TWR Lighting, Inc.

Enlightened Technology℠

4300 WINDFERN RD SUITE 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 # AA4M230VW/IND

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc.

Enlightened Technology℠

AA4M230VW/IND CONTROLLER

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TWR Lighting, Inc.

Enlightened Technology S.M.

AA4M230VW/IND CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting, Inc. Model AA4M230VW/IND Controller is for applications of four (4) L-864, 300 MM, 230V beacons.

The flash rate of the beacons is 30 per minute.

A by-pass switch (SW1) allows the controller to be turned on during daylight hours without covering the photocell. PL1 indicator will also illuminate.

This is particularly helpful since the controller can be mounted indoors while the photocell is outdoors. SW1 can be operated by turning “on” the toggle switch mounted on the panel of the controller.

Each beacon requires two (2) 700 watt, 230V bulbs. The use of any other bulb may give a false beacon lamp burnout alarm. TWR recommends that you use only these bulbs (700W 230V).

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

Power supplied to the controller shall be 230V AC

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

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

POWER FAILURE Monitors 230V AC to the controller. Alarms in the event of power failure, or tripped circuit breaker at the service panel.

LIGHTS “ON” Gives an indication whenever the controller is activated.

BEACON Will give an alarm in the event of one (1) or both bulbs fail within any beacon.

2.0 INSTALLATION INSTRUCTIONS

WARNING DANGER!!!

THIS SYSTEM OPERATES AT HIGH VOLTAGE LEVELS THAT COULD BE LETHAL TO SERVICE PERSONNEL. ALL INSTALLATION AND MAINTENANCE WORK SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY. WHEN PERSONNEL IS INSTALLING SYSTEM, OR PERFORMING MAINTENANCE ON THIS SYSTEM, MAKE SURE THE POWER IS TURNED OFF AT THE SERVICE BREAKER PANEL!!

READ AND UNDERSTAND THE THEORY OF OPERATION AND ITS SAFETY MESSAGES BEFORE ATTEMPTING INSTALLATION/MAINTENANCE OF THIS SYSTEM.

2.1 MOUNTING THE CONTROLLER CABINET

(Refer to drawing 1280-R)

2.1.1 The power supply control cabinet can be located at the base of the structure, or in an equipment building. Mounting footprints are showing on drawing 1280-R. Power wiring to the control cabinet should be in accordance with local methods and National Electrical Codes (NEC).

2.1.2 If the control cabinet is mounted inside an equipment building, the photocell should be mounted vertically 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 “B,” and the red wire is connected to the socket terminal marked “R.” As above, the photocell should be positioned so that it does not “see” ambient light, which would prevent it from switching to the nightmode.

2.1.3 If the control cabinet is mounted outside an equipment building, the photocell should be mounted vertically 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 2.1.2.

2.1.4 The wiring from the photocell, the service breaker, and the beacons should enter the control cabinet through the water-tight connectors in the bottom of the cabinet. Inside the cabinet, the connections will be made on the terminal strip and circuit breakers located at the bottom of the chassis. These connections are made as follows:

2.2 EXTERNAL PHOTOCELL WIRING

(Refer to drawing 1280-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 1280-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 30 amps.

2.3.3 Connect incoming 230V AC "HOT" to terminal block (TB1) marked "L."

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

2.3.5 Connect the AC ground to the ground lug located to the left of TB2.

2.4 BEACON WIRING

(Refer to drawing 1280-R)

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

2.4.2 Connect the **NEUTRAL** wire from Beacon #1 to one of the terminal blocks on “TB1” marked “N.”

2.4.3 Connect the **GREEN** wire from Beacon #1 to one of the ground lugs located to the right of “B1” circuit breaker.

2.4.4 Connect the **BLACK** wire from Beacon #2 to the circuit breaker marked “B2.”

2.4.5 Connect the **NEUTRAL** wire from Beacon #2 to one of the terminal blocks on “TB1” marked “N.”

2.4.6 Connect the **GREEN** wire from Beacon #2 to one of the ground lugs located to the right of “B1” circuit breaker.

2.4.7 Connect the **BLACK** wire from Beacon #3 to the circuit breaker marked “B3.”

2.4.8 Connect the **NEUTRAL** wire from Beacon #3 to one of the terminal blocks on “TB1” marked “N.”

2.4.9 Connect the **GREEN** wire from Beacon #3 to one of the ground lugs located to the right of “B1” circuit breaker.

2.4.10 Connect the **BLACK** wire from Beacon #4 to the circuit breaker marked “B4.”

2.4.11 Connect the **NEUTRAL** wire from Beacon #4 to one of the terminal blocks on “TB1” marked “N.”

2.4.12 Connect the **GREEN** wire from Beacon #4 to one of the ground lugs located to the right of “B1” circuit breaker.

2.5 BEACON ALARM WIRING

(Refer to drawings 1280-R and 1280-S)

2.5.1 Alarm relays K1, K2, and alarm module M2, M4, M6, and M8, are provided for independent contact closures for: Power Failure, Lights "ON," and Beacon Lamp Burnout.

2.5.2 Alarm wiring. To utilize all of the red light alarms, the customer will need six (6) pairs of wires to interface with the alarm device. Connect customer alarm commons to terminal block TB5. The remaining wires from each pair will terminate as follows:

2.5.2.1 POWER FAILURE ALARM: Connect alarm wire to terminal block TB4, terminal #1, for normally open, or terminal #2, for normally closed monitoring.

2.5.2.2 LIGHTS "ON" ALARM: Connect alarm wire to terminal block TB4, terminal #3, for normally open, or terminal #4, for normally closed monitoring.

2.5.2.3 BEACON #1 LAMP BURNOUT ALARM: Connect alarm wire to terminal block TB4, terminal #5, for normally open, or terminal #6, for normally closed monitoring.

2.5.2.4 BEACON #2 LAMP BURNOUT ALARM: Connect alarm wire to terminal block TB4, terminal #7, for normally open, or terminal #8, for normally closed monitoring.

2.5.2.5 BEACON #3 LAMP BURNOUT ALARM: Connect alarm wire to terminal block TB4, terminal #9, for normally open, or terminal #10, for normally closed monitoring.

2.5.2.6 BEACON #4 LAMP BURNOUT ALARM: Connect alarm wire to terminal block TB4, terminal #11, for normally open, or terminal #12, for normally closed monitoring.

ALARM 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 photocell by-pass switch (SW1), or cover the photocell.

BEACON: Pull circuit breakers on the controller panel.

3.0 THEORY OF OPERATION

3.1 POWER SUPPLY

230V AC enters the controller from the service breaker panel. Line sits at the PRD waiting to be energized, and also keeps the power failure relay K1 energized. When the 6390-FAA photocell is activated, line energizes the coil of the PRD, and K2 Lights "ON" Relay. This can also be accomplished by using the photocell by-pass switch (SW1). PL1 indicator will also illuminate.

3.2 BEACONS

LD1, and LD2 are sent to modules M1 – M8. M1 is the primary flasher for Beacon #1, which provides control voltage to modules M3, M5, and M7, which are auxiliary flashers for Beacons #2 - #4. The output of these modules is sent through the current sensing modules M2, M4, M6, and M8, then to the circuit breaker outputs B1 – B4. If any of these current sensing modules detect a lamp burnout, then that particular module would provide a contact closure along with a visual indication on PL2, PL3, PL4, or PL5 indicators for that lamp circuit.

*** Once the cause of the failure has been corrected, the unit will need to be reset by shutting off the service breaker to the unit.**

4.0 MAINTAINANCE GUIDE

4.1 RED OBSTRUCTION LIGHTING

The only required maintenance needed to be performed is replacement of the lamps in the L-864 fixture. Lamps should be replaced after being operated for not more than 75 percent of the rated life, or immediately upon failure, as per 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 backward.

