

EMERGENCY LIGHTING General Test Procedure

1. Inspect the battery unit for any signs of physical damage:

- Are there signs of impact damage to one corner of the enclosure, indicating drop damage?
- Are there dents in the enclosure, indicating impact damage?
- Damage from shipping or handling would not be covered by warranty.
- Has the charger broken free from its mounts and sustained damage?
- Have the batteries come loose and been damaged or caused damage?

2. If unit is malfunctioning:

- Is the test switch intact, or broken?
- Do the red and yellow LED indicators light when the AC power is on and the battery is connected?
- Are there signs that the transformer or charger have overheated?
- Has the lamp load been connected to the DC output correctly? One side of the load should be connected to the positive (L+), and one side to the negative (L-) output.
- Have any of the output fuses been blown?
- With AC power to the charger on, and the battery connected, does the relay click when the test switch is activated? If not, there may be a problem with the relay or the relay control portion of the charger.
- Are both leads from the charger connected to the battery? If the leads have been connected to the battery backwards, components on the charger may be damaged and the charger may have overheated in some cases. This would not be covered under warranty.
- Are the battery terminals free of any corrosion?

3. If changing the charger is required:

- Disconnect the AC power and the battery from the charger.
- Disconnect any wiring going to the DC output connectors.
- Disconnect any transformer wires that are plugged into the circuit board.
- Remove the four (4) #8 self-tapping screws holding the circuit in place. If the transformer appears to be faulty (confirmed by testing for continuity on the primary and secondary windings) then remove it also by undoing the two #8-32 nuts. If the transformer appears to be ok, then try replacing only the charge circuit first.
- Average time to remove and replace a charger is **10** minutes.

4. Inspecting and testing the battery(s):

- Check the date stamped on the battery type sticker.
- If the date is less than **one** (1) year from the current date, the battery would still be under warranty.
- If the date is more than one year from the current date, the battery would not be under warranty unless the unit had the extended battery warranty. Contact the unit's manufacturer for the pro-rata cost of replacement batteries. They will require the date of manufacture to calculate this.
- With AC power on, and the battery(s) connected to the charger, measure the voltage across the battery terminals with a digital voltmeter. The RED charge indicator should be out or pulsating on and off, not on steady during this measurement. Check to see if the voltage is within specs. **Note:** The charger output voltage can only be measured with the charger connected to a battery. Placing the voltmeter leads across the charger leads only, will result in false readings.
- With the voltmeter still across the battery, and a lamp load connected to the DC output, press the test switch or disconnect the AC supply and monitor the voltage on the battery.
- Does the voltage drop rapidly until the lights shut off (LVD point)?
- Or, does the voltage drop initially and then level off and continue dropping slowly?
- A rapid voltage drop would indicate weak batteries from age, sulfation from lack of charge, or a misadjusted charger causing the batteries to be under or over charged.
- Are the battery terminals showing any signs of corrosion? Acid leakage from overcharging or excessive battery age will cause terminal and connector corrosion, resulting in poor battery/charger performance. Replacement of the battery may be required if this is the case.
- Average time to test the batteries is **5** minutes.

5. If replacement of the battery(s) is required:

- Disconnect the RED and BLUE leads going to the battery from the charger, making sure to not let them touch anything.
- Disconnect the AC supply to the unit by unplugging the cord, or turning off the breaker if the unit is hardwired on the AC input.
- Remove the battery(s) from the unit.
- If unsure as to which replacement battery is required, contact the unit manufacturer with the **model number** and **age** of the unit.
- Always replace any corroded connectors on the charger before installing new batteries.
- If sending batteries back to the supplier for inspection or warranty, make sure they are packaged securely, to prevent any short-circuiting of the terminals. The batteries used in most emergency light units are not classified as dangerous goods, and do not require any special documentation for shipping.
- If not sending the battery(s) back for warranty, make sure they are properly disposed of at your nearest **battery recycler**. The batteries used are either of the **lead-acid** type or **nicad** (nickel-cadmium) type.
- Average time to replace batteries is **5** minutes.