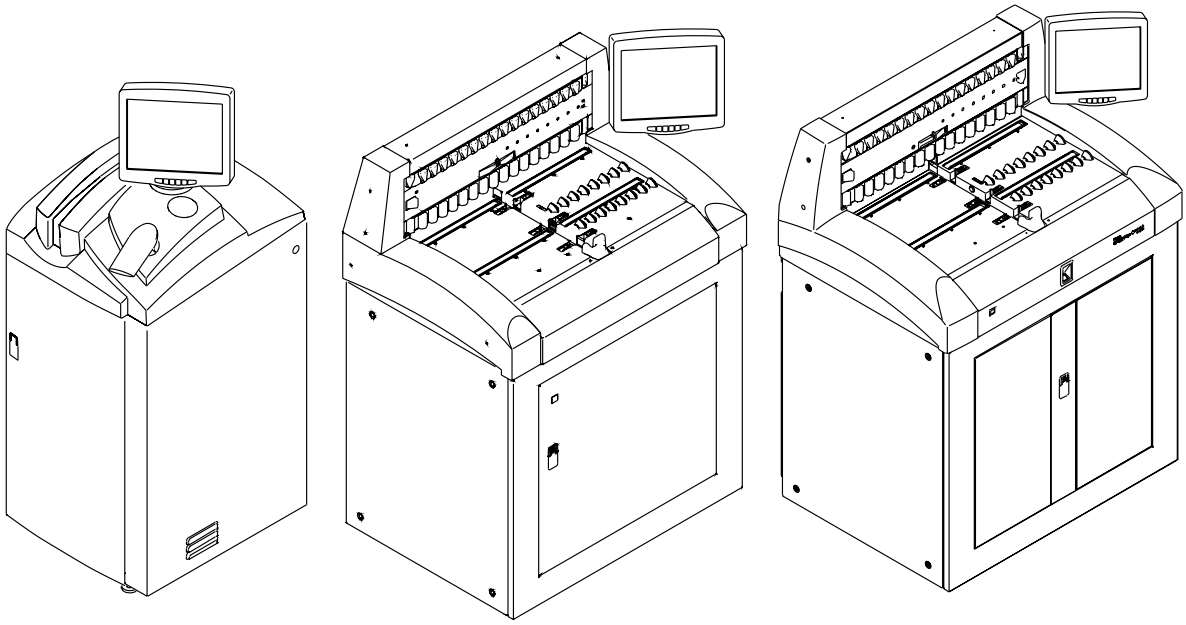
Kodak DirectView CR 800/CR 900 Series



H196_0501HC

User's Guide

Eastman Kodak Company
343 State Street
Rochester, NY 14650

PN 1F3742

Table of Contents

6 Maintaining Image Quality

7 Troubleshooting

8 Maintaining Equipment and Cassettes

1 Safety and Related Information

CAUTION:

United States federal law restricts this device to sale to, by, or on order of a physician.

IMPORTANT: *The side and back panels shall be opened by authorized Kodak service personnel only.*

LASER WARNING:

This equipment uses a visible red laser. Laser radiation will be present when the machine is opened with the side and back panels removed and the interlocks defeated. Avoid direct exposure to the laser beam.

This product is a Class 1 Laser product. This product complies with DHHS regulation 21 CFR Chapter I Subchapter J and IEC/EN 60825-1.

CLASS 1 LASER PRODUCT.

CLASS I EQUIPMENT.

INTERNALLY POWERED EQUIPMENT.

INTENDED FOR CONTINUOUS OPERATION.

ACCEPTABLE FOR INCIDENTAL OR CASUAL CONTACT WITH THE PATIENT.

PRODUCT IS PROVIDED WITH ORDINARY PROTECTION AGAINST THE HARMFUL INGRESS OF WATER.

PRODUCT IS NOT SUITABLE FOR USE IN THE PRESENCE OF A FLAMMABLE ANESTHETICS MIXTURE WITH AIR OR WITH OXYGEN OR WITH NITROUS OXIDE.

EUROPEAN MARKETS only:

This device is Class I, Type B medical equipment as defined by EN 60 601-1.

AUTHORIZED REPRESENTATIVE:

Manager, Product Safety, Kodak AG; Hedelfingerstr. 54-56, 70327 Stuttgart, GERMANY.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

The use of accessory equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Consideration relating to the choice shall include:

- Use of the accessory in the patient vicinity.
- Evidence that the safety certification of the accessory has been performed in accordance to the appropriate IEC 950 and/or IEC 601-1 and/or IEC 601-1-1 harmonized national standard.

⚠ CAUTION:
The small footprint and specifications of the CR 800/850 Systems allow for flexibility in placement of the unit, including in the exam room. When installed in this manner, scatter radiation from the x-ray system may cause image artifacts in two scenarios:

- When CR cassettes are stored in the exam room.

  Precaution: CR cassettes should not be stored in the exam room or kept in the exam room during individual patient studies.

- When an exposed CR cassette is being scanned by the CR 800/850 System in the exam room during a subsequent x-ray exposure.

  Precaution: The potential exists for artifacts if one cassette is being processed while a second cassette is being exposed. If you experience image artifacts, we suggest you discontinue simultaneous exposing and processing of CR cassettes.

CAUTION:

Kodak DirectView **CR Cassettes contain lead. Disposal of components that contain lead may be regulated due to environmental conditions. For disposal or recycling information, contact your local authorities or visit the Electronics Industry Alliance web site at http://www.eiae.org.**

CAUTION:

The UPS battery must be replaced by a Kodak authorized Service Provider. The UPS battery contains lead and poses a hazard to the environment and human health if not disposed of properly. Due to the toxicity of lead, the US EPA's Resource Conservation and Recovery Act (RCRA) and state solid/hazardous waste authorities consider a spent lead-acid battery a regulated waste. Treat this battery as a hazardous waste if it is not recycled. A recycling infrastructure is widely available in the US to manage this battery type.

CAUTION:

This product contains mercury. Disposal of components containing this material may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or visit the Electronics Industry Alliance Web site at http://www.eiae.org.

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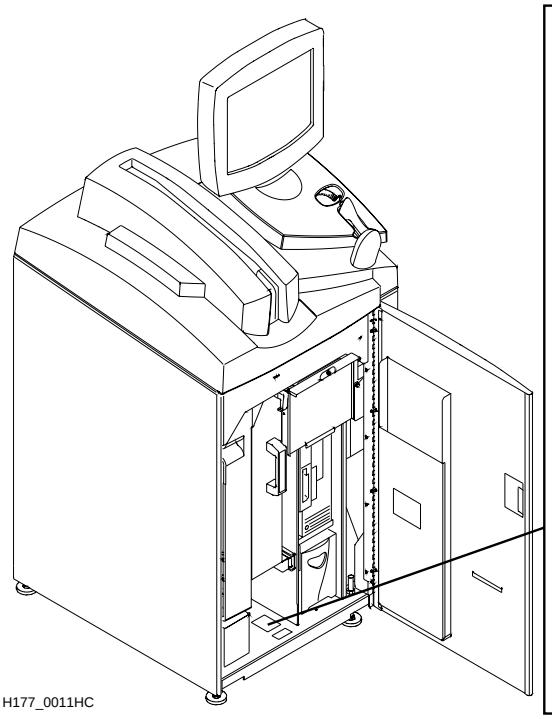


H177_0011HC

KODAK DirectView CR800 system

SERVICE CODE 3519 SERIAL NUMBER

MANUFACTURED:

100-127V~ 50/60Hz 10A
200-240V~ 50/60Hz 5A

N137

CE C UL US CLASSIFIED 25YA

MEDICAL ELECTRICAL EQUIPMENT CLASSIFIED BY UNDERWRITERS LABORATORIES INC. WITH RESPECT TO ELECTRICAL SHOCK, FIRE, MECHANICAL AND OTHER SPECIFIED HAZARDS ONLY, IN ACCORDANCE WITH UL 2601-1 AND CAN-CSA C22.2 No. 601.1.

THIS PRODUCT COMPLIES WITH 21 CFR CHAPTER I, SUBCHAPTER J.

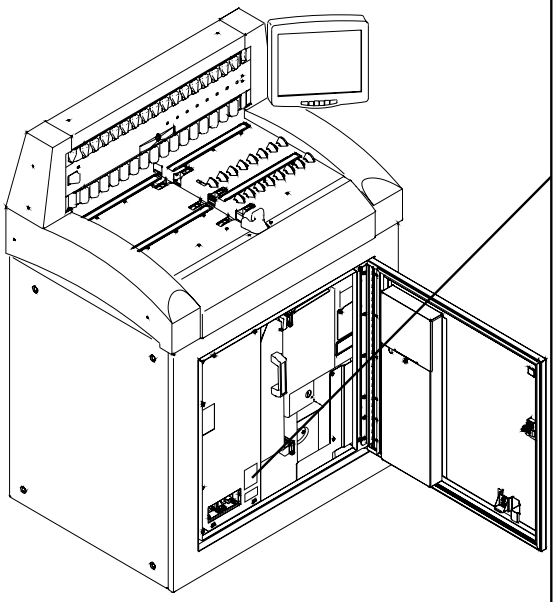
CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE / CER TIFIE EN VER TU DU CODE CANADIAN DE L'ELECTRICITE SEULEMENT.

Made in U.S.A. by
EASTMAN KODAK COMPANY
Rochester, NY 14650

5E3348

CLASS 1 LASER PRODUCT ACCORDING TO IEC 825.
KLASSE 1 LASER-PRODUKT ENTSPRECHEND IEC 825.
APPAREIL A RAYONNEMENT LASER DE CLASSE 1.
1. LUOKAN LASERTUOTE, LUOKITUS IEC 825.
KLASSE 1 LASER I.H.T. IEC 825.
KLASSE 1 LASER CONFORM IEC 825.

PRODOTTO LASER DI CLASSE UNO SECONDO IEC 825.
I E C 8 2 5 による、クラス1のレーザー製品です。
PRODUTO LASER CLASSE UM, CONFORME NORMA IEC 825.
"PRODUCTO LASER TIPO UNO", SEGUN NORMATIVA 825 DE LA C.E.I.
LASER KLASSE 1 I.H.T. IEC 825.
KLASS 1 LASER ENLIGT IEC 825.



H187_0001HC

KODAK DirectView CR900 system

SERVICE CODE 3520 SERIAL NUMBER

MANUFACTURED:

100-127V~ 50/60Hz 10A
200-240V~ 50/60Hz 5A

N137

CE C UL US CLASSIFIED 25YA

MEDICAL ELECTRICAL EQUIPMENT CLASSIFIED BY UNDERWRITERS LABORATORIES INC. WITH RESPECT TO ELECTRICAL SHOCK, FIRE, MECHANICAL AND OTHER SPECIFIED HAZARDS ONLY, IN ACCORDANCE WITH UL 2601-1 AND CAN-CSA C22.2 No. 601.1.

THIS PRODUCT COMPLIES WITH 21 CFR CHAPTER I, SUBCHAPTER J.

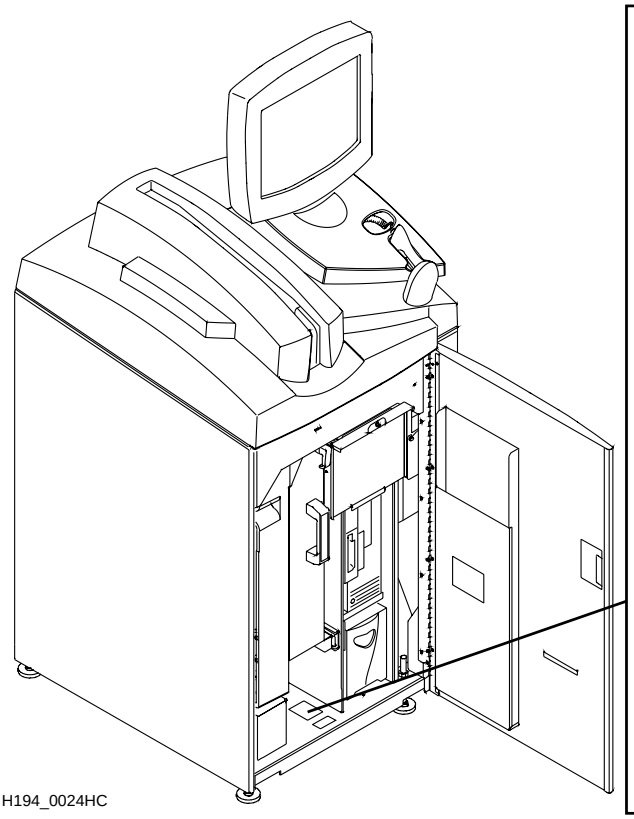
CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE / CER TIFIE EN VER TU DU CODE CANADIAN DE L'ELECTRICITE SEULEMENT.

Made in U.S.A. by
EASTMAN KODAK COMPANY
Rochester, NY 14650

3H9506

CLASS 1 LASER PRODUCT ACCORDING TO IEC 825.
KLASSE 1 LASER-PRODUKT ENTSPRECHEND IEC 825.
APPAREIL A RAYONNEMENT LASER DE CLASSE 1.
1. LUOKAN LASERTUOTE, LUOKITUS IEC 825.
KLASSE 1 LASER I.H.T. IEC 825.
KLASSE 1 LASER CONFORM IEC 825.

PRODOTTO LASER DI CLASSE UNO SECONDO IEC 825.
I E C 8 2 5 による、クラス1のレーザー製品です。
PRODUTO LASER CLASSE UM, CONFORME NORMA IEC 825.
"PRODUCTO LASER TIPO UNO", SEGUN NORMATIVA 825 DE LA C.E.I.
LASER KLASSE 1 I.H.T. IEC 825.
KLASS 1 LASER ENLIGT IEC 825.



H194_0024HC

KODAK DirectView CR 850 system

SERVICE CODE 4825 SERIAL NUMBER

MANUFACTURED:

100-127V~ 50/60 Hz 10A
200-240V~ 50/60 Hz 5A

N137

MEDICAL EQUIPMENT
WITH RESPECT TO ELECTRICAL SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 2601-1, CAN/CSA C22.2 No. 601.1.
25YA

COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JULY 26,2001.

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE / CERTIFIE EN VERTU DU CODE CANADIAN DE L'ELECTRICITE SEULEMENT.

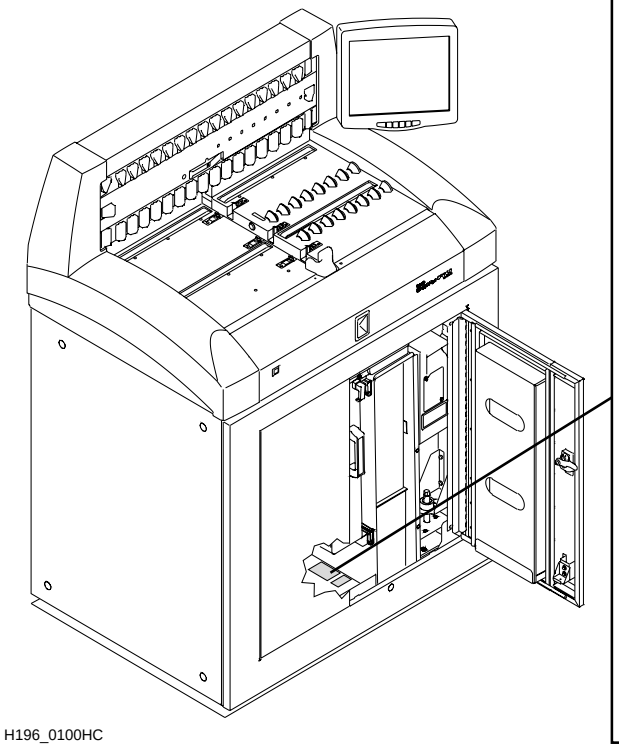
Made in U.S.A. by
EASTMAN KODAK COMPANY
Rochester, NY 14650

1F4335

Class 1 laser product according to IEC 60825-1
Laser -Produkt der Klasse 1 gem\M+18AA7 IEC 60825-1
Produit laser de classe 1 conforme \M+18820la norme IEC 60825-1
Producto M+18773er clase 1 conforme a la norma IEC 60825-1
Prodotto laser classe um, conforme norma IEC 60825-1
Laser klasse 1 LH.T . IEC 60825-1
Klass 1 laser enligt IEC 60825-1
1.luokan laservtuote, luokitus IEC 60825-1
Klasse 1 laser I.H.T . IEC 60825-1
Klasse 1 laser conform IEC 60825-1
Prodotto laser di classe uno secondo IEC 60825-1
クラス1レーザー製品 (IEC 60825-1準拠)

P/N XXXXXX

CE



H196_0100HC

KODAK DirectView CR 950 system

SERVICE CODE 4826 SERIAL NUMBER

MANUFACTURED:

100-127V~ 50/60 Hz 10A
200-240V~ 50/60 Hz 5A

N137

MEDICAL EQUIPMENT
WITH RESPECT TO ELECTRICAL SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL 2601-1, CAN/CSA C22.2 No. 601.1.
25YA

COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE NO. 50, DATED JULY 26,2001.

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE / CERTIFIE EN VERTU DU CODE CANADIAN DE L'ELECTRICITE SEULEMENT.

Made in U.S.A. by
EASTMAN KODAK COMPANY
Rochester, NY 14650

1F5241

CLASS 1 LASER PRODUCT ACCORDING TO IEC 825.

KLASSE 1 LASER-PRODUKT ENTSPRECHEND IEC 825.

APPAREIL A RAYONNEMENT LASER DE CLASSE 1.

1. LUOKAN LASERTUOTE. LUOKITUS IEC 825.

KLASSE 1 LASER I.H.T. IEC 825

KLASSE 1 LASER CONFORM IEC 825

PRODOTTO LASER DI CLASSE UNO SECONDO IEC 825.

ＩＥＣ８２５による
クラス１のレーザー製品です。

PRODUTO LASER CLASSE UM, CONFORME NORMA IEC 825.

"PRODUCTO LASER TIPO UNO", SEGUN NORMATIVA 825 DE LA C.E.I.

LASER KLASSE 1 I.H.T. IEC 825.

KLASS 1 LASER ENLIGT IEC 825.

Health and Safety Compliance

The CR 800/CR 900 Series Systems were examined for compliance and have classifications and licenses as follows:

CR 800/900 Systems

U. S. A.

47 CFR Part 15, Sub B, Class A

UL 2601-1 Medical Electrical Equipment 2nd Edition

Canada

CAN/CSA C22.2 No. 601.1-M90 - Medical Electrical Equipment

CAN/CSA 22.2 No. 601.1S1-94 Supplement No. 1-94 to Medical Electrical Equipment (R1999)

CAN/CSA 22.2 No. 601.1B-90 - Amendment 2 to Medical Electrical Equipment

ICES-003 Issue 3, Class A ITE Emissions

International

IEC 60601 - 1: 1988, +A1 (1991), + A2(1995) Medical Electrical Equipment

IEC 825-1 - (1993) Safety of Laser Products

EN 60601-1-2:1993 Medical Electrical Equipment Electromagnetic Compatibility

EN 55011: 1998 ISM Emissions, Group 1 Class A

EN 61000-4-2: 1995 Electrostatic Discharge immunity test

EN 61000-4-3:1997 Radiated, Radio-Frequency, electromagnetic field immunity

EN 61000-4-4: 1995 Electrical Fast Transient/burst immunity

EN 61000-4-5: 1995 Surge immunity

EN 61000-4-6: 1996 Immunity to conducted disturbances

EN 61000-4-11: 1995 Voltage dips, sags, interrupts

EN 61000-3-2: 1995: Limits for harmonic current emissions

EN 61000-3-3: 1995 Flicker

***WARNING*:**
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

CR 850/950 Systems

U. S. A.

47 CFR Part 15, Sub B, Class A

UL 2601-1 Medical Electrical Equipment 2nd Edition

Canada

CAN/CSA 22.2 No. 601.1-M90 - Medical Electrical Equipment (R2001)

CAN/CSA 22.2 No. 601.1S1-94 - Supplement No. 1-94 to Medical Electrical Equipment (R1999)

CAN/CSA 22.2 No. 601.1B-90 - Amendment 2 to Medical Electrical Equipment (R2002)

ICES-003 Issue 3, Class A ITE Emissions

International

IEC 60601 - 1: 1988, +A1 (1991), + A2(1995)Medical Electrical Equipment

IEC 60825 - 1:1993 + A1:1997 + A2:2001 Safety of Laser Products

EN 60601-1-2:1993 Medical Electrical Equipment Electromagnetic Compatibility

EN 55011: 1998 ISM Emissions, Group 1 Class A

EN 61000-4-2: 1995 Electrostatic Discharge immunity test

EN 61000-4-3: 1997 Radiated, Radio-Frequency, electromagnetic field immunity

EN 61000-4-4: 1995 Electrical Fast Transient/burst immunity

EN 61000-4-5: 1995 Surge immunity

EN 61000-4-6: 1996 Immunity to conducted disturbances

EN 61000-4-11: 1995 Voltage dips, sags, interrupts

EN 61000-3-2: 1995: Limits for harmonic current emissions

EN 61000-3-3: 1995 Flicker

***WARNING*:**
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Acoustic Noise Emission Information

Operator position Sound Pressure Levels (L_A)

Standby	<70 dB(A)
Operate	<70 dB(A)

Tested per DIN 45635, ANSI S12.10-1985, ISO 7779.

Remote Operations Panel

U.S.A.

UL 1950 Safety for Information Technology Equipment

Canada

CAN/CSA C22.2 No. 950-95 Safety for Information Technology Equipment

International

EN 60950:1992 Safety for Information Technology Equipment (with Amendments A1, A2, A3, A4, and A11)

EN 55011:1998 ISM Emissions, Group 1 Class A

EN 60601-1-2: 1993 Medical Electrical Equipment Electromagnetic Compatibility

EN 61000 -3-2:1995 Powerline Harmonics

EN 61000 -3-3:1995 Flicker

EN 61000 -4-2:1995 ESD

EN 61000 -4-3: 1997 RF immunity

EN 61000 -4-4: 1995 EFT

EN 61000 -4-5: 1995 Surge immunity

EN 61000 -4-6: 1996 Conducted immunity

EN 61000 -4-11: 1995 Voltage dips, sags, interrupts

***WARNING*:**

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

User Guide Conventions

Special Messages

The following special messages emphasize information or indicate potential risks to personnel or equipment.

NOTE: Notes provide additional information, such as expanded explanations, hints, or reminders.

IMPORTANT: *Important notes highlight critical policy information that affects how you use this guide and this product.*

CAUTION:

Cautions point out procedures that you must follow precisely to avoid damage to the system or any of its components, loss of data, or corruption of files in software applications.

***WARNING*:**

Warnings identify procedures that you must follow precisely to avoid injury to yourself or others.

LASER WARNING:

Laser warnings warn personnel that access to laser radiation is possible and all personnel must avoid direct exposure to the beam.

Typeface Conventions

Boldface type represents buttons or selections that you make on the touch screen and to identify screen names.

2 Overview

Product Description

The *Kodak DirectView* CR 800/CR 900 Series systems process and produce digital images directly from latent images captured on storage phosphor screens. You can reproduce, reprocess, and distribute images to other output and storage devices.

The CR Systems manage patient and examination information associated with the captured and stored images. They can interface with a PACS Broker such as *Mitra* to obtain patient demographic data from the site HIS/RIS system. The data is sent to the CR System where it is associated with the proper image.

You can use the CR System to:

- Read images on a phosphor screen using conventional X-ray generators.
- Modify images and change image orientation.
- Enter examination and patient information using the *Kodak DirectView* Remote Operations Panel (ROP), the bar code scanner, or the touch screen monitor.
- Correct erroneous patient or examination information.
- Store images that have incomplete patient or study data until the required data is added and the image is accepted.
- Create collections of related images and data (a Study).
- Send exams to DICOM storage devices, physician's diagnostic viewing stations, and DICOM laser imagers.

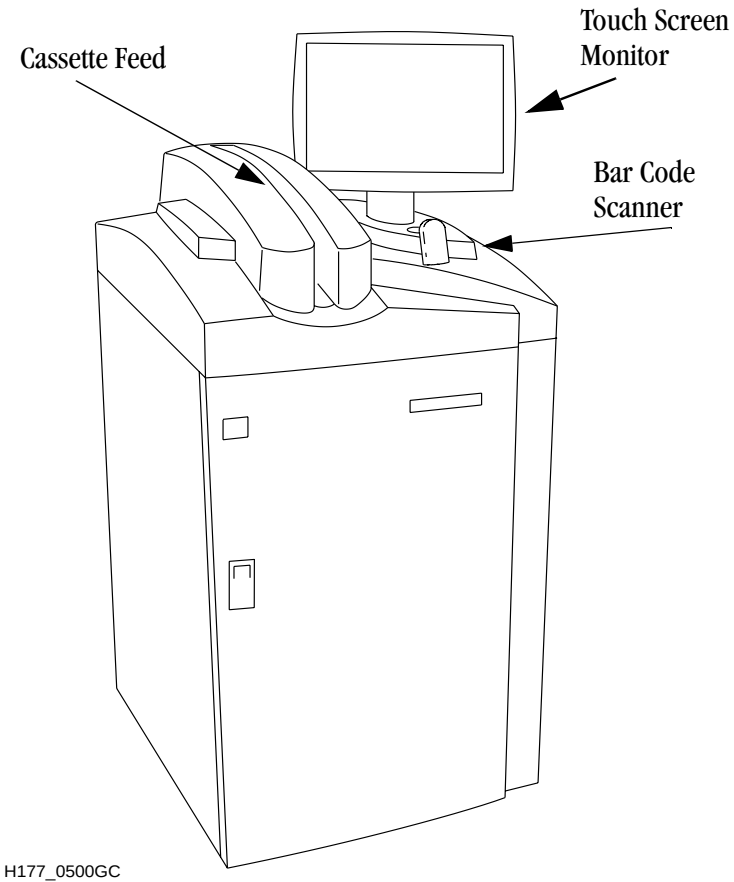
The CR 900/950 System is designed for use as a centralized processing unit serving multiple exposure rooms in conjunction with the *Kodak DirectView* Remote Operations Panel (ROP). See page 10-10 for information on using the ROP.

CR 800/850 System Components

The *Kodak DirectView* CR 800/850 System components include:

- Internal Computer
- Touch screen monitor
- Cassette feed slot
- Bar code scanner
- Internal Uninterruptible Power Supply (UPS)

The CR 800/850 System loads a single storage phosphor cassette, permits automatic scanning of the phosphor screen, and produces an image. You place the cassette into the cassette feed slot for scanning. Once the image is scanned and stored on the CR System, the cassette is erased and ejected.



