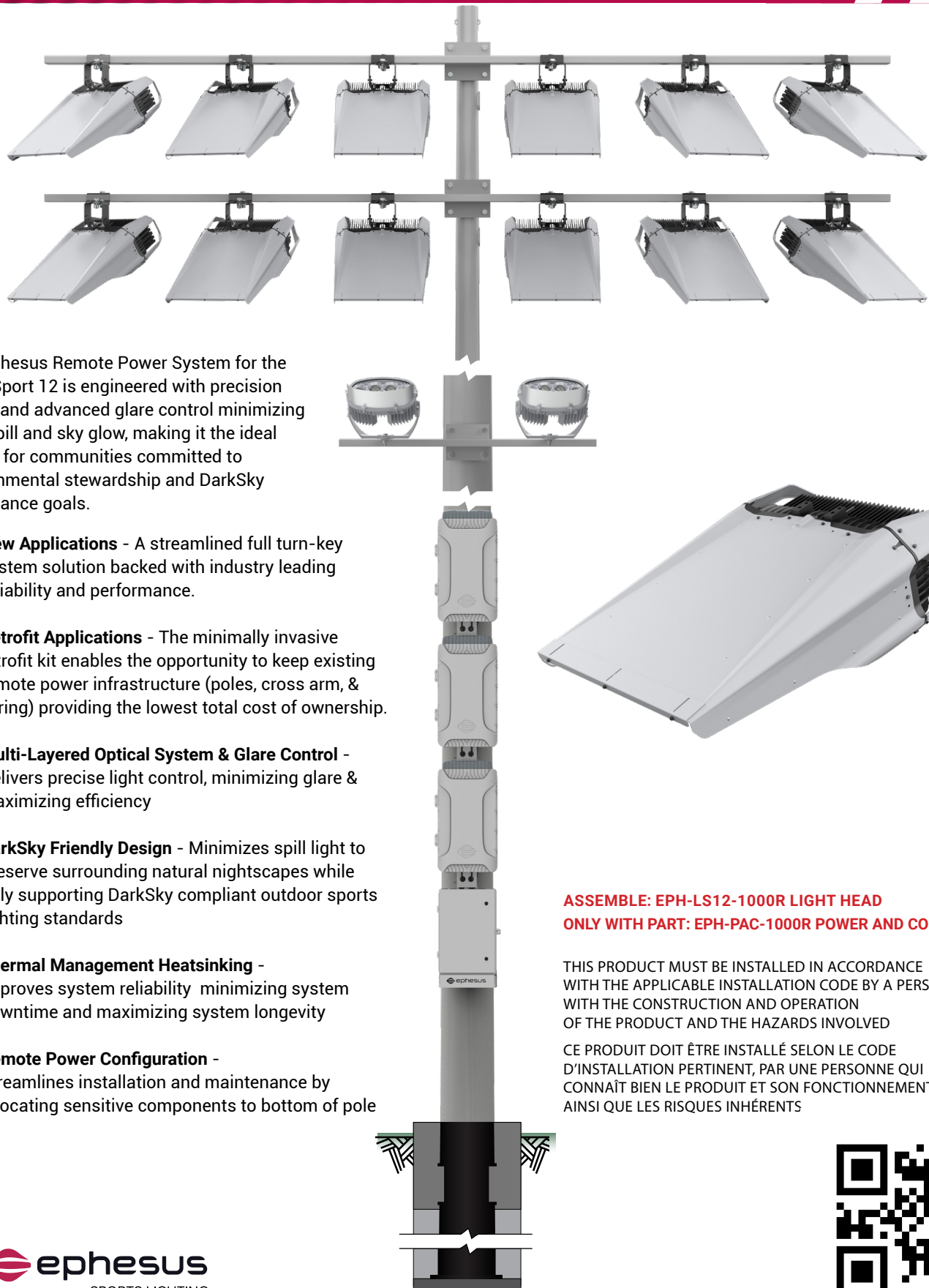


INSTALLATION MANUAL FOR REMOTE POWER SYSTEM: LUMASPORT 12 LIGHT HEAD



The Ephesus Remote Power System for the LumaSport 12 is engineered with precision optics and advanced glare control minimizing light spill and sky glow, making it the ideal choice for communities committed to environmental stewardship and DarkSky compliance goals.

- **New Applications** - A streamlined full turn-key system solution backed with industry leading reliability and performance.
- **Retrofit Applications** - The minimally invasive retrofit kit enables the opportunity to keep existing remote power infrastructure (poles, cross arm, & wiring) providing the lowest total cost of ownership.
- **Multi-Layered Optical System & Glare Control** - Delivers precise light control, minimizing glare & maximizing efficiency
- **DarkSky Friendly Design** - Minimizes spill light to preserve surrounding natural nightscapes while fully supporting DarkSky compliant outdoor sports lighting standards
- **Thermal Management Heatsinking** - Improves system reliability minimizing system downtime and maximizing system longevity
- **Remote Power Configuration** - Streamlines installation and maintenance by relocating sensitive components to bottom of pole

**ASSEMBLE: EPH-LS12-1000R LIGHT HEAD
ONLY WITH PART: EPH-PAC-1000R POWER AND CONTROLS BOX**

THIS PRODUCT MUST BE INSTALLED IN ACCORDANCE WITH THE APPLICABLE INSTALLATION CODE BY A PERSON FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE PRODUCT AND THE HAZARDS INVOLVED

CE PRODUIT DOIT ÊTRE INSTALLÉ SELON LE CODE D'INSTALLATION PERTINENT, PAR UNE PERSONNE QUI CONNAÎT BIEN LE PRODUIT ET SON FONCTIONNEMENT AINSI QUE LES RISQUES INHÉRENTS





WARNINGS AND CAUTIONS

Failure to strictly adhere to the warnings and cautions as well as the installation instructions may result in serious personal injury or property damage.

Before You Begin

Read and understand this entire manual and any additional site-specific installation documents before attempting to assemble, install, or operate the luminaire. If you have any questions regarding the product or installation, contact Cooper Lighting Customer Service at 1-800-573-3600. The most up to date version of this installation manual can always be found at ephesuslighting.com.

Follow all warning and cautions outlined here as well as any local safety procedures.

- All electrical work must conform to National Electrical Code (NFPA 70), IEEE Emerald book, and all applicable local codes and ordinances.
- Ensure the capacity of the existing power distribution system meets the load requirements for the new installation, including inspection of wiring integrity and confirm the branch circuit voltage matches the voltage of the lighting equipment.
- See luminaire specification sheet for weight and wind loading (EPA) data. Supporting and mounting structures must comply to industry standard capacity requirements and comply with applicable regulatory and safety codes.
- Electrical distribution systems must comply with all applicable regulatory and safety codes.
- In harsh settings where the system is subjected to factors such as extreme temperatures, high corrosion, hurricanes, or lightning, always follow local codes and additional protocols to ensure the cabling and other system components can withstand the environmental stress for the life of the system.
- DO NOT make or alter any open holes in the luminaire. Do not modify the luminaire, internal wiring, or luminaire mounting features. Opening or modifying the luminaire or bracket will void the warranty.
- Use Personal Protective Equipment including hardhats, safety glasses, reflective vests, electrical safety gloves, fall protection equipment, and safety toe boots during installation, operation, and maintenance of luminaire.
- Verify compliance with local standards to prevent access to the area below where installation activities are occurring to prevent injury from accidental drops of luminaires, tools or hardware.

Storage

Store luminaires in a clean, dry place, protected from dirt, water, and sunlight prior to installation. See Table 1 for required storage and operating conditions:

Storage Temperature	Operating Temperature	Humidity
-40°C to +75°C (-40°F to 167°F)	-40°C to +40°C (-40°F to 104°F)	5% to 95% non-condensing

Table 1. Storage and Operating Conditions



Risk of Fire, Electrical Shock, Cuts or other Casualty Hazards - Installation and maintenance of this product must be performed by a qualified electrician. This product must be installed in accordance with the applicable installation code by a person familiar with the construction and operation of the product and hazards involved.



Risk of Fire and Electric Shock - Make certain power is OFF before starting installation or attempting any maintenance. Disconnect power at fuse or circuit breaker.



Risk of Fire - Refer to product label for specific minimum supply conductor requirements.



Risk of Burn - Disconnect power and allow luminaire to cool before handling or servicing.



Risk of Personal Injury - Luminaire may become damaged and/or unstable if not installed properly.

DISCLAIMER OF LIABILITY: Cooper Lighting Solutions assumes no liability for damages or losses of any kind that may arise from the improper, careless, or negligent installation, handling or use of this product.

NOTICE: Green ground wire provided in proper location. Do not relocate.

ATTENTION Receiving Department: Note actual luminaire description of any shortage or noticeable damage on delivery receipt. File claim for common carrier (LTL) directly with carrier. Claims for concealed damage must be filed within 15 days of delivery. All damaged material; complete with original packing must be retained.

APPLICATIONS: This luminaire should not be used in area of limited ventilation or inside high ambient temperature enclosures. It must be stored in a dry location before installation. Do not expose luminaire to rain, dust or other environmental conditions prior to installation. Best results will be obtained if installed and maintained according to the following recommendations.



Power Supply

Ephesus LED Light Heads are not traditional metal halide lights; they are high-tech, new-generation solid-state devices. To protect your valuable investment, ensure the supply of electrical power is clean and stable with no spikes or sags.

The power transformer feeding the site electrical distribution system must be a three-phase, four-wire wye configuration or a single-phase configuration. An ungrounded delta configuration is **NOT** an approved power supply. If any other supply transformer configuration is present, notify Cooper Lighting before proceeding with installation.

All issues with supply power must be corrected before light heads are installed. Failure to use an approved supply power configuration may result in equipment damage.



LumaSport Remote Light Heads and PAC Boxes must have matching power configurations as specified in the cat logic. Do NOT install Light Head on a PAC Box that has a different power rating. Failure to properly match PAC Box and Light Head can cause damage. See guide below for how many Light Heads are supported by each PAC.

	QUANTITY OF LOW VOLTAGE VARIANTS (208V AC, 240V AC) LUMINAIRES PER POLE											
LUMASPORT 12	1	2	3	4	5	6	7	8	9	10	11	12
QUANTITY OF PAC BOXES	1 PAC BOX		2 PAC BOXES		3 PAC BOXES		4 PAC BOXES		5 PAC BOXES		6 PAC BOXES	
QUANTITY OF DISTRIBUTION BOXES	1 DISTRIBUTION BOX											

	QUANTITY OF HIGH VOLTAGE VARIANTS (277V AC, 347V AC, 480V AC) LUMINAIRES PER POLE																							
LUMASPORT 12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
QUANTITY OF PAC BOXES	1 PAC BOX				2 PAC BOXES				3 PAC BOXES				4 PAC BOX				5 PAC BOXES				6 PAC BOXES			
QUANTITY OF DISTRIBUTION BOXES	1 DISTRIBUTION BOX																							

Note:

- These quantities depicted are representative of LumaSport 12 white light, Quantities of PAC boxes or lightheads supported per Distribution box will vary if you add uplighting or RGB luminaires.
- Using a 277V AC line-to-neutral supply limits the number of PAC boxes supported by a Distribution box; the recommended maximum is five (5) PAC boxes per Distribution box for a 277V single-phase supply. Consult Ephesus if you plan to install this configuration.
- Light heads connected per distribution box are limited to the maximum amperage capacity of 95 A. Do not overload the Distribution box.



Power Quality

Follow proper grounding methods. The electrical system must be properly grounded for power electronics in accordance with IEEE Emerald Book, including using equipment grounding conductors. Metallic conduits are **NOT** an acceptable grounding method for Cooper Lighting LED lighting systems. Power must also be phase balanced. If you are not sure if your power system is grounded or load balanced, **DO NOT** install the luminaire and contact a licensed electrician for information on proper grounding and balancing methods as required by the National Electrical Code and IEEE standards.



Surge Protection

Installation of surge protection is recommended in power distribution systems that feed LED sports lighting. Failure to protect electrical circuits from surges may result in damage to luminaires.



Branch Circuits

Branch power circuits feeding luminaires shall have a measured voltage of within 3% of nominal voltage with no sags, swells, or transients. When circulating power to luminaires, load balance all circuits. See luminaire specification sheet for power characteristic data.



Voltage Configuration

Before installing luminaires, verify that the luminaire model number has the correct voltage configuration for your application. See luminaire specification sheet for acceptable branch circuit voltage. Failure to confirm proper configuration may result in injury damage to luminaires.



WARNING

Failure to confirm proper configuration may result in injury or luminaire damage.

IF YOU NEED CUSTOM SYSTEM COMPONENTS OR SERVICES PLEASE CONTACT EPHESUS:

WWW.COOPERLIGHTING.COM/GLOBAL/CONTACT-US/EPHESUS



- POLES
- CROSS ARMS
- DROP CABLES
- FOUNDATION DESIGN
- LIGHTING DESIGN



Required Installation Tools and Materials

All Mounting Configurations

- Working Gloves
- Required PPE

Trunnion (TM, BM) and Quick Clamp (QC)

- 9/16-inch socket and Ratchet
- 9/16 Wrench
- 5/16-inch socket and Ratchet
- 3/8 Wrench
- 1 1/4-inch socket and Ratchet

Slipfitter (SP2, SP3) or Adjustable Arm Mount (AAJL)

- Ratchet
- 9/16 inch socket
- Torque wrench (ft-lbs)
- 1/4 inch Allen hex
- 3/4 open wrench
- #2 Phillips screwdriver
- 3/4-inch socket
- Need to list for 2-3/8inch dia pole set screws

Light Head Electrical Performance Data

Product	Total Drive Current	DC Voltage	Light Head Power (Driver Output Power)
EPH-LS12-1000R (LV drivers)	4.7 A	210 V	987 W
EPH-LS12-1000R (HV drivers)	4.7 A	210 V	987 W

Notes :
All values may vary by +/-10% of rated values.

Operating Conditions and Clearances

Refer to the following sections for thermal, optical, and mechanical clearance requirements.

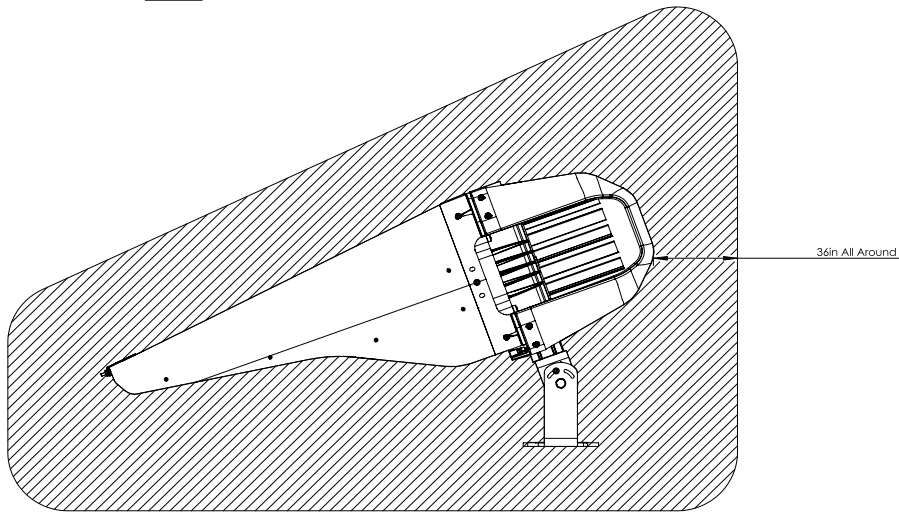
Thermal Clearances - Safe Operation

Installer shall verify there are adequate clearances around luminaire to allow for proper heat dissipation and fire hazards. The luminaire produces a significant amount of heat and should not be installed in any confined space. Any combustible materials or structures that could limit the airflow around the luminaire heatsink must be at least 36in away from the luminaire (example ceiling). Mounting structures, adjacent luminaires or non-combustible materials can be within this limit.



Risk of Fire. Do not install luminaire within 915 mm (36 in) of any combustible material.

1a

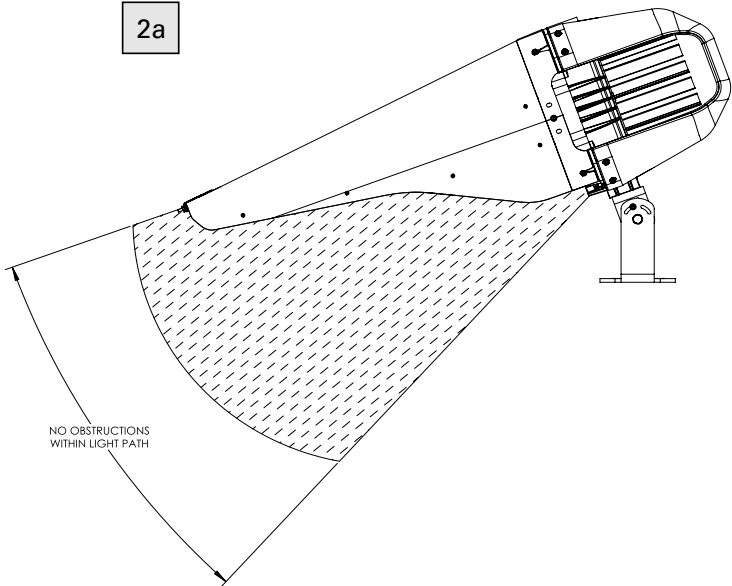


Optical Clearances – Maximizing Light Levels

Install luminaires according to the location and aiming data exported from photometric models to achieve desired results. However, any objects in the light path between the luminaire and the playing surface will diminish the light levels. Some examples of obstructions are building structural members, electrical panels, HVAC ductwork, banners, and scoreboards.

Before installing your lighting project, verify that there is a clear line of sight from every luminaire location to the designed aiming area, which includes not only the aiming point coordinate but also the area surrounding that aiming point. The illumination area for each luminaire varies with mounting height and beam angle, but the purpose is to identify all obstructions and analyze how each will impact the light output on the playing surface, and then take corrective action as necessary to avoid the obstruction. For example, a structural beam directly in front of a luminaire will block the light from reaching the target, so in that case, the luminaire should be shifted to avoid the beam.

2a



Mechanical Clearances - Avoiding Obstructions

In general, luminaires can be moved up to 5ft from the designed location without affecting photometric results as long as they are aimed at the designed aiming coordinates. For significant obstructions, photometric models should be revised with accurate obstruction dimensions to provide new luminaire location and aiming data that avoids the obstruction. If options are limited, consider swapping that luminaire aiming with a nearby luminaire of the same type that allows clear line of sight to the aiming points. Consult your photometric designer for assistance with finding solutions to major obstructions for your project.

Proper planning will ensure the best results for your sports lighting project. Once these steps are completed, then proceed to the luminaire installation.

INSTALLATION INSTRUCTIONS

Step 1 – Prepare the luminaire

Install power cable

Always turn all luminaire power sources OFF before performing any work.



WARNING

Failure to disconnect all power sources may lead to damage, injury, or death.

Preparing the existing structure



Design and condition of crossarms and existing structure shall be evaluated to determine compliance with the EPA and weight requirements needed. Potential interference between the crossarm or platforms and the Light Head shall be evaluated prior to installation. Cooper Lighting is not responsible for the existing structure.



Electrical configuration shall be evaluated for compatibility with the Ephesus remote system. If existing wires are re-used, wiring and electrical connections shall be inspected for degradation, abrasion or any other defects that could lead to failure. Any wires or cabling exposed to the weather (external to the crossarm, poles or conduit) shall always be replaced. Cooper lighting is not responsible for the existing wiring.

Electrical Wiring

The existing structure shall have a dedicated ground path between all Light Heads and the Ephesus Distribution Box. The remote configuration requires two adequately rated direct wire runs between each Light Head and Distribution Box. The wiring between Light Head and Distribution Box must be 14AWG, 600V, 90C rated and compliant with all local, state and federal electrical regulatory codes. Cable lengths between all Light Heads and PAC Box must be less than 200ft.

Map the new and existing luminaires

In retrofit applications, the existing luminaire will need to be removed. Any associated electro-mechanical bracketry to support luminaire shall also be removed. Do not discard any existing equipment during a retrofit until after the full installation of the new Ephesus system is complete. Markings, hardware, and connectors may assist in during the retrofit process. Any information mapping the Light Head location to the Distribution Box shall be recorded and saved for future use. This is required to link Light Head location and the remotely located power and control components.

Note: For retrofit applications, Cooper Lighting recommends recording mapping information on in a prominent document and labeling or otherwise marking the existing luminaire number on the bracket or mounting structure to facilitate future identification from the working area.

Preparing the Light Head

Note: All luminaires that have the exact same model number are functionally identical as built from the factory.

Remove all protective packaging and wrapping from Luminaire. Caution, when handling the light luminaire, keep hands away from interior of lighthouse visor to keep optical surfaces clean. Any imperfections introduced during installation shall be wiped down gently with a microfiber cloth upon completion of installation and aiming.



Label the Luminaire

Label each luminaire with the luminaire number as designated in the photometric design document.

Labeling is important because:

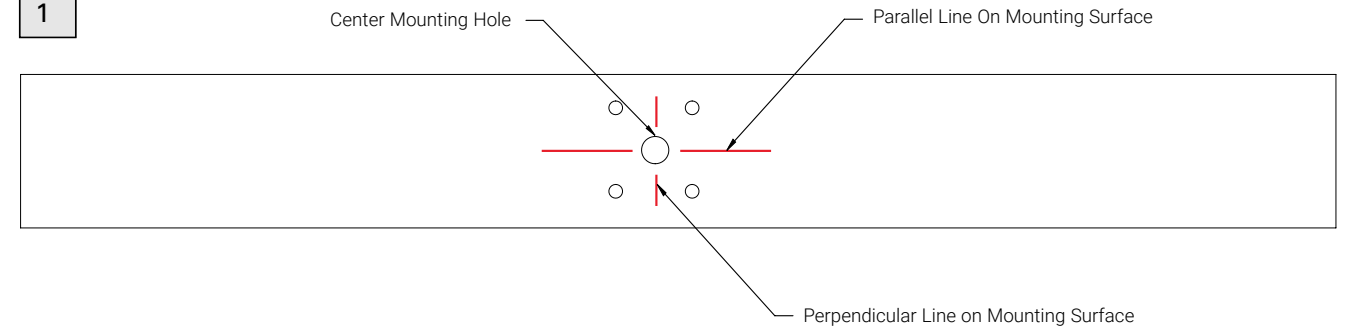
- It helps to remove errors if the luminaire will be pre-aimed
- is required to track the wiring between the different components of the remote power system.
- Limits improper addressing during the control commissioning process.

Recommended label is a weatherproof adhesive label that has a white background with black lettering at least 1/2in tall. Paint markers or other methods may also be acceptable – verify with owner. Affix label to the Light Head or mounting bracket in a prominent location.

Marking the crossarm surface (top mount retrofit only)

Mounting the Light Head To pre-aim the luminaire orientation, draw a reference line on the mounting surface. Use a paint pen or other marker to draw a line across the centre of the mounting hole, parallel and perpendicular with the crossarm or mounting structure. The crossarm should typically but not necessarily be perpendicular to the direction of the field of play. The line should extend at least 3in out from the centre of the mounting hole.

