
Installation Manual

Panoramic Radiograph
ANA – BEL Series

Panoramic and Cephalo Radiograph
ANA – BEL CM Series

Notice

★ Read this installation Manual thoroughly before Installation.

The classification is shown as follows

According to the type of protection against electric shock. : **Class**



Caution!


This manual provides information and instruction for the installation, assembly, and certification procedures for the “ANA-BEL”, “ANA-BEL CM” X-Ray.

The instructions contained in this book should be thoroughly read and understood before attempting to install the “ANA-BEL” unit. After the installation is completed, file this manual and refer back to it when performing periodic maintenance.

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01. Introduction


1. Observe “Warning” and “Prohibition” matters in this Installation Manual.
2. Read this Installation Manual thoroughly to prevent an accident or trouble.
3. If you have any unclear matters in installation, reconfirm it by reading this Installation Manual.
4. After installation, read Operation Manual to understand operation procedures.
5. Discharge
Be sure to observe Installation Manual. If accidents or troubles of the equipment happen due to improper installation, we can not be responsible for those accidents or troubles.
6. Repair and repair parts supply
Repair and repair parts supply is available for 10 years from discontinued date.
7.  mark means “ Attention, consult accompanying documents “.
8. If you intend to use ANA-BEL/ANA-BEL CM with digital receptor (ADR), please refer to Item13, Item14 and Item15.

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 **DANGER**
This equipment is electrical equipment. Do not splash water
Such action causes an electric shock or a trouble of the equipment

 **WARNING**
This X-ray Unit may be dangerous to patient and operator unless safe exposure factors and operating instructions are observed.

 **WARNING**
This equipment should be installed in the X-ray room surrounded by walls that have over 1.0 mmPb lead equivalence.
Exposure switch should be installed outside of the X-ray room.

 **WARNING**
The floor should be able to support 600 lbs. dead load and should be rigid.

 **WARNING**
Do not put things in the area where equipment moves.

 **WARNING**
Those who install X-ray apparatus should wear X-ray protector apron.

 **WARNING**
Operator should pay attention to patient when Sliding Unit moves up and down

 **WARNING**

03. Pre-Installation Instructions

[1] Required tools / materials for the installation

1. Manuals

1. Installation Manual for ANA-BEL / CM.
2. Operation Manual for ANA-BEL / CM

NOTE: DO NOT USE THIS UNIT WITHOUT CORRECT BRACING

- 3) Screw slots are oversized to allow for positioning/leveling. Appropriate washers must be used on all fasteners.

[3] Electrical Requirements

1) Power Supply

ANA-BEL Panoramic X-Ray operates on a power supply of 120 VAC. A three wire GROUNDED circuit, separately connected to the central distribution panel with an over current protection device rated for 20 amperes. Recommended wire size is 12 AWG. But if the wire run distance is to exceed 50 feet, 10 AWG is required. For wire run distance in excess of 75 feet, up to 125 feet, 8 AWG is required.

- 2) All connections, workmanship and materials used must comply with the national Electric Code and local codes.

04. Specifications

Name	Panoramic Radiograph	Panoramic and Cephalo Radiograph
Model	ANA – BEL ANA – BEL	ANA – BEL CM

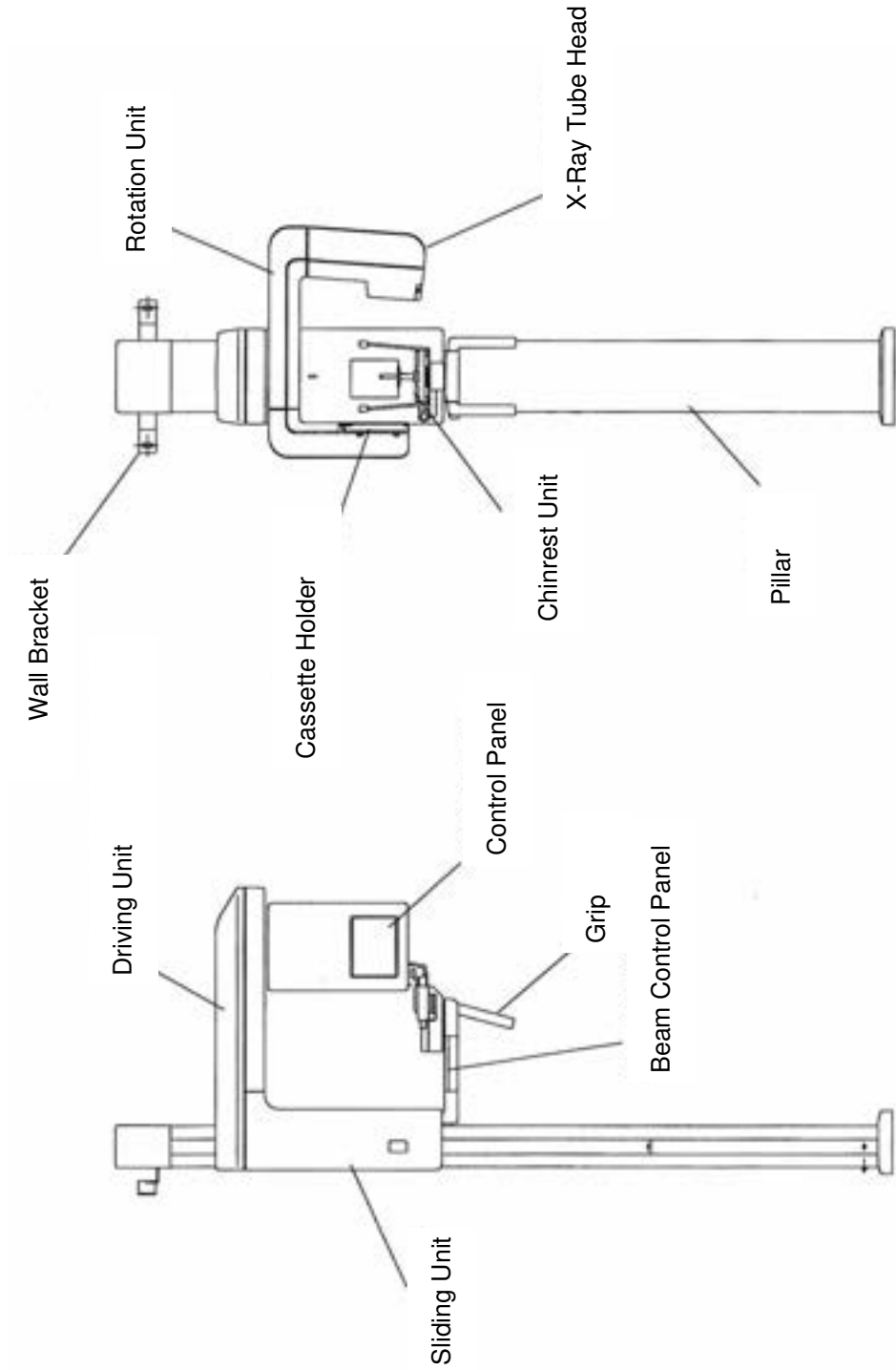
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05. Name of Each Parts and Dimension

