

TWR Lighting, Inc. **MARK**

Enlightened Technology®

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 # AA1/3MN7INDSUMM

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc. **MARK**

Enlightened Technology®

AA1/3MN7INDSUMM 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	2
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>	7
4.1	RED OBSTRUCTION LIGHTING	7
4.2	L-864 LAMP REPLACEMENT	7
4.3	L-810 LAMP REPLACEMENT	7
4.4	L-864 CONTROLLER	8
4.5	PHOTOCELL	8
5.0	MAJOR COMPONENTS PARTS LIST	9
6.0	RECOMMENDED SPARE PARTS LIST	10
7.0	WARRANTY & RETURN POLICY	
8.0	RETURN MERCHANDISE AUTHORIZATION (RMA) FORMS	

AA1/3MN7INDSUMM CONTROLLER

APPENDIX

CHASIS COMPONENT LAYOUT	1301-R
SCHEMATIC LAYOUT	1301-S
L-864 300 MM BEACON ASSEMBLY DETAIL	275-B (REV E)
L-810 OL1 ASSEMBLY DETAIL	279-OL (REV C)
L-810 OL1 WIRING DETAIL.....	274-S (REV A)
JUNCTION BOX DETAIL	100089 (REV A)
A1/3 TOWER LIGHTING KIT	T1550 (REV A)

TWR Lighting, Inc. HARK®

Enlightened Technology®

AA1/3MN7INDSUMM CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting®, Inc. (TWR®) Model AA1/3MN7INDSUMM 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. Obstruction lights should be placed at the 1/2 interval, with respect to overall structure height.

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. SW1 can be operated by turning the switch to the “ON” position. Also, PL1 indicator will illuminate.

Each beacon requires two (2) 620 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 and 116A21TS)

Power supplied to controller shall be 120/240V AC 60 Hz.

NOTE: The enclosure provided is for Class I, Class II, Div. I & II, Groups B, C, D, E, F, and G; as well as Class III, 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 <u>green</u> .
BEACONS	Will give an alarm in the event of one (1) or both bulbs fails within any beacon, and PL2 indicator will illuminate <u>red</u> .
OBSTRUCTION LIGHTS	Will give an alarm when one (1) of the three (3) sidelights fails within that group. Also, PL3 indicator will illuminate <u>red</u> .
FLASHER FAILURE	Will give an alarm in the event of a flasher failure. Also PL4 indicator will illuminate <u>red</u> .

AA1/3MN7INDSUMM CONTROLLER

2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROL CABINET

(Refer to Drawing 1301-R)

2.1.1 The power supply control cabinet can be located at the base of the structure. Mounting footprints are shown on drawing 1301-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:

2.2 EXTERNAL PHOTOCELL WIRING

(Refer to Drawing 1301-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."

AA1/3MN7INDSUMM CONTROLLER

2.3 POWER WIRING

(Refer to Drawing 1301-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 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 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 Drawing 1301-R and T1550)

- 2.4.1** Connect the **BLACK** wire from beacon #1, to circuit breaker marked "B1."
- 2.4.2** Connect the **BLACK** wire from beacon #2, to circuit breaker marked "B2."
- 2.4.3** Connect the **BLACK** wire from beacon #3, to circuit breaker marked "B3."
- 2.4.4** Connect the **RED** wire from sidelight group, to circuit breaker marked "S."
- 2.4.5** Connect the **WHITE** neutral wire(s) to one (1) or more of the terminal blocks on TB1, marked "N."
- 2.4.6** Connect the **GREEN** (ground) wires to the ground lugs located to the right of circuit breaker "B1."

AA1/3MN7INDSUMM CONTROLLER

2.5 RED BEACON AND SIDELIGHT ALARM WIRING

(Refer to Drawings 1301-R and 1301-S)

- 2.5.1** Red light failure alarm relays K1, K2, K7-K9, and Modules M2, M4, M6, and M7, are provided for independent contact closures for: Power Failure, Lights "ON," Sidelight Burnout, 1st Beacon Lamp Burnout, 2nd Beacon Lamp Burnout, and 3rd Beacon Lamp Burnout and B1-B3 flasher failure.
- 2.5.2** Alarm wiring: To utilize all of the red light alarms, the customer will need eighteen (18) pairs of wires to interface with the alarm device. One (1) wire from each of the eighteen (18) pairs will terminate on terminal block TB6–9 thru the points marking common (C). The remaining wire from each pair will terminate as follows:
- 2.5.2.1** Power Failure Alarm - Connect to terminal block TB5, terminal #9, for normally open, or terminal #10, for normally closed monitoring.
- 2.5.2.2** Tower Lights "ON" - Connect to terminal block TB5, terminal #7, for normally open, or terminal #8, for normally closed monitoring.
- 2.5.2.3** Sidelight Lamp Burnout - Connect to terminal block TB6, terminal #7, for normally open, or terminal #8, for normally closed monitoring.
- 2.5.2.4** Beacon #1 Lamp Burnout - Connect to terminal block TB6, terminal #5, for normally open, or terminal #6, for normally closed monitoring.
- 2.5.2.5** Beacon #2 Lamp Burnout - Connect to terminal block TB6, terminal #3, for normally open, or terminal #4, for normally closed monitoring.
- 2.5.2.6** Beacon #3 Lamp Burnout - Connect to terminal block TB6, terminal #1, for normally open, or terminal #2, for normally closed monitoring.

