

PRO▶VECTA® HD

Intraoral Dental X-ray System

Installation Instructions



CE 2460

AIR
TECHNIQUES equipped for life™

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Important information

The following information is supplementary to the Operating Instructions provided with the Provecta HD unit. Always refer to the Operating Instructions for important detailed information, e. g. Safety Instructions, Set-up, Electrical Connections, Disinfection, Cleaning, etc.

1 Documentation

1.1 Warnings and symbols

Warnings

The warnings in this document are there to point out possible injury to persons or damage to machinery.

The following warning symbols are used:



General warning symbol



Warning - dangerous electrical voltage



Warning - X-rays

The warnings are structured as follows:



SIGNAL WORD

Description of type and source of danger

Possible consequences of ignoring the safety warning here

- Measures to be taken to avoid any possible danger.

The signal word differentiates between different levels of danger:

- **DANGER**
High risk of danger of serious injury or death
- **WARNING**
Possible risk of danger of serious injury or death
- **CAUTION**
Risk of danger of minor injuries
- **NOTICE**
Risk of serious damage



Federal law restricts this device to sale by or on the order of a dentist licensed by the law of the State in which he practices to use or order the use of the device. Use of this device, other than as described in this manual, may result in injury.

Additional symbols

These symbols are used within the documentation and on the unit itself:



Notes, e.g. special instructions concerning economical use of the unit.



Observe the accompanying documentation.



UL certification mark.

IEC/EN 60601-1 (3rd Ed.)

UL 60601-1 (1st), IEC/EN 60601-1-2

IEC/EN 60601-1-3, IEC/EN 60601-2-65

CE ²⁴⁶⁰ CE Labeling



Manufacturer



Date of Manufacture



Class I, Type B

Indicates the authorized representative in the European Community.



EC Representative; Vatech Global France (SARL)

51 Quai de Dion Bouton 92800 Puteaux France



Wear protective gloves



Switch off the device (i. e. unplug and disconnect from mains).

1.2 Notes on copyright

All circuits, processes, names, software and appliances quoted are protected under industrial property rights.

Any reprinting of the technical documentation, in whole or in part, is subject to prior approval of Air Techniques being given in writing.

2 Safety

This unit has been so designed and developed that under normal and proper usage any possibility of damage or injury can be virtually ruled out. However, there is always a small margin of risk. Please observe the following instructions carefully.

2.1 Correct use

This unit is designed solely for acquiring intraoral X-rays used in the examination and diagnosis of diseases of teeth, jaw and the oral cavity.

2.2 Incorrect use

Any use of this appliance above and beyond that specifically described in these instructions will be deemed to be as not according to the intended use. The manufacturer cannot be held liable for any damage resulting from incorrect usage. The user bears all risks.

2.3 General safety notes

- Before using the X-ray unit observe any and all guidelines, laws, regulations and other restrictions which may apply to the appliance.
- Before each use check the function and condition of the appliance.
- Do not convert or change the appliance in any way.
- Make sure to follow the instructions precisely.
- Keep this document in an accessible place so that the operator has instant access.

2.4 Radiation protection

- Observe all mandatory current X-ray protection rules and take all necessary X-ray protection measures.
- Use prescribed X-ray protection equipment.
- In order to reduce the amount of X-ray exposure, we recommend the use of bismuth, lead shielding or protective aprons, especially for children and teenagers.

- Any operative personnel must remain at least 5 feet (1.5 m) from the X-ray unit when taking any radiographs.
- Within the radiation room there must be no other person present beside the patient without X-ray protection measures. In exceptional circumstances a third party may be present to give assistance, but this must not be a member of the surgery staff. Ensure visual contact during exposure with the patient and the unit.
- In the case of any interruption when taking an exposure, stop the procedure immediately by letting go of the release switch.

2.5 Qualified personnel

Instructions for use

Persons who operate the appliance must, on the basis of their training and knowledge, ensure safe and correct handling of the appliance.

- Ensure personnel are trained in the correct usage of the appliance.

Installation and repair

- Installation, resetting, alterations, extensions and repairs must be carried out by Air Techniques or by qualified personnel specifically approved and authorized by Air Techniques.
- Equipment not suitable for use in the presence of flammable anaesthetic mixture with air or oxygen or nitrous oxide.

2.6 Protection against electrical current

- When working on and with the appliance always observe the local electrical safety procedures.
- Never come into contact with patients and open plug-in connections on the appliance at the same time.
- Damaged supply lines and connections must be replaced immediately.

Observe guidelines for electro-magnetic compatibility for medical devices

- Follow special precautionary measures with regard to electromagnetic comparability (EMC) for medical products, see section 12 Information on EMC according to EN 60601-1-2".

2.7 Only use original parts

- Only Air Techniques parts or accessories and special accessories specifically approved by Air Techniques may be used.
- Only use original working parts and spare parts.

i Air Techniques cannot accept any liability for damage caused by the use of accessories and special accessories not specifically approved by Air Techniques or not using original working parts and spare parts.

2.8 Transport

The original packaging offers the optimum protection for the appliance during transport.

If required, the original packaging for the unit can be ordered at Air Techniques.

i Air Techniques cannot accept any liability for damage caused during transport by the use of unsuitable packaging, this is also valid during the warranty term.

- Only transport the appliance in its original packaging whenever possible.
- Keep the packing materials out of the reach of children.
- Attach the transport locking devices again.
- Do not expose the device to any strong shocks.
- Do not bump or pull the unit.

2.9 Disposal

The equipment contains - in some of its parts - solid and liquid substances which must be disposed of at appropriate recycling centers conforming to all local, state and federal regulations. In particular, the equipment contains the following materials and/or components:

Tubehead:

Non-biodegradable plastic materials, metals, glass, dielectric oil, lead, tungsten.

Other parts:

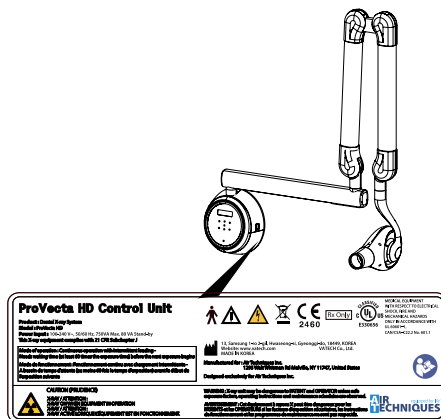
Non-biodegradable plastics, metals, printed circuits, and electronic components.

i Air Techniques is not responsible for disposal of the apparatus or parts thereof and for the related expenses.

2.10 Model identification plate

Appliance

The model identification plate is located on the rear side of the control unit housing.



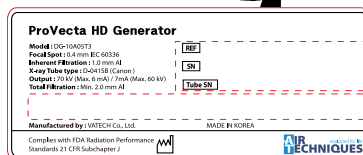
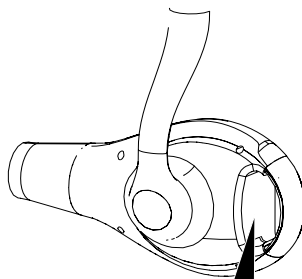
REF Order number

SN Serial number

UDI Unique device identification code

X-ray tube head

The model identification plate is located on the rear side of the X-ray unit.

