APPLICATION

Light-Pak N2LPS emergency lighting systems are self-contained, battery powered lighting systems which are used to provide illumination to designated areas during failure or interruption of power to the normal lighting system. When properly installed, the N2LPS emergency lighting system is suitable for use in Class I, Division 2, Group B, C, D locations (as defined by the National Electrical Code®), and non-hazardous (ordinary) locations.

The N2LPS power supply consists of a battery and solid state charger housed inside a corrosion resistant Krydon® material enclosure with all the circuitry to automatically turn on emergency DC lighting fixture(s) when the normal power supply fails. A pilot light indicates when normal power is being supplied to the unit. A "push-to-test" pushbutton switch is provided for periodic testing of the unit.

The lighting fixture used on the N2LPS system is a rugged, corrosion-resistant Noryl® thermoplastic assembly which is fully adjustable and lockable and houses a high output PAR36 tungsten halogen sealed beam lamp. Lamps are included with fixtures.

RATINGS

- Power Supply
  - Input: 120, 220 and 277 VAC, 50 or 60 Hz
  - 25 watts maximum
  - Output: 6 VDC
  - 28 watts for 1-1/2 hrs (N2LPS6222) (N2LPS6220)
  - 56 watts for 1-1/2 hrs (N2LPS6422) (N2LPS6420)

- Lighting Fixtures
  - Voltage: 6 VDC
  - Lamp Type: 8 watt, 6 volt, tungsten halogen
  - PAR36 sealed beam

NOTE: Ambient temperature at which the N2LPS power supply is rated is 0° (32°F) to 40°C (104°F) to maximize battery capacity. Significantly lower or higher ambient temperature can affect the electrical components and starting characteristics of the fixture.

IMPORTANT SAFEGUARDS
READ AND FOLLOW ALL SAFETY INSTRUCTIONS

WARNING
To avoid personal injury, electrical shock and equipment failure:
- Do not use this equipment for other than intended use.
- Do not use accessory equipment not recommended by the manufacturer.
- Equipment should be mounted in locations and at heights where it will not be reached by unauthorized personnel.
- Do not mount near heat producing equipment.
- In Class I, Division 2 areas, install equipment in accordance with the NEC articles pertaining to the appropriate hazardous (classified) locations plus any other applicable codes.
- Observe all battery handling precautions contained herein.
- Do not operate lamp in excess of rated voltage and protect lamp against abrasion and scratches. Dispose of lamp properly.
- Do not attach any ungrounded metal tags, decals, or marking labels to the non-metallic N2LPS enclosure.
- N2LPS emergency lighting system should be installed, inspected, maintained, and operated only by qualified personnel.

SAVE THESE INSTRUCTIONS

INSTALLATION
A. Install N2LPS System

WARNING
To avoid explosion, electrical power must be turned OFF before and during installation and maintenance.

1. Select a mounting location that will provide suitable strength and rigidity for supporting power supply and attached lighting fixtures. See Figure 1 for mounting dimensions.

Weights:
- N2LPS6222 - 16 lbs.
- N2LPS6422 - 21 lbs.

Figure 1.
Light-Pak™ N2LPS Mounting Dimensions
2. Loosen (do not remove) the captive cover screws (6) of the N2LPS power supply housing cover and carefully place the cover aside for reassembly later.

3. Securely fasten the power supply enclosure to the mounting location using the appropriate length 1/4" diameter hardware through the four mounting holes shown in Figure 1.

![Figure 1: Battery Placement](image)

**CAUTION**
To avoid impairing operation and/or damage to the equipment, mount the enclosure with the back wall fastened to a vertical surface with the pilot light and push-to-test pushbutton located on the right side of the enclosure.

4. Adjust the lighting fixtures:
   a. Loosen (do not remove) the screw at the elbow and the screw at the mounting arm base. See Figure 2.

![Figure 2: Lighting Fixture](image)

b. Adjust fixture heads to the desired position and retighten the two screws.

5. Proceed to Section B for conduit connection, wiring, and battery installation.

**B. Conduit Connection, Wiring, and Battery Installation**

![Figure 3: Transformer](image)

**WARNING**
To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance and installation area must be free of hazardous atmospheres before wiring.

