

DENTAL LIGHT 701

INSTALLATION AND OPERATION INSTRUCTIONS

IMPORTANT

After installation is completed, check all the bolts, screws and fasteners to confirm that they are securely fastened.



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Intended Use of the Product

This product is intended for the exclusive use for diagnoses, treatments and relative procedures of dentistry, and must be operated or handled by the qualified dentists or by dental staffs under the supervision of the dentist.

Such dentists or dental staffs should instruct and/or assist the patients to approach to and leave from the product.

Patients should not be allowed to operate or handle the product unless he/she is so instructed.

Environmental Requirements

Ambient Temperature	Operating +5 - +40	Storage -10 - +50
Humidity	10 % - 80%	
Atmospherical Pressure	600 hPa - 1060 hPa	

Important Notes

In case of the troubles, please contact Takara Belmont offices or your dealers.

Do not disassemble or attempt to repair.

Disassembly, repair or modifications should only be done by a qualified repair technician.

Attempts at disassembly, repair or modifications may lead to abnormal operation and accidents.

[1] SPECIFICATIONS

1. Focal Distance..... 650mm
2. Color Temperature..... 4,200° Kelvin at 28,000 Lux
3. Light Intensity..... High : 28,000 Lux
Low : 18,000 Lux
Composite Mode : 8,000Lux
4. Light Pattern..... 220mm x 85mm at 650mm
5. Power Requirement..... AL-720S/AL-720M AC12V 50/60Hz 4.4A
AL-702S/AL-705S AC100V 50/60Hz 0.65A
AC115V 50/60Hz 0.55A
AC120V 50/60Hz 0.53A
AC220V 50/60Hz 0.30A
AC230V 50/60Hz 0.29A
AC240V 50/60Hz 0.28A
6. Bulb Type..... Tungsten Halogen Type(JA-12V55WD/DL8)
7. Type of 701 Dental Light AL-720S Unit Mount Type (Sensor Switch)
AL-720M Unit Mount Type (Manual Switch)
AL-702S Ceiling Mount Type (Sensor Switch)
AL-705S Track Mount Type (Sensor Switch)
8. Service Life 10 years

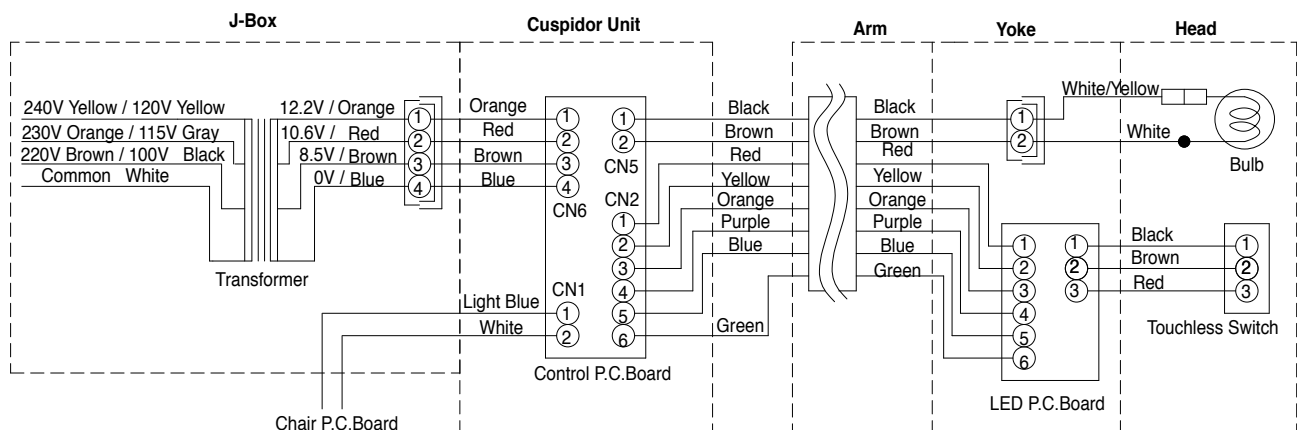
[2] CLASSIFICATION

- a. Protection against electric shock : Class I Equipment, Type B Applied Parts
- b. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

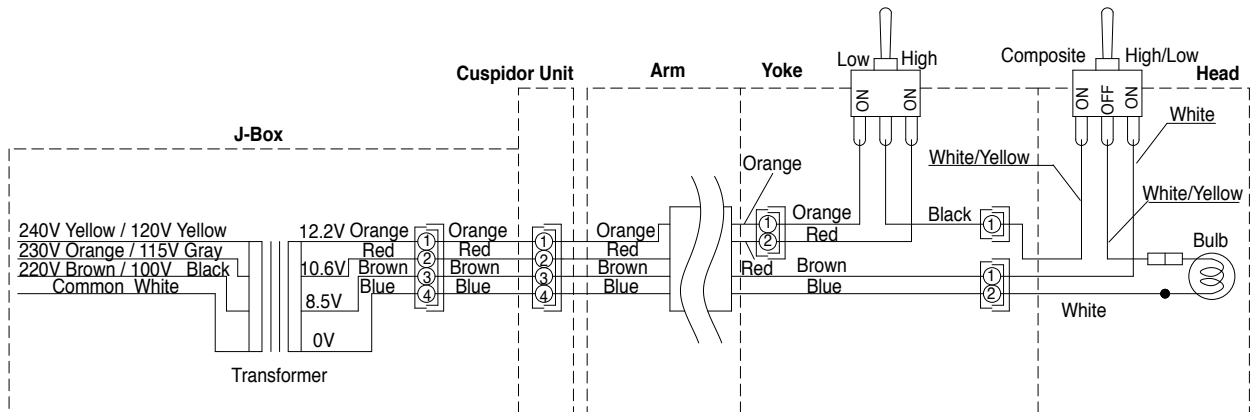


[3] WIRING DIAGRAM

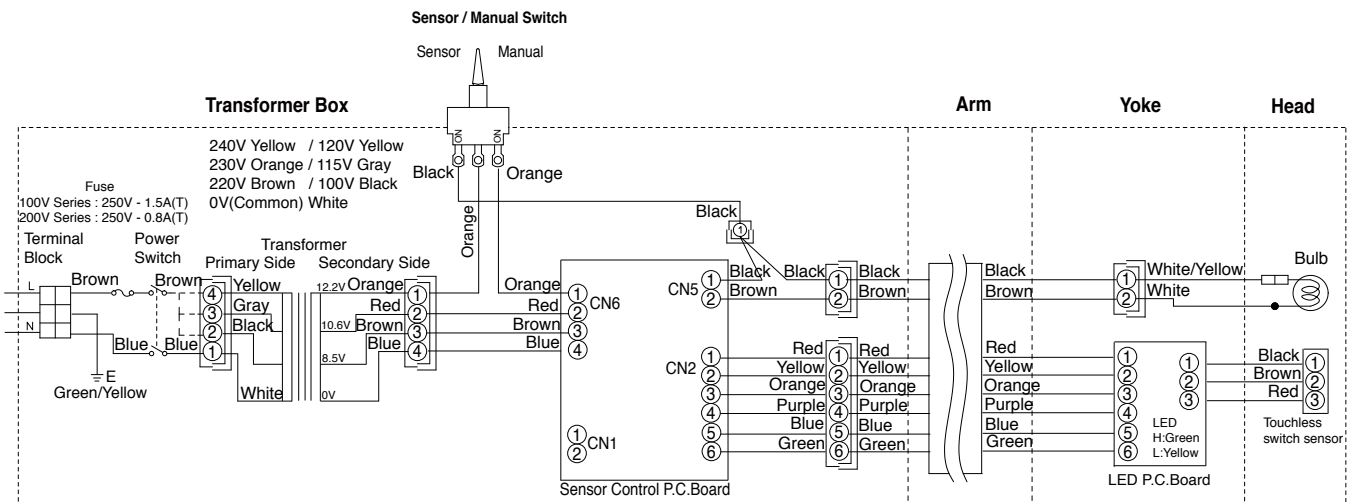
3-1. Unit Mont Type (AL-720S)



