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Progeny Vantage Panoramic X-ray System

Installation Guide

CE 2797

00-02-1608
Revision S01
December 2019

Table of Contents

1 Regulatory Information

In this Chapter

Indications for Use

Statement of Indications for Use

The indications for use of the Progeny Vantage® Panoramic X-ray System are to provide dental radiographic examination and diagnosis of diseases of the teeth, jaw, and oral structures. When the system is equipped with the Cephalometric option, the system will also provide cephalometric radiographic examinations for the use in orthodontic treatment planning and evaluation.

Guidelines for Patient Selection

The guidelines for use of the Progeny Vantage® Panoramic Extraoral X-ray System are described in the “ADA/FDA Guide to Patient Selection for Dental Radiographs.” This device is to be operated only for the intended use as indicated by prescription of a qualified dental practitioner.

Contraindications

None known at this time.

Adverse Reactions

None known at this time.

Indications of Sterility

This production is not provided sterile. See Maintenance section of this Manual.

Warnings and Precautions

Radiation Safety

Only qualified and authorized personnel may operate this equipment observing all laws and regulations concerning radiation protection.

- The operator during X-ray production must remain 2 m [6 ft.] from the focal spot and the X-ray beam for protection.
- Full use must be made of all radiation safety features on the equipment.
- Full use must be made of all radiation protection devices, accessories, and procedures available to protect the patient and operator from X-ray radiation.

Electrical Safety

- Only qualified and authorized service personnel should remove covers on the equipment.
- This equipment must only be used in rooms or areas that comply with all applicable laws and recommendations concerning electrical safety in rooms used for medical purposes, e.g., IEC, US National Electrical Code, or VDE standards concerning provisions of an additional protective earth (ground) terminal for power supply connection.
- Before cleaning or disinfecting, this equipment must always be turned off.
- The Progeny Vantage® X-ray System is ordinary medical equipment without protection against ingress of liquids. To protect against short-circuit and corrosion, no water or any other liquid should be allowed to leak inside the equipment.

Explosion Safety

This equipment must not be used in the presence of flammable or potentially explosive gases or vapors, which could ignite, causing personal injury and/or damage to the equipment. If flammable disinfectants are used, the vapor must be allowed to disperse before using the equipment.

Damage and Injury

Do not place permanent or non-mobile structures beneath the device. Device movement may result in damage to the device or structure, or in injury to the operator or patient.

Cleanliness

To prevent cross contamination, always clean the patient contact areas and always install a fresh protective sheath over the bite guide before positioning a patient. The sheath recommended for this application is the TIDI Products, part number 21008.

Laser Safety

⚠CAUTION	Do not stare into the beam. Do not place eyes closer than 100 mm. This equipment contains class 2 lasers of 3 mW output at 650 nm. The beam is a 40° fan line. The lensing on the laser is not removable. Laser on time does not exceed 100 seconds.

⚠CAUTION	Use of procedures other than those contained within this manual may result in exposure to damaging laser light

Compliance with Applicable Standards

Radiation Protection

The certified components of the Progeny Vantage Panoramic Dental X-ray System comply with Radiation Performance Standards 21 CFR, Subchapter J, at the time of manufacture.

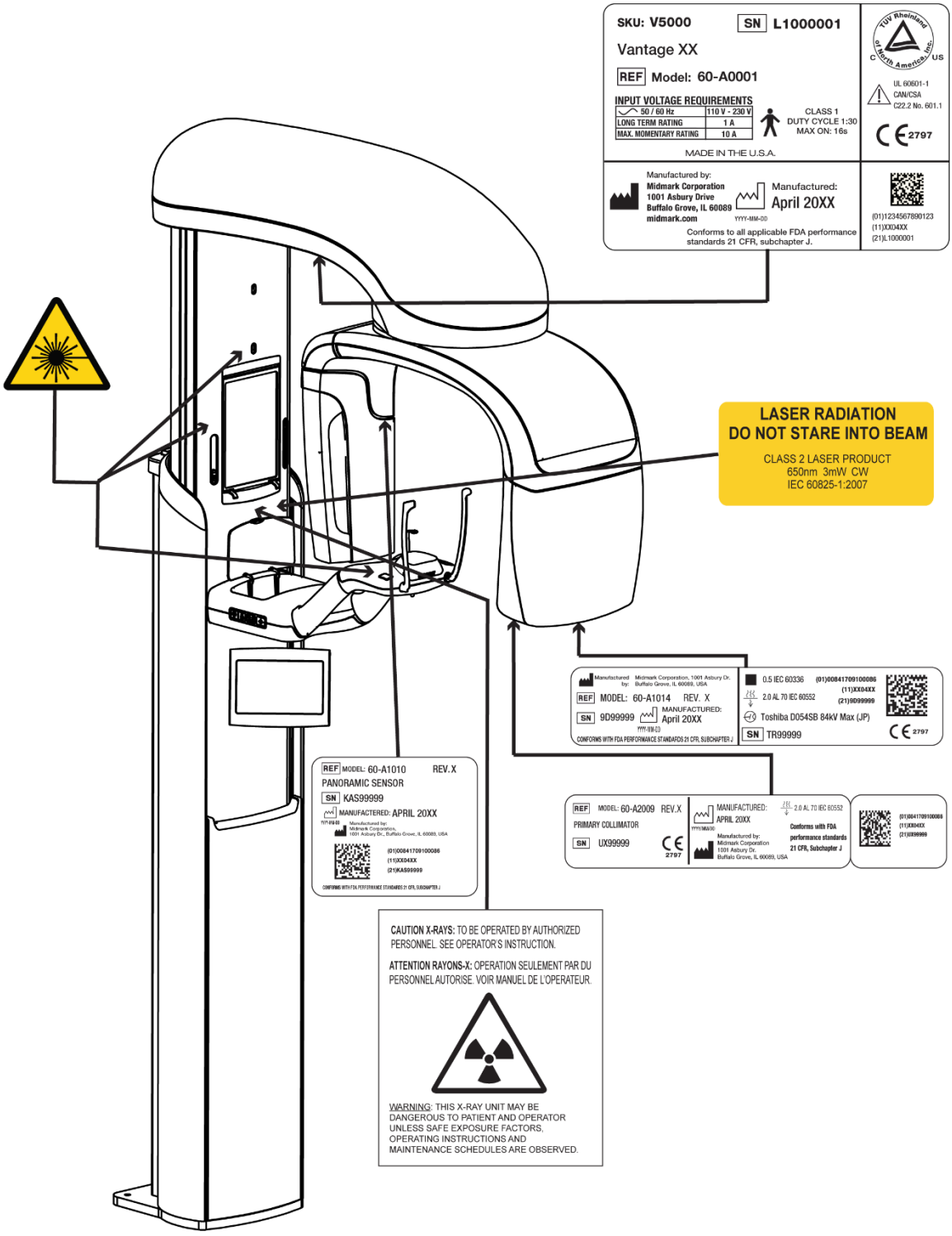
Performance Standards

Standard	Content
IEC 60825-1:2007	Safety of Laser Equipment
IEC 60601-1	Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
IEC 60601-2-7	Medical electrical equipment - Part 2-7: Particular requirements for the safety of high-voltage generators of diagnostic X-ray generators
IEC 60601-2-28	Medical electrical equipment - Part 2-28: Particular requirements for the safety of X-ray source assemblies and X-ray tube assemblies for medical diagnosis
IEC 60601-1-3	Medical electrical equipment – Part 1-3: General requirements for radiation protection in diagnostic X-ray equipment
IEC 60601-1-2	EMI/RFI
CAN/CSA 22.2 No. 601.1-M90	Canadian standard for medical electrical equipment
IEC 60601-2-32: 1994	Medical electrical equipment - Part 2-32: Particular requirements for the safety of associated equipment of X-ray equipment

Certified Components

Component	Reference Number
Vantage System, Domestic	60-A0001
Sensor Assembly, Panoramic	60-A1010
Ceph Extension, with Sensors (option)	60-A1009
Pan tube head assembly	60-A1014
Primary collimator assembly	60-A2009
Pan X-ray power supply assembly	60-A2035
Sensor Assembly, Cephalometric (option)	60-A1004
Collimator, secondary, Ceph (option)	60-F4051

Device Labeling



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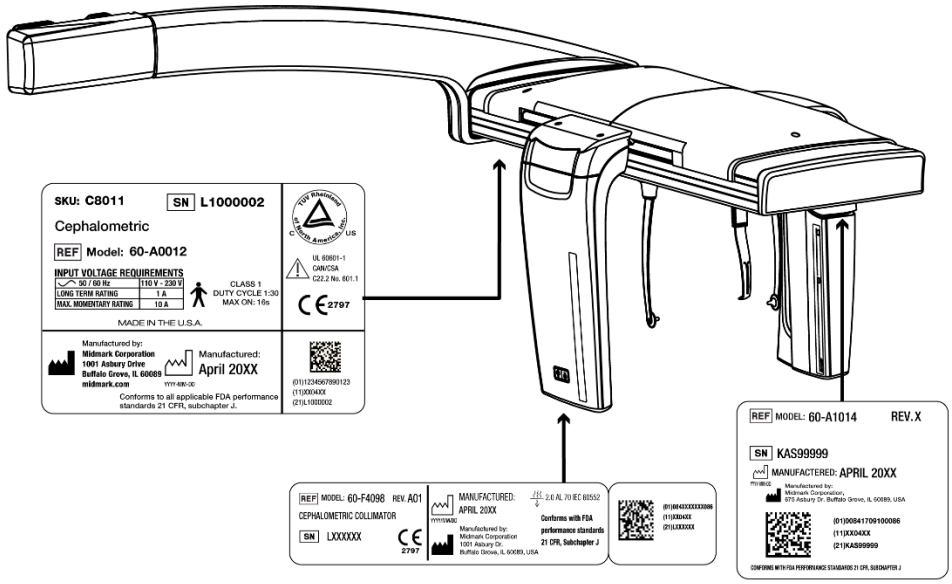
Optional Cephalometric Extension Labeling



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EC Declaration of Conformity

Name and Description of Product	**Progeny Vantage Panoramic Dental X-ray System** Catalog V5000 US Domestic Market Model 60-A0001 system Catalog V5100 Export Market Model 60-A0001 system Catalog: V5050 Progeny Vantage Panoramic with Ceph Sensor, Domestic Model: 60-A0008 Catalog: V5150 Progeny Vantage Panoramic with Ceph Sensor, Export Model : 60-A0008 Catalog: V5000C Progeny Vantage Panoramic with Cephalometric Extension, 2 Sensor System, Domestic Model: V5000 + C6000 Catalog: V5100C Progeny Vantage Panoramic with Cephalometric Extension, 2 Sensor System, Export Model: V5100 + C6000 Catalog: V5050C Progeny Vantage Panoramic with Cephalometric Extension, 1 Sensor System, Domestic Model: V5050 + C4000 Catalog: V5150C Progeny Vantage Panoramic with Cephalometric Extension, 1 Sensor System, Export Model: V5150 + C4000 Catalog: C6000 Cephalometric Extension with Sensor Model: 60-A1009 Catalog: C4000 Cephalometric Extension without Sensor Model: 60-A1019 Catalog: Ceph Sensor only Model: 60-A1004 Catalog: Panoramic Sensor Model: 60-A1010 Class: IIb

Reference Numbers to which Conformity is Declared	The following regulatory documents apply: UL 2601-1 IEC 60601-1-2 IEC 60601-1-3 IEC 60601-2-7 IEC 60601-2-28 IEC 60601-2-32 IEC 60825-1 Medical Device Directive ISO 13485 Machinery Directive
Declaration	Midmark Corporation declares that the products described herein meet all the applicable Essential Requirements of the EC Medical Device Directive 93/42/EEC in Annex I. For Class IIb products described herein, the product is manufactured, inspected, tested, and released in accordance with the approved quality assurance system established in accordance with ISO 13485 and Annex II of the EC Medical Device Directive under the Supervision of the BSI, a Notified Body. Technical Support
Contact	Midmark Corporation Phone: 800-MIDMARK (1-800-643-6275)+1 847-415-9800 Fax: 847-415-9801 **imagingtechsupport@midmark.com** Hours: 8:00 a.m. – 5:00 p.m. Central Time

EMC Statement

Information regarding potential EMC interference and advice for avoidance

The Progeny Vantage Panoramic Dental X-ray System is considered as non-life-supporting equipment. While using the Progeny Vantage X-ray System adjacent to other equipment, the configuration should be carefully adjusted to ensure that electromagnetic interference (EMI) does not degrade performance. Specifically, mobile RF communications equipment can effect medical electrical equipment. Please refer to the EMC table below.

Guidance and manufacturer's declaration - electromagnetic emissions		
The Progeny Vantage Dental X-ray System is intended for use in the electromagnetic environment specified below. The customer or the user of the Progeny Vantage Dental X-ray System should assure that it is used in such an environment.		
Emission test	**Compliance**	**Electromagnetic environment – guidance**
RF emission **CISPR 11**	Group 1	The Progeny Vantage Dental X-ray System uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emission **CISPR 11**	Class B	The Progeny Vantage Dental X-ray System is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emission **IEC 61000-3-2**	Class A	
Voltage fluctuations/ flicker emissions **IEC 61000-3-3**	Complies	

Guidance and manufacturer's declaration - electromagnetic immunity			
The Progeny Vantage Dental X-ray System is intended for use in the electromagnetic environment specified below. The customer or the user of the Progeny Vantage Dental X-ray System should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
Electrostatic discharge (ESD) **IEC 61000-4-2**	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If the floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst **IEC 61000-4-4**	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/ output lines	Mains power quality should be that of a transient/ burst supply lines typical commercial or hospital environment.
Surge **IEC 61000-4-5**	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Not Applicable.	
Voltage dips, interruptions, and voltage variations on power supply input lines **IEC 61000-4-11**	< 5% U_T (>95% dip in U_T) for 0.5 cycle < 40% U_T (60% dip in U_T) for 5 cycles < 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5 s	Not Applicable.	
Power frequency (50/60 Hz) magnetic field **IEC 61000-4-8**	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity			
The Progeny Vantage Dental X-ray System is intended for use in the electromagnetic environment specified below. The customer or the user of the Progeny Vantage Dental X-ray System should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment – guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the Progeny Vantage Dental X-ray System, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance:**
Conducted RF **IEC 61000-4-6**	3 V 150 kHz to 80 MHz	3 V	$d = 1.2 \times \sqrt{P}$
Radiated RF **IEC 61000-4-3**	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = 1.2 \times \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \times \sqrt{P}$ 800 MHz to 2.5 GHz
			Where *P* is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacture and *d* is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			
[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Progeny Vantage Dental X-ray System is used exceeds the applicable RF compliance level above, the Progeny Vantage Dental X-ray System should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Progeny Vantage Dental X-ray System. [b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V_1] V/m.			

Recommended separation distances between portable and mobile RF communications equipment and Progeny Vantage Dental X-ray System			
The Progeny Vantage Dental X-ray System is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the sensor can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the sensor as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter, W	**Separation distance according to frequency of transmitter m**		
	150 kHz to 80 MHz $d = 1.2 \times \sqrt{P}$	**80 MHz to 800 MHz** $d = 1.2 \times \sqrt{P}$	**80 MHz to 2.5 GHz** $d = 2.3 \times \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.17	1.17	2.34
10	3.69	3.69	7.38
100	11.67	11.67	23.34
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be determined using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

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2 Introduction

In this Chapter

- Product Description
- Disclaimer about the Manual
- Symbols and Conventions
- Obtaining Technical Support

Product Description

The Progeny Vantage Panoramic X-ray System is an easy to use and easy to install digital panoramic X-ray system.

The panoramic X-ray provides a broad overview of the teeth, jaw, and oral structure of the entire mouth. The X-ray image supplies information about the teeth, upper and lower jawbone, sinuses, and other hard and soft tissues of the head and neck. The panoramic digital receptor is contained in a C-arm that moves around the patient's head.

The Vantage System has many applications that include evaluation of third molars, evaluation of patients with past and present TMJ (temporomandibular joint) problems, patients who require full or partial removable dentures, dental implants, or braces, those who are at risk or suspected of having oral cancer or other tumors of the jaw, those who have impacted teeth, and those who have had any recent trauma to the face or teeth (i.e., can help identify a fractured jaw).

The optional Cephalometric Extension allows for lateral and PA views of oral structures. The ceph digital receptor is mounted on a transit rail which scans horizontally during ceph examinations. Cephalometric images are typically useful in orthodontic evaluation and treatment.

Disclaimer about the Manual

Midmark pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation, this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice. The original language of this manual is English.

Symbols and Conventions

Symbol	Explanation
	Type B: Protection against electric shock (IEC 60601.1-1988).
	Consult written instructions in the User Guide.
	ATTENTION RAYONS-X: OPERATION SEULEMENT PAR DU PERSONNEL AUTORISE. VOIR MANUEL DE L'OPERATEUR.
	WARNING X-RAY THIS X-RAY UNIT MAY BE DANGEROUS TO PATIENT AND OPERATOR UNLESS SAFE EXPOSURE FACTORS AND OPERATING INSTRUCTIONS ARE OBSERVED.
	*X-RAY EMISSION*
L	Mains HOT WIRE
N	Mains NEUTRAL WIRE
	Earth Ground
	LASER RADIATION DO NOT STARE INTO BEAM CLASS 2 LASER PRODUCT. 650 nm, 3 mW
	Power off (circle) Power on (line)
	Waste Electrical and Electronic Equipment (WEEE). WEEE distributed in the European Economic Area (EEA) must be collected and disposed of separately from other waste, per WEEE Directive 2012/19/EU. Contact your equipment dealer for information on local compliance schemes.

Obtaining Technical Support

For Technical Support, contact:

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3 System Overview

In this Chapter

- About the Vantage System
- About the Panoramic X-ray Device
- About the Optional Cephalometric Extension

About the Vantage System

The Progeny Vantage Panoramic X-ray System consists of the panoramic X-ray device, the exposure button, and a Touch Control Panel.

About the Panoramic X-ray Device

The panoramic X-ray device consists of the telescoping column, the overhead assembly, the patient positioning table, and the touch control panel.

Telescoping Column

The telescoping column has two main parts: the fixed section and the moving or telescoping section. The fixed section contains the actuator to control up and down movement of the panoramic X-ray device. The telescoping section mounts the patient positioning features. Optical sensors in the telescoping section define the maximum and minimum extension of the column.

Overhead Assembly

The overhead assembly consists of an overhead arm and C-arm. The overhead arm supports the C-arm, which rotates. The C-arm includes the tubehead and the removable sensor. The tubehead produces the X-ray beam, and the sensor is a digital image receptor.

Patient Positioning Table

The patient positioning table guides and supports the patient's head during acquisition of panoramic X-ray images by means of the chin rest, bite guide, and positioning wands. The positioning control on the side of the patient positioning table has 4 buttons for the operator to control the up/down movement of the telescoping column, to apply and release the positioning wands, and to turn on positioning lights. The patient positioning table also contains a storage compartment.

Touch Control Panel

The touch control panel is mounted on the fixed column section under the patient positioning table. It is the main user interface for taking X-ray images with the Vantage System and is activated by touch.

Exposure Button

The exposure button is used by the operator to take the X-ray. The basic configuration consists of an exposure button connected to the panoramic X-ray device by a coil cord.

Bite Guide

A bite guide helps the patient keep his or her jaw correctly positioned. Additional bite guides may be obtained from Progeny. Always install a fresh protective sheath over the bite guide before positioning a patient. The sheath for this application is the Progeny part number 60-S0027.

Chin Rest

An easily removable chin rest fits into an opening on the patient positioning table. Additional chin rests may be obtained from Progeny.

TMJ Positioner

A TMJ positioner for TMJ X-rays fits into the patient positioning table. TMJ positioners are included with the Vantage.

Emergency Stop Switch

The stop switch, mounted under the left side of the patient positioning table near the telescoping column, is for use by the patient or clinician. Depressing the button will immediately halt all motor movement. Touching the control panel surface will also abort any movement. The button can be released by turning the knob.

About the Optional Cephalometric Extension

The Cephalometric Extension consists of the support arm, the cephalometric scanning mechanism and the cephalometric sensor.

Support Arm

The support arm is an aluminum casting that mounts to the panoramic column's inner (mobile) component. It mounts via a support casting that allows vertical adjustment of the position of the cephalometric mechanism. The arm can be mounted either to the right, or to the left of the column.

Cephalometric Scanning Mechanism

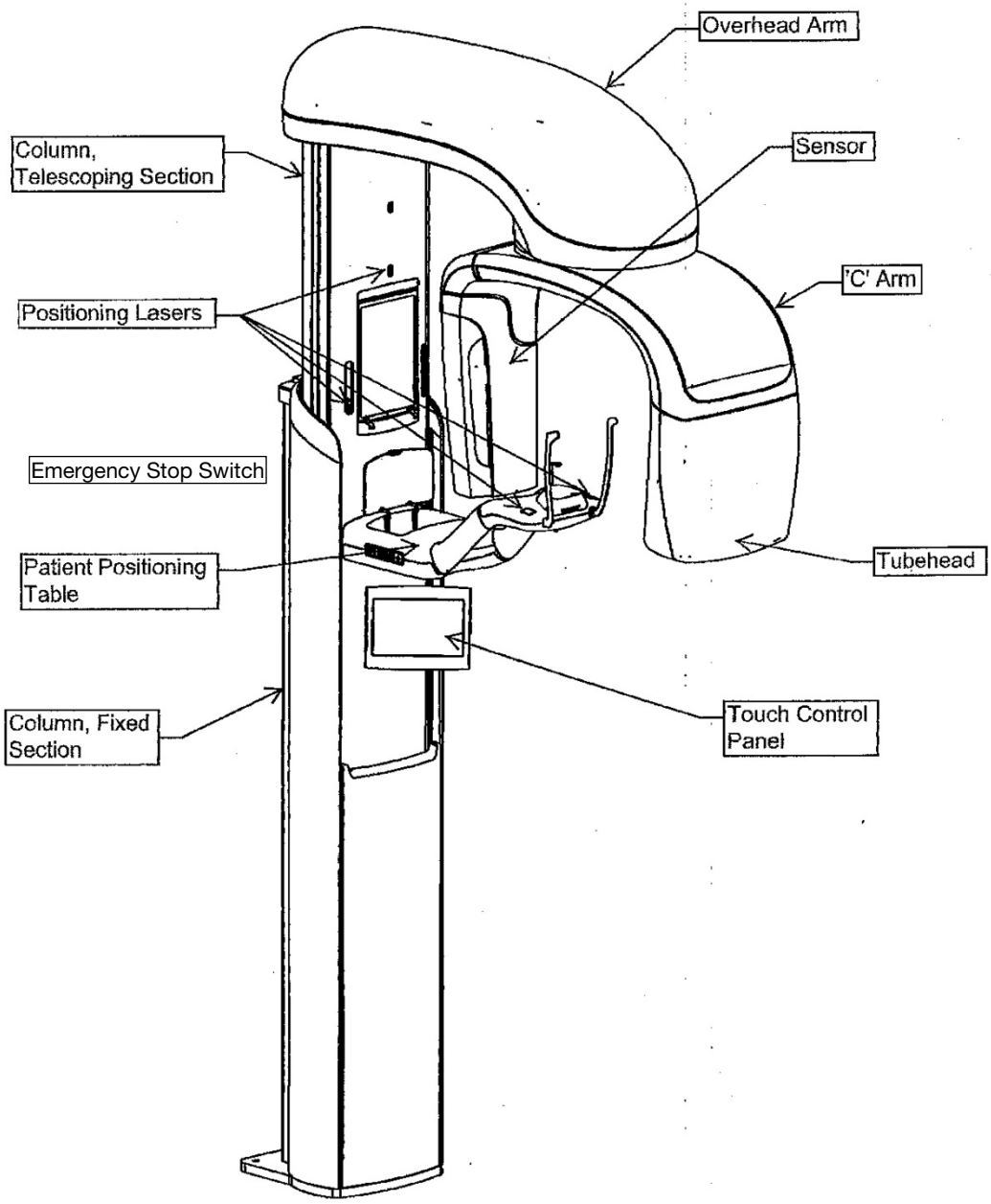
The cephalometric scanning mechanism is comprised of the rail and the transit assembly. The rail supports the transit mechanism, and houses the motor and bearings that cause the transit mechanism to move. The transit assembly mounts the cephalometric sensor and the secondary collimator, and maintains the alignment of the sensor and secondary collimator to the panoramic tubehead.

The rail also supports the cephalostat, used to position the patient. The cephalostat is comprised of two otic positioning posts which adjust to conform to the width of the patients head, and a nasion locator, which adjusts vertically and laterally to align the patients head. The entire cephalostat rotates in 22.5° increments to support many cephalometric imaging positions.

