

TWR Lighting, Inc. HARK[®]

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 THIS 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 # AA3TSS 230V 50/60Hz

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc. **HARK**[®]

Enlightened Technology[®]

AA3TSS 230V 50/60Hz CONTROLLER

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WARRANTY & RETURN POLICY

RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

TWR Lighting, Inc. **HARK**[®]

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AA3TSS 230V 50/60Hz CONTROLLER

APPENDIX

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SCHEMATIC LAYOUT	1241-S (REV. A)
TROUBLESHOOTING FLOW CHART.....	1241-F (REV. A)
A2/3 230V TOWER LIGHTING KIT W/CONDUIT 400' TO 700'	T1292
A2/3 230V TOWER LIGHTING KIT W/CABLE 351' TO 500'	T1293
L-810 OL-1 SINGLE OBSTRUCTION LIGHT	FM10018
L-810 OL-1 SINGLE OBSTRUCTION LIGHT DETAIL	279-OL (REV. B)
L-810 OL-1 WIRING DETAIL	274-S (REV. A)
L-864 FB 300 MM BEACON	FM10017
L-864 FB 300 MM BEACON DETAIL.....	275-B (REV. D)
L-864 FB 300 MM WIRING DETAIL.....	273-B
JUNCTION AND STRAIN RELIEF BOXES.....	100089 (REV. A)

TWR Lighting, Inc. HARK[®]

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AA3TSS 230V 50/60Hz CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting[®], Inc. (TWR[®]) Model AA3TSS 230V 50/60Hz Controller is for towers 700' to 1,050' above ground level (AGL). Beacons should be placed at top, 2/3, and 1/3 intervals with respect to overall tower height. Obstruction lights should be placed at 5/6, 1/3, 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 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) 700W, 230V bulbs. TWR[®] recommends that you use only these bulbs. Each sidelight requires one (1) 230V bulb.

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

Power supplied to the controller shall be 230V AC 50/60 Hz wire single phase.

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

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AA3TSS 230V 50/60Hz CONTROLLER

2.0 INSTALLATION

2.1 MOUNTING THE CONTROL CABINET

(Refer to Drawing 1241-R)

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 1241-R. Power wiring to the control cabinet should be in accordance with local methods, and National Electrical Codes (NEC).

2.1.1 If the control cabinet is mounted inside an equipment building, the photocell should be mounted vertically on ½" 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 "COM," the black wire is connected to the socket terminal marked "L," and the red wire is connected to the socket terminal marked "LO." The photocell should be positioned so that it does not "see" ambient light, which would prevent it from switching to the nightmode.

2.1.2 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.

The wiring from the photocell, the service breaker, the red incandescent beacon 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 strips and circuit breakers located at the bottom of the controller. These connections are made as follows:

AA3TSS 230V 50/60Hz CONTROLLER

2.2 EXTERNAL PHOTOCELL WIRING

(Refer to Drawing 1241-R)

2.2.1 Connect the **BLACK** wire from the photocell to terminal block TB2 marked "L."

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 1241-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 30 amps.

2.3.3 Connect incoming 230V AC to terminal block TB1, marked "L."

2.3.4 Connect the neutral wire to one (1) of the terminal blocks on TB1, marked "N."

2.3.5 Connect the AC ground to the aluminum mounting plate.

2.4 RED BEACON & SIDELIGHT WIRING

(Refer to Drawings 1241-R, T1292, and T1293)

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."

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- 2.4.4 Connect the **RED** and **YELLOW** wires from sidelight group #1, and #2, to the circuit breaker marked "S."

- 2.4.5 Connect the **Neutral** wires to one of the terminal blocks (TB1), marked "N."

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3.0 THEORY OF OPERATION

3.1 Power Supply

230V AC enters the controller from the circuit breaker panel. When the 6390-FAA photocell is activated, line (L) energizes the coil of the PRD relay. This can also be accomplished by using the photocell by-pass switch, SW1.

3.2 Sidelights

LD2 is sent to the circuit breaker marked "S," which will power the three (3) levels of the sidelights.

3.3 Beacons

LD1, and LD2 are sent to the flasher module M1, and the load contactor modules M2, and M3. M1 is a solid-state flasher that operates Beacon #1, and the coils of modules M2, and M3, which makes the M2, and M3 flash beacon #2, and beacon #3, synchronized with beacon #1.

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4.0 MAINTENANCE GUIDE

4.1 RED OBSTRUCTION LIGHTING

The only required maintenance needed 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 so that it can recline.

4.2.2 Open the lens and tilt it back.

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

4.2.4 Install the new lamps by pressing 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 let the bail recline back.

4.3.2 Lift the lens up and over the lamp, letting the lens 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.

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4.3.5 Reinstall 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.

4.5 PHOTOCELL

The photocell is a sealed unit. No maintenance is needed or required, other than replacement as necessary.

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5.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-AA (This replaces the 102-FAA photocell)	Photocell (120V – 240V)
1	FS165-30T	Solid State Flasher 230V (M1)
1	B12J2K5	2500 OHM 12W Resistor
2	SF-250 (This replaces the FA1652 module)	Solid State Load Contactor 120-240V (M2 and M3)
1	PRD7AYO-230V	Mechanical Load Contactor PRD (230V)
3	S261-D10	10 amp Breaker
7	8WA1204	Single Pole Terminal Block (TB1, and TB2)
1	S261D6	6 amp Breaker

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6.0 SUGGESTED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-AA (This replaces the 102-FAA photocell)	Photocell (120V – 240V)
1	FS165-30T	Solid State Flasher 230V (M1)
1	SF-250 (This replaces the FA1652 module)	Solid State Load Contactor 120-240V (M2 and M3)
2	S261-D10	10 amp Breaker
1	S261D6	6 amp Breaker

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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.

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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).

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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.

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AA3TSS 230V 50/60Hz 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.

TWR Lighting, Inc. HARK[®]

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AA3TSS 230V 50/60Hz 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 TO 4300 WINDFERN RD #100- HOUSTON TX 77041-8943

TWR Lighting, Inc. HARK[®]

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AA3TSS 230V 50/60Hz CONTROLLER

RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

RMA#: _____ **DATE:** _____

CUSTOMER: _____

CONTACT: _____ **PHONE NO.:** _____

ITEM DESCRIPTION (PART NO.): _____

MODEL NO.: _____ **SERIAL NO.:** _____

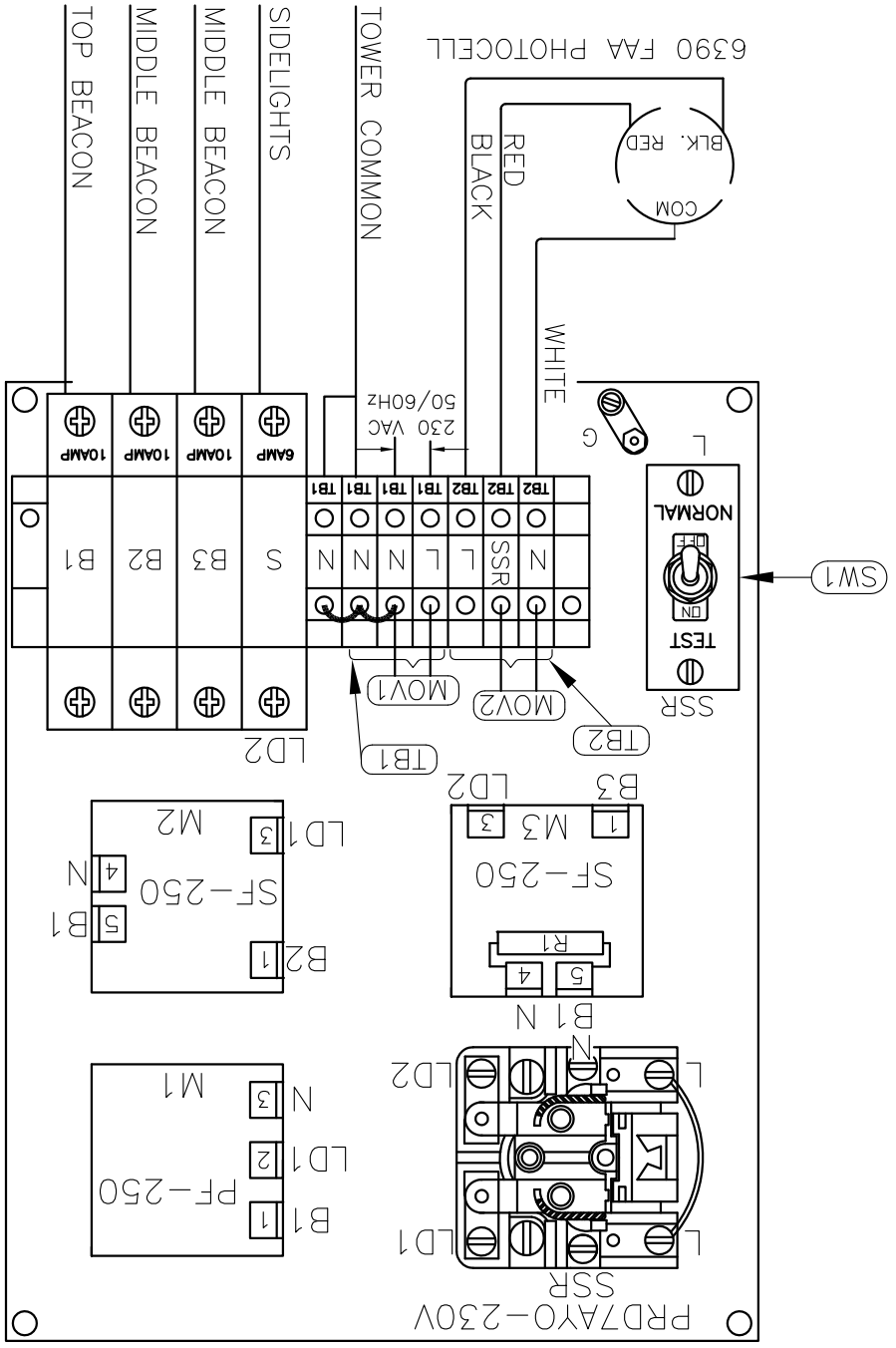
ORIGINAL TWR INVOICE NO.: _____ **DATED:** _____