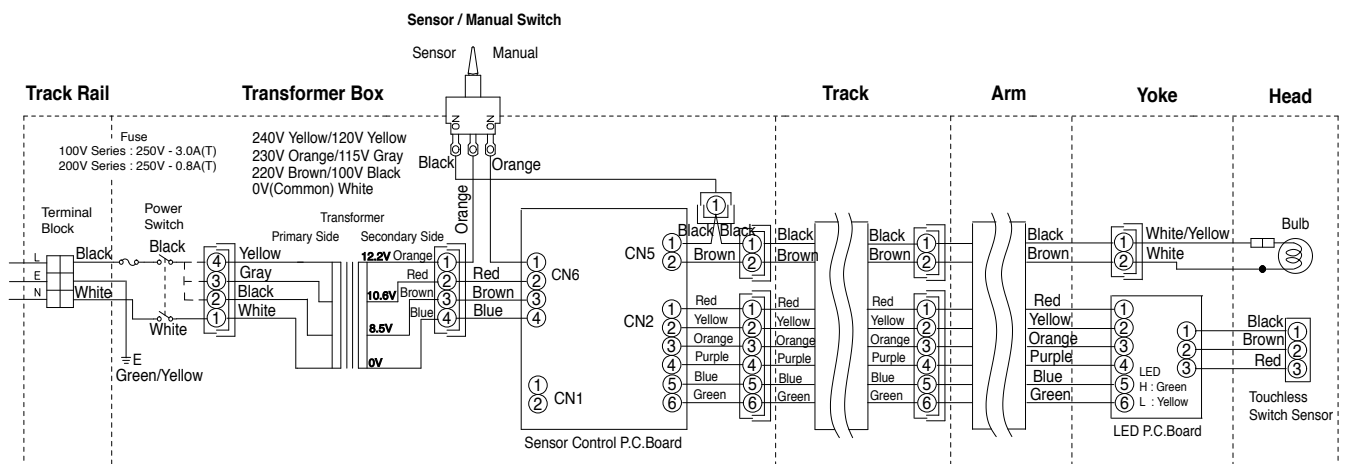
3-2. Unit Mount Type (AL-720M)



3-3. Ceiling Mount Type (AL-702S)



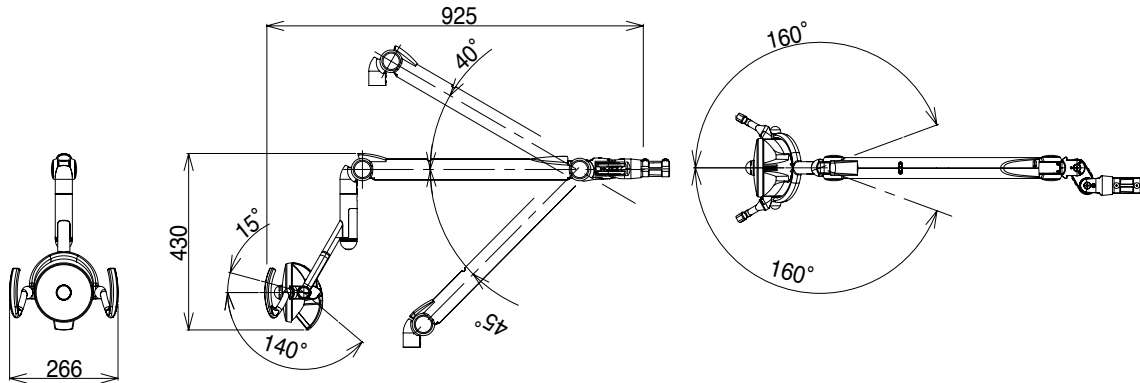
3-4. Track Mount Type (AL-705S)



INSTALLATION INSTRUCTIONS

[4] UNIT MOUNT TYPE (AL-720S / AL-720M)

4-1. Dimensions (mm)



4-2. Installation

Pass the light wires through the L-light pole and insert the light spigot into the L-light pole and fix it with 2 x M6 screws.

(Refer to Fig.4-2)

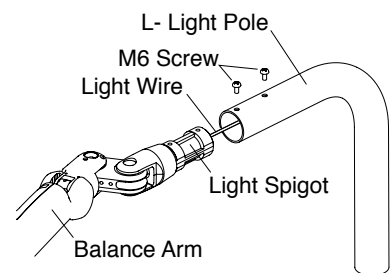


Fig.4-2 Fixing Light to L-Light Pole

[5] LIGHT HEAD INSTALLATIONS(AL-702S / AL-705S)

Connect the light-head with the balance arm. (This section also applies to [6] Track type)

All necessary parts are included in the carton box.

M3 x 6 Painted Screw..... 4pcs.

Yoke Cover..... 1pce.

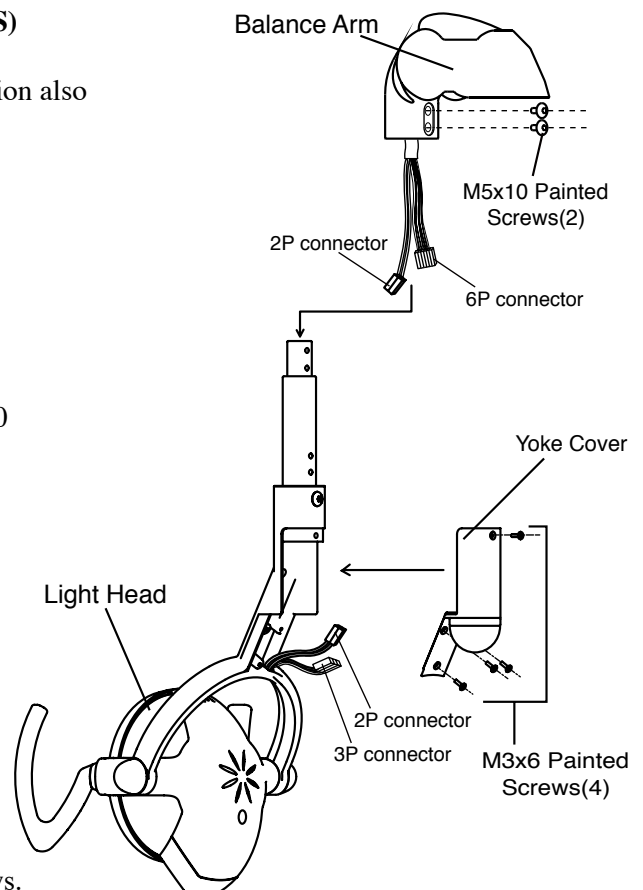
M5 x 10 Painted Screw..... 2pcs.

1) Install the light head to balance arm with two M5 x 10 painted screws.

2) Connect the wire harness.

