

# **TWR Lighting, Inc.** HARK<sup>®</sup>

*Enlightened Technology<sup>®</sup>*

4300 WINDFERN RD #100 HOUSTON TX 77041-8943

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

web: [www.twrlighting.com](http://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 #**

**AA0/WF-230V**

**SERIAL #**

**PURCHASE DATE**

**PURCHASED FROM**

# **TWR Lighting, Inc.**

*Enlightened Technology®*

## **AA0/WF-230V CONTROLLER**

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**WARRANTY & RETURN POLICY**

**RETURN MERCHANDISE AUTHORIZATION (RMA) FORM**

# **TWR Lighting, Inc.** HARK<sup>®</sup>

*Enlightened Technology<sup>®</sup>*

## **AA0/WF-230V CONTROLLER**

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### **APPENDIX**

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L-810 OL-2 DOUBLE OBSTRUCTION LIGHT ASSEMBLY DETAIL .....	274-S (REV A)
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## AA0/WF-230V CONTROLLER

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### 1.0 GENERAL INFORMATION

The TWR Lighting, Inc. (TWR) AA0/WF-230V Controller is for towers up to 150' above ground level (AGL). A double obstruction light should be placed at the top of the tower.

The obstruction lights will flash 30 times per minute. The double obstruction light requires two (2) 116 watt 230V bulbs. (116A21TS230V)

The photocell is the three (3) blade type. The photocell socket is mounted on the cast enclosure. Install the 6390-FAA photocell and twist to lock.

Power supplied to the controller is 230V AC.

The controller housing will meet NEMA 4X.

## **AA0/WF-230V CONTROLLER**

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### **2.0 INSTALLATION INSTRUCTIONS**

#### **2.1 MOUNTING THE CONTROL HOUSING**

(Refer to Drawings 1083-R, and 1110-O)

The power supply control housing should be located at the base of the structure. Mount the housing on the lower portion of the tower wiring conduit. Power wiring to the control cabinet should be in accordance with local methods and national electrical codes (NEC).

After mounting the control housing, insert the photocell and position it to the north. This can be accomplished by loosening the ½” conduit lock washer and rotating the photocell to the proper position. Once positioned, then retighten the ½” lock washer.

#### **2.2 POWER WIRING**

2.2.1 Power wiring to the control housing should be in accordance with local methods and NEC.

2.2.2 The circuit breaker needs to be rated at 10 amps.

2.2.3 Connect the incoming 230V AC line to the terminal marked “L.”

2.2.4 Connect the **NEUTRAL** wire to the terminal marked “N.”

#### **2.3 OBSTRUCTION LIGHT WIRING**

(Refer to Drawing 1083-R)

2.3.1 Connect the **BLACK** wire from the obstruction lights to the terminal marked “F.”

2.3.2 Connect the **NEUTRAL** wire to the terminal marked “N.”

## **AA0/WF-230V CONTROLLER**

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### **3.0 MAINTENANCE GUIDE**

#### **3.1 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 70/7460K. By following these instructions, maximum safety and performance can be achieved.

TOOLS REQUIRED:            NONE

##### **3.1.1 L-864 LAMP REPLACEMENT**

- 3.1.1.1 Loosen the one (1) wing nut on the latch pin so that it can recline.
- 3.1.1.2 Open the lens and allow it to tilt backward.
- 3.1.1.3 To remove each lamp, press down while rotating the lamp counter-clockwise 90°.
- 3.1.1.4 Install the new lamps by pressing down while rotating the lamp clockwise 90°.
- 3.1.1.5 Close the lens and let the latch pin drop in the recessed slot.
- 3.1.1.6 Tighten the wing nut snug, then ¼ turn more.

##### **3.1.2 L-810 LAMP REPLACEMENT**

- 3.1.2.1 Unclasp the two (2) latches and allow the bail to recline backward.
- 3.1.2.2 Lift the lens up and cover the lamp, allowing the lens to hang from the safety cable.
- 3.1.2.3 Unscrew the lamp counter-clockwise and remove.
- 3.1.2.4 Install the new lamp by screwing the lamp clockwise.
- 3.1.2.5 Reinstall the lens making sure it is seated properly on the base.
- 3.1.2.6 Reclasp the two (2) latches.

## **AA0/WF-230V CONTROLLER**

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### **3.2 L-864 CONTROLLER**

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

### **3.3 PHOTOCELL**

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

## AA0/WF-230V CONTROLLER

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### 4.0 MAJOR COMPONENTS PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	PHOTOCELL
1	PF-250	SOLID STATE FLASHER
1	A4491	RECEPTACLE MOUNT
1	43109	PHOTOCELL RECEPTACLE



## AA0/WF-230V CONTROLLER

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### 5.0 SUGGESTED SPARE PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	6390-FAA	PHOTOCELL
1	PF-250	SOLID STATE FLASHER



## AA0/WF-230V CONTROLLER

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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 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.**



## AA0/WF-230V CONTROLLER

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### 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®*

## **AA0/WF-230V CONTROLLER**

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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 **\$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.