DESCRIPTION OF PROBLEM: _____

SIGNED: _____ **DATE NEEDED:** _____

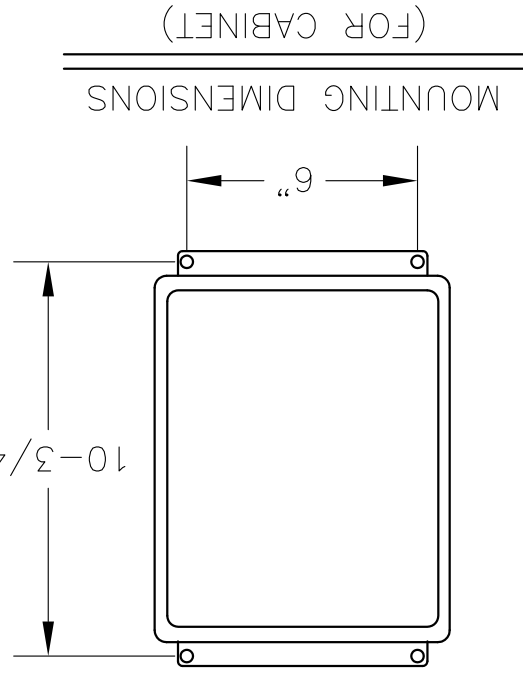
RETURN ADDRESS: _____

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



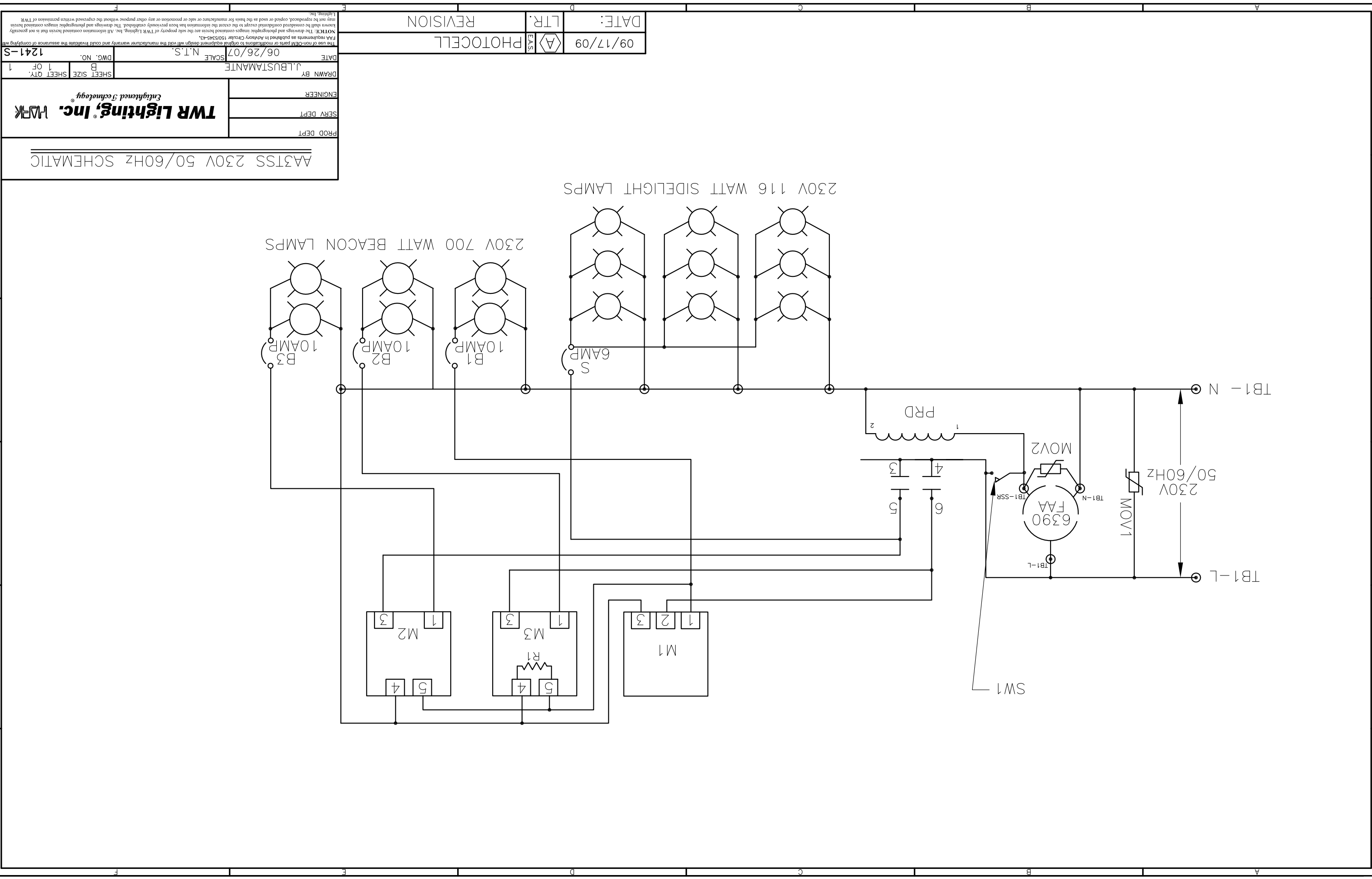
NOTES:

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



AA3TSS 230V 50/60HZ CHASSIS		COMPONENT LAYOUT	
PROD DEPT		SERV DEPT	
ENGINEER			
DRAWN BY	J.L.BUSTAMANTE	SHEET SIZE	B
DATE	05/26/07	DWG. NO.	1241-R
SCALE	N.T.S.	SHEET QTY.	1 OF 1
DATE: 09/17/09 LTR. REVISION		DATE: 09/17/09 LTR. PHOTOCELL, M2, M3, M1	

The use of non-CDM 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 150/545-43.
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AA3TSS 230V 50/60Hz SCHEMATIC

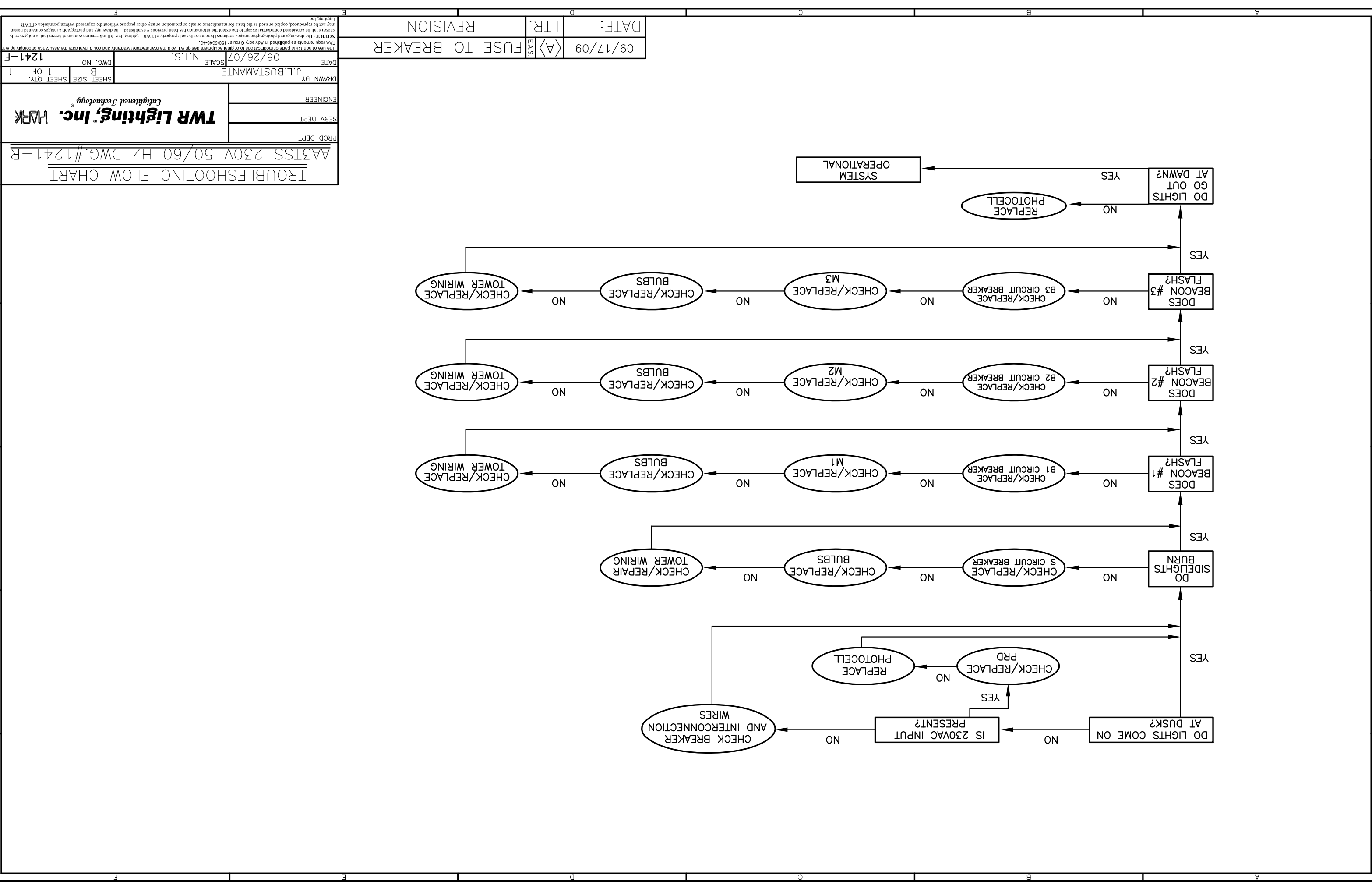
PROD DEPT	
SERV DEPT	
ENGINEER	
DRAWN BY	J.LBUSTAMANTE
DATE	06/26/07
SCALE	N.T.S.
DWG. NO.	1241-S
SHEET SIZE	B
SHEET QTY.	1 OF 1