1



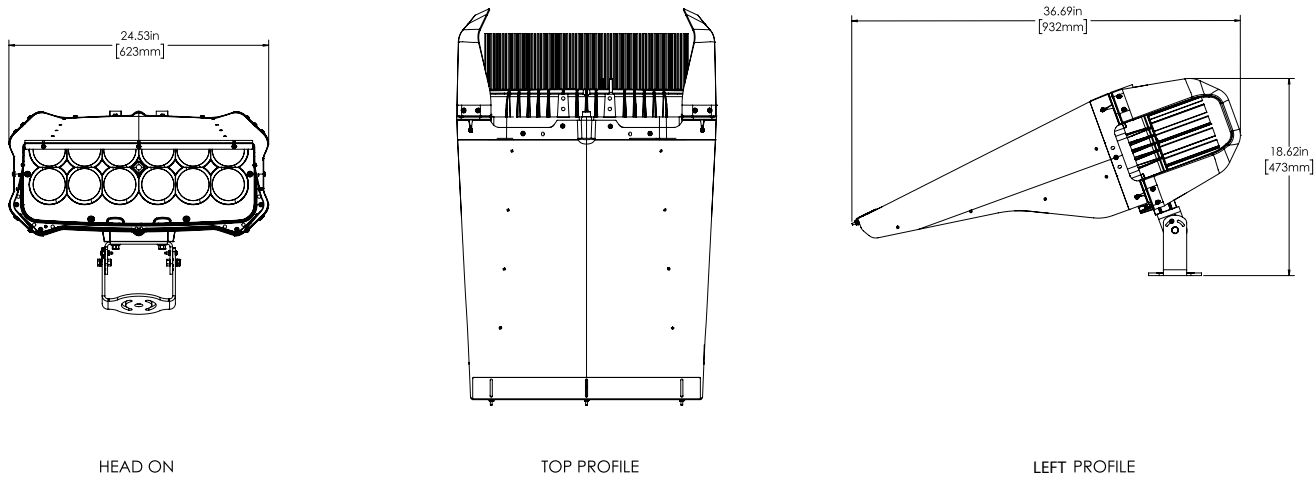


LIGHT HEAD: TM: TOP MOUNT TRUNNION

Dimensional Details:

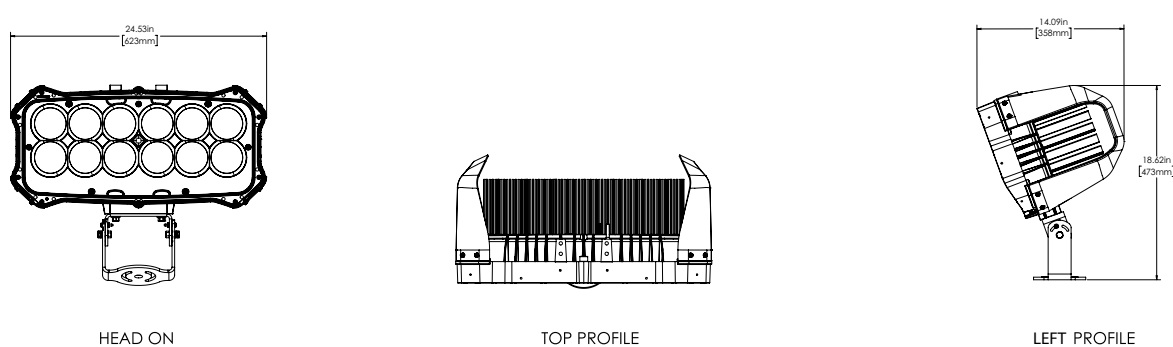
Light Head: TM = Top Mounted Trunnion with Extreme Cut-off Visor (ECV)

2a



Light Head: TM = Top Mounted Trunnion without Extreme Cut-off Visor (HEG)

2b



Required Installation Tools

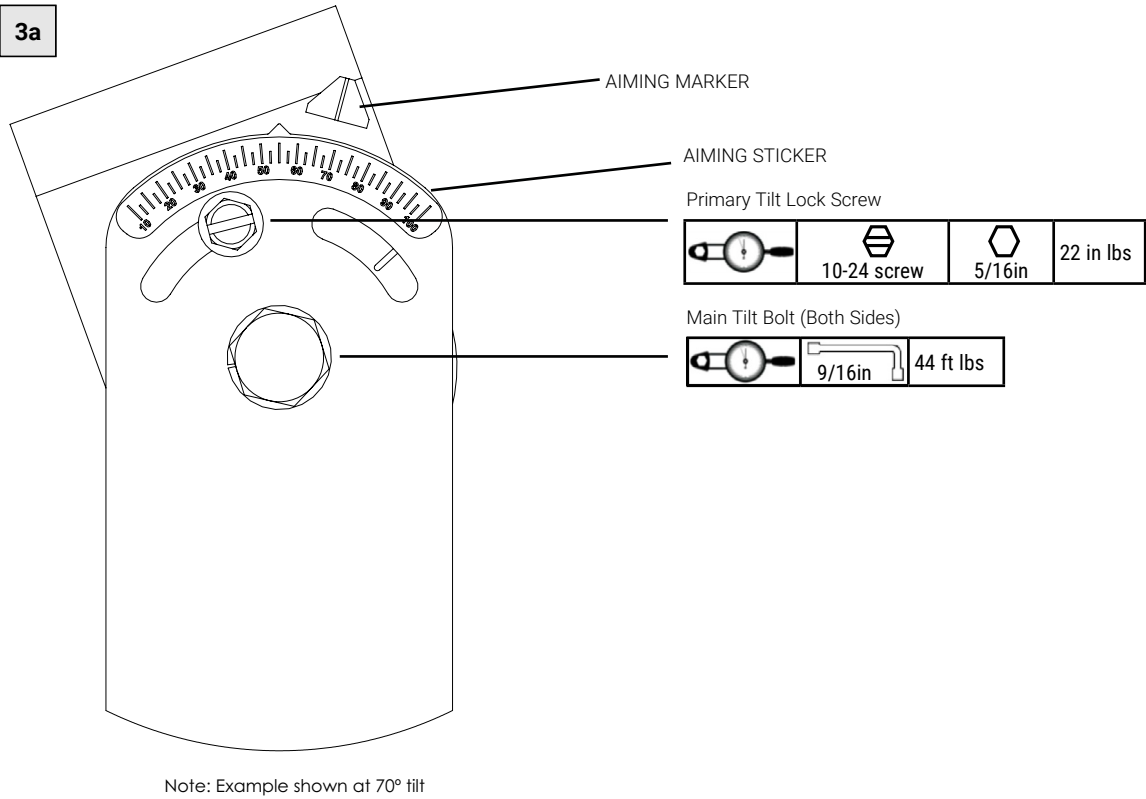
Name	Description	QTY	Tool required	Torque
3/8-16 Grade 8 bolt	Trunnion side aiming bolts	2	9/16-inch socket and Ratchet	44 ft lbs
3/8-16 Nut	Trunnion side aiming bolt nuts	2	9/16 Wrench	44 ft lbs
10-24 screw	Locking Set screw for slot	2	5/16-inch socket and Ratchet	22 in lbs
10-24 nut	Nut for locking set screw	2	3/8 Wrench	22 in lbs
3/4-inch Mounting bolt and nut with flat washers	Not provided for Cooper (HDG, hot dipped galvanized high-strength steel is recommended)	1	1 1/4-inch socket and Ratchet	80 ft lbs
3/8-inch Mounting orient lock bolts	Not provided for Cooper (HDG, hot dipped galvanized high-strength steel is recommended)	2		25 ft lbs

Pre-Aiming: Top Mounted Trunnion

Pre-aiming requires a level mounting surface and knowledge of the cross-arm orientation. The Light Head can be pre-aimed using the tilt guide and orient guide. Refer to photometrics or project installation drawings for the orient and tilt angles.

If laser aiming, verify the Light Head is secure in the yoke and mounting surface but do not fully torque hardware until final aiming is complete.

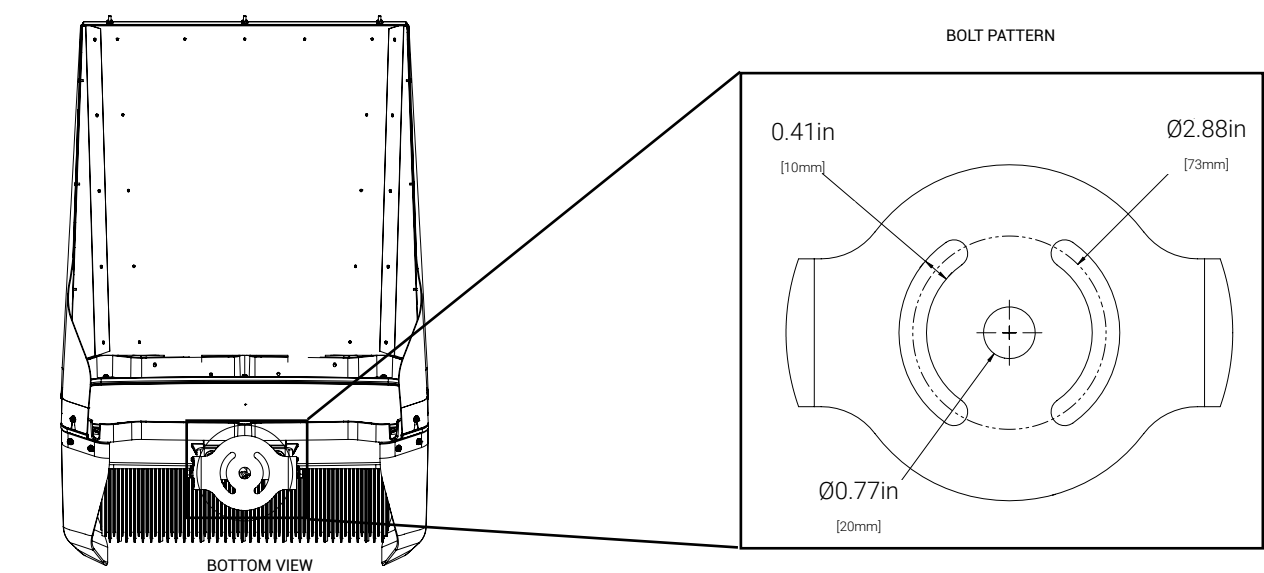
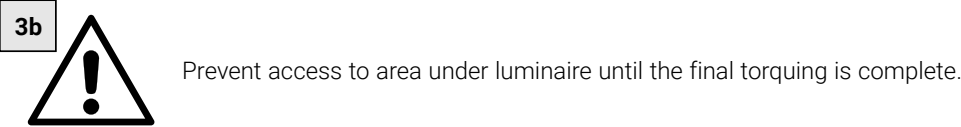
Set pre-aiming tilt angle



Note: Example shown at 70° tilt

The luminaire can be adjusted from 40 degrees to 70 degrees from horizontal.

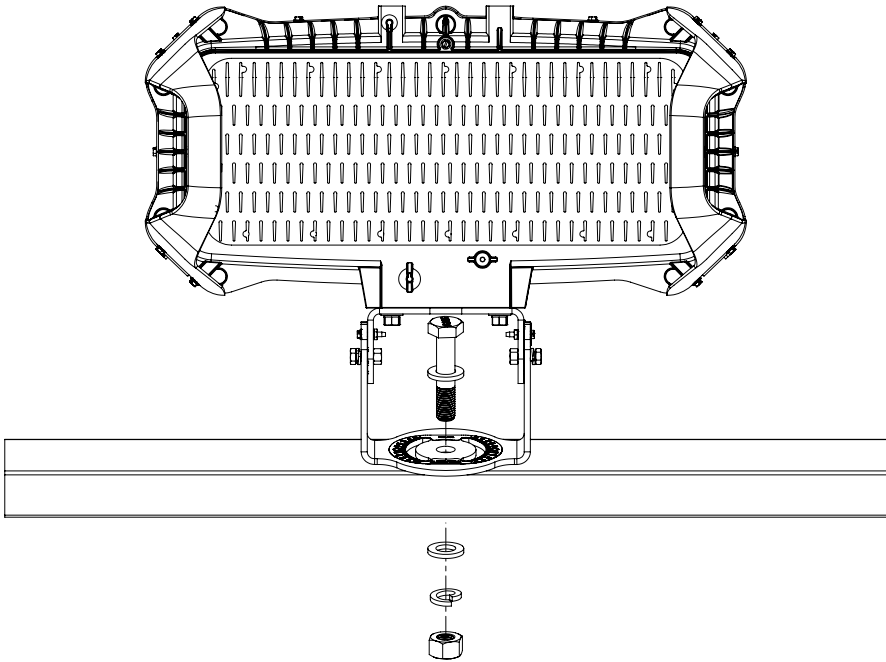
Loosen the two main center tilt bolts and remove tilt lock screw to allow the Light Head and luminaire side trunnion bracket to rotate. Do NOT over-loosen or remove center bolts. Rotate luminaire to desired aiming position and tighten centre bolts to 44 ft-lbs. Tighten the tilt lock screw to 22in-lbs.



Mounting the Light Head

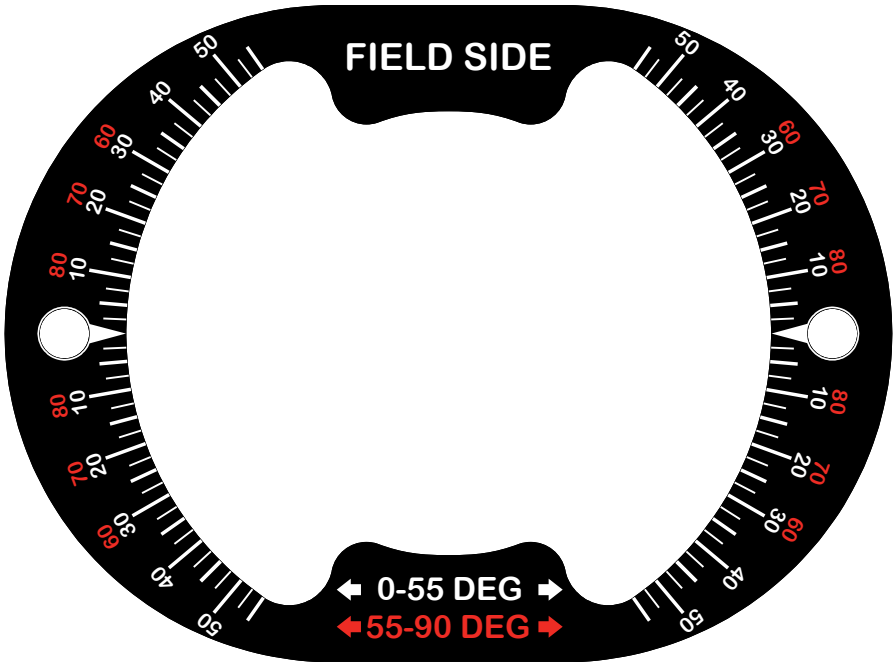
Mounting center bolt shall be 3/4in diameter corrosion resistant steel (HDG, hot dipped galvanized high-strength steel is recommended) with nut, jam nut and locking washers. A secondary 3/8in diameter corrosion resistant steel bolt with nut, flat and locking washers shall be used to lock the orient. The length of bolts is determined in the field depending upon thickness of mounting structure. Size bolts appropriately to allow secure fastening of the luminaire to the mounting structure. Tighten hardware so that luminaire is secure but do not fully torque hardware until aiming is complete.

4



5a

Trunnion Orientation Label



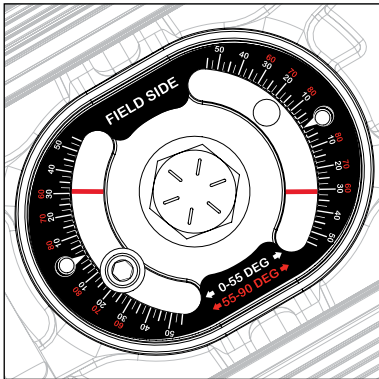
Set pre-aiming orientation angle:

Pre-aim Orientation 0-55°

To pre-aim the Light Head orientation, rotate the Light Head about the mounting bolt until the parallel reference line that was marked on the mounting structure aligns with the white reference angle on the orientation label. Tighten the main orient bolt and orient lock screw per the spec in the corresponding illustration.

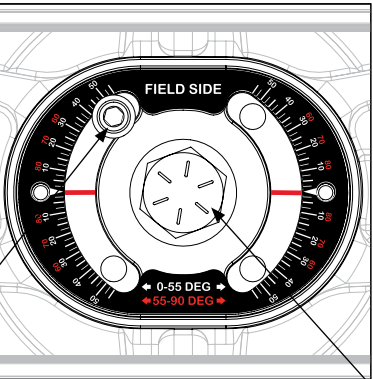
Prevent access to area under luminaire until the final torquing is complete.

5b 0-55° Left

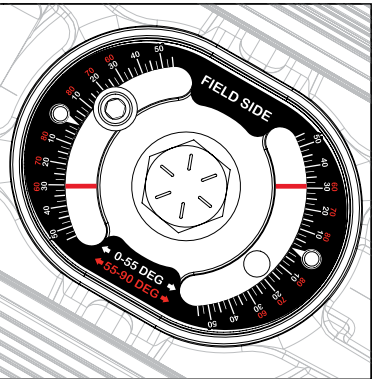


Orient Lock Bolt
9/16in 20 ft lbs

5c 90° Straight to Field



5d 0-55° Right

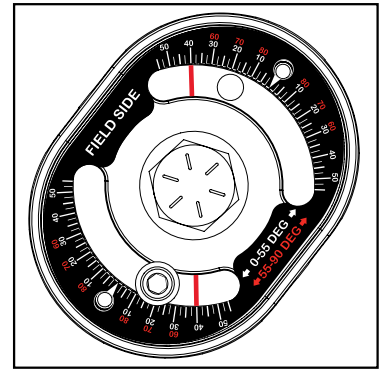


Main Mounting Bolt
1-1/4in 80 ft lbs

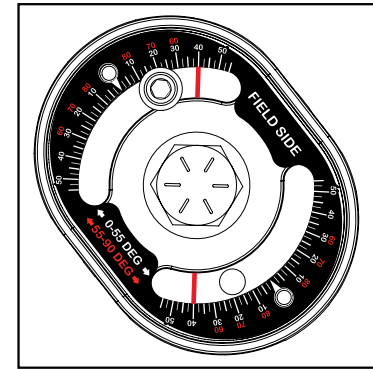
Pre-aim Orientation 55-90°

To pre-aim the luminaire orientation, rotate the Light Head about the mounting bolt until the perpendicular reference line that was marked on the mounting structure is aligned with the correct angle shown in red on the orient label in the bottom of the Light Head.

5e 55-90° Left

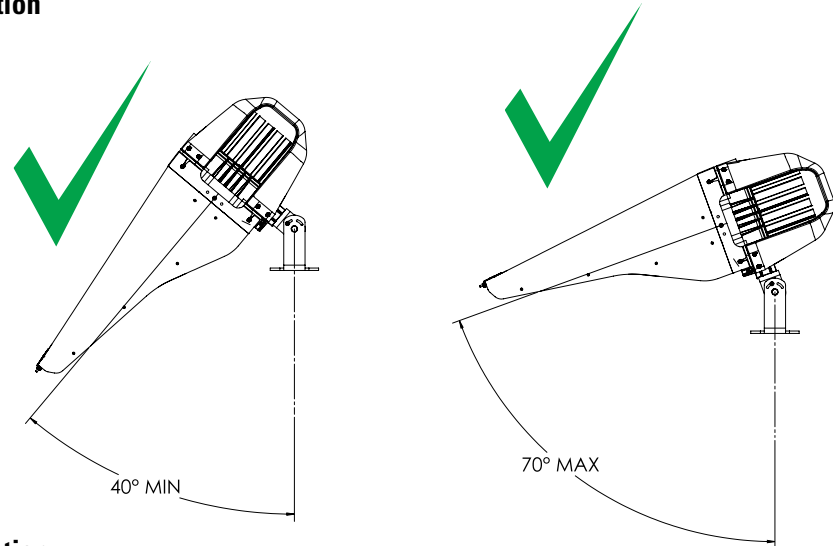


5f 55-90° Right

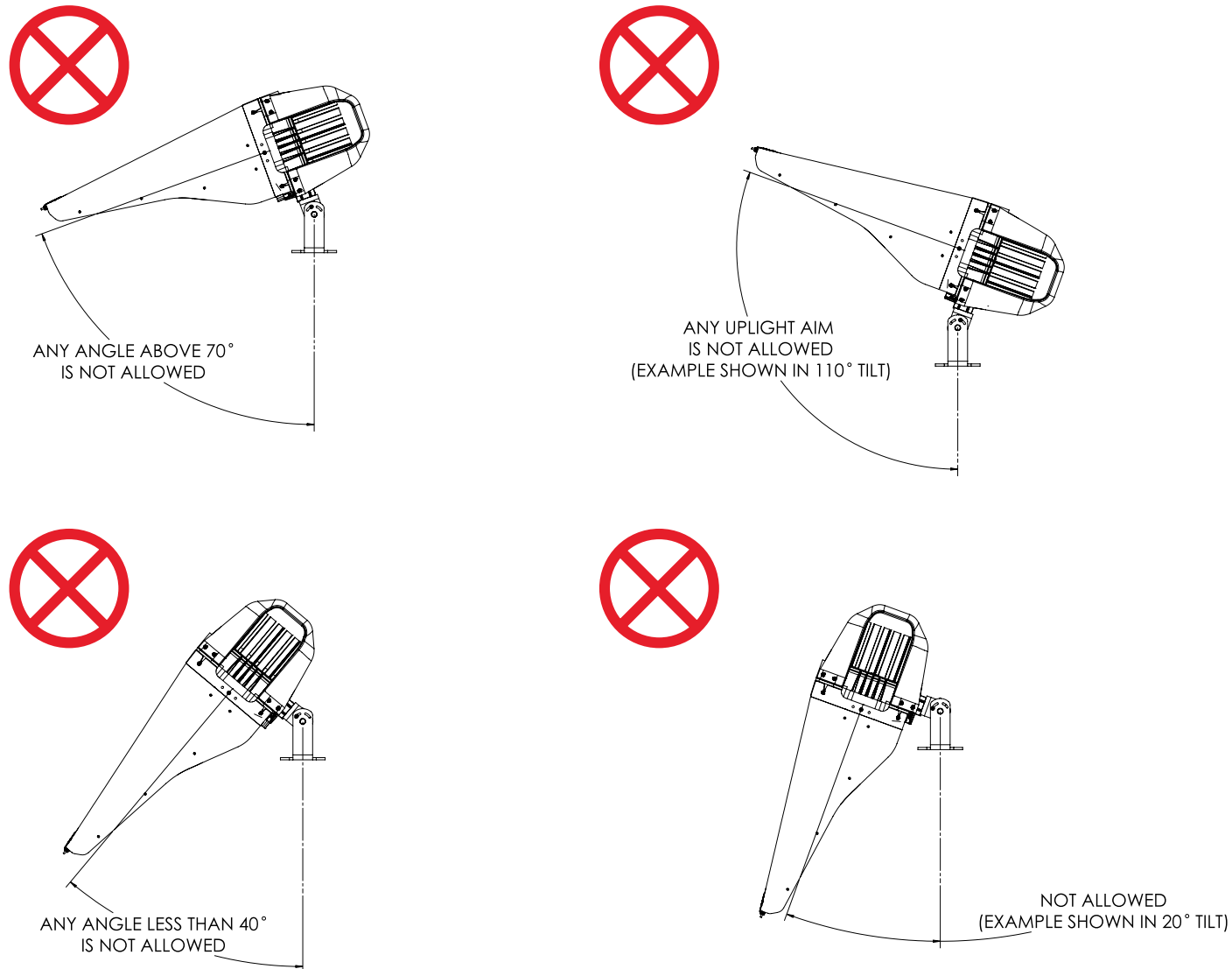


If laser aiming, tighten the mounting hardware so that luminaire is secure but do not fully torque hardware until final aiming is complete. If using the orient gauge, torque the mounting hardware at this step to the values in the table below. If you are laser aiming, torque the hardware to the specification once the luminaire is aimed.

