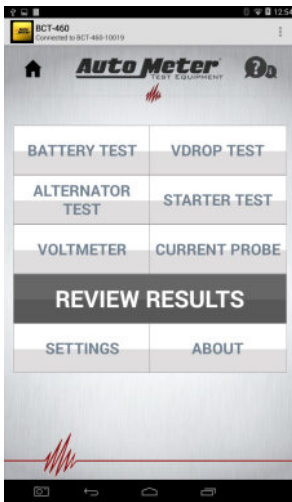


If the combined voltage drop of the positive and negative circuit is less than 500mV, the voltage drop test passes. If the voltage drop test fails you should start by troubleshooting and repairing the side of the circuit with the highest voltage drop.

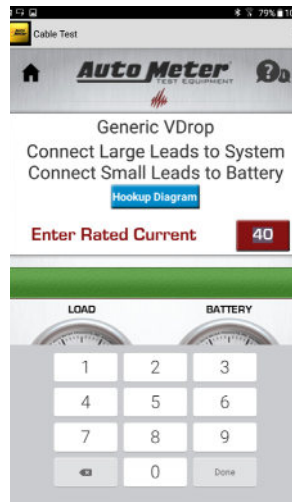


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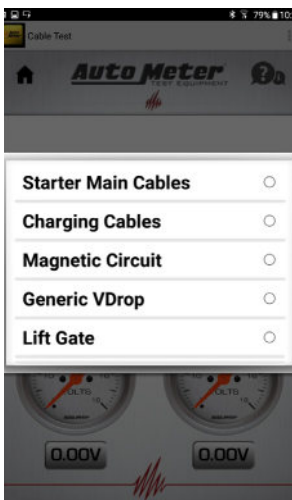
VOLTAGE DROP TEST (Generic Cable Test)



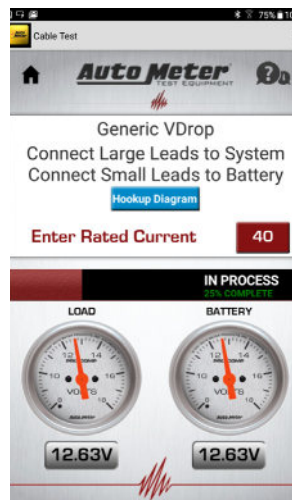
Select individual tests, then select the V DROP Test from the main menu.



To set the test current, press the Test current box and a numeric keypad will appear. Enter in the test current for the circuit you are testing. Press the Done button and then press the Start Test button.



Select Generic Cable Test.



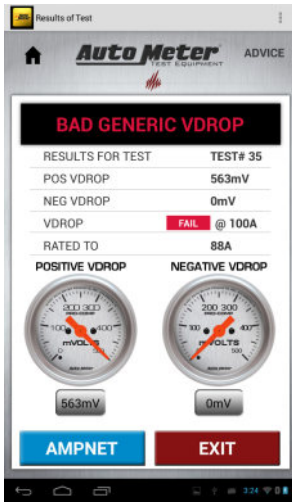
Test in process, please wait.



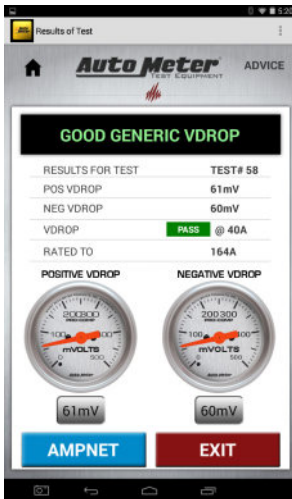
If you are doing a generic test, the screen will tell you to make your connections. The large clamps need to be connected to the end of the cables you are testing. The red clamp to the positive end, black to ground. The small clamps need to be connected to the battery posts. The small red clamp to the battery +, the small black clamp to the battery.

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VOLTAGE DROP RESULTS



If the voltage drop is high the test will return a bad result. The cable that is bad can be determined by looking at the Pos and Neg drop results. In this screen the positive cable is the problem.



If the combined voltage drop of the positive and negative circuit is less than 500mV, the voltage drop test passes. If the voltage drop test fails you should start by troubleshooting and repairing the side of the circuit with the highest voltage drop.

