DENTAL LIGHT

CLESTA LED DENTAL LIGHT

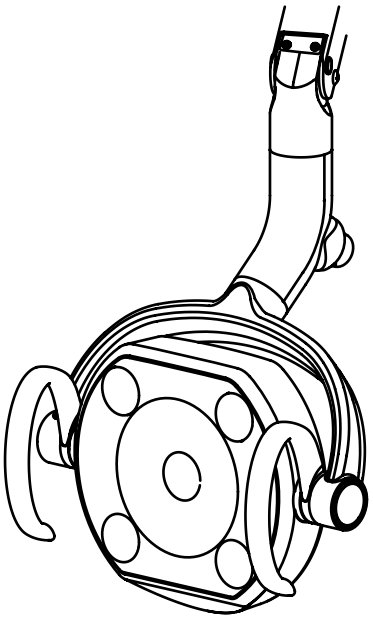
TYPE

301 POLE MOUNT

302 CEILING MOUNT

305 TRACK MOUNT

INSTALLATION INSTRUCTIONS



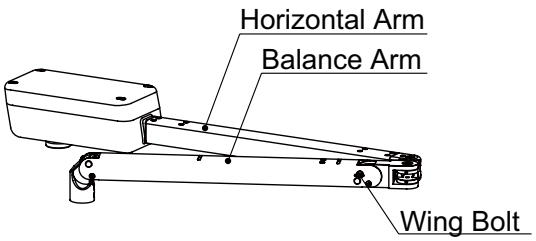
Belmont®

Table of Contents

1. Precautions for Installation

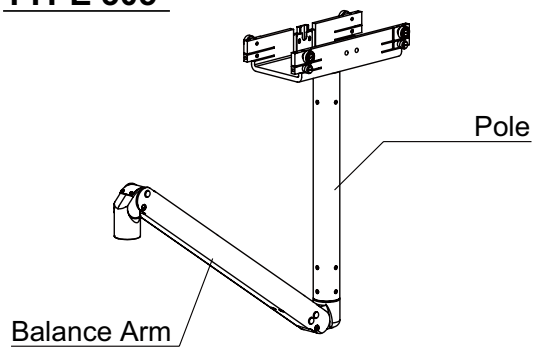
1. During lifting of the dental light, make sure to hold the horizontal arm, balance arm and pole described as follows. If not, it may lead to physical injury or property damage.

TYPE 301 / 302



*This drawing shows the type 301.
For TYPE 302, the power supply BOX part becomes upside down.

TYPE 305



2. Do not remove the wing bolt for TYPE 301/302 dental light (stopper for balance arm) until attach the light head. The balance arm can be jump up and it may cause to physical injury or damage to the equipment.

3. Do not drop or hit the product.

4. Do not connect the power supply other than rated voltage.

5. Properly connect ground wires.

6. Be sure to adjust the leveling of the unit and chair to prevent from drifting of the TYPE 301 dental light. Refer to the unit and chair installation manual.

7. When the installation process has been completed, check that all the mechanical and electrical functions are working properly.

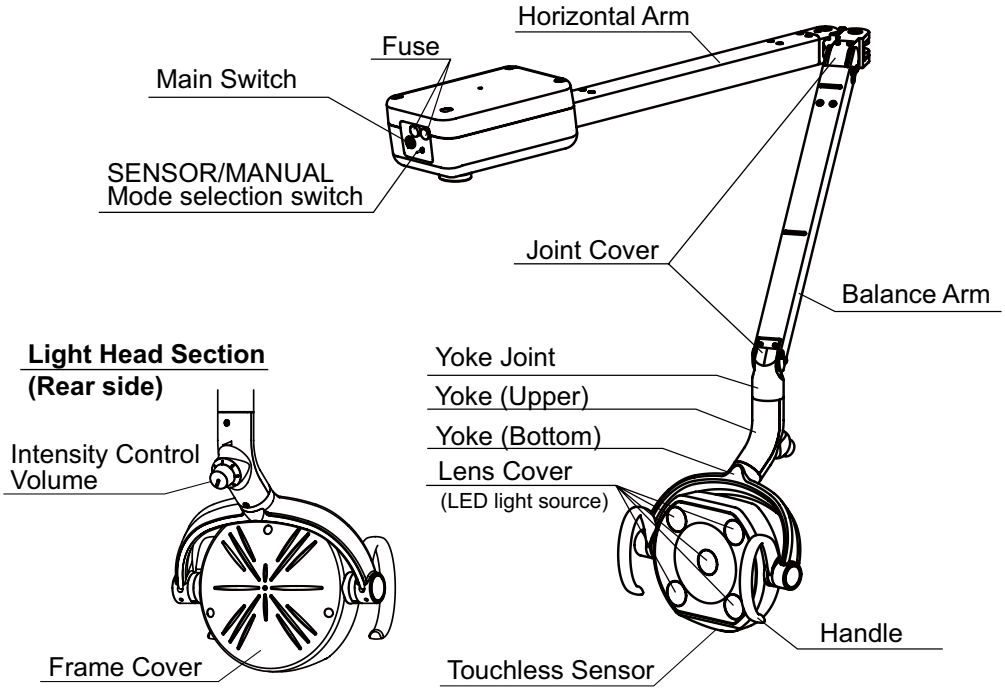
8. Installation should be conducted by authorized personnel only. Follow instructions on installation manual.

⚠ WARNING

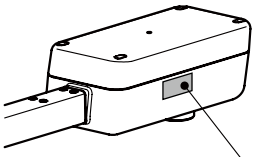
The LED is very bright. Do not direct the LED beam into the patient's or user's eyes.

