

Kodak 8000

Digital Panoramic System

User's Guide



Notice

Congratulations on your purchase of the KODAK 8000 Digital Panoramic System. Thank you for your confidence in our products and we will do all in our power to ensure your complete satisfaction.

The User Guide for the KODAK 8000 Digital Panoramic System includes information on the Panoramic features. We recommend that you thoroughly familiarize yourself with this Guide in order to make the most effective use of your system.



WARNING: We recommend that you consult the “Safety, Regulatory and the Technical Specification User Guide” before using the KODAK 8000 Extraoral Imaging Systems.

The information contained in this Guide may be subject to modification without notice, justification or notification to the persons concerned.

No part of this Guide may be reproduced without the express permission of Carestream Health, Inc.

The US Federal law restricts this device to sale by or on the order of a physician.

This document is originally written in English.

Manual Name: *KODAK 8000 Digital Panoramic System User Guide*

Part Number: SM722

Revision Number: 02

Print Date: 03/2010

The brand names and logos reproduced in this Guide are copyright.

KODAK is a trademark of KODAK used under License.

KODAK 8000 Digital Panoramic System, complies with Directive 93/42/CEE relating to medical equipment.



0086

Manufacturer



Carestream Health, Inc.
150 Verona Street
Rochester NY 14 608

Authorized Representative in the European Community

EC REP

TROPHY

4, Rue F. Pelloutier, Croissy-Beaubourg
77435 Marne la Vallée Cedex 2, France

Contents

1—About This Guide

Conventions in this Guide.....	1-1
--------------------------------	-----

2—KODAK 8000 UNIT OVERVIEW

General Overview	2-1
Mobile Components	2-2
General Functional Components.....	2-3
Digital Sensor Locations.....	2-4
Laser Locations	2-5
Control Panel	2-6
X-Ray Remote Control Overview	2-7
Positioning Accessories and Replacement Parts.....	2-8

3—IMAGING SOFTWARE OVERVIEW

Computer System Requirements	3-1
General Software Overview	3-2
KODAK Dental Imaging Software	3-2
Acquisition Interface Module	3-2
Acquisition Interface Module	3-3
Panoramic Acquisition Window Overview	3-3
Panoramic Program Pane	3-5
Panoramic Patient Pane.....	3-6
Panoramic Parameter Pane	3-7

4—GETTING STARTED

Switching on the Unit	4-1
Starting the Imaging Software	4-2
Creating a Patient Record.....	4-2
Accessing the Acquisition Window	4-3

5—ACQUIRING PANORAMIC IMAGES

Acquiring a Panoramic Image.....	5-1
Preparing the Unit and Setting the Acquisition Parameters	5-1
Preparing and Positioning the Patient.....	5-2
Launching the X-ray.....	5-4
Acquiring a Sinus Image.....	5-5
Preparing the Unit and Setting the Acquisition Parameters	5-5
Preparing and Positioning the Patient.....	5-5
Launching the X-ray.....	5-7
Acquiring a TMJ x2 and x4 Image.....	5-8
Preparing the Unit and Setting the Acquisition Parameters	5-8
Preparing and Positioning the Patient.....	5-8
Launching the X-ray.....	5-9

X-Ray Dose Emission Information 5-11

6—MAINTENANCE

Daily 6-1

Annually 6-1

7—TROUBLESHOOTING

Information Messages 7-1

Quick Troubleshooting 7-3

Chapter 1

About This Guide

Conventions in this Guide

The following special messages emphasize information or indicate potential risk to personnel or equipment:



WARNING

Warns you to avoid injury to yourself or others by following the safety instructions precisely.



CAUTION

Alerts you to a condition that might cause serious damage.



IMPORTANT

Alerts you to a condition that might cause problems.



NOTE

Emphasizes important information.



TIP

Provides extra information and hints.

Chapter 2

KODAK 8000 UNIT OVERVIEW

The KODAK 8000 digital panoramic unit is designed to carry out the following radiological examinations:

- Panoramic
- Maxillary Sinus
- Temporomandibular Joints (TMJ)

General Overview

The KODAK 8000 digital panoramic unit is composed of the following functional components:

- The unit head that contains all the electronic control
- The rotative arm
- Control panel
- The panoramic digital sensor
- The x-ray source assembly
- The x-ray remote control
- The chin rest and bite block
- The chin rest base
- The temple supports
- The hand grips
- The acquisition software (see “**Imaging Software Overview**”)

The following figures illustrate the general overview of the KODAK 8000 digital panoramic unit.



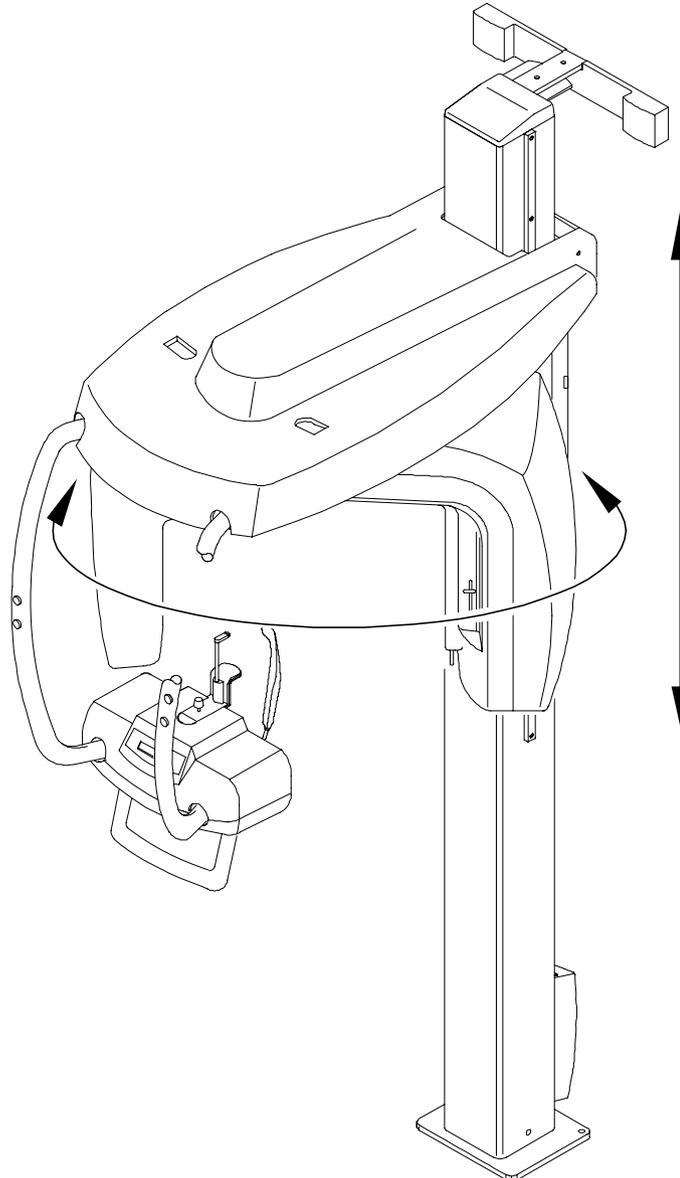
IMPORTANT

The patient entry can be positioned either on the right or the left side of the KODAK 8000 unit.

