IMPORTANT!!!

PLEASE TAKE THE TIME TO FILL OUT FORM COMPLETELY. FILE IT IN A SAFE PLACE. IN THE EVENT YOU EXPERIENCE PROBLEMS WITH OR HAVE QUESTIONS CONCERNING YOUR CONTROLLER, THE FOLLOWING INFORMATION IS NECESSARY TO OBTAIN PROPER SERVICE AND PARTS.

MODEL # ________________________ AA3/5MB

SERIAL # ________________________

PURCHASE DATE ________________________

PURCHASED FROM ________________________
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1.0 GENERAL INFORMATION

The TWR Lighting®, Inc. (TWR®) Model AA3/5MB Controller is for A3 lighting of towers 701’ to 1,050’ above ground level (AGL), in accordance with the FAA A/C 70/7460-1K. One (1) beacon should be placed at the top of the structure with two (2) beacons at the 2/3, and 1/3 intervals, with respect to overall tower height. Obstruction lights should be placed at the 5/6, ½, and 1/6 intervals.

The flash rate of the beacons is 30 per minute. The beacons flash synchronized to one another. The sidelights burn steady.

A by-pass switch (SW1) allows the controller to be turned on during daylight hours without covering the photocell. This is particularly helpful since the controller can be mounted indoors while the photocell is outdoors.

Each beacon requires two (2) 620 watt or (2) 700 watt 120V bulbs. TWR® recommends that you use only these bulbs. The use of any other bulb may give a false beacon lamp burnout alarm. Do not try to use 130V bulbs. Each sidelight requires (1) 116 watt 120V bulb. (620PS40P, 700PS40P, and 116A21TS)

The photocell is the 3 blade, twist to lock type.

Power supplied to controller shall be 120/240V 3 wire single phase.

The controller housing is rated at NEMA 4X. It is suitable for indoor or outdoor mounting.

Controller functions that are monitored by remote alarms in the form of dry contact closures are as follows:

- **POWER FAILURE**: Monitors 120V AC to the controller. Alarms in the event of power failure, or tripped circuit breaker.
- **LIGHTS "ON"**: Gives an indication whenever the controller is activated.
- **BEACONS**: Will give an alarm in the event of one (1) or both bulbs failing, or flasher stalling.
- **OBSTRUCTION LIGHTS**: Will give an alarm when one (1) of three (3) sidelights fails.
2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROL CABINET
(Refer to Drawing 1119-R)

2.1.1 The power supply control cabinet can be located at the base of the structure or in an equipment building. Mounting footprints are shown on drawing 1119-R. Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).

2.1.2 If the control cabinet is mounted inside an equipment building, the photocell should be mounted vertically on 1/2" conduit outside the building above the eaves facing north. Wiring from the photocell socket to the control cabinet should consist of one (1) each - red, black, and white wires. The white wire is connected to the socket terminal marked "N." The black wire is connected to the socket terminal marked "Li," and the red wire is connected to the socket terminal marked “Lo.” As above, the photocell should be positioned so that it does not "see" ambient light, which can prevent it from switching to the nightmode.

2.1.3 If the control cabinet is mounted outside an equipment building, the photocell should be mounted vertically on ½” conduit so the photocell is above the control cabinet. Care must be taken to assure that the photocell does not "see" any ambient light that would prevent it from switching into the nightmode. The photocell wiring is the same as in 2.1.1.

2.1.4 The wiring from the photocell, the service breaker, the red incandescent beacons, and the sidelights should enter the control cabinet through the watertight connectors in the bottom of the cabinet. Inside the cabinet, the connections will be made on the terminal blocks and circuit breaker located at the bottom of the chassis. These connections are made as follows:

2.2 EXTERNAL PHOTOCELL WIRING
(Refer to Drawing 1119-R)

2.2.1 Connect the **BLACK** wire from the photocell to terminal block TB2, marked “L2.”
2.2.2 Connect the **RED** wire from the photocell to terminal block TB2, marked “SSR.”

2.2.3 Connect the **WHITE** wire from the photocell to terminal block TB2, marked “N.”

### 2.3 POWER WIRING
(Refer to Drawing 1119-R)

2.3.1 Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).

