

Service Bulletin

MODEL(S)	TB20, TB30, TB40, TB60
PART NUMBER(S)	6430020-(), 6430030-(), 6430040-(), 6431060-()
DESCRIPTION	Advanced Lithium-ion Battery
TOPIC	Software Update Version 1.0.3
PURPOSE	Product and Performance Enhancements
RELEASE DATE	January 12, 2022

APPLICABILITY

This Service Bulletin is applicable to the TBX Series of Advanced Lithium-ion Batteries, part numbers 6430020-(), 6430030-(), 6430040-(), 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 are available for sale from the manufacturer.

PURPOSE

The TBX software version 1.0.3 represents improvements to product functionality of the TBX Series.

EFFECTIVITY: RECOMMENDED

TBX units in the field can be updated to Software Version 1.0.3, but are not required to do so for continued airworthiness.

True Blue Power is recommending that all TB20, TB30, TB40 and TB60 units in the field be updated to Software Version 1.0.3 in order 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 or serviced by True Blue Power shall be installed with Software Version 1.0.3 or later.

DESCRIPTION

The following list describes the added features, enhancements and resolutions incorporated in Software Version 1.0.3.

ADDED FEATURES

1. Manual under-voltage reset

At end of discharge, the under-voltage protection is activated, preventing further discharge until recharged. For systems that require battery power to enable recharge (i.e. close a relay connecting it to a power source), pressing the Status button will clear the under-voltage fault and allow further discharge, if the battery has any energy available.

ENHANCEMENTS

1. Add verification logic to avoid unnecessary reporting of nuisance faults

2. Improve self-learning capacity updates by requiring less restriction on end of discharge detection

3. Improve accuracy and robustness of reported State of Charge (SOC) by recognizing top of charge (100% SOC) during noisy load activity on a fully charged battery

4. Extend operational voltage range for active ARINC reporting

As an energy reserve, ARINC communication was disabled below 20V. It is now enabled beyond end of discharge (~12V).

5. Allow flexible naming of software update file

Required software file name of “update.muf” can now also be “TBX_ zzz.muf”, where zzz is the software version (i.e. SW ver 1.0.2 = 102) for easier identification. “update.muf” naming is still required for 1.0.1 to 1.0.2 updates. All future updates can use flexible file names.

6. Add column titles to the downloadable .csv Event Log file for easier interpretation

7. Improve long-term accuracy of the timestamp for Event Log records

8. Improve robustness of BIT handling

RESOLUTIONS

1. Refine heater failure threshold parameters to reduce false failure detection

2. Prevent potentially erroneous State-of-Charge when discharging a load prior to pre-heat completion

3. Allow ability to discharge if battery transitions from sleep to active while at a high temperature (between 72-95°C)

4. Correct deliverable energy calculation for instances where a battery module is flagged as invalid due to not fully recharging

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 Orders 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 document DO-178C.

OTHER PUBLICATIONS AFFECTED

True Blue Power Installation Manual and Operating Instructions are updated with information associated with this Service Bulletin, as applicable. The manual numbers for each model are listed below and the latest revisions can be found at www.truebluepowerusa.com.

- TB20: 9019286; TB30: 9019287; TB40: 9019288; TB60: 9019485

ACCOMPLISHMENT INSTRUCTIONS

The action required by this Service Bulletin can be accomplished by returning the unit to True Blue Power or by performing the instructions as listed in this section.

If returning the TB20, TB30, TB40 or TB60 unit to True Blue Power:

Call True Blue Power sales department for a Return Material Authorization (RMA) at 316-630-0101.

Return address: True Blue Power
9400 E. 34th Street N.
Wichita, KS 67226

If performing this update in the field:

1. Download the approved software update file from <https://www.truebluepowerusa.com/software-updates/> to the root directory of a standard FAT formatted USB flash drive. The file name must remain "update.muf".
2. Follow the instructions as listed on the website or Section 5 of the Install Manual.

To verify software version (optional):

1. Load the *getcfg.cmd* file to the root directory of a standard FAT formatted USB flash drive.
2. Follow the same instructions for updating the software as listed on the website or Section 5 of the Install Manual.
3. The battery will write a standard text file, *installer.txt*, on the USB flash drive. It can be viewed with any text editor and will display the software version, battery serial number (only on batteries factory built with software 1.0.2 or later) and currently loaded custom configuration parameters.