Mobile Components

Figure 2-1 illustrates the up and down movement of the KODAK 8000 digital panoramic unit mobile component and the rotation of the rotative arm. The patient entry can be positioned either on the right or the left side of the KODAK 8000 unit

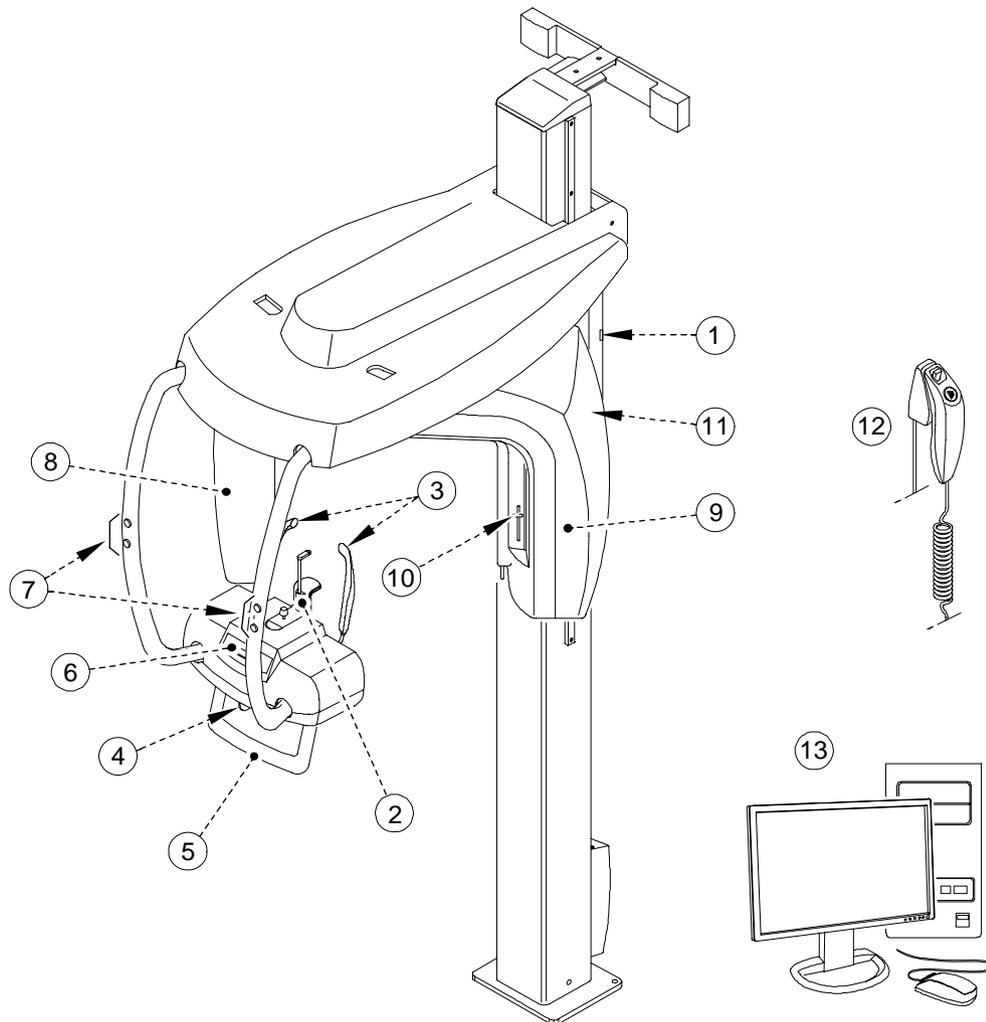
Figure 2-1 KODAK 8000 Unit Mobile Components



General Functional Components

Figure 2-2 illustrates the general functional components of the KODAK 8000 digital panoramic unit. The patient entry can be positioned either on the right or the left side of the KODAK 8000 unit

Figure 2-2 KODAK 8000 Unit Functional Components

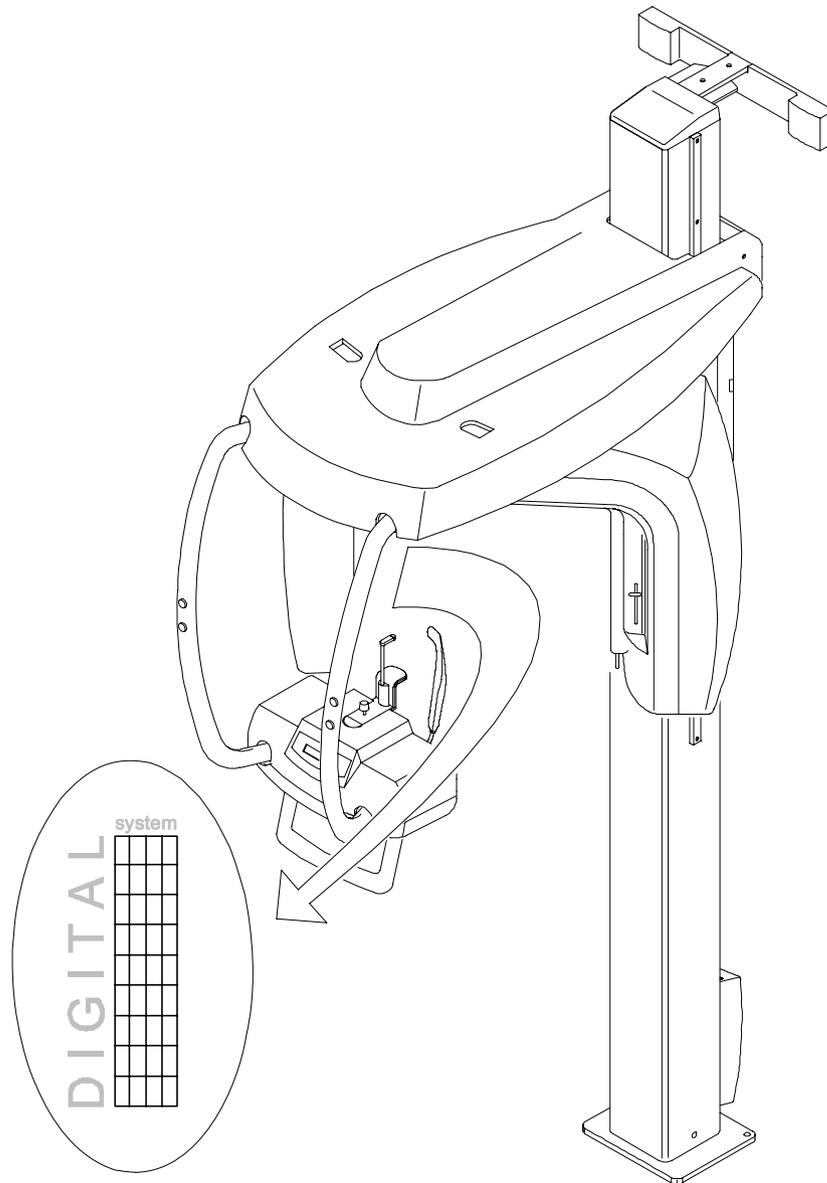


- | | | | |
|---|------------------------------|----|---|
| 1 | ON/OFF button | 7 | Height adjustment buttons |
| 2 | Chin rest and bite block | 8 | Panoramic digital sensor |
| 3 | Temple supports | 9 | X-Ray source assembly |
| 4 | Temple supports control knob | 10 | Collimator selector |
| 5 | Hand Grips | 11 | Unit rotative arm |
| 6 | Control panel | 12 | X-Ray remote control |
| | | 13 | PC hosting the imaging and the acquisition software |

