ELECTRICAL CHARACTERIZATION OF THE MAGELLAN BATTERIES AFTER STORAGE

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1992 NASA AEROSPACE BATTERY WORKSHOP
November 17-19, 1992
U. S. Space and Rocket Center
Huntsville, Al

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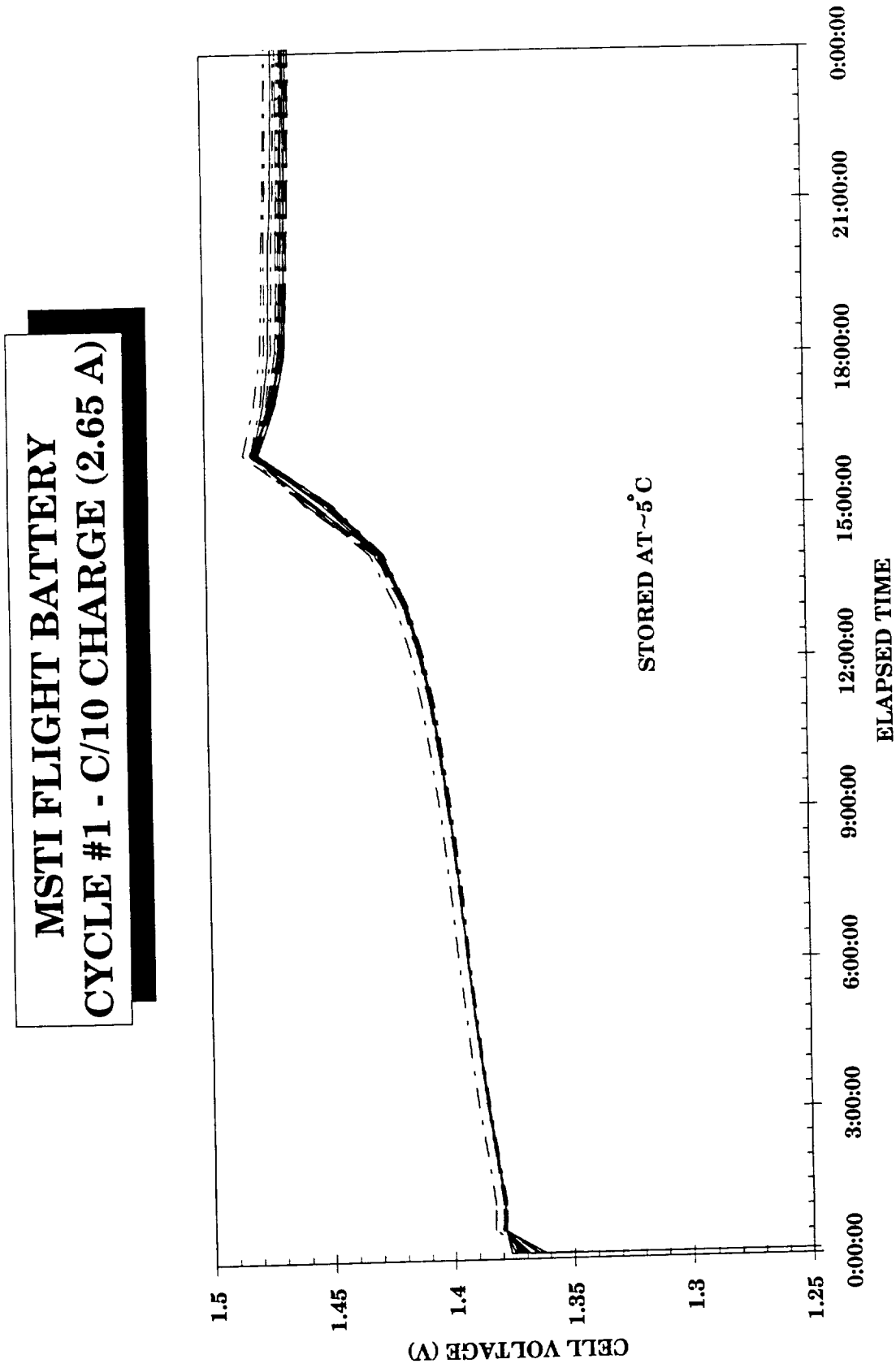
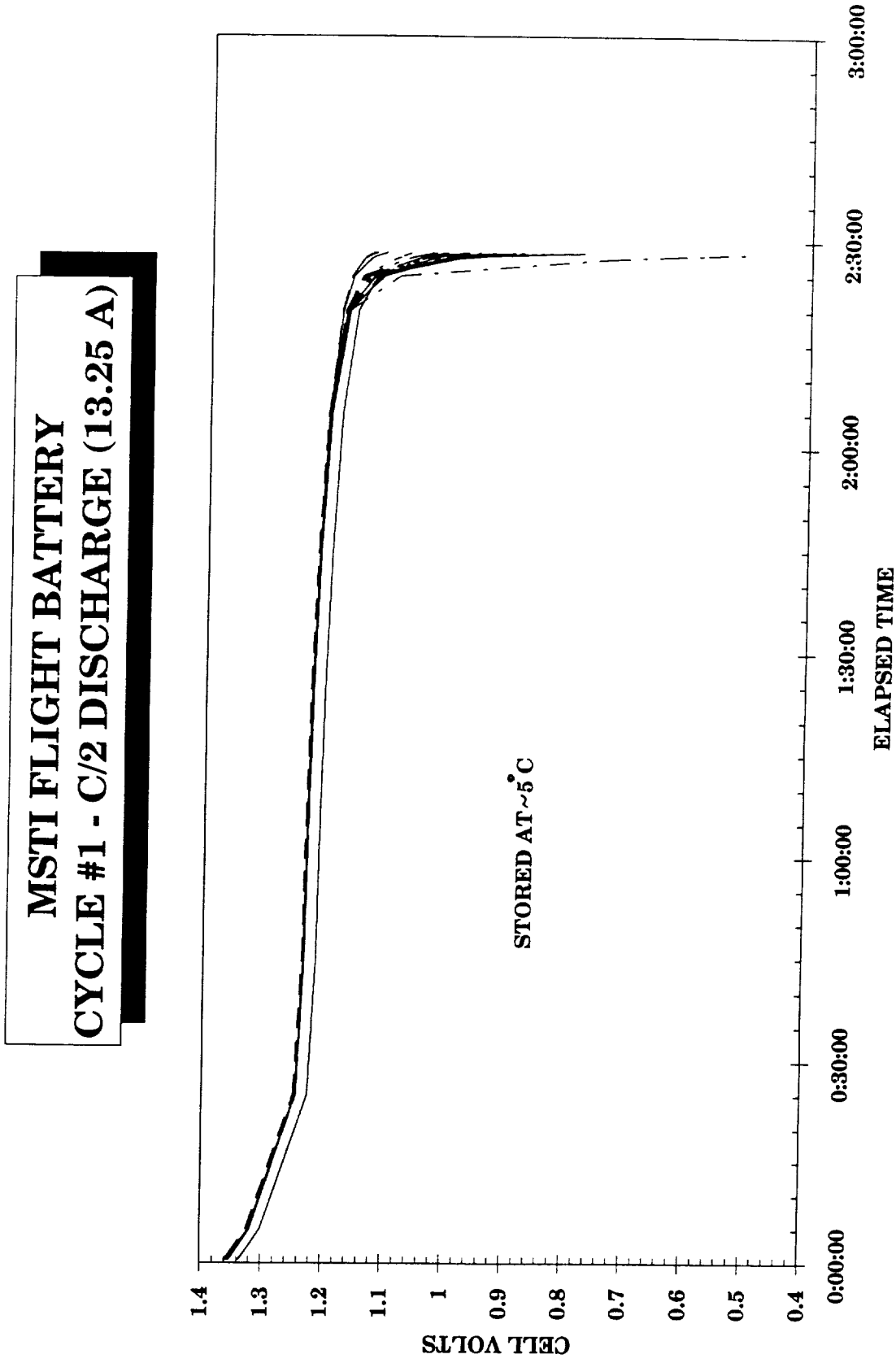
MAGELLAN / MSTI BATTERY SUMMARY

