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Service Bulletin

MODEL(S)	TB20, TB30, TB40, TB60
PART NUMBER(S)	6430020-( ), 6430030-( ), 6430040-( ), 6431060-( )
DESCRIPTION	Advanced Lithium-ion Battery
TOPIC	Software Update Version 1.0.2
PURPOSE	Product and Performance Enhancements
RELEASE DATE	December 18, 2020

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 1.0.2 represents improvements to product functionality and support of the newly released TB60 version of the TBX Series.

EFFECTIVITY: RECOMMENDED

TBX units in the field can be updated to Software Version 1.0.2, but are not required to do so for continued airworthiness.

True Blue Power is recommending that all TB20, TB30 and TB40 units in the field be updated to Software Version 1.0.2 in order to take advantage of added features, enhancements and resolutions that improve the function and performance of the product.

As of the release of this Service Bulletin, there are no TB60 units in the field. All TB60 units manufactured and delivered will contain 1.0.2 or later.

Following the release date of the updated software, all TBX units manufactured or serviced by True Blue Power shall be installed with Software Version 1.0.2 or later.

DESCRIPTION

The following list describes the added features, enhancements and resolutions incorporated in Software Version 1.0.2.

ADDED FEATURES

1. Initiate battery pre-heat from Sleep Mode when the Heater Disable signal is open
   Previous operation required the battery to be Awake prior to initiating a pre-heat cycle.
   Pre-heat cycle is now started when the Heater Disable signal/switch (if installed) transitions from ground to open during Sleep Mode.
2. Initiate battery pre-heat from Sleep Mode when Status Button is pressed.
3. Manually force battery into Sleep Mode by pressing Status Button for three seconds.
   This is only available if battery is not actively charging or discharging.
4. Include battery serial number inside the data export files.
   Added to header of Event Log (eventlog.csv) and Custom Programmable Parameters file (installer.txt). Serial number export is only available on units manufactured or updated by the factory with Software Version 1.0.2 or later.
5. Include custom parameter values in the Event Log header for ease of reference.
6. Added heater fault and heater failure to ARINC 429 Label 352.

ENHANCEMENTS

1. Revised heater on/off thresholds
   Changed heater operation from turning on when below +15°C and turning off when above +20°C, to 0°C/+5°C, respectively, to reduce excess energy consumption.
2. Improved accuracy of reported battery capacity
3. Improved State of Charge reporting during battery storage
4. Allow the USB flash drive to be inserted (within 5 seconds) after entering Control Mode
5. ARINC Label 352 reports short circuit and over current faults continuously until load is removed
   Previous data was only reported on transition to those states.
6. Improvements to Event Log.
   Eliminating reporting cell over temperature edge event multiple times.
   Refined frequency of State of Health (SOH) updates.

RESOLUTIONS

1. Correct the timestamp of the downloaded eventlog.csv file
2. Eliminated need to load software twice when installing an update

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RESOLUTIONS (con't)

3. Report charge limiting state via ARINC label 351 during initial under voltage recovery
    Standard charge limiting, regardless of Custom Programmed charge limiting, is applied temporarily after under voltage recovery and was previously unreported.

4. Resolved temporary false recovery out of under voltage state
    Battery must have charge voltage applied (>20V) to reset the under-voltage condition (i.e. a fully discharged battery) to resume normal operation.

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

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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 or TB40 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.