



Model ATD5490 12V Battery Condition & Charging System Tester

Tests 12V Auto/Truck and Non Auto Batteries
and 12V charging systems

User Manual



WARNING

- Batteries produce explosive gases and can explode.



Wear safety goggles. (user and bystanders)



Keep flames and sparks away from batteries.



Read and follow instructions.

Battery explosion and ignited gases can cause injury.



WARNING

- Battery acid can cause chemical burns.



Wear protective clothing. (user and bystanders)

Chemical burns can cause injury.



INTRODUCTION

Your new Model ATD5490 Battery Diagnostic Tester employs conductance testing to determine the condition of the battery.

The patented circuit eliminates the need for time consuming CCA input or conversions to other rating systems. When the **TEST** button is pressed, the ATD5490 will immediately display **BOTH** the **percent available capacity** of the battery and the **condition** of the battery. The ATD5490 also tests 12V alternator and starter systems.



Checking Battery Condition Out of Vehicle Testing

1. Connect the red clip to the positive battery post and the black clip to the negative post. The battery voltage will be displayed. **Note: use post adapters for side mount batteries or batteries with top mount threaded studs (group 31). Connecting to threaded studs will result in inaccurate readings.**



2. For **Auto/Truck** batteries (390 to 1400 CCA) **no size selection is necessary** (default size). The Auto/Truck size indicator LED will be on.



For **Small/Non-Auto** batteries (6 Ah to 33Ah) press selector switch once. The LED indicator will switch to the Small/Non-auto position.

3. Press and **hold down** the Test Button until the final reading is displayed.



The **digital display** shows percent available capacity. *The Display and Bargraph will automatically revert back to Volts after approx. 6 seconds, if the TEST Button is not released.*



4. The color--coded **LED BARGRAPH** will show **GOOD** (Green) **MARGINAL** (Yellow) or **REPLACE** (Red).



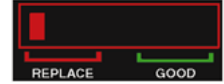
*Note: Some batteries may display **above 100%**. This means that the available capacity is **greater** than the rated capacity*

Low Volt Indicator



Batteries that test **Marginal** or (just below Marginal) when the **Low Volts** LED indicator is on (below 12.3 Volts) should be recharged and retested for more accurate results.

Bad Cell Indicator



Capacity displayed below 20% and **only 1 red led on the bargraph** indicates that the battery has a defective cell. Defective battery cells are usually open or shorted and the battery must be replaced.

In Vehicle Testing (Checking Battery Condition)

1. Engine should be off. Turn off all accessory loads.
2. Remove surface charge (battery voltage is greater than 12.8 Volts) by turning on the headlights for 15 seconds.
3. Follow instructions for **Out of Vehicle Testing** (see Page 2).

Converting to CCA, DIN, JIS, Ah

If required, the available CCA, Ah, DIN, & JIS, can easily be determined by multiplying the percent displayed times the battery's original rating. For example, a 600 CCA battery with 80% capacity available would have 480 CCA ($.80 \times 600$) available. A 20Ah battery with 80% would have 16 Ah available.

CHARGING SYSTEM TEST

Note: Prior to performing this test, check the battery condition to make sure it is in good condition. (See In Vehicle Battery Test Instructions).

1. Check first for a loose, worn or broken alternator belt. If okay, proceed to #2.
2. Connect the red clip to the positive battery terminal and the black clip to the negative terminal and start engine.
3. With engine running, and lights on, the real time alternator output voltage will be displayed. The reading should display between 13.0 and 15.0 volts for 12V charging systems.
4. **Low charging voltage:** check belts for slippage. Check connections from the alternator to the battery. If no problems are found, replace the alternator.
5. **High charging voltage:** Check for loose connections including the ground connection. If OK, replace the voltage regulator. Newer alternators house the regulator inside. In this case replacing the alternator is necessary.

STARTER TEST

Note: Check the battery condition to make sure it is in good condition before performing this test. (See In-Vehicle Battery Test Instructions page 3).

1. Connect the red clip to the positive battery terminal and the black clip to the negative terminal.
2. Disengage the ignition. *(Check manufacturer's instructions).* Read the voltage displayed while cranking the starter.
3. **Cranking Voltage is Normal:** For 12V systems the normal cranking voltage at the battery should be equal to or greater than 9.6 volts*.
4. **Cranking voltage is Low:** If the cranking voltage is less than 9.6 volts*, starting system has a problem. Check wires, connections and starter.

*** Check manufacturer's specifications for 12V systems.**

New Batteries:

Nearly all batteries will not reach full capacity until cycled 10-30 times. A brand new battery will have a capacity of about 5-10% less than the rated capacity.

Inactivity can be extremely harmful to a battery. New batteries that have been on the shelf for many months may show "marginal" or "replace" when tested, depending on the storage conditions. In that case, always charge and retest the battery before replacing.

SPECIFICATIONS

Battery Size Range

Auto/Truck:	390 to 1400 CCA
Small Non-Auto	6Ah to 33 Ah

Battery Condition

Good:	80 to 100%
Marginal:	between 70 to 80%
Replace:	below 70%

DC Volt Range:	7V to 19.9V
DC Volts Accuracy:	± 2% Reading
Capacity/Volts Display:	3 LED's- 2 ½ Digit
Bar-graph Display:	10 color-coded LEDs
Operating Temperature:	32°F to 120°F
Weight:	.75 LBS
Dimensions:	7.5" x 3.5" x 1" H
Jaw Opening:	1.25"



RETURN FOR REPAIR POLICY

Every effort has been made to provide reliable, superior quality products. However, in the event your instrument requires repair, forward unit to Service Center freight prepaid to the address below with return address, phone number and/or email address.

SERVICE CENTER
2651 W 81st Street
Hialeah, FL 33016

WARRANTY POLICY

The ATD5490 Battery Diagnostic Tester is warranted to be free of defects in materials and workmanship for a period of two years from the date of purchase. This warranty applies to all repairable instruments that have not been tampered with or damaged through improper use including unauthorized opening of the unit. Please ship warranty units that require repair freight prepaid to Service Center along with proof of purchase, return address, phone number and/or email address.

US PATENT # 6,768,309