## AA0/WF-230V CONTROLLER

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### 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.



## AA0/WF-230V CONTROLLER

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### 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



## AA0/WF-230V CONTROLLER

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### RETURN MERCHANDISE AUTHORIZATION (RMA) FORM

RMA#: \_\_\_\_\_ DATE: \_\_\_\_\_

CUSTOMER: \_\_\_\_\_

CONTACT: \_\_\_\_\_ PHONE NO.: \_\_\_\_\_

ITEM DESCRIPTION (PART NO.): \_\_\_\_\_

MODEL NO.: \_\_\_\_\_ SERIAL NO.: \_\_\_\_\_

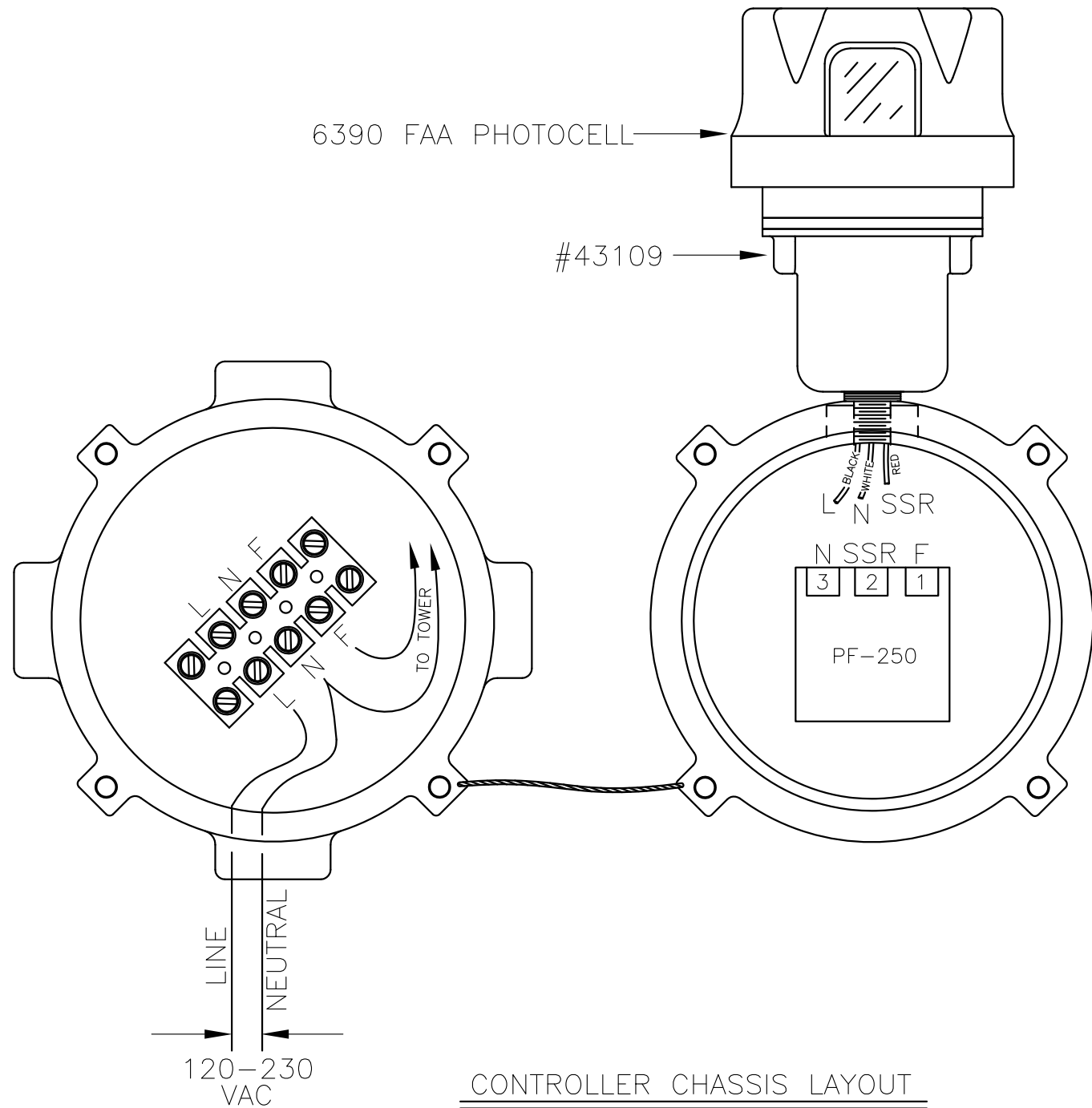
ORIGINAL TWR INVOICE NO.: \_\_\_\_\_ DATED: \_\_\_\_\_