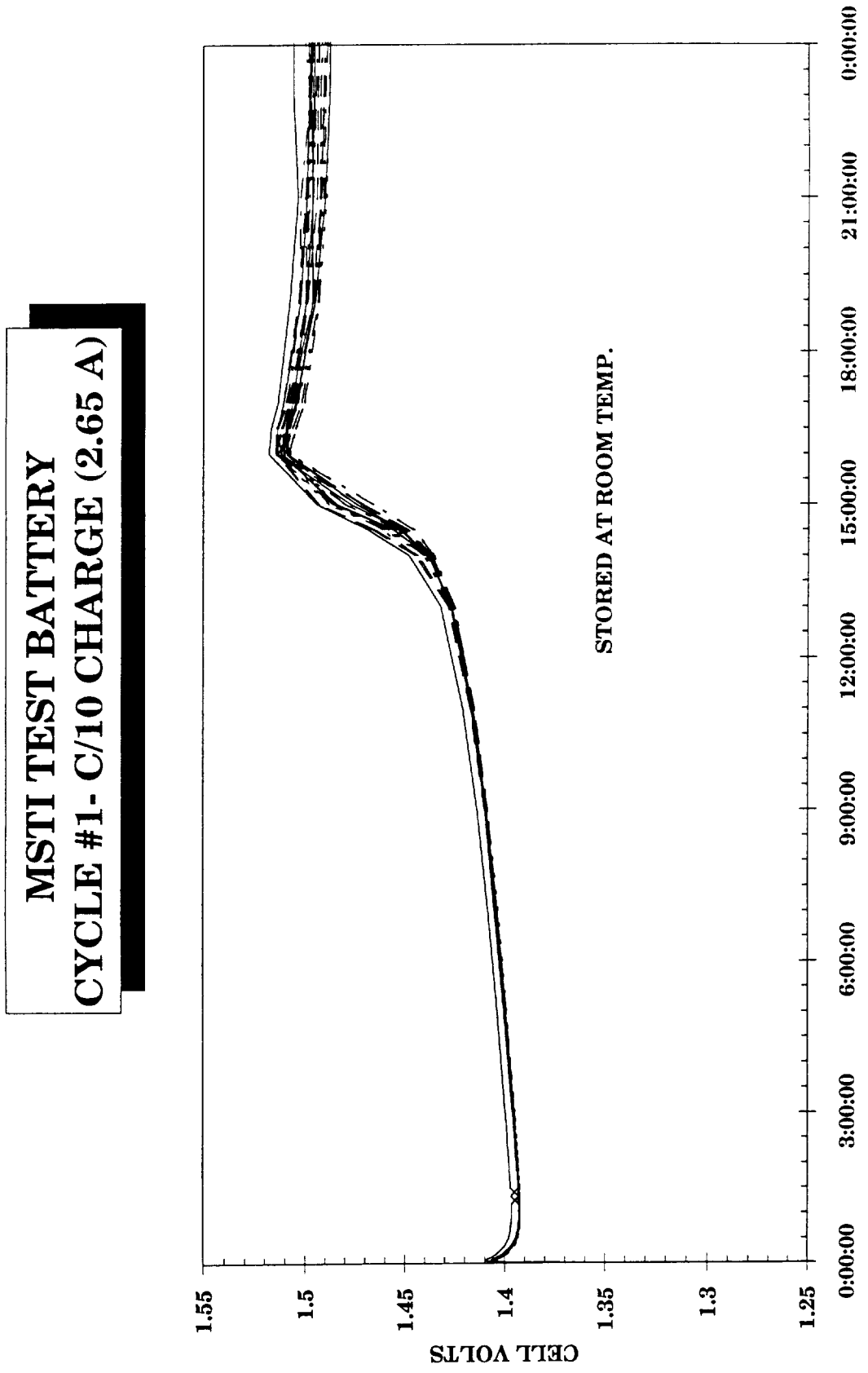
- PRIME CONTRACTOR - MARTIN MARIETTA

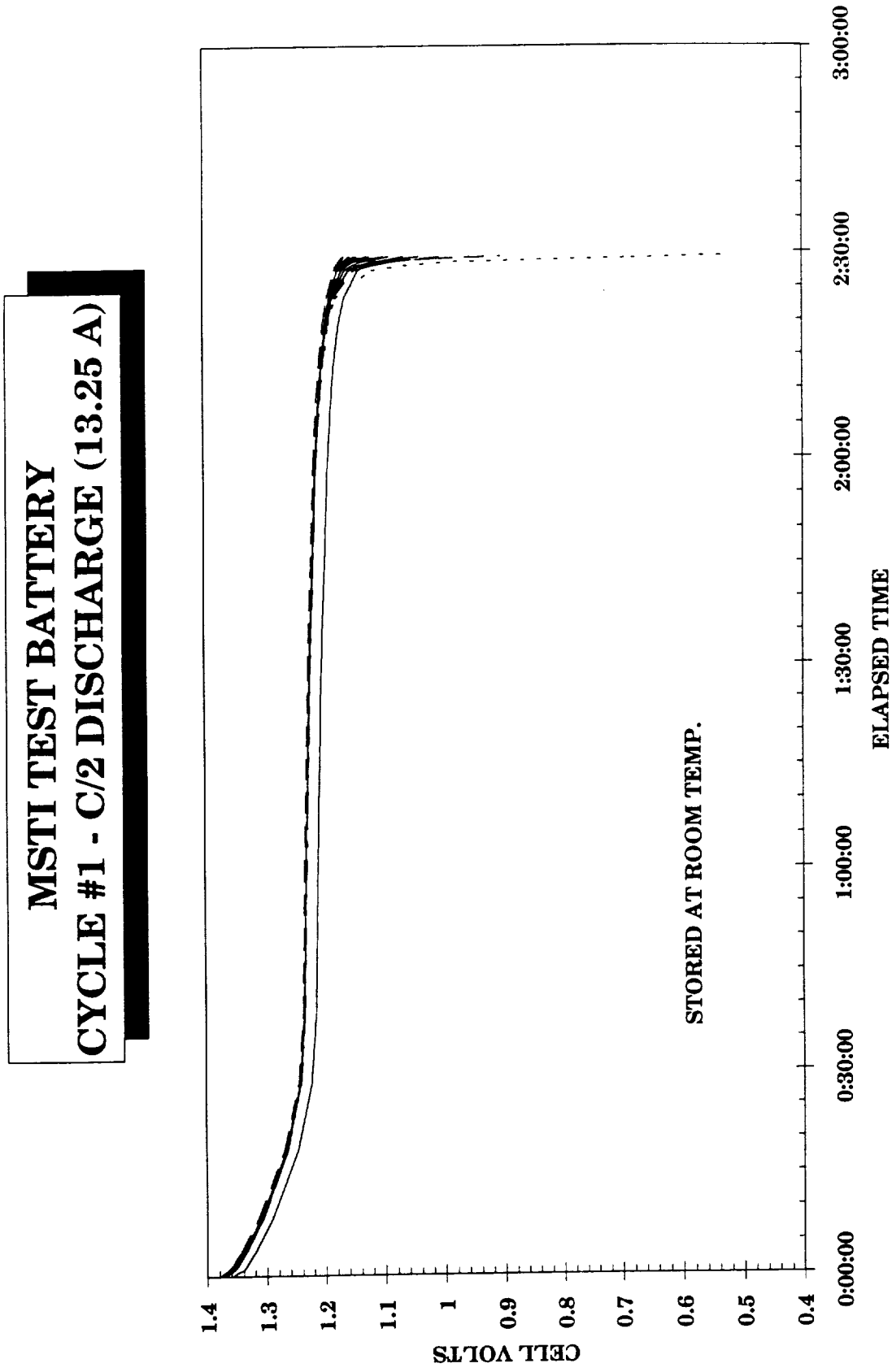
- BATTERY DESIGN
  - TWO 22 CELL / 26.5 Amp-Hr BATTERIES
  - CELL DESIGN
    - GATES AEROSPACE 42B030AB15
    - 11 POS / 12 NEG
    - PELLON 2536 SEPARATOR
    - PASSIVATED POS / TEFLONATED NEG

- BATTERY CYCLE REGIME
  - 15 MONTH CRUISE PERIOD
  - HIGHLY ELLIPTICAL VENUSIAN POLAR ORBIT (3.25 Hr)
  - 6.5 Amp 200 ms pulse @ 1.1 Hz DURING MAPPING CYCLE (37 min)


MSTI FLIGHT BATTERY
CYCLE #1 - C/10 CHARGE (2.65 A)
CELL VOLTAGE (V)
1.5
1.45
1.4
1.35
1.3
1.25
0:00:00
3:00:00
6:00:00
9:00:00
12:00:00
15:00:00
18:00:00
21:00:00
0:00:00
ELAPSED TIME
STORED AT ~5°C


MSTI FLIGHT BATTERY
CYCLE #1 - C/2 DISCHARGE (13.25 A)
CELL VOLTS
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0:00:00
0:30:00
1:00:00
1:30:00
2:00:00
2:30:00
3:00:00
ELAPSED TIME
STORED AT ~5°C