**NOTE:** The N2LPS power supply is supplied with one Crouse-Hinds NHUB2 (3/4") hub and grounding bushing already installed. Use a thread sealant in conduit-to-hub joint to maintain maximum environmental protection.

1. Connect enclosure to wiring system in accordance with the National Electrical Code® plus any other applicable codes.

2. Place the battery or batteries flat on the mounting plate inside the enclosure with terminals UP and facing to the FRONT. See Figure 3b.

![Figure 3b: Battery Terminals](image)

**CAUTION**
To avoid shortening the life of the battery, the battery or batteries must be installed exactly as shown in Figure 3b. Be sure to position with terminals in upper position facing front.

3. Make all wiring connections following the wiring diagram located on inside of power supply cover (also shown in Figure 4 below), and the instructions given below.

![Figure 4: N2LPS Wiring Diagram](image)

**WARNING**
- To avoid potential explosion, make wiring connections using methods that comply with the NEC and any local codes.
- To prevent dangerous electrical shocks, use N2LPS only on grounded wiring systems.

- Connect 120 VAC primary to the black power supply (transformer primary) lead or connect 277 VAC primary to the orange power supply lead (insulate the lead not used.) Connect the common to white power supply lead. Connect incoming grounding conductor(s) to the ground lug provided.

b. Connect black battery lead(s) (each provided with quick connect terminal) to negative battery terminal(s). Connect red battery lead(s) to positive battery terminal(s). Install battery covers when batteries are installed.

---

### Table 1: TROUBLESHOOTING HINTS

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>POSSIBLE CAUSE</th>
<th>REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixtures will not light — pilot light out before test.</td>
<td>AC power is not properly connected.</td>
<td>Check AC power circuit and connections.</td>
</tr>
<tr>
<td>Pilot light ON but fixtures do not light when tested.</td>
<td>Output shorted out.</td>
<td>Check all wiring connections.</td>
</tr>
<tr>
<td></td>
<td>Output overloaded.</td>
<td>Remove additional remote fixtures from output circuit.</td>
</tr>
<tr>
<td>Battery not properly connected.</td>
<td></td>
<td>Check battery connections.</td>
</tr>
<tr>
<td>AC power is ON but pilot light is out.</td>
<td>Pilot light lamp burned out.</td>
<td>Replace pilot light lamp.</td>
</tr>
<tr>
<td>Fixtures come on dim.</td>
<td>Battery discharged or not fully charged.</td>
<td>Allow unit to charge for 24 hours, then reset.</td>
</tr>
<tr>
<td>Battery charger not functioning properly.</td>
<td>Test battery charger for charge function. Charger may need to be replaced.</td>
<td></td>
</tr>
<tr>
<td>Battery will not accept charge.</td>
<td>Replace battery.</td>
<td></td>
</tr>
<tr>
<td>Remote fixtures dim.</td>
<td>Incorrect wire size used for remote wiring.</td>
<td>Check wire size to remote fixtures against wire size chart. (See Table 2 below.)</td>
</tr>
</tbody>
</table>

---

### Table 2: WIRE SIZING FOR REMOTE INSTALLATION (For Copper Wire)

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>8</th>
<th>16</th>
<th>24</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 AWG</td>
<td>26</td>
<td>13</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>14 AWG</td>
<td>42</td>
<td>21</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>12 AWG</td>
<td>66</td>
<td>33</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>10 AWG</td>
<td>108</td>
<td>53</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>8 AWG</td>
<td>168</td>
<td>84</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>6 AWG</td>
<td>270</td>
<td>135</td>
<td>67</td>
<td>33</td>
</tr>
</tbody>
</table>

* * Maximum distance to limit line voltage drop to 5%.
5. Frequent interior inspection should be made. A schedule for maintenance check should be determined by the environment and frequency of use. It is recommended that it should be at least once a year.

6. Perform visual, electrical and mechanical checks on all components on a regular basis.
   - Visually check for undue heating evidenced by discoloration of wires or other components, damaged or worn parts, or leakage evidenced by water or corrosion in the interior.
   - Electrically check to make sure that all connections are clean and tight.
   - Mechanically check that all parts are properly assembled.