DESCRIPTION OF PROBLEM: \_\_\_\_\_

SIGNED: \_\_\_\_\_ DATE NEEDED: \_\_\_\_\_

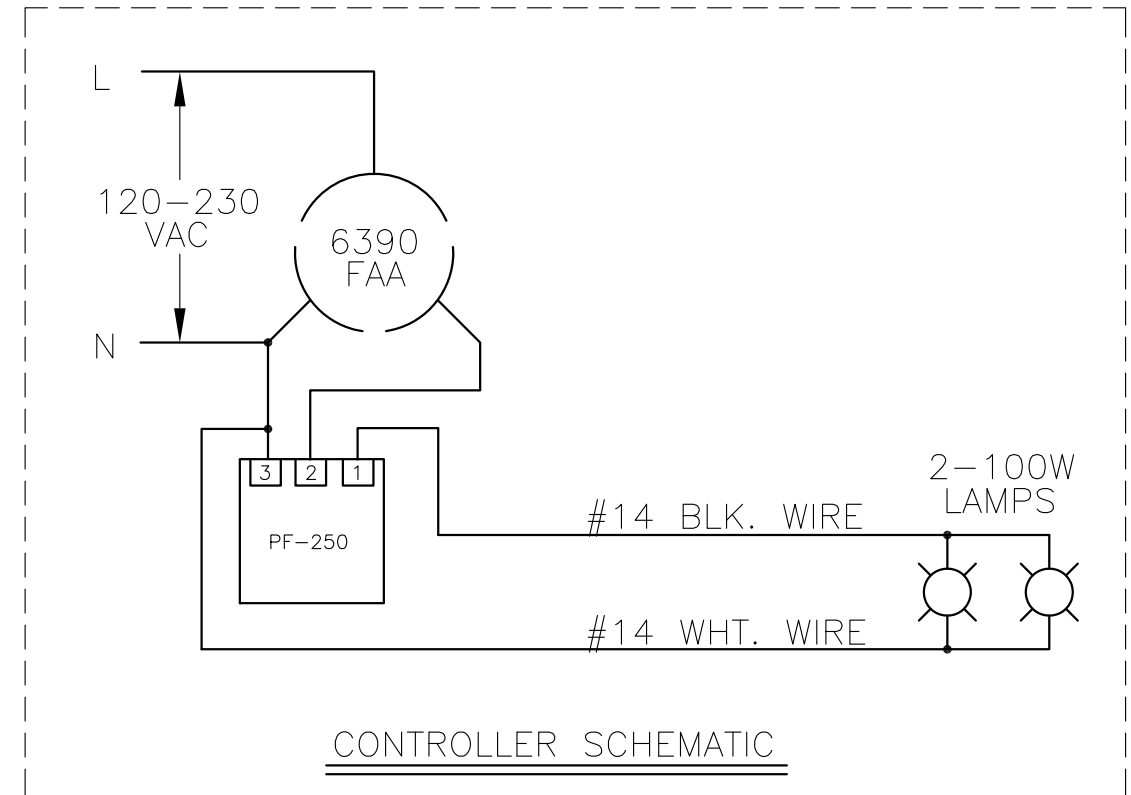
RETURN ADDRESS: \_\_\_\_\_

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



# NOTE:

- 1) PLUG 6390 FAA PHOTOCELL INTO (#43109)  
TWIST LOCK RECEPTACLE AND TWIST TO LOCK.