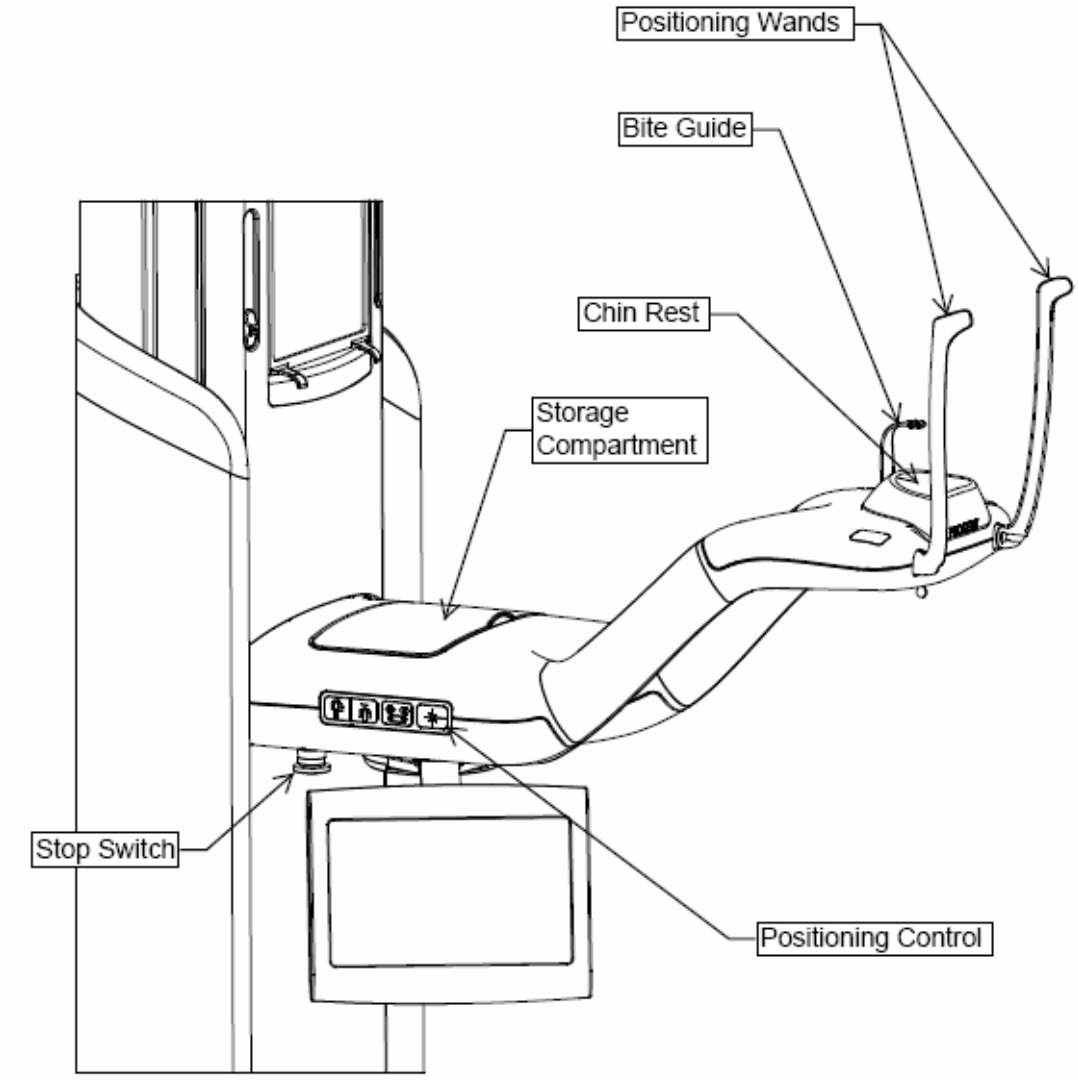
Cephalometric Sensor

The cephalometric sensor is similar in appearance to the panoramic sensor, but houses within a 21cm long digital detector instead of the 14cm digital detector used for normal panoramic exam. The cephalometric sensor can be used in place of the panoramic sensor, but the panoramic sensor will not operate as a cephalometric sensor.

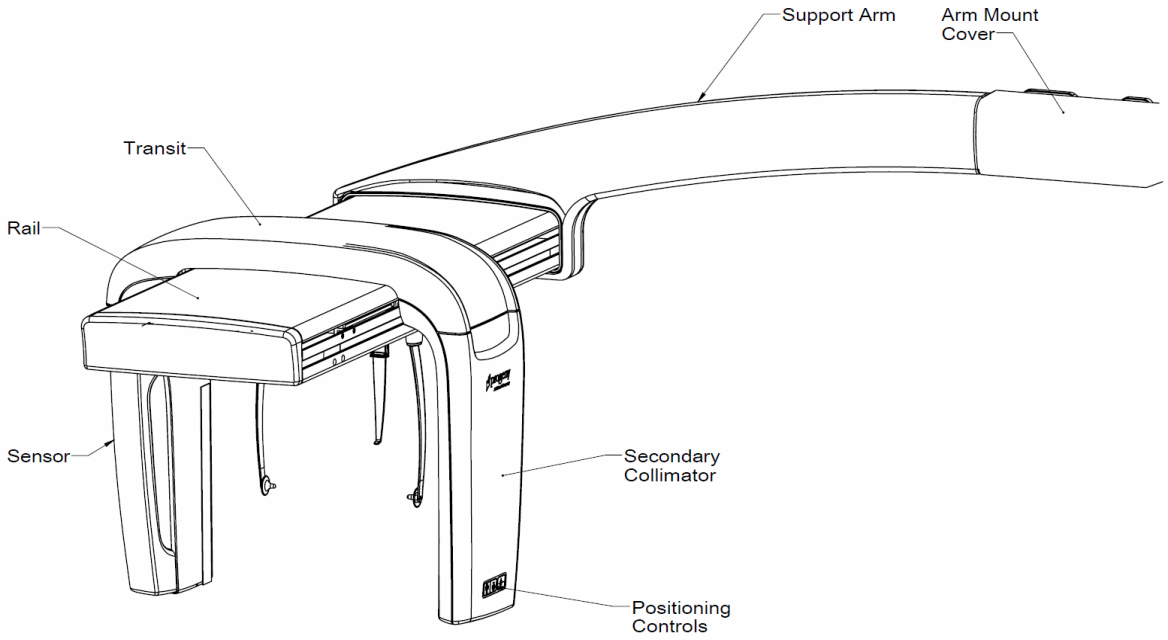
Vantage System Panoramic X-ray Device

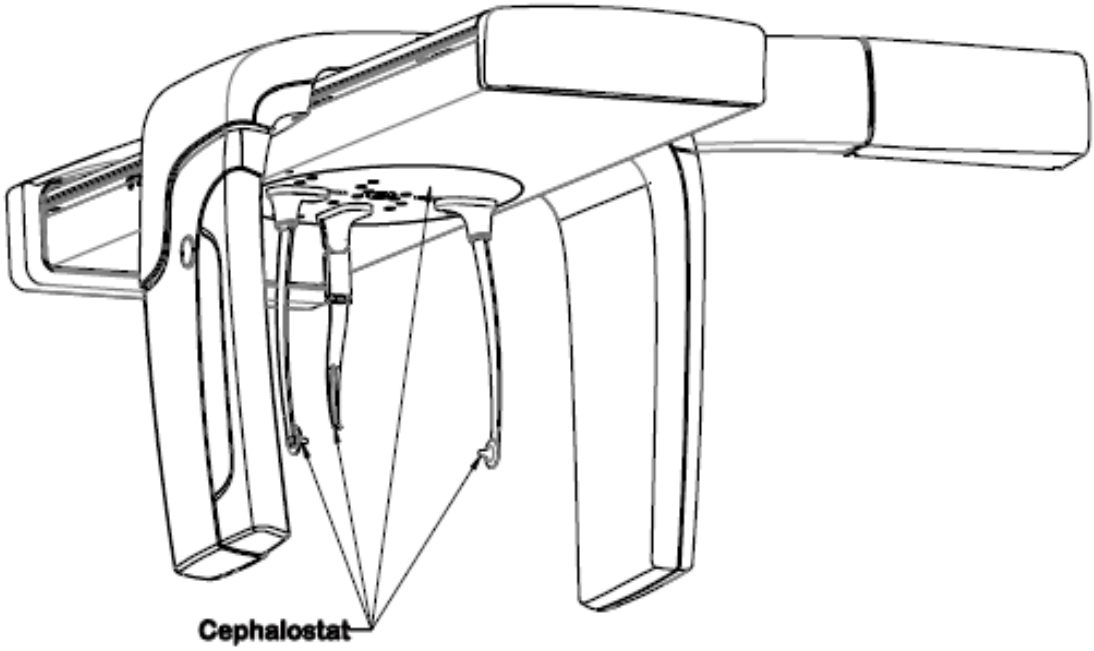


Vantage System Patient Positioning Table



Optional Cephalometric Extension





4 Pre-Installation Planning

In this Chapter

- Environmental Requirements
- Support Requirements
- Power and Cable Requirements
- Space Requirements
- Network and System Requirements

Environmental Requirements

Temperature

The Vantage panoramic device is intended for indoor use for normal dental applications at temperatures in the range +10 C to +35 C (+50 F to +95 F).

Storage temperature range should not exceed -35 C to +66 C (-31 F to +150 F).

Humidity

Humidity should not cause condensation to form on the device. When the device is being operated, humidity should not exceed 95% RH non-condensing. When the device is being stored, humidity should not exceed 90% RH non-condensing.

Support Requirements

About Support

The Vantage panoramic device is wall mounted. As an alternative, the Vantage panoramic device can be installed as a free standing unit. If the free standing installation method is used, the free standing base kit must be attached to the unit for support.

Wall Mounted Installation

Wall fasteners for the Vantage panoramic device must be able to withstand a 68 kg (150 lb.) shear force and a 180 kg (400 lb.) tensile (pull-out) load. The floor must be able to support approximately 90 kg (200 lb./sq. ft.) for wall mounted installation.

Free Standing Installation

The floor must be able to support approximately 158 kg (100 lb./sq. ft.) for free standing installation. Free standing installation cannot be used for the Cephalometric Extension.

Power and Cable Requirements

Electrical Outlet Requirements

The Vantage System requires a dedicated, 15-amp minimum circuit. If a fixed connection is used, the length of the whip must conform to local codes. If a standard mains receptacle is used, it must be placed within 2 m (6 ft.) of the device and positioned in compliance with local codes.

Ethernet Connections

Cat 5e grade communications cable is required for connection of the Vantage panoramic system.

Optional Remote Exposure Switch

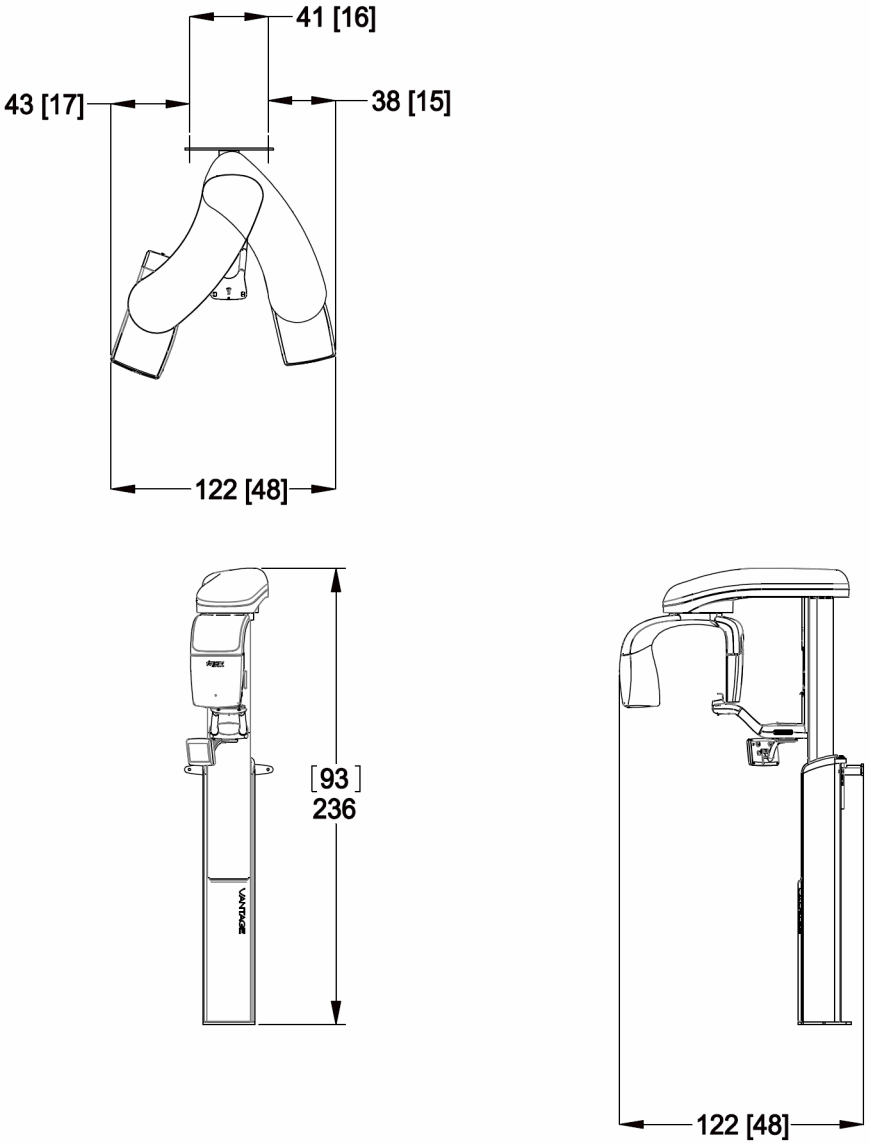
If a remote exposure switch is used, a four-conductor cable capable of RJ 11 termination is required for installation.

Space Requirements

The fully extended column has a maximum height of 236 cm (93 in.) and depth of 121 cm (48 in.). The rotational reach of the overhead arm and C-arm is 108 cm (48 in.). See the diagram below.

The Vantage panoramic device has an optional right or left entry. The default configuration is left entry. *To configure a right entry, see* Optional Right Entry Configuration *in* Chapter 6.

Panoramic Space Requirements



Progeny Vantage® Panoramic with Cephalometric

Product Dimensions

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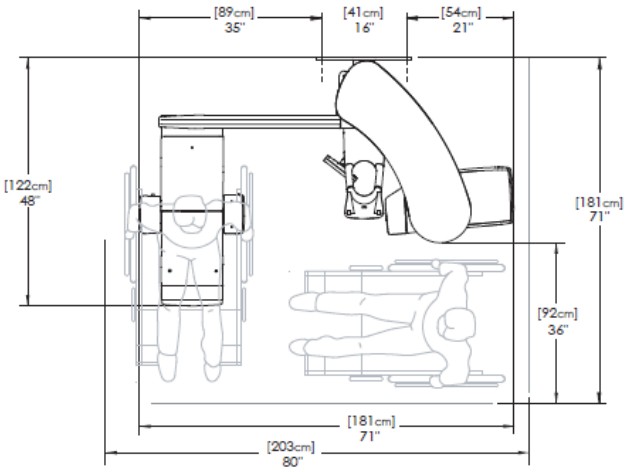

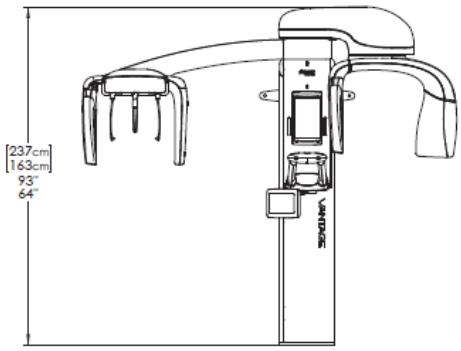

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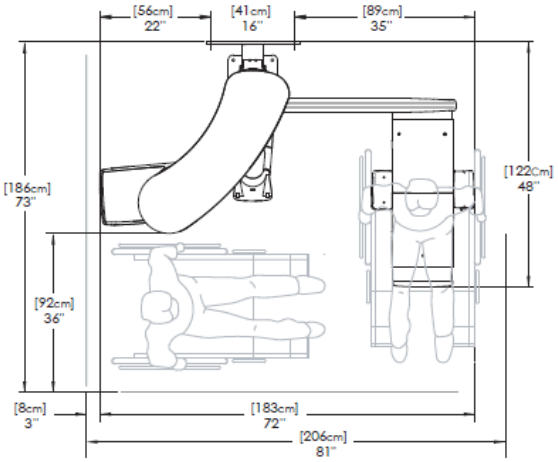
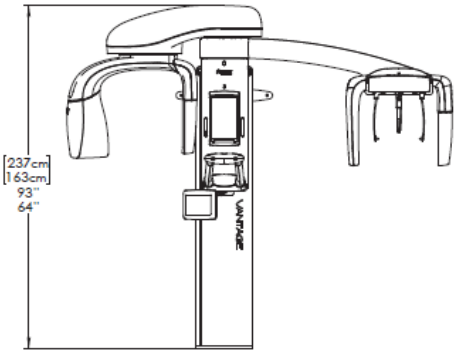




	Actual Product Dimensions	Minimum Operational Dimensions	Optimal Operational Dimensions
Width:	72" (183 cm)	76" (193 cm)	80" (203 cm)
Depth:	48" (122 cm)	48" (122 cm)	71" (180 cm)
Height:	93" (236 cm)	93" (236 cm)	93" (236 cm)

Network and System Requirements

The Vantage Software Client requires a computer for it to be installed on and a network connection to communicate with the Vantage Panoramic.

Network Requirements:

- An Ethernet based network connection at 100MBps or higher
- A wireless network connection at 802.11n or higher***

****A wireless network connection may introduce speed limitations that can result in a less than desirable image transmission time*

System Requirements:

Component	Requirement
Computer Hardware	PC - compatible Pentium 4 / 1.4 GHz or greater computer
Memory System	2 GB RAM or higher recommended (minimum 1 GB)
Operating System	Microsoft Windows XP Professional with Service Pack 3; Microsoft Vista (Business or Ultimate editions); Microsoft Windows 7 (Professional or Ultimate editions)
Disk Space	450 MB minimum **NOTE: Additional disk space is needed depending on the size of the practice, the number of images, and other information you plan to store. Each image is approximately 4 MB. For example, approximately 300 GB are needed to store 75 000 images.**
Display Settings	1024 x 768 (16 - bit or higher) with 32 MB (or higher) of Video RAM **NOTE: It is possible to increase these settings based on the actual video adapter installed. As a rule, the better your video adapter or capture card the better your images.**

5 Installation

In this Chapter

About Installation

The Vantage System panoramic device is preassembled and can be installed in a few easy steps. It has been designed to be installed by one person with an assistant in one hour, assuming that all pre-installation requirements have been met. Checking the image alignments can take an additional hour.

Check Pre-installation Requirements

Prior to beginning the installation, be sure that all pre-installation requirements have been completed. This includes confirming that the wall and floor support requirements are adequate for mounting the Vantage panoramic device, that the electrical requirements are met, and that wire locations are proper.

Optional Right Entry Configuration

The Vantage System is packaged with a left entry but can be configured with a right entry. *To configure a right entry, see* Optional Right Entry Configuration *in this chapter*.

Installing the Vantage Panoramic Device on a Wood Stud Wall

Preparing to Install the Vantage Panoramic Device

Gather Tools

- Level
- 2 mm hex key
- 4 mm hex key
- 6.3 mm (1/4 in.) pilot hole drill
- 9.5 mm (3/8 in.) pilot hole drill (masonry bit for cement floor)
- 14 mm (9/16 in.) socket wrench (for cement or wood floor)

Unpack the Hardware Kit

- Hardware for wall (wood mount): 1 wall bracket, 2 lag bolts, and 2 washers
- Hardware for cement floor: 2 cement anchors, 2 nuts, and 2 washers
- Hardware for wood floor: 2 lag bolts and two washers
- Hardware for attaching wall bracket to column: 2 clamps and 2 screws

Unpack the Removable Parts Kit

- Chin rest
- 2 wands
- Bite guide

Cautions

When using lag screws as the method of attachment, it is imperative to consider the full scope of the task. Several factors must be considered for safe, permanent installations. Some of the key issues are below:

- Lumber commonly used in construction projects can be different from location to location.
- The grade, age, position, and overall condition of wood can vary greatly.
- The attachment stud may have additional, hidden loads.
- The location of the pilot hole with respect to the center of the stud will affect the load bearing ability.
- The size of the pilot hole required for the lag screw will be different based on the grade, age, and condition of the lumber.
- Never over-tighten the lag screw as this will weaken the mechanical connection (18 ft.-lb. maximum).
- Lumber with splits or cracks should not be used for attachment.
- **Plywood, particle board, or similar construction materials should not be used for attachment.**
- Progeny provides fasteners for average installations. Based on specific installation conditions, it may be necessary to choose an alternate fastener or fastening methods.
- Seek the advice of a professional structural engineer to clarify any issues before the installation.

About the Order of Installation

For convenience and access, Progeny recommends the following order of installation described in the following sections:

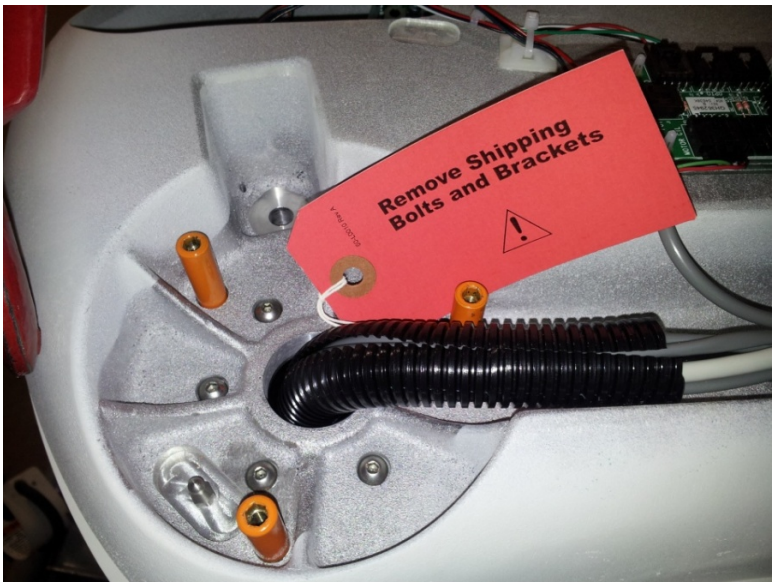
- Remove the shipping brackets
- Attach the power
- Attach the bracket to the wall
- Snap the Vantage panoramic device in place
- Plumb the Vantage panoramic device and attach the clamps
- Mount the Vantage panoramic device to the floor

Remove the Shipping Brackets

Before attaching power, you need to remove the shipping brackets.

1. Remove the overhead top cover and remove the three orange shipping bolts from the overhead pivot area.

   Overhead Top Cover



2. Remove the 4 bolts holding the orange shipping bracket in place as shown in the following figure.

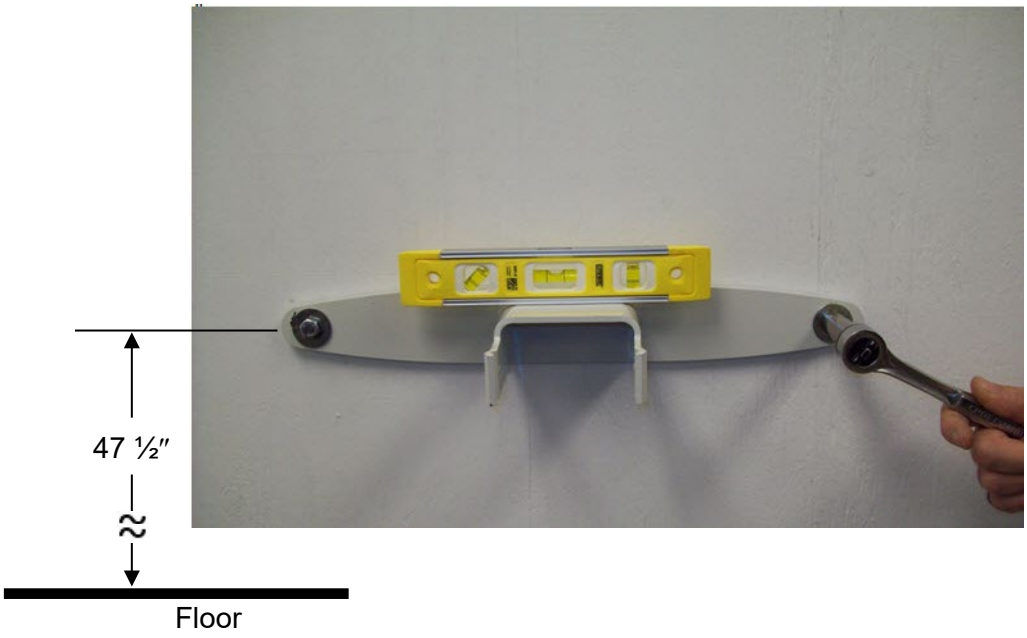
   Remove Aluminum Shipping Bracket

Attach the Bracket to the Wall

The mounting bracket is a guide for locating where to drill the holes used to mount the Vantage panoramic device to the wall. Carefully placing the mounting bracket on the wall will help to insure correct installation of the Vantage panoramic device.