Digital Sensor Locations

Figure 2-3 illustrates the location of the digital panoramic sensor of the KODAK 8000 digital panoramic unit. The patient entry can be positioned either on the right or the left side of the KODAK 8000 unit

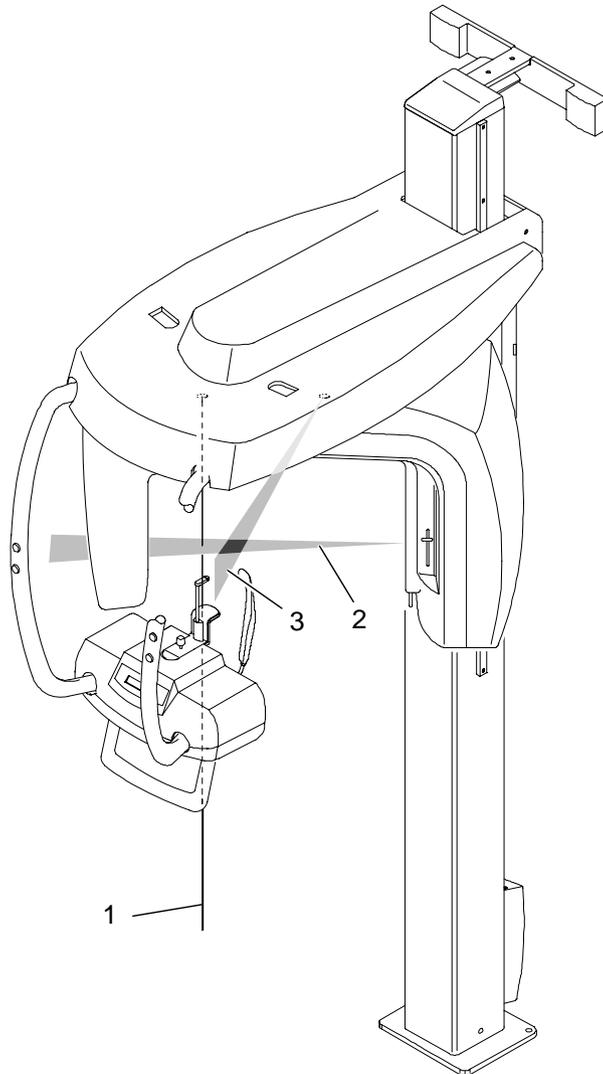
Figure 2-3 KODAK 8000 Digital Sensor Locations



Laser Locations

Figure 2-4 illustrates the location of the lasers of the KODAK 8000 digital panoramic unit. The patient entry can be positioned either on the right or the left side of the KODAK 8000 unit

Figure 2-4 KODAK 8000 Unit Laser Beam Locations

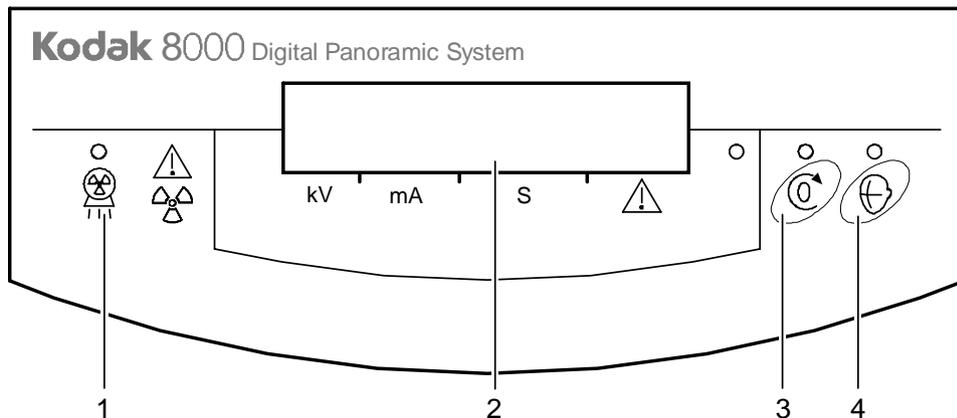


- 1 Mid-sagittal plane positioning laser beam
- 2 Frankfort plane positioning laser beam
- 3 Canine plane positioning laser beam

Control Panel

The control panel is an alphanumeric, digital soft touch console. It allows the operator to control certain unit functions. It also displays the operating parameters and error messages.

Figure 2-5 Unit Control Panel

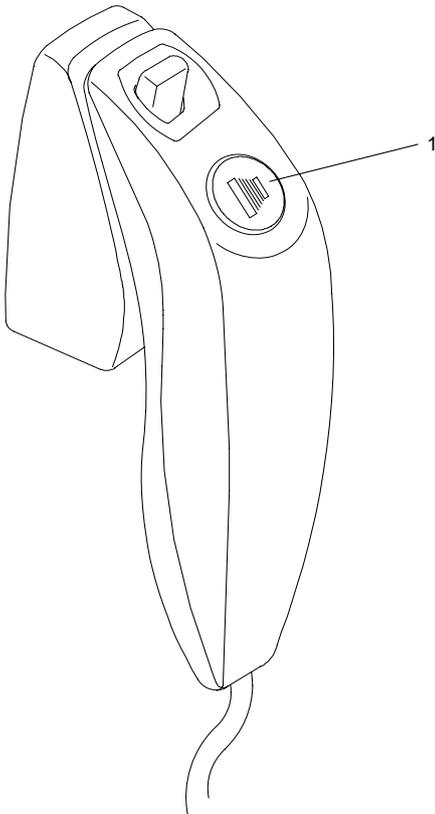


- 1 **X-Ray emission LED:** Yellow, indicates the x-rays are being emitted.
- 2 **Display Screen:** Displays the current acquisition parameters and the error messages.
- 3 **Reset button:** Resets the unit arm to the initial position to enable the patient to enter and exit the unit.
- 4 **Laser beam button:** Activates the laser positioning beams to correctly position the patient.

X-Ray Remote Control Overview

The x-ray remote control enables you to launch a radiological image acquisition via the exposure button from outside the x-ray room. You must press and hold the exposure button until the end of acquisition. Premature release of the exposure button interrupts the acquisition.

