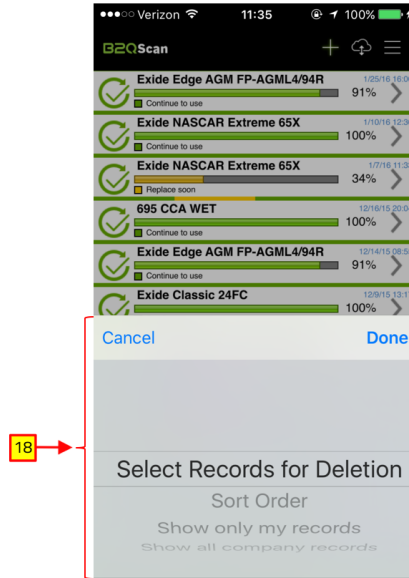
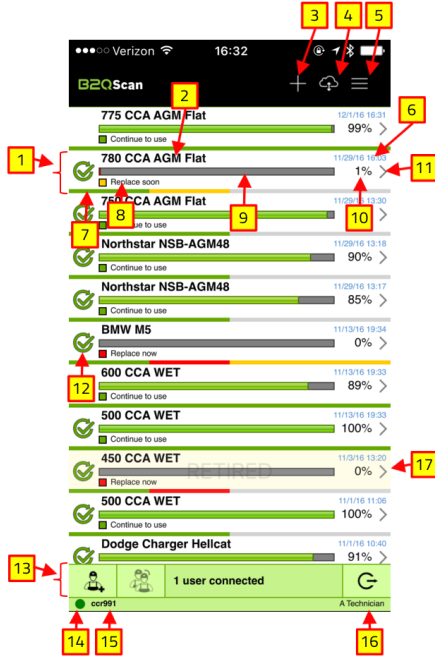


B2QScan App Test Outputs and Definitions

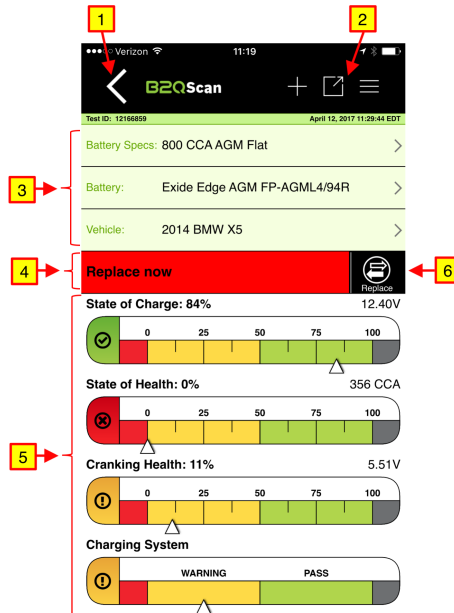
Tests List "Main" scene (will be blank when opening application for the first time)

"Main" view options (press and hold on any test record to display these choices)



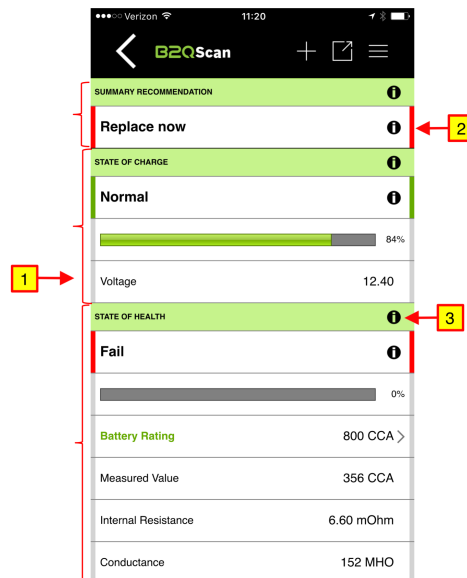
1	An individual test record.
2	Test record title: The title will vary depending on completeness of user inputs, and also based on user selectable title schemes accessed via the Options list (see #5).
3	Begin a test icon: tap to initiate the test process.
4	Synch icon: tap to manually synchronize local data with the cloud-based data server.
5	Options list: tap to change the signed-in user, change user password, view user's company location info (if joined to a company location), change general app settings, and view general app info.
6	Date and time the test was performed.
7	4-segment quick-view indicator: this indicator is at the bottom of each test, in the following order left->right 1) battery state of charge status 2) battery life status 3) cranking test status 4) charging system status. Green=pass, yellow=warning, red=fail, gray=unknown.
8	Test Summary Recommendation: This indicates the overall test recommendation, based on a combination of battery, cranking and charging system tests.
9	Battery Life % bar graph.
10	Battery Life % numerical value.
11	Tap the right arrow to proceed to Test Summary Scene.
12	Synchronized indicator: this icon will appear after data is successfully synched to the B2Q Database Server. If a new test is performed, or an existing test record is edited, the icon will disappear until the next synchronization.
13	Multi-user fast switching bar – enables fast switching between accounts in multi-user environments. This is a B2Q Digital Services subscriber option only.
14	B2Q Database Server connection icon - used to indicate a working connection to the B2Q Database Server.
15	B2QScan app username registered for the user presently signed-in.
16	First and last name of the user signed-in.
17	Battery retired (removed) from service, as indicated by light yellow background and sublimated "Retired" text.
18	Basic test management and sorting functions that are accessed by tapping then holding on any test record. They include delete, sort, and filter.

