



Two Technologies Battery Care and Maintenance

Overview:

The Battery is a crucial element in your JETT[®] hardware system and the one “consumable” item which is affected by the application, the environment, and daily use by the end-user. This article describes the do’s and don’ts with respect to taking care of your JETT batteries from the time they are received until they need to be replaced.

Battery Do's:

- o Fully charge/discharge battery up to 4 cycles before expecting to achieve full capacity of a new battery
- o Fully discharge and then fully charge the battery every 4-8 weeks to keep battery properly conditioned (if not used regularly)
- o To charge/discharge the battery, run the JETT under the battery's power until it shuts down or until you get a low battery warning. Then, recharge the battery as instructed in the JETT User's manual.
- o If the battery will not be used for a month or longer, remove it from the JETT (after charging) and store it in a cool, dry, clean place (or flip the battery over in the JETT so that the contacts are facing out.)
- o Expect a high capacity battery (2500mAH) to fully charge (in a JETT•XL[®]/ JETT•eye[™] or a JETT•FUEL) in 5 to 6 hours. A standard battery should take about 4 hours.
- o Recharge the battery after any storage period (Batteries will self discharge about 20-30% per month even when not connected to any equipment)
- o Expect to replace batteries periodically. The life span of batteries is highly dependant upon many factors including charge/discharge cycles, storage times, and operating and storage temperatures. (300-500 cycles or about 15-24 months is the expected lifetime of JETT Batteries)
- o Properly maintained JETT batteries will not suddenly fail under normal conditions. They will gradually lose their charge capacity over time. Expect about 75 to 80% of original charge capacity after 300-500 charge cycles or about 1 ½ to 2 years

of normal use for a properly maintained battery. From that point, the battery will lose its capacity at a more rapid rate.

- o Ensure maximum performance of the battery by optimizing the JETT's power management features for your application. Refer to the integrator's and user's manuals for further instructions.

Battery Don'ts:

- o Do not short-circuit. Ever. A short-circuit can cause severe damage to the battery and will cause the internal fuse of the battery to open. These batteries carry enough energy to generate a great deal of heat. Heat = Fire... Enough said.
- o Do not discharge battery and leave it in this state in excess of 2 weeks. This may cause one or more of the cells within the battery pack to short and thereby permanently damage the battery. A battery with one or more shorted cells will experience extremely short operating times.
- o Do not drop, hit or modify the battery as this may result in the exposure of the chemical compounds in the battery, which are corrosive.
- o Do not expose the battery directly to moisture or rain. Opening the battery door on the JETT negates the IP rating while it is open. Change batteries in a protected location.
- o Keep battery away from fire or other sources of extreme heat. Do not incinerate. Dispose of batteries in accordance with local municipality guidelines.

My new battery isn't charging. Is it defective?

Usually not. Two Technologies has experienced an extremely small number of infant mortality defects of batteries over the 20 years we have been making handheld devices.

The rechargeable batteries supplied with products delivered from Two Technologies, are shipped in a charged condition. However, due to warehousing and shipment times, these may have discharged to one degree or another. It is recommended that you fully charge and discharge the new battery at least four times to allow it to reach its maximum rated capacity.

It is recommended that the unit be charged overnight (approximately twelve hours) to attain a complete state of charge. Both the JETT and the JETT•FUEL have charging systems which can fully charge a discharged 2500mAH battery in 5-6 hours. However, new batteries and batteries which are experiencing aging effects should be allowed to trickle charge overnight.

It is normal for a battery to become warm to the touch during charging and discharging.

When charging a battery for the first time, the device may indicate that charging is complete after just 10 or 15 minutes. This is a normal with some batteries. New replacement batteries are hard for the device to charge. They may never have been fully charged nor "broken in." Sometimes the charging system will stop charging a new

battery before it is fully charged. If this happens, remove the battery from the JETT or JETT•FUEL and then reinsert it. The charge cycle should begin again. This may happen several times during the first battery charge. Don't worry; it's perfectly normal.

How can I maximize the performance of my battery?

There are several steps you can take to help get maximum performance from your battery:

- 1) Power Management - Make certain your application takes advantage of all the power saving abilities offered in the JETT. Backlight, 802.11, Clock Speed, Bluetooth, Program Management all contribute toward battery usage and are controllable through the application to limit their power consumption.
- 2) Prevent the Memory Effect - Keep the battery healthy by fully charging and then fully discharging it at least once every 4 to 8 weeks. If your application's use of the JETT normally fully cycles the battery, this is not required.
- 3) Keep the Batteries Clean - It's a good idea to clean dirty battery contacts with a cotton swab and alcohol. This helps maintain a good connection between the battery and the JETT.
- 4) Exercise the Battery - Do not leave the battery dormant for long periods of time. We recommend using the battery (to a state of discharge) at least once per month. If a battery has not been used for a long period of time, perform the new battery procedure described above.
- 5) Battery Storage - If you don't plan on using the battery for a month or more, store it in a clean, dry, cool place away from heat and metal objects after charging it. Batteries will self-discharge during storage; remember to recharge the batteries before use and plan on conditioning them about once every two months.

Questions? Please contact Technical Services at 215.441.5305 or techsupport@2T.com