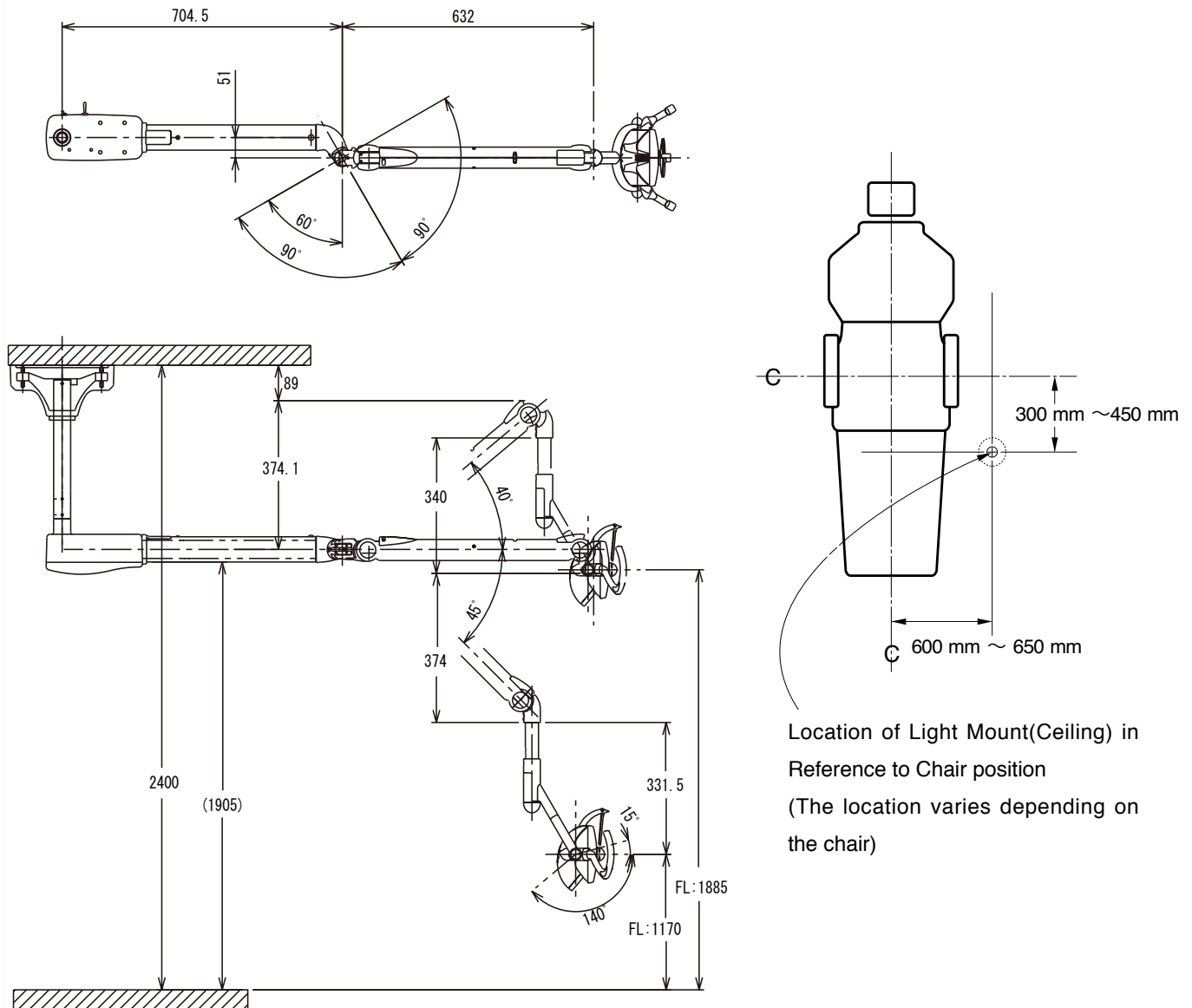
- 2P connector : black / brown from balance arm to white / white & yellow from light head.
- 6P connector : red / yellow / orange / purple / blue / green from balance arm to LED P.C.Board in the yoke cover.
- 3P connector : black / brown / red from light head to LED P.C.Board in the yoke cover.

3) Attach the yoke cover with four M3 x 6 painted screws.



[6] CEILING MOUNT TYPE (AL-702S)

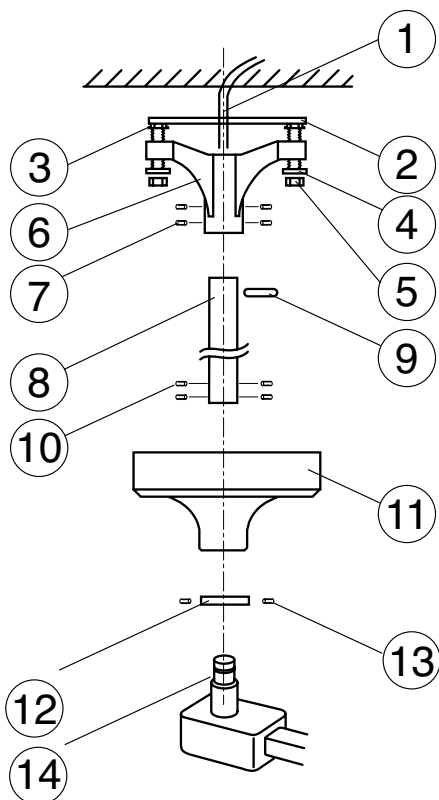
6-1. Dimensions (mm)



6-2. Installation Instructions

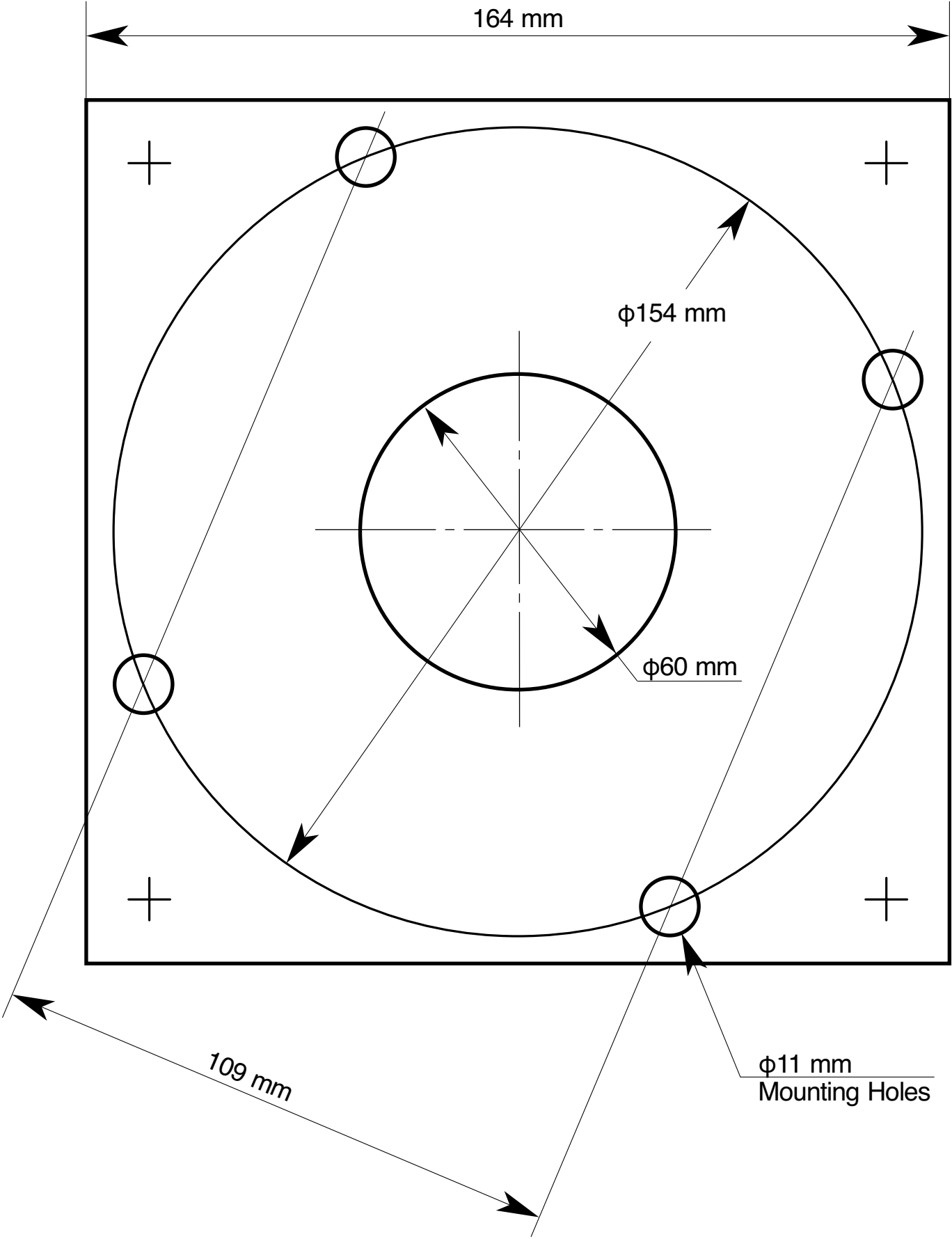
- 1) Secure mounting plate to the ceiling, using the parts which will give the equipment enough structural strength.
- 2) Route the power supply cable (1) through the center of the mounting plate(2).
- 3) Insert the suspension tube(8) into the ceiling flange and secure with roll pin(9) and set screws(7) supplied.
- 4) Use a level to make certain suspension tube is plumb.
- 5) Slide the flange cover(11) and flange cover ring(12) (flat side up) over the suspension tube and secure about half way up the tube. Use only one set screw(13) as you will be moving this on final installation.
- 6) Install the light assembly to the suspension tube by first running the 3 wire cord from the light up through the suspension tube to the ceiling flange.
Secure light assembly to suspension tube with 4 Allen set screws.

