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# Technical Note TN-592

## TOPA-CH-200 & T3002 Chargers

### New v2.06 Software

1 OCTOBER 1999

#### Applicability

Software changes to TOPA-CH-200 & T3002 have been made, resulting in the release of a new version of enhanced charger software, v.2.06. This software will be used in both Tait Orca fast-chargers and T3002 fast-chargers, making them operate identically. Details of the changes and implications follow

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1. The indicator will function as follows:

• Charging:	Red steady	unchanged
• Trickle:	Green flashing 0.2/0.2sec*	changed
• Standby (Charged):	Green steady	unchanged
• Short Condition:	Amber flashing, 1/1sec **	changed
• Long Condition:	Amber flashing, 1/1sec **	changed
• Fault:	Red flashing, 1/1sec	unchanged

\* In v2.02 the green flashing LED (1/1sec) indicated discharging in progress. In v2.06 the flashing green LED (0.2/0.2sec) indicates trickle charging.

\*\*For Short & Long Condition cycles the normal charging indications will be given on the final charge cycle

2. The charger maintenance current has been increased. This will improve the shift performance of batteries which have developed significant self-discharge, a recognised symptom of battery ageing. It will also prevent batteries with high self-discharge from initiating a second charge cycle while sitting in the charger.
3. The fast-charge re-start threshold has been raised. This means the battery will not drop below 70% of its present capacity if the radio is attached and switched on while charging. However, it is now recommended that the radio be switched off while its battery is being charged.
4. The trickle-charge time at the end of the fast-charge cycle has been increased from 1hr to 1.5 hours. Full charge will take approximately 3.5 hours for a new 1.5Ah battery and approximately 3 hours for a new 1.1Ah battery.

5. The Long Condition function is still useful as a multi-cycle conditioner, but it does not produce an accurate analysis due to the range of battery capacities offered. It is recommended that third-party analysers such as the HME should be used for accurately measuring battery capacity.
6. The conditioning functions available are:
  - Short Condition (one discharge-charge cycle) - takes about 8 hours
  - Long Condition (multiple charge-discharge cycles)- takes about 24 hours.  
However, the Long Condition cycle will commence with charge instead of discharge, and will include trickle-charge in each charge cycle to ensure cell charge balance. Long condition cycle ends on a charge cycle.
7. Charge termination will be by delta-T method only. This is consistent with the previous version of charger firmware in TOPA-CH-200 (v2.02). There will no longer be a delta-V fast-charge termination in T3002. This will remove the early termination problems experienced when charging a very flat battery in T3002 charger. However, some users who are adding charge to a battery during a shift may notice that v2.06 may take longer to terminate fast charge and begin trickle charge.
8. The battery temperature which terminates fast-charge is decreased from 60EC to 55EC. This will limit damage to batteries in the relatively uncommon Use Regimes where they are repeatedly charged after very short use periods. After termination of fast charge, the charger reverts to trickle charge.

**Note to CSOs**

Please pass this information to all internal sales and technical staff, and to all dealers.

**Issuing authority**

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