## AAO/WF-230V CONTROLLER (120-230V 50/60 Hz)

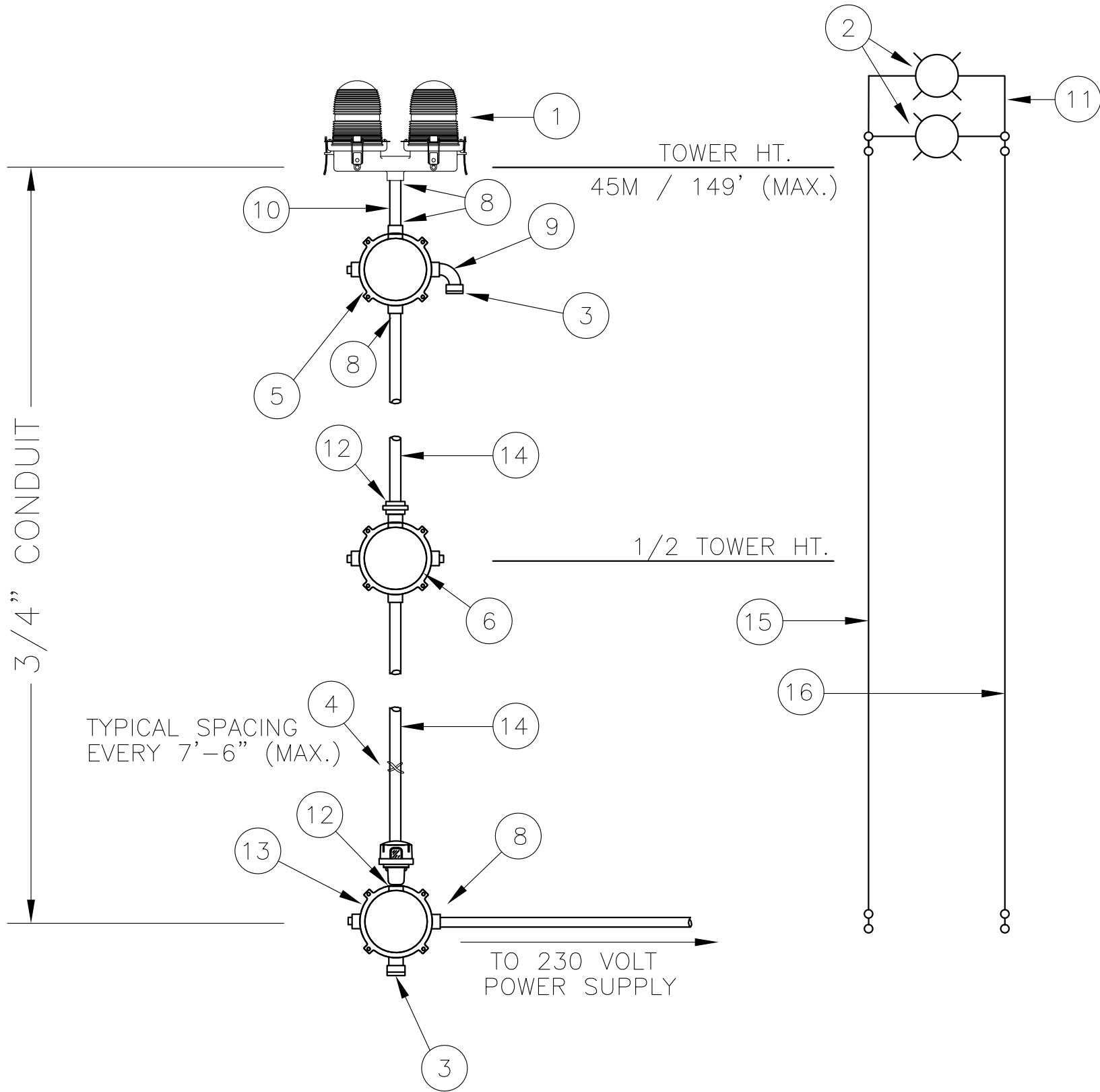
PROD DEPT	<b>TWR Lighting, Inc.</b> <b>WORK</b> <i>Enlightened Technology®</i>		
SERV DEPT			
ENGINEER			
DRAWN BY	G.D. SEBEK	SHEET SIZE	SHEET QTY.
DATE	12/01/92	B	1 OF 1
SCALE	N.T.S.	DWG. NO.	1083-R

04/10/14	(B)	CHANGED VOLTAGE
DATE:	LTR.	REVISION

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

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TOWER WIRING AND ASSEMBLY

BILL OF MATERIALS

ITEM NO.	QTY.	TWR PART NO.	DESCRIPTION
1	1	OL2	DOUBLE OBSTRUCTION LIGHT
2	2	100A21TS230V	100 WATT 230 VOLT LAMP
3	2	5012902	BREATHER
4	1	SS10012	WRAPLOCK
5	1	JB5	3/4" JUNCTION BOX
6	1	JB0	3/4" STRAIN RELIEF BOX
7	1	PIPDOP	4 oz. PIPE DOPE
8	9	A314	3/4" CONDUIT LOCKNUTS
9	2	EL3490	3/4" 90° SHORT ELBOW
10	1	N34T4	3/4" X 4" CONDUIT NIPPLE
11	1	OL2PIGTAIL	18" OL2 PIGTAIL
12	3	UNY205	3/4" UNION
13	1	AA0230V	AA0230V NON-ALARMED CONT.

ITEM NUMBERS #14-#16 ARE NOT INCLUDED IN THE KIT, BUT ARE AVAILABLE UPON REQUEST AND REQUIRED FOR INSTALLATION.

14	-	CONDUIT34	3/4" CONDUIT (TWR HT. + 30')
15	-	12THHNWHT	#12 THHN WHT. WIRE (TWR HT.+40')
16	-	12THHNBK	#12 THHN BLK. WIRE (TWR HT.+40')

\* = ITEM NOT SHOWN

NOTES:

- 1) CONDUIT SIZE BASED ON USING TYPE THHN WIRE.
- 2) USE RIGID GALVANIZED STEEL CONDUIT.
- 3) BREATHERS ALLOW FOR CIRCULATION OF AIR TO PREVENT CONDENSATION.