2. Overview and Major Components

2-1. Type 301 Pole Mount



Power Supply Box Section

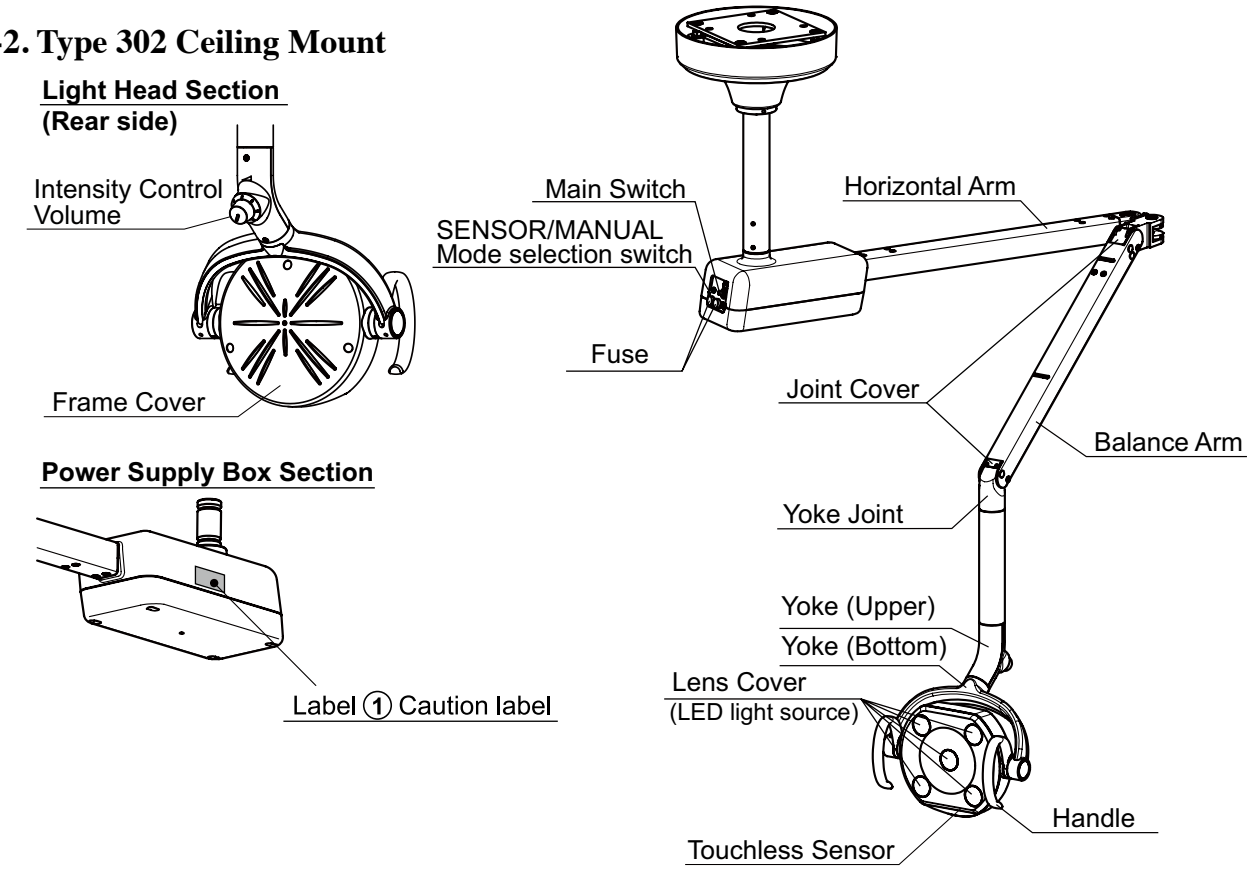


Label ① Caution label

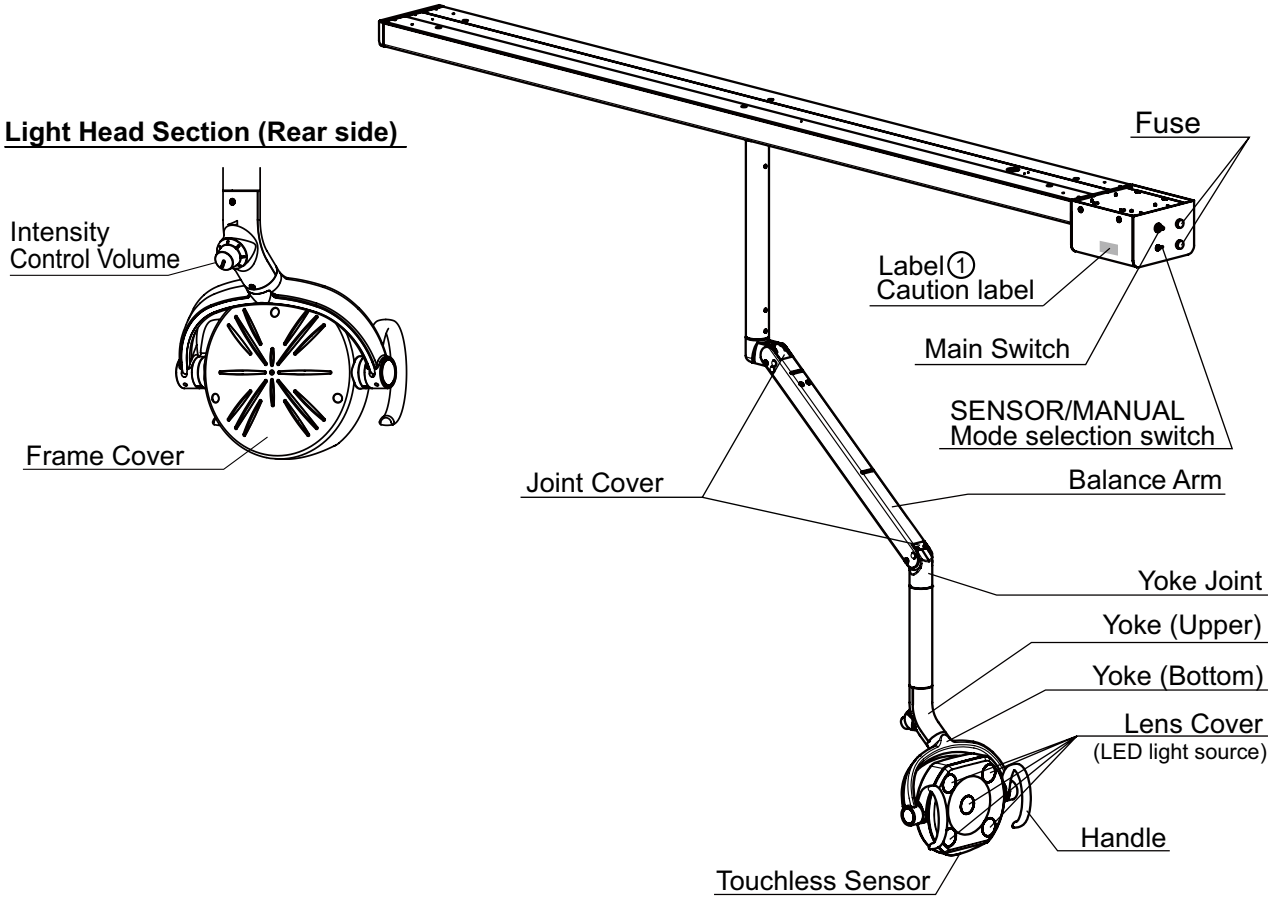
Label ① Caution label

"CAUTION-Electric Shock hazard, do not remove cover. Refer servicing to qualified service personnel".

2-2. Type 302 Ceiling Mount



2. Overview and Major Components
2-3. Type 305 Track Mount



※ *See page 2 for details of label ①*

3. Specifications & Dimensions

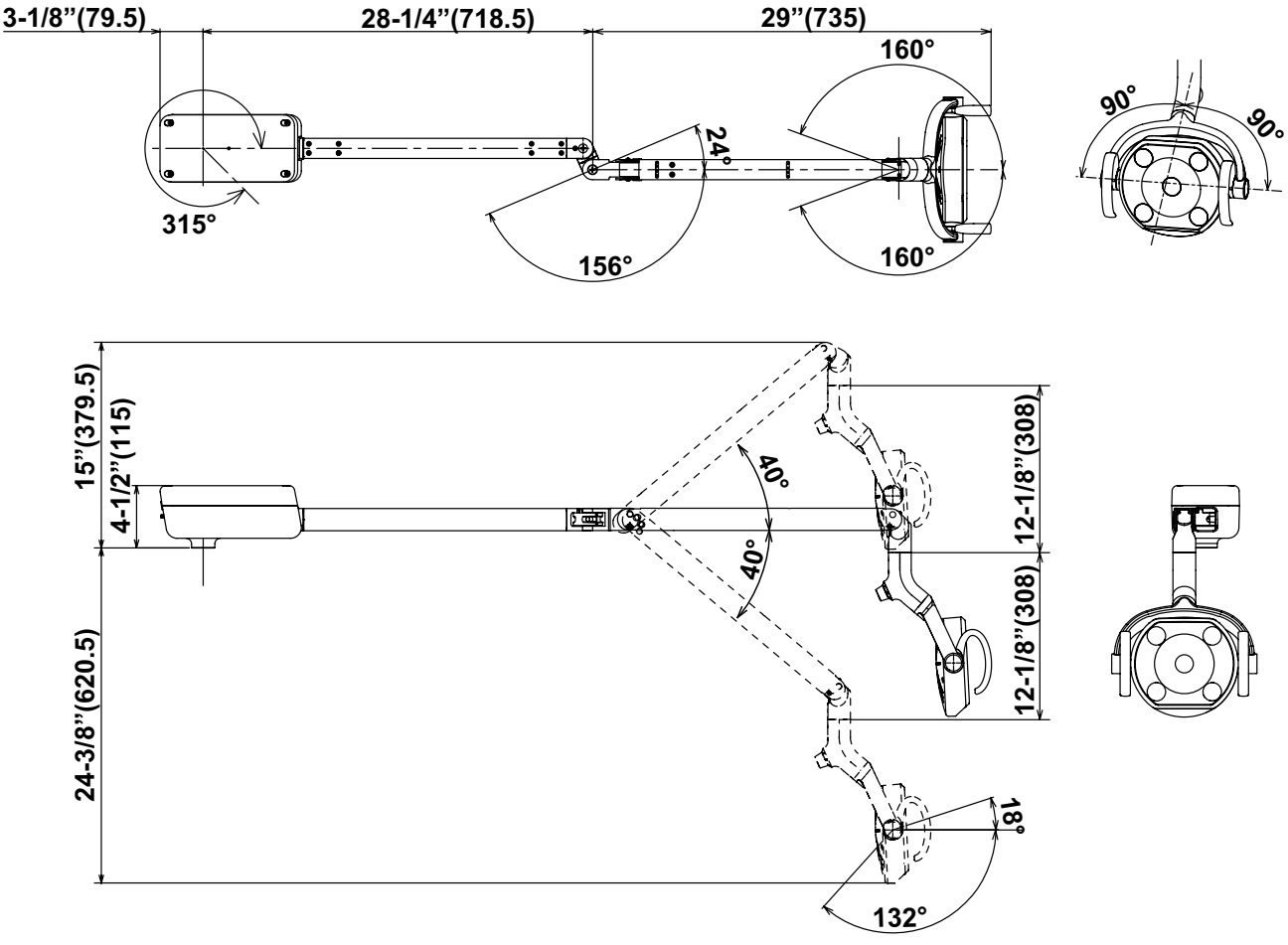
3-1. Specifications (Type 301, 302, 305)

● Rated Voltage	: AC120V 60Hz
● Rated Input	: 0.25A
● Fuse	: 250V 0.8A(T)
● Weight	: Type 301 : 14.3 lbs. (6.5kg) Type 302 : 24.3 lbs. (11kg) Type 305 : 33 lbs. (15kg)
● Light Source	: LED (5 LEDs)
● Optical Performance	: Focal Distance 25.6" (650mm) : Light Intensity (Normal treatment mode) 3100 Lux / 288 FTC ~ 28000 Lux / 2601 FTC : Light Intensity (Composite mode) 4300 Lux / 399 FTC : Correlated Color Temperature 5000K
● Light Pattern	: 3.3" x 6.1" (85mm x 155mm) at 25.6"
● Protection class against electric shock	: Class I Equipment.
● Usage environment	: Temperature 50 ~ 104F (10 ~ 40ºC) Humidity 30 ~ 75% Air pressure 10.2 ~ 15.4 psi (700 ~ 1060 hPa)
● Transportation / Storage environment	: Temperature -4 ~ 158F (-20 ~ +70ºC) Humidity 10 ~ 95% Air pressure 10.2 ~ 15.4 psi (700 ~ 1060 hPa)

