

# INSTRUCTIONS FOR INSTALLATION, OPERATION, AND SERVICING OF EXPLOSION-PROOF EMERGENCY LIGHTING SYSTEM

## IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed, including the following:

### READ AND FOLLOW ALL SAFETY INSTRUCTIONS

1. **Do not** use outdoors.
2. **Do not** mount near gas or electric heaters.
3. Use caution when servicing batteries. Battery acid can cause burns to skin and eyes. If acid is spilled on skin or in eyes, flush acid with fresh water and contact a physician immediately.
4. Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
5. The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
6. **Do not** use this equipment for other than intended use.
7. Seals must be placed in each conduit within two inches of battery enclosure.
8. See seal manufacturer's instructions for details of sealing process.
9. Assembly of all conduit:  
All conduit fittings must be engaged at least five full threads. All conduit plugs must be reinstalled with pipe sealant.
10. Do not push test switch with cover off.
11. Read all instructions provided with individual items.

## CAUTION

Lamp and battery replacement must not be done in an explosive atmosphere. Installation and service should only be done by qualified service personnel experienced with hazardous location equipment.

## SAVE THESE INSTALLATION INSTRUCTIONS

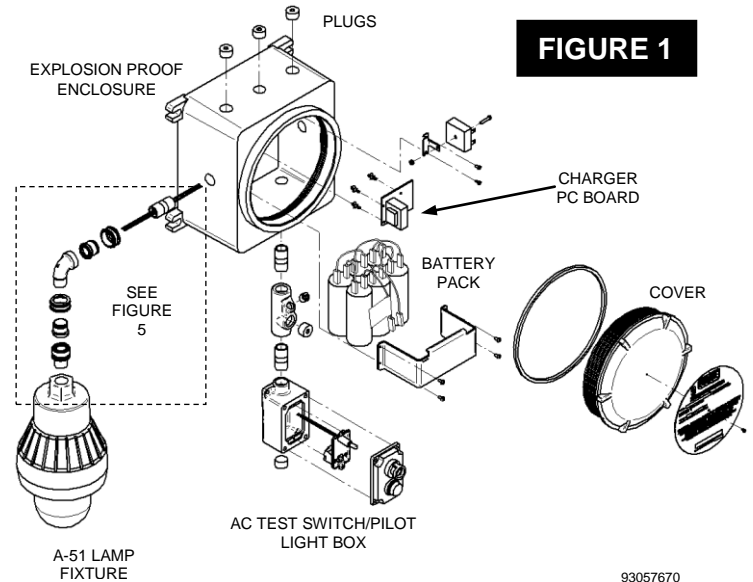
## INSTALLATION INSTRUCTIONS

### MOUNTING COMPONENTS

Unit battery enclosure is intended for surface mounting using the holes provided in the four mounting flanges.

1. Remove applicable hole plug(s) from top or side of enclosure for fixture/remote load attachment. AC test switch/pilot light box is intended to attach to conduit opening at bottom of unit enclosure – see figure 1.

CLASS I, DIVISION 1 OR 2, GROUPS C AND D.  
CLASS II, DIVISION 1 OR 2, GROUPS E, F, AND G.



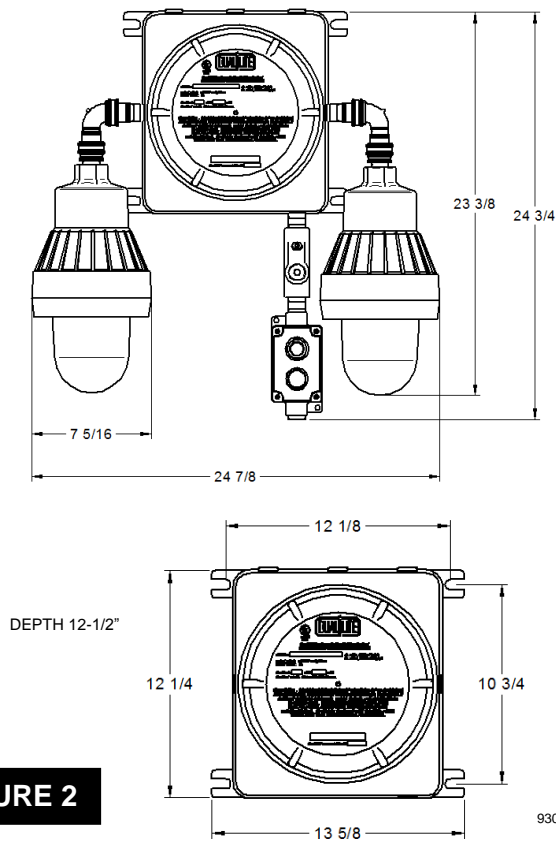
2. Assemble fixture(s) and AC test switch/pilot light box to the unit enclosure using supplied conduit nipples, elbows, and sealing fittings where applicable – see Figure 1.

