



## TG Series

*Recessed T-Grid Emergency Lighting Unit  
Standard and Spectron® Equipped Models  
Installation, Operation and Service Instructions*



### 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 let power supply cords touch hot surfaces.
3. Do not mount near gas or electric heaters.
4. Equipment should be mounted in locations and at heights where it will not readily be subject to tampering by unauthorized personnel.
5. The use of accessory equipment not authorized by the manufacturer may cause an unsafe condition.
6. Do not use this equipment for other than its intended purpose.
7. CAUTION: Halogen cycle lamps may be used in this equipment. To avoid shattering: do not operate lamps in excess of rated voltage, protect lamp against abrasion when lamp is operating, and dispose of lamp with care.
8. Halogen cycle lamps operate at high temperatures. Do not store or place flammable materials near lamp.
9. Product must be grounded to avoid potential electrical shock or other potential hazard.
10. Before wiring to power supply and during service or relamping, turn off power at fuse or circuit breaker.
11. Servicing of this equipment should be performed by qualified service personnel.
12. Test cycling: the Life Safety Code (NFPA 101) requires testing of emergency lighting units once a month for a minimum of 30 seconds, and once a year for a minimum of 90 minutes.

### INSTALLER:

- SEE UNIT LABEL FOR ADDITIONAL MODEL SPECIFICATIONS
- SAVE THESE INSTRUCTIONS FOR USE BY OWNER/OCCUPANT

**WARNING** – This product contains chemicals known to the State of California to cause cancer, birth defects and/or other reproductive harm. Thoroughly wash hands after installing, handling, cleaning, or otherwise touching this product.

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### General Instructions

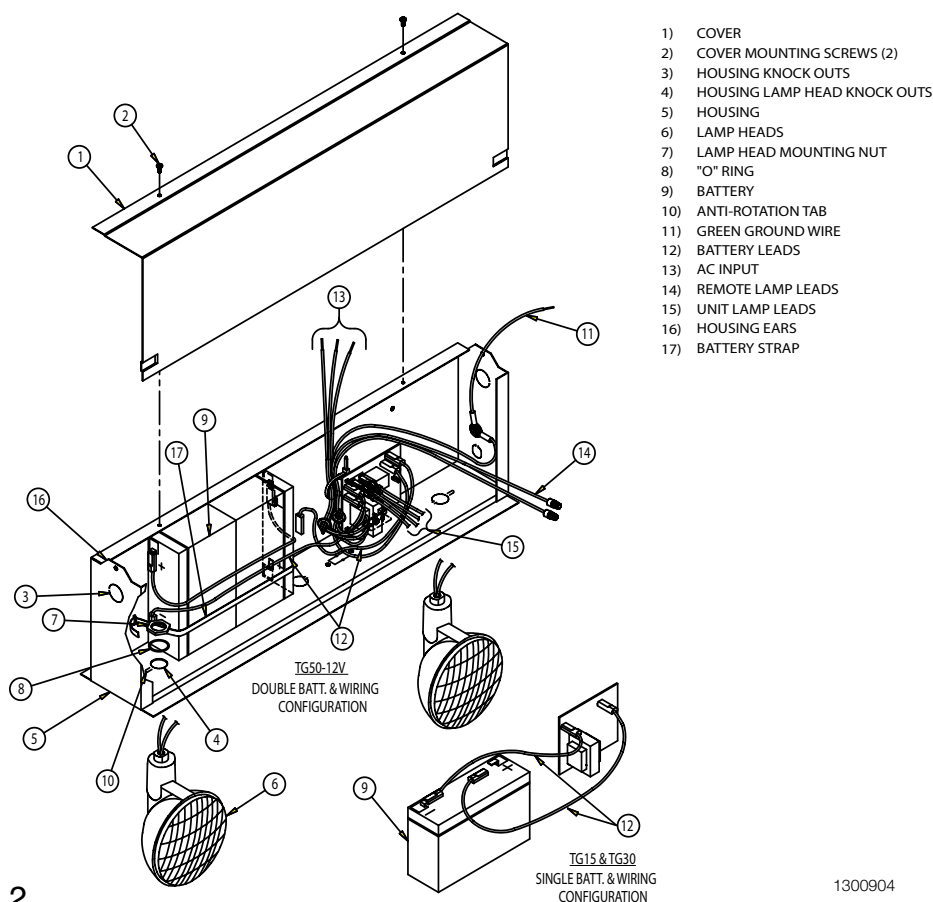
This unit is designed for mounting in a T-Grid suspended ceiling. Provide each unit with a single unswitched supply from a 120VAC or 277VAC branch circuit used for normal lighting in the area to be protected. Do not install fixture where heat sources (heating units, sunlight, etc.) will cause temperatures above 100°F or battery life will be lessened and warranty voided.