MSTI TEST BATTERY
CYCLE #1- C/10 CHARGE (2.65 A)
CELL VOLTS
1.55
1.5
1.45
1.4
1.35
1.3
1.25
0:00:00
3:00:00
6:00:00
9:00:00
12:00:00
15:00:00
18:00:00
21:00:00
0:00:00
ELAPSED TIME
STORED AT ROOM TEMP.


MSTI TEST BATTERY
CYCLE #1 - C/2 DISCHARGE (13.25 A)
CELL VOLTS
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0:00:00
0:30:00
1:00:00
1:30:00
2:00:00
2:30:00
3:00:00
ELAPSED TIME
STORED AT ROOM TEMP.

FLIGHT BATTERY CAPACITY

	BEFORE STORAGE	AFTER STORAGE
C/20 CH. & C/2 DISCH.	33.87	30.91
C/10 CH. & C/2 DISCH.	31.79	32.02

STORED AT ~5°C

TEST BATTERY CAPACITY

	BEFORE STORAGE	AFTER STORAGE
C/20 CH. & C/2 DISCH.	33.06	32.57
C/10 CH. & C/2 DISCH.	32.77	32.91

STORED AT ROOM TEMP.

SUMMARY

- **NO NOTICEABLE CAPACITY LOSS AFTER STORAGE PERIOD AT BOTH TEMPERATURES.**

- **TEST BATTERY EXHIBITED LARGER NON-UNIFORMITY OF CELL VOLTAGES DURING CONSTANT CURRENT CHARGE.**