- 7) Connect the power supply cable to the 3 wire cord from the light assembly.
- 8) Test light for proper operation.
- 9) Reposition flange cover and secure with flange cover ring - Secure all set screws.



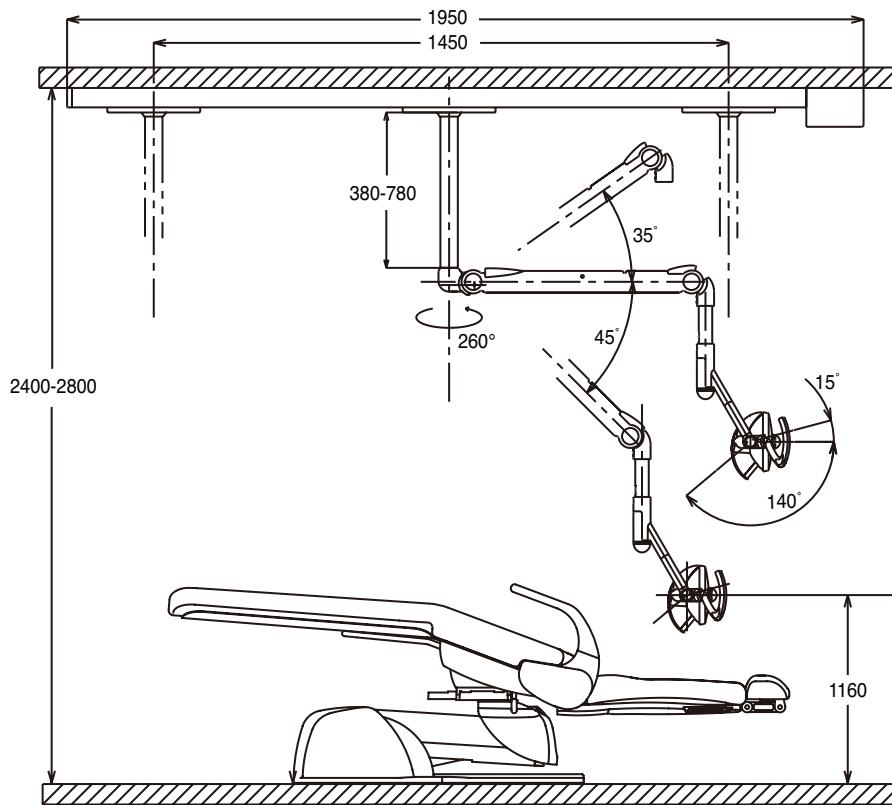
- (1) Power Supply Cable
- (2) Mounting Plate
- (3) Leveling Nut (M8 : 4pcs)
- (4) Washer (M8/Plain Washer / M8/Spring Washer : 4pcs)
- (5) Nut (M8 : 4pcs)
- (6) Ceiling Flange
- (7) Socket Screw for Flange (M6x 8 : 4pcs)
- (8) Suspension Tube
- (9) Roll Pin (6 x 70 : 1pce)
- (10) Socket Screw for Arm (M5 x 8 : 4pcs)
- (11) Flange Cover
- (12) Cover Ring
- (13) Socket Screw for Ring (M5 x 8 : 3pcs))
- (14) Light Assembly

6-3.AL-702S CEILING MOUNTING TEMPLATE



[7] TRACK MOUNT TYPE (AL-705S)

7-1. Dimensions (mm)



7-2. Ceiling Preparation

For safety in operation as well as stability of the light source, the importance of proper ceiling structure can not be overemphasized. In general, a ceiling structure capable of supporting 90kg(200 lbs) dead weight is required.

- 1) In conventional ceilings with joists perpendicular to center line of light, attach pallet by at least 6 (M8 x 76mm) lag screws. Suitable holes are provided in pallet for most installations, utilizing 16"(406 mm) or 12"(305 mm) center to center ceiling joists. For other spacings or locations, additional holes can be drilled in pallet.

(Refer to Fig.7-2-1)

IMPORTANT: Locate transformer end of track at headrest end of chair only.

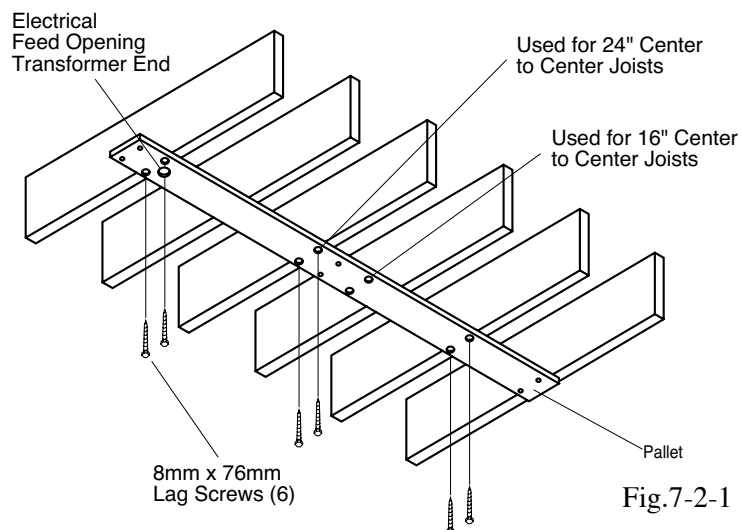


Fig.7-2-1

- 2) For conventional ceilings with joists parallel to center line of light, cross blocks must be installed in 3 places to allow mounting with at least 6 (M8 x 76mm) lag screws.
(Refer to Fig.7-2-2.)

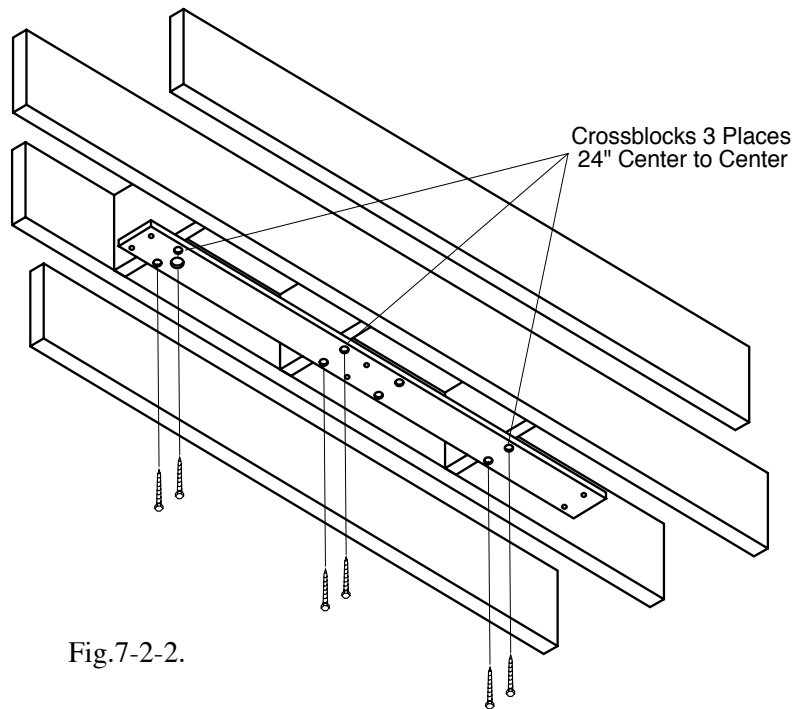


Fig.7-2-2.

- 3) For suspended ceilings, appropriate rigid structure must be attached to ceiling framework to provide 90kg(200 lbs.) dead weight capacity. (Refer to Fig.7-2-3.)

