MIDMARK

# Progeny Vantage Panoramic X-ray System

# Installation Guide

00-02-1608, Rev. J
ECN: P3774
Effective Date 02-15-2016

# 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


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.


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.

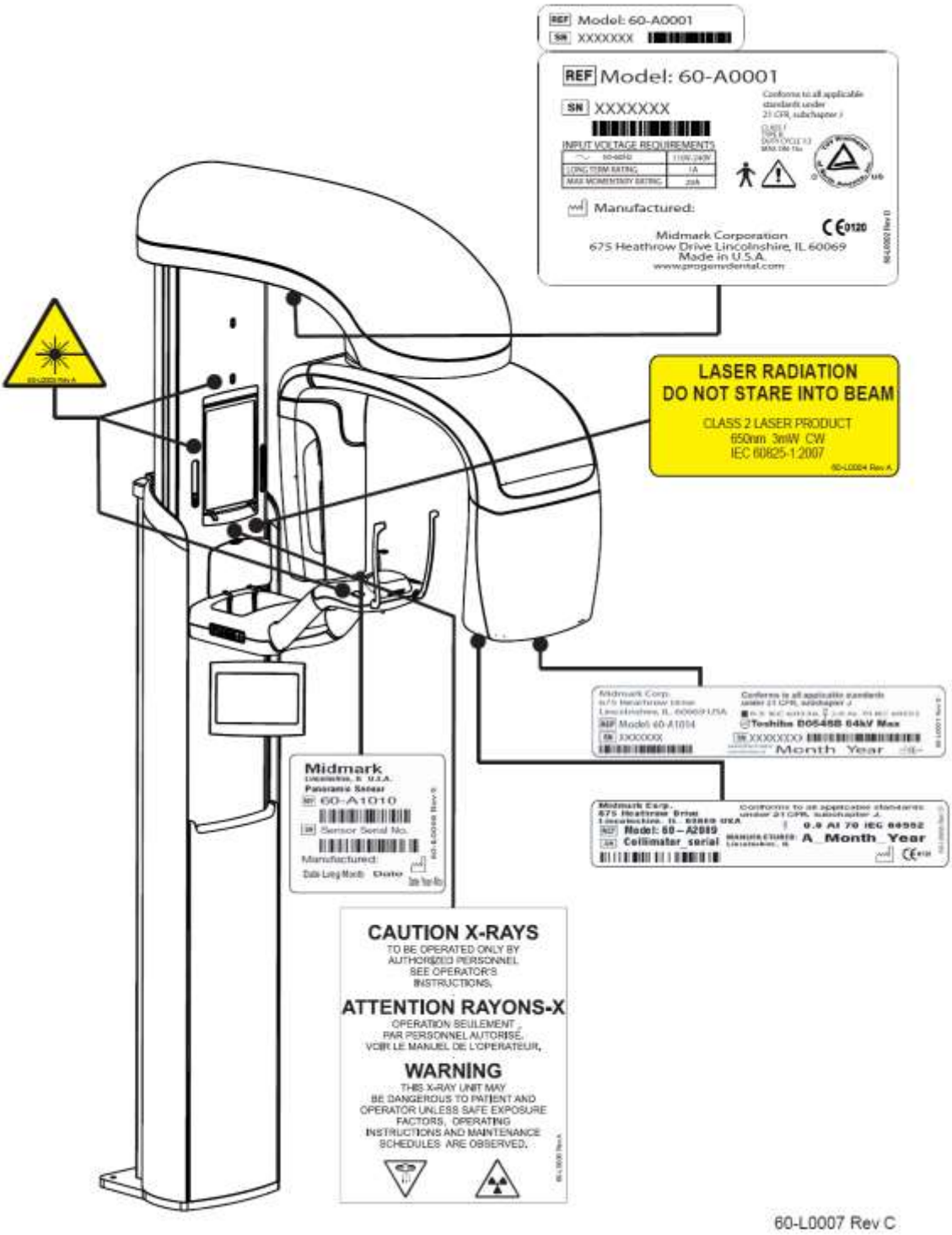
## Performance Standards

| Standard | Content |
|---|---|
| IEC 60825-1:2001 | Safety of Laser Equipment |
| IEC 60601-1 | Medical electrical equipment - Part 1: General requirements for basic safety and essential performance |
| IEC 60601-1-1 | Medical electrical equipment - Part 1-1: General requirements for safety - Collateral standard: Safety requirements for medical electrical systems |
| 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 |

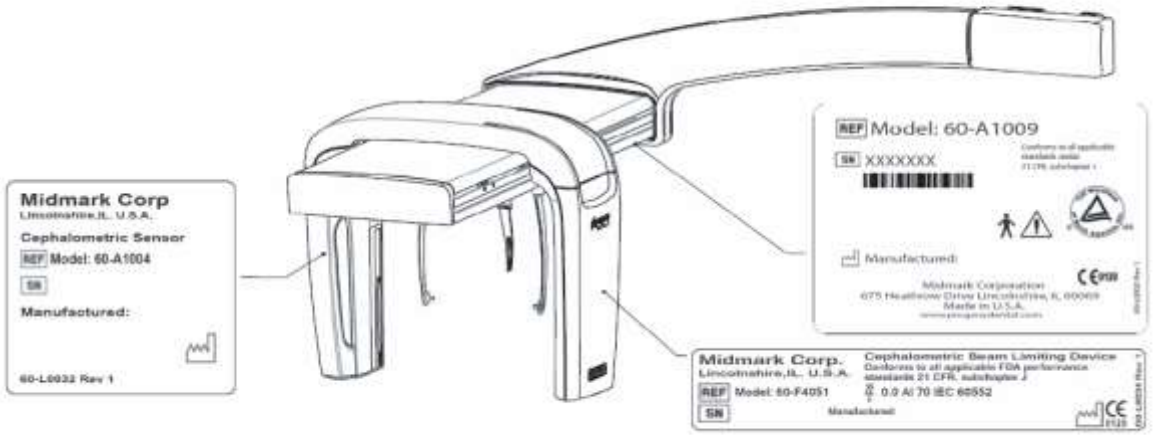
# Certified Components

| 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



# Optional Cephalometric Extension Labeling



# EC Declaration of Conformity

| | |
|---|---|
| **Name and Description of Product** | **Progeny Vantage Panoramic Dental X-ray System**<br><br>Catalog V5000 US Domestic Market<br>Model 60-A0001 system<br><br>Catalog V5100 Export Market<br>Model 60-A0001 system<br><br>Catalog: V5050 Progeny Vantage Panoramic with Ceph Sensor, Domestic<br>Model: 60-A0008<br><br>Catalog: V5150 Progeny Vantage Panoramic with Ceph Sensor, Export<br>Model : 60-A0008<br><br>Catalog: V5000C Progeny Vantage Panoramic with Cephalometric Extension, 2 Sensor System, Domestic<br>Model: V5000 + C6000<br><br>Catalog: V5100C Progeny Vantage Panoramic with Cephalometric Extension, 2 Sensor System, Export<br>Model: V5100 + C6000<br><br>Catalog: V5050C Progeny Vantage Panoramic with Cephalometric Extension, 1 Sensor System, Domestic<br>Model: V5050 + C4000<br><br>Catalog: V5150C Progeny Vantage Panoramic with Cephalometric Extension, 1 Sensor System, Export<br>Model: V5150 + C4000<br><br>Catalog: C6000 Cephalometric Extension with Sensor<br>Model: 60-A1009<br><br>Catalog: C4000 Cephalometric Extension without Sensor<br>Model: 60-A1019<br><br>Catalog: Ceph Sensor only<br>Model: 60-A1004<br><br>Catalog: Panoramic Sensor<br>Model: 60-A1010<br><br>Class: llb |
| **Reference Numbers to which Conformity is Declared** | The following regulatory documents apply:<br>UL 2601-1<br>IEC 60601-1-2<br>IEC 60601-1-3<br>IEC 60601-2-7<br>IEC 60601-2-28<br>IEC 60601-2-32<br>IEC 60825-1<br>Medical Device Directive<br>ISO 13485<br>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 SGS United Kingdom Ltd., a Notified Body.<br>Technical Support |
| **Contact** | Midmark Corporation<br>Phone: 800-MIDMARK (1-800-643-6275)+1 847-415-9800<br>Fax: 847-415-9801<br>**imagingtechsupport@midmark.com**<br>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.

<table>
<tr><th colspan="4">Guidance and manufacturer's declaration - electromagnetic emissions</th></tr>
<tr><td colspan="4">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.</td></tr>
<tr><th>Emission test</th><th>Compliance</th><th colspan="2">Electromagnetic environment – guidance</th></tr>
<tr><td>RF emission<br>CISPR 11</td><td>Group 1</td><td colspan="2">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.</td></tr>
<tr><td>RF emission<br>CISPR 11</td><td>Class B</td><td colspan="2" rowspan="3">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.</td></tr>
<tr><td>Harmonic emission<br>IEC 61000-3-2</td><td>Class A</td></tr>
<tr><td>Voltage fluctuations/ flicker emissions<br>IEC 61000-3-3</td><td>Complies</td></tr>
<tr><th colspan="4">Guidance and manufacturer's declaration - electromagnetic immunity</th></tr>
<tr><td colspan="4">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.</td></tr>
<tr><th>Immunity test</th><th>IEC 60601 test level</th><th>Compliance level</th><th>Electromagnetic environment – guidance</th></tr>
<tr><td>Electrostatic discharge (ESD)<br>IEC 61000-4-2</td><td>± 6 kV contact<br>± 8 kV air</td><td>± 6 kV contact<br>± 8 kV air</td><td>Floors should be wood, concrete or ceramic tile. If the floors are covered with synthetic material, the relative humidity should be at least 30%.</td></tr>
<tr><td>Electrical fast transient/burst<br>IEC 61000-4-4</td><td>± 2 kV for power supply lines<br>± 1 kV for input/output lines</td><td>± 2 kV for power supply lines<br>± 1 kV for input/ output lines</td><td>Mains power quality should be that of a transient/ burst supply lines typical commercial or hospital environment.</td></tr>
<tr><td>Surge<br>IEC 61000-4-5</td><td>± 1 kV line(s) to line(s)<br>± 2 kV line(s) to earth</td><td>Not Applicable.</td><td></td></tr>
<tr><td>Voltage dips, interruptions, and voltage variations on power supply input lines<br>IEC 61000-4-11</td><td>< 5% $U_T$ (>95% dip in $U_T$) for 0.5 cycle<br>< 40% $U_T$ (60% dip in $U_T$) for 5 cycles<br>< 70% $U_T$ (30% dip in $U_T$) for 25 cycles<br>< 5% $U_T$ (>95% dip in $U_T$) for 5 s</td><td>Not Applicable.</td><td></td></tr>
<tr><td>Power frequency (50/60 Hz) magnetic field<br>IEC 61000-4-8</td><td>3 A/m</td><td>3 A/m</td><td>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</td></tr>
<tr><td colspan="4">NOTE: $U_T$ is the a.c. mains voltage prior to application of the test level.</td></tr>
</table>

| 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.<br>**Recommended separation distance:** |
| Conducted RF IEC 61000-4-6 | 3 V<br>150 kHz to 80 MHz | 3 V | $d = 1.2 \times \sqrt{P}$ |
| Radiated RF IEC 61000-4-3 | 3 V/m<br>80 MHz to 2.5 GHz | 3 V/m | $d = 1.2 \times \sqrt{P}$ 80 MHz to 800 MHz<br>$d = 2.3 \times \sqrt{P}$ 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).<br>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]<br>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.<br>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.<br>[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.<br>NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.<br>NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people. |

# Authorized Representatives

## North America

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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:<br>OPERATION SEULEMENT PAR DU PERSONNEL AUTORISE. VOIR MANUEL DE L'OPERATEUR. |
|  | WARNING X-RAY<br>THIS X-RAY UNIT MAY BE DANGEROUS TO PATIENT AND OPERATOR UNLESS SAFE EXPOSURE FACTORS AND OPERATING INSTRUCTIONS ARE OBSERVED. |
|  | *X-RAY EMISSION* |
|  | Mains HOT WIRE |
|  | Mains NEUTRAL WIRE |
|  | Earth Ground |
|  | LASER RADIATION<br>DO NOT STARE INTO BEAM<br>CLASS 2 LASER PRODUCT. 650 nm, 3 mW |
|  | Power off (circle)<br>Power on (line) |

## Obtaining Technical Support

For Technical Support, contact:

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Fax: 847-415-9810
imagingtechsupport@midmark.com

