



**MODEL SLALED
SURGICAL LIGHTING
SINGLE CEILING MOUNT**

CAUTION

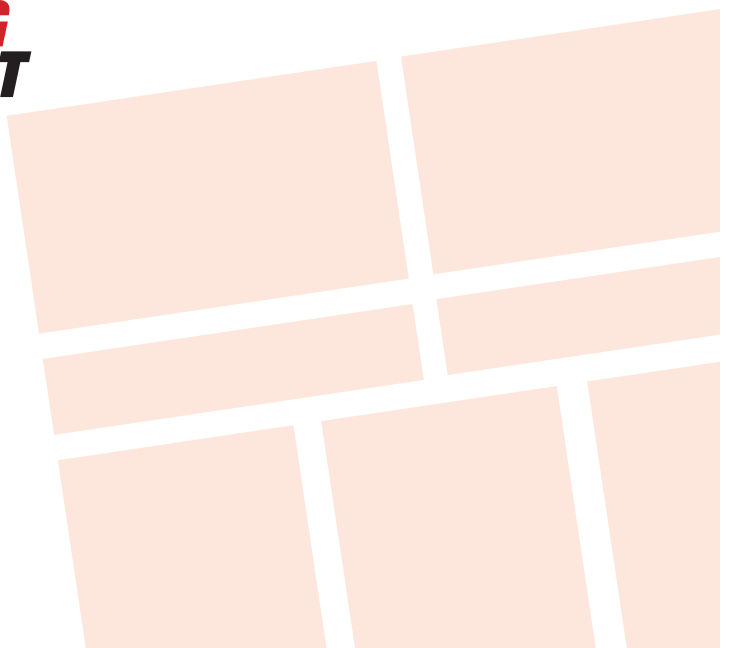
- Inspect unit and all components for any loosening that may have occurred during shipping •

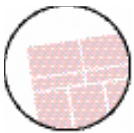
ATTENTION

Review entire manual before starting assembly

ATTENTION

All images and Drawing in this manual may not represent your model. Refer to your particular project for exact specifications





It is important that the information provided in this manual is observed. These instructions should be read carefully and observed fully before installation and initial operation.

WARNING

It is crucial that any work performed on Mortech Mfg. Inc. manufactured items are carried out exclusively by skilled professionals who have the respective training. Improper use, maintenance, parts and service, or modification to the equipment may cause injury and/or damage. Use and maintain the equipment only for the purpose described in this manual. Use only prescribed approved parts and service. Use the equipment only as designed by Mortech mfg. Inc.

BLOODBORNE DISEASE NOTICE

To reduce the risk of exposure to bloodborne diseases such as HIV-1 and hepatitis when using the equipment, follow the disinfecting and cleaning instructions in this manual.

OPERATING SKILLS AND TRAINING SKILLS

Operators using the equipment needs

- ☐ A working knowledge of necessary procedures.
- ☐ The ability to carry out necessary service procedures.
- ☐ A complete understanding of the procedures described in this manual.

TRAINING

- ☐ Be trained on the use of the equipment.
- ☐ Read the manual
- ☐ Practice with the equipment before using it in regular service.
- ☐ Be tested on their understanding of the equipment operation.
- ☐ Record their training.

BEFORE USING THE UNIT

Personnel working with this unit needs to read this manual. Assemble of the unit following instructions, and perform any pre-service checks to confirm the units operates properly.

INSPECTING THE UNIT BEFORE USE

Please take time to inspect all shipment prior to signing delivery ticket. If concealed damage is discovered, save the carton and immediately contact carrier agent to initiate claim of damage.

BE SURE TO CHECK

- Are all components present?
- Do the moving parts operate smoothly?
- Is unit draining properly?
- Are all nuts, bolts, and pins secured in place?
If unit has an issue contact customer relations.

INSTRUCTION FOR HANDLING

Adhere to state and/or local certification and regulations for operation of forklift and/or pallet jack. Cargo is extremely heavy, be sure to have the necessary manpower as well as equipment to successfully unload shipment from truck. We recommend a forklift and/or pallet jack with the capacity to lift up to 2000 lbs. to remove cargo from truck.

The forklift can be used to unload receiving products safely by placing the load on the floor, maneuvering the forklift into position, tilting the mast forward to vertical position so the load will be level, lowering the load, and smoothly backing away without dragging. Once cargo is unloaded, positioning unit for installation will once again require a forklift. Read all manual and note on installation of the unit before installing.

The pallet jack can be used (with a loading dock and maneuverability on and off the transport vehicle) to unload receiving products safely. Maneuvering the pallet jack into position (in the appropriate position within the pallet), lifting the pallet then driving the pallet jack off the truck and safely into the place of installation.

Range of Environmental Condition

Mortech Mfg. Inc. equipment shall be placed in a controlled environment (housing or housed unit) hindering the weathering effects on the installed units. The units will have minimal corrosive and eroding factors that can break down the stability and operation of Mortech's equipment. The impact on the unit by the operator utilizing water or corrosives in the medical procedures can be controlled and responsibility for the cleaning and maintenance placed upon that person. The effects of anthropogenic (man-made) gasses on the environment, such as carbon dioxide (CO₂) that will be omitted from the unit should be minimal.

Due to continuous innovation and product development this installation guide is subject to change without notice.

Please save these instructions for later use.



Models SLALED

procedure lighting. The AIM LED uses the latest advances in state-of-the-art lighting technology to achieve incredible performance and unsurpassed value and energy efficiency. The AIM LED provides 10% more illumination (45,000 lux / 4181 fc at 1 meter) than even the high performing AIM-50®. A 92 CRI rating produces very accurate color visibility, which is important for an accurate diagnosis. With 10 times greater (20,000 hours) lamp life than traditional light source products, you will save more than \$1000 in bulb replacements alone. Additionally, the AIM LED uses 70% less energy.

The multiple reflectors of the AIM LED can be tilted by rotating the sterilizable light handle to adjust the size and pattern of the light to the working area.

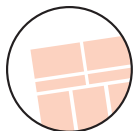
The AIM LED has a unique Y-Shaped design, which facilitates placement of the lighthead around the physician's head minimizing the obstruction of light into the surgical field.

