

TWR Lighting, Inc.

Enlightened TechnologySM

4300 WINDFERN RD. #100 - HOUSTON TX 77041-8943

VOICE (713) 973-6905 - FAX (713) 973-9352

web: www.twrlighting.com

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 # AA2/6MBNEMA7

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc.

Enlightened Technology^{S.M.}

AA2/6MBNEMA7 CONTROLLER

TABLE OF CONTENTS

1.0	<u>GENERAL INFORMATION</u>	1
2.0	<u>INSTALLATION INSTRUCTIONS</u>	2
2.1	MOUNTING THE CONTROL CABINET	2
2.2	EXTERNAL PHOTOCELL WIRING	3
2.3	POWER WIRING	3
2.4	RED BEACON AND SIDELIGHT WIRING	3
2.5	RED BEACON AND SIDELIGHT ALARM WIRING	4
3.0	<u>THEORY OF OPERATION</u>	6
3.1	POWER SUPPLY	6
3.2	SIDELIGHTS	6
3.3	BEACONS	6
4.0	<u>MAINTENANCE GUIDE</u>	8
4.1	RED OSTRUCTION LIGHTING	8
4.2	L-864 LAMP REPLACEMENT	8
4.3	L-810 LAMP REPLACEMENT	8
4.4	L-864 CONTROLLER	9
4.5	PHOTOCELL	9
5.0	MAJOR COMPONENTS SPARE PARTS LIST	
6.0	RECOMMENDED PARTS LIST	
7.0	WARRANTY & RETURN POLICY	
8.0	RETURN MERCHANDISE AUTHORIZATION (RMA) FORMS	

TWR Lighting, Inc.

Enlightened Technology^{S.M.}

AA2/6MBNEMA7 CONTROLLER

APPENDIX

CHASIS COMPONENT LAYOUT.....	1281-R (REV A)
SCHEMATIC LAYOUT	1281-S (REV A)
PHOTOCELL HOUSING DETAIL.....	100239 (REV D)
L-864 300 MM BEACON	FM10017 (REV B)
L-864 300 MM BEACON ASSEMBLY DETAIL.....	275-B (REV D)
L-810 OL1 SIGNLE OBSTRUCTION LIGHT DETAIL.....	FM10018 (REV C)
L-810 OL1 ASSEMBLY DETAIL	279-OL (REV B)
L-810 OL1 WIRING DETAIL.....	274-S (REV A)
JUNCTION BOX DETAIL	100089 (REV A)
AA2/6MB LIGHTING KIT.....	T1510 (REV A)

TWR Lighting, Inc.

*Enlightened Technology*SM

AA2/6MBNEMA7 CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting, Inc. (TWR) Model AA2/6MBNEMA7 Controller is for stack lighting in accordance with the FAA A/C 70/7460-1K. Three (3) beacons should be placed at the top of the structure with another three (3) beacons at the 1/2 interval, with respect to overall tower height. Obstruction lights should be placed at the 3/4 and 1/4 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), on the front of the door, 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. The normal position is "off."

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 meets Class I, Div. II, Groups C and D.

Power supplied to controller shall be 120V AC 60 Hz.

NOTE: The enclosure provided is for Class I, Div. II, Groups C and D, per NEC for hazardous locations (Article 501).

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. Also, PL1 indicator will illuminate **green**.

TWR Lighting, Inc.

Enlightened Technology^{S.M}

AA2/6MBNEMA7 CONTROLLER

BEACONS Will give an alarm in the event of one (1) or both bulbs failing within any beacon, and PL2 indicator will illuminate **red**.

OBSTRUCTION LIGHTS Will give an alarm when one (1) of the six (6) sidelights fails within any level. Also, PL3 indicator will illuminate **red**.

2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROL CABINET

(Refer to Drawing 1281-R)

2.1.1 The power supply control cabinet can be located at the base of the structure. Mounting footprints are shown on drawing 1281-R. Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).

2.1.2 The control cabinet should be mounted outside an equipment building, and the photocell should be mounted vertically on ¾” 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.

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

TWR Lighting, Inc.

Enlightened TechnologySM

AA2/6MBNEMA7 CONTROLLER

2.2 EXTERNAL PHOTOCELL WIRING

(Refer to Drawing 1281-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 1281-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 rated at 100 amps.
- 2.3.3 Connect incoming 120V AC "Hot" to terminal block TB1, marked "L1."
- 2.3.4 Jumper L1, on terminal block TB1, to L2, on terminal block TB1. Use at least a #4 AWG insulated wire.
- 2.3.5 Connect neutral wire(s) to one (1) of the terminal blocks TB1, marked "N."
- 2.3.6 Connect the AC ground to the ground lug located to the left of TB2.

2.4 RED BEACON AND SIDELIGHT WIRING

(Refer to Drawings 1281-R and T1510)

- 2.4.1 Connect the 1st **BLACK** wire from beacon #1, to circuit breaker marked "B1."
- 2.4.2 Connect the 2nd **BLACK** wire from beacon #2, to circuit breaker marked "B2."

TWR Lighting, Inc.

Enlightened TechnologySM

AA2/6MBNEMA7 CONTROLLER

- 2.4.3 Connect the 3rd **BLACK** wire from beacon #3, to circuit breaker marked “B3.”
- 2.4.4 Connect the 1st **ORANGE** wire from beacon #4, to circuit breaker marked “B4.”
- 2.4.5 Connect the 2nd **ORANGE** wire from beacon #5, to circuit breaker marked “B5.”
- 2.4.6 Connect the 3rd **ORANGE** wire from beacon #6, to circuit breaker marked “B6.”
- 2.4.7 Connect the 1st **RED** wire from sidelight group #1, to circuit breaker marked “S1.”
- 2.4.8 Connect the 2nd **RED** wire from sidelight group #2, to circuit breaker marked “S2.”
- 2.4.9 Connect the 3rd **RED** wire from sidelight group #3, to circuit breaker marked “S3.”
- 2.4.10 Connect the **WHITE** neutral wire(s) to one (1) or more of the terminal blocks on TB1, marked “N.”
- 2.4.11 Connect the **GREEN** (ground) wire to the ground lugs located to the right “B1” circuit breaker.

2.5 RED BEACON AND SIDELIGHT ALARM WIRING

(Refer to Drawings 1281-R and 1281-S)

- 2.5.1 Red light failure alarm relays K1, K2, and Modules M7 – M15, are provided for independent contact closures for: Power Failure, Tower Lights "ON," 1st Sidelight Burnout, 2nd Sidelight Burnout, 3rd Sidelight Burnout, 1st Beacon Lamp Burnout, 2nd Beacon Lamp Burnout, 3rd Beacon Lamp Burnout, 4th Beacon Lamp Burnout, 5th Beacon Lamp Burnout, and 6th Beacon Lamp Burnout.

TWR Lighting, Inc.

Enlightened Technology^{S.M}

AA2/6MBNEMA7 CONTROLLER

- 2.5.2** Alarm wiring: To utilize all of the red light alarms, the customer will need 11 pairs of wires to interface with the alarm device. One (1) wire from each of the 11 pairs will terminate at the points marking common (C). The remaining wire from each pair will terminate as follows:
- 2.5.2.1** Power Failure Alarm - Connect to relay K1, terminal #3, for normally open, or terminal #6, for normally closed monitoring.
 - 2.5.2.2** Tower Lights "ON" - Connect to relay K2, terminal #3, for normally open, or terminal #6, for normally closed monitoring.
 - 2.5.2.3** S1 Lamp Burnout - Connect to Module M15, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.4** S2 Lamp Burnout - Connect to Module M14, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.5** S3 Lamp Burnout - Connect to Module M13, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.6** B1 Lamp Burnout - Connect to Module M7, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.7** B2 Lamp Burnout - Connect to Module M8, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.8** B3 Lamp Burnout - Connect to Module M9, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.9** B4 Lamp Burnout - Connect to Module M10, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.10** B5 Lamp Burnout - Connect to Module M11, terminal T5, for normally open, or terminal T6, for normally closed monitoring.
 - 2.5.2.11** B6 Lamp Burnout - Connect to Module M12, terminal T5, for normally open, or terminal T6, for normally closed monitoring.

TWR Lighting, Inc.

Enlightened Technology^{S.M}

AA2/6MBNEMA7 CONTROLLER

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. Indicator PL1 will illuminate **green** at this time.

Beacon and Sidelights Trip circuit breakers on the controller panel. Indicators PL2, and PL3 will illuminate **red** for each.

3.0 THEORY OF OPERATION

3.1 POWER SUPPLY

120V AC enters the controller from the circuit breaker panel. Line L1 sits at the PRD waiting to be switched and also keep the power failure relay K1 energized. When the 86390HL-FAA photocell is activated, line (SSR) energizes the coil of the PRD and K2 "Lights On" relay. This also can be accomplished by using the photocell by-pass switch (SW1). Indicator PL1 will illuminate **green**.