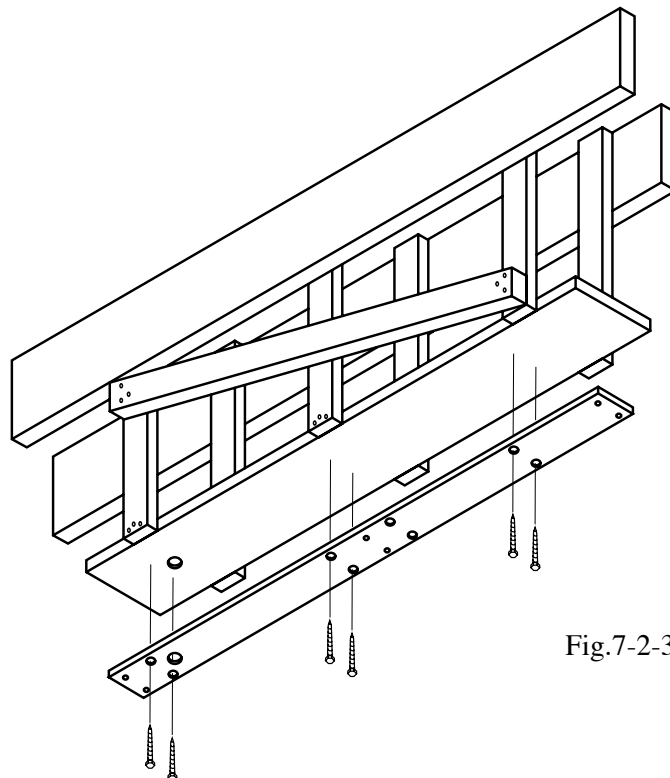
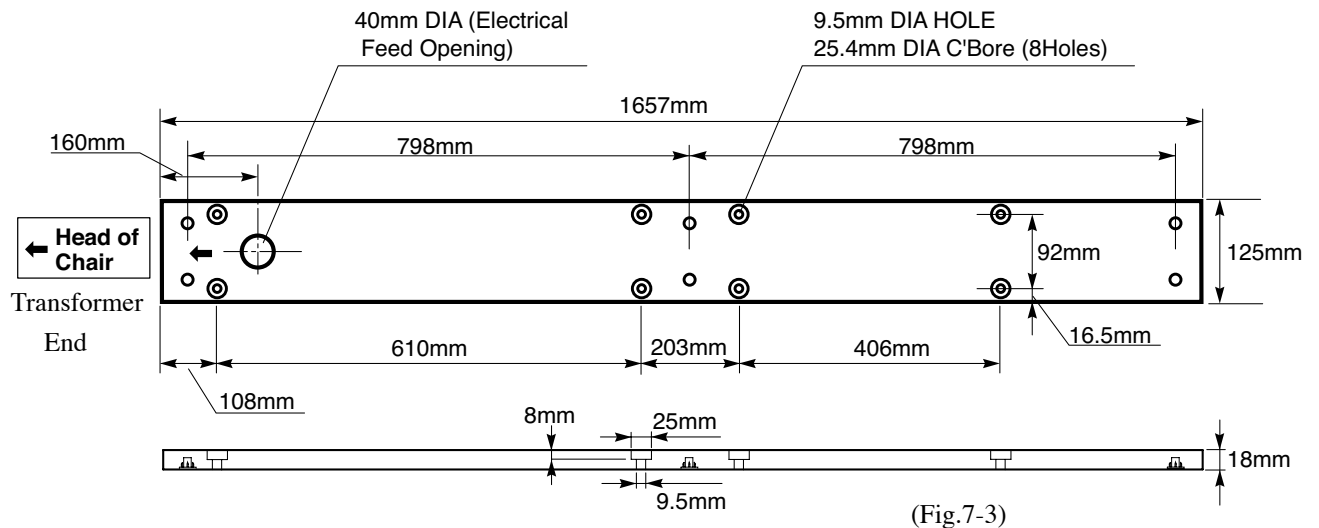


Fig.7-2-3.

7-3. ELECTRICAL PREPARATION

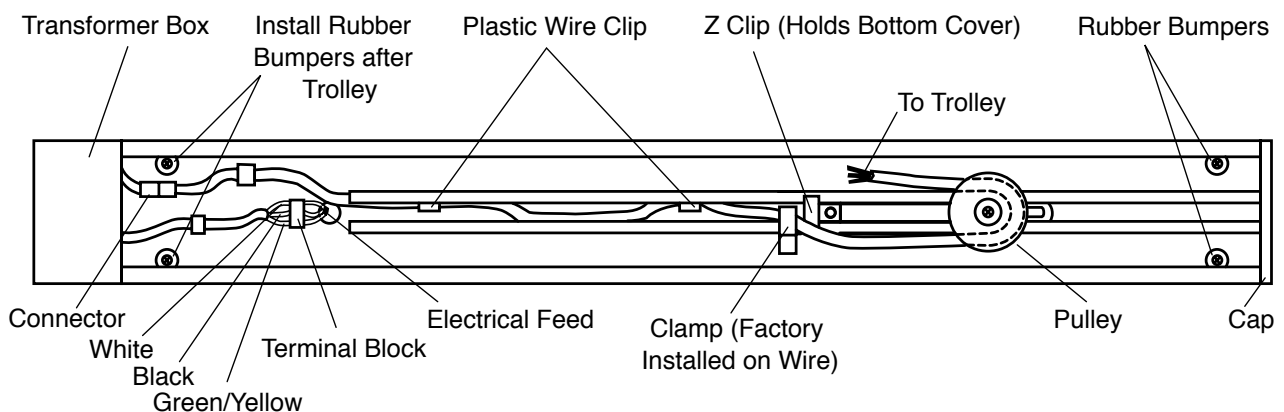
Refer to Fig.7-3. for location of electrical feed opening in pallet, provide 3 wire, circuit (fuse or breaker through) flexible conduit with enough slack to protrude at least 50mm below pallet when installed. Terminate conduit with 13mm body box connector suitable for mounting through 5mm thickness.

A readily accessible shut-off switch for this circuit is recommended. Use wiring suitable for 90°C service.

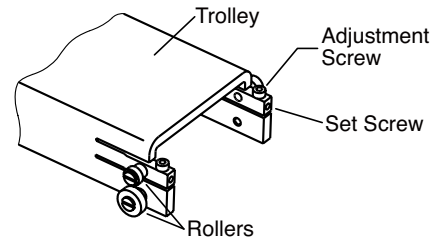


7-4. INSTALLATION INSTRUCTIONS

- 1) Lead out the power supply cable from the ceiling where the track light is mounted.
- 2) Run the power supply cable through the electrical feed opening in the pallet and mount pallet to ceiling.
- 3) Place track against pallet and slightly engage two mounting bolts(M8 x 25 Hex. Head bolt:6pcs and M8 spring washer:6pcs) at end opposite 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 track securely to pallet.
- 6) Connect wires from feed to terminal block.
- 7) Slide trolley onto track (end near electrical opening) with arrow on trolley oriented toward pulley on track.
- 8) Carefully guide wire from trolley, around spring loaded pulley and back toward transformer end of track.
- 9) Attach retainer clamp to small screw(M4x8 : 1pce) in track. Clip free end of trolley wire into plastic clip near end.
- 10) Install rubber bumpers both ends of track in holes provided.

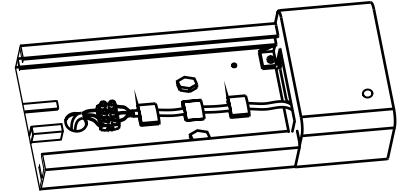


- 11) Check operation of trolley. It is factory adjusted to provide smooth effortless travel, without play; however rollers can be readjusted if necessary. Loosen set screw and adjust socket cap screw to vary roller clearance.



- 12) Unpack transformer / housing assembly and mount to track with screws (M4x15 Screw with plain washer & spring washer : 2pcs) provided.

- 13) Attach pigtail leads to corresponding power line wires at terminal block. Retain wires under plastic clip.



- 14) Connect plug-in transformer connector to trolley wire harness.