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

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

4.2.5 Close the lens and allow the latch pin to drop in the recessed slot.

4.2.6 Tighten the wing nut snug, then ¼ turn more.

4.3 CONTROLLER

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

4.4 PHOTOCELL

The photocell is a sealed unit. No maintenance is needed nor required, other than replacement as needed.

5.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120 – 240V AC PHOTOCELL
1	VJ1816HWPL2	ENCLOSURE
8	8WA1204	TERMINAL BLOCK (TB1 & TB2)
6	S261-D10	10 amp CIRCUIT BREAKER (B1 – B4)
2	8WA1808	END STOP
1	STJ01002	PHOTOCELL BYPASS SWITCH (SW1)
1	V275LA20A	METAL OXIDE VARISTOR (MOV 1, MOV 2)
2	9KE-240V	SPDT 240V AC RELAY (K1 – K6)
4	CM-250	BEACON ALARM MODULES (M2, M4, M6, AND M8)
1	PRD7AYO-240V	POWER RELAY 240V (PRD)
1	CL-523 G	GREEN LED INDICATOR FOR POWER ON (PL1)
4	Cl-523 R	RED LED INDICATOR FOR BEACON LAMP BURNOUT (PL2 – PL5)
1	TERMBLK141-12	12 PART TERMINAL BLOCK (TB4)
6	PB27E122	OCTAL RELAY SOCKETS
1	SSPIGTAIL	SUN SWITCH PIGTAIL
1	CURBLK	3 PART TERMINAL BLOCK (TB5)
1	TERMBLK141-7	7 PART TERMINAL BLOCK (TB3)
1	PF-250	SOLID STATE FLASHER (M1)
2	SF-250	SOLID STATE LOAD CONTACTOR (M3, M5, AND M7)

6.0 SUGGESTED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120 – 240V AC PHOTOCELL
1	CM-250	BEACON ALARM MODULES (M2, M4, M6, AND M8)
1	9KE-240V	SPDT 240V AC RELAY (K1 – K6)
1	PF-250	SOLID STATE FLASHER (M1)
1	SF-250	SOLID STATE LOAD CONTACTOR (M3, M5, AND M7)

TWR Lighting, Inc.

Enlightened Technology S.M.

AA4M230VW/IND 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 150/5345-43E 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 Technology S.M.

AA4M230VW/IND CONTROLLER

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 Technology S.M.

AA4M230VW/IND CONTROLLER

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 Technology℠

AA4M230VW/IND 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

TWR Lighting, Inc.

Enlightened Technology℠

AA4M230VW/IND 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:_____

_____

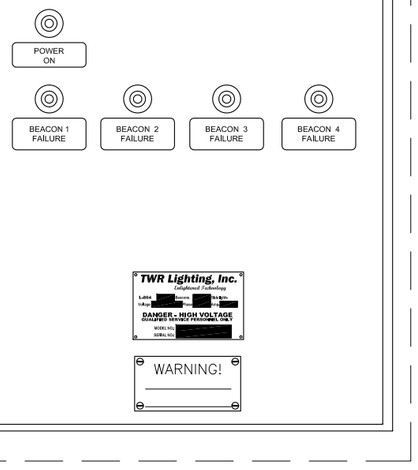
PLEASE RETURN PRODUCT TO: 4300 WINDFERN RD #100 HOUSTON TX 77041-8943

*CUSTOMER ALARM POINTS

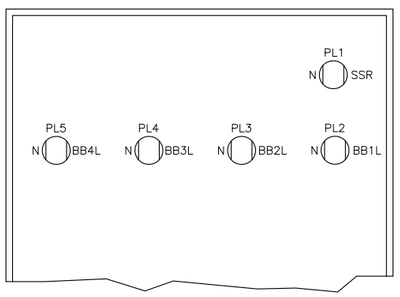
C = ALARM COMMON
PFNO/PFNC = POWER FAILURE
LONO/LONC = LIGHTS "ON"
B1NO/B1NC = BEACON #1 BURNOUT
B2NO/B2NC = BEACON #2 BURNOUT
B3NO/B3NC = BEACON #3 BURNOUT
B4NO/B4NC = BEACON #4 BURNOUT

*ALARM OUTPUTS ARE FORM C.