NOTE: If a total system voltage drop greater than 500mV is measured, the BCT-460 will show a failed voltage drop test.

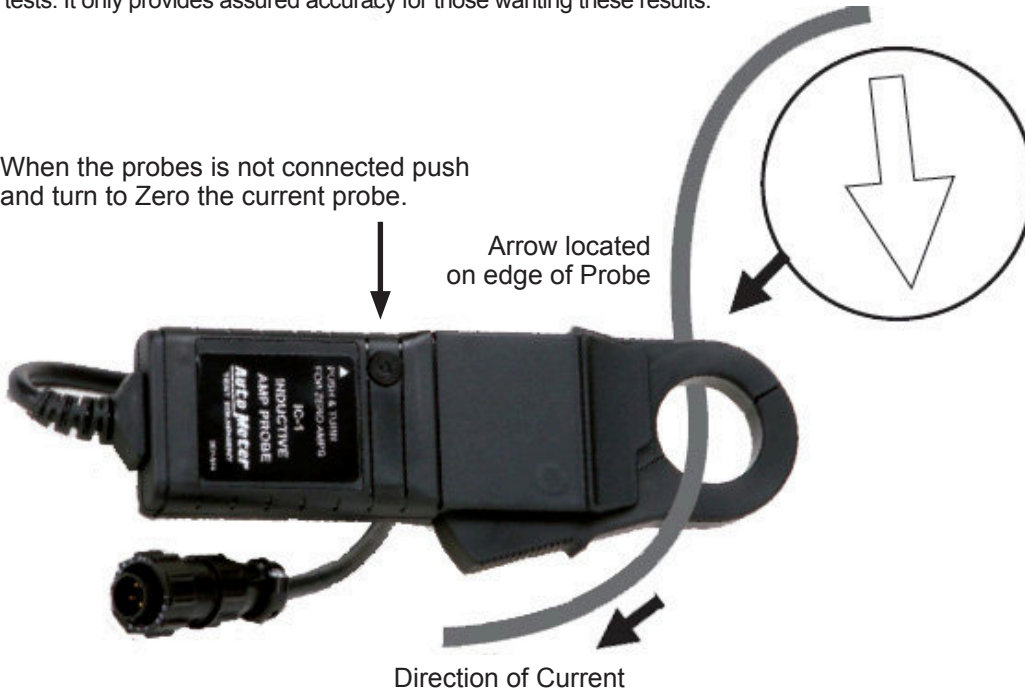
USING THE OPTIONAL CURRENT PROBE



The Current Probe is optional. This section explains the proper use of the Current Probe, but is not required to run any of the tests. It only provides assured accuracy for those wanting these results.

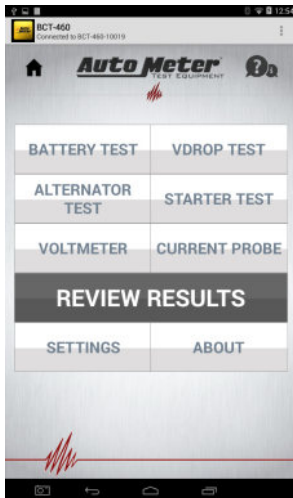
When the probe is not connected push and turn to Zero the current probe.

Arrow located on edge of Probe



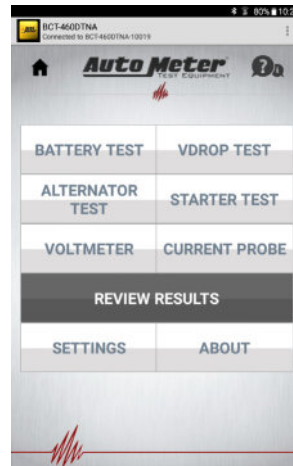
Direction of Current

Voltmeter



Select individual tests. To use the Voltmeter function, press the Voltmeter button on the Main Menu.