Test Summary scene



- | | |
|---|--|
| 1 | Tap to return to the “main” Tests List scene. |
| 2 | Test Report Share icon: tap to email, print, or save the test report. |
| 3 | Test description fields: Tap on right arrow to proceed to Test Details scene. |
| 4 | Test Summary Recommendation – This is the most critical indicator on the display, and indicates the overall test recommendation, based on a combination of battery, cranking and charging system tests. |
| 5 | Color-coded Status Indicator Gauges – for quickly viewing the status of battery state of charge, battery state of health, battery cranking health, and charging system health. Each gauge has an icon on the left: ✓ = pass, ! = warning, ✘ = fail, ? = unknown. |
| 6 | Replace battery icon - initiates a process to retire the battery and install a new battery to replace it. This is a B2Q Digital Services subscriber option only. |

Test Detail scene



- 1 The Test Detail Scene is split into several scrollable sections, and displays all test values, recommendations, status indicators, and test descriptions in detail. The sections are divided into Summary Recommendation, State of Charge, State of Health, Cranking Health, Charging Health, Battery details, Automobile details, and other supporting fields.
- 2 Color coded bars help for quick-view indication of pass (green), warning (yellow), fail (red) or unknown (gray) conditions.
- 3 “i” icons may be tapped for in-app help, which provide detailed descriptions for each section they appear in.

Test Detail Outputs with Definitions

Test Summary Recommendation	Recommendation based on the results of all completed tests
Charge and continue to use	The battery is not fully charged, but is considered to have useful life remaining. Charge according to manufacturer specifications before returning to service.
Charge and replace soon	The battery is not fully charged, and less than half of useful life remains. Consider proactive replacement soon. Charge according to manufacturer specifications before returning to service.
Charge and retest	The battery is too discharged to determine battery condition (State of Health) with sufficient accuracy. Charge according to manufacturer specifications and repeat the test.
Check Battery Size, Replace now	The State of Health test indicates the battery had reached end of life, however the Cranking Health test result is acceptable. These two tests are contradictory. Possible causes: 1. Bad tester connection during test - Disconnect and test again. 2. Battery oversized for this application - Replace with correctly sized battery. 3. If vehicle was jump started during this test, then battery replacement is advised. If not, continue to use.
Check Starter Motor, Check Battery Size, Continue to Use / Check Starter Motor, Check Battery Size, Replace Soon	The State of Health test indicates the battery has useful life remaining, however the Cranking Health test indicates the battery is struggling to start the vehicle. These two tests are contradictory. Possible causes: 1. Battery State of Charge was low prior to the test - Charge and test again. 2. Battery wiring and terminals - Check that battery terminals are clean and cable clamps properly tight. 3. Starter motor - Check starter motor using appropriate diagnostic methods. 4. Battery is too small - Is the battery undersized for the vehicle specification?
Continue to use	The battery has useful life remaining.
Replace now	This battery has reached its end of life (SoH% = 0). Immediate replacement is advised.
Replace soon	The SoH% is below 50%. Less than half of the battery's useful life remains. To reduce the risk of sudden failure, replacement before 0% is advised. A proactive replacement decision should consider the SoH%, the age of the battery, the risk tolerance of the owner, and typical use.
Enter Battery Rating	The State of Health can't be calculated until a rating is entered. Select 'Battery Rating' and enter the correct reference value for the battery.
Charge and Enter Battery Rating	The battery is not fully charged. Charge according the manufacturers specifications. The State of Health can't be calculated until a rating is entered. Select 'Battery Rating' and enter the correct reference value for the battery.
Battery State of Charge Status	State of Charge indicates the charge level of the battery prior to testing. A test can be performed on some batteries at less than full charge, however testing accuracy is reduced.
Normal	The battery voltage before testing was normal.
Empty	The battery is too discharged to determine battery condition (State of Health) with sufficient accuracy. Charge according to manufacturer specifications and repeat the test.
High Charge	The battery voltage before the test was high. Testing at normal charge levels improves diagnostic accuracy. Check alternator or charger for proper operation.
Low Charge	The battery voltage before the test was low. To improve diagnostic accuracy, charge according to manufacturer specifications and repeat the test.
Battery State of Health Status	State of Health is an approximation of a battery's tested performance compared to its original rating. 100% indicates the battery is performing 'like new'. 0% indicates the battery has reached its end of life.
Unknown	The SoH% is above 0, but can't be calculated with sufficient accuracy because of a low state of charge.
Pass	The SoH% is above 0. The battery has useful life remaining. A proactive replacement decision should consider the SoH%, the age of the battery, the risk tolerance of the owner, and typical use.
Warning	The SoH% is below 50%. Less than half of the battery's useful life remains. To reduce the risk of sudden failure, replacement before 0% is advised. A proactive replacement decision should consider the SoH%, the age of the battery, the risk tolerance of the owner, and typical use.
Fail	Tested performance indicates the battery has reached its end of life (SoH% = 0). Immediate replacement is advised.

