



PARTS, SERVICE and SUPPORT

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- Maintenance Tips
- Preventive Maintenance
- Quick Reference Charts
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- Emergency Roadside Assistance
 - Locate a Service Center
 - Locate your Customer Solutions Team
 - Parts Credit Application

MAINTENANCE MATTERS

Battery Maintenance

Coach electrical systems have evolved significantly from discrete connections through stud boards to modern systems using connectors, as well as connected and multiplexed systems, but throughout it all the battery has changed very little in basic design and function. Improvements in chemistry, structure, and packaging have greatly increased storage capacity and tolerance to environmental extremes, but batteries still require regular maintenance to perform at their peak.

Typically using lead and sulfuric acid as the raw materials, batteries are chemical factories producing lead compounds, hydrogen gas, and electrical power. While the electrical power is the product of greatest interest, we cannot ignore the presence of the other materials. **Safety goggles and protective clothing (including gloves) should be worn when working with batteries.** It is also advisable to inspect the battery case for missing parts, cracks or other defects. There are generally no serviceable parts, and a defective battery should be replaced.

Cleaning:

Batteries and their surrounding area should be kept clean to maximize battery performance. Dirt can hold water, and in combination, can conduct electricity. This unintended electrical path can present a low but continuous load on the battery. Over time, this load will reduce the battery's ability to accept and hold a charge, effectively reducing the service life. It may also reduce the power available to start the engine, necessitating a charge or boost. When servicing a battery, the following points should be kept in mind:

- ✓ First, do a visual inspection to ensure that there are no cracks or loose cell caps on the battery. Ensure that cell covers are secure before, during, and after cleaning. As previously noted, cracked or defective batteries should be replaced.
- ✓ Remove corrosion on the battery terminals with an appropriate tool such as a wire brush. When removing or installing terminals from the battery posts, ensure that the work is completed in the sequence dictated by the maintenance manual.
- ✓ Use clean water and a brush to remove dirt or other foreign materials from the battery case.
- ✓ Dry the battery and its surrounding area after cleaning.
- ✓ Post or terminal can be coated with a corrosion preventative intended for this purpose.

Electrolyte Levels:

Electrolyte levels should be inspected weekly or every 5000 miles, and corrected if necessary. Only clean distilled water should be added to the battery to make up electrolyte levels. Electrolyte should cover the tops of the battery plates. Hydrogen gas is a normal by-product of electrolysis and collects in the air space above the electrolyte, so be sure not to completely top off a cell with water.

Specific Gravity:

Specific gravity is a measure of the density of the electrolyte relative to pure water and is an accurate measure of the strength of the electrolyte and the general "health" of the battery. It is important to note that specific gravity varies with temperature and state of charge, so any measurement must be made after fully charging and must be corrected for temperature. A battery will heat during charging due to internal electrical resistance. For accurate measurements, allow the battery to reach ambient temperature after charging.

A hydrometer is used to measure specific gravity, and most work by measuring the density of a sample of electrolyte drawn from a cell. Each cell is chemically independent, so a 12 volt battery will require six measurements (one for each cell) for a complete measurement. For example, at 39°F a new, charged battery should have minimum electrolyte specific gravity of 1.270, while a battery that has been in service but is still completely usable may only read 1.200 in one or two cells. Refer to the battery manufacturer's correction table to determine the temperature corrected value and use this number to evaluate the battery's condition.

Do not allow batteries to freeze. Electrolyte freezes at a lower temperature than water, but it will still freeze in some climates. If a battery freezes, the resulting expansion can crack the case, destroy the fine network of plates or otherwise render a battery useless. Never start a coach or use any electrical accessories when a battery is frozen. Hydrogen gas cannot freely migrate through frozen electrolyte and the resultant pressure buildup can structurally damage the battery.

All things considered, modern batteries are phenomenal storehouses of chemical energy, capable of converting this stored energy to electrical power on demand and under a wide range of climatic conditions. Routine maintenance can maximize the service life and performance of these key components and reduce the likelihood of unanticipated failure and resulting cost and inconvenience.