1. Center the bracket on the studs.
2. Hold the bracket so that it is 121 cm (47 ½ in.) from the floor to the center of a bracket mounting hole, then mark one of the bracket holes.
3. Drill a 6.3 mm (1/4 in.) hole.
4. Select the 2 wall mount washers and the 2 lag bolts from the hardware kit.
5. Put 1 lag bolt through the washer and bracket mounting hole and loosely tighten the bolt.
6. Lift up the other side of the bracket and level it.
7. Mark the second hole and drill it.
8. Put the second lag bolt through the second washer and second bracket mounting hole and loosely tighten the bolt.
9. Place a level on the top of the bracket and level the bracket.
10. Tighten the bolts to 14-18 ft. lb. maximum.

Test the Bracket



Snap the Vantage Panoramic Device in Place

The Vantage panoramic device and bracket are designed to snap together when correctly aligned and firm pressure is applied. This snap holds the device in place while you complete the installation.

1. Lift up and move the Vantage panoramic device to the mounting wall with the back positioned towards the wall mounted bracket.
2. Line up the Vantage panoramic device with the wall mounted bracket and snap the device into place, making sure the device snaps solidly.

CAUTION! The snap partially secures the Vantage panoramic device. The clamps and floor mount steps must be completed to hold the device in place.

Vantage Panoramic Device and Wall Bracket

Plumb the Vantage Panoramic Device and Attach the Clamps

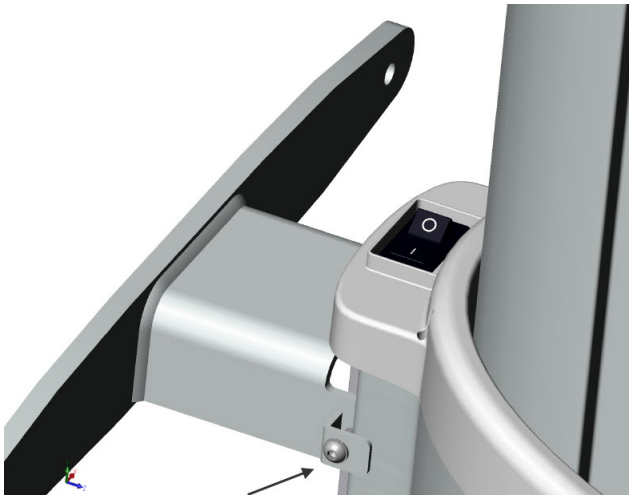
The Vantage panoramic device and wall bracket must be joined with 2 clamps. This requires a process of alternately screwing the clamps into place and plumbing the device.

1. Select 2 clamps and 2 screws from the mounting hardware kit.

Clamp and Screw

2. Hold 1 clamp in place, aligning it with one of the small holes in the bracket. Insert a screw through the wall bracket hole and the Vantage panoramic device hole. Tighten the screw using a 4-mm hex key. Do not tighten completely.

Clamp Placement



3. Hold a level vertically against the column and move the Vantage panoramic device on the floor until it is plumb.

Column Test

4. Once the column is plumb, repeat the procedure with the second clamp. Do not tighten completely.
5. Do a final level test before completely tightening the clamp screws.

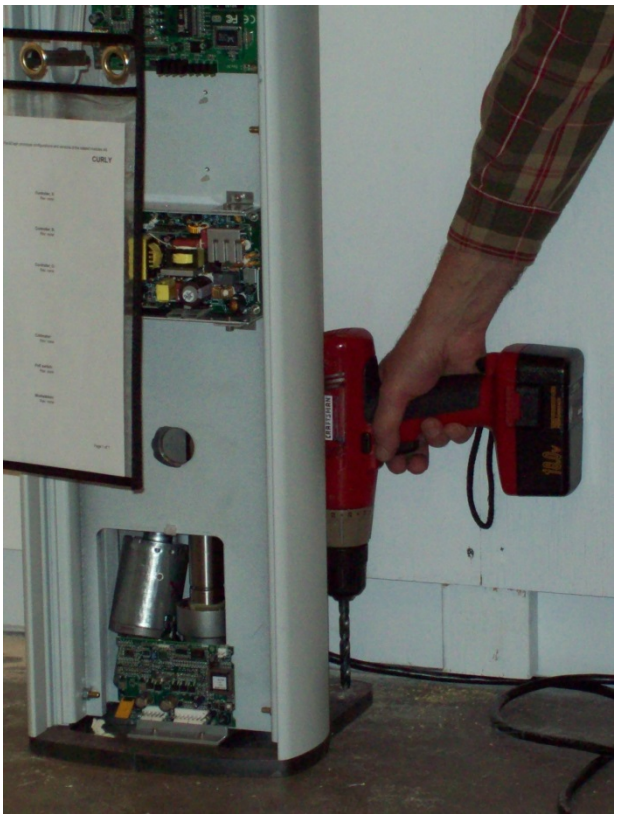
Mount the Vantage Panoramic Device to the Floor

Use the floor base as a template to drill holes in the floor. You do not need to move the Vantage panoramic device for this procedure. Ensure that the device is positioned vertically before drilling holes.

Note
To install the Vantage panoramic device on a free-standing base, see Installing the Vantage Panoramic Device on a Free-Standing Base *in this chapter.*

1. Select 2 cement anchors, 2 washers, and 2 nuts from the hardware kit. For wood floors, select 2 lag bolts and 2 washers.
2. Drill through 1 hole in the floor base of the Vantage panoramic device using an 9.5 mm (3/8 in.) masonry bit. For wood floors, use a 6.3 mm (1/4 in.) bit.

Drilling through Floor Base Hole



3. Insert 1 cement anchor through the hole in the plate. Assemble 1 nut and 1 washer on top of the cement anchor and tighten. Ensure that the anchor is fully seated in the hole. For wood floors, assemble 1 lag bolt and 1 washer and insert the lag bolt and washer through the hole in the plate. Screw the lag bolt partially into the hole using a socket wrench.
4. Repeat the process for the second anchor, nut, and washer. For wood floors, repeat the process for the second lag bolt and washer.

Inserting Anchor

5. Tighten the anchors using a 14 mm (9/16 in.) socket wrench. For wood floors, tighten the lag bolts using a 14 mm (9/16 in.) socket wrench (same size as used for cement).

Tightening Anchor

Installing the Vantage Panoramic Device on a Free-Standing Base

Preparing to Install the Vantage Panoramic Device on a Free-Standing Base

Gather Tools

- Level
- 2 mm hex key
- 4 mm hex key
- 8 mm hex key
- 17 mm socket wrench

Unpack the Hardware Kit

- 2 kinds of bolts: 4 each
- 8 levelers
- 8 leveler plugs

Unpack the Removable Parts Kit

- Chin rest
- 2 wands
- Bite guide

About the Order of Installation

For convenience and access, Progeny recommends the following order of installation described in the following sections:

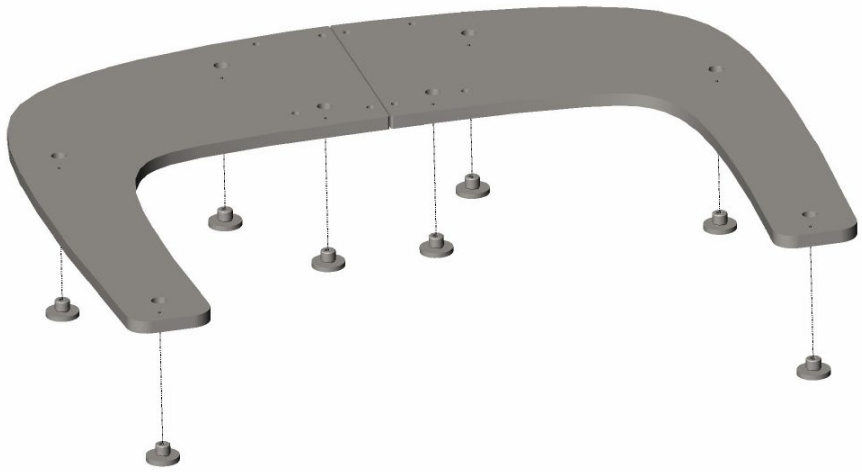
- Arrange the free standing base halves and levelers
- Attach the Vantage panoramic device to the free standing base
- Remove the shipping brackets
- Attach the power
- Position and mount the Vantage panoramic device to the floor

Arrange the Free-Standing Base Halves and Levelers

Prepare the free-standing base for attachment to the Vantage panoramic device using the following steps:

1. Remove the free-standing base halves from the packaging.
2. Install the levelers in the holes as shown below.
3. Arrange the base halves as shown below, with the levelers in contact with the flooring.

Free Standing Base Halves and Levelers

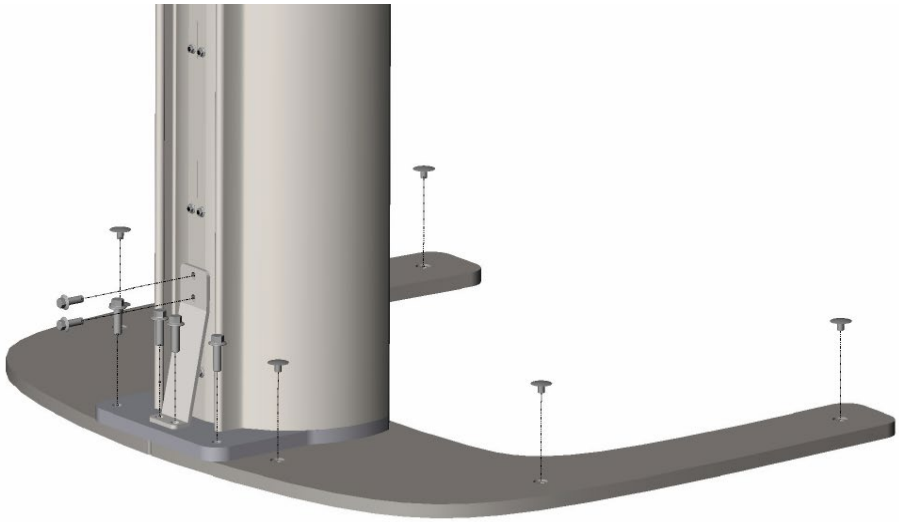


Attach the Vantage Panoramic Device to the Free Standing Base

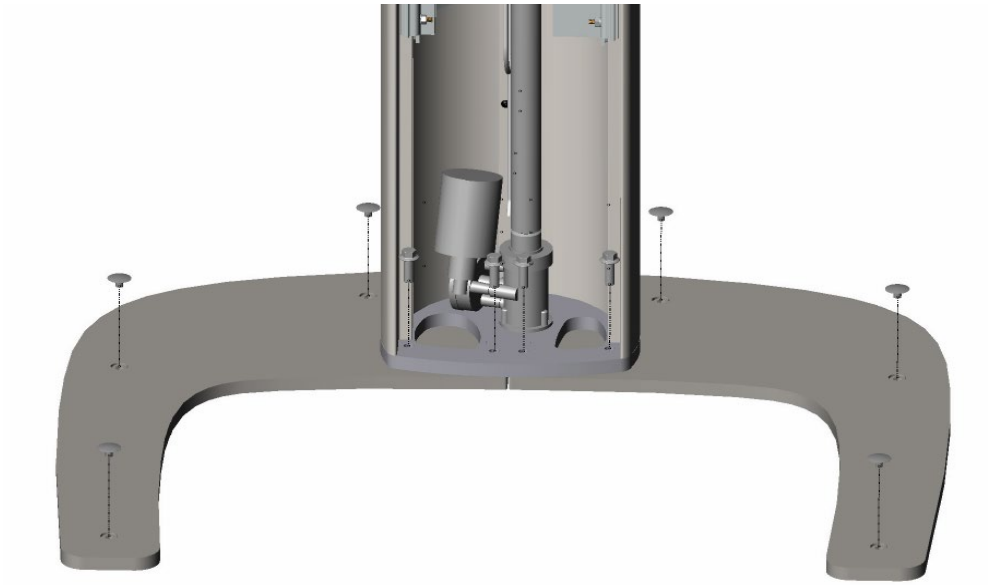
To attach the free-standing base to the Vantage panoramic device, set the Vantage panoramic device on top of the base halves and install the bolts and bracket, using the following steps:

1. Move the Vantage panoramic device over the bases with the overhead pointing the same direction as the legs of the bases.
2. Install the bolts and bracket as shown below, back and front views.

Attaching Vantage Panoramic Device to Free Standing Base: Back View



Attaching Vantage Panoramic Device to Free Standing Base: Front View

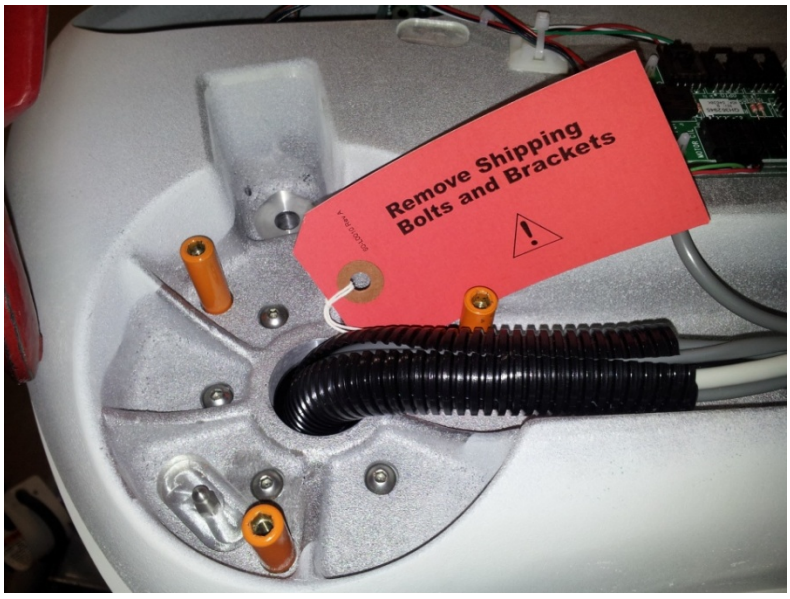


Remove the Shipping Brackets

Before attaching power, you need to remove the shipping brackets.

1. Remove the overhead top cover and remove the three orange shipping bolts from the overhead pivot area.

   Overhead Top Cover



2. Remove the 4 bolts holding the orange shipping bracket in place as shown in the following figure.

   Remove Aluminum Shipping Bracket

midmark

Position and Mount the Vantage Panoramic Device to the Floor

To attach the Vantage panoramic device to the floor, you need move the unit into position, level the unit, and mount it to the floor using the following steps:

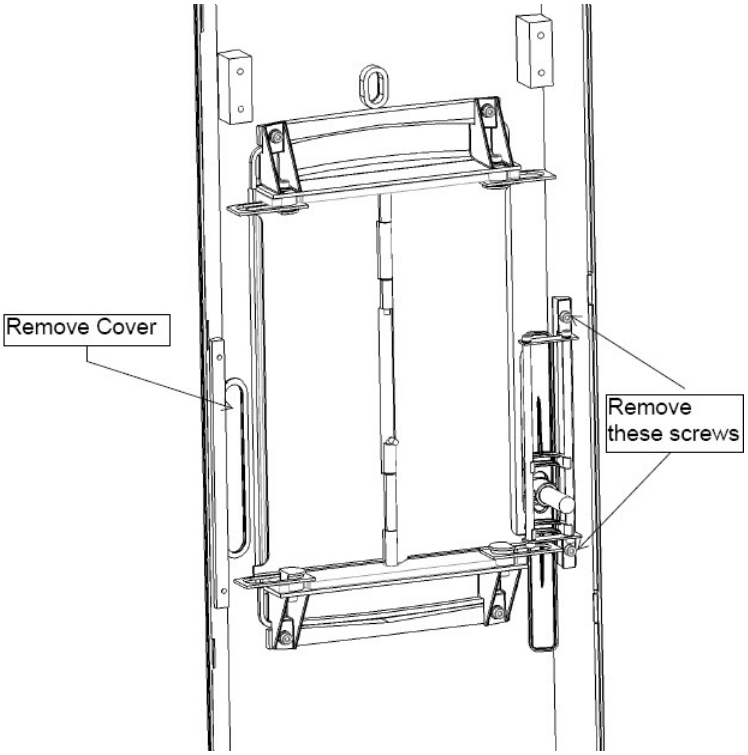
1. Move the Vantage panoramic device on its base into position, and use an 8-mm hex wrench to level the device, ensuring that all levelers are in contact with the flooring.
2. Fix the unit to the floor with the flooring appropriate fasteners through the holes in the center of the levelers.

Optional Right Entry Configuration

The Vantage panoramic device is delivered with left entry. To configure with a right entry, remove and rotate the Frankfort Plane Laser Assembly using these steps:

1. To access the Frankfort Plane Laser Assembly, remove the cover from the telescoping section of the column.
2. Disconnect the laser wires.
3. To access the new screw holes where you will install the assembly, remove the small cover on the left side of the mirror assembly (as viewed from the back of the column). Set the small cover aside for later assembly.
4. Remove the 2 screws from the Frankfort Plane Laser Assembly and lift the assembly out. Set the screws aside for later assembly.

Frankfort Plane Laser Assembly



5. Rotate the Frankfort Plane Laser Assembly 180 degrees so that it is upside down.
6. Install the Frankfort Plane Laser Assembly on the left side of the column (as viewed from the back of the column) using the 2 screws.
7. Place the small cover over the screw holes on the right side (as viewed from the back).
8. Reconnect the laser wires.
9. Replace the column cover.

6 Installing the Cables

In this Chapter

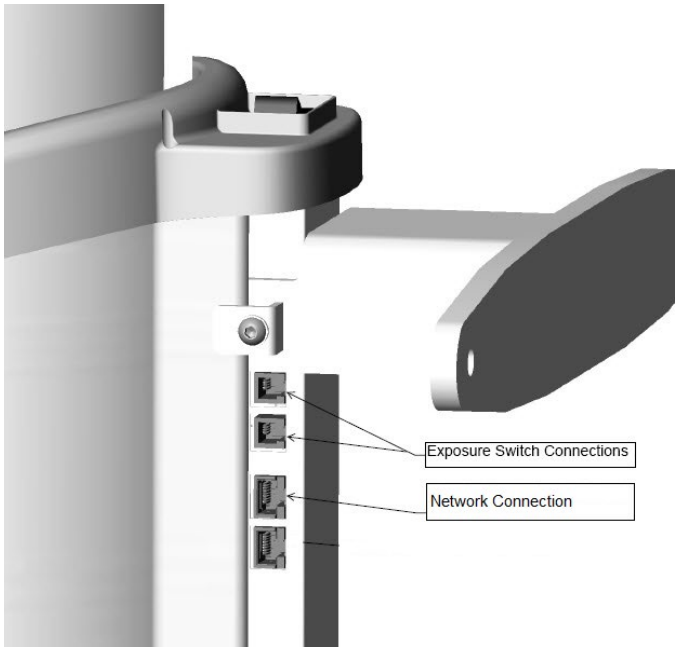
- Connecting the Vantage to Your Network
- Installing the Exposure Button

Connecting the Vantage to your network

The Vantage System requires a PC that serves as a workstation to receive images from the Vantage panoramic device. The Vantage must be connected to the same network as the designated workstation in order to connect and receive an image.

1. Attach the PC Ethernet cable to the network connection port on the back of the column and the other end into your network wall jack

Cable Connecting Ports



Installing the Exposure Button

The exposure button is used to take the X-rays. The basic configuration is to connect the button to the Vantage panoramic device by means of a coil cord.

Attach the Exposure Button to the Vantage Panoramic Device

To attach the exposure button, insert the coil cord into one of the exposure switch connections on the column shown in the figure above. The exposure switch connections are the top 2 ports.

Mount the Exposure Button

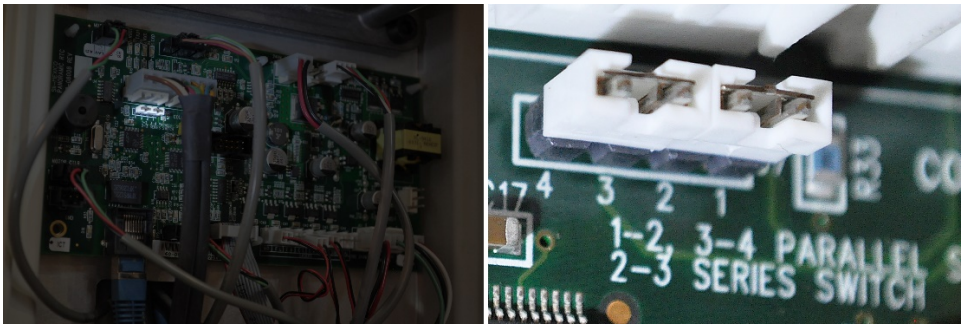
The exposure button comes with double stick tape and a hole for a screw, if desired, for mounting. It can be mounted to the fixed portion of the column or to a wall.

1. To mount the exposure button using the double stick tape, remove the protective backing covering the adhesive mount.
2. Firmly press the mount to the wall or surface as shown in the figure below.

Exposure Button Mounted

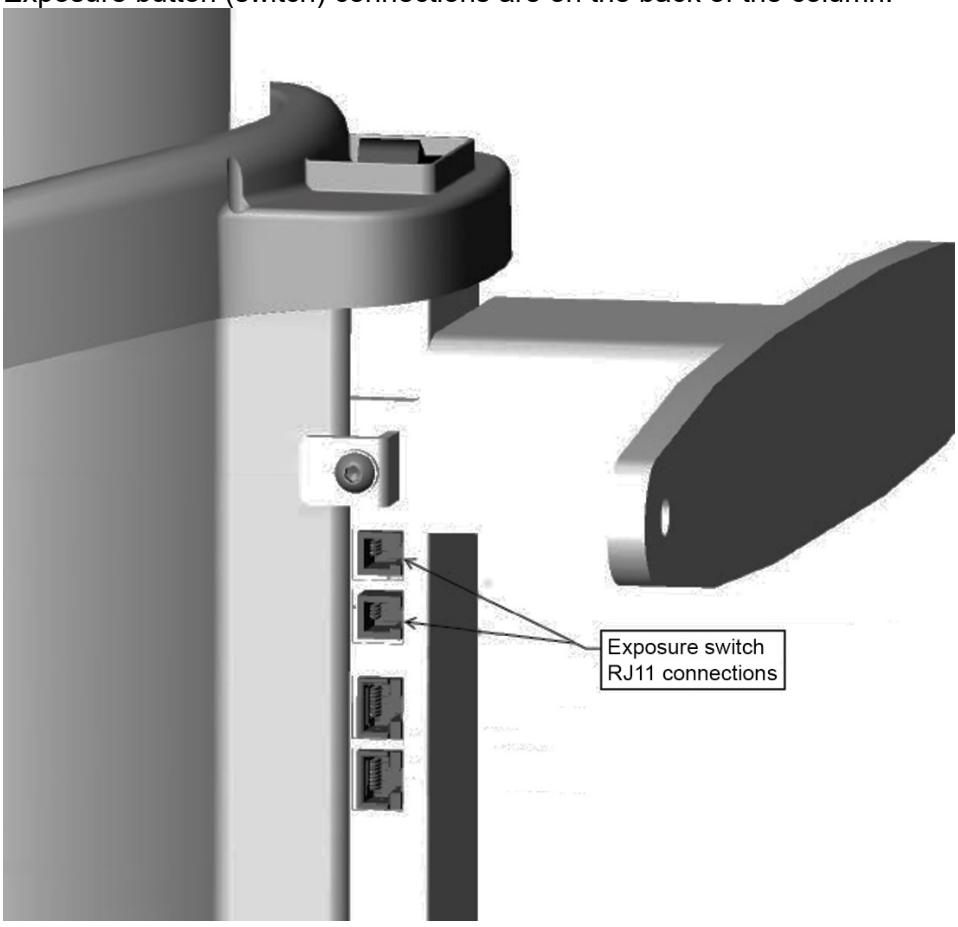
Configuring Two Remote Exposure Buttons

The Progeny Vantage X-ray System can be used with dual remote exposure buttons. These buttons can be configured either in parallel (an exposure can be made with either of the buttons) or in series (both buttons must be pressed simultaneously to make an exposure). The configurations are controlled by jumpers on the RTC board's J7 terminal.



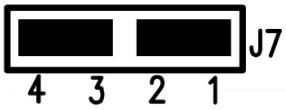
RTC board with terminal J7 highlighted (left) and closeup of J7 with two jumpers (right)

Exposure button (switch) connections are on the back of the column.



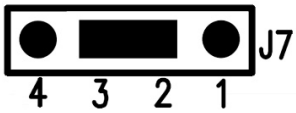
Vantage exposure switch connections

To use either of two buttons, place one jumper on terminals 1 and 2 and the other jumper on terminals 3 and 4.



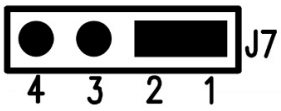
Parallel configuration (either button able to make an exposure)

To require that both buttons be pressed simultaneously, place one jumper on terminals 2 and 3.



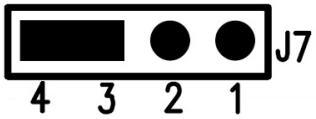
Series configuration (both buttons must be pressed)

To make only the top exposure switch connection active, place a jumper on terminals 1 and 2 only.