AA1/3MN7INDSUMM CONTROLLER

2.5.2.7 B1 Flasher Failure – Connect to terminal block TB5, terminal #2, for normally open, or terminal #1, for normally closed monitoring.

2.5.2.8 B2 Flasher Failure – Connect to terminal block TB5, terminal #4 for normally open, or terminal # 3, for normally closed monitoring.

2.5.2.9 B3 Flasher Failure – Connect to terminal block TB5, terminal #6, for normally open, or terminal #5, for normally closed monitoring.

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, or PL3 will illuminate **red** for each.

AA1/3MN7INDSUMM CONTROLLER

3.0 THEORY OF OPERATION

3.1 POWER SUPPLY

120/240V AC enters the controller from the circuit breaker panel. Line L1 and L2 sit 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

Line LD4 is sent to Module M7, which is the current sensing module for the sidelights. The 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. Indicator PL3 will also illuminate **red**.

3.3 BEACONS

Lines LD1, LD2, and LD3 are sent to Modules M1, M3, and M5. M1 is the primary flasher for beacon #1, which provides control voltage to Modules M3, and M5, which are auxiliary flashers for beacons #2, and #3. The output of Modules M1, M3, and M5 are then sent through the current sensing Modules M2, M4, and M6, then to the circuit breaker outputs B1, B2, and B3.

If Modules M2, M4, or M6 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**.

Relays K7-K9 are flasher failure relays for beacons B1-B3. If modules M2, M4, or M6 detect a flasher failure, then that particular module would provide a contact closure for that flasher circuit. Also, PL4 indicator will illuminate **red**.

AA1/3MN7INDSUMM 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.
- 4.3.3** Unscrew the lamp counter-clockwise and remove.
- 4.3.4** Install the new lamp by screwing the lamp clockwise.

AA1/3MN7INDSUMM CONTROLLER

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.

AA1/3MN7INDSUMM CONTROLLER

5.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	86390HL-FAA	120 – 240V Photocell
1	PM17AY	Load Contactor (PRD)
1	PF-250	120 – 240 Solid State Flasher (M1)
2	SF-250	Solid State Auxiliary Flasher (M3 & M5)
1	STH08015	35K ohm 20W resistor (R1)
3	KRPA5AG120V	SPDT Relay (K1 – K3)
3	S261D20	20 amp Circuit Breaker (B1 – B5)
2	MOV524V15	Varistor (MOV1, MOV2)
9	8WA1204	Terminal Block (TB1 –TB2)
4	CM-250	Sidelight & Beacon Current Sensors (M2, M4, M6, and M7)
3	KRPA11AG120V	DPDT Relay (K4 – K6)
2	TERMBLK141-8	8 Part Terminal Block (TB3 & TB4)
3	GOB3-R23CN34LED	Red LED Indicator NEMA 7 (PL2 - PL4)
1	GOB3-G23CN34LED	Green LED Indicator NEMA 7 (PL1)
1	GO52A3FN34	SPST NEMA7 SWITCH (SW1)
1	TERMBLK141-10	10 Part Terminal Block (TB5)
1	TERMBLK141-12	12 Part Terminal Block (TB6)
1	S261D10	10 amp Circuit Breaker (S1)
3	KRPA14-AN-120V	TPDT Relays (K7-K9)

AA1/3MN7INDSUMM CONTROLLER

6.0 RECOMMENDED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	PF-250	120 – 240 Solid State Flasher (M1)
1	CM-250	Sidelight & Beacon Current Sensors (M2, M4, M6, and M7)
1	SF-250	Solid State Auxiliary Flasher (M3 & M5)
1	KRPA5AG120V	SPDT Relay (K1 – K3)
1	KRPA11AG120V	DPDT Relay (K4 – K6)
1	KRPA14AN120V	TPDT Relays (K7-K9)



AA1/3MN7INDSUMM CONTROLLER

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 150/5345-43G 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:

- x Improper Installation or Operation
- x Misuse
- x Abuse
- x Unauthorized or Improper Repair or Alteration
- x Accident or Negligence in Use, Storage, Transportation, or Handling
- x Any Acts of God or Nature
- x **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.



AA1/3MN7INDSUMM CONTROLLER

Warranty & Return Policy (continued)

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.

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:

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



AA1/3MN7INDSUMM CONTROLLER

Warranty & Return Policy (continued)

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.

- x Product(s) that is deemed defective and/or unrepairable and covered under warranty - a credit will be issued to the customer's account.
- x 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.
- x Product(s) under warranty, which the customer does not wish returned, the customer will be issued a credit against the replacement invoice.

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 **\$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.



AA1/3MN7INDSUMM CONTROLLER

Warranty & Return Policy (continued)

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.