6a Correct Installation



6b Incorrect Installation

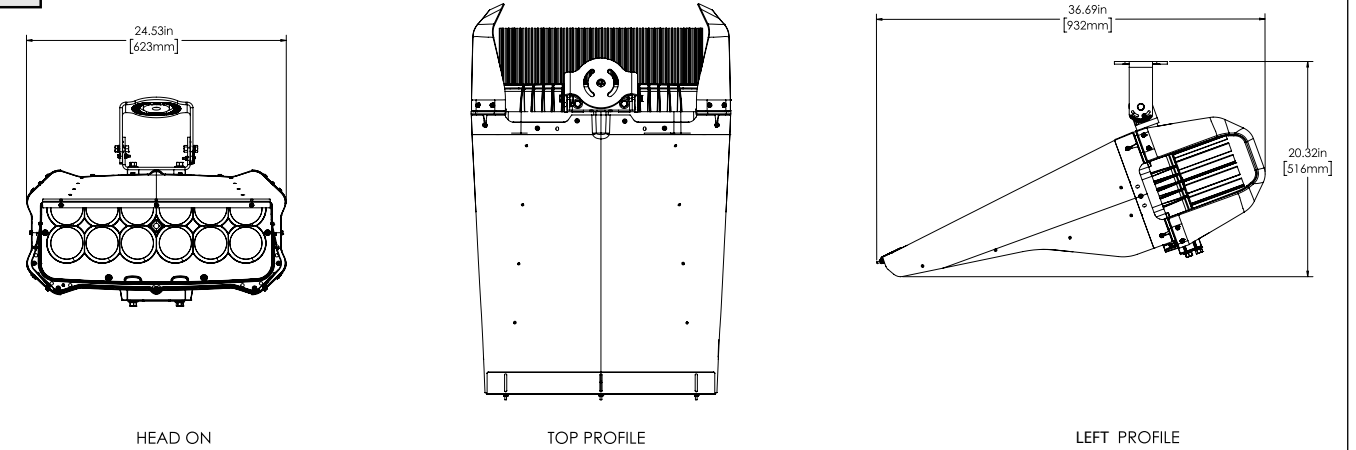


 LIGHT HEAD: BM: BOTTOM MOUNT TRUNNION

Dimensional Details:

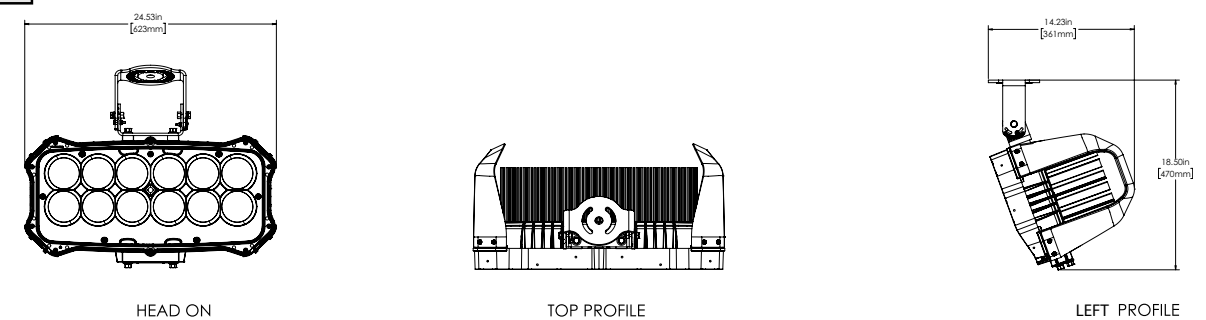
Light Head: BM = Bottom Mounted Trunnion with Extreme Cut-off Visor (ECV)

7a



Light Head: BM = Bottom Mounted Trunnion without Extreme Cut-off Visor (HEG)

7b



Required Installation Tools

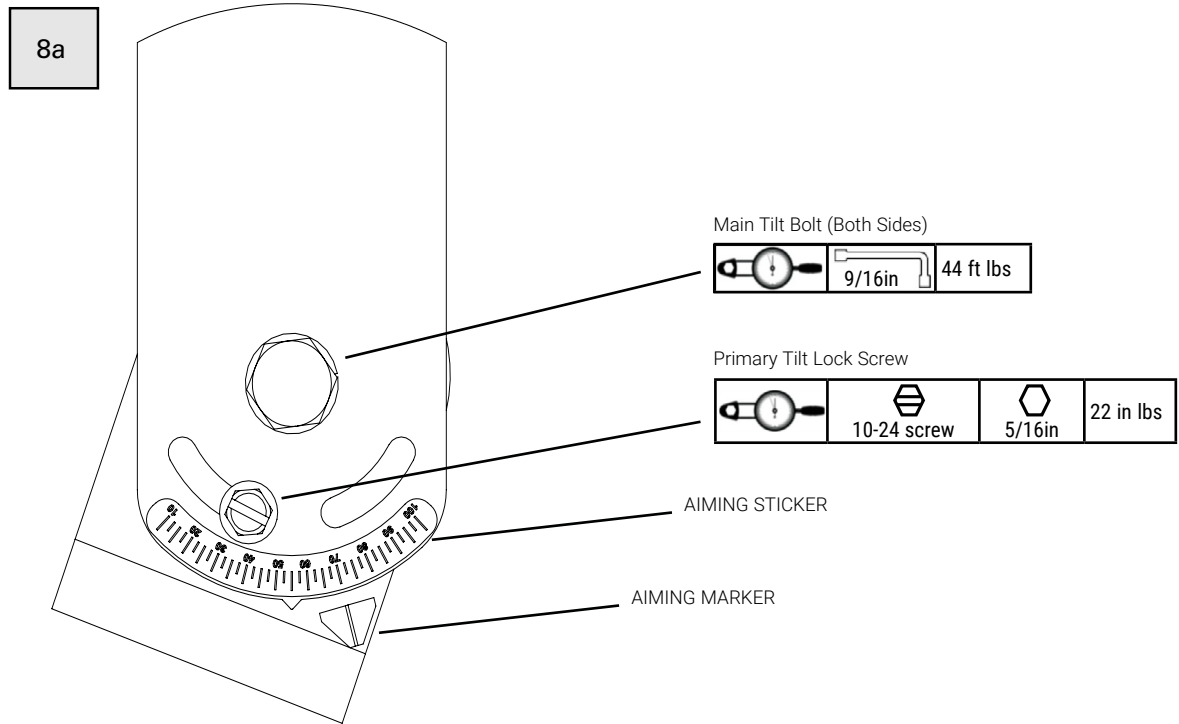
Name	Description	QTY	Tool required	Torque
3/8-16 Grade 8 bolt	Trunnion side aiming bolts	2	9/16-inch socket and Ratchet	44 ft lbs
3/8-16 Nut	Trunnion side aiming bolt nuts	2	9/16 Wrench	44 ft lbs
10-24 screw	Locking Set screw for slot	2	5/16-inch socket and Ratchet	22 in lbs
10-24 nut	Nut for locking set screw	2	3/8 Wrench	22 in lbs
3/4-inch Mounting bolt and nut with flat washers	Not provided for Cooper (HDG, hot dipped galvanized high-strength steel is recommended)	1	1 1/4-inch socket and Ratchet	80 ft lbs
3/8-inch Mounting orient lock bolts	Not provided for Cooper (HDG, hot dipped galvanized high-strength steel is recommended)	2		25 ft lbs

Pre-Aiming: Bottom Mount Trunnion

Pre-aiming requires a level mounting surface and knowledge of the cross-arm orientation. The Light Head can be pre-aimed using the tilt guide and orient guide. Refer to photometrics or project installation drawings for the orient and tilt angles.

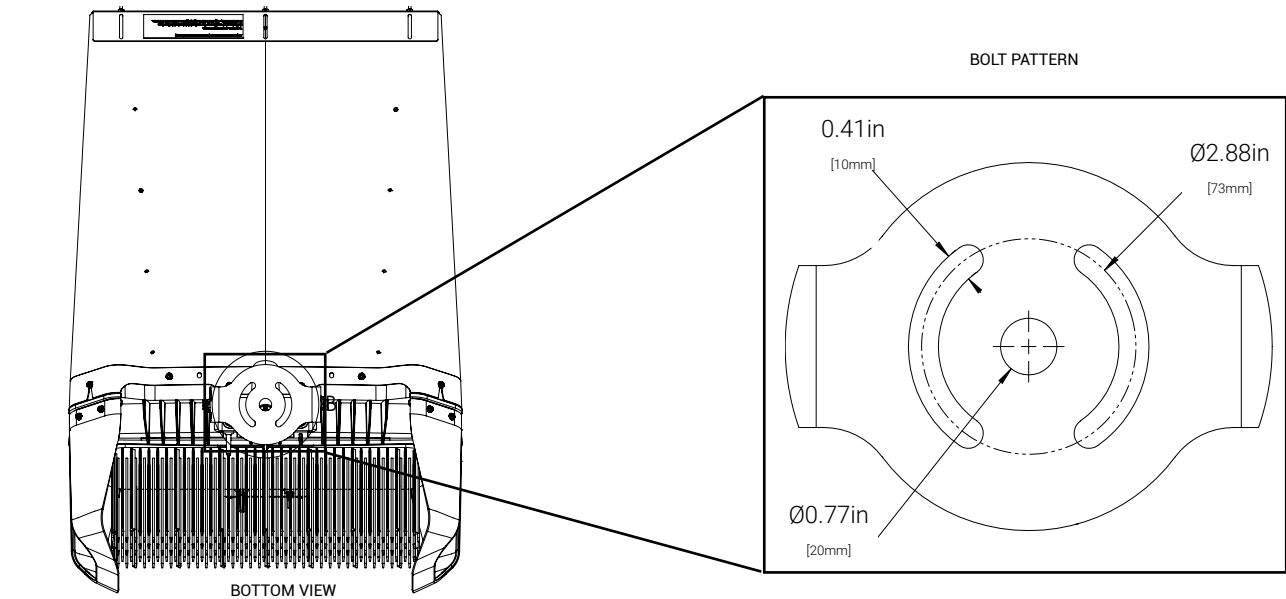
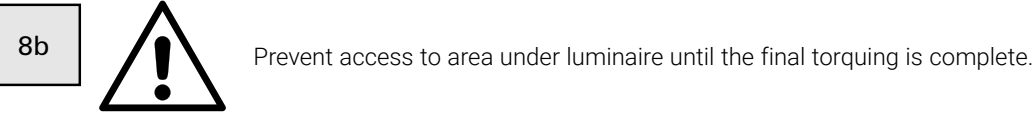
If laser aiming, verify the Light Head is secure in the yoke and mounting surface but do not fully torque hardware until final aiming is complete.

Set pre-aiming tilt angle



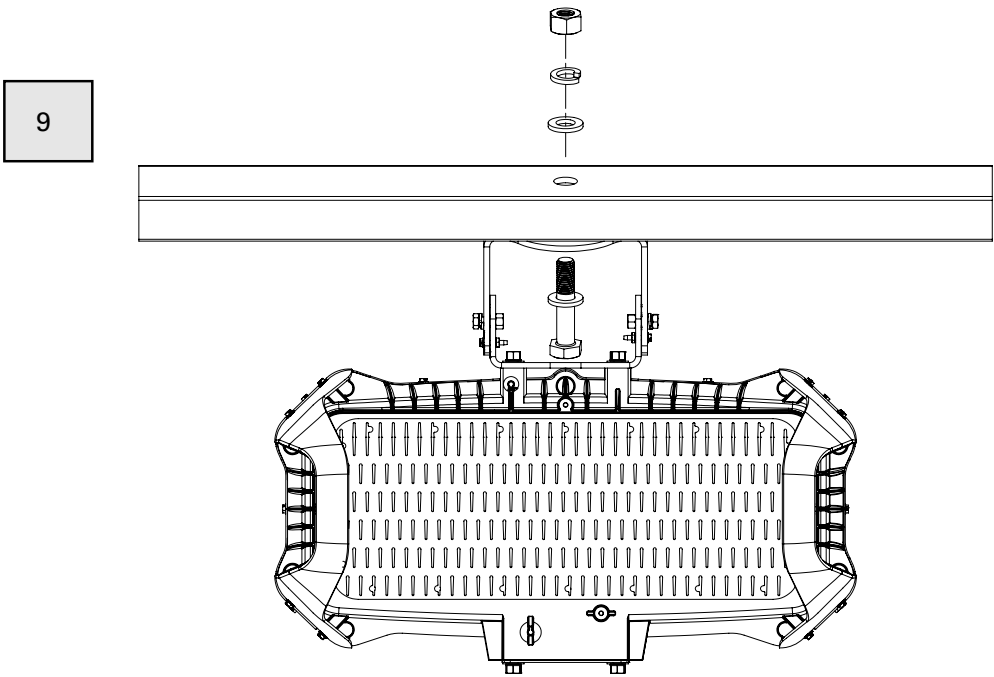
Note: The luminaire can be adjusted from 40 degrees to 70 degrees from horizontal.

Loosen the two main center tilt bolts and remove tilt lock screw to allow the Light Head and luminaire side trunnion bracket to rotate. Do NOT over-loosen or remove centre bolts. Rotate luminaire to desired aiming position and tighten centre bolts to 44ft-lbs. Tighten the tilt lock screw to 22in-lbs.

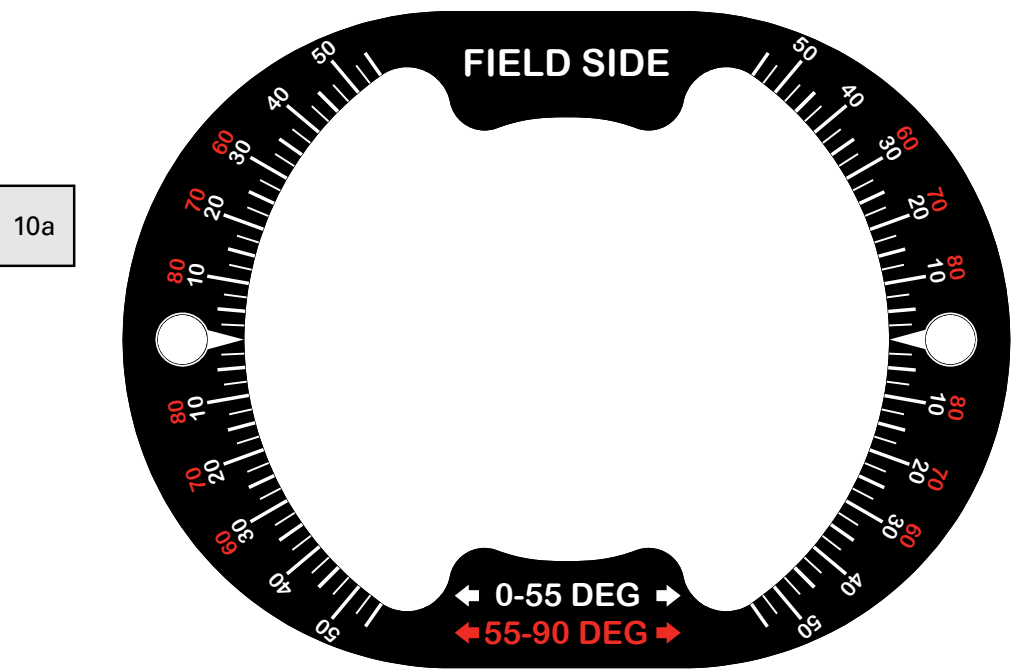


Mounting the Light Head

Mounting centre bolt shall be 3/8in diameter corrosion resistant steel (HDG, hot dipped galvanized high-strength steel is recommended) with nut, jam nut and locking washers. A secondary 3/8in diameter corrosion resistant steel bolt with nut, flat and locking washers shall be used to lock the orient. The length of bolts is determined in the field depending upon thickness of mounting structure. Size bolts appropriately to allow secure fastening of the luminaire to the mounting structure. Tighten hardware so that luminaire is secure but do not fully torque hardware until aiming is complete.



Trunnion Orientation Label



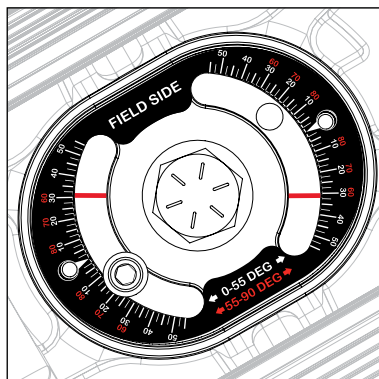
Set pre-aiming orientation angle

Pre-aim Orientation 0-55°

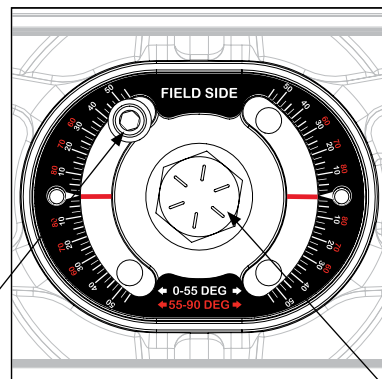
To pre-aim the Light Head orientation, rotate the Light Head about the mounting bolt until the parallel reference line that was marked on the mounting structure is aligned with the correct angle shown in white on the orient label. Tighten the main orient bolt and orient lock screw per the spec in the corresponding illustration.

Prevent access to area under luminaire until the final torquing is complete.

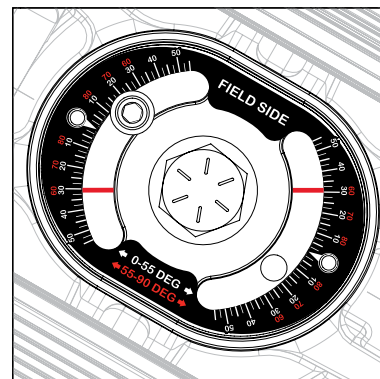
10b 0-55° Left



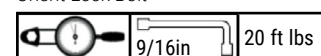
10c 90° Straight to Field



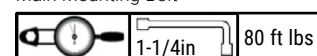
10d 0-55° Right



Orient Lock Bolt



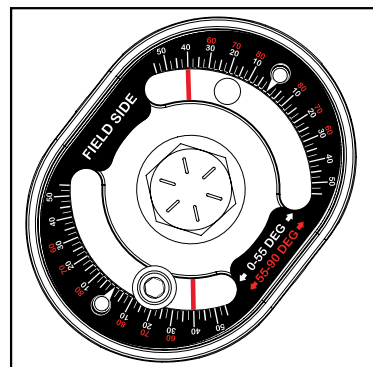
Main Mounting Bolt



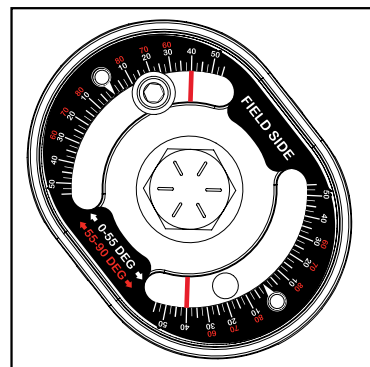
Pre-aim Orientation 55-90°

To pre-aim the luminaire orientation, rotate the Light Head about the mounting bolt until the perpendicular reference line that was marked on the mounting structure is aligned with the correct angle shown in red on the orient label in the bottom of the Light Head.

10e 55-90° Left

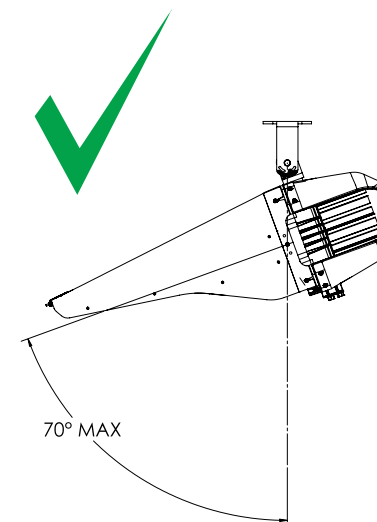
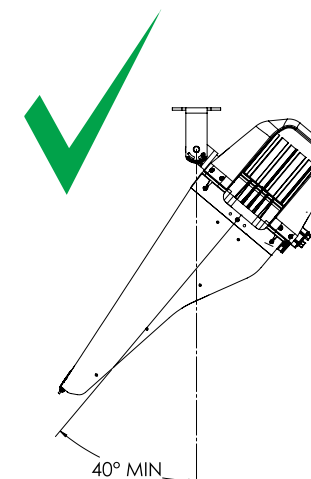


10f 55-90° Right



If laser aiming, tighten the mounting hardware so that luminaire is secure but do not fully torque hardware until final aiming is complete. If using the orient gauge, torque the mounting hardware at this step to the values in the table below. If you are laser aiming, torque the hardware to the specification once the luminaire is aimed.

11a Correct Installation



11b Incorrect Installation



ANY ANGLE ABOVE 70°
IS NOT ALLOWED



ANY UPLIGHT AIM
IS NOT ALLOWED
(EXAMPLE SHOWN IN 110° TILT)



ANY ANGLE LESS THAN 40°
IS NOT ALLOWED



NOT ALLOWED
(EXAMPLE SHOWN IN 20° TILT)

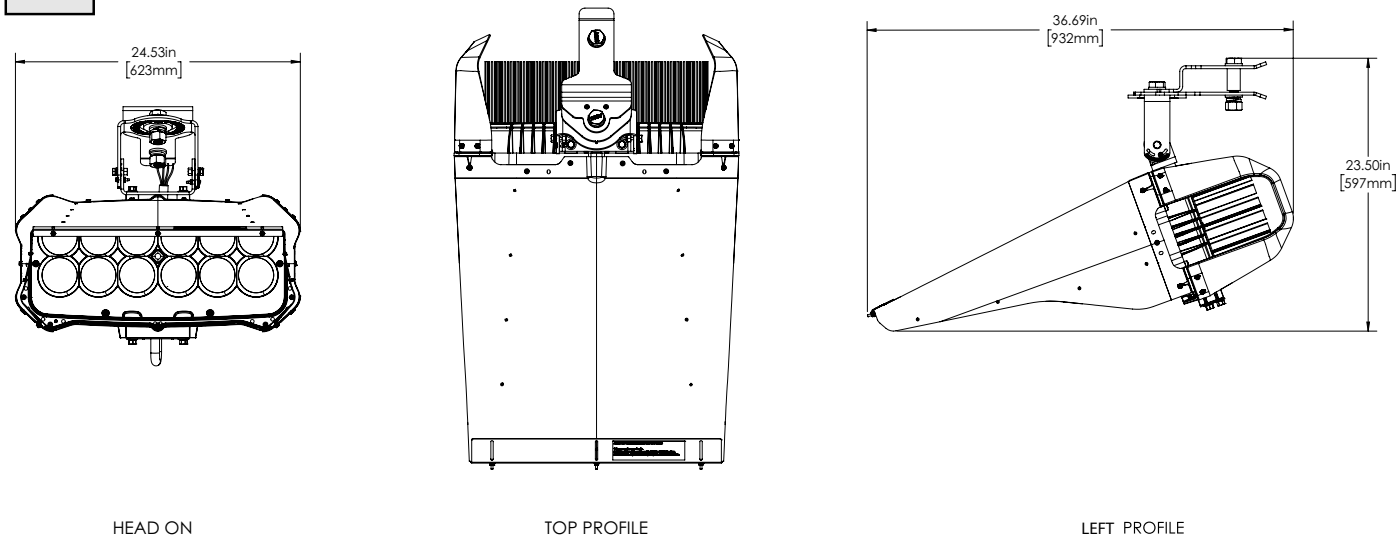


LIGHT HEAD: QC: QUICK CLAMP WITH BOTTOM MOUNT TRUNNION

Dimensional Details

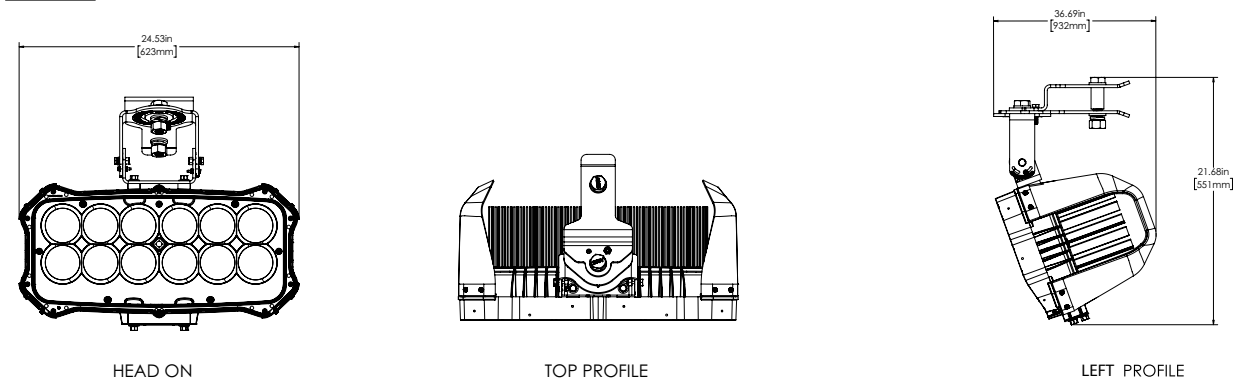
Light Head: QC = Quick Clamp with Bottom Mount Trunion with Extreme Cut-off Visor (ECV)

12a



Light Head: QC = Quick Clamp with Bottom Mount Trunion without Extreme Cut-off Visor (HEG)

12b



Required Installation Tools

Name	Description	QTY	Tool required	Torque
3/4-inch bolt and nut	Main orient bolt	1	1-1/4 inch socket and Ratchet	80 ft lb
3/8-inch bolt	Orient locking screw	1	9/16-inch socket and Ratchet	20 ft lbs
3/4-inch bolt	mounting bolt	1	1-1/4 inch socket and Ratchet	120ft lbs

PRE-AIMING- QUICK CLAMP WITH BOTTOM MOUNT TRUNNION

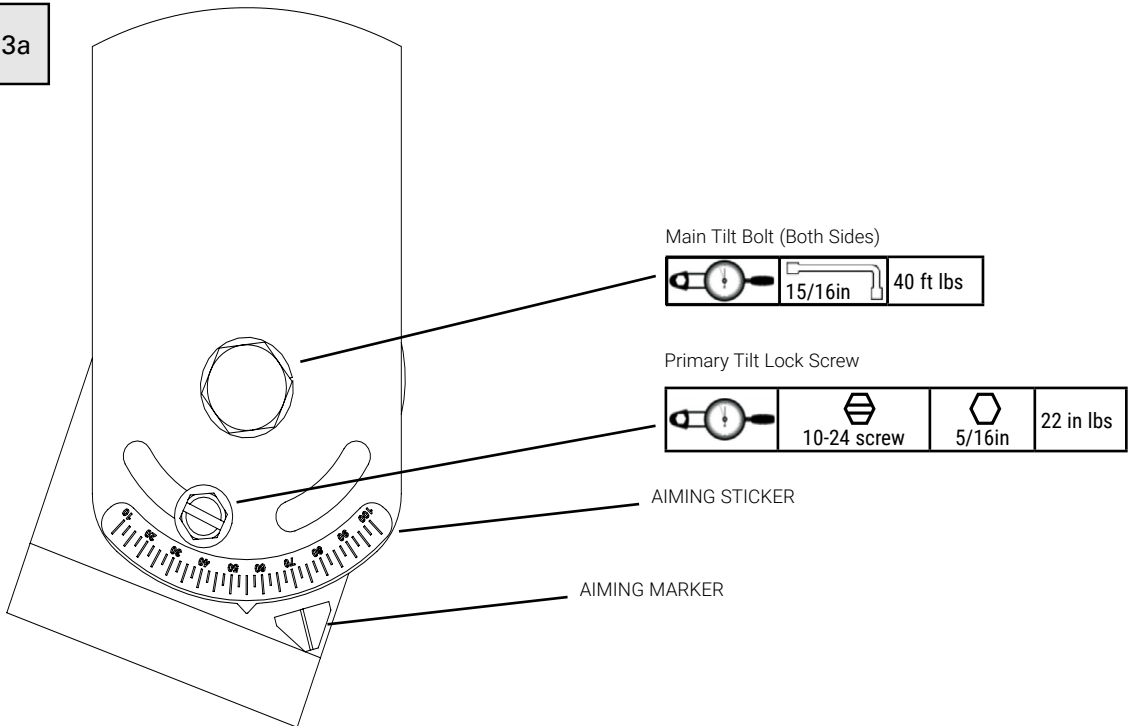
Pre-aiming requires a level mounting surface and knowledge of the cross-arm orientation. The Light Head with the quick clamp assembly can be pre-aimed using tilt guide and the orient guide. Refer to photometrics or project installation drawings for the aiming point coordinates.