3-2. Dimensions

*Values are the standard values. [Unit: inch (mm)]
Dimensional tolerance: ±10%

3-2-1. Type 301 Pole Mount

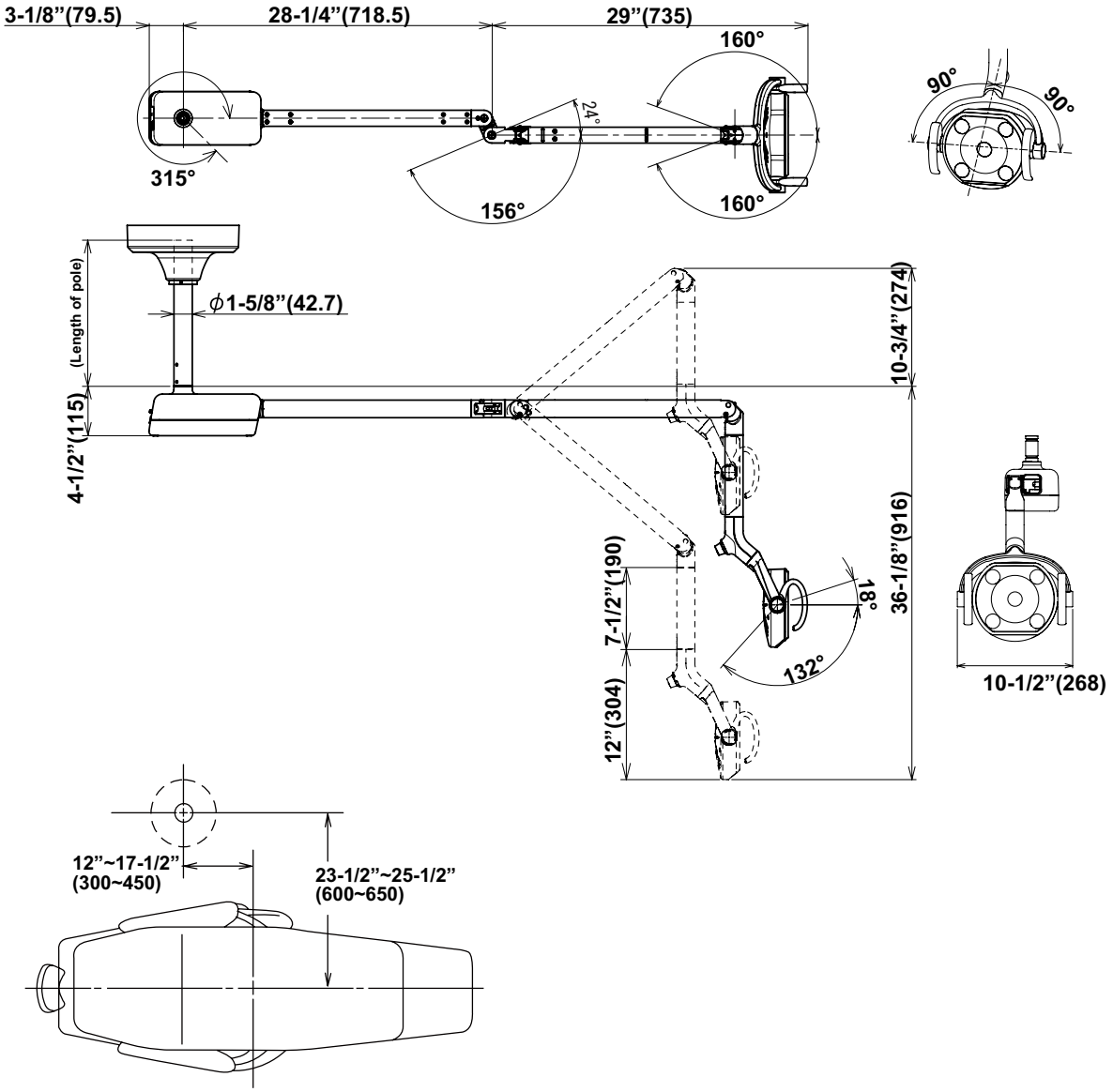


3. Specifications & Dimensions

3-2. Dimensions

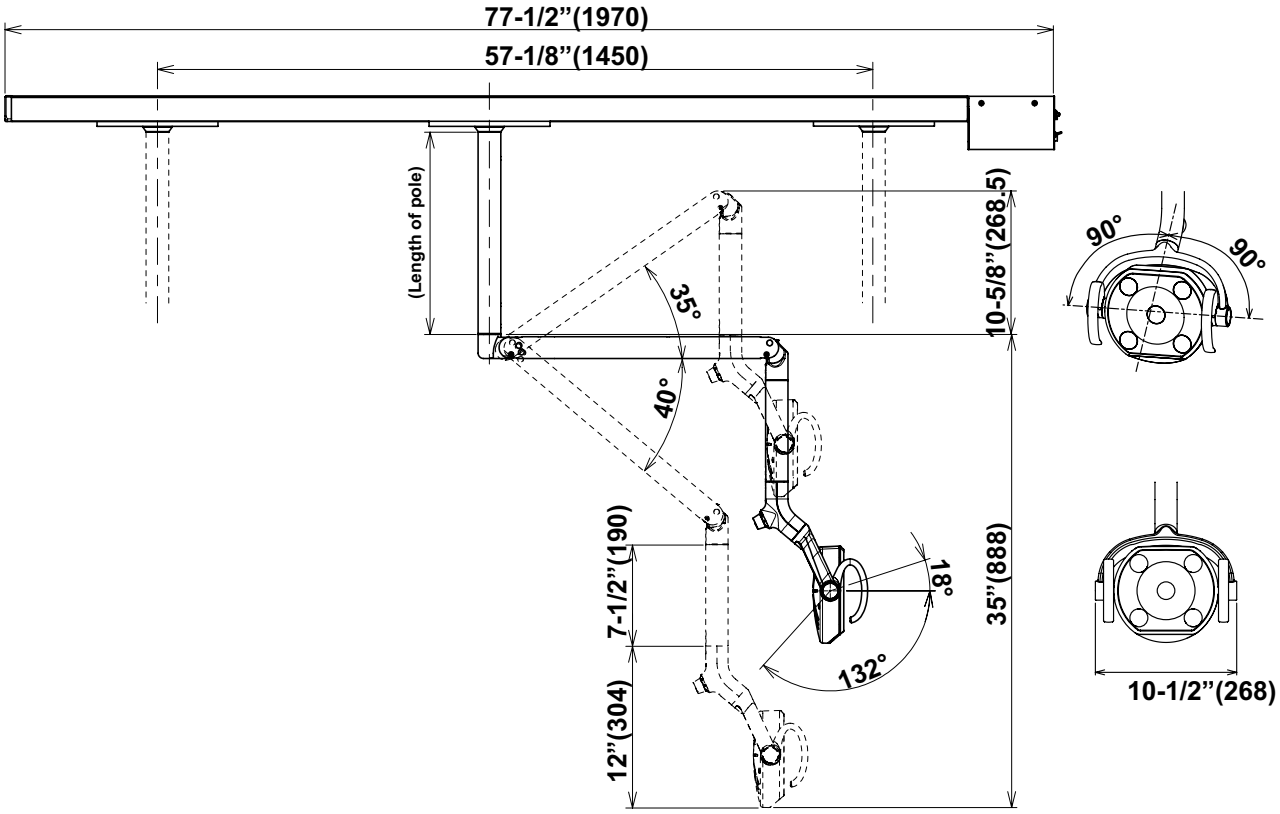
3-2-2. Type 302 Ceiling Mount

*Values are the standard values. [Unit: inch (mm)]
Dimensional tolerance: ±10%



3. Specifications & Dimensions
3-2. Dimensions
3-2-3. Type 305 Track Mount

*Values are the standard values. [Unit: inch (mm)]
Dimensional tolerance: ±10%



4. Installation Instructions
4-1. Type 301 Pole Mount

■ Necessary Tools

Phillips screw drivers (#1, #2), Hex key wrenches (Metric, 4mm, 2mm, 2.5mm)

■ Attach the arm assembly to the light pole

(1) Pass the power cable of the light through the light pole adapter. **(Fig.1)**

(2) Pass the power cable of the light through the light pole.

* Be careful not to damage the power cable when through to the light pole.

(3) Insert the pole adapter and light assy to the light pole.

* Refer to the installation manual attached to the light mounting kit (optional) for installation of the light pole.

(4) Attach the hospital grade plug to the power cable end. This is to be installed electrician only, in accordance with the national electrical code and local electrical codes as applicable.

(5) To convert the left handed operation as need. **(Fig.2)**

1. Remove the right/left fixing screw from the H-shaped arm joint as below.
2. Rotate the H-shaped arm joint to other position and reinsert screw. (Loosen large upper & lower fixing screw to help in moving bracket.)

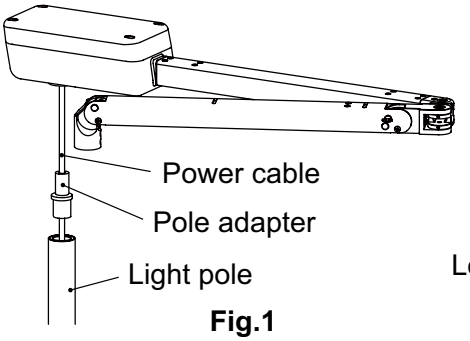


Fig.1

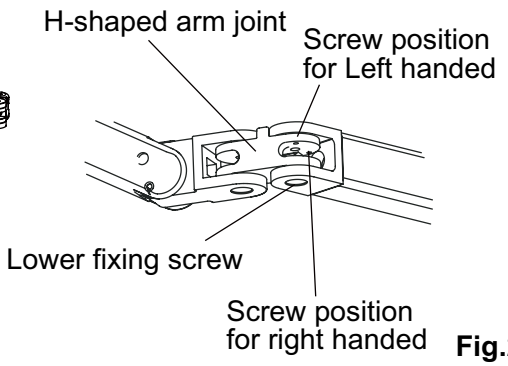
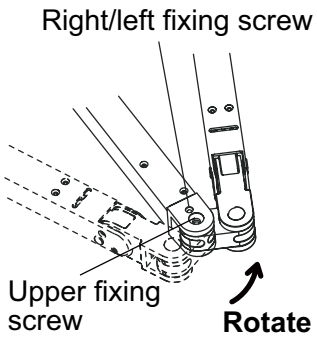


Fig.2



■ Attach the Light Head

(1) Unscrew the two M3 x 6 flat screws and remove the yoke cover from light head. Remove the two M5 x 10 cap bolt from head shaft. (**Fig.3**)

(2) Fix the light head to balance arm with two M5 x 10 cap bolts.

*Fix the screw securely from bottom side first and upper side next. (**Fig.4**)

(3) Connect the 2P & 3P connectors. Same size of connectors met at each side of connectors. Connect the 4P connector from balance arm to 4P connector from yoke cover. (**Fig.5**)

(4) Attach the yoke cover with two M3 x 6 flat screws. (**Fig.6**)

(5) Remove the wing bolt and spacer, then attach the hole cap. (**Fig.7**)

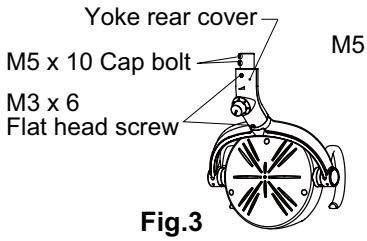


Fig.3

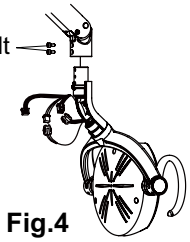


Fig.4

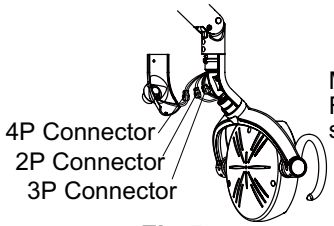


Fig.5

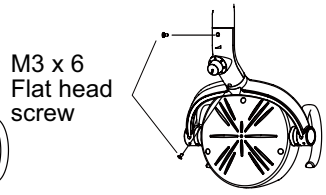


Fig.6

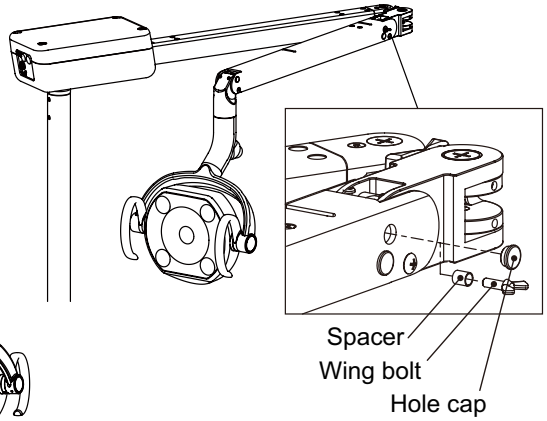


Fig.7

4. Installation Instructions

4-2. Type 302 Ceiling Mount

■ Necessary Tools

Phillips screw drivers (#1, #2), Hex key wrenches (Metric, 4mm, 2mm, 2.5mm), Hammer.

