

SERVICE BULLETIN



M-1089-A

April 15, 2005

SEALED AGM TYPE BATTERIES

General

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

⚠ WARNING

Batteries contain sulfuric acid, which could cause severe burns to eyes and skin. Wear a protective face shield, rubberized gloves and protective clothing when working with batteries. **KEEP BATTERIES AWAY FROM CHILDREN.** (00063a)

⚠ WARNING

Explosive hydrogen gas, which escapes during charging, could cause death or serious injury. Charge battery in a well-ventilated area. Keep open flames, electrical sparks and smoking materials away from battery at all times. **KEEP BATTERIES AWAY FROM CHILDREN.** (00065a)

⚠ WARNING

Never remove warning label attached to top of battery. Failure to read and understand all precautions contained in warning, could result in death or serious injury. (00064a)

Predelivery

New motorcycles coming into your dealership should have fully charged batteries (12.7-13.2 volts), but it would still be a good practice to make the voltage check part of your predelivery and setup process. If the battery voltage is less than 12.7 volts, charge the battery with the Deltran charger described below. If you do not have the Deltran charger at this time, refer to the Battery Charging Rates/Estimated Times table on [page 5](#) for proper charging instructions.



Figure 1. Battery Warning Label

IMPORTANT NOTE

In the interest of preserving customer safety and satisfaction, always check for outstanding recalls whenever any motorcycle is brought into your dealership for either maintenance or service.

ROUTING	SERVICE MANAGER	SALES MANAGER	PARTS MANAGER	LEAD TECHNICIAN	TECHNICIAN NO.1	TECHNICIAN NO. 2	TECHNICIAN NO. 3	TECHNICIAN NO. 4	RETURN THIS TO
INITIAL HERE									

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Battery Charging

Use Deltran chargers which are specifically designed to properly charge and maintain Harley-Davidson AGM type batteries. The chargers are available from Harley-Davidson in both 5 bank (Part No. 94607-98) and 10 bank (Part No. 94608-98) systems. 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.” Deltran chargers safely charge conventional batteries as well.

It should be noted that earlier Deltran chargers do **not** properly charge 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. Refer to Table 1.

Table 1. Deltran Charger Identification

Serial Plate Number	5 Bank	10 Bank
New	021-0133	021-0134
Old	021-0115	021-0114

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 motorcycle 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.
- Fourth, Deltran battery chargers incorporate a protection circuit that does not allow charging if the battery is below 4.5 volts. If you encounter a very low battery, it will require charging for a short time on a generic variable rate battery charger to bring the battery voltage up to 4.5 volts before the Deltran battery charger can be used.

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 or remove the Maxi-Fuse 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 Global Battery Charger (refer to Table 2. for part number) is specifically designed for the new AGM type battery and provides proper charging automatically. Each of these Harley-Davidson Deltran chargers prevent both over-charging and undercharging.

Table 2. Global Battery Charger Identification

Power cord	Region	Battery Charger Part No.	
		1.25 Amp	5 Amp
	Western Hemisphere except Argentina	99863-01A	99869-04
	Europe	99801-01A	99874-04
	United Kingdom	99802-01A	99943-04
	Australia	99803-01A	99974-04

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 of manufacture code which appears on the battery warranty/date code sticker (4) on the terminal side of the battery. See [Figure 2](#).

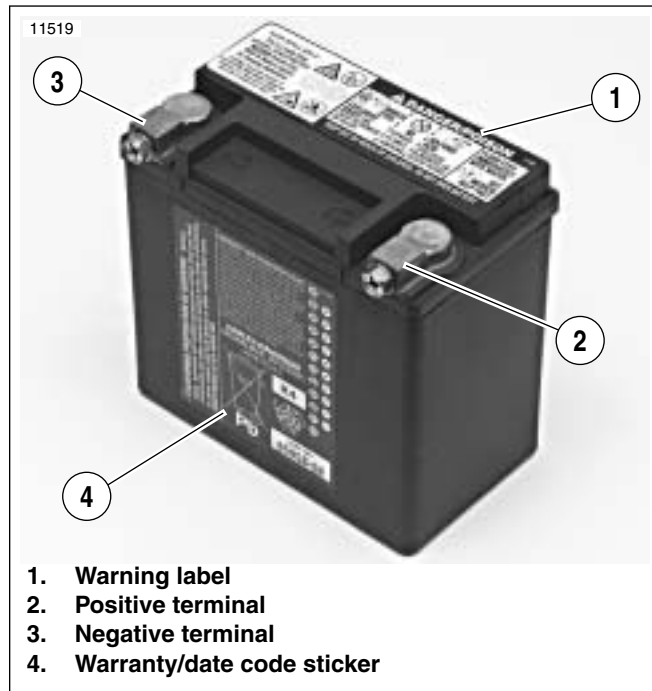


Figure 2. Battery

See [Figure 3](#). The date of manufacture code (1) contains a single letter for the month and a single digit for the year.