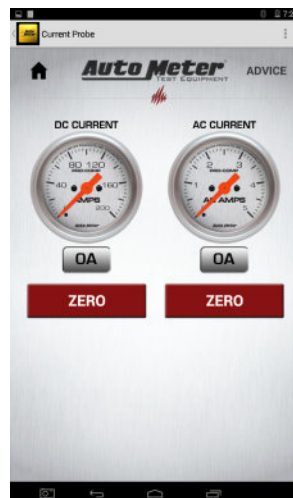
Current Clamp



Select individual tests. To use the Current Probe to measure current going through a cable, Press the Current Probe button.



This screen will appear and show the DC voltages on the large and small clamps. If the engine is running the ripple (AC Voltage) will be measured and displayed.



This screen will appear and display the measured DC and AC currents.

TROUBLESHOOTING



PROBLEM	SOLUTION
The Control Module will not turn on.	<ul style="list-style-type: none"> On the Control module hold the power button on for at least 5 seconds. If the Control Modules still does not turn on, place the Control Module into the Load Module. Plug the charger into the Load Module and look for the Load Module's LED to go to a blinking red. This will indicate that the Control Modules is being charged. Let the Control Module charge for at least 3 hours.
The Load Module LED is off.	<ul style="list-style-type: none"> Remove the Control Module and press the Load Module button for one second. The LED should turn red for about a second then turn green. If the LED still does not turn on, the Load module battery may need recharging. Plug in the charger and connect it to the Load Module. The LED should stay a steady red while charging. Let the Load module charge for 3 hours. Note: Both the Control module and Load module batteries will be charged if the clamps are connected to a fully charged 12V battery.
The Control Module will not make a Bluetooth connection to the Load Module	<ul style="list-style-type: none"> Shut down the Control Module by holding the power button down for 1 second. Press the Power off button on the screen when it appears. Answer OK, to the Power off prompt. On the Load Module. Press the button for about two seconds. This will reset the Load Module. The LED will blink Red twice and then go off for less than a second, then turn Red, then turn Green On the Control module hold the power button on for at least 5 seconds to turn it back on. When the Auto Meter application loads, the Modules should now automatically connect.
The BCT-460 says I need to connect the clamps when I have already connected them.	<ul style="list-style-type: none"> Make sure the both jaws of the clamps have a good connection. Clean any corrosion from the battery post and the clamps. If the battery is completely dead, (Voltage less than 1 volt.) the BCT-460 will not detect the battery. Charge the battery before testing.
I have tested a battery and got a Charge and Test result after I have charged the battery.	<ul style="list-style-type: none"> A Charge and Test results occurs when the battery voltage is not high enough to perform an accurate test. Make sure your charger is working properly. The battery may not be taking a charge thus it can be rated as a bad battery if you continue to get a Charge and Test result.
Completely Discharged Control Module Battery	Recognize a completely discharged Control Module battery when the power button is pressed and held and the outline of a battery appears on the screen. To recover, plug the external charger into the Control Module.
To power on Control Module while Control Module is charging.	Press and hold power button until Auto Meter Logo appears. A few seconds later a battery outline will appear. When it does press and hold the power button again while the battery outline is visible. Once the battery outline goes away, release the button. The Auto Meter Logo will reappear and the Control Module will continue to boot.

LIMITED WARRANTY



12 MONTHS FROM DATE OF PURCHASE

The manufacturer warrants to the consumer that this product will be free from defects in material or workmanship for a period of twelve (12) months from the date of original purchase. (90 days for cables and clamps.

Products that fail within this 12 month warranty period will be repaired or replaced at the manufacturer's option to the consumer, when determined by the manufacturer that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts and the necessary labor by the manufacturer to effect the repair or replacement of the product. In no event shall the manufacturer be responsible for special, incidental or consequential damages or costs incurred due to the failure of this product.

Improper use, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. The manufacturer disclaims any liability or consequential damages due to breach of any written or implied warranty on its test equipment.

WARRANTY AND SERVICE INFORMATION

Warranty claims to the manufacturer's service department must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser and is non-transferable. Shipper damage incurred during return shipments is not covered under this warranty. It is the responsibility of the shipper (the customer returning the Test Equipment) to package the tester properly to prevent any damage during return shipment. Repair costs for such damages will be charged back to shipper (customer returning the Test Equipment). Protect the product by shipping in original carton or add plenty of over-pack cushioning such as crumpled up newspaper.



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