DATE: 09/17/09 LTR. PHOTOCELL

REVISION

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The use of non-CEM parts or modifications to digital equipment design will void the manufacturer warranty and could invalidate the assurance of compliance with FAA requirements as published in Advisory Circular 150/545-43.



TRUBLESHOOTING FLOW CHART
AA3TSS 230V 50/60 HZ DWG.#1241-R

PROD DEPT
SERV DEPT
ENGINEER

DRAWN BY J.L.BUSTAMANTE
DATE 06/26/07
SCALE N.T.S.
SHEET SIZE B
SHEET QTY 1 OF 1
DWG. NO. 1241-F

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DATE: 09/17/09
LTR. REV. A
FUSE TO BREAKER
REVISION

BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	3	BEACON	300 MM BEACON RED
2	6	700W230V	700 WATT 230 VOLT LAMP
3	6	OL1	3/4" OBSTRUCTION LIGHT
4	6	116A21TS230V	116 WATT 230 VOLT LAMP
5	3	CGB2955A	3/4" CORD CONNECTOR
6	3	JB5/7	3/4" JUNCTION BOX W/ 7 TERMINALS
7	2	JB5	3/4" JUNCTION BOX
8	4	JB0	3/4" STRAIN RELIEF BOX
9	11	UNY205	3/4" UNION
10	3	T27CG	3/4" CONDULET W/COVER AND GASKET
11	3	EL3490	3/4" 90° SHORT ELBOW
12	2	EL3430	3/4" 30° ELBOW
13	3	5012902	3/4" BREATHER
14	2	SS10012	WRAPLOCK
15	2	PIPDOP	4 oz. PIPE DOPE
16	23	A314	3/4" CONDUIT LOCKNUTS
17	2	N34T3	3/4" X 3" NIPPLE
18	6	HC402	3/4" NO THREAD CONNECTOR
19	60'	CONDUIT34	3/4" CONDUIT FOR OLS
20	6	STPIG1125	25' SIDE LIGHT PIGTAIL
21	1	AA3-230V	AA3-30V CONTROLLER

* = ITEMS NOT SHOWN

ITEM NUMBERS #22-#28 ARE NOT INCLUDED IN THE KIT BUT ARE AVAILABLE UPON REQUEST, AND REQUIRED FOR INSTALLATION.

22	-	CONDUIT34	3/4" CONDUIT (TOWER HT.+ 30'/9M)
23	-	4THHWHT	4 THHN WHT. WIRE (TOWER HT.+40'/12M)
24	-	8THHBLK	8 THHN BLK. WIRE (TOWER HT.+40'/12M)
25	-	12THHRED	12 THHN RED WIRE (3/4 TWR HT.+40'/12M)
26	-	10THHBLU	10 THHN BLUE WIRE (1/2 TWR HT.+40'/12M)
27	-	10THHBLU	10 THHN BLUE WIRE (1/2 TWR HT.+40'/12M)
28	-	12THHNLW	12 THHN YLW. WIRE (1/4 TWR HT.+40'/12M)

- NOTES:**
- ITEM CONDUIT34 CUT TO LENGTH FOR PROPER EXTENSION OF OL1 (6"-12") FROM STRUCTURE. ATTACH ITEM HC402 TO UNTHREADED CONDUIT TO COMPLETE ASSEMBLY.
 - CONDUIT SIZE BASED ON USING TYPE THHN WIRE. USE RIGID GALVANIZED STEEL CONDUIT.
 - BREATHERS ALLOW FOR CIRCULATION OF AIR TO PREVENT CONDENSATION.
 - USE COUPLING THAT IS PROVIDED WITH ITEM CONDUIT34 TO ATTACH ITEM EL3430 TO ITEM HC402.

A2/3 230V TOWER LIGHTING KIT (TOWERS 401'/122M TO 700'/213M)

PROD DEPT

SERV DEPT

ENGINEER

DRAWN BY J.L.BUSTAMANTE
SHEET SIZE B
SHEET QTY 1 OF 1

DATE 06/26/07
SCALE N.T.S.
DWG. NO. T1292

Entlightened Technology
TWR Lighting, Inc. WPK

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BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	3	BEACON	300 MM BEACON RED
2	6	700W230V	700 WATT 230 VOLT LAMP
3	6	OL1	3/4" OBSTRUCTION LIGHT
4	6	116A21TS230V	116 WATT 230 VOLT LAMP
5	3	CGB2955A	3/4" CORD CONNECTOR
6	3	JB5/7	3/4" JUNCTION BOX W/ 7 TERMINALS
7	2	JB5	3/4" JUNCTION BOX
8	4	JB0	3/4" STRAIN RELIEF BOX
9	11	UNY205	3/4" UNION
10	3	T27CG	3/4" CONDULET W/COVER AND GASKET
11	3	EL3490	3/4" 90° SHORT ELBOW
12	2	EL3430	3/4" 30° ELBOW
13	3	5012902	3/4" BREATHER
14	2	SS10012	WRAPLOCK
15	2	PIPDOP	4 oz. PIPE DOPE
16	23	A314	3/4" CONDUIT LOCKNUTS
17	2	N34T3	3/4" X 3" NIPPLE
18	6	HC402	3/4" NO THREAD CONNECTOR
19	60'	CONDUIT34	3/4" CONDUIT FOR OLS
20	6	STPIG1125	25' SIDE LIGHT PIGTAIL
21	1	AA3-230V	AA3-30V CONTROLLER

* = ITEMS NOT SHOWN

ITEM NUMBERS #22-#28 ARE NOT INCLUDED IN THE KIT BUT ARE AVAILABLE UPON REQUEST, AND REQUIRED FOR INSTALLATION.

22	-	CONDUIT34	3/4" CONDUIT (TOWER HT.+ 30'/9M)
23	-	4THHWHT	4 THHN WHT. WIRE (TOWER HT.+40'/12M)
24	-	8THHBLK	8 THHN BLK. WIRE (TOWER HT.+40'/12M)
25	-	12THHRED	12 THHN RED WIRE (3/4 TWR HT.+40'/12M)
26	-	10THHBLU	10 THHN BLUE WIRE (1/2 TWR HT.+40'/12M)
27	-	10THHBLU	10 THHN BLUE WIRE (1/2 TWR HT.+40'/12M)
28	-	12THHNLW	12 THHN YLW. WIRE (1/4 TWR HT.+40'/12M)

- NOTES:**
- ITEM CONDUIT34 CUT TO LENGTH FOR PROPER EXTENSION OF OL1 (6"-12") FROM STRUCTURE. ATTACH ITEM HC402 TO UNTHREADED CONDUIT TO COMPLETE ASSEMBLY.
 - CONDUIT SIZE BASED ON USING TYPE THHN WIRE. USE RIGID GALVANIZED STEEL CONDUIT.
 - BREATHERS ALLOW FOR CIRCULATION OF AIR TO PREVENT CONDENSATION.
 - USE COUPLING THAT IS PROVIDED WITH ITEM CONDUIT34 TO ATTACH ITEM EL3430 TO ITEM HC402.