### NOTE:

Fixtures, remote fused output, and AC test switch/pilot light require sealing fittings in the conduit systems within two (2) inches of the battery enclosure. Also, all conduit connections must have a minimum engagement of five (5) full threads.

3. Run appropriate wiring for fixture(s), remote load (when required), and AC test switch/pilot light to unit enclosure – see “WIRING UNIT” page 2.
4. With completion of conduit system wiring, fill sealing fittings with fiber filler and sealing cement supplied – see “SEAL INSTRUCTIONS FOR CONDUIT”, figure 3, page 2.

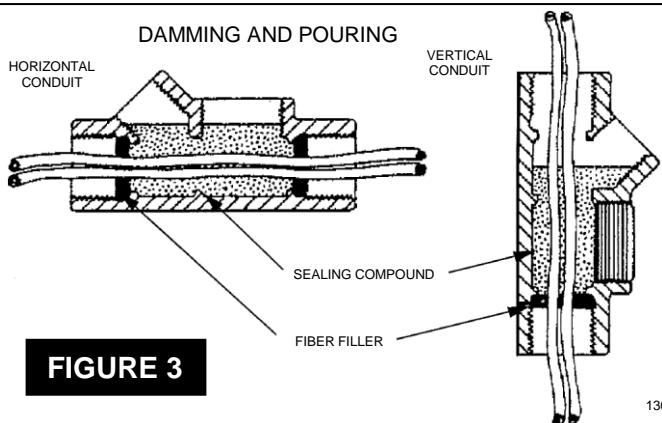
All statements, technical information, and recommendations herein are based upon data and tests believed to be reliable. The accuracy or completeness of such data or test results is not guaranteed. Pursuant to “Terms and Conditions of Sale”. The purchaser must determine the appropriateness for the intended use of the product in such applications or conditions.



**FIGURE 2**

**SEAL INSTRUCTIONS FOR CONDUIT**

1. Sealing fittings prevent passages of gases, vapors, or flames from one portion of a conduit to another. They also restrict large amounts of ignitable gases or vapors from accumulating to confine explosive pressure.
  2. Seals must be placed in each conduit within two (2) inches of battery enclosure.
  3. Construct a dam in hub being sure the filler is tucked carefully around each conductor. Slightly dampen filler for easier use and to prevent shreds from forming leakage channels.
    - Dams are important. Care and caution must be taken. Conductors should be separated and fiber packed tightly around them.
  4. Mix proper portion of water with sealing cement. Mix thoroughly in a clean container and pour directly into the sealing unset. Depth of sealing compound should be equal to the trade size of conduit, having a minimum of 5/8 inch thickness. Close immediately after closing.
- NOTE:  
Splices and taps are not to be allowed in sealing fittings.



**FIGURE 3**

**ELECTRICAL SPECIFICATIONS**

- AC supply voltage:** 120/277VAC+/-10% 60Hz  
**Power consumption:** 15 watts  
**Battery types:** Sealed maintenance-free battery
- Operating Temperature:** 20-30°C  
**Battery float voltages:** Factory set  
**Recharge duty cycle:** 168 hours for full recharge from 87-1/2% battery voltage. Continuous automatic float charge restored.
- Charger type:** Solid state full wave silicon diode rectification, silicon controlled rectifier output control, zener diode regulation. Disconnection of lamps when voltage falls to 80% of nominal voltage.
- Test means:** Momentary switch simulates AC power failure to unit. "AC ON" light indicates presence of AC