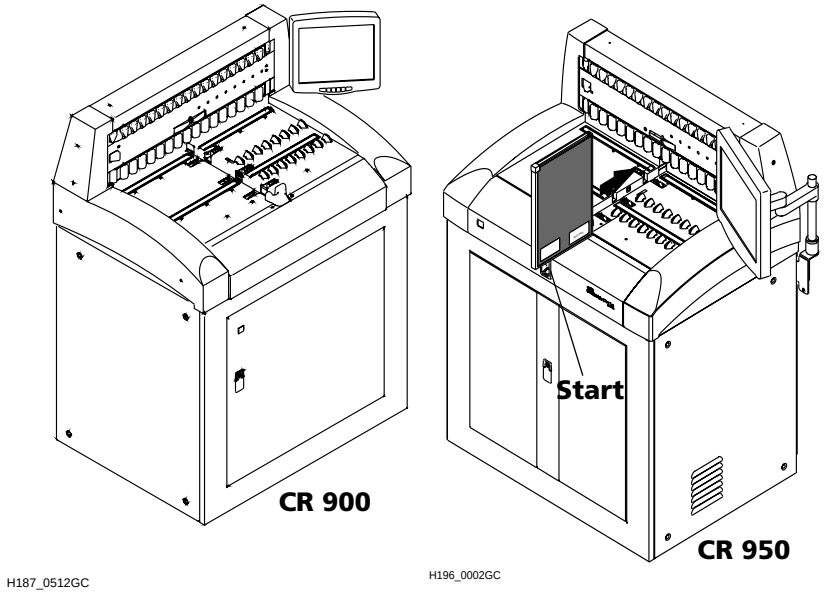
***Kodak DirectView* CR 800/850 System**

CR 900/950 System Components

The *Kodak DirectView* CR 900/950 System components include:

- Internal PC
- Touch screen monitor
- Cassette transport table for scanning
- Internal Uninterruptible Power Supply

The CR 900/950 System loads multiple storage phosphor cassettes, scans the phosphor screen, and produces an image. You place the cassette into the cassette transport table for scanning. Once the image is scanned and stored on the CR System, the cassette is erased, ejected, and automatically moved so the next cassette can be scanned.



***Kodak Directview* CR 900 and CR 950 Systems**

Cassette transport features include:

- Load and unload cassettes at eight positions
- Center-positioned scan slot
- Start and pause from the touch screen (CR 900 System only. CR 950 uses mechanical Start button)
- Supports four standard cassette sizes

Touch Screen Monitor

The touch screen monitor (touch screen) is mounted on top of the CR 800/850 System. You can mount the touch screen monitor on the left side or the right side of the CR 900/950 System or on the wall.

For the CR 900/950 System, in case of a network failure, use the touch screen as a back-up system to enter patient demographic data, exam data, and review images.

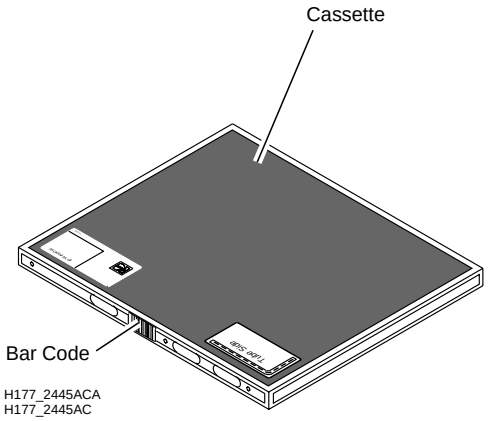
The monitor has an SGVA display with a 1024 x 768 pixel resolution.

Internal PC

An internal PC, accessible from the front of the CR System, contains the operating software for image processing and for communicating with external network devices.

Cassettes

Storage phosphor screens are mounted in standard size cassettes. You perform patient exams the same way as when using conventional film cassettes. Instead of processing film to develop the image, a laser in the CR System scans the latent image on the phosphor screen and produces a digital image. Cassettes are repeatedly exposed, and their screens erased and reused. General Purpose (GP) cassettes have gray corners and High Resolution (HR) cassettes are identified with black corners.



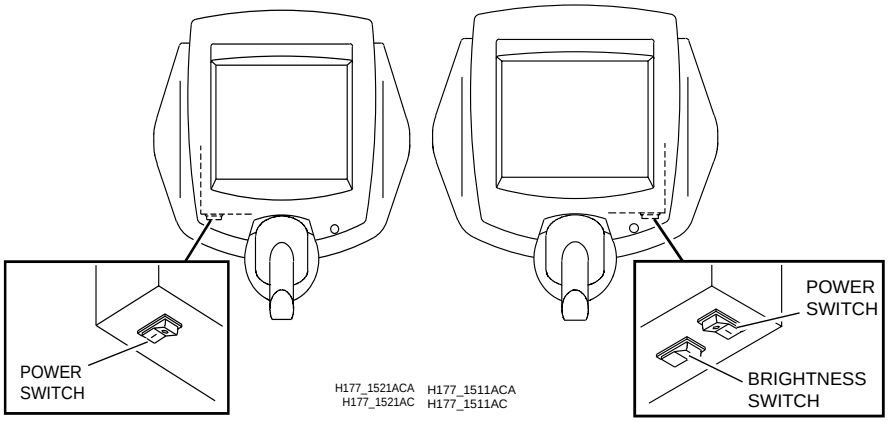
Typical Cassette

The CR Systems accept four standard cassette sizes:

- 18 x 24 cm
- 24 x 30 cm
- 35 x 35 cm
- 35 x 43 cm

Remote Operations Panel

The *Kodak DirectView* Remote Operations Panel (ROP) is a wall-mounted touch screen where you can perform most CR System functions. Use the ROP, with the bar code scanner, to enter patient, exam, or cassette (PEC) data, and review and reprocess images and route the images to their destinations. All Patient Exam Cassette (PEC) records and images are stored on the hard drive of the CR System computer. You can query existing PEC records and images stored in the CR System to review existing information. The ROP complies with ITE type standards and is not suitable for patient contact.



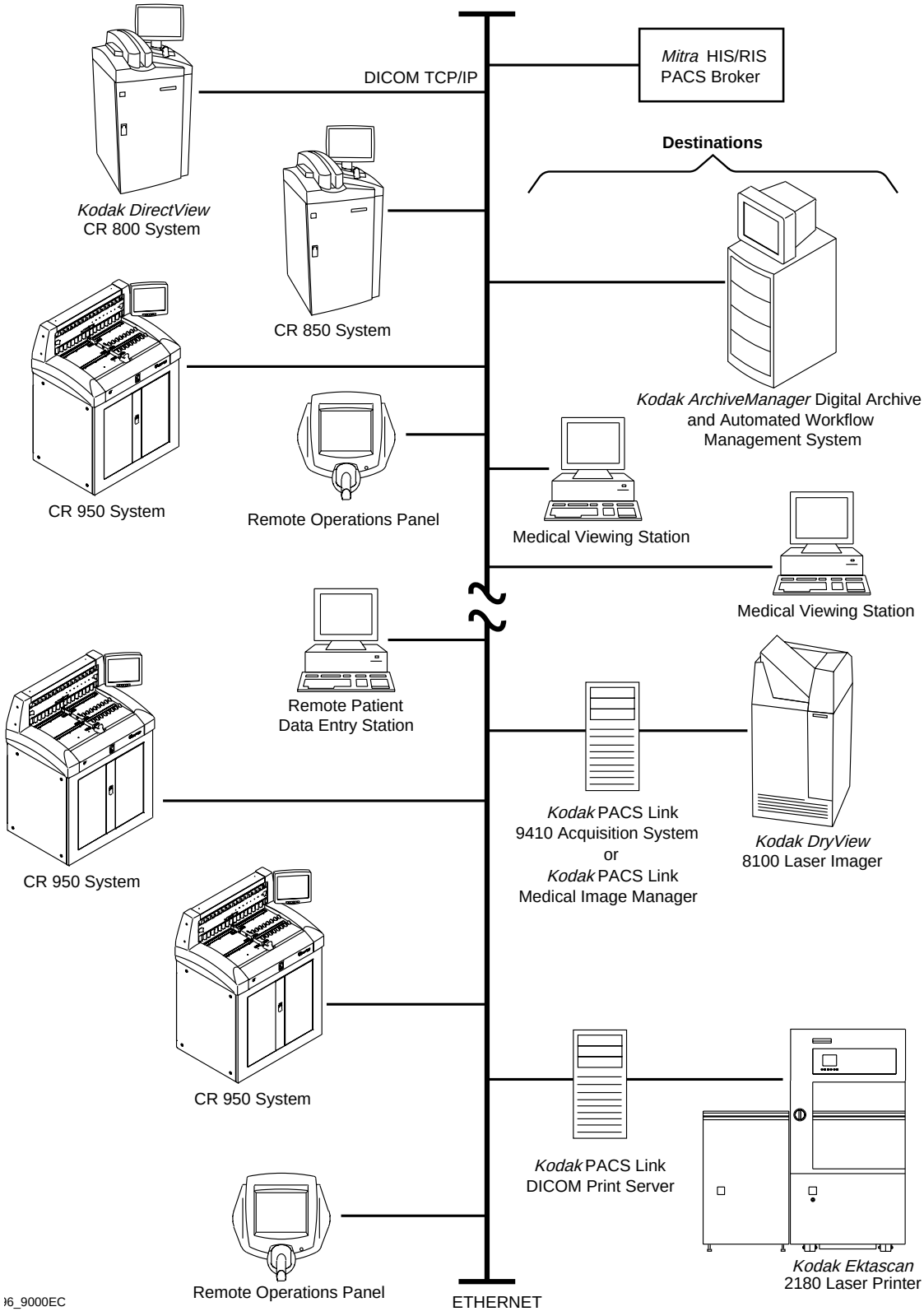
Remote Operations Panel

Site Operating Configurations

Network Configuration

The CR Systems and ROPs require connection with external equipment to a 10 BaseT or 100 BaseT *Ethernet* network. All network communication is done in accordance with DICOM-conforming digital imaging equipment. Physical connections are via site-provided Category 5 cabling. In addition, the customer must provide the *Mitra* Broker to enable access to the HIS/RIS system.

You can configure each ROP to connect to a maximum of eight CR Systems.


DICOM TCP/IP
Mitra HIS/RIS
PACS Broker
Destinations
Kodak DirectView
CR 800 System
CR 850 System
Kodak ArchiveManager Digital Archive
and Automated Workflow
Management System
CR 950 System
Remote Operations Panel
Medical Viewing Station
Medical Viewing Station
Remote Patient
Data Entry Station
CR 950 System
Kodak PACS Link
9410 Acquisition System
or
Kodak PACS Link
Medical Image Manager
Kodak DryView
8100 Laser Imager
CR 950 System
Kodak PACS Link
DICOM Print Server
Kodak Ektascan
2180 Laser Printer
Remote Operations Panel
ETHERNET

Workflow

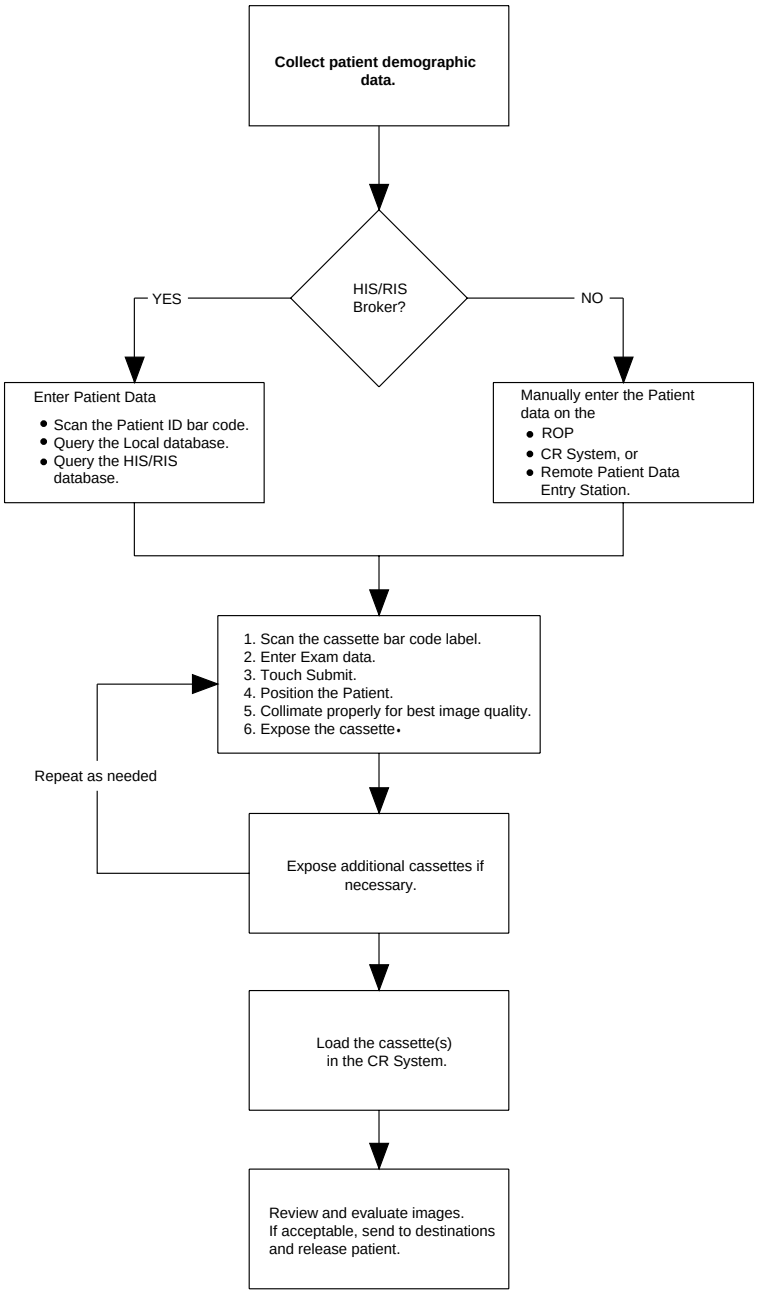
The CR System workflow consists of a series of tasks performed in sequence. Definitions and a typical step-by-step workflow sequence are listed below.

Workflow Definitions

Cassette ID	Identification number on cassette.
Collimate	To reduce the size of the X-ray beam by restricting it, usually with lead shutters.
Destinations	Locations on the network to which an image is sent.
Exam	One or more images with the same associated information.
Exam Information	Data pertaining to the way the image was captured.
HIS	Hospital Information System
Image	A single picture.
Key Operator	The person or persons designated by the department manager to receive advanced training. The Key Operator has the password for access to password protected areas for changing defaults, routing profiles, etc.
Patient Exam Cassette (PEC) Record	The demographic data and cassette ID that has been tied together to create a record/image file.
Patient Information	Demographic information that includes patient's name, date of birth, physician, etc.
Post Processing	Any image re-processing or manipulation after the initial image processing.
RIS	Radiology Information System
Storage Phosphor	The phosphor crystal that captures and stores the latent analog raw image data.
Study	A collection of related images and data.
Worklist Management	Enhances clinical workflow by importing patient information and study information from an information management system, eliminating errors from manual entry.

NOTE: If you purchase the *Kodak DirectView* Remote Patient Data Entry Software, you can collect patient demographic data at a computer.

Workflow Diagram



H194_9000EC

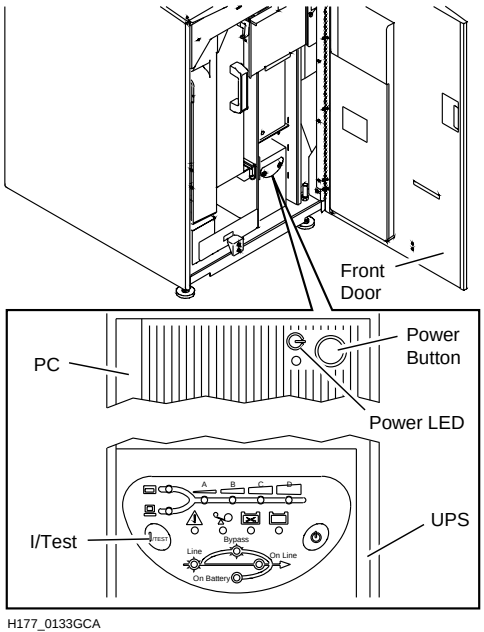
IMPORTANT: *For maximum throughput, accept images as soon as they are available.*

3 Operation and Main Menu

Starting the CR System

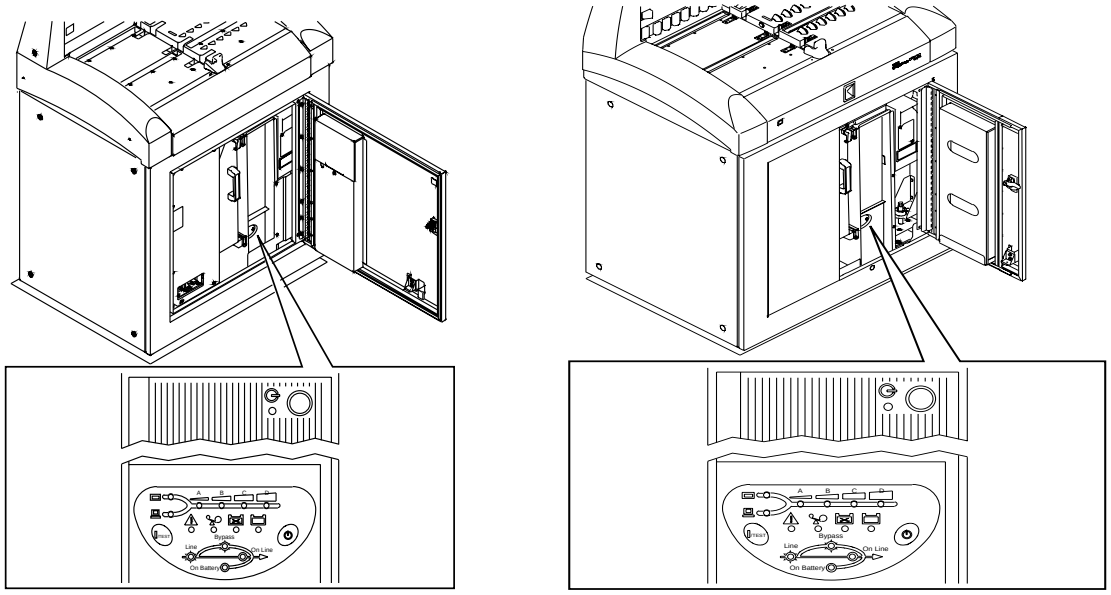
To turn on the CR System power:

1. Release the latch and open the front door.
2. Press and hold **I/TEST** on the UPS until you hear a beep, then release.
3. Check that the power LED on the computer illuminates and remains on.
4. If the Power LED is not on, press the **Power** button on the computer.
5. Close and latch the front door. The CR System will not initialize unless the front door is closed.
6. Wait for the CR System to initialize. The **Main Menu** or the **Login** screen appears.



H177_0133GCA
H177_0133GC

CR 800/850 System Front View



CR 900 and CR 950 Front Views

Logging on to the Operator Console (Option)

1. Enter your user name.
2. Enter your password.
3. Touch **Login.**

NOTE: A ROP can login to any CR System listed in the ROPs Link Screen if you have an account on any CR System in the list.

Changing your Password

You can change the password you use to log in to the Operator Console.

1. At the **Main Menu**, touch **Utility Menu.**
2. Touch **Change Password.**
3. Enter your current password.
4. Enter your new password.
5. Enter your new password again.
6. Touch **Save Changes**.

Shutting down the CR System

To shut down the CR System power:

1. At the **Main Menu**, touch **Utility Menu**.
2. Touch **System Shutdown** and touch **Yes**. The CR System shuts down.

NOTE: The Operating System shuts down one minute after the CR System. The UPS shuts down two minutes after the CR System application.

NOTE: If the touch screen locks up, see "Using the Touch Screen" on page 3-7.

Rebooting the System

To Reboot the system:

1. At the **Main Menu**, touch **Utility Menu**.
2. Touch **System Shutdown** and touch **Reboot.**

This method lets the system return to readiness quickly since it eliminates the need for hardware warm-up.

Power Failures

The CR System contains an Uninterruptible Power Supply (UPS) to protect the system against an abrupt power loss.

If a power failure occurs, the UPS sustains system power to:

- complete all critical activities
- save present operating data, and
- shut down the Operating System.

If power is restored before the UPS battery charge drops to 25%, the system resumes operation without interruption. However, once the battery level drops to 25%, the system automatically shuts down.

In the event of a power loss, an error message appears within 30 seconds of the power loss. For any image currently being routed, the system attempts to complete the transmission. If there is not sufficient time to accomplish this, the image is automatically transmitted once power is restored.

If a Cassette is in the load position at the time of automatic shutdown, the system completes the scan, stores the raw image on the hard disk, and erases the phosphor plate prior to the UPS shutdown.

Operating Modes

The CR System operates in two basic modes: (1) Pass-through mode and (2) QA mode. The Key Operator, Applications Consultant, or Service Engineer configures the mode of operation per the direction of the department manager.

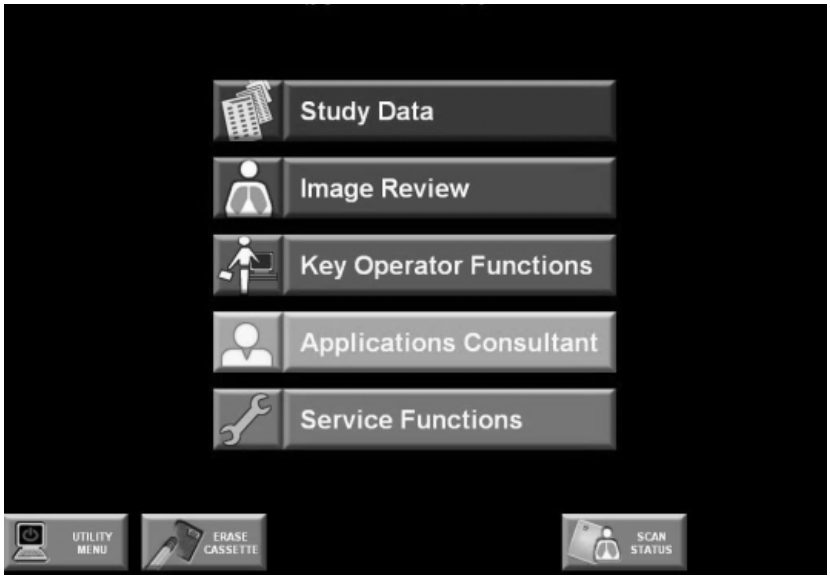
Pass-through Mode

In Pass-through mode, the completed exam is processed and routed, typically without stopping. When Pass-through mode is configured, a button appears on the **Scan Cassette** screen next to the **Start** button. This button toggles between **Pause Pass-thru** and **Resume Pass-thru**. You can temporarily pause Pass-through mode by touching the  button. To resume Pass-through mode, touch  . When the system distributes the image, if necessary, you can recall the image for review and reprocessing.

QA Mode

In the QA mode, the technologist must view and approve the image before distributing it across the network.

Main Menu



CR Main Menu

Main Menu Functions

The function buttons on the **Main Menu** are:

- **Study Data—**enter patient data, create new studies, access worklists.
- **Image Review—**view all stored images, reprocess images.
- **Key Operator Functions—**set up and manage system configurations (Accessed by Key Operator and Applications Consultant only).
- **Applications Consultant—**change Image Processing parameters, access SMPTE Test Pattern.
- **Service Functions—**service the machine (Qualified Service personnel only).

NOTE: The Key Operator Functions, Applications Consultant, and Service Functions selections are only accessible by authorized personnel.

Main Menu Screen Navigation Buttons

When the **Main Menu** is displayed, these navigation buttons are active at all times:

Name	Description
Utility Menu	Lets you shutdown the system, logout, and change password (if configured for passwords), check system status, release cassettes, clear pending images, and restart the browser.
Erase Cassette	Lets you erase an unwanted exposure from a cassette.
Scan Status / Scan Cassette	• CR 800/850: Scan Cassette displays the scan progress and the last image scanned. • CR 900: Scan Cassette displays scan progress, last image scanned, and the scan Start button. • CR 950: Scan Cassette displays scan progress and the last image scanned. The scan Start button is removed from the monitor and replaced by a mechanical button on the front of the CR System.
Additionally, if some images were not delivered or do not have patient data associated with them, the following buttons may also appear:	
Failed Delivery	Alerts you when the system starts, or any time the **Main Menu** is displayed, of any image that failed to be delivered to the selected destinations. Touch the button to display the images that were not delivered. This button does not appear if there are no failed deliveries.
Unassigned Images	Alerts you when the system starts, or at any time the **Main Menu** is displayed, of unassigned images. Touch the button to display the unassigned image records. This button does not appear if there are no unassigned images.

Using the Touch Screen

The Key Operator calibrates the touch screen so that the target response is accurate. See "Calibrate Touch Screen" on page 9-89. When the CR System or ROP is turned on, the **Main Menu** appears.

To select a menu choice, touch the center of the button.

NOTE: Use only your finger when selecting buttons on the screen. Using hard objects, such as pens or pencils can damage the surface of the touch screen.

Navigation Buttons

Use the Navigation buttons at the bottom of the screen to move from screen to screen or to other functions. Some buttons display status information to alert you to important operations or failed functions so you can respond if the situation warrants immediate attention.

Main Menu and Back buttons

- **Main Menu button—**touch to return to the CR System Main Menu.
- **Back button—**touch to return to the previous screen.

NOTE: If the message Loading...appears, it means that the browser is loading the Web page. If this message continues for an excessive period of time, touch **Main Menu** to return to the Main Menu.

Error Messages

Error Messages alert you to errors that occur during operation. Each Error Message describes the cause of the error and instructions on how to clear it. For more information, see "Error Messages" on page 7-1.

Virtual Keyboards

Virtual Keyboards let you enter data using the touch screen.

There are three keyboard types:

- an alphanumeric keyboard, similar to a standard keyboard, for entering information
- a numeric keypad for entering numbers
- a button array for entering unique inputs for a particular field type

The Key Operator sets the local language for the virtual keyboards.

Standard Alphanumeric Virtual Keyboard

Touch each character you want to enter into a field and touch **Enter.** The display returns to the previous screen or moves to the next empty field.

Standard Alphanumeric Virtual Keyboard

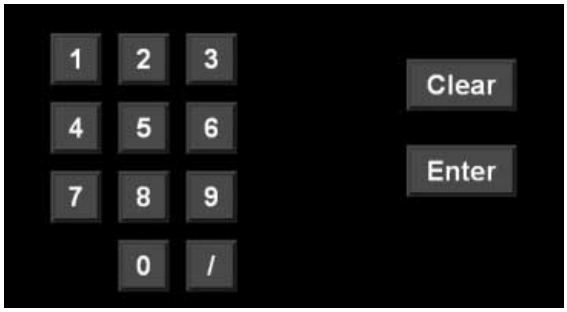
The **#** sign on the virtual keyboard acts as a toggle switch, so you can use either alpha or numeric characters at any time.

Touch for numeric characters

Touch again for alpha characters

Standard Numeric Virtual Datepad

Touch each character you want to enter into a field and touch **Enter.** The display returns to the previous screen or moves to the next empty field.

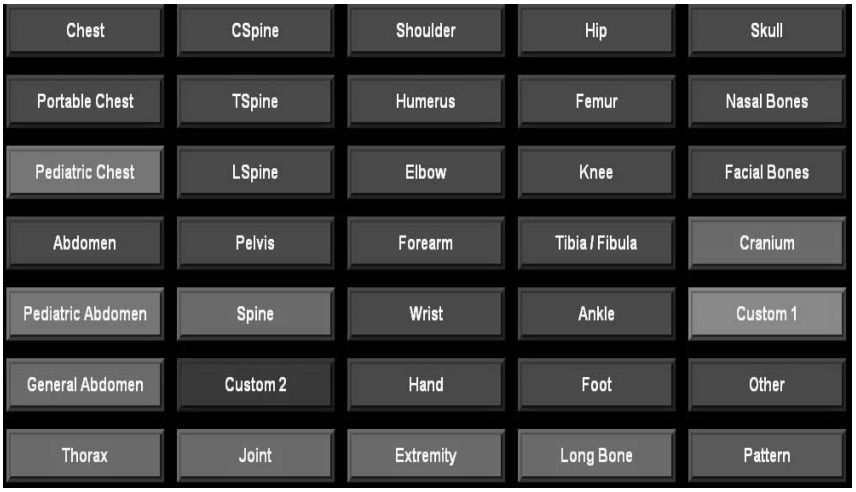


Standard Numeric Virtual Datepad

Special Keyboards

There are special keyboards unique to the type of field selected. Touch a button to enter the button name in the field. The Key Operator can set up buttons for different lists of information. See "Changing Button Names, Colors, and Position" on page 9-18 for more information.