Only a button connected to the top connection will be active

To make only the bottom exposure switch connection active, place a jumper on terminals 3 and 4 only.

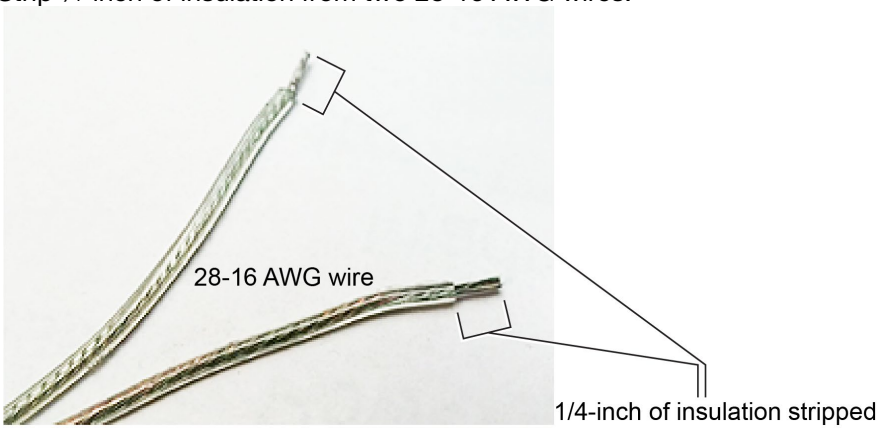


Only a button connected to the bottom connection will be active

Installing a Generic Two-Wire Remote Exposure Switch

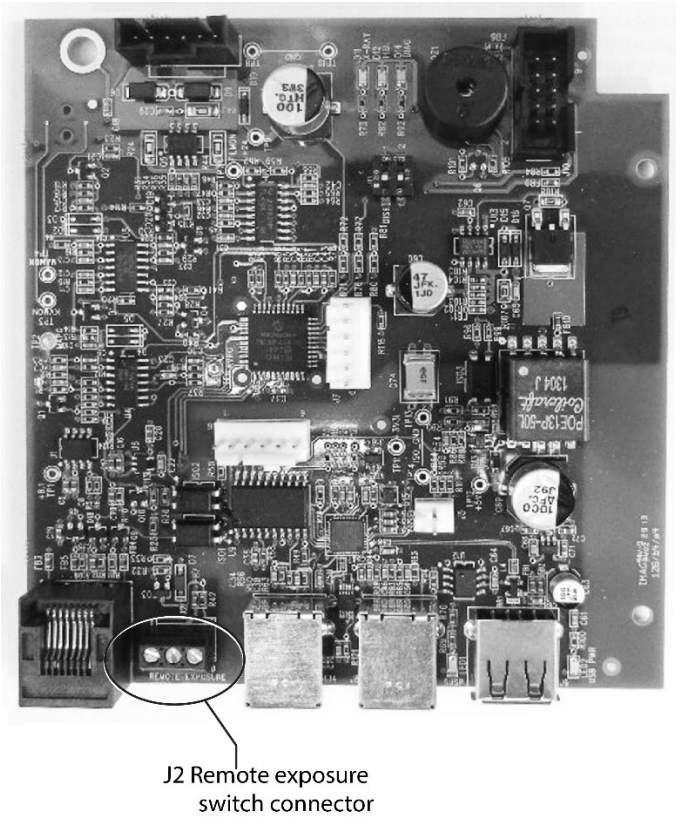
Stripping insulation from the wires

1. Strip ¼-inch of insulation from two 28-16 AWG wires.



2. Remove the control unit cover and the logic board locking screw.
3. Swing open the logic board and locate terminal block J2 on the power supply control board (30-08160), as shown below.

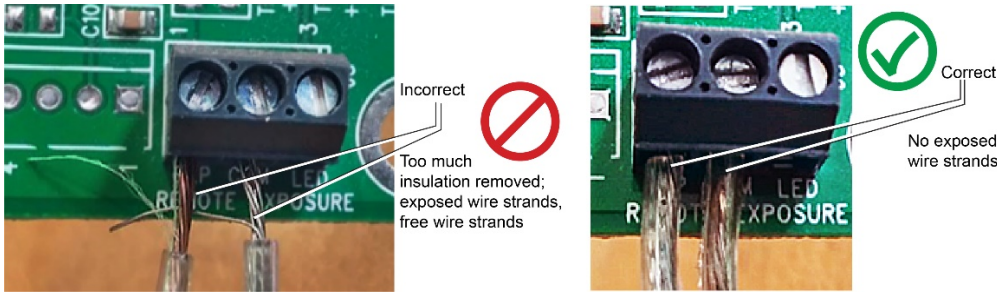
Installing the remote exposure switch



midmark

Correctly connecting wires to the terminal block

4. Use a small flat-head screwdriver to connect the remote exposure switch wires to the “EXP” and “COM” terminals of terminal block J2. There must be no exposed wire strands outside the terminal block (as shown the photograph on the right).



⚠CAUTION	It is critical that the exposure switch wires be connected to the terminal block with no exposed strands of wire. Exposed wires can short circuit and cause unintended exposure to radiation.

5. Swing the logic board closed and secure it with the locking screw
6. Replace the control unit cover.
7. Follow the manufacturer’s directions to connect the two-way switch to the other ends of the wires.

7 Starting Up

In this Chapter

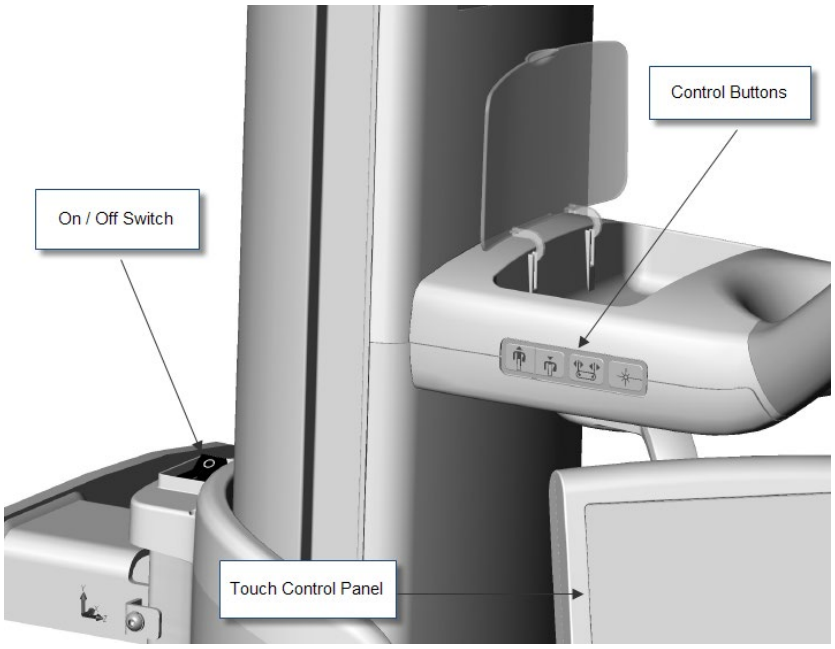
- Turning the Vantage System On
- Checking Image Quality

Turning the Vantage System On

You can turn on the Vantage Panoramic X-ray device first or the client software first (see chapter 8 Vantage software client setup). Make sure that all shipping brackets have been removed.

1. To turn on the Vantage panoramic device, press the on/off switch located at the back of the stationary column on top of the box of connections.

Vantage Panoramic Device with On/Off Switch



When you turn on the Vantage panoramic device, the touch control panel displays a “Start Up” screen. The Vantage panoramic device goes through a self-diagnostic procedure as part of the startup process.

2. If the Client software is not running, launch it and open the image acquisition software.

Checking Image Quality

An image quality phantom is available from Progeny. The phantom simulates the position of average human teeth roots, and markers allow you to check the position of the focal trough. To check for image quality, you need to take an X-ray exposure with the image phantom and then view the image, checking it according to some specific tests. The Cephalometric imaging phantom is included with Cephalometric Extension option.

Install the Panoramic Image Phantom

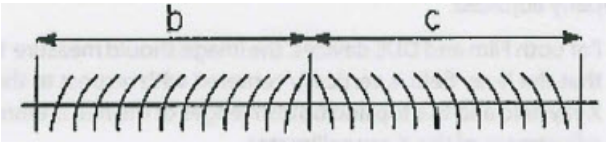
The Vantage panoramic device is designed so that the chin rest accessory can easily be switched with the image phantom.

1. To install the image phantom, lift the chin rest from the chin rest hole on the patient positioning table.
2. Set the image phantom in the chin rest hole

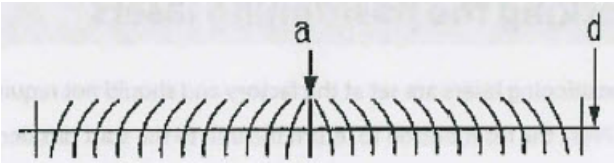
Image Checks

The following checks for image quality are performed on the image after exposing the phantom. In general, each individual line should be sharp where the lines cross the center of the image, and they should blur out above the center line.

1. Verify that the semi-projections b = c +/- 3 mm (nominal value with the central vertical line well focused) = 80 mm.

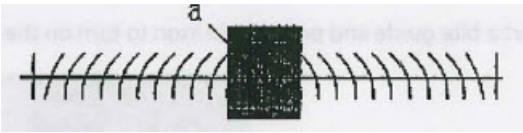


2. Verify that line “a” is vertical +/-3 degrees with respect to the horizontal line “d”.

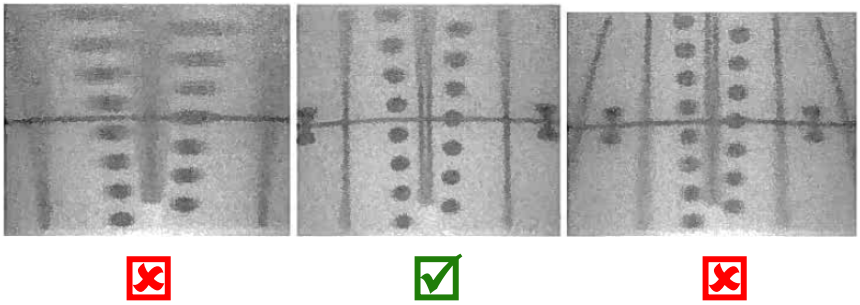


3. Verify that line “d” is horizontal and flat within a band of 6 mm.

4. Verify that the darkened area is centered in respect to the central vertical line “a” with a tolerance of +/- 4 mm.



5. Verify that the central vertical line is well focused and adjacent balls are round.



8 Vantage Software Client Setup

In this Chapter

- About
- Installation Procedure
- Connecting to Vantage

About

Vantage acts as a “network appliance” that connects directly to your network. In order to receive x-ray images, you must designate at least one workstation on your network to receive them.

Installation Procedure

When installing the software, it is assumed that previous versions of the Progeny Device Suite and Progeny Imaging image management software are not present.

NOTE: Proper operation requires any previous version of Progeny Device Suite and Progeny Imaging to be removed (uninstalled) prior to the installation process to begin.

Execute the following steps:

- Insert the USB Flash Drive into an available USB port on your computer and allow the computer to recognize the flash drive.

- The main screen of the installation software is shown on Figure 1. If the software on the USB flash drive does not start automatically, navigate to Windows Explorer™ and select the “Progeny” drive letter. Browse to the content of the flash drive and start “Setup.exe”. This step begins the installation process.

NOTE: The installation software requires Microsoft .NET Framework revision 3.5. This software will be installed if it is not yet present to the operating system. Follow all on screen prompts.

NOTE: If the intended configuration is based on Windows XP, the Service Pack 3 update is required. This update is included on the USB flash drive and can be installed from folder named ‘Utilities’. Another option is to use the Windows update tool provided by Microsoft.

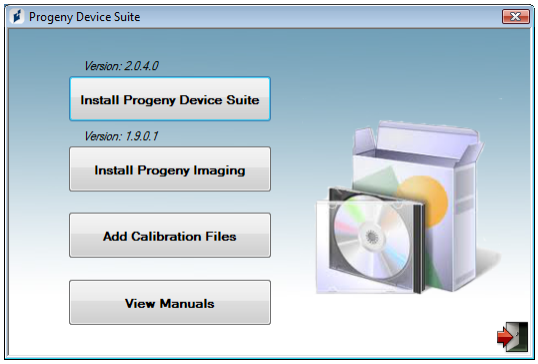


Figure 1: Main screen of the Installation software

- Start the installation process by clicking on 'Install Progeny Device Suite' button (Figure 2).

NOTE: The installed software requires multiple software components that may already be available in your system. These components will be installed if they are not yet present. Follow all on screen prompts.

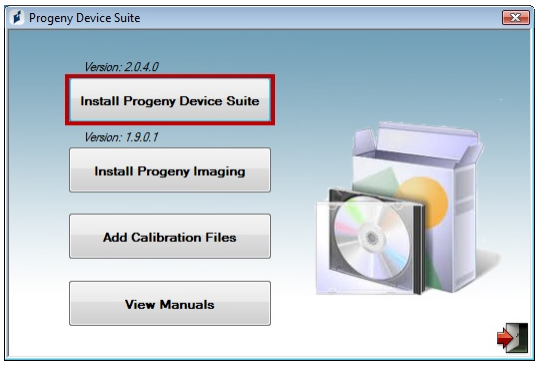


Figure 2: Starting the Progeny Device Suite installation

- The screen on Figure 3 will be displayed. Choose Vantage Pan and all other device families that have to be supported by the Imaging Software.

Figure 3: Selecting the device families to be installed

- A green check mark next to the 'Install Progeny Device Suite' button will appear when Progeny Device Suite installation is completed. Continue by installing Progeny Imaging software by clicking on 'Install Progeny Imaging' button (Figure 4) and follow the prompts on the screen to perform the installation.

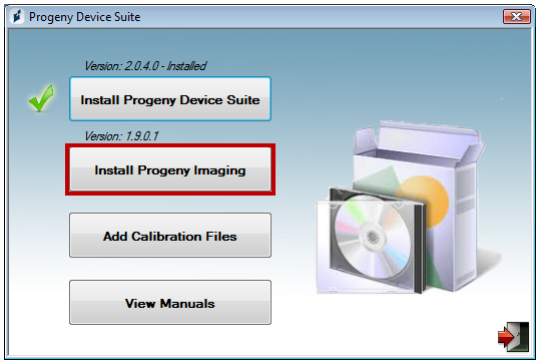


Figure 4: Starting the Progeny Imaging installation

- Green check marks next to each of the 'Install Progeny Device Suite' and 'Install Progeny Device Suite' buttons will appear when both the Progeny Device Suite and Progeny Imaging are installed (Figure 5).

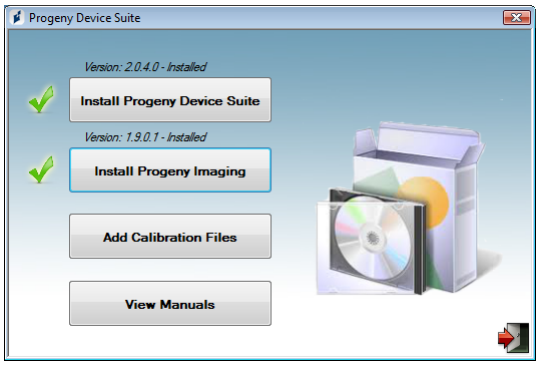


Figure 5: Progeny Device Suite and Progeny Imaging are installed

Connecting to Vantage

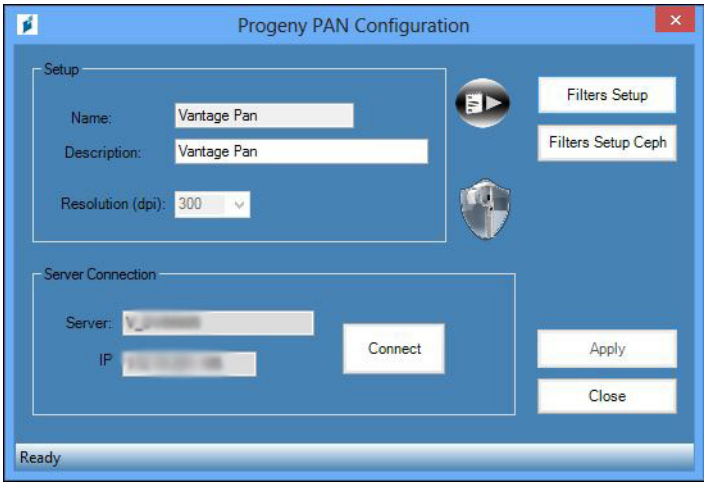
Connecting your computer to the Vantage system can be setup either through Progeny Imaging image management software or through Progeny's TWAIN interface.

- If you are using Vantage Pan from a 3rd party application, you need to open Progeny's TWAIN interface to connect to the Vantage system. Some image management programs also support Vantage integration. See your image management software support for more information on how to access the Vantage.
- Select "Vantage Pan" in the device drop down if it has not already been selected

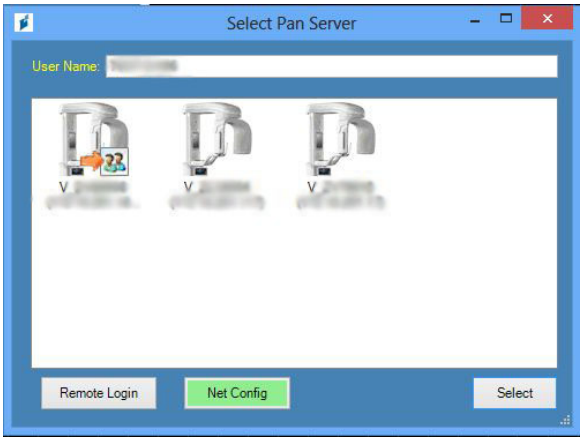
- To access device configuration:
  - **TWAIN:** Click the device configuration icon

  - **Progeny Imaging:** In the top menu browse to Tools > Devices > Device Configuration

- If you have already connected to a device it will be listed in the Server Connection section. Click the "Connect" button.

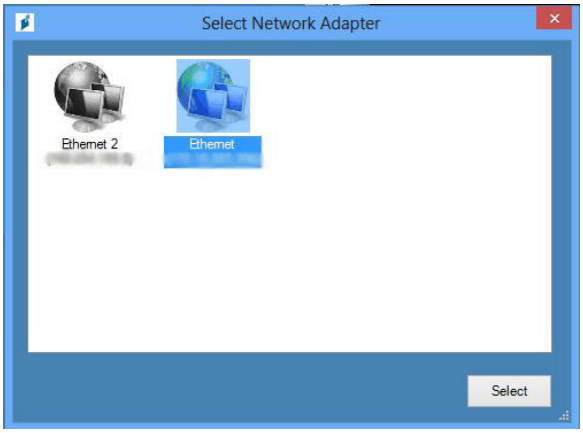


- The “Select Pan Server” window will automatically discover the Vantages in your network. Highlight the vantage you want to connect to and click the “Select” button.

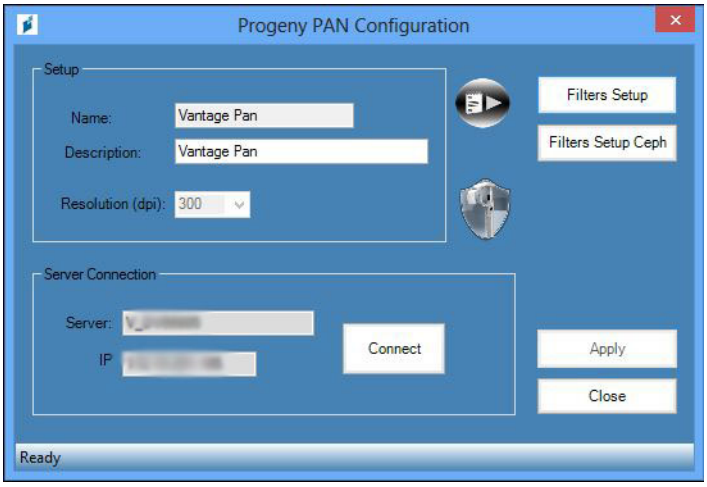


  - **Optional User Name:** The User Name field is what’s used to identify your Vantage Client in the network. The default is your computer’s name.

  - **Optional Network Adapters:** Progeny Device Suite will automatically detect the most suitable network adapter on your computer for connecting to the Vantage. If your Vantage is not automatically discovered click the “Net Config” button to select a specific network adapter.



- Once returned to Device Configuration screen the Vantage you selected will be visible in the “Server Connection” section. Click the “Close” button to complete the connection.



- Once you close Device Configuration and you are back at the client application the light for “Vantage Pan” should now turn green.

- At this point you can take images with the Vantage Panoramic and they will be delivered to the client. You can repeat these steps at any time to connect to another Vantage panoramic device.

9 Installing the Cephalometric Extension

Tools Required:

Allen wrenches: 2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm
Open end wrenches: 13 mm, ½ inch
Bubble level
Phillips screwdriver
Note: When upgrading an existing Vantage for Cephalometric use, the debug adapter is required to upgrade the RTC and the operator panel

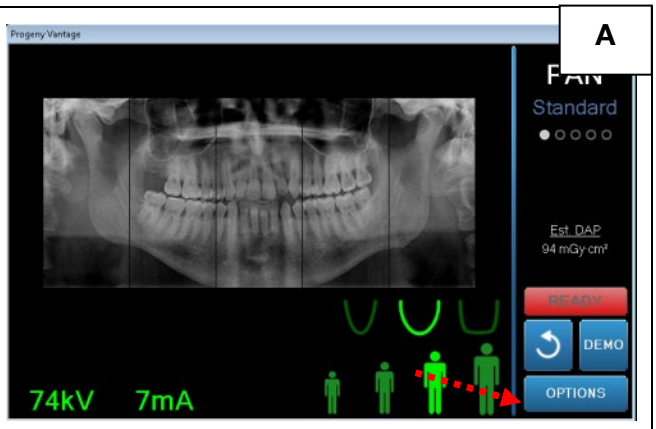
Parts Required:

C6000 – Progeny Cephalometric Unit – Complete with Sensor
OR
C4000 - Cephalometric Attachment

NOTICE The panoramic baseline calibration must be performed before installing the cephalometric extension. See page 54.

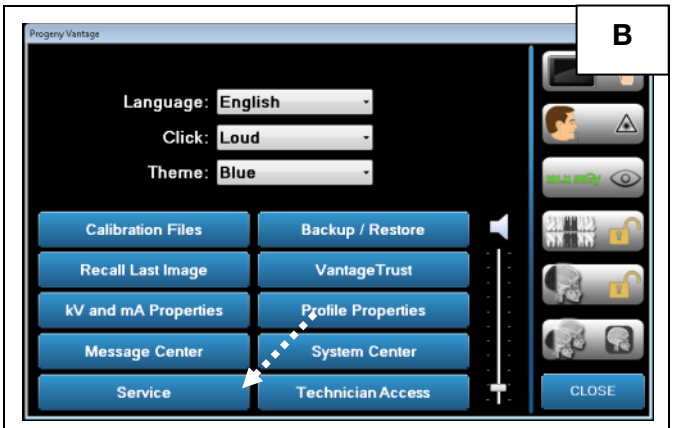
Installation Pre-Check

A



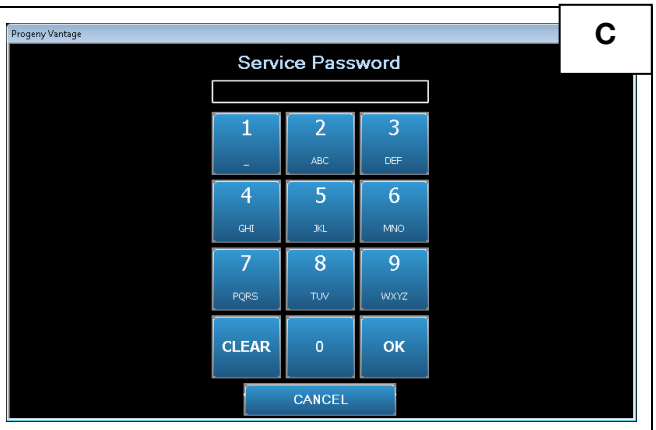
Select “Options” on the lower right of the display.