3.2 SIDELIGHTS

Lines LD2, and LD3, are sent to Modules M13 – M15, which are current sensing modules for the sidelights. Each CM-250 monitors one (1) level of sidelights, and will provide a contact closure along a visual indication if one (1) or more lamps fails within each circuit. Indicator PL3 will also illuminate **red**.

3.3 BEACONS

Lines LD1, and LD2 are sent to Modules M1 – M3. M1 is the primary flasher for beacon B1, which provides control voltage to Modules M2 – M6, which are auxiliary flashers for beacons B2 – B6. The output of Modules M1 – M3 are sent to the primary of boost transformers T1, T2, and T3. The boosted output voltages (126V at 120V nominal input) are then sent through the current sensing Modules M7 – M9, then to the circuit breaker outputs B1, B2, and B3.

TWR Lighting, Inc.

Enlightened Technology^{S.M.}

AA2/6MBNEMA7 CONTROLLER

3.3 BEACONS (continued)

Lines LD3, and LD4 are sent to Modules M4 – M6. The output of these modules is then sent through the current sensing Modules M10 – M12, then to the circuit breaker outputs B4 – B6. If Modules M7 – M12 detect a lamp burnout, then that particular module will provide a contact closure along with a visual indication for that lamp circuit, and also indicator PL2 would illuminate **red**.

TWR Lighting, Inc.

Enlightened TechnologySM

AA2/6MBNEMA7 CONTROLLER

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. 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.
- 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.

TWR Lighting, Inc.

Enlightened Technology^{S.M}

AA2/6MBNEMA7 CONTROLLER

- 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.
- 4.3.6 Reclasp the two (2) latches.

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.

TWR Lighting, Inc.

Enlightened Technology^{S.M}

AA2/6MBNEMA7 CONTROLLER

5.0 MAJOR COMPONENTS PARTS LIST

QUANTITY	PART NUMBER	DESCRIPTION
1	86390HL-FAA	120 – 240V Photocell
1	CR360L304	Load Contactor (PRD)
1	PF-250	120 – 240 Solid State Flasher (M1)
5	SF-250	Solid State Auxiliary Flasher (M2 – M6)
1	B12J1K2	1200 OHM 12W resistor (R1)
2	KRPA5AG120V	SPDT Relay (K1 & K2)
3	XFMR-15 amp	Boost Transformers (T1 – T3)
6	S261D20	20 amp Circuit Breaker (B1 – B6)
3	S261D-10	10 amp Circuit Breaker (S1 – S3)
2	MOV524V15	Varistor (MOV1, MOV2)
3	8WA1204	Terminal Block (TB2)
7	8WA1205	Terminal Block (TB1)
9	CM-250	Sidelight & Beacon Current Sensors (M7 – M15)
9	KRPA11AG120V	DPDT Relay (K3 – K11)
2	TERMBLK141-8	8 Part Terminal Block (TB3 & TB4)
2	GOB3-R23CN34LED	Red LED Indicator NEMA 7 (PL2 & PL3)
1	GOB3-G23CN34LED	Green LED Indicator NEMA 7 (PL1)
1	GO52A3FN34	SPST NEMA7 SWITCH (SW1)

TWR Lighting, Inc.

Enlightened Technology^{S.M.}

AA2/6MBNEMA7 CONTROLLER

6.0 RECOMMENDED SPARE PARTS LIST

QUANTITY	PART NUMBER	DESCRIPTION
1	PF-250	120 – 240 Solid State Flasher (M1)
1	CM-250	Sidelight and Beacon Current Sensors (M7 – M15)
1	SF-250	Solid State Auxiliary Flasher (M2 – M6)
1	KRPA5AG120V	SPDT Relay (K1 & K2)
1	KRPA11AG120V	DPDT Relay (K3 – K11)

TWR Lighting, Inc.

Enlightened TechnologySM

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 70% of the minimum intensity requirements as defined in the FAA Advisory Circular 150/5345-43E dated 10/19/95. 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.

Field Service – Repairs are warranted for 90 days from the date of service, except where TWR has made recommendations that were not adhered to that may cause premature failure on previous repairs. Labor, Travel, and Tower Climb are not covered under warranty. Customer shall be obligated to pay for all incurred charges not related to warranty. All warranty repairs are performed by trained TWR personnel, or dispatched through an extensive network of certified and insured Service Representatives.

TWR Lighting, Inc.

Enlightened TechnologySM

Return Policy

Return 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
- 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., 4300 WINDFERN RD #100, HOUSTON TX 77041-8943, 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).

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 un-repairable 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 **\$60.00 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.

TWR Lighting, Inc.

Enlightened TechnologySM

Warranty & Return Policy

(continued)

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 un-repairable, or the returned part(s) is found to have no defect, the customer will be subject to a **\$60.00 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.

Return to Stock – Any order that is returned to TWR for part(s) ordered incorrectly by the customer, or unneeded upon receipt, the customer is required to pay a **20% restocking fee**. A credit will be issued once it is determined that the Return Terms are 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.

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.

TWR Lighting, Inc.

Enlightened TechnologySM

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: _____

4300 WINDFERN RD., STE 100 – HOUSTON, TEXAS 77041-8943

TWR Lighting, Inc.

Enlightened TechnologySM

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:** _____

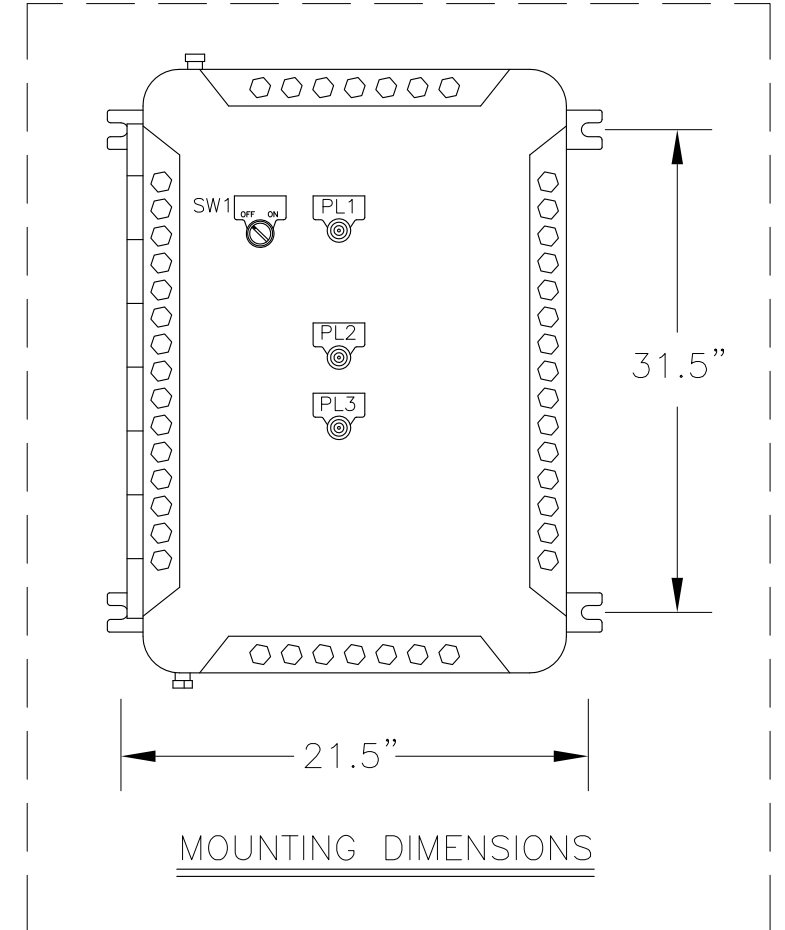
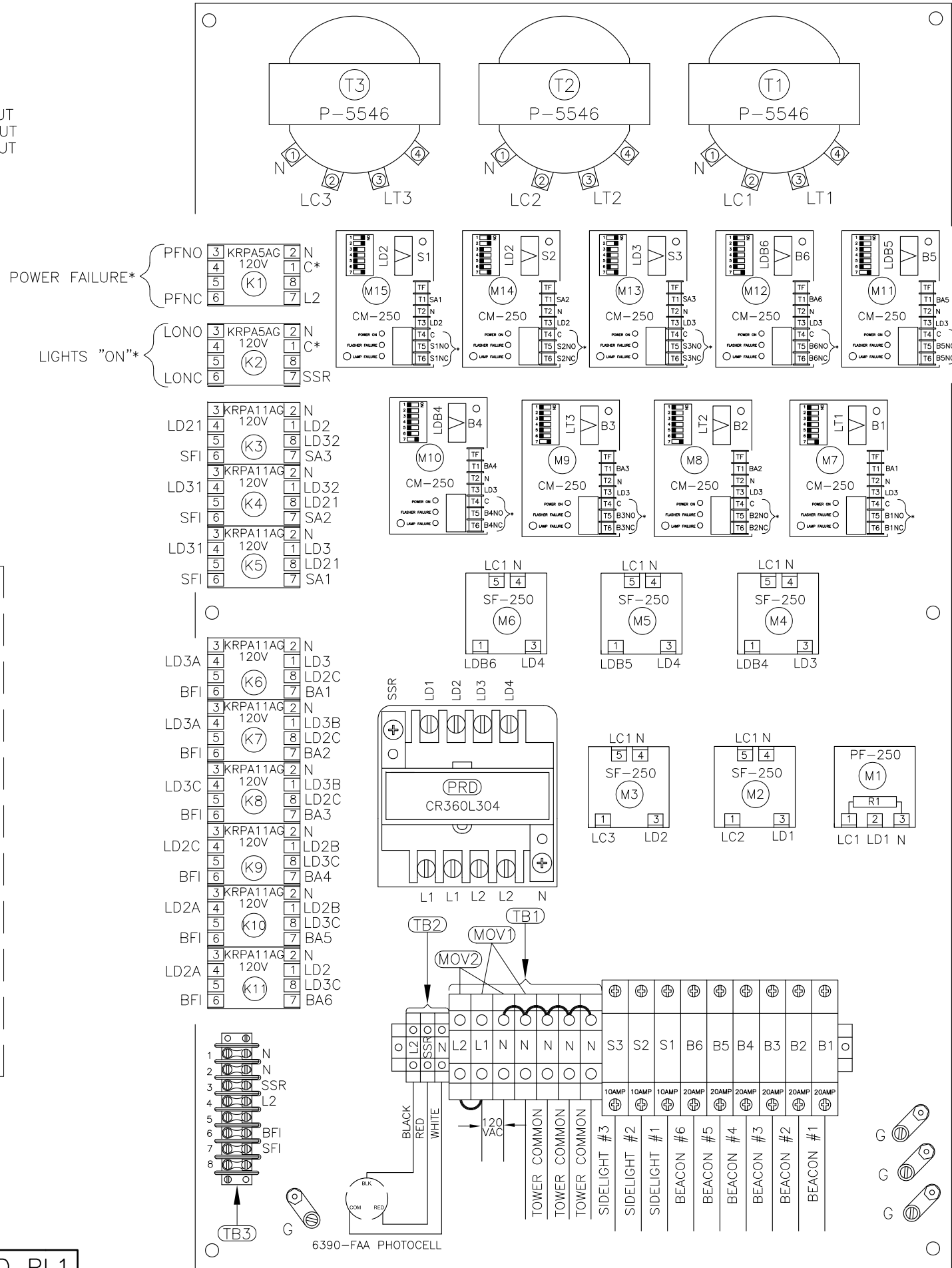
RETURN ADDRESS: _____

