



4300 WINDFERN RD SUITE 100 - HOUSTON TX 77041-8943
VOICE (713) 973-6905 - FAX (713) 973-9352
web: 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 # _____ AA1/4MDLED _____

SERIAL # _____

PURCHASE DATE _____

PURCHASED FROM _____

TWR Lighting, Inc. **MARK**

Enlightened Technology®

AA1/4MDLED CONTROLLER

TABLE OF CONTENTS

1.0	GENERAL INFORMATION.....	1
2.0	INSTALLATION INSTRUCTIONS	2
2.1	MOUNTING THE CONTROL CABINET.....	2
2.2	EXTERNAL PHOTOCELL WIRING	2
2.3	POWER WIRING.....	3
2.4	DLEDBEACON2A AND OL2TRLED2 ALARM WIRING	3
3.0	THEORY OF OPERATION	6
3.1	POWER SUPPLY.....	6
3.2	OL2TRLED2.....	6
3.3	DLEDBEACON2A.....	6
4.0	MAINTENANCE	7
4.1	L-810 OL2TRLED2 OSTRUCTION LIGHTING.....	7
4.2	L-864 DLEDBEACON2A REPLACEMENT	7
4.3	L-864 CONTROLLER.....	7
4.4	PHOTOCELL.....	7
5.0	MAJOR COMPONENTS PARTS LIST	8
6.0	SUGGESTED SPARE PARTS LIST	9

WARRANTY & RETURN POLICY

RETURN MERCHANDISE AUTHORIZATION (RMA) FORMS

TWR Lighting, Inc. **HARK**

Enlightened Technology®

AA1/4MDLED CONTROLLER

APPENDIX

CHASSIS COMPONENT LAYOUT	1308-R
SCHEMATIC LAYOUT	1308-S
PHOTOCELL HOUSING DETAIL.....	100239 (REV H)
LED SIDELIGHT AND LED BEACON CURRENT SENSORS.....	100694 (REV H)
DLEDBEACON2A ASSEMBLY	101049
OL2TRLED2	1262-R
DLEDBEAXFER	1307-R
AA1/4MDLED LIGHTING KIT (1 OF 2)	T1645
AA1/4MDLED SCHEMATIC LIGHTING KIT (2 OF 2).....	T1645
JB82TC JUNCTION BOXES	100374 (REV A)
WRAPLOCK FASTENING DETAIL.....	100984

TWR Lighting[®], Inc. HARK[®]

Enlightened Technology[®]

AA1/4MDLED CONTROLLER

1.0 GENERAL INFORMATION

The TWR Lighting[®], Inc. (TWR[®]) AA1/4MDLED custom Controller is for A4 lighting of towers 151' to 350' AGL in accordance with the FAA Advisory Circular 70/7460-1K. All DLEDBEACON2A beacons should be placed at the top. The OL2TRLED2 should be placed at the 1/2 interval with respect to the overall tower height.

The flash rate of the DLEDBEACON2A beacons are 30 per minute. The OL2TRLED2 burn steady.

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

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

Power supplied to the controller shall be 120V AC single phase.

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

Controller functions that are monitored by remote alarms in the form of dry contact closures (Form C) 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.
DLEDBEACON2A	Will give an alarm in the event the backup LED within any of the DLEDBEACON2A fails, along with a visual indicator for that circuit.
FLASHER FAILURE	Will give an alarm in the event of failure of flasher.
OBSTRUCTION LIGHTS	Will give an alarm in the event the secondary LED lamp within any of the OL2TRLED2 fails, along with a visual indicator for that circuit.

TWR Lighting, Inc. HARK®

Enlightened Technology®

AA1/4MDLED CONTROLLER

2.0 INSTALLATION INSTRUCTIONS

2.1 MOUNTING THE CONTROL CABINET

(Refer to Drawing 1308-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 1308-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 "N," the black wire is connected to the socket terminal marked "Li," and the red wire is connected to the socket terminal marked "Lo." Care must be taken to assure that the photocell does not "see" any ambient light that would prevent it from switching into the nightmode.

2.1.2 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. As above, the photocell should be positioned so that it does not "see" ambient light, which would prevent it from switching to the nightmode. The photocell wiring is the same as in 2.1.1.

2.1.3 The wiring from the photocell, the service breaker, the DLEDBEACON2A beacons, and the OL2TRLED2 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 chassis. These connections are made as follows:

2.2 EXTERNAL PHOTOCCELL WIRING

(Refer to Drawing 1308-R)

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

AA1/4MDLED CONTROLLER

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 1308-R)

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

2.3.2 Circuit breaker needs to be rated at 10 amps.

2.3.3 Connect incoming 120V AC "Hot" to terminal block TB1 marked "L."

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

2.3.5 Connect the AC ground to the grounding lug on the aluminum mounting plate.

2.4 DLEDBEACON2A AND OL2TRLED2 ALARM WIRING

(Refer to Drawings 1308-R and 1308-S)

2.4.1 Alarm relays K1-K3, and alarm Modules M2 through M9, are provided for independent contact closures for: Power Failure, Lights "On," Flasher Failure, DLEDBEACON2A #1, #2, #3, and #4 Backup LED Burnout, and OL2TRLED2 #1, #2, #3, and #4 Secondary Lamp Burnout.

2.4.2 Alarm Wiring: To utilize all of the red light alarms, the customer will need eleven (11) pairs of wires to interface with his alarm device. One (1) wire from each of the eleven (11) pairs will terminate at the points marking common (C). The remaining wire from each pair will terminate as follows:

Power Failure Alarm: Connect to relay K1, terminal #3, for normally open, (OR) terminal #6, for normally closed monitoring.

TWR Lighting, Inc. **HARK**

Enlightened Technology®

AA1/4MDLED CONTROLLER

Lights “On” Event:	Connect to relay K2, terminal #3, for normally open, (OR) terminal #6, for normally closed monitoring.
Flasher Failure:	Connect to relay K3, terminal #6, for normally open, (OR) terminal #3, for normally closed monitoring.
“B1” Backup LED Burnout:	Connect to Module M6, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“B2” Backup LED Burnout:	Connect to Module M7, terminal #18, for normally open, (OR) terminal #16.
“B3” Backup LED Burnout:	Connect to Module M8, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“B4” Backup LED Burnout:	Connect to Module M9, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S1” Secondary Lamp Burnout:	Connect to Module M2, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S2” Secondary Lamp Burnout:	Connect to Module M3, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S3” Secondary Lamp Burnout:	Connect to Module M4, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.
“S4” Secondary Lamp Burnout:	Connect to Module M5, terminal #18, for normally open, (OR) terminal #16, for normally closed monitoring.

AA1/4MDLED CONTROLLER

2.4.3 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.

DLEDBEACON2A and OL2TRLED2:
Trip breakers on the controller panel.

AA1/4MDLED CONTROLLER

3.0 THEORY OF OPERATION

3.1 POWER SUPPLY

(Refer to drawings 1308-R and 1307-R)

120V AC enters the controller from the circuit breaker panel. Line “L” sits at the PRD, waiting to be switched, and also keeps the power failure relay K1 energized. When the 6390-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).

3.2 OL2TRLED2

(Refer to drawings 1308-R and 1307-R)

Line LDS is sent to Modules M2 through M5, which are current sensing modules for OL2TRLED2 fixtures. It is then sent to the circuit breaker outputs marked “S1-S4.” If modules M2 through M5 detect a Secondary LED Lamp Burnout, then that module would provide a contact closure along with a visual indication for that circuit.

3.3 DLEDBEAON2A

(Refer to drawings 1308-R and 1308-S)

Line LDB is sent to Module M1, and Modules M6 through M9. M1 is the primary flasher for all DLEDBEAON2A beacons. It is then sent to the current sensing Modules M6 through M9, then to the circuit breaker outputs marked “B1 – B4.” If Modules M6 through M9 detect a Backup LED burnout, then that module would provide a contact closure along with a visual indication for that circuit.

3.4 DLEDBEAXFER

(Refer to drawings 1308-R, 1308-S, and 1307-R)

120VAC is sent via “L1” to the DLEDBEAXFER units to energize the transfer module M1. When the main LED lamp fails in any of the DLEDBEAON2A beacons, it will transfer to the backup LED lamp.

Relay K3 is a flasher failure relay for the DLEDBEAON2A beacons. If Relay K3 detects a flasher failure, it would then provide a contact closure for the flasher circuit.

AA1/4MDLED CONTROLLER

4.0 MAINTENANCE

4.1 OL2TRLED2 LIGHTING

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

TOOLS REQUIRED: NONE

4.2 L-864 DLED BEACON2A REPLACEMENT

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

4.3 L-864 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 or required other than replacement as necessary.

AA1/4MDLED CONTROLLER

5.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120V – 240V Photocell
1	PF-250	120V – 240V Solid State Flasher (M1)
1	STA08015	35k ohm 20 watt Resistor (R1)
1	PRD7AG0	Mechanical Load Contactor (PRD)
3	PB27E122	Octal Sockets (K1 – K3)
2	KRPA5AG120V	SPDT Relay (K1 – K2)
1	SPEC224	SPDT Delay on make Relay (K3)
1	STJ01002	Switch (SW1)
1	VJ1412HWPL2	Enclosure
8	8WA1204	Terminal Block (TB1 & TB2)
4	8WA1802	Rail Link
2	8WA1808	Terminal Block End Stop
8	S261D1	1 amp Circuit Breakers (B1 – B4) (S1 – S4)
8	RM4JA31MW	LED sidelights and LED beacons Current sensors (M2 – M9)
1	S261D6	6 amp circuit breaker (L1)

AA1/4MDLED CONTROLLER

6.0 SUGGESTED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	120V – 240V Photocell
1	PF-250	120V – 240V Solid State Flasher (M1)
1	KRPA5AG120V	SPDT Relay (K1 – K2)
1	SPEC224	SPDT Delay on make Relay (K3)
1	RM4JA31MW	LED sidelights and LED beacons Current sensors (M2 – M9)

TWR Lighting[®], Inc. HARK[®]

Enlightened Technology[®]

AA1/4MDLED 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 75% of the minimum intensity requirements as defined in the FAA Advisory Circular 150/5345-43G dated 09/26/12. All warranty replacement “LED Product” is warranted only for the remainder of the original warranty of the “LED Product” replaced. Replacement “LED Product” will be equivalent in function, but not necessarily identical, to the replaced “LED Product.”

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

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

- 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.



Enlightened Technology®

AA1/4MDLED CONTROLLER

Warranty & Return Policy (continued)

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

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).