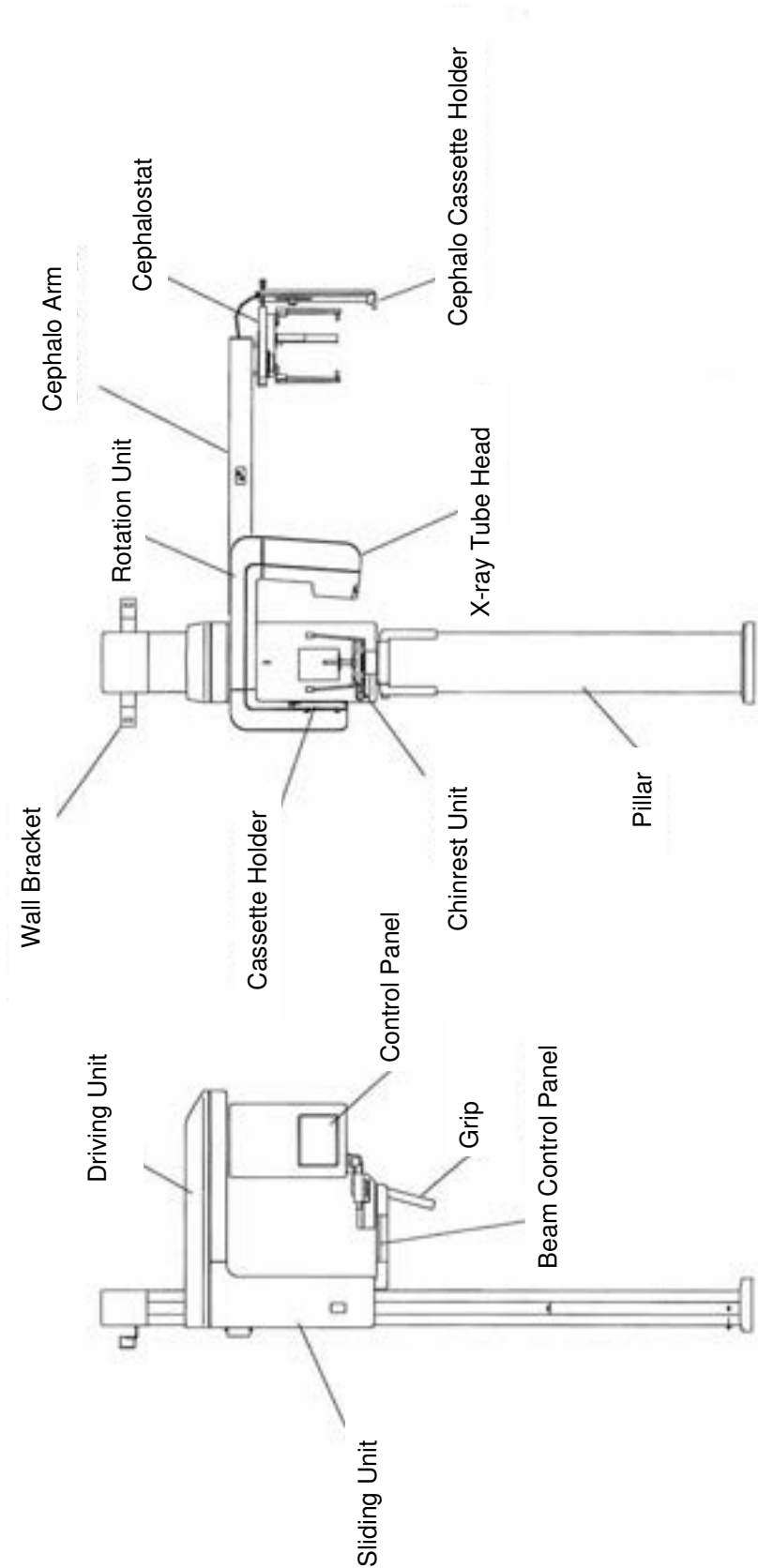
1. Name of Each Parts

ANA-BEL
ANA-BEL D



B 0 2 - I 1 5 1 E

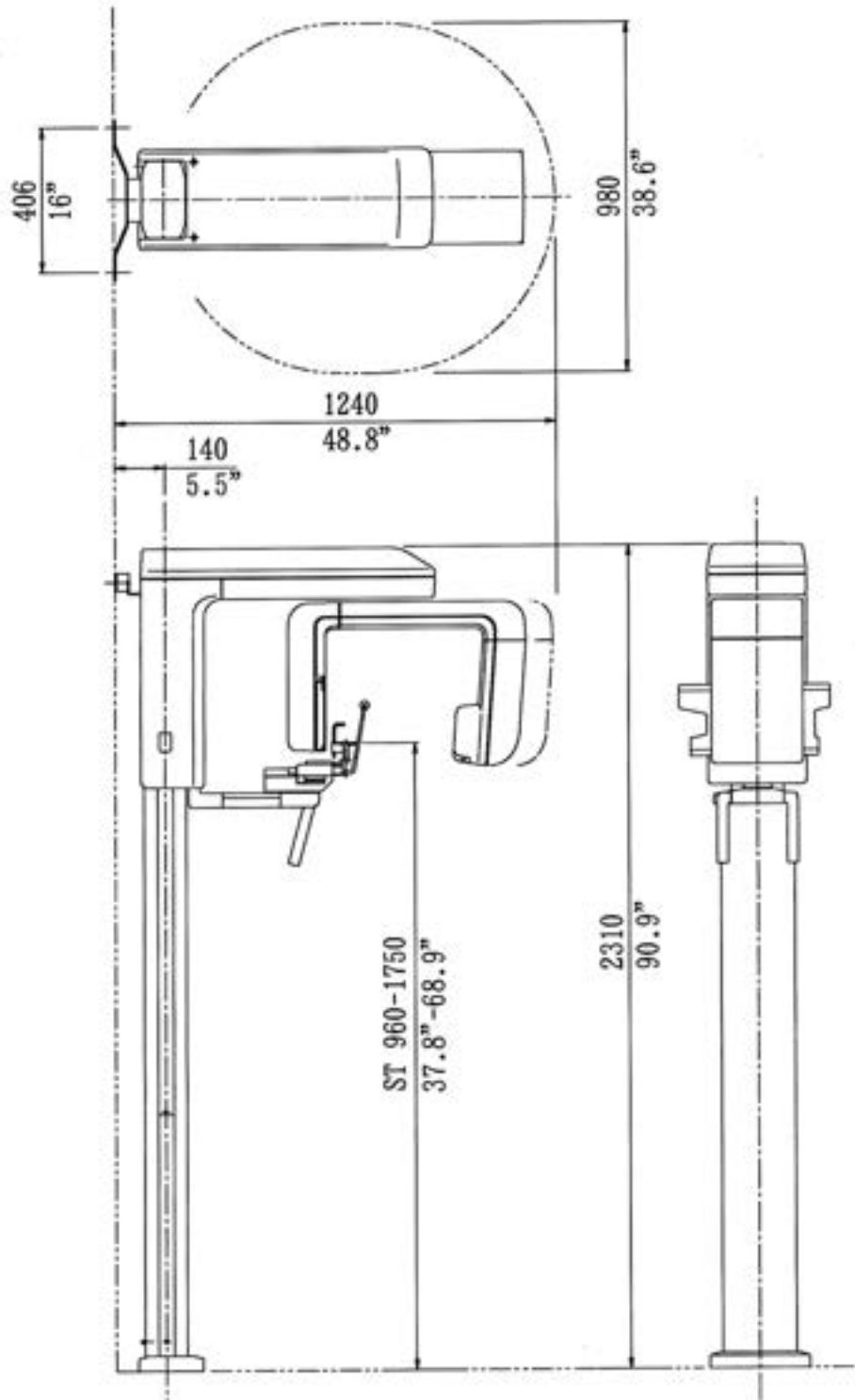
ANA – BEL CM
ANA – BEL D CM



2. Dimension

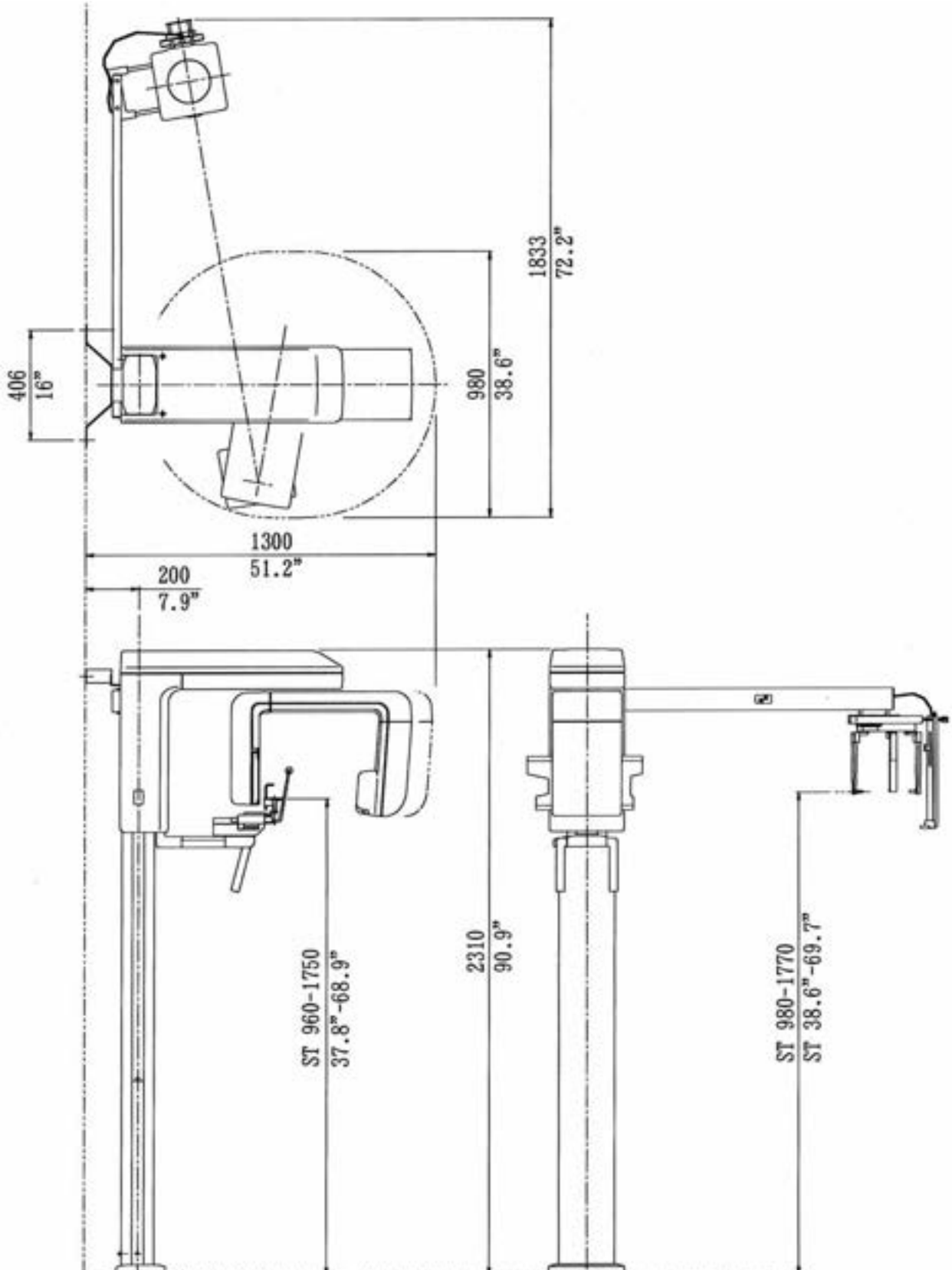
ANA-BEL

ANA-BEL D



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ANA-BEL CM
ANA-BEL D CM



06. List of Parts and Accessories

1. Parts of Equipment

- 1) Pillar
- 2) Rotation Unit
- 3) Chinrest Unit
- 4) Upper Cover of Pillar
- 5) Rotation Unit Cover
- 6) Sliding Unit Cover
- 7) Cephalo Arm (ANA – BEL CM)
- 8) Cephalo Ass'y (ANA – BEL CM)

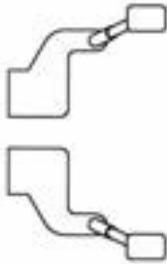
Nylon Washer \varnothing 3 (2 pcs.)

- 6) Mounting Screw for Sliding Unit Cover
 - Socket Head Screw M3 X 10 (6 pcs.)
 - Bind Screw M3 X 8 (2 pcs.)
 - Screw with spring washer M3 X 8 (2 pcs.)
 - Nylon Washer ϕ 3 (6 pcs.)

3. Accessories

2. 1. Accessories

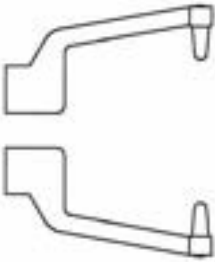
1. Head Holding Rods for Panorama and MS



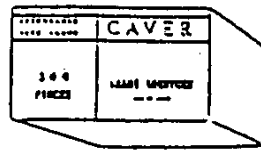
6. Bite Block for Panorama



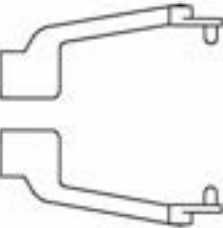
2. Ear Rods for T.M.J. LA