230V

(TOWERS 0 TO 45M / 0 TO 149')

LK1ICA01-230V LIGHTING KIT

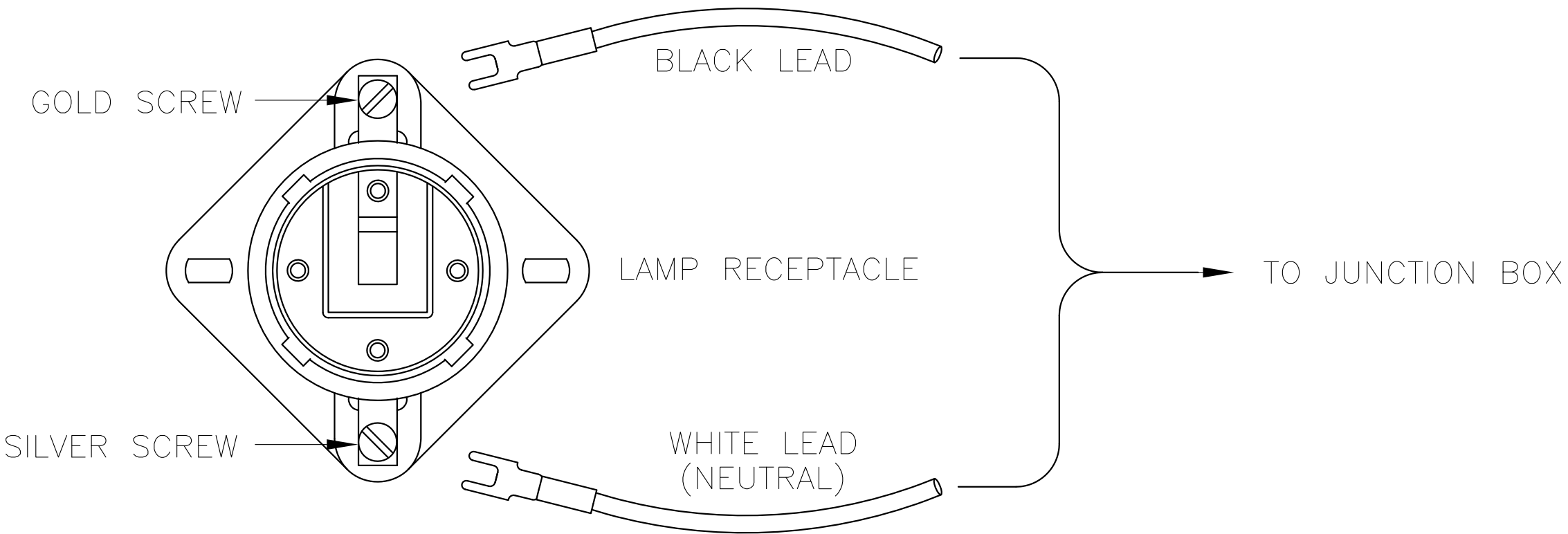
WITH NON-ALARMED CONTROLLER

TWR Lighting, Inc.

APP'D	ENGINEER	CHK'D BY
DRAWN BY	G.D.SEBEK	SHEET SIZE B SHEET QTY. 1 OF 1
DATE	4/8/94	SCALE N.T.S. DRAWING NO. 1110-0

03/05/09	ITEM #13
DATE:	LTR. REVISION

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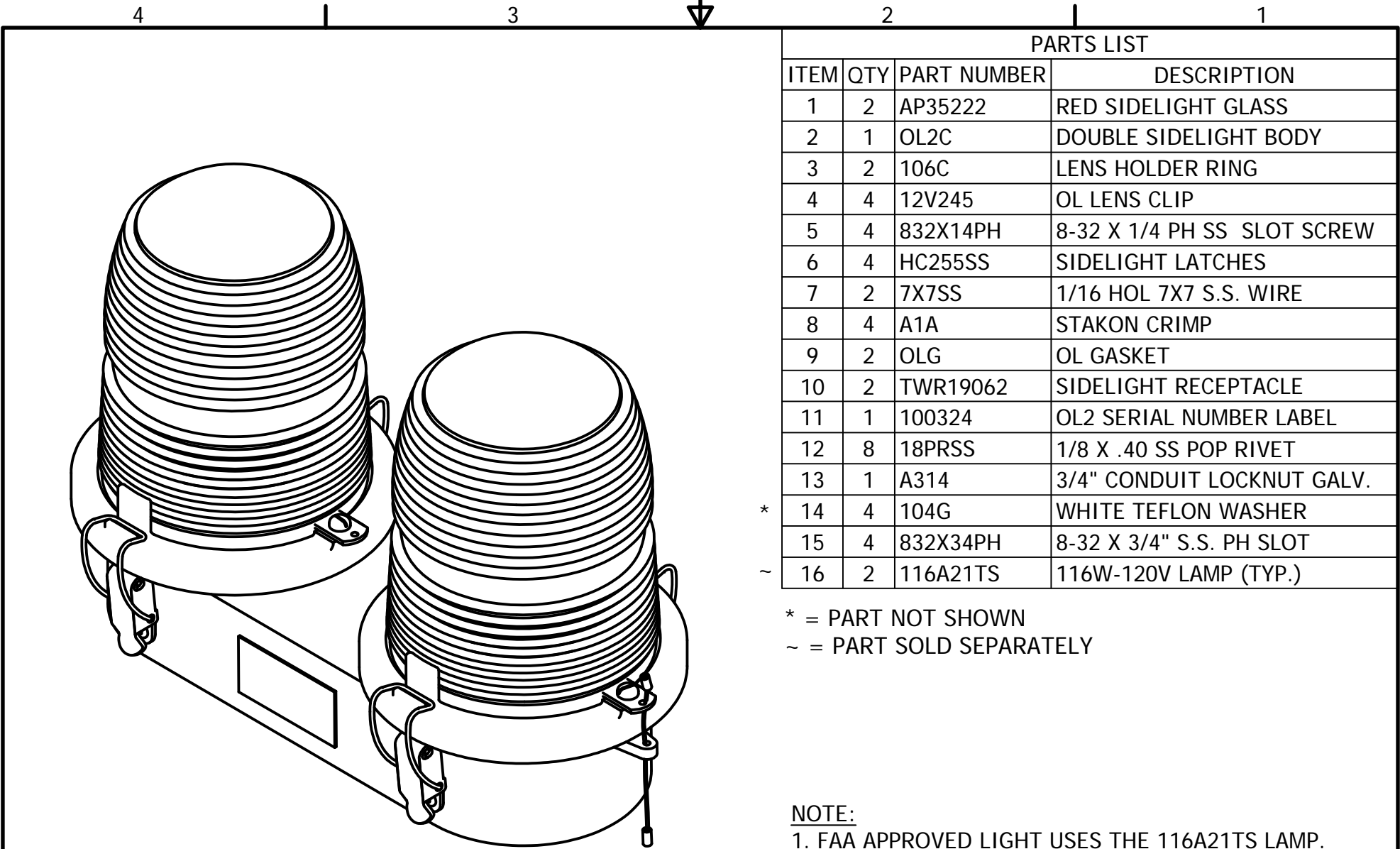