### Installing The Unit

1. Refer to Fig. 1 (lead-acid battery models), Fig. 2 (nickel-cadmium battery models) or Fig. 3 (Spectron self-test/self-diagnostic models).
  2. Slide off housing cover (1) by removing cover mounting screws (2).
  3. Select and remove appropriate conduit knock-out (3) and lamp head knockouts (4) in housing (5).
  4. Attach lamp heads (6) with lamp head mounting nuts (7) and "O" rings (8). Wire lamp heads to lamp leads (15) from circuit board using mechanical wire connectors. Anti-rotation tabs (10) provide wire strain relief by preventing full 360° lamp rotation.
  5. Using wire, suspend housing by the ears (7) from fixed building construction member.
  6. See appropriate wiring diagrams. Make proper connections between AC supply leads and unit AC input leads (13) with mechanical wire connectors. Select either: black for 120VAC or red for 277VAC. Cut back and insulate unused lead. Connect ground wire (11) in accordance with Code.
  7. Place battery (9) in housing as shown in Fig. 1, Fig. 2 or Fig. 3. Place battery strap (17) around battery and through tabs in housing.
  8. Attach battery terminals (12) to battery(s) (9). Refer to appropriate wiring diagram.
  9. Slide on housing cover (1) and attach with cover screws (2).
  10. Aim lamp heads (6) to properly illuminate path of egress.
- NOTE:** Damage to battery or charger may occur if battery is connected for a prolonged period of time before AC power can be supplied continuously. Allow unit to charge for 24 hours prior to testing.

11. Refer to Operation section.

Fig. 1 LEAD-ACID BATTERY MODELS



| Total<br>Watts<br>on Wire<br>Run | 6 Volt System Wire Gauge       |     |     |     |
|----------------------------------|--------------------------------|-----|-----|-----|
|                                  | #12                            | #10 | #8  | #6  |
|                                  | Max. Length of Wire Run (Feet) |     |     |     |
| 6                                | 94                             | 150 | 238 | 379 |
| 7                                | 81                             | 129 | 204 | 325 |
| 8                                | 70                             | 112 | 179 | 284 |
| 10                               | 56                             | 90  | 143 | 227 |
| 12                               | 44                             | 70  | 112 | 178 |
| 14                               | 40                             | 64  | 102 | 162 |
| 16                               | 33                             | 53  | 84  | 134 |
| 18                               | 30                             | 47  | 75  | 119 |
| 20                               | 28                             | 45  | 71  | 114 |
| 21                               | 27                             | 43  | 68  | 108 |
| 24                               | 24                             | 38  | 60  | 95  |
| 25                               | 21                             | 34  | 54  | 86  |
| 30                               | 19                             | 30  | 48  | 76  |
| 35                               | 15                             | 25  | 39  | 63  |
| 40                               | 13                             | 21  | 33  | 53  |
| 48                               | 11                             | 17  | 28  | 44  |
| 50                               | 11                             | 17  | 27  | 43  |
| 75                               | 7                              | 11  | 18  | 29  |
| 100                              | 5                              | 8   | 14  | 21  |
| 125                              | 4                              | 7   | 11  | 17  |
| 150                              | 3                              | 5   | 9   | 14  |
| 175                              | 3                              | 5   | 8   | 12  |
| 200                              | 2                              | 4   | 6   | 10  |
| 225                              | 2                              | 4   | 6   | 10  |
| 250                              | 2                              | 3   | 5   | 9   |