■ Precaution for Installation

(1) For safety in operation as well stability of the light source, the importance of proper ceiling structure can not be overemphasized. The ceiling structure capable of supporting 200lbs (100kg) dead weight is requires.

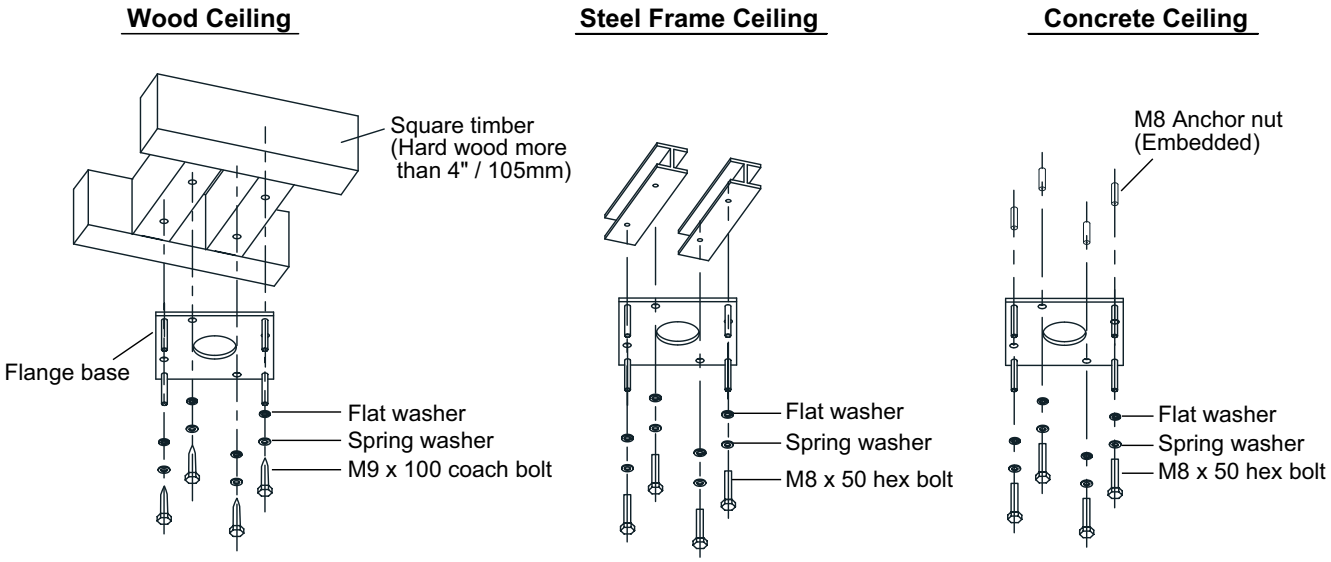
(2) Be sure request specialized electric construction person accompanied by indoor electric wiring work.
Power usage : 120V/60Hz More than 20W.

■ Installation of Ceiling

(1) Lead out the power supply cable (for indoor wiring 0.75m/m x 2 wires power cable or mode) from the ceiling as necessary length (Approx. 24"/60cm) where the ceiling light is mounted.

(2) Secure flange base to the ceiling referring to **Fig.8** as below.

(3) Attach the roll pin to the ceiling pole with hammer. See **Fig.9** below. Insert the ceiling pole into the ceiling flange and set the roll pin to groove on the ceiling flange.
Fix it with two M6 x 8 set screws. **(Fig.10)**



Ceiling material	Wood	Steel Frame	Concrete
Prepared hole diameter (mm)	ϕ5	ϕ10	ϕ35
Fixing bolt	M9 x 100 coach bolt	M8 x 50 hex bolt	M8 x 50 hex bolt / M8 anchor nut

Fig.8 How to fix the flange base

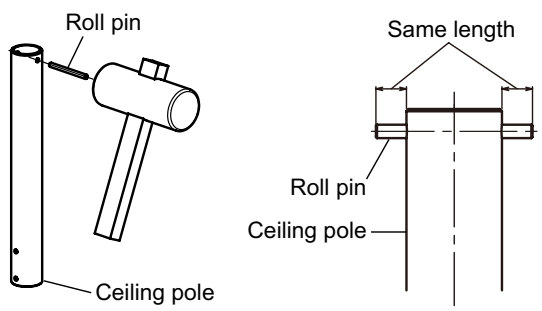


Fig.9 How to fix the roll pin to the ceiling pole

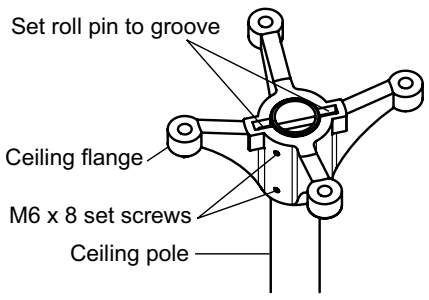
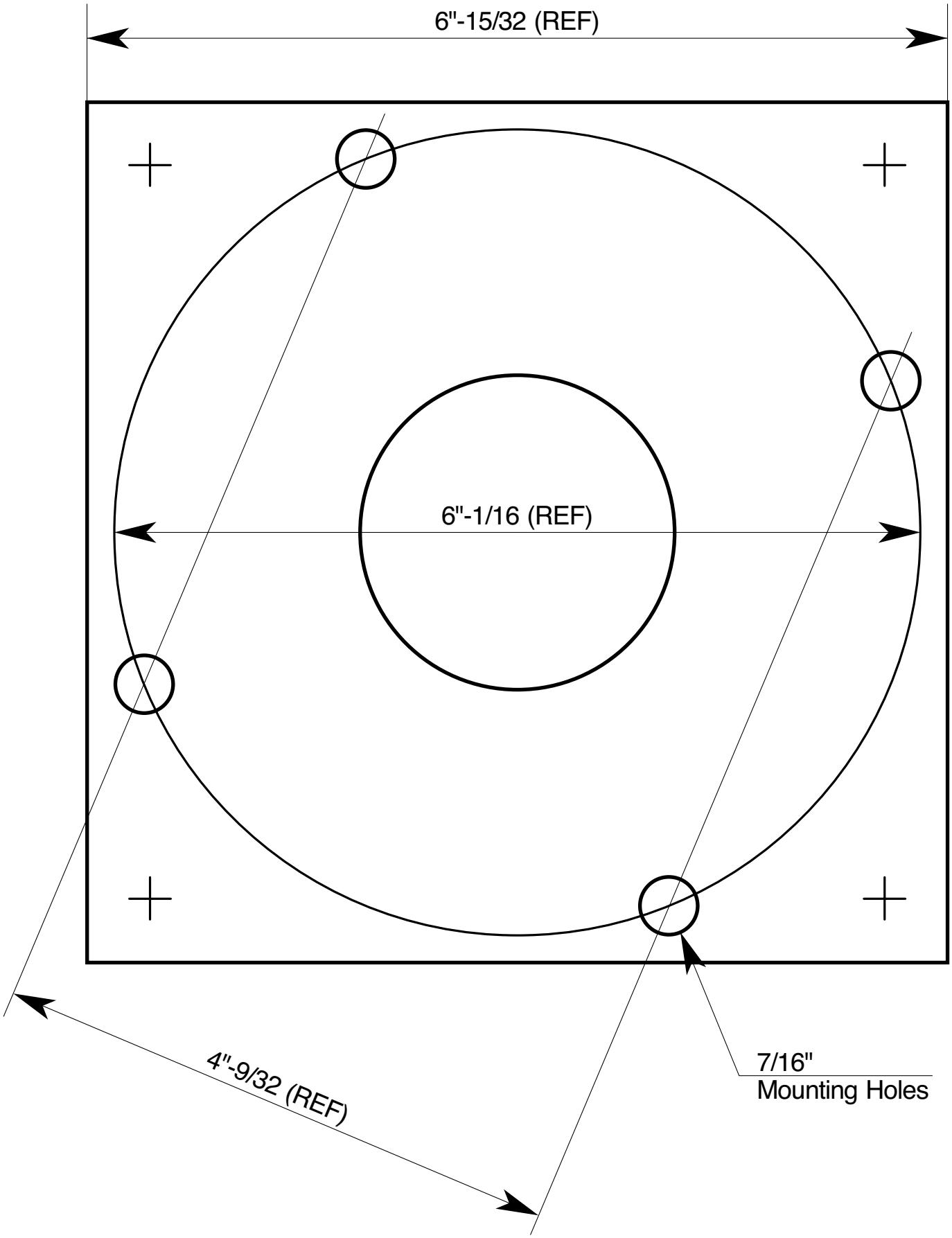


Fig.10 How to set the ceiling pole to the ceiling flange

4. Installation Instructions

■ **Flange Base Template**

FULL-SIZE MOUNTING TEMPLATE



4. Installation Instructions

■ Attach the Light Assembly

(1) Be sure the ceiling pole is plumb. Adjust vertical level of the ceiling pole with leveling nuts (M8) and secure ceiling flange to flange base with fixing nuts (m8)

(2) Slide the flange cover and flange cover ring (flat side up) over the ceiling pole and secure them about half way up the pole. Use only one set screw as you will be moving the on final installation.

(3) Install the light assembly to the ceiling pole running the 3 wires cord up through the pole to the ceiling flange. Secure it with 4 allen set screws. (Be careful not fall off the light assembly.)

(4) Connect the incoming power to the 3 wires cord from the light assembly. Be sure to follow the local electrical codes.

(5) Reposition the flange cover and secure it with the flange cover ring. Secure three M6 x 8 set screws.

* Refer to **Fig.12** for each components.

