



TOTALFLOW[®]

Technical Bulletin 59

**Lead Acid Battery Inspection and
Maintenance Procedures**

Totalflow Technical Bulletin

Version 1.0, Revision AC (8 January, 2001)



1. Purpose

To provide guidelines for the inspection and maintenance of the Hawker Cyclone and Genesis (previously called Gates) Lead Acid Batteries.

2. Description

Battery Life Expectancy

The life expectancy of this type of battery will vary depending on several factors including ambient temperature, number of recharge cycles and number of deep discharges. Typical life expectancy is 18-24 months.

Battery Storage Recommendations

All lead acid batteries will slowly discharge while in storage. These batteries can actually be damaged or have their life expectancy reduced if stored in high temperature environments. It is recommended that spare batteries be stored in cold storage (40-50 degrees Fahrenheit). This process will slow the aging process and extend the life of the battery while in storage.

Battery Test

The following tests, one is a **load test** to verify if the battery is good or bad and two battery **capacity tests**, one for the field and another for lab testing, can be used to determine the capacity of a Hawker Lead Acid Battery.

Load Test

This test assumes the battery has been fully charged to 13.5-14.7 VDC.

Equipment Required: 12 ohm 10 Watt resistor, voltmeter

- Disconnect fully charged battery from the charger
- Connect 12 ohm (+/- 5%) resistor across battery
- After load has been connected for 30 seconds, measure battery voltage while load is attached
- If battery voltage measures > 12 VDC, battery has 50% or more capacity. If battery voltage measures < 12 VDC, battery has less than 50% capacity and needs to be replaced.
- Optional capacity test (see below) can be performed to determine how much capacity remains in the battery pack



Field Capacity Test

*note; The field test is not applicable for a battery that has been in storage or not recently charged. Only use the field test for a battery that is connected to a charger and has reached full charge state (13.5VDC-14.7VDC while connected to charger). If this is not the case then proceed to the **Office Test**.*

- Physically inspect battery for corrosion on the terminal posts where the wires connect to the battery. Look for a white chalky substance. This is a sign that the battery is beyond its useful life and needs to be replaced.
- Disconnect the battery from Flow Computer and let it set for 30 minutes to allow the surface charge voltage to dissipate.
- Measure the battery voltage. The following chart can be used to determine the capacity of the battery (at or near 70 degrees F).

Voltage (Volts)	Battery Capacity
12.85	100%
12.69	87.5%
12.53	75%
12.37	62.5%
12.2	50%

- If the battery measures 12.2 VDC or lower (50% or less capacity) the battery should be considered at or near its life expectancy. It is recommended that you replace the battery and dispose of spent battery.

Office Capacity Test

- Charge the battery using low amperage battery charger to 13.5 VDC-14.7 VDC
- Disconnect battery from charger and let set for 30 minutes to allow the surface charge voltage to dissipate.
- Measure battery voltage. The following chart can be used to determine the capacity of the battery

Voltage (Volts)	Battery Capacity
12.85	100%
12.69	87.5%
12.53	75%
12.37	62.5%
12.2	50%

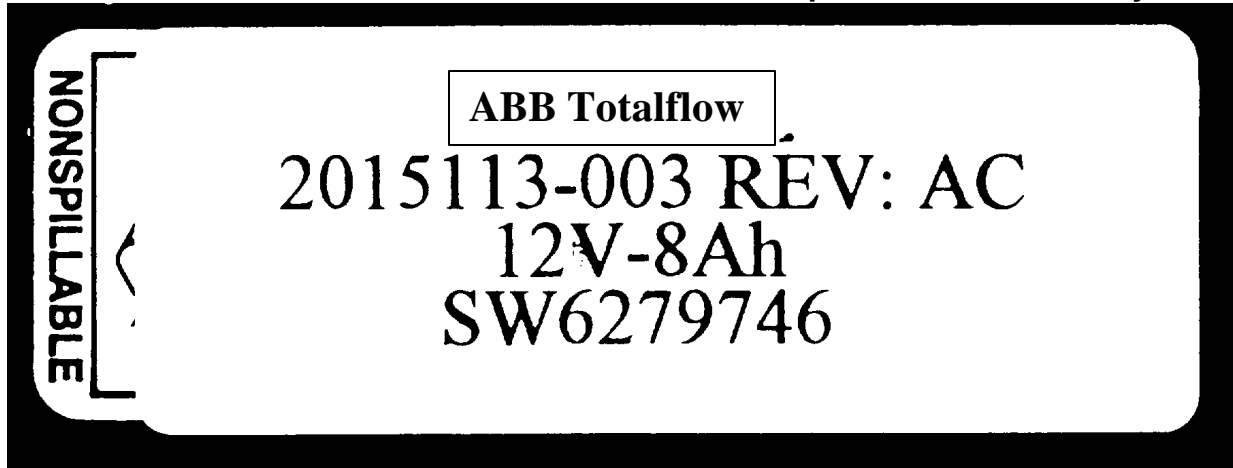
- If the battery measures 12.2 VDC or lower (50% or less capacity) the battery should be considered at or near its life expectancy. It is recommended that you replace the battery and dispose of spent battery.