**WIRING UNIT**

1. Provide each unit with a single, unswitched supply (No. 14 AWG wire, min.) from a 120 or 277VAC, 60Hz branch circuit used for normal lighting in the area to be protected. Make necessary wiring connections at the unit and at the AC test switch/pilot light for either 120 or 277VAC – see figures 6 or 7.
- NOTE:  
For 120VAC operation, be sure to cap unused 277VAC transformer (red) lead.
2. Make fixture(s) and/or remote load connections with the blue and yellow output wires of the unit – two sets of non-fused leads for the fixtures, one fused set for the remote load (or third fixture) – see figure 4.
    - Do not connect red positive (+) battery lead to the charger module until all other wiring is complete and the branch circuit to which the unit is connected can be energized.
    - Prolonged battery discharge (battery connected without AC supply present) may damage battery – see "PLACING THE UNIT IN SERVICE".

**PLACING THE UNIT IN SERVICE**

1. Energize the AC circuit to which the unit is connected. The "AC ON" light (AC test switch/pilot light) should light. Connect the red positive (+) battery lead to the charger module – see figure 4. Close cover.
  2. Depress test switch. The unit should transfer to emergency operation, energizing the fixture(s) and/or the remote load. Release the test switch to retransfer unit to normal AC operation, allowing the battery to charge.
- NOTE:  
Temporarily de-energizing and re-energizing the AC supply to the unit will achieve the same results.

## MAINTENANCE CONDITIONING CYCLES

- Once a year, if power failures have been infrequent or of short duration, perform a full battery conditioning cycle. De-energize the AC circuit to which the unit is connected and let the emergency light(s) operate until they are shut off by the low voltage disconnect feature of the transfer circuit. Then restore AC power. This puts the battery through a discharge/recharge cycle over its full intended range, and also provides a rigorous test of over-all unit operation.

## CHECKING FLOAT CHARGE VOLTAGE

- Float charge voltage is factory set. Consult manufacturer for specifications.
- Be sure AC supply is within +10% of its nominal value and that the unit has operated for 24 hours. With AC on, connect an accurate DC voltmeter to the battery terminations.
- The reading should correspond to the factory specifications.

## ROUTINE CARE

- The batteries used in these models are sealed and require no maintenance, but will benefit from certain operation procedures. During routine standby operation, charger output fluctuates only slightly in floating the battery at its full charge voltage. But, after an AC failure and subsequent battery discharge, charger output increases greatly to recharge the battery as quickly as cell temperature rise and gas cycling considerations permit.
- This vigorous charging action also agitates the electrolyte and tends to reverse physical and chemical changes that can slowly occur in a battery that stands for long periods without cycling. It follows that if power failures are infrequent, occasional deliberate cycling may extend battery life.

## REPLACING A BATTERY

- A battery has reached the end of its useful life if it cannot perform according to its rated discharge duty cycle despite normal charger operation and capacity does not increase after repeated battery conditioning cycles.
- A battery should be replaced if it shows any sign of electrolyte leakage, indicating a failure of a pressure seal. In such a case, check float charge voltage after the first 24 hours of charger operation with the new battery to be sure that high float voltage was not the cause of the original seal failure. If float voltage is found to be high, replace the charge module as well.
- When replacing the battery, double check for correct polarity. See figure 4, page 2.

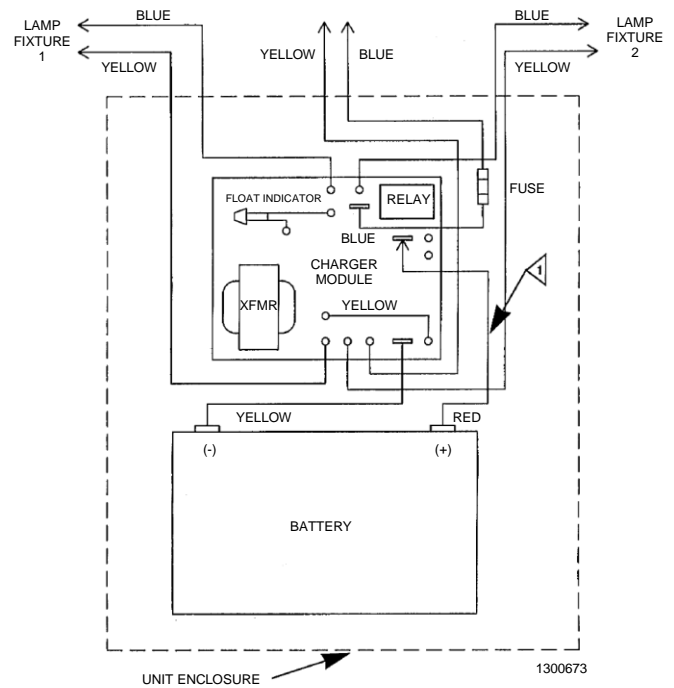
## TAKING A UNIT OUT OF SERVICE

- If a unit is to be deliberately taken out of service for an extended period, the battery lead should be disconnected from the charger/transfer module and insulated so that the battery will go into storage in a fully charged condition.