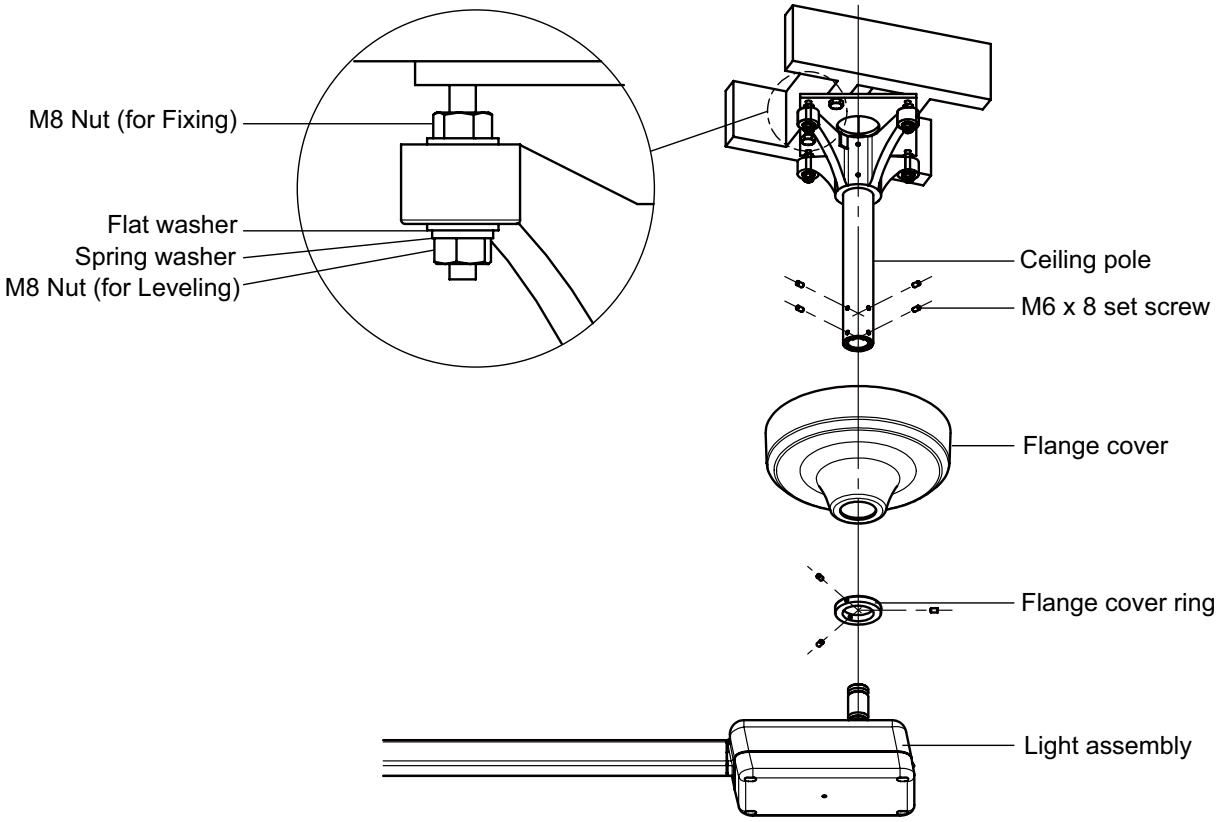


Fig.12

■ Attach the Light Head

(1) Pass the light cables through the extension. Fix the extension to the balance arm with M5 x 10 cap bolts. (Refer to **Fig.13**)

(2) Attach the light head to the extension. Refer to the P7 [Attach the Light Head] section.

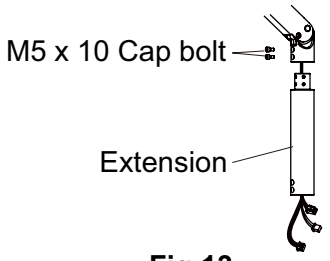


Fig.13

4. Installation Instructions

4-3. Type 305 Track Mount

■ **Strength of Ceiling**

For safety in operation as well as stability of the light source, the importance of proper ceiling structure cannot be overemphasized. In general, a ceiling structure capable of supporting 200 lbs. dead weight is required.

■ **Construction of Ceiling**

A) In conventional ceilings with joists perpendicular to the center line of the light, attach the pallet by at least 6 - 5/16 x 3" (M8 x 75mm) lag screws. Suitable holes are provided in pallet for most installations, utilizing 16" or 12" cc ceiling joists. For other spacings or locations, additional holes can be cut in pallet. (**Fig.14**)

IMPORTANT : Locate power supply box end of track at headrest end of chair. - Not legrest.

B) For conventional ceilings with joists parallel to the center line of the light, cross blocks must be installed in 3 places to allow mounting with at least 6 - 5/16 x 3"(M8 x 75mm) lag screws. (**Fig.15**)

C) For suspended ceilings, appropriate rigid structure must be attached to the ceiling framework to provide 200 lbs. dead weight capacity. (**Fig.16**)

A) In conventional ceilings with joists perpendicular to the center line of the light

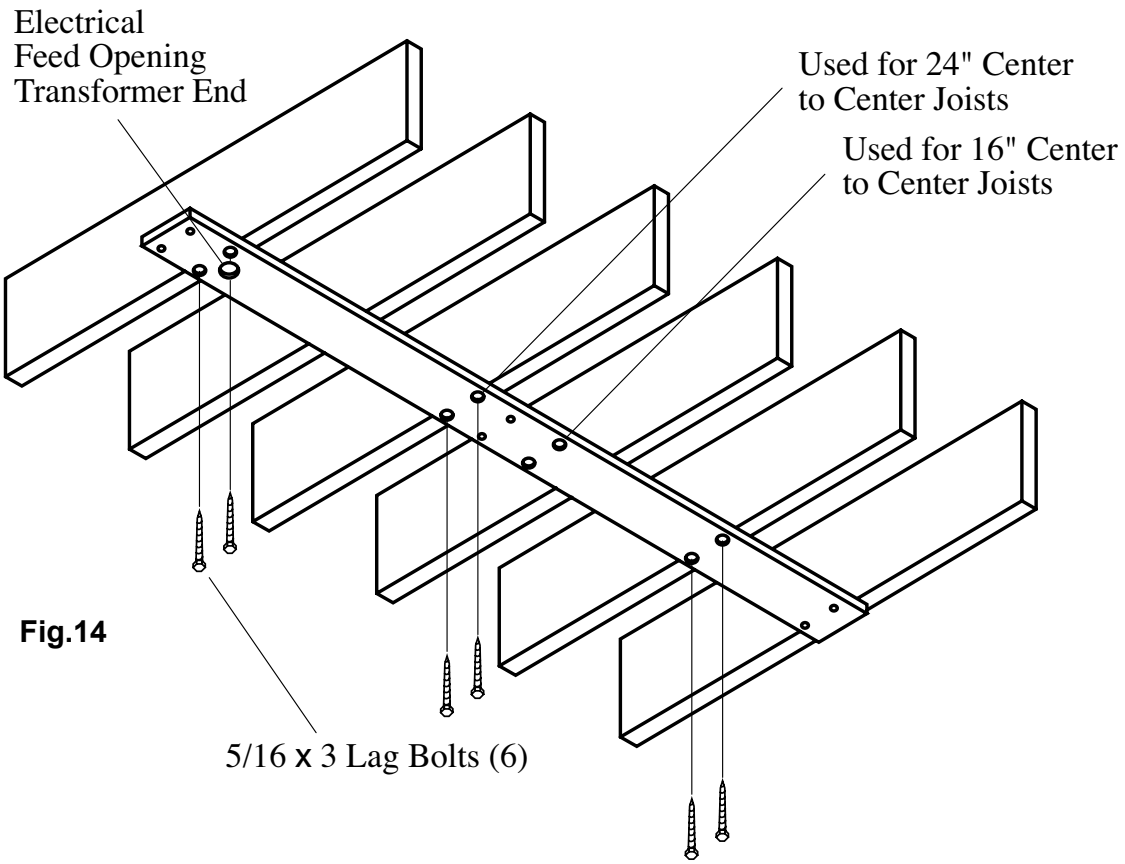


Fig.14

4. Installation Instructions

B) For conventional ceilings with joists parallel to the center line of the light