STANDARD DESIGN FEATURES

- 45,000 lux (4181 fc) at 1 meter
- 4300 K color temperature
- CRI (Color Rendering Index) of 92
- 3 LED modules with a 20,000-hour life
- Adjustable focus using center handle
- UL60601-1/IEC 60601-1/IEC60601-1-2/IEC 60601-2-41; CAN/CSA C22.2 601-1 M90 certified
- CE marked
- 5-year limited warranty
- Assembled in USA

Illuminance:	45,000 lux (4181 fc) at 1 meter
Color temperature:	4300 K
CRI (Color Rendering Index):	92
Diameter of lighthead:	20" (51 cm)
Light field diameter:	13" - 15" (33 cm - 38 cm)
Depth of illumination:	54" (137 cm)
Focusing:	Adjustable using center handle
Number of LED modules:	3
Light sources:	Light Emitting Diodes (LED)
Rated life of LED lamp:	20,000 hours
Swivel radius of lamp housing - ceiling mounted:	63" (160 cm) max.
Height movement of lamp housing - ceiling mounted:	41" (104 cm) vertical movement
Minimum ceiling height/maximum ceiling height:	8 ft./12 ft. (244 cm/366 cm)
Power:	84 Watts
Mounting options:	Single ceiling, double ceiling
Total weight:	Floor version 43 lbs. (19.5 kg), single ceiling version 44 lbs. (19.9 kg)
Seismic calculations available:	Yes
Certifications/approvals:	UL60601-1 / IEC 60601-1 / IEC 60601-1-2 / IEC 60601-2-41 CAN/CSA C22.2 601-1 M90 CE marked
Product warranty:	5-year parts and labor
Origin:	Assembled in USA





Installation

SLALED Surgical Lighting

Transportation and Storage

The following storage conditions apply:

- Temperature: 0o-70 oC (32-158oF)
- Relative humidity: 10 - 75 % (no condensation)
- Air pressure: 500 - 1060 hPa

Store only in closed or covered spaces; thereafter, the values of the operating conditions in the usage instructions apply.

WARNING-Failure to properly follow installation and preventive maintenance instructions may result in mechanical failure.

WARNING-Before undertaking any work, ensure that the branch circuit power is off and secured from accidentally being switched on again.

NOTE-This light should only be installed by a qualified electrical contractor.

NOTE-It is the responsibility of the customer to make sure the supporting wall / ceiling and the anchoring is safe, adequately strong and in compliance with all applicable building codes. (See: Static inspection on page 16 and the section Support and Anchorage below)

Assembly Preparations

Tools and Accessories Required:

- Drill
- Hacksaw
- Level
- 9/16" (14,3 mm) open-end wrench (or adjustable wrench)
- Wire cutter/stripper
- Allen key (3/32 in / 2,4 mm)
- Screwdriver, small flat-blade
- Wire nuts and wiring for supply connections

Support and Anchorage

To prevent sway and provide proper support of the light, the ceiling mount must be attached to a structurally-sound ceiling. Most ceilings will require adequate reinforcing to hold the light. The installing contractor is responsible for providing this reinforcement to suit the individual requirements of each installation. A typical reinforcement consists of a 1/4" steel plate, the bottom surface of which is flush with the inside surface of the finished ceiling (e.g., acoustical tile) and connected firmly to the structural ceiling. Sway braces (e.g., made of angle iron) are recommended when there is more than 12" between the structural and finished ceilings. Make certain the installed plate is level or the arm(s) may "drift". Equipment anchorage diagrams are supplied with these instructions to help with the installation (see page 16). The diagrams were prepared by a California-licensed Structural Engineer. If the lights are installed accordingly, the systems will meet requirements of the State Seismic Codes.

Mounting Height

The proper height of the light should be set by the end user. This depends on the ceiling height, the height of the examination tables, types of procedures and the user's preferences. (See Figure 1 on page 7.) Due to the large vertical range of the light head (41 in / 1040 mm), the standard 20" down tube will fit most normal ceiling heights. The following table gives some recommendations and shows the range of the light with the different length down tubes.

MOUNTING HEIGHT

Ceiling height	Down tube	Pivot point ¹	Lower limit Light head	Higher limit Light head
7.0 ft 2135 mm	Short 8" ²	66 in 1676 mm	42 in 1067 mm	83 in 2108 mm
7.5 ft 2285 mm	Standard 20"	60 in 1524 mm	36 in 914 mm	77 in 1956 mm
	Short 8" ³	72 in 1829 mm	48 in 1220 mm	89 in 2260 mm
8.0 ft 2440 mm	Standard 20"	66 in 1676 mm	42 in 1067 mm	83 in 2108 mm
9.0 ft 2745 mm	Standard 20"	78 in 1980 mm	54 in 1370 mm	95 in 2410 mm
10.0 ft 3050 mm	Standard 20"	90 in 2286 mm	66 in 1676 mm	107 in 2718 mm
	Long 42" ⁴	66 in 1676 mm	42 in 1067 mm	83 in 2108 mm
11.0 ft 3350 mm	Long 42"	78 in 1980 mm	54 in 1370 mm	95 in 2410 mm
12.0 ft 3660 mm	Long 42"	90 in 2286 mm	66 in 1676 mm	107 in 2718 mm

¹ Distance from the floor to the pivot point of the spring arm.

² Cut the standard down tube (from the top) and drill two new holes.

³ Cut the standard down tube (from the top) and drill two new holes.

⁴ Contact Burton to obtain a Long Down Tube.