REPLACEMENT PARTS

Emergency lighting products are designed to provide years of reliable lighting performance. However, should the need of replacement parts arise, they are available through your authorized Crouse-Hinds electrical distributor. Assistance may also be obtained through your local Crouse-Hinds Sales Representative or the Crouse-Hinds Customer Service Department, P.O. Box 4999, Syracuse, NY 13221, Phone 315-477-5531.

lead(s) (each provided with quick connect terminals) to positive battery terminal(s). Lamps will not light at this time.

- Standard N2LPSE6222 and N2LPSE6422 systems are each provided with two factory-assembled and factory-wired fixture heads. No fixture wiring connections need to be made by the installer. If additional remote fixture heads are to be connected to the N2LPs power supply, refer to installation instruction sheet IF1208 (supplied with N2SRF Series remote fixture assemblies).

- Test wiring for correctness with continuity checks and also for unwanted grounds with insulation resistance tester.

- If you are NOT installing remote fixture assemblies for connection to this N2LPs power supply, proceed to Section C, “Complete Installation”.

Time Delay Feature

Light-Pak™ N2LPs emergency lighting systems are equipped with a time delay feature. This feature will allow the emergency lighting fixture to remain lit after restoration of power. The time delay is preset at the factory providing emergency lighting illumination for approximately five minutes and then automatically reverts to a normal charging mode.

The time delay can be modified in the field, if desired, to either a five second or fifteen minute delay. If the time delay needs to be changed from the preset five minutes, position the DP switch as shown below to the desired delay.

![5 Second Delay 15 Minute Delay 5 Minute Delay (preset at factory)](image)

**CAUTION**

To avoid damaging the circuit boards, extreme care should be maintained when changing time delay settings. DO NOT use a sharp instrument, a pen tip or small screwdriver is recommended.

NOTE: Time delay switch is located on top of printed circuit board.

C. Complete Installation

1. Install CID101 corrosion inhibitor device (supplied in plastic envelope with instruction sheet). Recommended location is on the inside surface of the top of the enclosure near the right side fixture stem. Refer to CID101 instructions for installation.

2. Close cover and securely tighten all cover screws.

3. Test emergency lighting system for proper operation:
   - Turn on the AC power and observe:
     - LED pilot light marked “ON” should be operating
     - Emergency lights should be operating (ON). (LED pilot light stays ON.)

NOTE: If emergency lights do not operate initially, allow battery to charge for 15 minutes or more, then repeat the test procedure.

4. Allow 24 hours charge time before depending on battery to operate at full capacity.

Inspection of Breather/Drain

The Breather/DRAIN is installed to provide ventilation to minimize condensation and also allow liquids to drain out. Perform visual and mechanical inspections on a regular basis. Frequency should be determined by the environmental conditions. However, it is recommended that checks should be made at least once a year.

**CAUTION**

To minimize condensation, never disassemble breathers or drain assemblies.

![Combination](image)

1. Inspect by rotating handle of drain or cap of breather about one-half turn. If it does not rotate freely it needs cleaning and must be removed.

**CAUTION**

To avoid damaging breather/drain, do not force handle or cap during inspections.

1. Remove drain or breather and replace it with either a plug or good drain or breather.

3. Clean breather/drain by following “Flush-Cleaning” instructions.

Flush-Cleaning

Flush-Cleaning may be required by the user’s periodic maintenance program or when a drain or breather becomes clogged with foreign material.

1. Attach drain or breather to a clean water line with threaded end facing upstream. Some methods are shown below:

   ![Flush-Cleaning method 1](image)

   a. Connect hose to breather using hose clamp.

2. Flush ECD with water under line pressure (typically 30 to 75 psi). Discard the drain or breather if the foreign material is not removed.
PERIODIC TESTING

Article 700 of the National Electrical Code requires that “systems shall be tested periodically on a schedule acceptable to the authority having jurisdiction to assure their maintenance in proper operating condition.” Also, “A written record shall be kept of such tests and maintenance.”