7. Bite Block Cover (Disposable)



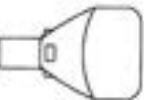
3. Ear Rods for T.M.J. PA



8. Exposure Switch Holder



4. Chinrest for Panorama



9. Felt patches for Cephalo Cassette 2 pcs.

5. Chinrest for MS



Cassette for Panorama
Cassette for Cephalo

1 pce. (Option)
1 pce. (Option)

07. Installation Instructions

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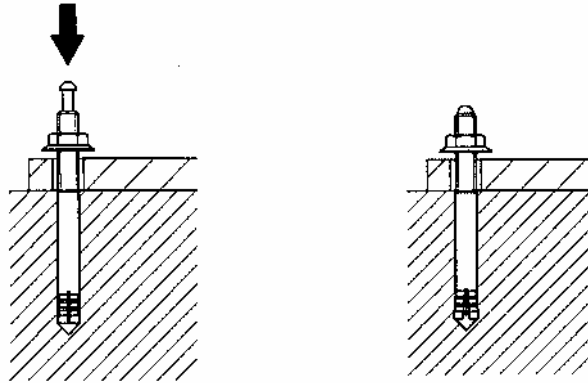
0 7

When concrete strike anchors

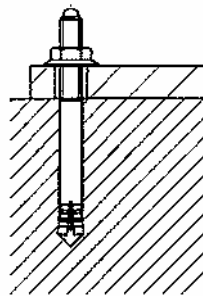
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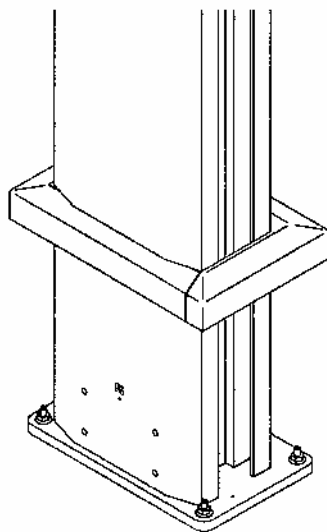
⑥ Strike the pin until pin is flush with top of the anchor.



⑥ Fix a concrete strike anchor by tightening a M8 nut.



⑦ Be sure that the apparatus is securely fixed.



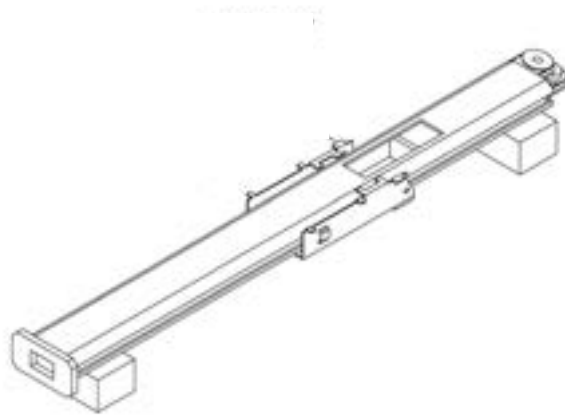
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Method of installing the earth wire

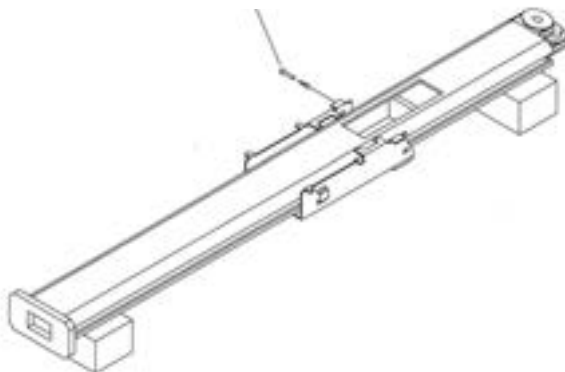
1. Installation Procedure

1. Lay the column faces up as shown, supporting it with approximately 6" of lumbers covered by the cloth, at the both ends.