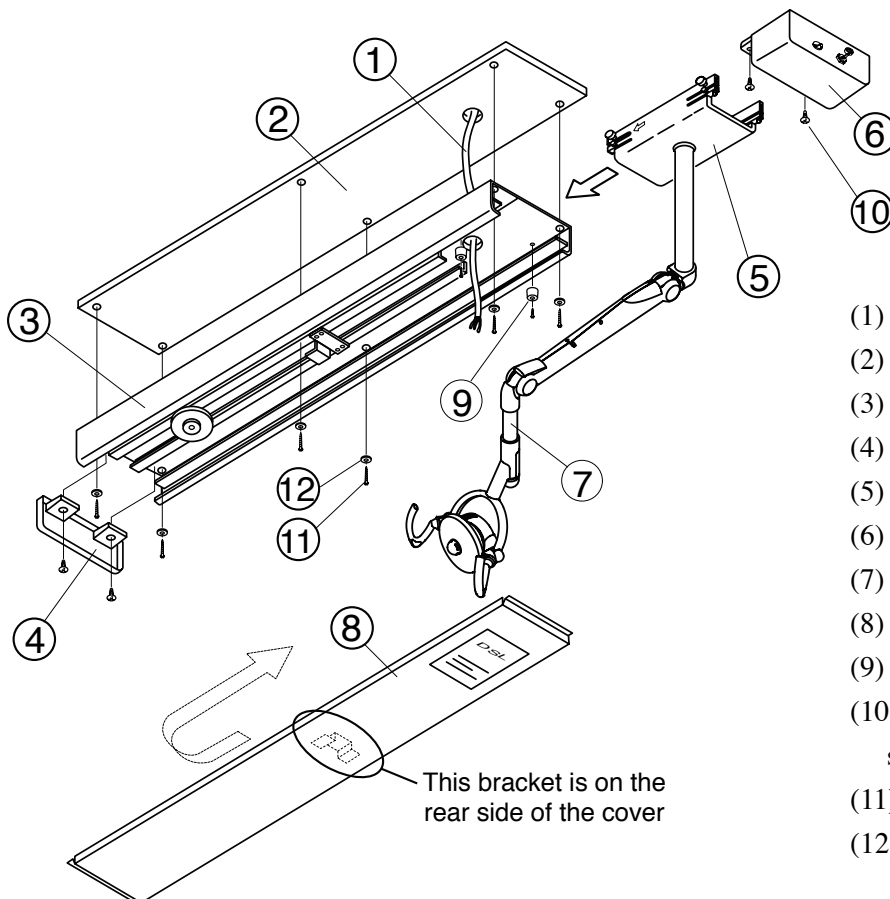
- 15) Carefully slide bottom cover onto track from the end on the opposite side of the transformer end. Be sure to engage lip inside of the bottom covers onto the Z bracket on the track.

- 16) Install end-cap with screws (Screw with plain washer & spring washer M4x15 : 2pcs) provided.

- 17) Slide trolley back and forth checking for binding or rubbing.

- 18) Confirm that balance arm is properly adjusted to stay where it is placed. If necessary, move head up or down to expose appropriate cross drilled nut and adjust with tool provided. (See Page 12, adjusting tension of balance arm.)

- 19) Turn on power and check electrical operation of light.

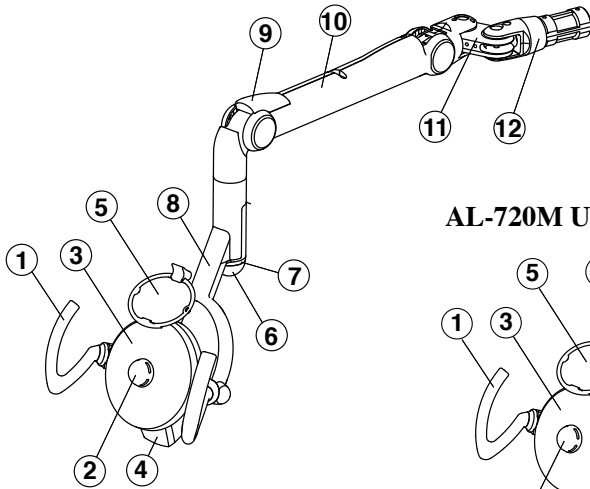


- (1) Power supply cable
- (2) Pallet
- (3) Track
- (4) End-cap
- (5) Trolley
- (6) Transformer Box
- (7) Light Assembly
- (8) Bottom Cover
- (9) Rubber bumper(4pcs)
- (10) Screw with plain washer & spring washer M4x15(2 pcs)
- (11) Hex Head Bolt M8x25(6 pcs)
- (12) Spring Washer M8 (6 pcs)

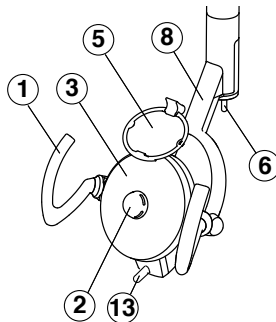
[8] OPERATING INSTRUCTIONS

8-1. Overall View and Major Components

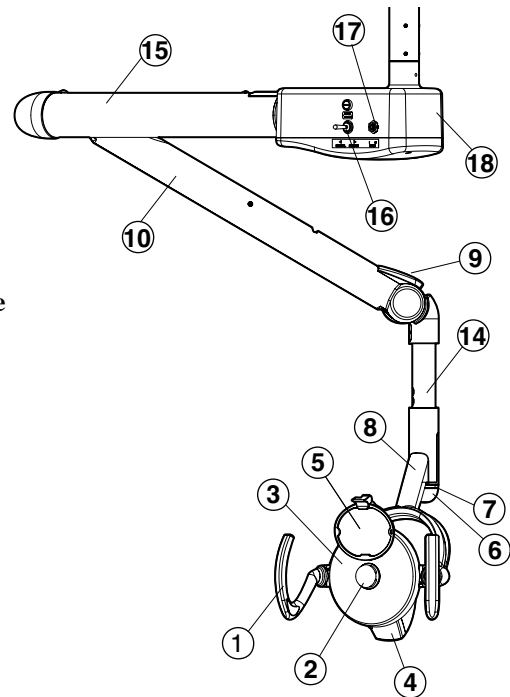
AL-720S Unit Mount Type



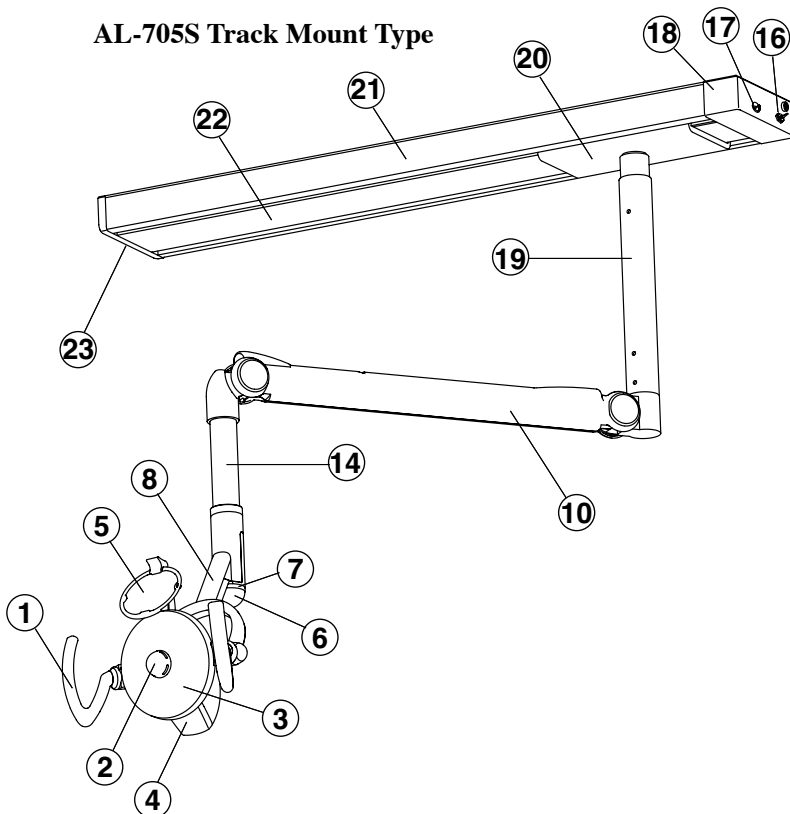
AL-720M Unit Mount Type



AL-702S Ceiling Mount Type



AL-705S Track Mount Type



⚠ CAUTION

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

- (1) Handle
- (2) Bulb Cover
- (3) Front Shield
- (4) Touchless Switch
- (5) Patient Mirror(Optional)
- (6) Intensity Switch
- (7) LED
- (8) Yoke
- (9) Arm Rubber Cover
- (10) Balance Arm
- (11) H-Bracket
- (12) Spigot
- (13) Manual Switch
- (14) Extension
- (15) Swing Arm
- (16) Mode Selection Switch
- (17) Main Switch
- (18) Transformer Box
- (19) Track Pole
- (20) Trolley
- (21) Track
- (22) Bottom Cover
- (23) End Cap

8-2 Operation (Sensor Type AL-720S / AL-702S / AL-705S)

8-2-1. Main Switch (AL-702S / AL-705S)

Flip the toggle switch to the side marked with ' I ' to turn on the light.