For example:



Default Body Parts Virtual Keyboard

Entering Information into Data Fields

You can enter data manually using the touch screen or automatically using the bar code scanner.

1. Touch the field you want to edit (the field turns blue). If you are using the bar code scanner, skip to step 2.
2. Scan the bar code to transfer the data to the field or use the touch screen. When you use the bar code scanner, the Accession Number, Tech ID, Patient ID, and Cassette ID appear in the appropriate fields automatically if they have been set up by the Key Operator. See "Bar Code Configuration" on page 9-71.

NOTE: Not all fields can accept bar code input.

NOTE: Required fields are determined by the Key Operator and appear in the input screen highlighted in yellow. Required fields must be filled in to submit the record or send it to a mandatory destination. See "Required Fields" on page 9-85.

Patient Input Screen

4 Exam Data Entry

Manual Data Entry

NOTE: Always enter patient and exam information before scanning an exposed cassette. This prevents the CR System from creating an *unassigned* image. If an unassigned image is created, the CR System lets you associate the image with the correct patient manually.

If you are searching for a patient that has already been submitted in the RIS, see page 4-3 in this chapter to query for the patient.

Enter Patient and Exam information at the ROP or CR 800/CR 850 System. Use the Patient Input Screen to enter the patient and exam information required. The Patient Input Screen is available at the CR 900/CR 950 System for use in case of network or ROP failure.

Complete the mandatory field highlighted in yellow to validate a PEC Record, then complete the remaining optional information if it is available.

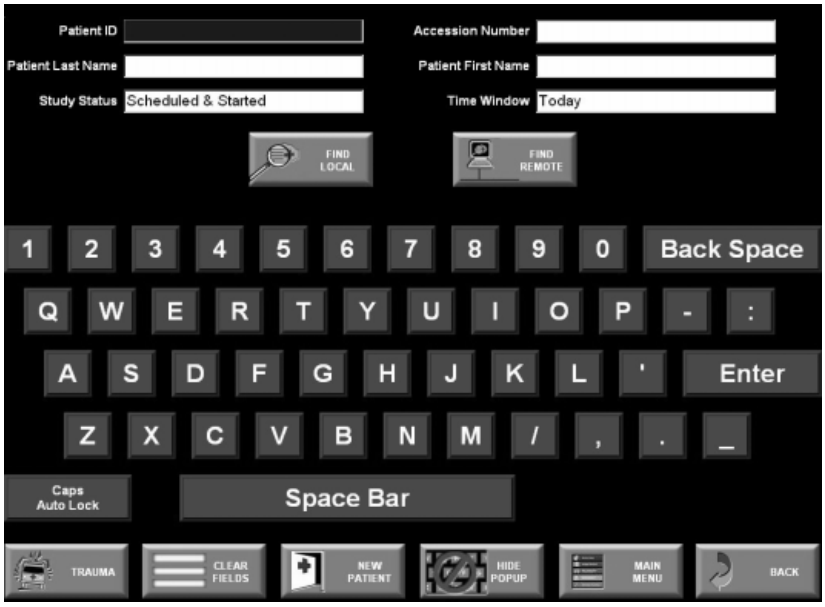
Types of patient entries:

- **New Patient—**when information for a patient has never been entered in the CR System or the HIS/RIS system.
- **Trauma—**quick data entry for emergency conditions.
- **Existing Patient—**when information for the patient already exists in the CR System or the HIS/RIS system.

IMPORTANT: *Always touch **Submit** after entering patient information or selecting patient records. This reduces the risk of creating unwanted, unassigned images.*

Entering Patient Information

1. At the **Main Menu**, touch **Study Data**.



   You can now select **New Patient**, **Trauma,** or search the database for an Existing Patient, or create a **New Study**. See the appropriate section.

2. Enter the information as indicated:

New Patient

Touch **New Patient** and enter:

- Last name
- First name
- Middle initial
- Exam date and time
- Accession number
- Date of birth
- Gender
- Patient ID
- Referring Physician (use the More button)
- Department
- Patient location

Trauma Patient

Touch **Trauma** and proceed to "Entering Exam Information" on page 4-7.

The Key Operator can configure some fields to be filled in automatically.

NOTE: Your Key Operator may have configured a field with a "unique number." Each time you select a trauma patient, the number increments to identify a new trauma patient.

Existing Patient

You can enter as much or as little information as you like. The more information you enter, the narrower the result is. If you do not enter information, the entire patient list is returned.

1. Enter search criteria (use the bar code scanner if applicable).
   - Enter desired search criteria
   - Time field - list of filters to reduce query range including:

     Today

     Yesterday - Tomorrow

     Past Week - Tomorrow

     Unrestricted
   - Study Status field - list of filters to reduce query range such as:

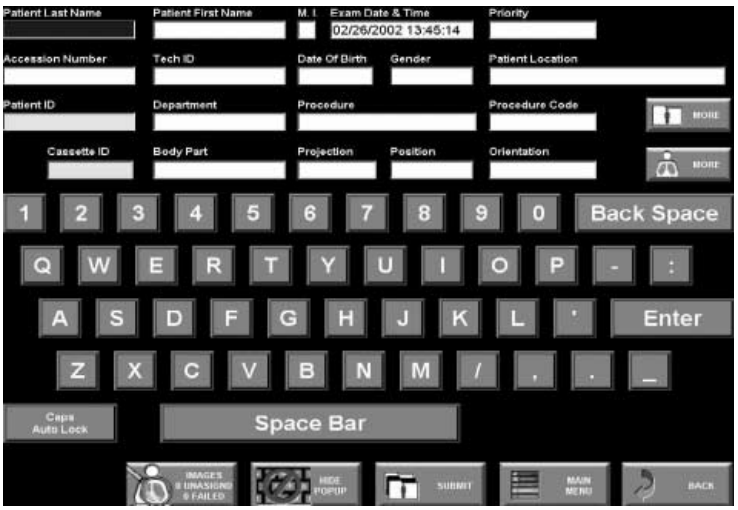
     Scheduled

     Started

     Scheduled and Started

     Completed

     All
2. Touch **Find Local** or **Find Remote.**
   - **Find Local** searches the CR System database.
   - **Find Remote** is active when the Key Operator has configured for a HIS/RIS; it searches the HIS/RIS system. The message "**Waiting for response**" appears. If a match is not found for a query, adjust your search criteria.
   - Touch a Patient Name. Patient information automatically transfers to the **Patient Input** Screen.



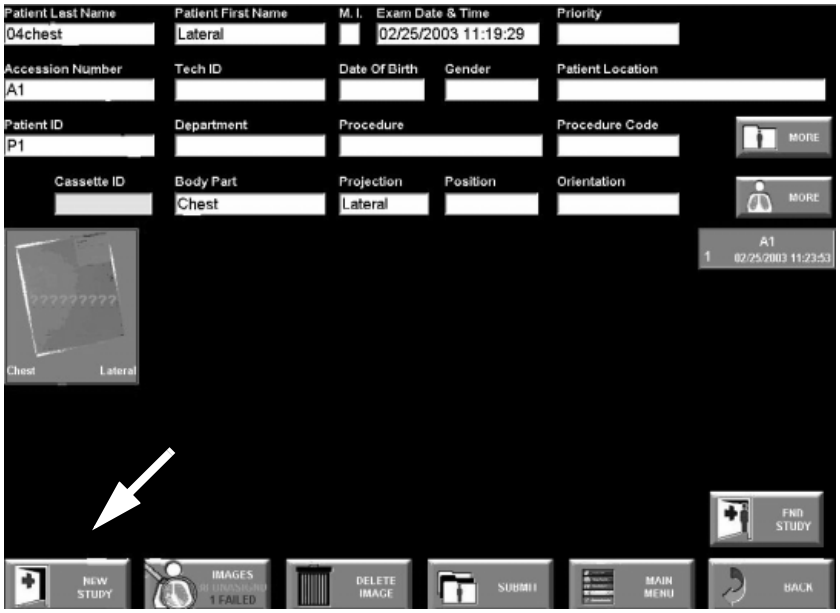
Patient Input Screen

3. When a match is found, the **Patient Worklist** screen appears. The entries are color coded. Colors are Key Operator configurable. The default colors are:
   - Scheduled > Blue
   - Started >Black
   - Completed >Dark Gray

Patient Worklist Screen

New Study

Touch **New Study** to create a new study using the patient information from an existing study.



New Study

Entering Exam Information

After entering the patient information, enter the exam information into the remaining fields on the **Patient Input** Screen. There are mandatory and optional fields.

Using Procedure Codes and Procedure Mapping

How you enter exam information depends on the way your system is configured.

If you are using Procedure Codes and Procedure Mapping, the image icons associated with a procedure (study) are predefined and appear automatically once the Patient Input screen is displayed with the correct patient information.

For each image in a procedure:

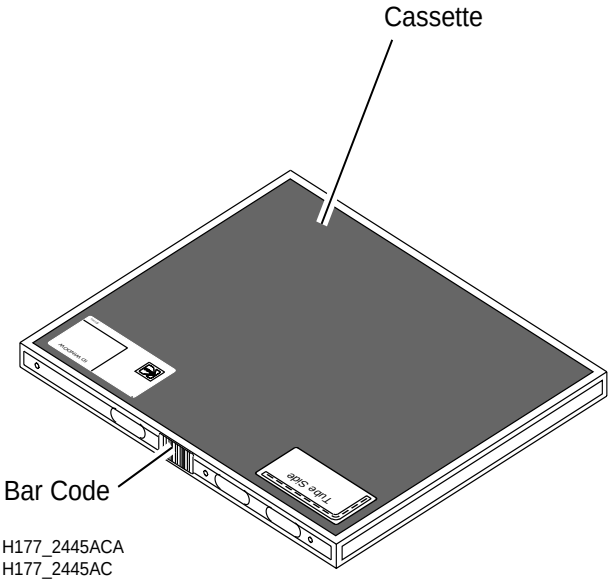
1. Touch an image icon to select it. The image is highlighted in green.
2. Manually enter or use the barcode to enter the cassette ID.

NOTE: If you are not using Procedure Codes and Procedure Mapping, you must define the images associated with every procedure. To do this, touch the body part field, select the appropriate body part then do the same with projection. Touch **Submit** and the image icon appears.

Mandatory Exam Information

Use the virtual keyboard to enter the exam information if the bar code scanner cannot read the bar code. The cassette ID field is mandatory.

- **Cassette ID:** Use the bar code scanner to scan the bar code. If you do not enter the Cassette ID number, the image is unassigned. You will have to assign the image to a patient. You can change all image and patient data except cassette ID.



Scanning the Cassette ID

Optional Exam Information

- **Body Part:** If the Body Part field is incomplete, the default is used as defined by the Key Operator.
- **Projection:** If the Projection field is incomplete, the default is used as defined by the Key Operator.
- **Position:** How the patient is positioned for the exam.
- **Orientation:** Whether the cassette is used in portrait or landscape orientation. The default orientation is portrait; selecting landscape displays the image in landscape mode.
- **Priority:** If the printer supports STAT images, the image moves ahead of other images in the print queue. Routine and Urgent have the same priority[1].
- **Tech ID:** Use the bar code scanner to scan the code. If the Tech ID bar code is not available, use the virtual keyboard to enter the Tech ID.
- **Date of Birth:** Enter the patient's date of birth.
- **Gender:** Touch the appropriate gender button.
- **Procedure Name and Code:** These fields can be completed via the HIS/RIS system data, selected from the procedure list, or manually.
- **More Patient Information button:**
  - Referring Physician
  - Patient Comments
  - Contrast/Bolus
- **More Image Information button:**
  - kVp
  - mAS
  - Source to Image Distance
  - Source to Patient Distance
  - Image Comments
  - Laterality
- **Patient Location:** Enter the patient location.

See Chapter 9, "Procedure Mapping (Option)" on page 9-24.

1. Printers such as the *Kodak DryView* 8100 Laser Imager or the *Kodak DryView* 8700 Laser Imager may print images in the order they were scanned rather than by priority when the CR System is configured to Pass-through Mode.

Saving the Patient and Exam Information

After you have entered the patient and exam information, touch **Submit**. The information is stored in preparation for the exam.

NOTE: After you scan the cassette, the image thumbnail replaces the cassette icon to display the image.

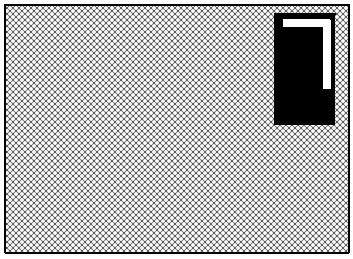
5 Scanning, Viewing and Printing Images

Performing an Exam

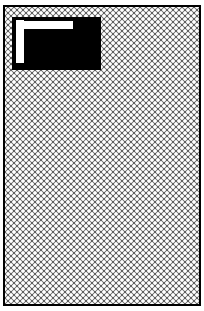
The procedure for performing an exam using a phosphor screen is the same as an exam using screen/film.

To perform an exam:

1. Select the proper size cassette.
2. Position the patient and the cassette.
   – For landscape orientation, place the yellow stripe label at the top right of the image when you position the patient.



Landscape Orientation



Portrait Orientation

   – For portrait orientation, place the yellow stripe label at the top left of the image when you position the patient.

NOTE: Proper orientation at exposure eliminates the need to flip or rotate the image at the CR.

3. Set the exposure factors.
4. Expose the cassette.
5. Place the cassette into the CR reader for scanning.

NOTE: The image on an exposed storage phosphor screen degrades over time. Although a scannable image may be present for a period up to 24 hours, best results are obtained when the image is scanned within 1 hour.

NOTE: For best results, be sure to collimate properly.

Loading Cassettes

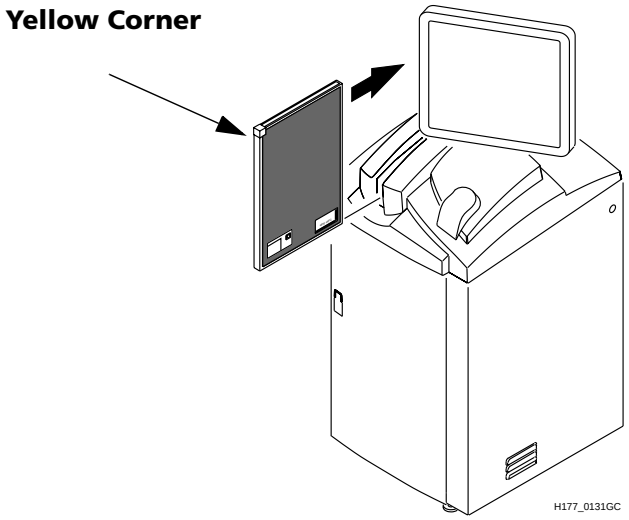
CR 800/850 System

1. Place the cassette into the cassette feed slot at the top of the CR 800/850 System.

NOTE: Be sure that the *tube side* label faces to the right, and the yellow corner of the cassette is always up and towards you. The relationship of the label position and yellow corner differ depending on the cassette size.

When the cassette is inserted into the CR 850 System, it is pulled into scan position and scanning starts immediately. In the CR 800 System insert the cassette until it touches the Stop mechanism. If the cassette is not seated properly, an audible alarm sounds and an error message appears on the touch screen.

2. After the cassette has been scanned, the system releases it automatically. Remove the cassette from the cassette feed slot.



Inserting a Cassette in a CR 800/ CR 850 System

CR 900 System

1. Place exposed cassettes on the right side of the feed slot.

NOTE: Be sure that the *tube side* label faces to the right, and the yellow corner of the cassette is always up and towards you.

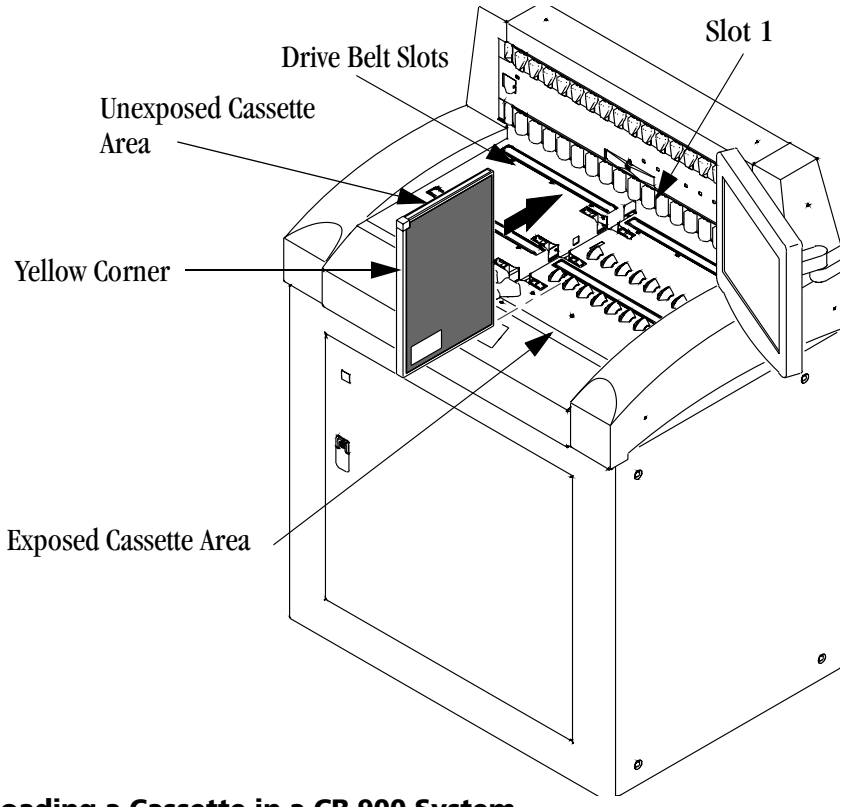
2. Push the cassettes into one of the drive belt slots and then set it into the transport mechanism. The cassette is perpendicular when loaded properly. You can load up to eight cassettes of any size at one time.
3. From the **Main Menu**, touch **Scan Status** and touch **Start** to begin scanning.

NOTE: When the cassette is pulled into the center slot, the phosphor screen is extracted and scanning starts immediately. When scanning is complete, the screen is erased and re-inserted into the cassette. The cassette is ejected to the transport mechanism and moved to the left as the next cassette is moved to the feed slot. You can now remove the cassette and use it again.

You can touch **Pause** to stop the transport. If the unexposed cassette area is filled with cassettes, the transport stops and a message displays with instructions to remove cassettes from the unexposed cassette area.

NOTE: When the CR System scans the phosphor screen, it erases any residual image before it places the phosphor screen back into the cassette for re-use.

IMPORTANT: *Place exposed STAT cassettes in the second slot to the right of the center process slot. If there is already a cassette in the second slot, remove it first. Do not load or remove cassettes from Slot 1.*



Loading a Cassette in a CR 900 System

CR 950 System

1. Place exposed cassettes on the right side of the feed slot.

NOTE: Be sure that the *tube side* label faces to the right, and the yellow corner of the cassette is always up and towards you.

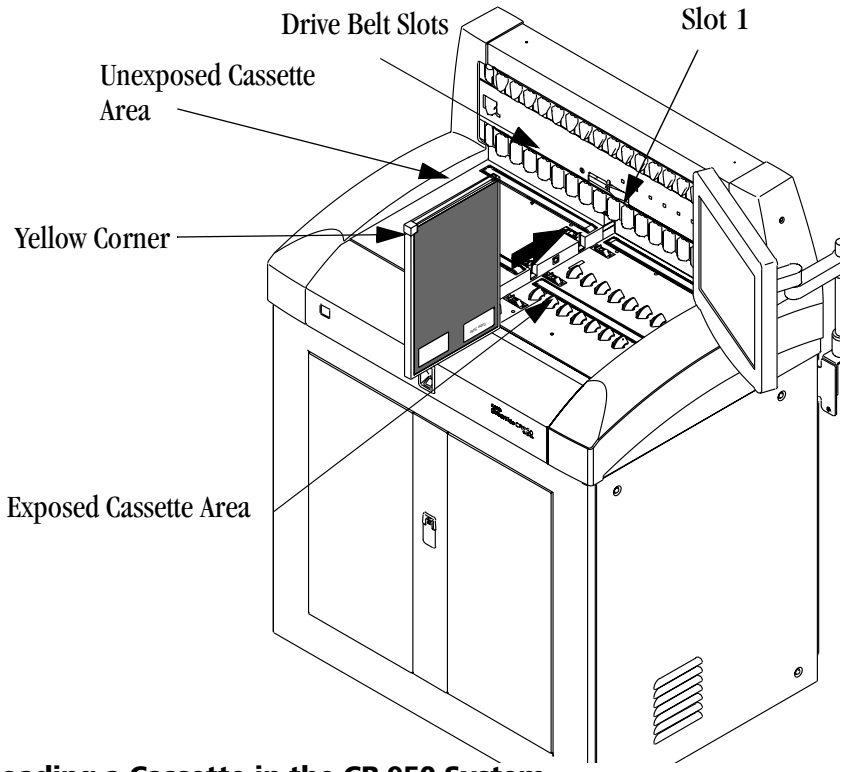
2. Push the cassettes into one of the drive belt slots and then set it into the transport mechanism. The cassette is perpendicular when loaded properly. You can load up to eight cassettes of any size at one time.
3. On the bridge of the machine, the **Start** button is green when the system is ready to scan. Touch the **Start** button to begin scanning.

NOTE: When the cassette is pulled into the center slot, the phosphor screen is extracted and scanning starts immediately. When scanning is complete, the screen is erased and re-inserted into the cassette. The cassette is ejected to the transport mechanism and moved to the left as the next cassette is moved to the feed slot. You can now remove the cassette and use it again.

The button turns orange while scanning. Push the button to **Pause** the transport, and the button turns white. If the unexposed cassette area is filled with cassettes, the transport stops and a message displays with instructions to remove cassettes from the unexposed cassette area.

NOTE: When the CR System scans the phosphor screen, it erases any residual image before it places the phosphor screen back into the cassette for re-use.

IMPORTANT: *Place exposed STAT cassettes in the second slot to the right of the center process slot. If there is already a cassette in the second slot, remove it first. Do not load or remove cassettes from Slot 1.*



Loading a Cassette in the CR 950 System

Viewing Images

You can configure your system for two viewing modes: Pass-through Mode or QA Mode.

Viewing an Image in Pass-through Mode

If your system is configured in Pass-through Mode, the image is routed immediately. To view the image, see "Reviewing Images" on page 5-13.

On the CR 900 / 950 System there is a button that toggles between **Pause** the Pass-through mode or **Resume** the Pass-through mode.

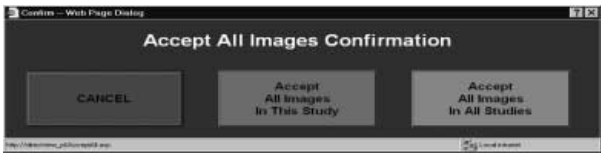
Viewing Images in QA Mode

If your system is configured in QA Mode, you review the image before you route it to the selected destinations.

1. Scan the cassette and refresh the screen; a thumbnail image appears on the **Patient Input** screen. Other images for the patient are displayed. If there are too many images to display, **Previous** and **Next** buttons appear so that you can access them.
2. Touch the thumbnail image to display the image for review.

Scanned Image

3. If the images are acceptable, touch **Accept All Images** to send the image(s) with the same Patient ID to the appropriate network destinations. When all images are accepted, the button toggles to **End Study.** Touch **End Study** to set the study to complete.



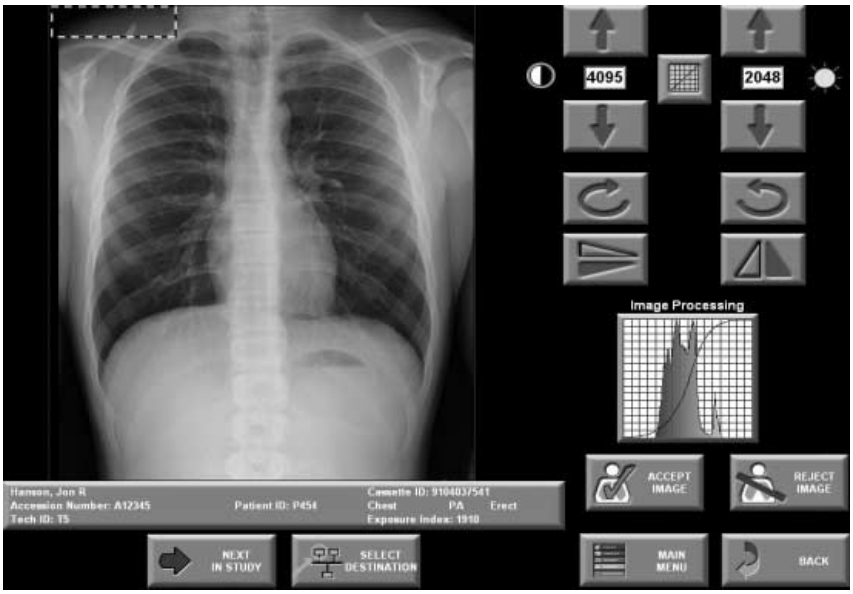


Image Viewer

4. To accept a single image after viewing, touch the thumbnail and touch **Accept Image** on the Image Viewer screen.
5. If the image is unacceptable, touch **Reject Image**. A prompt confirms that you want to delete the selected image. Touch **Yes** and the image is deleted; the patient information stays on the CR System database.

   If **Reject Reason** is activated:

   - Touch a **Reject Reason.**
   - Enter a Reject comment (optional).
   - Touch **Reject Image.**
6. If further post-processing is required, see page 6-1.

Working with Images

Reprocessing Images

You can modify images before you accept and route them. For information on reprocessing previously delivered images, see “Image Processing” on page 6-1. You can reprocess the displayed image in several ways, including Edge Enhancement, Contrast, Brightness, etc.

Routing Images

When you route images in QA mode, you send them to the destinations set up by the Key Operator, or you can select specific destinations.

- Touch **Accept Image** to send the image to the destination set up by the Key Operator.
- Or, touch **Select Destination** to send the image to specific destinations.

Destinations

To select a destination, move the cursor up or down with the arrows. Then touch either the **+** or **-** to choose the number of copies to send to each. When finished, touch **Apply**, then touch **Accept Image** to route the image.

Erasing Screens

***WARNING*:**
Erasing deletes any image on the phosphor screen.

NOTE: Kodak recommends that you erase a phosphor screen if it has not been used within the last week or if you suspect it has been exposed to any X-radiation.

You can use the CR System to erase screens in cassettes without scanning an image. The cassette erase feature is available only when the **Cassette Erase** screen is displayed. To erase the phosphor screen in a cassette, at the CR System **Main Menu**, touch **Erase Cassette**:

Cassettes Ready to be Erased on the CR 800/ CR 850

- **CR 800/850—**Insert the cassette. Erasing begins automatically.
- **CR 900/950—**Insert the cassettes and touch the **Start** button on the touch screen.

  The phosphor screen in the cassette is erased and released. If the **Erase** screen is displayed and cassettes are not being erased, the screen saver may be activated. If this happens, the system displays the **Main Menu** the next time you touch the screen.

NOTE: The mechanical Start button on the front of the CR 950 is not active during Erase mode.

Cassettes Ready to be Erased on CR 900 / CR 950

Erase Progress

Reviewing Images

You can re-display images that have been accepted and routed for review, modification, and reprocessing. When reviewing images, the procedures are the same when viewing, modifying and routing an image.