SIDELIGHT RECEPTACLE WIRING

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

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

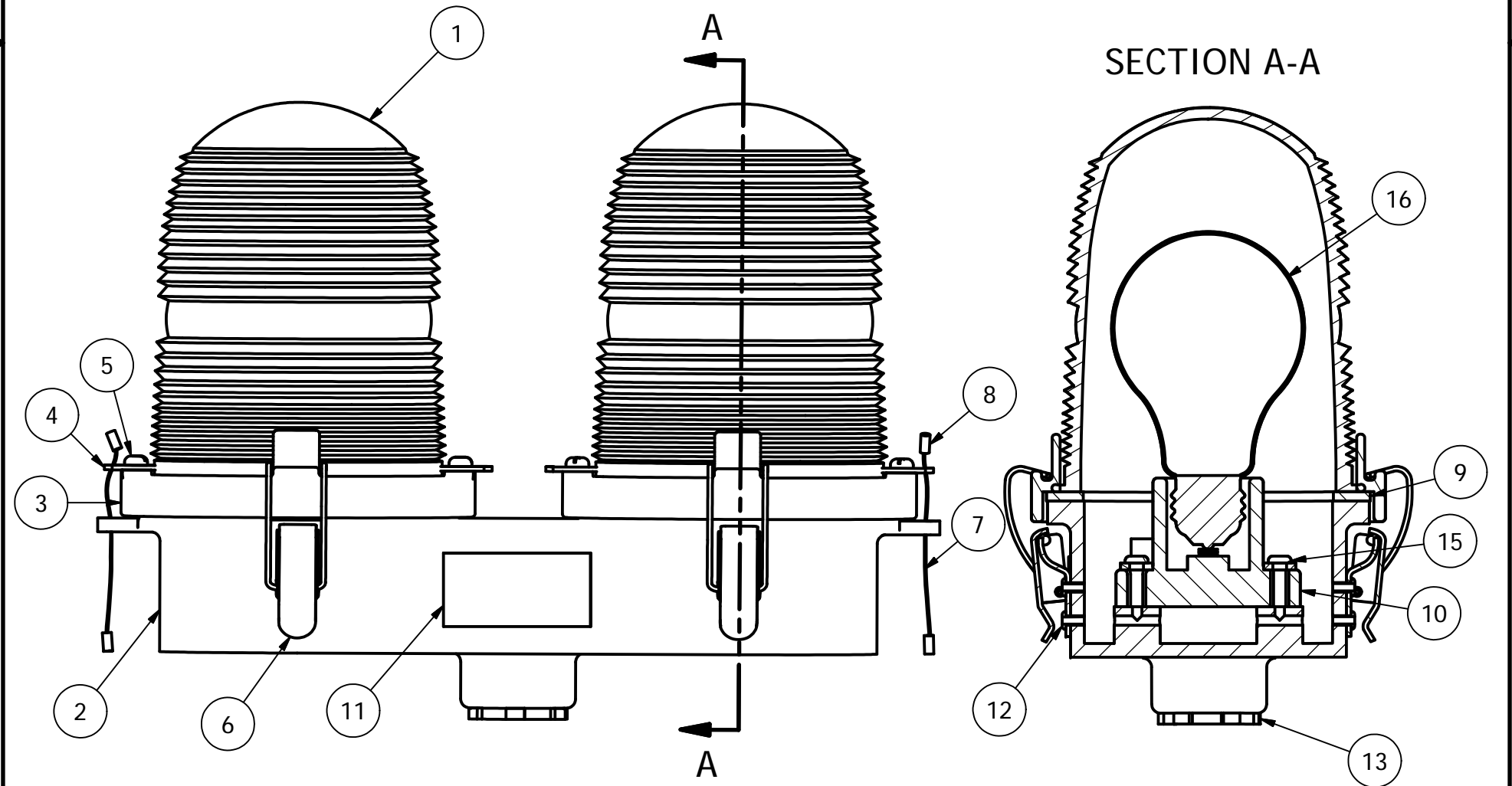
NOTICE: The use of non-OEM parts or modifications to original equipment design will void the manufacturer warranty and could invalidate the assurance of complying with FAA requirements as published in Advisory Circular 150/5345-43. The drawings and photographic images contained herein are the sole property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