2.3.2 Circuit breaker needs to be a 2 pole common trip rated at 50 amps.

2.3.3 Connect incoming 120V AC "Hot #1" to terminal block TB1, marked “L1.”

2.3.4 Connect incoming 120V AC "Hot #2" to terminal block TB1, marked “L2.”

2.3.5 Connect neutral to one (1) of the terminal blocks TB1, marked “N.”

2.3.6 Connect the AC ground to the aluminum mounting plate.

### 2.4 RED BEACON AND SIDELIGHT WIRING
(Refer to Drawings 1119-R, and 262-5B)

2.4.1 Connect the **BLACK** wire from beacon #1, to circuit breaker marked “B1.”

2.4.2 Connect the first **BLUE** wire from beacon #2, to circuit breaker marked “B2.”

2.4.3 Connect the second **BLUE** wire from beacon #3, to circuit breaker marked “B3.”

2.4.4 Connect the **BROWN** wire from beacon #4, to circuit breaker marked “B4.”
2.4.5 Connect the **BROWN** wire from beacon #5, to circuit breaker marked “B5.”

2.4.6 Connect the **RED** wire from sidelight group #1, to circuit breaker marked “S1.”

2.4.7 Connect the **YELLOW** wire from sidelight group #2, to circuit breaker marked “S2.”

2.4.8 Connect the **PURPLE** wire from sidelight group #3, to circuit breaker marked “S3.”

2.4.9 Connect the **WHITE** neutral wire(s) to one (1) or more of the terminal blocks on TB1, marked “N.”

2.5 **RED BEACON AND SIDELIGHT ALARM WIRING**  
(Refer to Drawings 1119-R and 1119-S)

2.5.1 Red light failure alarm relays K1, K2, K3, K4, K5, K6, K7, K8, K9, and K10, are provided on the left hand side of the chassis. Independent contact closures are provided for: Power Failure, Tower Lights "ON," Sidelight Top Level Burnout, Sidelight 2nd Level Burnout, Sidelight 3rd Level Burnout, Top Beacon Burnout, 2nd Beacon Burnout, 3rd Beacon Burnout, 4th Beacon Burnout, and 5th Beacon Burnout.

2.5.2 Alarm wiring: To utilize all of the red light alarms, the customer will need 10 pairs of wires to interface with the alarm device. The relays have been jumpered to provide one (1) common point. One (1) wire from each of the 10 pairs will terminate at the K1, terminal #4. The remaining wire from each pair will terminate as follows:

2.5.2.1 Power Failure Alarm - Connect to relay K1, terminal #3.

2.5.2.2 Tower Lights "ON" - Connect to relay K2, terminal #6.

2.5.2.3 Sidelight Top Level Burnout - Connect to relay K3, terminal #3.

2.5.2.4 Sidelight 2nd Level Burnout - Connect to relay K4, terminal #3.

2.5.2.5 Sidelight 3rd Level Burnout - Connect to relay K5, terminal #3.
2.5.2.6  Top Beacon Burnout - Connect to relay K6, terminal #6.
2.5.2.7  2nd Beacon Burnout - Connect to relay K7, terminal #6.
2.5.2.8  3rd Beacon Burnout - Connect to relay K8, terminal #6.
2.5.2.9  4th Beacon Burnout - Connect to relay K9, terminal #6.
2.5.2.10 5th Beacon Burnout - Connect to relay K10, terminal #6.

2.5.3  Testing: To test alarms, follow the procedures using an "ohm" meter between alarm common and alarm points.

**Power Failure**  Pull circuit breaker at electrical panel.

**Lights "ON"**  Operate SW1, or cover the photocell. **NOTE:** (Indication will be delayed 4 to 5 seconds for all the beacon and sidelight relays to position themselves).

**Beacon and Sidelights**  Trip circuit breakers on the controller panel.
3.0 **THEORY OF OPERATION**

3.1 **POWER SUPPLY**

120/240V AC enters the controller from the circuit breaker panel. Lines (L1, L2) sit at the PRD waiting to be switched and also keep the power failure relay K1 energized. When the 6390-FAA photocell is activated, line (L2) energizes the coil of the PRD and K2 "Lights On" relay. This also can be accomplished by using the photocell by-pass switch (SW1).