Cranking Health Status	Cranking Health test measures the battery's performance while cranking the engine. Cranking Health is presented on a scale of 0% to 100%.
Not Tested	An engine start was not attempted
Pass	Cranking Health is above 50%. The battery is able to crank the engine strongly.
Warning	Cranking Health is below 50%. The battery's engine cranking performance is acceptable but not strong. After long periods of non-use, or if temperature drops, the battery may have difficulty reliably cranking the engine.
Fail	Cranking Health is 0%. The battery's engine cranking performance is very weak, and should not be relied upon to continue reliably cranking the engine. Possible causes: 1. Battery State of Charge was low prior to the test. Charge and test again. 2. Battery wiring and terminals - Check that battery terminals are clean and cable clamps properly tight. 3. Starter motor - Check starter motor condition using appropriate diagnostic methods. 4. Battery is too small - Is the battery undersized for the vehicle specification?
Charging System Status	The charging system test evaluates the voltage and ripple frequency measured at the battery after the engine is started.
Not Tested	An engine start was not attempted
Normal	The voltage at the battery is within the range expected while the engine is running.
Low Voltage, Check Charging System	The voltage at the battery is below typical normal values expected while engine is running. Possible causes: 1. The battery was deeply discharged prior to starting the engine and/or there were excessive electrical loads operating during the test. 2. The engine did not run long enough to capture normal voltage. 3. Alternator output was suppressed by the vehicle computer during the test period. 4. Alternator and/or voltage regulator are not functioning properly. 5. Alternator was not operating at proper RPM during the test period. A charging system test as specified by the vehicle manufacturer's service manual is advised before replacing the alternator or voltage regulator.
Ripple Low, Check Alternator	The ripple frequency is below typical normal values expected while engine is running. Possible causes: 1. The engine did not run long enough to capture normal ripple frequency. 2. Alternator output was suppressed by the vehicle computer during the test period. 3. Alternator and/or voltage regulator are not functioning properly. 4. Alternator is not operating at proper RPM during the test period. The test procedure specified by the vehicle manufacturer's service manual is advised before replacing the alternator or voltage regulator.
High Voltage, Check Charging System	The voltage at the battery is above typical normal values expected while engine is running. Possible causes: 1. Test was conducted in extremely cold conditions. 2. Voltage regulator is not functioning properly. 3. Output voltage as controlled by the vehicle computer is greater than expected by the test algorithm. A charging system test as specified by the vehicle manufacturer's service manual is advised before replacing the alternator or voltage regulator.
Engine will not start	The measured charging voltage and diode ripple frequency are in a range suggesting a start was attempted, but the engine did not start and stay running. In this case, a popup in the B2QScan app will ask the user if the engine started and ran for more than 10 seconds. If the user answers "No", this results in the "Engine will not start" status.