A2/3 230V TOWER LIGHTING KIT (TOWERS 401'/122M TO 700'/213M)

PROD DEPT

SERV DEPT

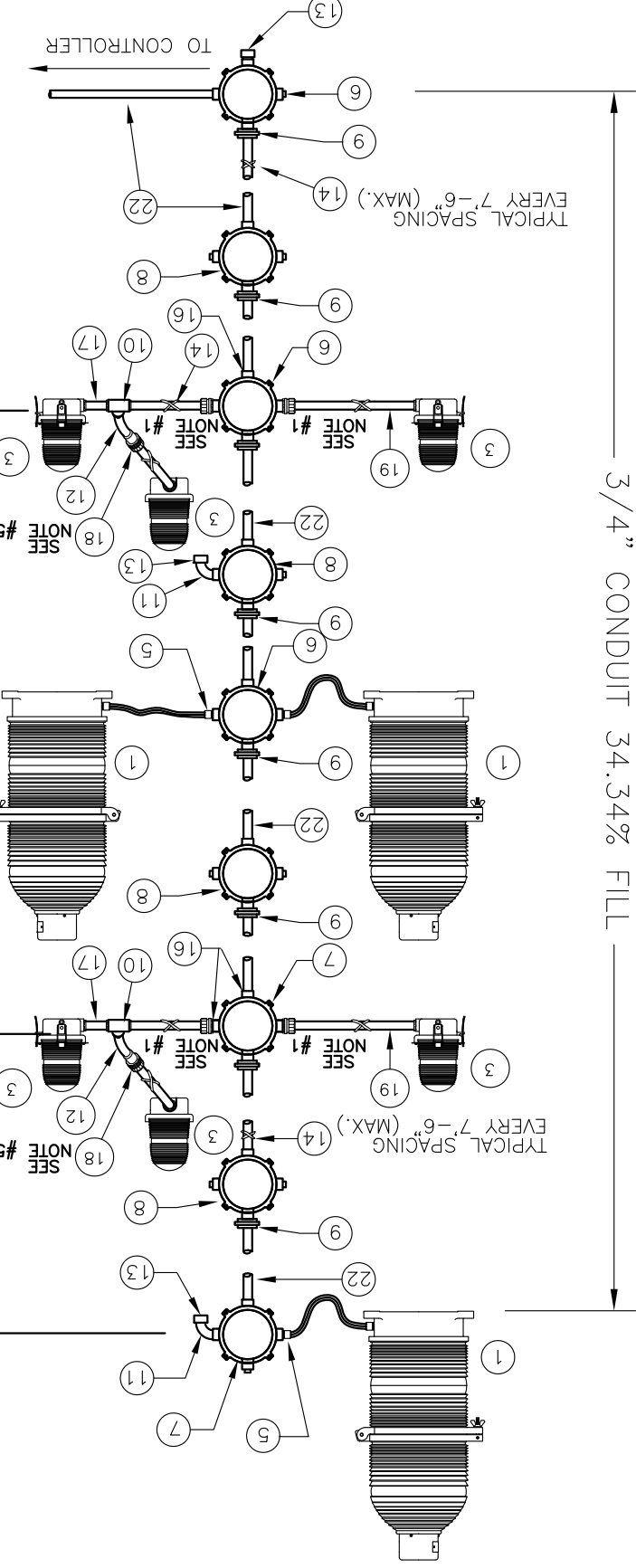
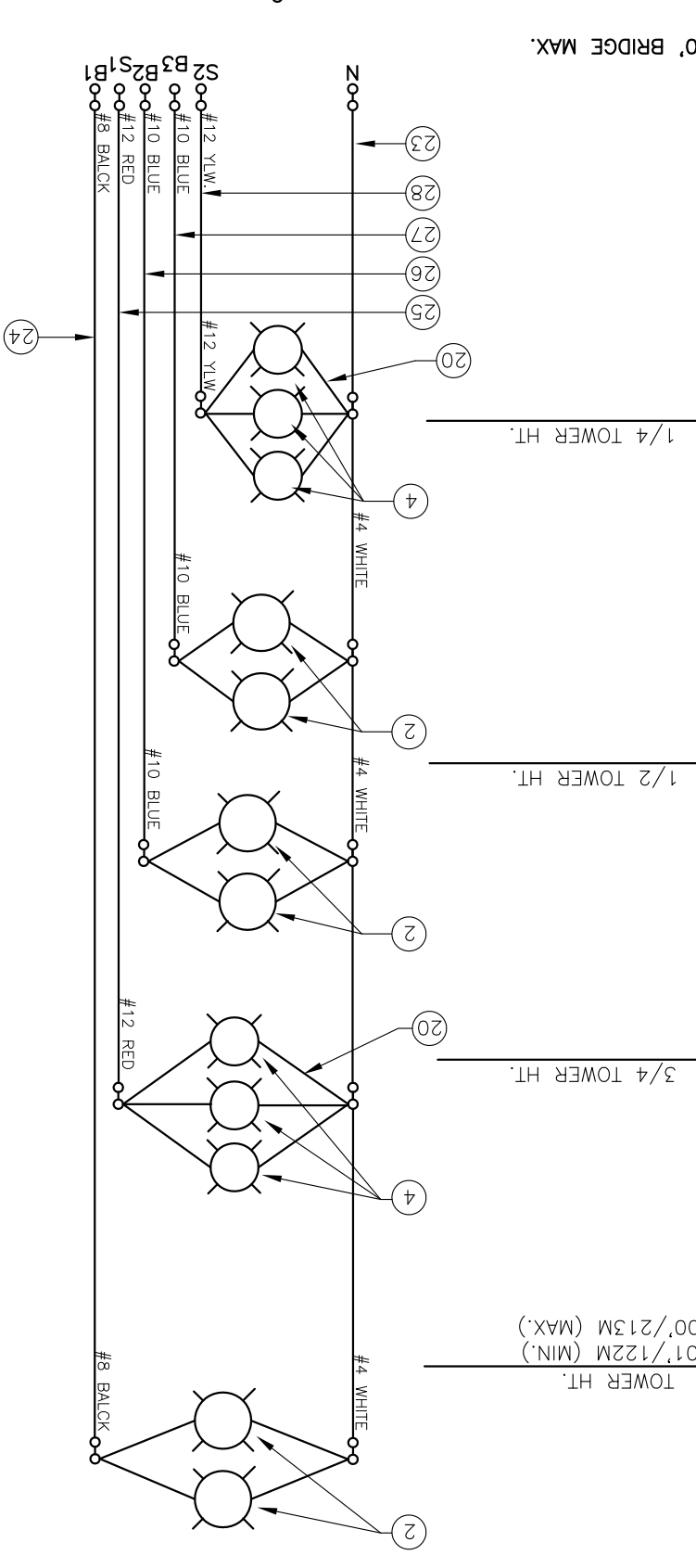
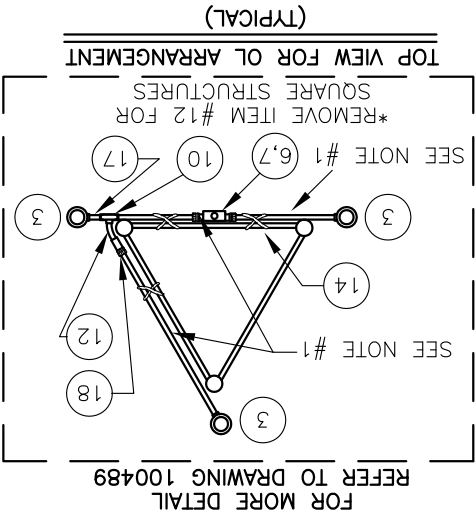
ENGINEER

DRAWN BY J.L.BUSTAMANTE
SHEET SIZE B
SHEET QTY 1 OF 1

DATE 06/26/07
SCALE N.T.S.
DWG. NO. T1292

Entlightened Technology
TWR Lighting, Inc. WPK

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BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	3	BEACON	300 MM BEACON RED
2	6	700PS40P230V	700 WATT 230 VOLT LAMP
3	6	OL1	3/4"(19.05mm) OBSTRUCTION LIGHT
4	6	116A21TS230V	116 WATT 230 VOLT LAMP
5	3	CGB296SA	3/4"(19.05mm) CORD CONNECTOR (.5"-.62")
6	4	CGB396SA	1"(25.4mm) CORD CONNECTOR (.625"-.75")
7	2	CG87125	1-1/4"(31.5mm) CORD CONNECTOR (.875"-1")
8	2	CG100125	1-1/4"(31.5mm) CORD CONNECTOR (1"-1.25")
9	2	JB8	1"(25.40mm) JUNCTION BOX
10	2	JB8114	1-1/4"(31.5mm) JUNCTION BOX
11	2	T27CG	3/4"(19.05mm) CONDULET W/COVER & GASKET
12	2	N3414	3/4" x 4" (19.05mm x 10.16cm) NIPPLE
13	1	RE32	1"(25.40mm) TO 3/4" (19.05mm) REDUCER
14	2	RE42	1-1/4" (31.5mm) TO 3/4" (19.05mm) REDUCER
15	1	SS10012	WRAPLOCK 100' (30.5M)
16	1	P1PDOP	4 oz. (118mL) PIPE DOPE
17	5	A314	3/4"(19.05mm) CONDUIT LOCKNUTS
18	4	CPLG1	1"(25.4mm) GALVANIZED COUPLING
19	4	CPLG114	1-1/4" (31.5mm) GALVANIZED COUPLING
20	4	N1112	1" x 12" (25.40mm x 30.48cm) NIPPLE
21	4	N114T12	1-1/4" x 12" (31.5mm x 30.48cm) NIPPLE
22	2	EL3430	3/4" 30' ELBOW
23	6	HC402	3/4" NO THREAD CONNECTOR
24	3	SLP1G1AL50	50' SIDELIGHT PIGTAIL
25	---	---	---
26	3	CABLEGRIP3	SINGLE EYE LACE MESH (.63" -.74")
27	4	CABLEGRIP6	SINGLE EYE LACE MESH (.75" -.99")
28	2	CABLEGRIP7	SINGLE EYE LACE MESH (1.00" - 1.24")
29	---	---	CABLE TIES (TWR. HT. x 2.5 ÷ 5)
30	---	---	---
31	1	AA3	230V 230V W/BOOST
32	---	---	---
33	---	---	---
34	---	---	---
35	60	CONDUIT34	3/4" CONDUIT (FOR LOWER OLI MOUNTING)

* = ITEMS NOT SHOWN

- NOTES:**
- 1) VERTICAL CONDUIT ATTACHED TO JUNCTION BOX TO BE WRAP LOCKED TO CYLINDRICAL OR ANGLE LEGS FOR JUNCTION BOX SUPPORT.
 - 2) CABLE GRIPS ARE USED TO SUPPORT CABLE BEFORE CORD CONNECTOR AND SINGLE EYE LOOP SHOULD BE ATTACHED TO STRUCTURE SECURELY.
 - 3) CONTROLLER MUST BE MODIFIED FOR TWO EACH 1-1/4" AND ONE EACH 1" CORD CONNECT ENTRANCES.
 - 4) ITEM CONDUIT34 CUT TO LENGTH FOR PROPER EXTENSION OF OLI (6"-12") FROM STRUCTURE. ATTACH ITEM HC402 TO UNTHREADED CONDUIT TO COMPLETE ASSEMBLY.
 - 5) USE COUPLING THAT IS PROVIDED WITH ITEM CONDUIT34.