B



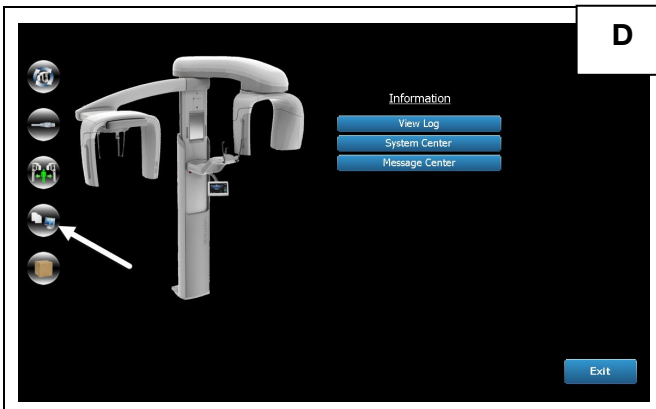
Select “Service” on the lower left

C



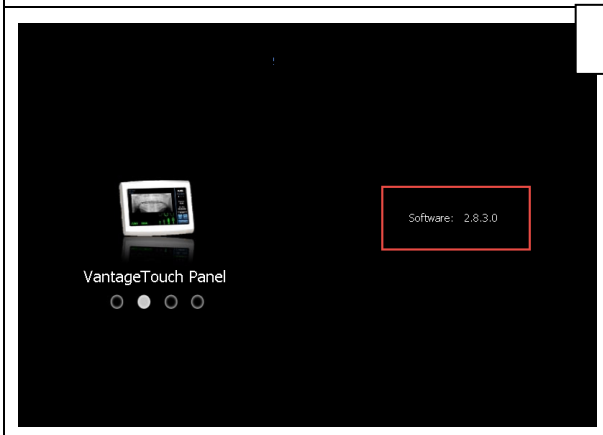
Enter 77469 and Select OK.

D



1. Select the system information symbol on the left as shown.
2. Select System Center

E



If the “VantageTouch Panel” is not displayed, place your finger on the image and slide it left or right until the VantageTouch Panel is displayed.

The Device Suite version should be 2.8.3.0 or higher.

If the value is not as indicated above, contact tech support to upgrade the Device Suite software. If the value is correct, continue with next steps.

F

Place your finger on the image and slide it left or right until the Real Time Controller is displayed.

The RTC Version should be 3.8 or higher.

If the value is not as indicated above, contact tech support for further instructions. If the value is correct, continue with next steps.

midmark

G

If the Device Suite version 2.7.1.0 or lower was installed prior to upgrading to version 2.8.1.0 in step E; Verify the Ceph Left, Ceph Top, Ceph Bottom, Ceph C-Arm and Ceph Transit values are 0, otherwise skip this step and continue with next steps.

If the Ceph Left, Ceph Top, Ceph Bottom, Ceph C-Arm and Ceph Transit values are not 0, contact tech support for further instructions. If the values are correct, continue with next steps.

H

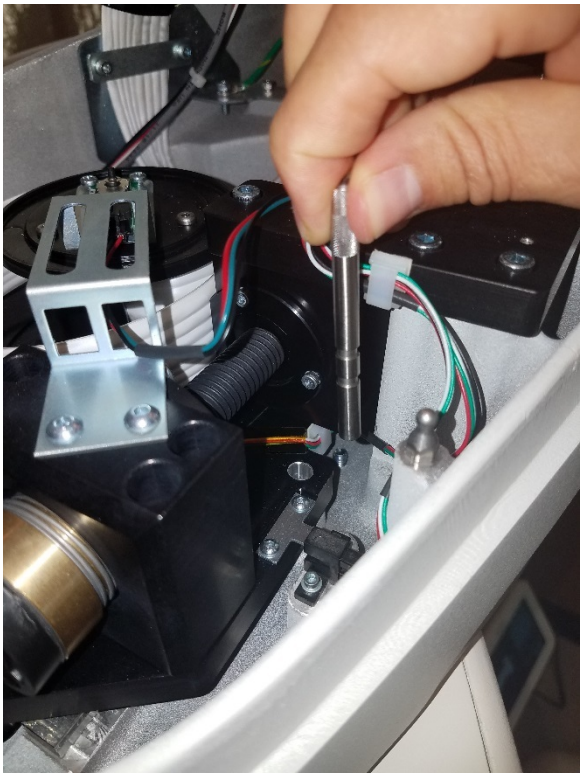
Using the up/down control buttons, lower the unit to it's lowest height and then remove the overhead arm cover.

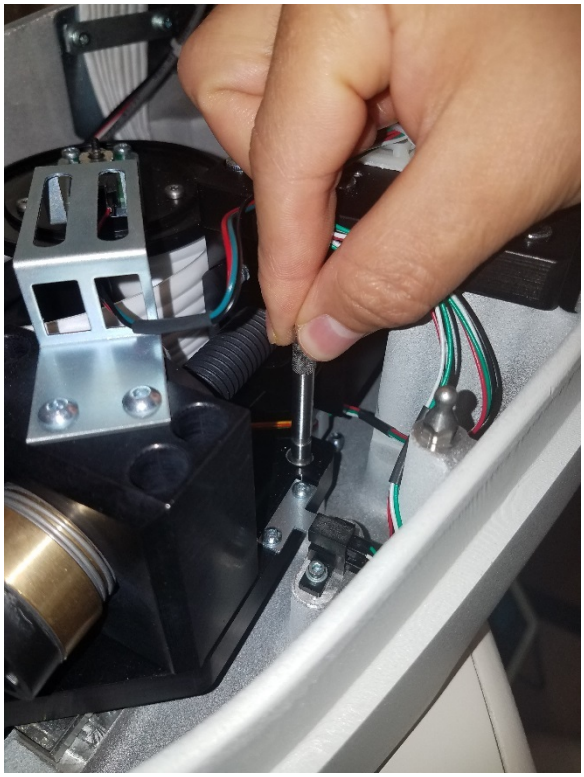
Verify the zero pin positions on the X, Y and R axes.

Note: If zero pin position does not set properly, re-zero the corresponding axes. See X-Axis, Y-Axis and R-Axis Alignment in next steps for instructions.

X-axis Alignment

1. On the *Service* screen, select the overhead arm and perform the *Axis Service and Diagnostics* task.
2. Select the *X*-axis.
3. Select the “Move to Zero” and wait for X-ray device to stop moving
4. Insert the the medium alignment pin (part # 60 T0029) in the zero-position hole, confirming that it inserts fully. If the Pin inserts fully, select Finish twice to return to the service screen.
   If the pin does not insert fully, remove the pin and see the next steps.





5. Manually move the overhead arm until the medium alignment pin (part # 60 T0029) fits in the zero position hole, as shown in Step 4. The overhead arm can be moved using the column keys or by turning the screw manually.
6. Remove the pin.
7. On the operator panel, tap *Set Alignment*.
8. Wait for the panoramic X-ray device to stop moving.
9. On the operator panel, tap *Move to Home* and wait for the movement to stop.
10. On the operator panel, tap *Move to Zero* and wait for movement to stop.
11. When movement has stopped, insert the pin in the zero-position hole, confirming that it inserts fully. If the pin does not insert fully, go back to step 5.
12. Remove the pin.
13. On the operator panel, tap Finish twice to return to the Service screen.

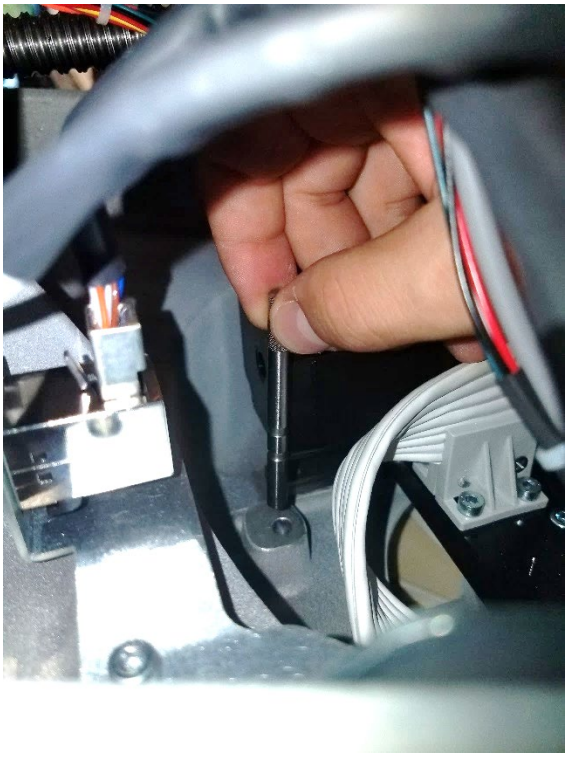
Y-axis Alignment

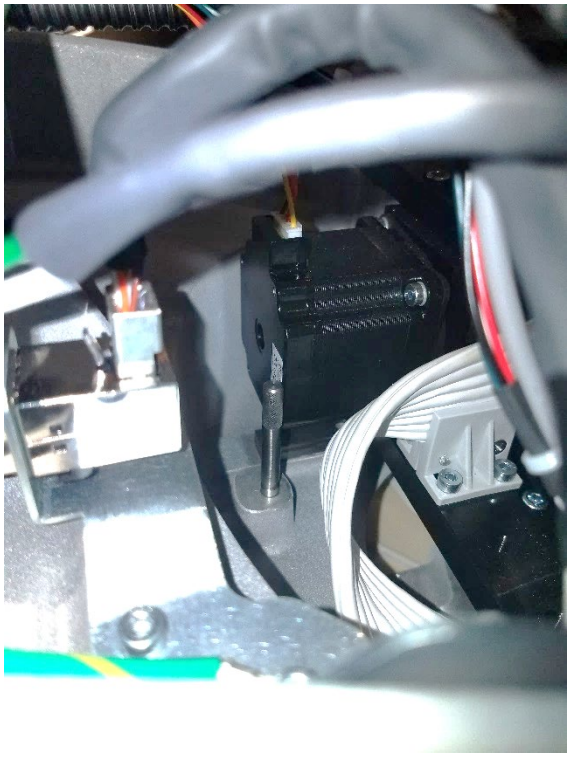
1. On the *Service* screen, select the overhead arm and perform the *Axis Service and Diagnostics* task.
2. Select the *Y*-axis.
3. Select the “Move to Zero” and wait for X-ray device to stop moving.
4. Insert the large alignment pin (part # 60-T0028) in the zero-position hole, confirming that it inserts fully. The Pin should insert about an inch. If the pin does not insert fully, remove the pin and see the next steps.

5. If the pin inserts fully, select Finish twice to return to the service screen.
6. Manually move the overhead arm until the large alignment pin (part # 60-T0028) fits in the zero position hole, as shown in Step 4.
7. Remove the pin.
8. On the operator panel, tap *Set Alignment*.
9. Wait for the panoramic X-ray device to stop moving.
10. On the operator panel, tap *Move to Home* and wait for the movement to stop.
11. On the operator panel, tap *Move to Zero* and wait for movement to stop.
12. When movement has stopped, insert the pin in the zero-position hole, confirming that it inserts fully. If the pin does not insert fully, go back to step 5.
13. Remove the pin.
14. On the operator panel, tap Finish twice to return to the Service screen.

R-axis Alignment

1. On the *Service* screen, select the overhead arm and perform the *Axis Service and Diagnostics* task.
2. Select the *R*-axis.
3. Select the “Move to Zero” and wait for X-ray device to stop moving
4. Insert the medium alignment pin (part # 60-T0029) in the zero-position hole, confirming that it inserts fully. If the pin does not insert fully, remove the pin and see the next steps.
   If the pin inserts fully, select Finish twice to return to the service screen.





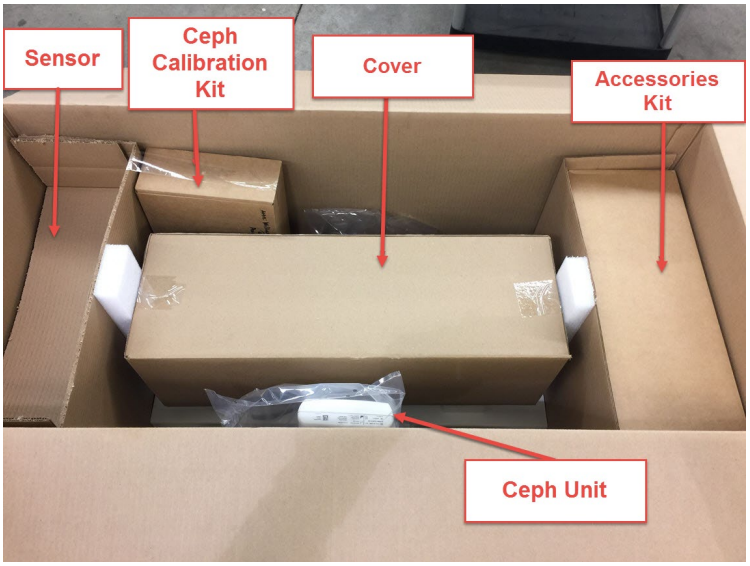
5. Manually move the overhead arm until the medium alignment pin (part # 60-T0029) fits in the zero position hole, as shown in Step 4.
6. Remove the pin.
7. On the operator panel, tap *Set Alignment*.
8. Wait for the panoramic X-ray device to stop moving.
9. On the operator panel, tap *Move to Home* and wait for the movement to stop.
10. On the operator panel, tap *Move to Zero* and wait for movement to stop.
11. When movement has stopped, insert the pin in the zero-position hole, confirming that it inserts fully. If the pin does not insert fully, go back to step 5.
12. Remove the pin.
13. On the operator panel, tap Finish twice to return to the Service screen.
14. Turn off the Vantage.

Procedure:

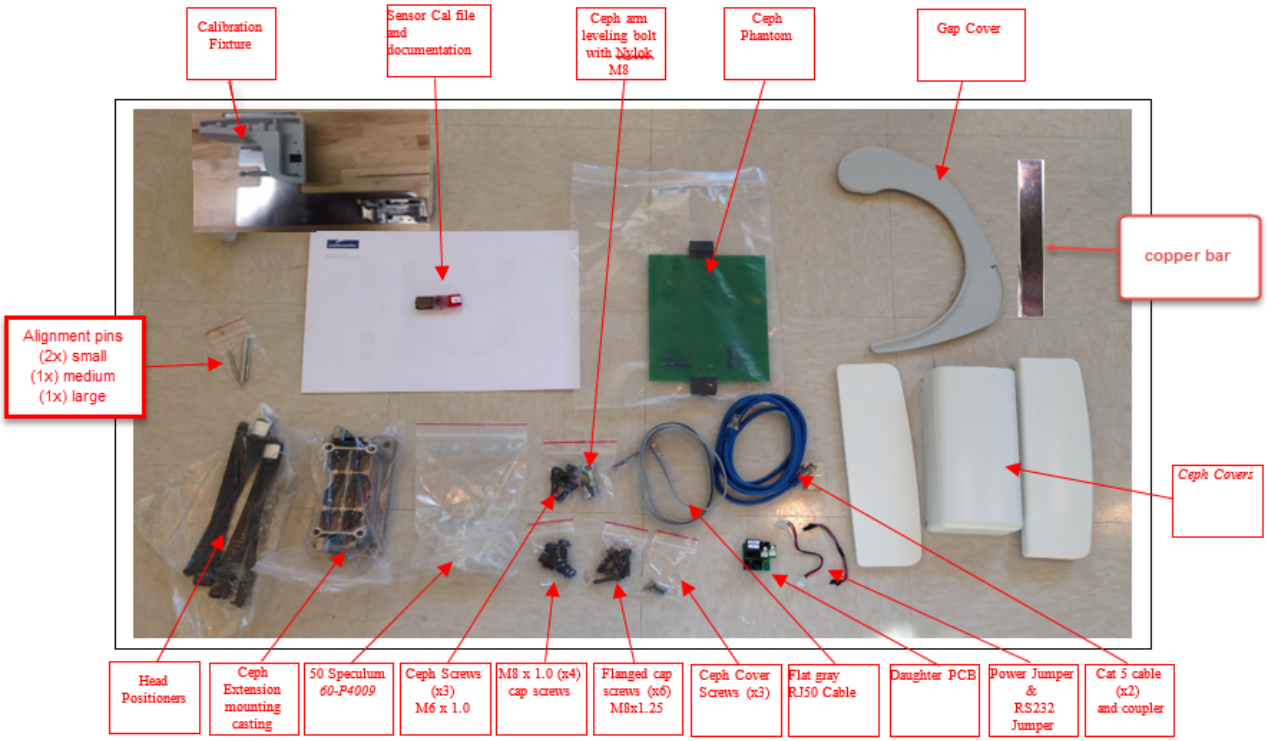
1. **Place the Progeny Vantage at a comfortable working level and then power the unit off.**
2. **Ensure the box is on its side with the label "This side up" facing up*. Do not destroy the box. It will be used to help with the installation of the Ceph Unit.***

3. **Open the top of the box, remove the horizontal arm and set it aside. Remove the cardboard insert. *Do not destroy the cardboard insert. It can be used to assist in installing the ceph.***

4. **Remove from the box the sensor, covers, Ceph Calibration Fixture & Accessories kit, and Ceph unit.**



5. **Open the accessories & Ceph Calibration kit and check for the following components:**



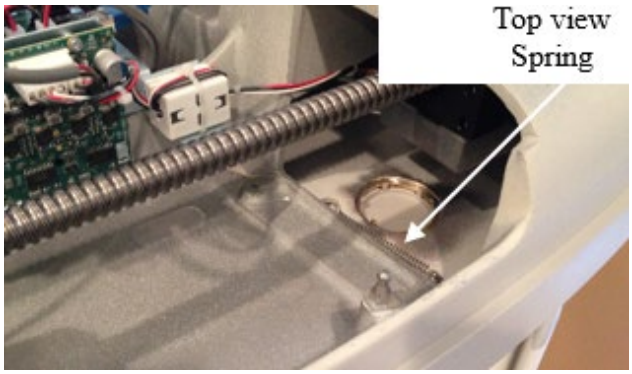
6. **Remove the covers, indicated below, from the Vantage**
   a. **Upper column cover (with mirror):**
   Pull the upper Column Cover toward you but do not completely remove it. Unplug the connector for the Frankfort plane laser. Once the Frankfort plane laser is disconnected, completely remove the cover. The removed cover will be replaced with a new cover included in the kit.
   Note: you may have to move the overhead all the way to the right to clear the Gap Cover.

   b. **Remove the two lower column covers**

Grab the Cover with the Vantage logo on it and pull it toward you and remove it.

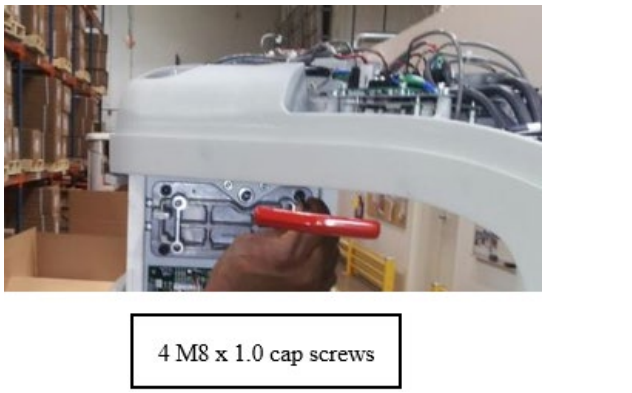
Grab the lower cover at the bottom pull it toward you and remove it.

c. **Remove and replace the gap cover**

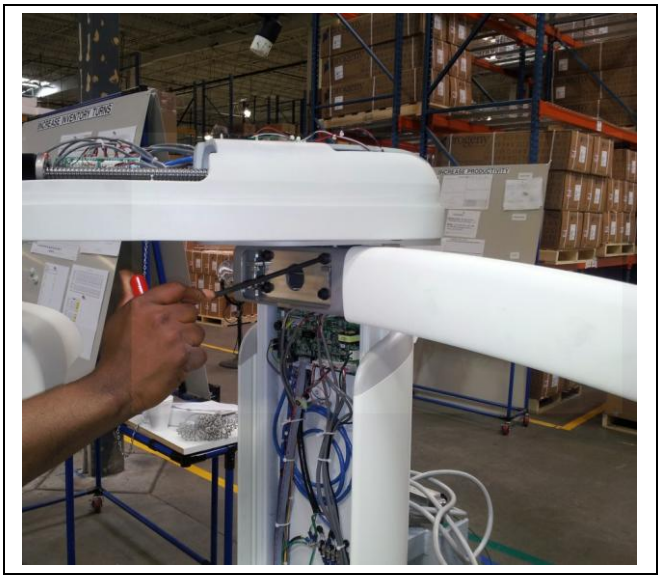


The gap cover is spring loaded and is press fit into place. Remove the spring and remove the cover. Reverse the order to add the new cover included in the kit.

7. **Mount the Ceph extension mounting casting on the Vantage using 4 M8 x 1.0 cap screws. Tighten the screws**

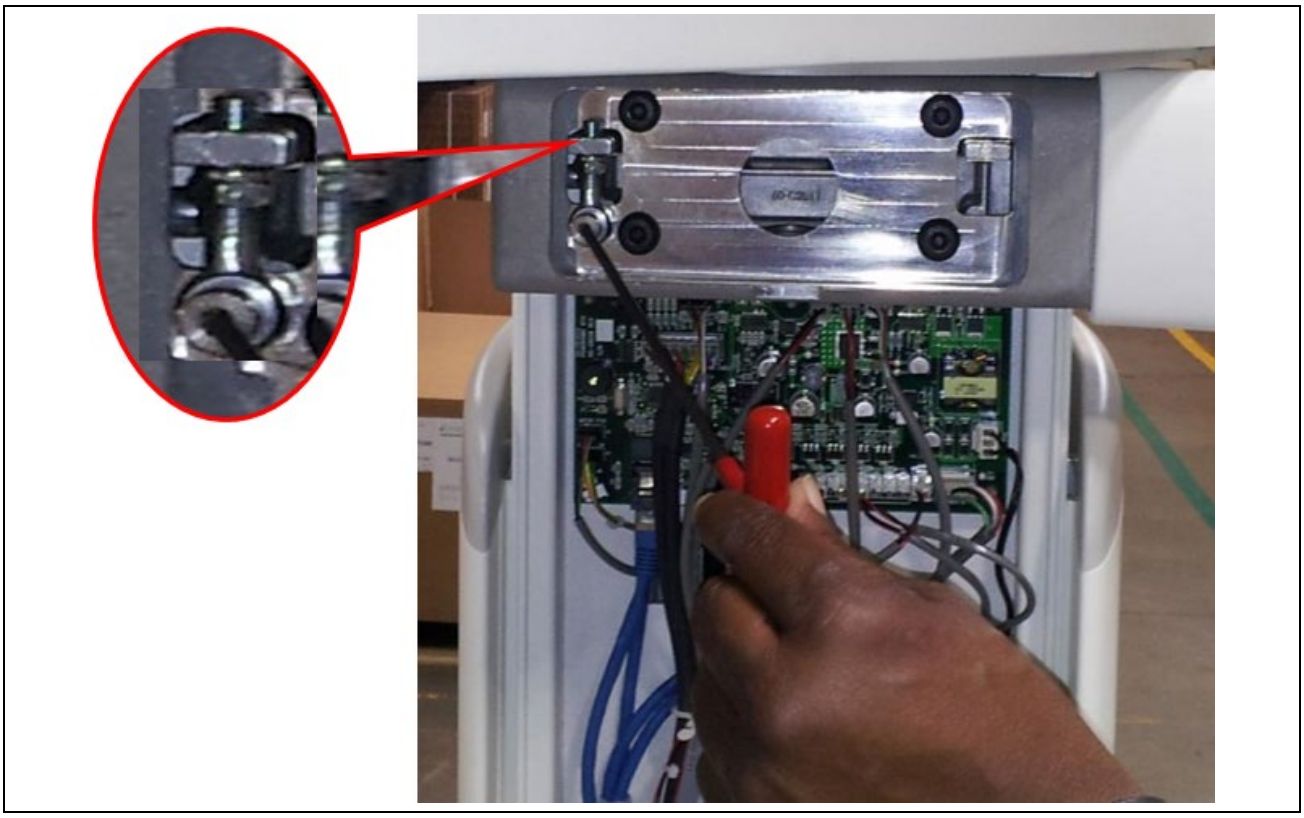


8. **Mount the Ceph arm on the casting using 4 M8 x 1.25 flanged cap screws. Do Not Tighten.**



midmark

9. **Mount the Ceph arm leveling bolt with Nylok M8 nut between the arm and the mounting casting.**



10. **Mount the Ceph arm on the casting using 4 M8 x 1.25 flanged cap screws. Do Not Tighten.**

10A

Place a level on the base of the column. *Take note of the bubble position.* You will be transferring this bubble position to the end of the Ceph Arm in a later step.