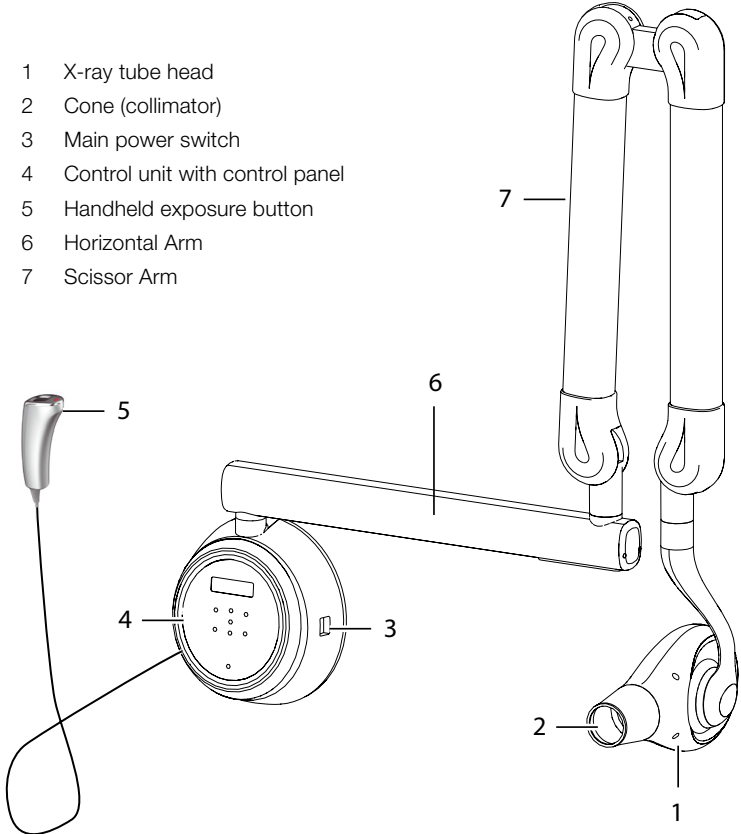


REF Order number

SN Serial number

Product description

3 Overview



3.1 Technical data

Unit electrical data

Nominal voltage	100 to 240 V AC
Max. voltage fluctuation	±10%
Frequency	50/60 Hz
Power rating	500 W
Maximum power	750 VA

Classification

FDA 21 CFR Device Classification	Class IIb
This X-ray system complies with US - FDA:	21 CFR Part 1010.2 21 CFR Part 1020.30/31
Degree of protection against ingress of water	Ordinary
Medical products directive (93/42/EEC)	
Manufacturer: VATECH Co., Ltd.	
13, Samsung 1-ro 2-gil, Hwaseong-si, Gyeonggi-do, 18449, Korea	

X-ray tube electrical data

X-ray Tube Type	Canon D-041SB (Stationary Anode Type)
Model	DG-10A05T3
Generator size and weight	5.5 x 6 x 3 in. (140 x 150 x 70 mm) 5.5 lbs. (2.5 kg)
Source to skin distance	8 in. (200 mm) 12 in. optional (300 mm)
Generator performance	0.5 kW
Nominal voltage (Accuracy)	50 to 70 kVp (±10%) (Values below 60 kV are not intended for human use in USA and Canada)
Nominal current (Accuracy)	4 to 7 mA (±20%)
X-ray tube cooling	Automatically controlled ≥ 122°F (50 °C) (Air cooling: optional)
Inherent filtration	1.0 mm Al
Total filtration	Min. 2.0 mm Al
Focal spot size according to IEC 60336	0.4 mm
X-ray field collimation	Ø 2.4 in./1.2 x 1.6 in ² (Ø 60 mm/30 x 40 mm ²) Optional 0.8 x 1.2 in ² (20 x 30 mm ²)
Exposure time (Accuracy)	0.04 to 2 seconds (±5% or ±20 ms)
Anode material	Tungsten
Anode angle	12.5 degrees
Duty cycle	1:60 or greater

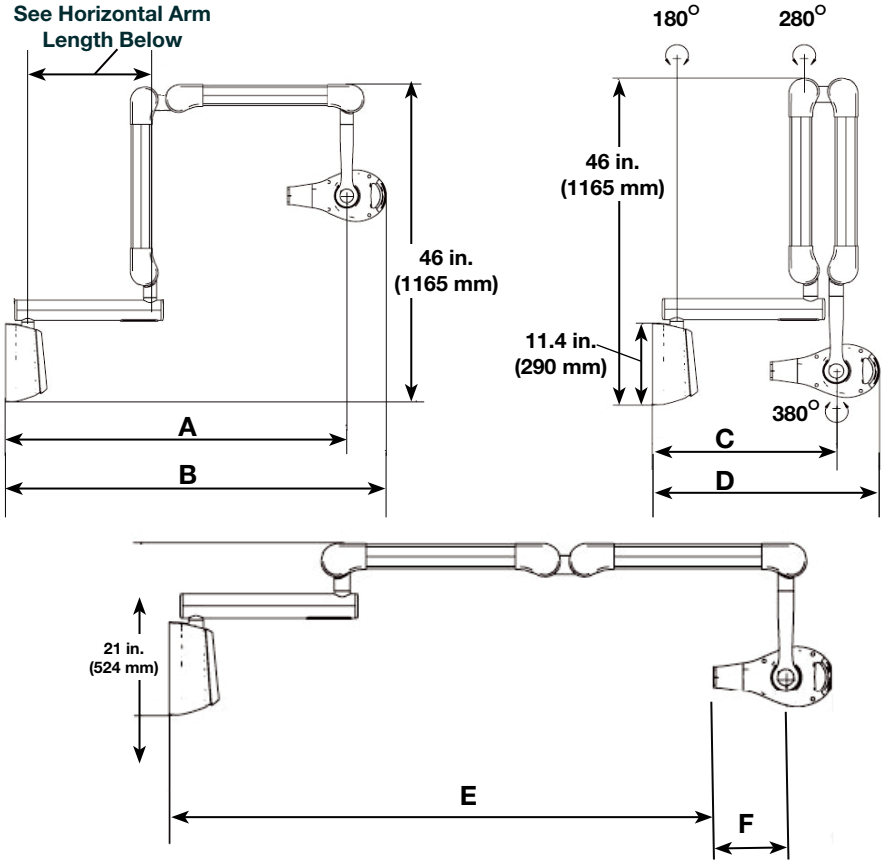
General technical data

	A6350-15	A6350-24	A6350-33
Arm length	17.7 in. (450 mm)	23.6 in. (600 mm)	35.4 in. (900 mm)
Storage height		46 in. (1165 mm)	
Weight	55 lbs (24.9 kg)	56 lbs (25.4 kg)	59 lbs (26.7 kg)

Ambient conditions

	during operation	during storage & transport
Temperature	50 to 95 °F (+10 to +35 °C)	14 to 140 °F (-10 to +60 °C)
Relative humidity	30 to 75%	10 to 75%
Air pressure	25 to 31 inHg (860 to 1060 hPa)	25 to 31 inHg (860 to 1060 hPa)

3.2 Dimensions

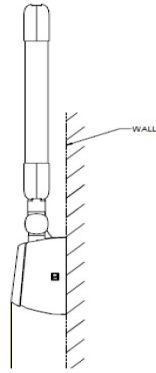


DIMENSIONS 'A' THRU 'E' :

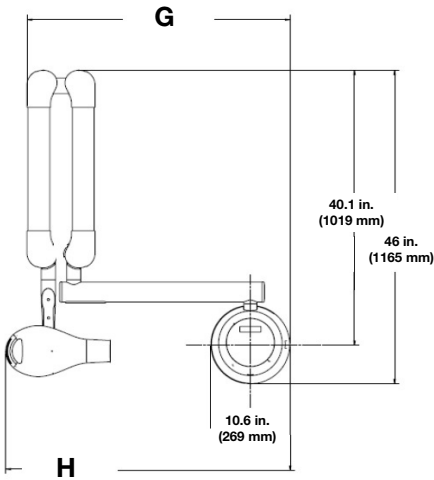
SINGLE POST WALL MOUNTING PLATE (P/N A6389) - ADD 0.5" (13mm)

16 CENTER TO CENTER WALL MOUNTING PLATE (P/N A6341) - ADD 1.0" (26mm)

Horizontal Arm length	A	B	C	D	E	F
17.7 inches (450 mm) PN A6350-15	50.3 inches (1278 mm)	56 inches (1422 mm)	24.4 inches (620 mm)	30.2 inches (767 mm)	66.5 inches (1689 mm)	8.6 inches (220 mm)
23.6 inches (600 mm) PN A6350-24	56.25 inches (1429 mm)	61.75 inches (1568 mm)	31 inches (787 mm)	36.5 inches (927 mm)	71.75 inches (1823 mm)	8.6 inches (220 mm)
35.4 inches (900 mm) PN A6350-33	68.5 inches (1740 mm)	73 inches (1854 mm)	42 inches (1068 mm)	48 inches (1219 mm)	83.3 inches (2118 mm)	8.6 inches (220 mm)



6.0 in.
(151.2 mm)



Horizontal Arm length	G	H (Head Turned in)
		H (Head Turned out)
17.7 inches (450 mm) PN A6350-15	29.2 inches (742.5 mm)	32.1 inches (814.7 mm)
23.6 inches (600 mm) PN A6350-24	35.1 inches (892.5 mm)	35.0 inches (890 mm)
		37 inches (940 mm)
35.4 inches (900 mm) PN A6350-33	48 inches (1219.2 mm)	41 inches (1040 mm)
		50 inches (1270 mm)
		53 inches (1346 mm)

Equipment Setup

4 Pre-Installation Requirements

4.1 Delivery contents

The following articles are included in the scope of delivery.