A2/3 230V LIGHTING KIT W/CABLE
FOR TOWERS 351'/107M TO 500'/152M

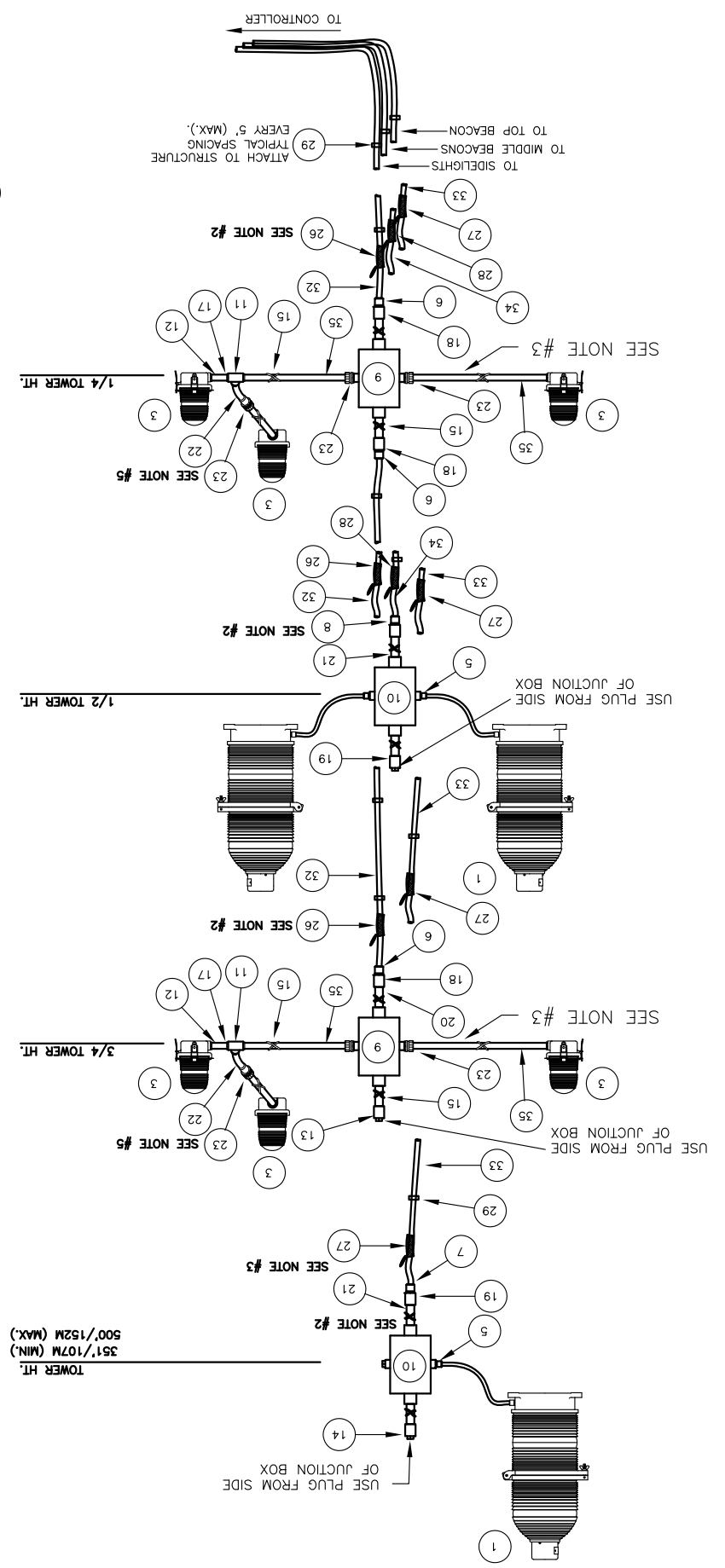
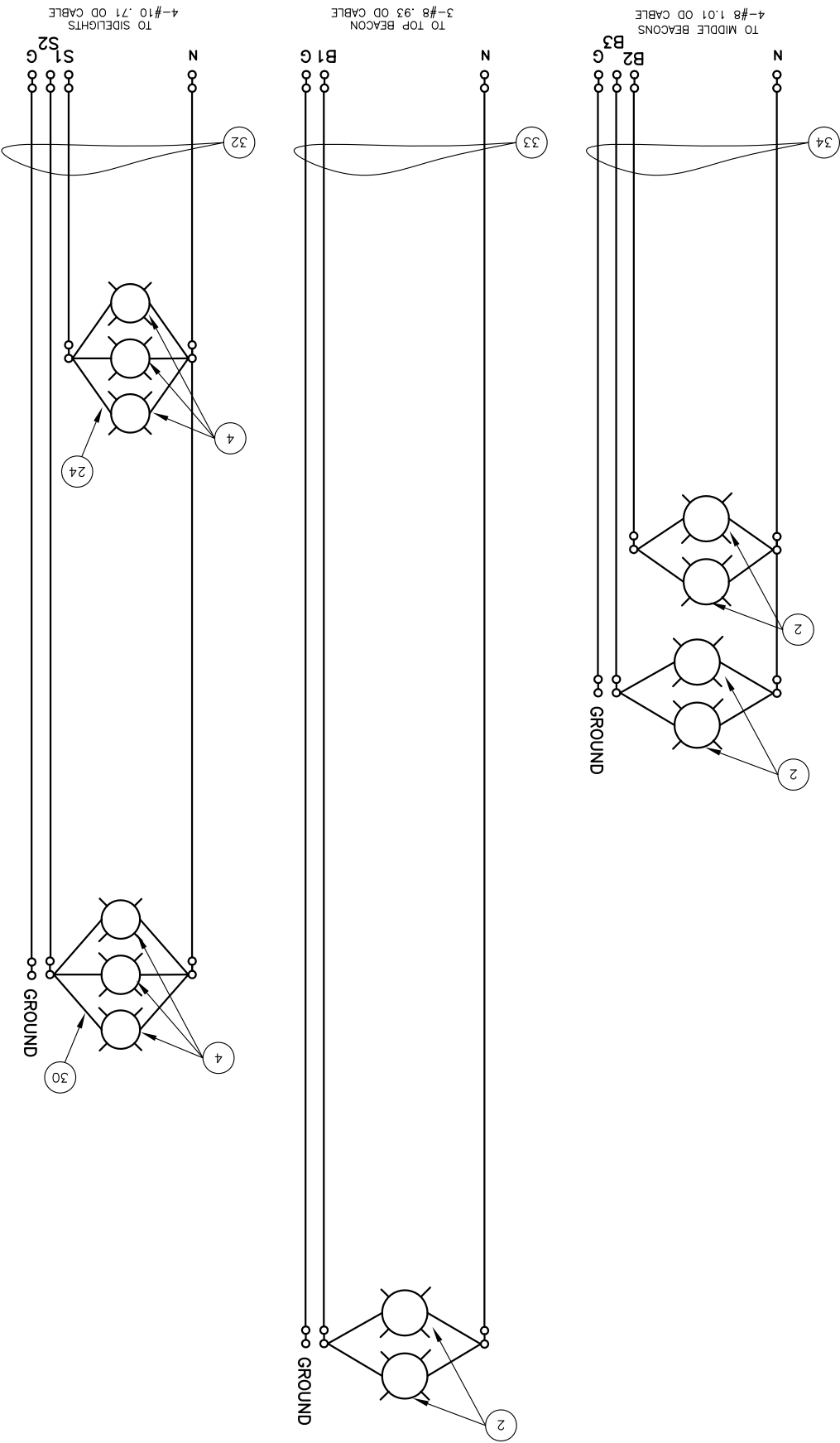
PROD DEPT _____
SERV DEPT _____
ENGINEER _____

DRAWN BY **J.L.BUSTAMANTE**
DATE **06/26/07**
SCALE **N.T.S.**
DWG. NO. **T1293**

SHEET SIZE _____
SHEET QTY. **1** OF **1**

TWR Lighting, Inc. MARK
Enlightened Technology

The use of non-CAD parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of compliance with FAA requirements as published in Advisory Circular 150/545-43. All information contained herein 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 in 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.