3.2 **SIDELIGHTS**

LD1 is sent to the primary of the boost transformer T1. The boosted output voltage (126V at 120V nominal input) is sent to relay K3, which is a current sensing relay for sidelight #1. LD4 (120V) is sent to relays K5, and K6. The output of each sidelight relay is connected to its corresponding fuse. Each 9KE-3 LAMP monitors one (1) level of sidelights, and will hold the contact open when three (3) lights are burning, but will give a contact closure if one (1) or more lights fails.

3.3 **BEACONS**

LD1, LD2, and LD3 are sent to the primary of boost transformers T1, T2, and T3. The boosted output voltage (132V at 120V nominal input) is sent to the CS2620 current sensing modules M1, M3, M5, M7, and M9. The output of these current sensors is connected to the flasher module M2, and the load contactor modules M4, M6, M8, and M10. M2 is primary flasher that operates beacon #1, and the coils of module M4, M6, M8, and M10, which flashes beacon #2, beacon #3, beacon #4, and beacon #5, synchronized with beacon #1. If one (1) or both bulbs within a beacon burns out, the CS2620 will send 120V to the beacon lamp burnout relay and energize the coil, which will cause an alarm. This condition will also exist if the flasher should fail. Resistor R4 is connected across the flasher to apply a "dummy load," so in the event the flasher should lose the beacon #1 load, the flasher would not try to stall on.
3.4 LOAD BALANCE RESISTORS

The output of module M2 (flasher) is sent to the auxiliary flasher module M11, for timing purposes. M11 output operates Load Balance Resistor 1 (R1), and is connected to modules M12, and M13. M12, and M13 operate Load Balance Resistor 2 (R2), and Load Balance Resistor 3 (R3) synchronized with R1. The Load Balance Resistors will operate alternately from the flashing beacon loads. The use of this optional equipment is to help even the current draw on generator systems.
4.0 MAINTENANCE GUIDE

4.1 RED OBSTRUCTION LIGHTING

The only required maintenance that needs to be performed is replacement of the lamps in the L-864, and L-810 fixtures. Lamps should be replaced after being operated for not more than 75% of the rated life, or immediately upon failure as per FAA Advisory Circular 70/7460-1K, Change 2. By following these instructions, maximum safety and performance can be achieved.

TOOLS REQUIRED: NONE

4.2 L-864 LAMP REPLACEMENT

4.2.1 Loosen the one (1) wing nut on the latch pin, and allow it to recline backward.

4.2.2 Open the lens, and tilt it backward.

4.2.3 To remove each lamp, depress down while rotating the lamp counter-clockwise 90 degrees.

4.2.4 Install the new lamps by depressing down while rotating the lamp clockwise 90 degrees.

4.2.5 Close the lens, and let the latch pin drop in the recessed slot.

4.2.6 Tighten the wing nut snug, then 1/4 turn more.

4.3 L-810 LAMP REPLACEMENT

4.3.1 Unclasp the two (2) latches, and allow the bail to recline backward.

4.3.2 Lift the lens up and over the lamp, allowing the lens to hang from the safety cable.

4.3.3 Unscrew the lamp counter-clockwise and remove.

4.3.4 Install the new lamp by screwing the lamp clockwise.
4.3.5 Re-install the lens making sure it is seated properly on the base.

4.4 **L-864 CONTROLLER**

No scheduled maintenance is required. Perform on an as needed basis only.

4.5 **PHOTOCELL**

The photocell is a sealed unit. No maintenance is needed or required other than replacement as necessary.
5.0 RECOMMENDED SPARE PARTS LIST

<table>
<thead>
<tr>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>6390-FAA</td>
<td>120 – 240V Photocell</td>
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<tr>
<td>1</td>
<td>PF-250</td>
<td>Solid State Flasher</td>
</tr>
<tr>
<td>1</td>
<td>CS2620</td>
<td>Beacon Lamp Burnout Detector</td>
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<tr>
<td>1</td>
<td>SF-250</td>
<td>Solid State Load Contactor</td>
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<td>1</td>
<td>KRPA5AG120V</td>
<td>SPDT Relay</td>
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<td>9KE-3LAMP</td>
<td>Sidelight Burnout Detector</td>
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<td>2</td>
<td>S261D20</td>
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<td>30 amp Breaker</td>
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## 6.0 MAJOR COMPONENTS PARTS LIST

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<th>PART NUMBER</th>
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<td>XFMR-P5512</td>
<td>Boost Transformer 23 amp</td>
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<td>S261D30</td>
<td>30 amp Breaker</td>
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<tr>
<td>2</td>
<td>MOV524V15</td>
<td>Varistor</td>
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</table>
Warranty & Return Policy

TWR Lighting®, Inc. (“TWR”) warrants its products (other than “LED Product”) against defects in design, material (excluding incandescent bulbs) and workmanship for a period ending on the earlier of two (2) years from the date of shipment or one (1) year from the date of installation.