RANGE OF MOTION

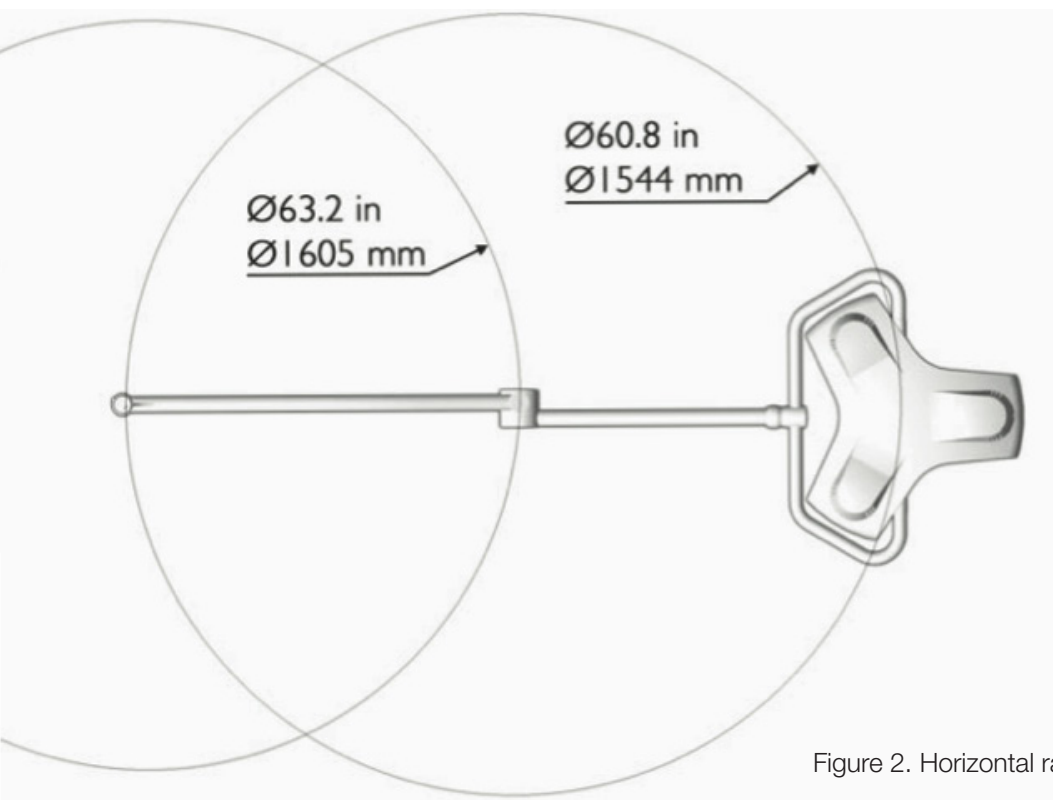
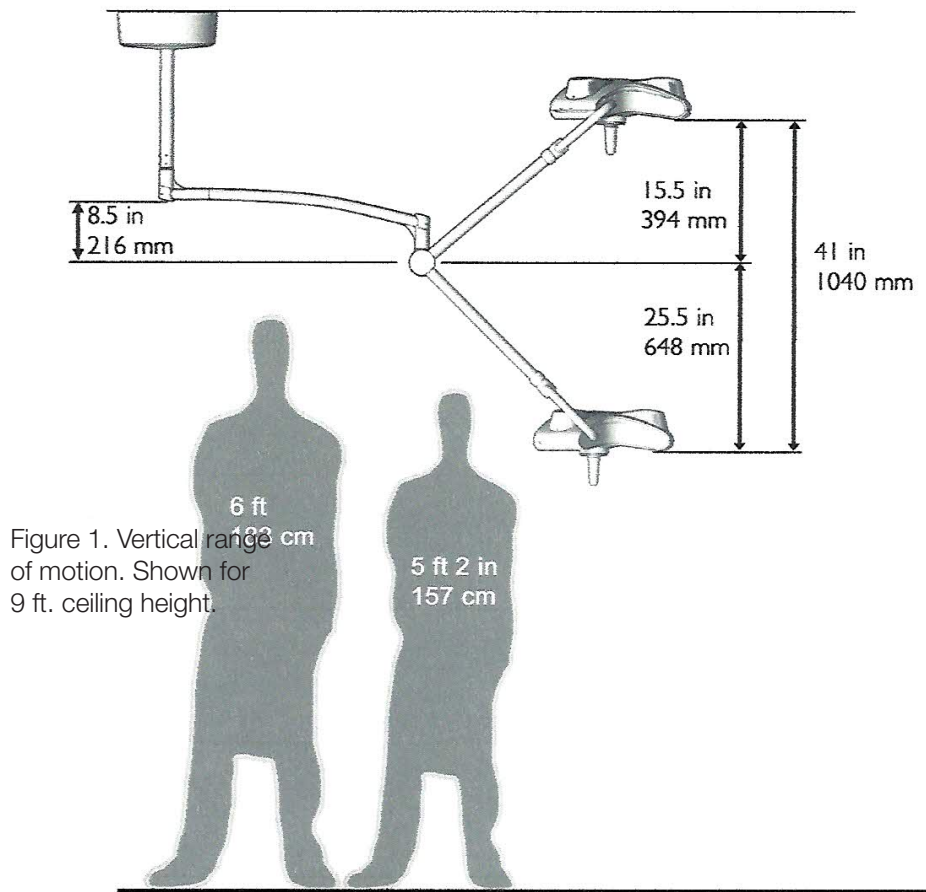
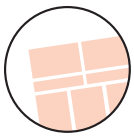


Figure 2. Horizontal range of motion





Installation

SLALED Surgical Lighting

Unpacking and Inspection

Carefully unpack the cartons and match the parts received with the parts list enclosed.

Before Reporting Shortages:

1. Be sure you have received the correct number of boxes, cartons, etc., as shown on the bill of lading.
2. Check the entire shipment against the enclosed packing slip.
3. Items indicated in the column headed "Back Order" are not included in the shipment and will follow later.
4. Be sure that nothing has been removed from the cartons before they are checked by the individual in charge.
5. Empty all boxes completely, open all inside containers, and examine all packing material to ensure small articles are not overlooked.

If a Shortage or Damage Occurs:

1. You, the receiver, are responsible for filing any claim(s) with the delivering carrier within five (5) days after receipt of the shipment.
2. If damage or shortage occurs in transit, the delivering carrier is required by law to make notation of a shortage or damage. This notation is to be made on the bill of lading.
3. If, in your opinion, there may be concealed damage, an agent from the delivering carrier is obligated to make an inspection after the goods are unpacked.

4. Do not destroy packing material until after the agent has made out his report.
5. All claims must be made to the carrier, not Burton.
6. Written authorization must be obtained from Burton before merchandise can be returned.

Single Ceiling Version Installation

Ceiling Support Structure

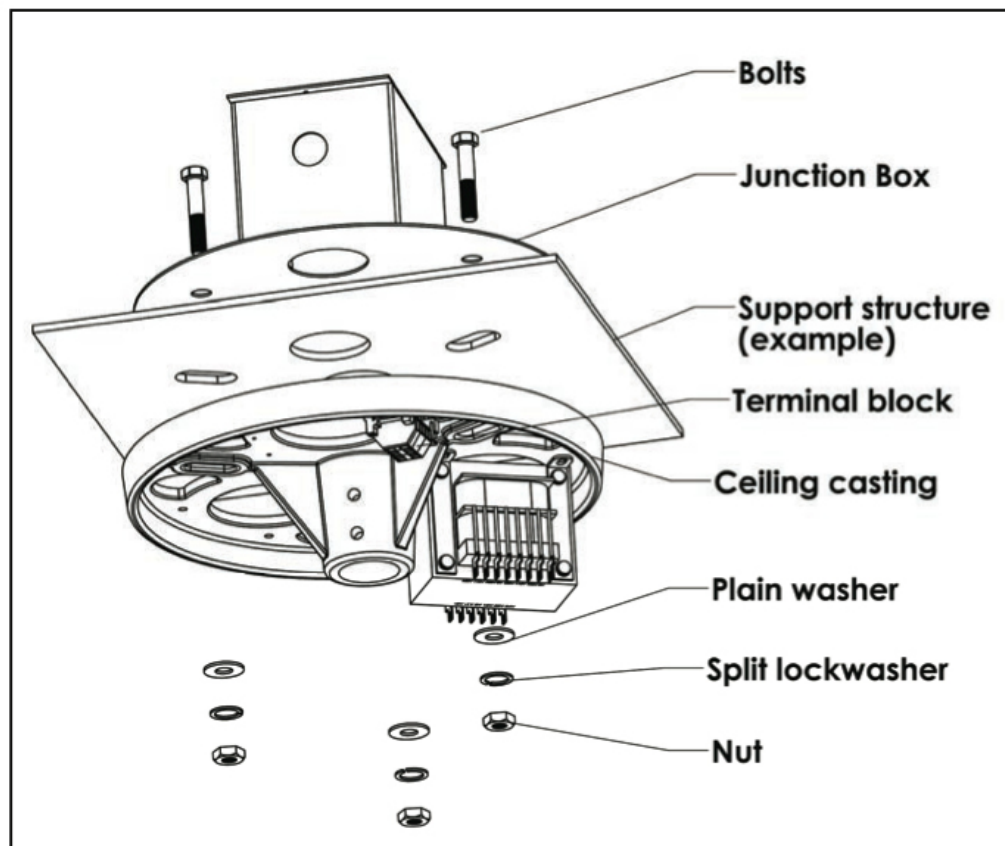
The engineer of record for the building shall provide a support structure designed to support weights and forces shown on the Equipment Anchorage Diagrams. When the support structure is in place the static inspection sheet on page 17 should be filled out.