1. At the **Main Menu**, touch **Image Review**.

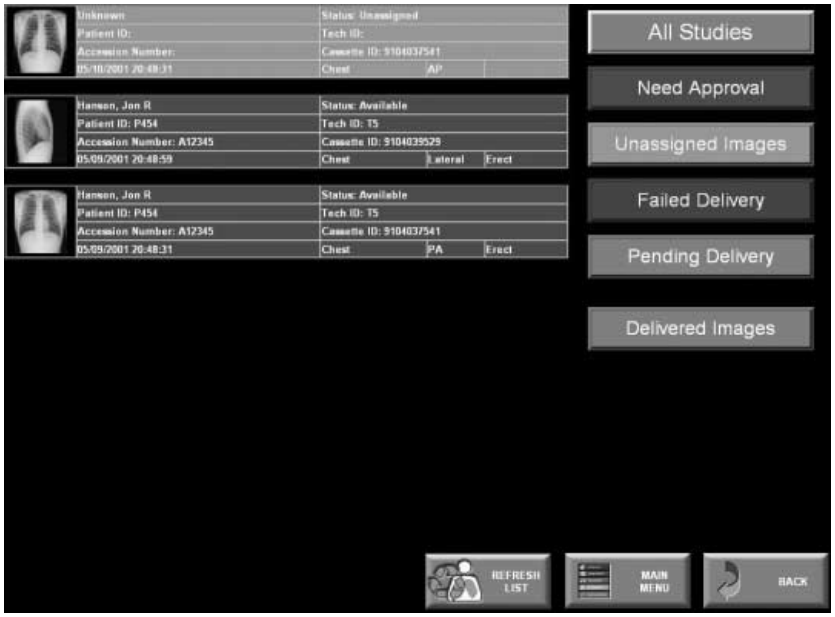


Image Review

NOTE: An image that has been successfully delivered across the network appears in the **Delivered Images** area.

2. Touch the appropriate button. View and modify the images as described for image quality purposes.

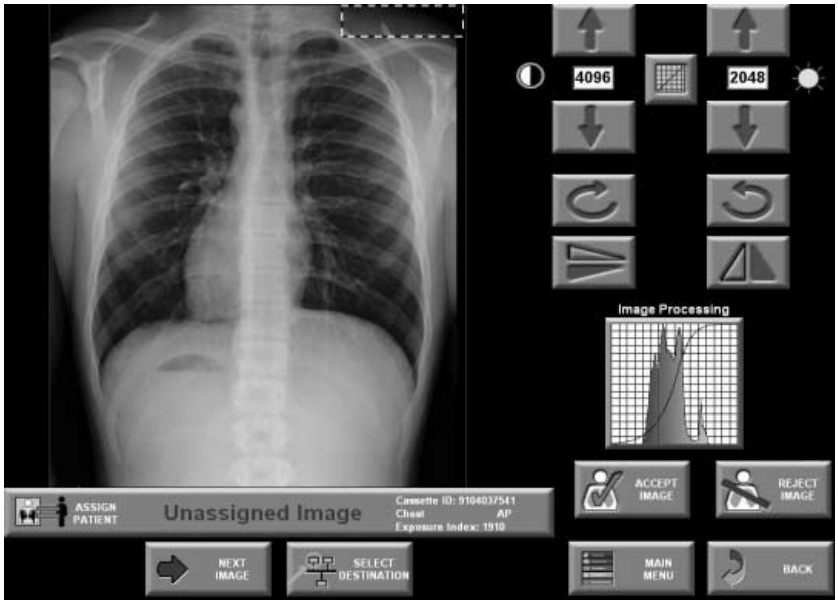


Image Viewer

3. To assign a patient:
   a. Under the image, touch **Unassigned Image**.
   b. Find the correct name by doing a database query or touch **New Patient** and use the virtual keyboard to enter the correct name. Then touch **Assign Image.**
4. To assign a different patient:
   a. Touch the bar under the image.
   b. Touch **Unassign Image**.
   c. Under the image, touch **Unassigned Image**.
   d. Find the correct name by doing a database query or touch **New Patient** and use the virtual keyboard to enter the correct name. Then touch **Assign Image.**

Managing Images

As images are scanned, processed and routed, the CR System software keeps track of the images and stores them based on their status. Sometimes an image is not delivered properly or is unassigned. Use the **Image Review** screen to display images by status for reviewing, reprocessing or resolving problem images. At the **Main Menu**, touch **Image Review**. The following image groups are available for selection:

Image Status	Description
All Studies	Displays all images that have not been delivered.
Need Approval	Displays images that need to be accepted/approved and sent across the network.
Unassigned Images	Displays images not associated with a patient and that have no demographic data. Refer to "Unassigned Images" on the following page.
Failed Delivery	Displays images that were not successfully delivered to a network destination. Refer to "Failed Delivery" on the following page.
Pending Delivery	Images that are being routed but have not reached all destinations.
Delivered Images	Displays the images that have been successfully delivered to selected destinations. These images are sorted and displayed by Last Name (ascending alphabetical order) and then by Time.

Image Review

Managing Failed Delivery Images

When an image is not successfully delivered to one or more of the selected destinations, the text block next to the image is red. The image is stored as a Failed Delivery image. To resolve Failed Delivery images:

1. Touch the image thumbnail to view the image.
2. Touch **Redeliver Image**. If delivery fails again, go to the **Destination** screen and use the (**-**) to set the counter to **0** on the failing destination.
3. Select another destination and touch **Redeliver Image.**
4. If the problem continues, contact your Key Operator.

Managing Unassigned Images

An image is stored as an Unassigned Image when it has not been associated with a patient information record. This happens if the cassette is scanned before the patient information is submitted with the proper cassette ID. The record on the **Image Review** screen is orange when the image is unassigned.

To assign an image to a patient, you must first create a study:

1. At the **Main Menu**, touch **Study Data.**
2. Use the search criteria to find the patient for the new study.
3. Select the correct patient from the resulting patient list.
4. Touch **New Study**.
5. Enter the Study Data: Accession number, procedure code, etc.
6. Touch **Submit**.
7. At the **Main Menu**, touch **Image Review**.

8. Select the image you want to assign to the newly created study.
9. Touch the Patient Information bar.
10. Search for the patient for whom you created the study and select the new study.
11. Touch **Assign Image**.

When the image is assigned, the record turns from orange to green.

Printing Images

There are three printing modes available with the CR System:

Print Mode	Description
Best Fit	The image is as large as possible without exceeding True-size. No data is cropped.[a]
Consistent Image Size	The image is created at 92.5% of True-size. This percentage is fixed and cannot be changed by the technologist; no data is cropped. Images from cassettes that are the same size as film used by the printer may not print properly if you are using the external text box . There are not enough pixels available to print both the text box and the image at 92.5%. NOTE: For best results, do not use the external text box with Consistent Image Size print mode. Use the internal text box. If you must use the external text box, test all combinations at the site before the equipment enters service.
True-size	The image is the same size as the latent image that existed on the phosphor screen when it was scanned, within +/- 2%. This is equivalent to the size of an image on film. The CR System crops data from the edges of a True-size image because the CR image is typically larger than a printer can produce on a comparable film size.

a. See Table: CR Image Minification Factors for Common *Kodak* Printers on page 5-19.

***WARNING*:**
True-size Printing delivers the latent image to the destination at 100%, +/-2%. Because variations exist in scanners and printers, use caution when using these images for exact measurements. Kodak recommends that you use a known marker at the subject level when making the exposure and calculating image magnification.

CR Image Minification Factors for Common *Kodak* Printers			
Film Size (cm)	***Kodak* Printer**	**Cassette Size (cm)**	**Average Factor (% of actual scan size)**
35 x 43	2180	18 x 24	99
35 x 43	2180	24 x 30	99
35 x 43	2180	35 x 35	94
35 x 43	2180	35 x 43	94
35 x 43	8700	18 x 24	100
35 x 43	8700	24 x 30	100
35 x 43	8700	35 x 35	93
35 x 43	8700	35 x 43	93
35 x 43	8100	18 x 24	100
35 x 43	8100	24 x 30	100
35 x 43	8100	35 x 35	93
35 x 43	8100	35 x 43	93
35 x 35	2180	18 x 24	100
35 x 35	2180	24 x 30	100
35 x 35	2180	35 x 35	94
35 x 35	2180	35 x 43	78
24 x 30	2180	18 x 24	100
24 x 30	2180	24 x 30	100
24 x 30	2180	35 x 35	74
24 x 30	2180	35 x 43	74
18 x 24	2180	18 x 24	97
18 x 24	2180	24 x 30	76
18 x 24	2180	35 x 35	52
18 x 24	2180	35 x 43	54

When you select a printer as one of the destinations, the captured image is forwarded using the routing process. You can print an additional copy without rerouting the image to the other destinations:

1. Touch **Select Destination.**
2. Select the printer.
3. Select **+** to add a copy.
4. Touch **Apply.**
5. Touch **Accept Image.**

You can print multiple images to a single print, add text and annotation boxes, and select True-size printing for one-up images so the image printed is the same size as the traditional film. See "Printing Exceptions" on page C-1 for a list of printing exceptions.

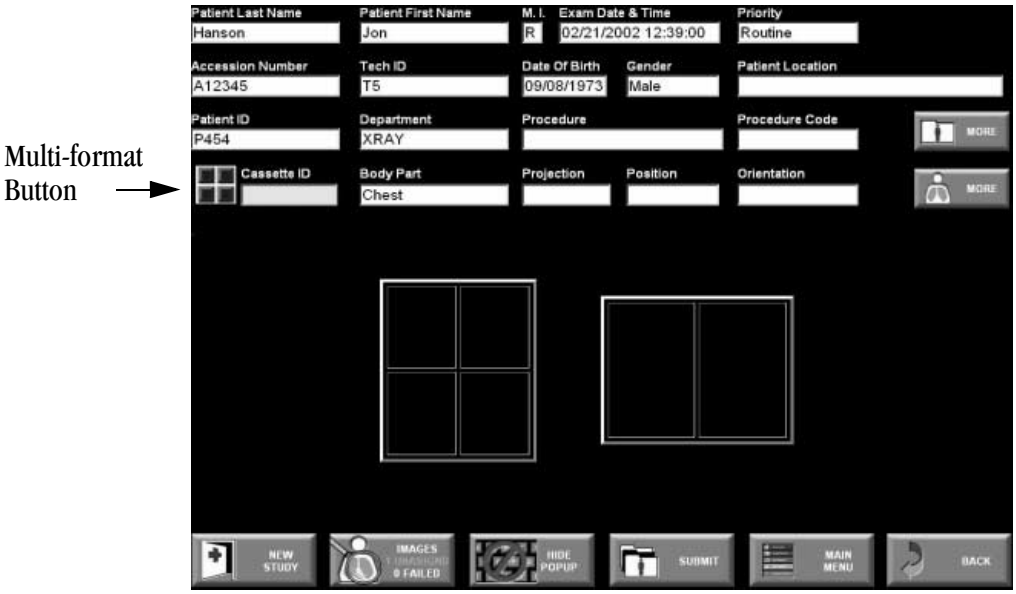
***WARNING*:**
True-size Printing delivers the latent image to the destination at 100%, +/-2%. Because variations exist in scanners and printers, use caution when using these images for exact measurements. Kodak recommends that you use a known marker at the subject level when making the exposure and calculating image magnification.

Printing Multi-format Images

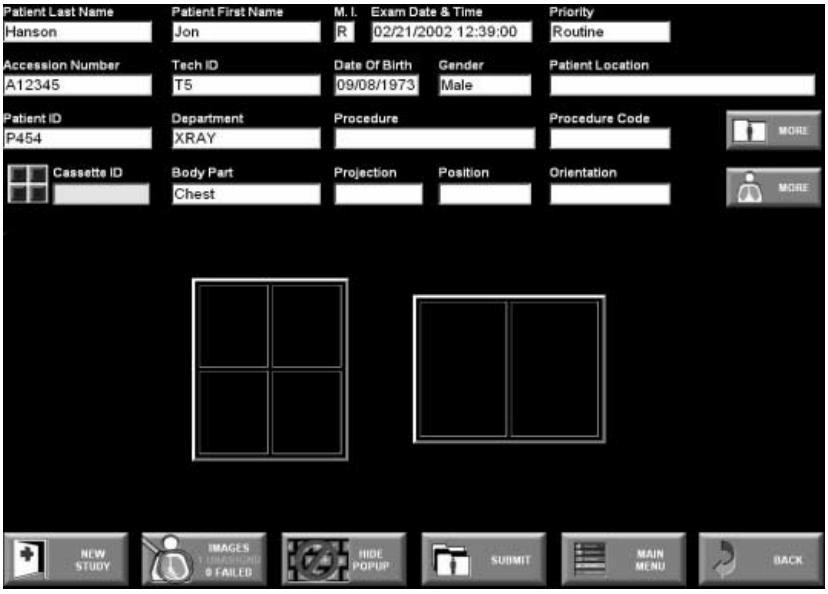
Multi-format images are only delivered to print destinations. With Multi-format printing:

- All Multi-format layouts must contain at least two images.
- Images from cassettes can be placed together in a multi-format print.
- Images are printed in portrait mode for four-up and landscape mode for two-up multi-format prints.
- Image aspect ratio is maintained.
- Images are printed with saved Image Processing parameters.
- Images may be included from any cassette size.
- The destination printer must support minification.

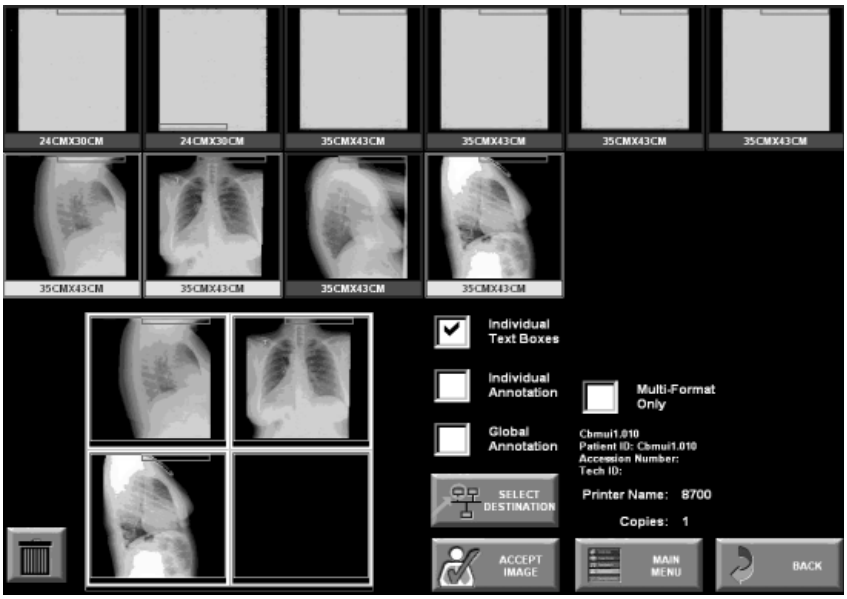
When two or more images exist, and a print destination is configured on the system, the Multi-format button displays next to the cassette ID.



1. Touch **Multi-format**.



2. Touch a layout.



The available images for the study appear, along with the cassette sizes.

NOTE: Depending on the printer type and film size, printing multi-format images may not be possible.

Colored borders around the thumbnails indicate the image's multi-format status.

- **Green —** include the image in a multi-format layout, and it has not been included in a previous multi-format layout.
- **Gray—**the image was used in a previous multi-format layout. You can still add the image to the new layout.
- **Yellow—**the image was placed in the current multi-format layout.

The two-up or four-up print layout appears at the bottom of the screen. The yellow border indicates where the next image will be placed in the format.

3. Touch the image you want to add to the layout. The image is added to the print layout and the yellow border moves to the next multi-format layout location. A yellow border is added to the image at the top of the screen to indicate it has been added to the layout.
   - To remove the image from the multi-format layout location, touch the trash can and then touch the image.
   - To select a different layout location, touch the location, then touch the image you want to place there.
4. Continue selecting images until the layout is complete.

NOTE: You don't have to add an image to every multi-format layout location for four-up images. Blank locations will print D-max.

You cannot flip or rotate images from the Multi-format screen. If the image is saved in the wrong orientation, it rotates to fit in the layout. To change the image orientation, go to the **Image Viewer** screen and make the changes.

Because four-up images always print in portrait mode and two-up images always print in landscape mode, you can only change the image orientation by 180 degrees.

5. Touch **Accept Image** to print the multi-format image. It is sent to the displayed printer unless you change the destination using **Select Destination**.

If you cannot print the multi-format layout to the selected destination, an error message appears. Select a new printer destination that will support the format, re-select the images and place them in the layout, and print.

See "Appendix C: Printing Exceptions".

The following table lists common *Kodak* printers and the CR cassette sizes (images) that can be printed in two-up or four-up format. See "Appendix C: Printing Exceptions".

***Kodak* Printer**	**Film Size**	**Cassette Size Supported on Two-Up Format**	**Cassette Size Supported on Four-Up Format**	**Comment**
Kodak DryView 8100 Laser Imager	35 x 43	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	9410 or MIM C *Minify must be selected in MIMDUI, Contact the Technical Service Center if this does not work.
Kodak DryView 8200 Laser Imaging System	35 x 43	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	MIM B+ or MIM C
	35 x 35	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	MIM B+ or MIM C
	11 x 14	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	MIM B+ or MIM C
Kodak DryView 8500 Laser Imaging System	11 x 14	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	Two-up works with 9410 or MIM C Four-up works with MIM C ONLY
Kodak DryView 8700 Laser Imaging System	35 x 43	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	See "Appendix C: Printing Exceptions".

Kodak Printer	Film Size	Cassette Size Supported on Two-Up Format	Cassette Size Supported on Four-Up Format	Comment
Kodak Ektascan 2180 Laser Printer	35 x 43	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	MIM B + or MIM C
	35 x 35	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	Two-up works with MIM B+ or MIM C Four-up works with MIM C only
	11 x 14	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	Two-up works with MIM B+ or MIM C Four-up works with MIM C only
	10 x 12	none	none	
	8 x 10	35 x 43 35 x 35 24 x 30 18 x 24	35 x 43 35 x 35 24 x 30 18 x 24	MIM C only

Other Multi-format Settings

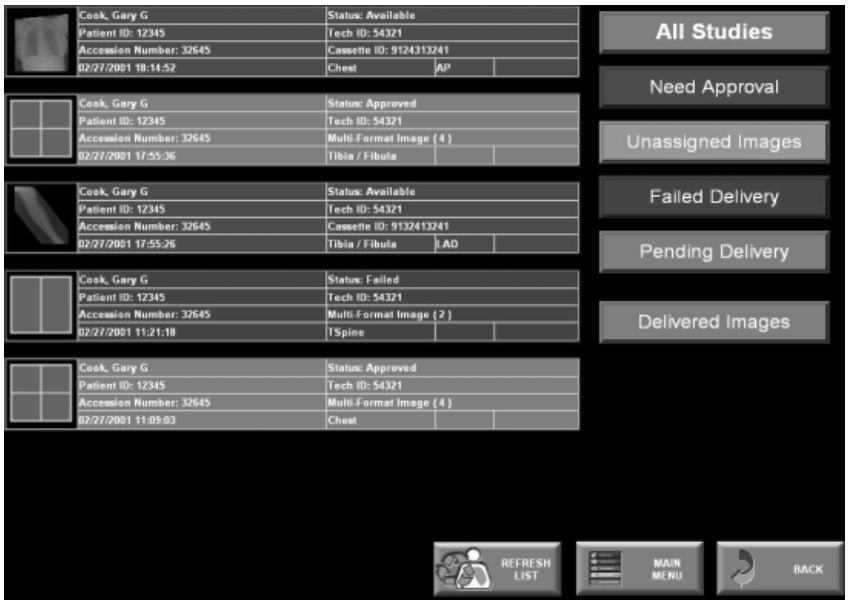
Multi-format Only Check Box

You can compose multi-format prints of images of a variety of statuses: Available, Delivered, Failed, etc. To change the status of an image printed in a multi-format print from Available to Delivered, touch the **Multi-format Only** check box.

IMPORTANT: *Do not check the Multi-Format Only check box if you plan on delivering the image to an archive or workstation. You may forget to deliver them.*

Image Review Screen

During the delivery cycle of a multi-format print, an entry is made in the Image Review list. Each multi-format print has a separate entry containing the pertinent patient information and an icon representing the type of format being printed.



The multi-format image (not the individual image) is removed when the image has been delivered successfully.

To re-deliver an image that failed, touch the Multi-Format image icon to display the Image Destination Status Screen. You can then re-deliver the image.

Deleting Multi-format Images

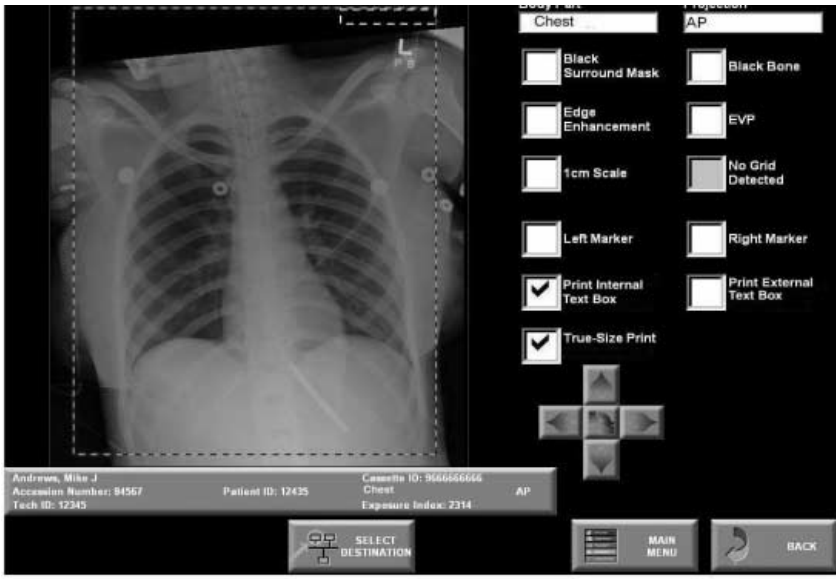
To remove an image from multi-format, touch the trash can icon and then touch the image.

Printing Text

There are two text printing options: Internal and External Text Box. The available options depend on how the Key Operator has configured your System.

See see "Text Box Configuration (Option)" on page 9-45.

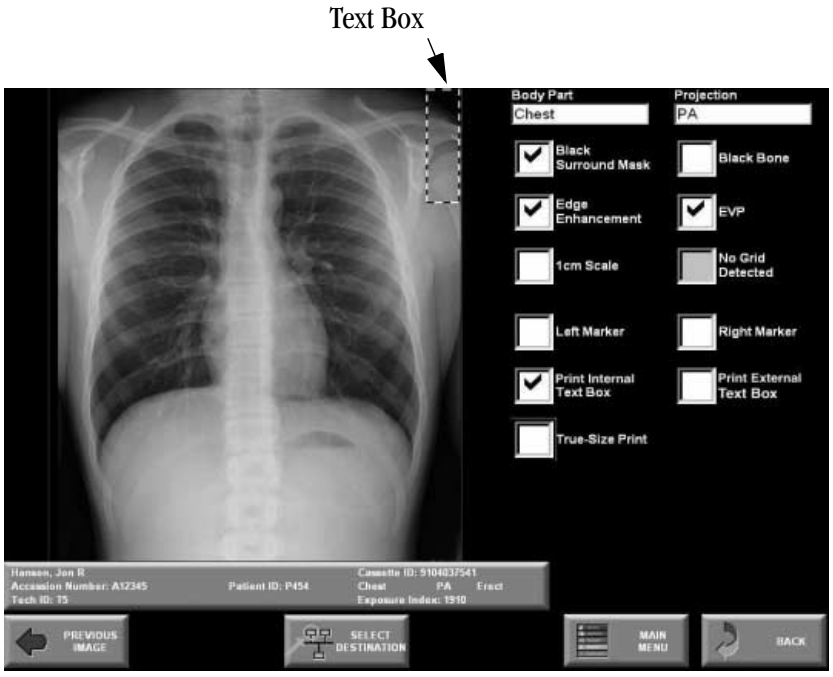
Select the type you want and the location at the Image Processing screen.



Printing Internal Text Boxes

The text box content is configured by your Key Operator.

1. At the **Image Viewer** screen, touch **Image Processing**.

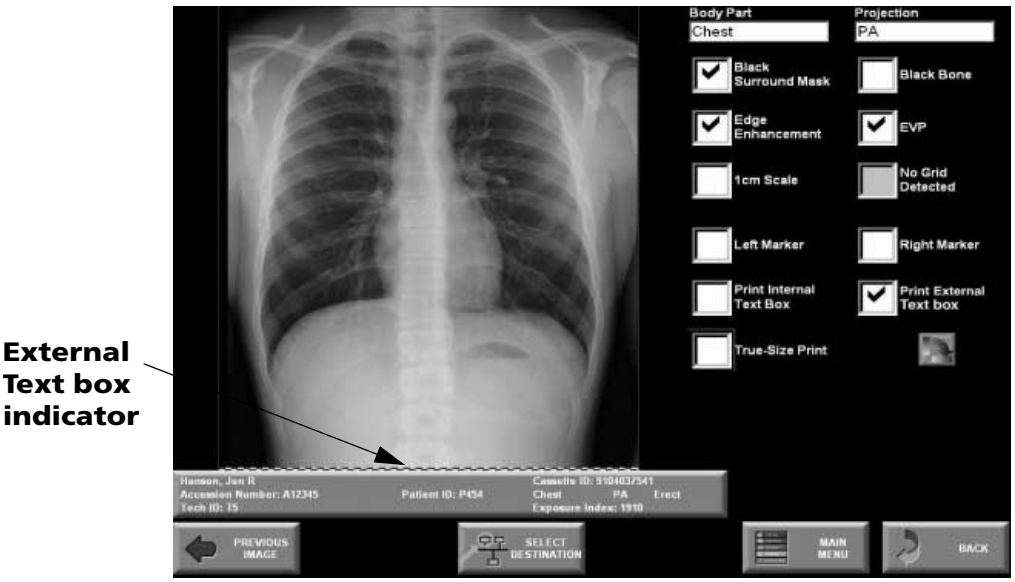


2. Touch the **Internal Text Box** check box.
3. You can print the text box in eight different locations, that is, horizontally or vertically in each corner. Touch the edge of the corner you want the text box to appear.
4. Print the image.

Printing External Text Boxes

The External Text Box content is configured by your Key Operator.

1. At the **Image Viewer** screen, touch **Image Processing**.



2. Touch the **External** check box.
3. Touch the arrow under the check box to select Portrait or Landscape orientation.
4. Print the image.

True-size Printing (Option)

CAUTION:

To support True-size printing, a printer must support DICOM Requested Image Size. See the printer's DICOM Conformance Statement to determine if a printer supports Requested Image Size.

True-size Printing produces the same size image you would get if you were using a film screen system. To achieve True-size on most printers, data is cropped from the edge of the image.