Hours: 8:00 a.m. – 5:00 p.m. CT

# 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.

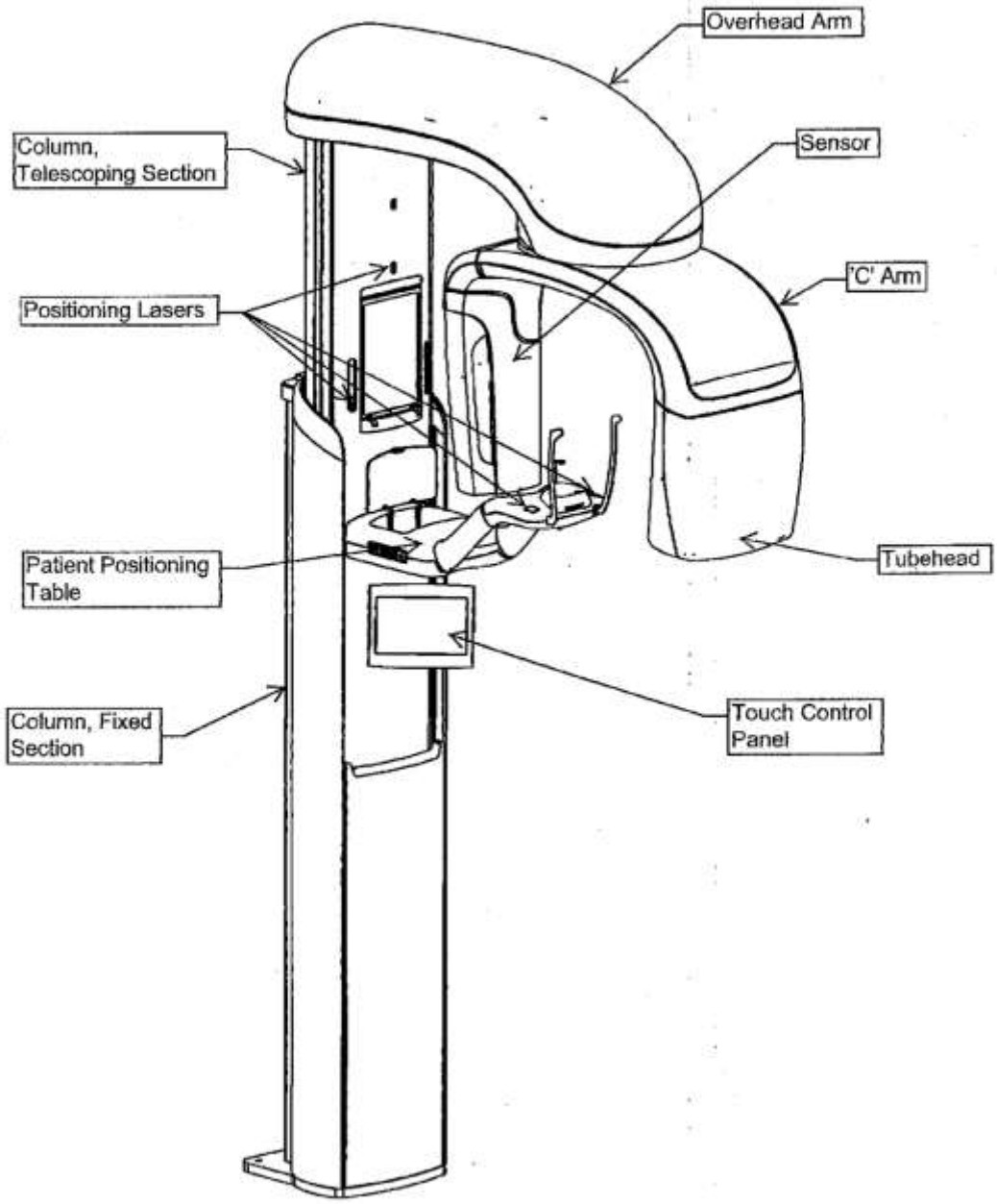
The rail also supports the cephalostat, used to position the patient. The cephalostat is comprised of two otic positioning posts which adjust to conform to

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.

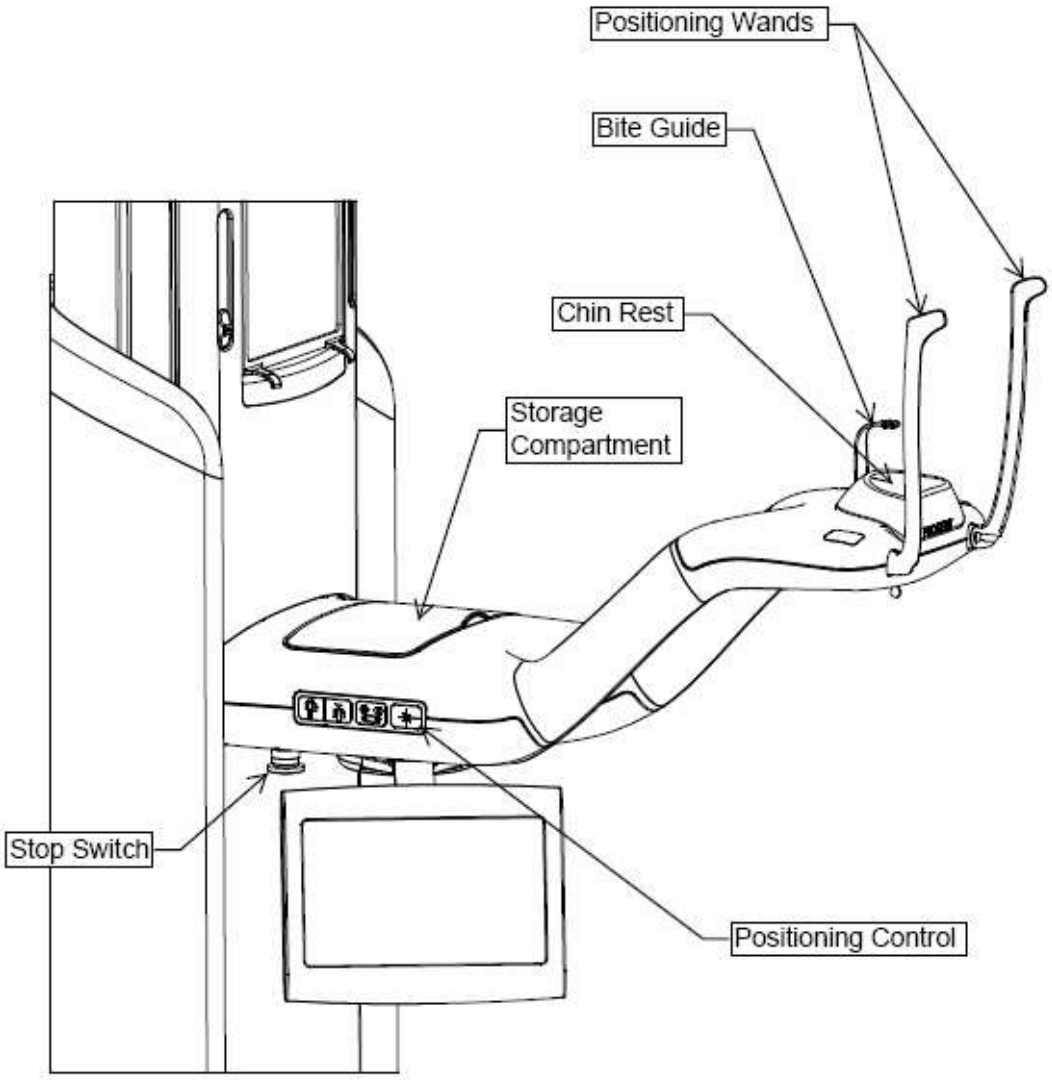
## Cephalometric Sensor

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.

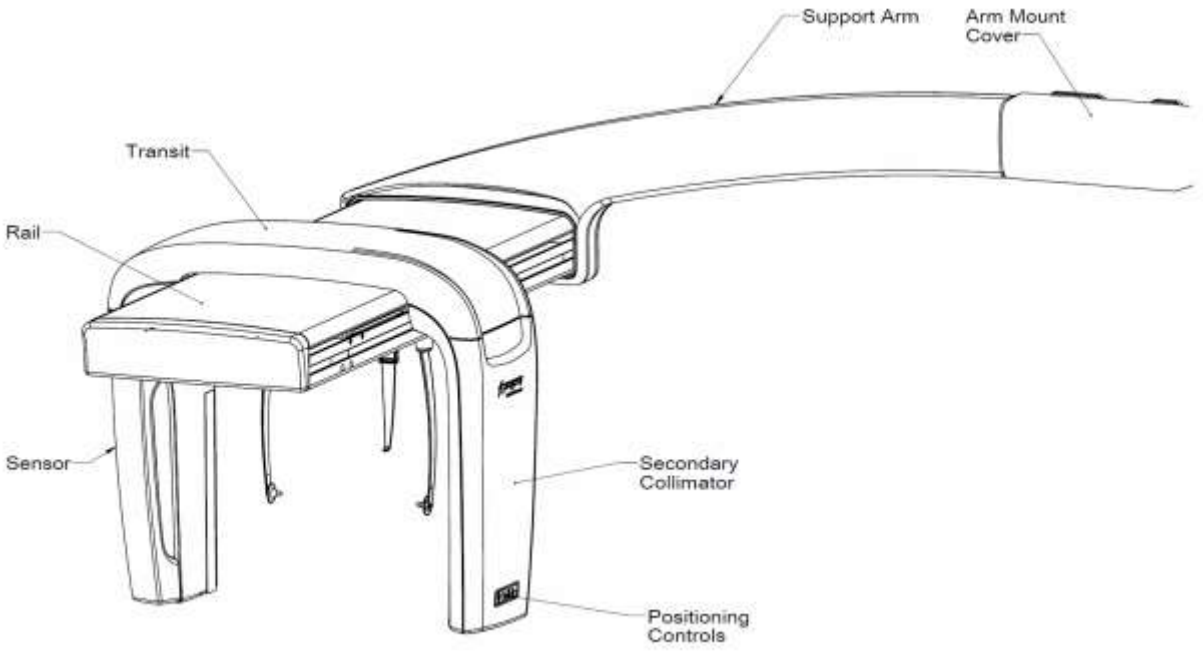
## Vantage System Panoramic X-ray Device

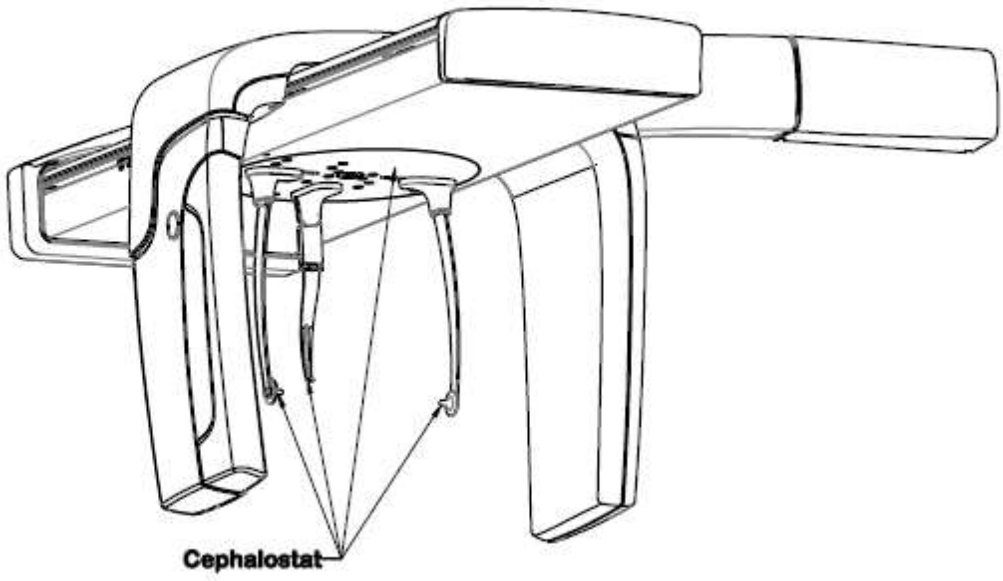


## Vantage System Patient Positioning Table



## 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

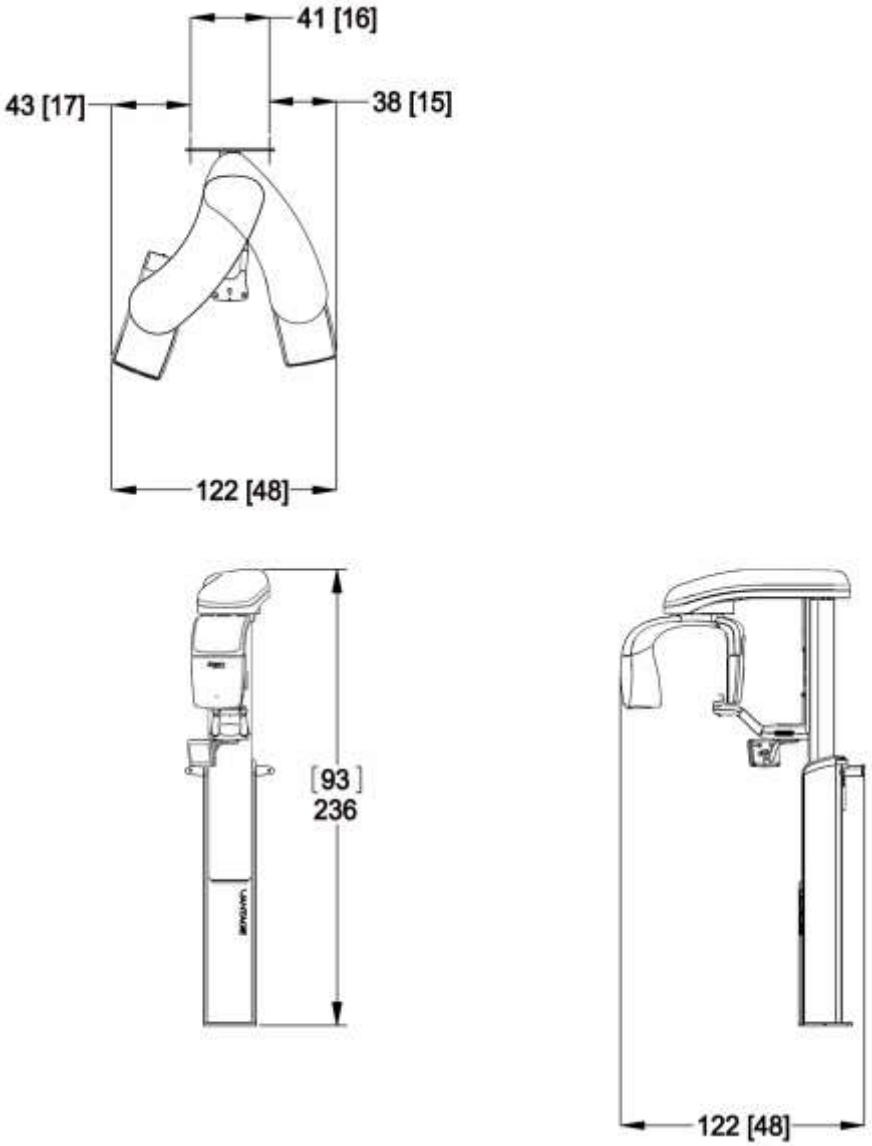
If a remote exposure switch is used, a four conductor cable capable of RJ 11 termination is required for installation.