10B

Place the Level on the flat surface of the Ceph Arm, as shown above.
You will be adjusting the angle of the Ceph arm to match the level position measured in the previous step

10C

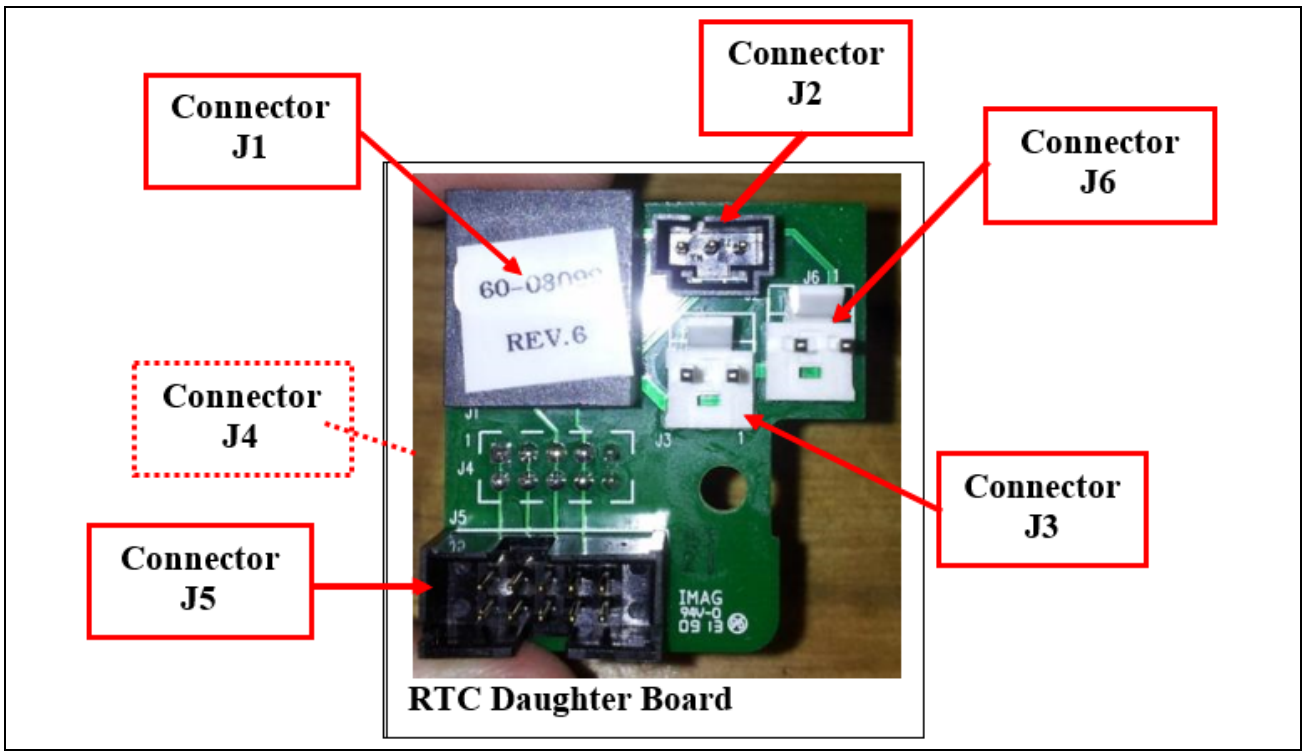
Place the Level on the flat surface of the Ceph Arm, as shown above.

You will be adjusting the angle of the Ceph arm to match the level position measured in the previous step.

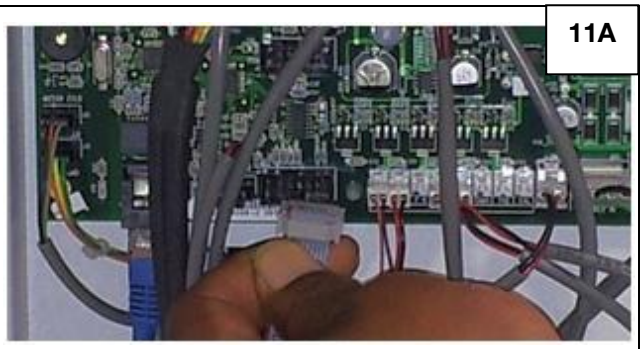
10D

Tighten the 4 M8 x 1.25 flanged cap screws.

11. Mount the RTC Daughter Board. Take note of the Connectors.



11A



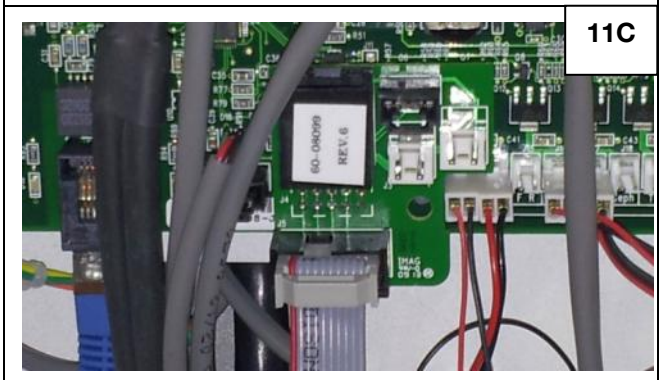
Remove the ribbon cable from connector J24 of the RTC.

11B

Plug the Daughter Board into connector J24 of the RTC.

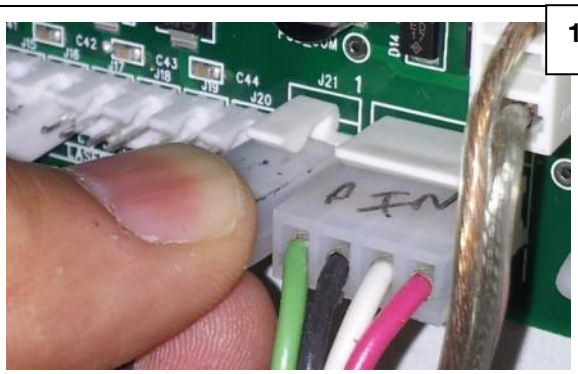
Do not connect to Program Import PGM

11C



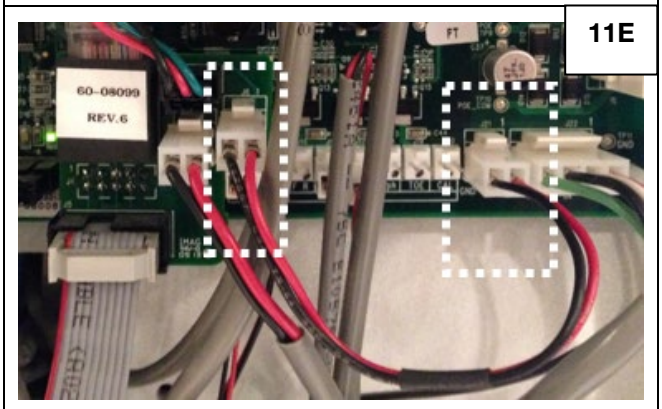
Plug the ribbon cable (removed in step 11A) into connector J5 of the Daughter Board.

11D



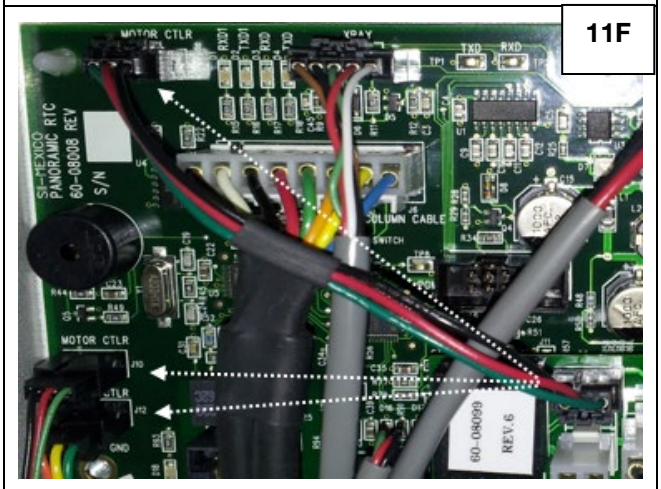
Remove the cable from Connector J21 on the RTC and move it to connector J3 of the Daughter board.

11E



Locate the Power Jumper Cable from the Accessory Kit and plug it into connector J6 of the Daughter Board and into Connector J21 of the RTC.

11F

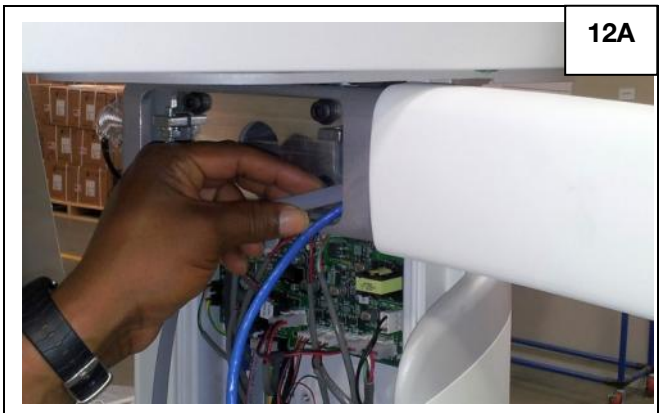


Locate the RS232 Jumper Cable from the Accessory Kit and plug it into connector J2 of the Daughter Board and any of the available Motor CTLR connections on the RTC (J1, J10, or J12).

midmark

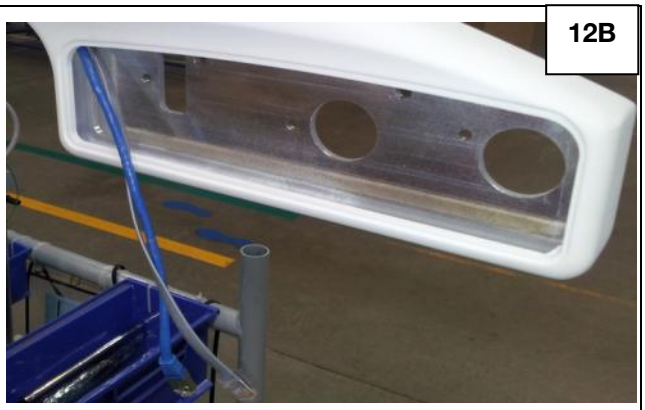
12. Locate the RJ50 Flat Cable and the RJ45 Ethernet cable from the Accessory Kit. Route the cables through the Ceph Arm as shown below.

12A



Route both cables through the arm as shown.

12B

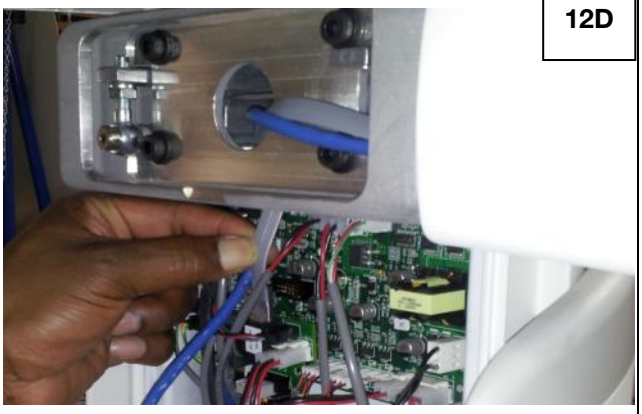


The cables will come out at the other end of the Arm where the Ceph Unit mounts.

12C

Route the cables through hole in the Arm Mount.

12D

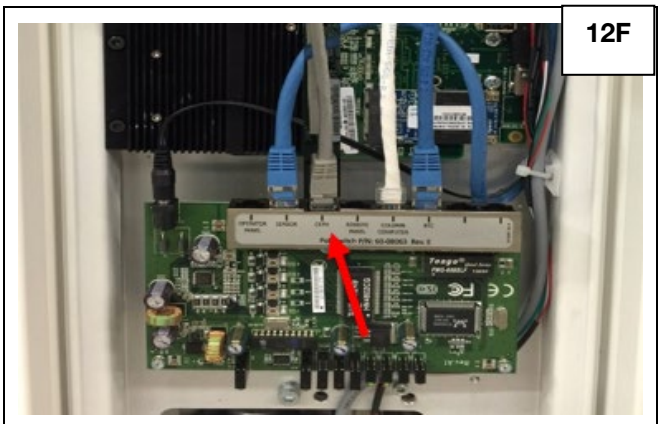


Plug the Flat RJ50 Cable into connector J1 of the Daughter board.

12E

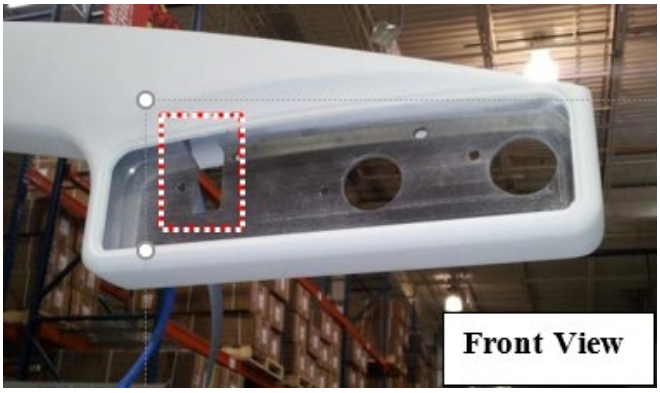
Route the Ethernet Cable carefully as shown and through the opening at the end of the patient table. Secure cable with two zip ties.

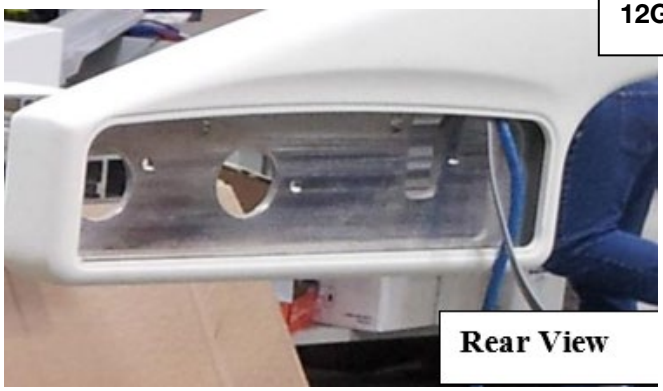
12F



Plug the Ethernet Cable into the port labeled Ceph.

12G





At the other end of the Ceph Arm, tuck the cables through the hole as shown. Ensure the cables are tucked out of the way to ensure that they are not pinched when the Ceph is mounted.

midmark

13. Install the Ceph onto the Ceph Arm.

13A

The inner Ceph box divider can be used to install the Ceph unit as shown above.

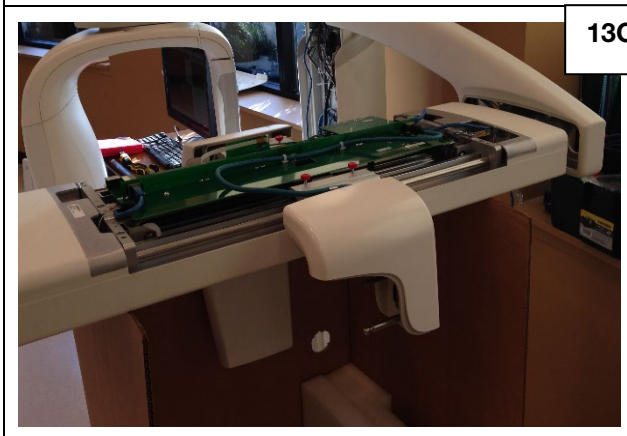
With the top of the box open, place the Ceph unit on top of the box.

The Sensor Mount has to be on the outer side.

13B

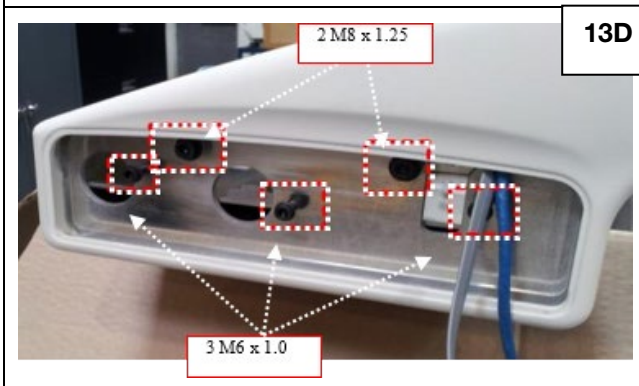
Turn on the Vantage and wait for the unit to fully boot. Move the column up or down to match the level of the Ceph arm with the Ceph on the box. Turn off the Vantage.

13C



Move Ceph unit into the opening of the Ceph Arm and prepare to secure it down.

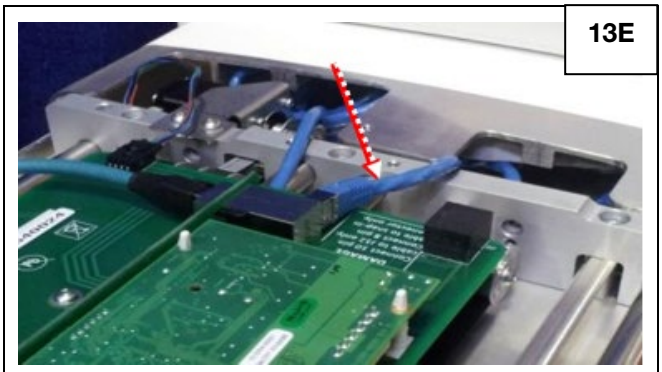
13D



Ensure the cables are free and clear and cannot be pinched.

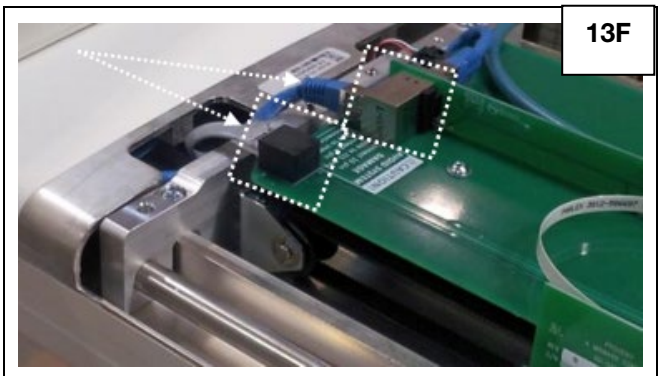
Using 2 M8 x 1.25 flanged screws and 3 M6 x 1.0 flanged screws, secure the Ceph Unit onto the Ceph Arm.

13E



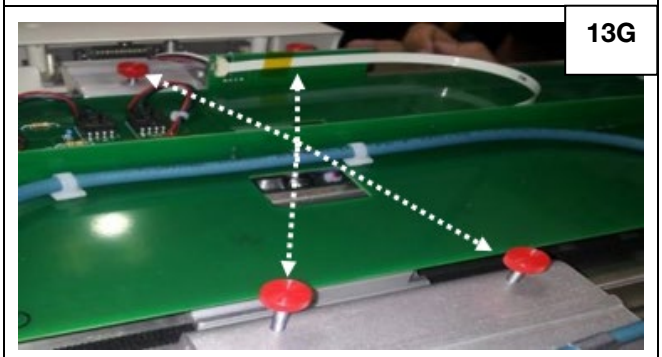
If you are mounting the Ceph on the left (as you are facing the vantage), there will be a blue Ethernet cable already plugged into the silver connector. Unplug this cable and tuck into the frame. It will not be used. *Disregard this step if you are mounting the Ceph to the right.*

13F



Route the RJ45 Ethernet Cable and the RJ50 Flat cable through the cavity. Plug the RJ45 Ethernet cable into the Silver connector. Plug the RJ50 Flat cable into the Black connector.

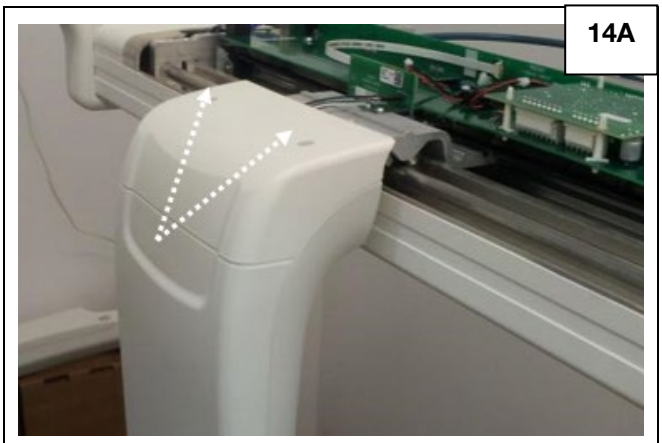
13G



Remove the four shipping screws from the top of the Ceph unit.

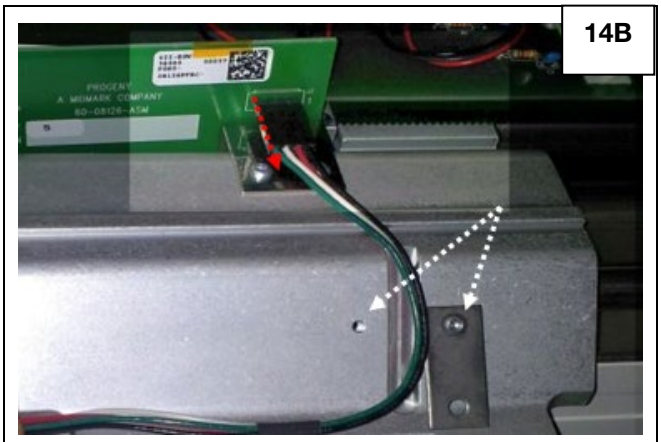
14. Remove the covers and the secondary collimator.

14A



Remove the Top Cover from the secondary collimator by removing the two screws.

14B



Remove the wire guide screws and plate. Unplug the connector from J2.

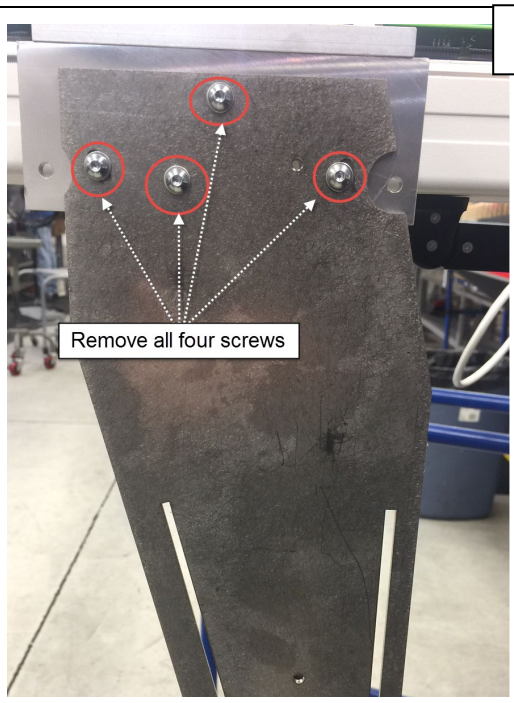
14C

The Front Cover is pressed into place. Gently pry the front cover away from the Secondary Collimator.

14D

Remove the three screws from the secondary collimator rear cover and remove the cover.

14E



Insert the small alignment pin for support and then remove the four Allen Screws from the Secondary Collimator and then remove the Secondary Collimator

15. Locate the calibration fixture from the Ceph fixture kit and mount it on the Ceph Arm.

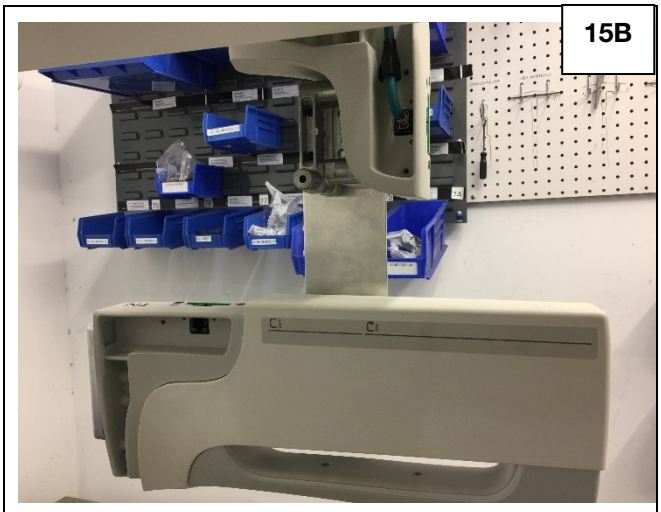
15A

Mount the Calibration Fixture onto the Ceph Arm. *Ensure it is locked in place before letting go. The latch on the Calibration Fixture should be fully engaged and should pop through in the engaged position.*

When the Ceph is installed to the left, the heavy end of the calibration fixture is away from the column.

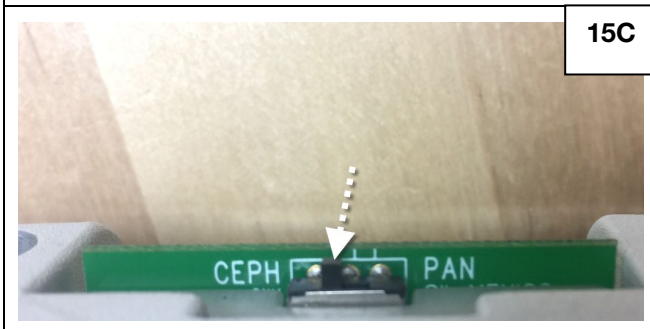
When the Ceph is installed to the right, the heavy end of the calibration fixture is toward the column.