- Provecta HD unit with short extension arm. A6350-15
- Provecta HD unit with medium extension arm A6350-24
- Provecta HD unit with long extension arm A6350-33
- X-ray tubehead
- Scissor arm
- Horizontal arm
- Control unit with control pane
- Exposure button and holder
- X-ray collimator, rectangular 1.2 x 1.6
- Installation Instructions
- Mains cable (110)
- Installation Mounting Hardware
- Operating Instructions

4.2 Special accessories

- Single stud wall mount plate kit A6336
- 16 on center wall mount plate kit. A6330
- X-ray collimator, rectangular 0.8 x1.2 in² A6346
- Extension cone, 12 inches (300 mm). . . . A6395
- Wallplate exposure pushbutton switch kit . . A6320
- Control panel remote mounting kit. A6400

Commissioning and intraoral constancy checks

- 2-D X-ray test phantom. G8795

4.3 Required tools not supplied

- Wrench set, hexagon socket, AF1.5 ... 10 mm
- Screwdriver PH1
- Screwdriver PH2
- Small screwdriver for slotted screws
- Cranked needle nose pliers
- Cable cutter
- Adjustable spanner 10°
- Spirit level
- Knife
- Tape measure
- Hammer
- Crimp tool
- Lubricating grease
- Multimeter
- Impact drills

4.4 FDA Reporting Form

Every Equipment Installation/Service/Maintenance should be reported using the respective forms and checklists as annexed at the end of this manual. Additionally, it is mandatory to report every installation by filling the Form FDA 2579 May 2010 and submitting it to:

FDA "Electronic Product Reports, Radiological Health Document Control (HFZ-309), Office of Communication, Education, and Radiation Programs, 9200 Corporate Blvd., Rockville, MD 20850," or Any e-Submission as per FDA Guidelines.

4.5 Installation Mounting Hardware

Description	Qty	Description	Qty
Horizontal arm brake 	1	Scissor arm brake 	1
Horizontal arm cover 	1	Ferrite Core 	1
X-ray emitter lock 	1	Flat head screw M3x6 	2
Supporting arm cover 	1	Grub screw M5x25 	1
Long supporting arm cover plug 	1	Grub screw M8x8 	1
Short supporting arm cover plug 	1	Steel wall plugs (only for concrete walls) M8x30 	5
Bottom horizontal arm cover 	1	Screw M8x20 	4
Screw M5x30 	2	Cable tie 	3
Screw M5x15 with spring washer 	2	Bolt M8x25L (with spring & flat washers) 	4 ea.
Screw M3x8 	6		

4.6 Site Preparation

Site Survey

- Make sure that the wall for mounting is strong enough for the installation and meet the support load requirements of paragraph 4.6.
- Make sure to review and understand all Technical data provided by paragraph 3.1 above.
- Make sure the mounting wall is level in both vertical and horizontal directions using a level indicator as shown below. If the wall is not level, adjust the leveling of the unit to be installed by inserting shims as required between wall plate and base unit plate.
- Make sure there shall be no electrical wiring conduits running around the area to be drilled for the installation bolts.
- Make sure that control unit to be mounted on the wall at a height of 45.25 inches (1150mm) for single stud mounting from the floor (above finished floor). However this can change based on site conditions without affecting the functionality of the system.
- Make sure the location allows sufficient space for movement of the arms in the extended condition.
- Make sure that the location allows the Provecta HD to be used with ease for all possible imaging procedures on the patient with respect to the patient chair location.

Site Environment Requirements

- Provecta HD is designed for indoor usage.
- It should not be subjected to direct sunlight for any extended duration.
- Mount the Provecta HD unit away from sources of liquid ingress.
- If the unit is stored below 50°F (10°C) , time must be allowed for the unit to reach room temperature before connecting it to the mains voltage.

Electrical Outlets & Requirements

- The mains outlet should have a ground connection. Grounding of the electrical system must be checked before connecting Provecta HD.
- Additional wiring required for the site must done by a qualified electrician. All wiring should conform to requirements provided by the User manual and in accordance with local codes.
- The mains outlet should be capable of supplying 16A (110V) of current. It shall have fuse protection or provided with a circuit breaker of 16A (110V).
- It is recommended to have an ELCB (Earth Leakage Circuit Breaker) for protection against earth leakage.



View A. Verify Vertical Leveling



View B. Verify Horizontal Leveling

4.7 Support Load Requirements

The Provecta HD is designed to mount on either a single 4" x 4" wood stud or two 1½" x 3½" wood studs that are spaced 16-inch on center and drywall or equivalent wall support.

The wall support and mounting hardware for the Provecta HD must withstand 220 pounds (99 kg) shear load, and a withdrawal force of 1600 lbf (720 kgf). The wall fabrication and attachments to the building structure must be capable of withstanding a moment load of 1353 lbf.ft (187 kgf.m).

4.8 Electrical Power Requirements

The system requires a three-wire power supply. The three-wires provide two power lines (L) Line and (N) Neutral and a Ground.

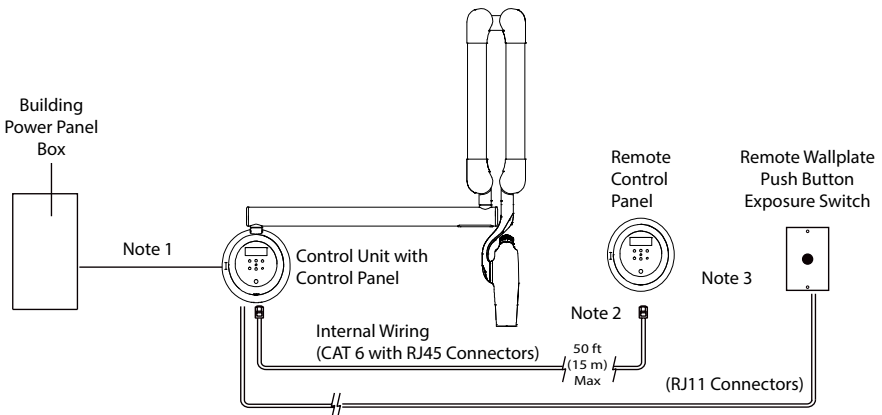
Line Voltage: 100 to 240 +/- 10%

Exposure Current: 8 Amp

Main Fuse Rating: 10 Amp

4.9 Wiring Length and Gauge Requirements

Maximum length of wire and minimum gauge wire (AWG) from the power panel box to the Base Unit.



Provecta HD External Wiring Schematic

Note 1 - Power wiring

AWG 14 or higher as per local code requirements

Note 2 - Remote wiring

Recommended cable length for RJ45 is 50 feet (15m) maximum when using Remote console and pushbutton exposure switch configurations.

No crossover in any of the RJ45 and RJ11 connector cables used for remote console configuration (i.e., 1 to 1 connections).

Note 3 - Remote control options

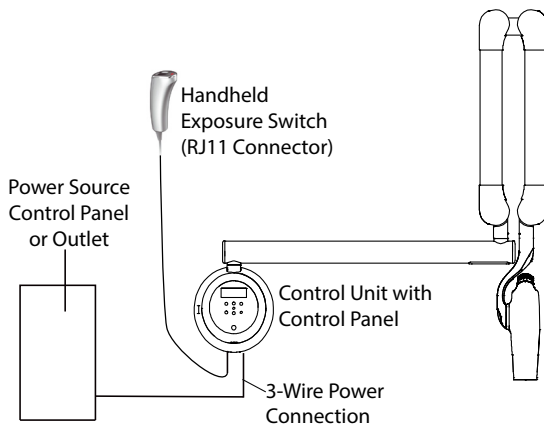
See the six control configurations available for Provecta HD.

4.10 Remote Switch Configurations

The six remote switch configurations available for Provecta HD are shown below.

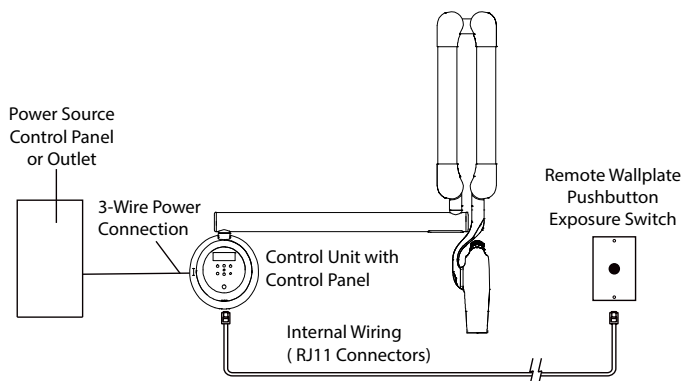
Configuration No. 1 -

Corded Handheld Exposure Switch and Control Keypad Console mounted to base unit.