TWR Lighting, Inc. **HARK**

Enlightened Technology®

AA1/4MDLED 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 **\$75.00 per hour testing charge (1 hour minimum), which will be invoiced to the customer.** At this time the customer may decide to have the tested part(s) returned and is responsible for the return charges.
- 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 **\$75.00 per hour testing charge (1 hour minimum), which will be invoiced to the customer.** Should the returned parts be determined to be repairable, a written estimated cost of repair will be sent to the customer for their written approval prior to any work being performed. In order to have the tested part(s) repaired and/or returned, the customer must issue a purchase order and is responsible for the return shipping charges.

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.



Enlightened Technology®

AA1/4MDLED 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.



Enlightened Technology®

AA1/4MDLED 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



Enlightened Technology®

AA1/4MDLED 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

PFNO/PFNC = POWER FAILURE

LONO/LONC = LIGHTS "ON"

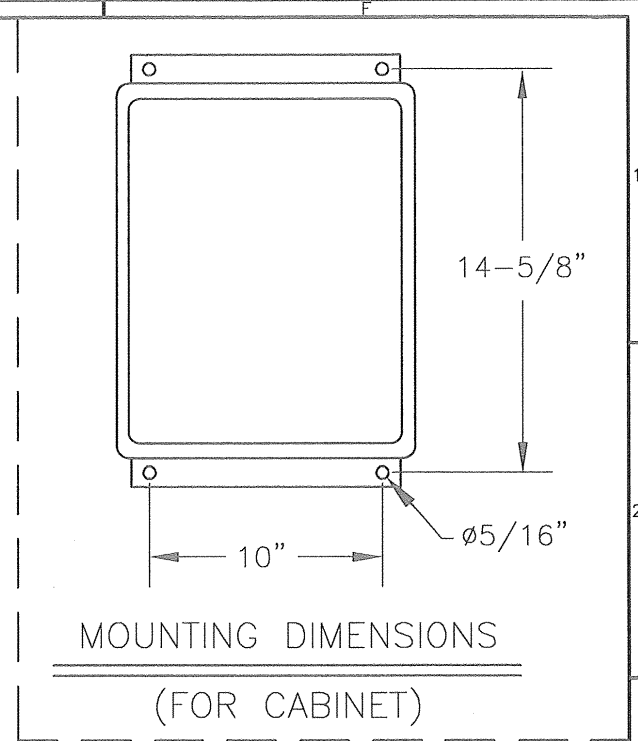
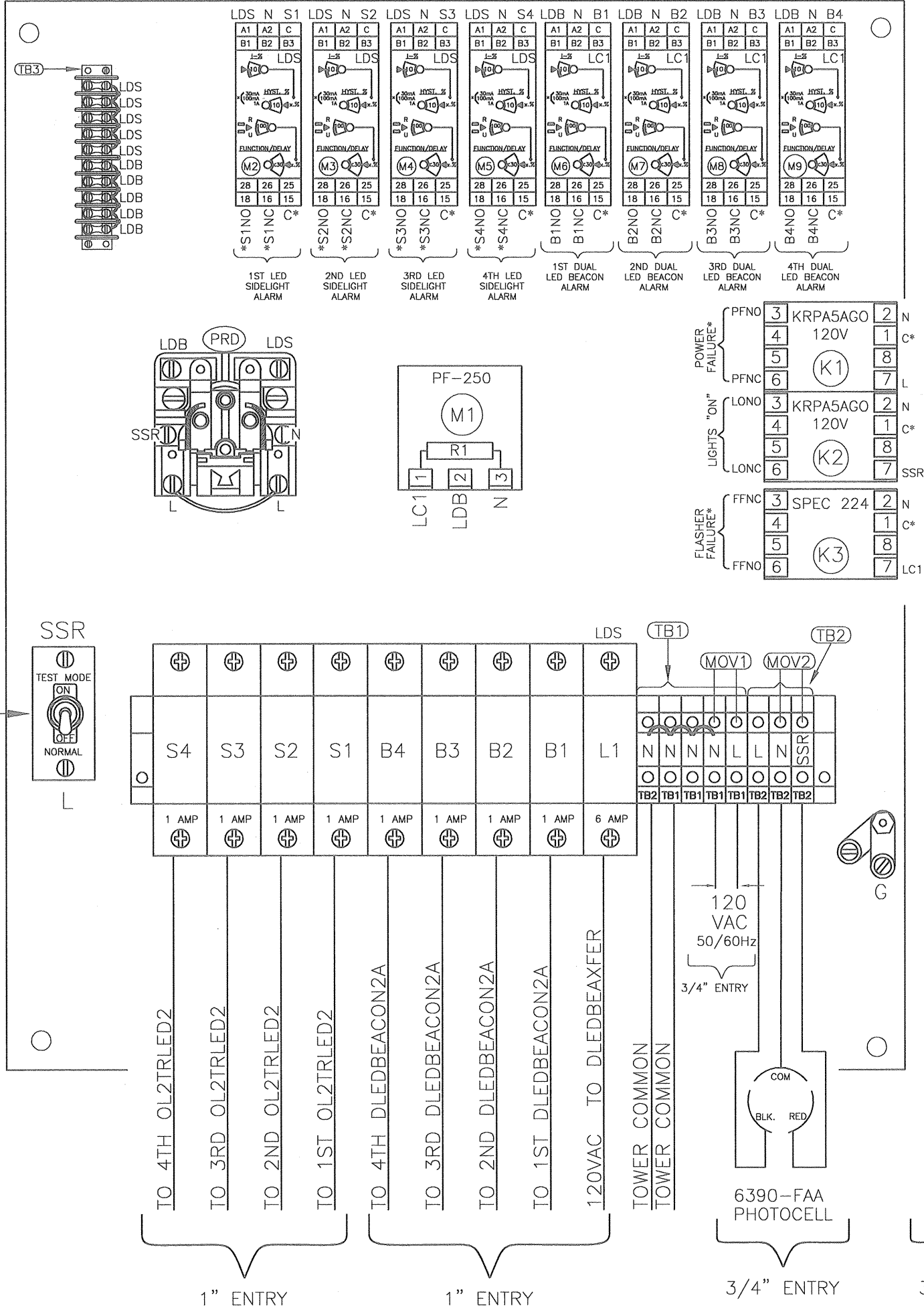
$$S1N0/S1NC = 1ST\ OL2TRLED2$$

S3N0/S3NC = 3RD OL2TRLED2 BURNOUT

B1N0/B1NC = 1ST DLED BEACON 2A BURN

B3N0/B3NC = 3RD DLEDBEAON2A BURNOUT
B3N0/B3NC = 3RD DLEDBEAON2A BURNOUT

* ALARM OUTPUTS ARE FORM C.



NOTES:

1. WHEN REPLACING PF-250 USE HEAT SINK COMPOUND BETWEEN MODULE AND ALUMINUM PLATE.

2. PLUG 6390-FAA PHOTOCCELL INTO 43109 TWIST LOCK RECEPTACLE AND TWIST TO LOCK.
3. WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) LDS TO LDS TO LDS.

PROJECT : CHINA STEEL CORP.