15B



Locate the sensor (in the sensor box) and plug it into the calibration fixture. *Ensure it is locked in place before letting go.*

15C

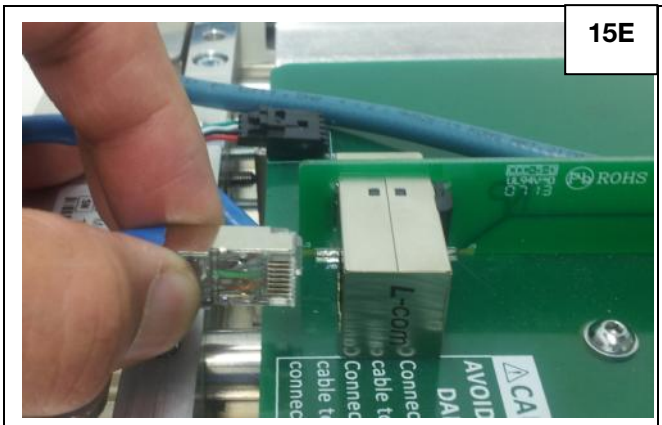


Set the dip switch to “Ceph” on the Calibration Fixture.

15D

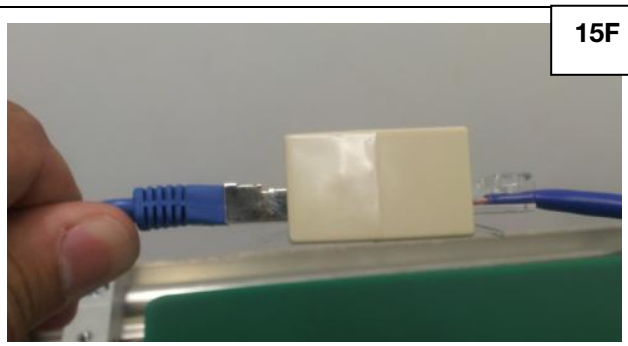
Locate the Cat5 cable and adapter in the accessory kit. Plug the Cat5 cable into the plug in the calibration fixture.

15E



At the top of the Ceph, disconnect the Cat 5 cable from the Silver connector. *This is the same cable installed in step 13F…see next step*

15F



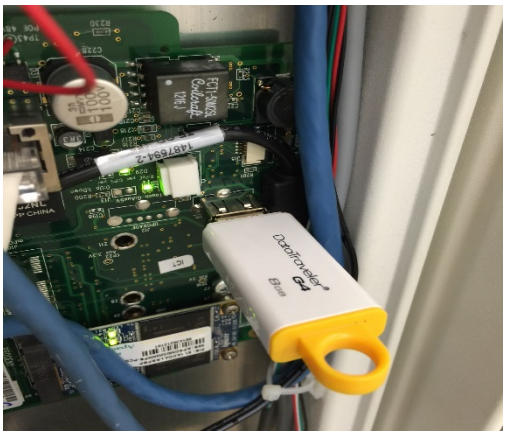
Connect the disconnected Cat5 cable to the adapter and connect the cat5 cable from the calibration fixture to the other end of the adapter.

15G

Using two or three pieces of tape, attach the Copper Bar to the Sensor as shown making sure to cover the line at the top of the sensor as shown above.

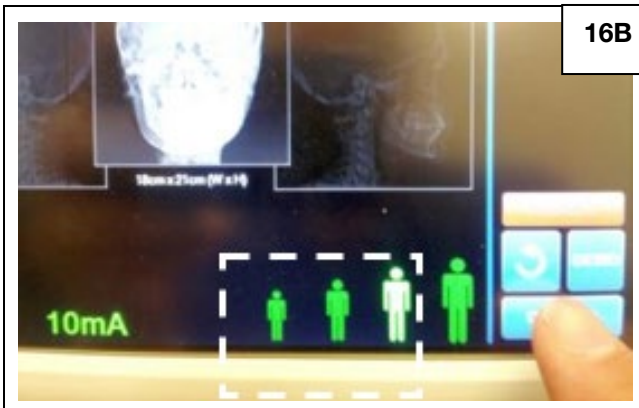
16. Install the Sensor Calibration File. Turn on the panoramic unit and allow it to boot.

16A



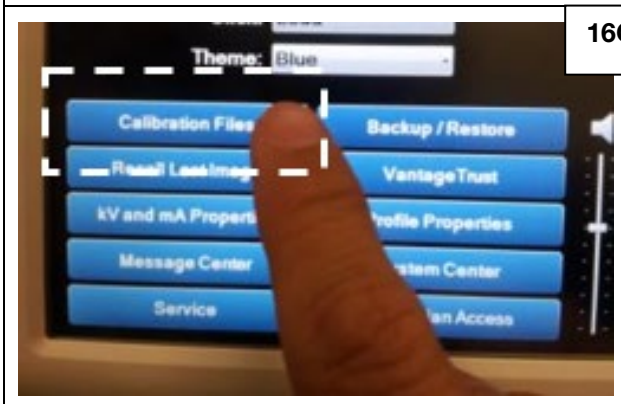
Locate the USB drive and plug into available USB port on the carrier board.

16B



Select “Options” on the lower right corner of the operator panel.

16C



Select Calibration Files on the upper left.

16D

This window will display the calibration files loaded on the USB Drive.

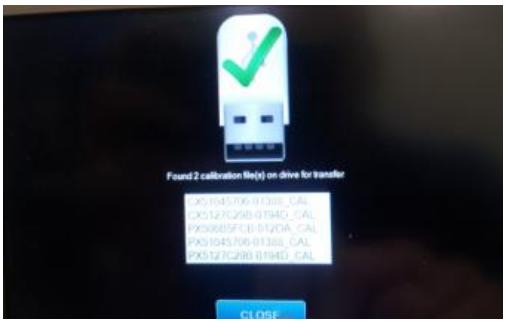
16E

Press on the Green arrow to load the calibration files onto the system.

16F

The Calibration files will begin transferring.

16G



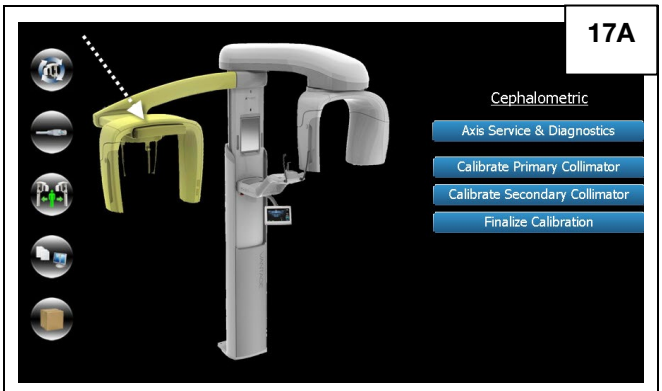
When the transfer is complete, a green check mark will display. You may now select “Close” and remove the USB Drive from the back of the operator panel.

16H

Turn the Vantage off. Wait 10 seconds and turn it back on.

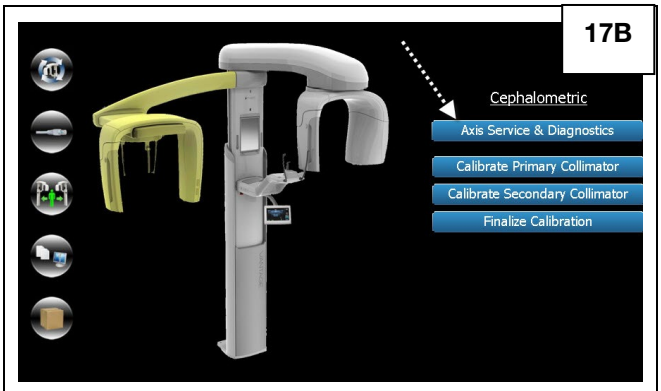
17. Ceph Calibration Procedure.

17A



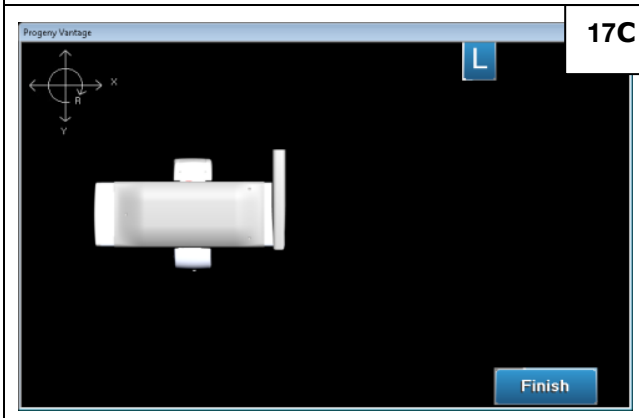
Highlight the Ceph option by pressing on it.

17B



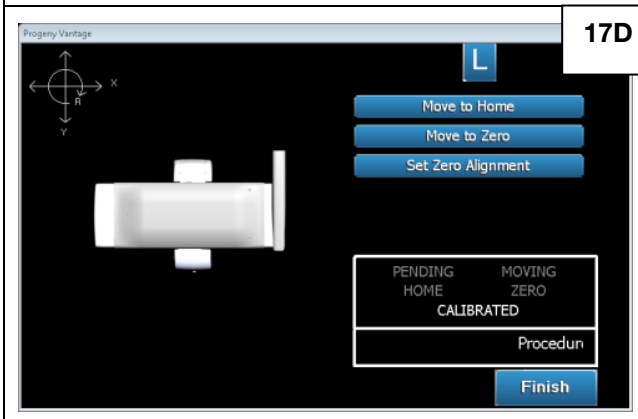
Select Axis Service and Diagnostics

17C



Select “L”

17D

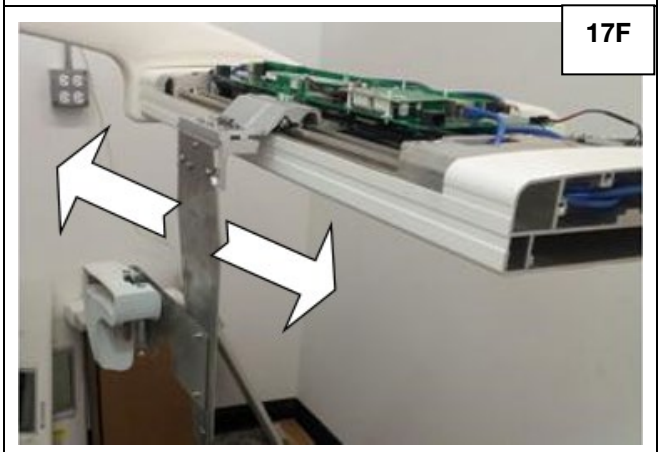


The window above will display.

17E

Locate the two small Zero Alignment pins in the accessories kit.

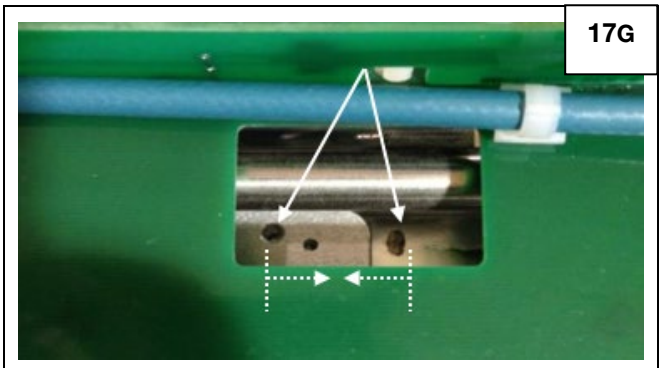
17F



Move the Ceph arm to the left or to the right to align the zero pins…see next image

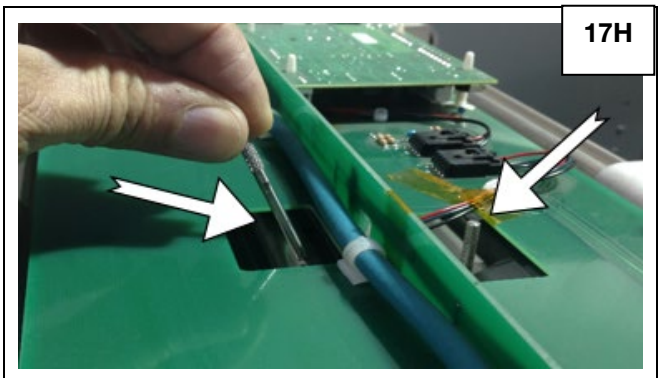
midmark

17G



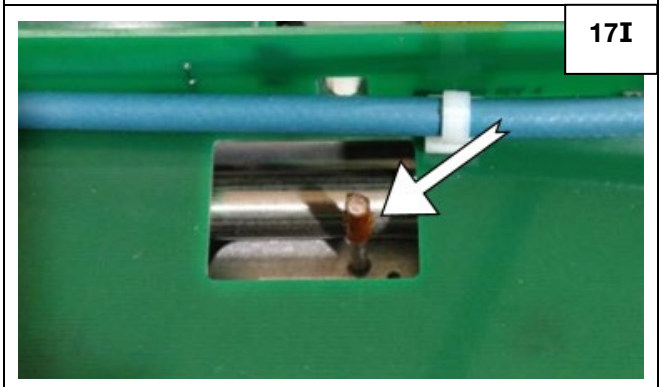
Find the alignment holes located in the open slot of the upper Ceph board. Continue to move the Ceph arm until the two alignment holes overlap…see next image.

17H



Place the two zero alignment Pins into the alignment holes to align the two holes. Note: when the pins are inserted properly, you should not be able to move the Ceph Arm…See Next Image.

17I

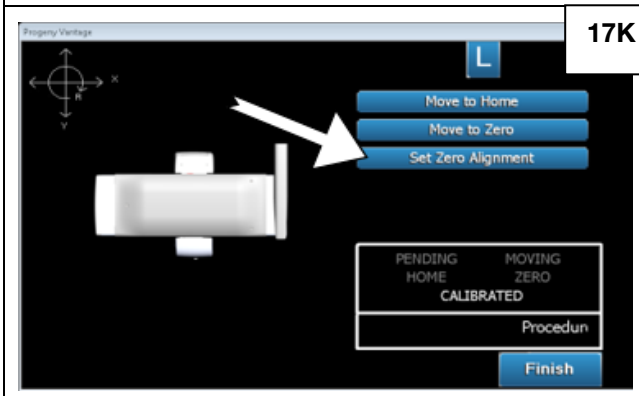


Zero Position Pin Correctly placed.

17J

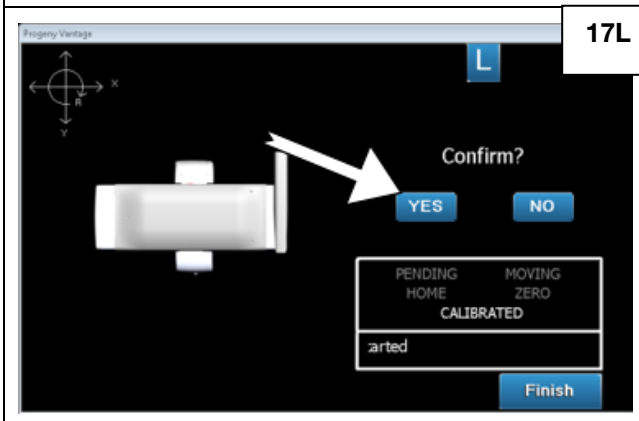
Carefully remove the Zero Position Pins…Try not to disturb the Ceph Arm Position.

17K



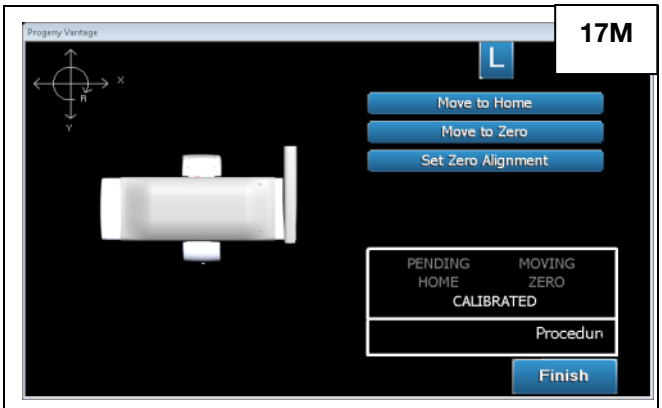
Select Set Zero Alignment.

17L



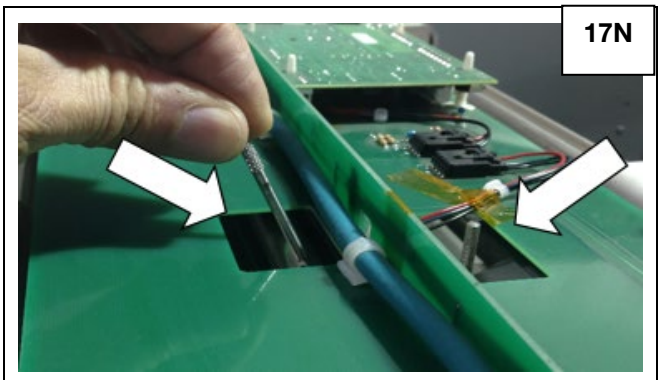
Select “Yes” in the confirmation window. The Ceph Arm will move slightly and the message “Procedure Successfully Completed” will display.

17M



Select “Move to Zero”. The Ceph Arm will move to the home position and then to the Zero Position.

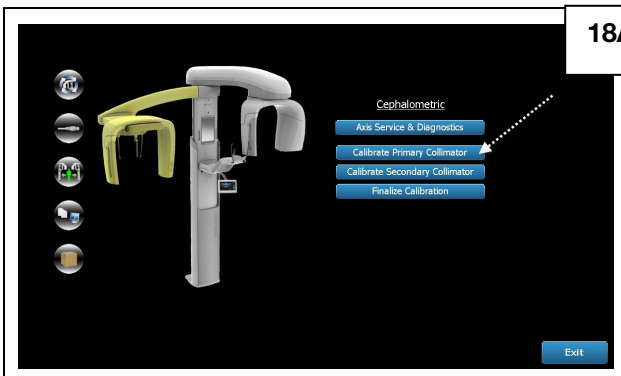
17N



Re-insert the Zero Position Pins. They should Fit and lock the unit into place without having to move the carriage. If not, restart at step 17I. If the pin fits properly, select “Finish”.

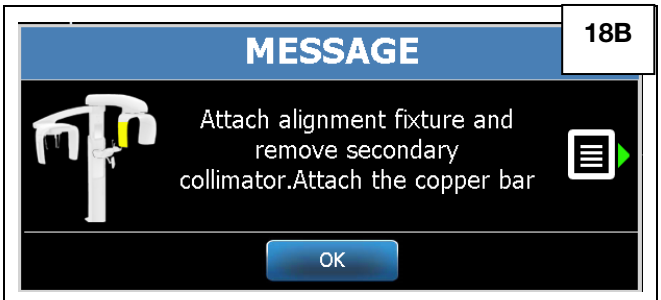
18. Calibrate Primary Collimator

18A



Select the “Calibrate Primary Collimator” button.

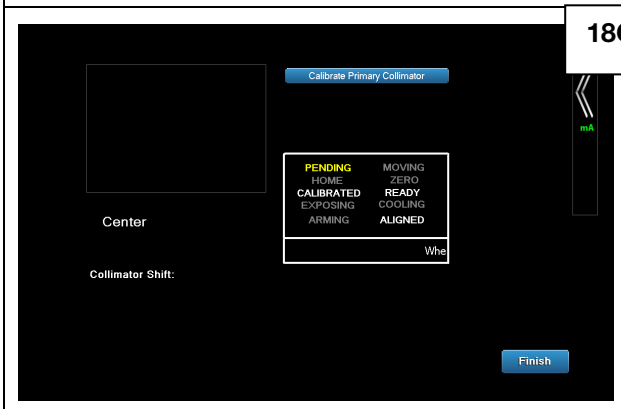
18B



The message above will appear. This step has already been accomplished in steps 14 & 15. If this has not been done, please complete steps 14 & 15 before proceeding.

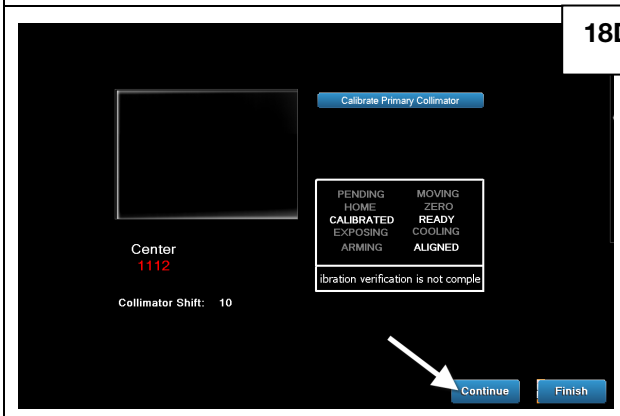
Select OK to continue.

18C



Select the “Calibrate Primary Collimator” button. The unit will move into position and the moving indicator turns red. When the unit stops moving and the moving indicator is not red, take an exposure..

18D

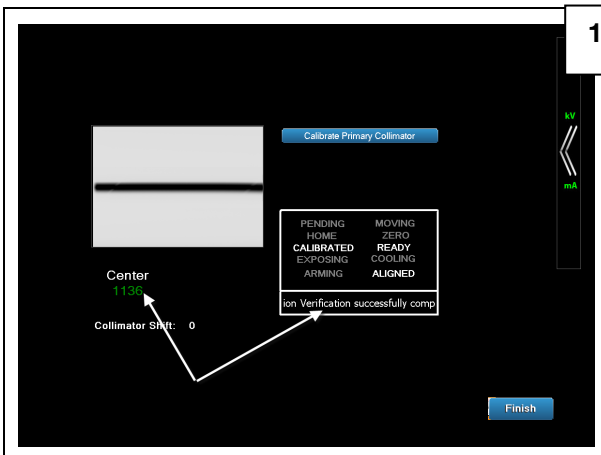


If the “Continue” (Selector) Is displayed, and the “Center” Position (Indicator) is colored “Red” or “Yellow”, then the “Generate an exposure” steps will need to be repeated as many times as necessary until the system displays “Calibration verification successfully completed”.

Note:

If the first exposure results with the “Center” numeric value colored in Green and displays the message indicating that the Calibration is complete; ignore this result. Select the “Calibrate Primary Collimator” button again.

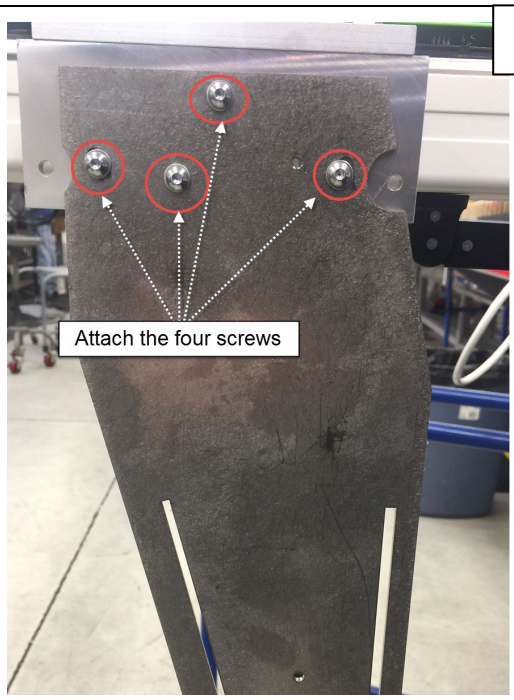
18E



Continue to take exposures until the display indicates that the calibration is complete and the “Center” numeric value is colored in Green. Select Finish and Finish again.

19. Calibrate Secondary Collimator

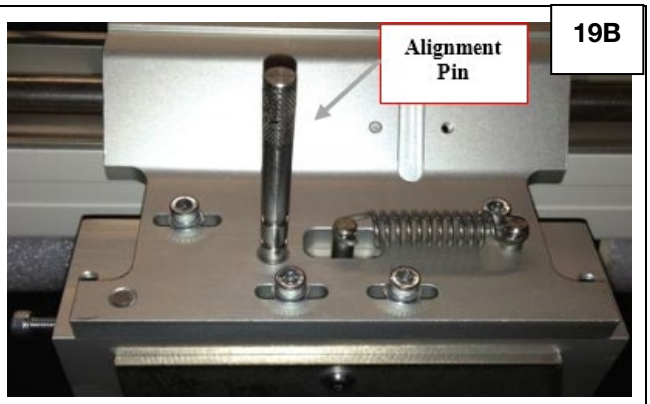
19A



Insert the small alignment pin in the hole on the Secondary Collimator and then attach to the Secondary Collimator Transit with four allen screws. This is the same collimator detached in Step 14E.

Remove the small alignment pin after attaching the screws.

19B

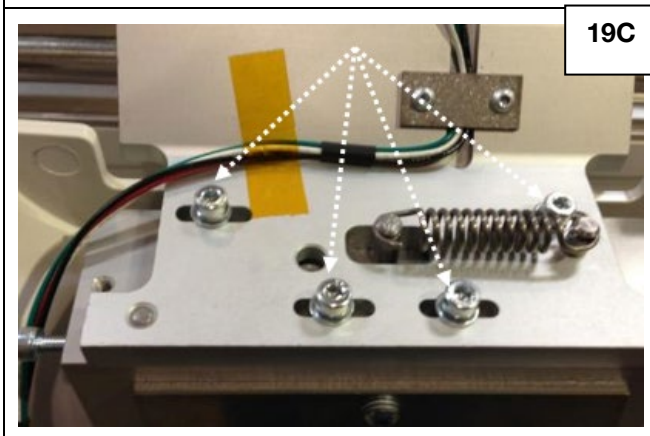


Locate the “Medium” alignment pin in the accessory kit.