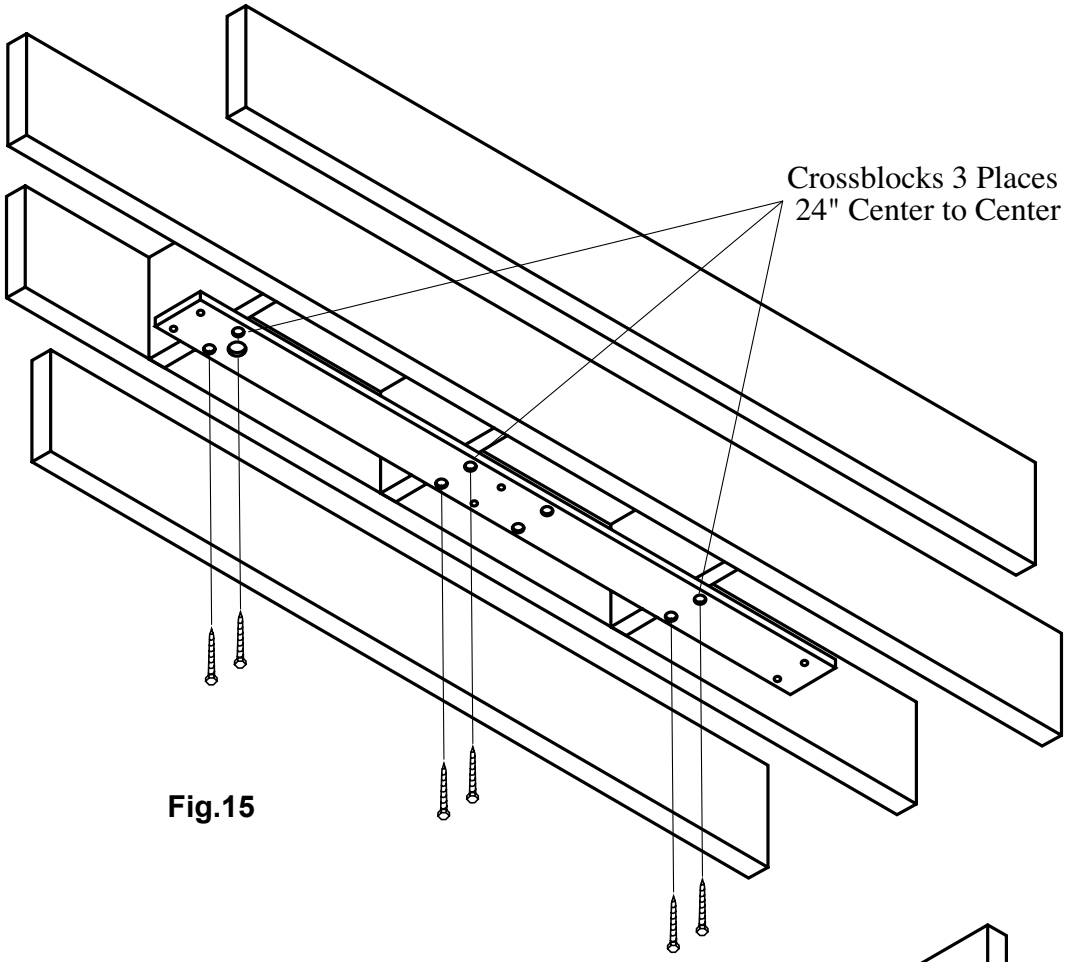


Fig.15

C) For suspended ceilings

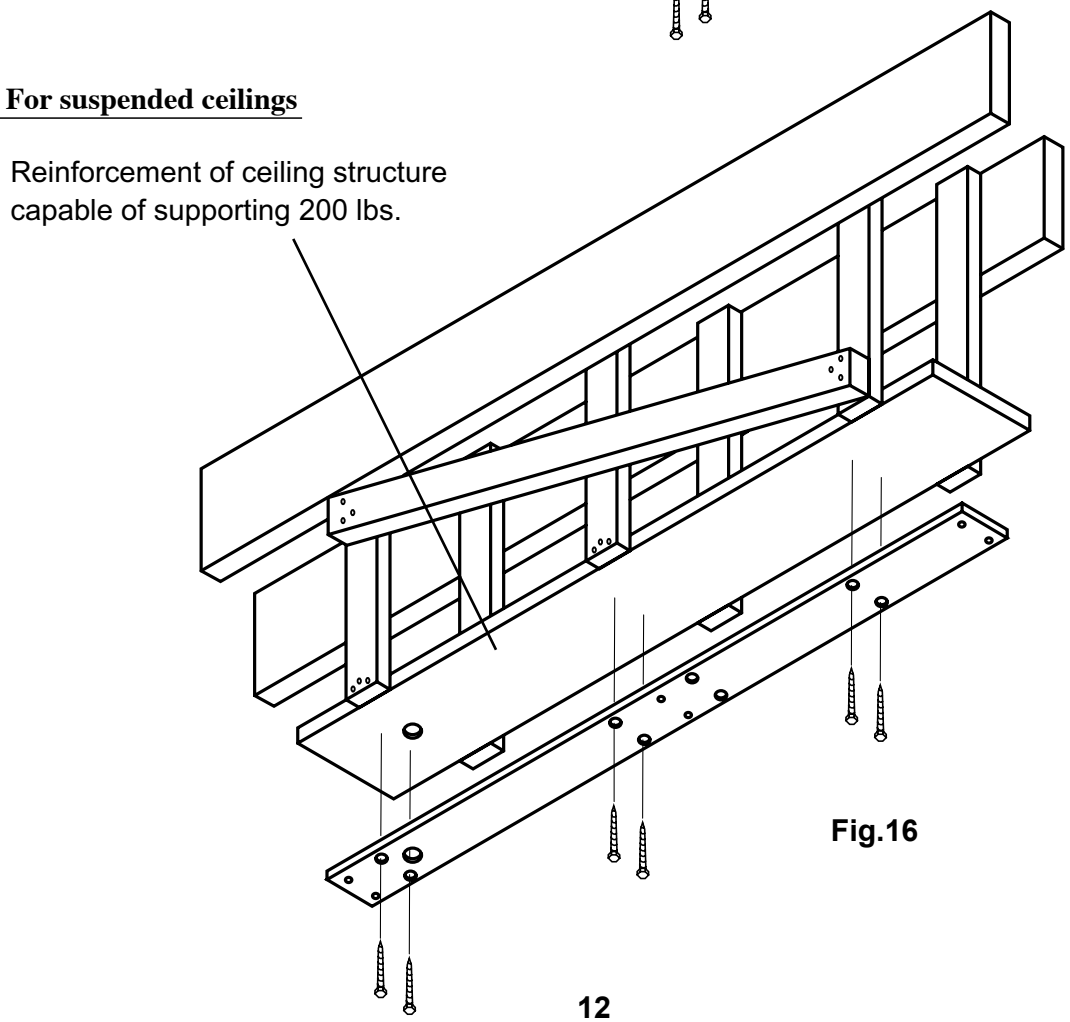


Fig.16

4. Installation Instructions

4-3-2. Electrical Preparation

Refer to **Fig.17** for the location of electrical feed opening in pallet, provide 3 wire, 120V, 60Hz circuit (15 amp. fuse or breaker) through flexible conduit with enough slack to protrude at least 2" below the pallet when installed. Terminate the conduit with 1/2" body box connector suitable for mounting through 3/16 thickness. A readily accessible shut-off switch for this circuit is recommended. Use wiring suitable for 90˚C service.

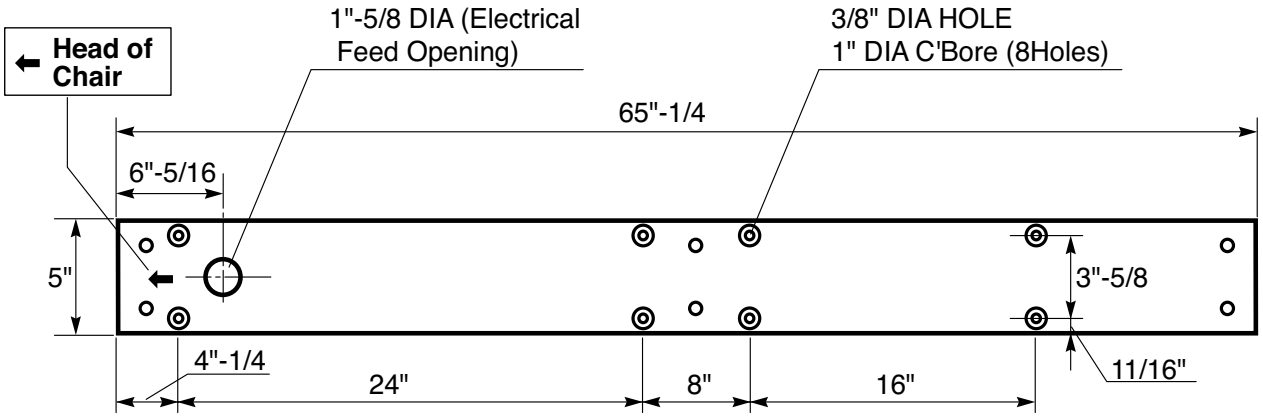


Fig.17

4-3-3. Installation Instructions

(1) Lead out the power supply cable from the ceiling where the track light is mounted.
(2) Run the power supply cable through the pallet and mount the pallet with M8 x 75 (8) Lag bolts, M8 (8) flat washers.
(3) Place track against the pallet and slightly engage two mounting bolts at the end opposite to the electrical opening.
(4) Allowing the free end to hang down slightly for access, install the conduit box connector to the track.
(5) Finish bolting the track securely to the pallet.
(6) Connect the wires from the feed to the terminal block.
(7) Slide the trolley onto the track (end near electrical opening) with the arrow on the trolley oriented toward the pulley on the track.
(8) Carefully guide the wire from the trolley, around the spring-loaded pulley and back toward the end of track.
(9) Attach retainer clamp to small screw in track. Clip the free end of the trolley wire into the plastic clip near end.
(10) Install rubber bumpers at the end of the track in the holes provided.

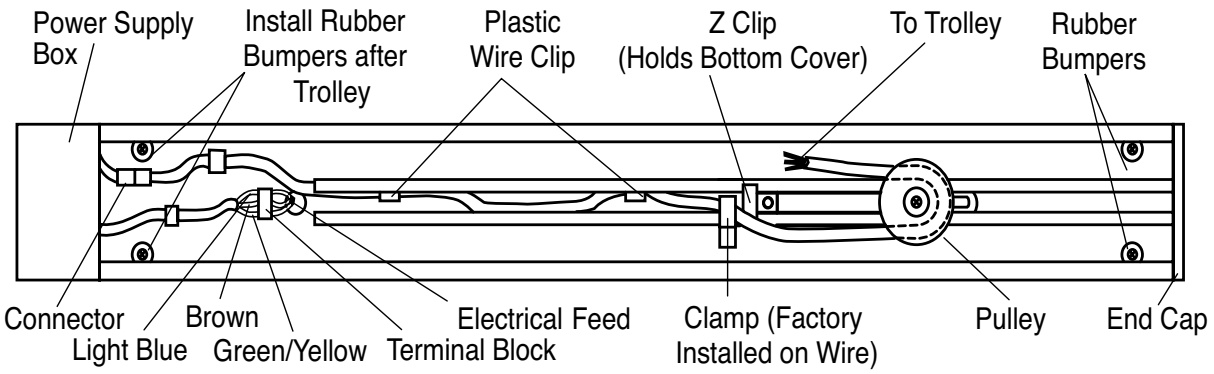


Fig.18

4. Installation Instructions

(11) Check operation of the trolley. It is factory adjusted to provide smooth effortless travel, without play; however rollers can be readjusted if necessary. Loosen the set screw and adjust the socket cap screw to vary roller clearance.

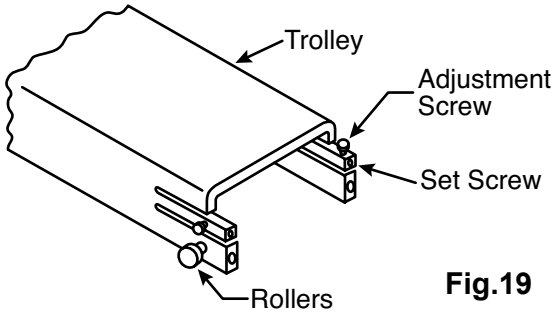


Fig.19

(12) Unpack the power supply box and mount it to the track with screws provided.
(13) Attach the pigtail leads to the corresponding power line wires at the terminal block. Retain the wires under the plastic clip.
(14) Connect the plug-in connector to the trolley wire.
(15) Carefully slide bottom cover onto the track from free end. Be sure to engage lip onto Z bracket.
(16) Install the end-cap with the screws provided.
(17) Slide the trolley back and forth, checking for binding or rubbing.
(18) Confirm that the swing arm is properly adjusted to stay where it is placed. If necessary, move the head up or down to expose the appropriate cross drilled nut and adjust with the tool provided.
(19) Turn on power and check electrical operation of the light.