AA1/4MDLED CONTROLLER CHASSIS LAYOUT

120V 50/60 Hz

PROD DEPT

SERV DEPT

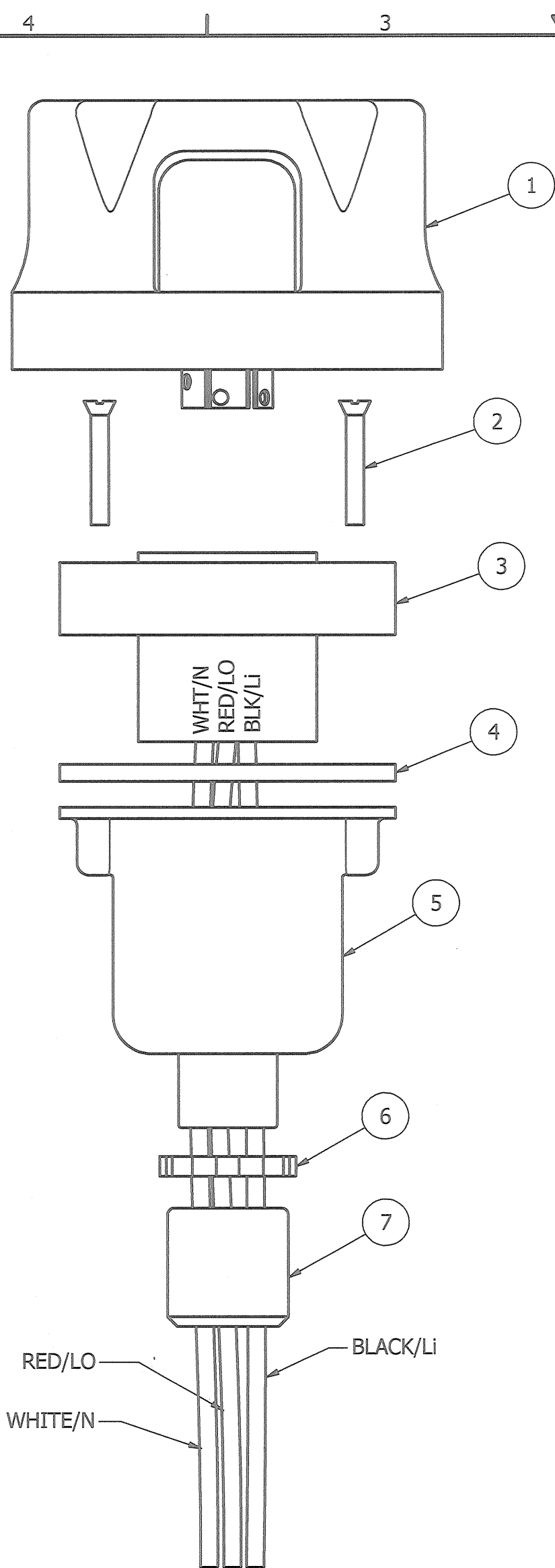
ENGINEER

DRAWN BY

DATE _____

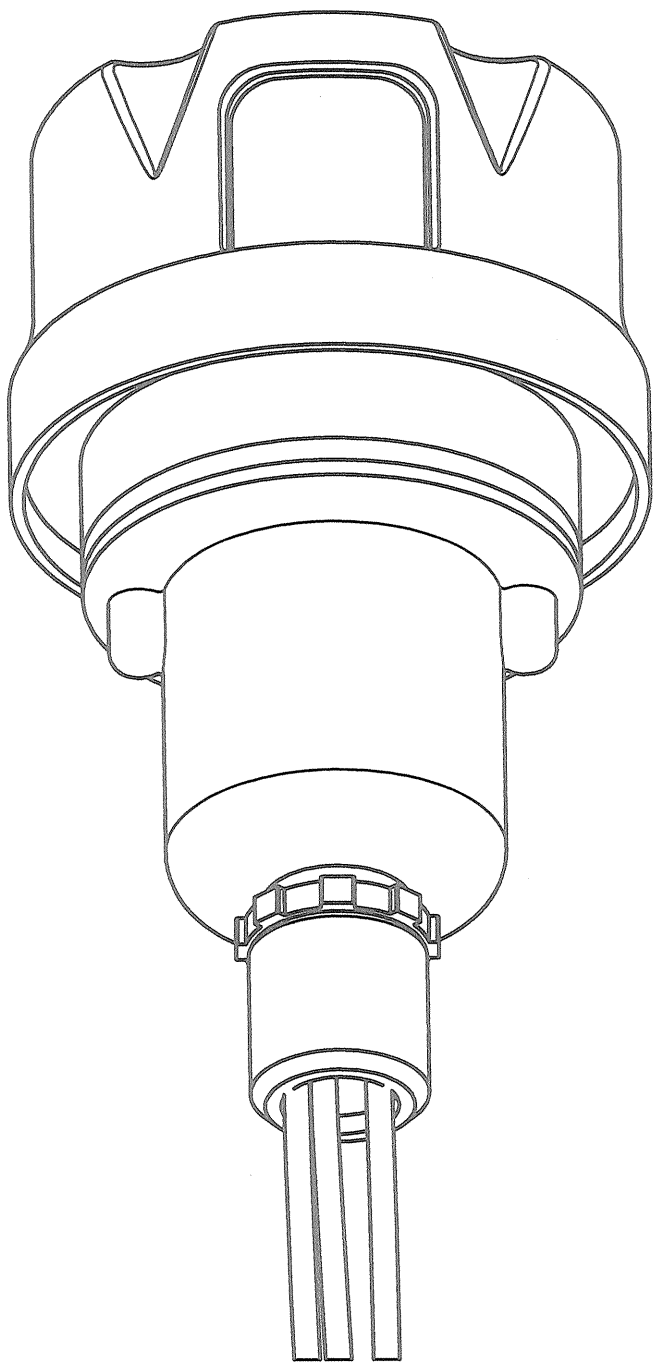
The use of non-OFAA requirements

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.



EXPLODED VIEW

PARTS LIST		
ITEM	QTY	PART NUMBER
1	1	PHOTOCELL
2	2	6-32 x 1" 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



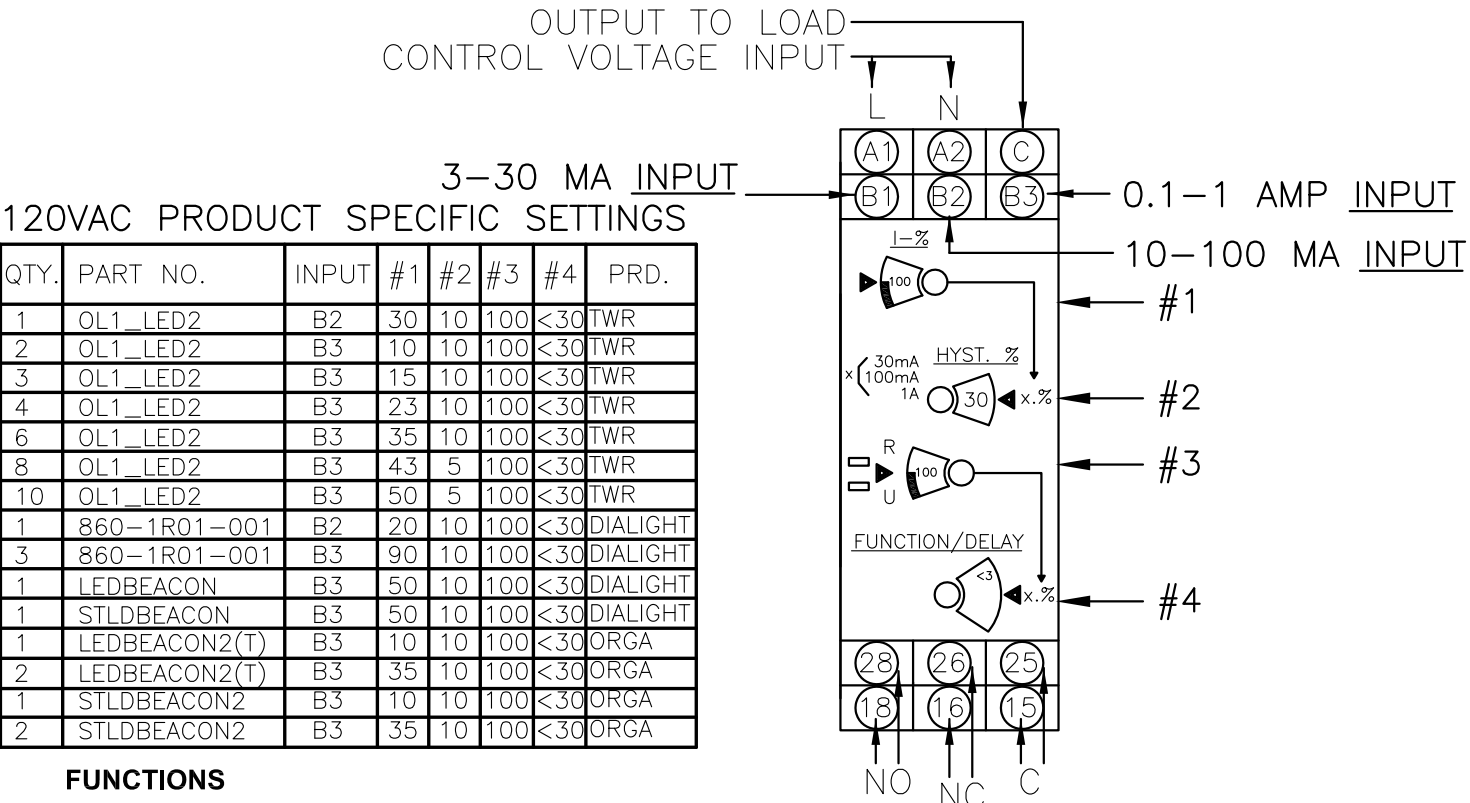
ASSEMBLY

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

PHOTOCELL HOUSING DETAIL			
PROD. DEPT.		TWR Lighting, Inc. HARK <i>Enlightened Technology®</i>	
SERV. DEPT.			
ENGINEER			
DRAWN BY		vhernandez	
DATE		SCALE	
10/18/1995		1/1	
SHEET SIZE		SHEET QTY.	
B		1 OF 1	
DWG. NO.		100239i	
<small>The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43.</small>			
<small>NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.</small>			

DATE	REV	AUTHOR	DESCRIPTION
02/03/2015	H	JZAMORANO	UPDATED NOTES

AC UNITS CURRENT MEASUREMENT—RM4JA31M



QTY.	PART NO.	INPUT	#1	#2	#3	#4	PRD.
1	OL1_LED2	B2	30	10	100	<30	TWR
2	OL1_LED2	B3	10	10	100	<30	TWR
3	OL1_LED2	B3	15	10	100	<30	TWR
4	OL1_LED2	B3	23	10	100	<30	TWR
6	OL1_LED2	B3	35	10	100	<30	TWR
8	OL1_LED2	B3	43	5	100	<30	TWR
10	OL1_LED2	B3	50	5	100	<30	TWR
1	860-1R01-001	B2	20	10	100	<30	DIALIGHT
3	860-1R01-001	B3	90	10	100	<30	DIALIGHT
1	LEDBEACON	B3	50	10	100	<30	DIALIGHT
1	STLDBEACON	B3	50	10	100	<30	DIALIGHT
1	LEDBEACON2(T)	B3	10	10	100	<30	ORGA
2	LEDBEACON2(T)	B3	35	10	100	<30	ORGA
1	STLDBEACON2	B3	10	10	100	<30	ORGA
2	STLDBEACON2	B3	35	10	100	<30	ORGA

FUNCTIONS

- 1 Adjustment of current threshold as % of setting range.±5%
- 2 Hysteresis adjustment from 5 to 30 % ▲.
- 3 Fine adjustment of time delay as % of setting range max. value.
- 4 10-position switch combining
 - selection of the timing range: 1 s, 3 s, 10 s, 30 s, no time delay.
 - selection of overcurrent (>) or undercurrent (<) detection. See table below.
- R Yellow LED: indicates relay state (Off for de-energized relay, On for energized).
- U Green LED: indicates that supply to the RM4 is present.

Overcurrent Control	Overcurrentor Undercurrent Control ■	Measuring Range
Yes	Yes	3 MA - 1,000 MA

Detailed Positions for Switch 4

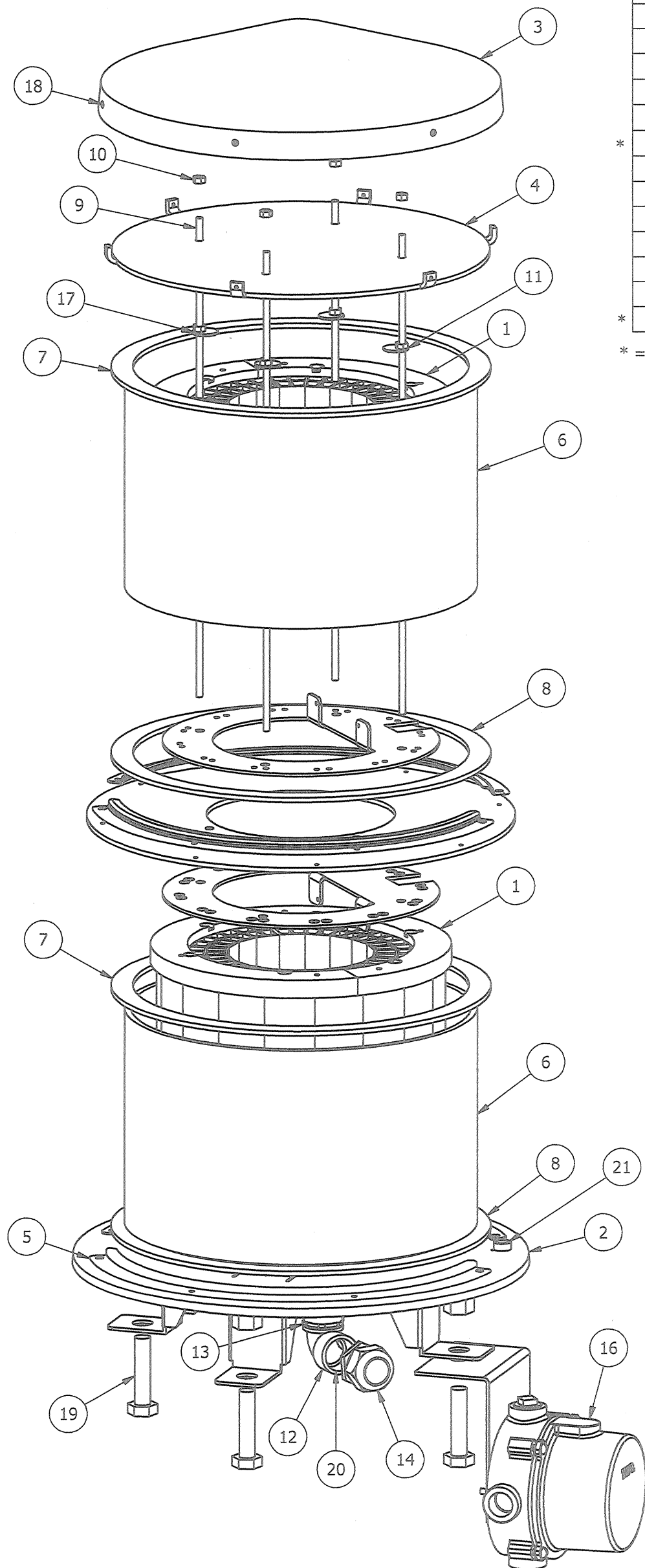
Switch Position	Function	Time Delay (t)
< 0	Undercurrent detection	No time delay
< 1	Undercurrent detection	0.05 to 1 s
< 3	Undercurrent detection	0.15 to 3 s
< 10	Undercurrent detection	0.5 to 10 s
< 30	Undercurrent detection	1.5 to 30 s
> 0	Overcurrent detection	No time delay
> 1	Overcurrent detection	0.05 to 1 s
> 3	Overcurrent detection	0.15 to 3 s
> 10	Overcurrent detection	0.5 to 10 s
> 30	Overcurrent detection	1.5 to 30 s