| Total<br>Watts<br>on Wire<br>Run | 12 Volt System Wire Gauge      |     |     |      |
|----------------------------------|--------------------------------|-----|-----|------|
|                                  | #12                            | #10 | #8  | #6   |
|                                  | Max. Length of Wire Run (Feet) |     |     |      |
| 6                                | 378                            | 600 | 955 | 1518 |
| 7                                | 324                            | 515 | 818 | 1301 |
| 8                                | 283                            | 450 | 716 | 1138 |
| 10                               | 226                            | 360 | 570 | 910  |
| 12                               | 178                            | 283 | 450 | 715  |
| 14                               | 162                            | 257 | 409 | 650  |
| 16                               | 133                            | 212 | 338 | 538  |
| 18                               | 119                            | 189 | 300 | 477  |
| 20                               | 113                            | 180 | 286 | 455  |
| 21                               | 108                            | 171 | 273 | 434  |
| 24                               | 89                             | 141 | 225 | 357  |
| 25                               | 86                             | 136 | 216 | 344  |
| 30                               | 75                             | 120 | 190 | 303  |
| 35                               | 65                             | 103 | 164 | 260  |
| 40                               | 53                             | 85  | 135 | 214  |
| 48                               | 44                             | 70  | 112 | 178  |
| 50                               | 43                             | 68  | 108 | 172  |
| 75                               | 28                             | 45  | 72  | 115  |
| 100                              | 21                             | 34  | 54  | 86   |
| 125                              | 17                             | 27  | 43  | 69   |
| 150                              | 14                             | 23  | 36  | 57   |
| 175                              | 12                             | 19  | 31  | 49   |
| 200                              | 10                             | 16  | 27  | 42   |
| 225                              | 10                             | 16  | 25  | 40   |
| 250                              | 9                              | 14  | 22  | 36   |

**Taking A Unit Out Of Service**

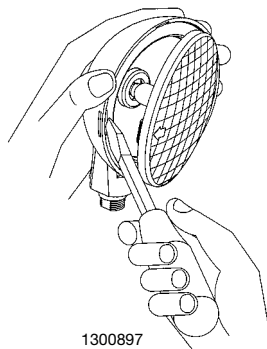
If a unit is to be deliberately taken out of service for an extended period, the positive (+) battery lead should be disconnected and insulated so that the battery will go into storage in a fully charged condition.

**Replacing A Battery**

1. De-energize the AC power.
2. Disconnect battery leads from charger module.
3. Release battery retaining strap (Fig. 1, 2 or 3). Remove battery.
4. Replace with a new battery (see unit model label for correct part number).
5. Reassemble the unit.

**Replacing An Emergency Lamp**

1. Remove diffuser lens from lamp housing by prying lens adjacent to tab slot
2. Remove and replace lamp (refer to product for specific lamp type)..

**RECYCLING INFORMATION**

All steel, aluminum and thermoplastic parts are recyclable.

