

C&D TECHNOLOGIES, INC.

POWERCOM DIVISION

TEN-YEAR LIMITED WARRANTY AND PRO RATA ADJUSTMENT FOR LIBERTY SERIES 1000® BATTERIES USED IN LIMITED CYCLE SERVICE*

IN THE U.S.A. AND CANADA
(INCLUDING "J" OPTION)

WARRANTY APPLIES TO LIBERTY 1000 BATTERIES USED IN UPS CYCLE SERVICE AND MONITORED WITH A C&D BATTERY CYCLE MONITOR PLUS (BCM PLUS)

WARRANTY: Liberty Series 1000 batteries manufactured by C&D TECHNOLOGIES, INC. are warranted against defective materials and workmanship for a period of two years from date of shipment when operated at 77F (25C). As the sole and exclusive remedy in discharge of the Warranty, C&D TECHNOLOGIES, INC. agrees to repair or replace, any cells or parts of the battery assembly which do not meet C&D TECHNOLOGIES, INC. specifications for new materials or workmanship, provided the User gives C&D TECHNOLOGIES, INC. prompt notice of such alleged defects and further provided User, if requested by C&D TECHNOLOGIES, INC., returns allegedly defective goods to C&D TECHNOLOGIES, INC., F.O.B. C&D TECHNOLOGIES, INC. destination, freight prepaid and allowed, for evaluation. The replacement battery shall only complete the remaining unused portion of the original warranty of the replaced battery.

Since batteries used in Uninterruptible Power Systems (UPS) service are typically not operated in full float service but experience numerous discharges of varying duration, a cycle service criteria must be included as an alternative measure of service life and condition for warranty adjustment. Table A defines the warranted battery cycle service. The corresponding number of cycles for each discharge duration represents 100 percent of the available cycles. However, combinations of the four durations may be added together for a total not to exceed 100 percent. Refer to example, below.

**TABLE A - For Liberty 1000 Batteries
CRITERIA FOR LIMITED CYCLE SERVICE**

Duration of discharge	Warranted cycle life
0 to 0.5 Minutes	3750 Events
0.5+ to 1.5 Minutes	1125 Events
1.5+ to 4.0 Minutes	412 Events
4.0+ to 15.0 Minutes	225 Events

Note: Based upon battery discharges at the 15-minute rate to a minimum voltage of 1.67 volts per cell.

WARRANTY ADJUSTMENT AGREEMENT: In addition, C&D TECHNOLOGIES, INC. warrants the batteries, when installed and operated in limited cycle service and in accordance with C&D TECHNOLOGIES, INC. Liberty Series 1000 Valve-Regulated (sealed) Lead-Acid Batteries Installation and Operating Instructions, RS-990 ("Instructions"), as may be amended from time to time to provide a total of 120 months service life or the specific number or combination of discharge and recharge cycles described in Table A, whichever occurs first, expressed in time or discharge cycles. C&D TECHNOLOGIES, INC. agrees if the battery fails to deliver 80 percent

of its published rated capacity when tested under C&D TECHNOLOGIES, INC. supervision, prior to 120 months from date of shipment and prior to reaching the warranted cycle life, C&D TECHNOLOGIES, INC., at its option, will either (a) repair battery at C&D TECHNOLOGIES, INC. expense, F.O.B. C&D TECHNOLOGIES, INC. destination, freight prepaid and allowed, to enable the battery to deliver in excess of 80 percent of its published rated capacity or (b) credit User against the purchase of another C&D TECHNOLOGIES, INC. battery of the same type and of equal or greater capacity in exchange for the unserviceable battery.

Calculation of pro rata adjustment:

1- Calendar life

$$\frac{\text{Months of unused service}}{120 \text{ warranted months}} \times \text{Original net price} = \text{Credit in dollars against current net user price}$$

2- Cycle life - Requires a summation of discharge events for each of four discharge durations, as in this hypothetical case:

Duration of discharge	Actual cycles	Maximum cycles	Percent of warranted life
0 to 0.5 Minutes	1050	3750	28%
0.5+ to 1.5 Minutes	175	1125	15%
1.5+ to 4.0 Minutes	90	412	22%
4.0+ to 15.0 Minutes	34	225	15%

Total expended life equals 28% + 15% + 22% + 15% = 80%

For the example given, credit on the purchase of a replacement battery is determined by:

$$\text{Original net price of battery} \times (1.00 - 0.80) = \text{Credit in dollars against current net user price}$$

Note: A "battery cycle monitor" (BCM Plus), purchased from C&D, must be installed prior to the initial charge, testing and before any load is placed on the battery.