In the absence of periodic testing requirements by a local authority, the following recommendations from the NFPA 101 Life Safety Code® are strongly recommended:

- **Monthly:** Operate “Push-to-Test” switch and keep depressed for a minimum of 30 seconds. Observe that emergency lighting fixtures are on full brightness for the full time. Record the test on the maintenance record card. Maintenance Record Card is provided in instruction sheet envelope.

- **Annually:** Open the supply circuit at the distribution panel. Verify that the emergency lighting fixtures remain “ON” for a minimum of 1 1/2 hours.

Record the test on the maintenance record card.

Allow 24 hours charging time before depending on the battery to operate at full capacity.

Failure to function properly in either test may indicate the need for battery or lamp replacement.

BATTERY REPLACEMENT

**WARNING**

To avoid explosion:

- Exercise care in handling cells/batteries in order to prevent shorting of the cell with conductive materials such as rings, bracelets, and keys. The cell or conductor may overheat and cause burns.
- Do not dispose of the cell/battery in open flame; cells may burst.
- Do not open or mutilate cell/battery. Opened cells may release corrosive electrolytes which may have harmful effects on the skin and eyes and may be toxic if ingested.

PILOT REPLACEMENT LAMP

**WARNING**

To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance and area must be free of hazardous atmospheres.

1. Turn AC power OFF by opening the supply circuit at the distribution panel.
2. Loosen (do not remove) the captive cover screws of the NLEPS power supply enclosure and carefully place the cover aside for reassembly later.
3. Disconnect lead at battery terminals, noting color coding of wires, and slide old battery or batteries out of enclosure. Adhere to battery handling warnings given above.
4. Slid the new battery or batteries in place on the mounting plate inside the enclosure with terminals UP and facing to the FRONT. See Figure 3b on previous page.
5. Reconnect wire leads to battery terminals as instructed in Section 8, Step 3b.
6. Close cover and securely tighten all cover screws. Turn AC power ON.
7. Test the replacement battery following Section C, Step 3.
8. Allow 24 hour charge time before depending on battery to operate at full capacity.

FIXTURE LAMP REPLACEMENT

**NOTE:** When assembled at the factory, Light-Pak™ NLEPS emergency lighting systems include RTV silicone seals in the fixture head assemblies. To maintain the environmental integrity, it is recommended that the complete fixture head assembly be replaced when the fixture lamp burns out. Consult Crouse-Hinds for ordering information and the “Fixture Head Replacement” section of this instruction sheet for replacement details.

---

6. Carefully insert the red and black wire leads of replacement pilot light lamp and pull the wires to inside of enclosure until the lamp “seats” inside the lamp housing.

**NOTE:** When properly installed, the lamp should protrude about 3/8” from the receptacle gasket/holder.

---

7. Connect replacement lamp leads to corresponding red and black leads previously cut in Step 5 using methods that comply with the NEC and applicable local codes.
8. Replace jewel assembly, securely tightening it onto barrel.
9. Reconnect lead(s) to positive battery terminal(s).
10. Close cover and securely tighten all cover screws to housing.
11. Turn AC power ON. Pilot lamp should glow red to indicate presence of normal AC power.

**WARNING**

To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance and area must be free of hazardous atmospheres.

1. Turn AC power OFF by opening the supply circuit at the distribution panel.
2. Loosen (do not remove) the captive cover screws of the NLEPS power supply enclosure and carefully place the cover aside for reassembly later.
3. Disconnect lead from positive (+) battery terminal.
4. Disconnect fixture head wire leads, noting color coding of wires.
5. Remove hex nut from threaded fixture stem and remove fixture head assembly from the power supply housing.

**NOTE:** Do not discard the hex nut or black plastic locking plate which interfaces between the fixture mounting base and power supply housing. These will be used with the replacement fixture head.
6. Position the locking plate over opening in power supply housing, insert the wiring for new fixture head assembly through the locking plate and power supply opening, and insert the fixture stem as shown in Figure 6.