AA1/3MN7INDSUMM CONTROLLER

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: 4300 WINDFERN RD #100 HOUSTON TX 77041-8943



AA1/3MN7INDSUMM CONTROLLER

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: _____

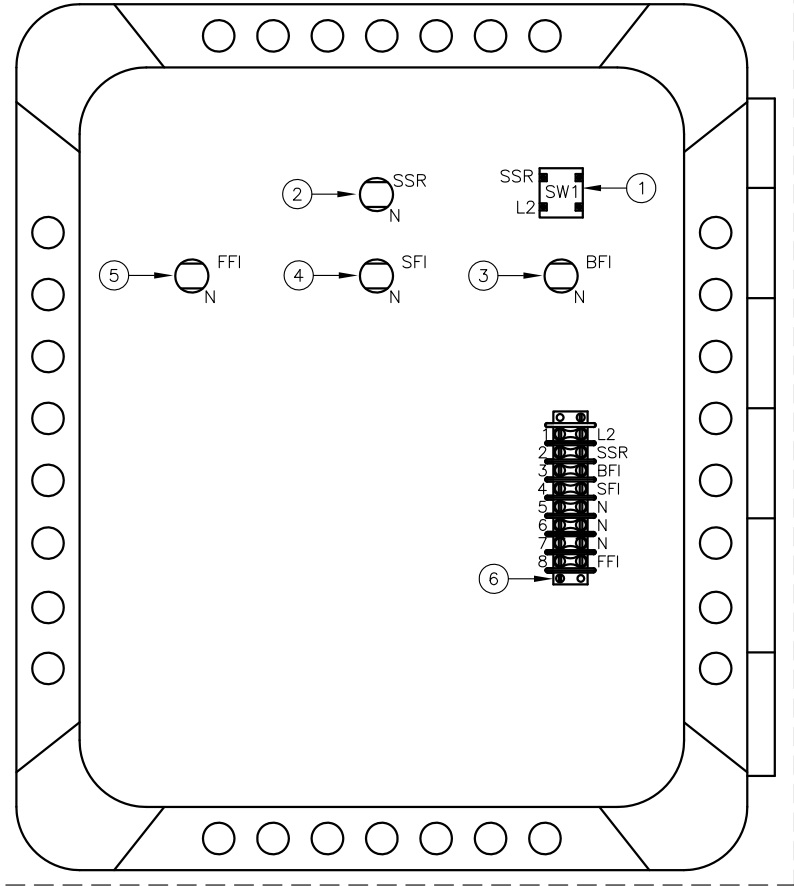
RETURN ADDRESS: _____

PLEASE RETURN PRODUCT TO: 4300 WINDFERN RD #100 HOUSTON TX 77041-8943

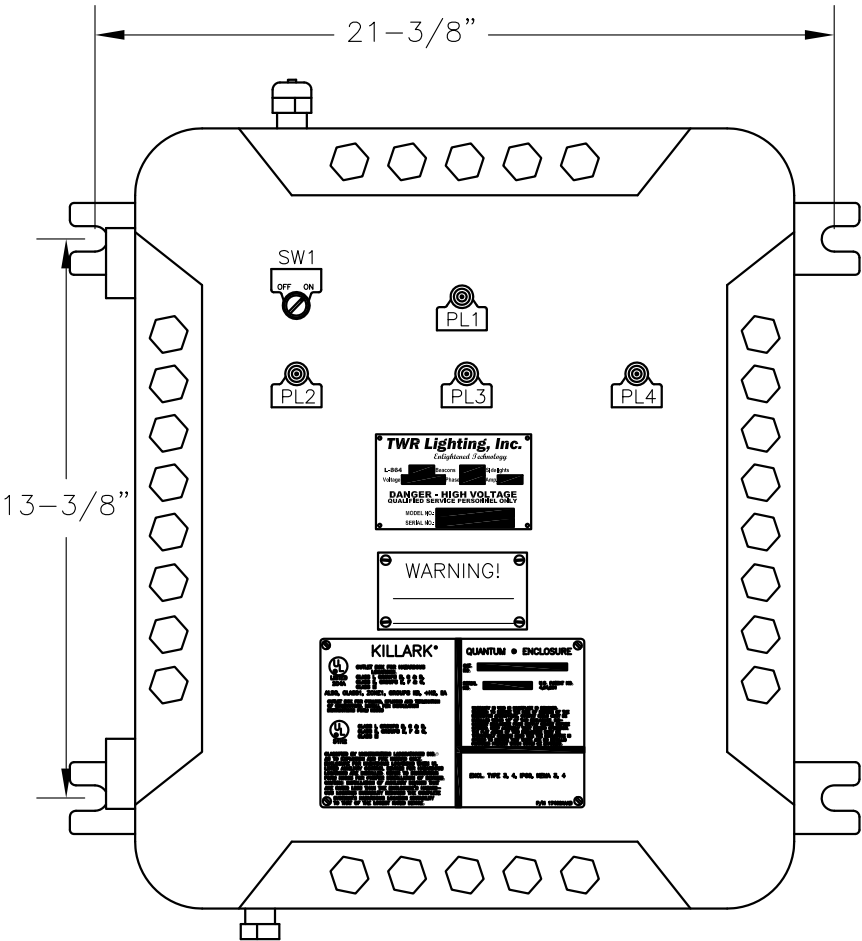