Determining Age of Hawker Battery using Date Code Stickers on Battery

Look at the SouthWest Electronic sticker for the date code.

Actual Southwest Electronic Sticker from 8 Amp Hour Hawker Battery:



Sticker Example:

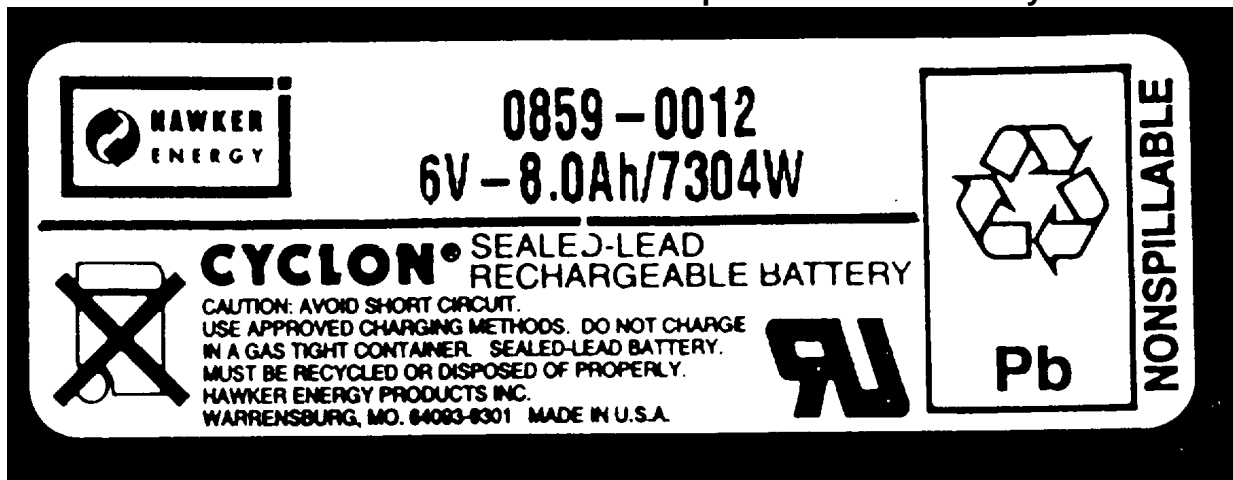
ABB - Totalflow
2015113-003 REV: AC
12V-8Ah
SW6279746

The date code is located on the last line. Look at the last four digits (Maybe 4 or 7 digits long).

The above example was shipped to our factory in 1997 (97) on the 46th week (46).

There is also a date code on the Hawker Energy sticker. This is a manufacturers date

Actual Hawker Sticker from 8 Amp Hour Hawker Battery:





Sticker example:

0859-0012
6V-8.0Ah/7304W

The date code is located on the last line. Look at the four digits. The above example was shipped from Hawker to Southwest Electronics in 1997 (7) on the 304th day (304).

3. Conclusion

It is very important to perform maintenance on Lead Acid Battery Packs. Failure to replace batteries every 18 to 24 months can lead to corrosion and possible leakage which could damage the transducer or AMU.