■ = Selection by switch on front face
▲ = Value of current between energization and de-energization of the output relay (% of the current threshold to be measured).

*Due to current draw tolerances slight adjustments to setting #1 may be needed for proper alarming.

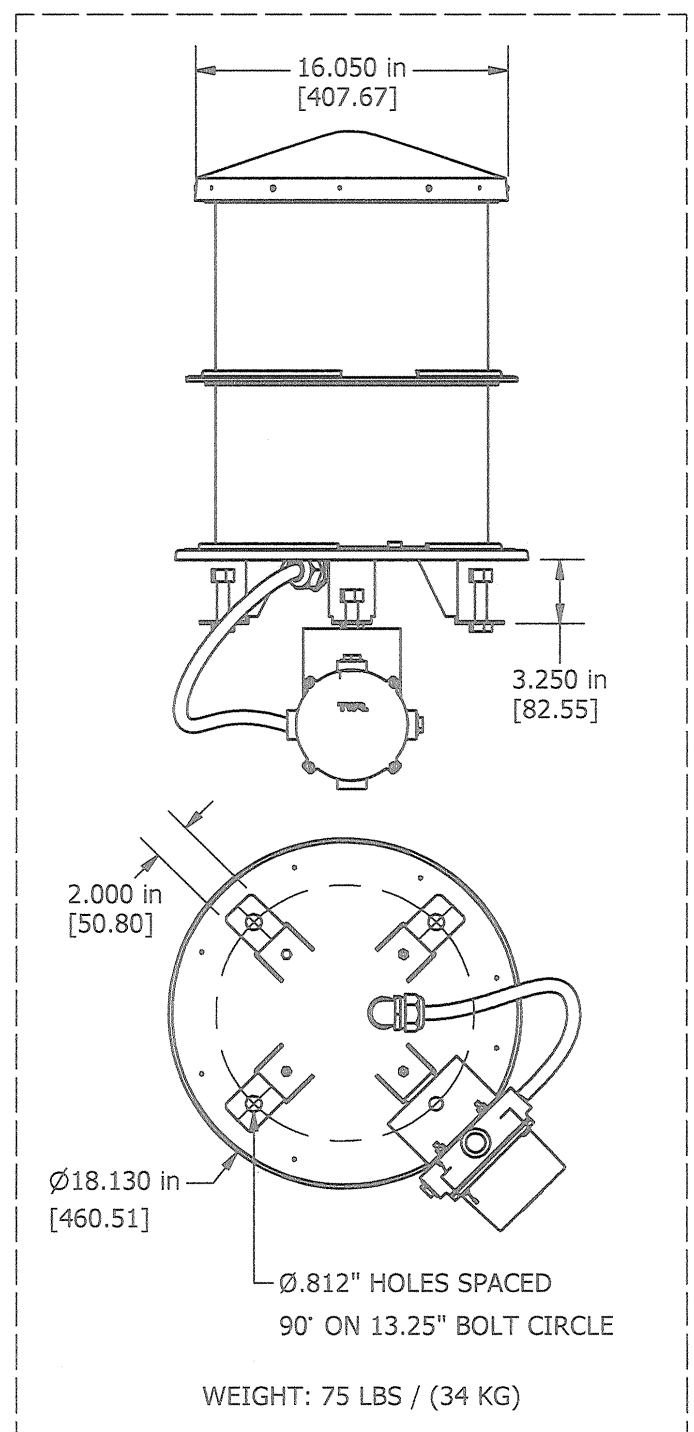
Sign:_____





* GROUND WIRE MUST BE CONNECTED TO PROPERLY PROTECT POWER SUPPLY. FAILURE TO GROUND WILL VOID ALL WARRANTIES.

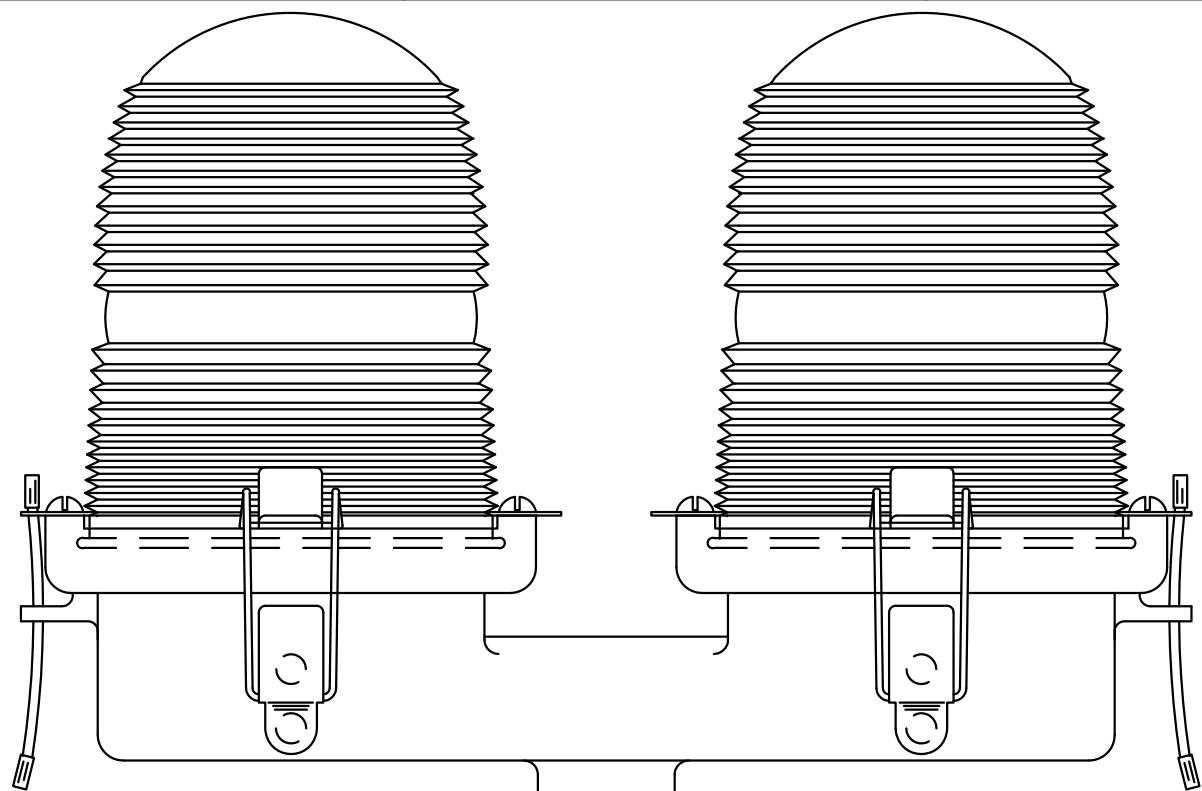


Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	LEDLITEENG2A	ORGA L-864 LED LIGHT ENGINE 120/240VAC
2	1	100672	LED BEACON BASE PLATE
3	1	100344	CAP DUAL BEACON
4	1	100673	LED BEACON LID PLATE
5	4	100337	LENS RETAINER RING
6	2	STLDBCTUBE2	CLEAR ACRYLIC TUBE
7	2	STBEAGSK4	GASKET NEOPRENE 13 1/8 X 15 OD X
8	2	STBEAGSKT	GASKET NEOPRENE 13 1/4 x 15
9	4	51618X20	5/16 X 8 S/S ROD
10	4	516NUTN	5/16 NUT W/NYLON INSERT 304
11	12	516NUT	5/16 NUT 304 S/S
12	1	EL190S	1" 90 DEGREE SHORT ELBOW GALV.
13	1	A315	1" CONDUIT LOCKNUT GALV.
14	1	CC-NPT34-G	3/4" NPT CORD CONNECTOR .500"
15	1	STCONLAB2	100223 PRODUCT LABEL
16	1	DLEDBEAXFER	DUAL LED BEACON TRANSFER UNIT
17	4	100606M	LED LIGHT ENGINE TIE DOWN WASH
18	6	18PRSS-2	1/8 X .400 SS POP RIVET #44
19	4	58X112	5/8 X 1-1/2 HEX BOLT
20	1	RE32	1" TO 3/4" REDUCER, GALV.
21	1	2-10000	CIRCULAR SPIRIT LEVEL
22	8	1032X38PHW	10-32X3/8 PHILLS HD CAPTIVE SCREW

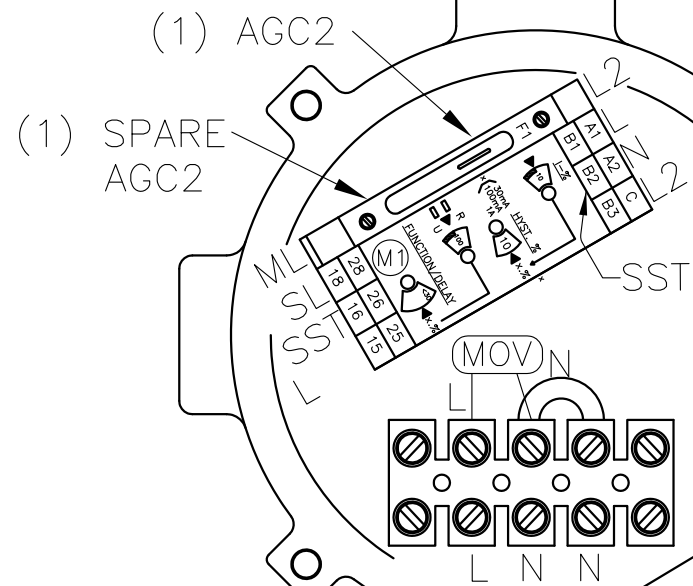
* = ITEMS NOT SHOWN



<h1>DLEDBEACON2</h1>			
PROD DEPT 			
SERV DEPT 			
ENGINEER 			
DRAWN BY J. ZAMORANO		SHEET SIZE B	SHEET QTY. 1 OF 1
DATE 09/28/15	SCALE N.T.S	DWG. NO. 101049	
<p>The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance or complying with FAA requirements as published in Advisory Circular 150/5345-43.</p> <p>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.</p>			

