

BATTERY CARE AND MAINTENANCE

Many RV owners believe that they can install a new set of batteries in their RV and then forget about any maintenance, particularly if they are what are commonly called 'maintenance free'. All batteries, including 'maintenance free' need plenty of TLC if you want to get the best from them and this includes the chassis, or engine, batteries.

Battery Charging Maintenance Free and Conventional Batteries

Before recharging a discharged battery, inspect and service the following conditions, if they exist:

1. Loose alternator belt.
2. Pinched or grounded alternator/voltage regulator wiring harness.
3. Loose harness connections at the alternator and/or voltage regulator.
4. Loose or corroded connections at battery, starter relay and/or engine ground.
5. Excessive battery drain due to: Hood, deck lid, glove compartment and courtesy lamps remaining energized (damaged or misadjusted switch, glove compartment left open, etc.)

Cold batteries will not readily accept a charge. Therefore batteries should be allowed to warm up to approximately 5°C (40°F) before charging. This may require 4 to 8 hours at room temperature. Warming time depends upon initial temperature and battery size.

A battery which has been completely discharged may be slow to accept a charge initially. In some cases batteries may not accept a charge at the normal charger setting. When batteries are in this condition, charging can be started by using the boost switch on chargers so equipped.

Completely discharged batteries, which have been discharged for a prolonged period of time (over one month) or which have an open circuit voltage of less than two volts, may show no indication of accepting a charge even when the boost switch is used. The initial charge rate of batteries in this condition is so low that some charger ammeters will not show any indication of charge for up to 10 minutes.

Determine whether a battery accepts charge as follows: Follow charger manufacturer's instructions for use of boost switch. If boost switch is the spring loaded type, it should be held in the ON position for up to three minutes. After releasing boost switch and with charger still on, measure battery voltage. If it shows 12 volts or higher, the battery is accepting a charge and is capable of being recharged. However, cold batteries below 5°C (40°F) may require up to two hours of charging before the charge rate is high enough to show on the charger ammeter. All non-damaged batteries can be charged by this procedure. If a battery cannot be charged by this procedure it should be replaced.

Once it has been determined that the

battery has begun to accept a charge, it can be charged to a serviceable state or a full state of charge using one of the two following methods:

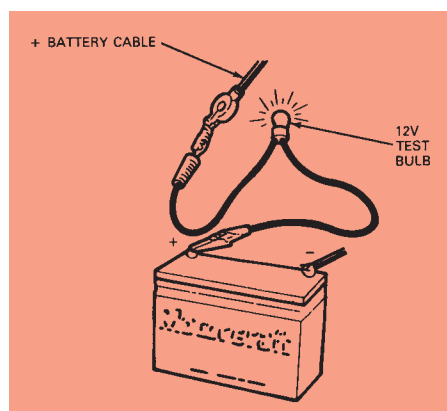
- The first method uses the AUTOMATIC setting on chargers so equipped. This setting maintains the charging rate within safe limits by adjusting voltage and current to prevent excessive gassing and spewing of electrolyte. Approximately 2 to 4 hours will be required to charge a completely discharged battery to a serviceable state. If a full state of charge is desired, the charge can be completed by a low current rate of 3 to 5 amps for several additional hours.
- The second method uses the MANUAL or constant current setting on the charger. Initially set the charging rate for 30 to 40 amps and maintain this setting for approximately 30 minutes or as long as there is no excessive gassing and electrolyte spewing. If gassing results, the charge rate must be reduced to a level where gassing will stop. Excessive gassing will result in non-replaceable loss of electrolyte, thus shortening battery life.

The total charge required will vary with battery size and its initial state of charge. In general, to bring a discharged battery to a serviceable state of charge, current-time input should equal the battery amp-hour capacity. For example: A 45 AH battery will require 15 amps of charge for 3 hours, or 9 amps of charge for 5 hours. Again, if a full state of charge is desired, the charge can be completed by a low constant current of 3 to 5 amps for several hours.

Constant Current Drain Test

Use a regular 12-volt test lamp for this test:

1. Ensure all vehicle electrical circuits are turned off, doors are closed, and under hood lamp is off. To check for minimum battery charge and/or condition of bulb, connect test lamp across battery terminals. Lamp should light. Disconnect test lamp.
2. Disconnect either positive or negative battery cable. Connect 12-volt test lamp between cable terminal and battery post.
3. If lamp glows, connect terminal to post for five seconds then repeat to ensure results.

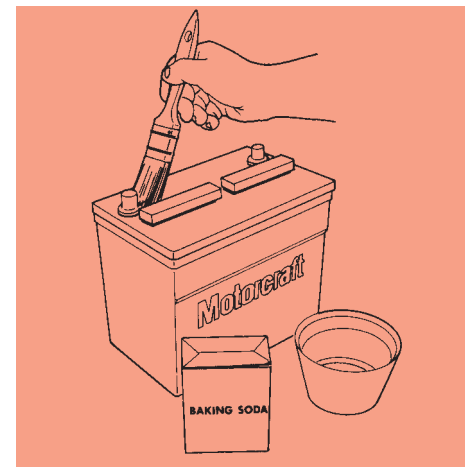


Test Conclusions:

- Lamp Does Not Glow—No current drain.
- Lamp Does Glow—Check individual circuits to locate cause of current drain. Underhood lamp, glove compartment, cargo lamps, are prime suspects.

Battery Cleaning

Keeping the battery top clean and dry reduces the need for service and extends battery life. Also, make certain that the cable clamps are tightly fastened to the battery posts. If corrosion is found disconnect the cables and clean clamps and posts with a wire brush. Neutralize the corrosion with a solution of baking soda and water. After installing cables, apply a small quantity of Long-Life Lubri cant or equivalent grease to each battery post to help prevent corrosion.



WARNING:

BATTERIES NORMALLY PRODUCE EXPLOSIVE GASES WHICH CAN CAUSE PERSONAL INJURY. THEREFORE, DO NOT ALLOW FLAMES, SPARKS OR LIGHTED TOBACCO TO COME NEAR THE BATTERY

WHEN CHARGING OR WORKING NEAR A BATTERY, ALWAYS SHIELD YOUR FACE AND PROTECT YOUR EYES. ALWAYS PROVIDE VENTILATION.

WHEN LIFTING A PLASTIC-CASED BATTERY, EXCESSIVE PRESSURE ON THE END WALLS COULD CAUSE ACID TO SPEW THROUGH THE VENT CAPS, RESULTING IN PERSONAL INJURY. LIFT WITH A BATTERY CARRIER OR WITH YOUR HANDS ON OPPOSITE CORNERS.

KEEP BATTERIES OUT OF REACH OF CHILDREN. BATTERIES CONTAIN SULPHURIC ACID. AVOID CONTACT WITH SKIN, EYES OR CLOTHING. ALSO, SHIELD YOUR EYES WHEN WORKING NEAR THE BATTERY TO PROTECT AGAINST POSSIBLE SPLASHING OF THE ACID SOLUTION. IN CASE OF ACID CONTACT WITH SKIN OR EYES FLUSH IMMEDIATELY WITH WATER FOR A MINIMUM OF FIFTEEN MINUTES AND SEEK PROMPT MEDICAL ATTENTION. IF ACID IS SWALLOWED, CALL A PHYSICIAN IMMEDIATELY.