4300 WINDFERN RD., STE 100 – HOUSTON, TEXAS 77041-8943

***CUSTOMER ALARM POINTS**

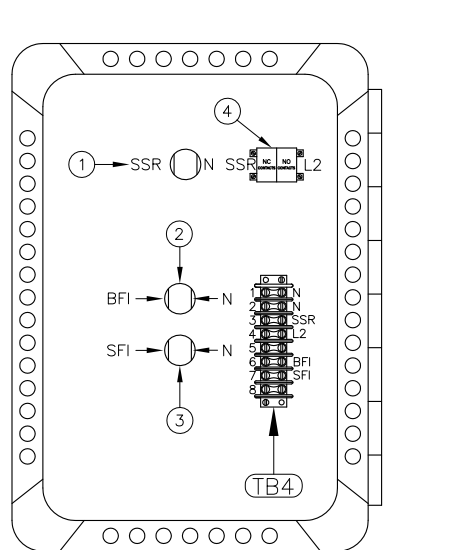
C = ALARM COMMON
 PFNO/PFNC = POWER FAILURE
 LONO/LONC = LIGHTS "ON"
 S1NO/S1NC = 1ST OUTPUT SIDELIGHT BURNOUT
 S2NO/S2NC = 2ND OUTPUT SIDELIGHT BURNOUT
 S3NO/S3NC = 3RD OUTPUT SIDELIGHT BURNOUT
 B1NO/B1NC = 1ST BEACON BURNOUT
 B2NO/B2NC = 2ND BEACON BURNOUT
 B3NO/B3NC = 3RD BEACON BURNOUT
 B4NO/B4NC = 4TH BEACON BURNOUT
 B5NO/B5NC = 5TH BEACON BURNOUT
 B6NO/B6NC = 6TH BEACON BURNOUT

* ALARM OUTPUTS ARE FORM C.



NOTES:

1. WHEN REPLACING MODULES W/ METAL BASES USE HEAT SINK COMPOUND BETWEEN MODULE AND ALUMINUM PLATE.
2. PLUG 6390-FAA PHOTOCELL INTO THE 43109 TWIST LOCK RECEPTACLE AND TWIST TO LOCK.
3. WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) L1 TO L1 TO L1.



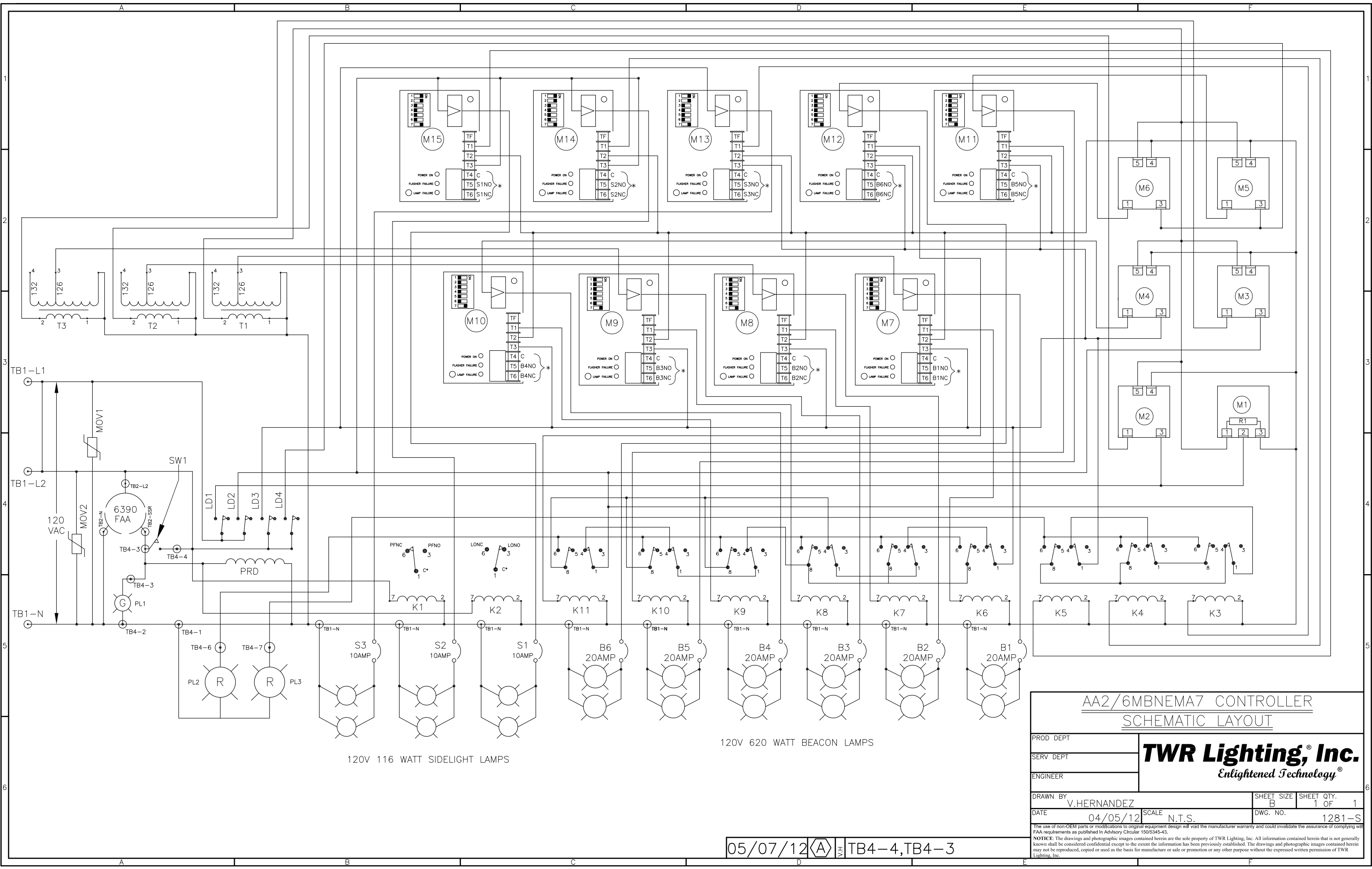
1	PL1	INDICATOR FOR PHOTOCCELL ON
2	PL2	INDICATE BEACON FAILURE
3	PL3	INDICATE SIDELIGHT FAILURE
4	SW1	PHOTOCCELL BYPASS SWITCH

**AA2/6MBNEMA7 CONTROLLER
CHASSIS LAYOUT**

PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i>	SHEET SIZE	SHEET QTY.
SERV DEPT		B	1 OF 1
ENGINEER		B	1
DRAWN BY	V.HERNANDEZ	SCALE	N.T.S.
DATE	04/03/12	DWG. NO.	1281-R

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.
 NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.