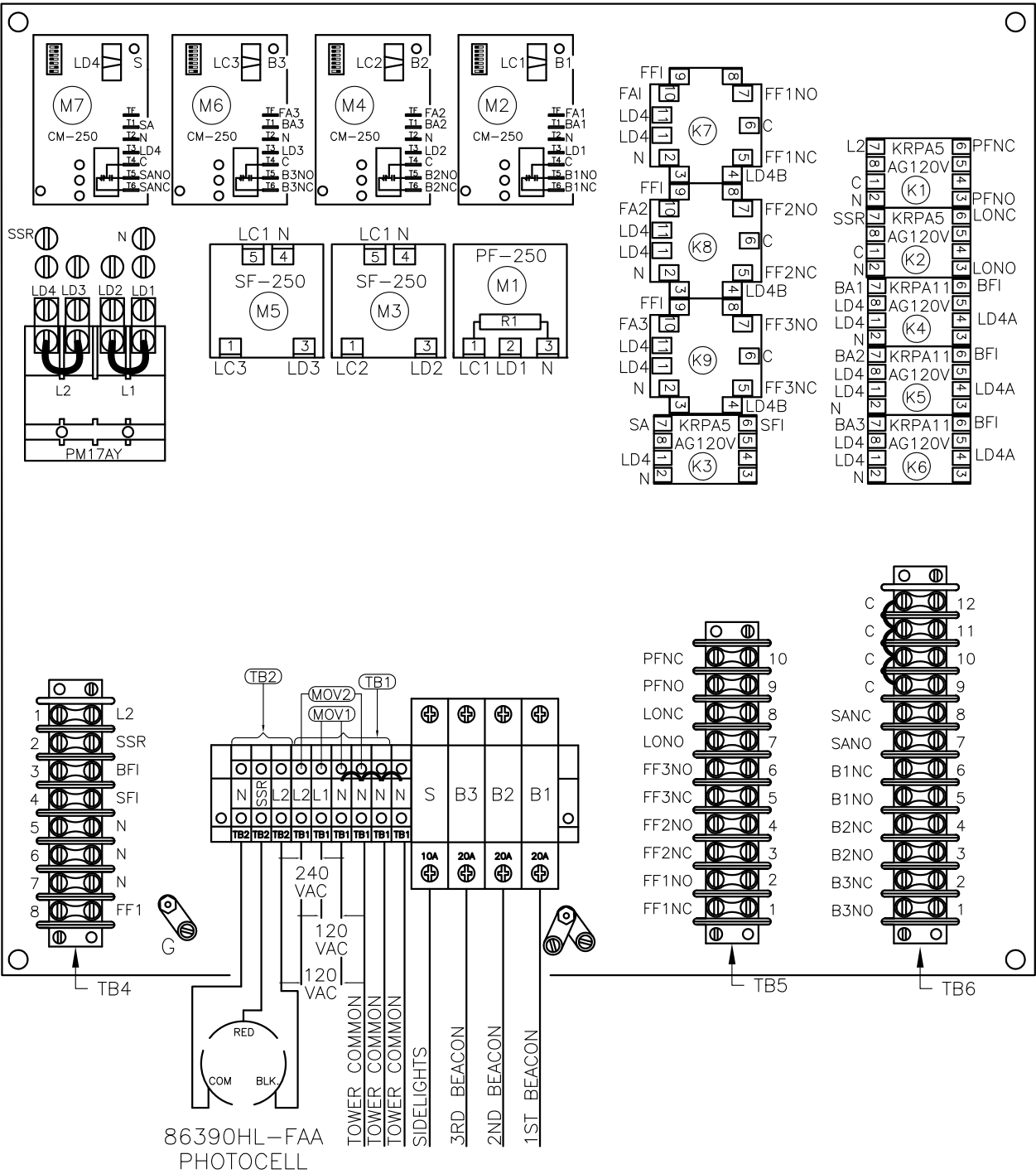
*CUSTOMER ALARM POINTS

C = ALARM COMMON
PFNO/PFNC = POWER FAILURE
LONO/LONC = LIGHTS "ON"
SANO/SANC = SIDELIGHT BURNOUT
B1NO/B1NC = BEACON 1 BURNOUT
B2NO/B2NC = BEACON 2 BURNOUT
B3NO/B3NC = BEACON 3 BURNOUT
FF1NO/FF1NC= FLASHER 1 FAILURE
FF2NO/FF2NC= FLASHER 2 FAILURE
FF3NO/FF3NC= FLASHER 3 FAILURE
*ALARM OUTPUTS ARE FORM C.