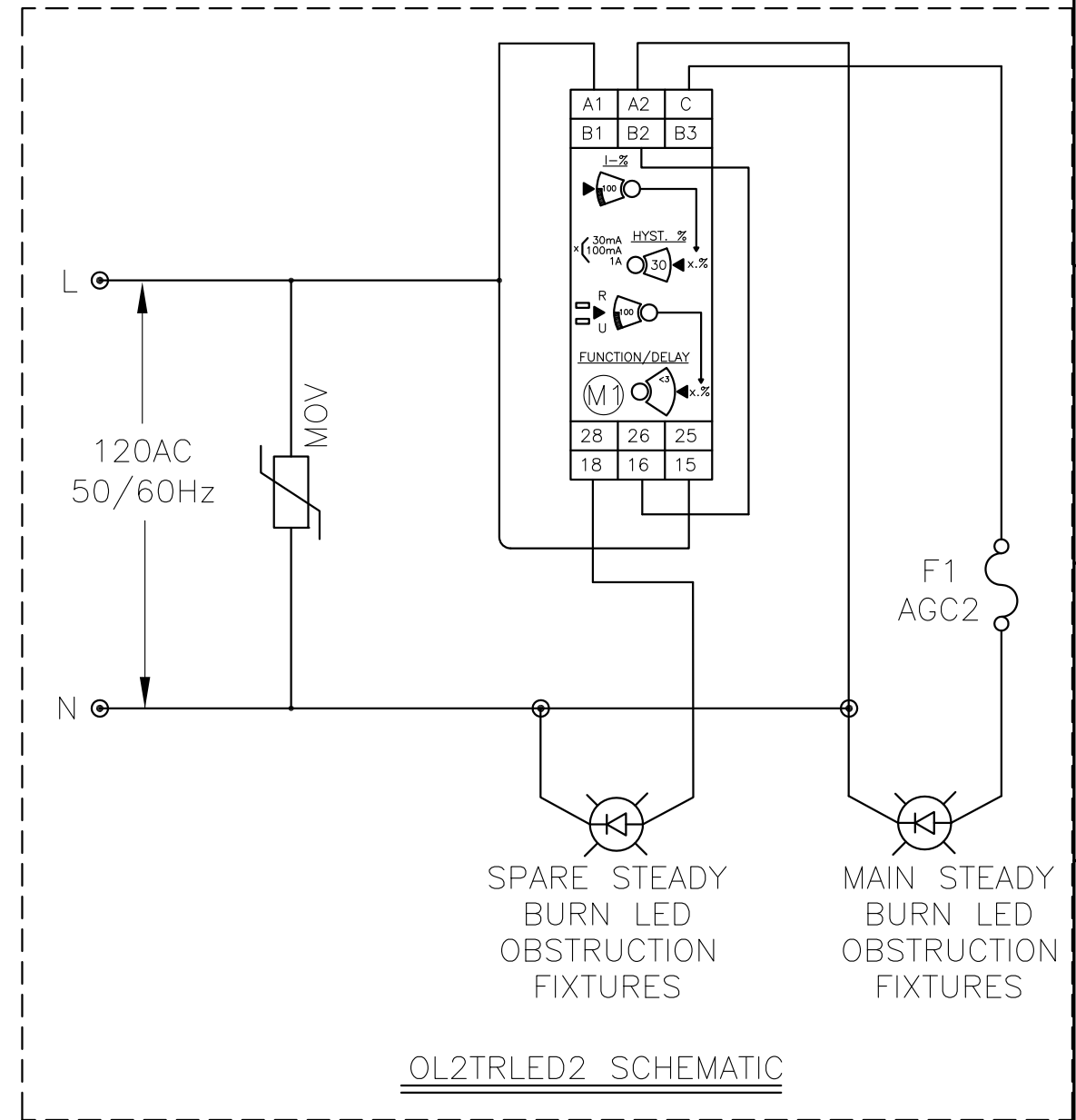


4" NIPPLE
2-3/4" CONDUIT NUT



ML = MAIN LED LAMP
SL = SECONDARY LED LAMP

OL2TRLED2 CHASSIS LAYOUT

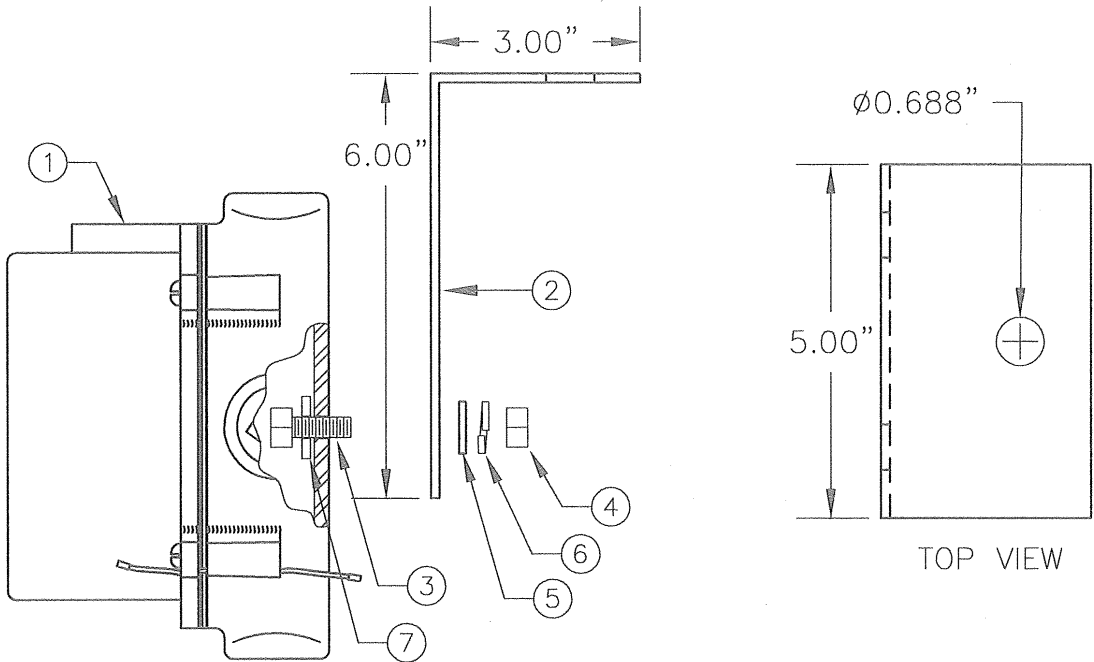
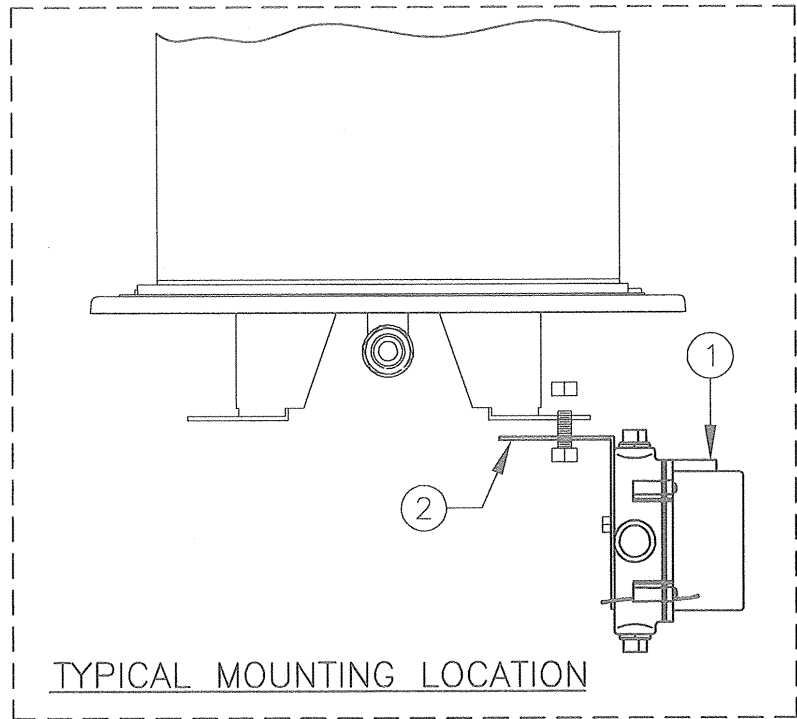