# 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.

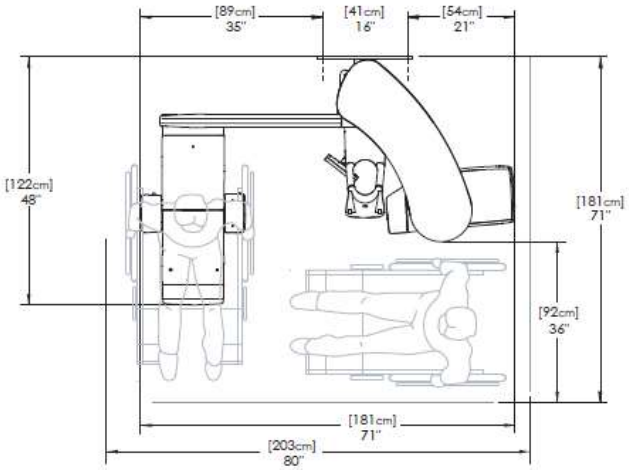
### Panoramic Space Requirements

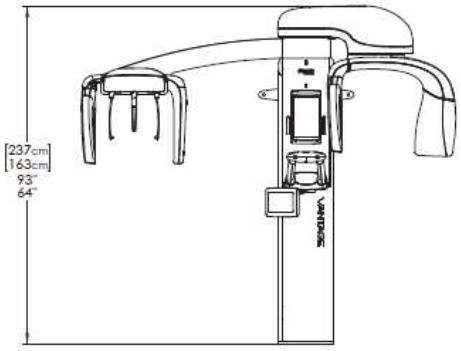


## Progeny Vantage® Panoramic with Cephalometric

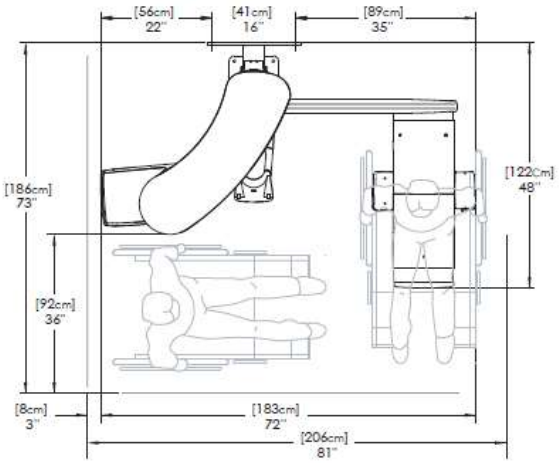
### Product Dimensions

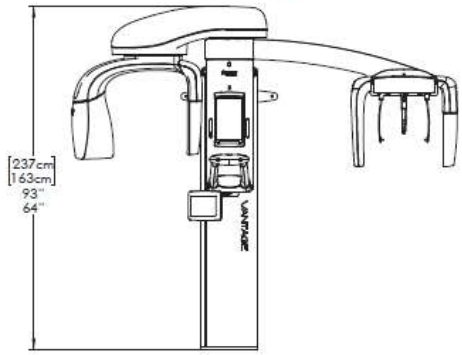
CEPH @ LEFT




CEPH @ RIGHT




| | 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<br>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<br>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 and 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.

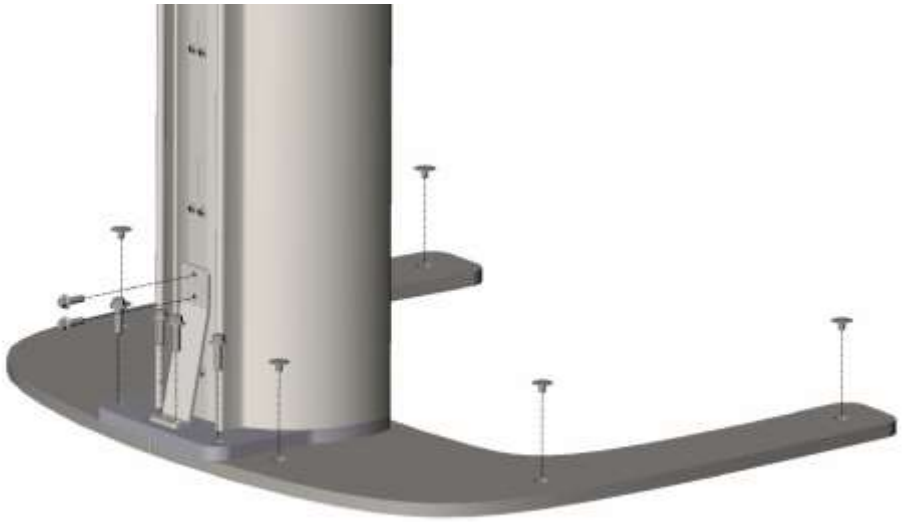
**Free Standing Base Halves and Levelers**

## 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**

## 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:

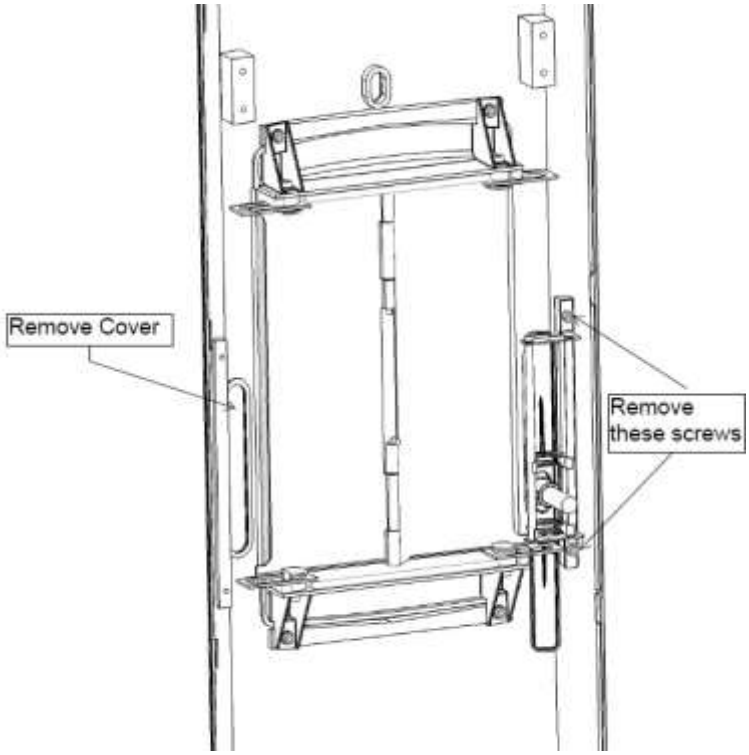
1. Move the Vantage panoramic device on its base into position, and use an 8 mm hex wrench to level the device, ensuring that all levelers are in contact with the flooring.
2. Fix the unit to the floor with the flooring appropriate fasteners through the holes in the center of the levelers.

# 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

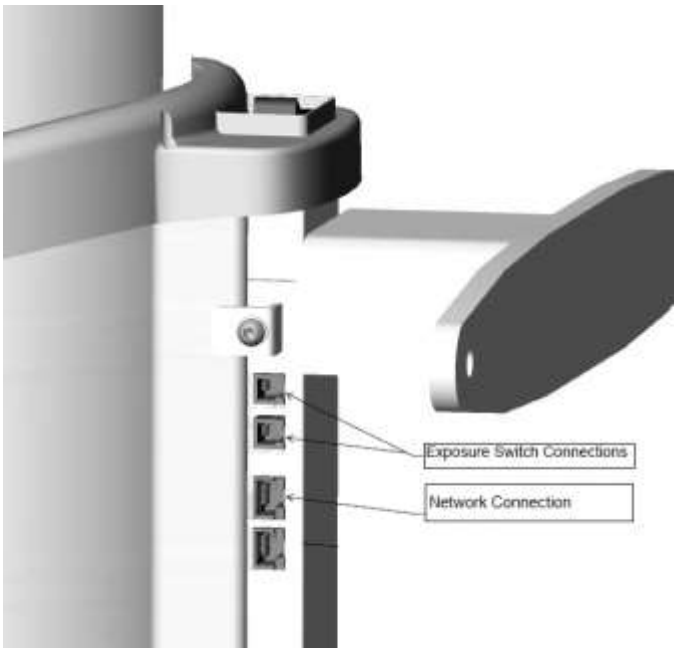
- Connecting the Vantage to Your Network
- Installing the Exposure Button

## 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**

# 7 Starting Up

## In this Chapter

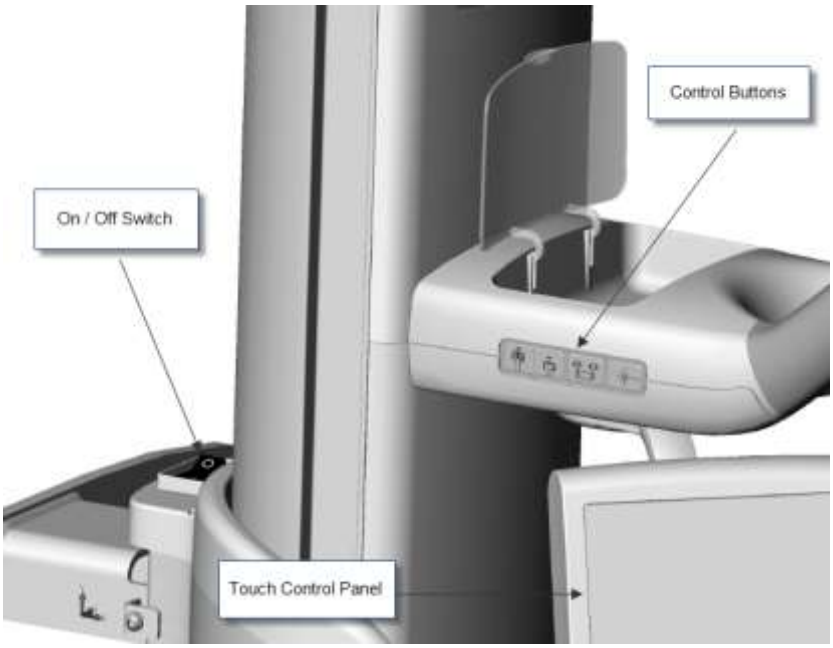
- Turning the Vantage System On
- Checking Image Quality
- Progeny Support Information

## 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

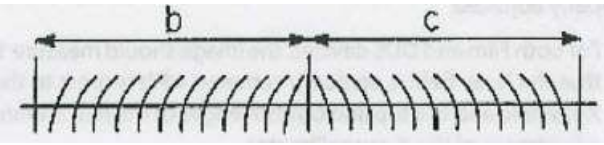
The Vantage panoramic device is designed so that the chin rest accessory can easily be switched with the image phantom.

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.

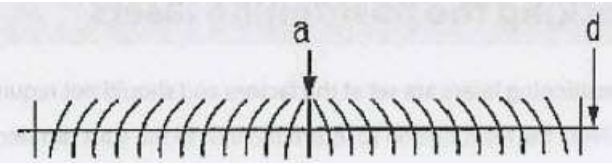
## Image Checks

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.



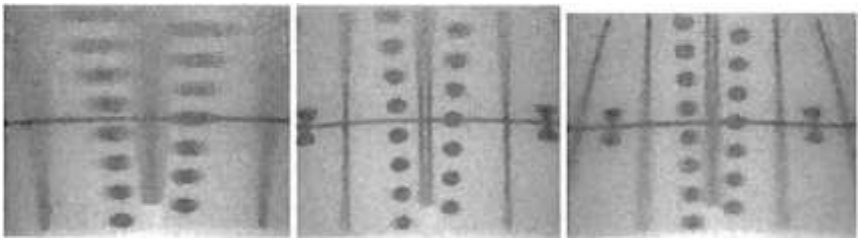

2. Verify that line “a” is vertical +/-3 degrees with respect to the horizontal line “d”.




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.



X √ X

# 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

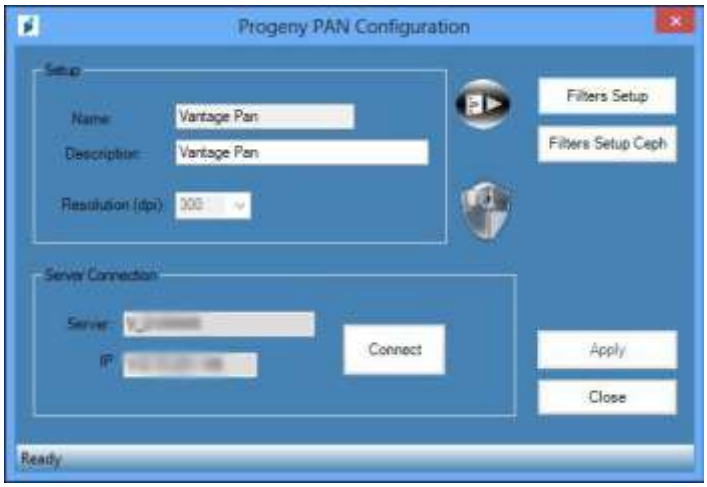
# Connecting to Vantage

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.

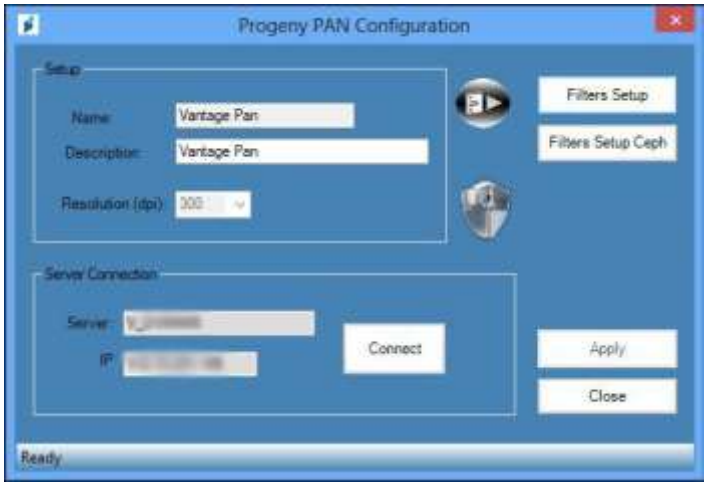


- The “Select Pan Server” window will automatically discover the Vantages in your network. Highlight the vantage you want to connect to and click the “Select” button.