Figure 2-6 X-Ray Remote Control



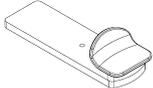
- 1 **Exposure button:** launches image acquisition.

Positioning Accessories and Replacement Parts

The following accessories are used when positioning a patient. They are delivered with the KODAK 8000 digital panoramic unit.

Table 2-1 lists the panoramic positioning accessories.

Table 2-1 Panoramic Positioning Accessories and Replacement Parts

Accessory	Description
	Panoramic chin rest and TMJ x2
	Maxillary sinus chin rest
	TMJ x2 and TMJ x4 nose rest
	Standard bite block
	Bite block for edentulous patients
	A set of right and left temple supports
	Single use sheaths for bite blocks (500 pcs box)

Chapter 3

IMAGING SOFTWARE OVERVIEW

Computer System Requirements

This section specifies the minimum computer system requirements for KODAK 8000 digital panoramic system software.



IMPORTANT

It is **MANDATORY** to check that the computer system configuration is compatible with the computer system requirements for the KODAK 8000 software. If necessary you **MUST** update your computer system configuration. KODAK 8000 **MUST** be connected to the computer via a point-to-point Ethernet link and not via a LAN. **DO NOT** place the PC and the peripheral equipment connected to it in the immediate vicinity of the patient in the unit. Leave at least 1.5 m distance from the unit. The computer and the peripheral equipment must conform to the IEC 60950 standard.

Table 3–1 Minimum PC System Requirements

Item	System Requirements	Comments
CPU	1 GHz, 32 bits processor (Pentium or equivalent - Intel chipset)	
RAM	256 MB (512 MB recommended)	The RAM has a major impact on system performance.
Hard disk drive	40 GB (80 GB recommended)	The Video RAM has major impact on system performance. KDIS requires a minimum disk space of 1.2 GB for installation
Ethernet interface	<ul style="list-style-type: none"> • 1 Ethernet interface (100 Mbits) • 1 Ethernet interface (100 Mbits) if the PC is connected to a LAN and/or a WAN 	There must be 2 Ethernet interfaces if the PC is connected to a LAN and/or a WAN.
Monitor	<ul style="list-style-type: none"> • 1 monitor • 17" or larger • 1024 x 768 minimum screen resolution - 32 bits color mode 	Your monitor is a vital component in displaying quality images. Low-quality screens will prevent you from proper diagnoses and treatment.
Operating system	<ul style="list-style-type: none"> • Windows 2000 SP4 • Windows XP Home / Pro edition SP2 with DirectX 9.0c or higher • Server 2003 or Windows Vista 32 bits 	

Table 3–1 Minimum PC System Requirements (Continued)

Item	System Requirements	Comments
CD/DVD drive	A CD-ROM drive is required to install the product.	
Backup Media	Removable/portable, external hard disk drive	We strongly recommend a daily backup of x-ray images and patient records.

General Software Overview

The KODAK 8000 digital panoramic systems operates with the following software:

- KODAK dental imaging software
- Acquisition interface module

KODAK Dental Imaging Software

The KODAK dental imaging software is a user-friendly working interface that was designed and developed specifically for radiological diagnosis. It is the common imaging platform for all our digital systems for dentistry.

The KODAK dental imaging software has the following features:

- Patient record management using **Patient Window** features
- Extraoral and intraoral image management using **Imaging Window** features.



NOTE

For a complete information on the KODAK Dental Imaging Software, see the “*KODAK Dental Imaging Software, Quick Start Guide*”.

Acquisition Interface Module

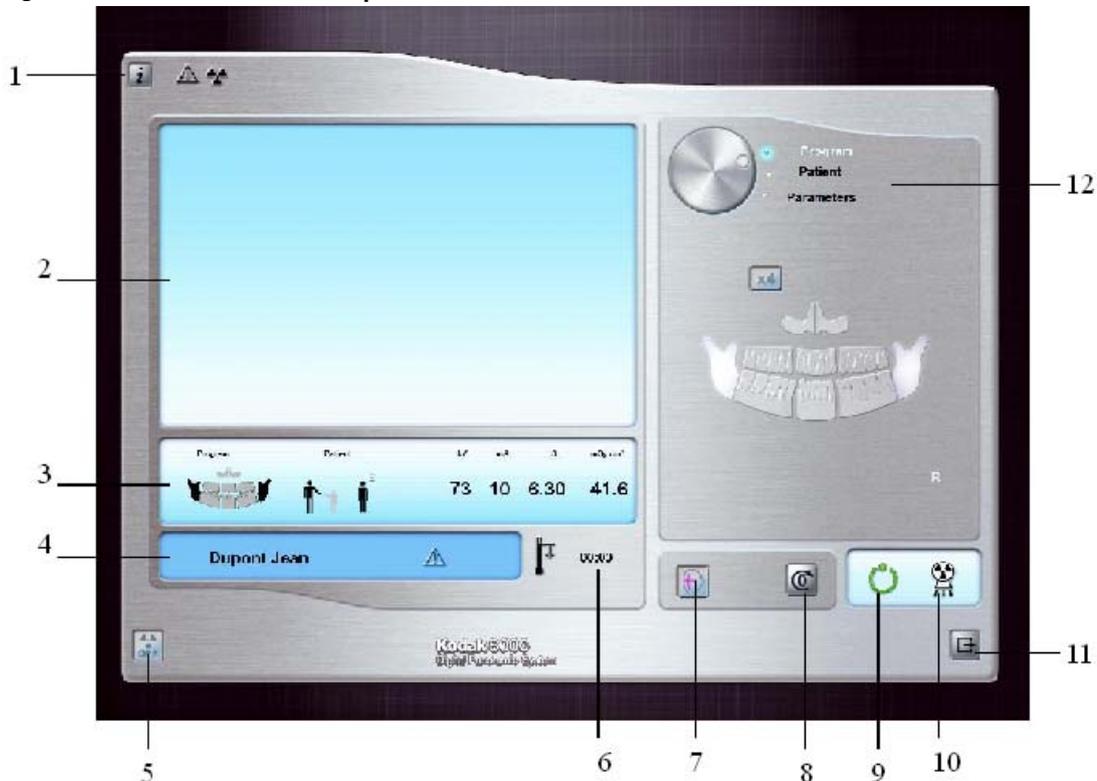
The **Panoramic Acquisition Window** is the acquisition user-friendly interface that was designed and developed specifically for KODAK 8000 digital panoramic systems.

Acquisition Interface Module

Panoramic Acquisition Window Overview

The **Panoramic Acquisition Window** is the main panoramic interface with the KODAK 8000 digital panoramic system that provides you with imaging acquisition functions.