The date of activation code consists of a two-letter code (2) for the month and a single-digit code (3) for the year. For month codes, refer to [Table 3](#). For year codes, refer to [Table 4](#). Looking at the date of manufacture code in the figure, we can see that the battery was manufactured in October of 2004 (K4).

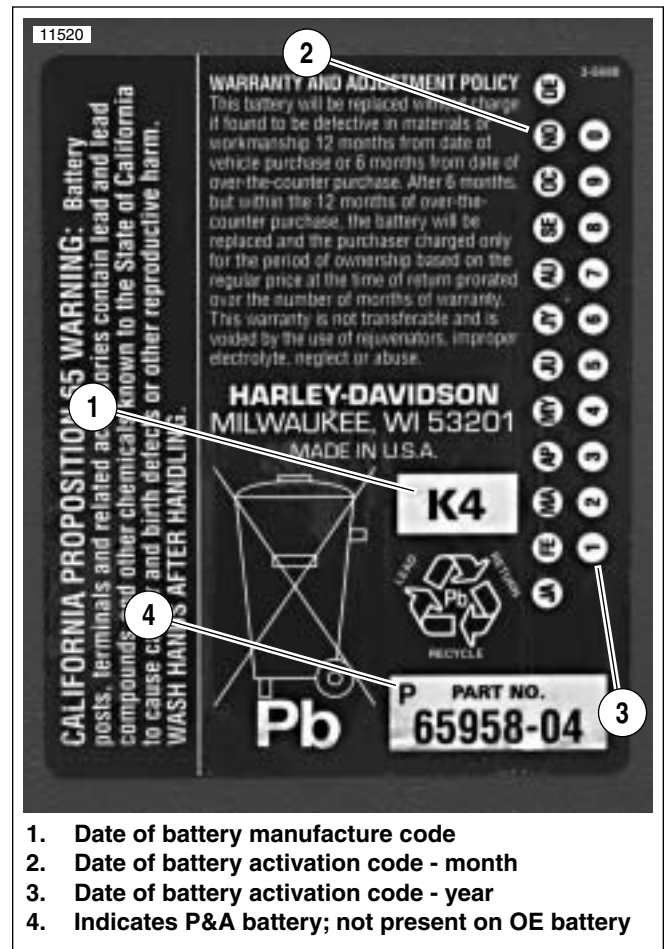


Figure 3. Battery Warranty/Date Code Sticker

Table 3. Battery Date Codes–Month

Battery Manufacture	Battery Activation	Month
A	JA	January
B	FE	February
C	MA	March
D	AP	April
E	MY	May
F	JU	June
G	JY	July
H	AU	August
J	SE	September
K	OC	October
L	NO	November
M	DE	December

Table 4. Battery Date Code–Year

DIGIT	YEAR	DIGIT	YEAR
1	2001	4	2004
2	2002	5	2005
3	2003	6	2006

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.

If the date of sale occurs after the 15th day of the month, advance the date to the next month. For example, if the battery is sold on July 22, peel off the month of August, which is abbreviated on the tag as "AU." To determine the correct number to peel off for the year, just reference the last digit of the current year. Therefore, the number "5" is peeled off to signify the year 2005.

NOTE

The Parts Department staff must monitor voltages on battery inventory. For best results, sell batteries on a "first in, first out" basis. Be sure voltage is above 12.7 volts whenever a battery is sold to a customer "over the counter." If voltage is under 12.7 volts, charge battery per instructions.