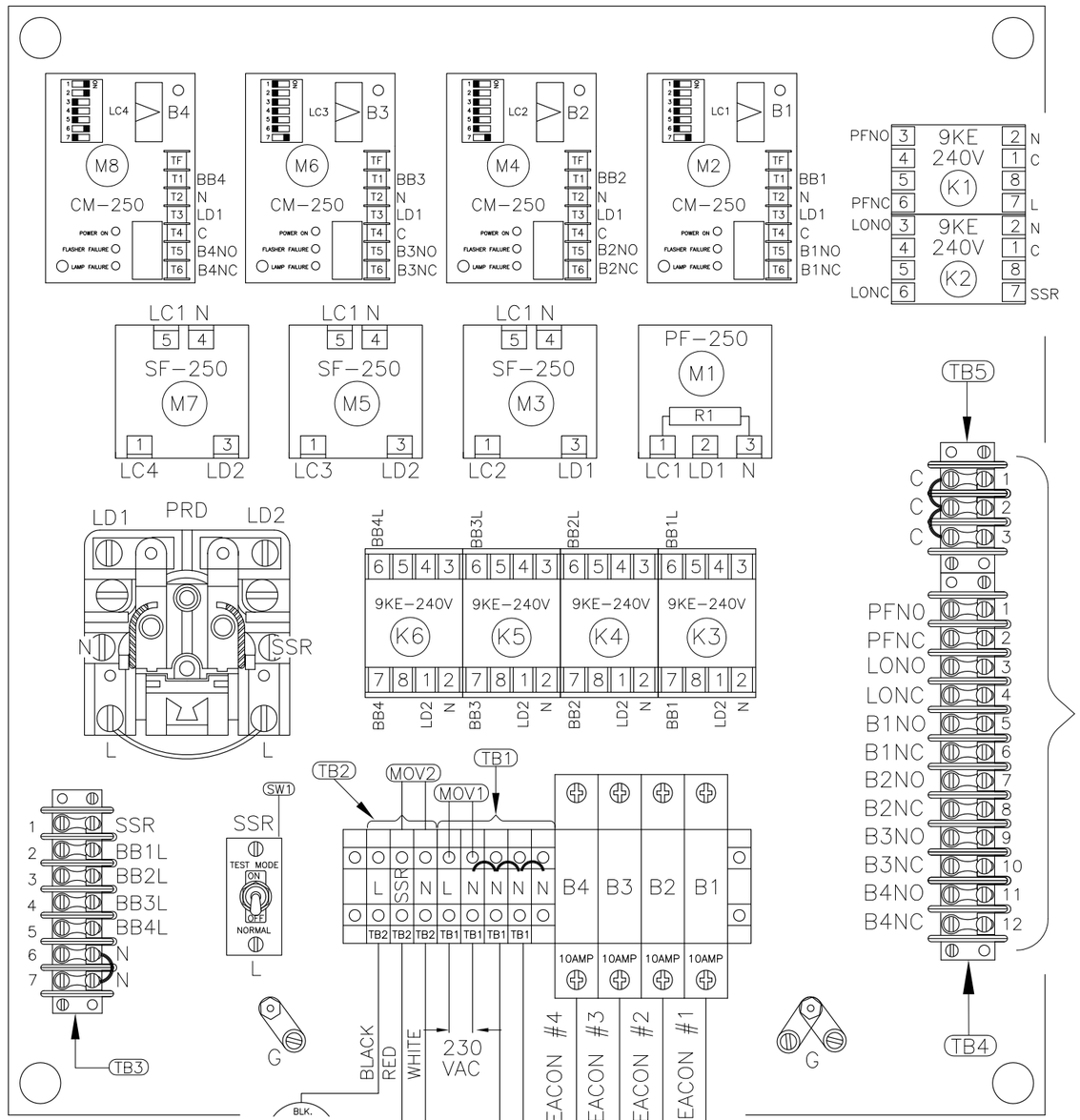
ENCLOSURE DOOR FRONT VIEW

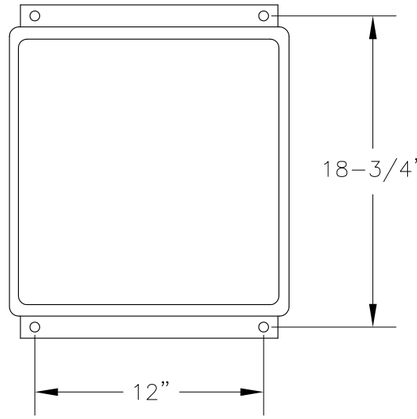


SCHEMATIC TAG	DESCRIPTION
PL1	POWER ON INDICATOR (GREEN)
PL2	BEACON 1 FAILURE (RED)
PL3	BEACON 2 FAILURE (RED)
PL4	BEACON 3 FAILURE (RED)
PL5	BEACON 4 FAILURE (RED)



ENCLOSURE DOOR BACK VIEW





MOUNTING DIMENSIONS
(FOR CABINET)

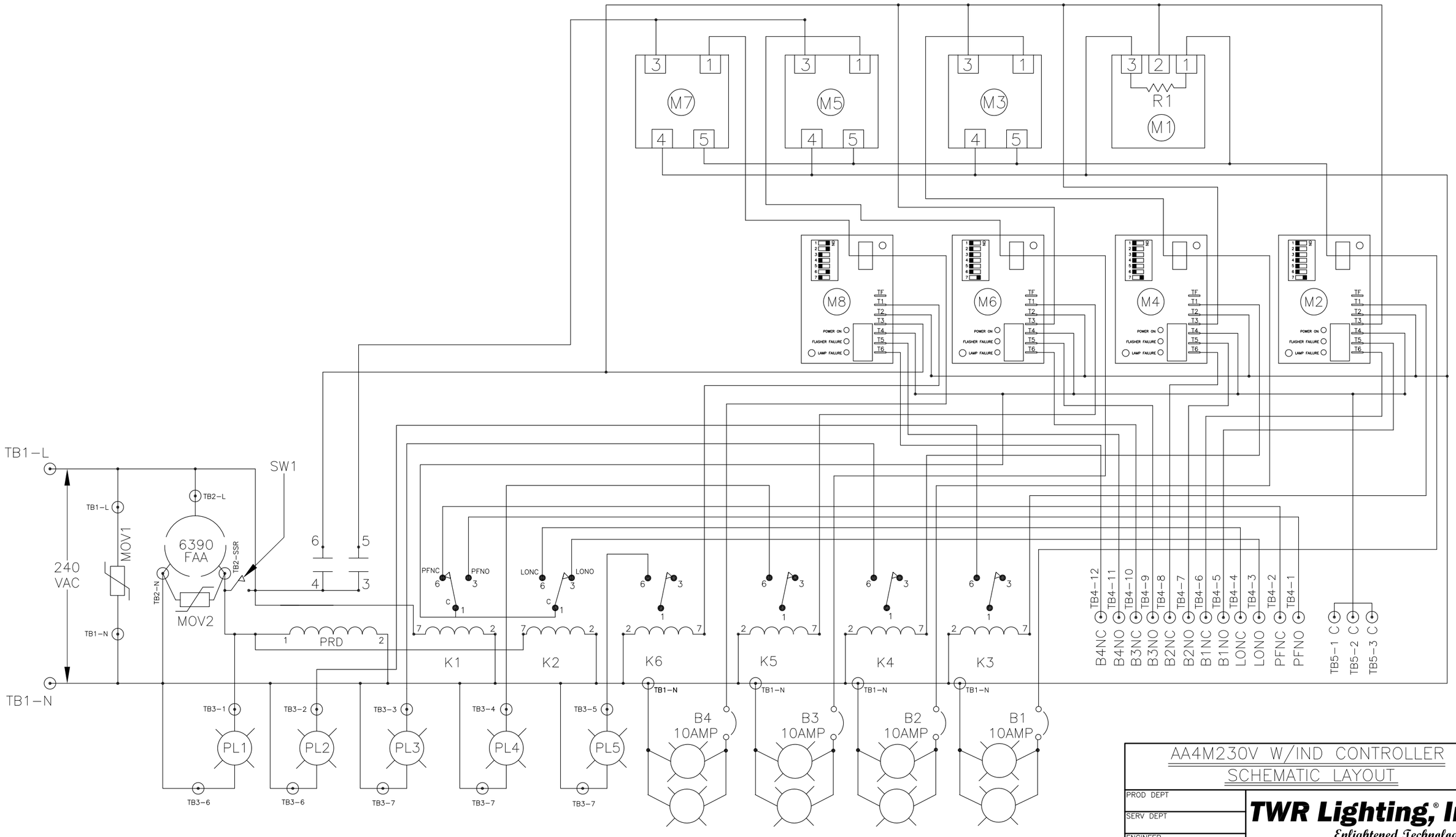
NOTES:

1. WHEN REPLACING METAL BASE 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) B1 TO B1 TO B1.

DATE:	LTR.	REVISION
05/29/12	A	V.H. ADDED N TO TB1

AA4M230V W/IND CONTROLLER
CHASSIS LAYOUT

PROD DEPT	TWR Lighting, Inc. Enlightened Technology®
SERV DEPT	
ENGINEER	
DRAWN BY V.HERNANDEZ	SHEET SIZE B / SHEET QTY. 1 OF 1
DATE 03/01/12	SCALE N.T.S. / DWG. NO. 1280–R



230V 700 WATT BEACON LAMPS

DATE:	LTR.	REVISION
05/29/12	A	V.H. K1 TO PFNC

AA4M230V W/IND CONTROLLER SCHEMATIC LAYOUT

PROD DEPT

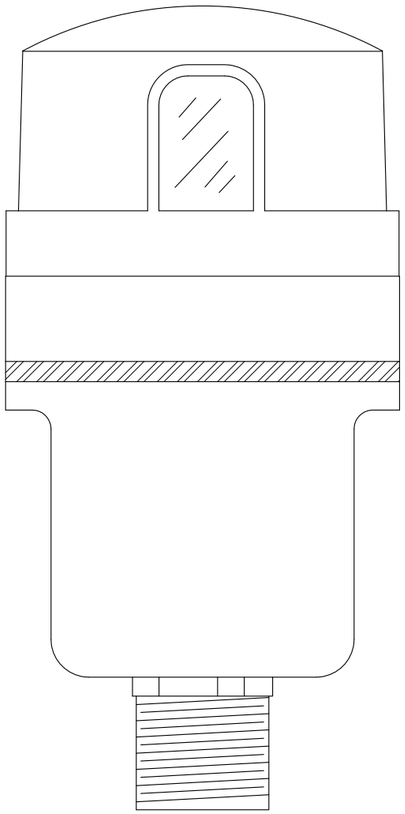
SERV DEPT

ENGINEER

TWR Lighting,® Inc.
Enlightened Technology®

DRAWN BY	SHEET SIZE	SHEET QTY.
V.HERNANDEZ	B	1 OF 1
DATE 03/02/12	SCALE N.T.S.	DWG. NO. 1280–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.