---

8. Connect new fixture wire leads to the printed circuit board lamp leads. Yellow fixture wire lead attaches to yellow circuit board lamp lead. Violet fixture wire lead attaches to blue circuit board lamp lead. Use wire nut connector which was originally provided for this connection (or other methods which comply with the NEC plus any other applicable codes). Refer to wiring diagram shown in Figure 4 if necessary.
9. Reconnect lead from positive (+) battery terminal.
10. Close cover and securely tighten all cover screws to housing. Turn AC power ON.
11. Test the system following Section G, Step 9.

---

MAINTENANCE

**WARNING**

To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance and area must be free of hazardous atmospheres.

1. Conduct periodic testing in accordance with local authority and Periodic Testing section of these instructions.
2. Clean fixture lens and exterior surfaces periodically. We recommend every three months or more frequently if appropriate.
3. Periodically check to see certain vent is not clogged with dirt or debris.
4. Replace batteries every 8 to 10 years or replace more frequently, if so indicated by periodic testing.
NOTE: Different styles and sizes of EOD fittings will allow different amounts of water or air to pass through. To determine if a breather or drain has been cleaned, compare the volume of water passing through it with the amount that will pass through a clean, unused breather or drain of the same style and size.

3. After clearing, attach the breather or drain to a pressurized dry air supply line in a similar manner to that used with the water line in Step 1.

4. Blow the fitting dry, inside and out, with the dry air.

PERIODIC TESTING

Article 700 of the National Electrical Code requires that “systems shall be tested periodically on a schedule acceptable to the authority having jurisdiction to assure their maintenance in proper operating condition.” Also, “a written record shall be kept of such tests and maintenance.”

In the absence of periodic testing requirements by a local authority, the following recommendations from the NFPA 101 Line Safety Code® are strongly recommended:

- **Monthly:** Operate “Push-to-Test” switch and keep depressed for a minimum of 30 seconds. Observe that emergency lighting fixtures are on full brightness for the full time. Record the test on the maintenance record card. Maintenance Record Card is provided in instruction sheet envelope.

- **Annually:** Open the supply circuit at the distribution panel. Verify that the emergency lighting fixtures remain “ON” for a minimum of 1 1/2 hours.

Record the test on the maintenance record card.

Allow 24 hours charging time before depending on the battery to operate at full capacity.

Failure to function properly in either test may indicate the need for battery or lamp replacement.

BATTERY REPLACEMENT

**CAUTION**

To avoid shortening the life of the battery, it is important that the battery or batteries be installed exactly as shown in Figuring 3b. Be sure to position with terminals in upper position facing front.

1. Turn AC power OFF by opening the supply circuit at the distribution panel.

2. Loosen (do not remove) the captive cover screws of the NL2LPS power supply enclosure and carefully place the cover aside for reassembly later.

3. Disconnect leads at battery terminals, noting color coding of wires, and slide old battery or batteries out of enclosure. Adhere to battery handling warnings given above.

4. Slide the new battery or batteries in place on the mounting plate inside the enclosure with terminals UP and facing to the FRONT. See Fig 3b on previous page.

5. Reconnect wire leads to battery terminals as instructed in Section 8, Step 3b.

6. Close cover and securely tighten all cover screws. Turn AC power ON.

7. Test the replacement battery following Section C, Step 3.

8. Allow 24 hour charge time before depending on battery to operate at full capacity.

**FIXTURE LAMP REPLACEMENT**

**NOTE:** When assembled at the factory, Light-Pak™ NL2LPS emergency lighting systems include RTV silicone seals in the fixture head assemblies. To maintain the environmental integrity, it is recommended that the complete fixture assembly be replaced when the fixture lamp burns out. Consult Crouse-Hinds for ordering information and the “Fixture Head Replacement” section of this instruction sheet for replacement details.

**PILOT REPLACEMENT LAMP**

**CAUTION**

To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance.

1. Turn AC power OFF by opening the supply circuit at the distribution panel.

2. Loosen (do not remove) the captive cover screws of the NL2LPS power supply enclosure and carefully place the cover aside for reassembly later.

3. Disconnect lead from positive (+) battery terminal.

4. Unscrew jewel assembly from pilot light.

5. Cut the red and black wires connecting pilot light lamp to the charge board about half way between as shown in Figure 5. Remove the old lamp by pulling the lamp and wires from the outside of housing.