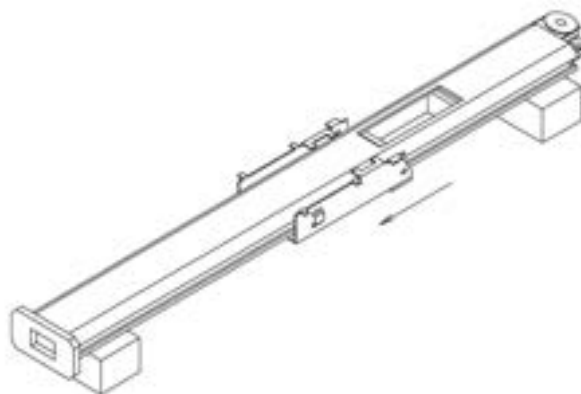


2. Remove the screw (M6 X 65) which fixes the counter weight frame to the main body.

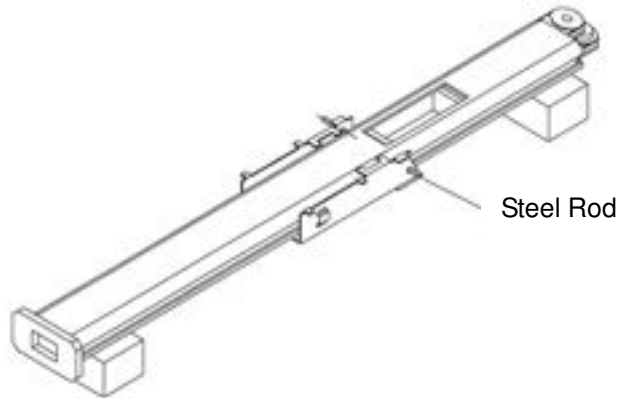
Flat head cap screw



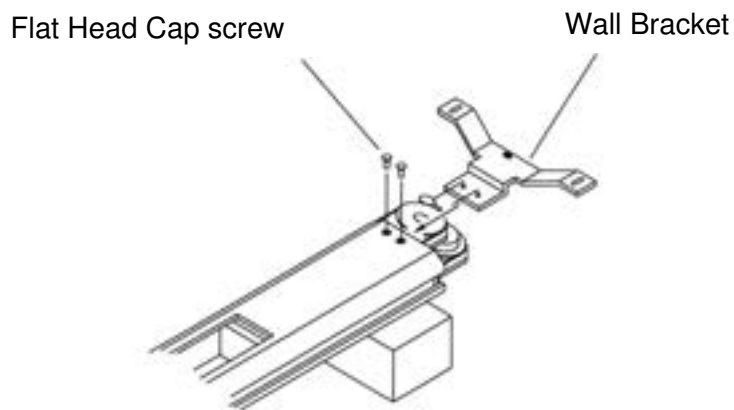
3. Move the Sliding Unit until the hole of Sliding Unit and the one of counter weight frame align.



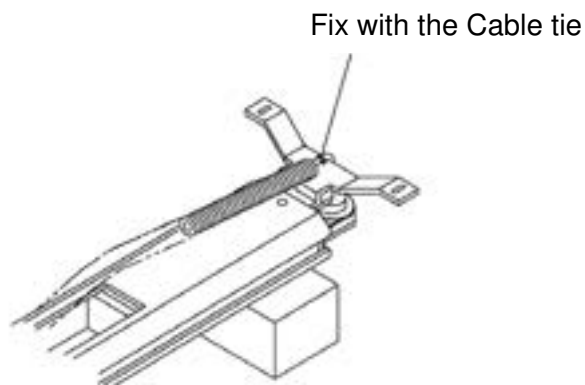
4. Insert the steel rod (provided) into the hole on the Pillar.



5. Fix the Wall Bracket to the upper part of Pillar by two flat head cap screws.



6. Fix the Electromagnetic Brake Control Cable at the upper part of Bracket by a cable tie. Connect this cable to CNK Board located on front side of the Sliding Unit.

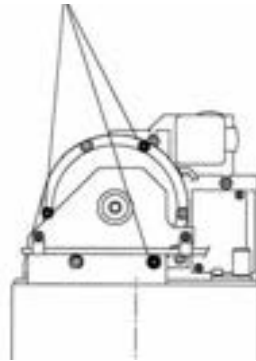


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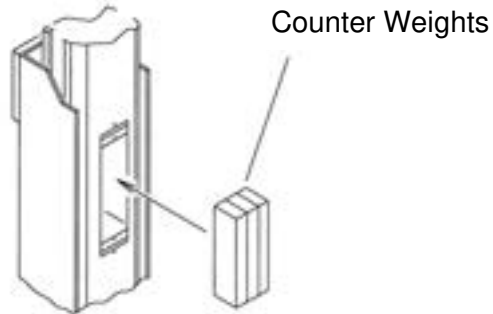
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7. Elect the Pillar and mount on the floor.
8. Fix the Pillar base and Wall Bracket.
9. Remove screws to release brake located at upper part of the Pillar.
Caution: Sliding Unit might move. Be careful not to pinch fingers.

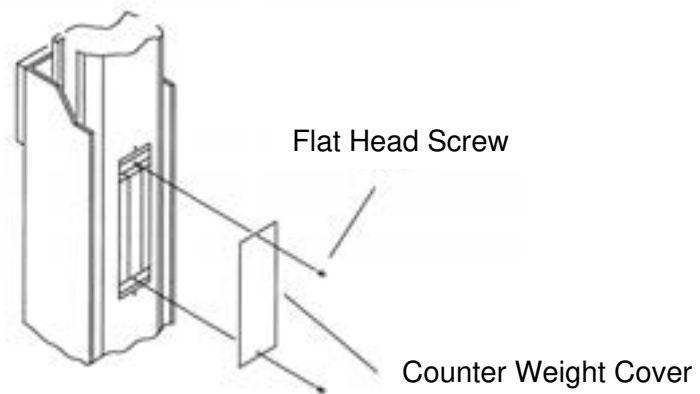
Screws for Brake Release



10. Put Counter Weights into Counter Weight Frame from back side of the Pillar.



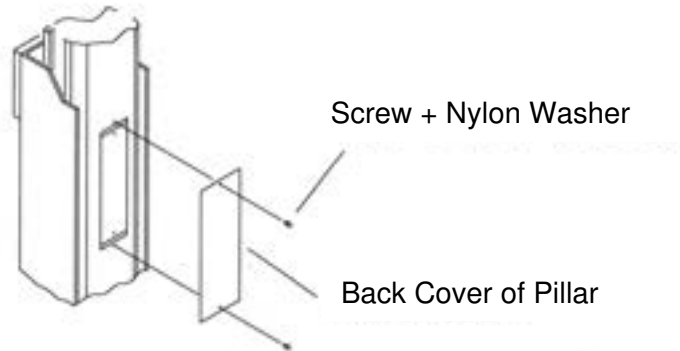
11. Attach the Counter Weight Cover on the Counter Weight Frame.



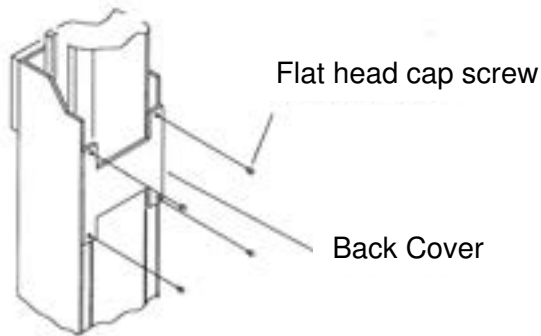
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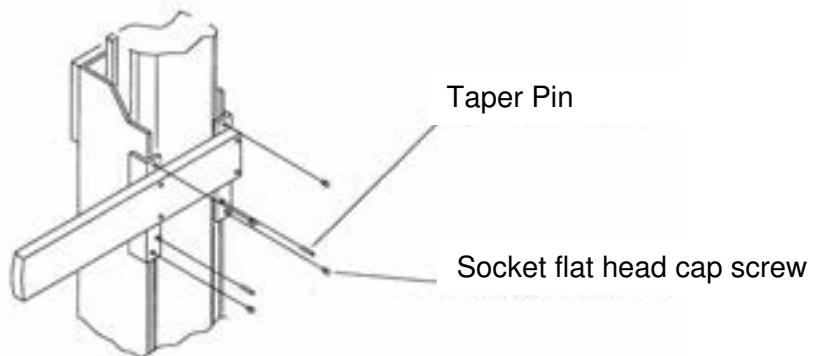
12. Attach the Pillar Cover on the back side of Pillar.