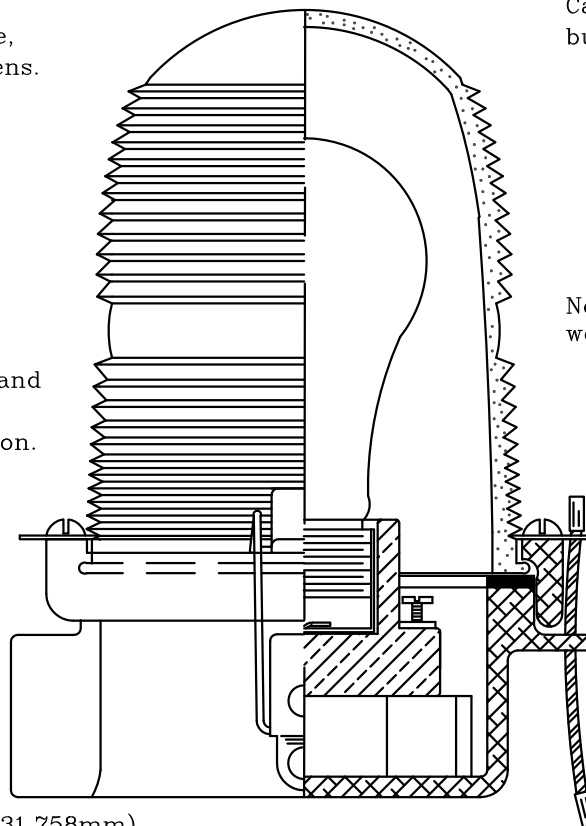
High temperature, ultra pure
FAA approved Aviation red, blue,
yellow, or clear glass fresnel lens.

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.

No special tools required for maintenance.

General Specifications

Height 7.5 inches (19.055 cm)

Weight 3 lbs (13605.442g)

Power 120, 230, or 240 volts AC

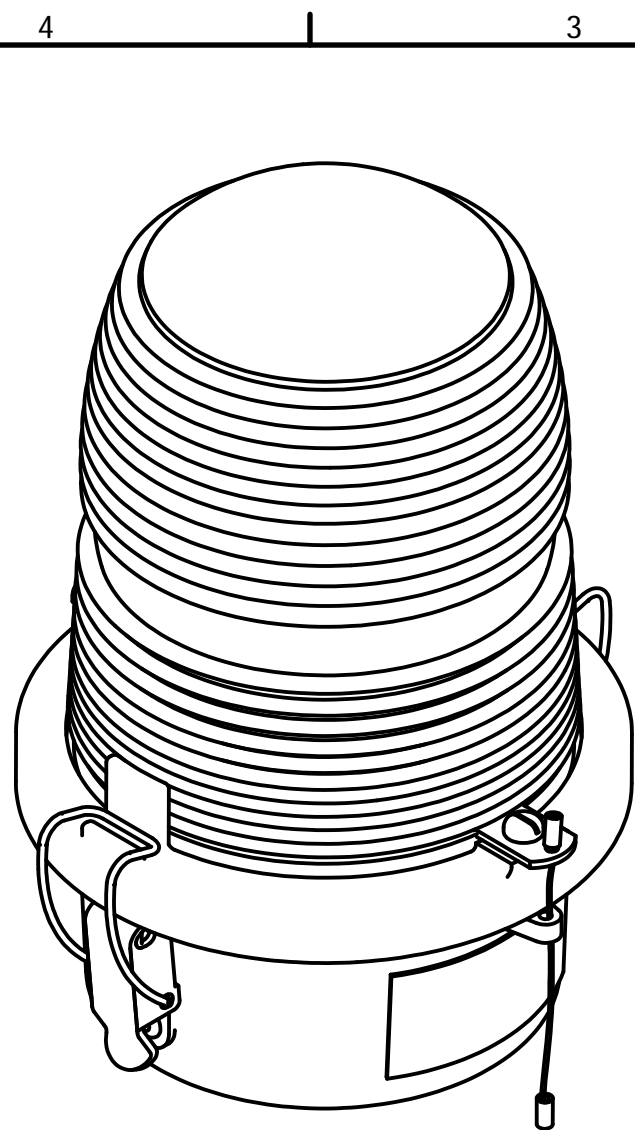
Uses 116W, 120V or 240V bulbs

Bulbs sold separately

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>

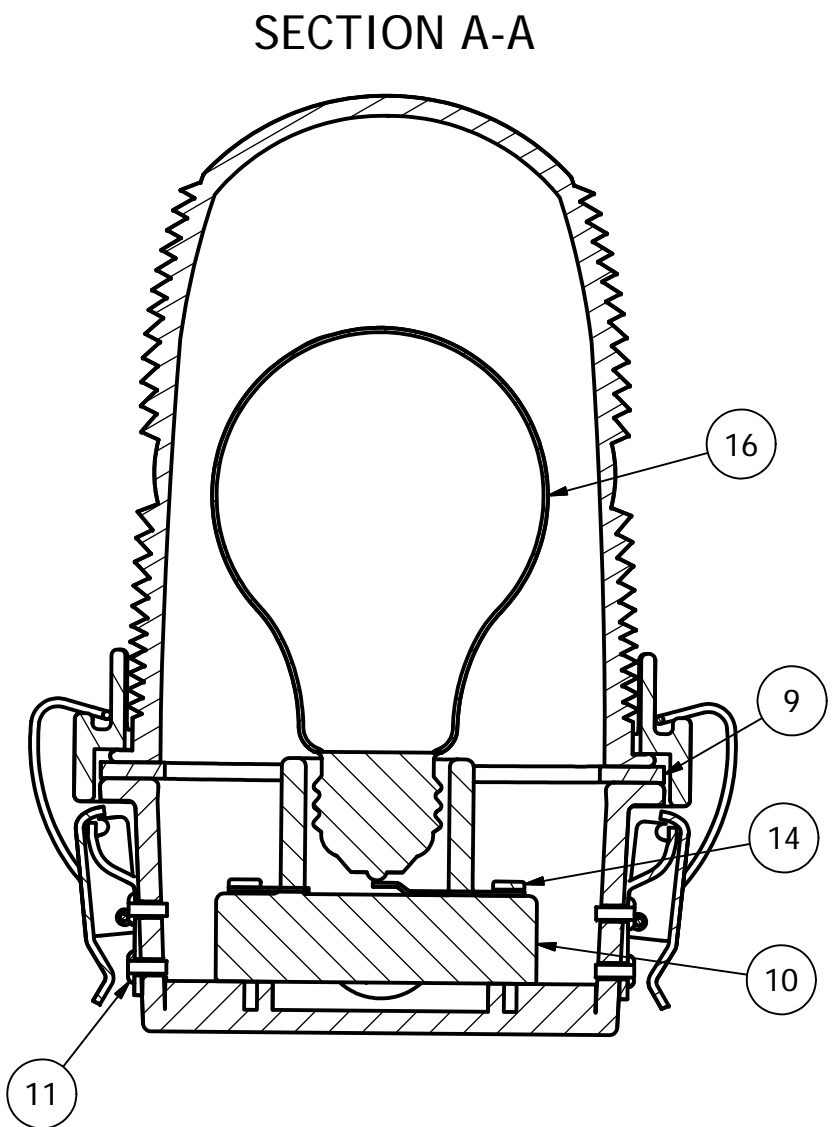
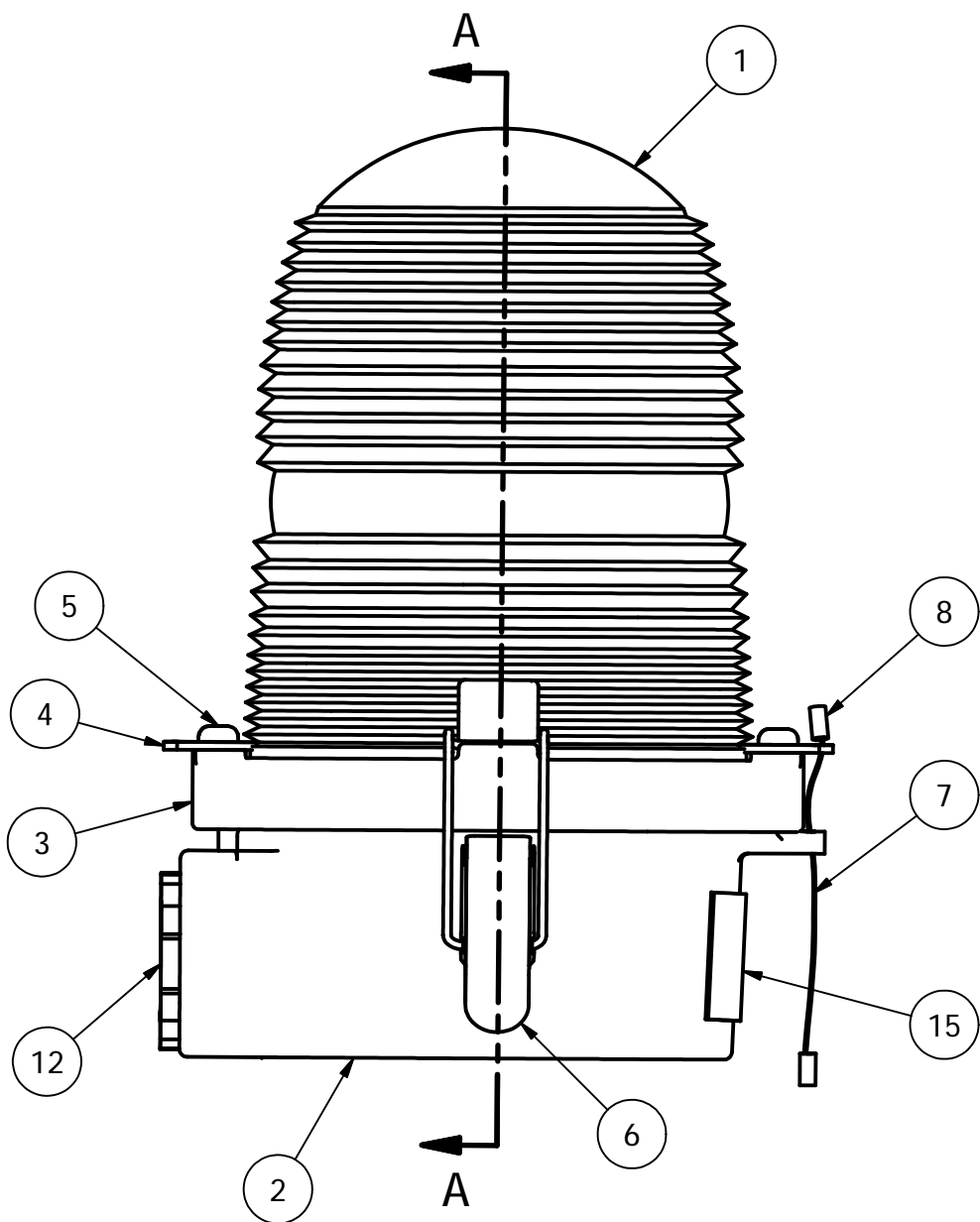
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PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AP35222	RED SIDELIGHT GLASS
2	1	105C	SINGLE SIDELIGHT BODY
3	1	106C	LENS HOLDER RING
4	2	12V245	OL LENS CLIP
5	2	832X14PH	8-32 X 1/4" PH SS SLOT SCREW
6	2	HC255SS	SIDELIGHT LATCH
7	1	7X7SS	1/16 HOL 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.
*	2	104G	WHITE TEFLON WASHER
14	2	832X34PH	8-32 X 3/4" S.S. RH SLOT
15	1	100327	OL1 SERIAL NUMBER LABEL
~	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.