OL2TRLED2 SCHEMATIC

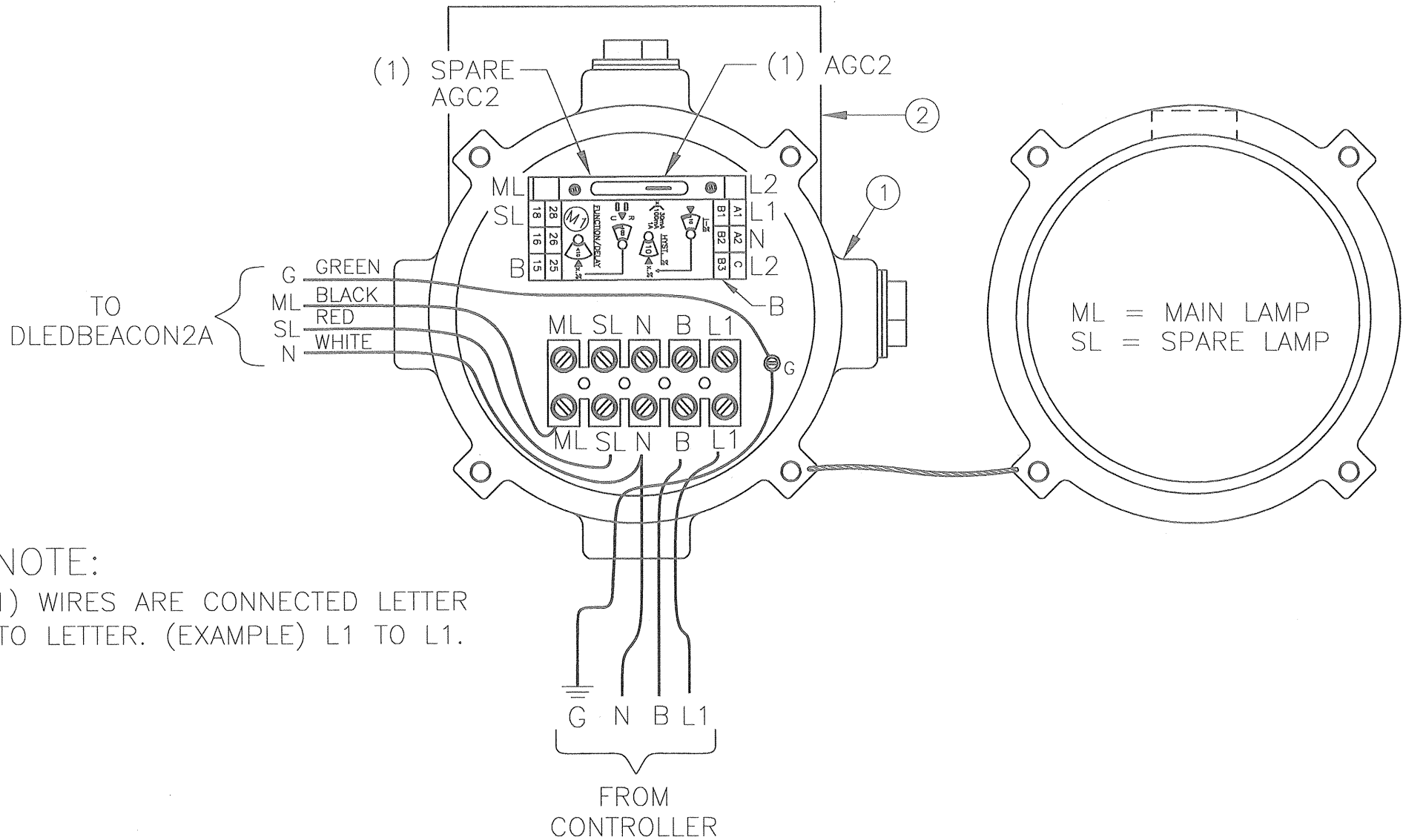
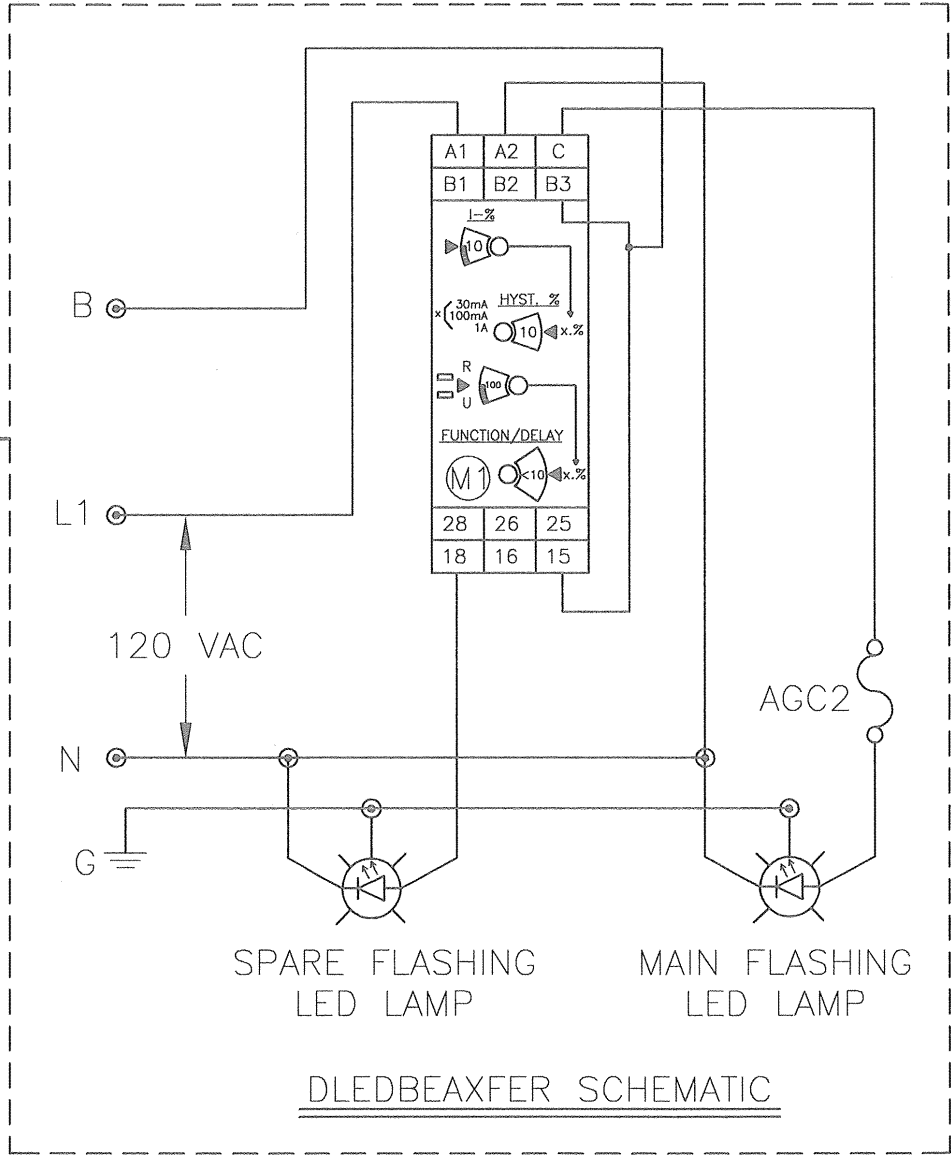
NOTE:

- 1) WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) L TO L.
- 2) XFER USED FOR LAMPS DRAWING BETWEEN 3MA AND 1AMP. TYPICAL USED FOR LED LIGHT FIXTURES.
- 3) WHEN MAIN LAMP FAILS, THE UNIT NEEDS TO BE RESET AFTER RELAMP.

<u>OL2TRLED2 CONTROLLER</u>			
PROD DEPT	TWR Lighting, Inc. Enlightened Technology® WARK		
SERV DEPT			
ENGINEER			
DRAWN BY	E.A.SALAZAR	SHEET SIZE	SHEET QTY.
DATE	09/17/10	SCALE	1 OF 1
		DWG. NO.	1262-R
<small>The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43. NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.</small>			



BILL OF MATERIALS			
ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	1	DLEDBeaxfer	TRANSFER UNIT
2	1	100665	ALUMINUM ANGLE BRACKET
3	2	1420X1	1/4-20 X 1 HEX HEAD 304 S/S
4	2	1420NUT	1/4-20 NUT 304 S/S
5	2	14FW	1/4 FLAT WASHER S/S
6	2	14LW	1/4 LOCK WASHER S/S
7	2	14X58	WASHER SEALING ALUM. COATED



NOTE:
1) WIRES ARE CONNECTED LETTER TO LETTER. (EXAMPLE) L1 TO L1.

PROJECT : CHINA STEEL CORP.

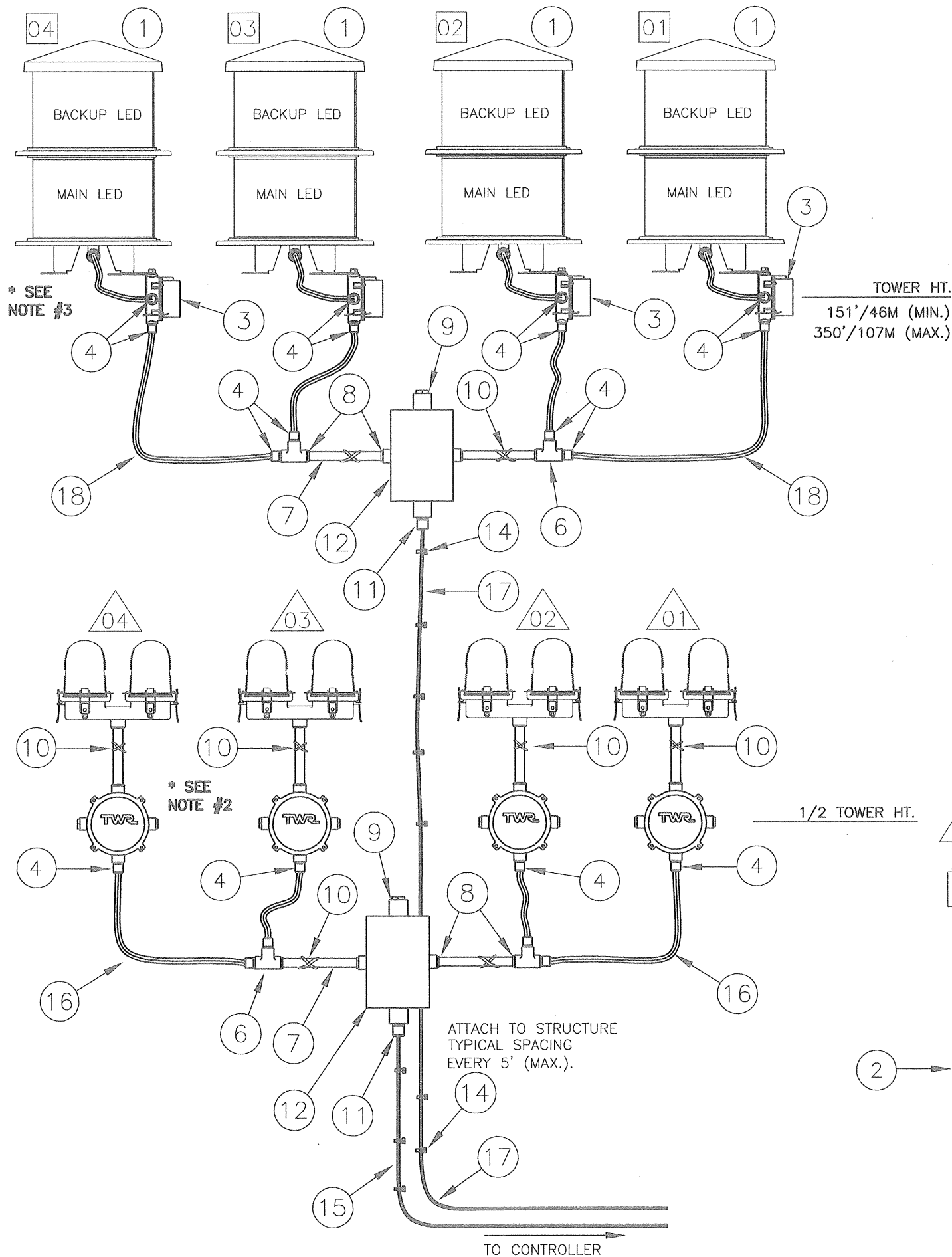
DLEDBeaxfer

PROD DEPT
SERV DEPT
ENGINEER
DRAWN BY J. ZAMORANO
DATE 09/17/2015
SCALE N.T.S.