If laser aiming, verify the Light Head is secure but do not fully torque tilt and orient hardware until final aiming is complete. The clamp bolt assembly shall be fully torqued prior to laser aiming.

The quick clamp assembly only allows for bottom mounting. The clamp cannot be inverted.

Set pre-aiming tilt angle

13a



Note: Example shown at 70° tilt

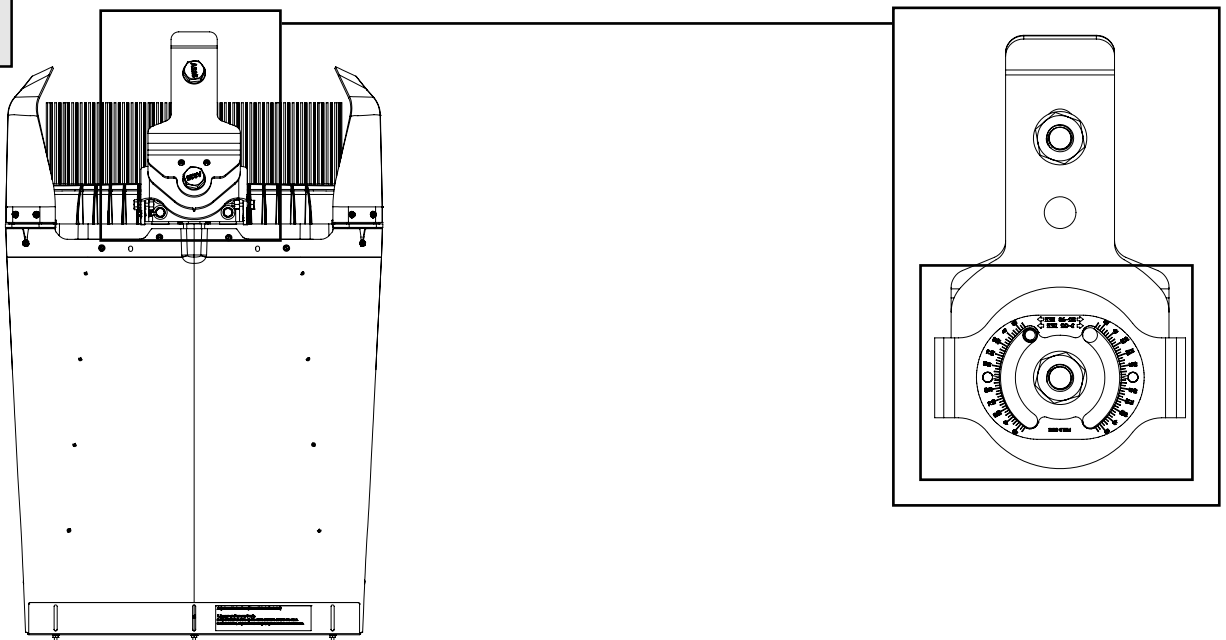
The luminaire can be adjusted from 40 degrees to 70 degrees from horizontal.

Loosen the two main centre tilt bolts and remove tilt lock screw to allow the Light Head and luminaire side trunnion bracket to rotate. Do NOT over-loosen or remove centre bolts. Rotate luminaire to desired aiming position and tighten centre bolts to 44ft-lbs. Tighten the tilt lock screw to 22in-lbs.



Prevent access to area under luminaire until the final torquing is complete.

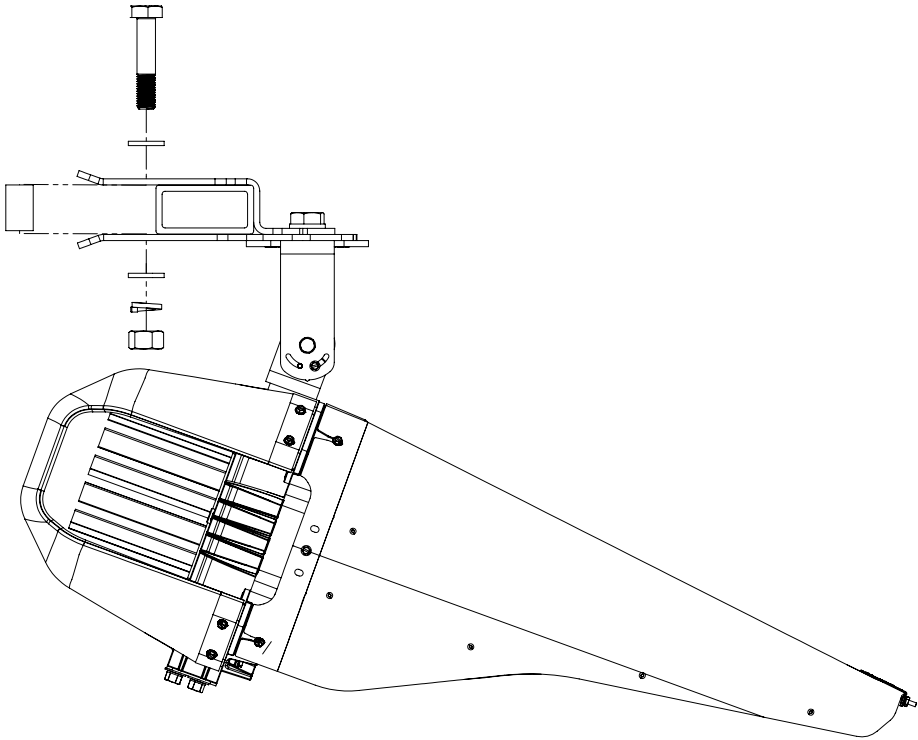
13b



Mounting the Light Head

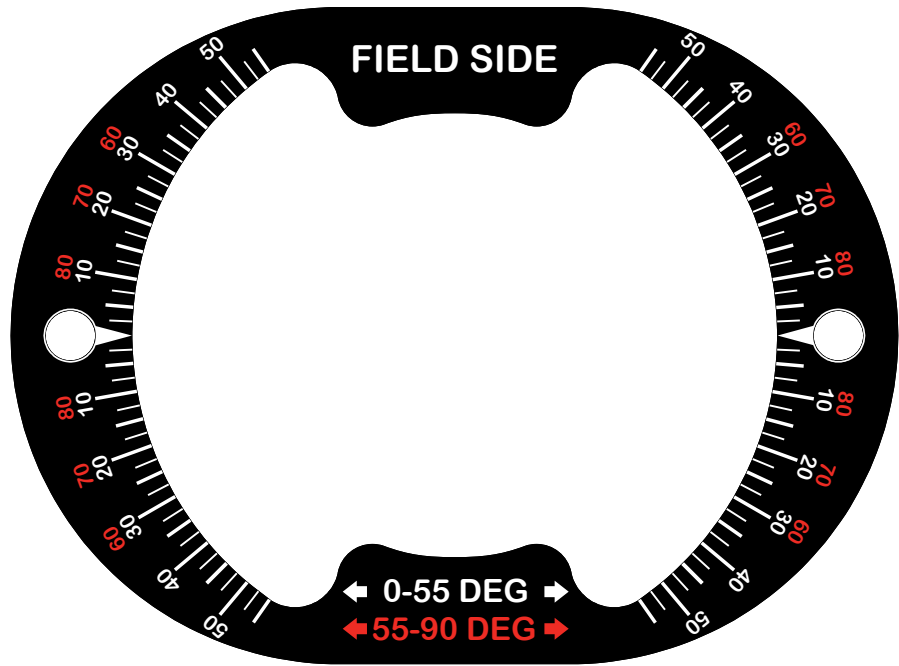
Remove the clamp bolt assembly. Slide the clamp over the crossarm until the front of the clamp is flush to the crossarm. Insert the main bolt through the two holes in the clamp, spacer sleeve and clamp hardware. Tighten the clamp hardware assembly per the spec in the corresponding illustration.

14a



15a

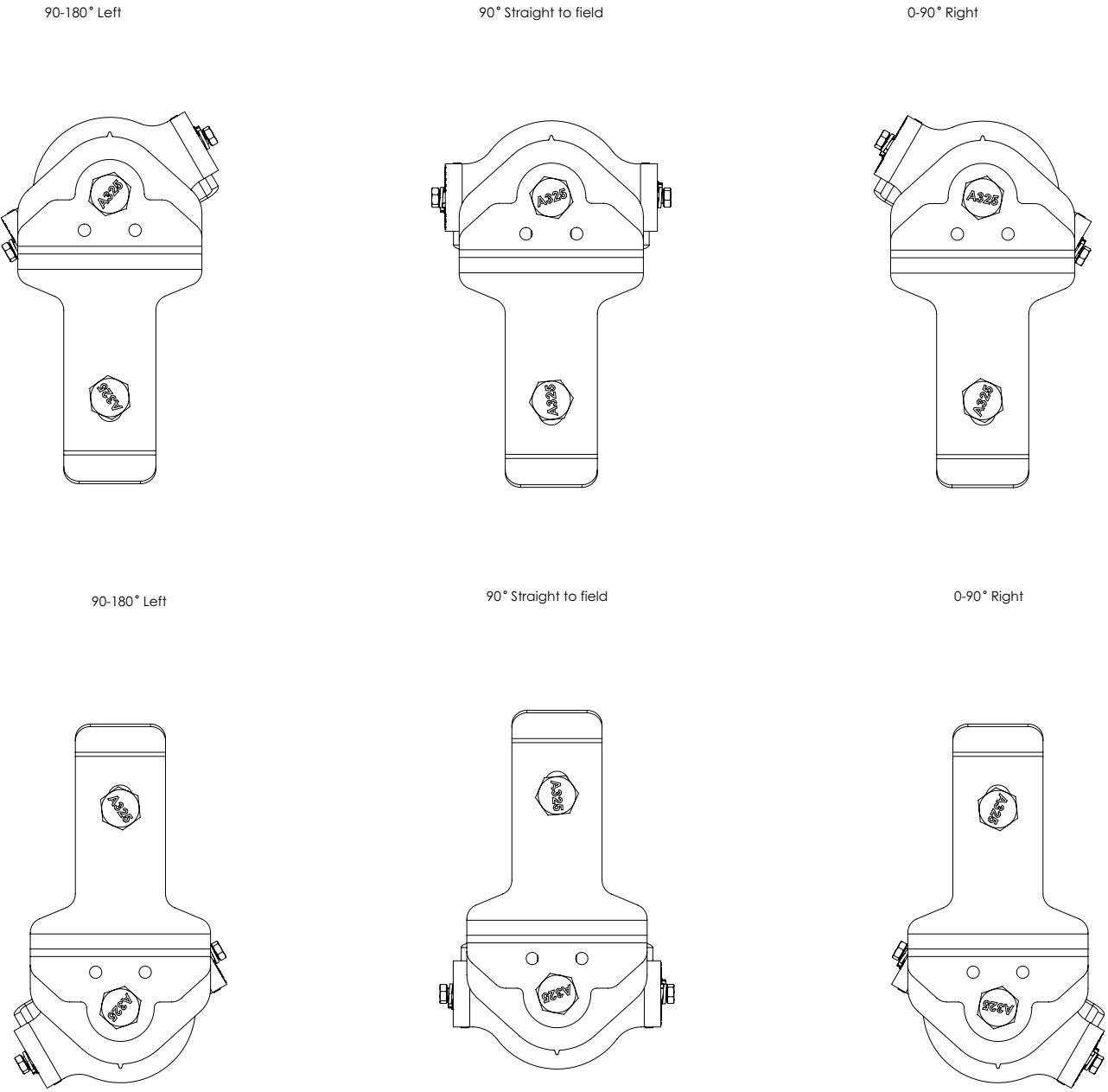
Quick Clamp Orientation Label



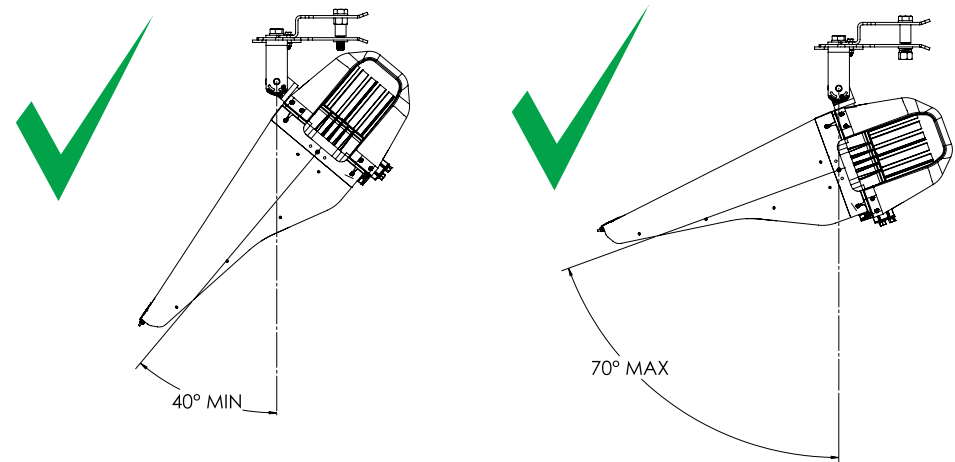
Orient the Light Head

To pre-aim the light head orientation, rotate the clamp about the light head until the pointer is aligned with the correct orient angle. The indicator on the clamp should point forward in the direction the light will be shining. Tighten the main orient bolt and orient lock screw per the spec in the corresponding illustration.

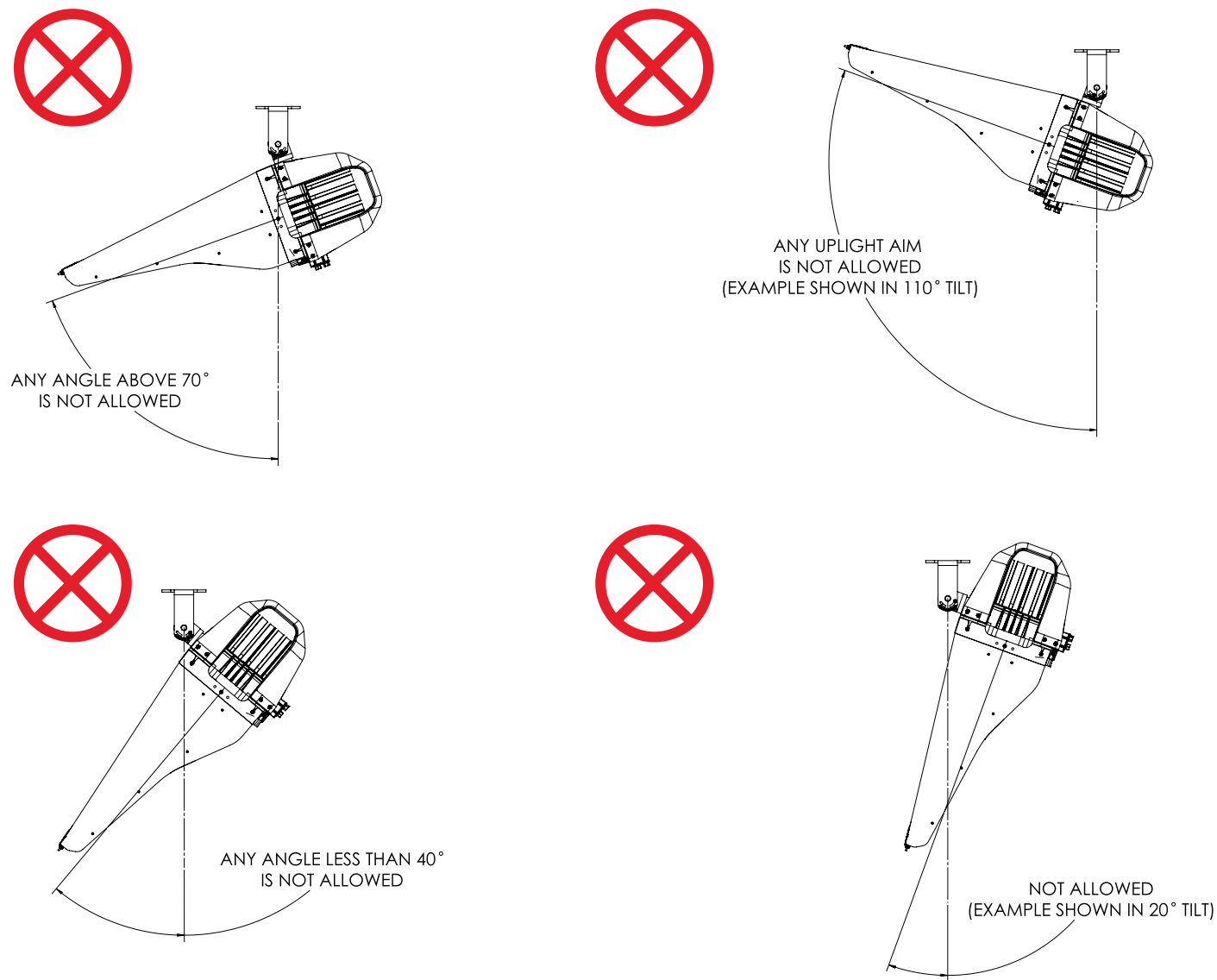
15b



16a Correct Installation



16b Incorrect Installation

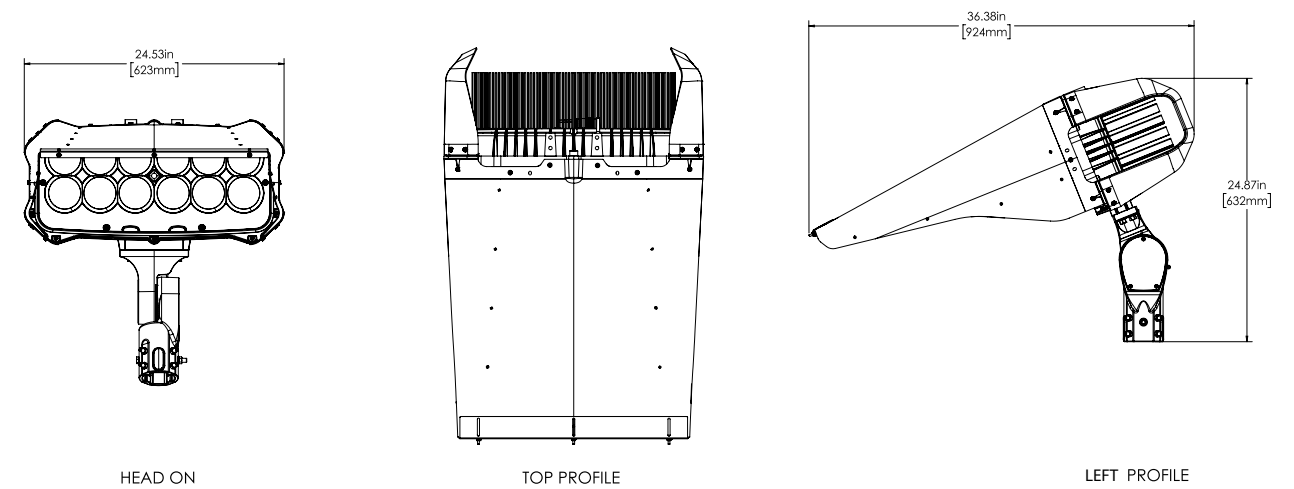


LIGHT HEAD: ADJUSTABLE SLIPFITTER 2-3/8 INCH OD

Dimensional Details

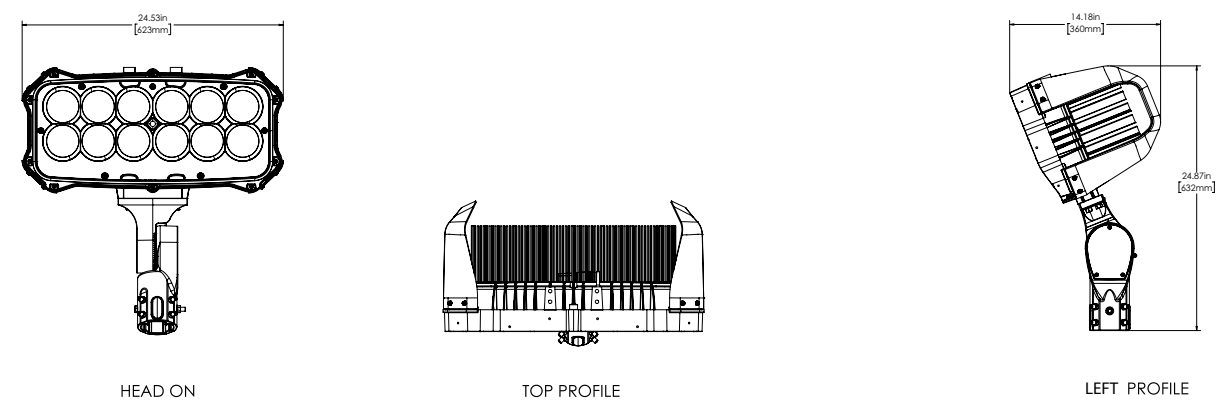
Light Head: SP2 = Adjustable Integral Slip Fitter 2 3/8in with Extreme Cut-off Visor (ECV)

17a



Light Head: SP2 = Adjustable Integral Slip Fitter 2 3/8in without Extreme Cut-off Visor (HEG)

17b



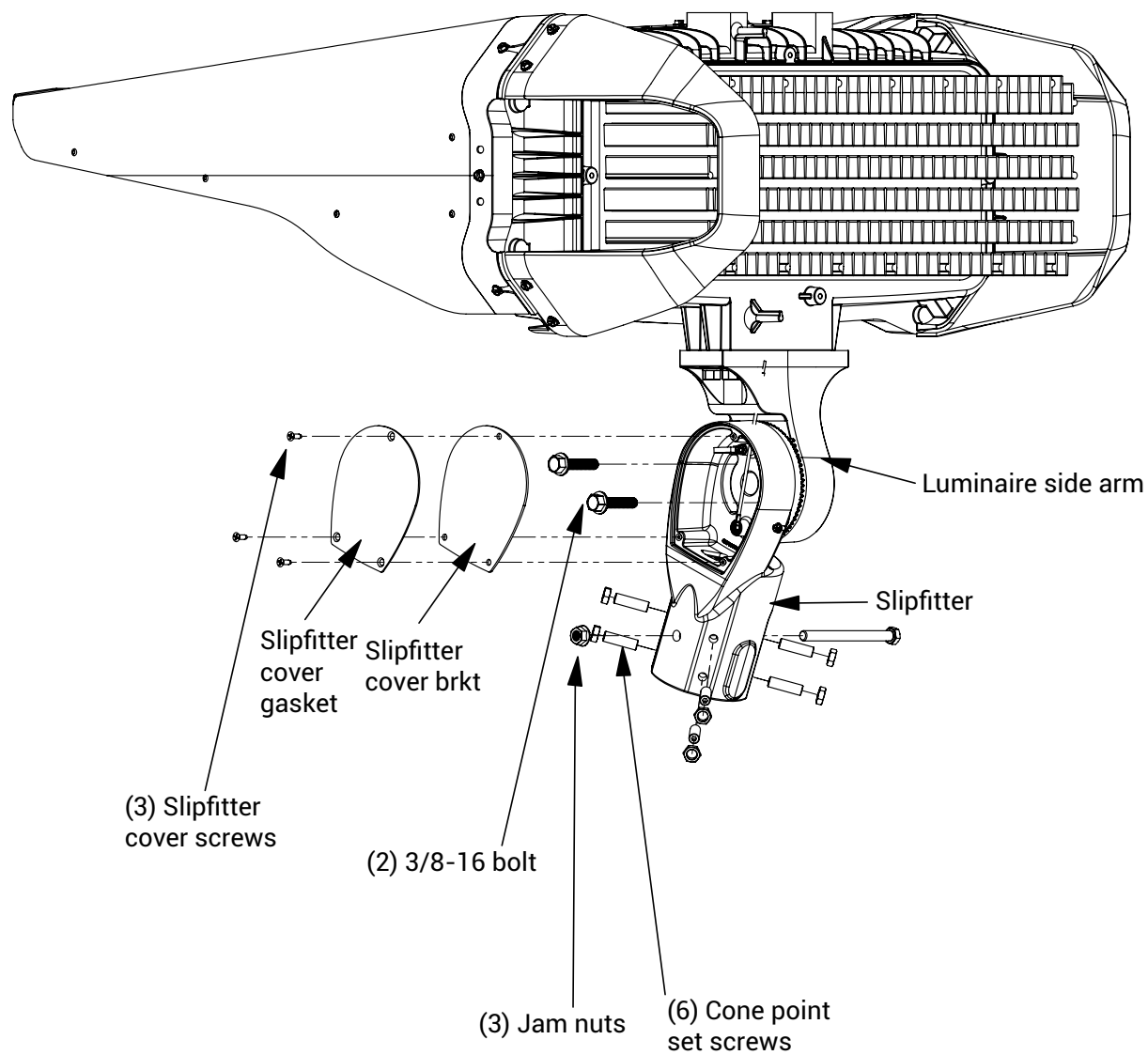
Required Installation Tools

Name	Description	QTY	Tool required	Torque
3/8-16 bolt	Slipfitter arm angle adjustment bolts	2	9/16 socket and Ratchet	20-23 ft lb
8-32 screws	arm access cover screws	6	#2 Phillips screwdriver	14-16 in lb
3/8-16 set screws	slipfitter set screws	6	3/16 inch hex wrench	20 ft lbs
3/8-16 jam nuts	jam locking nuts for set screws	6	9/16 socket and Ratchet	20 ft lbs

