

176 MAINTENANCE

Table 109 Regulator Test (Out of Circuit)

Meter	Connections	Source	Bulb
	Meter (+) -^Source (+) Meter (-) •"• Source (-)	Less than 14.0V DC	Lit.
		14.0~15.0VDC	Goes out between this range.
		More than 1 5.0V DC	Unlit.

- If the regulator is good, the bulb will go out at the voltage shown in Table 109.
- If the above check shows the regulator to be bad, replace it.

BATTERY

The battery supplies the current to the starter motor and serves as a back-up source of power to operate the electrical equipment whenever the engine is turning over too slowly for the dynamo to supply sufficient power.

With proper care, the battery can be expected to last a few years, but it may be completely ruined long before that if it is mistreated. Following a few simple rules will greatly extend the life of the battery.

1. When the level of the electrolyte in the battery is low, add only distilled water to each cell, until the level is at the upper level line marked on the outside of the battery. Ordinary tap water is not a substitute for distilled water and will shorten the life of the battery.
2. Never add sulphuric acid solution to the battery. This will make the electrolyte solution too strong and will ruin the battery within a very short time.
3. Avoid quick-charging the battery. A quick-charge will damage the battery plates.
4. Never let a good battery stand for more than 30 days without giving it a supplemental charge, and never let a discharged battery stand without charging it. If a battery stands for any length of time, it slowly selfdischarges. Once it is discharged, the plates sulphate (turn white), and the battery will no longer take a charge.
5. Keep the battery well charged during cold weather so that the electrolyte does not freeze and crack open the battery. The more discharged the battery becomes, the more easily it freezes.
6. Always keep the battery vent hose free of obstruction, and make sure it does not get pinched, crimped, or melted shut by contact with the hot muffler. If battery gases cannot escape through this hose, they will explode the battery.
7. **DON'T INSTALL THE BATTERY BACKWARDS.** The negative side is grounded.

Electrolyte

The electrolyte is dilute sulphuric acid. The standard specific gravity of the electrolyte used in warm climates in a fully charged battery is 1.260 at 20°C (68°F).

(In particularly cold regions a solution with a standard specific gravity of 1.280 is used.) The water in this solution changes to a gaseous mixture due to chemical action in the battery and escapes, which concentrates the acid in a charged battery. Consequently, when the level of the electrolyte becomes low, only distilled water should be added. If sulphuric acid is added, the solution will become too strong for proper chemical action and will damage the plates. Metal from the damaged plates collects in the bottom of the battery. This sediment will eventually cause an internal short circuit.

The specific gravity of the electrolyte is measured with a hydrometer and is the most accurate indication of the condition of the battery. When using the hydrometer, read the electrolyte level at the bottom of the meniscus (curved surface of the fluid). Fig. 567 shows the relationship between the specific gravity of the solution at 20°C (68°F) and the percentage of battery charge. Since specific gravity varies with temperature, and since the temperature of the solution being checked is likely to be other than 20°C (68°F); the formula given below should be used to compute what the specific gravity the temperature goes up, the specific gravity goes down, and vice versa.

Hydrometer