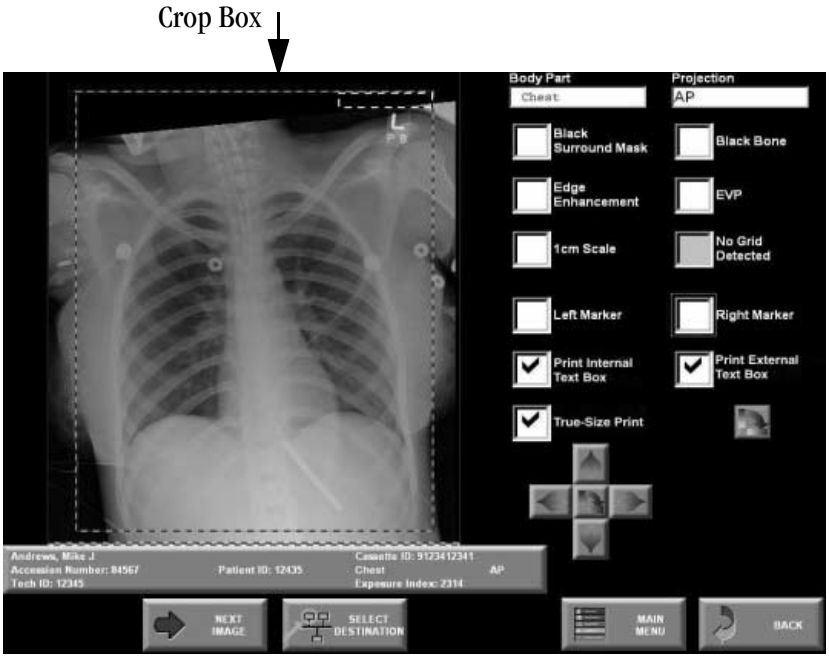
***WARNING*:**

True-size Printing delivers the latent image to the destination at 100%, +/-2%. Because variations exist in scanners and printers, use caution when using these images for exact measurements. Kodak recommends that you use a known marker at the subject level when making the exposure and calculating image magnification.

The size of the crop box is determined by the selected destinations.

Printers cannot print to the edges of the film. Therefore, to be able to print True-size printing, the image is cropped (outside edge data is discarded) before the film is printed.

1. At the **Image Viewer** screen, touch **Image Processing**.
2. Touch the **True-size Print** check box.



3. Use the arrows to move or rotate the crop box.
4. Print the image.

1 cm Tick Marks

Use the 1 cm Tick Marks option to "burn" markers into the image to help you evaluate image size. The system optionally prints markers 1 cm apart along 2 adjacent sides of either 1-up or multi-format images. The marks are placed so that the distance between any two consecutive marks is 1 cm when the image is printed True-size. For images that are not printed True-size, you can use the spacing of the tick marks to determine the amount of image minification. For example, the distance between tick marks would be 0.9 cm for an image that is printed at 90% of True-size.

6 Maintaining Image Quality

Guidelines for Optimizing Image Quality

Understanding the cause-and-effect relationship of the parameters applied during image processing helps you optimize image quality. To produce an optimum image from the CR System, the proper collimation, positioning, technique, and the optimum combination of processing parameters are required.

Performing the Exam

The Image Processing Library (IPL) is an object-oriented library of image processing algorithms incorporated into the CR System. Each body part and projection combination produces a unique look for a given image.

When using Storage Phosphor plates, the following suggestions will help you obtain optimum image quality:

- Apply as much collimation as is practically possible on all images.
- Capture only one view per cassette (such as a Posterior Anterior (PA) hand on one cassette and a Lateral hand on a separate cassette).
- If you must capture more than one view on a cassette, for best quality group like views together (such as PA hand and Oblique hand). In this situation, Kodak recommends that you:
  - Minimize the collimation between separate views (such as a thin line of collimation shown between two views).
  - Minimize the exposure overlap between the separate views.
  - Use the same bone thickness in each image.

Image Processing

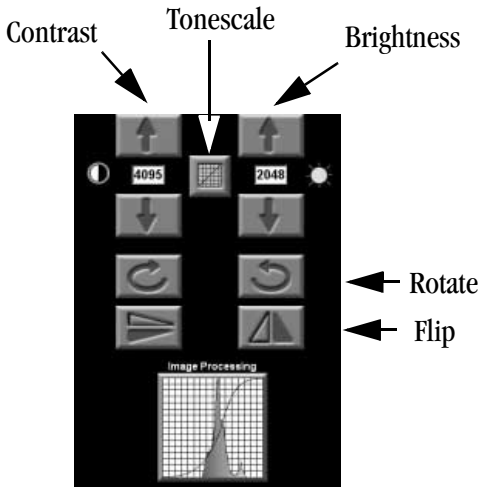
The CR System produces the highest-quality images when:

- The exam, body part, and projection information is accurate and complete.
- You enter exam information for a cassette rather than default body part and projection information.
- You make contrast and brightness adjustments only if necessary, before sending the image across the network.

NOTE: The Image Processing parameters and default settings are pre-configured. If changes need to be made, contact your Key Operator.

Changing Image Orientation

Touch the appropriate button to rotate or flip an image. You can rotate through 360° by rotating in steps of 90°.



Adjusting Contrast and Brightness

CAUTION:
Do not change the contrast and brightness unless absolutely necessary.

An image's contrast and brightness are determined by the window width (contrast) and window level (brightness). When you adjust the settings the image display changes.

The default values are:

- Contrast: 4095
- Brightness: 2048

Adjust the straight line portion of the curve to include as much histogram data as possible. The numerical values are the number of input code values. See "Changing Image Tonescale" on page 6-3.

Changing Window Widths (Contrast)

Increasing the window width reduces the contrast.

NOTE: TIP - to return to the default Contrast and Brightness settings (4095 and 2048) touch the Tonescale button two times.

Changing Window Levels (Brightness)

Increasing the window level increases the brightness. Changing the window level affects the overall appearance, but does not affect contrast.

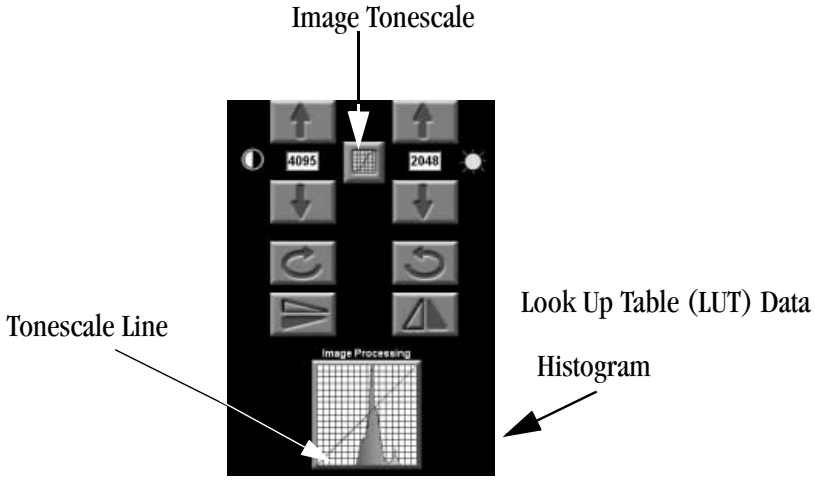
Changing Image Tonescale

If a processed image is not acceptable, you may be able to salvage the image by using the raw data.

1. Touch **Image Tonescale** to view the raw data.
2. Adjust the Brightness and Contrast to generate an acceptable image.

NOTE: Touch **Image Tonescale** again if you want to return to the Processed Data.

For optimum results, try to get as much of the tonescale line in the image data area as possible.



Raw Data

Image Processing

You can alter or reprocess an image at the **Image Processing** screen. The Image Reprocessing parameters are set up and stored in memory by the Application Consultant or a Key Operator who has attended an advanced Image Processing class. If these changes do not produce satisfactory results, contact your Application Consultant. Software features which have not been purchased will be grayed out and therefore not selectable.

To reprocess an image:

1. At the **Image Viewer** screen, touch the **Image Processing** histogram at the bottom of the screen.

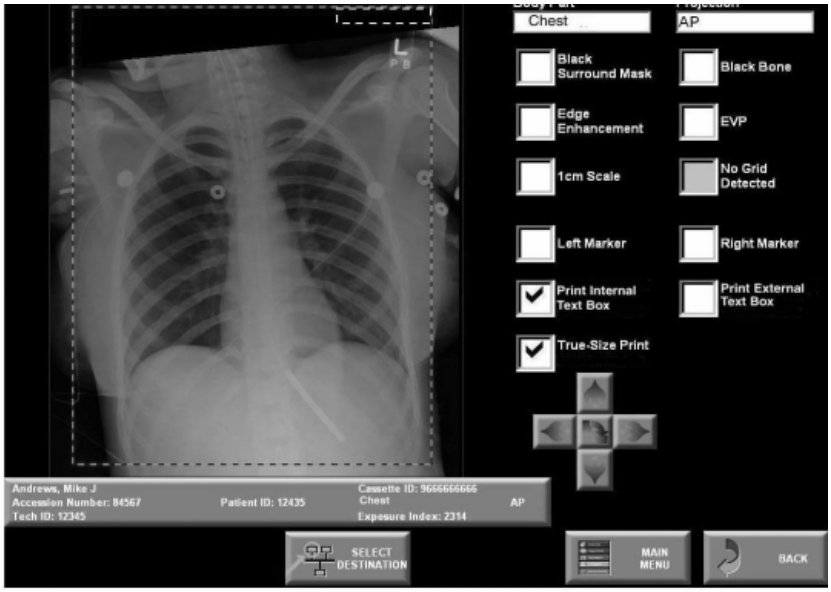


Image Processing

Use the following table to make your image processing selections.

Parameter	Procedure
Black Surround Mask, Black Bone, Edge Enhancement, EVP, 1 cm Scale, and Grid Suppression	1. Touch the appropriate check box to select a function. If you cannot select it, the option is not available. 2. Touch **Reprocess Image.** 3. Evaluate the image. If the parameter does not improve the image, touch the check box again and then reprocess.

Parameter	Procedure
Left Marker or Right Marker	1. Touch the Left Marker or Right Marker check box. 2. Touch the image where you want to locate the marker. *The marker appears on the image.* 3. To remove the marker, touch the check box. NOTE: This function is set by the Key Operator. See "CR Display Configuration" on page 9-36.
Print Internal Text Box	Touch any corner to place the text box. The text box can be orientated either horizontally or vertically. Touch the edge of the corner you wish the text box to align with. For more information see page 5-27.
Print External Text Box	To print the External Text Box, touch the check box. For more information see page 5-28.
True-Size Print	To select True-size Printing, select the check box. For more information see page 5-29.

NOTE: You cannot reprocess an image if the image has been accepted and delivered across the network. You must create a copy of the image, modify the copy, and send it to the proper destinations.

- Touch **Redeliver Image** to redeliver the image without making changes.
- Touch **Create a Copy of this Image** to display a copy of the image you can modify.

Function	Description
Black Surround Mask	Blackens the area around the image.
Edge Enhancement	Accentuates edges in the image. The default edge enhancement values should seldom need to be changed. Changing **Edge Enhancement** should only be done by someone with a clear understanding and good working knowledge of digital imaging.
1 cm Scale	Adds a 1 cm scale perpendicular to the borders of the image.

Function	Description
Left or Right Marker	Adds left (L) or right (R) markers to an image to identify the left and right side of the image.
Black Bone	Reverses the light and dark areas of the image to provide an optional view of the image details.
EVP	Increases the latitude of the image while preserving the contrast of the image details.
Grid Suppression	Detects and suppresses grid lines. Eliminates moire patterns or line pattern seen when an image is viewed on a monitor or a workstation.
Print Internal Text Box **Print External Text Box**	See page 5-27 and page 5-28 for printing text boxes; see page 9-51 for information on configuring text boxes.
True-size Printing	For information on True-size Printing see page 5-29.

Improving Image Characteristics

Use the following table to look up a general quality problem and find possible solutions.

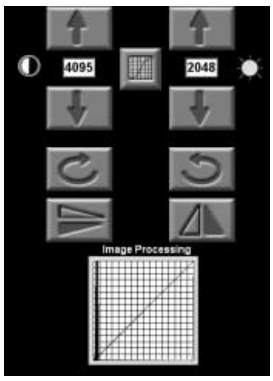
Two tools are available for you to improve an image-quality problem:

- Change contrast and brightness
- Change user parameters (a Key Operator function)

NOTE: If you cannot correct the problem, in the United States and Canada contact Kodak Customer Service Center (CSC) for service at 1-800-328-2910, prompt 2, then prompt 3 for further assistance. For other locations, contact your Kodak service center or representative.

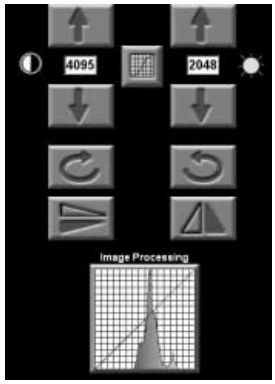
Image Problem	Recommendations
Image is too light	• Decrease the brightness, and then adjust the contrast if needed. If this causes clipping in the region of interest, switch to the raw image and adjust brightness and contrast on the raw image. • If the images are consistently too light, contact your Key Operator.
Image is too dark	• Increase the brightness, and then adjust the contrast if needed. See "Adjusting Contrast and Brightness" on page 6-2. If this causes clipping in the region of interest, switch to the raw image and adjust brightness and contrast on the raw image. • If the images are consistently too dark, contact your Key Operator.
Image is too flat	• Increase the contrast, and adjust the brightness. • If images are consistently too flat, contact your Key Operator.
Image contrast is too high	• Decrease the contrast and brightness. • If image contrast is consistently too high, contact your Key Operator.
Image is too noisy (no edge enhancement chosen or applied)	• The image may require more exposure to reduce the amount of noise. Check the exposure index in the exam information.
Image is too grainy (with edge enhancement applied)	• The image may require more exposure to reduce the amount of noise. Check the exposure index in the exam information. • Cancel the edge enhancement selection. • Change the tonescale to Raw Data tonescale type. See "Changing Image Tonescale" on page 6-3. See also "Adjusting Contrast and Brightness" on page 6-2. Remove edge enhancement by changing it to None. • Turn off EVP. • If the enhanced images are consistently too grainy, speak to your Key Operator.
Image is all white or all black	• Confirm an image was captured on the plate. • Remove black surround.

Image Problem	Recommendations
Printed image has stripes through it	• Check laser printer for errors; find out if problem is restricted to one or for all prints produced on that particular printer. • Check clinical and diagnostic workstations to see if the same problem occurs when viewing the distributed image. • Print SMPTE from the AC screen. If stripes exist on the test, it may be a printer issue. If stripes do not exist, there is an issue on the CR System or the monitor. Contact the Applications Consultant.
No Image	• Confirm that an image was captured on the phosphor screen. This can be done by either of the following methods: 1. Changing the tonescale to Raw Data and turning off Edge Enhancement, Black Surround Mask, EVP, and Grid Suppression. If there is no visible image, there was nothing captured on the phosphor screen. 2. Viewing the histogram. If the histogram is outside of the LUT curve on both the processed and raw data, there was no image captured. • If the image was captured, adjust the contrast and brightness to produce an acceptable image.



Data Histogram No. 1

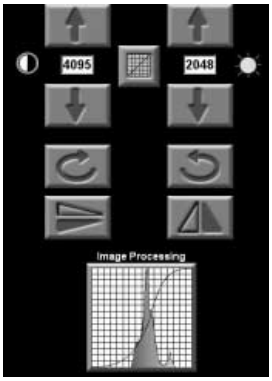
This histogram's position on the LUT shows that no image was captured.



Raw Data Histogram No. 2

This histogram's position on the LUT shows that an image was captured.

If image processing fails, the Histogram displays a linear LUT (straight line) and the displayed image has very low contrast. Adjust the brightness and contrast to generate an acceptable image.



Processed Data Histogram

This histogram's position on the LUT shows that an image was captured and processed.

NOTE: The Exposure Index is the average code of the pixels in the activity histogram used for processing the image. The image data is the data within the boundary box used for processing the image for the body part. Use the Exposure Index to monitor whether your exposure factors are in the correct range.

7 Troubleshooting

Error Messages

Error Messages appear following an error in operation. Follow the instructions on the screen to return to normal operation. If that doesn't correct the problem, contact the Key Operator for your department. If the Error Message repeats, call the Kodak Technical Support Center at 1-800-328-2910, prompt 2, then prompt 3. For other locations, contact your Kodak service center or Kodak representative.

Releasing Cassette Jams

1. At the **Main Menu** touch **Utility Menu.**
2. Touch **System Recovery**.
3. Touch **Release Cassette.**
4. Touch **Clear Cassette Jam** to clear the jam in the system.
5. Touch **Release Cassette** to move the cassette to the home position.
6. Remove the cassette.

If the problem persists, call the Kodak Technical Support Center at 1-800-328-2910, prompt 2, then prompt 3. For other locations, contact your Kodak service center or Kodak representative.

NOTE: Before calling Kodak, locate the CR System **K Number.** You must provide the **K Number** when calling in a problem.

System Reset

If the CR System stops responding to your touch commands, you might solve the problem by turning off the system and turning it back on.

1. Open the front door and press the CR Computer **Power** button. The computer attempts a controlled shutdown. Wait one minute, if the screen hasn't changed, go to step 2.
2. Press and hold the UPS OFF button until you hear a beep. The unit turns off.

   To restart, see page 3-1.

System Status

The **System Status** screen provides information on disk and memory utilization, database statistics. and erase lamps.

1. At the **Main Menu** touch **Utility Menu**.
2. Touch **System Status.**

Clear Pending Images

There may be times when you want to clear images that do not successfully go to a destination. **Clear Pending Images** reboots the machine and sets all images to failed. After the reboot, communications to the destinations is restarted.

1. At the **Main Menu** touch **Utility Menu**.
2. Touch **System Recovery**.
3. Touch **Clear Pending Images**.
4. Touch **Clear Pending Images** again.

Slow System Response

***WARNING*:**
System memory usage increases over time. This can lead to significantly slower response time, image delivery problems, or a virtual memory error at the CR System or the ROP. If this occurs, reboot the CR System. At very high volumes, such as 300 images per day, it may be necessary to reboot the system weekly.

If you are experiencing slow system response, check your physical memory. See "System Status" on page 7-2.

If the physical memory utilization is high, reboot the CR System.

1. At the **Main Menu** touch **Utility Menu**.
2. Touch **System Shutdown**.
3. Touch **Reboot**.

NOTE: If the system has ROPs connected to it, reboot the ROPs after the CR System is rebooted.

Incorrect Image Grouping

If you are unfamiliar with CR System operation and implementing DICOM standards, incorrect image grouping on workstations and archives may occur.

If you change an accession number, patient identification number, and patient name assigned to all images in a study, it changes for all images in the study, including images that have been sent by the system. This causes image grouping problems on workstations and archives if an image is redelivered with altered information.

If one study image has been routed, the CR System displays a warning message when you attempt to change the patient identification number or accession number. The system displays the warning "Changing the data may cause incorrect grouping of images at a Workstation or an Archive." No warning appears if you attempt to modify the patient name.

Modifying Patient Information

Improperly entering patient information for a new patient record, or study, may result in image grouping problems at workstations and archives.

To create a new patient record, select a patient record from the **Patient Worklist** screen, or touch one of the following functions:

- New Patient
- New Study

These functions generate a unique ID for each study.

NOTE: Do not delete and enter information for more than one patient on the **Patient Information** screen.

8 Maintaining Equipment and Cassettes

Cleaning the CR System Surfaces

Clean the outer surfaces of the CR System only with water using a soft, lint-free cloth. Dampen the cloth, then wipe the outer surfaces lightly.

⚠ CAUTION:
Do not use alcohol or alcohol-based products to clean the pinch rollers, belts, entrance guide or any urethane parts on the CR System.

Cleaning the ROP Touch Screen

Clean the screen regularly to ensure its proper operation:

⚠ CAUTION:
To avoid damage do not use liquid cleaners, abrasive cleaners or strong solvents, such as benzine, to clean the touch screen. Also, do not spray aerosol cleaners directly on the touch screen.

1. Turn off the touch screen.
2. Spray glass cleaner on a soft cloth, then gently wipe the touch screen viewing surface.
3. Use a soft cloth dampened with water to clean the housing around the touch screen.

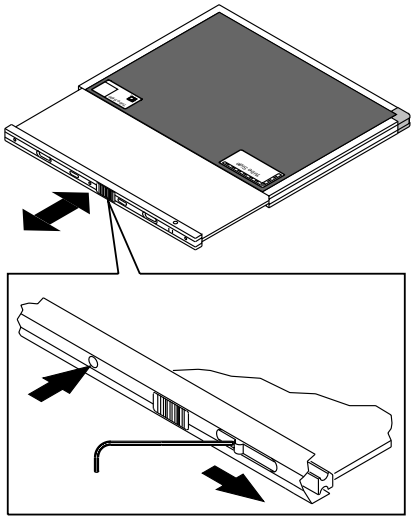
Cleaning Storage Phosphor Screens

Special Cleaning Materials

Catalog Number	Description
1064930	*Kodak* Intensifying Screen Cleaner and Antistatic Solution
N/A	Soft, lint-free cloth
N/A	Isopropyl Alcohol
N/A	Bleach

Removing the Phosphor Screen

1. Move the latch to the right to release the plate and phosphor screen.
2. Remove the plate and phosphor screen from the cassette shell.



H187_2442GC

Removing the Phosphor Screen

Cleaning the Phosphor Screen

Clean storage phosphor screens every 500 exposures, every 30 days, or when artifacts appear. Under normal use conditions, storage phosphor screens will eventually show wear. This may occur from abrasion of the protective overcoat or inadvertent physical damage to the surface. Certain chemical agents, such as non-approved screen cleaners, hand lotions, topical medications, food, etc., may also damage the screens. Screen wear can result in artifacts on radiographs. Storage phosphor screens and cassettes used for medical diagnosis should be inspected periodically and replaced when wear is evident.

Phosphor screens are extremely sensitive to moisture. Exposure to moisture can cause damage to the phosphor screens, which results in image-quality problems.

The phosphor screen is coated with a moisture-resistant polymer blend. The overcoat is very thin (less than 0.001 inch) and has limited resistance to mechanical abrasion that may occur during cleaning. It is possible to damage the protective coating during use or cleaning. This can permanently damage the screen.

IMPORTANT: *Read and follow instructions in the Material Safety Data Sheets (MSDS) for KODAK Intensifying Screen Cleaner and Antistatic Solution and KODAK MIN-R Screen Cleaner prior to use.*

CAUTION:
Be careful not to damage the phosphor screen or any of the screen edges.

1. Remove the screen and attached plate from the cassette shell. See "Removing the Phosphor Screen" on page 8-2.
2. Clean the phosphor screen with a soft, dry, lint-free cloth. Most of the minus density artifacts are caused by loose dirt. Normally, a gentle wipe is all that is needed.
3. If the dry cloth does not remove the dirt, clean screens with *Kodak* Intensifying Screen Cleaner and Antistatic Solution or with *Kodak MIN-R* Screen Cleaner as follows:

CAUTION:
Never apply solution directly to the surface of the screen. Excessive moisture may damage the screen.

CAUTION:
For all cleaning methods, do not soak the cloth.

a. Lightly dampen a small, soft, lint-free cloth with solution.
b. Wipe the soiled area with the damp cloth. After cleaning, wipe the screen with a soft, dry, lint-free cloth.

CAUTION:
For all cleaning methods, avoid pressure and excessive rubbing, which may damage the screen surface.

NOTE: You may remove stubborn soil with Isopropyl Alcohol, following steps 1 through 3. After cleaning with Isopropyl Alcohol, re-treat the screen with screen cleaner. Do not use soaps or detergents containing brightening agents.

***WARNING*:**
Isopropyl Alcohol is a flammable solvent. It can cause eye irritation and dry skin. Wash hands with soap and water following maintenance procedures. Read and follow instructions in Material Safety Data Sheet (MSDS) prior to use.

CAUTION:
Isopropyl Alcohol may contain peroxides that can permanently damage the phosphor screen. If you cannot verify the purity of your Isopropyl Alcohol, Kodak recommends that you use only KODAK Intensifying Screen Cleaner and Antistatic Solution, or KODAK MIN-R Screen Cleaner to clean your phosphor screen.

If a bleach solution is necessary to clean the phosphor screen:

1. Lightly dampen a soft cloth with bleach diluted 1:10 with water.
2. Carefully clean only the soiled area on the phosphor screen.
3. Rinse the phosphor screen with a soft cloth moistened with *Kodak* Intensifying Screen Cleaner and Antistatic Solution.
4. After the soil is removed, dry the phosphor screen gently with a soft, dry, lint-free cloth.

Some other screen-cleaning agents may leave residues, which will seriously affect the emission of these screens. The use of any cleaning agents other than those specifically suggested for cleaning KODAK Storage Phosphor Screens is not recommended.

Replacing the Phosphor Screen

After cleaning the phosphor screen:

1. Insert the phosphor screen into the cassette.
2. Insert a tool into the hole to snap the cassette closed.

Cassette Cautions

CAUTION:
You cannot ship cassettes contaminated with blood or other body fluids to an Eastman Kodak Company facility for evaluation unless they have been decontaminated. Please utilize "universal precautions" and decontaminate the cassettes with either an EPA registered tuberculocidal (list B) or dilute bleach (1:10 with water) solution prior to shipping.

CAUTION:
Kodak DirectView **CR Cassettes contain lead. Disposal of components that contain lead may be regulated due to environmental conditions. For disposal or recycling information, contact your local authorities or visit the Electronics Industry Alliance web site at http://www.eiae.org.**

Cleaning Cassettes

IMPORTANT: *Remove the storage phosphor screen from the cassette shell before cleaning the cassette exterior.*

Clean the surface of the cassette shell with any of the following solutions. Other solutions are not recommended.

- *Kodak* Intensifying Screen Cleaner and Antistatic Solution
- Mild soap-and-water solution
- Isopropyl Alcohol

NOTE: Be sure the cassette shell is completely dry before replacing the phosphor screen. You may need to use compressed air to blow debris from the cassette interior.

Replacing Erase Lamps

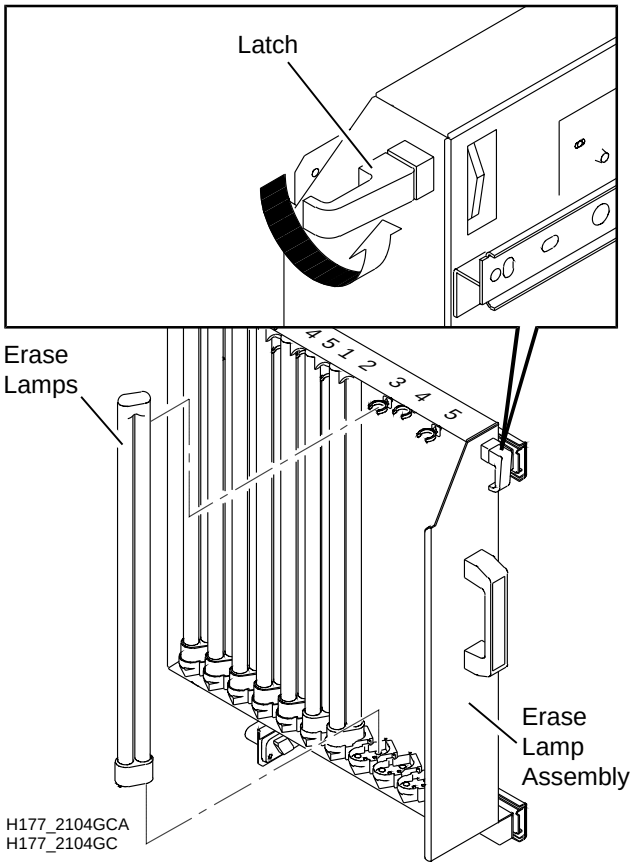
The part number for ordering the erase lamps is 7E 9471. When you place an order, you will receive two lamps; they are replaced in pairs. In the United States and Canada call 1-800-431-7278 to place your order. For all other locations, contact your Kodak representative.