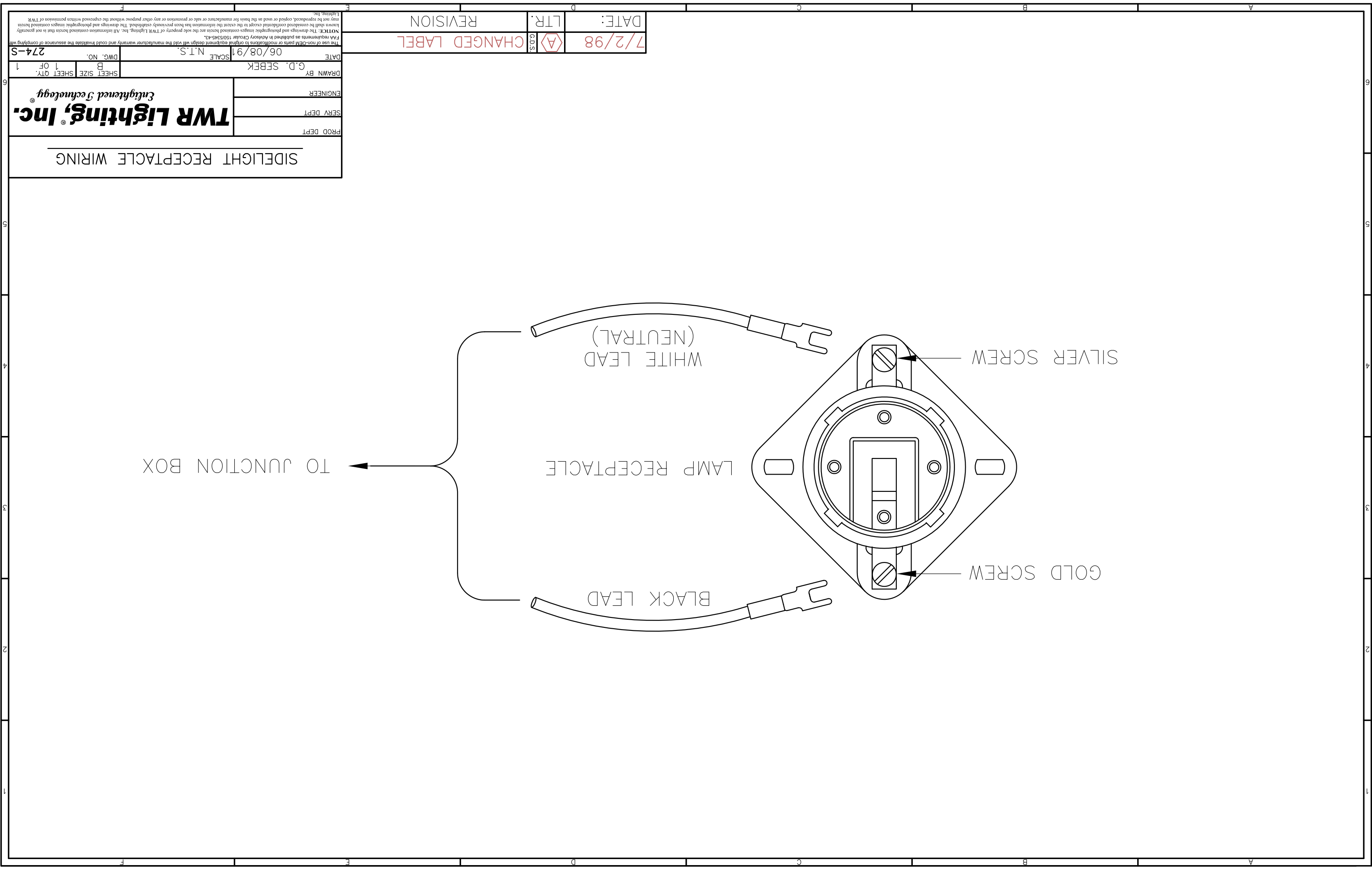
DRAWN vhernandez	2/13/2012
CHECKED	
QA	
MFG	
APPROVED	

TWR Lighting, Inc.
Enlightened Technology

TITLE
 3/4" OL1 SIDE HUB
 ASSEMBLY DETAIL (PART#OL1)

SIZE B	DWG NO 279-OL	REV C
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SCALE 2/3 SHEET 1 OF 1



SIDELIGHT RECEPTACLE WIRING

PROD DEPT _____
 SERV DEPT _____
 ENGINEER _____

DRAWN BY G.D. SEBEK
 DATE 06/08/91
 SCALE N.T.S.
 DWG. NO. _____
 SHEET SIZE B
 SHEET QTY. 1 OF 1

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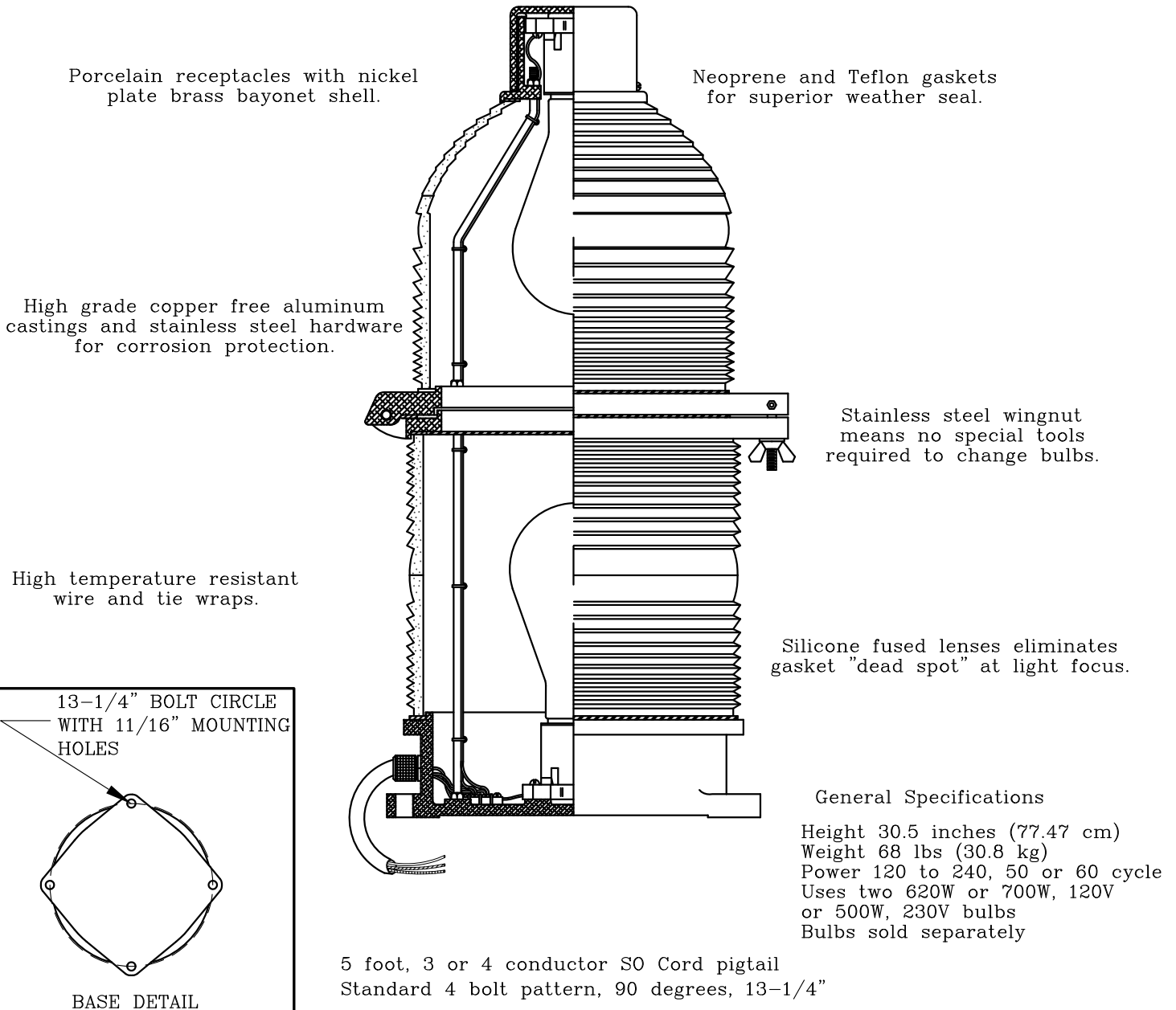
DATE: 7/2/98	LTR. G.D.S.	CHANGED LABEL
REVISION		

TWR Lighting, Inc.