Installing the Junction Box

The junction box should normally be placed on top of the support structure. Make sure the screw holes on the junction box plate correspond to the holes in the ceiling casting. When the ceiling plate is installed, the bolts will also hold the junction box. If there isn't space for the junction box on top of the support structure, another suitable location in the ceiling can be used. It is also possible to use another junction box if that is more convenient.

Connecting wiring (contractor-supplied) must be minimum AWG 18 from the switch to the terminal block. Wiring and conduit must meet the NEC, local, and national fire protection codes.¹ Mount the ceiling casting to the support structure. Make sure the hole in the ceiling casting below the terminal block aligns with the hole in the

Installing the Ceiling Casting

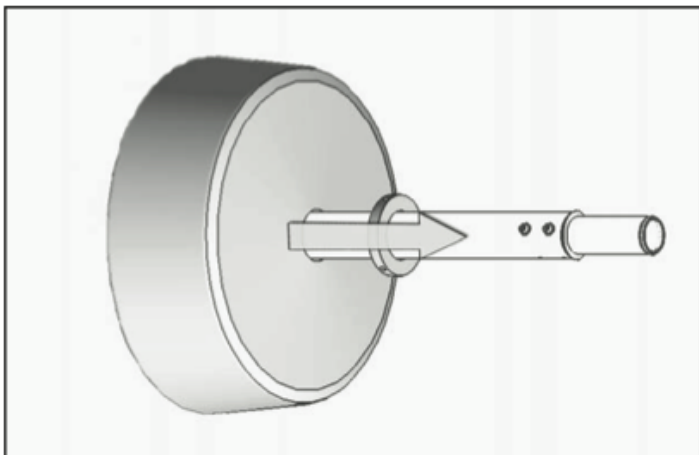


junction box. Use three (3) 3/8" bolts, plain washers, split lockwashers, and nuts in a triangular pattern. See Equipment Anchorage Diagrams on page 18 for details.

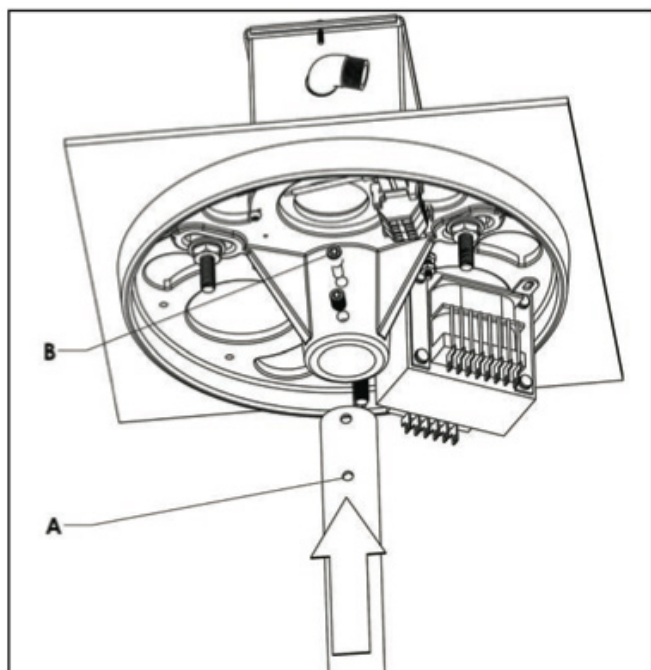
Installing the Down Tube

NOTE-The down tube is pre-cut and pre-drilled at the factory and will suit most exam rooms with a ceiling height of 7.5-9 ft.

NOTE-Be certain to assemble the bell housing to the down tube before attaching the down tube to the ceiling casting.

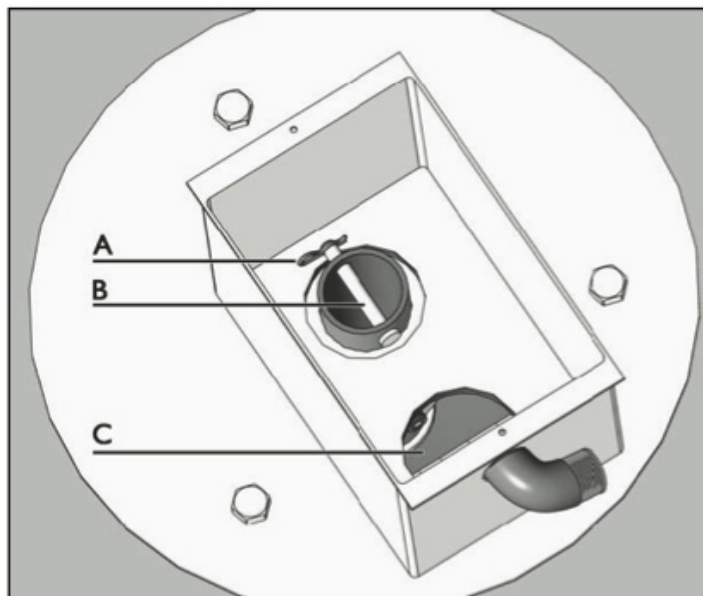


2. Slip the locking ring and the bell housing onto the down tube.



3. Assemble the down tube by sliding it up the center hole in the ceiling casting. Position the tube so that the lower hole (A) in the down tube is matching to the upper hole (B) in the ceiling casting. First fasten the upper set-screw, which is a dog-point screw. (Make sure it fully engages the matching hole in the down tube.) Then fasten the lower setscrew. Use

Loctite® Threadlocker or similar on the screws to prevent them from becoming loose.



4. Approximately 1 inch of the down tube should be showing above the ceiling plate. A hole through the down tube will be accessible. Put the clevis pin (B) into the hole. Secure the clevis pin with the hairpin (A).

5. Feed the wires coming up out of the down tube down through the hole in the ceiling casting (C). The supply lines (from the wall switch) should also go through this hole.

Connecting Power

1. The branch power from the wall switch should now be connected to the terminal block, which is pre-mounted on the ceiling casting. To connect to the terminal block use the technique shown on the illustration to the right.

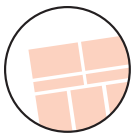
2. Connect the wires as shown on the illustration to the left. (Only the connections the installer needs to do are shown. For a complete wiring diagram, please refer to the Operation & Maintenance manual.)