05/07/12 (A) V.H. SW1 TO ON, MOVED PL1

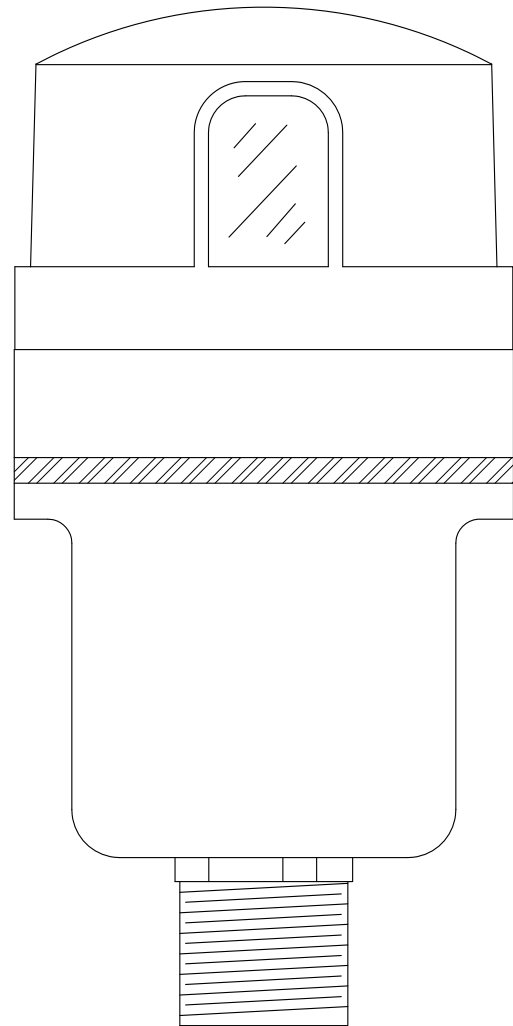


**AA2/6MBNEMA7 CONTROLLER
SCHEMATIC LAYOUT**

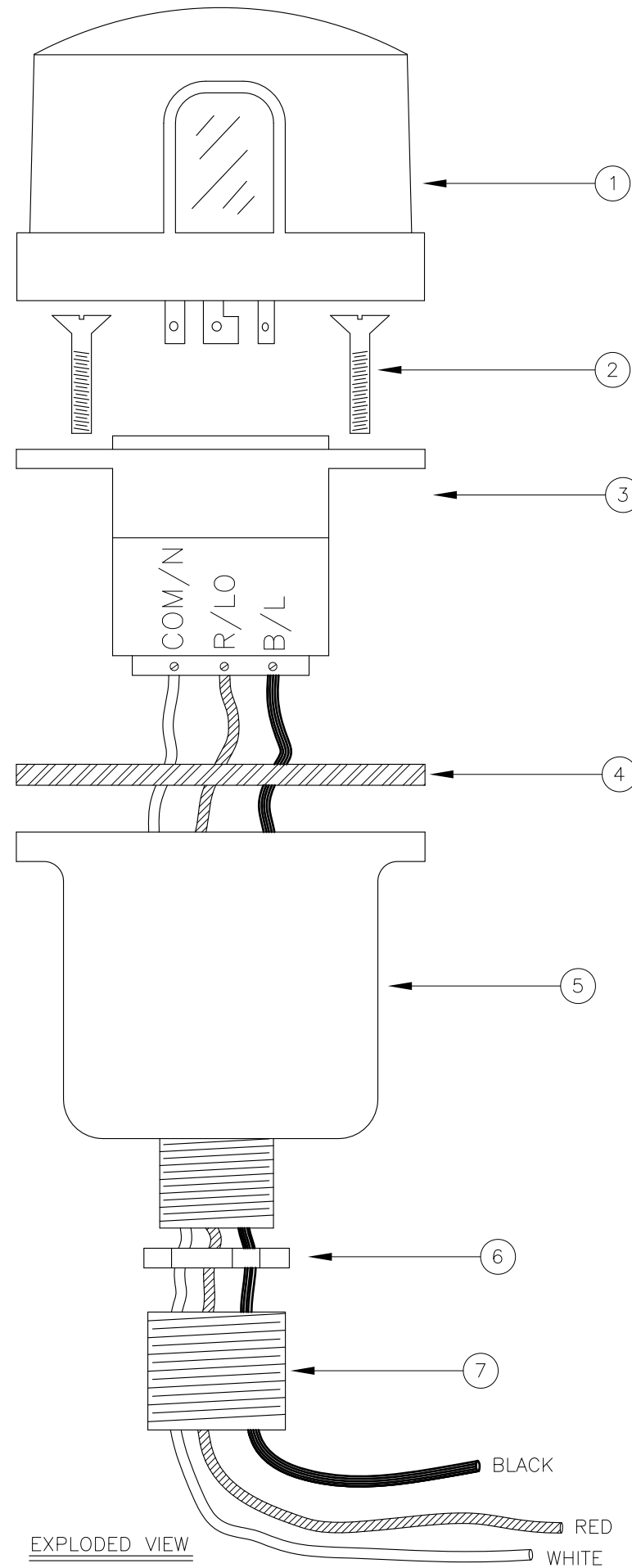
PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i>		
SERV DEPT			
ENGINEER			
DRAWN BY V.HERNANDEZ	SHEET SIZE B	SHEET QTY. 1 OF 1	
DATE 04/05/12	SCALE N.T.S.	DWG. NO. 1281-S	

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.
NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.

05/07/12 (A) V.H. TB4-4, TB4-3



ASSEMBLY



EXPLODED VIEW

ITEM	QTY.	DESCRIPTION
1	1	PHOTOCELL
2	2	6-32 x 1/2" SCREW
3	1	RECEPTACLE SOCKET
4	1	RECEPTACLE GASKET
5	1	RECEPTACLE HOUSING
6	1	1/2" CONDUIT LOCKNUT
7	1	3/4" TO 1/2" REDUCER

NOTES:

- ITEM #7 CAN BE USED TO REDUCE 3/4" CONDUIT TO 1/2" CONDUIT AT THE HOUSING OR AT THE CONTROLLER ITSELF.
- 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
- WIRE CONNECTIONS ARE TO BE TINNED AT ITEM 3.

PHOTOCELL HOUSING DETAIL

PROD DEPT	TWR Lighting, Inc. Enlightened Technology®	SHEET SIZE	SHEET QTY.
SERV DEPT		B	1 OF 1
ENGINEER			
DRAWN BY	E.A.SALAZAR	SCALE	N.T.S.
DATE	10/18/95	DWG. NO.	100239

11/17/10		CHG. LABELS
DATE:	LTR.	REVISION

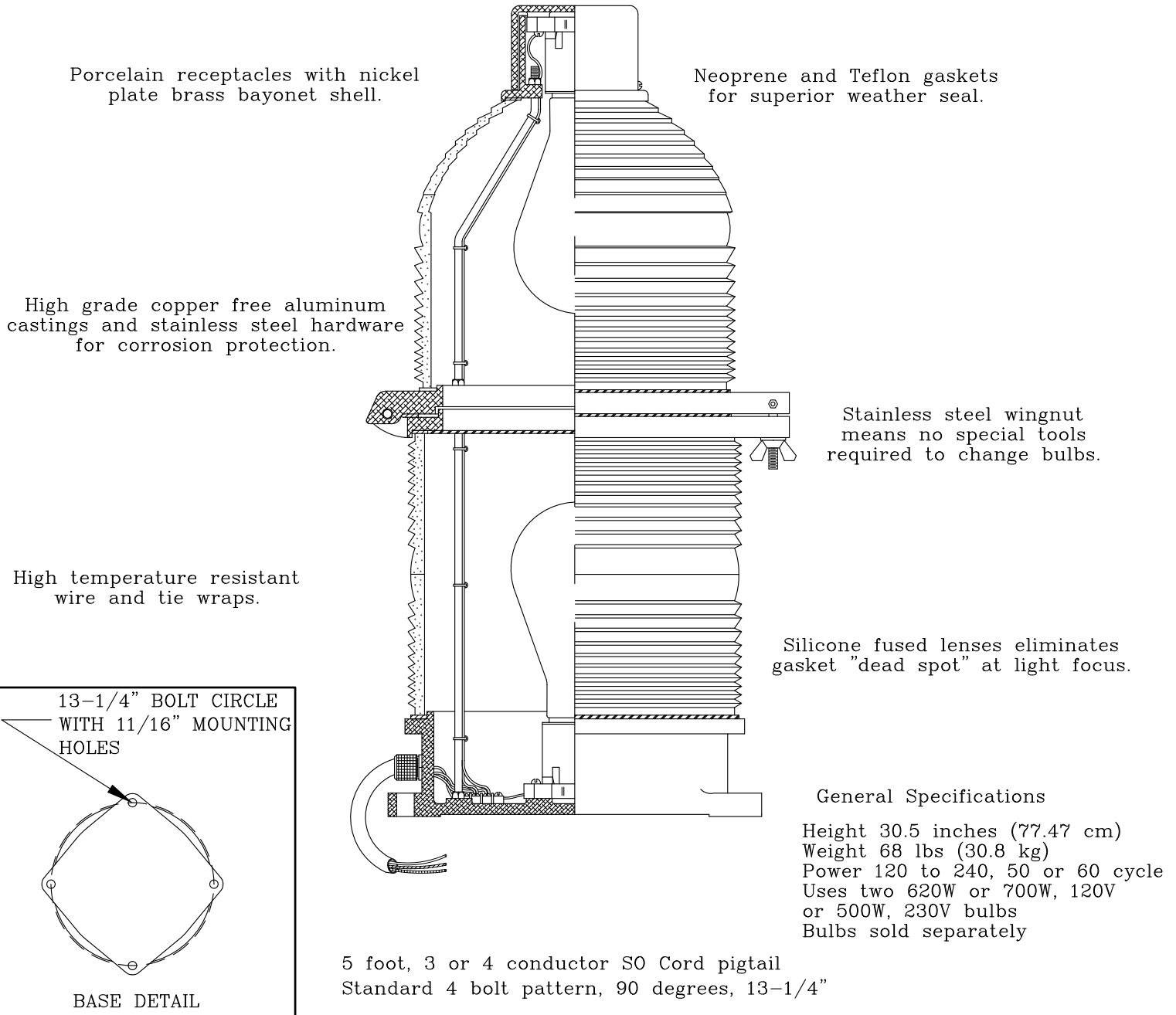
The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.
 NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.