  - **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.

# Installing the Cephalometric Extension

## Tools Required:

| | | |
|---|---|---|
| • 3 mm Allen wrench | • 4 mm Allen wrench | • 5 mm Allen wrench |
| • 6 mm Allen Wrench | • 13 mm open end wrench | • Bubble Level |
| • ½ inch open end wrench | • Phillips head screw driver | • Torx set |

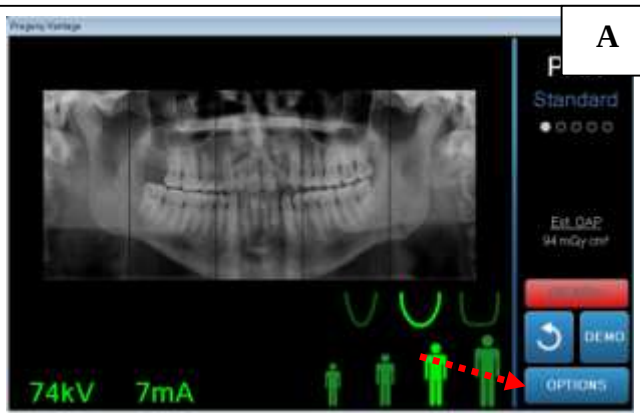
**If you are upgrading an existing Vantage in the field for the Cephalometric, the debug adapter will be required to upgrade the RTC and the Operator Panel.**

## Parts Required:

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

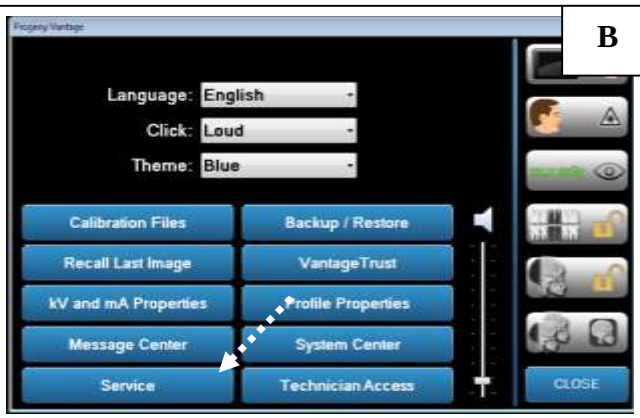
## Installation Pre-Check

**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 bottom as shown.
2. Select System Center

E


If the "Real Time Controller" is not displayed, place your finger on the image and slide it left or right until the Real Time Controller is displayed.

F


In the upper right hand corner find the C-Arm Zero parameter. The value should be between -62500 and -65000. *If the values are not within the range indicated, contact tech support for further instructions.* If the values are correct, select "close" and continue with the next step.

## Procedure:

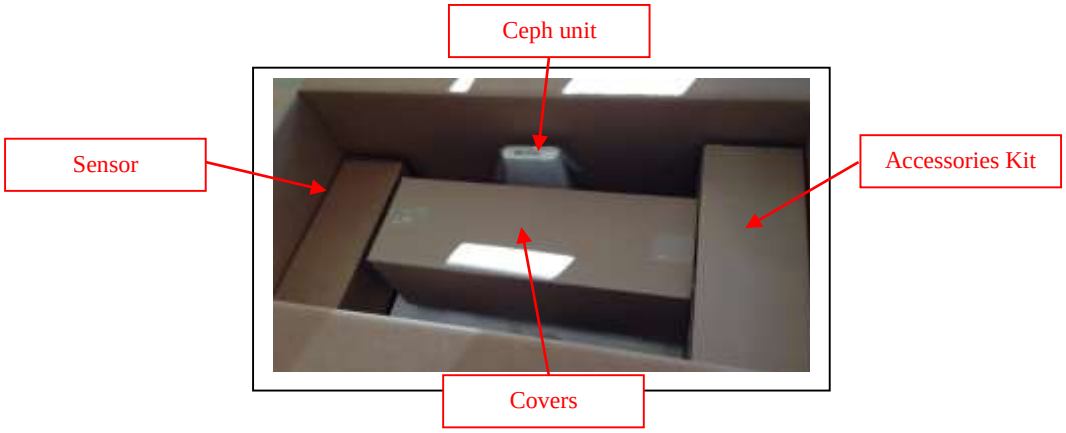
1. **Place the Progeny Vantage at a comfortable working level and then power the unit off.**
2. **Ensure the box is on its side with the label "This side up" facing up.** ***Do not destroy the box. It will be used to help with the installation of the Ceph Unit.***

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.***

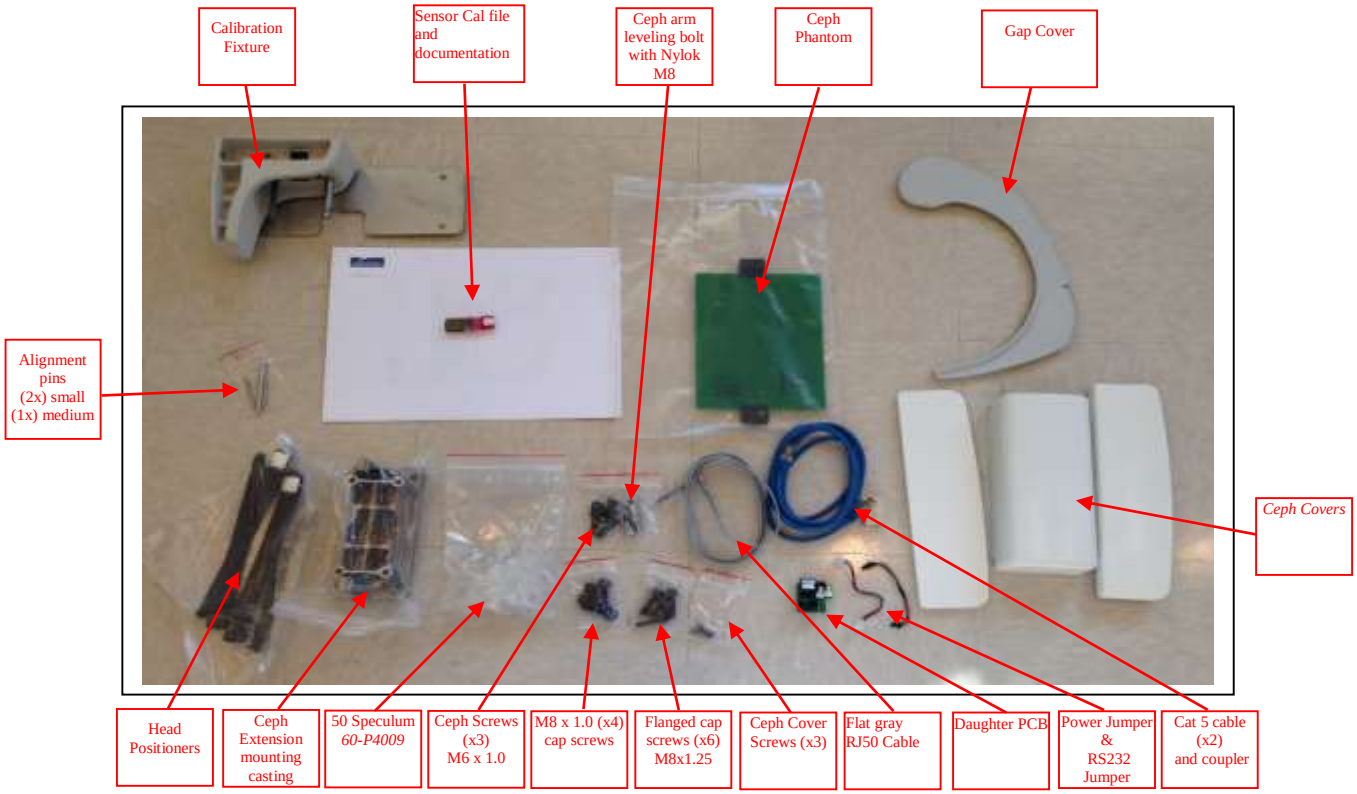
Horizontal arm

Cardboard insert

4. **Remove from the box the sensor, covers, accessories kit, and ceph unit.**




5. **Open the accessories box and check for the following components:**



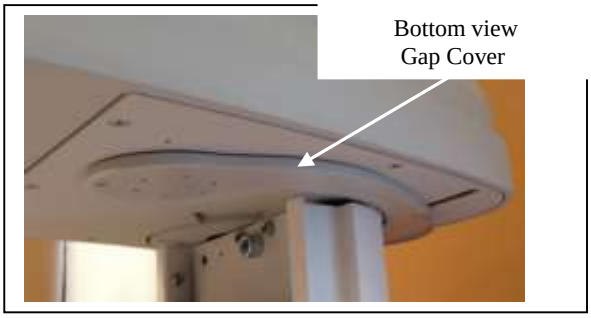
6. **Remove the covers, indicated below, from the Vantage**
   a. **Upper column cover (with mirror):**
   **Pull the upper Column Cover toward you but do not completely remove it. Unplug the connector for the Frankfort plane laser. Once the Frankfort plane laser is disconnected, completely remove the 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.***

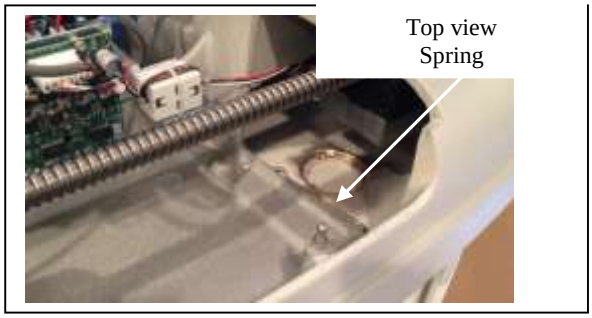
   b. **Remove the two lower column covers**


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.

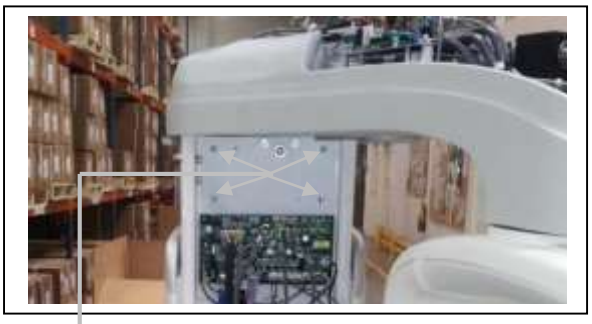
**c. Remove and replace the gap cover**

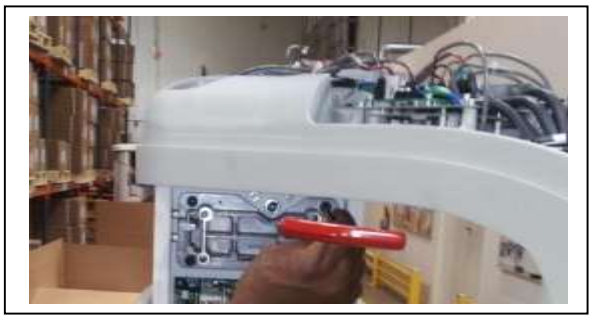


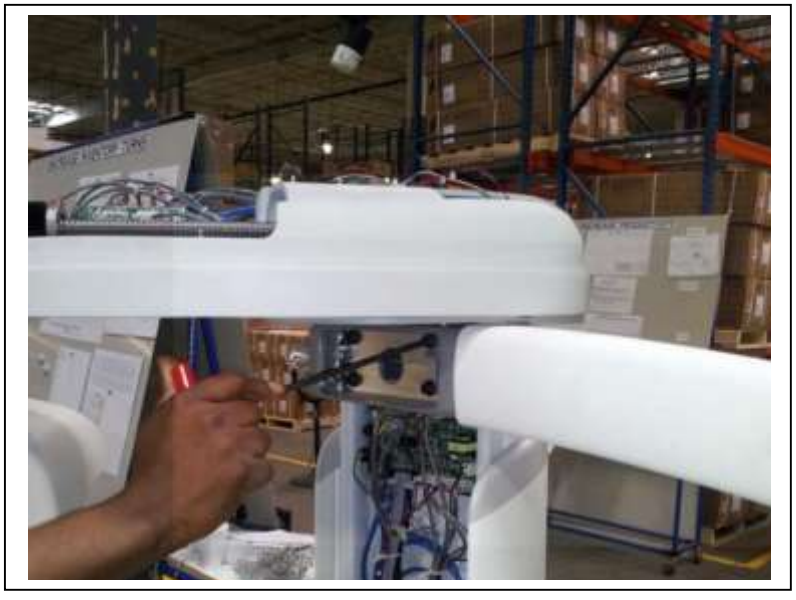

**The gap cover is spring loaded and is press fit into place. Remove the spring and remove the cover. Reverse the order to add the new cover included in the kit.**