TWR Lighting®, Inc. (“TWR”) warrants its “LED Product” against defects in design, material and workmanship for a period of five (5) years from the date of shipment. TWR®, at its sole option, will, itself, or through others, repair, replace or refund the purchase price paid for “LED Product” that TWR® verifies as being inoperable due to original design, material, or workmanship. All warranty replacement “LED Product” is warranted only for the remainder of the original warranty of the “LED Product” replaced. Replacement “LED Product” will be equivalent in function, but not necessarily identical, to the replaced “LED Product.”

TWR Lighting®, Inc. (“TWR”) warrants its “LED Product” against light degradation for a period of five (5) years from the date of installation. TWR®, at its sole option, will, itself, or through others, repair, replace, or refund the purchase price paid for “LED Product” that TWR® verifies as failing to meet 75% of the minimum intensity requirements as defined in the FAA Advisory Circular 150/5345-43G dated 09/26/12. All warranty replacement “LED Product” is warranted only for the remainder of the original warranty of the “LED Product” replaced. Replacement “LED Product” will be equivalent in function, but not necessarily identical, to the replaced “LED Product.”

Replacement parts (other than “LED Product”) are warranted for 90 days from the date of shipment.

Conditions not covered by this Warranty, or which might void this Warranty are as follows:

- Improper Installation or Operation
- Misuse
- Abuse
- Unauthorized or Improper Repair or Alteration
- Accident or Negligence in Use, Storage, Transportation, or Handling
- Any Acts of God or Nature
- Non-OEM Parts
  - The use of Non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.
Warranty & Return Policy
(continued)

Field Service – Labor, Travel, and Tower Climb are not covered under warranty. Customer shall be obligated to pay for all incurred charges. An extensive network of certified and insured Service Representatives is available if requested.

Repair, Replacement or Product Return RMA Terms – You must first contact our Customer Service Department at 713-973-6905 to acquire a Return Merchandise Authorization (RMA) number in order to return the product(s). Please have the following information available when requesting an RMA number:

- The contact name and phone number of the tower owner or
- The contact name and phone number of the contractor
- The site name and number
- The part number(s)
- The serial number(s) (if any)
- A description of the problem
- The billing information
- The Ship To address

This RMA number must be clearly visible on the outside of the box. If the RMA number is not clearly labeled on the outside of the box, your shipment will be refused. Please ensure the material you are returning is packaged carefully. The warranty is null and void if the product(s) are damaged in the return shipment.

All RMAs must be received by TWR LIGHTING®, INC., 10810 W. LITTLE YORK RD., #130, HOUSTON, TX 77041-4051, within 30 days of issuance.

Upon full compliance with the Return Terms, TWR® will replace, repair and return, or credit product(s) returned by the customer. It is TWR®’s sole discretion to determine the disposition of the returned item(s).
Warranty & Return Policy  
(continued)

**RMA Replacements** – Replacement part(s) will be shipped and billed to the customer for product(s) considered as Warranty, pending return of defective product(s). When available, a certified reconditioned part is shipped as warranty replacement with a Return Merchandise Authorization (RMA) number attached. Upon receipt of returned product(s), inspection, testing, and evaluation will be performed to determine the cause of defect. The customer is then notified of the determination of the testing.

- Product(s) that is deemed defective and/or unrepairable and covered under warranty - a credit will be issued to the customer’s account.
- Product(s) found to have no defect will be subject to a **$75.00 per hour testing charge (1 hour minimum), which will be invoiced to the customer.** At this time the customer may decide to have the tested part(s) returned and is responsible for the return charges.
- Product(s) under warranty, which the customer does not wish returned, the customer will be issued a credit against the replacement invoice.