Other Chargers

To our knowledge, the only chargers that are safe to use (without having to frequently monitor charge voltage) are Harley-Davidson Deltran chargers. Another type of charger can be used along with the Battery Charging Rates/Estimated Times table on the next page, but voltage must be continuously checked to avoid damaging the battery. Other types of chargers allow the battery voltage to climb over 14.8 volts during charging, and they do not automatically drop back to 13 volts at the proper time. If a charger reaches too high a charge voltage (15 volts or above), the battery will "gas," resulting in loss of performance and eventual battery failure. See **Overcharging** on [page 2](#) for more information. For safe, reliable and hassle-free charging, and to remove the possibility of battery damage, Harley-Davidson suggests that you obtain the Deltran charger.

Battery Testing

In the unlikely event that you find a weak AGM type battery, perform either a conductance test (using the Midtronics MCR-101 HD Electrical System Analyzer) or a load test.

Remember - if you choose to load test the battery, you must fully charge the battery and allow it to stabilize for at least one hour. To load test the battery, use 50% of the CCA rating listed in the Battery Load Test table on the next page.

Battery Conductance

Conductance is a measurement of the battery's ability to produce current; a measure of the plate surface available in the battery, which determines how much power the battery can supply. As a battery ages, the plate surface can sulfate or shed active material, which adversely affects its ability to perform.

Conductance can also be used to detect cell defects, shorts and open circuits, which will reduce the battery's ability to deliver current. Using conductance, the Midtronics MCR-101 HD Electrical System Analyzer is able to determine the battery's state of health even if the battery is less than fully charged.

Warranty Information

(U.S. dealers only, excluding Alaska and Hawaii)

Beginning April 15th, 2005, after creating and submitting an approved claim for a defective battery, you will receive a warranty parts return tag. Return the tagged battery before the due date printed on the tag, along with the Midtronics printed receipt which includes the 12-digit warranty code and valid test results, in order to receive proper credit. The warranty parts return department will reject batteries returned without the Midtronics printed receipt containing a valid test and warranty code after April 14th. In the meantime, you are encouraged to begin using the tester and include a copy of valid test results with all battery returns.

Table 5. Battery Charging Rates/Estimated Times

BATTERY APPLICATION (AMP HOUR)	STATE OF CHARGE		CHARGE RATE			
	VOLTAGE	% OF CHARGE	3 AMP CHARGER	6 AMP CHARGER	10 AMP CHARGER	20 AMP CHARGER
VRSC, SPORTSTER (12)	12.7 V	100%	-	-	-	-
	12.6 V	75%	1 hour, 10 minutes	34 minutes	20 minutes	10 minutes
	12.3 V	50%	2 hours, 20 minutes	1 hour, 10 minutes	40 minutes	20 minutes
	12.0 V	25%	3 hours, 20 minutes	1 hour, 40 minutes	1 hour	30 minutes
	11.8 V	0%	4 hours, 30 minutes	2 hours, 14 minutes	1 hour, 20 minutes	40 minutes
DYNA, SOFTAIL (19)	12.7 V	100%	-	-	-	-
	12.6 V	75%	1 hour, 50 minutes	55 minutes	30 minutes	15 minutes
	12.3 V	50%	3 hours, 40 minutes	1 hour, 50 minutes	1 hour, 5 minutes	30 minutes
	12.0 V	25%	5 hours, 15 minutes	2 hours, 40 minutes	1 hour, 35 minutes	45 minutes
	11.8 V	0%	7 hours	3 hours, 30 minutes	2 hours, 5 minutes	1 hour, 5 minutes
TOURING (28)	12.7 V	100%	-	-	-	-
	12.6 V	75%	2 hours, 30 minutes	1 hour, 15 minutes	45 minutes	25 minutes
	12.3 V	50%	5 hours	2 hours, 30 minutes	1 hour, 30 minutes	50 minutes
	12.0 V	25%	7 hours, 30 minutes	3 hours, 45 minutes	2 hours, 15 minutes	70 minutes
	11.8 V	0%	10 hours	5 hours	3 hours	1 hour, 30 minutes

The figures listed above assume that the battery is charging at room temperature. If warmer than room temperature, use a slightly shorter charging time. If colder, use a slightly longer charging time.

The use of constant current chargers to charge sealed maintenance-free batteries is not recommended. Any overcharge will cause dry-out and premature battery failure. If a constant current charger is the only type available, do not exceed the charge times listed above and do not continue charging the battery if it gets hot. When charging, never exceed 15 volts for more than 30 minutes.

Table 6. Battery Load Test

Cold Cranking Amperage (CCA)	100%	50%
V-Rod/Sportster	200	100
Dyna/Softail	270	135
Touring	300	150