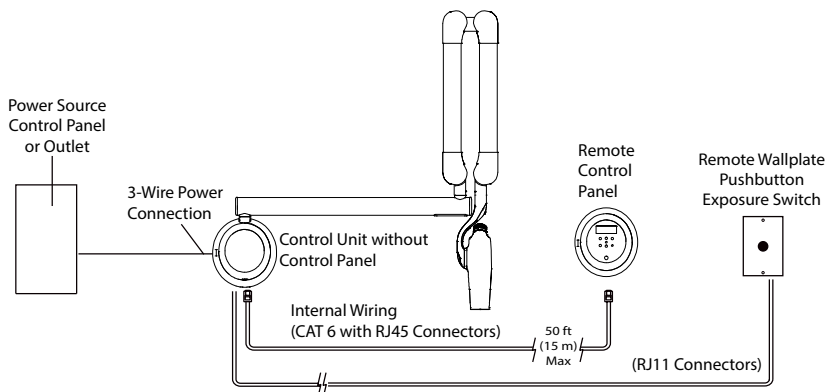
Configuration No. 2 -

1 ATI Remote Wall Plate Pushbutton Exposure Switch Kit (A6320) (RJ11)



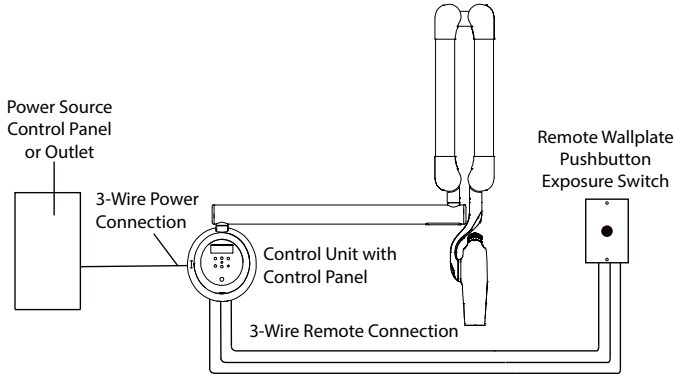
Configuration No. 3 -

Wall Mounted Remote Keypad Console using Control Panel Remote Mounting Kit (A6400) and ATI Remote Wall Plate Push Button Exposure Switch Kit (A6320)



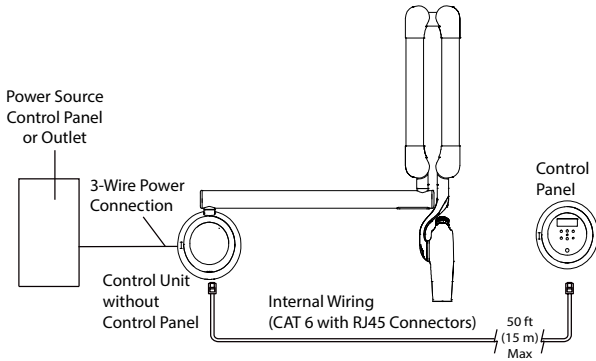
Configuration No. 4 -

1 ATI R emote Wall Plate Pushbutton Exposure Switch Kit (A6320) (3 wire)



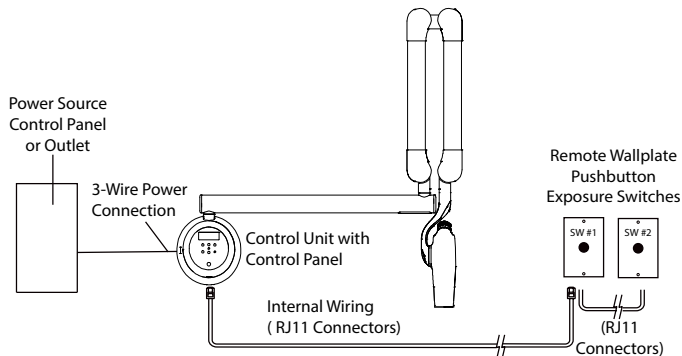
Configuration No. 5 -

Wall Mounted Remote Keypad Console using Control Panel Remote Mounting Kit (A6400)



Configuration No. 6 -

2 Remote Wall Plate Pushbutton Exposure Switch Kits (A 6320) (RJ11)

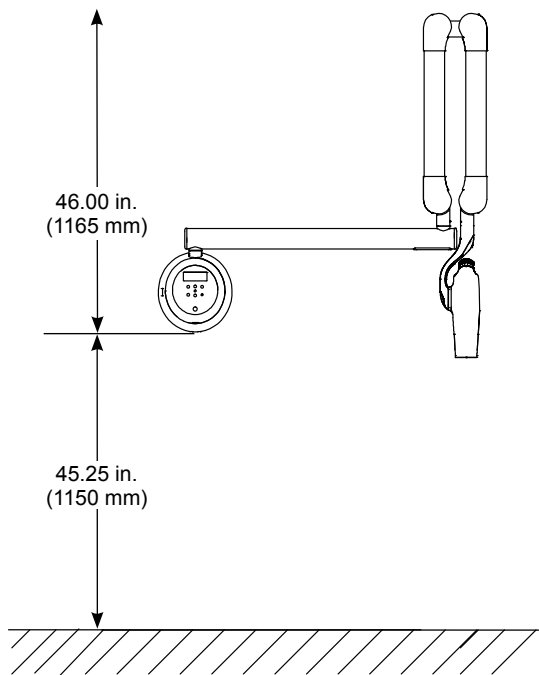


5 Installation

5.1 Installation Procedure Summary

This section provides procedures to install the Provecta HD. Install the Provecta HD by performing the procedures listed below and provided by the following paragraphs.

1. X-ray base unit Wall Mounting Options
 - Single Post Mount (4 x 4 inch post) installation using mounting plate P/N A6389
 - 16 Inch on Center Mount installation using mounting plate P/N A6341
2. Control unit disassembly for base unit access
3. Base unit lock slide setup
4. Base unit with exposure keypad installation
5. Horizontal arm and scissor arm installation
6. Tubehead installation
7. Determine optional remote switch configuration and install as necessary. (See kit, part number A6320.)
8. X-ray control and main power connections

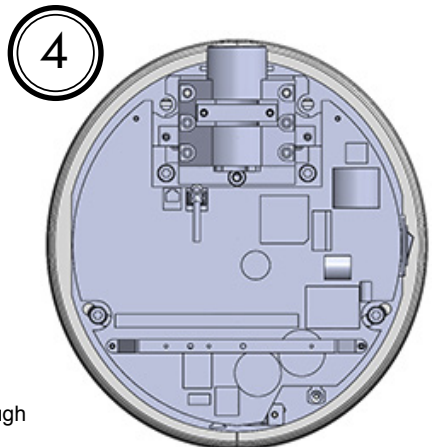
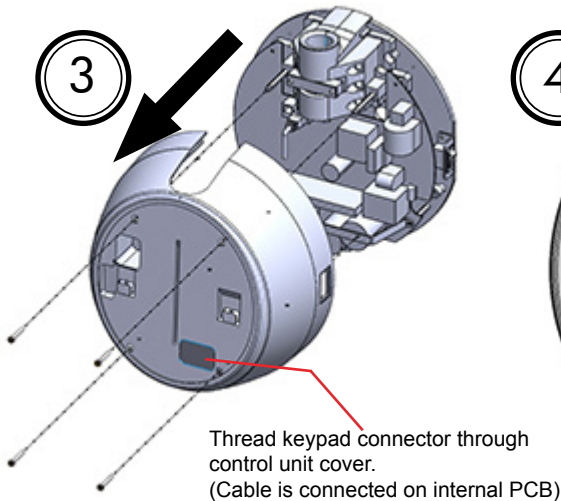
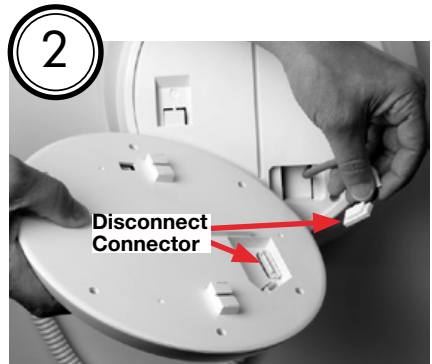
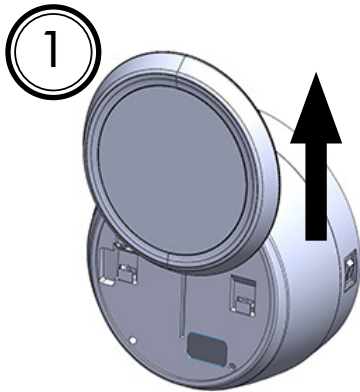


Provecta HD Base Unit Placement Above Floor (minimum 8 foot ceiling)

5.2 Control Unit Disassembly for Base Unit Access

The Provecta HD control unit comprises the control panel, cover and base unit. In order access the base unit to mount on the wall plate and make connections to the associated PCB, the control unit must be disassembled. Refer to the illustrations below and disassemble the control unit by performing the following steps.