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

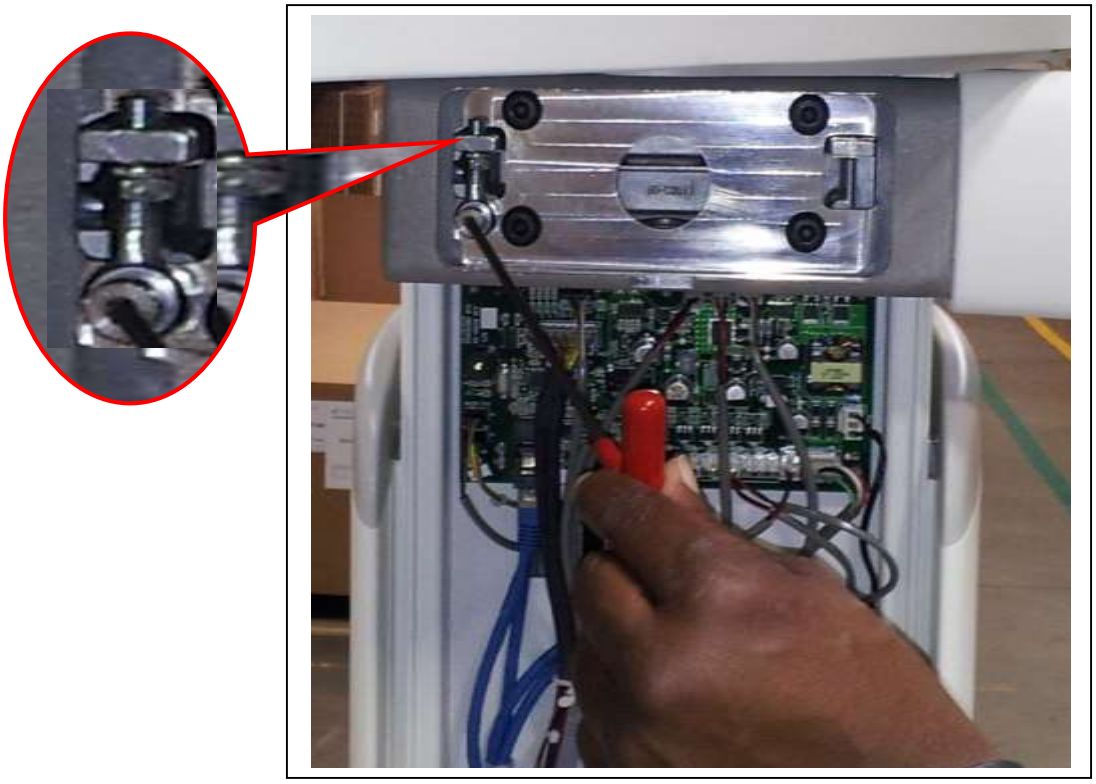



**8. Mount the Ceph arm on the casting using 4 M8 x 1.25 flanged cap screws. Do Not Tighten.**



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



10. **Level the arm of the Ceph to the base of the machine.**

**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.

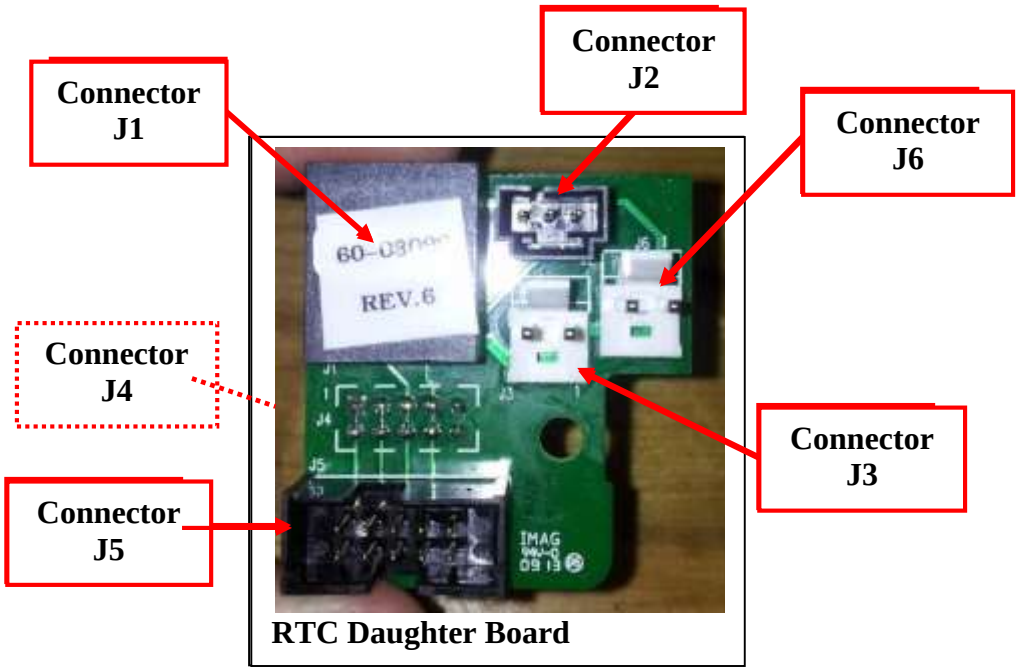
**10B**

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.*

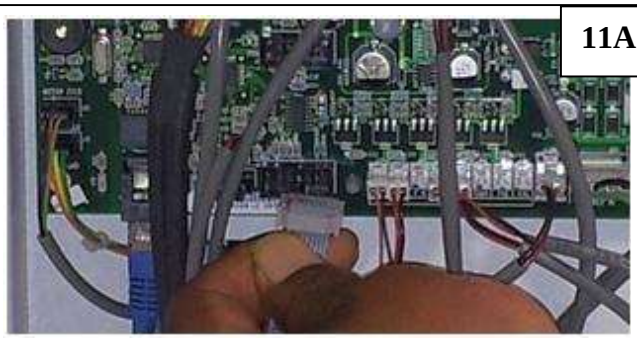

Level the arm by turning the Nylon Nut. Ensure that you match the bubble level of the base that was measured in step 10A.


Tighten the 4 M8 x 1.25 flanged cap screws.

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



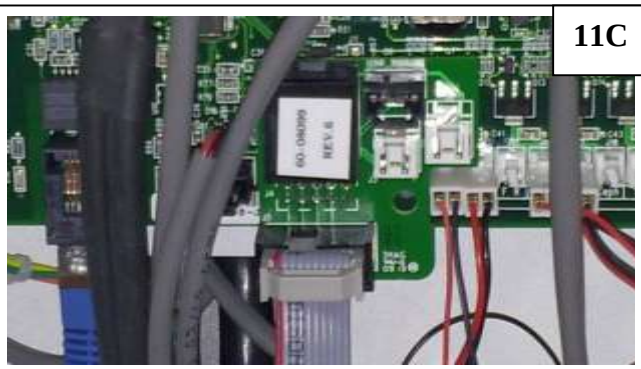

**RTC Daughter Board**




Remove the ribbon cable from connector J24 of the RTC.


Plug the Daughter Board into connector J24 of the RTC

11C

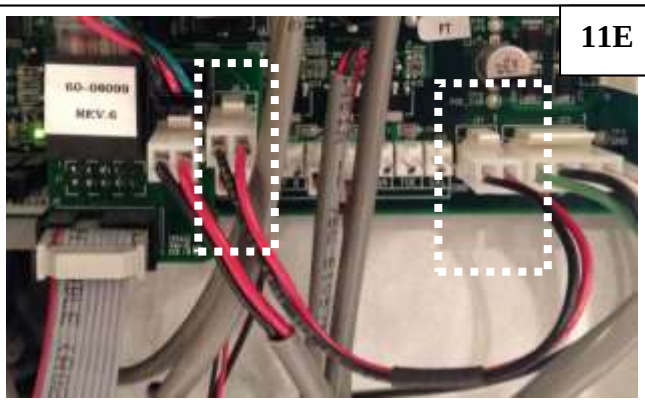


Plug the ribbon cable (removed in step 11A) into connector J5 of the Daughter Board

11D

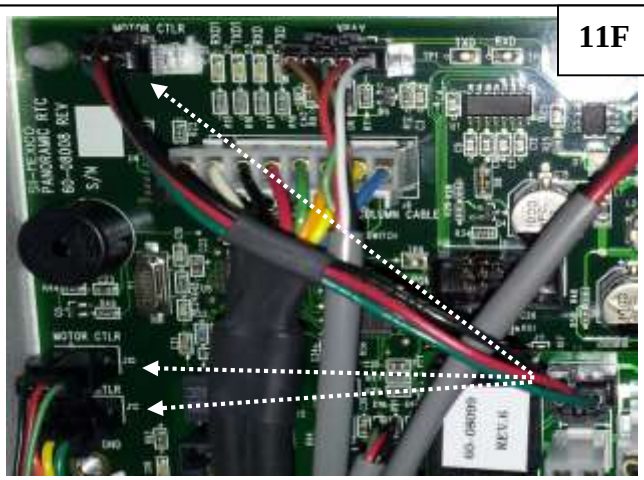
Remove the cable from Connector J21 on the RTC and move it to connector J3 of the Daughter board.

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,

**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**

Route the Ethernet Cable through the opening at the end of the patient table as shown.

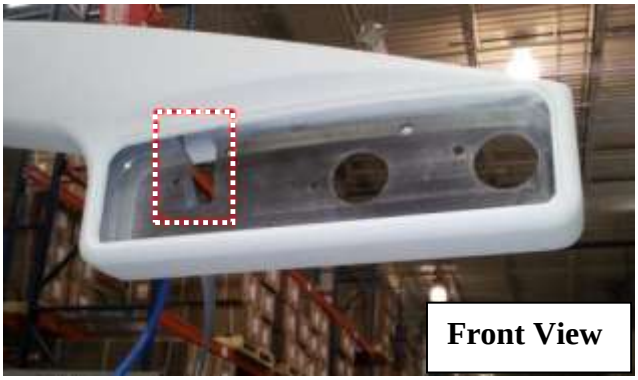
**12E**

Plug the Ethernet Cable into any of the available 3 ports on the left of the POE. *Do not use the far left port. This is reserved for the Control Panel.*

**12F**

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

**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.

**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.

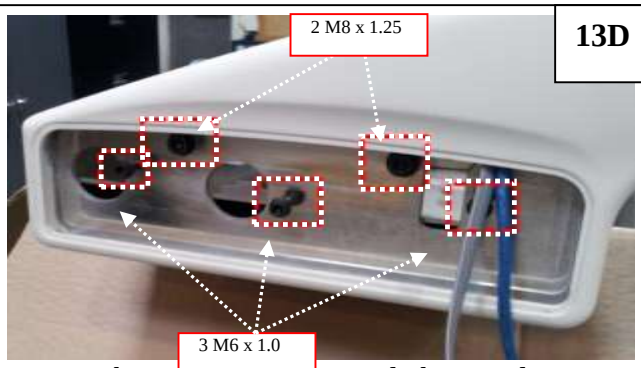
**13B**

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.

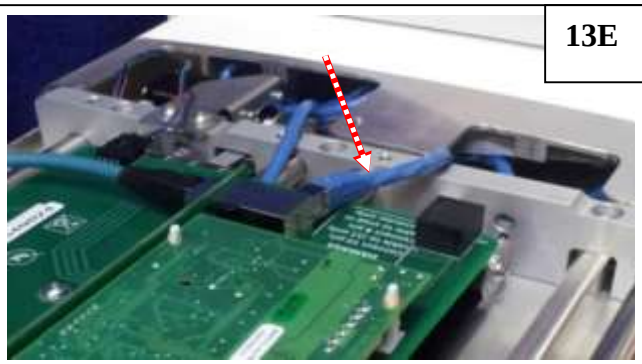
**13D**




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

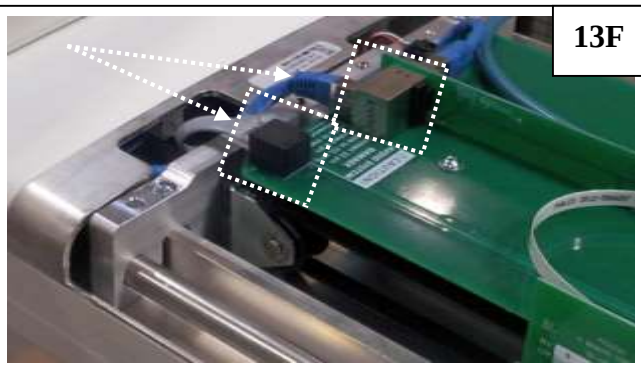
Using 2 M8 x 1.25 flanged screws and 3 M6 x 1.0 flanged screws, secure the Ceph Unit onto the Ceph Arm.

**13E**



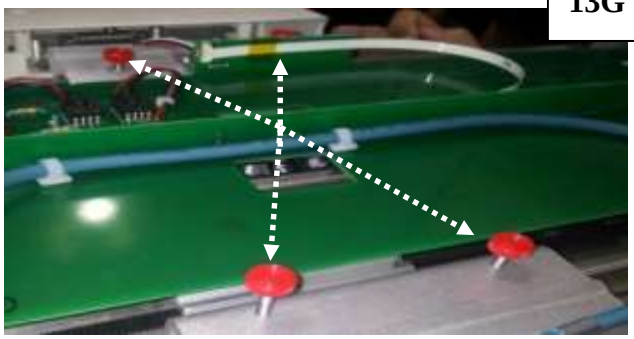
If you are mounting the Ceph on the left (as you are facing the vantage), there will be a blue Ethernet cable already plugged into the silver connector. Unplug this cable and tuck into the frame. It will not be used. *Disregard this step if you are mounting the ceph to the right.*

**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.

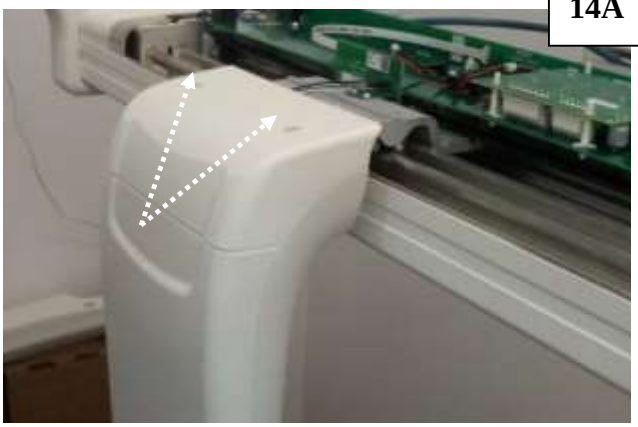
**13G**



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

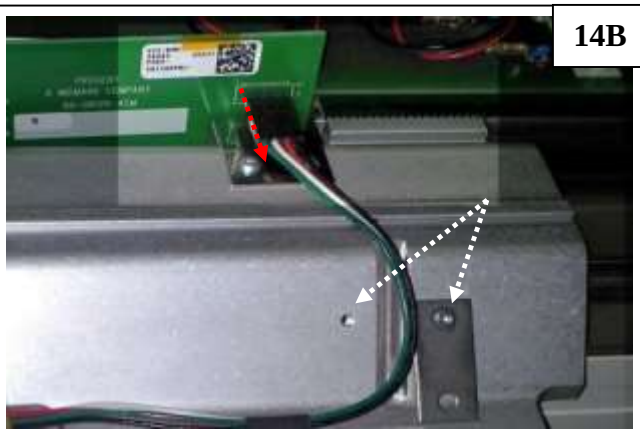
**14. Remove the covers and set the zero position of the secondary collimator.**

**14A**



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

**14B**

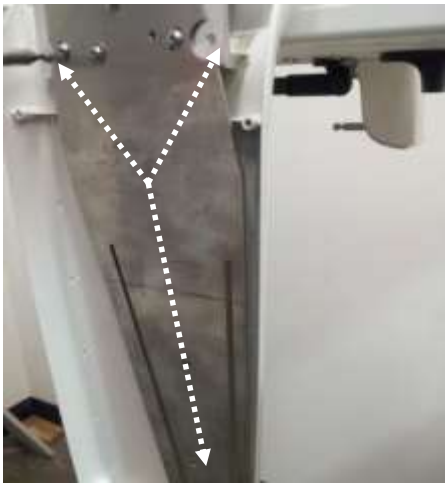


Remove the wire guide screws and plate. Unplug the connector from J2.