13 – 1. In case of ANA – BEL
Attach the Back Cover on back side of the Sliding Unit.

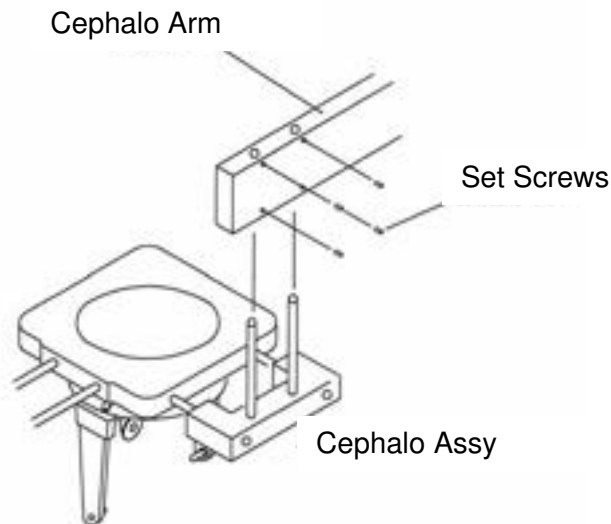


13 – 2. In case of ANA – BEL CM
1) Attach the Cephalo Arm on the back side of Sliding Unit. Align the Cephalo arm by using taper pins. Then fix it by Socket flat head cap screws.

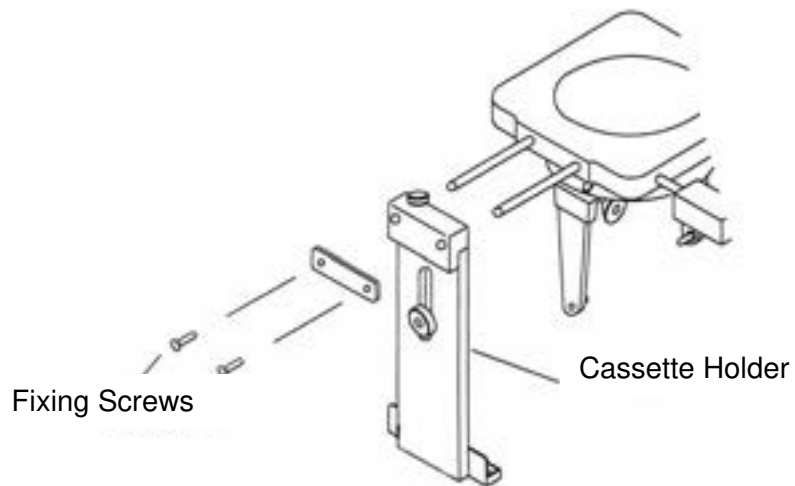


2) Cephalostat Assembly.

Insert two supporting rods of the Cephalostat into the holes of Cephalo arm from underneath as far as they go, then fix with four set screws.



3) Fix the Cassette Holder to the Cephalo Assy
Attach the cassette holder with two screws.

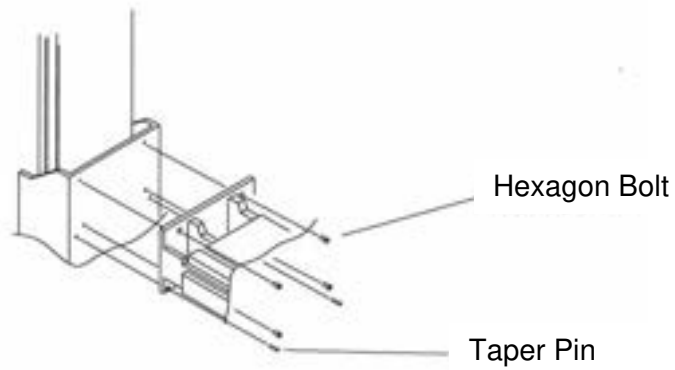


4) Connect the wire from Cephalo Arm to the CNK Board on front side of the Sliding Unit.

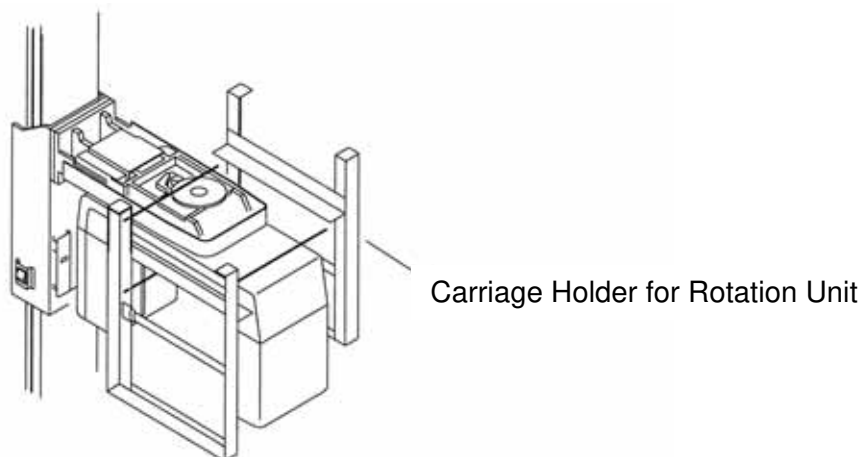
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14. By holding the carriage holders with two men, hook the rotation unit ass'y onto the sliding unit.
Align rotation unit by using taper pins. Then fix it by hexagon bolts.

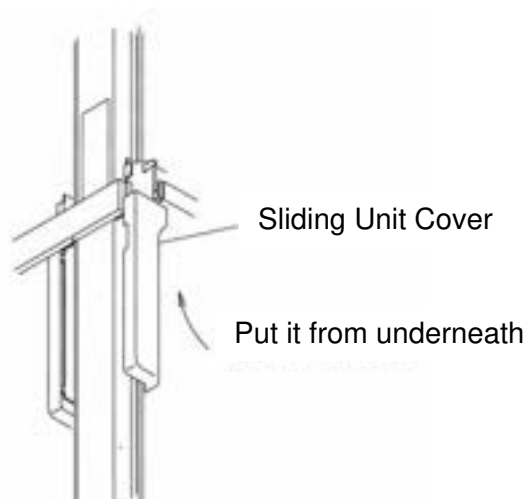


15. Remove Carriage Holders from the Rotation Unit

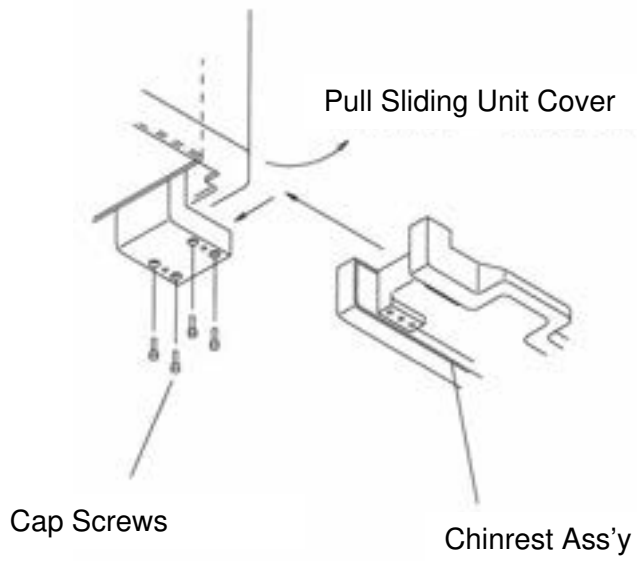


16. Connect the wire harness from the Rotation Unit to the CNK Board and the CNL2 Board located on front side of the Sliding Unit.