ITEM NO.	SCHEMATIC TAG NO.	DESCRIPTION
1	SW1	PHOTOTCELL BYPASS SWITCH
2	PL1	PHOTOCELL ON LED GREEN
3	PL2	BEACON FAILURE LED RED
4	PL3	SIDELIGHT FAILURE LED RED
5	PL4	FLASHER FAILURE LED RED
6	TB3	TEERMINAL BLOCK 8 POSITION



17 X 17 PANEL



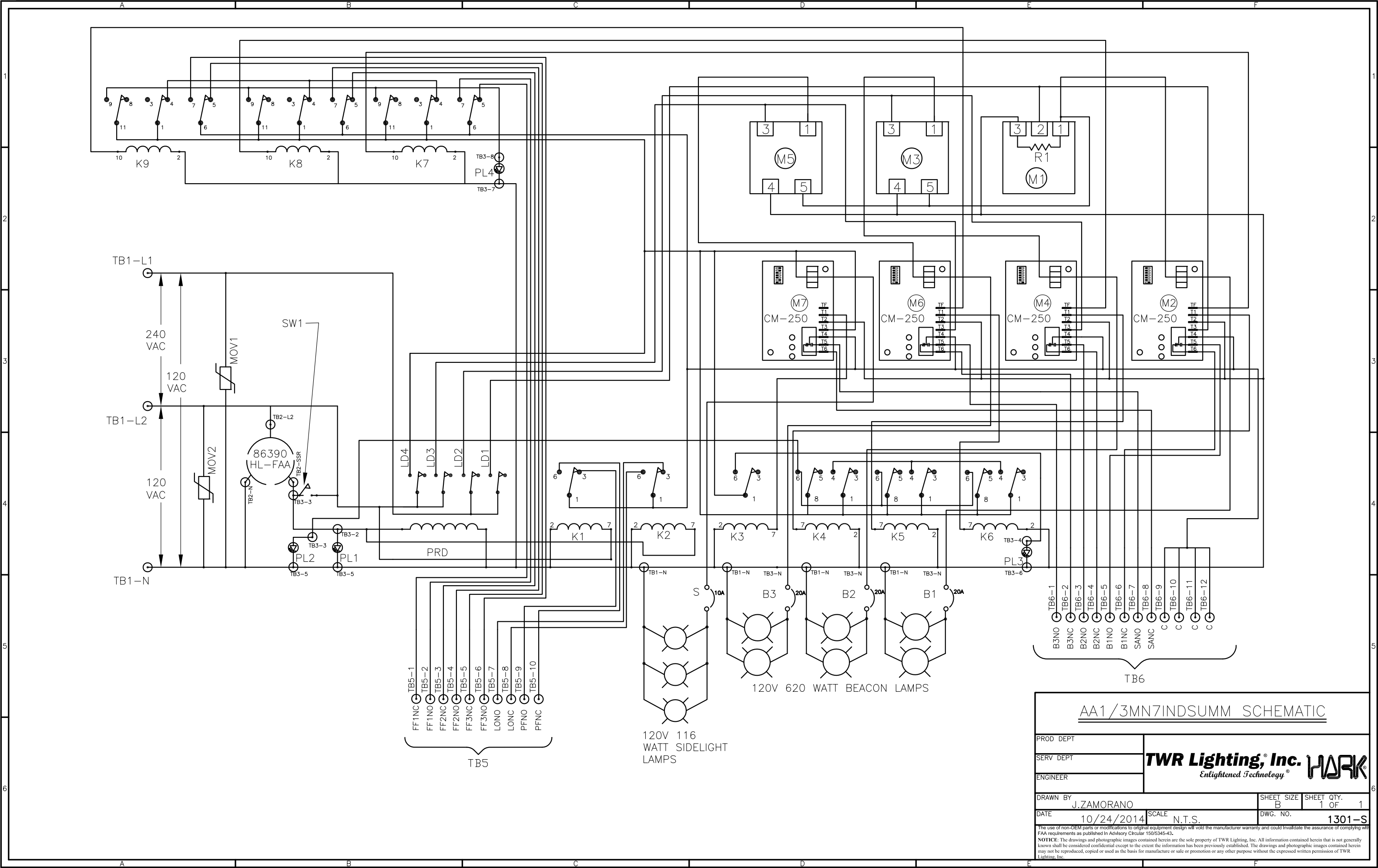
MOUNTING DIMENSIONS
(FOR CABINET)

- NOTES:
- 1) WHEN REPLACING METAL BASE MODULES USE HEAT SINK COMPOUND BETWEEN MODULE AND ALUMINUM PLATE.
 - 2) WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) LC1 TO LC1 TO LC1.

AA1/3MN7INDSUMM CHASSIS LAYOUT

PROD DEPT	TWR Lighting, Inc. Enlightened Technology® MARK	SHEET SIZE	SHEET QTY.
SERV DEPT		B	1 OF 1
ENGINEER			
DRAWN BY	J.ZAMORANO	SCALE	N.T.S.
DATE	10/24/2014	DWG. NO.	1301-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.