**NOTICE:** Emergency units contain rechargeable batteries which must be recycled or disposed of properly.

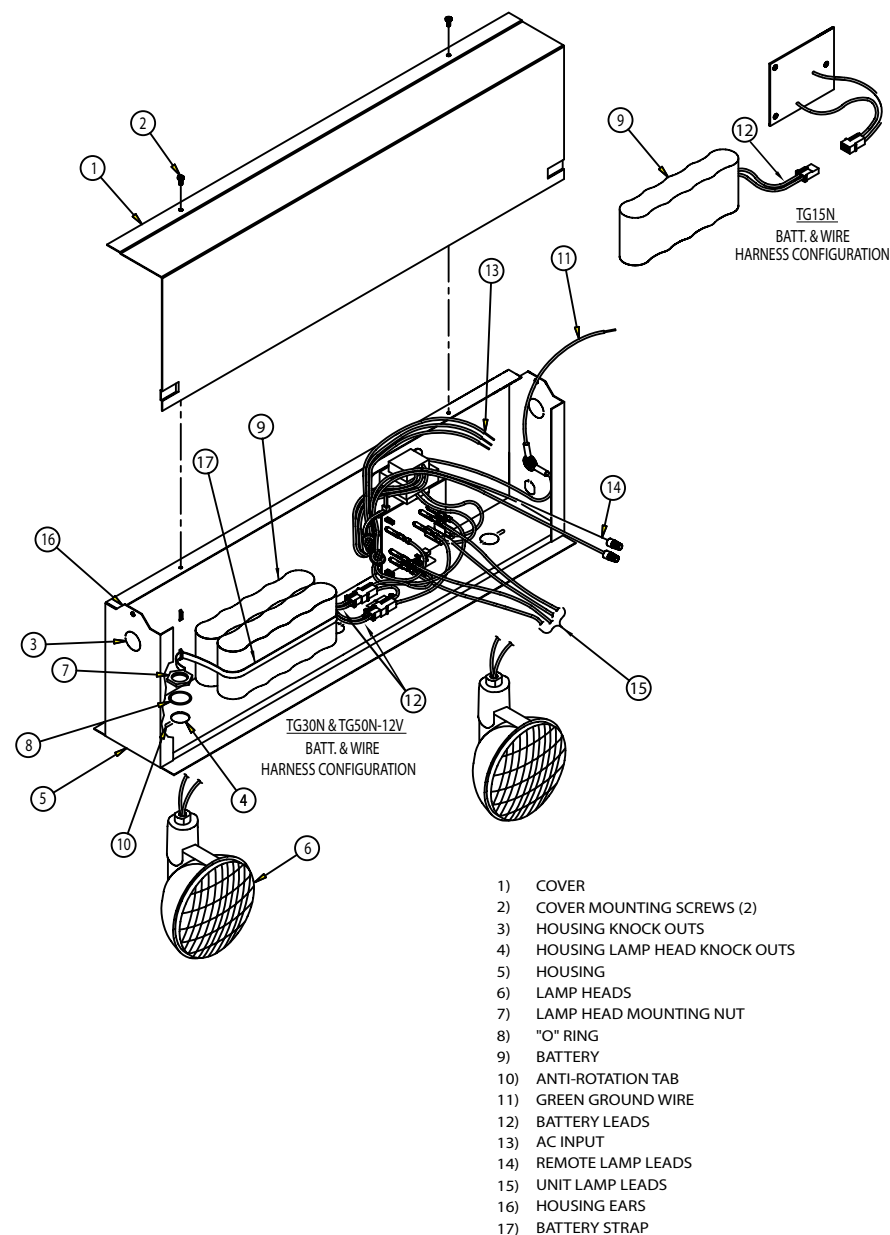
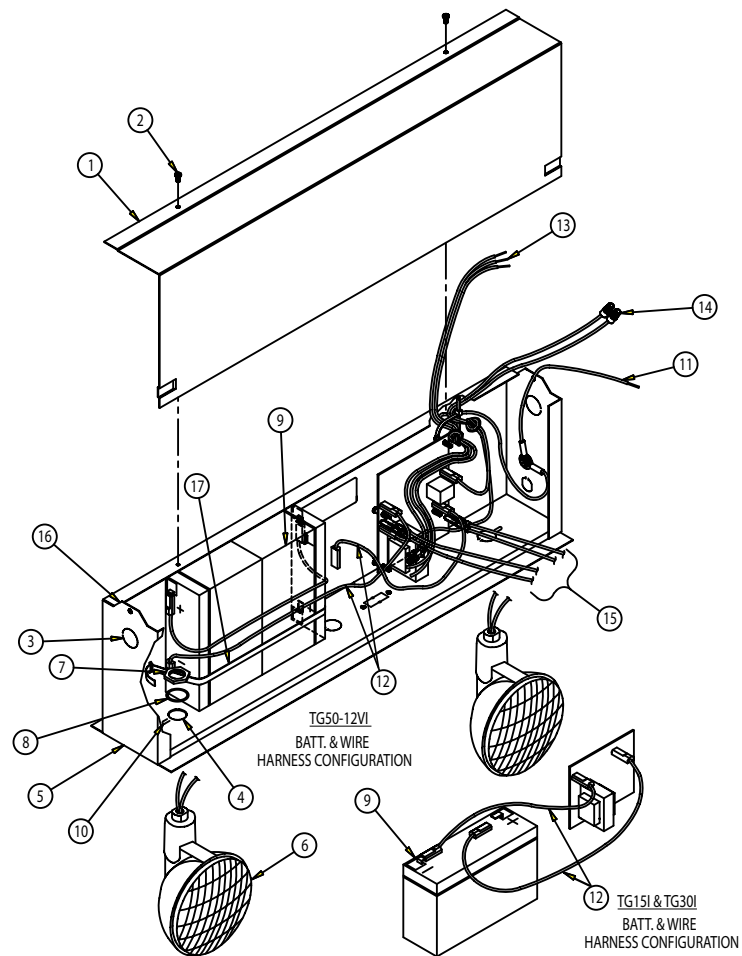
**Fig. 2** NICKEL-CADMIUM BATTERY MODELS