1. Slide the control panel slightly horizontal up.
2. Disconnect the rear keypad connector and remove the control panel from the control unit.
3. Loosen the 4 screws securing the control unit cover and carefully thread the keypad connector through the control unit cover while removing the cover.
4. Proceed to the lock slide setup for the base unit as necessary.

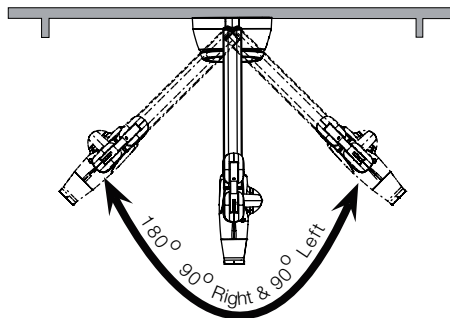
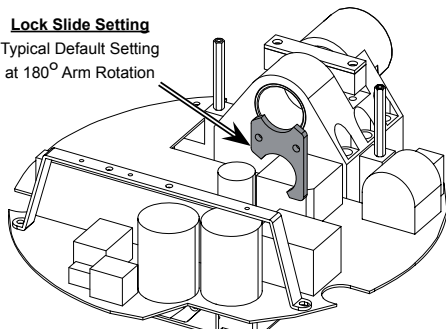


5.3 Base Unit Lock Slide Setup

The Provecta HD base unit has a lock slide that is used to control the rotation or swing of the horizontal arm. Depending on the lock slide setup, the arm can only be swung to the left 90 degrees from center, 90 degrees to the right from center or completely 180 degrees right and left. Refer to the illustrations below and set the lock slide for the desired arm control by placing the lock slide in the associated configuration as shown. Repositioning the lock slide is as easy removing the two securing screws, placing the lock slide in position and securing the slide with the two screws.

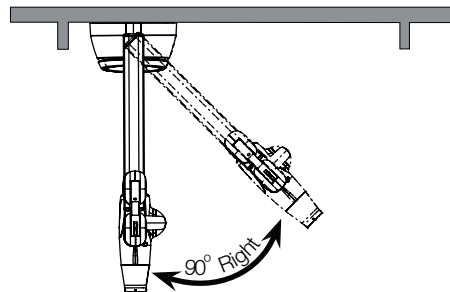
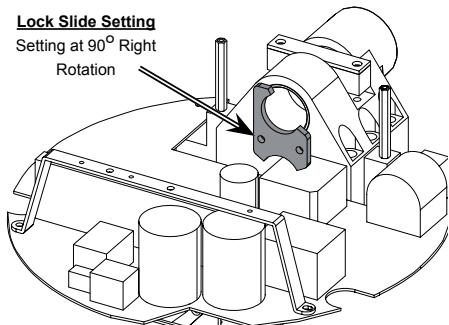
Lock Slide Setting

Typical Default Setting at 180° Arm Rotation



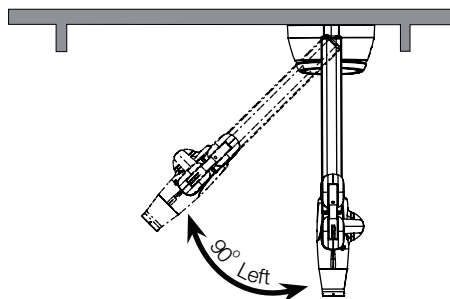
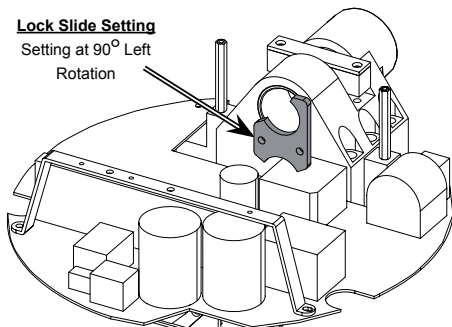
Lock Slide Setting

Setting at 90° Right Rotation



Lock Slide Setting

Setting at 90° Left Rotation

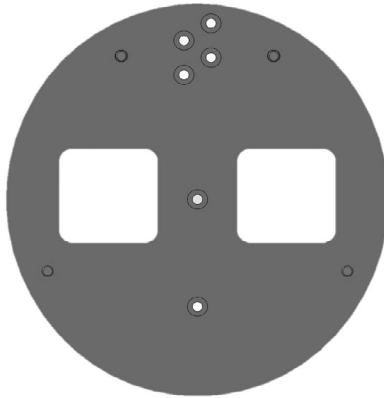


NOTE: Verifying the wall support capability and the selection of the proper mounting hardware is the responsibility of the installer.

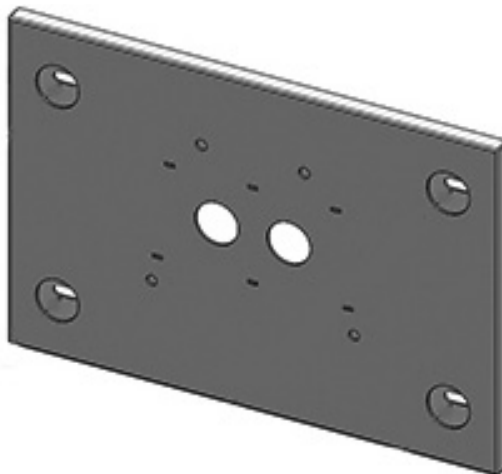
5.4 Base Unit Wall Mounting Options

The Provecta HD base unit is designed to mount on a single wood 4 x 4 post or equivalent drywall wall stud support using either the Single Post Wall Mounting (4 x 4 inch post) Plate installation kit (P/N A6336) or the 16 Inch Center to Center Wall Mounting Plate installation kit (A6330) mounting methods. Refer to the procedures provided with the corresponding mounting plate installation kit to install the plate and mount the base unit.

Single Post Wall Mounting Plate, P/N A6389



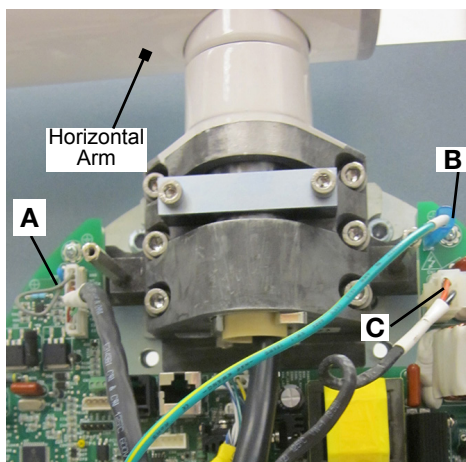
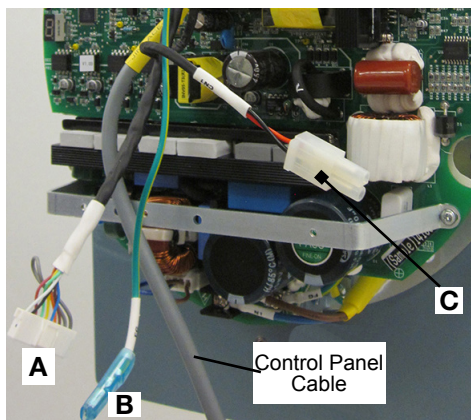
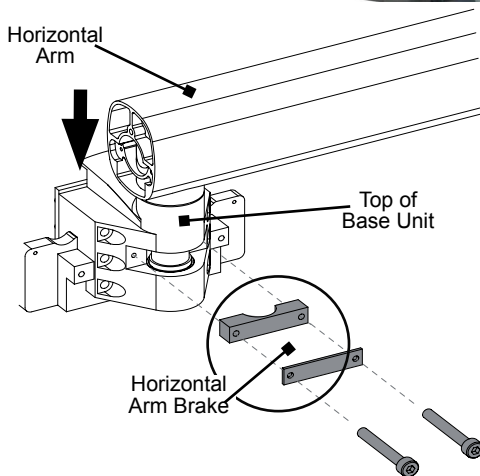
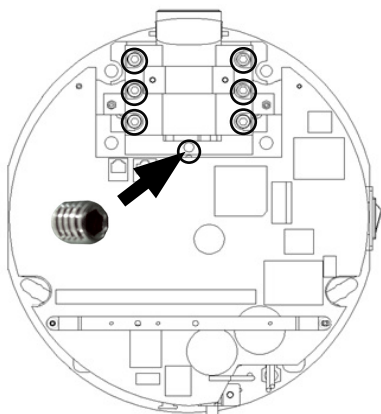
16 Center to Center Wall Mounting Plate, P/N A6341



5.5 Installing the Horizontal Arm

Mount the horizontal arm on the installed base unit by performing the following procedure.