**NOTE:** Carefully insert the red and black wire leads of replacement pilot light lamp and pull the wires to inside of enclosure until the lamp “seats” inside the lamp housing.

**NOTE:** When properly installed, the lamp should protrude about 3/8” from the receptacle gasket/holder.

6. Connect replacement lamp leads to corresponding red and black leads previously cut in Step 5 using methods that comply with the NEC and applicable local codes.

7. Replace jewel assembly, securely tightening it onto barrel.

8. Reconnect lead(s) to positive battery terminal(s).

9. Close cover and securely tighten all cover screws to housing.

10. Turn AC power ON. Pilot lamp should glow red to indicate presence of normal AC power.

**FIXTURE HEAD REPLACEMENT**

**CAUTION**

To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance. The area must be free of hazardous atmospheres.

1. Turn AC power OFF by opening the supply circuit at the distribution panel.

2. Loosen (do not remove) the captive cover screws of the NL2LPS power supply enclosure and carefully place the cover aside for reassembly later.

3. Disconnect lead from positive (+) battery terminal.

4. Disconnect fixture head wire leads, noting color coding of wires.

5. Remove hex nut from threaded fixture stem and remove fixture head assembly from the power supply housing.

**NOTE:** Do not discard the hex nut or black plastic locking plate which interfaces between the fixture mounting base and the power supply housing. These will be used with the replacement fixture head.

6. Position the locking plate over opening in power supply housing, insert the wiring for new fixture head assembly through the locking plate and power supply opening, and insert the fixture stem as shown in Figure 6.

7. Install the hex nut (removed in Step 5) while holding the fixture head assembly in desired position.

**NOTE:** Be sure the square shoulder of the fixture mounting base is properly aligned with the square cutout in the locking plate before tightening the hex nut.

8. Connect new fixture wire leads to the printed circuit board lamp leads. Yellow fixture wire lead attaches to yellow circuit board lamp lead. Violet fixture wire lead attaches to blue circuit board lamp lead. Use wire nut connector which was originally provided for this connection (or other methods which comply with the NEC plus any other applicable codes). Refer to wiring diagram shown in Figure 4 if necessary.

9. Reconnect lead from positive (+) battery terminal.

10. Close cover and securely tighten all cover screws to housing. Turn AC power ON.

11. Test the system following Section G, Step 3.

**MAINTENANCE**

1. Conduct periodic testing in accordance with local authority and Periodic Testing section of these instructions.

2. Clean fixture lens and exterior surfaces periodically. We recommend every three months or more frequently if appropriate.

3. Periodically check to be certain vent is not clogged with dirt or debris.

4. Replace batteries every 8 to 10 years or replace more frequently, if so indicated by periodic testing.
Inspection of Breather/Drain

The Breather/Drain is installed to provide ventilation to minimize condensation and also allow liquids to drain out. Perform visual and mechanical inspections on a regular basis. Frequency should be determined by the environmental conditions. However, it is recommended that checks should be made at least once a year.

To minimize condensation, never disassemble breathers or drain assemblies.

1. Inspect by rotating handle of drain or cap of breather about one-half turn. If it does not rotate freely it needs cleaning and must be removed.

CAUTION

To avoid damaging breather/drain, do not force handle or cap during inspections

2. Remove drain or breather and replace it with either a plug or good drain or breather.

3. Clean breather/drain by following “Flush-Cleaning” instructions.

Flush-Cleaning

Flush-Cleaning may be required by the user's periodic maintenance program or when a drain or breather becomes clogged with foreign material.

1. Attach drain or breather to a clean water line with threaded end facing upstream. Some methods are shown below:

   ![Diagram of flush cleaning connection]

   - 3/4" I.D. HOSE (FORCE FIT)
   - HOSE CLAMP (OPTIONAL)
   - HOSE WITH 1/2" - 16 NPT FEMALE FITTING

   2. Flush ECD with water under line pressure (typically 30 to 75 psi). Discard the drain or breather if the foreign material is not removed.