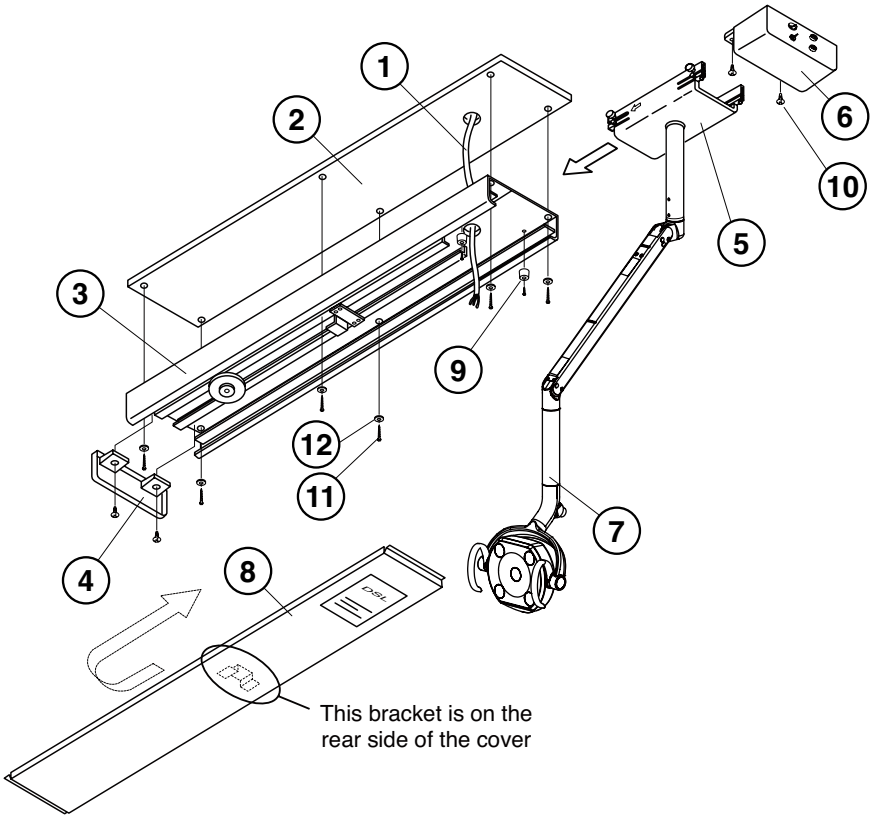


Fig.20

① Power supply cable
② Pallet
③ Track
④ End-cup
⑤ Trolley
⑥ Power Supply Box
⑦ Light Assembly
⑧ Bottom Cover
⑨ Rubber bumper
⑩ Screw with plain washer & spring washer M4x15(2 pcs)
⑪ Hex Head Bolt M8x25(6 pcs)
⑫ Spring Washer M8 (6 pcs)

4. Installation Instructions

■ Check Operation of the Dental Light

When the installation process has been completed, Check that all the mechanical and electrical functions are working properly.

Item	Inspection method	Method of confirmation
Touch-less Sensor	Confirms the light ON and OFF when shake hand within approximately 2-1/2" (65mm) from the touch-less switch.	Operation Check
	Confirms switching the composite mode when hold hand within approximately 2-1/2" (65mm) from the touch-less switch for certain time.	Operation Check
Intensity control volume	During normal treatment mode, make sure the light intensity changes when turning the intensity control volume.	Operation Check
Movement of the Light	Make sure the light head stops and hold any positions. Make sure that no abnormal noise occurs when the product is operated. * At the beginning, light head movement (up/down, rotation) could be tight. This is a normal symptom. As you move light head for three four times, light movement becomes smooth.	Operation Check

⚠ WARNING

The LED is very bright. Do not direct the LED beam into the patient's or user's eyes.

5. Adjustment

After checked operation of the dental light, adjust the dental light if you have following cases

Balance arm doesn't stay at the desired position ⇒ Adjust the tension of the balance arm. Follow instructions [Adjustment of the tension of the balance arm]

Light head is not vertical position ⇒ Adjust the angle of the light head. Follow instruction [Adjustment of the angle of the light head]

■ Adjustment of the tension of the balance arm

Position the angle of the balance arm so the tension adjustment nut becomes visible just under slot A.

Turn the nut and adjust the tension with the adjustment bar supplied with the light.(**Fig.21**)

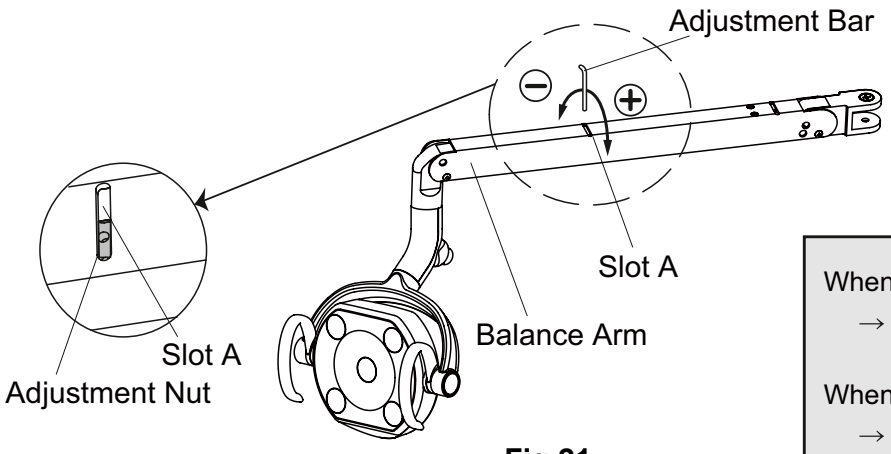


Fig.21

When the light head tends to go up,
→ Turn the nut to ⊕ direction.

When the light head tends to go down,
→ Turn the nut to ⊖ direction.

5. Adjustment

■ Adjustment of the angle of the light head

Remove the yoke joint cover by removing the two M3 x 6 tapping screws. Move down the balance arm and loosen the set screw on the joint shaft by use of 2mm hex key wrench before adjust the angle of the light head. **(Fig.22)**

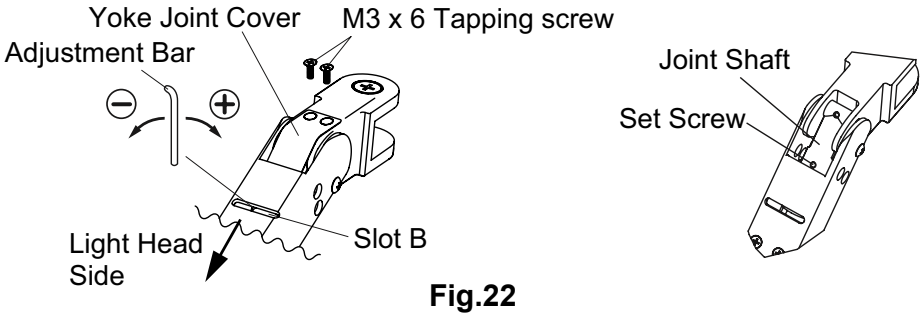


Fig.22

⚠ CAUTION

Turning the adjustment nut without loosen the set screw, it may cause damage to the shaft. Make sure loose the set screw before turning the adjustment nut.

Position the angle of the balance arm so the head angle adjustment nut becomes visible just under the slot B. Turn the nut and adjust the tension with the adjustment bar supplied with the light. **(Fig.23)**

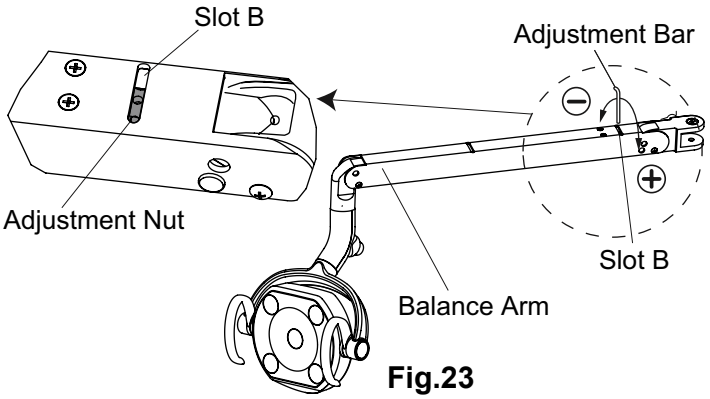
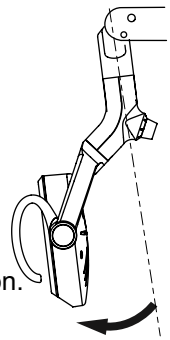


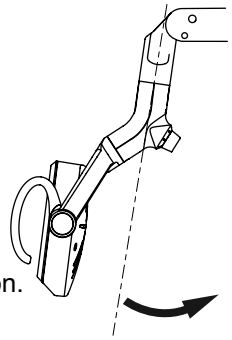
Fig.23

Adjustment of the angle of the light head

When the light head tends to go down,
→ Turn the nut to ⊖ direction.



When the light head tends to go up,
→ Turn the nut to ⊕ direction.



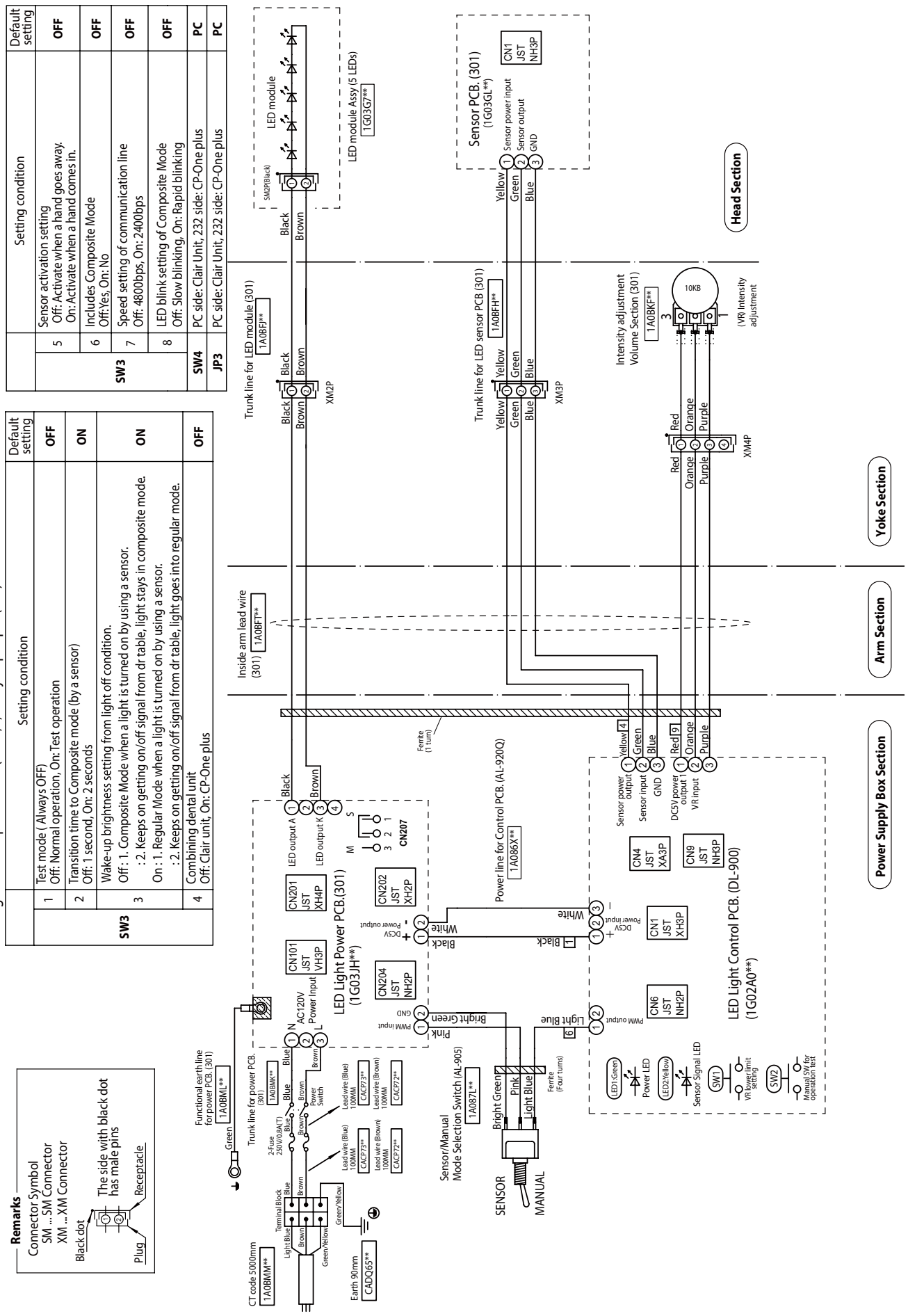
After adjustment is done, re-tighten the set screw by use of 2mm hex wrench. Fix the joint cover with two M3 x 6 tapping screws and insert the joint cover into balance arm.