1. Check the spirit level and align if necessary.
 - 1) Place the spirit level on the position, as shown in the figure.
 - 2) Vertical leveling control.
 - Loosen 6 point wrench bolt by using the wrench and insert grub screw M8x8 and adjusted vertical level.
2. Insert the horizontal arm shaft into the base unit making sure not to pinch the 3 Wire Harness.
3. Mount the horizontal arm brake with 2 screws, M5x30.
4. Connect the three horizontal arm cables A, B and C as shown below.





CAUTION

Scissor arm can spring open causing injury.

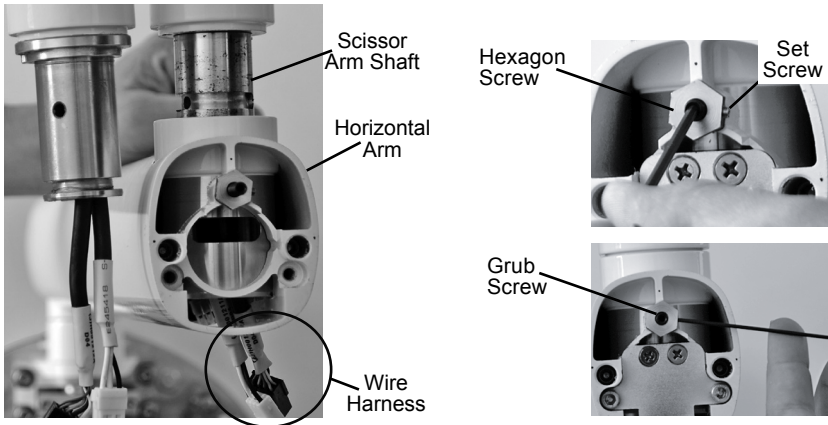
- Do not cut strap securing the scissor arm until completion of installation procedures..

5.6 Installing the Scissor Arm

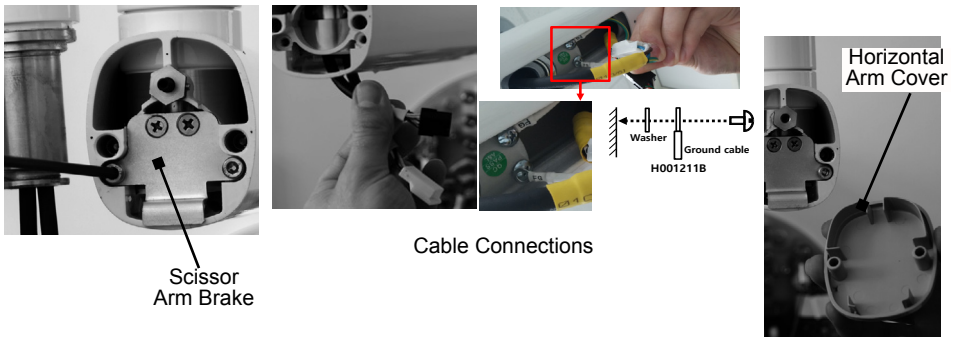
Mount the scissor arm onto the installed horizontal arm by performing the following procedure.

NOTE: Apply grease lightly to the scissor arm shaft as necessary.

1. Insert the scissor arm shaft into the horizontal arm making sure not to pinch the attached cables.
2. Install and tighten the M5x25 grub screw into the hexagon screw.
3. Make sure the hexagon screw is also tightly screwed in.
4. Tighten the set screw on the side of the head of the hexagon screw.



5. Attach the scissor arm brake with two M5x15 screws with spring washer on the horizontal arm.
6. Connect the ground cable to the PE conductor by using the truss head screw.
7. Connect the cables of the scissor arm and the horizontal arm and screw on the cover with the two M3x6 flat head screws.
8. Place the horizontal arm cover on the horizontal arm.



5.7 Installing the X-ray Emitter



CAUTION

Danger of lead poisoning

- Do not touch the X-ray tube without protective clothing.
- Wear protective clothes when disassembling the tubular housing.



NOTICE

Danger of mechanical damage to the X-ray tube

- Mechanical damage to the X-ray tube due to the X-ray emitter falling
- Safely mount the X-ray emitter.



CAUTION

Damage to the unit due to relaxing of the scissor arm

- The scissor arm can relax during assembly work.
- Make sure that the scissor arm is folded during all assembly work.



CAUTION

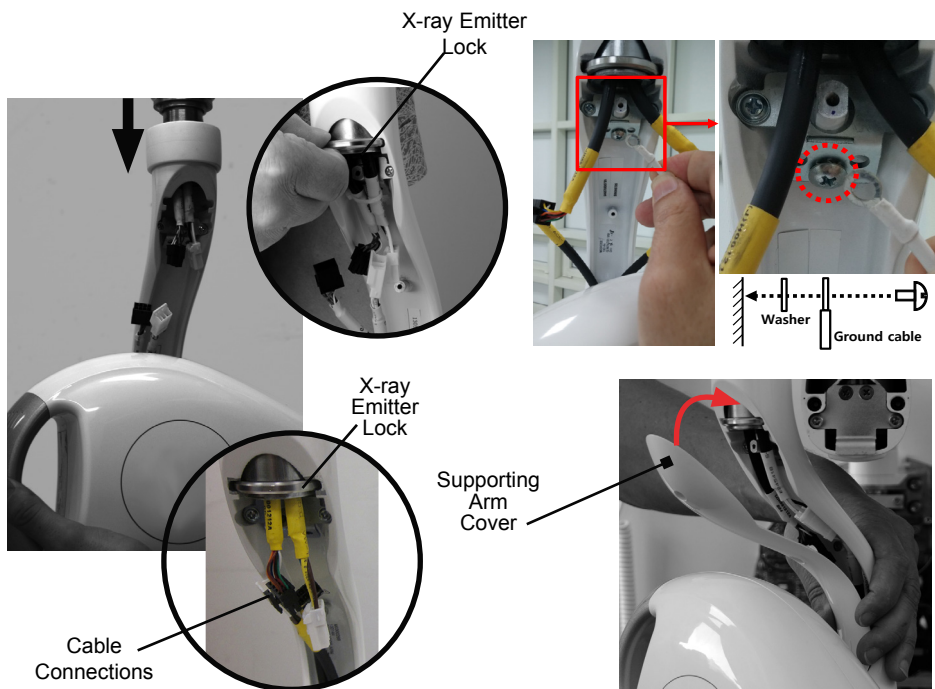
Damage to the unit due to incomplete assembly

- If replacement task is interrupted, the securing strap can loosen, the unit can fall and the scissor arm can relax.
- Completely mount the X-ray unit.

Mount the X-ray emitter on the installed scissor arm by performing the following procedure.