(Refer to Fig.8-2-1)

I - ON / O - OFF

8-2-2. Mode Selection Switch (AL-702S / AL-705S)

(Refer to Fig.8-2-1)

Switching modes can be changed by this switch.

Sensor : Touchless mode ON/OFF

Manual : Manual mode ON (only)

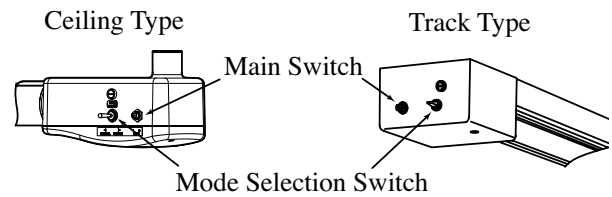


Fig.8-2-1 Main & Mode Selection Switch

8-2-3. Touchless Switch (AL-720S / AL-702S / AL-705S)

(Refer to Fig.8-2-2 & 8-2-3)

Approach a hand to touchless switch within the reaction zone to turn on/off for the light.

To change the light intensity into composite mode, approach a hand to touchless switch and stay the hand there for about 2 seconds. Green or Amber LED blinks.

To return to the original light intensity, repeat the same procedure. (Reaction zone : 0 - 85mm)

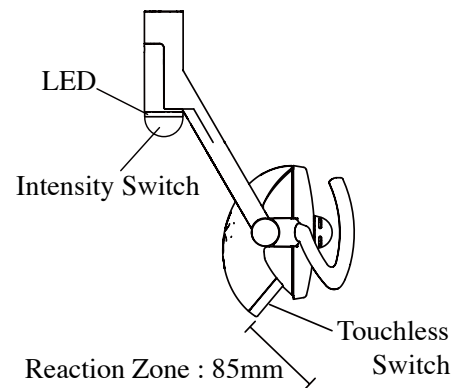


Fig.8-2-2 Model 720S / 702S / 705S

8-2-4. Intensity Switch (AL-720S / AL-702S / AL-705S)

(Refer to Fig.8-2-3)

Push intensity switch

High beam : Green LED turns ON.

Low beam : Amber LED turns ON.

	Light Intensity	LED
High	28,000Lux	Green
Low	18,000Lux	Amber
Composite	8,000Lux	Blink

Fig.8-2-3

8-3 Operation (Manual Type AL-720M)

8-3-1. Intensity Switch (AL-720M)

(Refer to Fig.8-3)

High beam ; Push toggle to left

Low beam ; Push toggle to right

8-3-2. Manual Switch (AL-720M)

(Refer to Fig.8-3)

High (Low) beam ; Push toggle to left

Composite Mode beam ; Push toggle to right

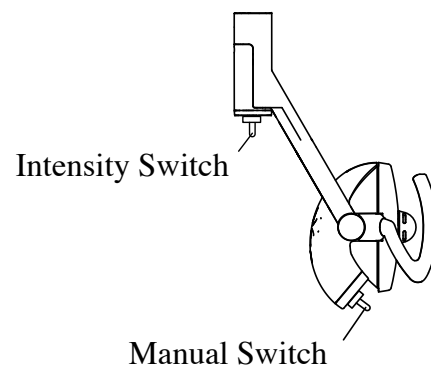


Fig.8-3 Model 720M

[9] ADJUSTMENTS

9-1. Adjusting Tension of Balance Arm

Use slot A when making adjustment for upward / downward drifting of balance arm.

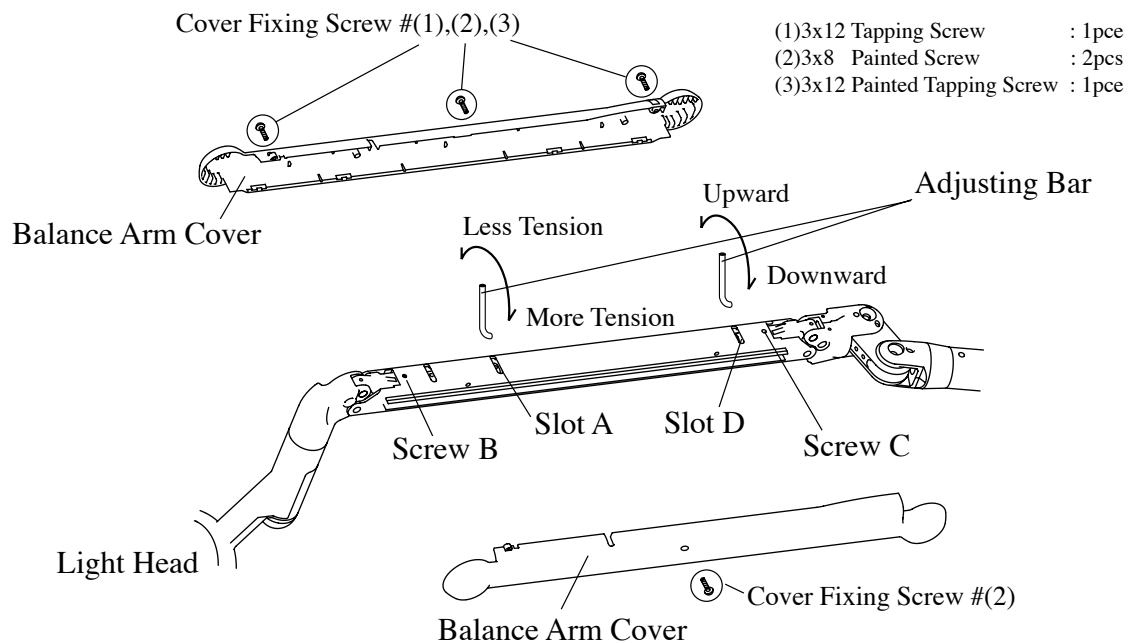
Insert adjusting bar into slot A on top of balance arm, turn spring adjustment nut clockwise for more tension ; counterclockwise for less tension.

9-2. Adjusting Angle of Light Head

Use slot D when adjusting light head angle. Remove four cover fixing screws and the balance arm covers. Lift the balance arm to upmost position, and hold it. Loosen screw B and C.

Insert adjusting bar into slot D on top of the balance arm, turn spring adjustment nut clockwise for downward angle ; counterclockwise for upward angle.

After adjustment, tighten the screw B,C and reattach the balance arm cover.



[10] HALOGEN LAMP REPLACEMENT

⚠ CAUTION

Make sure the power supply is turned off.

Halogen bulb and surrounding parts may be hot immediately after the lamp goes off.

Wait until all parts are cool before changing bulb.

IMPORTANT

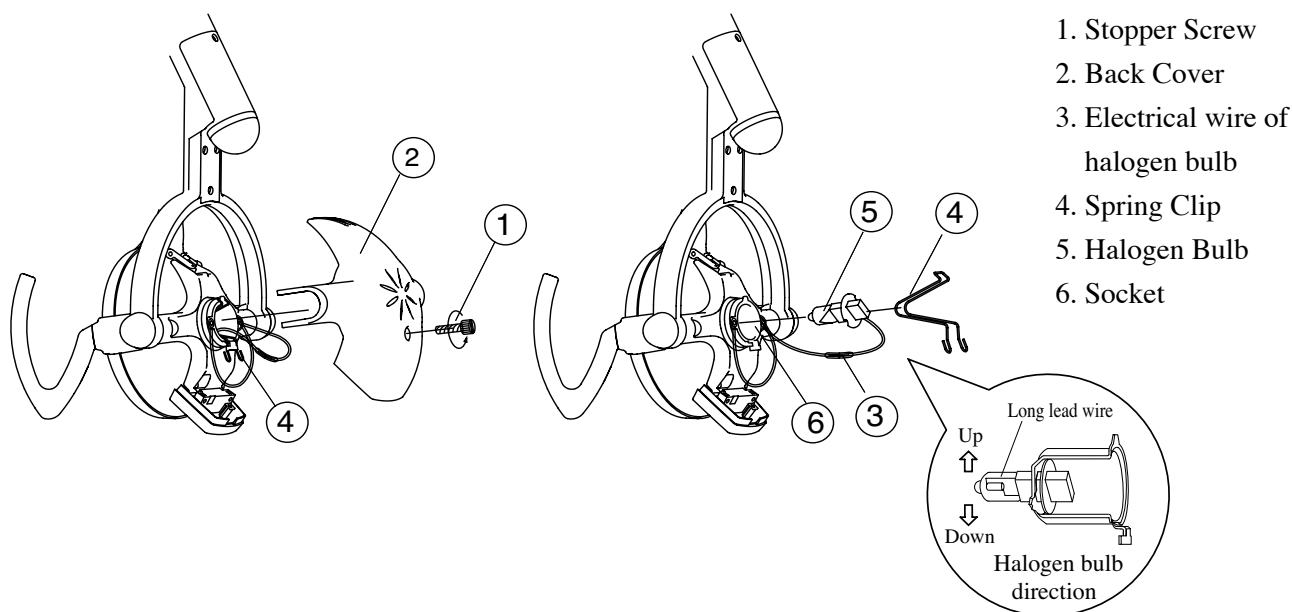
Do not touch light bulb glass with bare hand.