⚠ CAUTION

Unless this socket screw is re-tightened, the angle of the head will be changed during use.

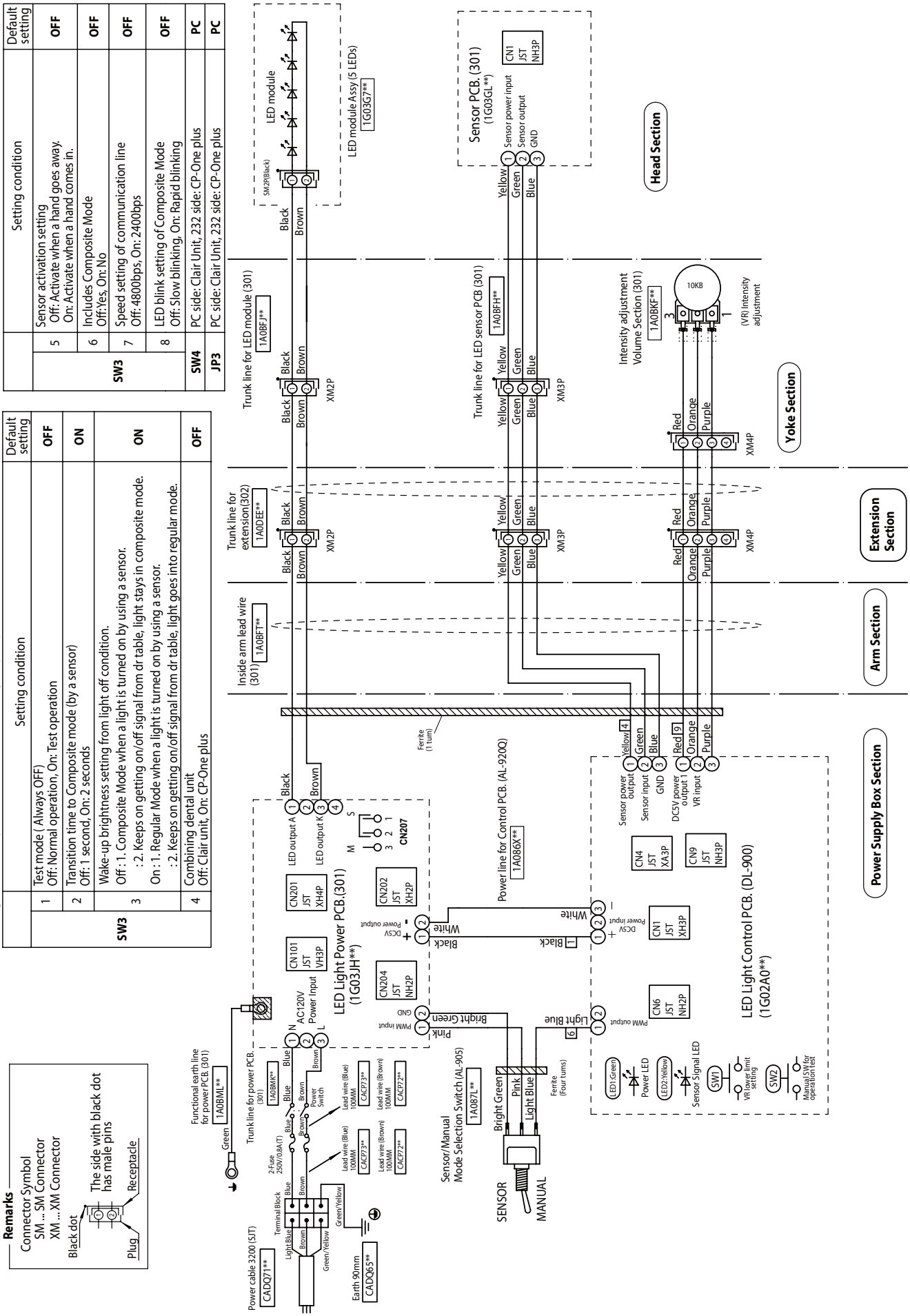
5. Wiring Diagram

5-1. TYPE 301 Pole Mount



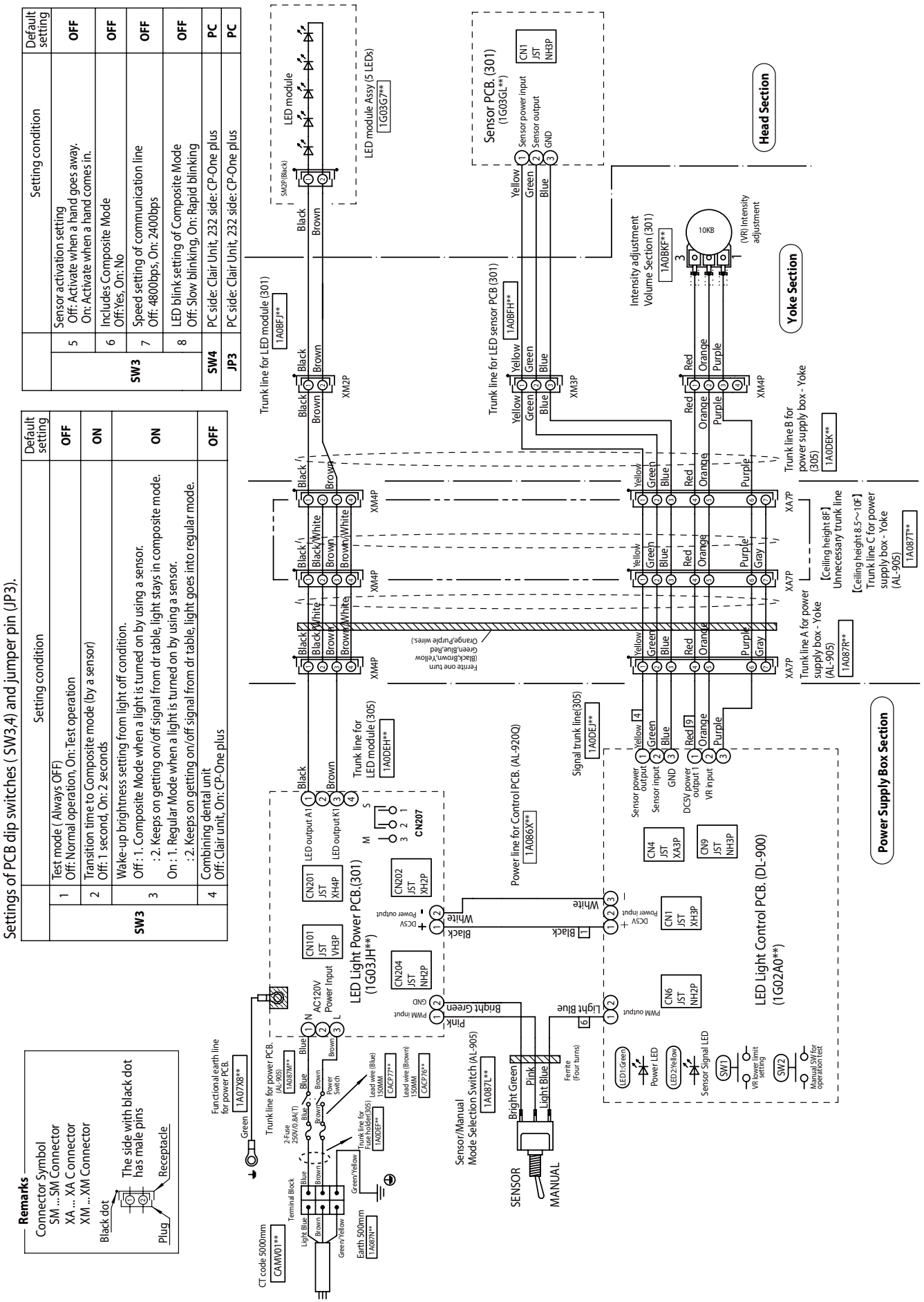
5. Wiring Diagram

5-2. TYPE 302 Ceiling Mount



5. Wiring Diagram

5-3. TYPE 305 Track Mount



NOTE

BELMONT EQUIPMENT, Division of Takara Belmont USA, Inc.
101 Belmont Drive Somerset, New Jersey 08873 U.S.A. TEL.:(732) 469-5000 / (800) 223-1192 Fax.:(732)356-1035

TAKARA CO, CANADA LTD.
2076 S. Sheridan Way, Mississauga, Ont., L5J2M4, Can. TEL.:(905) 822-2755 Fax.:(905)822-6203

TAKARA BELMONT CORPORATION (Manufacturer)
2-1-1, Higashishinsaibashi, Chuo-ku, Osaka, 542-0083, Japan TEL.: +81-6-6213-5945 FAX.: +81-6-6212-3680

Book No. 1E0438A0
Printed in Japan, 2015-01