The BCM Plus counts, records and measures the duration of each discharge. The BCM Plus records all discharges and classifies them into four categories described in Table A. The BCM Plus has an additional feature of measuring the actual duration of every discharge and totals the discharges in accordance with actual cycle/life criteria. The "remaining life" displayed on the BCM Plus accounts for discharges

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that are less than the maximum duration, shown for each of the four categories of discharge given in Table A. When warranty credit is based on cycle life, this correct value is used to determine warranty coverage.

This Limited Warranty is subject to the following terms and conditions:

1. The BCM Plus (C&D Battery Cycle Monitor Plus) must be connected to the battery and fully operational prior to charging or discharging the battery. The BCM Plus must be maintained and remain fully operational throughout the life of the warranty for warranty claims to be honored.
2. User shall install and maintain each battery in accordance with the Instructions.
3. User shall give a freshening charge to all cells every six months when stored at 77F (25C) or every three months if stored or exposed for more than one week to temperatures in excess of 92F (33.3C). Final installation must be completed within 12 months from date of shipment.
4. Battery shall not be placed in an operating environment in which the average annual ambient temperature exceeds 80F (26.6C) or peak temperature exceeds 110F (43.3C) for more than a 24-hour period. Battery shall not be subjected to freezing conditions.
5. User shall locate cells in such a manner that no cell in a string will differ more than 5F (2.78C) between the lowest and highest individual cell temperature when floating at recommended float voltages shown in Table B. Cells shall not be installed near radiators, steam pipes, or direct sunlight, or any location where cells may be exposed to elevated temperatures.

CHARGE VOLTAGE—TABLE B

BATTERY TEMPERATURE	FLOAT VOLTAGE (Vpc)	INITIAL/EQUALIZE (Vpc)	MIN. ACCEPTABLE (Vpc)
77F (25C)	2.25 - 2.27	2.31 - 2.35	2.20
92F (33.3C)	2.23 - 2.25	2.29 - 2.33	2.18

Notes: AC ripple from charger shall not exceed five percent rms or seven percent peak-to-peak of the dc current.

6. User shall not permit any cell to operate below the minimum acceptable volts per cell without giving the string (or cell) an equalizing charge with both voltages in accordance with Table B.
7. Battery shall not be subjected to misuse, abuse or physical damage.

8. C&D TECHNOLOGIES, INC. representatives shall be given access to any goods subject to this Limited Warranty for purposes of inspection at reasonable hours and intervals.
9. C&D TECHNOLOGIES, INC., unless authorized in writing, shall not be obligated to do any installation work in connection with the furnishings of new cells or repair parts, and undertakes no responsibility for work done or expense incurred.
10. At least once a year, User shall complete an inspection report recording cell float voltages and surface temperatures and forward the report to the technical service department, C&D TECHNOLOGIES, INC., 1400 Union Meeting Road, Blue Bell, PA 19422-0858.
11. User shall take action and not continue use of battery after discovery of a defect.
12. Battery will be considered at end of its useful life when it fails to deliver 80 percent of its published rated capacity when tested under C&D TECHNOLOGIES, INC. supervision and in accordance with IEEE 1188-1996, "Recommended Practice for Maintenance, Testing, and Replacement of Valve Regulated Batteries for Stationary Applications."

The foregoing is the sole and exclusive remedy in discharge of this warranty. C&D TECHNOLOGIES, INC. liability for damages, whether based upon alleged negligence, breach of warranty, breach of contract, or otherwise, shall in no event exceed the purchase price of the specific item with respect to which such damages are claimed. Costs of replacement, installation, travel expenses of a C&D TECHNOLOGIES, INC. representative, and material freight expenses will be the responsibility of the User.

LIMITATIONS: This Limited Warranty Agreement extends only to original purchaser (User) and is non-transferable. Except as authorized in writing, this warranty does not cover any equipment that has been altered by any party other than C&D TECHNOLOGIES, INC. User shall indemnify and save C&D TECHNOLOGIES, INC. harmless from any claims and liabilities arising out of the use, maintenance, transportation, or installation of any equipment warranted hereunder. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. C&D TECHNOLOGIES, INC. MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL C&D TECHNOLOGIES, INC. BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

WARNING

At all times, safety must be considered an important factor in the installation, servicing and operation of the product, and skilled, qualified technical assistance always should be utilized.