You can replace the erase lamps from the front of the machine without using any tools.

NOTE: Kodak recommends that you have a Mercury Removal Plan in place in the event that a bulb breaks while changing.

CAUTION:
This product contains amounts of mercury. Disposal of components containing this material may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or visit the Electronics Industry Alliance Web site at http://www.eiae.org.

1. Open the front door.
2. Release the latch and pull out the erase lamp assembly.



3. Remove the erase lamp to be replaced. When installing new erase lamps, start at the bottom lamp.
4. When all the erase lamps have been installed, push the erase lamp assembly back into position.
5. Close the front door and be sure that it is fastened. Wait until the CR System initializes.
6. Reset the counter for the lamp pair. See "Statistics" on page 9-5.

9 Key Operator Functions

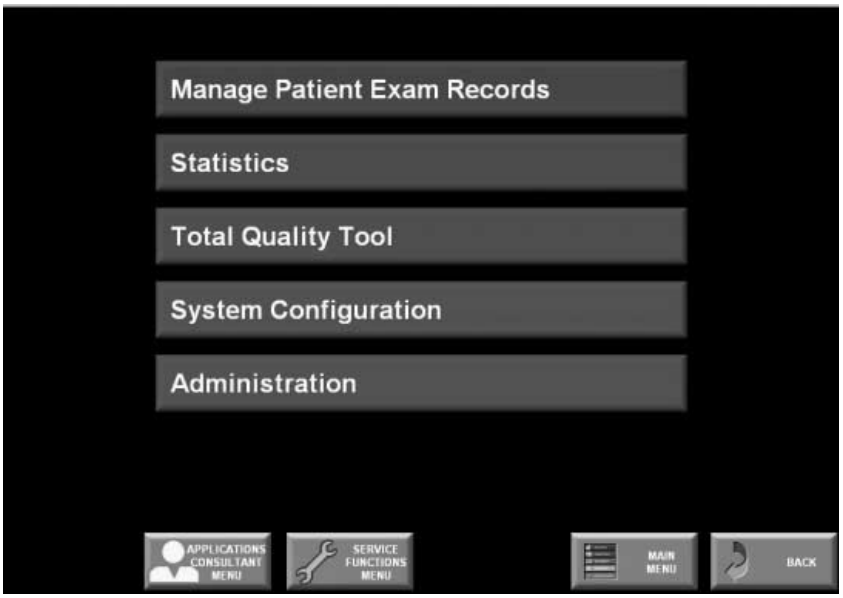
Introduction

The Key Operator is responsible for setting the configuration defaults and operating parameters for the CR System. CR System configuration is done at installation to maximize workflow and System operation, and to optimize workflow.

You may need to change the CR System configuration. At the **Key Operator Functions** menu, enter a password to change the CR System configurable features.

To access the Key Operator functions:

1. At the **Main Menu**, touch **Key Operator Functions**.
2. If applicable, at the password entry screen, enter your password and touch **Login.**



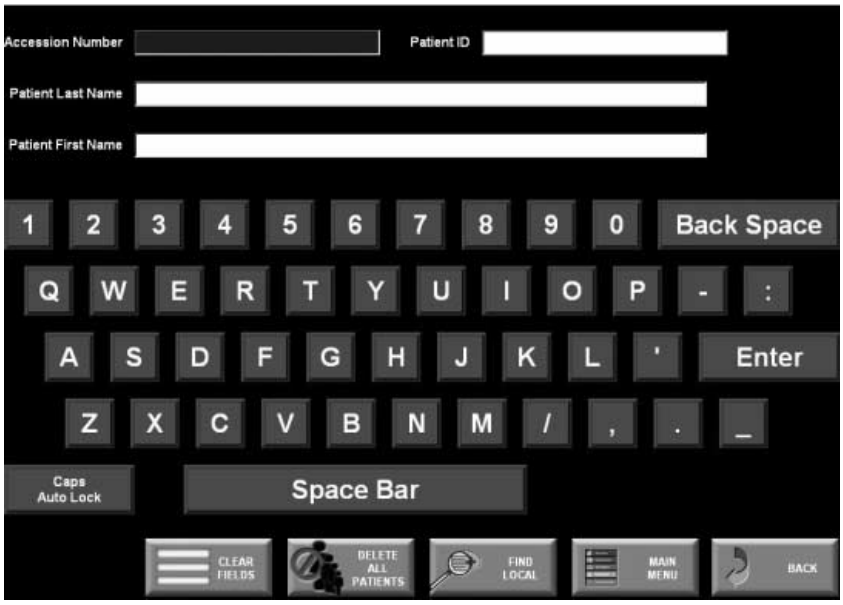
Key Operator Functions Menu

The ***Kodak DirectView*** CR System Key Operator **Menu** includes:	
Manage Patient Exam Records	Delete existing Patient Records from the Patient Worklist.
Statistics	View the scanner, cassette, technician and destination statistics.
Total Quality Tool	Evaluate CR System and cassette image quality.
System Configuration	Configure your system for your operation and optimize workflow.
Administration	Set up and maintain user names, passwords, and the screen saver feature.

Managing Patient Exam Records

You can delete specific Patient Exam Records that appear on the **Patient Worklist** screen. To do this, use the worklist that appears after a Query.

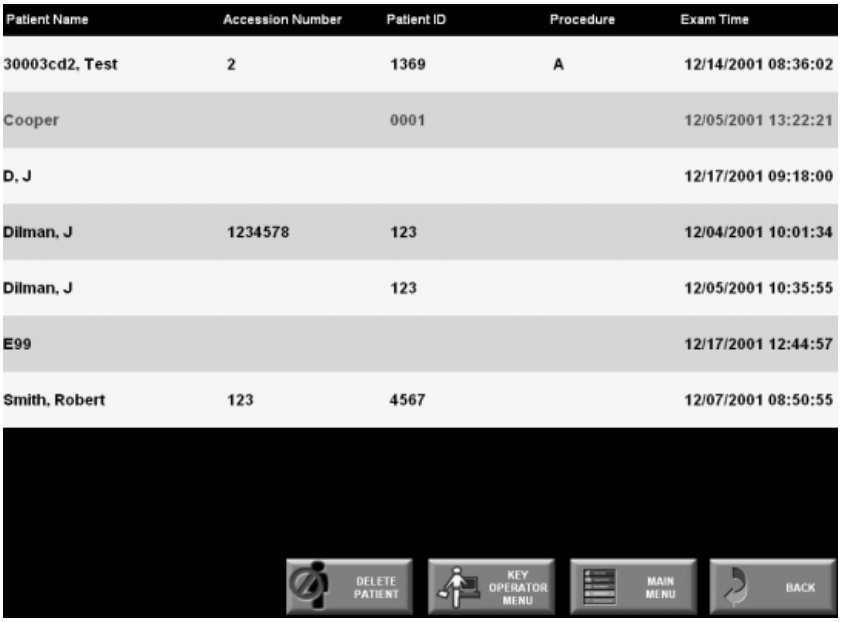
1. At the **Key Operator Functions** menu, touch **Manage Patient Exam Records.**



Manage Patient Exam Records

2. Touch **Find Local** to display the **Patient Worklist** screen.

   You can also enter patient criteria to narrow your search for specific patients.



Patient Worklist

3. Locate the appropriate patient record to delete from the **Patient Worklist** screen. If necessary, use **Go to Page X of X** to scroll through the worklist.
4. When you locate the patient, touch the patient's name on the **Patient Worklist** screen, then touch **Delete Patient.** The screen refreshes.

NOTE: If you select the incorrect patient, or decide not to delete a patient, do not touch **Delete Patient.**

5. Touch **Back** to return to the **Search Query** screen.

NOTE: Names and exams in red contain images that are either available, pending delivery, or failed delivery. You cannot delete these records until they are corrected.

Statistics

At the **Statistics** menu you can compare scan and erase cycles, view the cassette, technologist and destination statistics and check the status of your destinations.

Cassette Statistics

1. From the **Key Operator Functions** menu, touch **Statistics** and then touch **Cassette Statistics**. Use the data to evaluate cassette performance.
2. Touch **Clear Stats** to clear the data fields.

Cassette Statistics Screen

Destination Statistics

1. At the **Key Operator Functions** menu, touch **Statistics,** then touch **Destination Statistics**. The screen displays all network destinations, the number of successful deliveries, number of failed deliveries, and the successful delivery percentage. The data updates every time you deliver an image.
2. Touch **Clear Stats** to clear the data fields.

Destination Statistics Screen

Technologist Statistics

At the **Key Operator Functions** menu, touch **Statistics** and then touch **Tech Statistics.**

This screen lists all the technologists in the system.

Technologist Statistics

- Touch a column heading to sort the listing based on that field.
- Touch **Clear Stats** to clear the data for all of the technologists.
- Touch a row to display the statistics associated with a technologist.

Technologist Statistics Screen 2

1. Touch **Clear Stats** to clear the data for this technologist.
2. Touch a row to display the statistics associated with every image for this technologist.

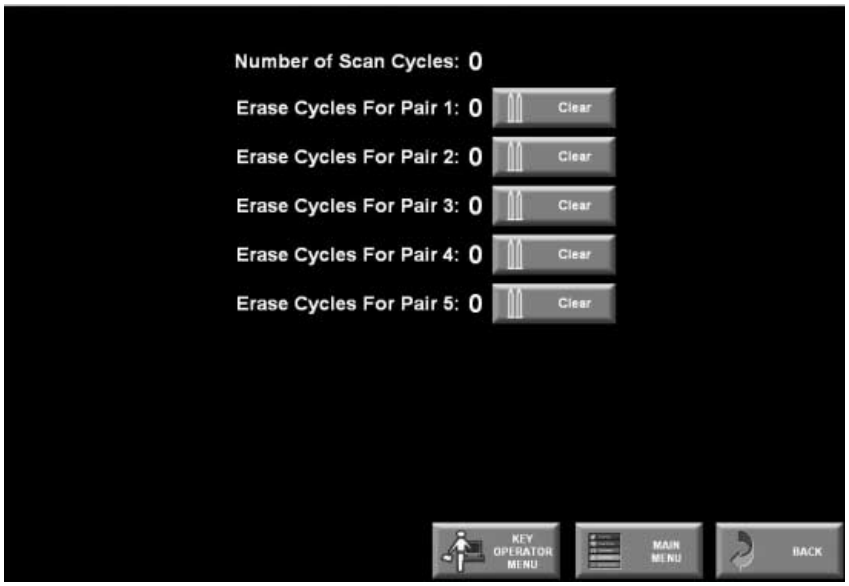
NOTE: An Exposure Index of zero is no longer used to calculate the average Exposure Index displayed on the Technologist Statistics screen.

Technologist Statistics 3

Touch a row to view the complete Reject Reason data.

Scan Cycles

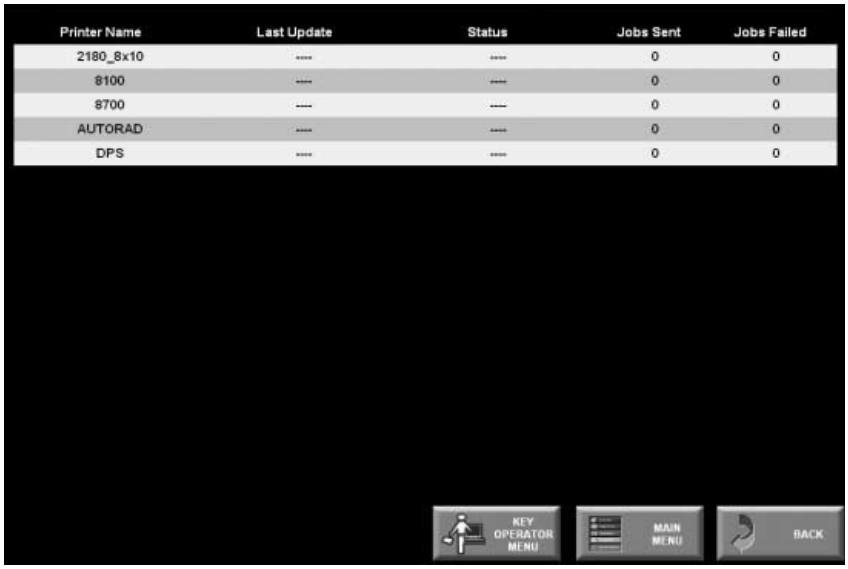
1. At the **Key Operator Functions** menu, touch **Statistics.**
2. Touch **Scan Cycles.**
3. If the Erase Lamps are replaced, touch **Clear** to set the cycle to zero.



Scan Cycles

Destination Status Summary

At the **Key Operato Functions** menu touch **Statistics** and then touch **Destination Status Summary** to display the status for each destination.



Destination Status

The screen displays the last time data was sent to the destinations listed and the status of the devices at that time.

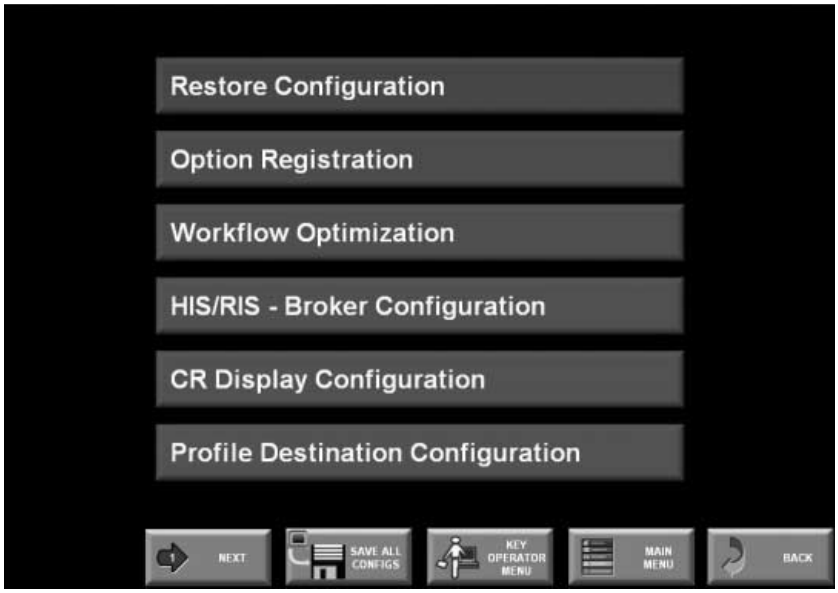
System Configuration

The *Kodak* CR System is highly configurable and integrates well into the digital radiology department. You can configure, save and restore many attributes of the CR System for your operation and optimize workflow:

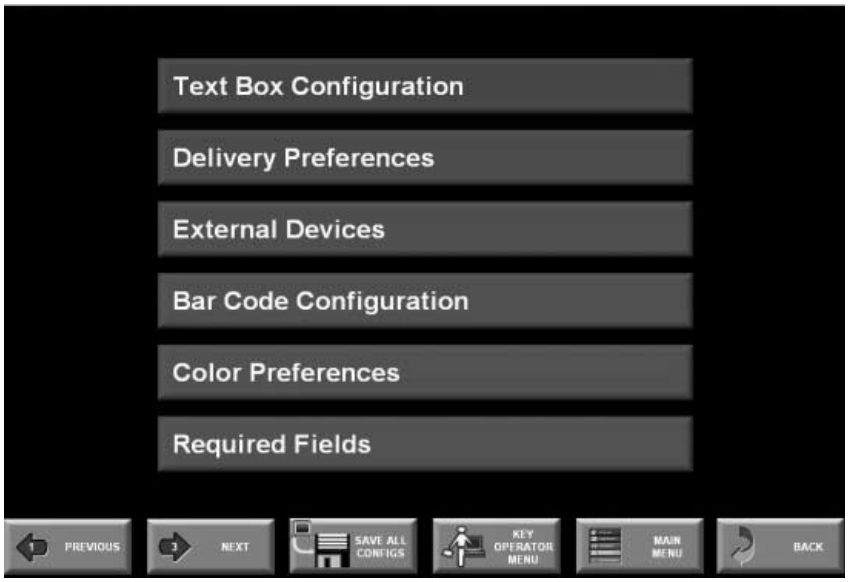
- **Configuration Settings—**Due to the advanced printing features incorporated in the CR System software, take care when configuring the system. Generate test films when making changes that affect printed output. This ensures that the changes made are compatible with the printers you will be using. Once configured, you can save the settings for backup or transfer them to another CR System.
- **Option Registration —**Install optional features easily.
- **Workflow Optimization —**Defining lists optimizes workflow by reducing the amount of time it takes to create an exam and eliminating typographical errors. There are lists for Departments, which can be used to help deliver images to the correct locations, Physicians, and Procedures. Workflow Optimization lets you map images to procedures, that is, when you select a procedure from the list, or the RIS feeds the CR System a Procedure Code, all the image icons are built automatically. You can construct Trauma defaults for up to 35 patients.
- **HIS/RIS Broker Configuration—**Lets the CR System communicate with your RIS, displaying the patient work list. You can also query the RIS for individual patients.
- **CR Display Configuration—**Lets you define default query criteria and how query results are displayed. You can disable the Right and Left markers here.
- **Profile Destination Configuration—**Lets you tell the CR System where to deliver images. You can deliver based on body part, projection, cassette size, or department. This saves time by automatically delivering the images where you want.
- **Text Box Configuration—**You can define what information appears on the film, allowing you to see only the information that is important to you and not taking up space with unnecessary data.
- **Delivery Preferences —**Lets you set CT Pixel spacing so that measurements on workstations can be displayed in pixels or in mm. You also set the name and address of your hospital here.
- **External Devices —**Lets you add ROPs, RPDES terminals, or a remote Key Operator PC to your system.
- **Bar Code Configuration —**Lets you program the bar code scanner to automatically recognize Tech IDs, Accession Numbers, Patient IDs, or Cassette IDs, populating these fields with the information without the technologist having to highlight them manually.

- **Color Preferences —**Lets you customize the colors on your system.
- **Required Fields —**Lets you determine which fields are required before an exam is submitted or delivered. If you are using Reject Reasons, you may want to make Tech ID a required field.
- **System Maintenance Defaults —**Lets you set the high and low watermarks for the disk, balancing between performance and image retention.
- **Regional Settings —**Pick the time zone and date format for the system to use.
- **Configure Monitor—**Select monitor viewing default settings.
- **Default Body Parts —**Select the default body part and projection to use to process an image if none are selected.
- **Calibrate Touch Screen—**Lets you calibrate the touch screen so that when you touch a button, you select the one you want.

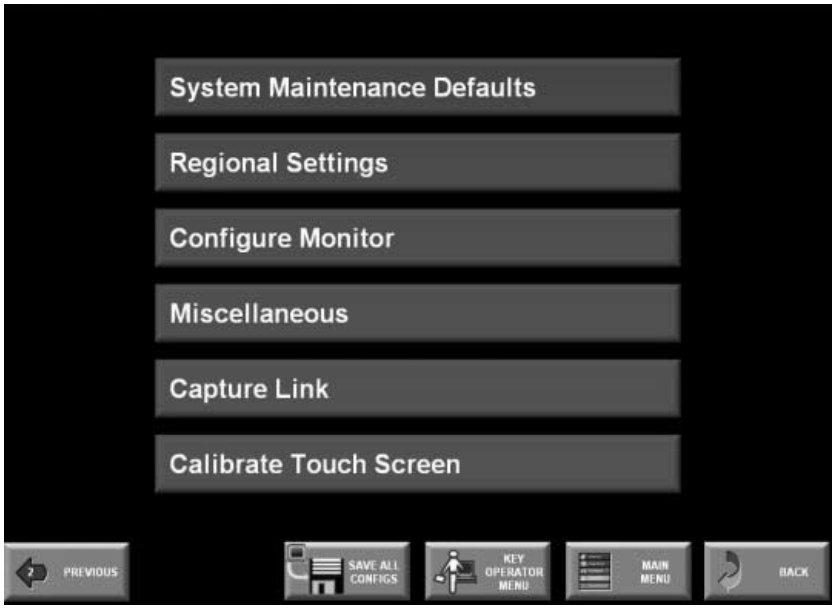
At the **Key Operator Functions** menu, touch **System Configuration.** There are three System Configuration screens.



System Configuration Menu Screen 1



System Configuration Menu Screen 2



System Configuration Menu Screen 3

Saving System Configurations

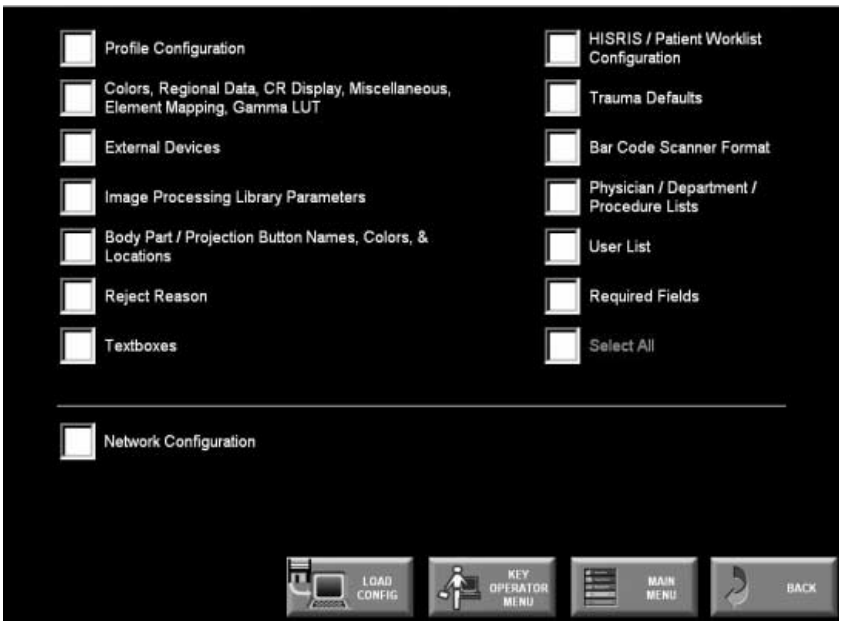
1. Insert a disk into the CR System and touch **OK**. If you do not insert a disk, the CR System prompts you to do so.
2. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Save all Configs.**

Restoring Configurations

You can save configurations to a floppy disk for backup purposes, then load (restore) them. Using this technique you can copy settings from one CR System and transfer them to other systems, reducing the time it takes to change the configuration of multiple machines.

To restore system configuration information:

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Restore Configuration.**



Restore Configuration

2. Insert the floppy disk that contains the configuration information into the CR System.
3. Touch each check box to select the options you want to load, or touch **Select All**.

NOTE: Do not select items below the line unless you are restoring settings to the same machine.

4. Touch **Load Config.**

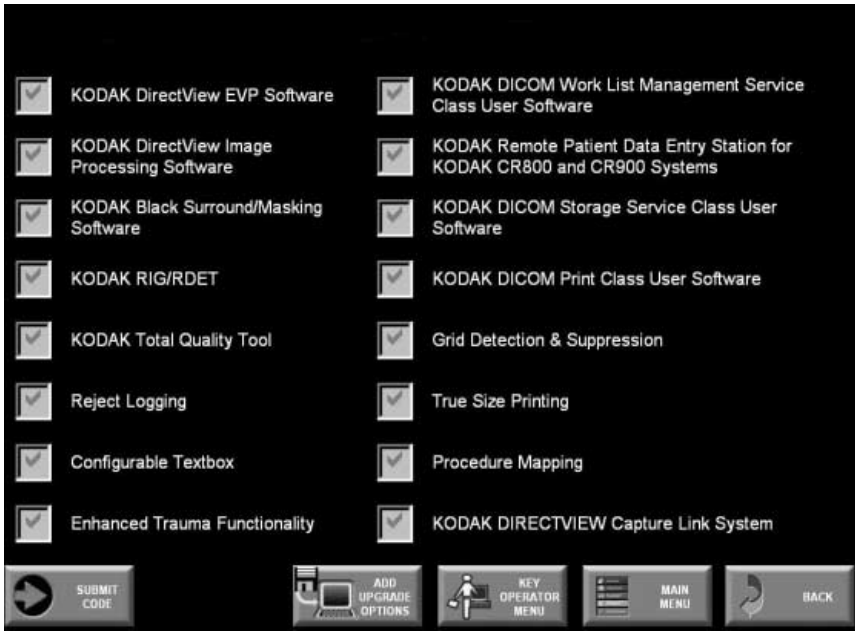
You may have to restore the following items manually following the **Restore** operation from floppy diskette:

At this Location	Restore this Item
Required Fields Screen	Required to Submit Exam Information
Required Fields Screen	Required to Deliver Images to Mandatory Destinations
Delivery Options Screen	Use a Unique Image for Every Image in Study
User Login Configuration Screen	User Login Active

NOTE: **Restore** adds a default Profile automatically. You can delete this profile with no affect to the system.

Option Registration

You activate upgrade options at the **Option Registration** Screen.

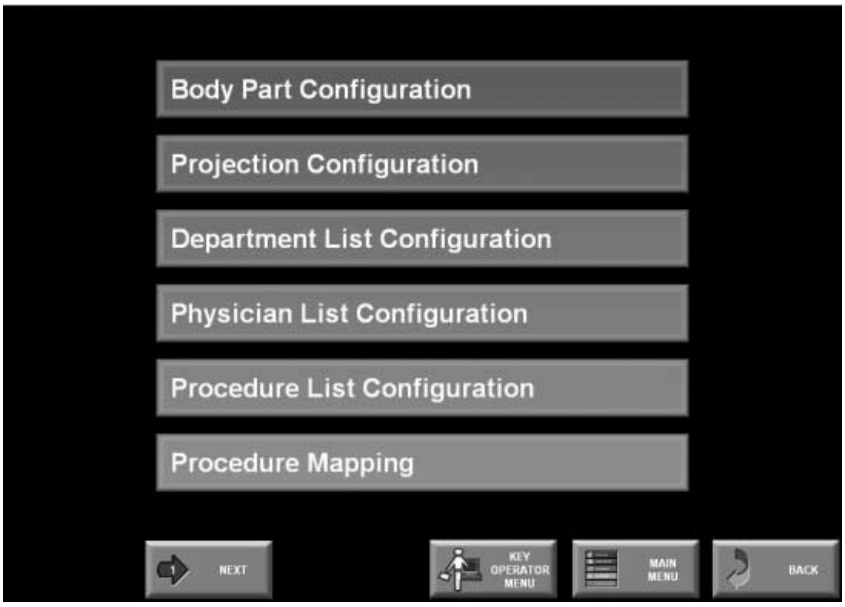


Option Registration

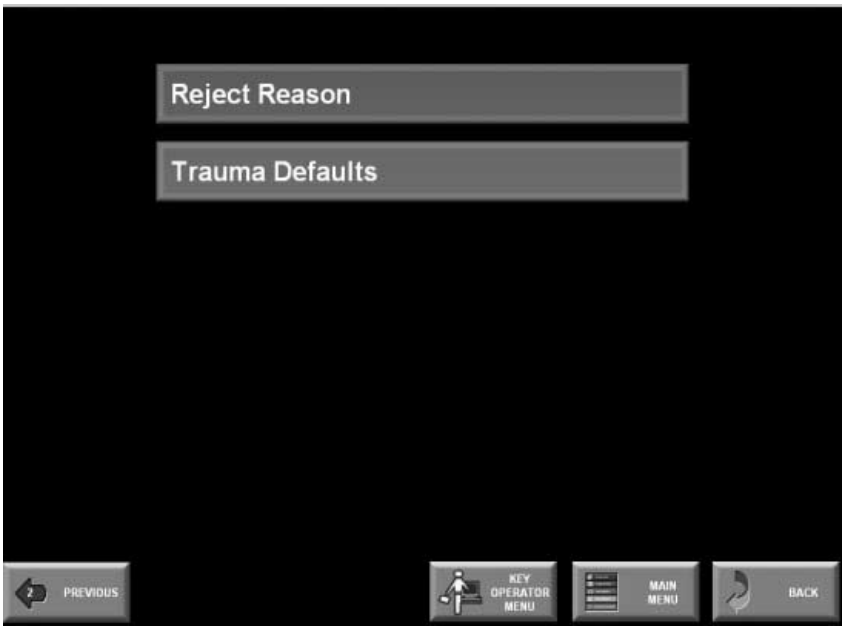
1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Option Registration.**
2. Install the appropriate floppy disks containing the options for the upgrade.
3. Touch **Add Upgrade Options.**
   - If you have lost your disk and need to reload features, call the Kodak Technical Service Center for assistance.
   - The options that are checked are installed.