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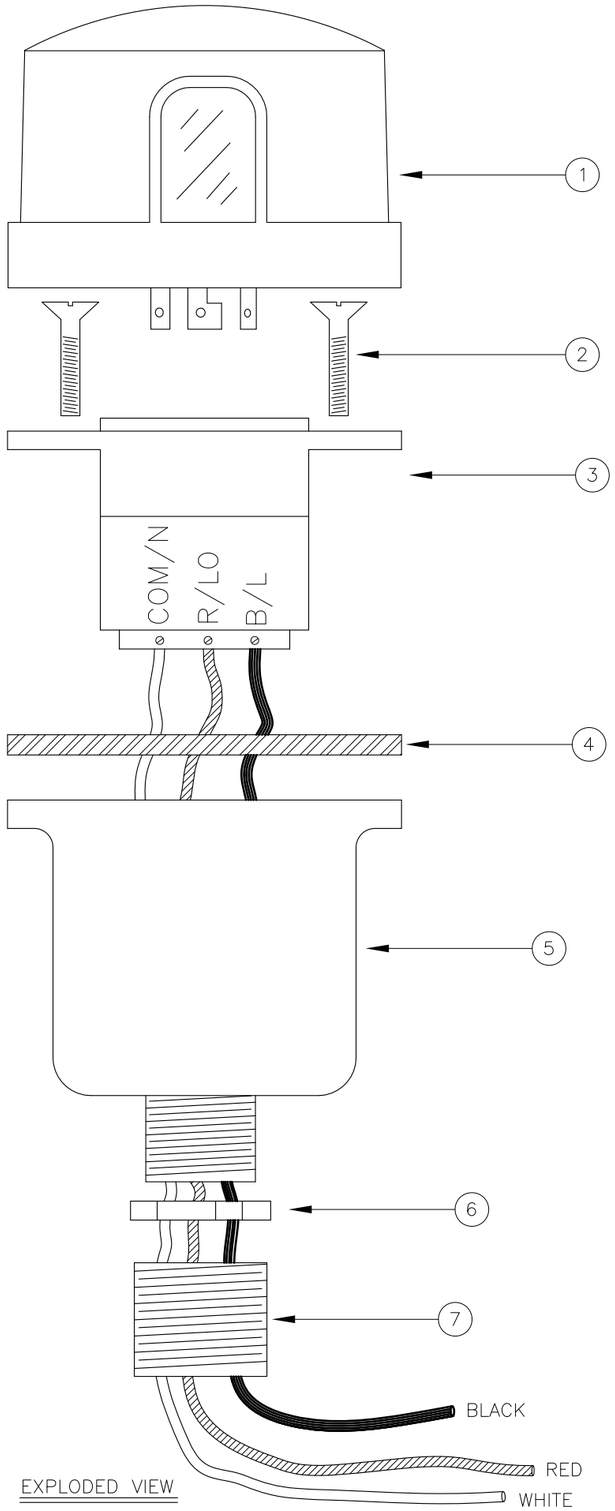


EXPLODED VIEW

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:

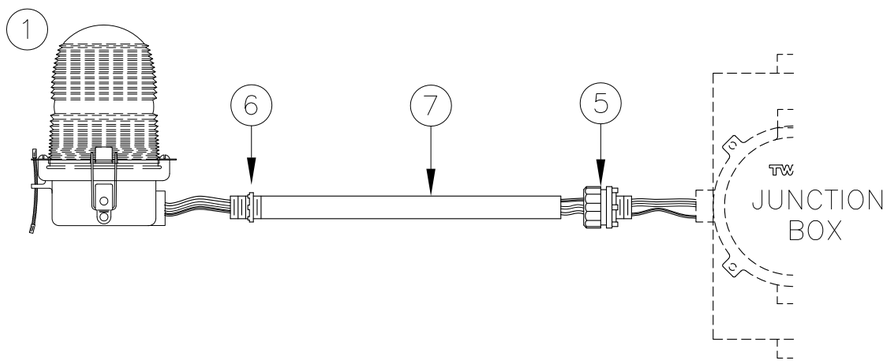
1. ITEM #7 CAN BE USED TO REDUCE 3/4" CONDUIT TO 1/2" CONDUIT AT THE HOUSING OR AT THE CONTROLLER ITSELF.
2. IF ADDITIONAL WIRE IS REQUIRED OVER THE FACTORY 20', USE THE FOLLOWING CHART.

   21' TO 300' – 16 AWG TFFN
   301' TO 500' – 14 AWG TFFN
3. WIRE CONNECTIONS ARE TO BE TINNED AT ITEM 3.

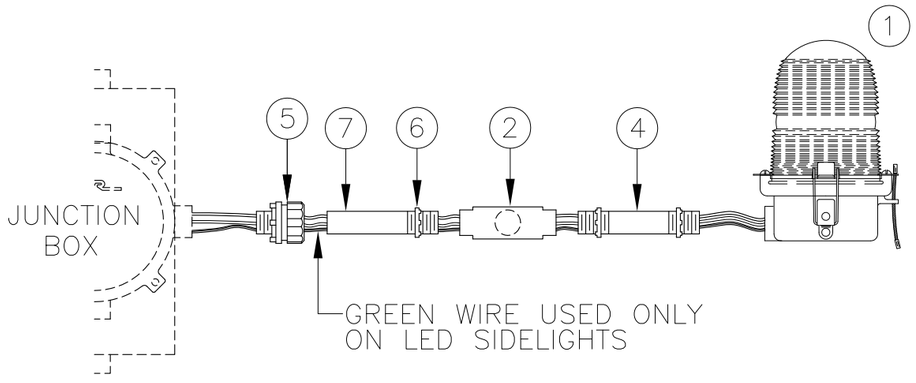
DATE:	LTR.		REVISION
11/17/10	D	E.A.S	CHG. LABELS

PHOTOCELL HOUSING DETAIL

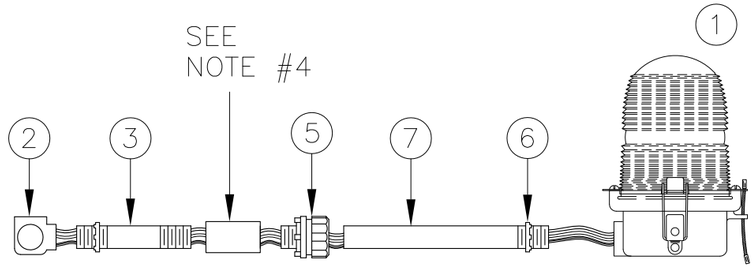
PROD DEPT	**TWR Lighting, Inc.** *Enlightened Technology®*
SERV DEPT	
ENGINEER	
DRAWN BY: E.A.SALAZAR	SHEET SIZE: B / SHEET QTY.: 1 OF 1
DATE: 10/18/95	SCALE: N.T.S. / DWG. NO.: 100239



VIEW A



VIEW B

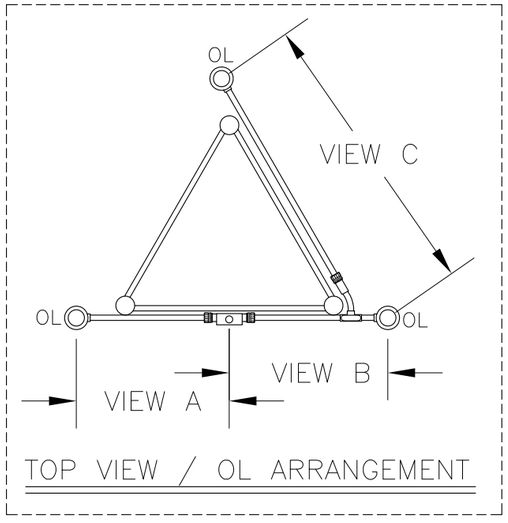


VIEW C

BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	3	OL1/LED	3/4" OBSTRUCTION LIGHT
2	1	T27CG	3/4" CONDULET W/COVER AND GASKET
3	1	EL3430	3/4" 30° ELBOW
4	1	N34T3	3/4" x 3" NIPPLE
5	3	HC402	3/4" NO THREAD CONNECTOR
6	5	A314	3/4" CONDUIT LOCKNUTS
7	30'	CONDUIT34	3/4" CONDUIT