**RMA Repair & Return** – A Return Merchandise Authorization (RMA) will be issued for all part(s) returned to TWR® for repair. Upon receipt of returned product(s), inspection, testing, and evaluation will be performed to determine the cause of defect. The customer is then notified of the determination of the testing. If the returned part(s) is deemed unrepairable, or the returned part(s) is found to have no defect, the customer will be subject to a **$75.00 per hour testing charge (1 hour minimum), which will be invoiced to the customer.** Should the returned parts be determined to be repairable, a written estimated cost of repair will be sent to the customer for their written approval prior to any work being performed. In order to have the tested part(s) repaired and/or returned, the customer must issue a purchase order and is responsible for the return shipping charges.

**RMA Return to Stock** – Any product order that is returned to TWR® for part(s) ordered incorrectly or found to be unneeded upon receipt by the customer, the customer may be required to pay a minimum 20% **restocking fee.** Product returned for credit must be returned within 60-days of original purchase, be in new and resalable condition, and in original packaging. Once the product is received by TWR it’s condition will be evaluated and a credit will be issued only once it is determined that the RMA Return Terms have been met.

**Credits** – Credits are issued once it is determined that all of the Warranty and Return Terms are met. All credits are processed on Fridays. In the event a Friday falls on a Holiday, the credit will be issued on the following Friday.
Warranty & Return Policy
(continued)

**Freight** – All warranty replacement part(s) will be shipped via ground delivery and paid for by TWR®. Delivery other than ground is the responsibility of the customer.

REMEDIES UNDER THIS WARRANTY ARE LIMITED TO PROVISIONS OF REPLACEMENT PARTS AND REPAIRS AS SPECIFICALLY PROVIDED. IN NO EVENT SHALL TWR® BE LIABLE FOR ANY OTHER LOSSES, DAMAGES, COSTS, OR EXPENSES INCURRED BY THE CUSTOMER, INCLUDING, BUT NOT LIMITED TO, LOSS FROM FAILURE OF THE PRODUCT(S) TO OPERATE FOR ANY TIME, AND ALL OTHER DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING ALL PERSONAL INJURY OR PROPERTY DAMAGE DUE TO ALLEGED NEGLIGENCE, OR ANY OTHER LEGAL THEORY WHATSOEVER. THIS WARRANTY IS MADE BY TWR® EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED. WITHOUT LIMITING THE GENERALITY OF THE FORGOING, TWR® MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS OF THE PRODUCT(S) FOR ANY PARTICULAR PURPOSE. TWR® EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES.
# RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
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<tbody>
<tr>
<td>RMA#</td>
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<td>DATE</td>
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<td>CUSTOMER</td>
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<tr>
<td>SERIAL NO.</td>
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<tr>
<td>ORIGINAL TWR INVOICE NO.</td>
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<td>DESCRIPTION OF PROBLEM</td>
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<td>DATE NEEDED</td>
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<tr>
<td>RETURN ADDRESS</td>
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PLEASE RETURN PRODUCT TO: 10810 W. LITTLE YORK RD., #130 HOUSTON, TX 77041-4150
RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

RMA#: ____________________ DATE: ____________________

CUSTOMER: ____________________________________________

______________________________________________________

CONTACT: ______________ PHONE NO.: ______________

ITEM DESCRIPTION (PART NO.): _________________________

______________________________________________________

MODEL NO.: ______________ SERIAL NO.: ______________

ORIGINAL TWR INVOICE NO.: ______________ DATED: ______________

DESCRIPTION OF PROBLEM: __________________________________________

______________________________________________________

______________________________________________________

SIGNED: ______________ DATE NEEDED: ______________

RETURN ADDRESS: _______________________________________

PLEASE RETURN PRODUCT TO: 10810 W. LITTLE YORK RD., #130 HOUSTON, TX 77041-4150
CUSTOMER ALARM POINTS

C = 4ALARM COMMON
PF = POWER FAILURE
LO = LIGHTS "00C"
SL1 = SIDE LIGHTS TOP LEVEL BURNOUT
SL2 = SIDE LIGHTS 2ND LEVEL BURNOUT
SL3 = SIDE LIGHTS 3RD LEVEL BURNOUT
BB1 = TOP BEACON BURNOUT
BB2 = 2ND BEACON BURNOUT
BB3 = 3RD BEACON BURNOUT
BB4 = 4TH BEACON BURNOUT
BB5 = 5TH BEACON BURNOUT

* ALARM OUTPUTS ARE NORMALLY OPEN AND CLOSED UPON FAILURE.

