

# SERVICE BULLETIN



M-1089

October 5, 1999

## CHARGING SEALED AGM TYPE BATTERIES

### General

The new Harley-Davidson Absorbed Glass Mat (AGM) batteries provide longer service life with improved cranking power. For customers to achieve the maximum benefit, the batteries must be properly charged and maintained.

### WARNING

All batteries contain electrolyte. Electrolyte is a sulfuric acid solution that is highly corrosive and can cause severe chemical burns. Avoid contact with skin, eyes, and clothing. Always wear protective face shield, rubberized gloves and protective clothing when working with batteries. Always charge the battery in a well ventilated area. Explosive hydrogen gas escapes from the battery during charging. Keep open flames, electrical sparks and smoking materials away from the battery at all times. A warning label is attached to the top of the battery. See Figure 1. Never remove warning label from battery. Failure to read and understand all precautions contained in warning label before performing any service on batteries could result in death or serious injury.

### Redelivery

New motorcycles coming into your dealership should have fully charged batteries (12.8-13.2 volts), but it would still be a good practice to make the voltage check part of your redelivery and setup process. If the battery voltage is less

than 12.8 volts, charge the battery with the new Deltran charger described below. If you do not have the new Deltran charger at this time, refer to the Battery Charging Rates/Estimated Times table on page 4 for proper charging instructions.

### New Deltran Charger

Use the new Deltran chargers, which are specifically designed to properly charge and maintain the new Harley-Davidson AGM type batteries. The chargers are available from Harley-Davidson in both a 5 bank (Part No. 94607-98) and 10 bank (Part No. 94608-98) system. The chargers charge the battery (red light on), maintain 14.6 volts for the proper period of time (blinking green light), and then automatically cut back to approximately 13.1 volts (steady green light), thereby preventing overcharge and battery "dry out." The new Deltran chargers safely charge conventional batteries as well.

It should be noted that the old Deltran chargers do not properly charge the new AGM type batteries. The chargers only bring the AGM battery to approximately 60 percent of full charge at the end of the charge sequence (steady green light). This low state of charge can lead to battery damage.

Although the part numbers of the new Deltran chargers are the same as the part numbers of the old chargers, the new chargers are easily identified by the yellow "ON" LED on the charger face. Another method of identification is through the numbers on the serial plate at the back of the charger. See Table 1.



Figure 1. Battery Warning Label

**Table 1. Deltran Charger Identification**

SERIAL PLATE NUMBER	5 BANK	10 BANK
NEW	021-0133	021-0134
OLD	021-0115	021-0114

NOTE: New chargers also can be identified by yellow "ON" LED on face of charger.

**Overcharging**

AGM type batteries are factory filled with the proper amount of electrolyte and then sealed. If a charger reaches too high a charge voltage (15 volts or above), the battery will "gas." This gas is water vapor, which is released through a special one-way relief valve at the side of the battery case. Since the AGM battery is permanently sealed, the water cannot be replenished. A "dried out" battery develops internal corrosion and insufficient ion flow similar to a regular battery that is low on fluid. This can result in loss of performance and eventual battery failure. A sealed battery with concave sides is one that has been overcharged and "gassed." Overcharging is a major cause of sealed battery failure.