Figure 3-1 Panoramic Acquisition Window



- 1 **Information button:**
 - **About:** Identifies the Software and the Firmware versions
 - **Reset of the Values:** Resets to the manufacturing parameter settings
- 2 **Preview Screen:** Displays the acquired image in real time.
- 3 **Selected Parameter Display:** Displays the current acquisition parameter settings.
- 4 **System Status Screen:** Displays various alert or warning messages originating from the unit.
- 5 **X-Rays ON / OFF button:** Turns off the x-ray emissions to demonstrate the acquisition process for the patient.
- 6 **Generator Cooling indicator:** Indicates the automatic cooling time (mm:ss) required for the generator to reach 0 for a new acquisition.
- 7 **Positioning laser button:** Activates the laser positioning beams to correctly position the patient.
- 8 **Reset button:** Resets the rotative arm in the start position.

- 9 **Ready Indicator LED**
 - Green indicates the unit is ready to start acquisition.
 - Black indicates the unit is not ready to start acquisition.
- 10 **X-Ray Emission indicator:** Yellow, indicates the x-ray emission status.
- 11 **Exit button:** Closes the Acquisition Window.
- 12 **Selector Button:** Selects different acquisition setting options.
 - Click **Program** to select examination type options.
 - Click **Patient** to select patient type parameters.
 - Click **Parameters** to select exposure parameter options.

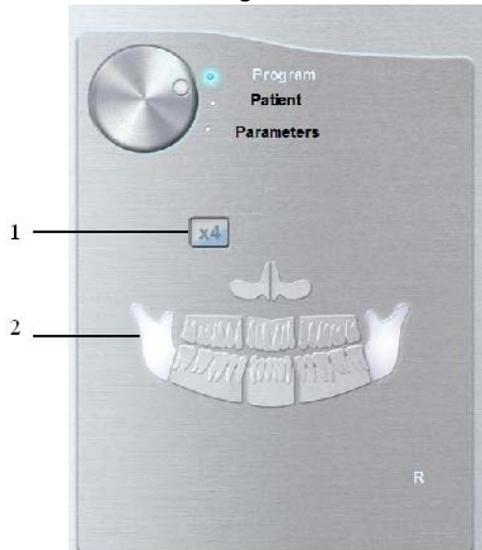
The **Selector button** enables you to access the following 3 panes:

- **Program pane:** Examination type options
- **Patient pane:** Patient type parameter options
- **Parameters pane:** Exposure parameter options

Panoramic Program Pane

The panoramic **Program pane** enables you to choose different radiological exams. The diagram in the panoramic **Program pane** represents a jaw, with the right side of the diagram corresponding to the right side of the patient. Click on a section of the jaw to select an anatomical zone for radiological exam. The selected segment is highlighted.

Figure 3-2 Panoramic Program Pane



1 TMJ exam options:

Select  for a TMJ x2.

Select  for a TMJ x4 exam and click .

2 Radiological exam options:

Click  for a Maxillary Sinus exam.

Click  for an anterior exam.

Click  for a Panoramic exam.



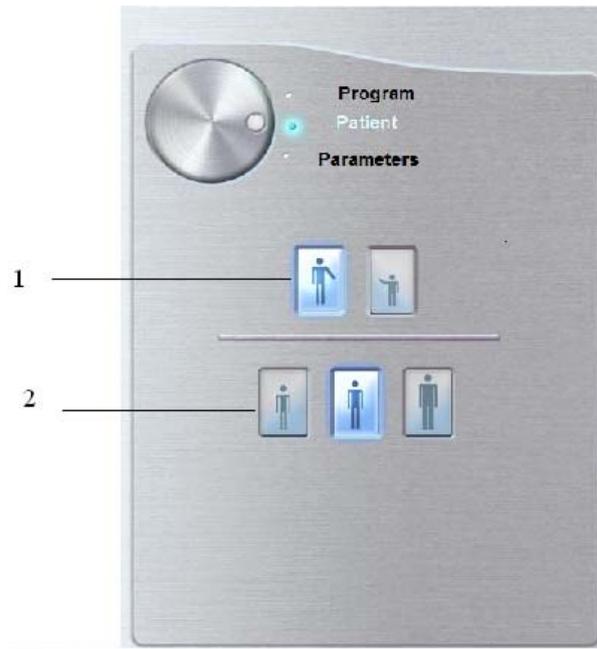
NOTE

The above list of exam types are only a sample of exam options of the **Program pane**.

Panoramic Patient Pane

The panoramic **Patient pane** enables you to choose different patient parameters. The selection of the patient parameters influences the quality of the image. The selected parameters must be based on the age and morphology of the patient .

Figure 3-3 Panoramic Patient Pane



1 Patient type parameters:

Click  if the patient is adult.

Click  if the patient is a child.

2 Patient size parameters:

Click  if the patient is large.

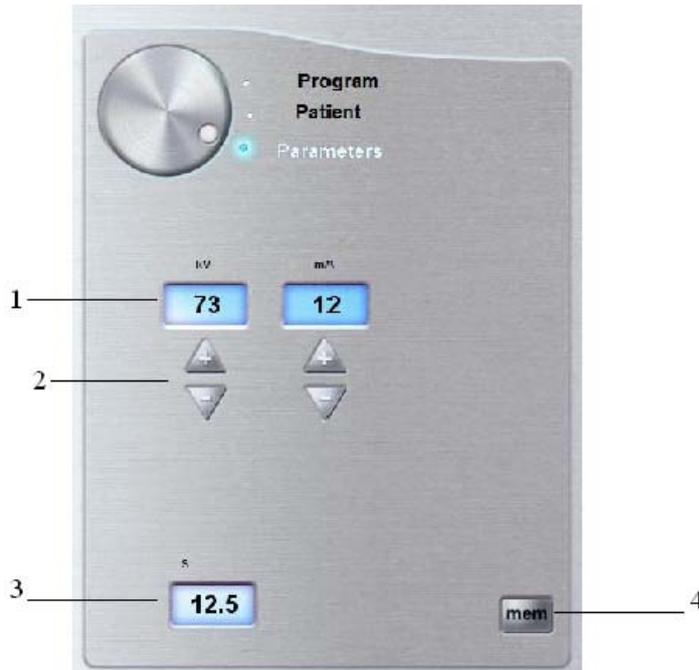
Click  if the patient is medium.

Click  if the patient is small.

Panoramic Parameter Pane

The panoramic **Parameter pane** enables you to choose exposure parameters for the radiological image acquisition. If the default parameter setting is not adapted to your patient's type, you can manually adapt the parameter settings to the patient's type and save this setting as the default setting.

Figure 3-4 Panoramic Parameter Pane



1 Radiation dose options:



kilovolt



milliampere

2 Fine-tuning buttons:



Click  to fine-tune the kV and the mA.

3 Exposure time:



seconds

4 Saving parameter button:



Click  to save the selected parameters.

Chapter 4

GETTING STARTED

Switching on the Unit

Before switching on the unit, check that:

- The installation of the unit is complete.
- The PC is switched on.



IMPORTANT

You must switch on the PC and wait for it to be ready for the connection before switching on the unit.