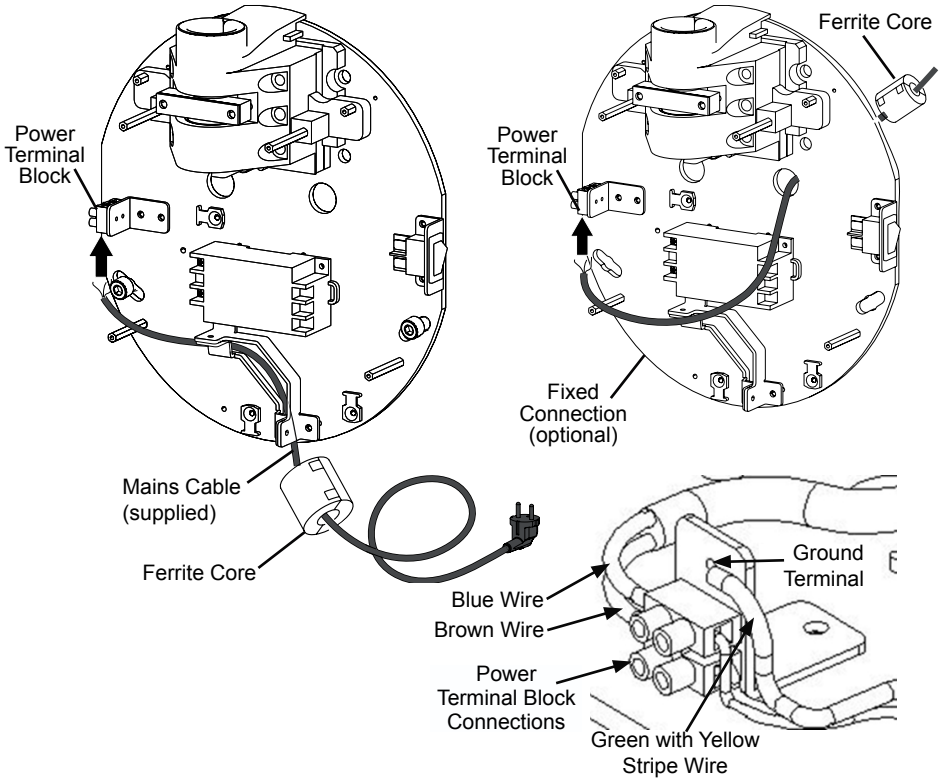
NOTE: Apply grease lightly to the X-ray emitter shaft as necessary.

1. Insert the X-ray emitter shaft into the scissor arm making sure not to pinch the associated cables.
2. Secure the X-ray emitter with the X-ray emitter lock.
3. Connect the mating connectors; black to black and white to white.
4. Connect the ground cable to the PE conductor by using the truss head screw.
5. Install the supporting arm cover with the two M3x8 screws making sure not to crush the cables when installing the cover.



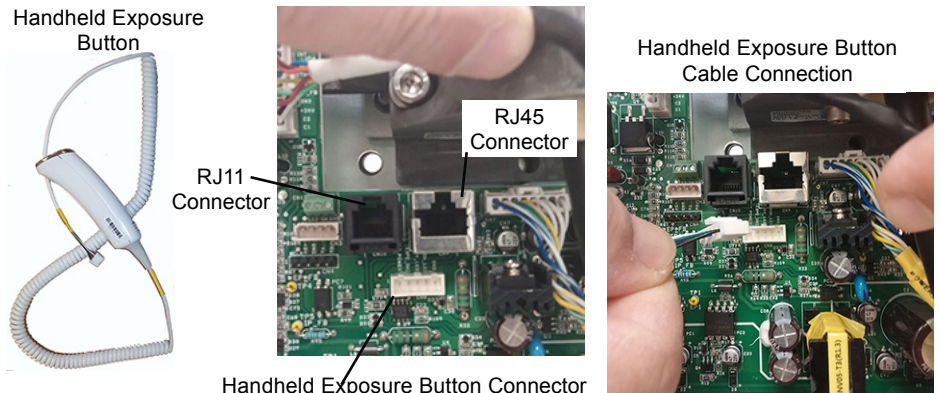
5.8 Connecting the Mains Power

Connection of the mains power supply can be made using the supplied mains cable or direct power connection via fixed facility wiring. Either option is made by performing the same three wire connection. Matching by color, connect the blue and brown wires of the mains power to the corresponding terminal block connections as shown below. Connect the green with yellow stripe wire to the ground terminal.



5.9 Connecting the Handheld Exposure Button

Connection of the handheld exposure button to the PCB connector is made by simply inserting the associated wire connector into the mating connector on the bottom of the PCB.

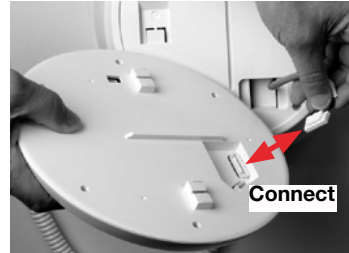
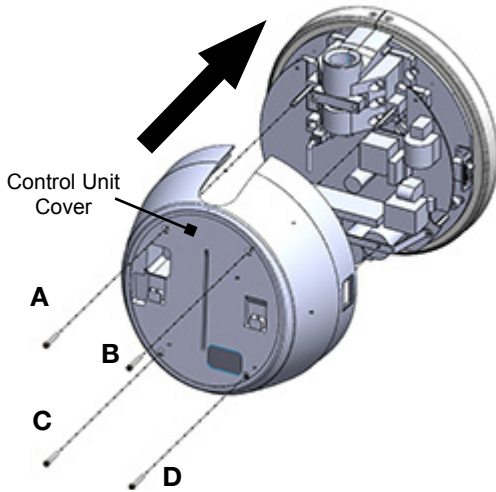


Equipment Setup

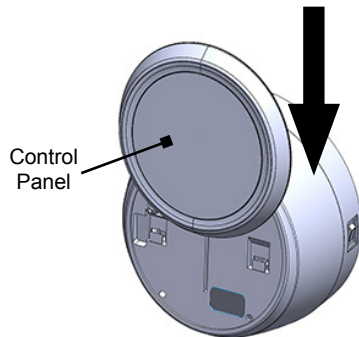
5.10 Assembling the Control Unit

Assemble the control unit by performing the following procedure.

1. Carefully thread the keypad connector cable through the control unit cover and align the cover with the base unit.
2. Install and tighten the 4 screws (A, B, C,D) securing the control unit cover.
3. Connect the rear keypad connector of the control panel
4. Align the panel spine with the control unit cover center groove and slide the control panel down in place.



Keypad Connector Cable

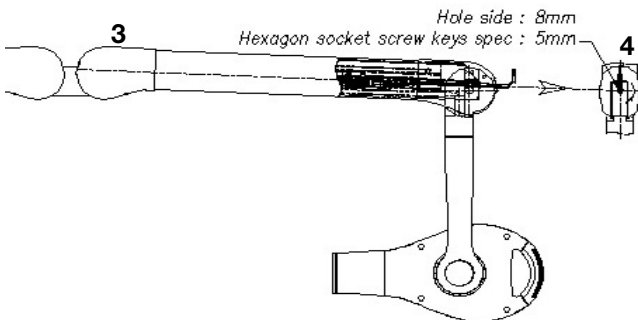
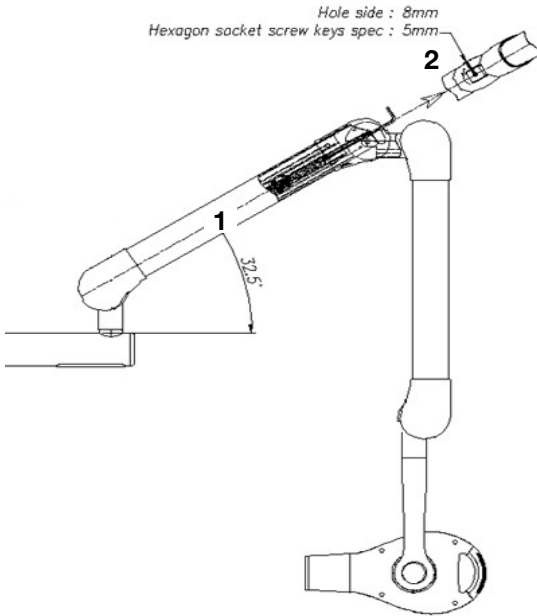


5.11 Scissor Arm Tension Alignment

The balance and spring tension of the scissor arm is initially set at the factory. During the installation process, check the balance and spring tension.

Arm should be steady in all positions, If adjustments are necessary, follow the adjustment procedure below.

1. Place the scissor arm 32.5 degree from horizontal arm as shown in the first image below.
When the angle is correct the tool will guide into the arm easily.
* Note : Generator scissor arm should be vertically.
2. Insert the 350 mm long 5 mm allen key and turn clockwise to increase tension.
3. Place the scissor arm straight as shown in the second image below.
4. Insert the 350mm long 5mm allen key and turn clockwise to increase tension.