The terminal block is marked with letters and numbers as follows:

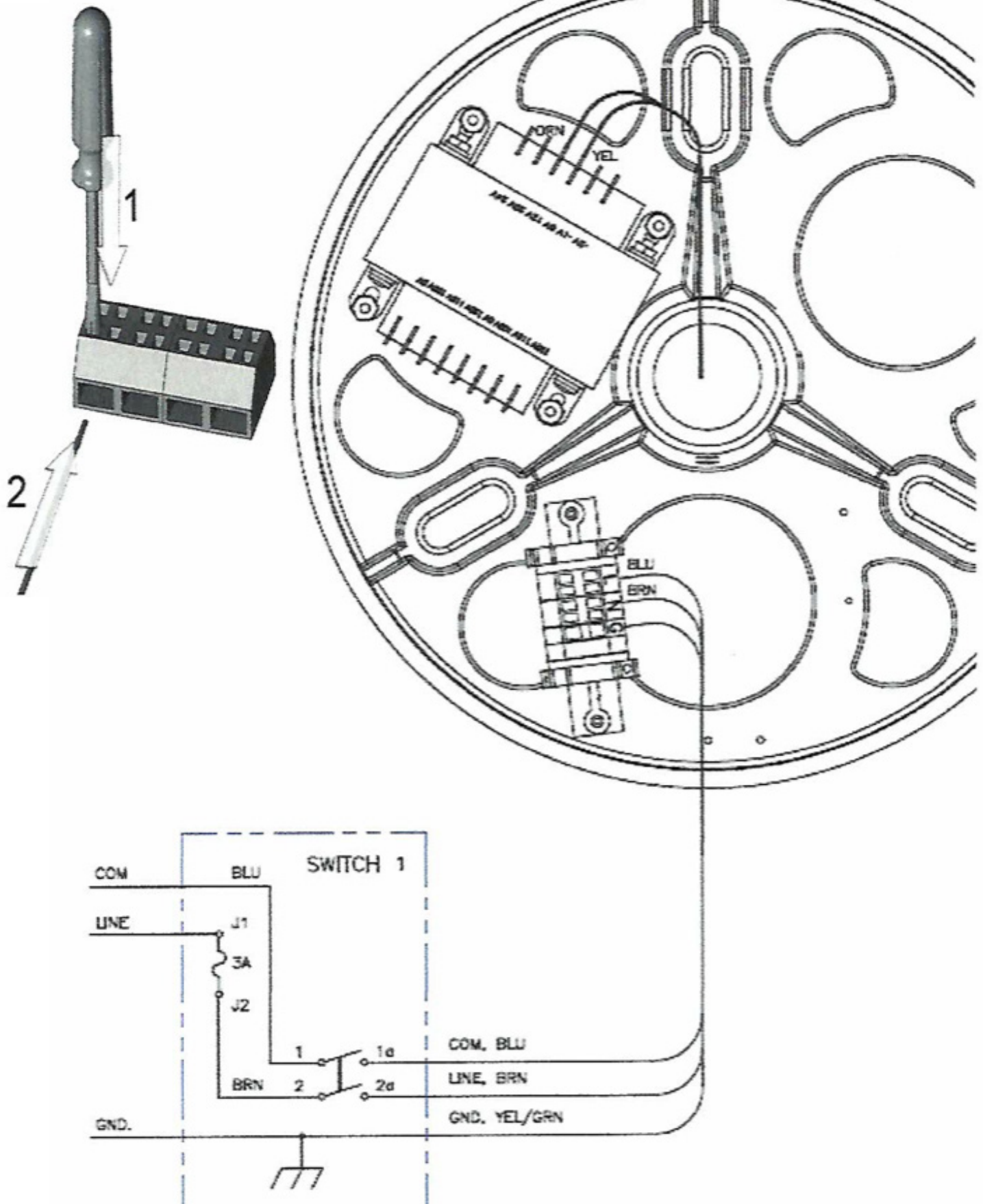
a) Lines up out of the down tube (to light fixture): Connect the green ground wire to the ground point on the casting. Connect the other two wires to terminals on the transformer (Secondary terminals marked OV and 12V)

b) Input Power (from wall switch): Connect the green/yellow ground wire to the green terminal block. Connect the neutral wire (normally white) to the terminal block marked "N" Connect the live wire (normally black) to the terminal block marked "L"

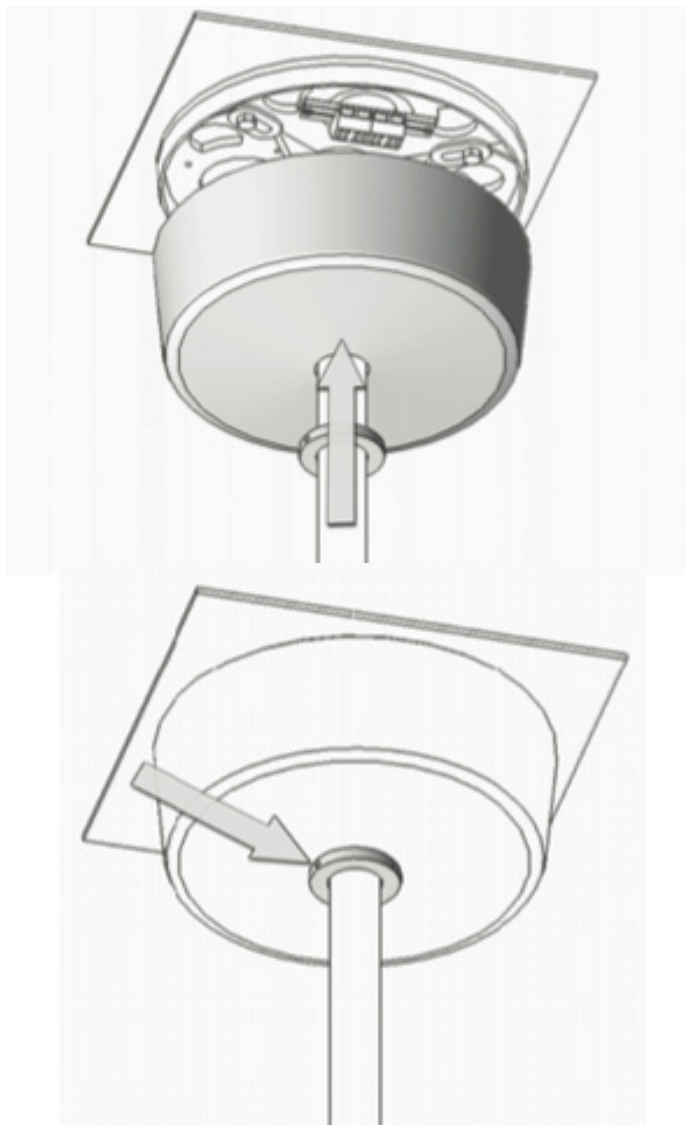




Connecting Power

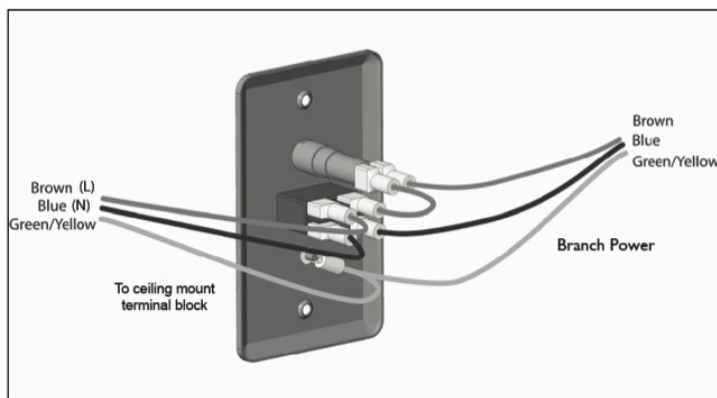


6. Push the bell housing and the lock ring up until it covers the ceiling plate. Tighten the two set-screws on the lock ring using an Allen key (3/32 in / 2,4 mm).