* = ITEMS NOT SHOWN



TOP VIEW / OL ARRANGEMENT

NOTES:

1. THIS DRAWING IS A TYPICAL INSTALLATION DETAIL FOR 3 OL-1 PER LEVEL SYSTEM.
2. IN VIEW C ITEM NUMBER 3 MAY BE OMITTED WHEN ARRANGING FOUR LEG TOWERS.
3. ITEMS #7 CUT TO LENGTH FOR PROPER EXTENSION OF OL1 FROM STRUCTURE (6"-12"). ATTACH ITEM #5 TO UNTHREADED CONDUIT TO COMPLETE ASSEMBLY.
4. USE COUPLING THAT IS PROVIDED BY ITEM #7.
5. GREEN WIRE USED ONLY ON LED SIDELIGHTS

SLASSM

SIDELIGHT MOUNT ASSEMBLY

(10' FACE WIDTH MAX W/30' CONDUIT LISTED)

DATE:	LTR.	REVISION
04/05/07	A	J.L.B. UPDATED TO LED

PROD DEPT

SERV DEPT

ENGINEER

TWR Lighting,® Inc.
Enlightened Technology®

DRAWN BY F.DELACRUZ | SHEET SIZE B | SHEET QTY. 1 OF 1

DATE 05/23/00 | SCALE N.T.S. | DWG. NO. 100489

TWR Lighting, Inc.®

FAA Approved L-810
Single Obstruction Light Side Hub
OL1

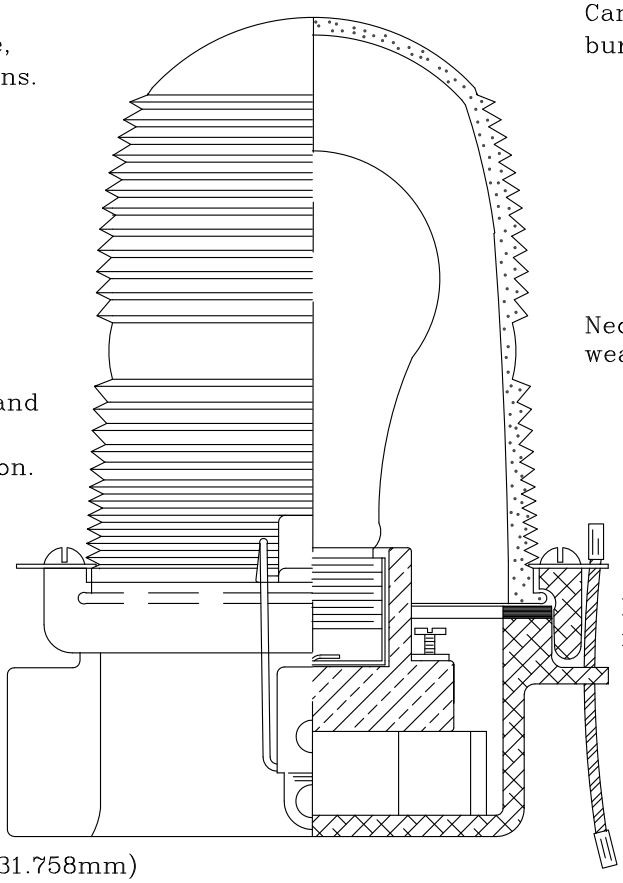
FM10018_RD.DWG

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.



Neoprene gasket for weatherproofing.

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

High quality porcelain receptacle.

Stainless steel safety cable.

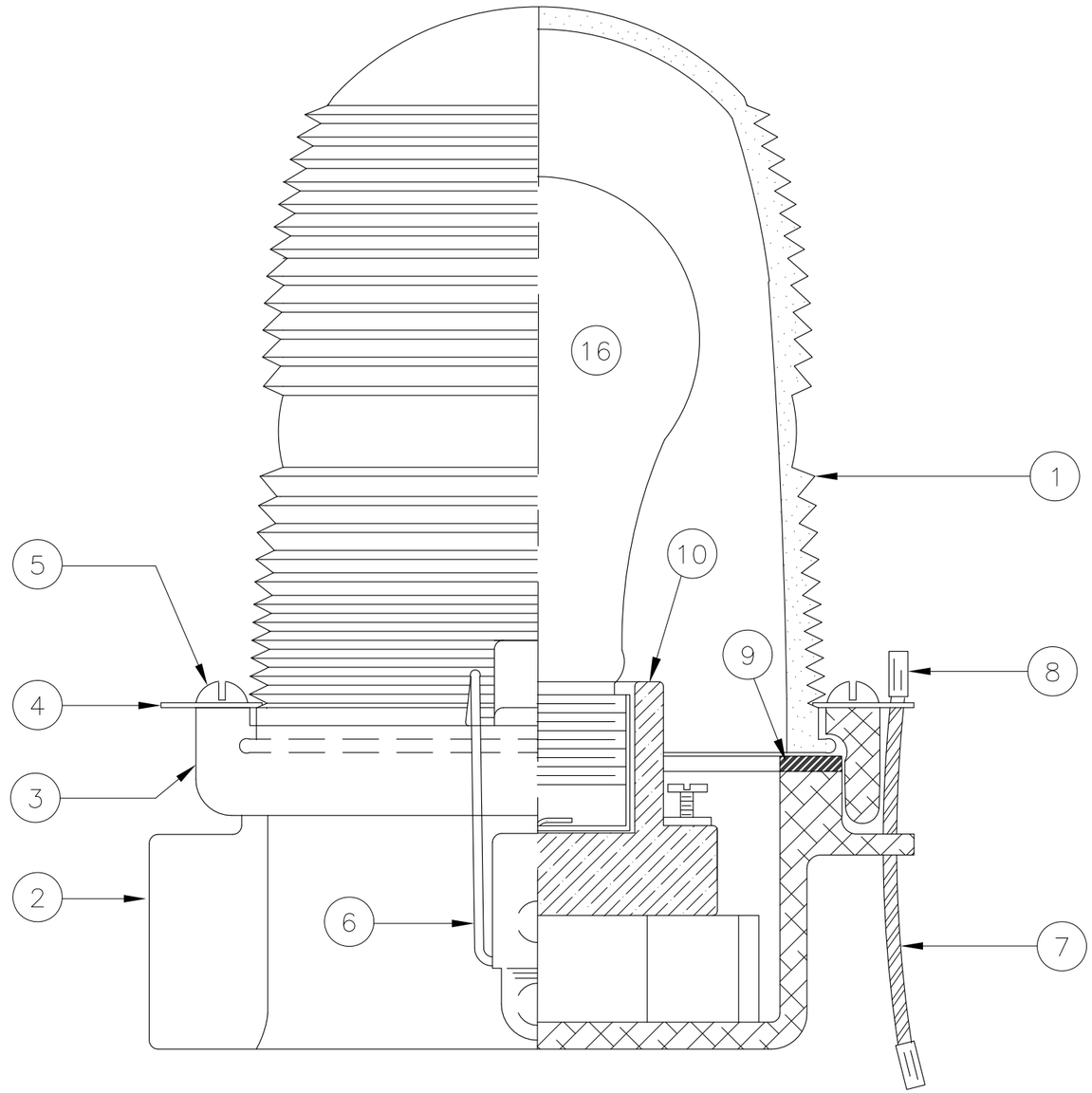
Specify conduit size
3/4", 1", 1-1/4" NPT
(19.055mm), (25.407mm), (31.758mm)

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



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
* 11	4	18PRSS	1/8 POP RIVETS
* 12	1	A314	3/4" CONDUIT LOCKNUT
* 13	2	104G	WHITE TEFLON WASHER
* 14	2	832X34PH	8–32 X 3/4" S.S. RH SLOT
* 15	1	100327	OL–1 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.