NOTES:
1. WHEN REPLACING MODULES USE HEAT SINK COMPOUND BETWEEN MODULE AND ALUMINUM PLATE.
2. PLUG 6390-FAA PHOTOCCELL INTO 43109 TWIST LOCK RECEPTACLE AND TWIST TO LOCK.
3. WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) L1 TO L1 TO L1.

AA-3/5MB CONTROLLER
(CHASSIS LAYOUT)
NOTES:
1. ITEM #7 CAN BE USED TO REDUCE 3/4" CONDUIT TO 1/2" CONDUIT AT THE HOUSING OR AT THE CONTROLLER ITSELF.
2. IF ADDITIONAL WIRE IS REQUIRED OVER THE FACTORY 20', USE THE FOLLOWING CHART.
   21' TO 300' - 16 AWG TFFN
   301' TO 500' - 14 AWG TFFN
### Parts List

<table>
<thead>
<tr>
<th>ITEM</th>
<th>QTY</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>100C</td>
<td>BEACON BASE</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>101C</td>
<td>LOWER HINGE</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>102C</td>
<td>UPPER HINGE</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>103C</td>
<td>CANOPY CAP</td>
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<tr>
<td>5</td>
<td>1</td>
<td>104C</td>
<td>CANOPY FLANGE</td>
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<tr>
<td>6</td>
<td>2</td>
<td>100G</td>
<td>GASKET BEACON BASE</td>
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<tr>
<td>7</td>
<td>1</td>
<td>101G</td>
<td>GASKET MIDDLE BEACON</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>102G</td>
<td>GASKET, TOP HINGE</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>103G</td>
<td>GASKET TEFLON, TOP</td>
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<tr>
<td>10</td>
<td>4</td>
<td>104G</td>
<td>WHITE TEFLON WASHER</td>
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<tr>
<td>11</td>
<td>1</td>
<td>AP9557</td>
<td>CAP LENS RED</td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>AP3555</td>
<td>MIDDLE LENS RED</td>
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<tr>
<td>13</td>
<td>2</td>
<td>AP3555</td>
<td>BOTTOM LENS RED</td>
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<tr>
<td>14</td>
<td>2</td>
<td>TWR23-546</td>
<td>BEACON LAMP RECEPTACLE</td>
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<tr>
<td>15</td>
<td>1</td>
<td>CG62955A</td>
<td>3/4” CORD CONNECTOR, .62 TO .75</td>
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<tr>
<td>16</td>
<td>1</td>
<td>TERR4BLK3</td>
<td>TERMINAL BLOCK 3-PART</td>
</tr>
<tr>
<td>17</td>
<td>3</td>
<td>BTRT-1</td>
<td>BEACON TIE ROD STRAIGHT</td>
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<tr>
<td>18</td>
<td>3</td>
<td>BTRB</td>
<td>BEACON TIE ROD BENT</td>
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<tr>
<td>19</td>
<td>1</td>
<td>BHP</td>
<td>BEACON HINGE PIN W/ COTTER PIN</td>
</tr>
<tr>
<td>20</td>
<td>1</td>
<td>BLP</td>
<td>BEACON LATCH PIN</td>
</tr>
<tr>
<td>21</td>
<td>6</td>
<td>510NJ</td>
<td>5/16-15 HEX NUT</td>
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<tr>
<td>22</td>
<td>6</td>
<td>510NJ7N</td>
<td>5/16-18 NUT WITH NYLON INSERT</td>
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<tr>
<td>23</td>
<td>1</td>
<td>63029RH</td>
<td>6-32 X 2 5/8 RH SLOT SCREW</td>
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<tr>
<td>24</td>
<td>1</td>
<td>632LW</td>
<td>6-32 LOCK WASHER</td>
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<tr>
<td>25</td>
<td>1</td>
<td>632NJ</td>
<td>6-32 NUT HEX</td>
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<tr>
<td>26</td>
<td>1</td>
<td>1032X38BH</td>
<td>10-32 X 3/8 PH/LIPS PAN HEAD</td>
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<tr>
<td>27</td>
<td>2</td>
<td>1032X38BP</td>
<td>10-32 X 3/8 PH SLOT SCREW</td>
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<tr>
<td>28</td>
<td>4</td>
<td>1032X38RH</td>
<td>10-32 X 3 5/8 RH SCREW</td>
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<tr>
<td>29</td>
<td>3</td>
<td>1420X58BH</td>
<td>14-20 X 5/8 RH SLOT SCREW</td>
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<tr>
<td>30</td>
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<td>10032B</td>
<td>BEACON SERIAL NUMBER LABEL</td>
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<tr>
<td>31</td>
<td>2</td>
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<td>BEACON LAMP <em>(</em>)</td>
</tr>
<tr>
<td>32</td>
<td>7</td>
<td>TY223M</td>
<td>HI TEMP TY WRAPS T&amp;B TEFZEL</td>
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<tr>
<td>33</td>
<td>4</td>
<td>16117WH</td>
<td>#15 HI TEMP WIRE SPOOL WHITE</td>
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<tr>
<td>34</td>
<td>4</td>
<td>16117BL</td>
<td>#15 HI TEMP WIRE SPOOL BLACK</td>
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<tr>
<td>35</td>
<td>5</td>
<td>CSG14-3</td>
<td>S.O. CORD 14AWG/3 CONDUCTOR <em>(</em>)</td>
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<tr>
<td>36</td>
<td>11</td>
<td>YAVL4-H34F</td>
<td>(STAKON) BURNTY HEAVY DUTY <em>(</em>)</td>
</tr>
</tbody>
</table>