**14C**

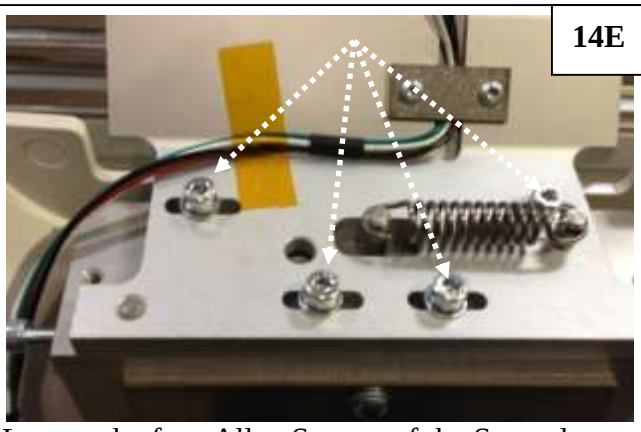
The Front Cover is pressed into place. Gently pry the front cover away from the Secondary Collimator.

**14D**



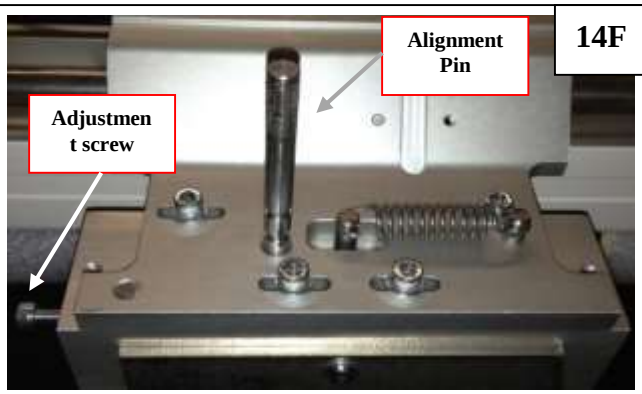
Remove the three screws from the secondary collimator rear cover and remove the cover.

**14E**



Loosen the four Allen Screws of the Secondary Collimator.
Locate the “large” alignment pin in the accessory kit.

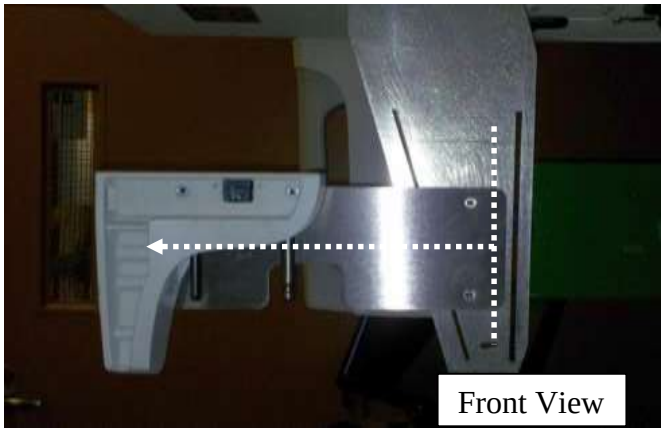
**14F**




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.

**15. Locate the calibration fixture from the accessory kit and mount it on secondary collimator.**

**15A**




Utilizing 2 thumb screws, Mount the Calibration Fixture onto the front of the secondary collimator.
*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.*

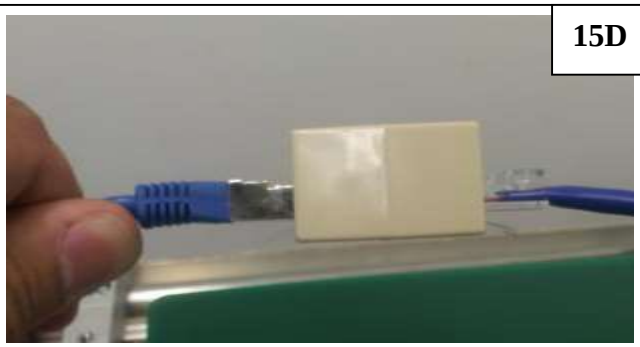
**15B**

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

**15C**

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

**15D**



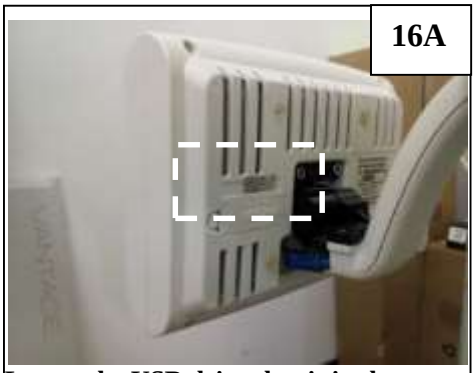
Connect the Cat5 cable to the adapter.

**15E**

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

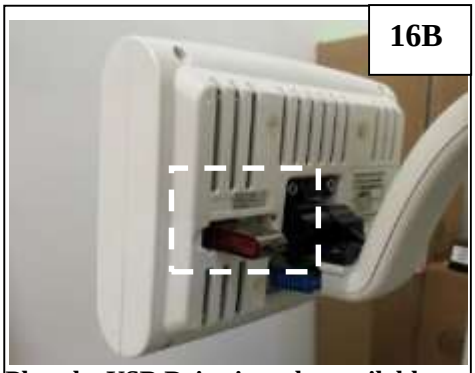
**16. Install the Sensor Calibration File. Turn on the panoramic unit and allow it to boot.**

16A



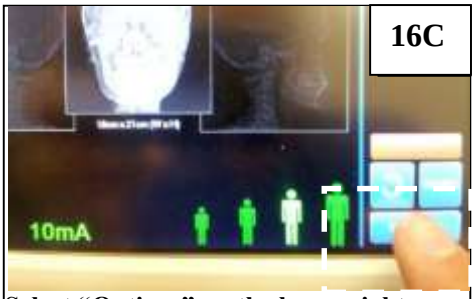
**Locate the USB drive that is in the same box as the sensor. Remove the USB Port cover on the back of the Operator panel.**

16B



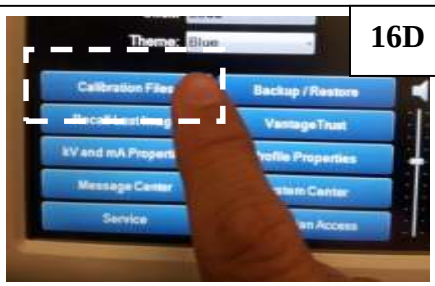
**Plug the USB Drive into the available USB port at the back of the Operator Panel.**

16C




**Select "Options" on the lower right corner of the operator panel.**

16D




**Select Calibration Files on the upper left.**

16E


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

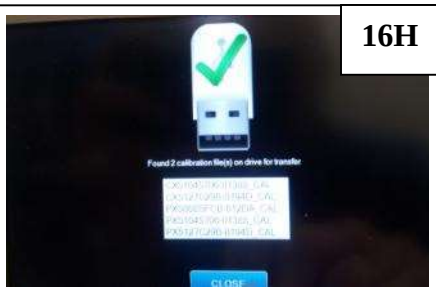
16F

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

16G

**The Calibration files will begin transferring.**

16H



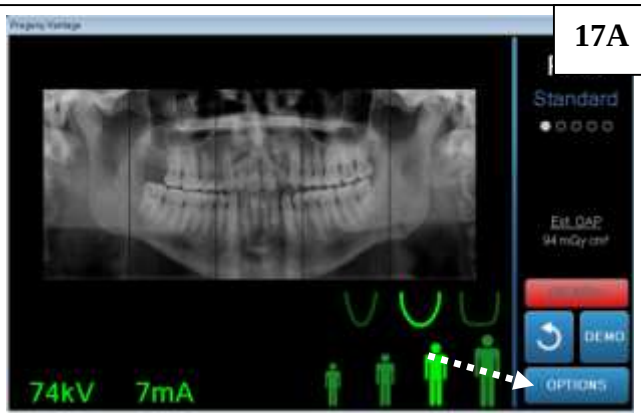

**When the transfer is complete, a green check mark will display. You may now select "Close" and remove the USB Drive from the back of the operator panel.**

16I

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

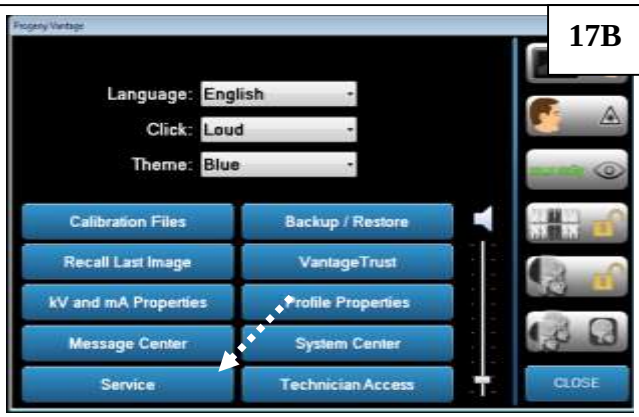
## 17. Ceph Calibration Procedure.

17A




Select "Options" on the lower right of the display.

17B

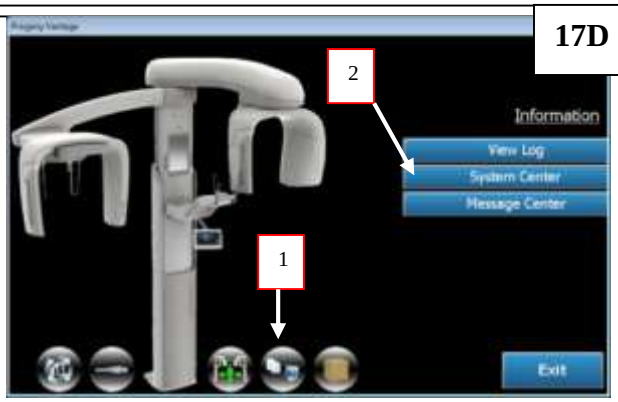



Select "Service" on the lower left

17C


Enter 77469 and Select OK.

17D




3. Select the system information symbol on the bottom as shown.
4. Select System Center

17E


If the "Real Time Controller" is not displayed, place your finger on the image and slide it left or right until the Real Time Controller is displayed.

17F


In the upper right hand corner find the C-Arm Zero parameter. The value should be between -62500 and -65000. *If the values are not within the range indicated, contact tech support for further instructions.* If the values are correct, select "close" and continue with the next step.

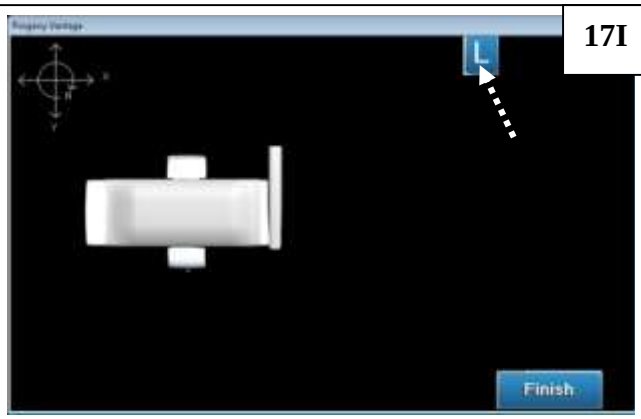
17G


Highlight the Ceph option by pressing on it.

17H

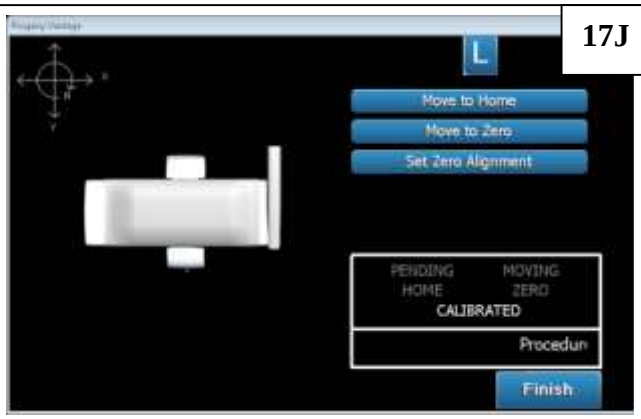

Select Axis Service and Diagnostics

17I




Select “L”

17J

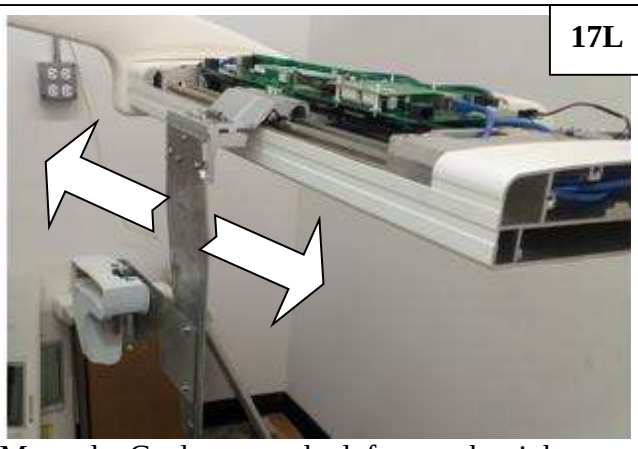



The window above will display.