**Undercharging**

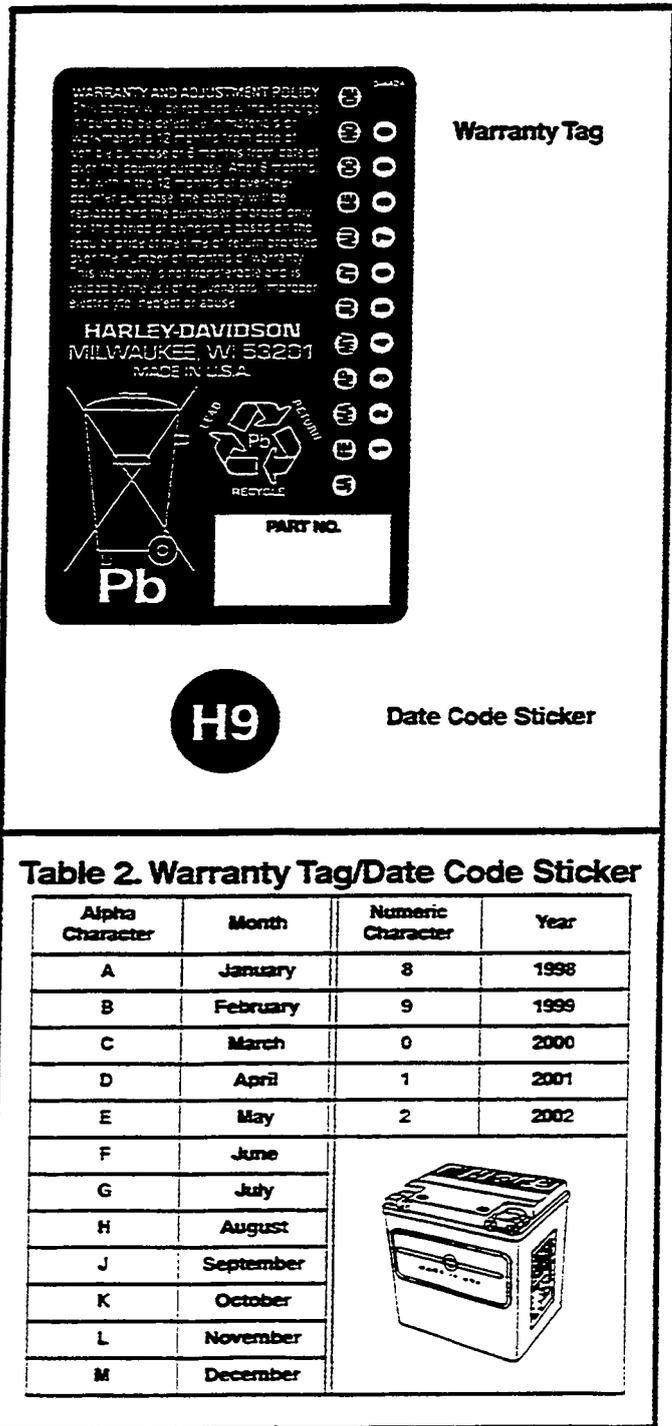
If a battery charger does not bring the battery to a full charge, then several problems can occur. First, the rated battery capacity will not be reached and the charging system may not bring the battery to a full charge, especially in those instances where customers take short rides or ride slowly with their electrical accessories on. Second, if the motor-cycle is stored in a cold climate, an undercharged battery can freeze and crack. Third, a battery that sits in an undercharged state for a long period of time will sulfate. Sulfate hardens on the battery plates preventing proper recharge. A sulfated battery is not serviceable and must be discarded.

**Storage**

To ensure maximum battery life, remember that proper charging is the most important criteria. A fully charged battery is less likely to freeze, crack or sulfate. Also, disconnect the negative battery cable to prevent parasitic loads (radio, ECM, cruise system) from draining the battery during prolonged storage. Encourage the customer to purchase a battery tender. The Battery Tender Jr. (Part No. 94654-98) works on older batteries as well as the new AGM type batteries. The Battery Tender Plus (Part No. 99863-93TA) is specifically designed for the new AGM type battery and provides proper charging automatically. Each of these Harley-Davidson Deltran chargers prevent both overcharging and undercharging.

**Battery Stocking and Selling**

All Harley-Davidson dealers must maintain a fresh stock of batteries by rotating and selling them on a "first in, first out" basis. All batteries must be sold within 12 months of the date code which appears on a round sticker below the warranty tag on the left side of the battery (positive terminal side). See upper frame of Figure 2.



**Figure 2. Warranty Tag/Date Code Sticker**

The date code sticker consists of both an alpha and numeric character that indicates the date the battery was manufactured. While the alpha character signifies the month, the numeric character indicates the year. Looking at the date code sticker in Figure 2, we can see that the battery was manufactured in August, 1999.

When a new battery is sold from stock, the battery must also be made to reflect the date of sale. To accomplish this, peel off both the month and year on the right side of the warranty tag.