TWR Lighting, Inc.
Enlightened Technology

SHEET SIZE B
SHEET QTY. 1 OF 1
DWG. NO. 1307-R

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



BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	4	DLED2A	DOUBLE STACKED LED BEACON
2	4	OL2TRLED2	LED DOUBLE SIDELIGHT W/ TRANSFER UNIT
3	4	DLED2A	120VAC TRANSFER UNIT
4	20	CGB295SA	3/4" CORD CONNECTOR 0.50 - 0.625
5	1	PIPDOP	4 OZ. PIPE DOPE
6	4	T27CG	3/4" CONDULET W/COVER AND GASKET
7	4	N34T12	3/4" x 12" NIPPLE
8	8	A314	3/4" CONDUIT LOCKNUTS
9	2	RE32	1" TO 3/4" REDUCER
10	1	SS5012	STAINLESS STEEL WRAPLOCK 50'
11	2	CG75100	1" CORD CONNECTOR 0.750 - 0.875
12	2	JB82TC	1" JUNCTION BOX WITH 2 TERMINAL BLOCKS
13	1	AA1/4MDLED	AA1/4MDLED CONTROLLER

ITEM NUMBERS #14-#18 ARE NOT INCLUDED IN THE KIT BUT ARE AVAILABLE UPON REQUEST, AND REQUIRED FOR INSTALLATION.

14	-	STCABLTIE	STROBE CABLE TIES (TWR. HEIGHT ÷ 5)
15	-	SCO12/6	6 #12AWG S.O CORD
16	-	CSO14/3	3 #14AWG S.O CORD
17	-	CSO12/7	7 #12AWG S.O CORD
18	-	CSO14/4	4 #14AWG S.O CORD

* = ITEMS NOT SHOWN

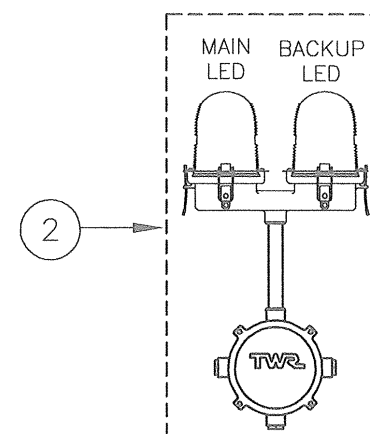
~ = ITEMS QUANTITY CALCULATED ACCORDING TO STRUCTURE HEIGHT.

NOTES:

- THIS DRAWING IS PROVIDED AS A GENERAL REFERENCE. TWR LIGHTING, DIV. DOCUMENTATION SUPERSEDES THIS DRAWING & SHOULD BE REVIEWED PRIOR TO INSTALLATION OF THIS SYSTEM.
- FOR WIRING INSTRUCTIONS TO THE OL2TRLED2 REFER TO DRAWING (1262-R).
- FOR WIRING INSTRUCTIONS TO THE DLED2A TRANSFER UNIT REFER TO DRAWING (1307-R).

△ = OL2TRLED2
REFERENCE NUMBER

□ = DLED2A
REFERENCE NUMBER



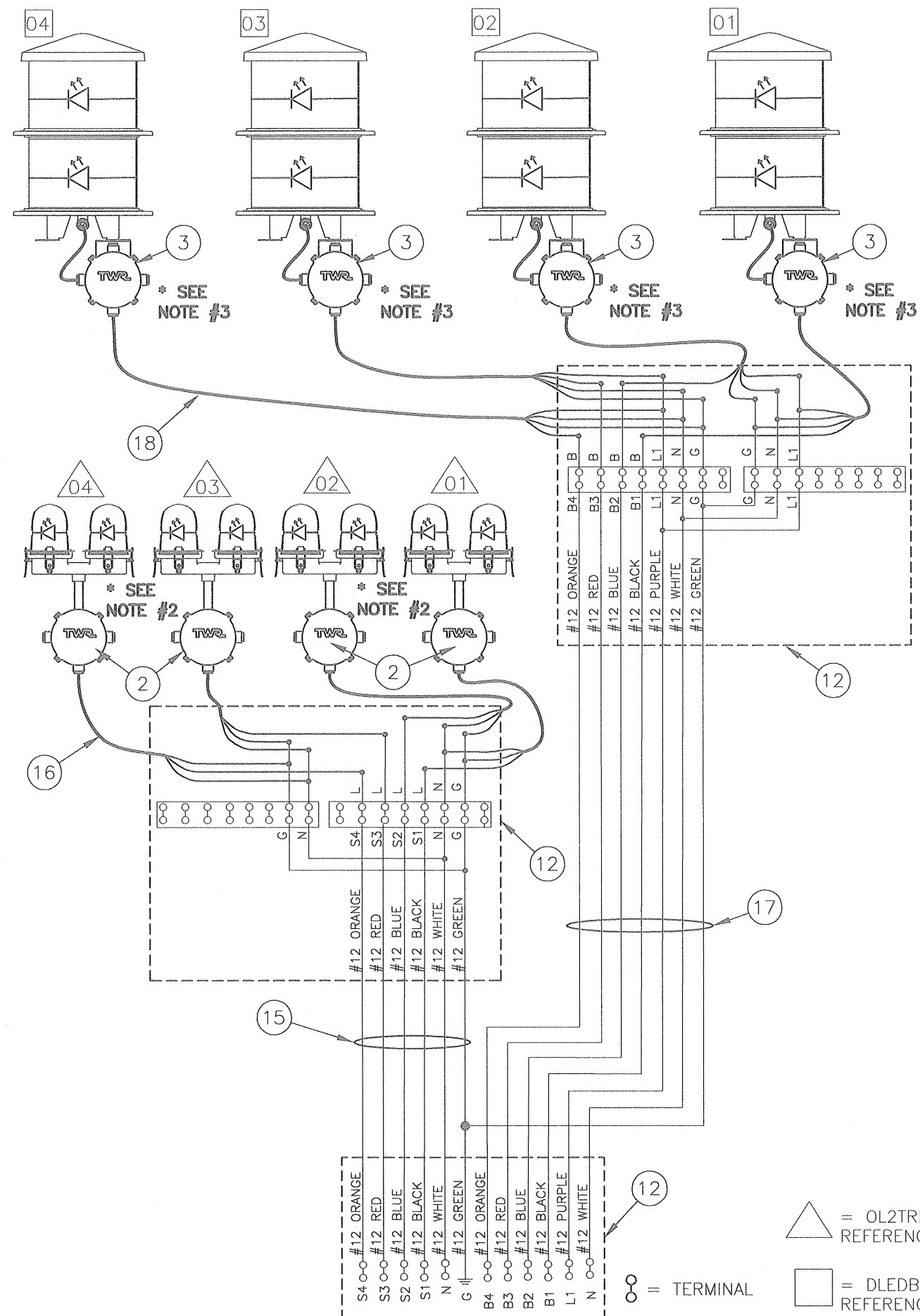
PROJECT : CHINA STEEL CORP.

AA1/4DLED LIGHTING KIT

APP'D	CHK'D BY	ENGINEER	DRAWN BY	DATE	SCALE	SHEET SIZE	SHEET QTY.
			J. ZAMORANO	05/05/2015	N.T.S.	B	1 OF 2
DWG. NO. T1645							

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.

09/21/15(A) JZ UPDATED B.O.M



BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	4	DLED BEACON 2A	DOUBLE STACKED LED BEACON
2	4	OL2TRLED2	LED DOUBLE SIDELIGHT W/ TRANSFER UNIT
3	4	DLED BEAXFER	120VAC TRANSFER UNIT
4	20	CGB295SA	3/4" CORD CONNECTOR 0.50 - 0.625
5	1	PIPD0P	4 OZ. PIPE DOPE
6	4	T27CG	3/4" CONDULET W/COVER AND GASKET
7	4	N34T12	3/4" x 12" NIPPLE
8	8	A314	3/4" CONDUIT LOCKNUTS
9	2	RE32	1" TO 3/4" REDUCER
10	1	SS5012	STAINLESS STEEL WRAPLOCK 50'
11	2	CG75100	1" CORD CONNECTOR 0.750 - 0.875
12	2	JB82TC	1" JUNCTION BOX WITH 2 TERMINAL BLOCKS
13	1	AA1/4MDLED	AA1/4MDLED CONTROLLER

ITEM NUMBERS #14-#18 ARE NOT INCLUDED IN THE KIT BUT ARE AVAILABLE UPON REQUEST, AND REQUIRED FOR INSTALLATION.

14	-	STCABLTIE	STROBE CABLE TIES (TWR. HEIGHT ÷ 5)
15	-	SC012/6	6 #12AWG S.O CORD
16	-	CS014/3	3 #14AWG S.O CORD
17	-	CS012/7	7 #12AWG S.O CORD
18	-	CS014/4	4 #14AWG S.O CORD

* = ITEMS NOT SHOWN
~ = ITEMS QUANTITY CALCULATED ACCORDING TO STRUCTURE HEIGHT.

NOTES:

- THIS DRAWING IS PROVIDED AS A GENERAL REFERENCE. TWR LIGHTING, DIV. DOCUMENTATION SUPERSEDES THIS DRAWING & SHOULD BE REVIEWED PRIOR TO INSTALLATION OF THIS SYSTEM.
- FOR WIRING INSTRUCTIONS TO THE OL2TRLED2 REFER TO DRAWING (1262-R).
- FOR WIRING INSTRUCTIONS TO THE DLED BEAXFER TRANSFER UNIT REFER TO DRAWING (1307-R).