17. Put the Sliding Unit Cover on the Sliding Unit.

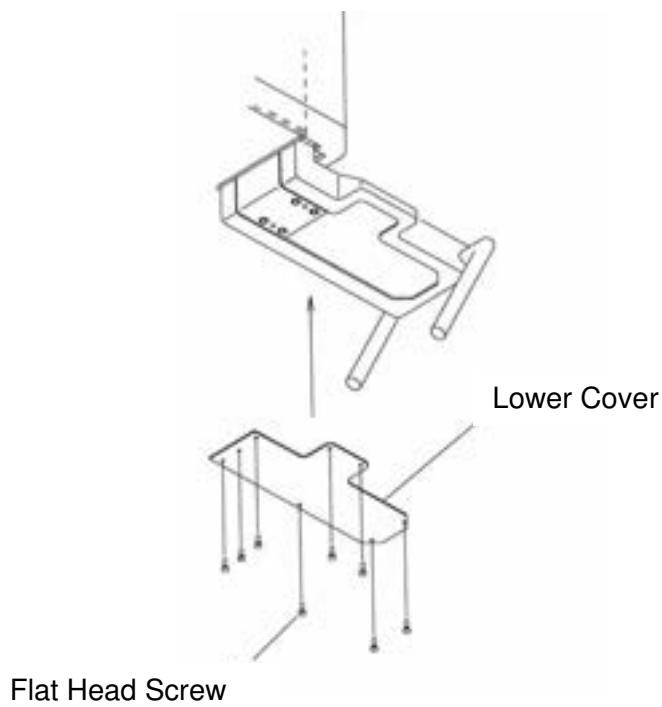


18. Insert the Chinrest Ass'y to lower part of the Sliding Unit while pulling the sliding unit cover.
Fix the chinrest ass'y by four cap screws.



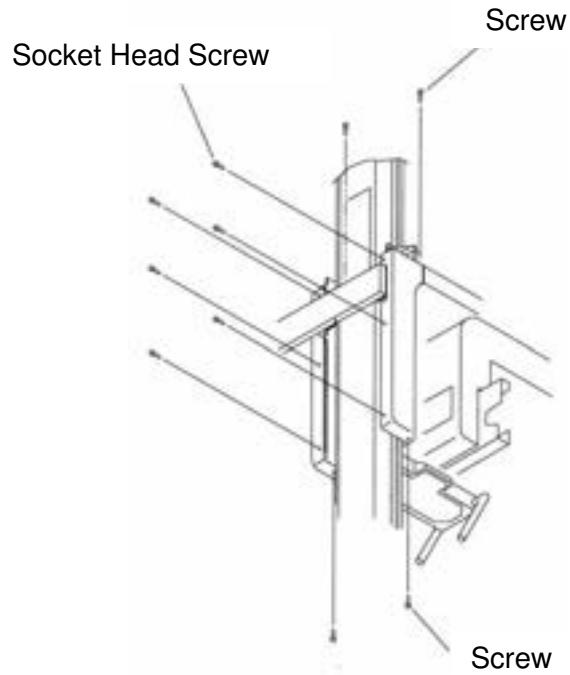
19. Connect wire harness from the Sliding Unit to the connector in Chinrest Ass'y.

20. Fix the lower cover to the bottom of the Chinrest Ass'y.



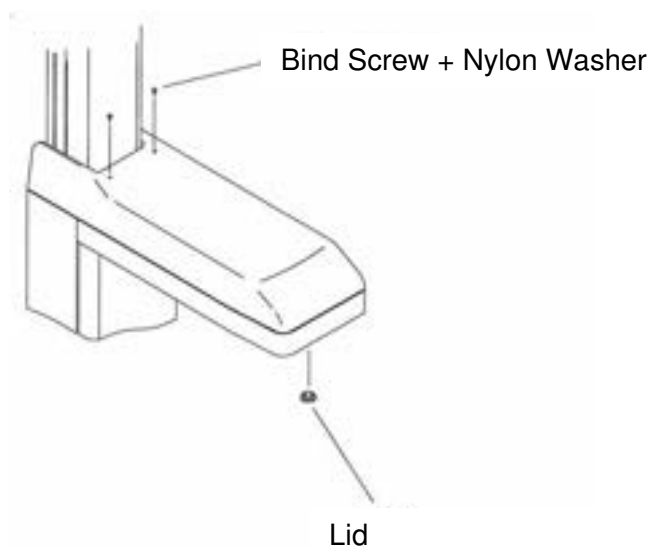
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22. Fix the Sliding Unit Cover to the Frame.

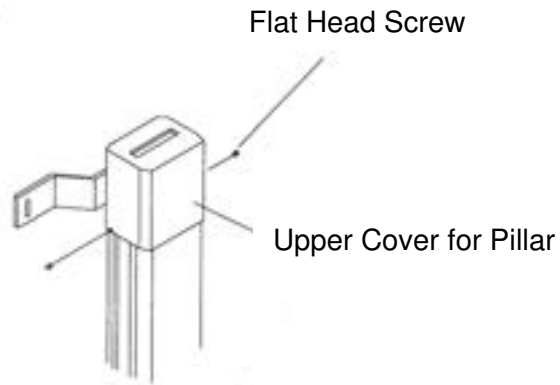


23. Remove the steel rod which is inserted to the Frame of the מזוודת עניינים.

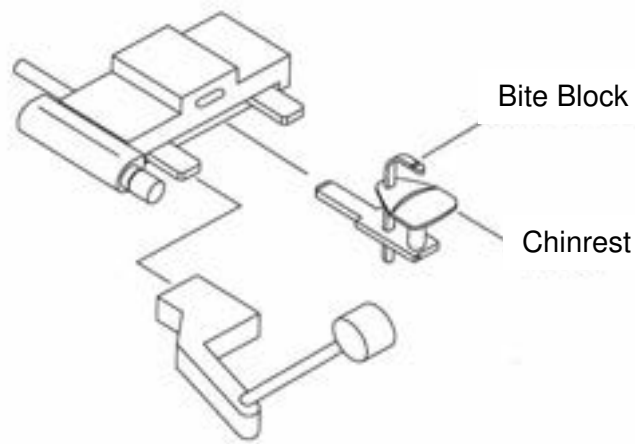
24. Fix the Rotation Unit Cover by two screws from the top and by a screw from the bottom. Put the lid to the bottom hole.



25. Fix the Upper Cover on Pillar by two flat head screws.



26. Put the Chinrest and Head Holding Rods to the Chinrest Unit.



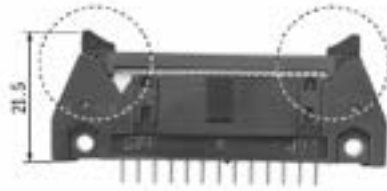
2. Wire Harness Connection

1. Sliding Unit

Connect the wire harness CNL2 (3P) from the Rotation Unit to the CNL2 (3P) located inside of the Sliding Unit.

Connect the wire harness CN1 (34P) from the Rotation Unit to the CN1 (34P) on the CNK Board located inside of the Sliding unit.

Lock wire harness firmly.



Connect the wire harness N2 (3P) from the Rotation Unit to the CN2 (3P) on the CNK Board located inside of the Sliding Unit.

(only for ANA- BEL CM) Connect the wire harness CN6 (4P) from the Cepahlo Arm to the CN6 (4P) on the CNK Board located inside of the Sliding Unit.

(only for ANA – BEL CM) Connect the wire harness CNSW2 (3P) from the Cephalo Arm to the CNSW2 (3P) on the CNK Board located inside of the Sliding Unit.

Be careful not to pinch a wire harness.

2. Chinrest Unit

Connect the wire harness CNR1 (6P) to the CNR1 (6P) located inside of the Chinrest Unit.

Connect the wire harness CNR2 (6P) to the CNR2 (6P) located inside of the Chinrest Unit.

Connect the wire harness CNM (4P) to the CNM (4P) located inside of the Chinrest Unit.

Be careful not to pinch a wire harness.

3. Power Plug

Connect the Power Plug to the power outlet which conforms to the rating mentioned on the description plate.