PRE-AIMING & INSTALLATION

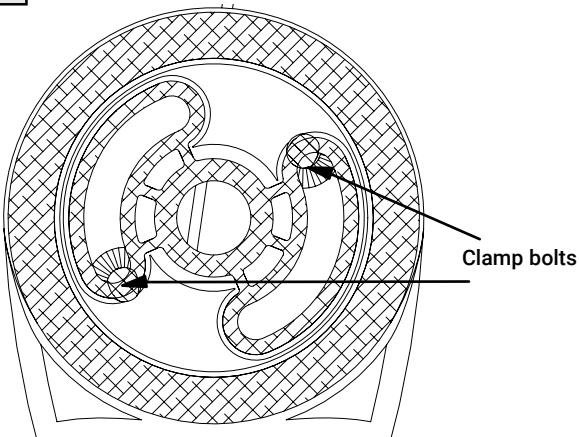
- Note:** The slip fitter is only intended to mount on a vertical orientation with a suitable 2-3/8 inch outer diameter pole. The luminaire can be adjusted from 40 degrees to 70 degrees from horizontal.
1. Luminaire is pre-set at maximum down angle.
 2. To change luminaire tilt angle, loosen the 2 clamp bolts, rotate to the desired angle, and tighten the clamp bolts to 22 ft-lbs.
 3. Replace cover plates and tighten screws to 15 in-lbs.
 4. Make wiring connections per wiring diagram and place connections down into pole or mounting bracket.
 5. Loosen set screws and slide the slipfitter onto pole or mounting bracket.
 6. Position luminaire into the desired direction; and tighten set screws to 20 ft-lbs.
 7. Tighten lock nuts to 20 ft-lbs. 9. Refer to the wiring diagram for power connection. (Fig 18a)

18a



Set pre-aiming tilt angle

18b



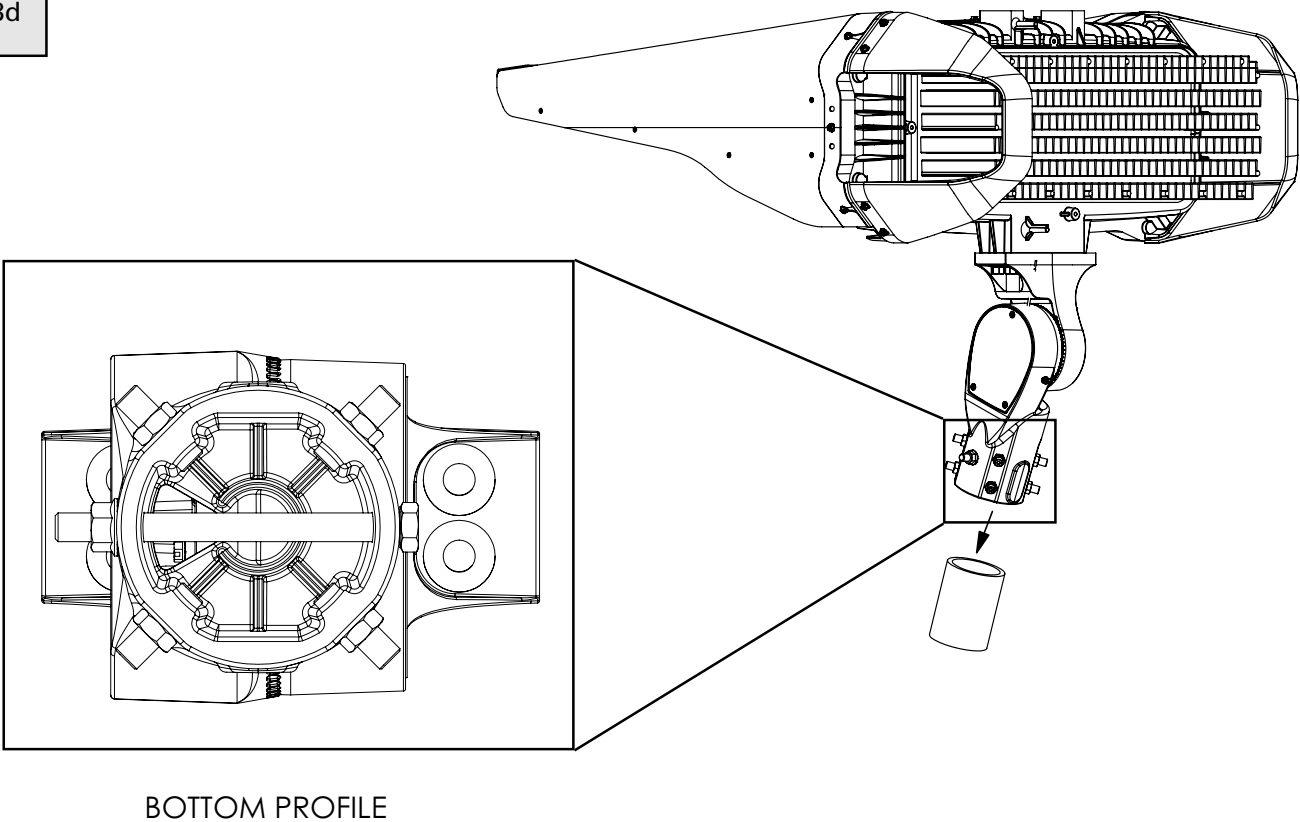
Make power connections

18c

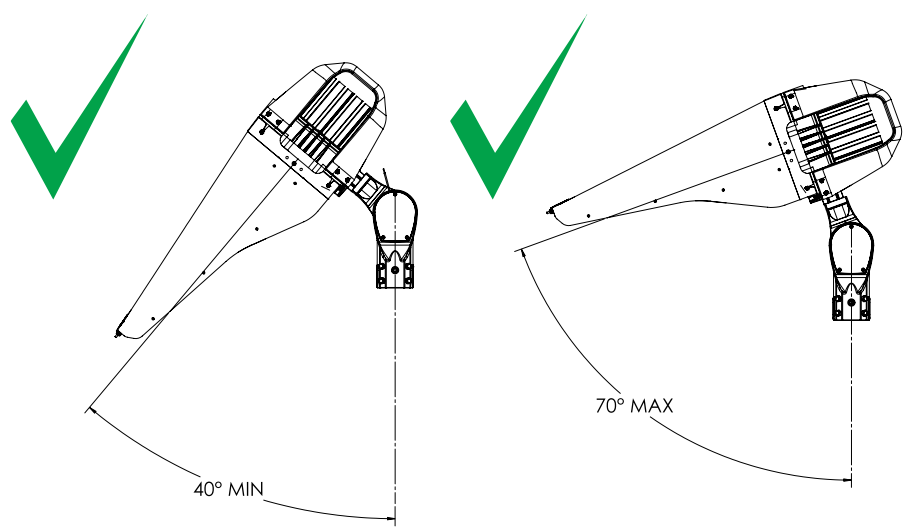
(+) Line	Black	Light Head
(-) Common	White	
Ground	Green	
Wiring Diagram		

Adjustable Integral Slip Fitter 2 3/8in (SP2) mounting

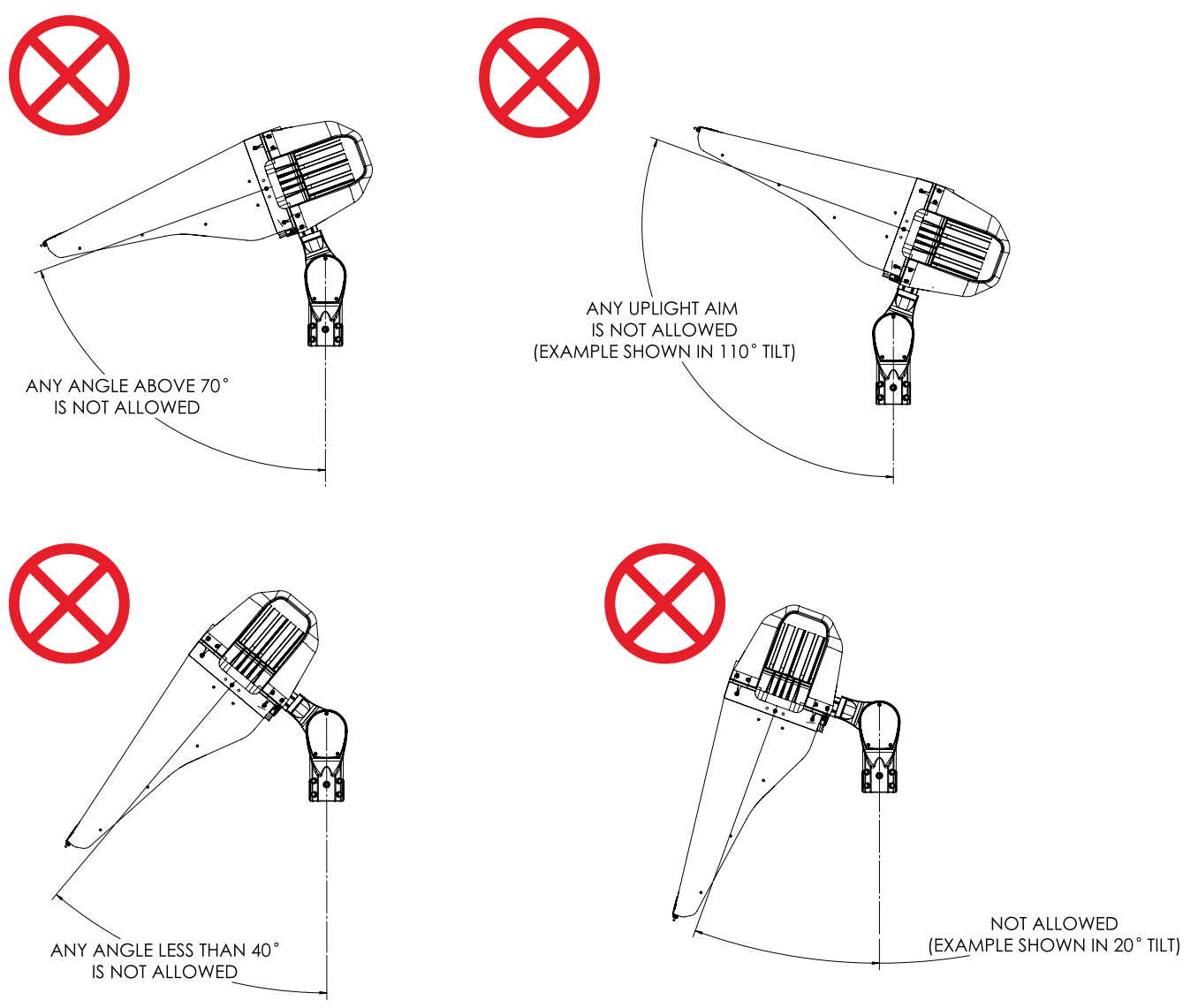
18d



19a Correct Installation



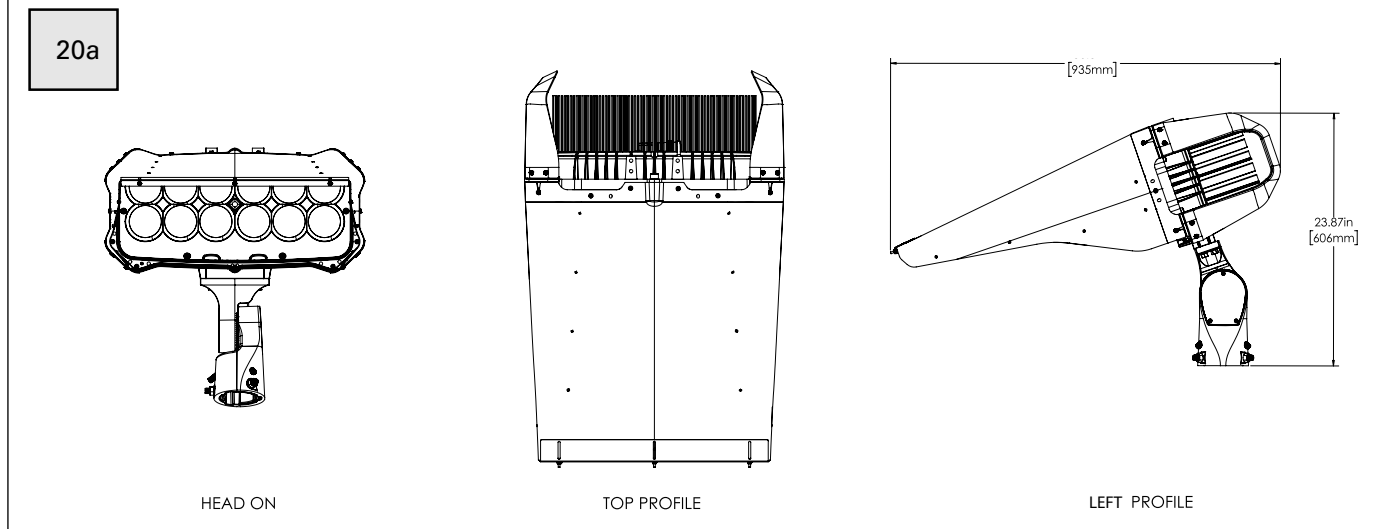
19b Incorrect Installation



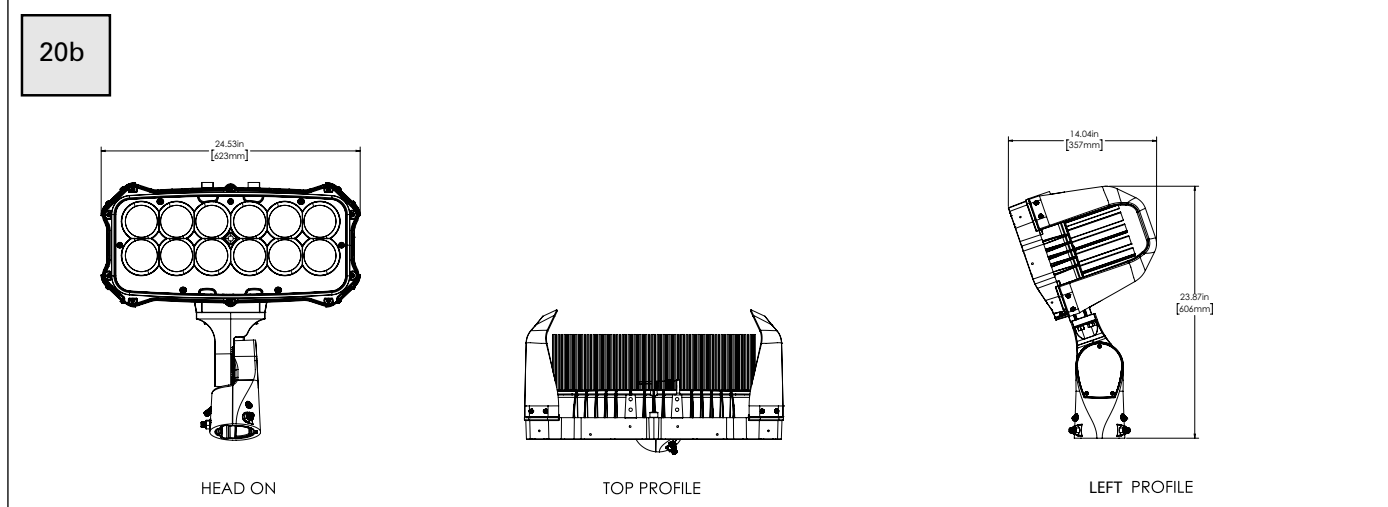
 LIGHT HEAD: SP3: ADJUSTABLE SLIPFITTER 3 INCH OD

Dimensional Details

Light Head: SP3 = Slip Fitter 3in (with leads through slip fitter) with Extreme Cut-off Visor (ECV)



Light Head: SP3 = Slip Fitter 3in (with leads through slip fitter) without Extreme Cut-off Visor (HEG)



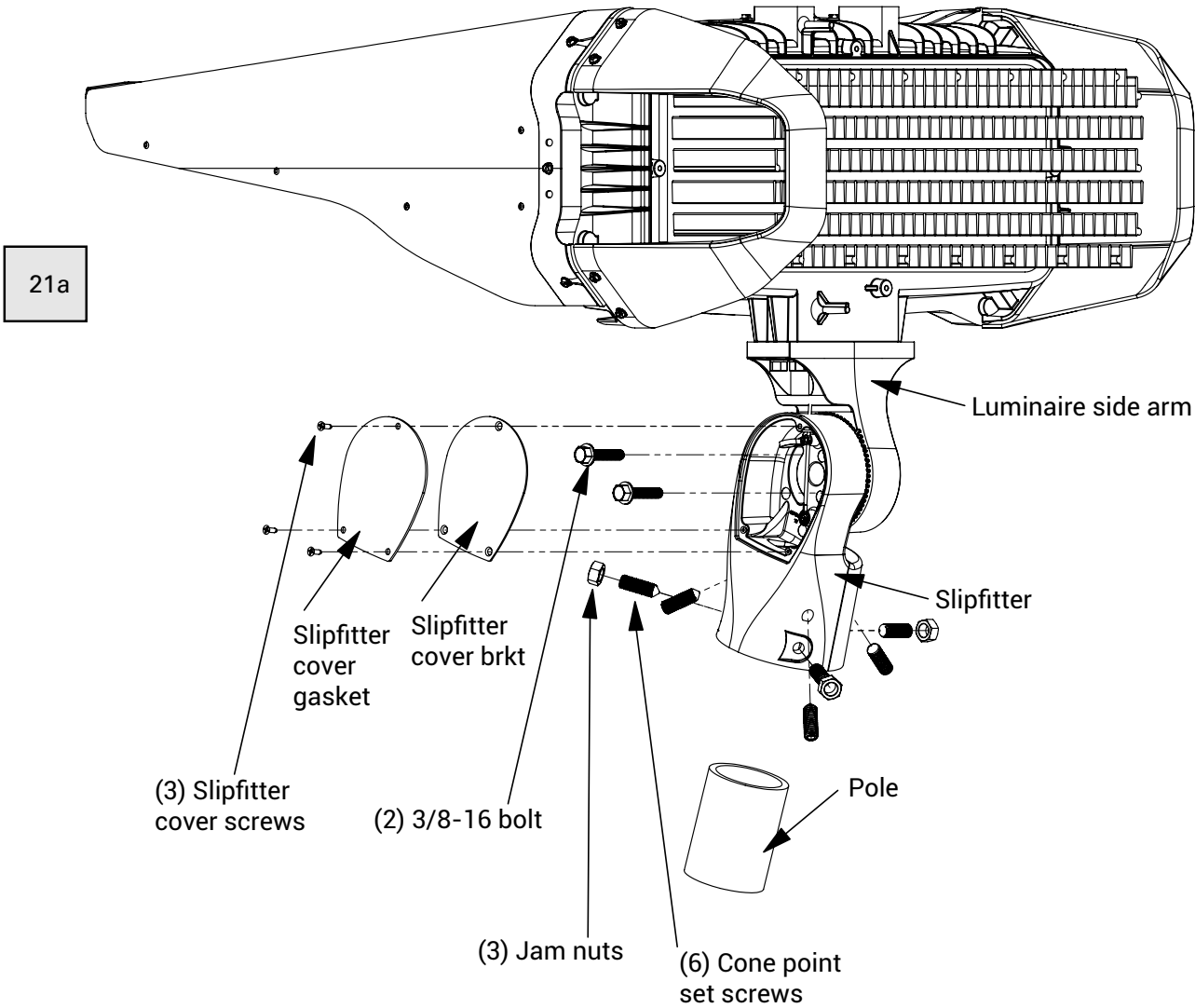
Required Installation Tools

Name	Description	QTY	Tool required	Torque
3/8-16 Grade 8 bolt	Slipfitter arm angle adjustment bolts	2	9/16 socket and Ratchet	20-23 ft lb
8-32 screws	Arm access cover screws	6	#2 Phillips screwdriver	14-16 in lb
1/2-13 set screws	Slipfitter set screws	6	1/4-inch Allen hex	25 ft lbs
1/2-13 jam nuts	jam locking nuts for set screws	6	3/4-inch open ended wrench	25 ft lbs

PRE-AIMING & INSTALLATION

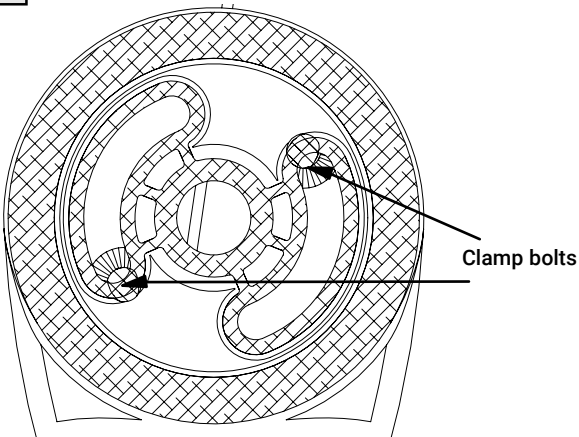
Note: The slip fitter is only intended to mount on a vertical orientation with a suitable 3-inch outer diameter pole. The luminaire can be adjusted from 40 degrees to 70 degrees from horizontal.

1. Loosen (3) #8 screws to remove the access cover from the slip fitter arm. Set aside for installation.
2. Remove the protective plug on the lower side of the slip fitter arm and discard.
3. Pull the supply wire leads through the top of pole or tenon topper. Support luminaire and lower onto pole while feeding supply wires through the slot in the slip fitter.
4. Once luminaire is oriented properly, hand tighten the (3) angled set screws to secure luminaire in place. Hand tighten the lower (3) set screws and then torque the upper angled set screws to 25 ft-lbs. Install (3) hex nuts to the lower set screws and torque both the (3) set screws and (3) nuts to 25 ft-lbs (Fig 21a).
5. Inside the slip fitter arm, connect supply wires to appropriate luminaire leads:
 - a. Supply side ground wire to green luminaire lead.
 - b. Supply side neutral wire to white luminaire lead.
 - c. Supply side line voltage wire to black luminaire lead.
6. Loosen the (2) 3/8-16 located in the slots to make angle adjustments to the luminaire. After angle adjustments have been made, torque to 23 ft-lbs.
7. Replace the access cover to the arm. Tighten the (3) #8 screws and torque to ~12 to 14 in-lbs.