TWR Lighting, Inc.

FAA Approved L-864 300 mm BEACON

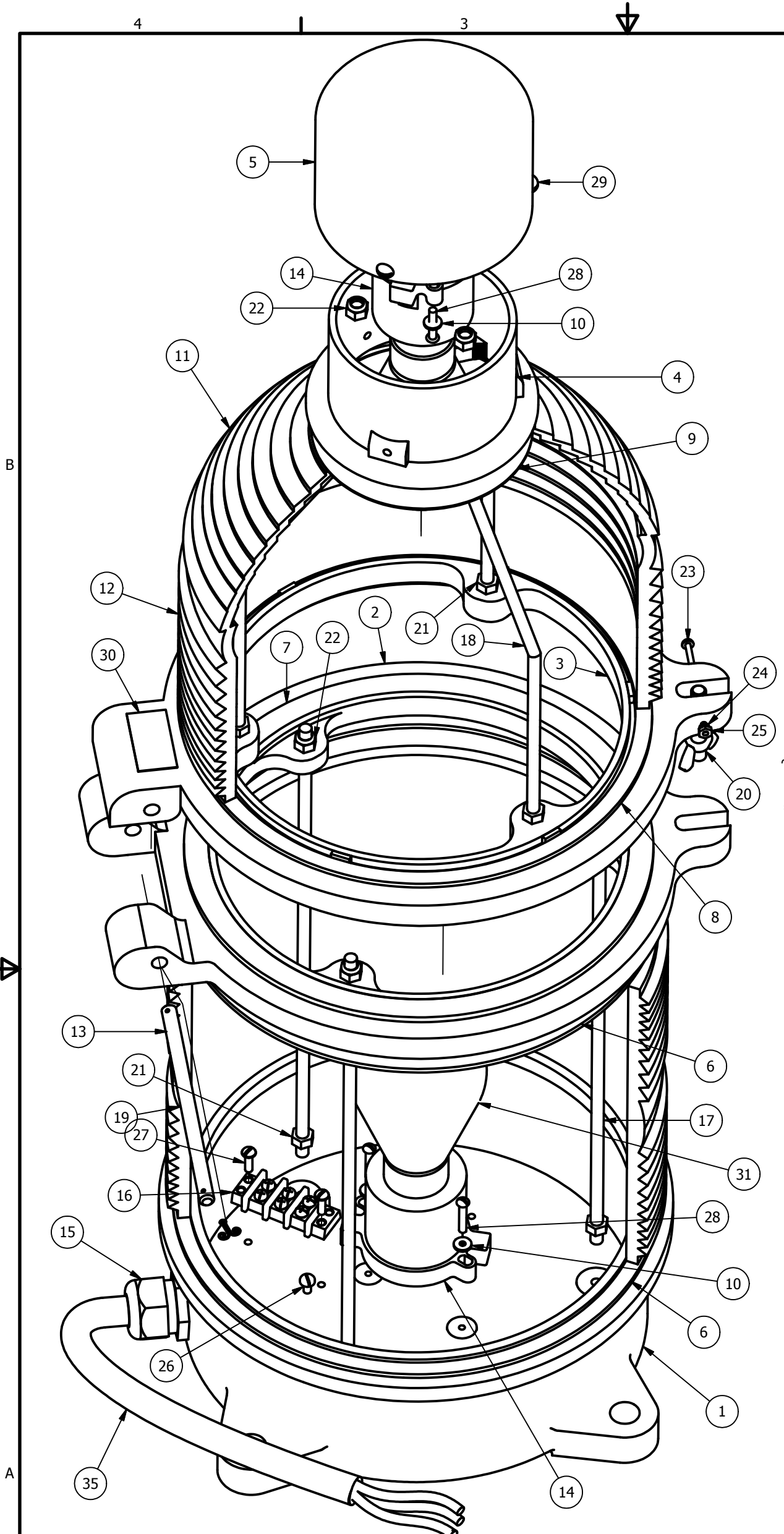
FM10017RB.DWG

Flashing 300 mm Code Red Beacon is used to light aviation obstructions taller than 150 feet AGL. ETL approved to meet or exceed all FAA specifications as found in AC 150/5345-43 Type L-864.



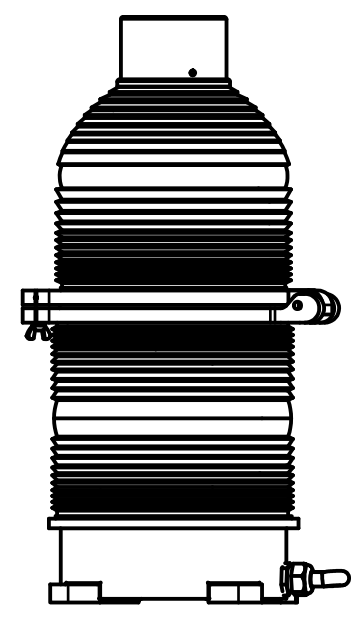
TWR Lighting, Inc.
4300 Windfern Rd. #100
Houston, Tx., 77041-8943
Phone: (713)973-6905
Fax: (713)973-9352

WEB SITE: <http://www.twrlighting.com>
©2003 TWR Lighting, Inc.



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	100C	BEACON BASE
2	1	101C	LOWER HINGE
3	1	102C	UPPER HINGE
4	1	103C	CANOPY CAP
5	1	104C	CANOPY FLANGE
6	2	100G	GASKET BEACON BASE
7	1	101G	GASKET MIDDLE BEACON
8	1	102G	GASKET, TOP HINGE
9	1	103G	GASKET TEFLON, TOP
10	4	104G	WHITE TEFLON WASHER
11	1	AP3557	CAP LENS RED
12	1	AP3556	MIDDLE LENS RED
13	2	AP3555	BOTTOM LENS RED
14	2	TWR23-546	BEACON LAMP RECEPTACLE
15	1	CGB295SA	3/4" CORD CONNECTOR .62 TO .75
16	1	TERMBLK3	TERMINAL BLOCK 3-PART
17	3	BTRS-1	BEACON TIE ROD STRAIGHT
18	3	BTRB	BEACON TIE ROD BENT
19	1	BHP	BEACON HINGE PIN W/ COTTER PIN
20	1	BLP	BEACON LATCH PIN
21	6	516NUT	5/16-15 HEX NUT
22	6	516NUTN	5/16-18 NUT W/NYLON INSERT
23	1	632X2RH	6-32 X 2 SS RH SLOT SCREW
24	1	632LW	6-32 LOCK WASHER
25	1	632NUT	6-32 NUT HEX
26	1	1032x38BH	10-32 X 3/8 PHILLIPS PAN HEAD
27	2	1032x58PH	10-32 X 5/8 PH SLOT SCREW
28	4	1032X1RH	10-32 X 1 SS RH SCREW
29	3	1420X58RH	14-20 X 5/8 RH SLOT SCREW
30	1	100328	BEACON SERIAL NUMBER LABEL
31	2	---	BEACON LAMP
* 32	7	TYZ23M	HI TEMP TY WRAPS T&B TEFZEL
* 33	4'	16HTWH	#16 HI-TEMP WIRE SRML WHITE
* 34	4'	16HTBL	#16 HI-TEMP WIRE SRML BLACK
35	5'	CSO14/3	S.O. CORD 14AWG/3 CONDUCTOR
* 36	11	YAV14-H34F	(STAKON) BURNDY HEAVY DUTY

* = ITEMS NOT SHOWN
 ~ = PART SOLD SEPARATELY



DRAWN J.L.BUSTAMANTE	11/27/07	TWR Lighting, Inc. <i>Enlightened Technology®</i> 300 MM BEACON ASSEMBLY DETAIL		
CHECKED				
QA				
MFG				
APPROVED				
		SIZE B	DWG NO 275-B	REV E
		SCALE	SHEET 1 OF 1	

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. NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.