REPLACEMENT PARTS

Emergency lighting products are designed to provide years of reliable lighting performance. However, should the need for replacement parts arise, they are available through your authorized Crouse-Hinds electrical distributor. Assistance may also be obtained through your local Crouse-Hinds Sales Representative or the Crouse-Hinds Customer Service Department, P.O. Box 4999, Syracuse, NY 13221, Phone 315-477-5531.

lead(s) (each provided with quick connect terminals) to positive battery terminal(s). Lamps will not light at this time.

c. Standard N2LPS62222 and N2LPS6422 systems are each provided with two factory-assembled and factory-wired fixture heads. No fixture wiring connections need to be made by the installer. If additional remote fixture heads are to be connected to the N2LPS power supply, refer to Installation Instruction sheet IF1208 (supplied with NZRF Series remote fixture assemblies).

d. Test wiring for correctness with continuity checks and also for unwanted grounds with insulation resistance tester.

e. If you are NOT installing remote fixture assemblies for connection to this N2LPS power supply, proceed to Section C, “Complete Installation.”

Time Delay Feature

Light-Pak™ N2LPS emergency lighting systems are equipped with a time delay feature. This feature will allow the emergency lighting fixture to remain lit after restoration of power. The time delay is preset at the factory providing emergency lighting illumination for approximately five minutes and then automatically reverts to a normal charging mode.

The time delay can be modified in the field, if desired, to either a five second or fifteen minute delay. If the time delay needs to be changed from the preset five minutes, position the DIP switches as shown below to the desired delay.

- 5 Second Delay
- 15 Minute Delay
- 5 Minute Delay (preset at factory)

NOTE: Time delay switch is located on top of printed circuit board.

C. Complete Installation

1. Install CID101 corrosion inhibitor device (supplied in plastic envelope with instruction sheet). Recommended location is on the inside surface of the top of the enclosure near the right side fixture stem. Refer to CID101 instructions for installation.

2. Close cover and securely tighten all cover screws.

3. Test emergency lighting system for proper operation:

   - Turn on the AC power and observe:
   - LED pilot light marked “ON” should be operating
   - Emergency lights should be operating (ON). (LED pilot light stays ON.)

NOTE: If emergency lights do not operate initially, allow battery to charge for 15 minutes or more, then repeat the test procedure.

4. Allow 24 hours charge time before depending on battery to operate at full capacity.

CAUTION

To avoid damaging the circuit boards, extreme care should be maintained when changing time delay settings. DO NOT use a sharp instrument, a pen tip or small screwdriver is recommended.

NOTE: Time delay switch is located on top of printed circuit board.

3/4" I.D. HOSE (FORCE FIT)
HOSE CLAMP (OPTIONAL)
" 3/4" I.D. HOSE (FORCE FIT)
HOSE WITH 1/2" - 16 NPT FEMALE FITTING

Page 6
2. Loosen (do not remove) the captive cover screws (6) of the N2LPS power supply housing cover and carefully place the cover aside for reassembly later.

3. Securely fasten the power supply enclosure to the mounting location using the appropriate length 1/4” diameter hardware through the four mounting holes shown in Figure 1.

**CAUTION**
To avoid impairing operation and/or damage to the equipment, mount the enclosure with the back wall fastened to a vertical surface with the pilot light and push-to-test push-button located on the right side of the enclosure.

4. Adjust the lighting fixtures:
   a. Loosen (do not remove) the screw at the elbow and the screw at the mounting arm base. See Figure 2.

   b. Adjust fixture heads to the desired position and retighten the two screws.

5. Proceed to Section B for conduit connection, wiring, and battery installation.

**B. Conduit Connection, Wiring, and Battery Installation**

**WARNING**
To avoid explosion, all electrical power must be turned OFF before and during installation and maintenance and installation area must be free of hazardous atmospheres before wiring.

**NOTE**: The N2LPS power supply is supplied with one Crouse-Hinds NHUB2 (3/4”) hub and grounding bushing already installed. Use a thread sealant in conduit-to-hub joint to maintain maximum environmental protection.

1. Connect enclosure to wiring system in accordance with the National Electrical Code® plus any other applicable codes.

2. Place the battery or batteries flat on the mounting plate inside the enclosure with terminals UP and facing to the FRONT. See Figure 3b.