17K

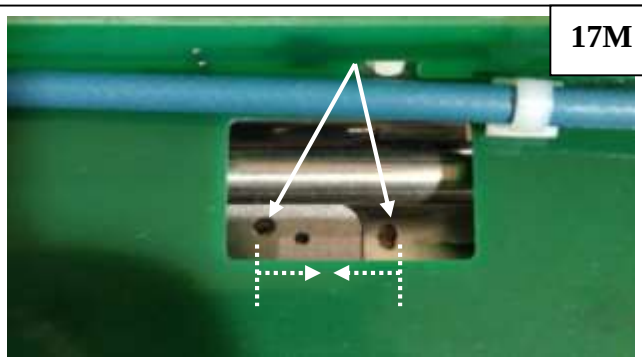
Locate the two small Zero Alignment pins in the accessories kit.

17L



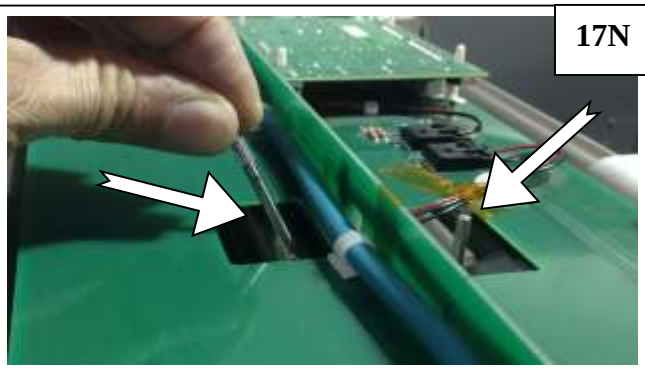
Move the Ceph arm to the left or to the right to align the zero pins…see next image

**17M**



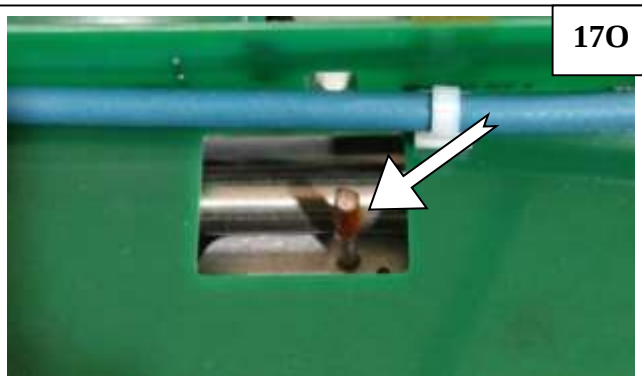
Find the alignment holes located in the open slot of the upper ceph board. Continue to move the Ceph arm until the two alignment holes overlap…see next image.

**17N**



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

**17O**

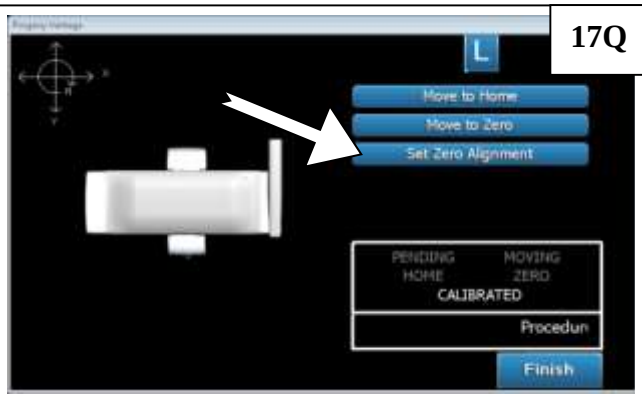


Zero Position Pin Correctly placed.

**17P**

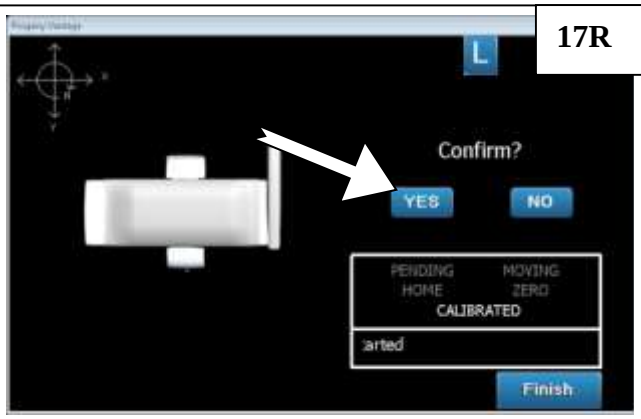
Carefully remove the Zero Position Pins…Try not to disturb the Ceph Arm Position.

**17Q**



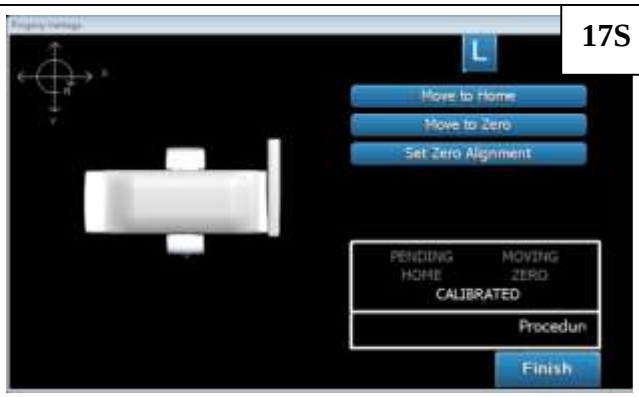

Select Set Zero Alignment.

**17R**



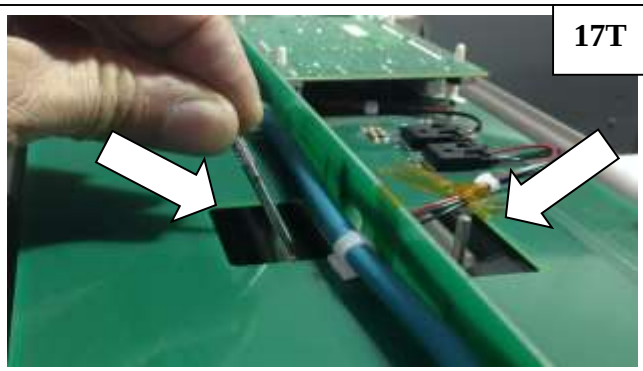

Select "Yes" in the confirmation window. The Ceph Arm will move slightly and the message "Procedure Successfully Completed" will display.

**17S**




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

**17T**



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. Align C-Arm (if the chin rest and bite stick are still on the table, remove them).**

**18A**


Select "Align C-Arm".

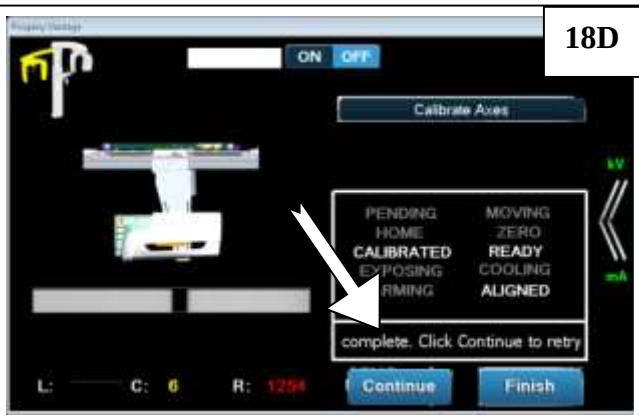
**18B**


The message above will appear. This step has already been accomplished in step 15. If this has not been done, please complete step 15 before proceeding. ***If the Pan Sensor is connected, remove it before proceeding.***

**18C**

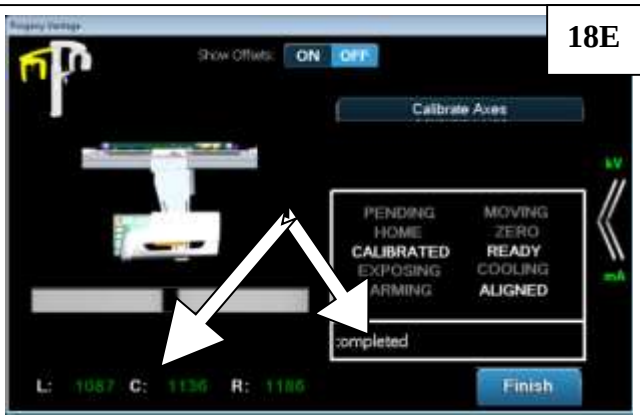

Select Calibrate. The Ceph Arm will move, when it is done moving, take an exposure.

**18D**




You will take a series of exposures. The unit will calibrate itself. Continue to follow the prompts on the display.

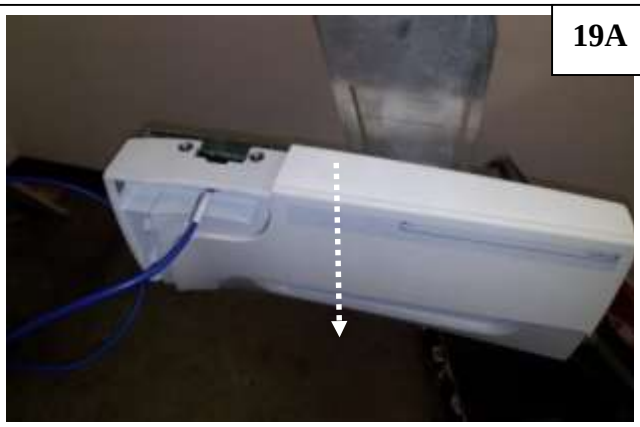
**18E**




Continue to take exposures until the display indicates that the calibration is complete and the group of numbers are green. Select Finish and Finish again.

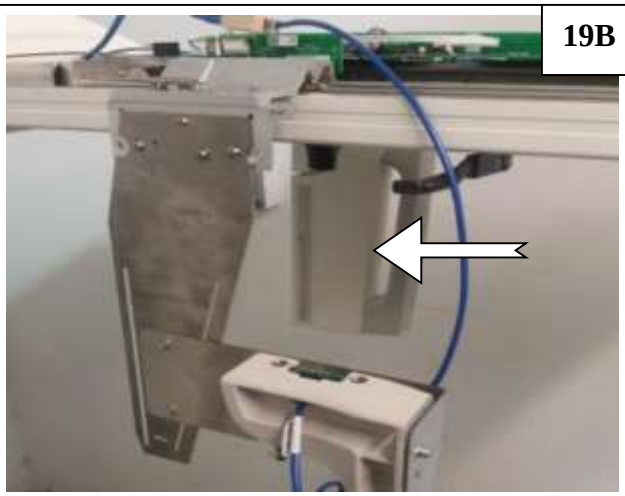
**19. Align the secondary collimator**

**19A**



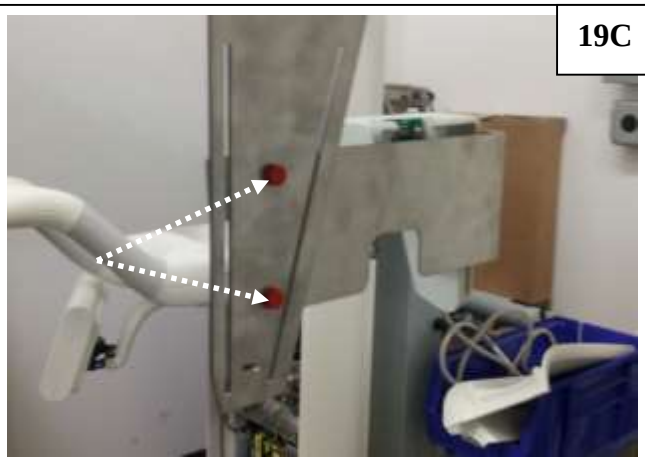
Unplug the sensor from the calibration Fixture and plug it into the Ceph Arm…See next step.

**19B**



Plug the sensor into the Ceph Arm.

**19C**



Remove the Calibration Fixture and Ethernet Cable with Coupler.

**19D**

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

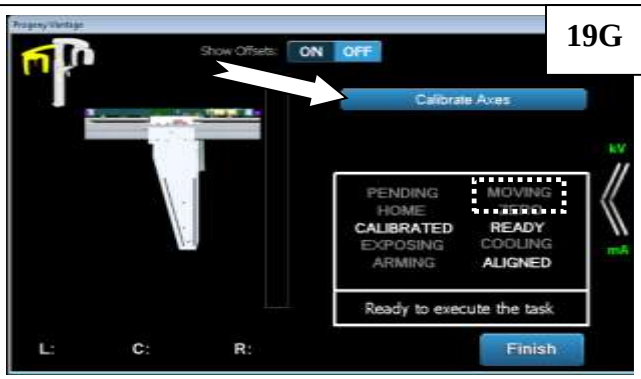
**19E**


Select "Align Secondary Collimator"

**19F**

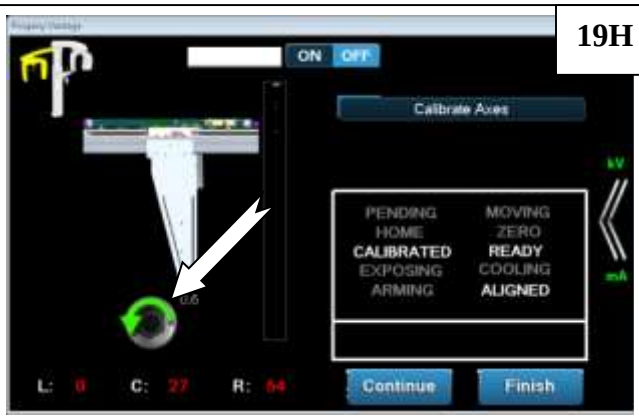

The message above will display. Ensure the PAN Sensor (*not the Ceph sensor*) is removed before proceeding. Select OK.