Fig. 3 SPECTRON® SELF-TEST/SELF-DIAGNOSTIC MODELS



- 1) COVER
- 2) COVER MOUNTING SCREWS (2)
- 3) HOUSING KNOCK OUTS
- 4) HOUSING LAMP HEAD KNOCK OUTS
- 5) HOUSING
- 6) LAMP HEADS
- 7) LAMP HEAD MOUNTING NUT
- 8) "O" RING
- 9) BATTERY
- 10) ANTI-ROTATION TAB
- 11) GREEN GROUND WIRE
- 12) BATTERY LEADS
- 13) AC INPUT
- 14) REMOTE LAMP LEADS
- 15) UNIT LAMP LEADS
- 16) HOUSING EARS
- 17) BATTERY STRAP

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### Lamp Sensing Adjustment For Spectron® models

#### Models TG15I, TBW50I

These models are shipped without remote fixture capacity: the lamp sensing circuitry is factory-set. No further adjustments required.

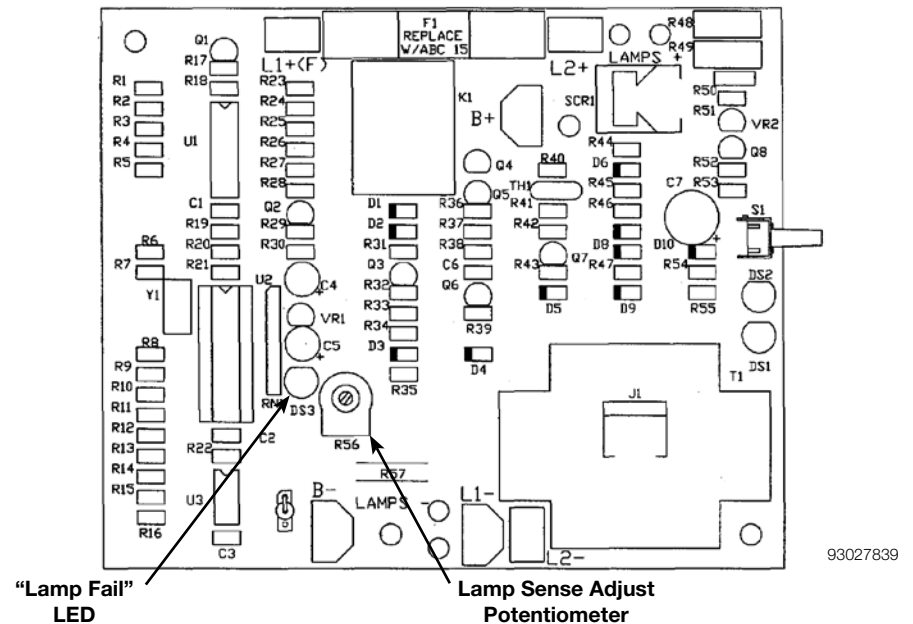
#### Models TG30I and TG50I

These remote capacity models provide sufficient battery power to operate the unit's two integral lighting heads plus one or more remote lighting fixtures. In order for the electronics module to detect a lamp failure in any of the connected fixtures, the lamp sensing circuit must be adjusted.

Procedure:

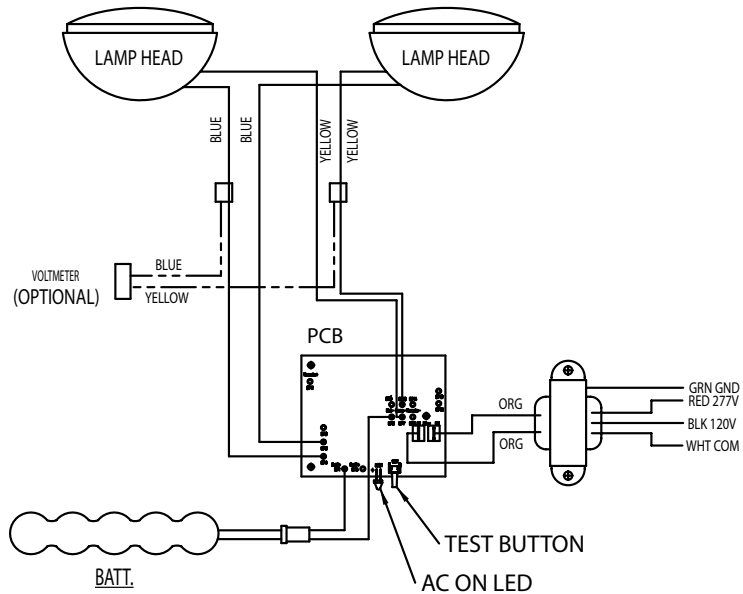
1. With a small screwdriver, turn the Lamp Sense Adjust potentiometer fully clockwise. Refer to Fig. 4, below.