To switch on the unit, follow these steps:

1. On the unit column, press the **ON** button.
2. You must wait for a minute for the connection between the unit and the PC to be established. If you start the imaging software before the connection is established an error message is displayed. Click **OK**, close the imaging software and wait for the connection to be established.
3. You can now proceed to start the imaging software.



IMPORTANT

To increase the operating life of the x-ray tube, if the unit has not been used for a month, you must follow the following procedures before use.

1. In the **Panoramic Acquisition Window**, select the **Parameter pane**.
2. Select the following series of parameter settings:
 - 70 kV - 6.3 mA
 - 80 kV - 10 mA
 - 85 kV - 10 mA
3. Leave the x-ray room and close the door. For each parameter setting, from the x-ray remote control, press and hold the button to launch the x-ray

The unit is now ready to be used for acquisition.

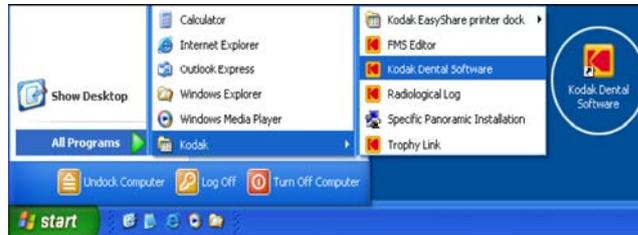
Starting the Imaging Software

To start the imaging software, follow these steps:

1. On your desktop, double-click .

OR

From your PC, click **Start > All Programs > Kodak > Kodak Dental Software**.



A blank **Patient Window** is displayed.

2. Create or open an existing patient record.

Creating a Patient Record

To create a patient record, follow these steps:

1. In the **Patient Window**, from the toolbar, click .

OR

From the menu bar, select **Patient > New**.

2. Enter the required patient information. The **Last name**, the **First name** and the **Date of birth** fields are required.
3. From the menu bar, select **Picture > Insert Picture** to add a ***.tif** or ***.bmp** picture of the patient to the record (optional). Select the picture from your directory and click **Open**.
4. Click **OK** to save. The patient record is automatically assigned a 7-digit number starting with a letter (for example, M0000001).
5. Click  to access the **Imaging Window**.
6. Select an image acquisition.

Accessing the Acquisition Window

To access the **Acquisition Windows**, follow these steps:

1. In the **Imaging Window**, from the toolbar, click  to access the **Panoramic Acquisition Window**.
2. See chapters “**Acquiring Panoramic Images**” to launch an acquisition.

Chapter 5

ACQUIRING PANORAMIC IMAGES

Acquiring a Panoramic Image

Before acquiring a panoramic image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Panoramic Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To set the acquisition parameters, follow these steps:

1. On the x-ray source assembly, set the collimator selector to **Panoramic**.
2. In the **Panoramic Acquisition Window**, click the **Program** button to access the **Program pane**. Click on the section of the jaw to select the anatomical zone for the x-ray image.
3. Click the **Patient** button to access the **Patient pane**.

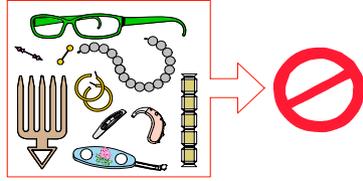
Select the patient:

- Type
 - Size
4. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click .
 5. Position the appropriate chin rest on the chin rest support and cover the bite block with a hygienic barrier. If needed, use the edentulous bite block.

Preparing and Positioning the Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the chin rest to the maximum height. Ask the patient to enter the unit.



NOTE

If the patient is too tall, ask the patient to sit on a stool.

4. Ask the patient to do the following:
 - Stand up straight.
 - Grip the lower handle on each side.
 - Rest the chin on the chin rest support and bite into the bite block.
 - Position the feet slightly forward.
 - Relax the shoulders for full motion of the unit rotative arm.



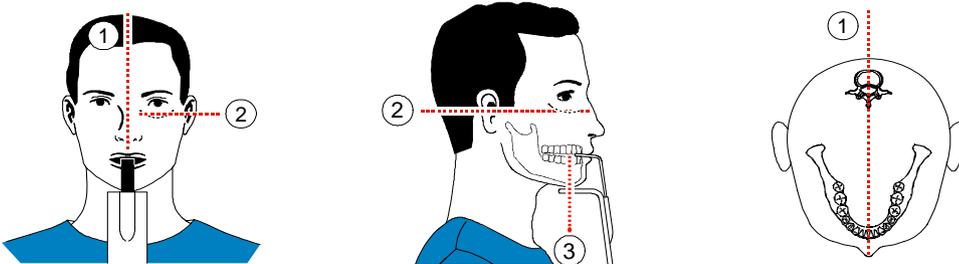
NOTE

Correct posture reduces the shadow of the spinal column transferred to the image.

5. On the **Control Panel**, click  to turn on the 3 positioning laser beams:
- The mid-sagittal (1) plane positioning laser beam for a central alignment.
 - The Frankfort plane (2) positioning laser beam for a Frankfort plane alignment.
 - The canine plane (3) positioning laser for a canine alignment.

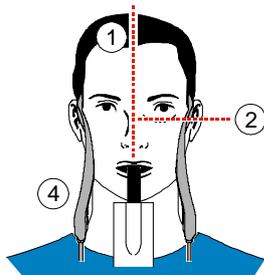
**NOTE**

You can re-activate the laser positioning beams as needed. You can press the same button to turn OFF the laser beams, or wait 60 seconds for the beams to turn OFF automatically.

**IMPORTANT**

The spinal column and the nose of the patient must be aligned in a straight line (1).

6. Correctly align the Frankfort (2) and mid-sagittal (1) planes using the height adjustment buttons and the Frankfort laser adjusting knob. Ask the patient to smile to align the canine plane (3).
7. Immobilize the patient head with the temple supports (4).



8. Ask the patient to do the following:
 - To close the eyes
 - To remain still
 - To swallow
 - To place the tongue in contact with the palate
 - To breath through the nose



Launching the X-ray

To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.



IMPORTANT

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.

2. Launch the x-ray with the remote control. Press and hold the exposure button until the end of acquisition. The  turns yellow, indicating x-ray emission. The image appears on the **Preview Screen** of the **Panoramic Acquisition Window**. When the acquisition ends, the **Panoramic Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.
3. Check the image quality.
4. Do the following when the acquisition is finished:
 - Open the temple supports and release the patient.
 - Remove the hygiene barrier of the bite block.
 - Reset the unit rotative arm for the next acquisition.

Acquiring a Sinus Image

Before acquiring a sinus image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Panoramic Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To set the acquisition parameters, follow these steps:

1. On the x-ray source assembly, set the collimator selector to **Panoramic**.
2. In the **Panoramic Acquisition Window**, click the **Program** button to access the **Program pane**. Click on the section of the jaw to select the sinus.
3. Click the **Patient** button to access the **Patient pane**.