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

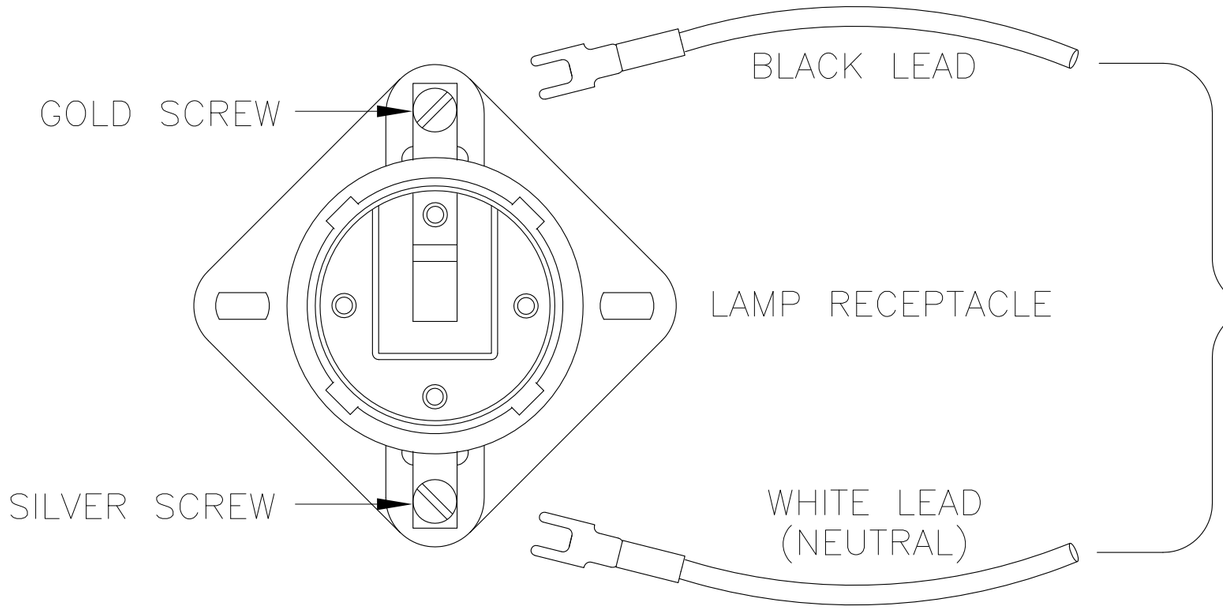
OL1

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

PROD DEPT
SERV DEPT
ENGINEER

TWR Lighting, Inc.
Enlightened Technology®

DRAWN BY E.A.SALAZAR
SHEET SIZE B
SHEET QTY. 1 OF 1
DATE 1/7/92
SCALE FULL
DWG. NO. 279–OL



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

SIDELIGHT RECEPTACLE WIRING

PROD DEPT	
SERV DEPT	
ENGINEER	

TWR Lighting,® Inc.
Enlightened Technology®

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	

TWR Lighting,® Inc.

FAA Approved L–864
300 mm BEACON

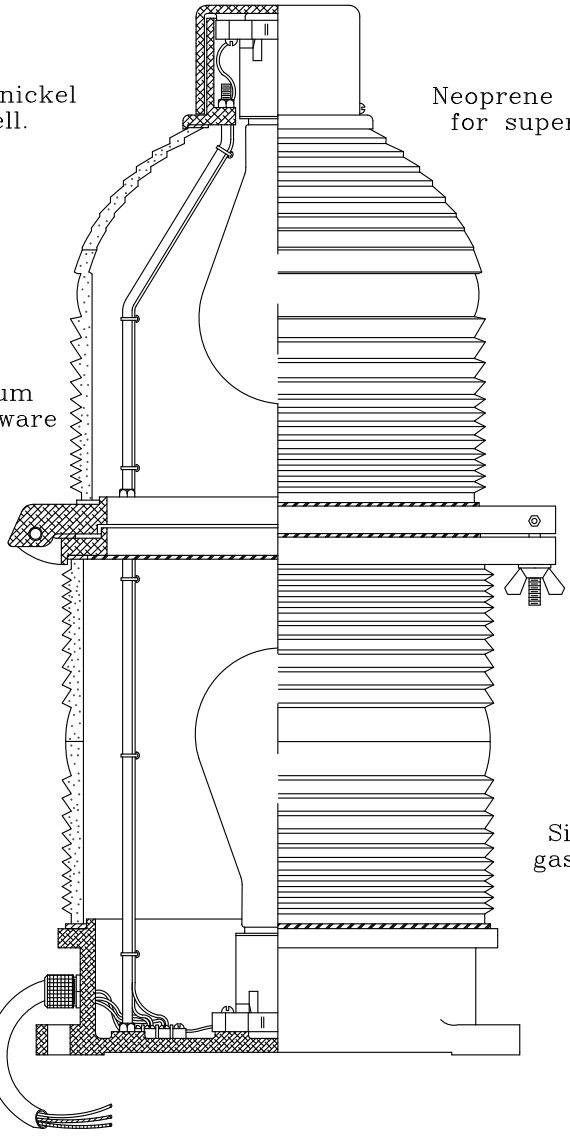
FM10017RB.DWG

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.

Porcelain receptacles with nickel plate brass bayonet shell.

Neoprene and Teflon gaskets for superior weather seal.

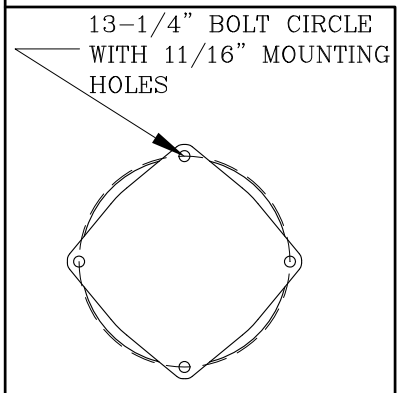
High grade copper free aluminum castings and stainless steel hardware for corrosion protection.



Stainless steel wingnut means no special tools required to change bulbs.

High temperature resistant wire and tie wraps.

Silicone fused lenses eliminates gasket "dead spot" at light focus.