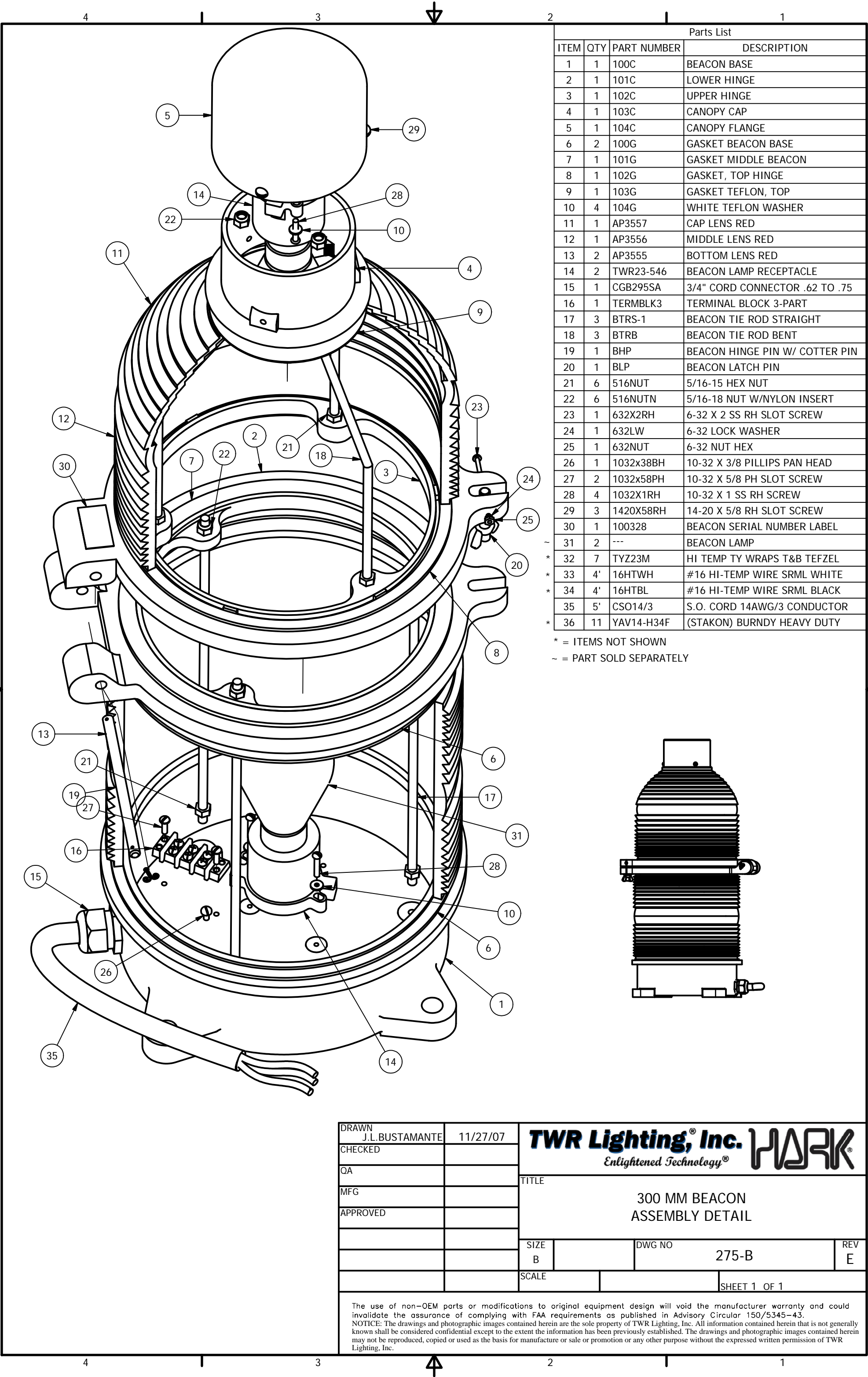


AA1/3MN7INDSUMM SCHEMATIC

PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i> WARK®	
SERV DEPT		
ENGINEER		
DRAWN BY J.ZAMORANO	SHEET SIZE B	SHEET QTY. 1 OF 1
DATE 10/24/2014	SCALE N.T.S.	DWG. NO. 1301-S

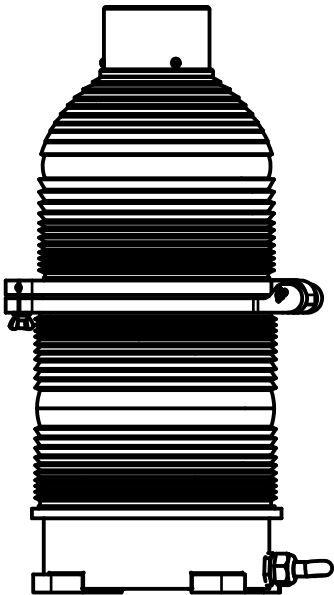
The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.

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.