Select the patient:

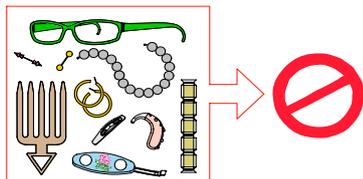
- Type
 - Size
4. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click .

5. Position  on the chin rest support.

Preparing and Positioning the Patient

To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.

3. Press and hold the height adjustment buttons to raise the chin rest to the maximum height. Ask the patient to enter the unit.



NOTE

If the patient is too tall, ask the patient to sit on a stool.

4. Ask the patient to do the following:

- Stand up straight.
- Grip the lower handle on each side.
- Rest the chin on the chin rest support.
- Position the feet slightly forward.
- Relax the shoulders for full motion of the unit rotative arm.

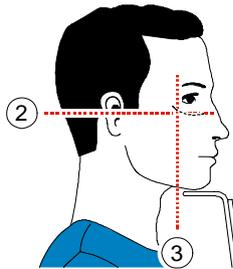


NOTE

Correct posture reduces the shadow of the spinal column transferred to the image.

5. On the **Control Panel**, click  to turn on the 3 positioning laser beams:

- The mid-sagittal plane positioning laser beam for a central alignment.
- The Frankfort plane positioning laser beam for a Frankfort plane alignment (2).
- The canine plane positioning laser for a canine alignment, coinciding with the outer corner of the eye (3).



6. Ask the patient to do the following:

- To close the eyes
- To remain still
- To breath through the nose

Launching the X-ray

To launch the x-ray, follow these steps:

1. Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.



IMPORTANT

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.

2. Launch the x-ray with the remote control. Press and hold the exposure button until the end of acquisition. The  turns yellow, indicating x-ray emission. The image appears on the **Preview Screen** of the **Panoramic Acquisition Window**. When the acquisition ends, the **Panoramic Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.
3. Check the image quality.
4. Do the following when the acquisition is finished:
 - Open the temple supports and release the patient.
 - Clean the chin rest with a medical-grade 76% alcohol disinfectant for the next patient.
 - Reset the unit rotative arm for the next acquisition.

Acquiring a TMJ x2 and x4 Image

Before acquiring a TMJ x2 and/or x4 image, check that you have:

- Reset the unit rotative arm to the start position for patient to enter the unit.
- Selected the patient record.
- Accessed the **Imaging Window**.
- Accessed the **Panoramic Acquisition Window**.

Preparing the Unit and Setting the Acquisition Parameters

To set the acquisition parameters, follow these steps:

1. On the x-ray source assembly, set the collimator selector to **Panoramic**.
2. In the **Panoramic Acquisition Window**, click the **Program** button to access the **Program pane**. Click on the section of the jaw to select the TMJ x2 for an x-ray image.
3. Click the **Patient** button to access the **Patient pane**.

Select the patient:

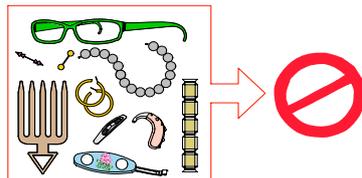
- Type
 - Size
4. If the default parameter setting is not adapted to your patient type, click the **Parameter** button and in the **Parameter pane** select the appropriate parameters. To save the new parameter settings as the default settings, click .

5. Place  on the chin rest support and position it at the central graduation .

Preparing and Positioning the Patient

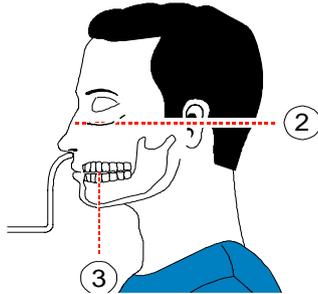
To prepare and position the patient, follow these steps:

1. Ask the patient to remove all metal objects.



2. Ask the patient to wear a lead apron. Ensure that the apron lays flat across the patient's shoulders.
3. Press and hold the height adjustment buttons to raise the chin rest to the patient's height.

- To acquire a TMJ x2 image, correctly position the patient using the 2 positioning laser beams.



Launching the X-ray

To launch the x-ray, follow these steps:

- Ask the patient to remain still and close the eyes. Launch an x-ray to acquire an image with the mouth closed.
- Leave the x-ray room and close the door. You must keep visual contact with the patient during acquisition.



IMPORTANT

To stop the acquisition, if any problem, release the exposure button of the remote control or press the red emergency stop button.

- Launch the x-ray with the remote control. Press and hold the exposure button until the end of acquisition. The  turns yellow, indicating x-ray emission. The image appears on the **Preview Screen** of the **Panoramic Acquisition Window**. When the acquisition ends, the **Panoramic Acquisition Window** disappears and the acquired image is automatically transferred to the **Imaging Window**.
- Check the image quality.
- To acquire a TMJ x4 image, on the **Control Panel**, click  to reset the unit rotative arm.
- From the **Panoramic Acquisition Window**, in the **Program pane**, select the TMJ and click .

7. Ask the patient to stay in the same position and open the mouth. Acquire an image with the mouth open.



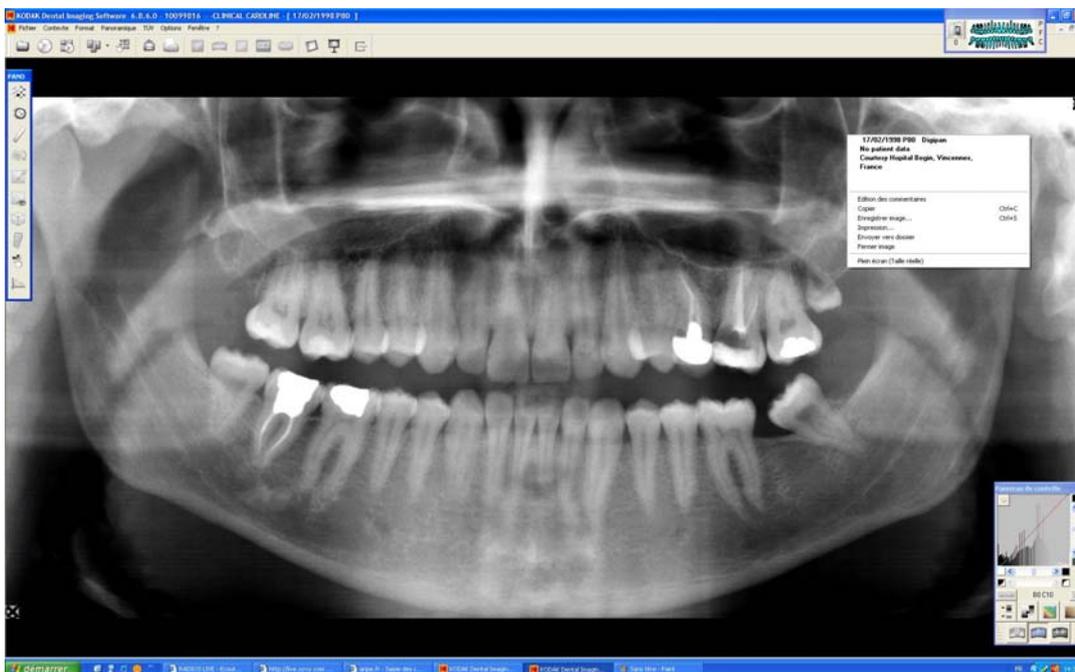
8. Do the following when the acquisition is finished:
 - Open the temple supports and release the patient.
 - Clean the chin rest with a medical-grade 76% alcohol disinfectant for the next patient.
 - Reset the unit rotative arm for the next acquisition.

