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**M357380**

**Battery Pack**

**For UPS Model M110BA(-1 & -2)**

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## **1. General**

The M357380 is a replacement battery pack intended for use in Milpower Model M110BA-1 and M110BA-2.

The battery pack houses eight valve-regulated lead acid cells connected in series. Each cell is rated for 12V, 5AH, resulting in a total source of 96Vdc, 5AH. The cell construction and sealing technique ensures that no electrolyte leakage should occur from the terminals or case. The cells are packaged inside an aluminum case and are secure in place by epoxy. The Battery Pack contains a thermistor that enables the battery-charger of the M110BA, to trim the charging-voltage as function of temperature. Electrical connection is provided through a connector.

## **2. Caution!**

**The Replaceable Battery contains lead-acid batteries. The Battery Pack should not be opened since it can only be replaced with a new pack (battery cells cannot be replaced individually).**

**Dispose the Battery Pack properly. Careless disposal (such as into a fire) may cause an explosion. Local regulations may require controlled disposal of lead-acid batteries. Please check your local regulations before disposal.**

## **3. Characteristics**

Nominal Voltage:	96Vdc
Capacity:	5 Ampere Hours
Hold-Up Time:	10 Minutes at full load (when installed in an M110BA).
Storage Temperature:	-40° to +72°C (Please see next page for Battery Storage Condition)
Operating Temperature:	0°to +52°C
Weight:	44 Lb

## **4. Battery Service Life**

The lead-acid, sealed and maintenance-free battery used in the M110BA is of the highest quality. Nevertheless, it is a Limited Life Item, and its life expectancy depends upon its operating and storage conditions. The three most important factors that determine the life of the battery are: temperature, storage conditions and the number and depth of charge-discharge cycles.

### **4.1. Temperature**

The battery used in the M110BA is sealed and does not “dry up” or lose gasses, but its end of service life is brought about by the gradual corrosion of the electrodes.

This process is accelerated by high operating temperatures. Every 10°C rise above 20°C will reduce the battery service life by half.

### **4.2. Storage Conditions**

When lead-acid batteries are stored for extended periods of time, lead sulfate is formed on the negative plates and insulates them. The sulfating rate depends on the ambient temperature and the charge level of the battery. High temperature and low charge level accelerate the sulfating and reduce the battery life.

In order to protect your battery from damage during storage:

- a) Make sure the battery is fully charged periodically (every 6 months if the temperature is approximately 24°C, and every 3 months if the temperature is higher than 37°C) by operating the M110BA for at least 4 hours.
- b) Store the batteries in a cool place (may be stored separately from the UPS).
- c) Never store a discharged battery !!!

### **4.3. Charge-discharge Cycles**

The number of times and the depth of battery discharges (during input failure) affects the service life of the battery. If the battery is allowed to discharge only to 50% of its charge, the number of charge-discharge cycles (before it fails) will be three times the number of cycles had it been allowed to reach 30% charge.

Battery life may be prolonged by limiting the operating time on battery power to the minimum required by the system to perform an orderly shutdown.

## **5. Replacing the Battery Pack**

### **5.1. To remove the Battery Pack from the UPS:**

- a) Turn OFF the Master ON/OFF switches.
- b) Disconnect J1 and J2 from the rear panel.
- c) Open the seven screws on the Battery Rear Cover (see marking on top of the M110BA) and remove it.
- d) Open the four screws on the Battery Connector Cover (see marking on top of the M110BA) and remove it.
- e) Disconnect the connector by pulling it upward.
- f) Unscrew the right battery's screws on the top and three screws on the right side of the M110BA (marked by a B" on the top, and recessed on the side).
- g) Hold the Battery Pack by the two edges on the sides (Caution: Two-man lift !!) and lift it straight up.

### **5.2. To install a new battery:**

- a) Lower the Battery Pack straight into its place. Verify that the battery mating connector and harness (near the front panel) is not damaged by the battery.
- b) Install the screws on the top and the right side without tightening them yet. After all screws are in, torque them at 11 IN.LB for the #6 top screws and 22 IN.LB for the #8 side screws.
- c) Connect the battery connector.  
**CAUTION**  
Ensure wires from UPS to battery pack are dressed towards the front panel so that screws of the battery connector's cover do not pierce harness.
- d) Close the Battery Connector Cover and tighten its screws (6.5 IN.LB).
- e) Close the Battery Rear Cover and tighten its screws (6.5 IN.LB).
- f) Reconnect J1 and J2 to the rear panel.

The unit is now ready for operation.

Note: If the new battery is fully charged, press the "Set-Battery-Charge-to-100%" "Push-Button for ten seconds to set the charge level to full scale.

## **6. Outline Dimensions**

The external dimensions of the M357389 are: 18.5" (L), 7.57" (W), 6.93" (H).  
For more details see Milpower Drawing M357380.