TWR Lighting, Inc.

FAA Approved L-810

Single Obstruction Light Side Hub

OL1

FM10018_RD.DWG

For use as an obstruction light on towers, building, bridges, cooling towers. Meets or exceeds all FAA specs as found in AC 150/5345-43 Type L-810.

Our most popular light. The side hub allows for a straight run of conduit from the junction box for hook up.

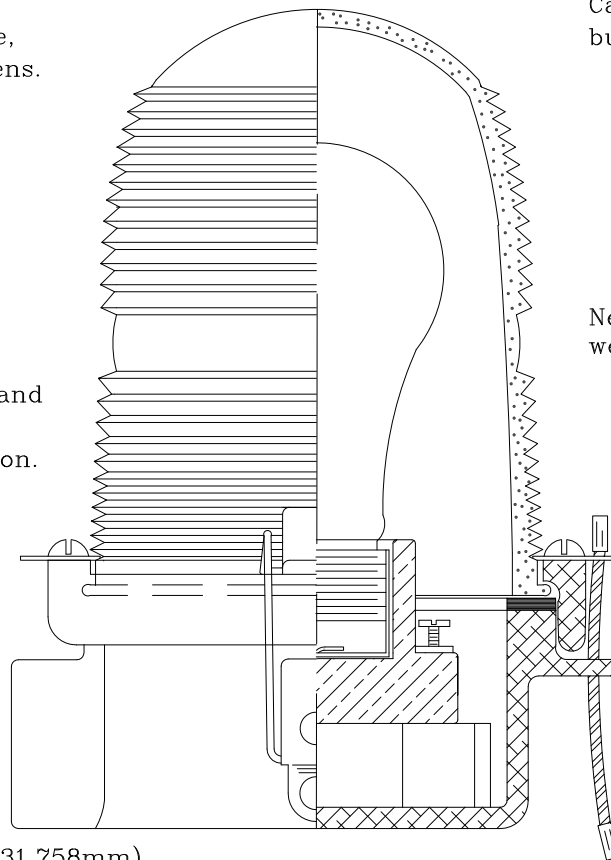
High temperature, ultra pure
FAA approved Aviation red, blue,
yellow, or clear glass fresnel lens.

Can be used steady
burning or flashing.

Copper free aluminum casting and
all stainless steel latches and
hardware for corrosion protection.

Neoprene gasket for
weatherproofing.

Specify conduit size
3/4", 1", 1-1/4" NPT
(19.055mm), (25.407mm), (31.758mm)



High quality porcelain
receptacle.

Stainless steel
safety cable.

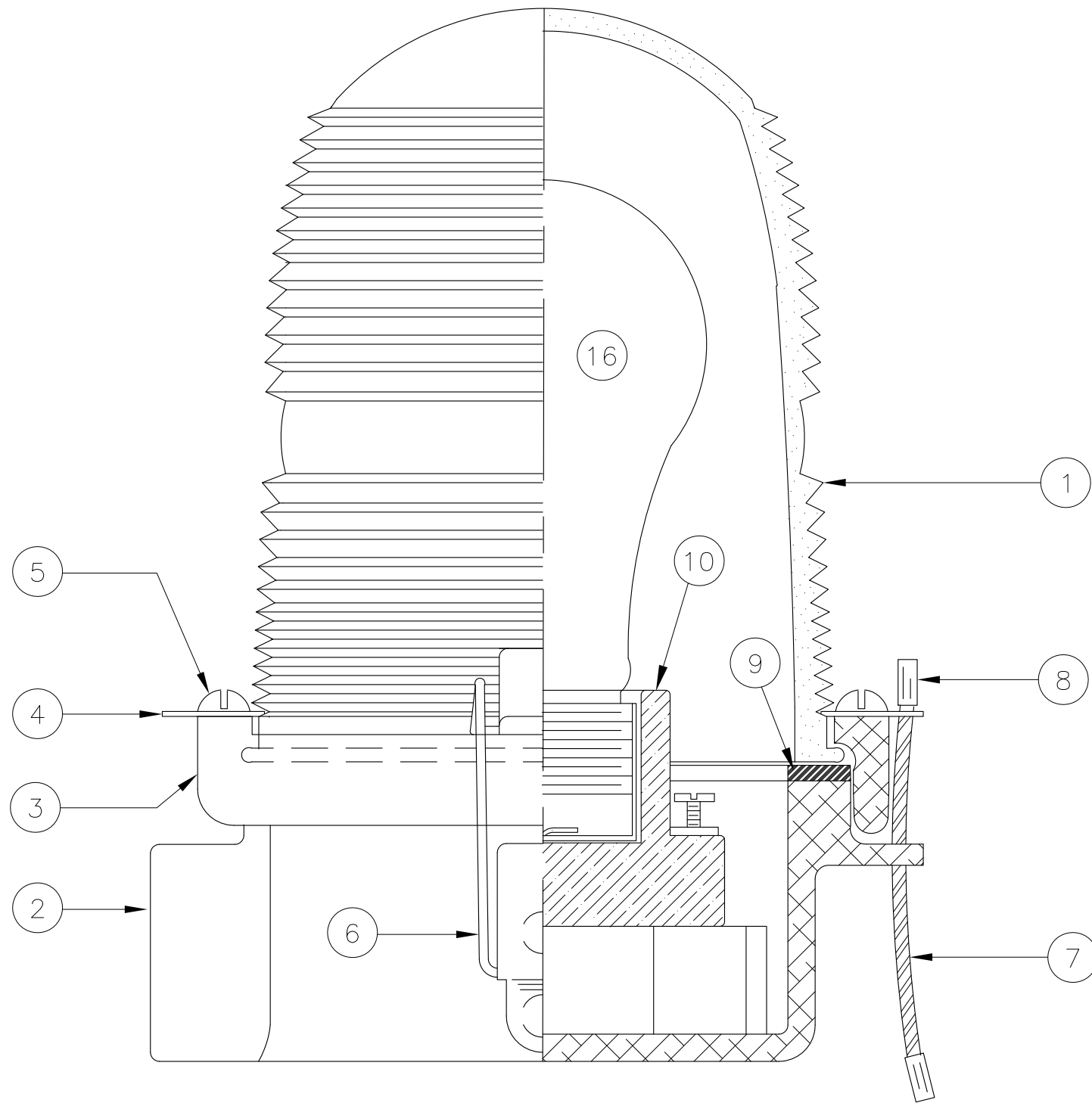
General Specifications

Height 7.5 inches (19.055 cm)
Weight 3 lbs (13605.442g)
Power 120, 230, or 240 volts AC
Uses 116W, 120V or 240V bulbs
Bulbs sold separately

No special tools required for maintenance.

TWR Lighting, Inc.
4300 Windfern Rd. #100
Houston, Tx., 77041-8943
Phone: (713)973-6905
Fax: (713)973-9352

WEB SITE: <http://www.twrlighting.com>
©2003 TWR Lighting, Inc.



ITEM NO	QTY.	TWR PART NUMBER	DESCRIPTION
1	1	AP35222	RED SIDELIGHT GLASS
2	1	105C	SINGLE SIDELIGHT BODY
3	1	106C	LENS HOLDER RING
4	2	12V245	OL LENS CLIP
5	2	832X14PH	8-32 X 1/4" PH S.S. SLOT
6	2	HC255SS	SIDELIGHT LATCHES
7	1	7X7SS	1/16 7 X 7 S.S. WIRE
8	2	A1A	STAKON CRIMP
9	1	OLG	OL GASKET
10	1	19062	SIDELIGHT RECEPTACLE
*	4	18PRSS	1/8 POP RIVETS
*	1	A314	3/4" CONDUIT LOCKNUT
*	2	104G	WHITE TEFLON WASHER
*	2	832X34PH	8-32 X 3/4" S.S. RH SLOT
*	1	100327	OL-1 SERIAL NUMBER LABEL
~	1	116A21TS	116W-120V LAMP (TYP.)

*=PART NOT SHOWN
 ~=PART SOLD SEPARATELY

NOTE:

- FAA APPROVED LIGHT USES THE 116A21TS LAMP. OTHER LAMPS ARE AVAILABLE TO MEET YOUR APPLICATION.