Set pre-aiming tilt angle

21b



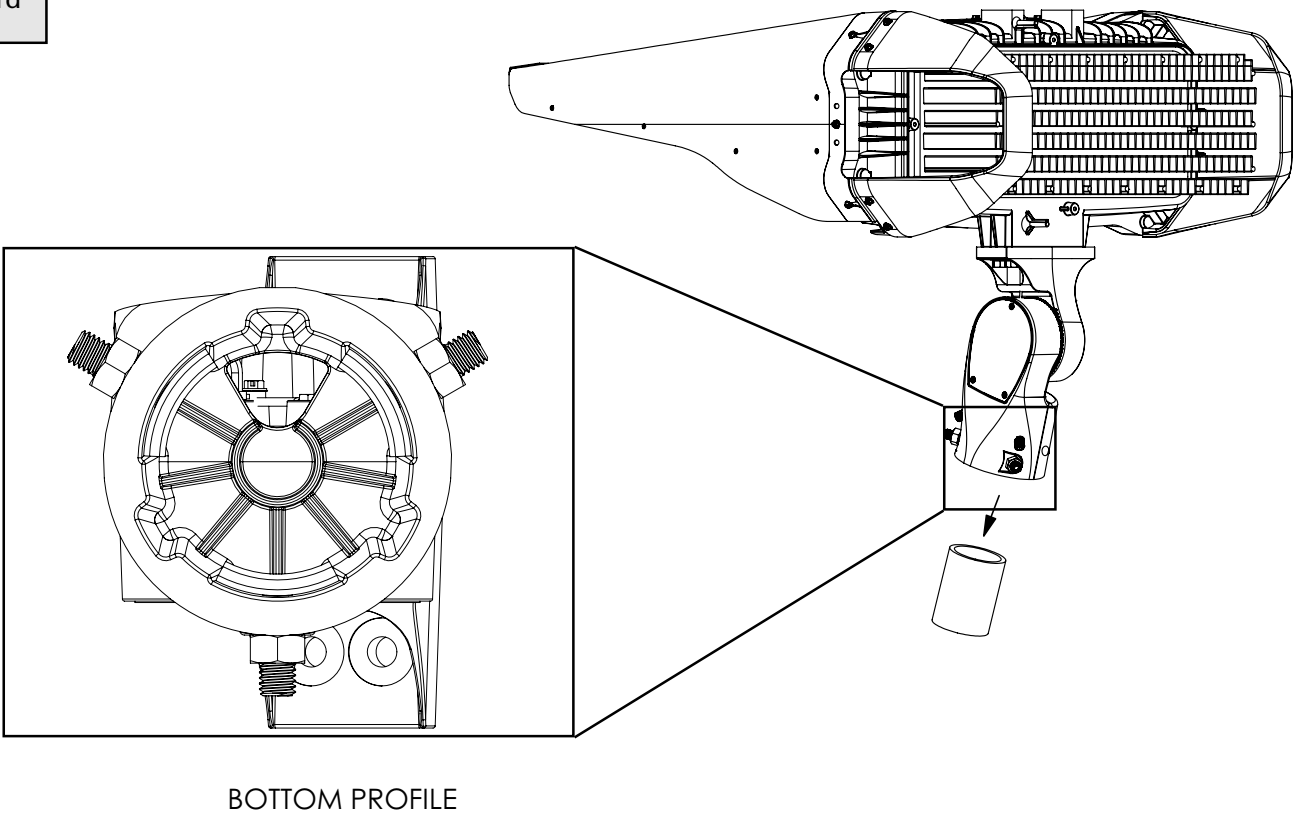
Make power connections

21c

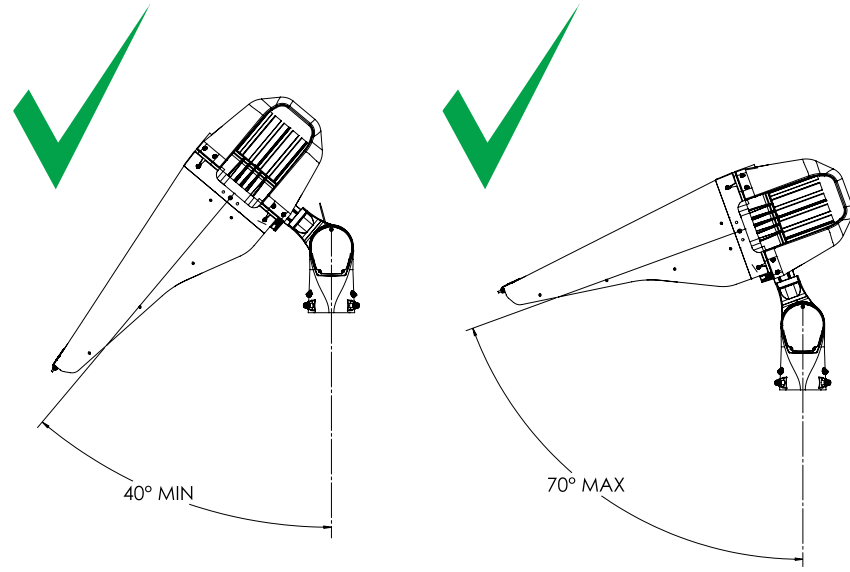
(+) Line	Black	Light Head
(-) Common	White	
Ground	Green	
Wiring Diagram		

Adjustable Integral Slip Fitter 3in (SP3) mounting

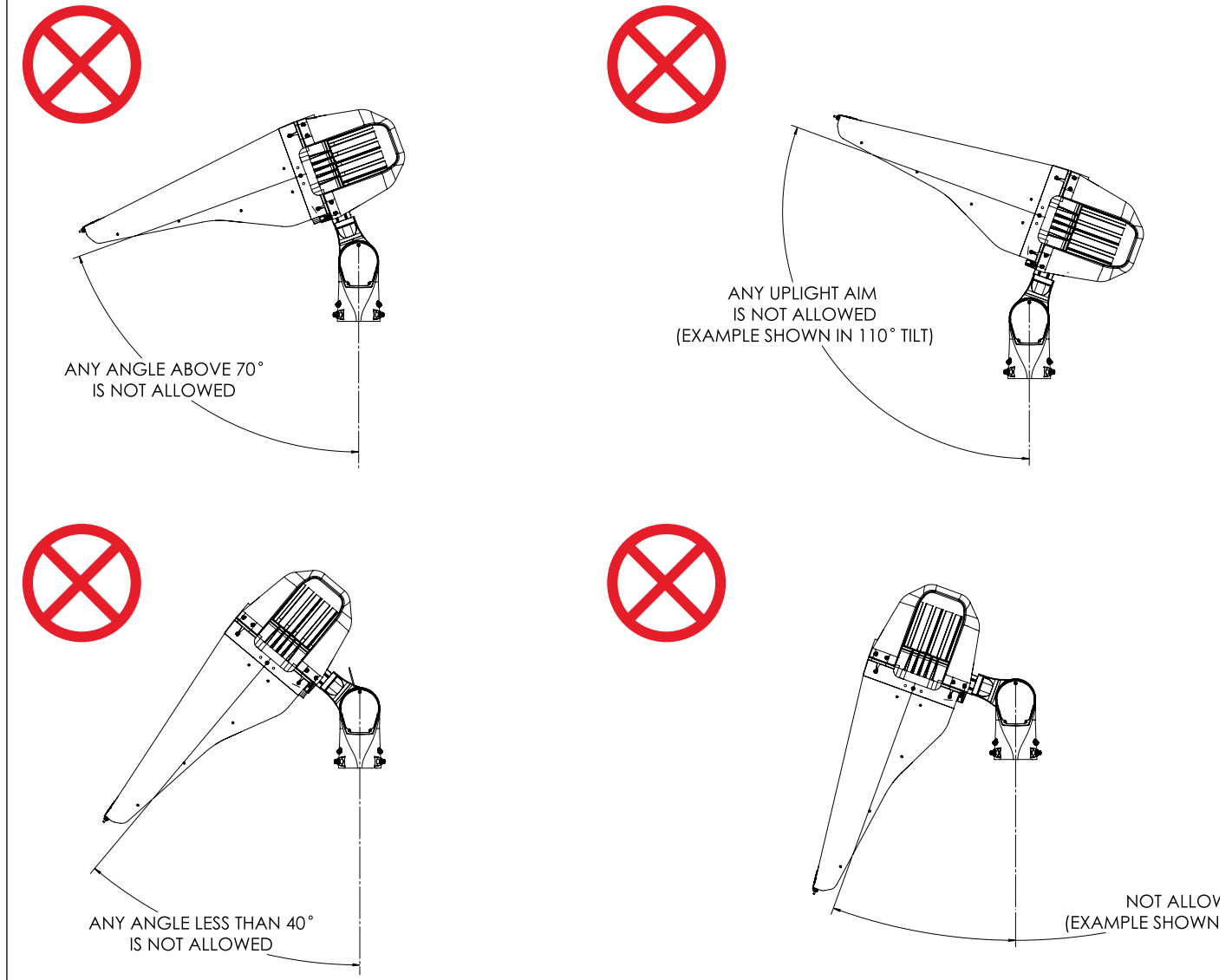
21d



22a Correct Installation

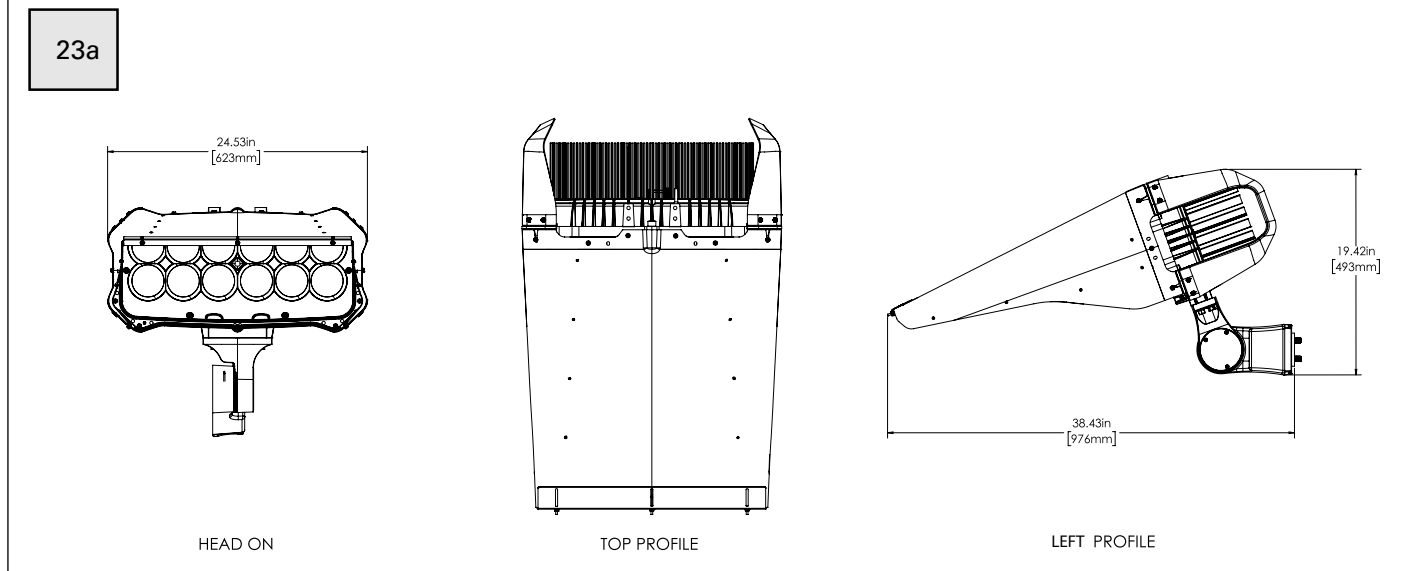


22b Incorrect Installation

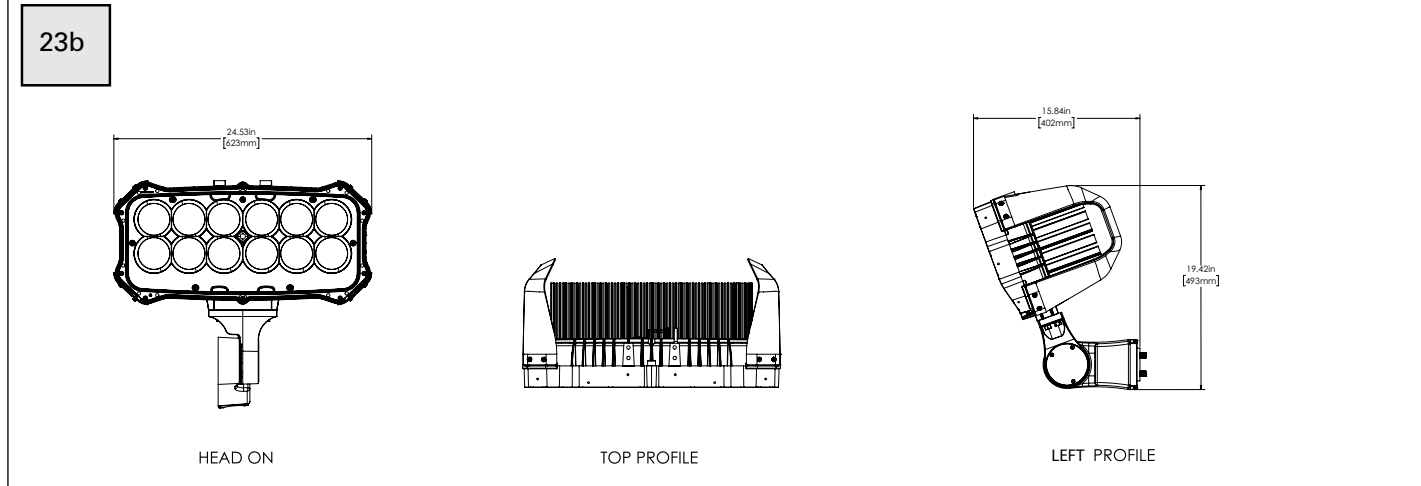


 LIGHT HEAD: AAJL: ADJUSTABLE POLE MOUNT ARM

Dimensional Details
Light Head: AAJL = Adjustable arm direct pole mount with Extreme Cut-off Visor (ECV)



Light Head: AAJL = Adjustable arm direct pole mount without Extreme Cut-off Visor (HEG)



Required Installation Tools

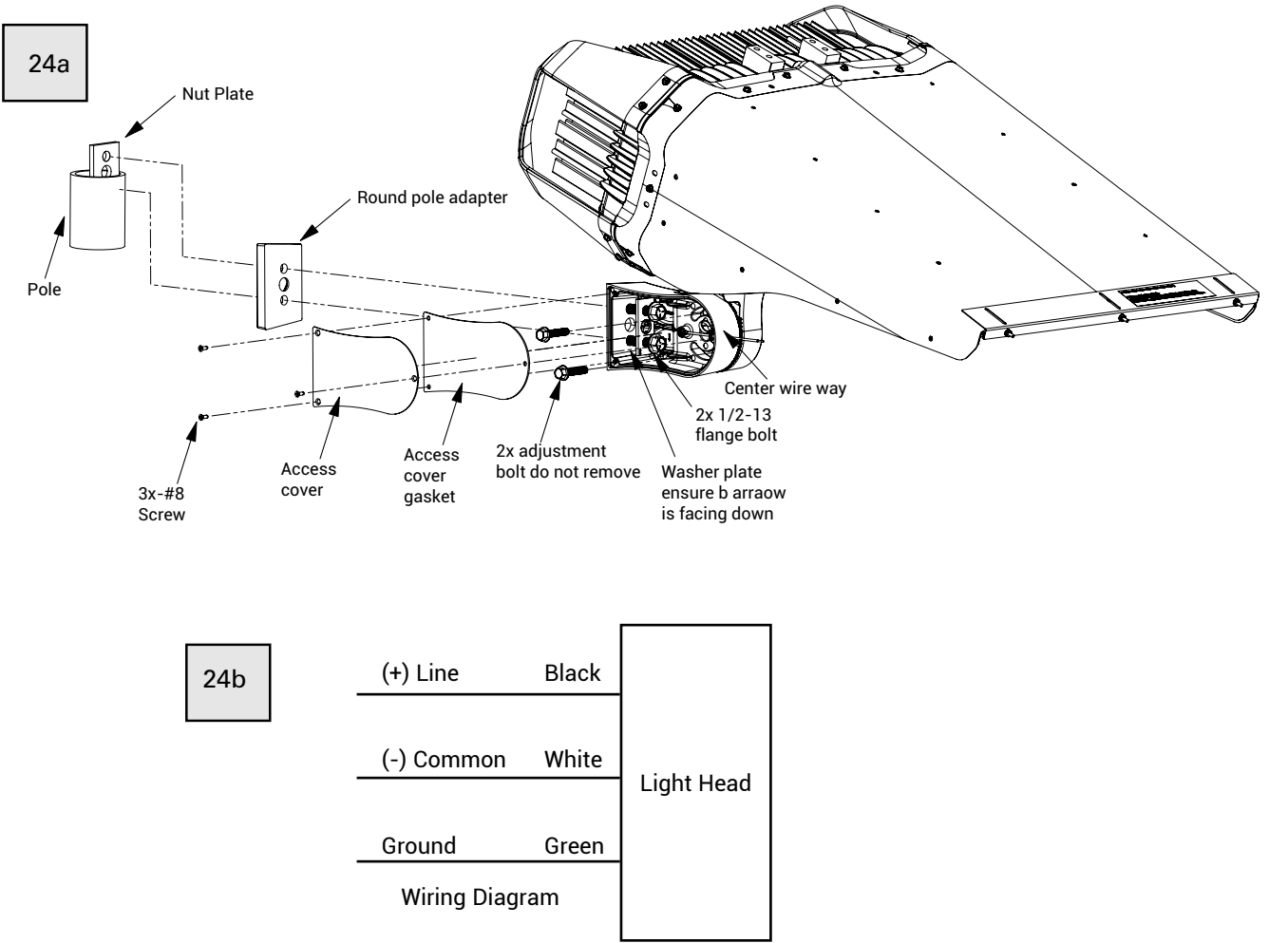
Name	Description	QTY	Tool required	Torque
3/8-16 bolt	Slipfitter arm angle adjustment bolts	2	9/16 socket and Ratchet	20-23 ft lb
8-32 screws	Arm access cover screws	6	#2 Phillips screwdriver	14-16 in lb
1/2-13 bolts	Mounting bolts	2	3/4-inch socket and Ratchet	40 ft lbs

PRE-AIMING & INSTALLATION

Note: Ensure the pole is drilled for a “N” pattern. A template may be provided as required. The luminaire can be adjusted from 40 degrees to 70 degrees from horizontal.

1. Loosen (3) #8 screws to remove access cover from the arm and carefully set aside the cover plate and the screws.
2. If installing to round pole, use round pole adapter provided at this point. If mounting to square pole disregard the round pole adapter. Make sure round pole adapter draft matches the back side of the arm properly.
3. Remove pole top cap and place aside.
4. Install and hold provided nut plate inside the pole. With luminaire supported, align (2) 1/2-13 fasteners through the arm, pole adapter if used and hole pattern in the pole into the nut plate. Hand tighten to ensure luminaire is aligned prior to tightening.
5. Tighten both flange bolts within the luminaire to 40 ft-lbs., while making sure pole side arm is level to the pole.
6. While using cable clamp provided in the nut plate to dress the wires as needed inside the pole, connect the supply wires to appropriate luminaire leads (Fig 24b).
- a. Supply side ground wire to green luminaire cable lead.
- b. Supply side neutral wire to white luminaire cable lead.
- c. Supply side line voltage wire to black luminaire cable lead.
7. To change luminaire tilt angle, loosen (2) adjusting bolts, rotate luminaire to the desired angle, and tighten the (2) adjusting bolts to 20 ft lbs.
8. Reinstall the cover plate with gasket onto the pole side arm with (3) 8-32 screws.

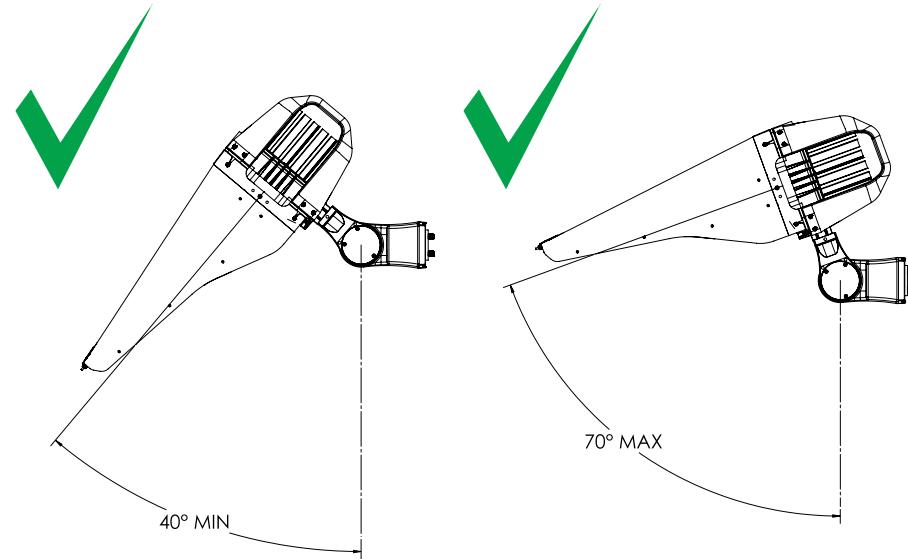
Mounting the Light Head



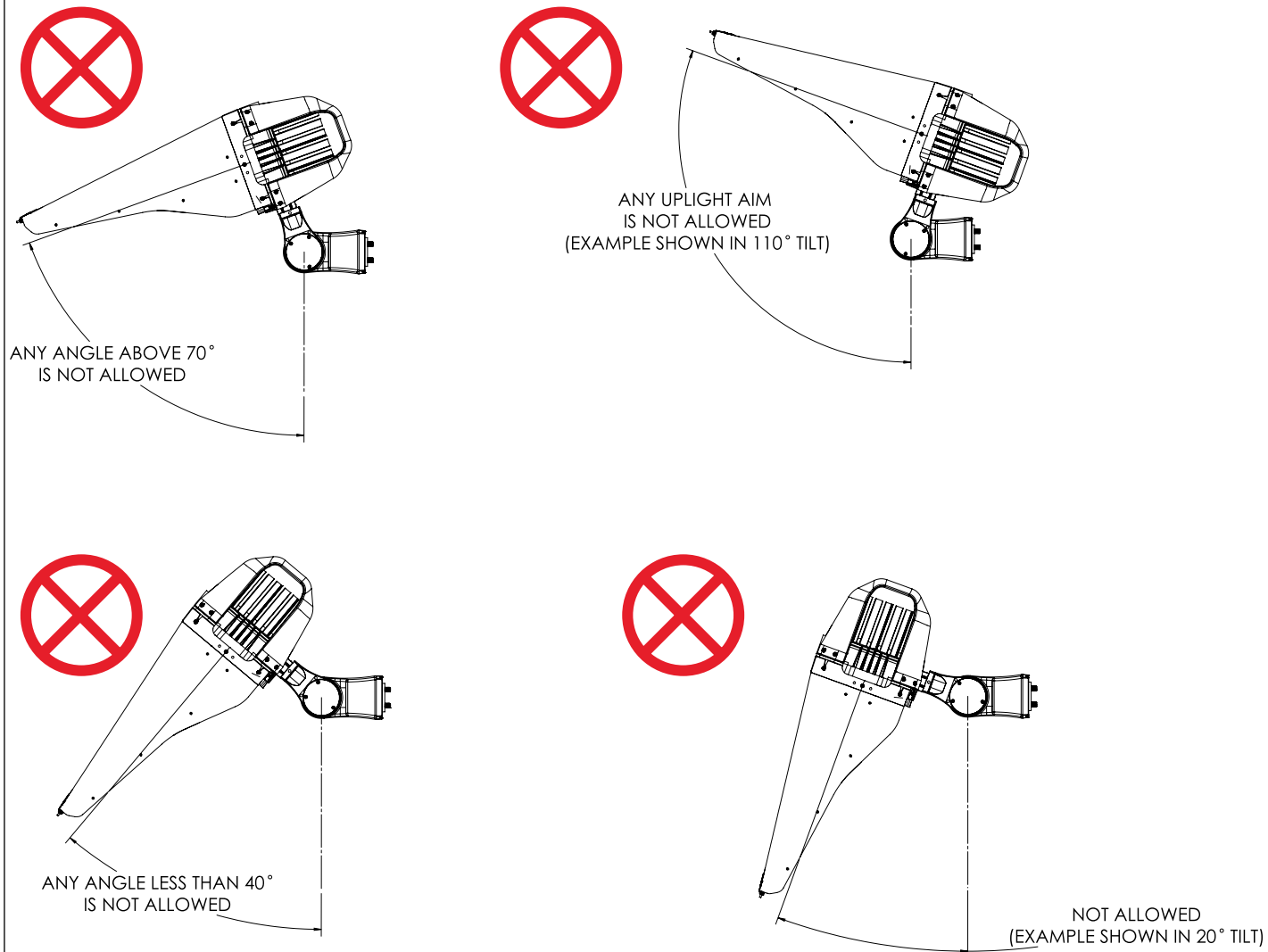
WARNING: Customer is responsible for engineering analysis to confirm pole and luminaire compatibility for all applications. Refer to [Pole Drill Patterns Document](#) for additional support information.



25a Correct Installation



25b Incorrect Installation



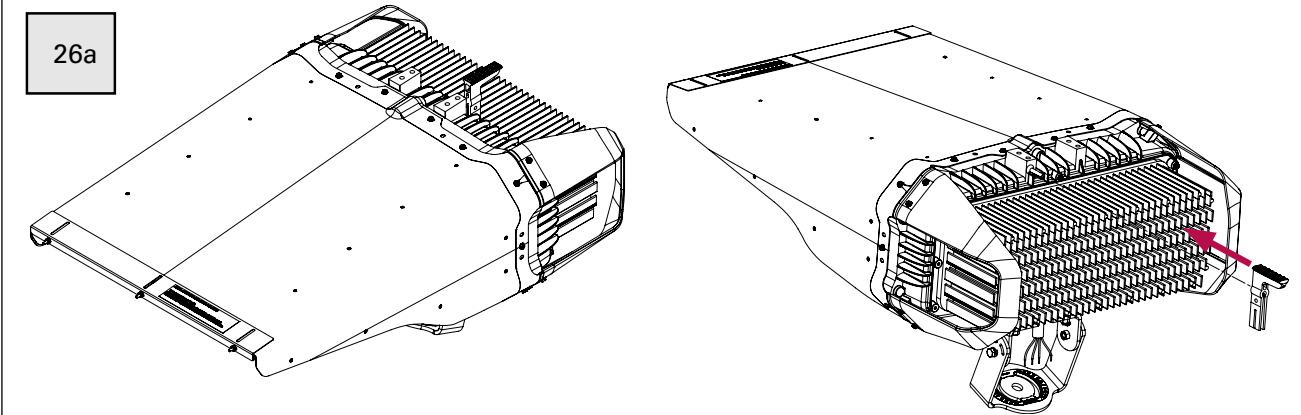
Laser Aiming

Ephesus luminaires are capable of pre-aiming or laser aiming. Laser aiming may be the preferred method when: the crossarm orientation is unknown or irregular, lighting specifications are very restrictive typical of higher classes of play, or luminaires with narrow beams are located extremely far from the surface typical of larger venues. If luminaire pre-aiming using the tilt and orient gauges is satisfactory and laser aiming is not required, you can skip this step.