Fig. 4 Charger Board



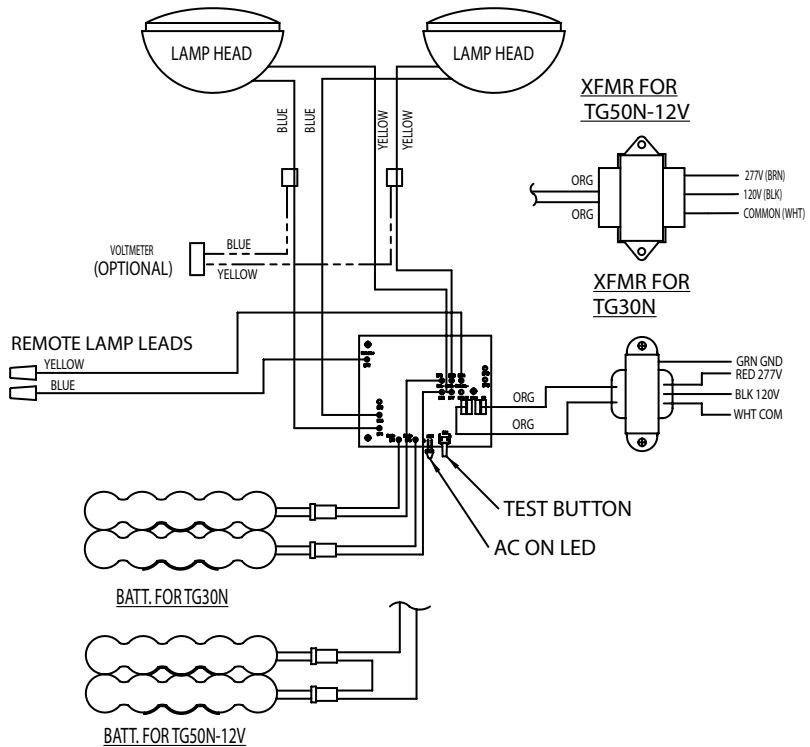
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2. Press the unit test switch once. The emergency lamps will illuminate and a 1 minute self-test will begin. The green "Operating Status" LED on the unit's control panel will also begin to flash. The "Lamp Fail" LED located on the charger board (See Fig. 4) should not be illuminated at this time.
3. Slowly turn the "Lamp Sense Adjust" potentiometer **counterclockwise** until the "Lamp Fail" LED on the charger board (See Fig. 4) illuminates. Then turn the adjustment pot back clockwise **just slightly beyond** the point where the "Lamp Fail" LED turns off to avoid false failure indications. At this point, the red "Service Alert" LED on the unit's control panel will begin a repetitive cycle of flashing 5 times followed by a pause ("lamp fault" service alert).
4. While the self-test is still in progress, disconnect one of the emergency lamp wires from the charger board. The "Lamp Fail" LED on the charger board (See Fig. 4) should turn on. Reconnect the lamp wire and observe that the "Lamp Fail" LED goes out. If "Lamp Fail" LED remains illuminated, turn the "Lamp Sense Adjust" potentiometer fully clockwise and repeat step 3.
5. Allow the 1 minute self-test to end (or press the test switch again to cancel self-test cycle).
6. Press the test switch again. Verify that the "Lamp Fail" LED and the "Service Alert" LED are not illuminated.