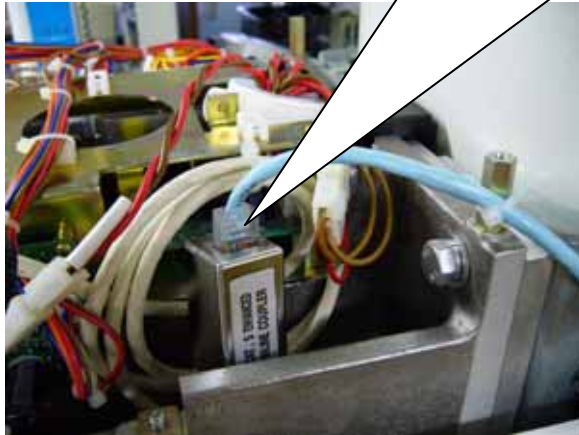
Connection Check Table

Portion	Name of Connector	Check
Sliding Unit	CNL2(3P)	
	CN1(34P)	CNK BOARD
	CN2(3P)	CNK BOARD
	CN6(4P) (only for ANA – BEL CM)	CNK BOARD
	CNSW2(3P) (only for ANA – BEL CM)	CNK BOARD
Rest Unit	CNR1(6P)	
	CNR2(6P)	
	CNM(4P)	

4. Connection of LAN cable (only for Digital)

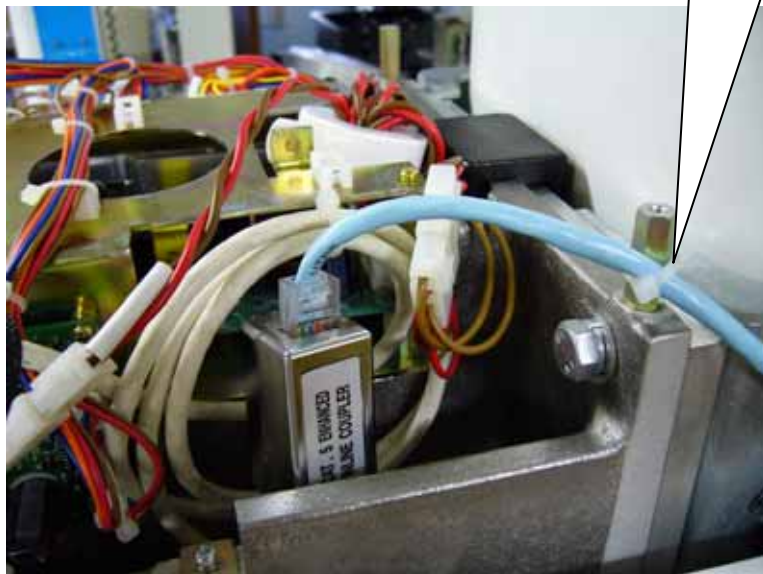
1) Connect the LAN cable to the LAN coupler located inside of the rotation Unit.

Connect the LAN cable to the LAN coupler



2) Fix LAN cable by using a cable tie.

Cable tie



- 3) Remove screws(right side, 3 places) on the sliding unit.
Pull right side of the sliding unit cover, and pass the LAN cable through the opening of the cover.



- 4) Put the sliding unit cover back.
- 5) Hold the LAN Cable by a cable tie mount and fix it by a M3 x 10 screw.
- 6) Fix the LAN cable by a cable tie



Cable tie mount
Cable tie

- 7) Connect the LAN cable to the PC.

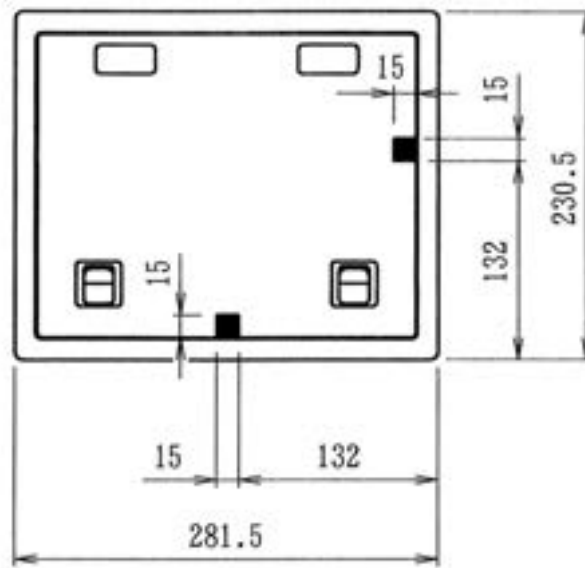
3. ANA – BEL CM (with Cephalo)

Positions of Felt patches for the Cephalo Cassette

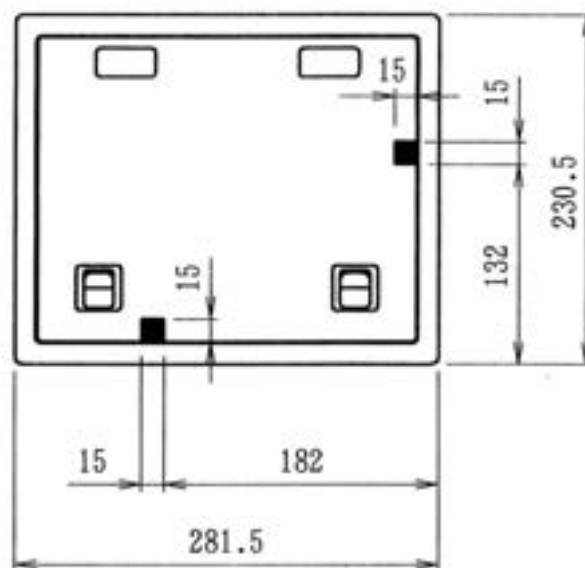
Note: Before putting Felt patches, wipe the surface with alcohol.

Put Felt patches to the following positions.

Right side Cephalo setup



Left side Cephalo setup



08. Post-Installation Instructions

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8-5) When Focus Beam moves to the maximum positions, are the values on display +25 and -25?



Also, operator should pay attention to patient, assistant, and equipment during an exposure.



Refer to Characteristic Drawing of Emission for Cathode

1 4 . Supplied Voltage of Primary Side for 50-100kV Output

About 150 Vp (PWM)

1 5 . Weight of X-ray Generator

About 7.13 kg



3.7kgf.









CAUTIONS

Read this page carefully before using the tube.

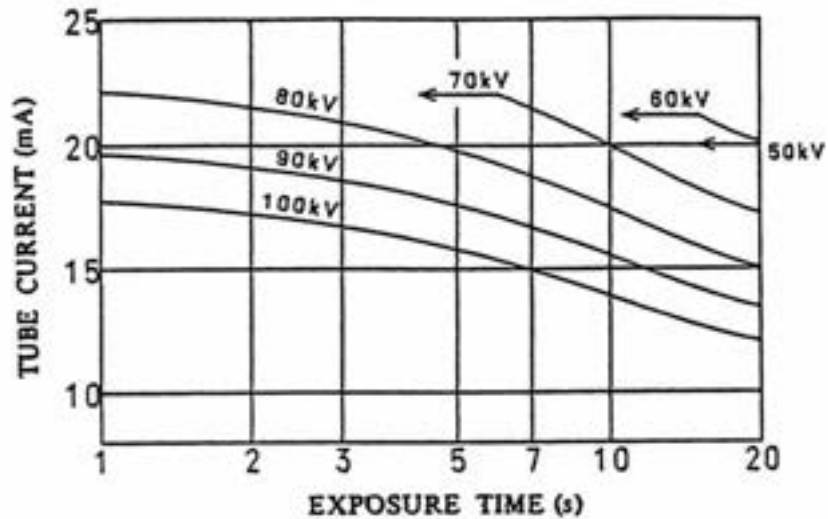
Since X-ray tube will emit X-rays when it is energized with high voltage, special knowledge is required to handle it. The items below show general cautions for the tube handling.

1. The tube shall be handled or operated only by qualified personnel.
Only a specialist with knowledge of X-ray tube should assemble, maintain and remove the tube.
2. The tube envelope is made of glass. In transporting and handling, sufficient care should be taken not to give strong impact or vibration to the tube.
3. Radiation protection of the tube unit assembled with this tube must be sufficiently taken. And the leakage technique factor of the tube unit must not exceed maximum anode cooling rate of this tube.
4. Regulations and standards require the minimum source-skin distance (SSD) and the minimum filtration of the useful beam. Use the tube after fulfilling the requirements.
5. The tube might be broken due to only one overload operation.
Provide proper overload protection circuit. Operate the tube by selecting a proper input condition according to the conditions for operation and tube characteristics charts.
6. The X-ray shield of this tube is made of lead(Pb). Powdered or vaporized lead is harmful to the human body. The lead shield should not be machined, polished, burned, or wiped with any chemicals. The dispose of lead shield in accordance with the prevailing governmental regulations.
7. If any abnormality is found in using this tube, immediately switch off the power supply and contact TOSHIBA service department.
8. The charts of this technical data are indicating standard values.
For usage not described here or for any unclear items, please contact TOSHIBA service department without hesitation.