Installing Wall Switch

120 V version: Install wall switch furnished with the product to a standard junction box per local codes. The wires that go to the light fixture are labeled "to light fixture". 100V / 230V, 240V versions: Install wall switch per local codes. Wall switch is not furnished with the product.



Installing the Extender Arm with Spring Arm

WARNING-Danger of injury

If the washer (c) is not installed, the retaining ring (e) can loosen. The equipment can then fall from its fixture and cause serious injuries. Always install the washer.

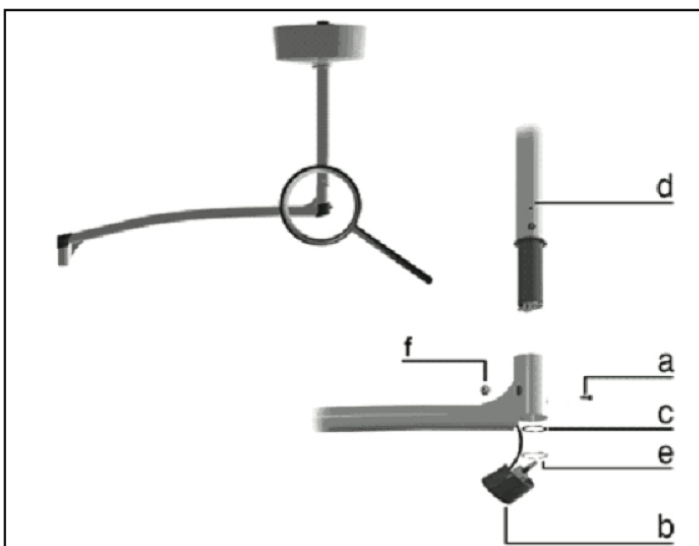
WARNING - Electrical shock

The support system can become live if the power cables are damaged at the plug. The voltage can pose a danger to life. Install the plug carefully.

1. Unscrew the cross-slotted screw (a).
2. Remove the plug cap (b).
3. Lift the arm onto the shaft of the down tube (d).
4. Insert the washer (c) on the shaft and install the retaining ring (e).
5. Check whether the extender arm with spring arm is seated firmly.
6. Insert the safety screw (f) through the hole and thread into the extension shaft (d) using the included 2.5mm hex key.
7. Make sure the screw is fully seated against the extension shaft (d) of the down tube. The arm should rotate smoothly.
8. Insert the plug cap (b) into the shaft until it locks into position.
9. Refasten the cross-slotted screw (a) to secure the plug cap.

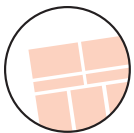
WARNING-Danger of injury-The spring arm, if accidentally released when pressed down, can spring up and result in injuries. During the installation of the light head, no one should be present within range of the spring arm.

CAUTION Danger of injury-Key must be properly installed to avoid safety hazard.



1. Figure 1 above shows the correct orientation of the spring arm to the light head.





Installation

SLALED Surgical Lighting

2. Loosen the brake screw (b) and remove the protective cover (d) only.
3. Rotate the collar (c) 180° so that the slot in the collar aligns with the slot in the spring arm (a) illustrated in the lower right of figure 2.
4. Mate the electrical connectors.



Figure 1

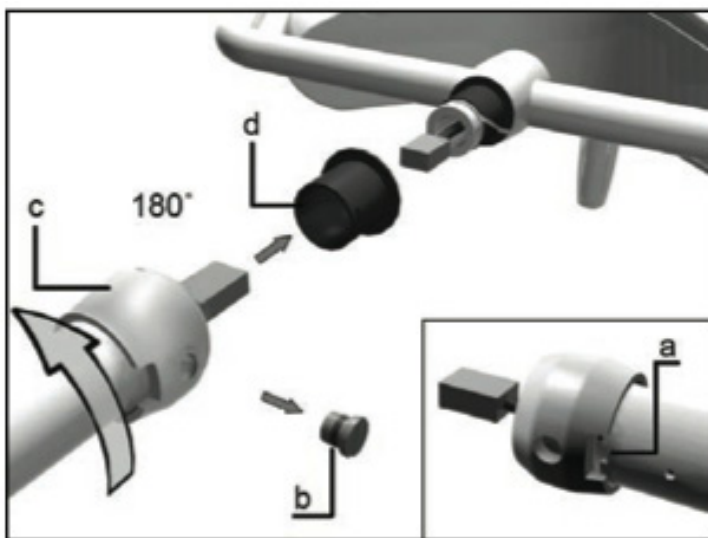


Figure 2

5. Make sure the plastic bearing (i) is on the yoke and there is grease in the groove (h). (The connectors are not shown in figure 3.)
6. After the connectors are mated, push the yoke into the spring arm.