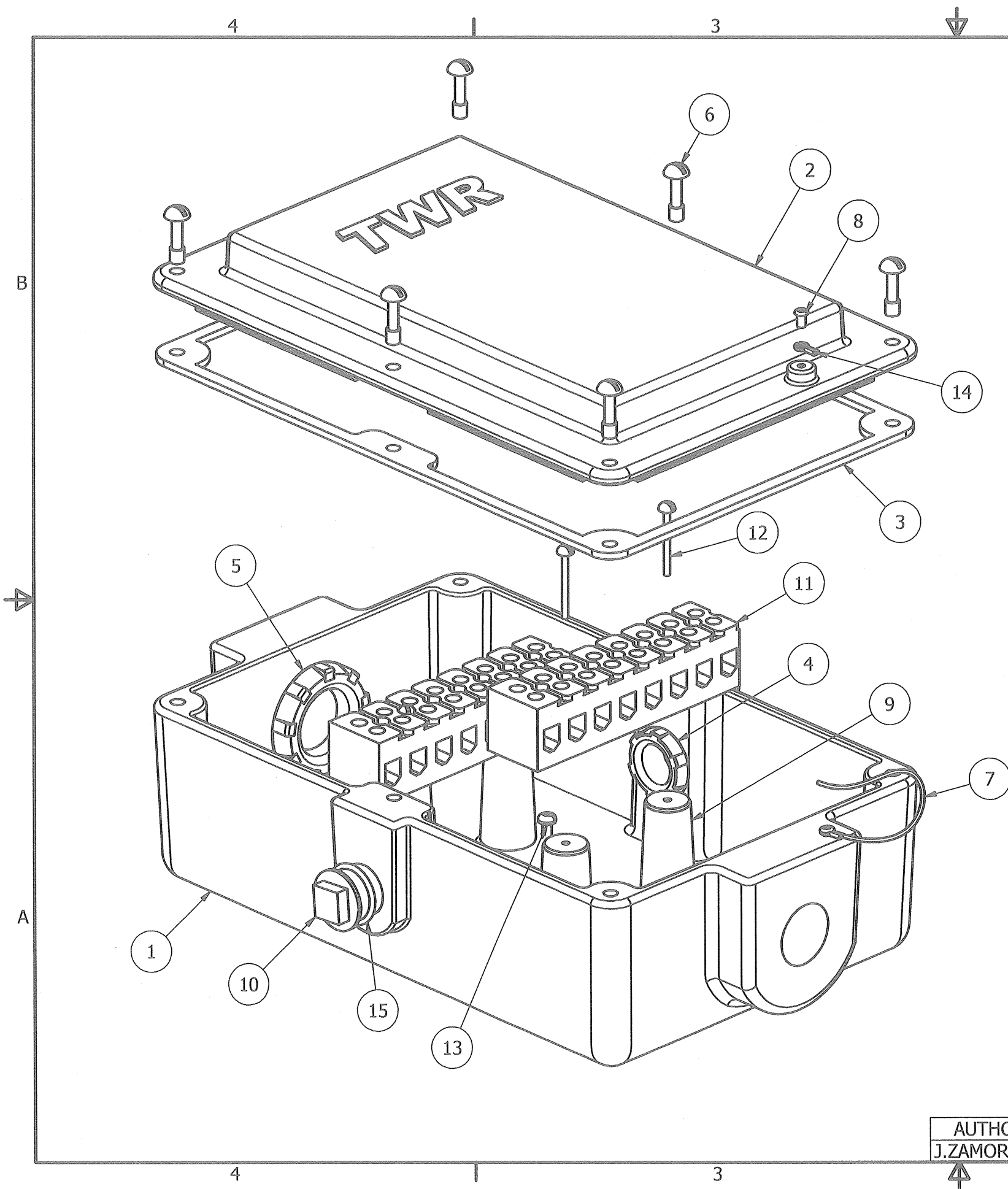
PROJECT : CHINA STEEL CORP.

AA1/4DLED LIGHTING KIT

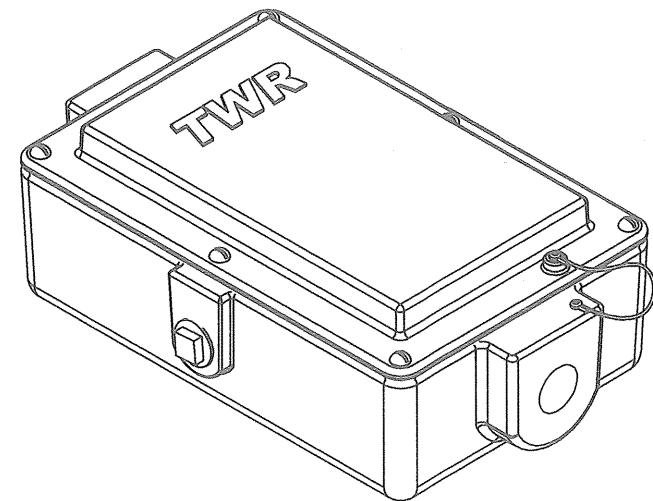
APP'D BY: [Signature]
CHK'D BY: [Signature]
ENGINEER: [Signature]
DRAWN BY: J.ZAMORANO
DATE: 05/05/2015
SCALE: N.T.S.
SHEET SIZE: B
SHEET QTY.: 2 OF 2
DWG. NO.: T1645




TWR Lighting, Inc. **Enlightened Technology**

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.

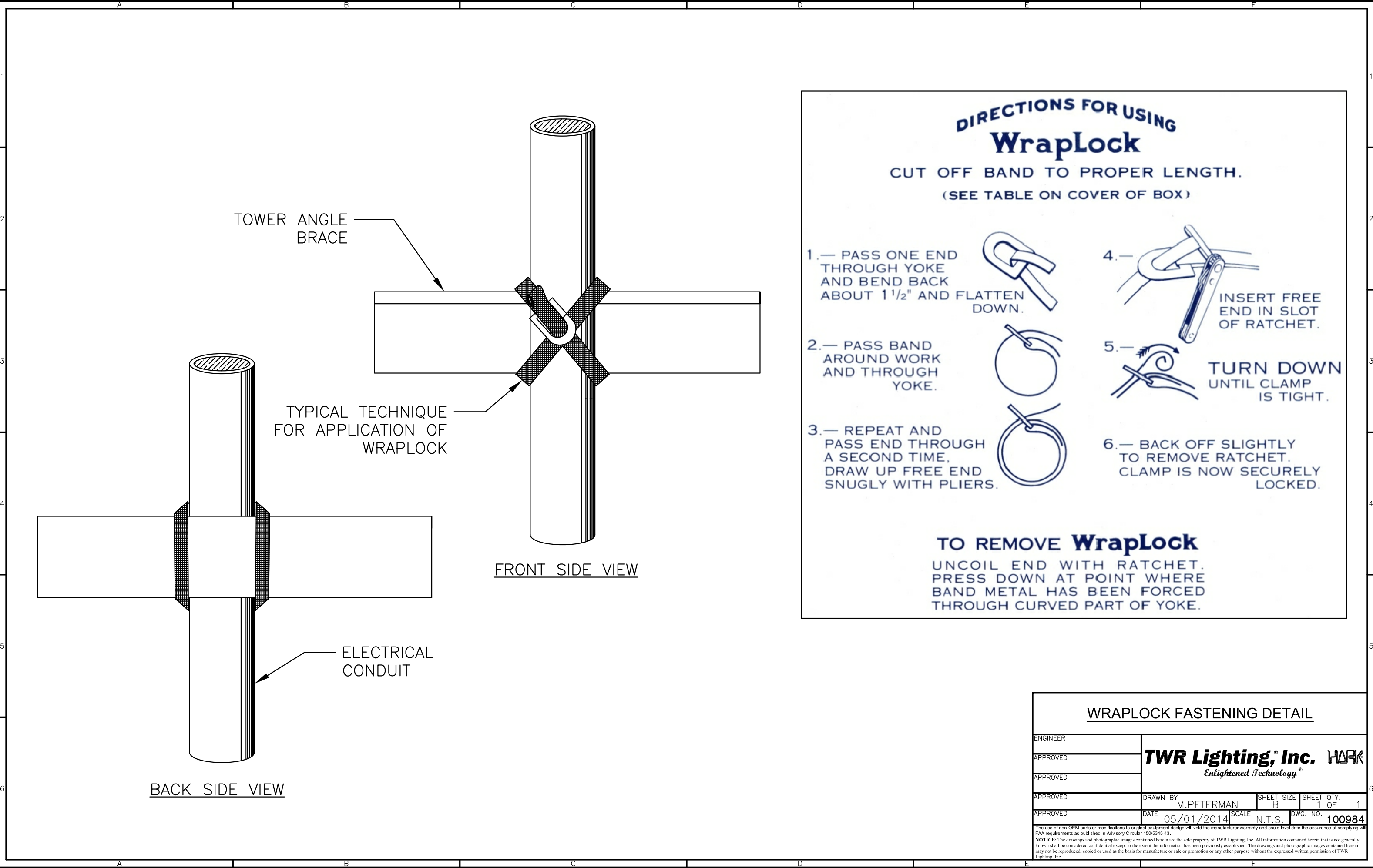


Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	123C	1" TOP&BOT. CAST
2	1	124C	JB8 CAST LID
3	1	JB8124G	GASKET FOR LID
4	2	BB75	3/4" INSULATION BUSHING
5	2	BB100	1" INSULATION BUSHING
6	6	1420X78CAPTIVE	1/4-20 X 7/8" CAPTIVE SCREW
7	9"	7X7SS	1/16 HOL 7 X 7 SS WIRE
8	2	532PRSS	1/8 X .45 SS POP RIVET #54
9	9"	HEATSHRINK5	GLUE LINED HEAT SHRINK
10	2	34MPYLW	3/4" MALE PLUG YELLOW
11	2	TERMBLK8	8 PART TERMINAL BLOCK EAGLE
12	4	832X114RH	8-32 X 1-14" S.S. RH. SCREW
13	1	832X38PH	8-32 X 3/8" S.S. PH. SCREW
14	2	CSL062X100	1/16 COPPER SLEEVE
15	2	ORING19X24	O-RING 19mm X 24mm



1" CASTED JUNCTION BOX W/2 TERMINAL BLOCK ASSEMBLY DETAIL(PART #JB82TC)			
PROD DEPT 		TWR Lighting®, Inc. WARK <i>Enlightened Technology®</i>	
SERV DEPT 			
ENGINEER 			
DRAWN BY E.A.SALASAR		SHEET SIZE B	SHEET QTY. 1 OF 1
DATE 08/08/1997		SCALE	DWG. NO. 100374
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 not be reproduced or considered as confidential except to the extent the information has been previously established. The drawings and photographic images contained herein shall 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.			

AUTHOR	REV	DATE	DESCRIPTION
J.ZAMORANO	A	07/08/2015	UPDATED JUNCTION BOX



WRAPLOCK FASTENING DETAIL				
ENGINEER	TWR Lighting, Inc. <i>Enlightened Technology®</i>			
APPROVED				
APPROVED				
APPROVED	DRAWN BY M.PETERMAN	SHEET SIZE B	SHEET QTY. 1 OF 1	
APPROVED	DATE 05/01/2014	SCALE N.T.S.	DWG. NO. 100984	
<small>The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43. NOTICE: The drawings and photographic images contained herein are the sole property of TWR Lighting, Inc. All information contained herein that is not generally known shall be considered confidential except to the extent the information has been previously established. The drawings and photographic images contained herein may not be reproduced, copied or used as the basis for manufacture or sale or promotion or any other purpose without the expressed written permission of TWR Lighting, Inc.</small>				