



220 Power Court  
Sanford, FL 32771

MAI-150749 (BB-2590/U)  
Battery Specification

## MAI-150749 (BB-2590/U) Lithium-Ion Battery Specification



Please visit the following websites for updates and additional product information;

Mathews Associates, Inc; [WWW.MAIFL.COM](http://WWW.MAIFL.COM),  
This specification applies to MAI-150749 version



## 1. Scope

- 1.1. This document pertains to the performance and physical characteristics of Mathews Associates, Inc part number MAI-150749 (BB-2590/U) Lithium-ion battery system and meeting the requirements for MIL-PRF-32052 (CR) MIL-PRF-32052/1 and TRCEOMBBO1 Rev – dated 20 June 2007.

## 2. Description

- 2.1. MAI-150749 (BB-2590/U) battery system was designed as a dual 15.0 V rechargeable power source for several military and special purpose devices. The battery may be used in either series (30 V), or parallel (15.0 V) mode.
- 2.2. Typical military system uses: AN/PRC-104, AN/PRC-119 (SINCGARS), KY-57.
- 2.3. General usage in Robots, UAV, UGV, AND UV platforms.

## 3. General Compatibility

- 3.1. Rechargeable: BB-390B/U, BB-590/U, BB-690/U, BT-2590, MRC-2590, UBI-2590
- 3.2. Non-rechargeable: BA-5290/U, BA-5590/U, BA-5390/U, BA-3590/U

## 4. Nominal Capacity (see discharge charts on accompanying pages)

- 4.1. >14 Ah in 15.0 V mode, >7.0 Ah in 30.0 V mode,  
@ 2.0 A constant current discharge @ 23°C
- 4.2. >15 Ah in 12.4 V mode, >6.2 Ah in 30 V mode @ -20°C

## 5. Voltage

- 5.1. Maximum open circuit nominal voltage: 16.8 V per section
- 5.2. Nominal Voltage: 15.0 V per section
- 5.3. End of discharge: 11.0 V per section

## 6. Discharge Current

- 6.1. Continuous Discharge Current: 20A in 15 V mode, 10A in 30 V mode.
- 6.2. Pulse: 36 A on for 5 seconds, off for 25 seconds, 15.0 V mode, @ 20°C  
18 A on for 5 seconds, off for 25 seconds, 30 V mode, @ 20°C
- 6.3. 23 – 62 A for 50 milliseconds per section
- 6.4. > 62 A for 200 microseconds per section

## 7. State of Charge Indicator

- 7.1. A five segment state of charge indicator is provided for each section of the battery.

## 8. SMBUS

- 8.1. SMBus data is available via the row of contacts on the battery top

## 9. Storage Temperature

- 9.1. Between -40°C and 50°C

## 10. Discharge Temperature

- 10.1. Between -20°C and 50°C



**11. Charge Temperature**

11.1. Between 5°C and 38°C

**12. Shelf Life- (Self Discharge) Assuming full discharge of a new battery (7 Ah) per section**

12.1. Remaining capacity when stored at room ambient;  
6.0 Ah in 1 year  
5.0 Ah in 2 year  
4.0 Ah in 3 year

Note: MAI recommends that the BB-2590 batteries be completely recharged every 9-12 months to achieve optimum performance.

**13. Dimensions**

13.1. (2.45" x 4.40" x 5.0") (32.2 mm X 111.8 mm X 127 mm) maximum

**14. Weight:**

14.1. (2.87 lbs) 1.30 Kg. typical

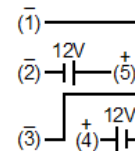
**15. Case Material - Color**

15.1. ABS Plastic, tan with black/white printing.

**16. Connector**

16.1. Equivalent to US Army drawing SC-C-179495

16.2. Connector Schematic;



**17. Charge Protocol**

17.1. (Recommended) Each battery section should be charged at a constant voltage of 16.5 ± 0.100 V, current limited to 3A for 4 hours or until charge current is below 100 ma.