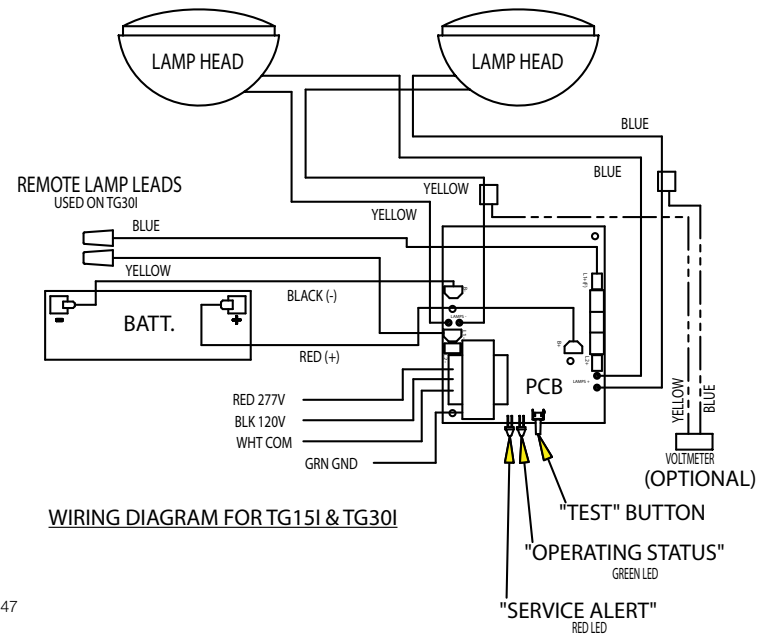
WIRING DIAGRAM FOR TG15N

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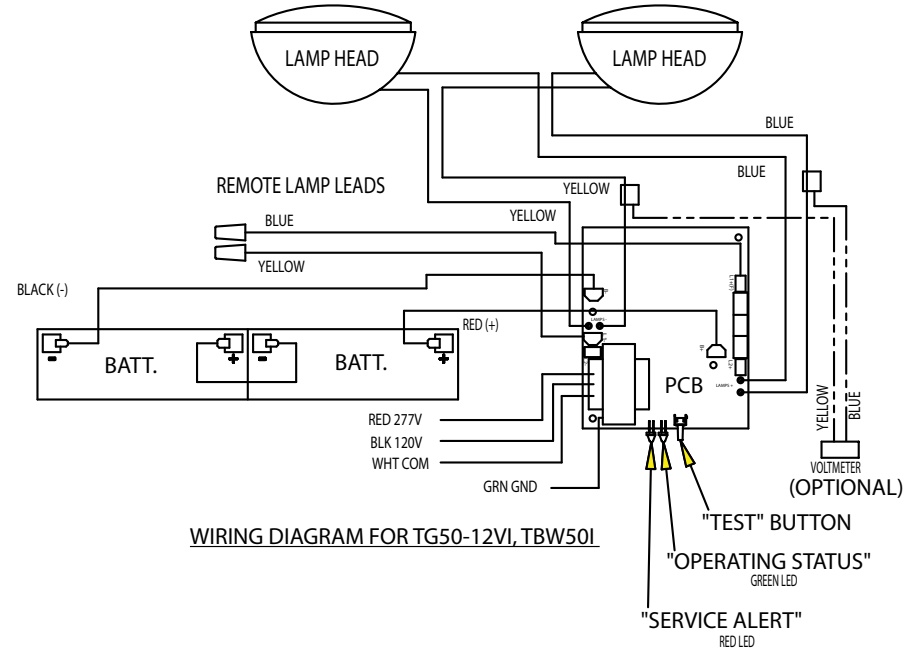
WIRING DIAGRAM FOR TG30N & TG50N-12V

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WIRING DIAGRAM FOR TG15I & TG30I

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WIRING DIAGRAM FOR TG50-12VI, TBW50I

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## OPERATION

With power supplied, unit is functioning properly when the "charge indicator" light is on and lamps are off.

To test, depress "test" button. Lamps should be on and "charge indicator" should be off.

**NOTE:** All models are supplied with an AC Lockout circuit, which prevents the emergency lights from illuminating when the battery is connected and no AC power is present.

**NOTE:** All models are supplied with a Low Voltage Disconnect circuit, which prevents damage to the battery from deep discharge during prolonged emergency operation.

**NOTE:** Batteries are often shipped in a discharged state – this is normal. The battery will require charging. Allow several hours of charge before testing the unit.

### Models With SPECTRON® Self-Testing/Self-Diagnostic Circuitry

Models equipped with the Spectron self-testing/self-diagnostic electronics system provide:

- Visual indication of AC power status
- Visual indication of self-diagnostic test cycles

—Visual indication of any unit malfunctions including—

- **Battery fault**
- **Transfer Fault**
- **Charger fault**
- **Emergency Lamp fault**

Spectron equipped units also include:

**Brownout protection:** unit will automatically transfer to emergency operation upon detection of low AC power (approximately 80% of nominal line).

**Time Delay Retransfer:** upon return of normal AC power, unit will remain in the emergency mode for an additional 15 minutes to allow AC power to stabilize.

#### LED Status Indicators

Two status indicators, one green and one red, are provided on the control panel of all models equipped with the Spectron option.