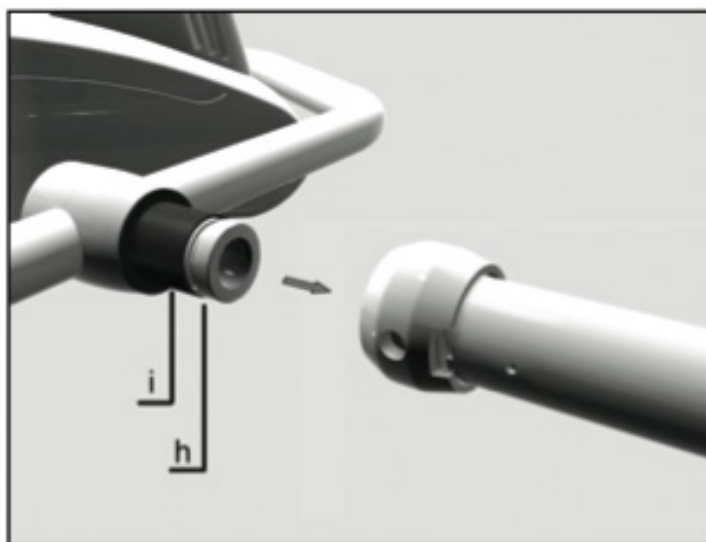


Figure 3

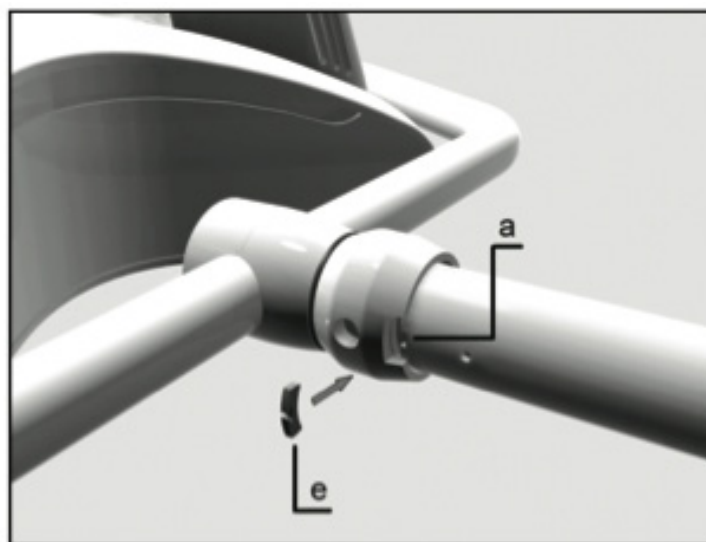


Figure 4

7. Put the key (e) completely into the slot (a), so that the key is engaged into the yoke groove (h). See figure 4.

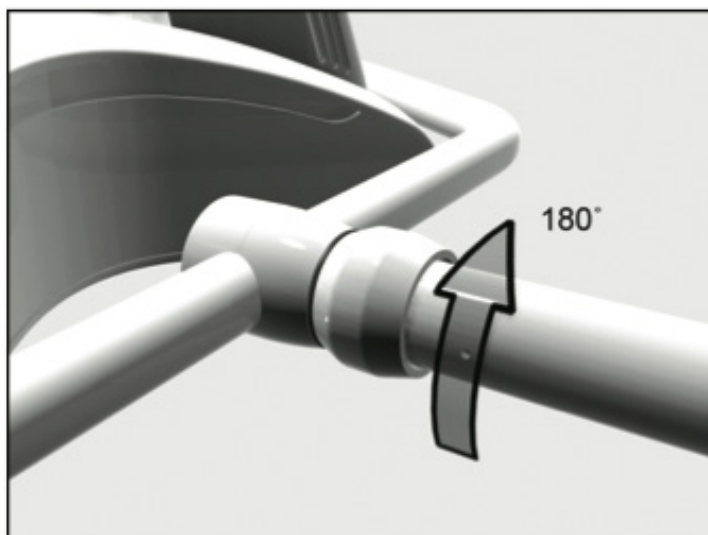


Figure 5

8. Rotate the collar (c) 180 degrees as shown in figure 5.
9. Before installing the brake screw (b), check the attachment of the light head by pulling and rotating it at the same time. The light head should rotate smoothly and not pull out of the arm.
10. Thread the brake screw (b) into the collar as shown in figure 6 and tighten it until the rotating joint has the desired friction.

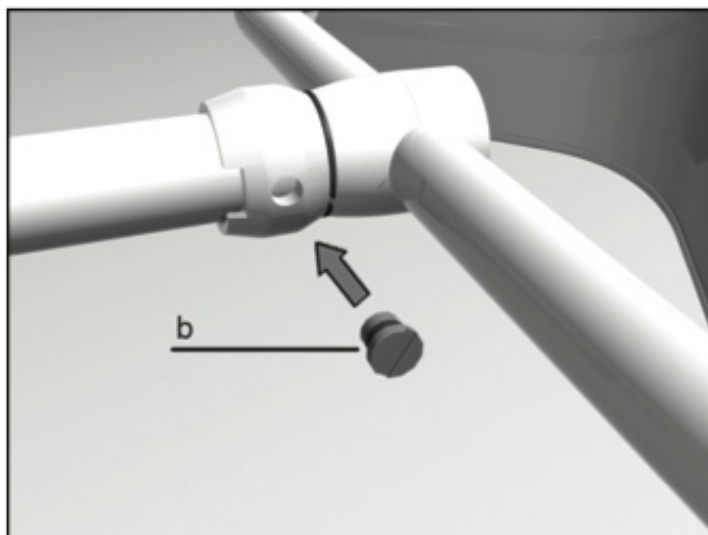


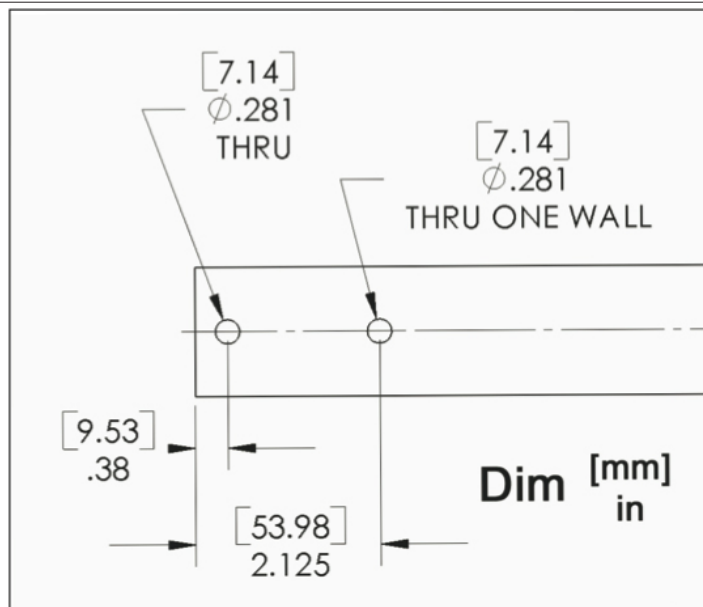
Figure 6

Cutting the Down Tube

If shortening the down tube is required, the following procedure applies:

1. Cut the down tube from the top to the appropriate length (the top of the down tube has 2 holes, the bottom has 6 holes).
2. Drill new holes on the top of the down tube according to the drawing below.

APRIL 2012 MFG ISO DOC. #OMSLALED (REV. A)



Final Testing

Energize the light assembly by turning the wall switch on to check proper operation. The arm system should swing easily within the range of motion as illustrated on page 7.

Adjusting Arm Tension

The spring inside the arm is pre-adjusted from the factory. If, however, the light-head drifts up or down, please refer to the Operation & Maintenance manual for guidance on how to adjust this.

Static Inspection

NOTE: The static (structural) inspection must be carried out before the installation of the wall or ceiling fastening.

- The strength of the construction must be designed, checked and certified by a structural engineer.
- The respective regional construction regulations that apply must be followed.
- If an erroneous hole is drilled by mistake (e.g. drilling of a reinforcement rod) the structural engineer who is responsible must be contacted, since adequate static load distribution in the ceiling may have been compromised.

Declaration of Acceptance:

It is hereby certified that the supporting wall/ceiling and the anchoring of the AIM-50TM suspension system is safe and adequately strong.