Slightly loosen the luminaire tilt and orient hardware just enough to allow the Light Head to rotate and tilt. Do NOT over-loosen or remove set screw.

Insert the aiming mount onto the luminaire aiming pin until it is fully seated tight against the luminaire. Turn on the laser and aim the luminaire by targeting the laser dot at the aiming point.

26a



Note: Laser aiming may be difficult outdoors on bright sunny days. A diffuse reflective tarp located around the aiming point can facilitate aiming. The use of a daytime scope aimer is also available.

Note: Turn off laser while not in use to conserve battery. Have spare battery charged to facilitate the aiming process.

After the luminaire is aimed, tighten all mounting and aiming hardware on the Light Head to the torque specified in the corresponding pre-aiming graphic. Briefly turn the laser back on to verify that the luminaire aiming did not shift during tightening. Verify the laser is off and remove the aiming mount from the luminaire.



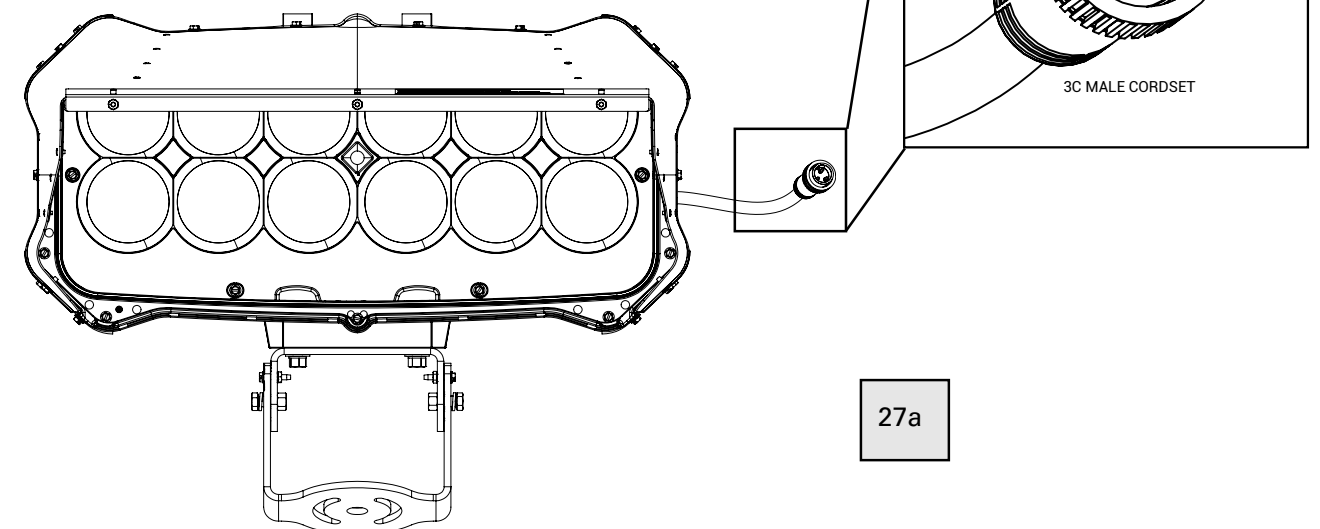
Make electrical connections



The quick clamp (QC) assembly only allows for bottom mounting. The quick clamp (QC) must not be inverted.

Cordset

For projects that include new poles or crossarms, light heads are factory wired with a cordset. To make the electrical connection, install the plug on the light head into the mating receptacle on the crossarm. Tighten the threaded nut to fully secure the connector.



27a

Light Head Cable (DC) - White Light Only

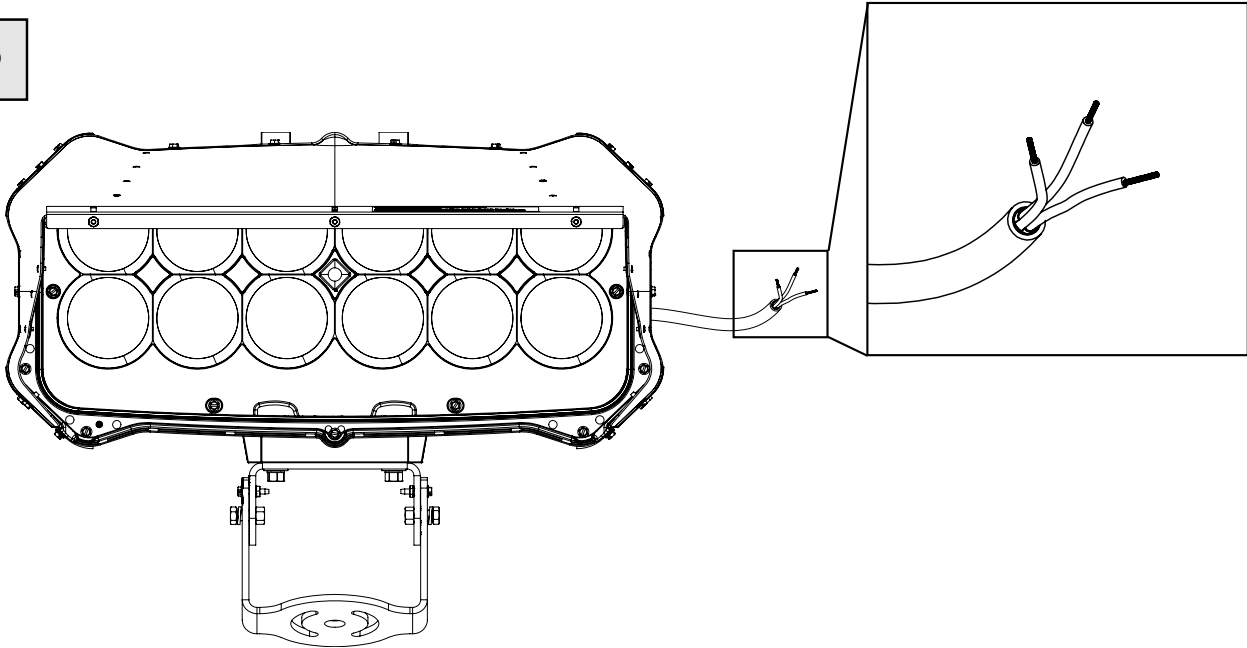
The Light Head can be supplied with varying lengths of bare unterminated cable leads. An appropriately rated electrical enclosure or connection method is required when the Light Head has a C10 cable. Refer to the wire designation for proper wiring.

To make the electrical connection, use waterproof crimp on butt splice connectors to attach the wire ends on the Light Head to the wires in the crossarm. Trim the wire end to the specified length. Follow the manufacturer’s instructions for installation of the connector.

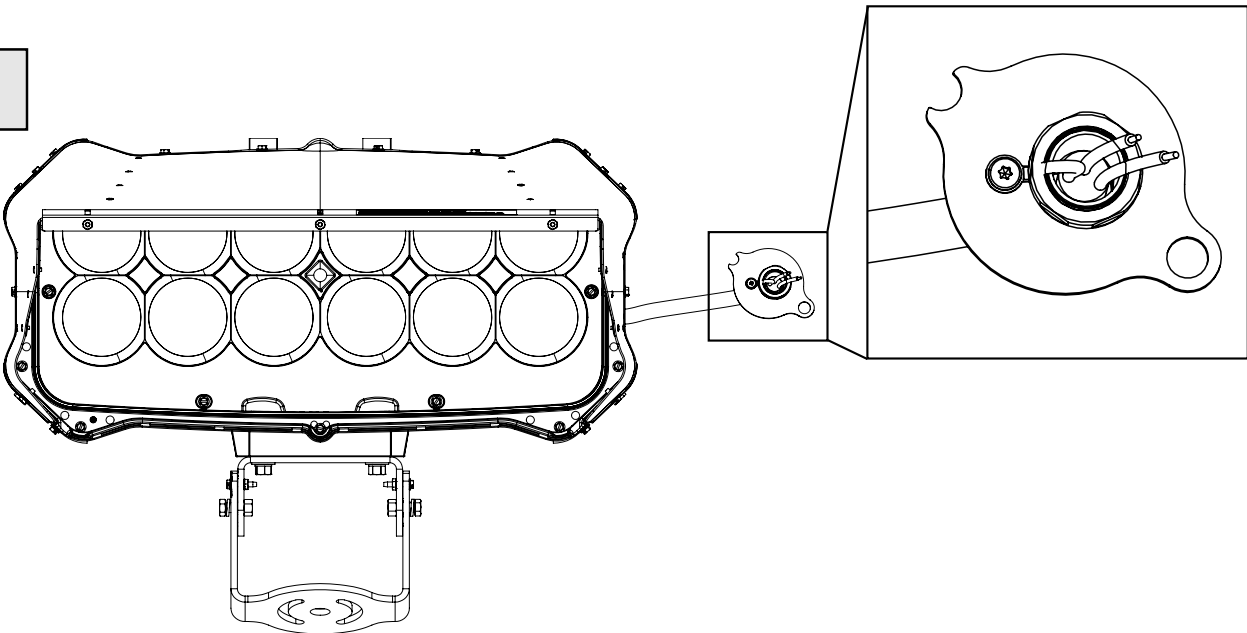
Note: The moisture resistant splice connector may have a heat shrink tube sleeve which requires a heat source to properly seal. The wire end may also need to be trimmed to ¼" from the insulation for proper fitment.

LIGHT HEAD		
CABLE TYPE	DESIGNATION	WIRE COLOR
C10	DC +	BLACK
	DC -	WHITE
	GROUND	GREEN

27b



27c



Retrofit Adapter Cable

The Retrofit Adapter Cable comes with an electrical interface plate that bolts directly to some crossarms that are wired for remote ballasts.



Always verify the crossarm is electrically grounded when using the retrofit adapter cable



The use of this connection method requires knowledge of the wiring between the light head and Distribution Box. DC + and DC - on the light head must be appropriately matched to the DC + and DC – on the PAC Box.

Drop cable DC wiring will need to be identified and designation aligned at light head and distribution box

To make the electrical connection, use moisture resistant crimp on butt splice connectors to attach the wire ends on the Light Head to the wires in the crossarm. Trim the wire end to the specified length. Follow the manufacturer’s instructions for installation of the connector.

LIGHT HEAD			DISTRIBUTION BOX
CABLE TYPE	DESIGNATION	WIRE COLOR	SPLICE CONNECTOR LANDING
RETROFIT ADAPTER CABLE	DC +	BLACK	GRAY SPLICE CONNECTOR
	DC -	WHITE	WHITE TWIN SPLICE CONNECTOR
	GROUND	GREEN	POLE GROUND

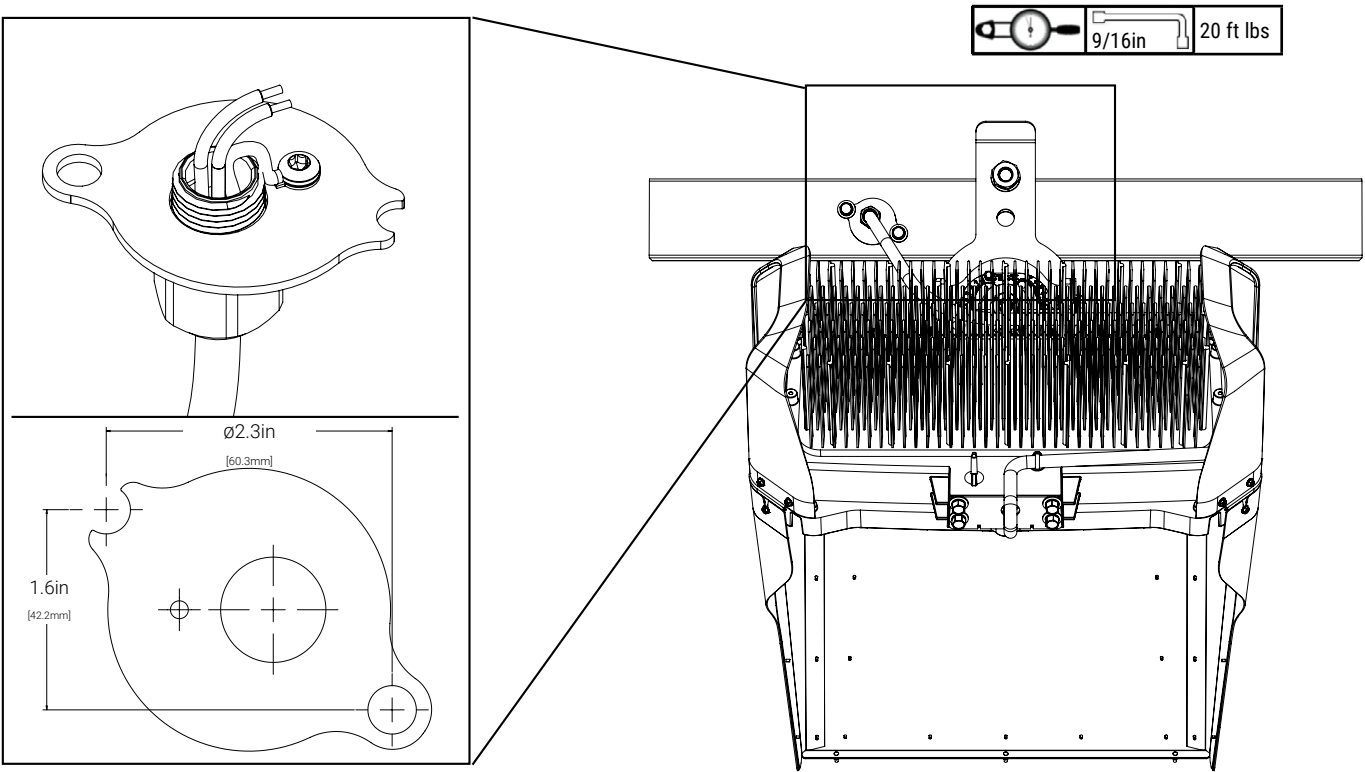
Note: The moisture resistant splice connector may have a heat shrink tube sleeve which requires a heat source to properly seal. The wire end may also need to be trimmed to 1/4in from the insulation for proper fitment.

Use the existing nuts on the crossarm to secure the electrical interface plate to the crossarm.



Verify no wires are pinched during the mechanical assembly of the electrical interface plate.

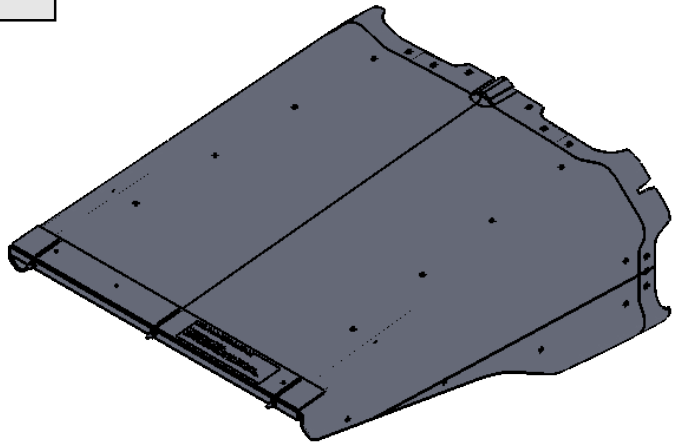
28



Extreme Cutoff Visor Control Bracket Adjustment Instruction

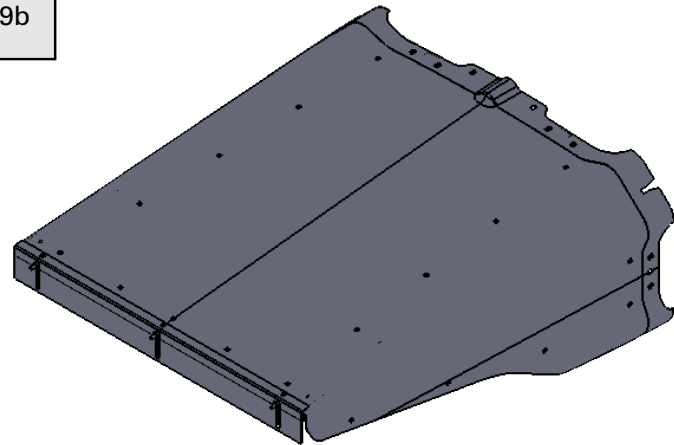
- 1. Loosen and remove 3 nuts.
- 2. Flip bracket and line up the vertical slots to studs in the visor.
- 3. Reinstall nuts, adjust control bracket height, tighten nuts to 15 to 18 in lbs.

29a



AS SHIPPED FROM FACTORY

29b

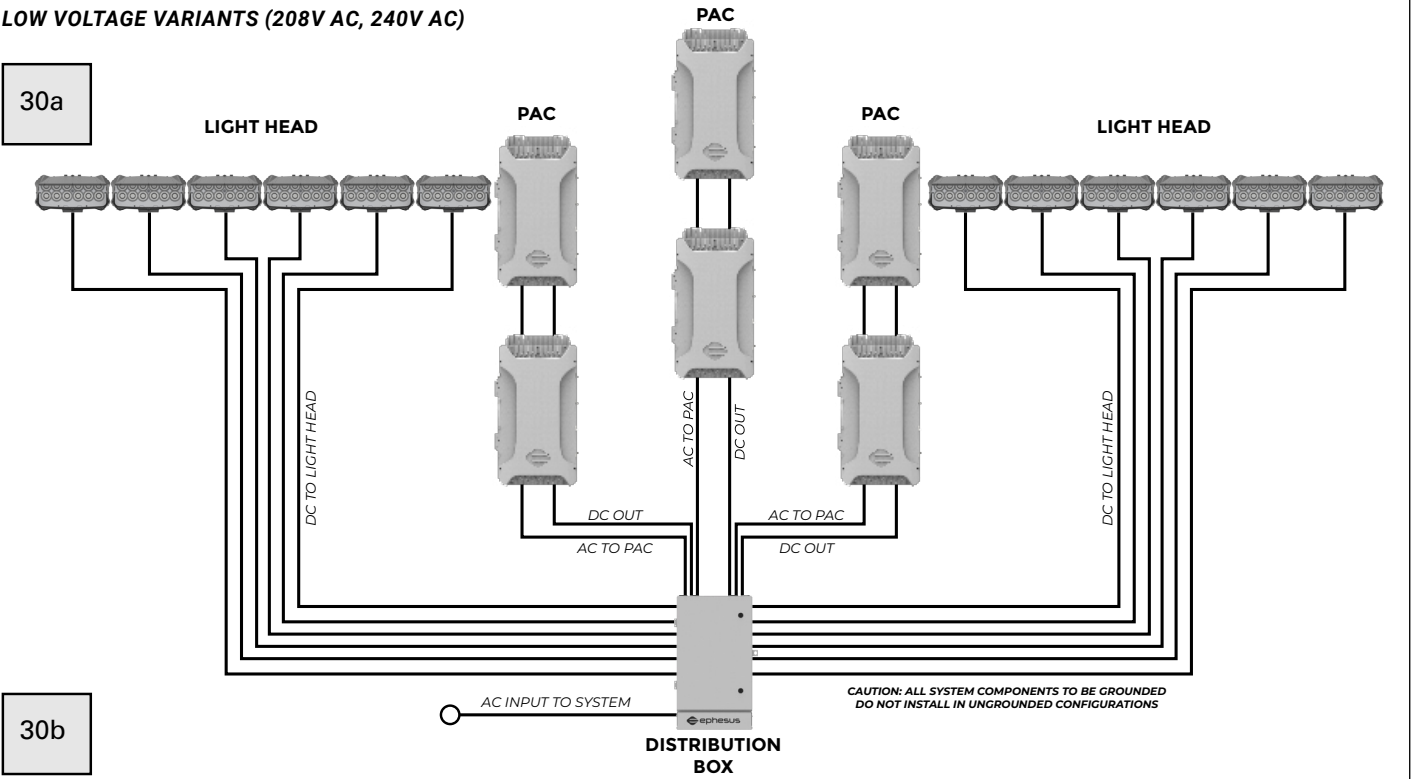


AS INSTALLED IN FIELD

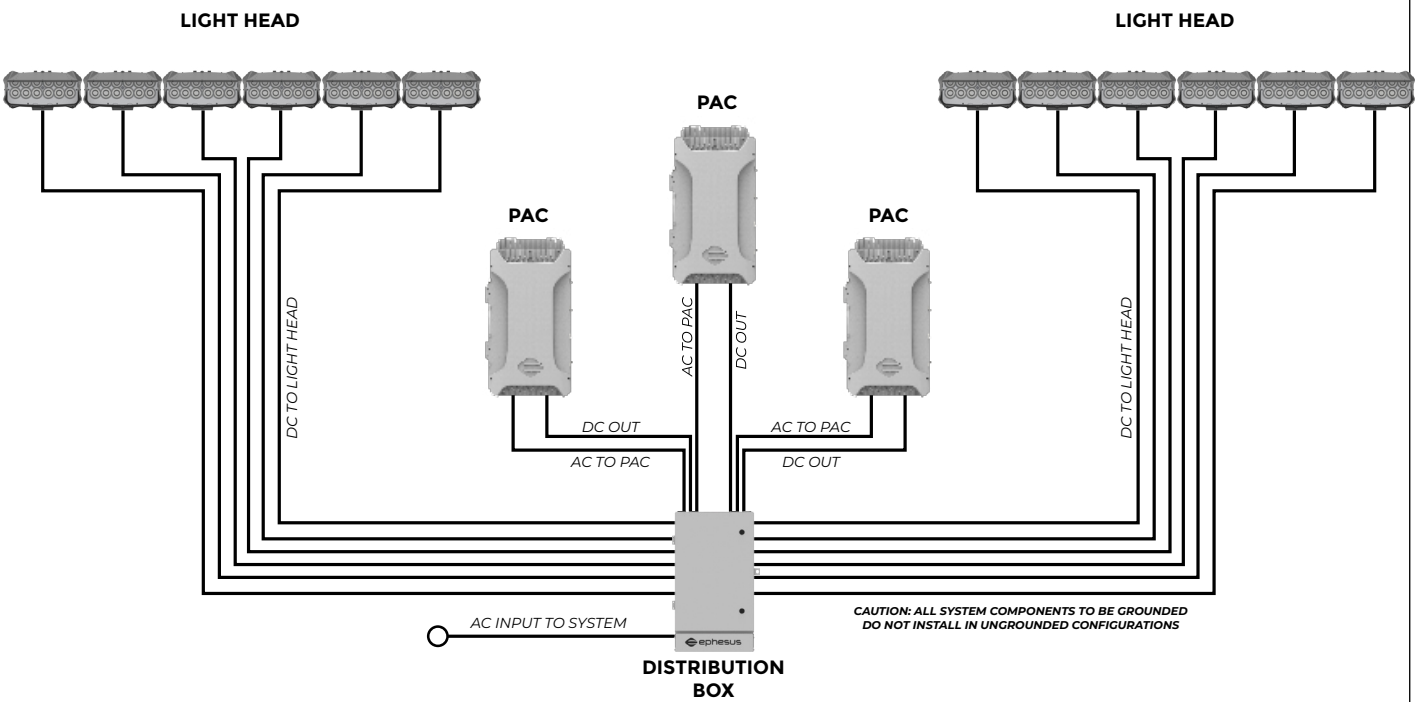
System Performance

The Light Head requires the PAC Box to be powered on and controlled.