Workflow Optimization

Use the **Workflow Optimization** setup procedures to customize your CR System and increase productivity.



Workflow Optimization Menu 1



Workflow Optimization Menu 2

Changing Button Names, Colors, and Position

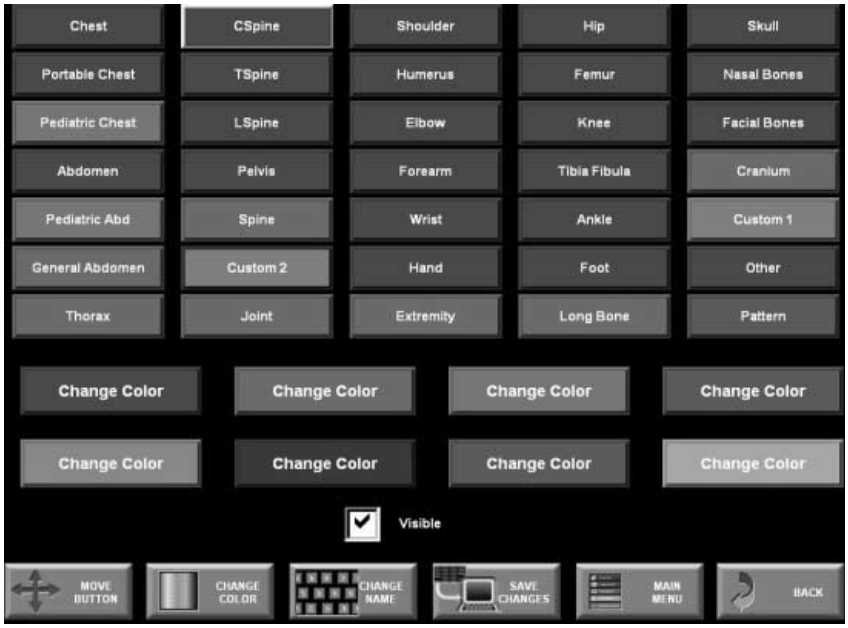
The procedures for changing the names, colors, and position are consistent for all the configuration setups. You may want to change the locations or colors of buttons so they are grouped more logically for your hospital.

Changing Button Names

1. Touch the button you want to change.
2. Touch **Change Name.**
3. Enter a new name using the virtual keyboard, and touch **Save Changes.**

Changing Button Colors

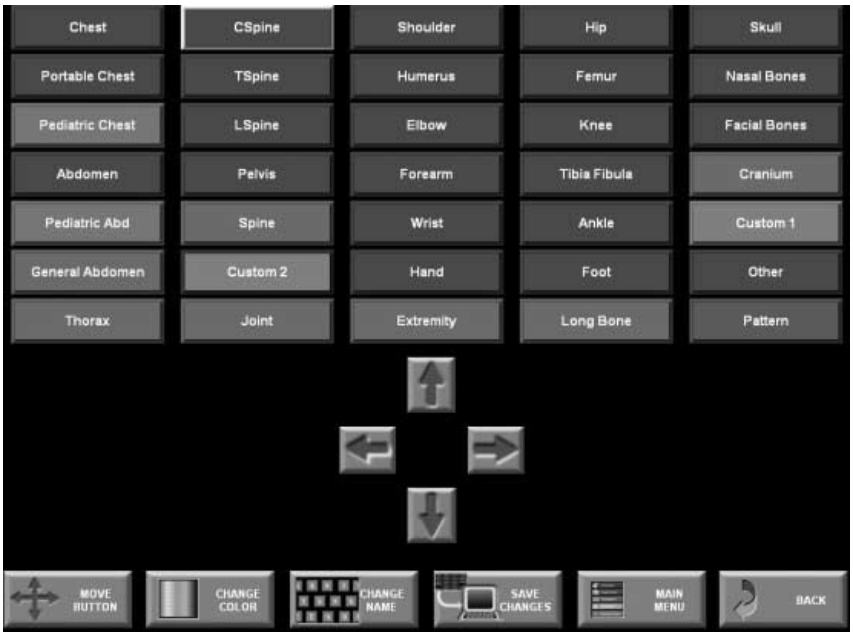
1. Touch the button you want to change.



2. Touch **Change Color.**
3. Touch one of the eight **Change Color** buttons, and touch **Save Changes.** If you want to create a custom color for one of the eight color choice buttons, see 9-70.

NOTE: If there is a button that you do not want to appear on the screen, clear the **Visible** check box.

Changing Button Location



1. Touch the button you want to move.
2. Touch **Move Button**.
3. Touch the arrows until the button is in the location you want.
4. Touch **Save Changes.**

NOTE: Make all of your changes and then touch **Save Changes.**

Body Part and Projection Configuration

You can configure the body part and projection screens to meet your needs.

- Change the color, name, and location of the button as it appears on the pop-up keyboard.
- Hide any buttons not to be displayed.
- Re-organize the buttons into groups or sequence of appearance.
- Customize existing buttons.

Department and Physician List Configuration

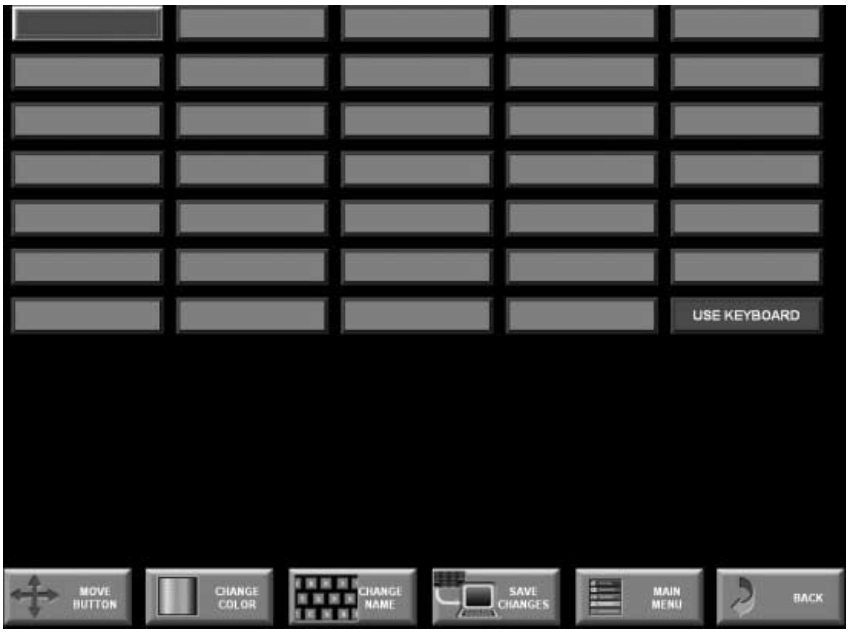
You can define a list of all departments, physicians, and procedures to minimize the amount of data entry by the technologist and to eliminate typographical errors. You can use Department lists for Profile Destination Configuration.

When the lists are defined, select the field on the **PEC Input Screen** to display the list. Select the data you want to appear in the field.

Example of Referring Physician List

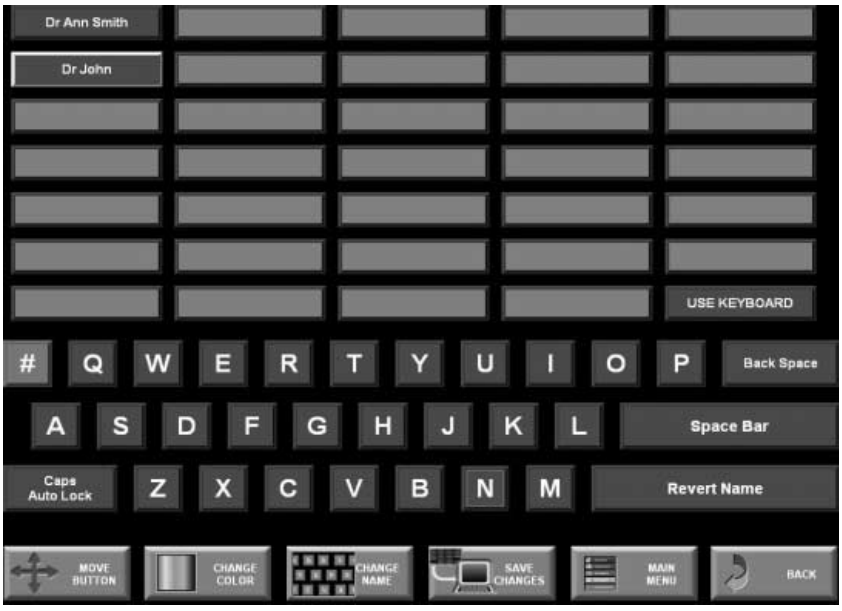
To add a Department or a Physician:

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Workflow Optimization.**
2. Touch **Department List Configuration** or **Physician List Configuration.**



Referring Physician List Configuration Screen

3. Touch a button.



Change Name

4. Touch **Change Name** and enter the name.
5. Change the color and position of the button if necessary.
6. Touch **Save Changes.**

Procedure List and Procedure Mapping Overview

You can use these two features together or independently to automatically create image icons for procedures you do in your department.

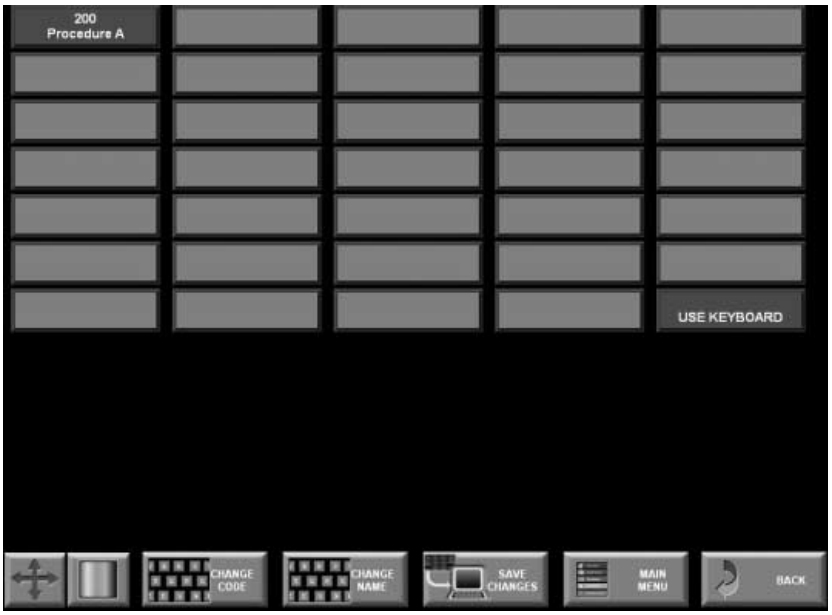
- **Procedure List—**lets you create 34 buttons that appear when you touch the Procedure field on the PEC input screen. Procedure Lists must have a Name and a Procedure Code.
- **Procedure Mapping—**lets you create image icons for the 34 Procedure buttons you created using the Procedure List option. You can also create image icons for hundreds of procedures from your RIS system.

NOTE: See Appendix B for a listing of default procedure codes from Kodak.

Procedure List Configuration

You can define up to 34 procedures by assigning names and procedure codes. Subsequently, during the examination, after selecting a procedure code and configure the procedure mappings, the image icons appear automatically.

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Workflow Optimization.**
2. Touch **Procedure List Configuration.**



Procedure List Configuration

3. Touch **Change Code**.
4. Enter a Procedure Code. If your RIS generates Procedure Codes, enter those codes here.
5. Touch **Change Name.**
6. Enter a Procedure Name.

7. Change the color and location of the buttons if necessary.
8. Touch **Save Changes.**

NOTE: You can make all of your changes and then touch **Save Changes**.

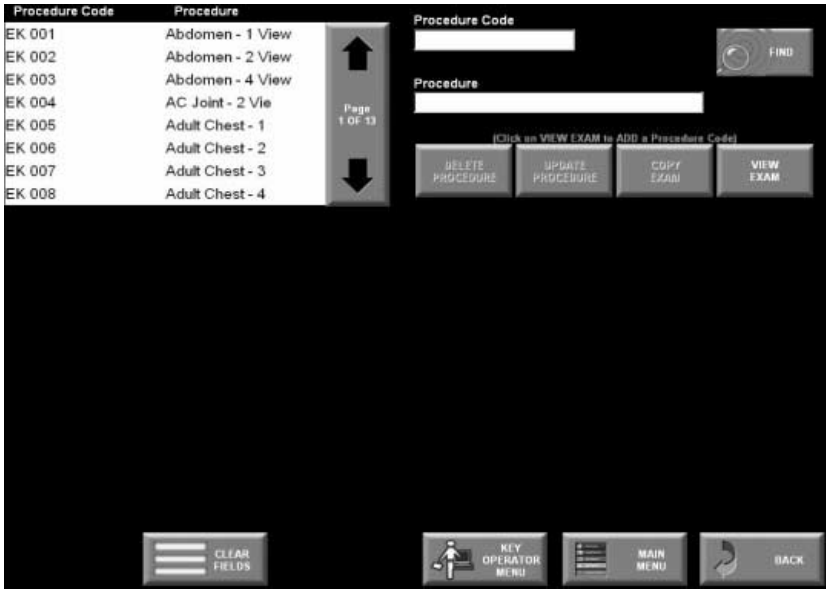
Procedure Mapping (Option)

Procedure mapping associates the images required for a procedure. When you select a procedure, the image icons appear automatically in the Study Data area.

If you use the appropriate RIS codes, the image icons display automatically when the modality worklist is used.

NOTE: The Worklist SCP should use the Code Value element (0008,0100) of the Requested Procedure Code Sequence.

You can map procedures directly from the CR System, or from *Internet Explorer* on the Remote Key Operator computer. See "Default Procedure Codes" on page B-1.



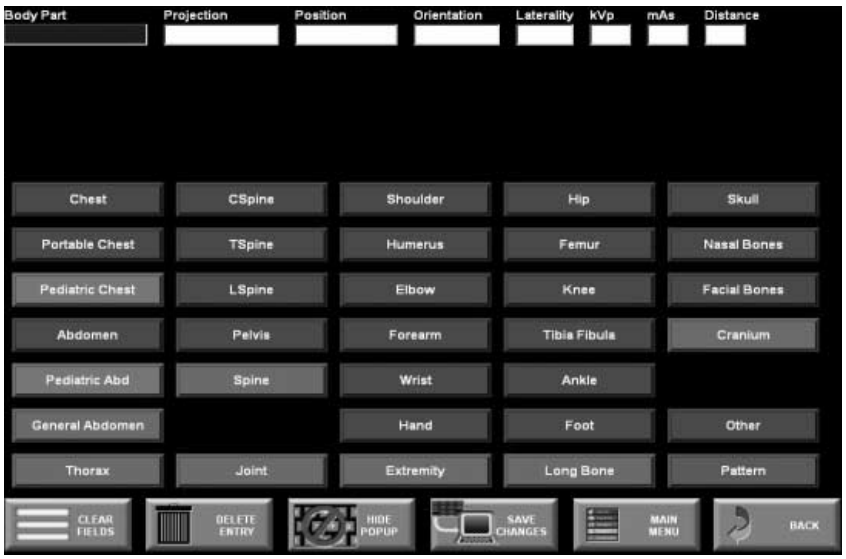
Procedure Mapping Defaults

Procedure Mapping on the CR System

1. At the **Key Operator Functions** menu touch **System Configuration** then touch **Workflow Optimization.**
2. Touch **Procedure Mapping.** If the procedure is listed, touch the procedure and go to step 5. See "Default Procedure Codes" on page B-1. To edit the default procedures, see page 9-27 and "Using a HIS/RIS System" below.

NOTE: If the procedure code is listed in black, it has been assigned to a button. Otherwise, it is listed in blue.

3. Touch the **Procedure Code** field and enter the Procedure Code.
4. Touch the **Procedure** field and enter the Procedure.
5. Touch **View Exam**.

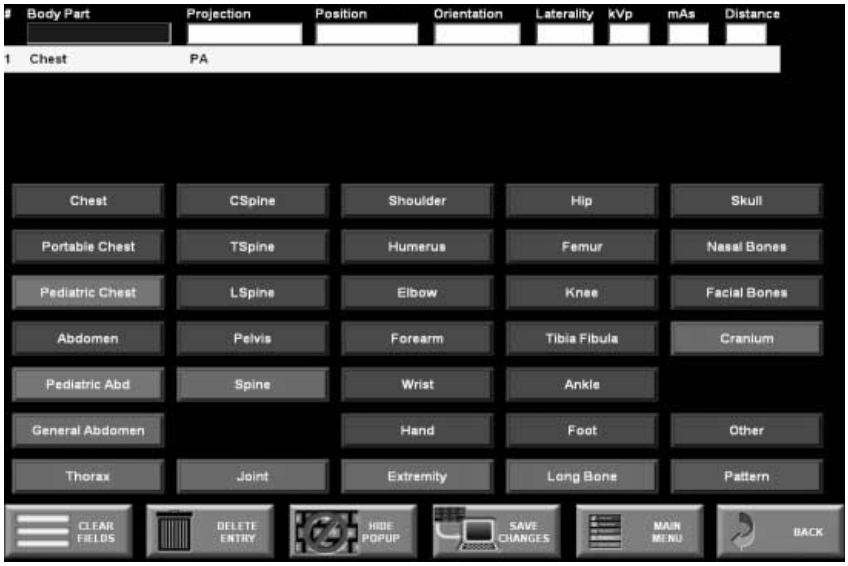


View Images

Select the following:

- Body Part (Required)
- Projection (Required)
- Position
- Orientation
- Laterality
- kV
- mAs
- Distance

6. Touch **Save Changes**.



7. Repeat steps three through six for each additional image and touch **Save Changes.**
8. Touch **Back** to return to this screen. Repeat these steps for each procedure you want to map.

NOTE: There is a limit of 30 images you can map per procedure. See "Default Procedure Codes" on page B-1.

Using an Existing Procedure to Create a New Procedure

1. Enter a new Procedure Code.
2. Enter a new name.
3. Touch the **Procedure Code** from which you want to create the new procedure.
4. Touch **Copy Exam.**

   The images from the procedure you selected in the procedure list are copied to the new procedure.

Mapping more than 34 Procedures

You can add more than 34 procedure codes, but they won't appear as buttons. To do this, follow steps 3 - 8 of "Procedure Mapping on the CR System".

Editing Procedure Codes and Names

If you need to change the name or Procedure Code, for example, if you want to change the procedure code to one of the default procedures to a code that is compatible with your RIS, do the following:

1. Enter a new code.
2. Enter a new name.
3. Touch the **Procedure Code** or **Procedure** in the list that you want to edit.
4. Touch **Update Procedure.**

Using a HIS/RIS System

To configure Procedure Mapping to work with your HIS/RIS System, make sure that the code you enter for the Procedure matches the code that comes from the RIS. You can use any number for the Procedure Code, however, it will only work automatically with the HIS/RIS when the codes match exactly.

For example, if you had a HIS/RIS procedure "2-view Chest" code 102 and you want to create a procedure on the CR System called 2-view Chest:

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Workflow Optimization.**
2. Touch **Procedure Mapping**.
3. Create a procedure named 2-view Chest and enter a code of 102.
4. Select the icons you want to be displayed when a 2-view chest procedure is ordered, such as an AP and LAT chest.

   When the work list on the CR System is updated and the RIS code 102 is received, the AP chest and LAT chest image icons are automatically displayed.

Deleting a Procedure

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Workflow Optimization.**
2. Touch **Procedure Mapping.**
3. Touch the procedure that you want to delete and touch **Delete**.
4. Touch **Save Changes.**

Procedure Mapping Using the Remote Key Operator

You can use the Remote Key Operator to create or change Procedure Mapping with these features:

- **Add—**Enter a new Procedure Code (required) and Procedure Name and use the pull-down menus to map the associated exams.
- **Find—**Search for a Procedure Code or Procedure Name.
- **Update—**Edit the Procedure Code or Procedure Name.
- **Copy From—**Copy from an existing Procedure Code to a new or existing Procedure Mapping entry.
- **Delete—**Delete the procedure mapping for any existing procedure.

NOTE: There is a limit of 20 images you can map per procedure. See Appendix B for a listing of default procedure codes from Kodak.

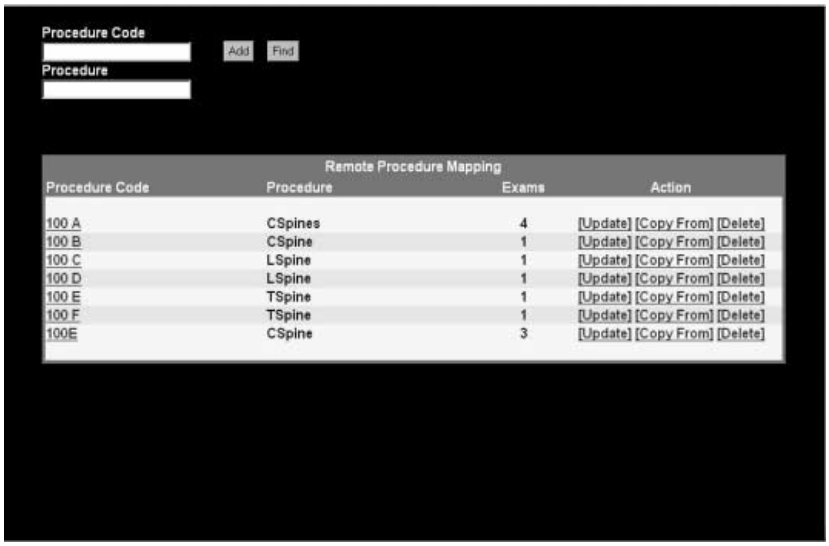
Adding a New Procedure

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **Next,** touch **External Devices**, and then touch **Remote Key Operator.**

2. Enter the IP address of the Remote Key Operator Workstation and touch **Save Changes**.
3. At the Remote Key Operator Workstation, open a Web browser.
4. Type the IP address of the CR System and press **Enter.**

Remote Key Operator Logon

5. Log on with your Key Operator user name and password if applicable.
6. Touch **Procedure Mapping.**



Remote Key Operator Procedure Mapping

7. Enter a new Procedure Code (required) and Procedure Name and touch **Add.**

Add Procedure

8. Use the pull-down menu to select the following:
   - Body Part (Required)
   - Projection (Required)
   - Position
   - Orientation
   - Laterality
   - kV
   - mAs
   - Distance
9. Touch the **Delete** check box to remove the exam from the form.
10. Touch **Update** and **Back** when finished.

Locating Procedures

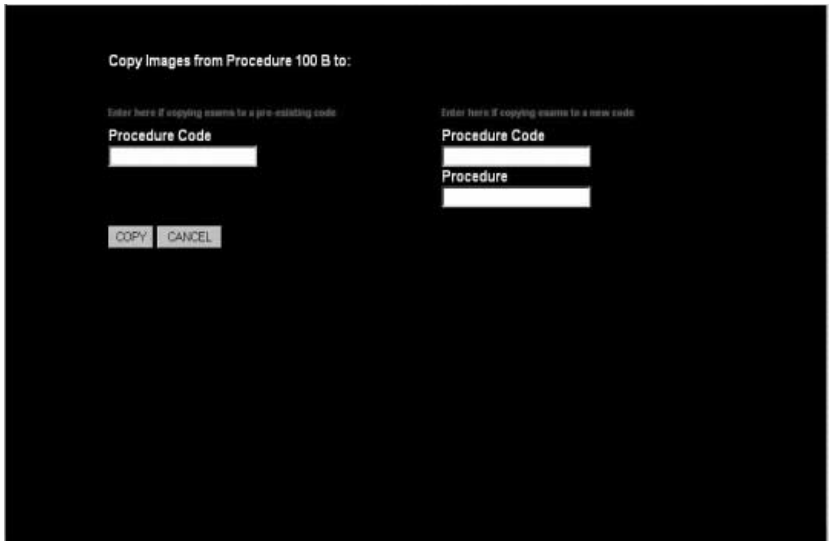
1. From the **Remote Key Operator Procedure Mapping** menu enter the Procedure Code and Procedure Name and touch **Find**.
2. The procedure appears, or a message that no matches were found.

Editing Procedures

1. From the **Remote Key Operator Procedure Mapping** menu enter a Procedure Code and Procedure Name or select Update from the list of existing Procedure Codes.
2. Edit the procedure mapping from the pull-down lists.
3. Touch **Update** and **Back** when finished.

Using an existing procedure to Create a New Procedure

1. At the **Remote Key Operator Procedure Mapping** screen, touch **Copy From** on the procedure you want to use.



Copy From

2. Enter the Procedure Code for an existing code or a new Procedure Code, and touch **Copy**.

Deleting a Procedure

1. Touch the **Delete** button next to the procedure you want to delete and touch **Enter**.
2. The message "Do you really want to delete this procedure mapping?" appears. Touch **Yes**.

HIS/RIS Broker Configuration

Introduction

The *Kodak DirectView* CR Systems utilize DICOM Worklist Management to receive study information from the hospital's HIS/RIS, usually via the *Mitra* PACS Broker.

You can set up your CR System to communicate with the HIS/RIS in any combination of the following:

- **Polling—**the CR System requests records at a defined interval, filtered by modality, station name, A/E title, and date and time.
- **Push—**every time a record is created or changed, the Broker sends the CR System an event notification. The CR System requests specific data associated with the event. The record is transmitted once, and is sent as soon as it is received by the Broker.
- **Remote Patient Query—**a single patient query, configured on the **Polling** screen, queried from the **Patient Query** screen.

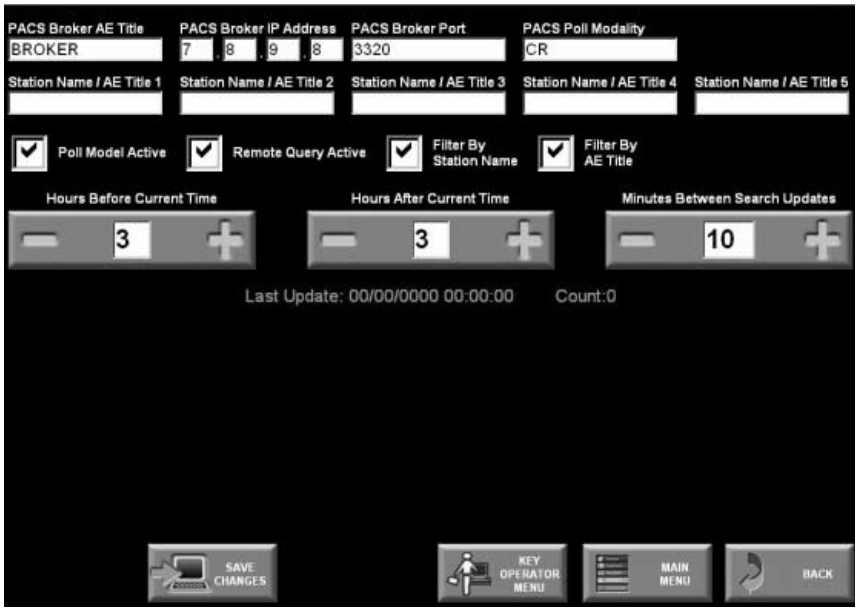
You can set up your system to operate in any combination, for example:

- Activate **Push** to reduce the workload impact on the HIS/RIS or PACS Broker.
- Activate **Polling** and set the time interval to 24 hours to receive a complete update once a day.