**19G**



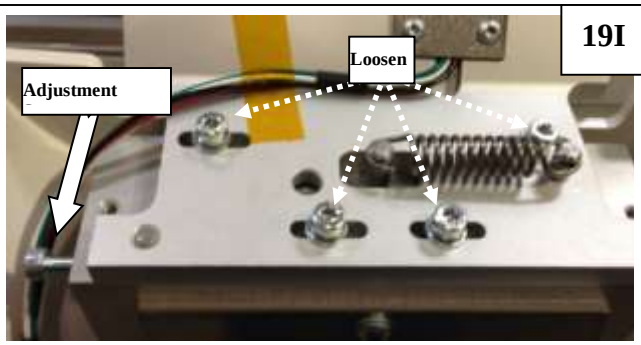

Select “Calibrate Axes”. The unit will move into position and the moving indicator turn red. When the unit stops moving and the moving indicator is not red, take an exposure.

**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.

**19I**

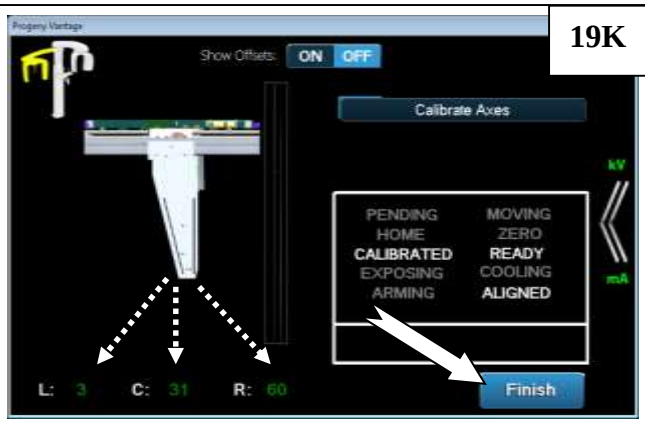



Loosen the four Allen screws shown above. Turn the adjustment screw in the direction and distance given in the previous step. Tighten the Allen Screws.

**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 group of numbers turn green and the display indicates that the procedure has successfully completed. Select Finish and Finish again.

## 20. Calibrate the Primary Collimator

**20A**


Select "Calibrate Primary Collimator"

**20B**


The message above will display. Ensure the PAN Sensor (*not the Ceph sensor*) is removed before proceeding. Select OK.

**20C**


Select "Calibrate Axes". 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.

**20D**


Follow the prompts on the display and continue to take exposures until the unit displays "Calibration successfully completed"

**20E**


Calibration Successfully Completed. Select Finish and Finish again.

**20F**

Note: There may be certain installations where the upper or lower calibration numbers never resolve to zero. In these cases, it is acceptable to adjust the level of the ceph arm until the sensor is completely covered by the x-ray field. Adjust the arm up if the bottom is not covered, and down if the top is not covered. Note: You will need to support the weight of the arm while advancing the adjustment nut.

### 21. Verify Calibration

**21A**


Select "Verify Calibration"

**21B**


Select "Verify Primary Collimator". 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.

**21C**


Continue taking exposures until the "Verification Successful" message appears on the screen. Select Finish and Finish again.

**21D**

The calibration of the unit is now complete.

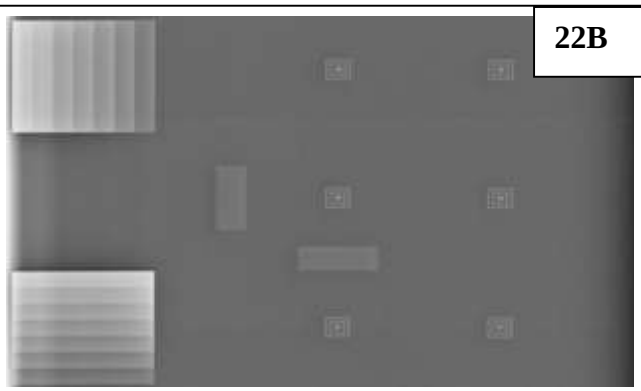
Exit diagnostic mode.

### 22. Take an exposure with the Image Phantom.

**22A**

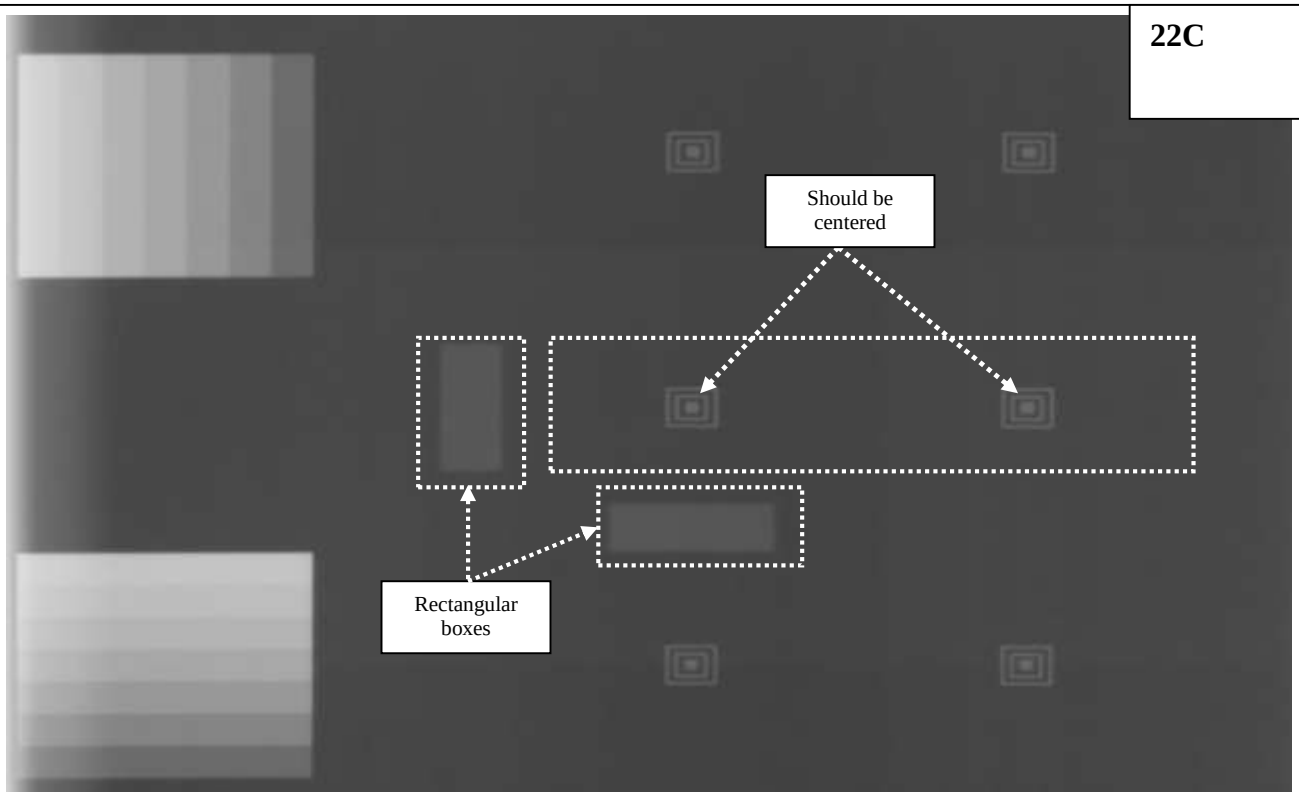
Locate the image phantom in the accessory kit. Hang the image phantom in between the ear posts.

**22B**



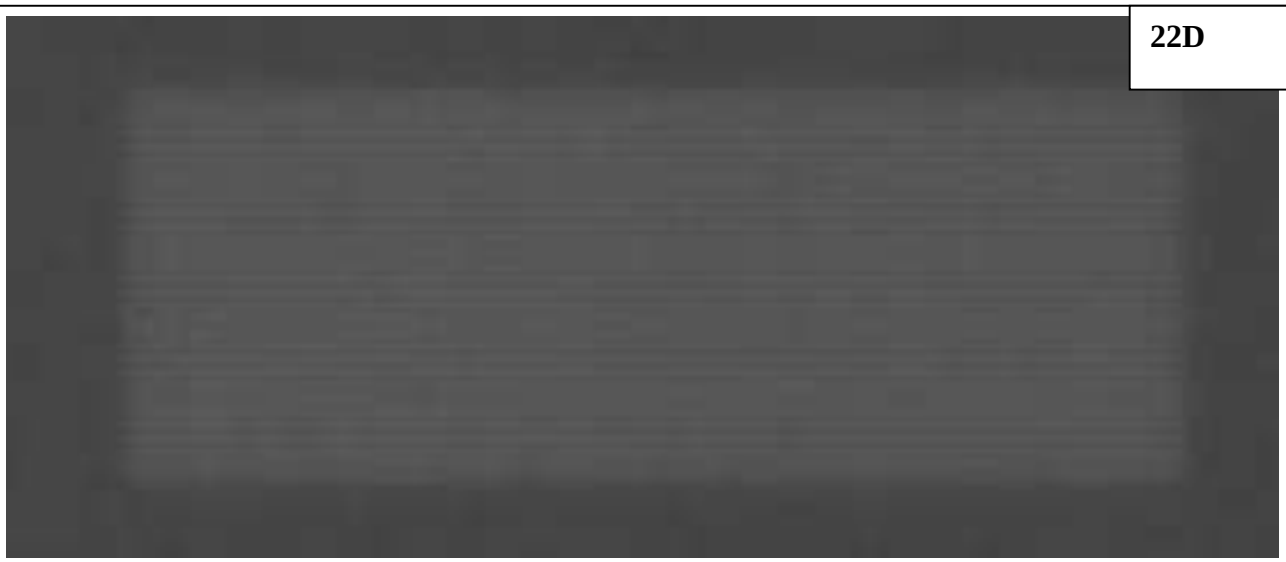
Take an exposure of the image Phantom at 66KV and 8 Ma.

**22C**




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

**22D**



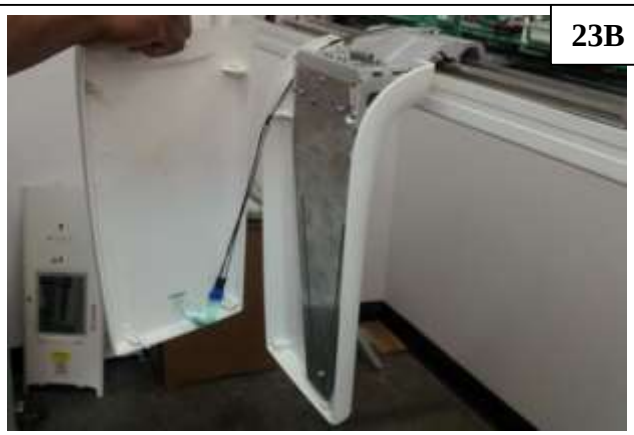
Zoom in on the rectangular boxes. The individual lines should be visible.

**23. Place the covers on the Vantage and on the Cephalometric unit.**

**23A**

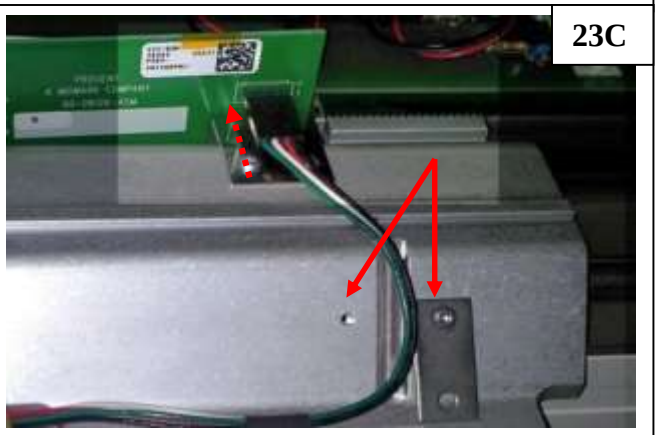
Replace the covers on the Vantage. These were removed earlier in Step 6.

**23B**



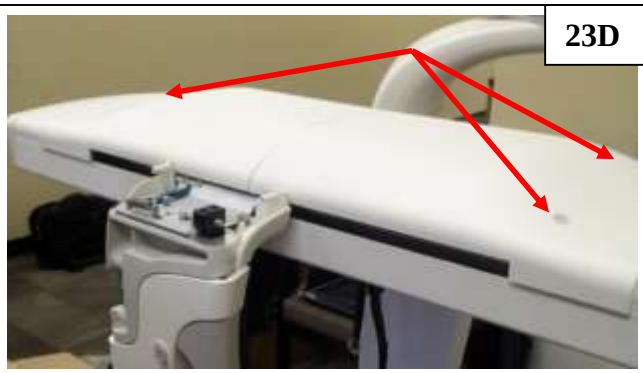
Replace the secondary collimator cover removed earlier in step 14C.

**23C**



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

**23D**

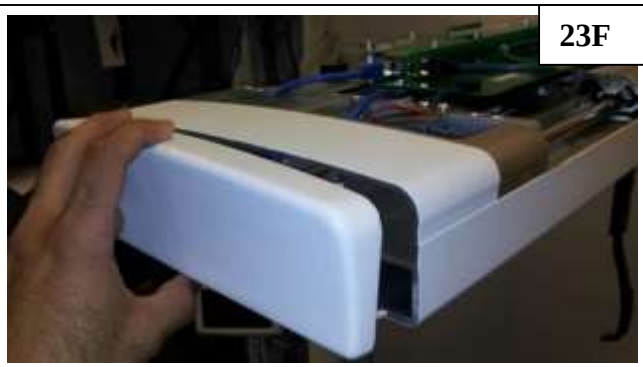


Install the top cover on the Ceph unit. The 3 Philips head screws are located in the accessory kit.

**23E**

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

**23F**



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

**23G**

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

## Midmark Imaging Support Information

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