Note: Provided the battery is fully charged, it can be stored up to 6 months without damage.

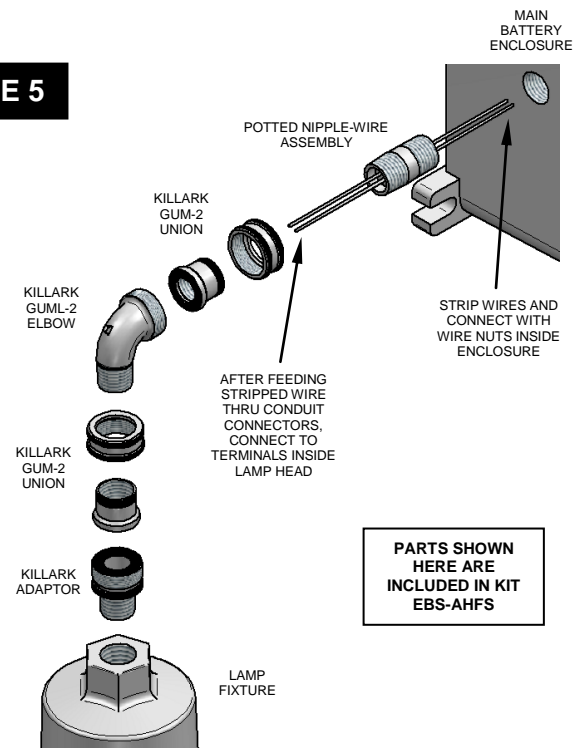
**FIGURE 4**

REMOTE (FUSED) DCV OUTPUT  
OR THIRD LAMP FIXTURE



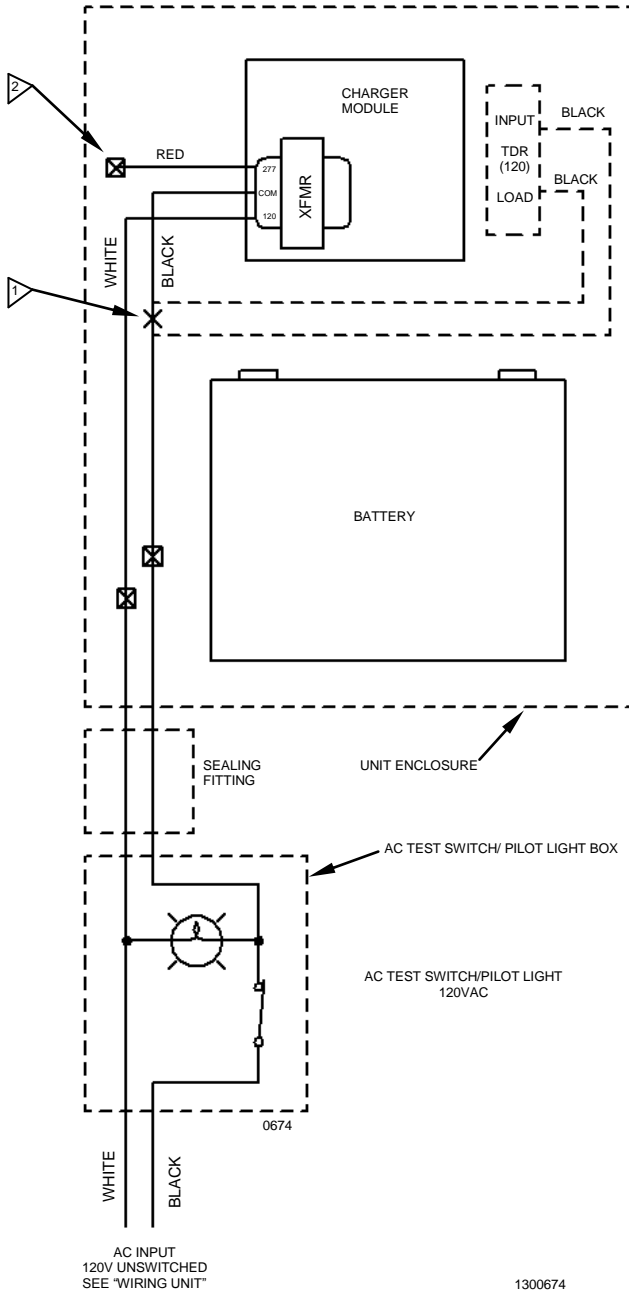
NOTE:  
1 POSITIVE (RED) BATTERY LEAD NOT CONNECTED TO CHARGER MODULE AT TIME OF SHIPMENT. CONTRACTOR TO MAKE CONNECTION AT TIME OF INSTALLATION. SEE "PLACING UNIT IN SERVICE".