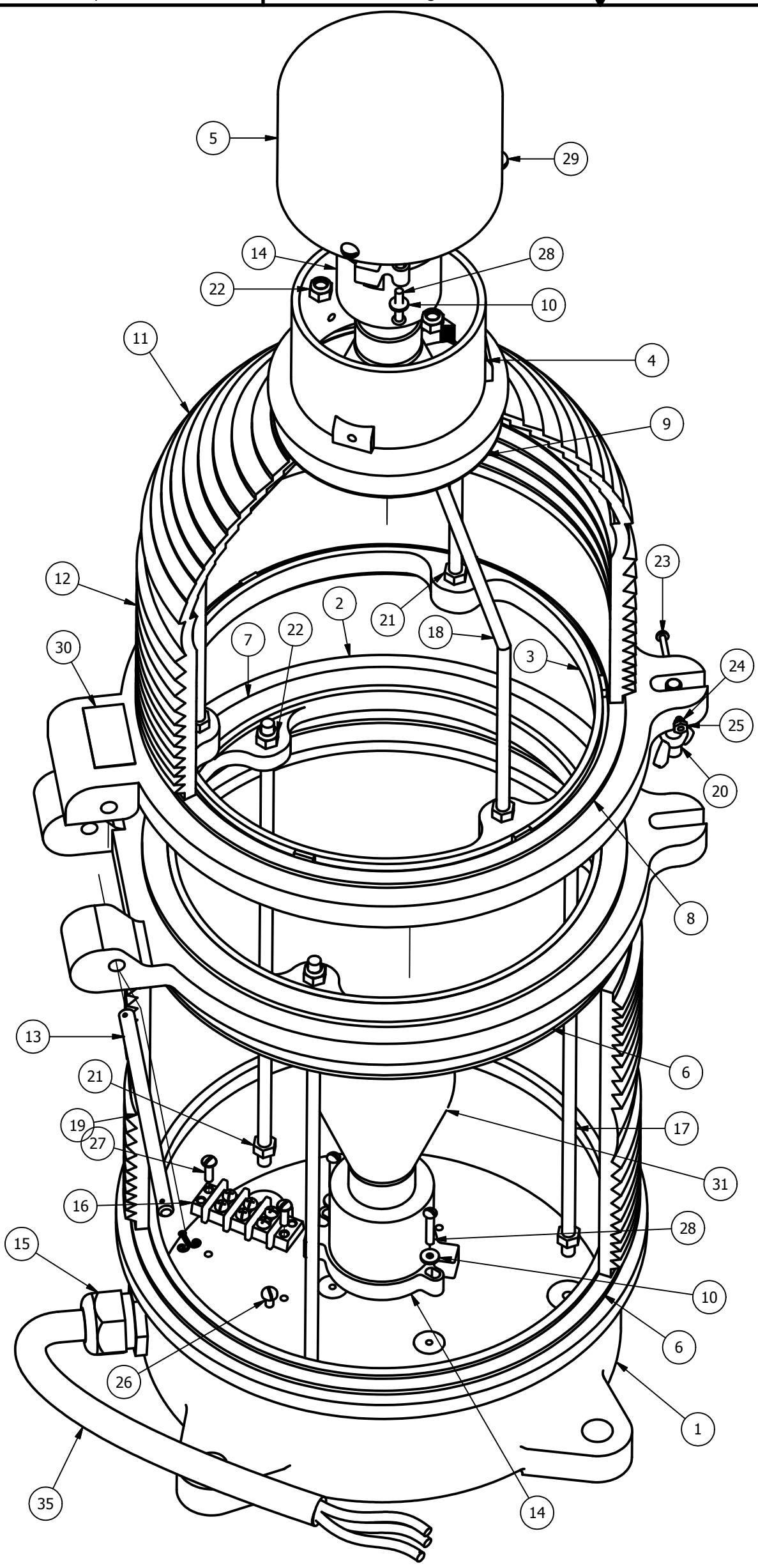
BASE DETAIL

General Specifications

Height 30.5 inches (77.47 cm)
Weight 68 lbs (30.8 kg)
Power 120 to 240, 50 or 60 cycle
Uses two 620W or 700W, 120V
or 500W, 230V bulbs
Bulbs sold separately

5 foot, 3 or 4 conductor SO Cord pigtail
Standard 4 bolt pattern, 90 degrees, 13–1/4"

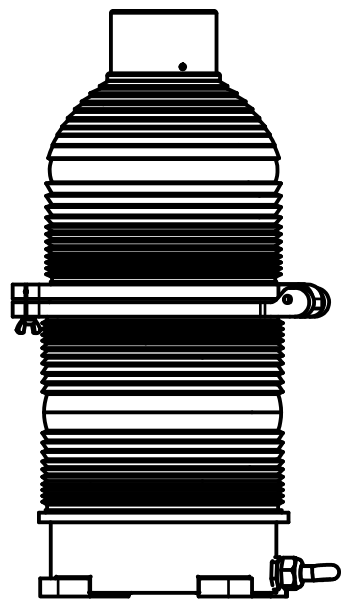
TWR Lighting, Inc.
4300 Windfern Rd. #100
Houston, Tx., 77041-8943
Phone: (713)973-6905
Fax: (713)973-9352
WEB SITE: http://www.twrlighting.com



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

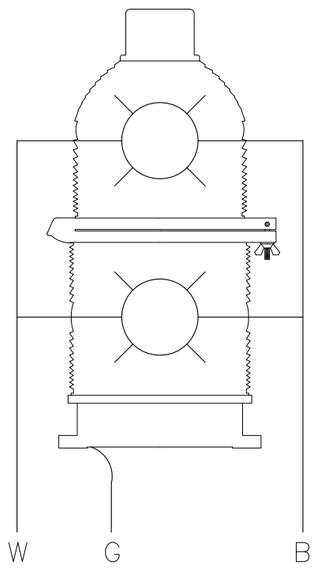
~ = PART SOLD SEPARATELY

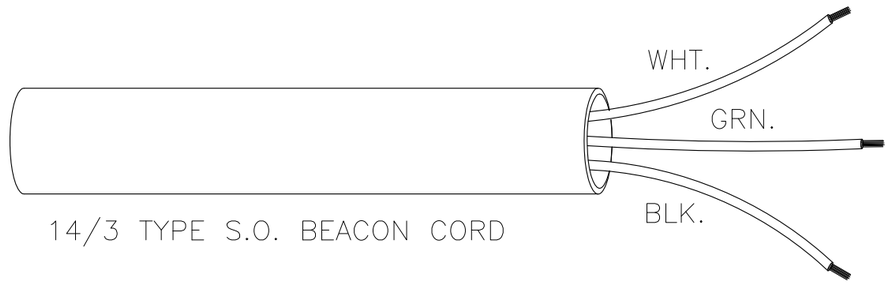


DRAWN J.L.BUSTAMANTE	11/27/07	**TWR Lighting,® Inc.** *Enlightened Technology®*	
CHECKED			
QA		TITLE 300 MM BEACON ASSEMBLY DETAIL	
MFG			
APPROVED			
		SIZE B	DWG NO 275-B
		SCALE	SHEET 1 OF 1

1) WHITE WIRE IS NEUTRAL TO BOTH LAMPS.
2) BLACK WIRE IS LINE TO BOTH LAMPS.
3) GREEN WIRE IS EARTH GROUND.