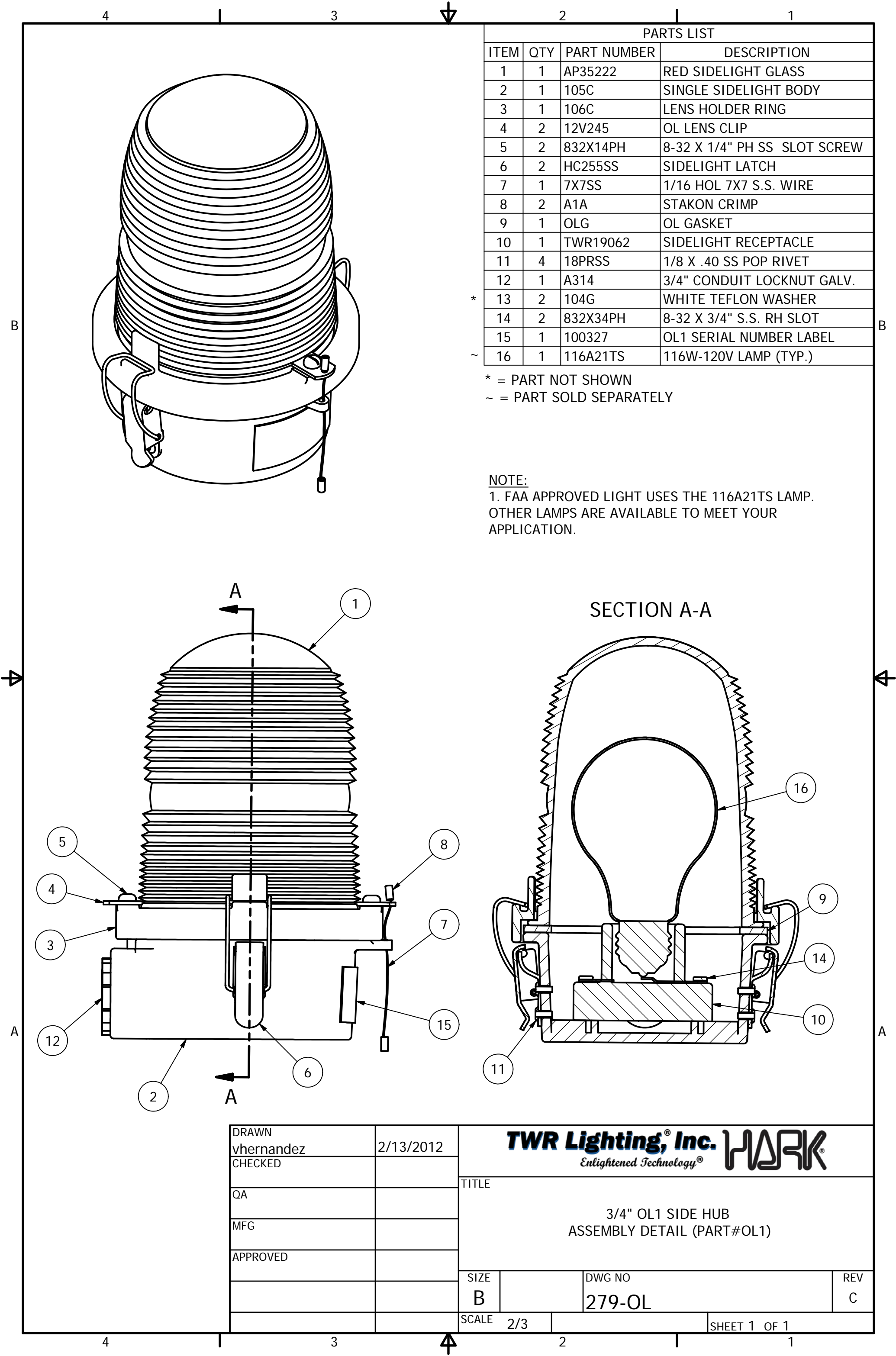


Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	100C	BEACON BASE
2	1	101C	LOWER HINGE
3	1	102C	UPPER HINGE
4	1	103C	CANOPY CAP
5	1	104C	CANOPY FLANGE
6	2	100G	GASKET BEACON BASE
7	1	101G	GASKET MIDDLE BEACON
8	1	102G	GASKET, TOP HINGE
9	1	103G	GASKET TEFLON, TOP
10	4	104G	WHITE TEFLON WASHER
11	1	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 PILLIPS 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> WARK®			
CHECKED					
QA		TITLE 300 MM BEACON ASSEMBLY DETAIL			
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.					



