



## TECHNICAL BULLETIN

ETB07297-01

OCEAN TECHNOLOGY SYSTEMS ENGINEERING DEPT.

MODEL: Various

SUBJECT: Brand new batteries installed in units will not accept charge

### COMMENTS:

This bulletin addresses field reports for RB-14 batteries that were installed in units purchased new and not put into service right away but stored for several months. Engineering has determined that this reported failure is due to several factors operating concurrently:

- Nickel Metal Hydride (NiMH) batteries have natural self-discharge properties.
- Batteries' initial state of charge from the factory and acceptance testing.
- Storage of units for extended periods with batteries installed.
- Battery charger threshold voltage.

Testing revealed that a number of the RB-14 batteries had a charge of only about 9 volts (compared to 12 volts for a fully charged battery). Gradual discharge of the batteries due to the natural self-discharge of NiMH cells resulted in the battery voltage's dropping below the threshold of the battery charger. This is normally not a concern, but new batteries need to be put through several charge/discharge cycles for full capacity.

In every case investigated, the battery was restored to normal capacity by charging it with a constant current supply.

OTS Engineering is recommending that batteries should be charged at least once a month to maintain service life. Manufacturer specifications show that NiMH cells can normally lose 20% to 40% of charge (depending upon storage temperature) due to the self-discharge characteristics.