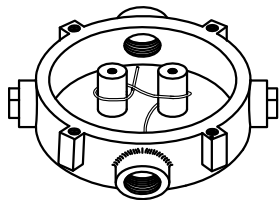
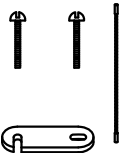
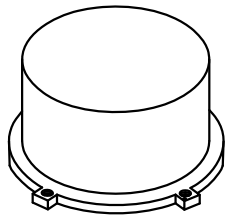
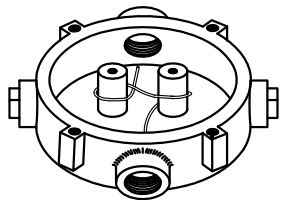
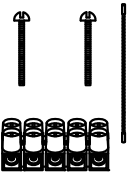
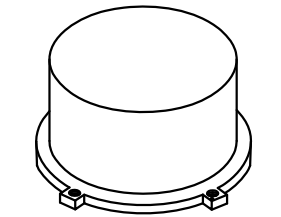
PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	AP35222	RED SIDELIGHT GLASS
2	1	OL2C	DOUBLE SIDELIGHT BODY
3	2	106C	LENS HOLDER RING
4	4	12V245	OL LENS CLIP
5	4	832X14PH	8-32 X 1/4 PH SS SLOT SCREW
6	4	HC255SS	SIDELIGHT LATCHES
7	2	7X7SS	1/16 HOL 7X7 S.S. WIRE
8	4	A1A	STAKON CRIMP
9	2	OLG	OL GASKET
10	2	TWR19062	SIDELIGHT RECEPTACLE
11	1	100324	OL2 SERIAL NUMBER LABEL
12	8	18PRSS	1/8 X .40 SS POP RIVET
13	1	A314	3/4" CONDUIT LOCKNUT GALV.
* 14	4	104G	WHITE TEFLON WASHER
15	4	832X34PH	8-32 X 3/4" S.S. PH SLOT
~ 16	2	116A21TS	116W-120V LAMP (TYP.)

\* = PART NOT SHOWN  
~ = PART SOLD SEPARATELY

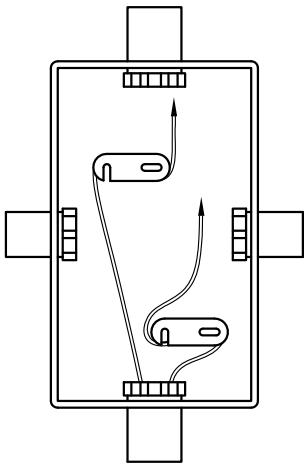
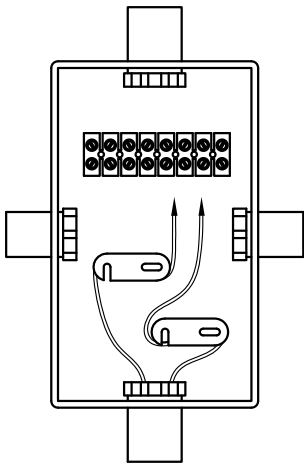
NOTE:  
1. FAA APPROVED LIGHT USES THE 116A21TS LAMP.  
OTHER LAMPS ARE AVAILABLE TO MEET YOUR APPLICATION.



DRAWN vhernandez	2/13/2012	<i>TWR Lighting, Inc.</i> <i>Enlightened Technology</i>	
CHECKED			
QA		TITLE  3/4" OL2 SIDELIGHT ASSEMBLY DETAIL (PART#OL2)	
MFG			
APPROVED		SIZE B	DWG NO 310
		SCALE 2/3	REV B
		SHEET 1 OF 1	



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



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

NOTES:

- 1) DRAWING ILLUSTRATES METHOD OF STRAIN RELIEVING WIRE. USE THIS METHOD ON ALL JUNCTION BOXES.
- 2) THE NATIONAL ELECTRICAL CODE-ARTICLE 300-19-B3 REQUIRES CONDUCTORS IN A VERTICAL CONDUIT BE SUPPORTED TO RELIEVE STRAIN ON TERMINAL BLOCK CONNECTIONS.
- 3) SKETCH ILLUSTRATES METHOD OF STRAIN RELIEVING A SINGLE CONDUCTOR. SEVERAL CONDUCTORS MAY BE GROUPED TOGETHER.
- 4) CONDUCTORS MAY BE MIXED BUT SHOULD NOT TAKE UP MORE THAN 40% OF CONDUIT'S INSIDE AREA.