300 MM BEACON

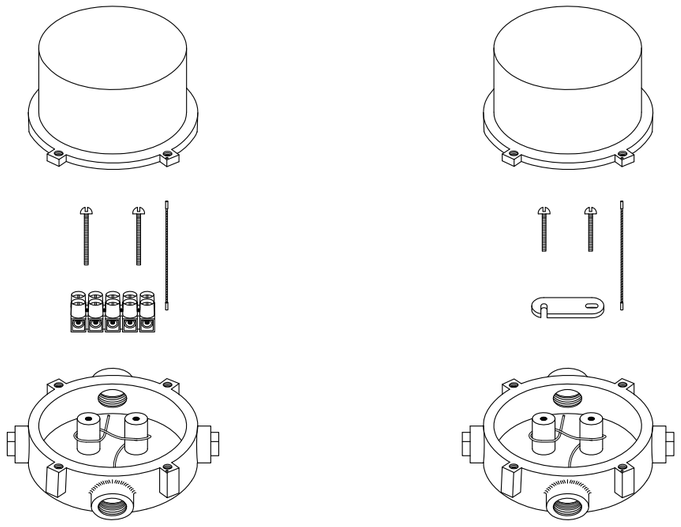




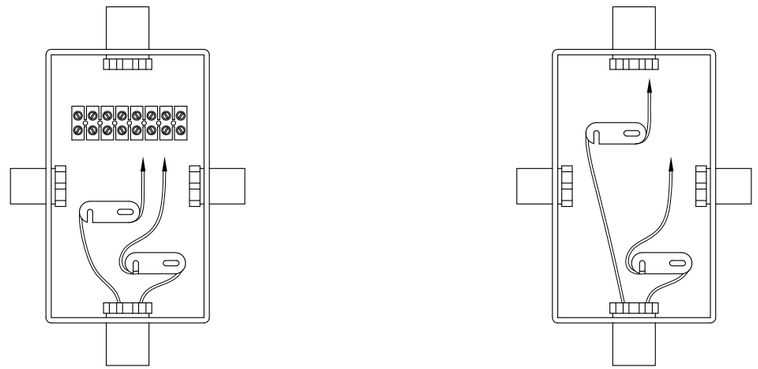
14/3 TYPE S.O. BEACON CORD

300 MM BEACON WIRE

PROD DEPT	**TWR Lighting,® Inc.** *Enlightened Technology®*
SERV DEPT	
ENGINEER	
DRAWN BY G.D. SEBEK	SHEET SIZE B / SHEET QTY. 1 OF 1
DATE 6/10/91	SCALE N.T.S. / DWG. NO. 273–B



JB–5 AND JB–0
3/4" JUNCTION BOX



JB–8 AND JB–8SR
1" JUNCTION BOX

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

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.

DATE:	LTR.	REVISION
9/29/00	A P.D.	UPDATED NOTES

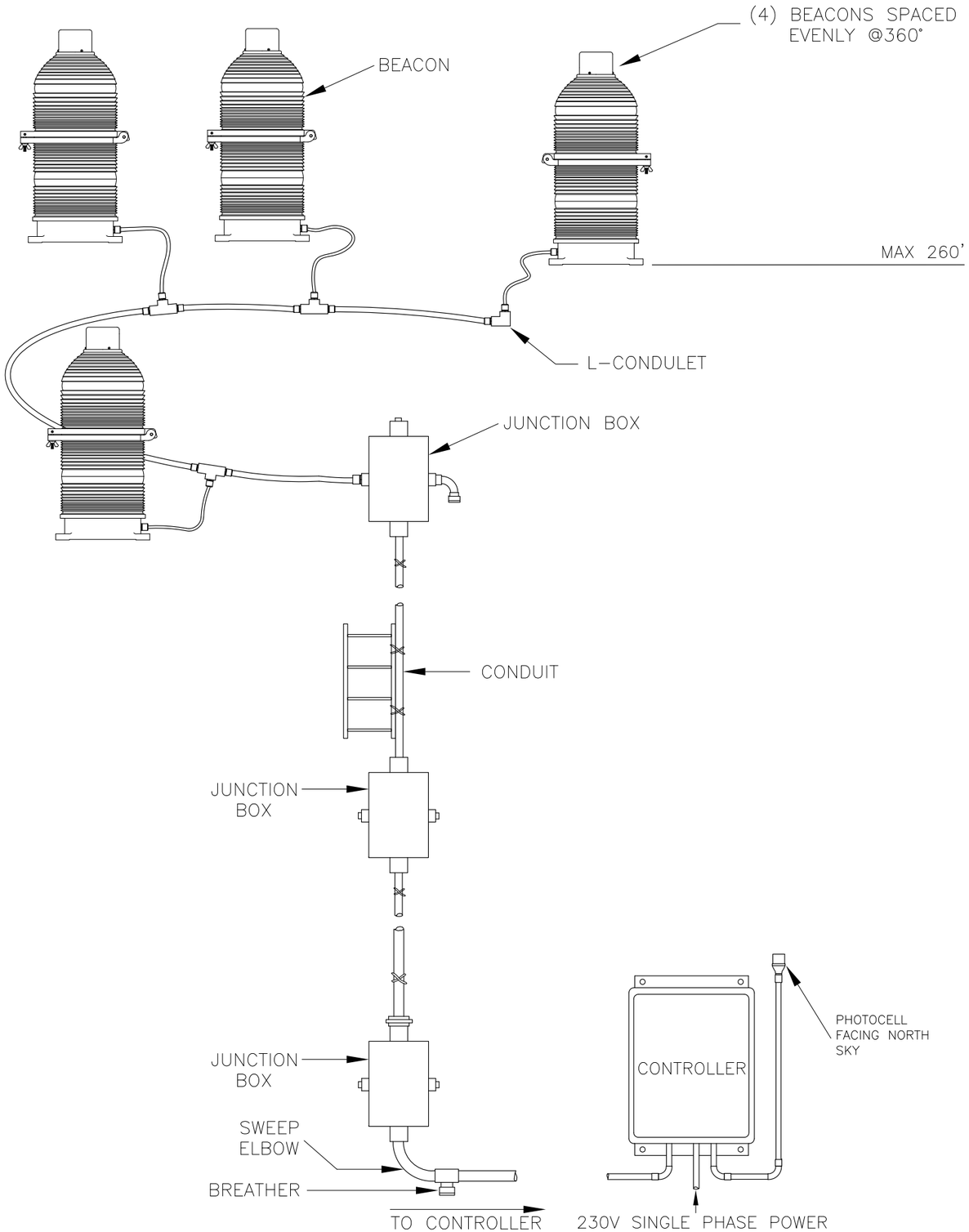
JUNCTION AND STRAIN RELIEF BOXES

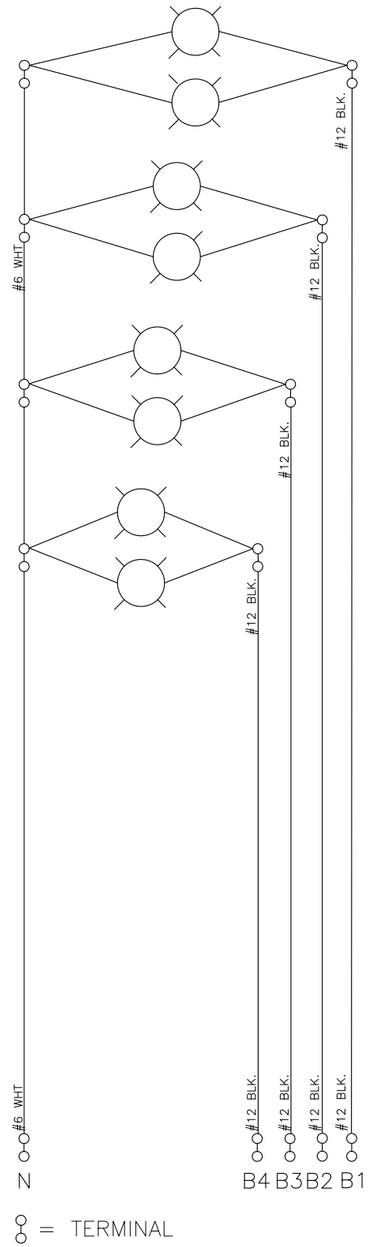
PROD DEPT
SERV DEPT
ENGINEER

TWR Lighting,® Inc.
Enlightened Technology®

DRAWN BY	SHEET SIZE	SHEET QTY.
G.D. SEBEK	B	1 OF 1
DATE 07/26/93	SCALE N.T.S.	DWG. NO. 100089

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.





230V

AA1/4 TYPICAL LAYOUT

VPI PROJECT #17454

PROD DEPT	**TWR Lighting, Inc.** *Enlightened Technology®*
SERV DEPT	
ENGINEER	
DRAWN BY: V.HERNANDEZ	SHEET SIZE: B / SHEET QTY.: 1 OF 1
DATE: 02/01/12	SCALE: N.T.S. / DWG. NO.: T1505