**FIGURE 5**



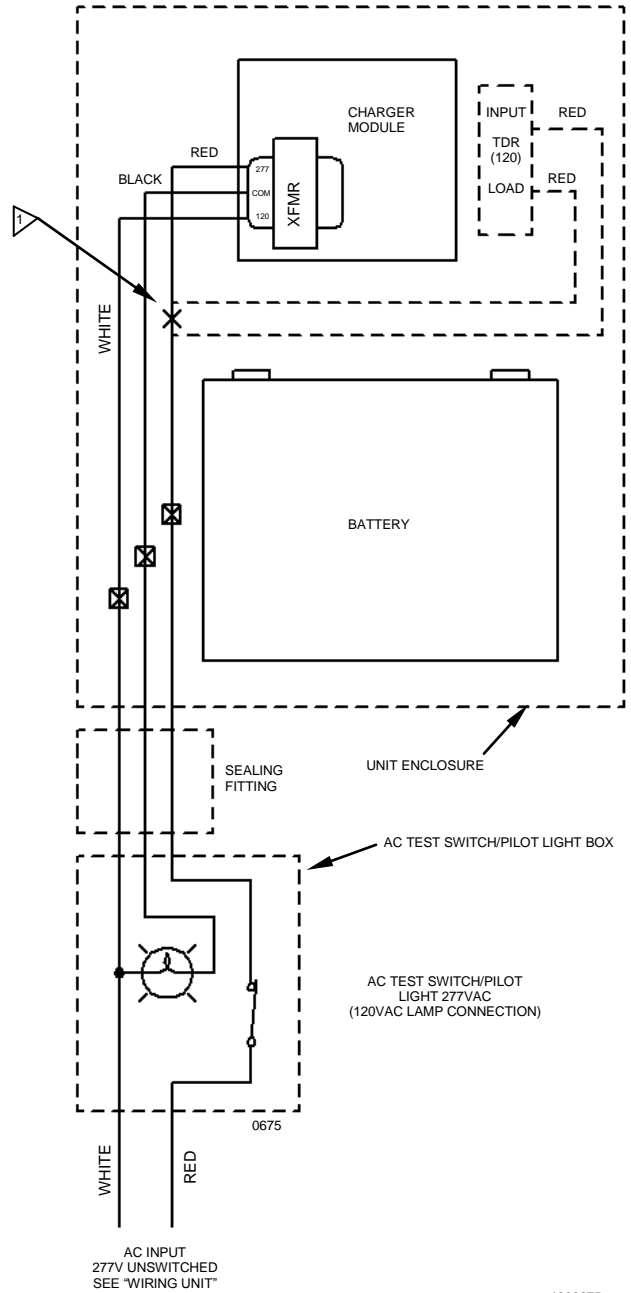
PROPER ASSEMBLY  
OF LAMP FIXTURE(S)

**FIGURE 6**



- NOTE:
- 1 120VAC INPUT IS ROUTED THROUGH "TDR" WHEN OPTION IS INSTALLED.
  - 2 CAP UNUSED 277VAC (RED) LEAD OF CHARGER MODULE TRANSFORMER.

**FIGURE 7**



- NOTE:
- 1 277VAC INPUT IS ROUTED THROUGH "TDR" WHEN OPTION IS INSTALLED.