USING THIS JUNCTION BOX METHOD SPACING IS 100 FEET MAXIMUM.

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

JUNCTION AND STRAIN RELIEF BOXES

PROD DEPT

SERV DEPT

ENGINEER

**TWR Lighting, Inc.**  
Enlightened Technology®

DRAWN BY  
G.D. SEBEK

DATE  
07/26/93

SCALE  
N.T.S.

SHEET SIZE  
B

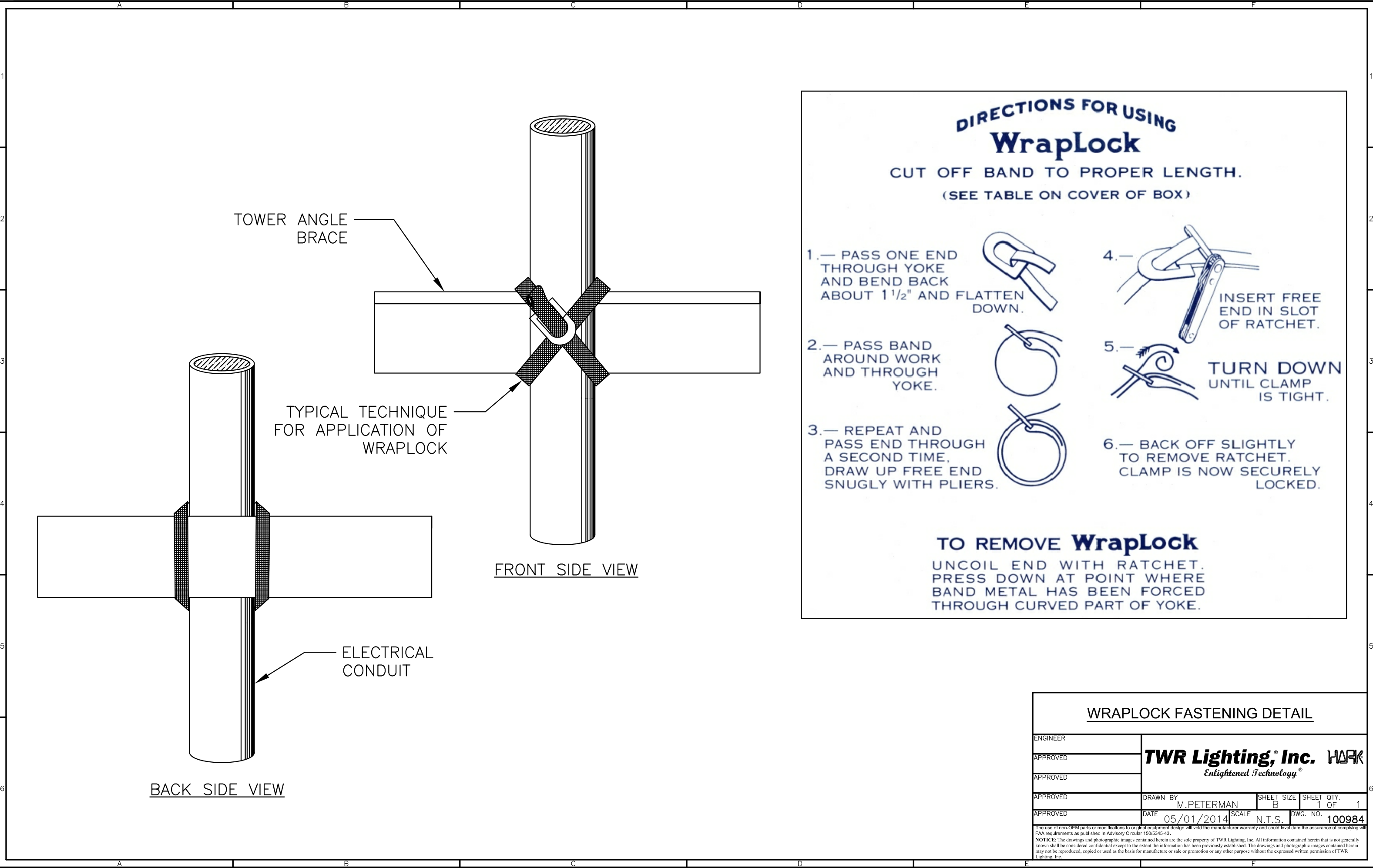
SHEET QTY.  
1 OF 1

DWG. NO.  
100089

9/29/00 **(A)** 3 UPDATED NOTES

DATE: LTR. REVISION

The use of non-TWR 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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WRAPLOCK FASTENING DETAIL				
ENGINEER	<b>TWR Lighting, Inc.</b> <i>Enlightened Technology®</i>			
APPROVED				
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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	
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