LUMASPORT 12
LOW VOLTAGE VARIANTS (208V AC, 240V AC)



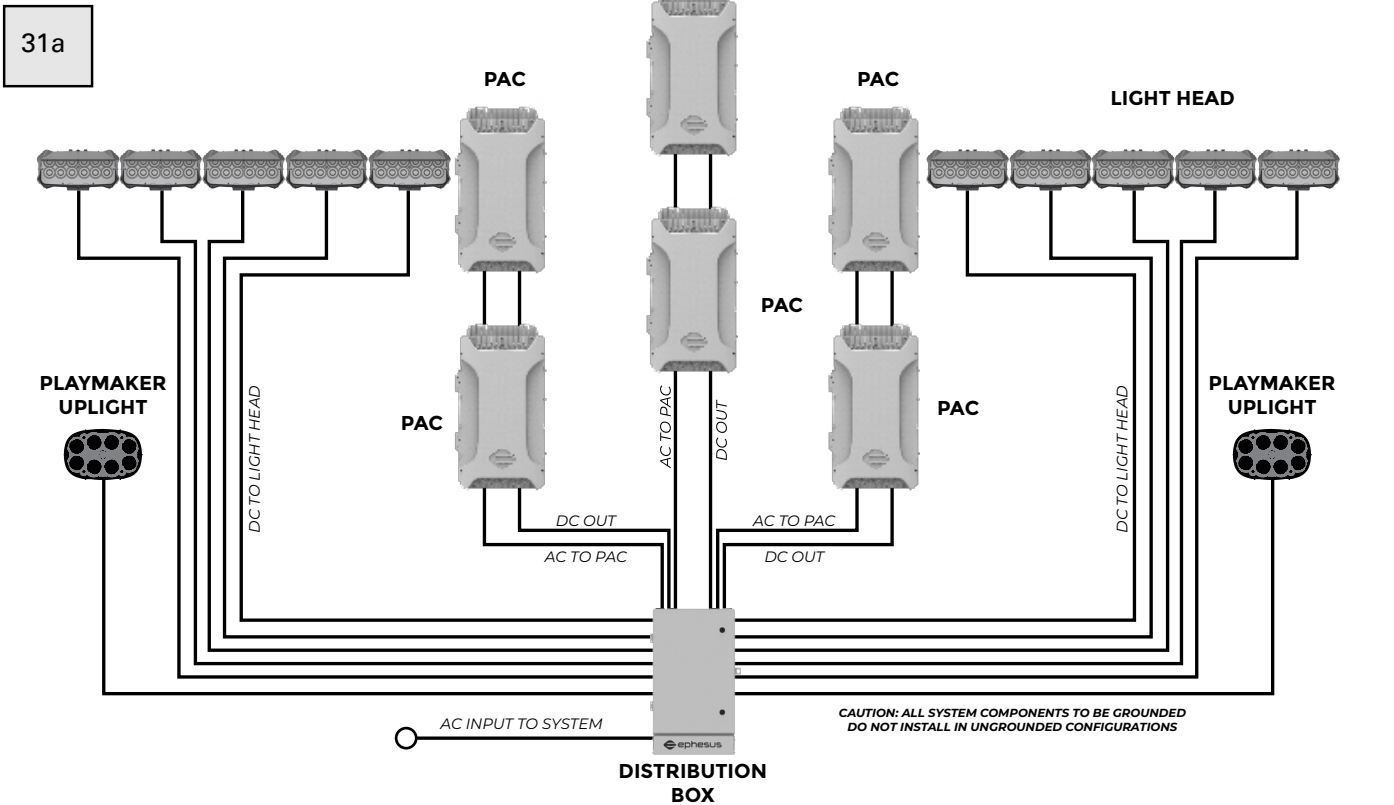
HIGH VOLTAGE VARIANTS (277V AC, 347V AC, 480V AC)



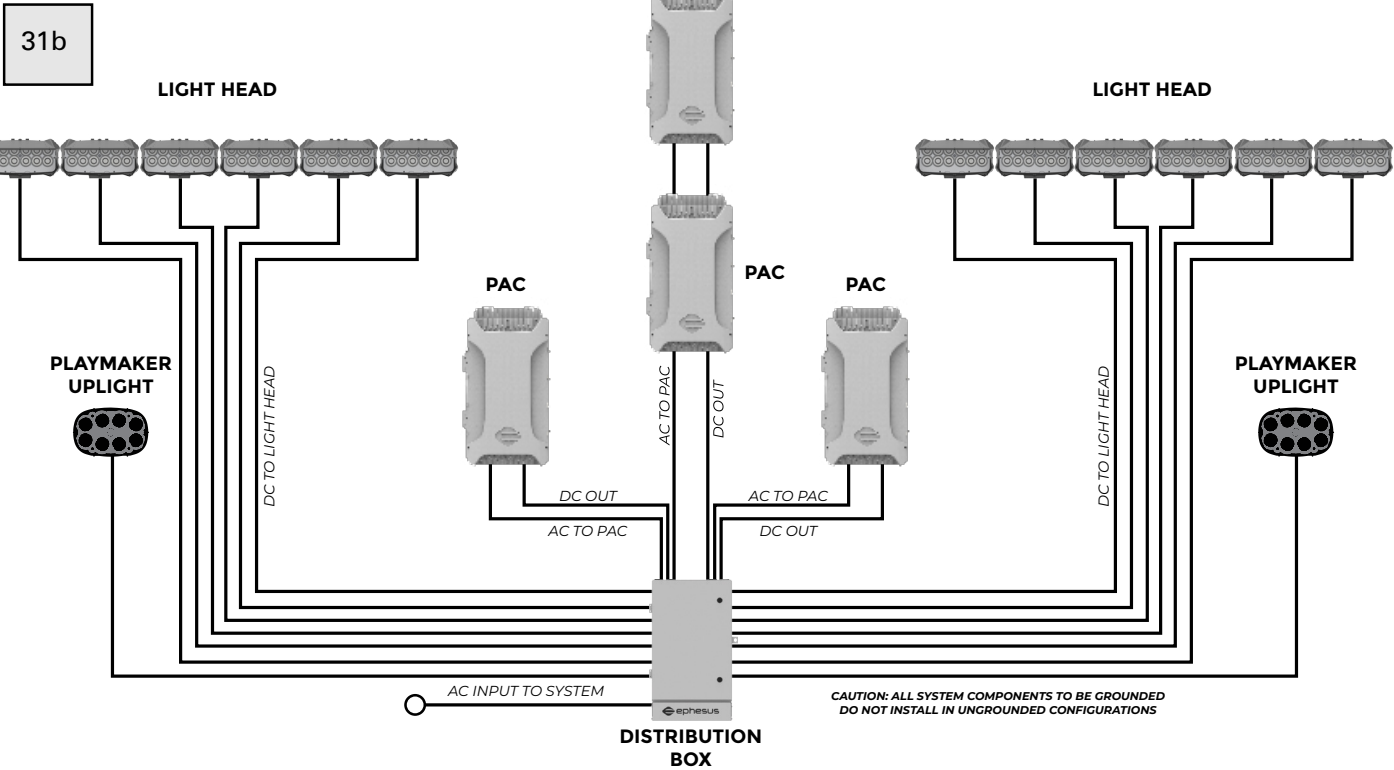
Note:

(1) Using a 277V AC line-to-neutral supply limits the number of PAC boxes supported by a distribution box; the recommended maximum is five (5) PAC boxes per distribution box for a 277V single-phase supply. Consult Ephesus if you plan to install this configuration.

LUMASPORT 12 WITH UPLIGHTING
LOW VOLTAGE VARIANTS (208V AC, 240V AC)



HIGH VOLTAGE VARIANTS (277V AC, 347V AC, 480V AC)



NOTE:
Using a 277V AC line-to-neutral supply limits the number of PAC boxes supported by a distribution box; the recommended maximum is five (5) PAC boxes per distribution box for a 277V single-phase supply. Consult Ephesus if you plan to install this configuration.

Mounting Accessories

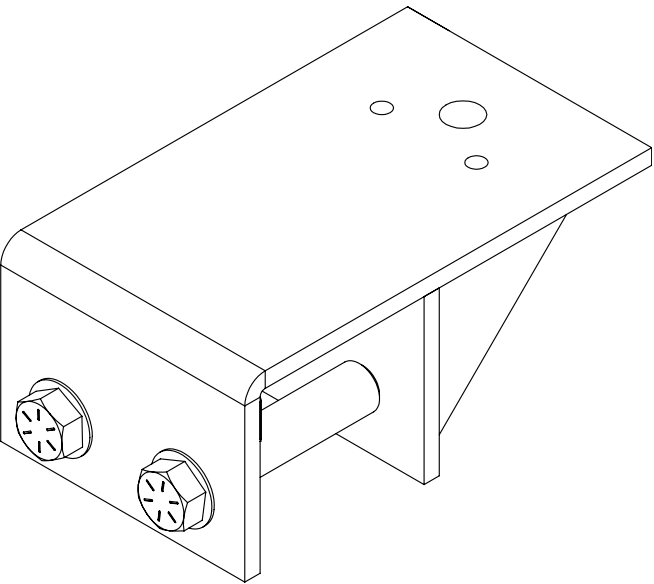
Diving Board Kit
Diving Board is intended to only to mount to 2in x 4in steel cross arms. Designed to be used with the LUMADAPT 8, LUMASPORT 8, LUMASPORT 12, LUMASPORT 16, LUMASPORT 8 PRISM, and LUMASPORT 16 PRISM Light Heads only. Do not use in unapproved Light Heads or mounting applications.

WARNING

⚠ Diving Board may ONLY be installed in the following physical orientations. Failure to install the Diving Board Kit in approved orientation or location may result in damage, injury, or death. (Reference diagram DB4a and DB4b)

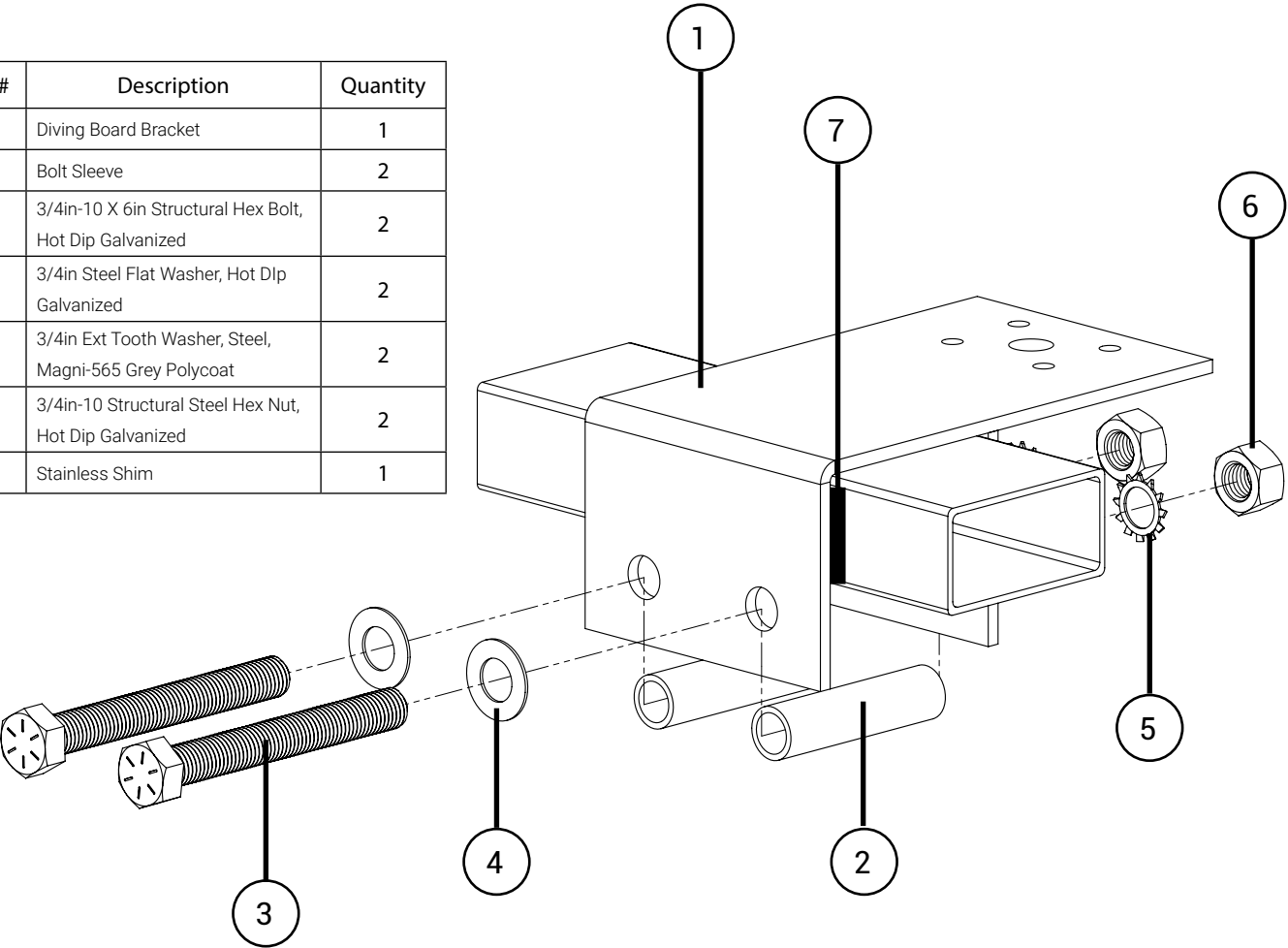
⚠ Prevent access to area under luminaire until the final torquing is complete.

DB1 Diving Board Kit



DB2 Diving Board Kit Parts Diagram

Item #	Description	Quantity
1	Diving Board Bracket	1
2	Bolt Sleeve	2
3	3/4in-10 X 6in Structural Hex Bolt, Hot Dip Galvanized	2
4	3/4in Steel Flat Washer, Hot Dip Galvanized	2
5	3/4in Ext Tooth Washer, Steel, Magni-565 Grey Polycoat	2
6	3/4in-10 Structural Steel Hex Nut, Hot Dip Galvanized	2
7	Stainless Shim	1



Diving Board Kit (DVGBRD) Hardware

Hardware Description	Use / Location	Tool	After Aiming Torque
3/4in-10 X 6in Structural Hex Bolt, Hot Dip Galvanized	Diving Board is intended to only to mount to 2in x 4in steel cross arms.	1 1/8in Socket & Ratchet 9/16in Socket & Ratchet - Adjustable Crescent Wrench - Adjustable Torque Wrench	120ft-lb.

Additional (HRDM34) Mounting Fastener Hardware Kits

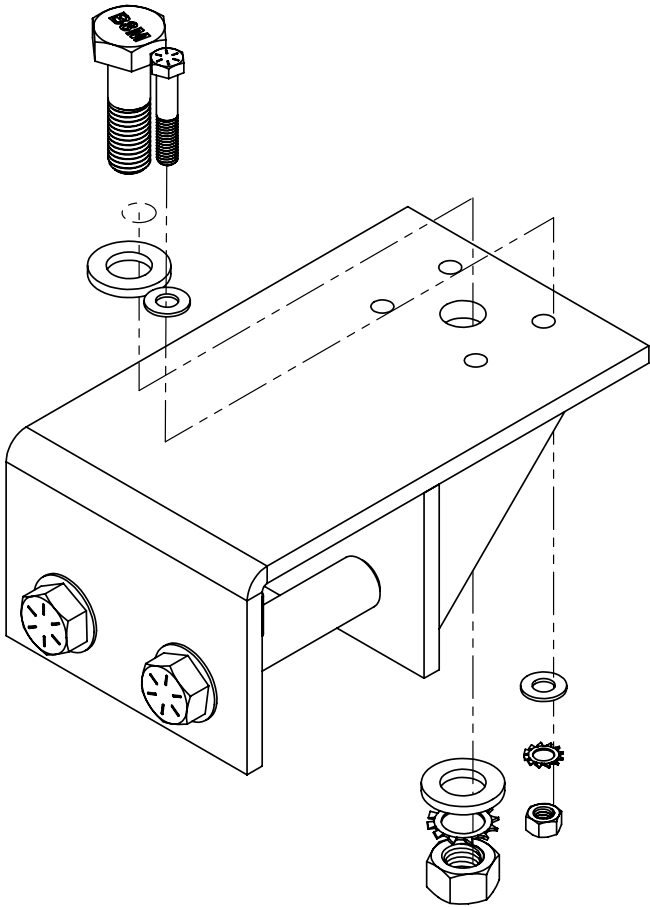
Hardware Description	Use / Location	Tools	After Aiming Torque
HRDM34-025	Additional mounting fastener hardware kit needed to attach a luminaire to the DVGBRD = Diving Board	1 1/8in Socket & Ratchet 9/16in Socket & Ratchet - Adjustable Crescent Wrench - Adjustable Torque Wrench	80ft-lb
HRDM34-075			
HRDM34-200			



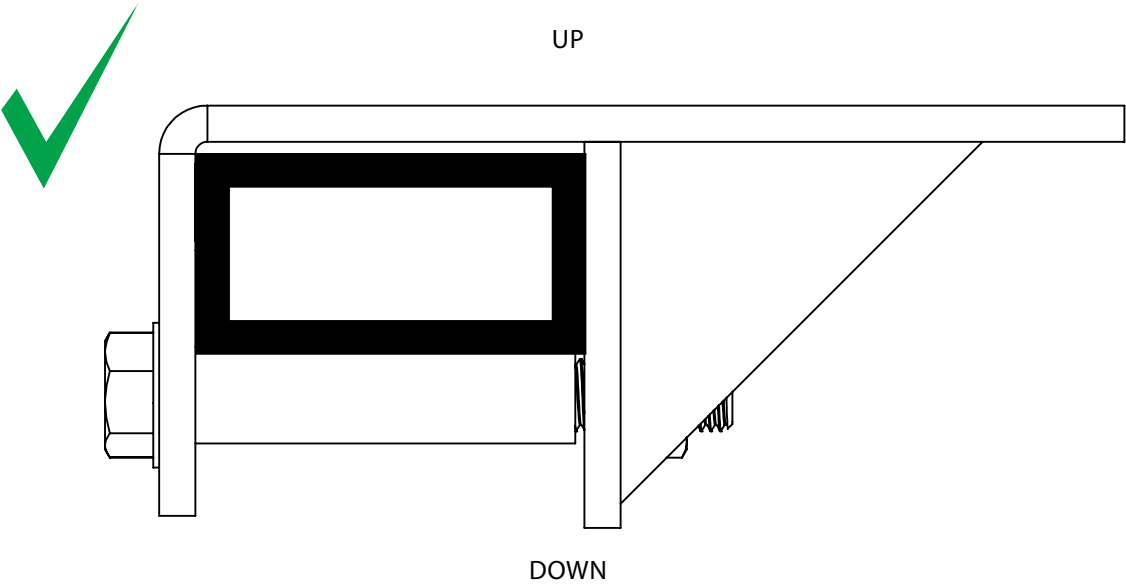
Steps to Install

1. The Diving Board is mounted on top of the cross arm with bolts and sleeves mounted underneath to clamp the bracket to the crossarm and secure it. (Refer to the Diving Board Parts Diagram) Only mount it as shown
2. Hold Diving Board Bracket (item 1) on top of cross arm.
3. Optional: Place provided shim between side of bracket and cross arm if there is excessive clearance
4. Insert both Clamping Hex Bolts through Washer, Bracket, Bolt Sleeve, other side of Bracket, Lock Washer, and Hex Nut.
5. Torque 3/4in-10 X 6in Structural Hex Bolts: 120ft-lb.
6. Hold Luminaire on top surface
7. Use hardware kit HRDM34-025 for mounting luminaire to bracket. Insert 3/4in Luminaire mounting bolt through Flat washer, luminaire, and primary mounting hole on Diving Board, Flat Washer, Lock Washer, and Hex Nut
8. Use hardware kit HRDM34-025 for mounting luminaire to bracket. Insert 3/8in secondary mounting bolt through Flat washer, luminaire, and any secondary mounting hole on Diving Board, Flat Washer, Lock Washer, and Hex Nut
9. Torque luminaire bolts:
 - A. Primary luminaire 3/4in bolt torque: 80ft-lb.
 - B. Secondary luminaire 3/8in bolt torque: 20ft-lb.

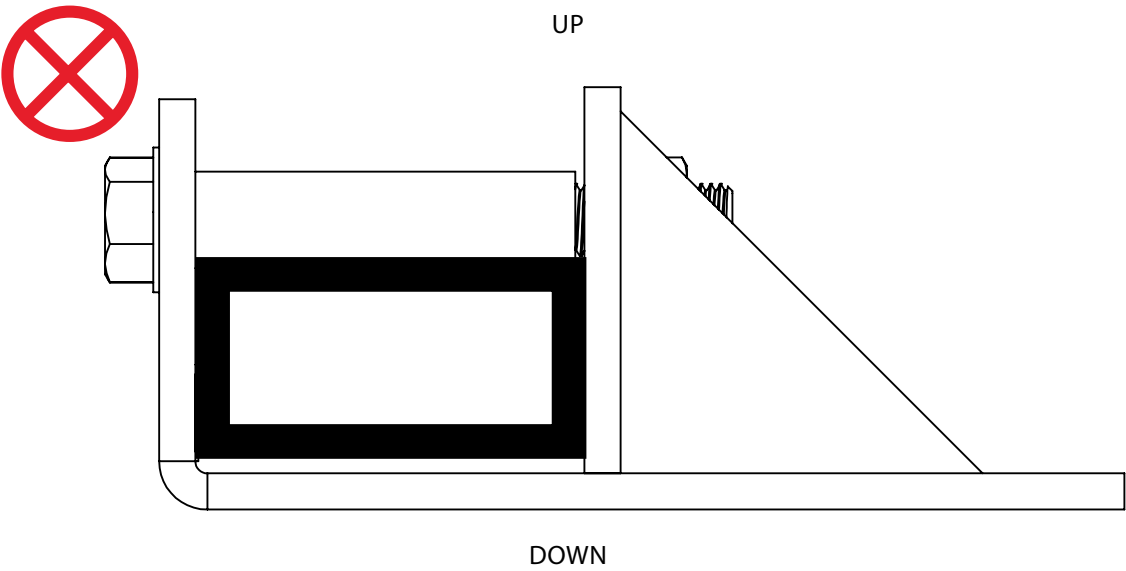
DB3 Diving Board Kit (DVGBRD) with Additional (HRDM34) Mounting Fastener Hardware Kit



DB4a Correct Installation



DB4b Incorrect Installation





Maintenance & Preventative Maintenance

Luminaire Care and Maintenance

All luminaires are prepared with a powder-coated finish. The finish on exterior luminaires may weather over time, depending on the environmental conditions at the installation site. Proper care of the luminaires will maintain their performance and appearance.

Follow a regular maintenance schedule to retain optimal light output and thermal performance. Lack of preventative maintenance may disqualify owner from warranty. Not adhering to this minimum system cleaning requirement is considered negligence as outlined in your product warranty documents. Refer to your product and/or labor warranty documentation for further details.



Always disconnect power from the luminaire before opening the driver box.

Cleaning

1. Clean all luminaires at a minimum of once every 12 months from receipt of your product.
2. Remove physical elements such as dirt, leaves and other foreign debris from the luminaire housing that can block and modify the air cooling (heatsink fins)
3. Wipe the optical lenses with a clean, dry, cotton cloth to remove dust and other contaminants. A non-abrasive optical cleanser or water may be used periodically.
4. Do not apply cleaners in direct sunlight or at elevated temperatures

Inspection of Hardware

Inspect mounting system and products at least once every 12 months. Replace all rusted hardware elements.



Troubleshooting

The Ephesus luminaire is designed to provide many years of reliable quality lighting. If the system appears to not be operating correctly, perform the following steps:

Gather Data

The first step is always to find out as much about the issue as possible. Ask the following questions:

1. **How many luminaires are not operating correctly?** If only one luminaire is not responding, continue investigating at that luminaire itself. If a group of luminaires are not responding correctly, start at the source of the power or controls for that group.
2. **Have any obvious external forces been in the area?** For instance, were any riggers, electricians, or other workers near the luminaires or controls? Have there been any power disturbances in the facility such as lightning storms?
3. **Are your luminaires responding according to the input control function?** Run the system through some different control scenes, including all on and then all off (blackout mode). Take note of any luminaires not responding correctly to the scenes.

Problem	Remedy
Does not power on	• Verify the Distribution Box has AC power • Verify proper wiring to the Distribution Box, PAC Boxes and Light Heads • Check electrical connections at the Light Head/crossarm, drop cable/Distribution Box, and Distribution Box/PAC Box interfaces.
Does not respond to controls	• Reset the luminaire by turning all power sources off for at least 10 seconds. • Inspect all system control wiring to make sure there are no poor connections or breaks in the control wiring. • If it is airmesh, then make sure airmesh hub and the node are at same channel

Luminaire Replacement

Contacting Warranty Technical Support

1. Before you call, make sure you have completed the troubleshooting steps.
2. Gather as much detailed information as possible about the situation.
3. Have your luminaire and project information handy, including the model number of the luminaire in question.

Refer to your luminaire warranty document for more information

If you have attic stock luminaires available and need to replace a luminaire, simply follow the installation instructions in this manual to replace the luminaire in question. Be sure to address the replacement luminaire with the correct luminaire number.

All Luminaires, materials, and accessory equipment being returned through the warranty process need to be placed back in their original packaging in the same orientation that they were originally shipped from the factory. If the packaging is damaged or if there are questions on the orientation in returning equipment and materials, you need to contact the Warranty Department for replacement packaging materials at:

EphesusWarranty@Signify.com | +1 (800)-573-3600



CLICK OR SCAN
FOR WARRANTY
INFORMATION
& CLAIM FORM

Warranties and Limitation of Liability

Please refer to www.cooperlighting.com/global/resources/legal for our terms and conditions.