* = ITEMS NOT SHOWN
~ = PART SOLD SEPARATELY

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*The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-45.

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NOTE:

1. FAA APPROVED LIGHT USES THE 116A21TS LAMP.

OTHER LAMPS ARE AVAILABLE TO MEET YOUR APPLICATION.

* = PART NOT SHOWN

~ = PART SOLD SEPARATELY
### NOTES:

1) DRAWING ILLUSTRATES METHOD OF STRAIN RELIEVING WIRE. USE THIS METHOD ON ALL JUNCTION BOXES.

2) THE NATIONAL ELECTRICAL CODE—ARTICLE 300–19–83 REQUIRES CONDUCTORS IN A VERTICAL CONDUIT BE SUPPORTED TO RELIEVE STRAIN ON TERMINAL BLOCK CONNECTIONS.

3) SKETCH ILLUSTRATES METHOD OF STRAIN RELIEVING A SINGLE CONDUCTOR. SEVERAL CONDUCTORS MAY BE GROUPED TOGETHER.

4) CONDUCTORS MAY BE MIXED BUT SHOULD NOT TAKE UP MORE THAN 40% OF CONDUIT'S INSIDE AREA.

### Using This Junction Box Method Spacing is 100 Feet Maximum.

<table>
<thead>
<tr>
<th>AWG</th>
<th>Max. Number Wires in 3/4&quot; Conduit</th>
<th>Max. Number Wires in 1&quot; Conduit</th>
<th>Wire Area (Sq. Inches)</th>
<th>Weight Per 100 Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 THHN</td>
<td>16</td>
<td>26</td>
<td>0.0117</td>
<td>2.50</td>
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<td>17</td>
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<td>8 THHN</td>
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<td>9</td>
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<td>6 THHN</td>
<td>4</td>
<td>7</td>
<td>0.0519</td>
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<tr>
<td>4 THHN</td>
<td>2</td>
<td>4</td>
<td>0.0845</td>
<td>16.20</td>
</tr>
</tbody>
</table>
DIRECTIONS FOR USING WrapLock

CUT OFF BAND TO PROPER LENGTH.
(SEE TABLE ON COVER OF BOX)

1. -- PASS ONE END THROUGH YOKE AND BEND BACK ABOUT 1 1/8" AND FLATTEN DOWN.
2. -- PASS BAND AROUND WORK AND THROUGH YOKE.
3. -- REPEAT AND PASS END THROUGH A SECOND TIME, DRAW UP FREE END SNUGLY WITH PLIERS.
4. -- INSERT FREE END IN SLOT OF RATCHET.
5. -- TURN DOWN UNTIL CLAMP IS TIGHT.
6. -- BACK OFF SLIGHTLY TO REMOVE RATCHET. CLAMP IS NOW SECURELY LOCKED.

TO REMOVE WrapLock
UNCOIL END WITH RATCHET. PRESS DOWN AT POINT WHERE BAND METAL HAS BEEN FORCED THROUGH CURVED PART OF YOKE.

WRAPLOCK FASTENING DETAIL