17.2. Compatible with all military chargers including level 2 & level 3

**18. Battery Safety and Protection Circuit**

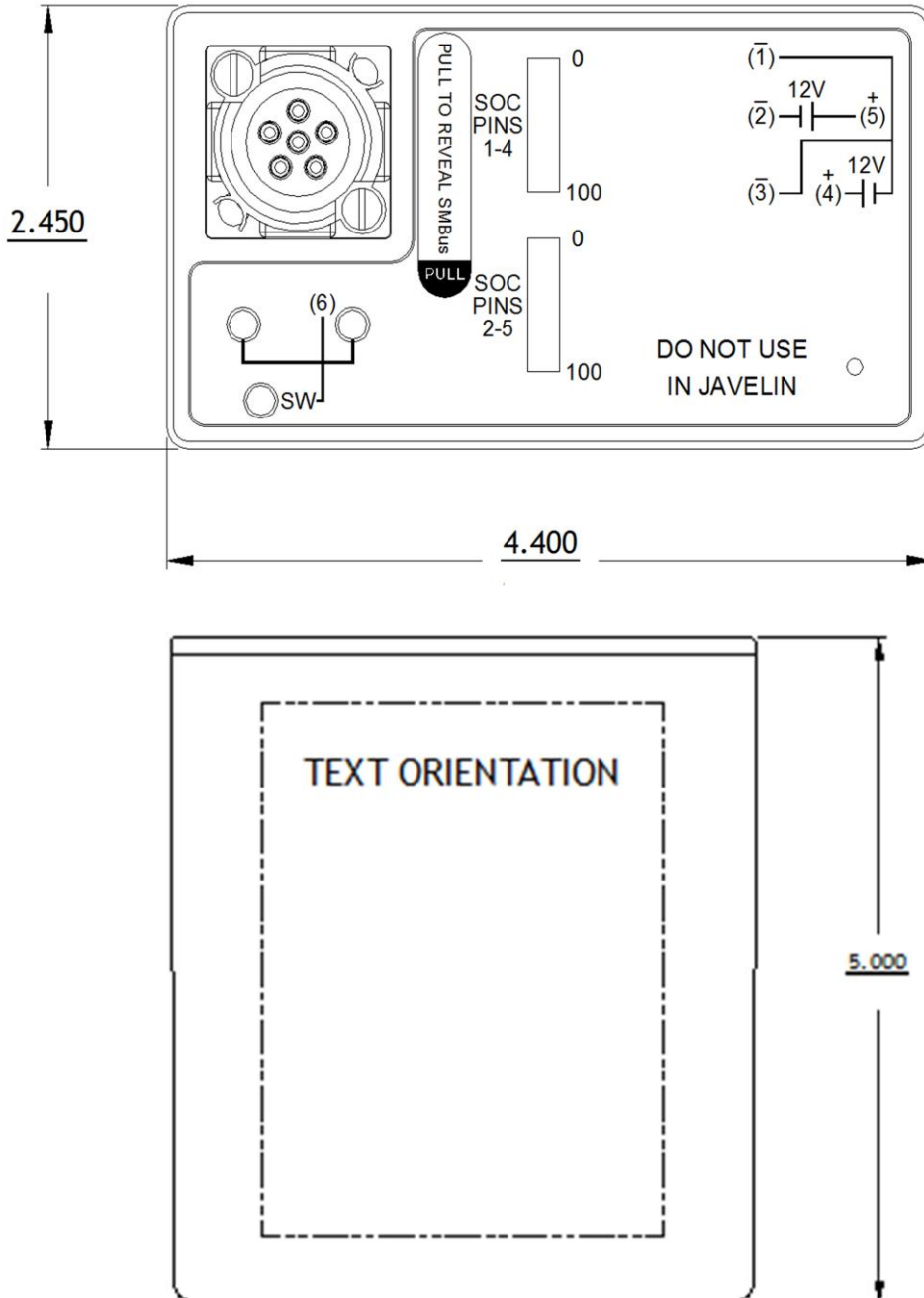
- 18.1. Over voltage shut off 17.2 V each side
- 18.2. Under voltage shut off 11.0 V each side
- 18.3. Over current and short circuit protection is provided
- 18.4. Over temperature protection provided

**19. Shipping and Transportation**

- 19.1. MAI-150749 (BB2590/U) will be shipped in a fully charged state allowing storage at recommended temperatures up to a full year without top off charge.
- 19.2. The subject battery is classified as hazardous for shipment, (Class 9, packing group II, UN 3480.)