X-Ray Dose Emission Information

Compliance with EURATOM 97/43 Directive

You can right-click on each image to display the estimated emitted dose received by the patient. You can use this information to calculate the effective dose received by the patient for the image.

The radiation emission dose is expressed in $\text{mGy}\cdot\text{cm}^2$. This dose is measured at the primary collimator outlet. The dose is accurate to $\pm 30\%$. The primary slot is 0.5 mm wide and 18.2 mm high.



Chapter 6

MAINTENANCE

This section describes the maintenance tasks that you need to perform regularly for your KODAK 8000 digital panoramic unit and the accessories.



WARNING

Switch off the unit, then, clean all accessible parts of the machine with an alcohol-based non-corrosive product. Avoid using liquids inside the unit. Follow the alcohol-based product manufacturer recommendations for safety precautions.



CAUTION

You can use the usual disinfectant products, but we recommend that you protect the unit from contamination by using barriers available from dental distributors. Follow the disinfectant product manufacturer recommendations for safety precautions.

Daily

Carry out the following maintenance tasks:

Table 6-1 Daily Maintenance Tasks

Accessories	Maintenance Tasks
Bite blocks	Sterilize with cold sterilization or autoclave up to 134°C before the next patient is x-rayed.
Edentulous bite block	Sterilize with cold sterilization or autoclave up to 134°C before the next patient is x-rayed.
Temple supports	Clean with medical-grade 76% alcohol disinfectant before the next patient is x-rayed.
Chin rest	
All components that come into contact with the patient and the operator	Clean all components with medical-grade 76% alcohol disinfectant before the next patient is x-rayed.
Outer covers of the unit	Wipe the unit with a soft and dry cloth at the end of each day's operation.  WARNING Do not use detergents or solvents to clean the outer covers of the unit.

Annually

We recommend a general inspection of the unit carried out by an authorized service technician.

Chapter 7

TROUBLESHOOTING

Information Messages

Occasionally, malfunctions can occur during use in the event of an incorrect action. An information (I) error code is displayed on the **Display Screen** of the unit **Control Panel** and the message is displayed on the popup on the **Acquisition Window System Status Screen**. In some cases, an audible warning is also issued.

The following table lists the information messages, their description and the action to take:



IMPORTANT

If an “E” message is displayed, the malfunction persists or more serious conditions occur, contact a qualified technician. When you call the qualified technician have the following information ready:

- **Model Number: KODAK 8000**
- **Error Code Number: E xxx**
- **Message displayed on the popup on the Acquisition Window.**

Table 7–1 Error Message

Information Error Code	Error Message	Description	Action
E 1	Handswitch was released before the end of exposure	The user has released the exposure button prematurely.	Relaunch the acquisition and hold the exposure button until the end of the acquisition cycle.

Table 7–2 Information Messages

Information Error Code	Information Message	Description	Action
I 1	X-Ray tube cooling	Cooling in progress.	Wait until the Generator Cooling Indicator on the Acquisition Window reaches zero.
I 2	Thermal security	Cooling in progress.	Wait until the Generator Cooling Indicator on the Acquisition Window reaches zero.
I 3	Release handswitch	The acquisition has ended.	Release the exposure button of the x-ray remote control.

Table 7–2 Information Messages (Continued)

Information Error Code	Information Message	Description	Action
I 6	Wrong rotative arm position	The exposure button of the x-ray remote control is inactive because the rotative arm is not in the start position.	Press  to reset the rotative arm in start position.
I 7	Raise sensor	The panoramic sensor is incorrectly positioned.	Check that the panoramic sensor is fully retracted and locked in the upper position.
I 8	Lower sensor	The panoramic sensor is incorrectly positioned.	Check that the panoramic sensor is fully retracted and locked in the lower position.
I 10	Collimator position	The collimator is not correctly positioned or does not match the radiological program selection.	Reposition the collimator.
I 12	Sensor not ready	The sensor is not ready to launch another acquisition.	Wait for the end of the current acquired image transfer to the Imaging Window . If the problem persists call a qualified technician.
I 13	Mains too low	There is a problem with the mains current input.	Call a qualified technician.
I 14	Mains too high	There is a problem with the mains current input.	Call a qualified technician.
I 15	Interface inactive	The Acquisition Window cannot be accessed.	<ol style="list-style-type: none"> 1. Check that the unit is switched on. 2. Wait for the connection between the unit and the PC. 3. Check that the Acquisition Window is not masked by another application, in this case close the masking application.
I 17	Sensor in movement	The sensor is in the positioning process for either panoramic.	Wait for the end of the positioning process.

Quick Troubleshooting

Before any troubleshooting, make sure that the unit and the KODAK dental imaging software are correctly installed and are connected.

You can rectify the following malfunctions, using the procedures in the action column of Table 8-2, without any specific technical knowledge.

Table 7–3 Quick Troubleshooting

Description of the Malfunction	Action
When you click  in the Imaging Window , the Panoramic Acquisition Window is not displayed.	<ol style="list-style-type: none"> 1. Check that the unit is switched on. 2. Check that the unit and the PC are connected.
There is no movement when the exposure button of the x-ray remote control is pressed.	<ol style="list-style-type: none"> 1. Check that the "Ready" message is displayed on the Display Screen of the Control Panel. 2. Check that the unit is in cooling mode. Wait for the Generator Cooling indicator to display 0. 3. Check that the unit is in the thermal overload mode. Wait until the  changes to green.
No image appears on the screen of the Panoramic Acquisition Window after the acquisition has been launched.	Check that the x-ray emission is not deactivated for demo mode.
The acquired image contrast is satisfactory but there are dark vertical strips on the image.	<ol style="list-style-type: none"> 1. Check that the Patient's shoulders are not slowing down the progress of the rotative arm. In this case, the rotation movement is slowed down resulting in the over exposure of the image in certain areas. 2. Position the patient correctly.
The image is too dark.	Reduce the x-ray dose by reducing the kV and mA in the Parameter pane .
The image is too light.	Increase the x-ray dose by increasing the kV and mA in the Parameter pane .

Trophy

A Subsidiary of Carestream Health, Inc.
4 rue F. Pelloutier – Croissy-Beaubourg
77435 Marne la Vallée Cedex 2 (France)
+ 33 1 64 80 85 00

FOR MORE INFORMATION, VISIT: www.kodakdental.com



©Carestream Health, Inc., 2010.
The Kodak trademark and trade dress
are used under license from Kodak.

SM722 Ed02 03/2010