

BATTERY ANALYSER

MDX-650P IN AP



Inspecting the Battery

Before starting the test visually inspect the battery for:

- Cracked, buckled, or leaking case. If you see any of these defects, replace the battery.
- Corroded, loose, or damaged cables and connections. Repair or replace them as needed.
- Corrosion on the battery terminals, and dirt or acid on the case top. Clean the case and terminals using a wire brush and a mixture of water and baking soda.
- Low electrolyte level. If the electrolyte level is too low, add distilled water to fill up to ½ inch above the top of the plates and fully charge the battery. Do not overfill.
- Corroded or loose battery tray and hold-down fixture. Tighten or replace as needed.

Battery Test Results

Decision	Interpretation
GOOD BATTERY	Return the battery to service.
GOOD-RECHARGE	Fully charge the battery and return it to service.
CHARGE & RETEST	Fully charge the battery and retest. Failure to fully charge the battery before retesting may cause inaccurate results. If CHARGE & RETEST appears again after you fully charge the battery, replace the battery.
REPLACE BATTERY	Replace the battery and retest. A REPLACE BATTERY result may also mean a poor connection between the battery cables and the battery. After disconnecting the battery cables, retest the battery by cleaning the terminal properly before replacing it
BAD CELL-REPLACE	Replace the battery. Risk of explosive gases. Can cause death or serious personal injury. Never attempt to charge a battery with a bad cell. The battery must be replaced.
FROZEN BATTERY	The battery being tested is frozen. Allow battery to thaw before attempting test.

Battery Testing

- 1 Connect Tester Battery Terminals & check voltage
- 2 Battery Location: Out of Vehicle
- 3 Select Battery Post Type : TOP
- 4 Specify Low Specific Gravity : Yes
- 5 Select Battery Standard Units as SAE
- 6 Enter SAE Rating Units
- 7 Enter Battery Serial No and Manufacturing code.
- 8 Press Enter to Start Test
- 9 Take Print

Vehicle System Testing

- 1 Connect Tester Battery Terminals & check voltage
- 2 Battery Location: In Vehicle
- 3 Select Battery Post Type : TOP
- 4 Specify Low Specific Gravity : Yes
- 5 Select Battery Standard Units as SAE
- 6 Enter SAE Rating Units
- 7 Enter Battery Serial No and Manufacturing code.
- 8 Press for starter test
- 9 Start the Engine & Test the Starter
- 10 Turn load ON & Rev. Engine
- 11 Idle Engine & Turn OFF load
- 12 Charging System Decision Displayed & Take Print

Starter System Test Results

Decision	Interpretation
CRANKING NORMAL	The starter voltage is normal and the battery is fully charged.
LOW VOLTAGE	The starter voltage is low and the battery is fully charged.
CHARGE BATTERY	The starter voltage is low and the battery is discharged. Fully charge the battery and repeat the starter system test.
REPLACE BATTERY	Battery must be replaced before the starting system can be tested.
LOW CRANKING AMPS	Cranking voltage is high, but the cranking amps are low
NO START	The engine did not start and the test was aborted
CRANKING SKIPPED	The tester did not detect the vehicle starting profile and skipped starter test.

Charging System Test Results

Decision	Interpretation
NO PROBLEMS	System is showing normal output from the alternator.
NO VOLTAGE LOW VOLTAGE	The alternator is not providing charging current to the battery. Check the belts to ensure the alternator is rotating with the engine running. Check all connections to and from the alternator, especially the connection to the battery. If the belts and connections are in good working condition, replace the alternator.
HIGH VOLTAGE	The voltage output from the alternator to the battery exceeds the normal limits of a functioning regulator. Check to ensure there are no loose connections and that the ground connection is normal. If there are no connection problems, replace the regulator. (Most alternators have a built-in regulator requiring you to replace the alternator. In older vehicles that use external voltage regulators, you may need to replace only the voltage regulator.) The regulator controls voltage output based on the battery voltage, under-hood temperature, and vehicle loads used. In other words, it controls the maximum voltage the system can produce based on the current needs and amount of current that can be produced by the spinning of the rotor in the alternator. The normal high limit of a typical automotive regulator is 14.5 volts ± 0.5 . Refer to the manufacturer specifications for the correct limit, which may vary by vehicle type. A high charging rate will overcharge the battery and may decrease its life and cause it to fail. If the battery test decision is REPLACE and the charging system test shows a HIGH OUTPUT, check the battery's electrolyte levels. A symptom of overcharging is battery fluid spewing through the vent caps, which causes low electrolyte levels and will harm the battery.

Test Messages

Decision	Interpretation
BAT. TEMPERATURE	Select ambient temperature above or below 32 °F (0 °C)
CHARGE STATE	Select before or after battery has been charged.
SURFACE CHARGE DETECTED	Remove the surface charge before it begins testing. Testing will resume after charge has been removed. In-vehicle testing. Tester has detected computer,
SYSTEM NOISE CHECK LOADS	ignition noise or parasitic drain. Make sure all vehicle loads are off including open doors and ignition switch. Out-of-vehicle. Weak battery, should be charged and retested.
UNSTABLE BATTERY	One or more diodes in the alternator are not functioning or there is stator damage, which is shown by an excessive amount of AC ripple current supplied to the battery.
EXCESSIVE RIPPLE	Make sure the alternator mounting is sturdy and that the belts are in good shape and functioning properly. If the mounting and belts are good, replace the alternator.



APPLE ENERGY PVT. LTD.

314 & 406, Hilton Centre, Sector - 11,
CBD Belapur, Navi Mumbai - 400614, India.
Tel. : +91-22-27564032 / 33, Fax : +91-22-27564032
E-mail : midtronics@appleenergy.in
www.appleenergy.in



Midtronics Inc.
7000 Monroe Street
Willowbrook, Illinois 60527, USA
ajati@midtronics.com
www.midtronics.com