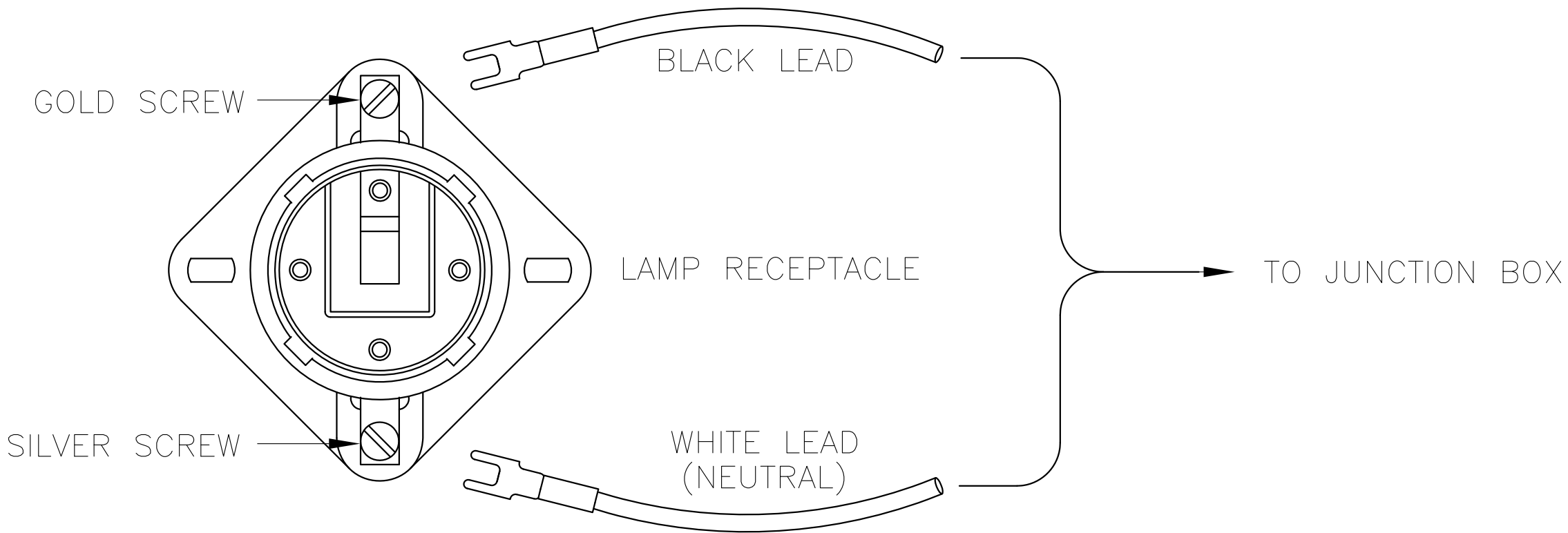
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AP35222	RED SIDELIGHT GLASS
2	1	105C	SINGLE SIDELIGHT BODY
3	1	106C	LENS HOLDER RING
4	2	12V245	OL LENS CLIP
5	2	832X14PH	8-32 X 1/4" PH SS SLOT SCREW
6	2	HC255SS	SIDELIGHT LATCH
7	1	7X7SS	1/16 HOL 7X7 S.S. WIRE
8	2	A1A	STAKON CRIMP
9	1	OLG	OL GASKET
10	1	TWR19062	SIDELIGHT RECEPTACLE
11	4	18PRSS	1/8 X .40 SS POP RIVET
12	1	A314	3/4" CONDUIT LOCKNUT GALV.
* 13	2	104G	WHITE TEFLON WASHER
14	2	832X34PH	8-32 X 3/4" S.S. RH SLOT
15	1	100327	OL1 SERIAL NUMBER LABEL
~ 16	1	116A21TS	116W-120V LAMP (TYP.)

* = PART NOT SHOWN
~ = PART SOLD SEPARATELY

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

DRAWN	2/13/2012
vhernandez	
CHECKED	
QA	
MFG	
APPROVED	

TWR Lighting, Inc. <i>Enlightened Technology®</i> WARK®			
TITLE			
3/4" OL1 SIDE HUB ASSEMBLY DETAIL (PART#OL1)			
SIZE		DWG NO	REV
B		279-OL	C
SCALE	2/3	SHEET 1 OF 1	

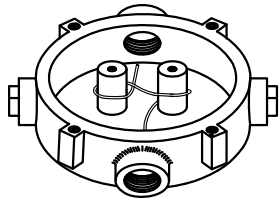
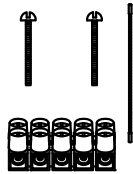
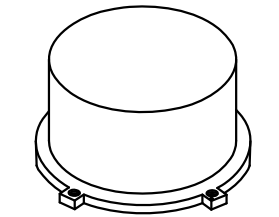


SIDELIGHT RECEPTACLE WIRING

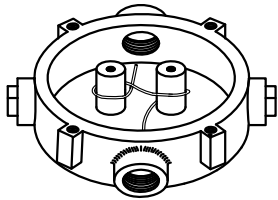
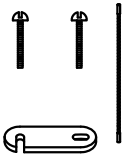
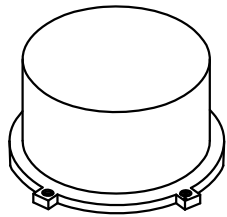
PROD DEPT	TWR Lighting, Inc. <i>Enlightened Technology®</i> WARK®		
SERV DEPT			
ENGINEER			
DRAWN BY G.D. SEBEK		SHEET SIZE B	SHEET QTY. 1 OF 1
DATE 06/08/91	SCALE N.T.S.	DWG. NO.	274-S

7/2/98	A	G.D.S.	CHANGED LABEL
DATE:	LTR.		REVISION

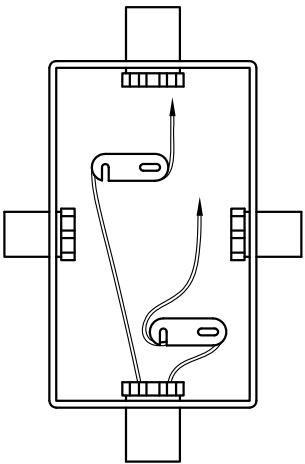
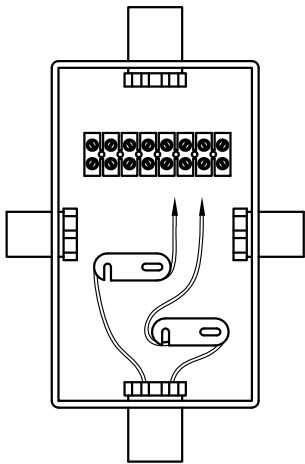
NOTICE: The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43. The drawings and photographic images contained herein are the sole property 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.



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> WARK		
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.