Place the alignment pin in the zero position hole shown above and verify the alignment pin fits in between the two plates.

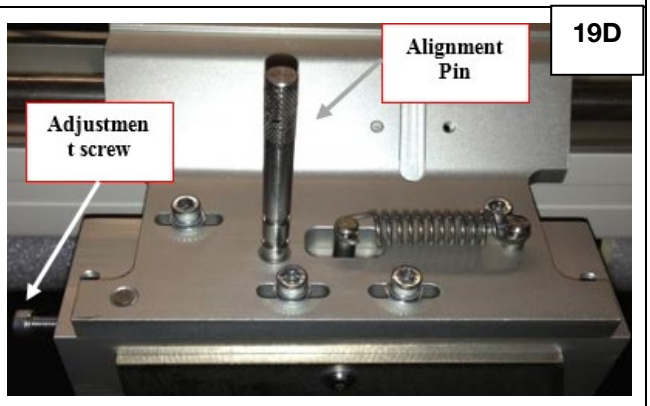
If the alignment pin does not fit in between the two plates, follow the steps 19C & 19D.

19C



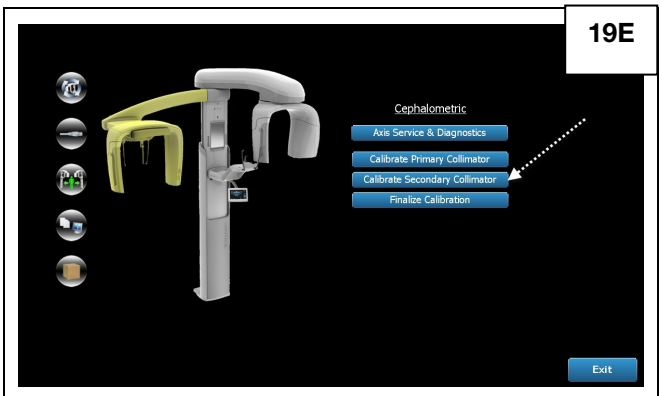
Loosen the four Allen Screws of the Secondary Collimator.

19D



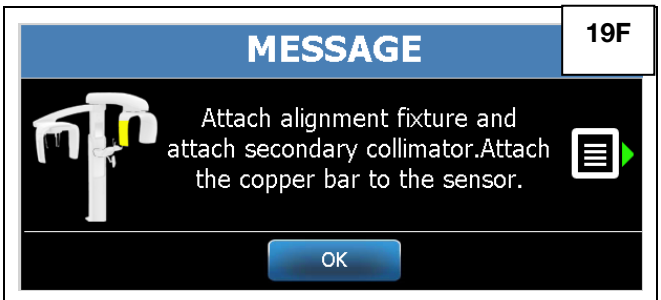
Place the alignment pin in the zero position hole shown above and turn the adjustment screw until the alignment pin fits in between the two plates. When complete, remove the pin and tighten the screws

19E



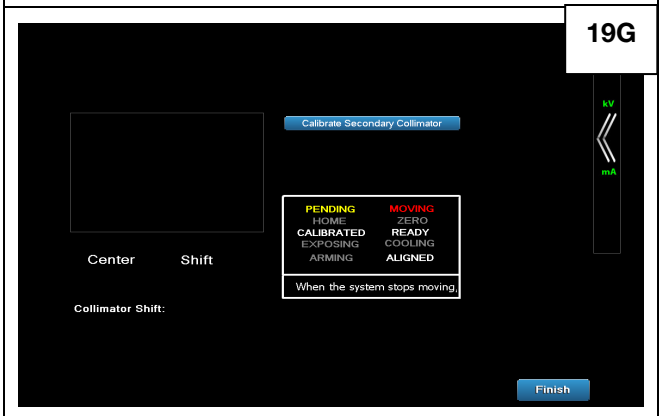
Select the “Calibrate Secondary Collimator” button.

19F



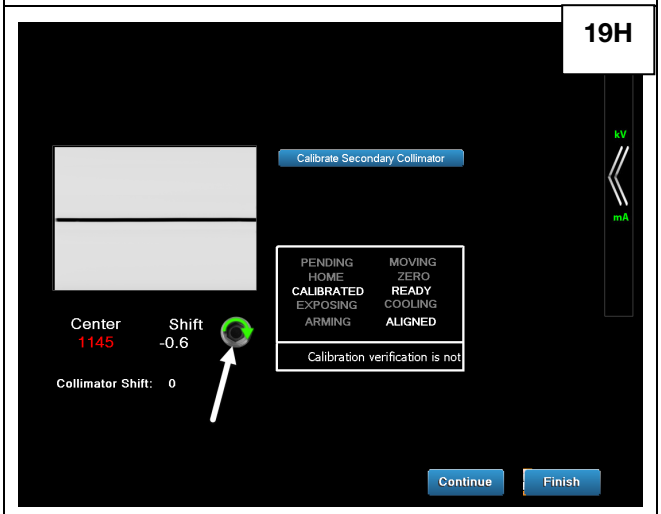
The message above will appear. This step has already been accomplished in steps 14 & 19A. If this has not been done, please complete steps 14 & 19A before proceeding. Select OK.

19G



Select the “Calibrate Secondary Collimator” button. The unit will move into position and the moving indicator turn red. When the unit stops moving and the moving indicator is not red, take an exposure.

19H

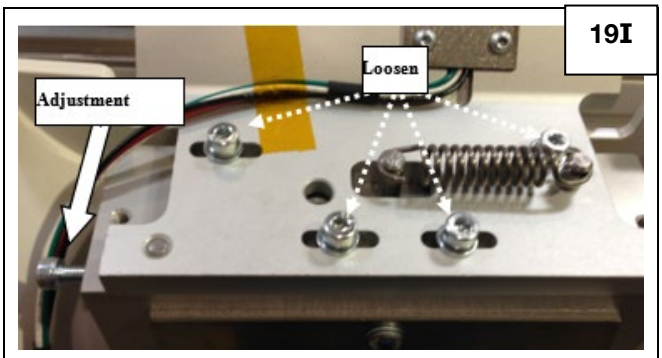


The software may indicate that the adjustment screw needs to be turned. Take note of the amount and direction to turn the adjustment screw…See next step

Note:

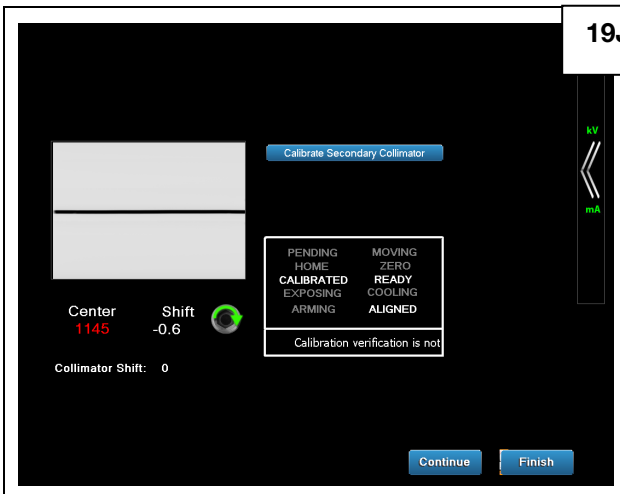
If the first exposure results with the “Center” numeric value colored in Green and displays the message indicating that the Calibration is complete; ignore this result. Select the “Calibrate Secondary Collimator” button again.

19I



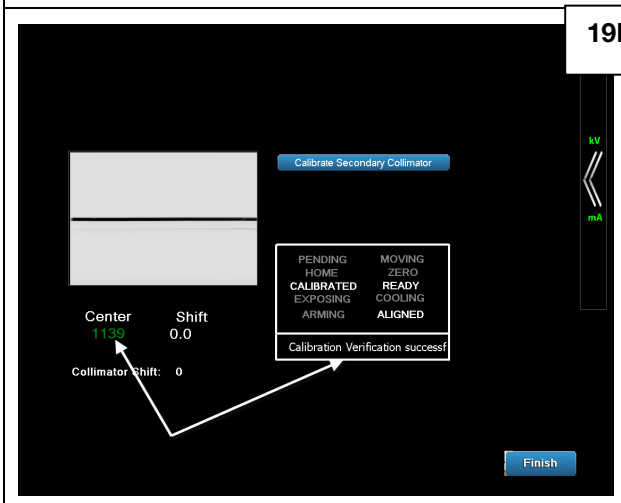
Loosen the four Allen screws shown above. Turn the adjustment screw in the direction and distance given in the previous step. Tighten the Allen Screws.

19J



Once the Adjustment has been made, select “Continue”. When the unit stops moving, take another exposure. If the result is satisfactory, the unit will not ask you to turn the screw again.

19K



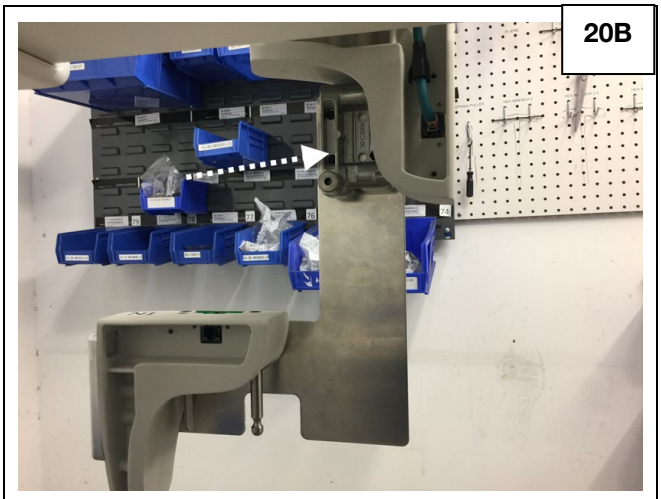
Continue to take exposures until the display indicates that the calibration is complete and the “Center” numeric value is colored in Green. Select Finish and Finish again.

20. Finalize Calibration

20A

Unplug the sensor from the calibration Fixture and remove the copper bar from the sensor.

20B

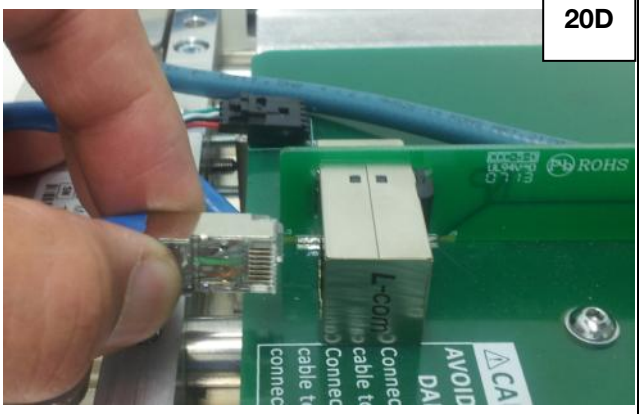


Remove the Calibration Fixture and Ethernet Cable.

20C

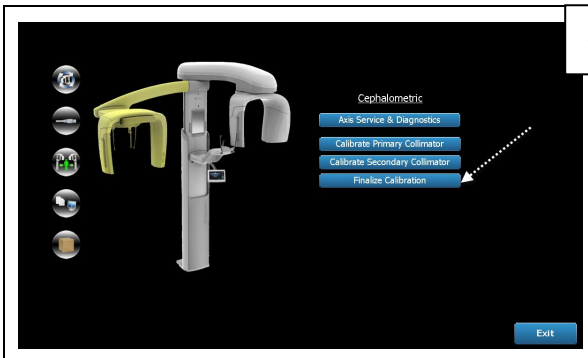
Plug the sensor into the Ceph Arm.

20D



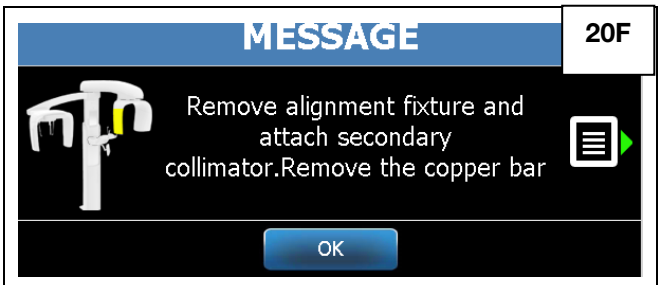
Plug the Ethernet cable (unplugged in section 15) back into the Silver connector.

20E



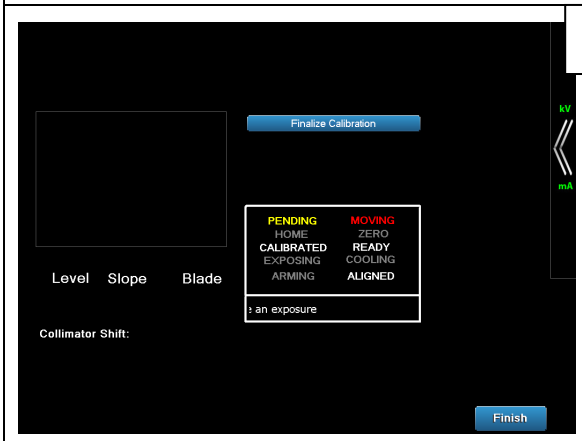
Select the “Finalize Calibration”.

20F



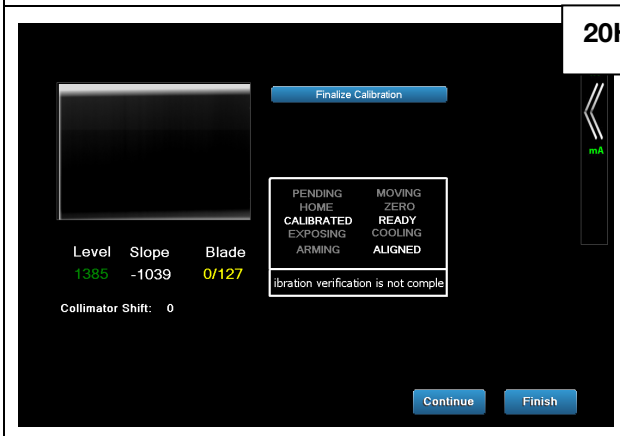
The message above will appear. This step has already been accomplished in steps 20A, 20B & 19A. If this has not been done, please complete steps 20A, 20B & 19A before proceeding. Select OK.

20G



Select the “Finalize Calibration” button. The unit will move into position and the moving indicator turn red. When the unit stops moving and the moving indicator is not red, take an exposure.

20H



Continue to take exposures until the display indicates that the calibration is complete and the “Level” & “Blade” numeric value is colored in Green.

20I

Verify the “Level” & “Blade” numeric value is colored in “Green”, “Slope” is not colored in “Red” or “Yellow” and the system displays “Calibration verification successfully completed”. Select Finish and Finish again.

20J

The calibration of the unit is now complete.

Exit diagnostic mode.

midmark

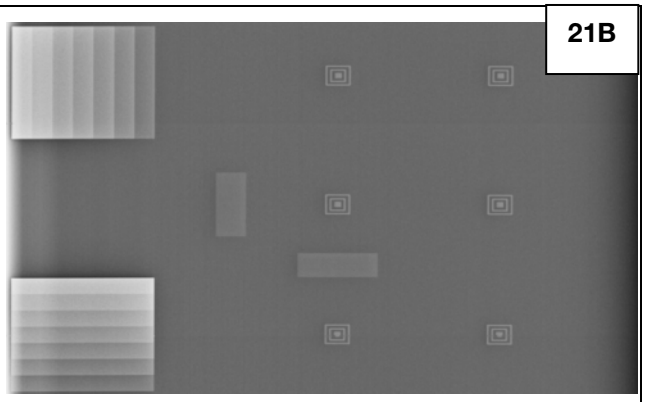
21. Take an exposure with the Image Phantom.

21A

Locate the image phantom in the accessory kit. Hang the image phantom in between the ear posts.

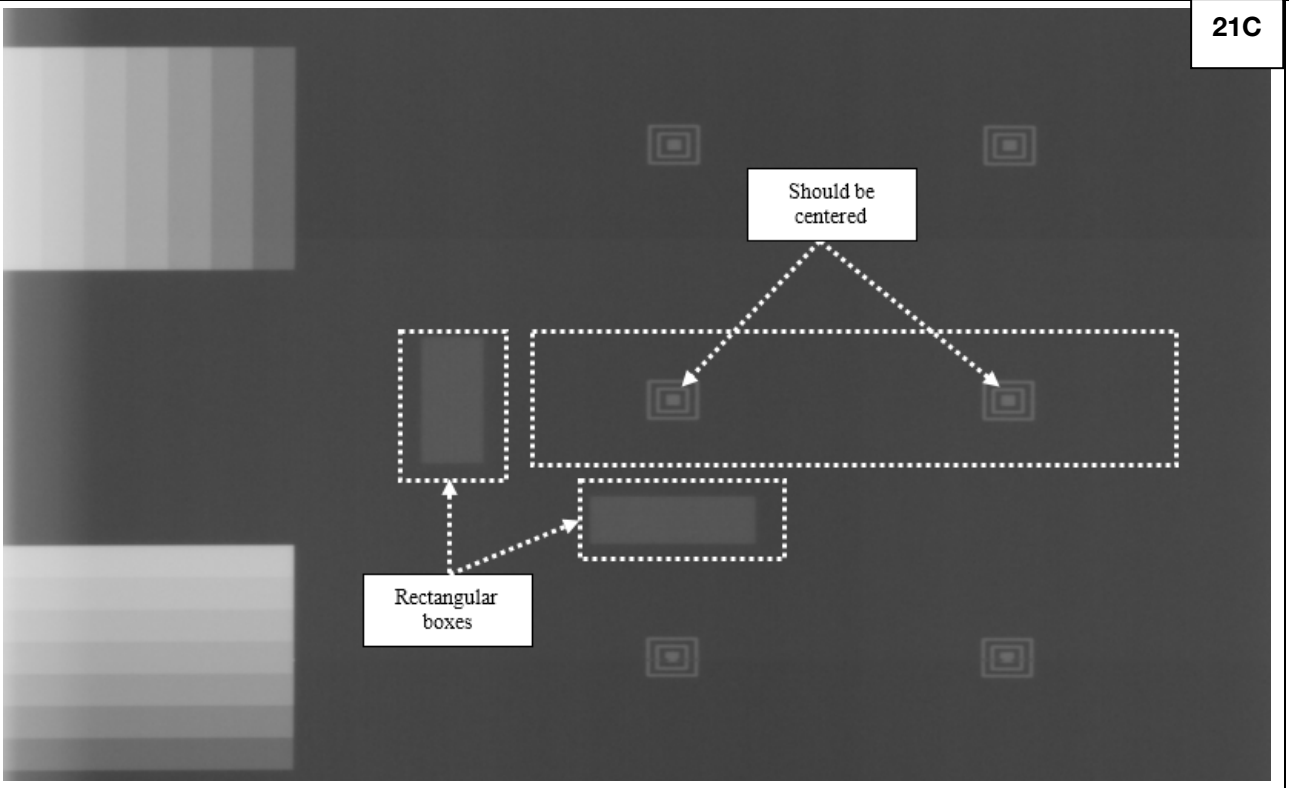
The letters on the Image phantom should be facing toward the Vantage Unit.

21B

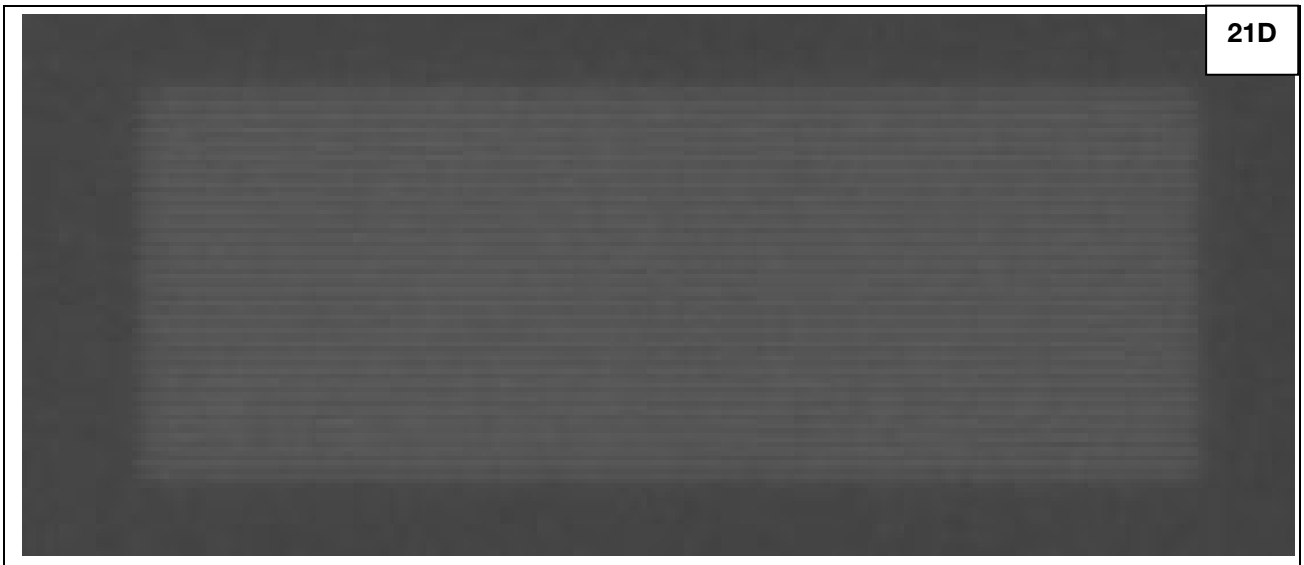


Take an exposure of the image Phantom at 66KV and 8 MA.

21C



The box within the center squares should be relatively centered in the box.



Zoom in on the rectangular boxes. The individual lines should be visible.

22. Place the covers on the Vantage and on the Cephalometric unit.

22A

Replace the covers on the Vantage.

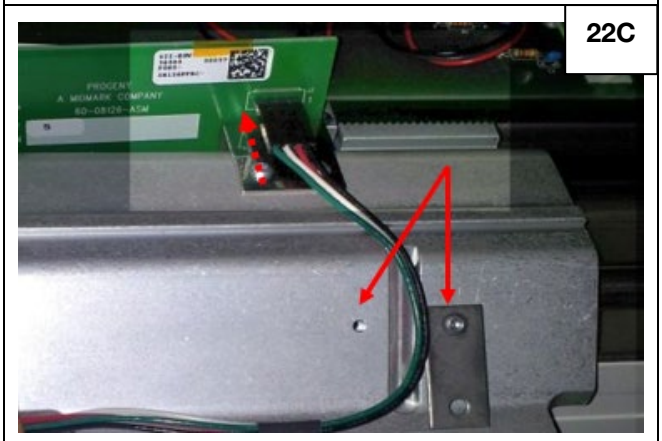
These were removed earlier in Step 6.

22B

Replace the secondary collimator cover removed earlier in step 14C.

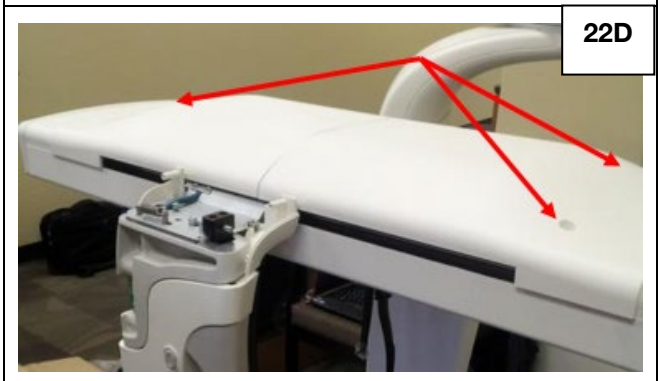
Verify the cables are not pinched.

22C



Reconnect connector J2 and secure. This was removed in step 14B.

22D

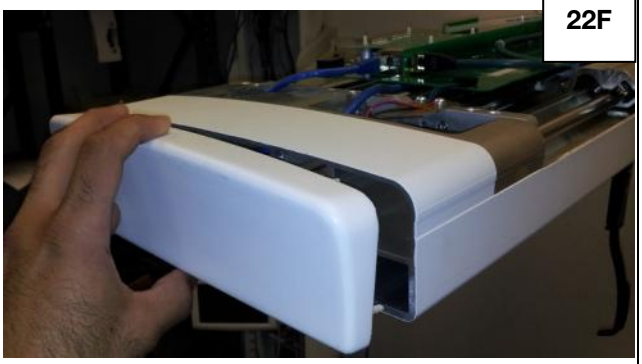


Install the top cover on the Ceph unit. The 3 Philips head screws are located in the accessory kit. Verify the cables are not pinched.

22E

Install the rear cover on Ceph Arm. The cover is located in the accessory kit.

22F



Install the curved cover on the front of the Ceph. The cover is located in the accessory kit.

22G

Install the cover at the end of the Ceph Arm. The cover is located in the accessory kit.

10 Midmark Imaging Support Information

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