

Service Bulletin

MODEL(S)	TB20, TB30, TB40, TB50, TB60
PART NUMBER(S)	6430020-(), 6430030-(), 6430040-(), 6430050-(), 6431060-()
DESCRIPTION	Advanced Lithium-ion Battery
TOPIC	Modification (“MOD”) 3 and Software Update Version 1.2.0
PURPOSE	Product and Performance Enhancements
RELEASE DATE	September 19, 2025

APPLICABILITY

This Service Bulletin is applicable to the TBX Series of Advanced Lithium-ion Batteries, part numbers 6430020-(), 6430030-(), 6430040-(), 6430050-() and 6431060-(), manufactured by Mid-Continent Instrument Co., Inc. (dba True Blue Power and Mid-Continent Instruments and Avionics). These updates are to be performed only by authorized personnel per the instructions as listed in this Service Bulletin. Units with this software upgrade and hardware modification are available for sales from the manufacturer.

PURPOSE

TBX software version 1.2.0 represents improvements to product functionality of the TBX Series Advanced Lithium-ion batteries.

Modification (MOD) 3 identifies a hardware change that supports an additional feature that is enabled by software version 1.2.0.

EFFECTIVITY: RECOMMENDED

Previously produced and fielded TBX units can be updated to Software Version 1.2.0 but are not required to do so for continued airworthiness.

True Blue Power is recommending that previously produced and fielded TB20, TB30, TB40, TB50 and TB60 units be updated to Software Version 1.2.0 to take advantage of added features, enhancements and resolutions that improve the function and performance of the product.

Following the release date of the updated software, all general availability of TBX units manufactured by True Blue Power shall be installed with Software Version 1.2.0 or later.

Previously produced and fielded TBX units cannot be upgraded with MOD 3 hardware changes without refurbishment from the manufacturer. Following the release date of this Service Bulletin, all TBX units marked as MOD 3, including those newly manufactured by True Blue Power and marked as such, shall include the changes described herein.

DESCRIPTION

The following list describes the added features, enhancements and resolutions incorporated in Software Version 1.2.0 and supported by the MOD 3 hardware changes, as noted.

ADDED FEATURES

1. Added 4 more data bits to ARINC Label 351 for improved decision-making capability based on the battery's operational status:
 - Bit 15 Module Charge Disabled: Charge is disabled on one or more modules
 - Bit 16 Battery Charge Disabled: Charge is disabled on entire battery (all modules)
 - Bit 17 Module Discharge Disabled: Discharge is disabled on one or more modules
 - Bit 18 Battery Discharge Disabled: Discharge is disabled on entire battery (all modules)
2. Added selectable charge current limit setpoints
This includes adding one additional customer programmable parameter and hardware change associated with MOD3. A discrete input is added in the communications connector, pin P, to determine which of two charge current limit values is requested. The value of each setpoint is defined by the configuration parameter settings file.
This feature is currently only applicable to the TBX series of batteries with the following part numbers: 6430020-1, 6430030-1, 6430040-1, 6430050-1 and 6431060-1)
3. Added End-Of-Life event to downloadable battery event log

ENHANCEMENTS

1. Increased short circuit limit to 625A per module
Note that for normal operation, this does not impact batteries with three modules or more (TB30/40/50/60) due to the battery short circuit limit of 1500A
The TB20, with two modules, increases its short circuit limit from 1000A to 1250A
2. Over Voltage and Under Voltage conditions will now be reported as faults
3. Improved Over Voltage protection by extending cell balancing at higher voltages. In addition to inhibiting charging (Over Voltage) for cells at > 3.8V for 5 seconds, Over Voltage will also be applied when any cell reaches 4.2V for 1 second
4. The Event Log adds a new event identifying when the battery entered control mode of operation
5. Event Logs starting with software version 1.2.0 and later will include a data field identifying the software level associated with each event
6. Improved handling of customer programmable parameter file parsing to ignore non-printable ASCII and carriage return characters
7. LEDs will now be visible during charging when battery voltage is less than 20V and when the SOC button is pressed to visually identify battery status
8. SSM field in ARINC 429 labels will reflect status of reported values

9. Added ability to detect and report misleading module current of a failed sensor
10. Improved timing for sensing short circuit currents

RESOLUTIONS

1. Improved handling of persistent module failures, reducing false negative upon reboot.
2. Improved handling of Heater Continuity/Open/Short detection to eliminate false fail indications
3. Improved heater operation to disable heating if cell temperature exceeds 10 degrees C
4. Improved detection of EEPROM faults
5. ARINC Label 343 (deliverable energy) increases during charging when SOC is invalid.

ESTIMATED MANPOWER

Software can be downloaded and updated on fielded units in approximately 10 minutes.

WEIGHT AND BALANCE

No change

ELECTRICAL LOAD DATA

No change

CERTIFICATION

This Service Bulletin represents a minor change to the previously approved Technical Standard Order Authorization for the TBX series of Advanced Lithium-ion Batteries. Any changes to software have been completed in accordance with approved developmental and quality processes per the guidelines of RTCA / DO-178C, Software Considerations in Airborne Systems and Equipment Certification.

OTHER PUBLICATIONS AFFECTED

The TB50 Installation Manual and Operating Instructions, part number 9019999, Revision C will be incorporated into the TBX Series Installation Manual, part number 9020005, Revision C.

ACCOMPLISHMENT INSTRUCTIONS

The changes associated with this Service Bulletin are associated only with factory-new product provided by True Blue Power and marked accordingly.

To consider whether or not previously fielded product may be eligible for factory refurbishment and upgrade to include this modification, Please contact True Blue Power.

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