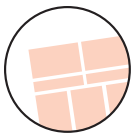
Project: _____

Anchoring (please check the one that is applicable):

- with counter-plate ☐ - other ☐

Location: _____



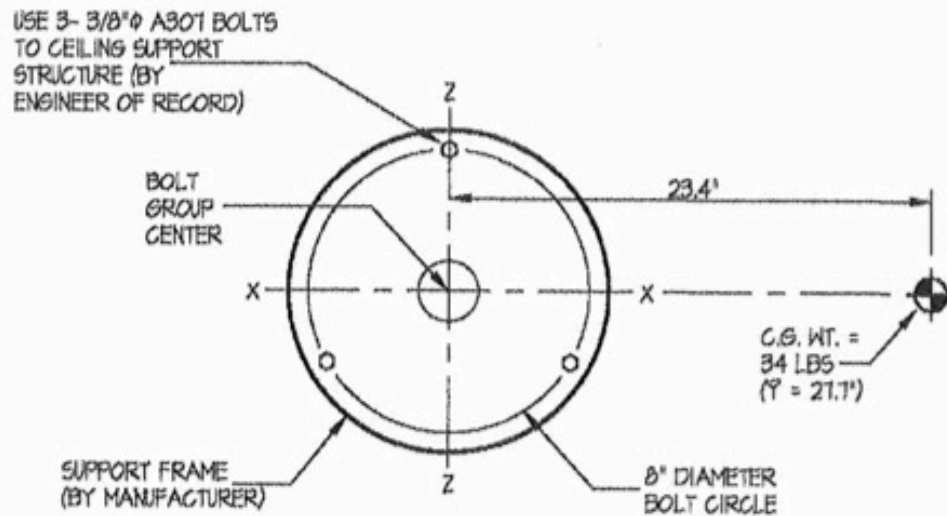


Equipment Anchorage Diagrams

EASE EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING www.equipmentanchorage.com		
AIM-50 SINGLE ARM LIGHT	DES. R. LA BRIE	SHEET 2 OF 2 SHEETS
	JOB NO. 11-0477	
	DATE 11/9/04	

SEISMIC ANCHORAGE

CEILING SUSPENDED



PLAN AT CEILING

LOADS:

WEIGHT = 34 LBS
HORIZONTAL FORCE (V_H) = 32 LBS
VERTICAL FORCE (V_V) = 11 LBS

BOLT GROUP PROPERTIES:

$I_{X-X} = 24 \text{ in.}^4$
 $I_{Z-Z} = 24 \text{ in.}^4$
 $I_{Y-Y} = 48 \text{ in.}^4$

MOMENTS:

$M_{XX} = 32\#(21.7') + (34\# + 11\#)23.4' = 1,939\#'$
 $M_{ZZ} = 32\#(21.7') + (34\# + 11\#)23.4' = 1,939\#'$
 $M_{YY} = 32\#(23.4') = 749\#'$

BOLT FORCES:

TENSION (T)

$$T = \frac{1939\#'(4')}{24} + \frac{34\# + 11\#}{3} = 338 \text{ LBS/BOLT (MAX)}$$

SHEAR (V)

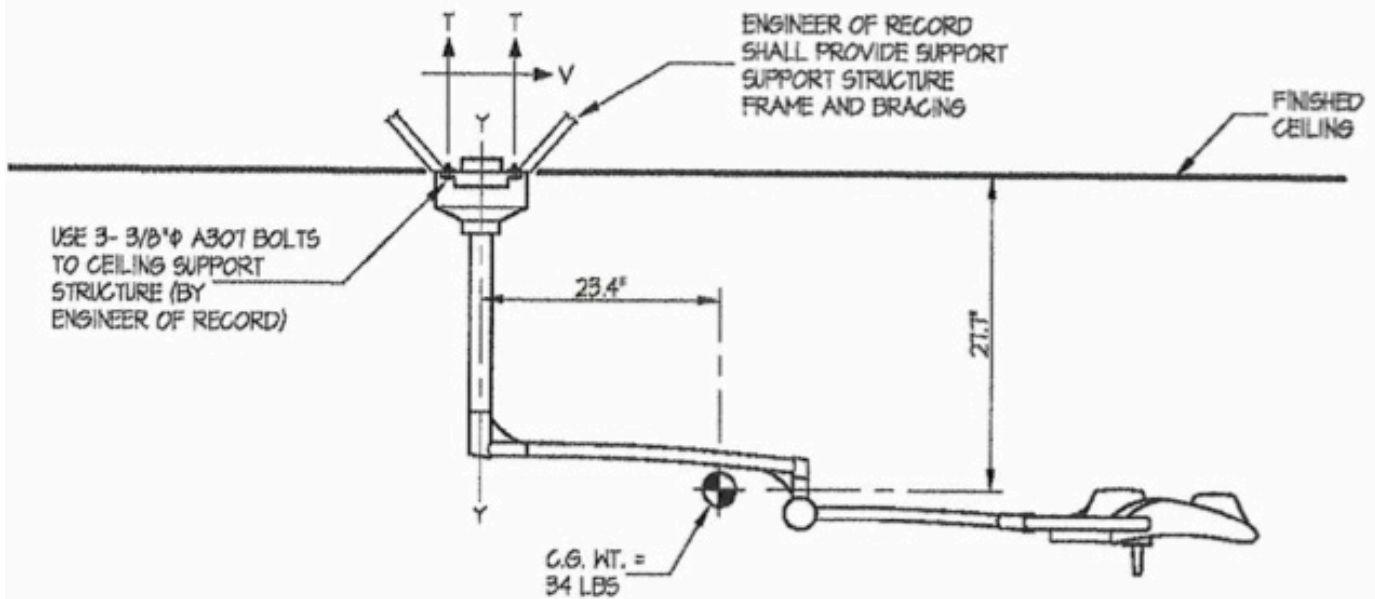
$$V = \frac{32\#}{3} + \frac{749\#'(4')}{48} = 73 \text{ LBS/BOLT (MAX)}$$

Equipment Anchorage Diagrams

EASE EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING www.equipmentanchorage.com		
AIM-50 SINGLE ARM LIGHT	DES. R. LA BRIE	SHEET 1 OF 2 SHEETS
	JOB NO. 11-0477	
	DATE 11/9/04	

SEISMIC ANCHORAGE

CEILING SUSPENDED



$T_{MAX} = 330 \text{ LBS/BOLT}$
 $V_{MAX} = 73 \text{ LBS/BOLT}$

ELEVATION

NOTES:

- FORCES ARE DETERMINED PER 2001 CALIFORNIA BUILDING CODE - SECTION 1632A AND HAVE BEEN FACTORED TO REPRESENT WORKING DESIGN LOADS, NOT ULTIMATE.
 $HORIZONTAL \text{ FORCE } (V_H) = 0.94W - (C_a = .66, a_p = 1.0, I_p = 1.5, R_p = 3.0)$
 $VERTICAL \text{ FORCE } (V_V) = 0.33(V_H)$
- CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. THIS CALCULATION ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
- ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN.



WARRANTY

Mortech Mfg. Inc. warrants all fabrications to be free of defects due to its own workmanship and materials.

Repair and/or replacement of materials furnished that may develop such defects, will be warranted for a period of one year from the date of shipment.

Items not manufactured by Mortech Mfg. Inc. will receive the manufacturer's warranty.

PARTS AND SERVICE

Customer relations and product support are important aspects of Mortech Mfg. Inc. For assistance with this or any of our fine products please contact us below:
Mortech Mfg. Inc.
411 North Aerojet Avenue
Azusa, CA 91702
TEL (626) 334-1471
FAX (626) 334-1704
www.mortechmfg.com
info@mortechmfg.com

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IMPORTANT

BEFORE INSTALLATION AND OPERATION OF THE UNIT, CHECK ANY ENCLOSURE PANELS AND PLUMBING FIXTURES THAT MIGHT HAVE LOOSENED DURING SHIPPING.

ATTENTION

All images and Drawing in this manual may not represent your model. Refer to your particular project for exact specifications

DISCLAIMER

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