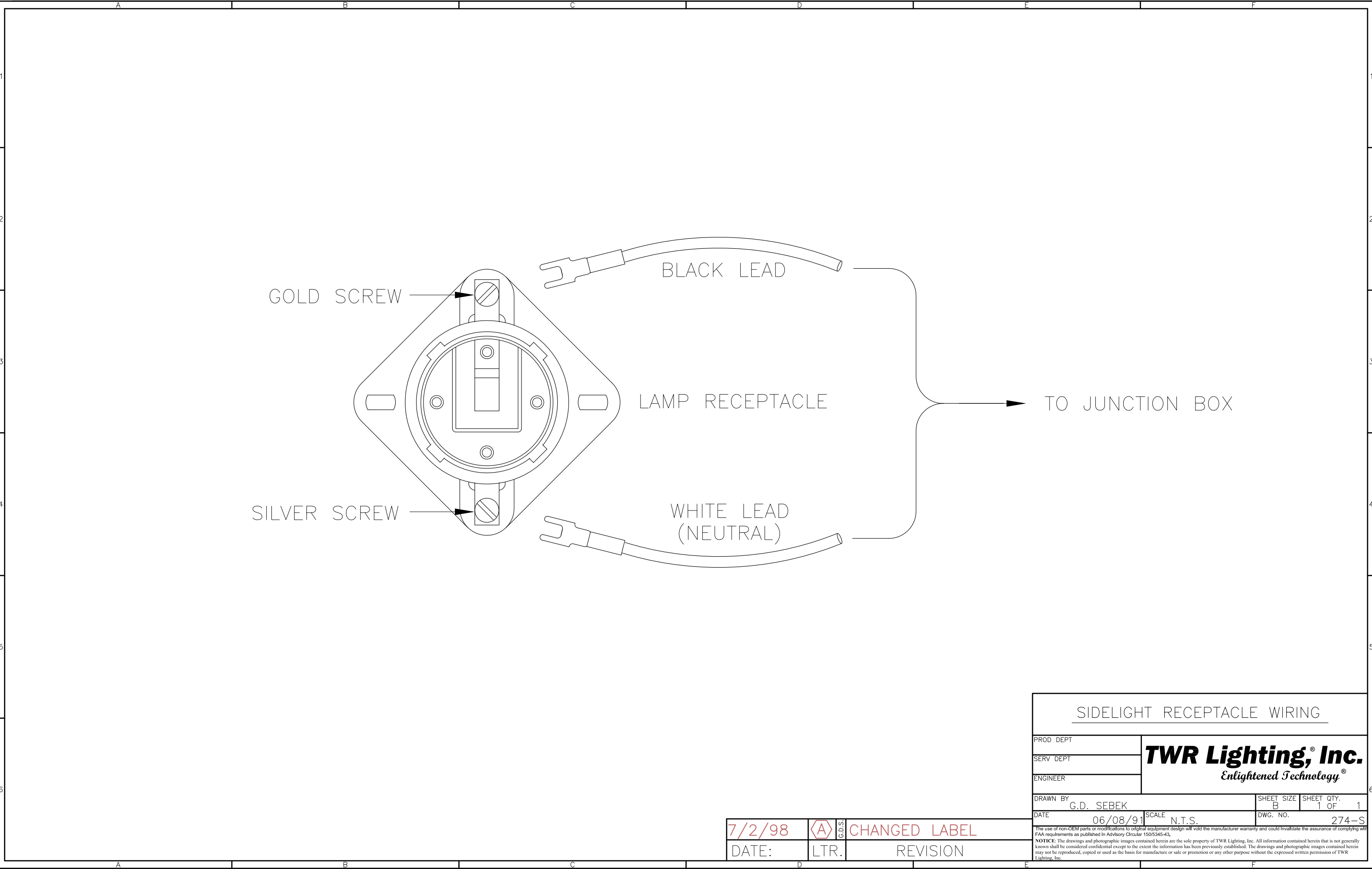
OL1

3/4" OL-1 SIDE HUB ASSEMBLY DETAIL (PART #OL1)

PROD DEPT	TWR Lighting, Inc. Enlightened Technology®	
SERV DEPT		
ENGINEER		
DRAWN BY E.A.SALAZAR	SHEET SIZE B	SHEET QTY. 1 OF 1
DATE 1/7/92	SCALE FULL	DWG. NO. 279-OL

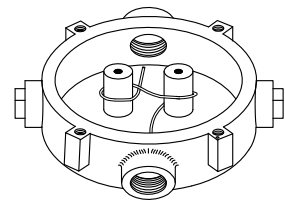
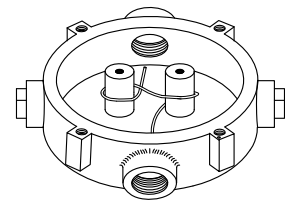
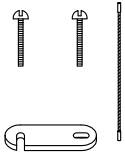
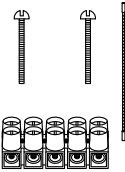
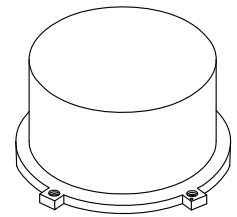
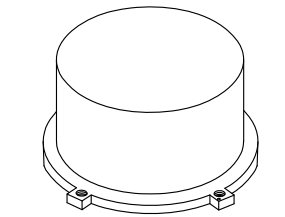
05/13/02	(B)	UPDATED B.O.M.
DATE:	LTR.	REVISION

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.
 NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.

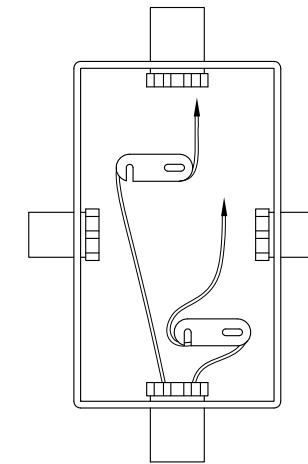
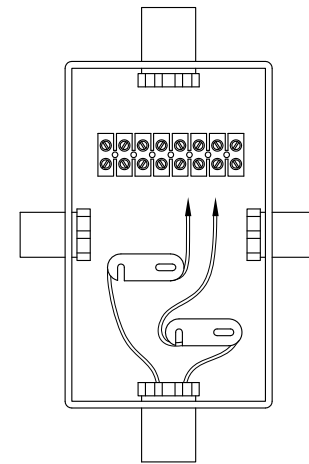


SIDELIGHT RECEPTACLE WIRING			
PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i>		
SERV DEPT			
ENGINEER			
DRAWN BY	G.D. SEBEK	SHEET SIZE	SHEET QTY.
DATE	06/08/91	B	1 OF 1
		SCALE	DWG. NO.
		N.T.S.	274-S
<small>The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.</small>			
<small>NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.</small>			

7/2/98	(A)	CHANGED LABEL
DATE:	LTR.	REVISION



JB-5 AND JB-0
3/4" JUNCTION BOX



JB-8 AND JB-8SR
1" JUNCTION BOX

NOTES:

- 1) DRAWING ILLUSTRATES METHOD OF STRAIN RELIEVING WIRE. USE THIS METHOD ON ALL JUNCTION BOXES.
- 2) THE NATIONAL ELECTRICAL CODE-ARTICLE 300-19-B3 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.