FAA Approved L-864 300 mm BEACON

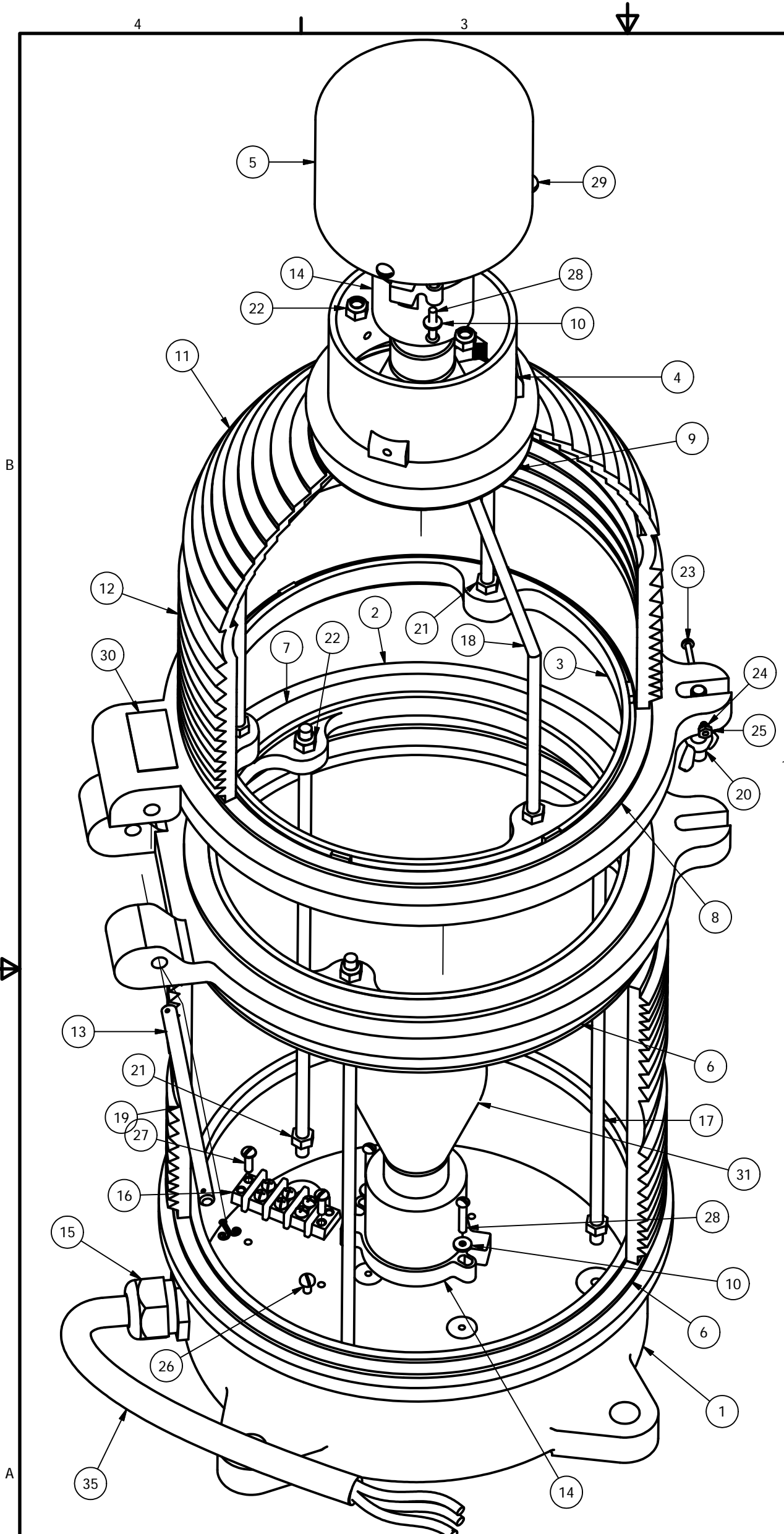
FM10017RB.DWG

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.



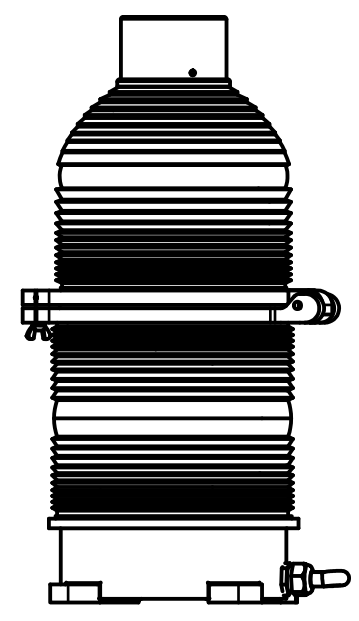
TWR Lighting, Inc.
4300 Windfern Rd. #100
Houston, Tx., 77041-8943
Phone: (713)973-6905
Fax: (713)973-9352

WEB SITE: <http://www.twrlighting.com>
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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> 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.

JUNCTION AND STRAIN RELIEF BOXES

PROD DEPT _____
SERV DEPT _____
ENGINEER _____

DRAWN BY G.D. SEBEK
SHEET SIZE B
SHEET QTY 1 OF 1
DWG. NO. 100089

DATE 07/26/93
SCALE N.T.S.

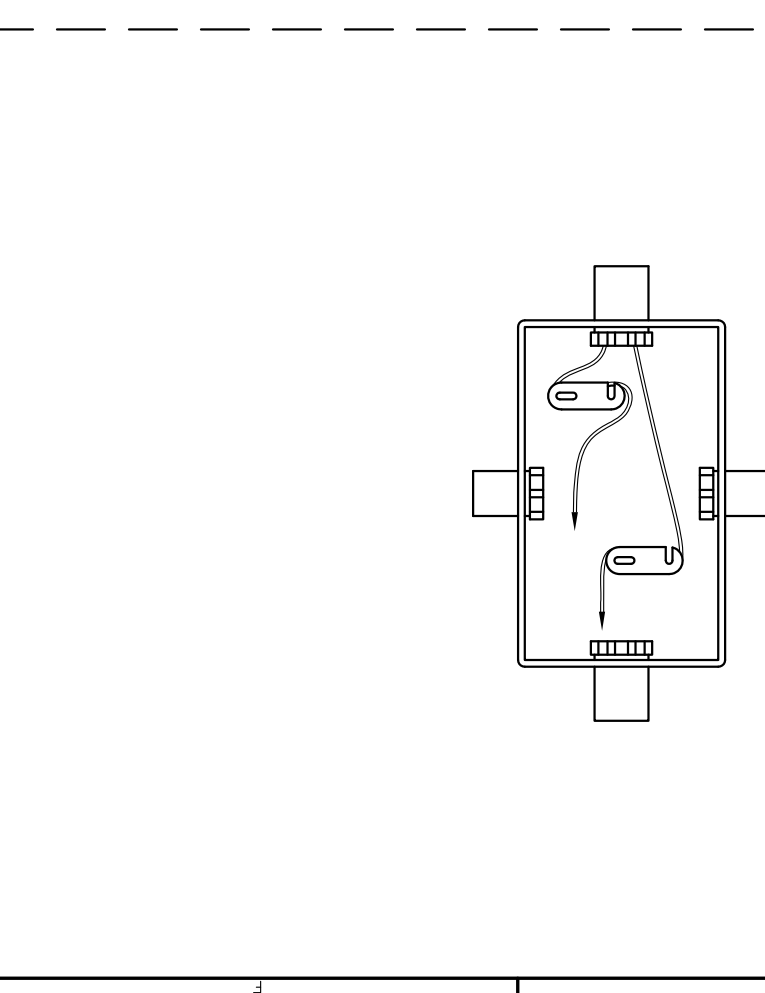
The use of non-union parts or materials to equal equipment design will void the manufacturer's warranty and could invalidate the assurance of compliance with FAA requirements as published in Advisory Circular 150/5245-43.
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1) DRAWING ILLUSTRATES METHOD 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.



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

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	10	26	0.0117	2.50
10 THHN	10	17	17	0.0184	4.10
8 THHN	6	9	9	0.0373	6.70
6 THHN	4	7	7	0.0519	10.30
4 THHN	2	4	4	0.0845	16.20

USING THIS JUNCTION BOX METHOD SPACING IS 100 FEET MAXIMUM.

NOTES:

