

## **AGM Batteries**

### **New Battery Testing:**

When checking the condition of a new battery prior to installation, ACDelco recommends only measuring open circuit voltage (OCV). ACDelco recommends a minimum installation OCV of 12.4volts.

1. Batteries that fall below 12.4 volts should be recharged, prior to installation.
2. The battery should be tested with a known, good Digital Volt Ohm Meter (DVOM).
3. When testing side terminal or top stud batteries, always use Lead (Pb) terminal adapters. Make sure the terminal adapter makes good contact with the Lead pad of the battery or inaccurate readings will result. Basic hand tools may be needed to ensure the terminal is tight.
4. Never use steal bolts/nuts/washers, etc., when testing a side terminal battery.
5. Never clamp the tester's leads directly to the threads when testing a top stud battery with a conductance tester.

### **Charging Instructions:**

**NOTE:** Before charging a battery, visually inspect the battery. If there is any sign of damage or the battery is broken, replace the battery. If the battery appears to be in good condition follow the charging instructions below.

- Check the Open Circuit Voltage (OCV).
  - Test the battery with a Conductance Tester
    - For a new and never installed battery preform a conductance test to check the safety of the battery for charging.
  - Three of the following results may occur: the battery is good, you may have to charge the battery and retest [you can follow the charging instructions below], or you may need to replace the battery. [This is on a battery that has been in service for a period of time.]

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- If the battery is above 12.7V Remove Surface charge and recheck OCV
    - If the OCV still reads over 12.7V the battery is OK and can be returned to use.
  - If the battery reads below 12.7V follow the charging instructions below.
    1. Prepare Terminals: Clean and wire brush contact surfaces if cables are disconnected.
      - For best results, disconnect battery from vehicle.
    2. With Charger Turned OFF – **Connect Charger**
      - **SINGLE OR MULTI-BATTERY VOLTAGE CONTROLLED**  
*(includes Parallel Charging)*
        - i. Set charger output at constant 14.4V across any battery, with 20 ampere maximum.\*
        - ii. Monitor voltage and current into each battery hourly.
        - iii. When voltage into a single battery falls to 1 amp or below, that battery is charged.
        - iv. Turn charger OFF and remove charged battery from circuit.
        - v. Reconnect remaining batteries and resume charge (see step i).
    3. Once charged the battery is ready to be returned to use.  
\*Battery may be charged at a constant lower voltage, however, process will take longer. Do not charge with voltage less than 14.0V.
  - Additional Charging information:
    - IMPORTANT! For chargers that are not self-adjusting, use the guidelines that most closely describe the charger being used.
    - Batteries must be monitored every two hours during charging cycle. Once fully charged, charging must stop. **Do not leave battery on a continuous trickle charger.**
    - Chargers must have an AGM switch to ensure correct voltage is being used.
    - If the charger controls offer manual voltage adjustments, use VOLTAGE CONTROLLED information. The charger must be capable of producing 14.4volts or less.
    - IMPORTANT! If battery becomes hot to touch, stop the charge and allow battery to rest overnight.
    - TO REMOVE SURFACE CHARGE: Apply a 300-ampere load for 15seconds. Allow battery to rest 15seconds or until OCV stabilizes.
    - Charging AGM batteries is different than charging a regular battery. Make sure there is an AGM setting on your battery charger.

### Checking Open Circuit Voltage:

OCV may be used to estimate the Lawn and Garden battery state-of-charge. Observe the following guidelines:

- Use a voltmeter that has been verified as accurate. An inaccurate meter will give inaccurate results. The meter should read to the nearest 0.01 volts.
- When checking OCV, the vehicle engine and all current drains must be OFF. Any current flow into or out of the battery will cause an incorrect voltage reading.
- The battery must be stabilized before reading the OCV. If the battery has been charged or used in a vehicle in the past 12 hours, remove the surface charge (apply a 300amp load for 15 seconds). If the battery has just been discharged, allow at least 15 seconds for the voltage to stabilize, then read the OCV.
- Use the following table to estimate the state-of-charge based on the battery temperature:

Stabilized OCV (Volts)	% Charge* at 0°C (32°F)	% Charge* at 25°C (75°F)
12.75	100%	100%
12.70	100%	90%
12.60	90%	75%
12.45	75%	65%
12.20	65%	45%

\*Estimates Only. Batteries vary  $\pm 10\%$  by model.

- Keep batteries at 65% of full charge or higher. If the OCV falls below 12.4V, recharge the battery.
- **IMPORTANT:** When a battery needs charging, always charge it fully. If you don't:
  - Retests with electronic testers may be inaccurate.
  - Full shelf life will not be available if returned to storage.