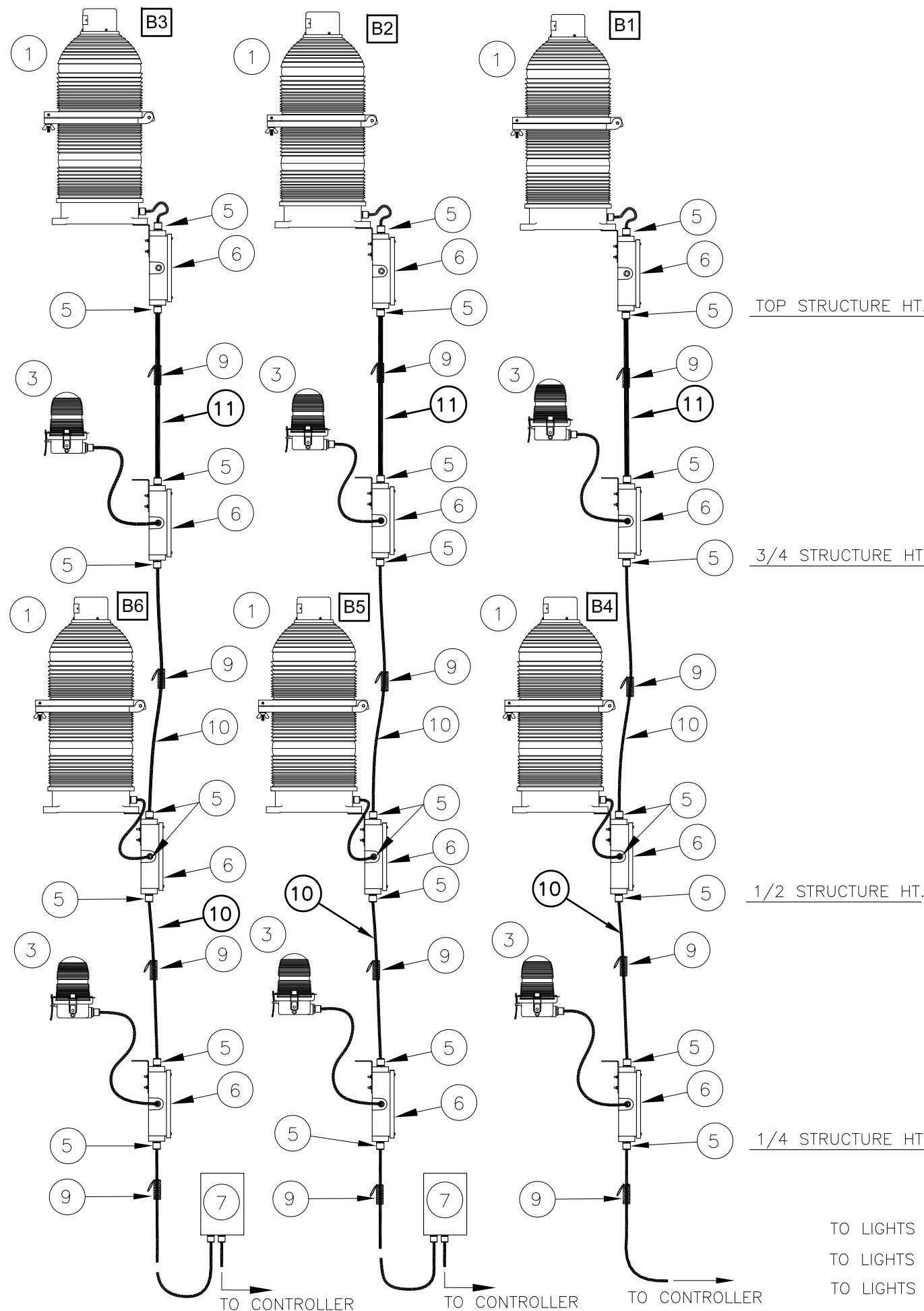
AWG WIRE SIZE	MAX. NUMBER WIRES IN 3/4" CONDUIT	MAX. NUMBER WIRES IN 1" CONDUIT	WIRE AREA SQ. INCHES	WEIGHT PER 100 FEET
12 THHN	16	26	0.0117	2.50
10 THHN	10	17	0.0184	4.10
8 THHN	6	9	0.0373	6.70
6 THHN	4	7	0.0519	10.30
4 THHN	2	4	0.0845	16.20

JUNCTION AND STRAIN RELIEF BOXES

PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i>	
SERV DEPT		
ENGINEER		
DRAWN BY G.D. SEBEK	SHEET SIZE B	SHEET QTY. 1 OF 1
DATE 07/26/93	SCALE N.T.S.	DWG. NO. 100089

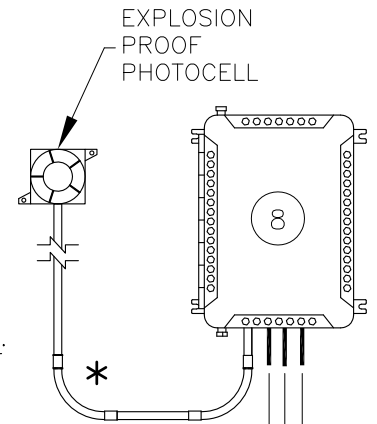
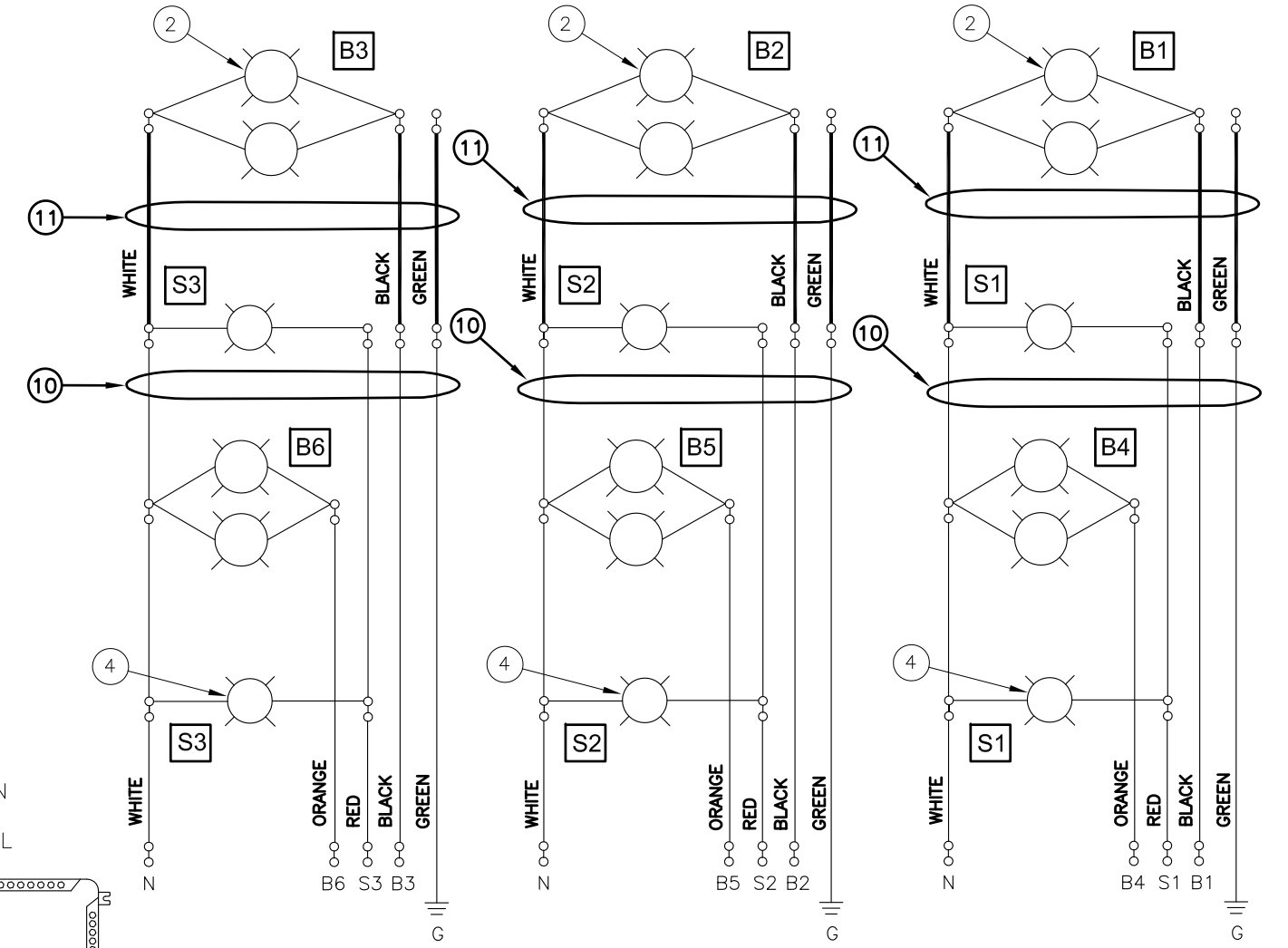
9/29/00	(A)	UPDATED NOTES
DATE:	LTR.	REVISION

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.
NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.



BILL OF MATERIALS			
ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	6	BEACONHT	300 MM BEACON RED HT
2	12	620PS40P	620 WATT 120 VOLT LAMP
3	6	OL1	3/4" OBSTRUCTION LIGHT
4	6	116A21TS	116 WATT 120 VOLT LAMP
5	27	CG87100	1" NPT CORD CONNECTOR .875"-1.0"
6	12	JB8CMK	JB8 CAST JUNCTION BOX
7	2	JB8-EXP	EXPLOSION PROOF JUNCTION BOX
8	1	AA2/6MBNEMA7	AA2/6MBNEMA7 CONTROLLER
9	12	CABLEGRIP6	SINGLE EYE LACE MESH 0.75-0.99
10	--	CS06/5	6-#5 AWG CABLE (TWR HT.+30')
11	--	CS06/3	6-#3 AWG CABLE (TWR HT.+30') HITEMP

* SSMTKIT (OPTIONAL OR PROVIDED BY OTHERS)



TO LIGHTS 1" ENTRANCE
 TO LIGHTS 2" ENTRANCE
 TO LIGHTS 2" ENTRANCE

AA2/6MB LIGHTING KIT W/ CABLE

PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i>	SHEET SIZE	SHEET QTY.
SERV DEPT		B	1 OF 1
ENGINEER			
DRAWN BY	V.HERNANDEZ	SCALE	N.T.S.
DATE	04/09/12	DWG. NO.	T1510

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.
 NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.

05/07/12(A) [REV] ADDED SSMTKIT