MAXIMUM RATING CHARTS (ABSOLUTE MAXIMUM RATING CHARTS)

DC

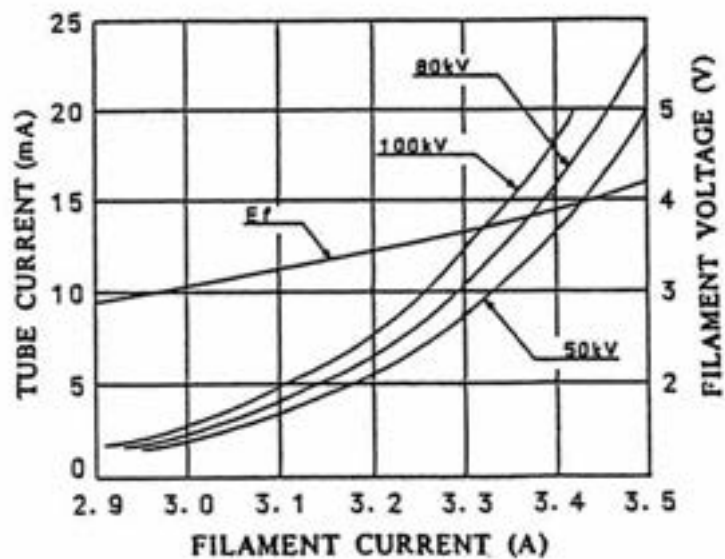
FOCAL SPOT : 0.5 mm



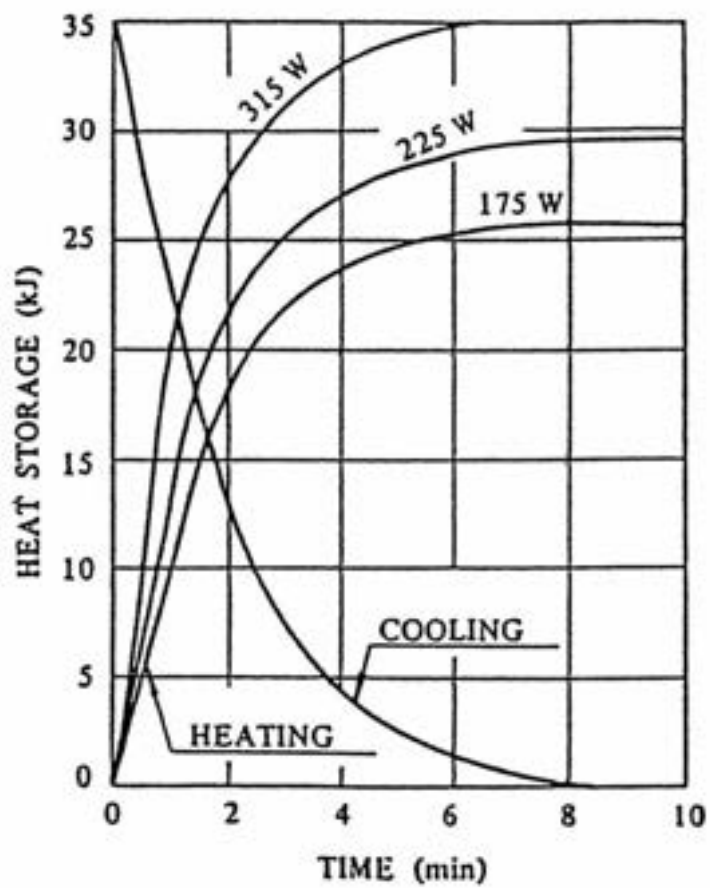
EMISSION & FILAMENT CHARACTERISTICS

DC

FOCAL SPOT : 0.5 mm



ANODE THERMAL CHARACTERISTICS







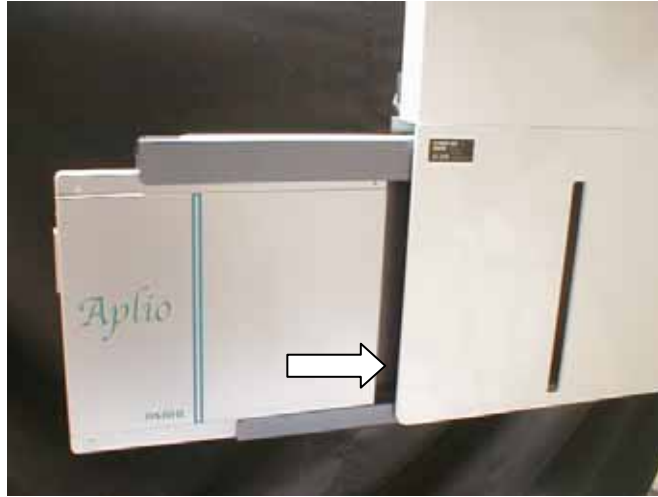


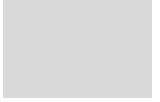
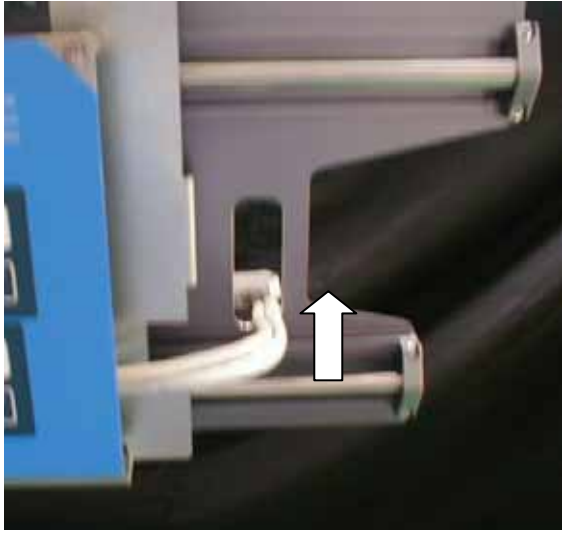


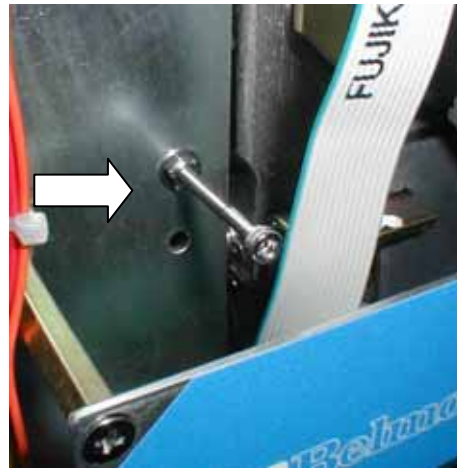
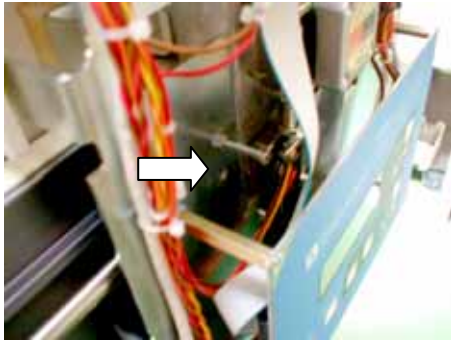




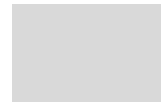
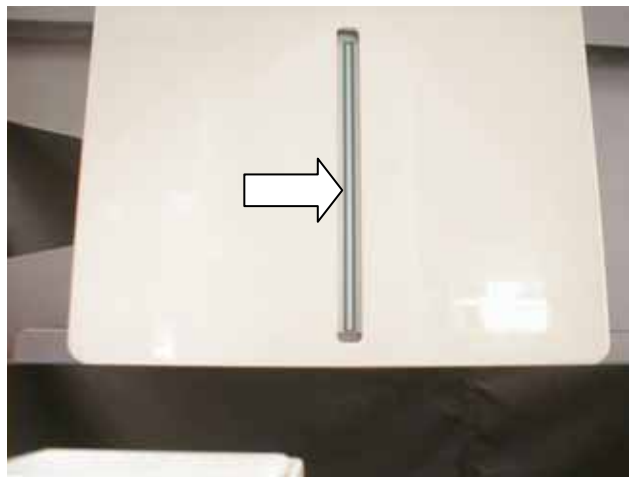








2. Align vertical lines on the Digital Sensor with the center of the Slit.

















16. Contact Information

Belmont Equipment

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