**CAUTION**
To avoid shortening the life of the battery, the battery or batteries must be installed exactly as shown in Figure 3b. Be sure to position with terminals in upper position facing front.

3. Make all wiring connections following the wiring diagram located on inside of power supply cover (also shown in Figure 4 below), and the instructions given below.

![Battery Placement](image)

**Table 1. TROUBLESHOOTING HINTS**

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<tbody>
<tr>
<td>Fixtures will not light — pilot light out before test.</td>
<td>AC power is not properly connected.</td>
<td>Check AC power circuit and connections.</td>
</tr>
<tr>
<td>Pilot light ON but fixtures do not light when tested.</td>
<td>Output shorted out.</td>
<td>Check all wiring connections.</td>
</tr>
<tr>
<td></td>
<td>Output overloaded.</td>
<td>Remove additional remote fixtures from output circuit.</td>
</tr>
<tr>
<td></td>
<td>Battery not properly connected.</td>
<td>Check battery connections.</td>
</tr>
<tr>
<td></td>
<td>AC power is ON but pilot light is out.</td>
<td>Pilot light lamp burned out.</td>
</tr>
<tr>
<td>Fixtures come on dim.</td>
<td>Battery discharged or not fully charged.</td>
<td>Allow unit to charge for 24 hours, then reset.</td>
</tr>
<tr>
<td></td>
<td>Battery charger not functioning properly.</td>
<td>Test battery charger for charge function. Charger may need to be replaced.</td>
</tr>
<tr>
<td></td>
<td>Battery will not accept charge.</td>
<td>Replace battery.</td>
</tr>
<tr>
<td>Remote fixtures dim.</td>
<td>Incorrect wire size used for remote wiring.</td>
<td>Check wire size to remote fixtures against wire size chart. (See Table 2 below.)</td>
</tr>
</tbody>
</table>

**Table 2. WIRE SIZING FOR REMOTE INSTALLATION**
(For Copper Wire)

**Running Distance* (ft.) Between Power Supply and Remote Lighting Fixture**

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>8</th>
<th>16</th>
<th>24</th>
<th>32</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 AWG</td>
<td>25</td>
<td>33</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>14 AWG</td>
<td>42</td>
<td>21</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>12 AWG</td>
<td>66</td>
<td>33</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>10 AWG</td>
<td>108</td>
<td>53</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td>8 AWG</td>
<td>168</td>
<td>84</td>
<td>42</td>
<td>21</td>
</tr>
<tr>
<td>6 AWG</td>
<td>270</td>
<td>135</td>
<td>67</td>
<td>33</td>
</tr>
</tbody>
</table>

* Maximum distance to limit line voltage drop to 5%.

**WARNING**
- To avoid potential explosion, make wiring connections using methods that comply with the NEC and any local codes.
- To prevent dangerous electrical shocks, use N2LPS only on grounded wiring systems.

a. Connect 120 VAC primary to the black power supply (transformer primary) lead or connect 277 VAC primary to the orange power supply lead (insulate the lead not used.) Connect the common to white power supply lead. Connect incoming grounding conductor(s) to the ground lug provided.

b. Connect black battery lead(s) (each provided with quick connect terminal) to negative battery terminal(s). Connect red battery...
## MAINTENANCE RECORD

**NFPA 101 REQUIREMENTS:**

"A functional test shall be conducted on every required emergency lighting system at 30-day intervals for a minimum of 30 seconds. An annual test shall be conducted for the 1 1/2 hour duration. Equipment shall be fully operational for the duration of the test. Written records of testing shall be kept by the owner for inspection by the authority having jurisdiction."

### LIGHT-PAK™ EMERGENCY LIGHTING SYSTEM

SEE INSTALLATION AND MAINTENANCE INSTRUCTION SHEET FOR METHODS OF TESTING

<table>
<thead>
<tr>
<th>DATE</th>
<th>DURATION OF TEST</th>
<th>BATTERY REPLACED</th>
<th>INSPECTED BY</th>
<th>LAMP REPLACED (RECORD FIXTURE LOCATION)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 SEC.</td>
<td>1 1/2 HOUR</td>
<td>OTHER</td>
<td></td>
<td></td>
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</tbody>
</table>

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