#### Green Operating Status LED

The green Operating Status LED serves as both an AC power and a self-test indicator. During normal operation, the green Operating Status LED will be illuminated, indicating the presence of AC power. During all automatic or manual self-test cycles, the green Operating Status LED will blink at a 1 Hz. rate.

#### Red Service Alert LED

Under normal operating conditions, the red Service Alert LED indicator will remain "off". In the event the Spectron controller detects a malfunction, the red Service Alert LED will blink at a 1 Hz. rate, based on the following table:

| Red Status LED Code   | Description            |
|-----------------------|------------------------|
| One blink ON/pause    | Battery not connected  |
| Two blinks ON/pause   | Battery fault          |
| Three blinks ON/pause | Charger fault          |
| Four blinks ON/pause  | Transfer circuit fault |
| Five blinks ON/pause  | Emergency Lamp fault   |

#### Automatic Tests

The unit will automatically initiate a self-test/self-diagnostic cycle based on the following table:

| Testing Period      | Duration of Test |
|---------------------|------------------|
| Once a month        | 1 minute         |
| Once every 6 months | 30 minutes       |

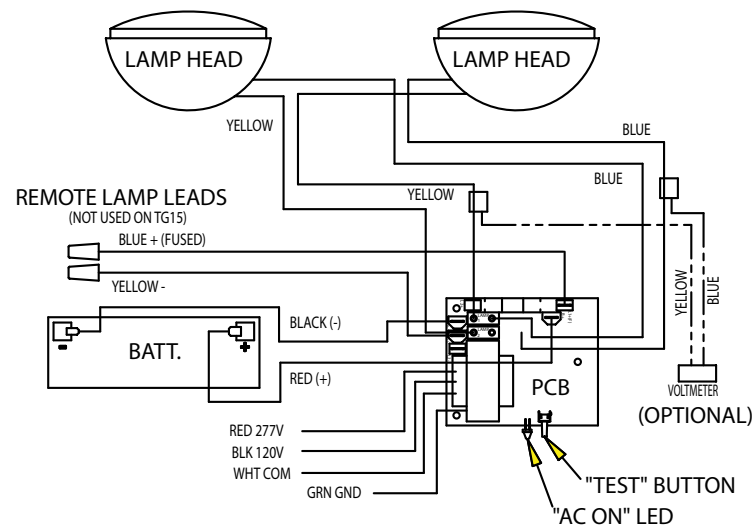
#### Manual Tests

Using the unit test switch, users can initiate different duration test cycles based on the following table:

| Initiating Action             | Test Cycle |
|-------------------------------|------------|
| Press test switch once        | 1 minute   |
| Press test switch twice       | 5 minutes  |
| Press test switch three times | 30 minutes |
| Press test switch four times  | 60 minutes |

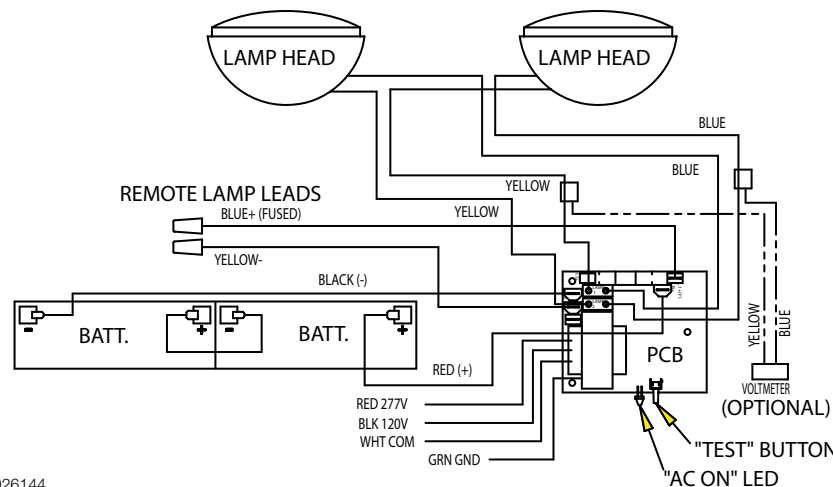
Pressing the test switch at any time after a test cycle has begun cancels the remainder of the test and returns the unit to normal operation.

## WIRING DIAGRAMS



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WIRING DIAGRAM FOR TG15 & TG30



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WIRING DIAGRAM FOR TG50-12V