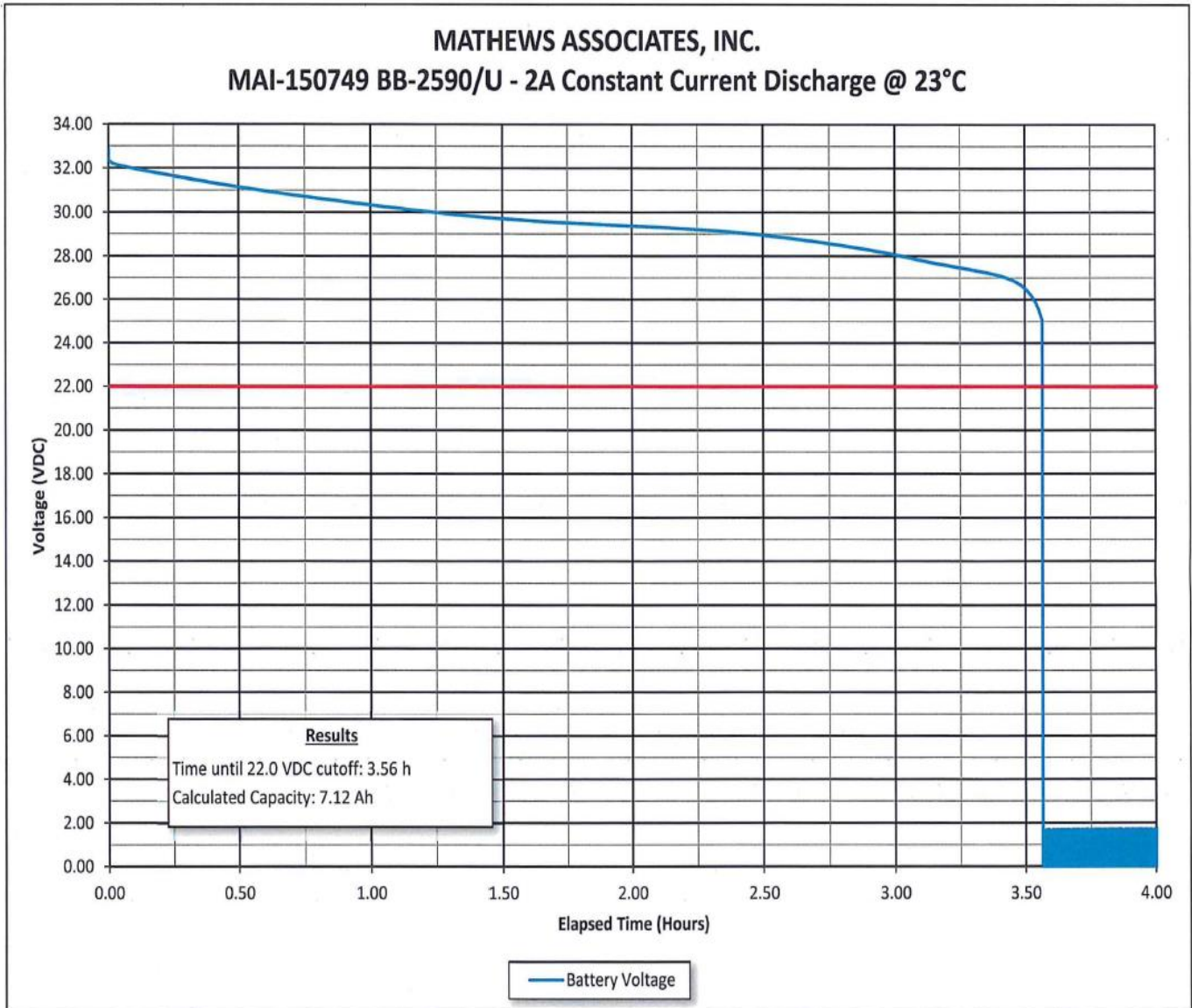


### Battery Dimensions (Maximum)





### Discharge Performance 23°C







### Discharge Performance -20°C