Equipment Setup

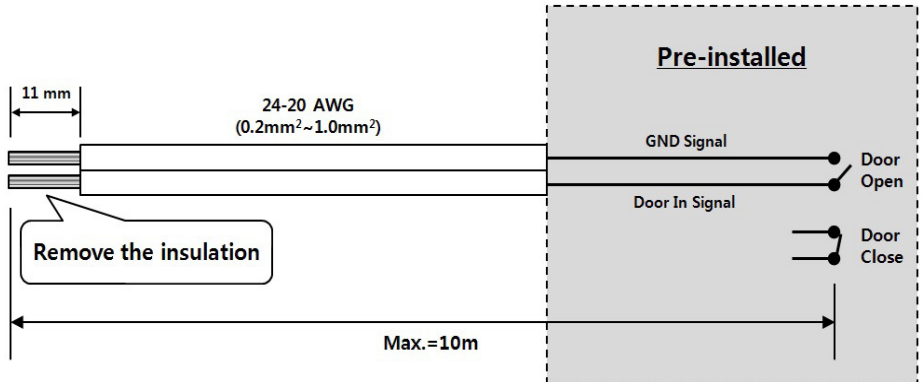
5.12 Connecting the Door Switch (Interlock)

The Interlock is a safety device used to prevent undesired radiation when the door of X-Ray room is open. The interlock circuit must be connected to a switch that is located near the door of the X-Ray room in order to ensure automatic interruption of the X-ray emission.

This section describes how to connect the equipment to the door interlock system.

NOTE: The door interlock system installation is done by the third party before connecting to the door interlock.

1. Prepare the door contact cable as shown below.



2. Attach the door contact cable into the connector(CN408) at the rear of the control panel.

* If you try to connect the door contact cable through the control Unit to the control panel, make sure that you pull out the cable from the right location as shown in the figure.

3. Make sure that Door Check function is "ON" in the service mode menu.

* To go into the service menu : While pressing the button  and the button  until the the service menu appears.

- 1. Panel Expo S/W : ON
- 2. External Expo S/W : ON
- 3. Door Check : ON
- 4. Press Type : Single



4. You will see the "Door Check Please.." message on the control panel display when you try to make an exposure while the door is open.

70 kV 6.0 mA 0.50 sec
Door Check Please..

Equipment Commissioning

6 Operation



NOTICE

Short circuit due to build up of condensation

- The appliance can only be put into operation once it has warmed up to room temperature and it is dry.

The necessary tests (e. g. acceptance test) are regulated by the locally applicable national law.

- Find out which tests are to be made.
- Carry out tests in accordance with national law.

6.1 Acceptance test



When carrying out the commissioning tests where the image plate and sensor are used as receivers, the 2-D X-ray test phantom is required and possibly the appropriate 2-D X-ray test phantom holder.

- Before commissioning, carry out the acceptance test of the X-ray system according to national regulations.
- The tests of constancy, that must be carried out at regular intervals by the personnel, are based on the results of the acceptance test.

6.2 Electrical safety check

- Carry out an electrical safety check according to all national regulations (e.g. patient conductivity, conductivity of housing).
- Document the results.

6.3 Switch unit on

The display will show the standard values for X-ray exposures or the setting values used for the last exposure carried out.

- Operational display lamps,
- LED for menu tooth symbol,
- LED for menu Adult/Child and
- LED for menu image plate/sensor all light up.

6.4 Generator Warm-Up

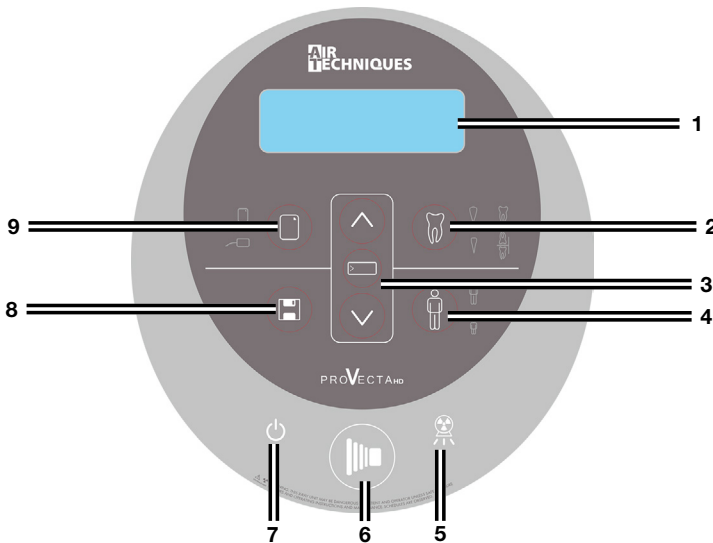
If the x-ray generator has not been used within the last 1 month, then a tube warm-up procedure should be performed to prolong tube life. Set mA to '4', kVp to '60' and exposure time to '2.0' Sec. Repeat three times. This procedure will heat the anode uniformly so that higher subsequent exposures will not damage it.

6.5 Service menu settings via the control panel



All settings are saved after the first triggering.

- While pressing the button and the button a little longer in order to switch to the Service menu. Use or browse in the menu. Use to select the respective menu option.
- In menu option *Cone Type* use to scroll and then use to confirm. Use to go back to the Service menu.
- In menu option *DAP Setting* use to scroll and then use to confirm. Use to go back to the Service menu.
- In menu option *Default Value Reset*, press to confirm.
- In menu option *kV Option* use to scroll and then use to confirm, 50-70 kV are permissible in countries with no X-ray limit regulations.
- In menu option *X-ray Count* use to scroll and then use to confirm.
- In the menu option *Expo S/W Set* use to make the respective selection and use to confirm.
- Under menu option *Version* the current firmware version can be called up. Use to acknowledge.
- Under menu option *Demo* the demo version can be started by pressing the button.
- After entering all required values, press the button to exit the Service menu.



- | | | |
|----------------------------|----------------------------|-------------------------------|
| 1 LED Display | 4 Adult/Child selector | 7 Stand-by/Power indicator |
| 2 Anatomical selector | 5 X-ray emission indicator | 8 Save key |
| 3 Parameter adjustment key | 6 Exposure button | 9 Image plate/sensor selector |

Warranty

Provecta HD is warranted to be free from defects in material and workmanship from the date of installation for a period of 2 years (24 months). Provecta HD is designed solely for use in a dental office environment and this warranty is not applicable to other applications.

All part and component returns and replacement of equipment under warranty require a Return Materials Authorization (RMA). Items returned without an RMA, or included with other products for which an RMA has been issued, may be returned to the customer at the discretion of Air Techniques.

Any item returned under warranty, will be repaired or replaced at our option at no charge provided that our inspection shall indicate it to have been defective. Air Techniques, Inc. is not liable for indirect or consequential damages or loss of any nature in connection with this equipment. Dealer labor, shipping and handling charges are not covered by this warranty.

Warranty credit will not be applied to product returns that exhibit damage due to shipping, misuse, careless handling or repairs by unauthorized service personnel. Credit, or partial credit, will not be issued until product/parts have been received and assessed. Warranty is void if product is installed or serviced by anyone other than authorized Air Techniques dealer service personnel. This warranty is void if Provecta HD is operated with any covers removed.

This warranty is in lieu of all other warranties expressed or implied. No representative or person is authorized to assume for us any liability in connection with the sale of our equipment.

Online Warranty Registration

Quickly and easily register your new Provecta HD online. Just have your product model and serial numbers available. Then go to the Air Techniques web site, **www.airtechniques.com**, click the *Warranty Registration* link at the top of the page and complete the registration form. This online registration ensures a record for the warranty period and helps us keep you informed of product updates and other valuable information.

For over 50 years, Air Techniques has been a leading innovator and manufacturer of dental products. Our priority is ensuring complete satisfaction by manufacturing reliable products and providing excellent customer and technical support. Whether the need is digital imaging, utility room equipment or merchandise, Air Techniques can provide the solution via our network of authorized professional dealers. Our products are helping dental professionals take their practices to the next level.

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- Intraoral Camera
- Caries Detection Aid
- Intraoral X-ray
- Panoramic X-ray
- Film Processors

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- Dry Vacuums
- Wet Vacuums
- Air Compressors
- Amalgam Separator
- Utility Accessories
- Utility Packages

Merchandise

- Surface Disinfectant
- Enzymatic Cleaner
- Hand Sanitizer and Lotion
- Waterline Cleaner
- Evacuation System Cleaner
- Imaging Accessories
- Chemistry
- Processor Accessories

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