TAIT TECHNICAL SUPPORT

Technical Note TN-755

Tait Orca 5000 Battery Charger Operation

14th January 2003

Applicability

This Technical Note applies to the Tait Orca 5000 Portable radio battery Chargers, **TOPA-CH-200** single-slot Fast charger, and the **TOPA-CH-300** six-way Fast charger fitted with v3.09 Firmware.

TOPB100, TOPB101, TOPB102, TOPB200, TOPB201, TOPB202, TOPB300, TOPB301, TOPB302, TOPB400, TOPB500, TOPB600, TOPB700

1. Introduction

What is in this Technical Note ?

This Technical Note outlines the sequences and expected timeframes when recharging a Tait Orca battery pack with a Tait Orca battery charger.

2. Charging Processes

Fast Charge

When a battery pack is placed in a charging slot the battery will be recharged to about 85% of total capacity in Fast charge mode. The charger will indicate this mode with a **steady Red** LED indicator.

Trickle Charge

When the battery has reached approximately 85% of total capacity it will halt the charging process for 30 minutes, then continue charging at the lower rate of, 115mAh for Ni-Cd, or 50mAh for Ni-MH, for a further 60 minutes. The charger will indicate this 90 minute mode with a **flashing Green** LED indicator.

Standby Charge

After the Trickle charging period the charging rate will drop again to a rate of 50mAh. It will continue in this state for the next 12 hours. The charger will indicate this mode with a **steady Green** LED indicator.

Maintenance Charge

After 12 hours of Standby charge has elapsed, the charge rate will drop again to a rate of 15mAh. It will continue in this state indefinitely. The charger will continue to display a **steady Green** LED indicator.

NOTE: Whenever the charger indicates a steady Green LED indicator, the battery will be available for use.

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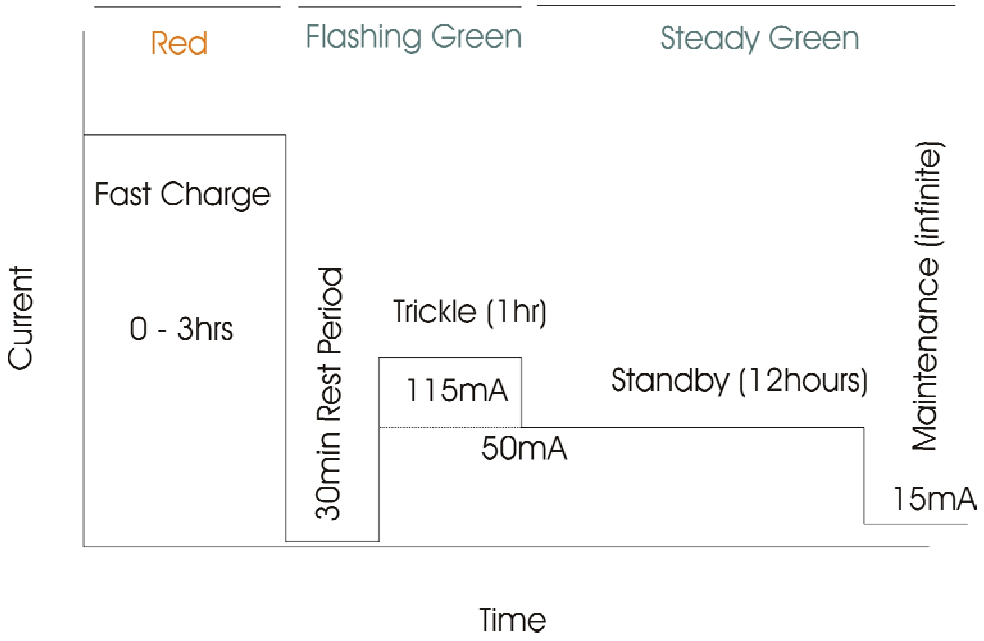
Time-line of a Tait Orca battery on charge



Conditioning Modes

Two battery conditioning modes are available with the Tait Orca chargers.

Short Condition – This mode discharges the battery pack to a specific voltage, then commences a normal charge of the battery pack. This sequence takes approximately 12 hours.
Use this feature weekly to exercise the battery cells.
To start this sequence insert the battery, wait for the Red LED then press the charger's discharge button.

Long Condition – This mode discharges the battery pack to a specific voltage, then commences a recharge. It will repeat this sequence twice if the battery is a Ni-MH pack, and three times if the battery is a Ni-Cd pack. This sequence will take up to 24 hours.
Always use this feature in the following situations:

- with a new battery pack
- if the pack shows signs of less than expected capacity
- or has been unused for more than two weeks.

To start this sequence press-and-hold the charger's discharge button, insert the battery then release the button.

During either conditioning mode the charger LED indicator will **flash Amber**, then display **steady Green** when the sequence is complete.

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Important Notes

- The Orca battery packs can be recharged either by themselves or with a radio attached, however the radio must be switched off while the battery is in the charging slot.
- The charger will display a **steady Amber** LED indicator if the temperature of the battery pack is less than 5°C or higher than 40°C. The charger will wait in this mode until the temperature of the battery pack reaches a safe recharge temperature, then commence a charge sequence.
- A **flashing Red** LED indicates a failure of the battery. Most commonly this is caused by dirty battery contacts. If this occurs use a wooden probe (such as a matchstick) to clean the contacts.

Compliance Issues

None.

CSO Instruction

Please inform all technical staff and accredited dealers of the normal charging procedures reiterated here.

3. Issuing Authority

Name and position of issuing officer

Graham Brenchley

Customer Support Engineer

Confidentiality

Distribution Level

Associate

Document History

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