Halogen bulb surface must be clean.

Oil or body moisture will affect bulb life.

If glass surface is touched, clean with it alcohol.

- 1) To install replacement halogen bulb, turn off the light off and remove the back cover by loosening stopper screw.
- 2) Disconnect the electrical connector of halogen lamp.
- 3) Unlock the spring clip and pull the electrical wire of halogen bulb to remove the halogen bulb from socket.
- 4) Attach the electrical wire of new halogen lamp and insert halogen lamp into socket.
- 5) After new halogen lamp is seated in housing, insert and lock the spring clip into position.
- 6) Reattach the back cover.



⚠ CAUTION

Replace halogen lamp only with type JA-12V55WD/DL8 obtainable through your local dealer or contact Belmont Equipment.

[11] CLEANING

⚠ CAUTION

Allow light to cool prior to cleaning.

⚠ CAUTION

All surfaces can be cleaned with DURR FD333 cleaner.
Spray the cleaner (DURR FD333) on cloth and wipe the surfaces with the cloth.
Wipe all surfaces dry after cleaning.

REFLECTOR : Extreme care should be taken to prevent scratching reflector surfaces, as this will degrade the performance of the light.

[12] INFORMATION FOR YOUR SAFETY

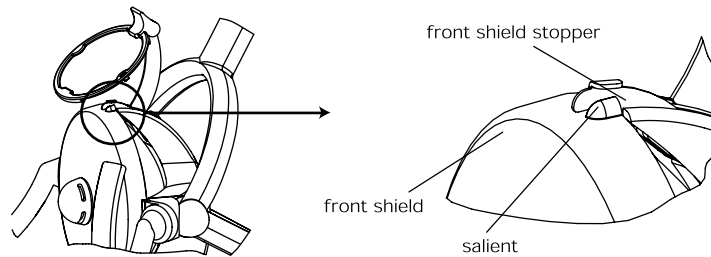
Confirming the proper installation of the front shield to the light head

⚠CAUTION

Before operation, make certain that the front shield is firmly inserted into the slots located at the feet of the both, right and left, handles. Also confirm the front shield is appropriately hooked and held with a front shield stopper. If these conditions are not fulfilled, the shield may become loose and drop.

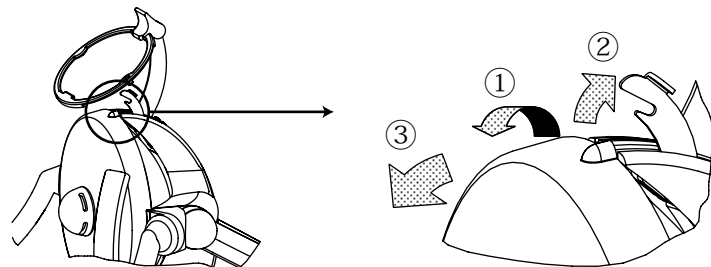
12-1. Front shield properly secured

When a shield is properly secured, a salient on the front shield can be seen at the right of the stopper when viewed from the front. It can also be confirmed that the stopper holds the edge of the shield from up and down.



12-2. Front shield imperfectly attached

If the edge of the shield is pulled back slightly at the point where the stopper holds it (①), then the stopper is raised (②), the shield goes loose. Under this condition, if the front shield is turned counterclockwise (③), the shield will be detached.

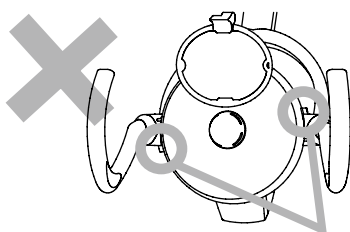


12-3. If this should happen, the shield can be reinstalled to the light head by :

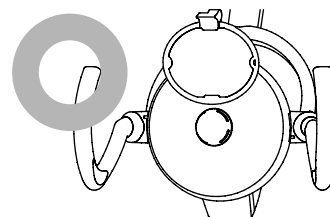
- Inserting the two protruding parts (not the salients mentioned above), which are located at right and left edges of the shield, into the designated slot at each foot of the handle, then turning the shield clockwise, and
- Lowering the front shield stopper to hold the edge of the shield from up and down while pulling back the shield slightly.

12-4. Confirming the proper installation of the front shield to the light head

Make certain the front shield is firmly inserted into the slots located at the feet of the both, right and left, handles. Also confirm the front shield is appropriately hooked and held with a front shield stopper from up and down.



Front shield imperfectly attached to the light head

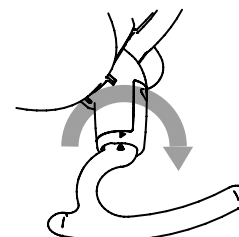
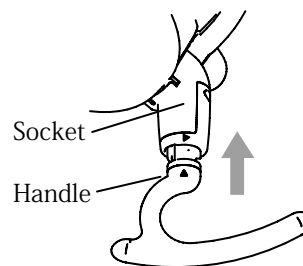


Front shield securely installed to the light head

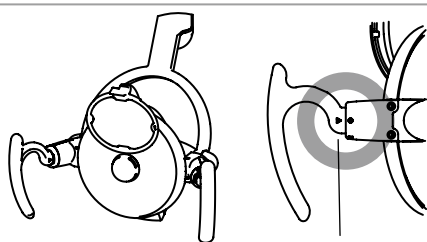
[13] HOW TO ATTACH AND REMOVE HANDLES (OPTION)

13-1. Attaching a handle

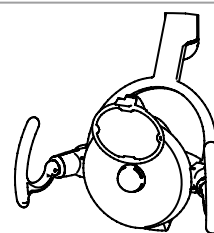
- 1) Insert a handle into the socket of the light head, aligning the  mark on the handle with the  mark on the socket.
- 2) Push the handle all the way in (the  mark on the handle should come to the edge of the socket), then turn it clockwise. When the handle reaches its proper position, it clicks. Now the handle is fixed.



Proper position of the handle when inserted



The  mark on the handle will be aligned with the  mark on the socket.



There are two  marks on each handle. One position makes the handle placed upward, while the other makes it downward. Choose the position which suites your need or preference.

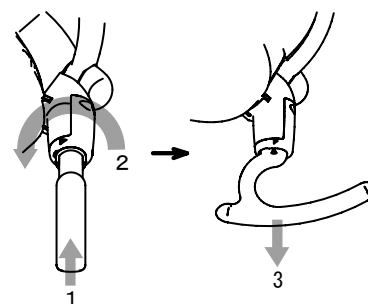
Make sure that both handles are securely attached to the socket.

WARNING

If the handles are not secured properly to the sockets, they may become loose and fall off.

13-2. Detaching a handle

While pushing the handle all the way in, turn it counterclockwise until the mark on the handle () and the one on the socket () meet. Then pull off the handle from the socket.



13-3. Proper sterilization and storage

- 1) Handles should be sterilized with high-pressure steam of the autoclave.
- 2) Keeping handles under an ultraviolet germicidal lamp will cause discoloration and deterioration.
(After sterilization, please store the handle in an autoclave pouch.)

WARNING

Do not keep the handles under an ultraviolet germicidal lamp. It will cause discoloration and deterioration.

After sterilization, each handle should be stored in an autoclave pouch.



NOTE



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