If polling is active, each time the CR is started the initial complete query is started and the timer begins for the next query. For example, if the CR is started at 9:07 and is set to poll every 20 minutes, the first query is at 9:07 and the second one is 20 minutes later, 9:27.

HIS/RIS Broker Configuration

1. At the **Key Operator Functions** menu touch **System Configuration**, then touch **HIS/RIS Broker Configuration.**
2. Touch **Polling Configuration.**



Polling/Remote Configuration

3. Use the following table to make your selections and then touch **Save Changes.**

PACS Broker AE Title	Broker Name, normally BROKER
PACS Broker IP Address	PACS Broker IP Address
PACS Broker Port	PACS Broker Port, normally 3320
PACS Poll Modality	Normally CR
Station 1-5 ID	Enter your station names or AE Title. The system retrieves records that only contain the names specified.
Poll Model Active	Select to activate Polling Configuration.
Remote Query Active	Select to turn on the Remote Patient Query Option.
Filter By Station Name **Filter By AE Title**	Select either Station Name or AE Title to filter the information. Only records that contain matching data in these fields appear.
Search Time Criteria	Initial search time: (default is + 12 hours, 48 hours is maximum). Only records that have a date and time that falls in this range appear.

Last Update	Indicates the last date and time records were received.

Push Configuration

NOTE: Not all Brokers support DICOM event notification.

The Broker must be configured to send the following event information:

- STUDY_CREATED
- STUDY_DELETED
- STUDY_UPDATED
- STUDY_SCHEDULED

1. At the **Key OperatoFunctions** menu touch **System Configuration** and then touch **HIS/RIS Broker Configuration.**
2. Touch **Push Configuration.**

Push Configuration

3. Use the following table to make your selections and then touch **Save Changes.**

Push Connection Active	Select to turn on.
PACS Push Port Number	Port of PACS Push System.
PACS Push AE Title	AE Title used to represent the CR System. Must not be a computer name.
Last Update	Indicates the last date and time a record was received.

NOTE: The screen also displays the data associated with the last update from the PACS Broker.

CR Display Configuration

This screen lets you optimize the way data is displayed on the CR System.

1. At the **Key Operator Functions** menu touch **System Configuration** and then touch **CR Display Configuration.**

CR Display Configuration

2. Use the following table to make your selections and then touch **Save Changes.**

Result Sort Order	Select the format for The Worklist: – Alphabetical – Oldest first – Newest first
Default Focus on Patient Query	Select which field has focus on the Query screen.
Default Study Status (Select from Query Screen)	Select the default Status setting of studies to query.
Default Time Window (Select from Query Screen)	Select the default time interval of studies to query.
In Japanese, Kanji Name Gets Tab Focus First	Japanese only - changes the tab focus on the Patient Input screen.

Show ID Window on Image Viewer	Select to display the ID window on the image in the **Image Viewer** screen on the CR System. You can use this to identify the orientation of the cassette during the exposure.
Show Cursor	Select to display cursor.
Allow Tech To Add Digital Markers To Images	Select to enable left and right markers on **Image Viewer** screen.
Speaker Volume	Set the speaker volume.
Amount of Blue Tint on Images	Set the amount of blue tint to add to images displayed on the CR System or the ROP. This does not affect the images delivered to workstations or printers.

Reject Reason Configuration (Option)

This option lets you build a list of reject reasons that a technologist can choose from when rejecting an image. The following Reject Reasons are factory defaults and can be used or deleted:

- Clipped Anatomy
- Patient Motion
- Positioning Error

You can define up to nine reject reasons. The last reason is always listed as **Other Reason**.

To enter **Reject Reasons:**

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Workflow Optimization**.
2. Touch **Next**.
3. Touch **Reject Reason**.

Reject Reason

4. Touch the **Reject Reason** field.
5. Type up to 30 characters for the reason and touch **+** to add it to the **Reason List**. To remove a reason, select the reason and touch **-**.

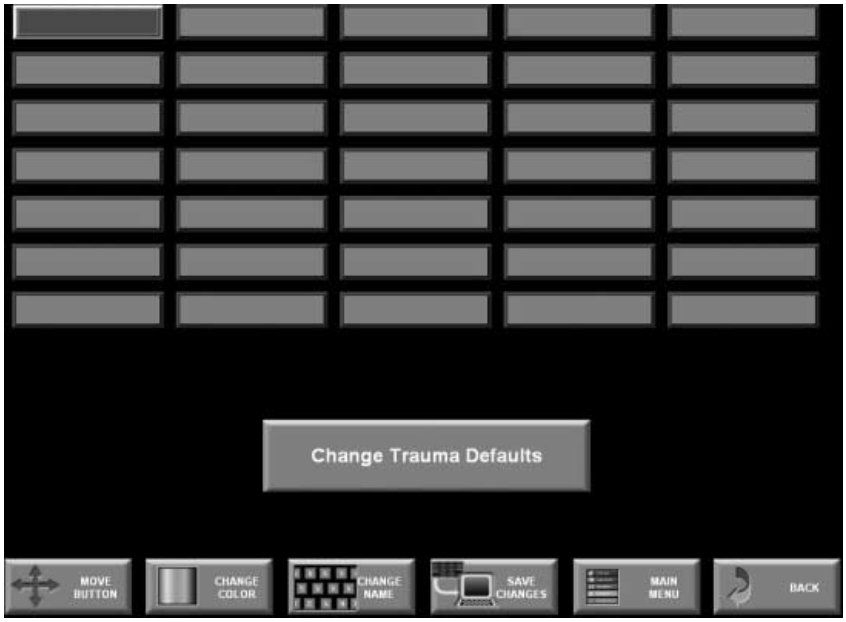
NOTE: Select the **Track Rejects** check box if you want the CR System to track Reject Reasons. The date is stored in the System database and can be viewed or downloaded to the Key Operator PC.

Setting Trauma Defaults (Option)

With this option you can define up to 35 default trauma buttons. Use this data to pre-fill demographic data and procedures for creating a Trauma Study.

To create Trauma defaults:

1. At the **Key Operator Functions** menu, touch **System Configuration** then touch **Workflow Optimization.**
2. Touch **Next.**
3. Touch **Trauma Defaults.**



Trauma Defaults

4. Touch a button.
5. Touch **Change Name.** Enter a name, such as John Doe.
6. Touch **Change Trauma Defaults.**
7. Enter a Procedure Name and Procedure Code so that the Procedure Mapping feature automatically creates image icons. You can use the information from a previously defined procedure. See "Procedure Mapping (Option)".

NOTE: For optimal workflow, complete all required fields, so that no additional information is needed before saving to the database or routing the image.

8. Touch **Save Changes.**

For example, create a procedure named MVA for a motor vehicle accident, and enter this procedure for Trauma patient John Doe. When you select John Doe, the image icons you defined for an MVA appear.

Using Unique Numbers

The Unique Number feature lets you assign unique numbers to trauma patients. For example if you have multiple trauma patients at once, each time you select a new trauma patient, a unique number is assigned to the field you select. This lets you keep separate exams for each patient.

You can enter a unique number in the following fields:

- Patient Last Name
- Patient First Name
- Patient ID
- Accession Number

The number increments each time you create a new Trauma PEC record.

1. When entering data for the field, touch the Unique Number.
2. Touch a number (1 - 4) that represents the number of digits you want to use for the Unique Number. Percent (%) signs appear in the field.

   For example, if you input Trauma %%% in the Accession Number field, the first patient is numbered Trauma 001, the next Trauma 002, etc.

Profile Destination Configuration

A profile is the set of destinations where images are sent. In the CR System, Image Routing is controlled by profiles.

A profile has three components:

- Name
- Criteria (Cassette Size, Body Part, Projection, and Department)
- Destinations to which the data is sent when the criteria matches

NOTE: Define multiple profiles with criteria so you can assign the data's destinations.

The criteria fields are listed on the CR System by priority in the following sequence (highest priority listed first):

- Cassette Size
- Body Part
- Projection
- Department

Therefore, a profile with a Cassette Size filter appears before any other profile.

When an exam is routed, the information contained in the Patient Record is compared to the information contained in the criteria fields of all defined profiles, similar to performing a query. The System assigns destinations based on the first profile match it finds. If the image matches more than one profile, the System assigns the first profile in the list that matches all criteria.

Default Profile Configuration

A default profile is defined automatically by the System. It appears in the list of profile destinations with an (*) asterisk next to the name. You can rename the default profile, but you cannot delete it.

There must be only one default profile. If the data doesn't match the criteria for any of the existing profiles, the system uses the default profile destination.

Configuring Profiles

1. At the **Key Operator Functions** menu, touch **System Configuration**, then touch **Profile Destination Configuration.**

Profile Destination Configuration

2. Touch **New Profile.**

Profile Destination Configuration New Profile

NOTE: There is only one default profile, set automatically by the system. You can rename the default, but it is the default profile used when all other criteria fail.

3. To set up a profile that routes all images created with specific Cassette Sizes to a specific destination:
   a. Enter the name of the profile into the **Profile Name** field.
   b. Enter a specific Cassette size into the **Cassette Size** field.
   c. Leave the remaining fields blank.
   d. Select the destinations you want.
   e. Touch **Save Profile.**
   f. Repeat steps b and c for another Cassette size, if desired.
4. To set up profiles for Departments, repeat steps 2 and 3, completing only the **Department** field. In this case, you can enter a unique name to assign the department with the department names set up for the site.
5. To set up profiles for specific Body Part/Projection combinations, repeat steps 2 and 3 completing both the Body Part and Projection fields with the specific combinations for each different profile.
6. To set a single destination for all images, add a destination to the default profile.

IMPORTANT: *When selecting an Archive destination, touch **Mandatory** so patient data must go there. Incomplete or unassigned data cannot go to mandatory locations. See the "Required Fields" section.*

Text Box Configuration (Option)

External Text Boxes

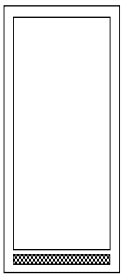
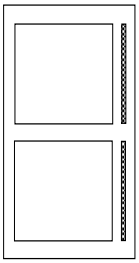
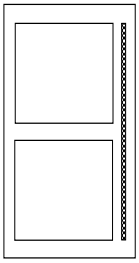
IMPORTANT: *Due to the complexity of configuring text boxes, use this feature only with printers that have been tested and approved by Kodak. If you are using this feature on a printer with unknown characteristics, be sure to fully test on site to avoid unexpected results.*

The text in an External Text Box is printed outside the image area and does not cover up anatomy. However, the box does require film area, thereby reducing the overall size of the printed image. If True-size mode is selected, then the system crops additional image data as compared to printing the image without the External Text Box.

The CR System sends the External Text Box as a separate image file. The text box you use depends on the capability of the printer. See "Printing Exceptions" on page C-1.

An External Text Box:

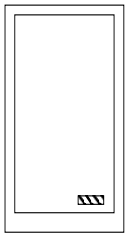
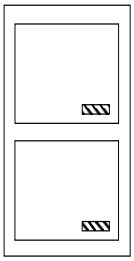
- Shrinks the image to fit - may not work with all printers.
- Impacts True-size printing.
- Prints an External Text Box across the bottom of the film.

	Single-Image External Text Box		Multi-format Individual External Text Box		Multi-format Global Page External Text Box	
External Text Boxes		• Reduced image size • Located outside of image area • May not work with all printers		• Reduced image size • Located outside of image area • May not work with all printers • Applied per image		• Reduced image size • Located outside of image area • May not work with all printers • Applied to a sheet of multi-format images

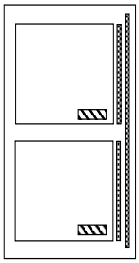
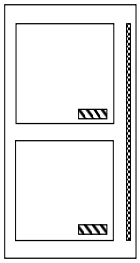
Internal Text Box

The CR System creates the Internal text box as part of the image and sends one file to the printer. The Internal text box works with every printer.

- You select the text box location during image review.
- The technologist can place the text box in one of eight locations during image review.

	Single Image Internal Text Box		Multi-format Image Internal Text Box	
Internal Text Boxes		• Larger area for text • Works with every printer • Located in the image area		• Larger area for text • Works with every printer that supports multi-format printing • Located in the image area

Combined Internal and External Text Boxes

	Internal Multi-format and Global External Text Boxes	External Multi-format and Global Text Boxes
Samples of combined Internal and External text boxes		

External Text Box Characteristics

Use the following table to determine the capabilities of annotation text boxes supported by various *Kodak* printers.

Printers	Single- Image External Text Box	Multi-Format Page External Text Box	Multi-Format Image External Text Box
Kodak PACS Link 9410 Acquisition System / *DryView* Laser Imager[a]	Y 1 line of 64 characters maximum DICOM annotation	Y 1 line of 64 characters DICOM annotation Box is located above the image.	N
MIM / DV V 5.x	Y 1 or 2 lines of 120 characters Row symmetric[b]	Y 1 or 2 lines of 120 characters Row symmetric	Y 1 line of 120 characters Row symmetric
MIM / *Kodak Ektascan* 2180 Laser Printer V 5.x	Y 1 or 2 lines of 120 characters Row symmetric	Y 1 or 2 lines of 120 characters Row symmetric	Y 1 or 2 lines of 120 characters Row symmetric
MIM/KELI / *Kodak Ektascan* 160 Laser Imager V 5.x	Y 1 or 2 lines of 120 characters Row symmetric	Y 1 or 2 lines of 120 characters Row symmetric	Y 1 or 2 lines of 120 characters Row symmetric

a. External text boxes should not be used with PACS Link products running less than Version 5.0 Software. Previous versions of PACS Link Software may stop processing all print jobs if an image with external text is received from a CR system.

b. Row Symmetric: In a multi-format image, the images on one sheet must be the same height within each row, but each row may be a different height.

Choosing a Text Box

If you are going to use a single image, you can use either an Internal or an External text box, or a combination of both.

For multi-format images, the text boxes appear on each image. Place information that pertains to that image, such as Exposure Index, window and level, projection, etc.

Place only study-specific data in Global text boxes.

Use text boxes with PACS Link Medical Imaging products running Version 5.0 or higher.

Magnification Factor

The Key Operator can configure the system so that the internal and external text boxes' magnification factors are included. If an image is printed True-size, then the magnification factor is 100%. Minified images have magnifications of less than 100%. Magnification factors are not available for text boxes for Multi-format images.

Using the Text Box Editor

With this version of software, the text box is fully configurable. You can display only the parameter you wish.

There is a text box editor for Internal and External text boxes.

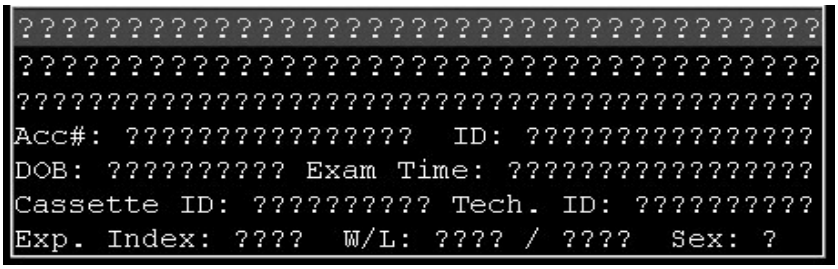
Internal Text Box Editor

All internal text boxes are burned into the image area.

- **Text Box Viewer—**displays the contents of the text box.
- **Field Editor—**create new fields, edit the contents of existing fields.
- **Navigation Controls—**navigate to fields, add rows and columns, or restore text box.
- **Restore Large Text Box—**provides a default for a large text box or restores text box.
- **Restore Small Text Box—**provides a default for a small text box or restores text box.
- **Delete entry—**deletes the highlighted entry when editing a text box.

Text Box Viewer

Each field is represented by question marks. Each field can also have a label.



Each row is shown in the font size you select for the row.

When you select a field, the field background color changes to purple.

When you add a new field, the field background color changes to green.

Text Box Editor

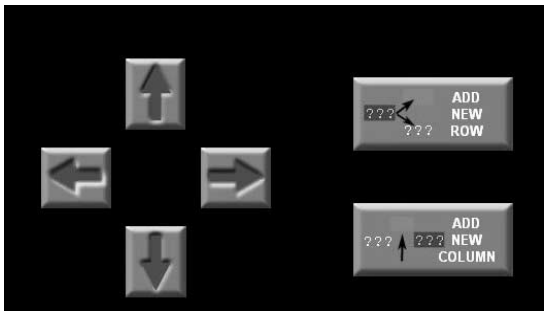
Text Box Editor

Field	Definition	Action
DICOM Field	The field you want to include in the box.	Touch the field; touch a DICOM field from the DICOM list. If necessary, touch **Show All Fields** to view all DICOM fields.
DICOM Tag	Displays the DICOM tag used to populate the field.	Automatically updates when you select DICOM fields.
Field Length	The number of characters in the field, indicated by "?" in the Text Box Viewer.	If the data for the indicated DICOM element is too large, then the value is truncated.
Name Grouping	Only in multibyte languages, what part of the name to put on film. Single byte or multibyte.	
Label	The label you want to apply to the field. (A label is not required.)	When prompted from the DICOM field, enter the label name using the virtual keyboard. Then either select the next field to edit, or touch **Save Entry**.
Font Size	Font size you want to print. You can have different font sizes for a row.	Touch the field and touch a font size[a].
Optional	When you select Optional, if there is no data for the field, the text box resizes to print only the defined data. This occurs if every field on a line is optional and no data is available.	Touch the Optional field to select it.
Justify	Aligns the field data left, center, or right.	Touch the field and touch **Left, Center**, or **Right**.

a. For best results, limit the font size to a minimum of 10, and print the text over a light background.

Navigation Controls

Use the Navigation Controls to move between fields, and add new rows and columns to create new fields in the text box.



Adding a Column or a Row

1. Touch the area where you want to add a new row or column in the Text Box Viewer or use the arrows and navigate to the location.
2. Touch **Add New Row** or **Add New Column**, or move all the way to the right or bottom.

Deleting or Saving a Field

- **Delete a field—**Select the field to delete and touch **Delete Entry.** The CR System automatically saves the change.
- **Save a field—**Touch **Save Entry** after each field change.

External Text Box Editor

The **External Text Box** editor is similar to the **Internal Text Box Editor** with the following exceptions:

- There is no Add Column button because the External text box is a fixed size (2 lines x 64 or 120 characters wide, depending on the capability of the printer), one line for individual multi-frame.
- The top half of the Text Box Viewer shows the position of every character.
- The Font Size, Justification and Option fields are removed.

Saving and Restoring Configuration Options

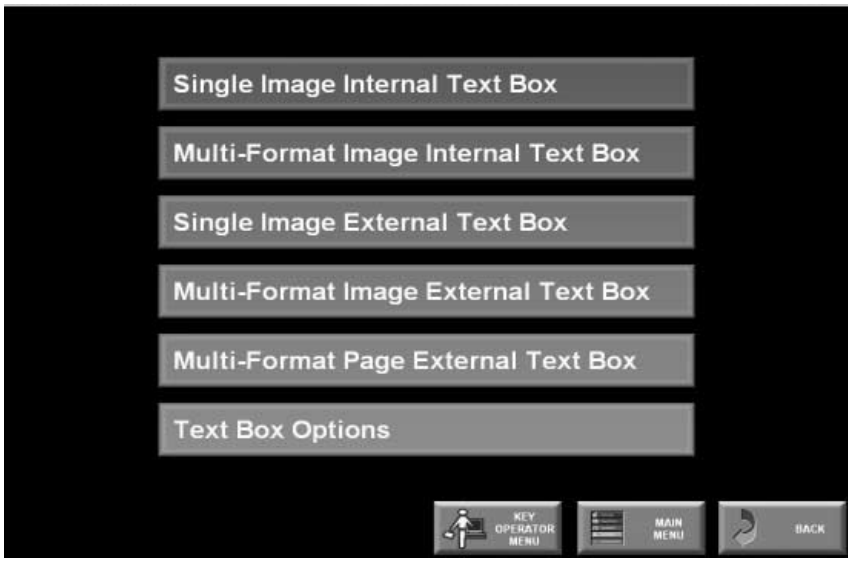
You can save your text box configuration options to a disk. See Chapter 9, page 9-14.

Configuring a Text Box

1. Decide what type of text box you want to print.
2. Decide what content you want in the text box.
   - **Global External—**Study-specific data such as Patient ID, Accession Number, etc.
   - **Individual—**Image-specific data such as Exposure Index, Window/Level, etc.

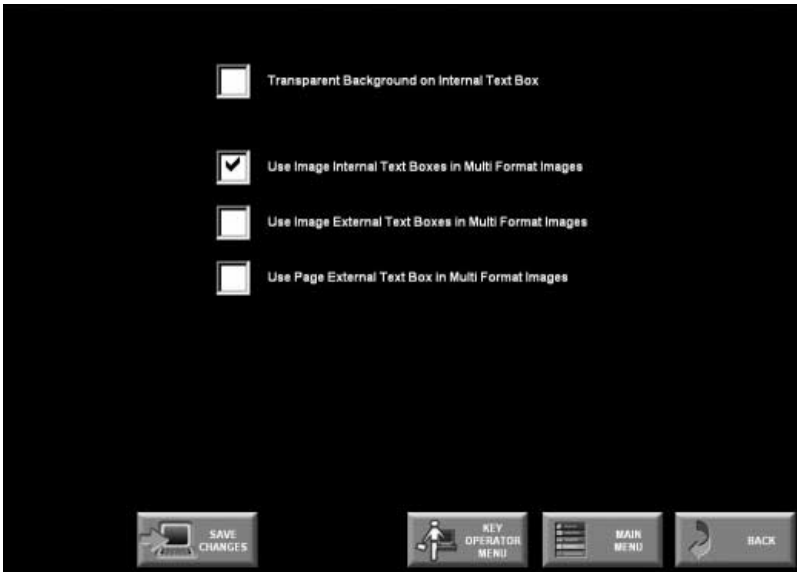
NOTE: For Multi-format Images, place fields that have common information in the Global External text box.

3. Touch **Key Operator Functions** menu, touch **System Configuration** touch **Next** , then touch **Text Box Configuration.**



Text Box Configuration Menu

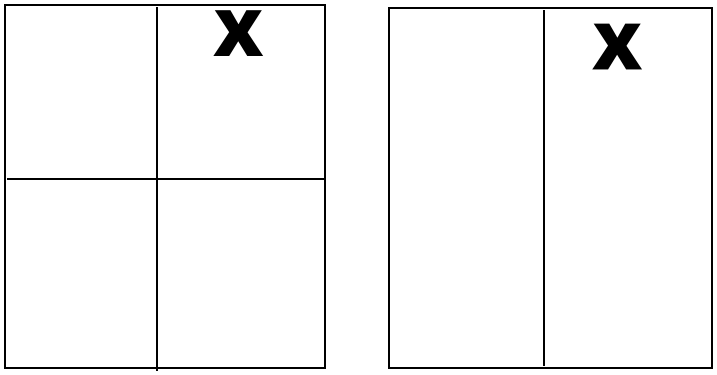
4. Touch **Text Box Options.**
5. Follow the Text Box editing procedure. See page 9-48.
6. Set **Text Box / Annotation** options. See the Text Box Options table on the next page.
7. Send a test print to each printer.



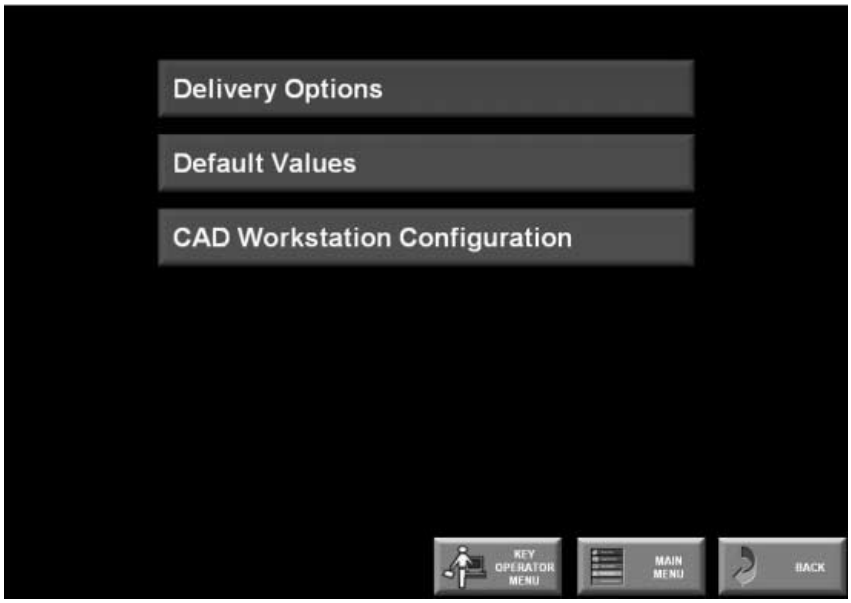
Text Box Options

Transparent Background on Internal Text Box	No mask is used, white letters with black edge. Use at least 10 pt. font.
Image Internal Text Boxes in Multi-format Images	Place an mage Internal Text Box in each Multi-format image.
Image External Text Boxes in Multi-format Images	Place an image External Text Box in each Multi-format image.
Page External Text Boxes in Multi-format Images	Place a page External Text Box in each Multi-format image.

If you include an image-specific parameter in the multi-format page External text box, the system uses the information from the image placed as shown in the following diagram as the source of the data. To avoid confusion, print only study-specific information in the global external text box.



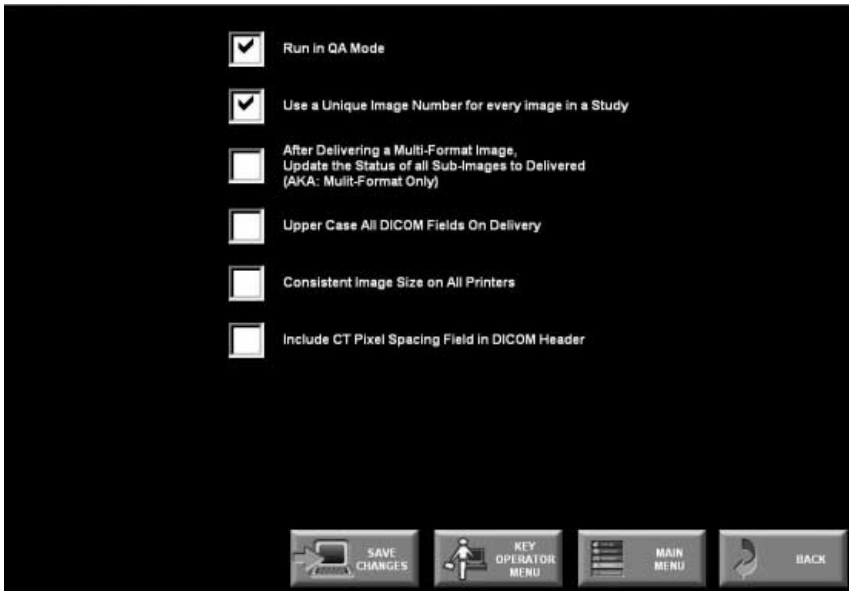
Delivery Preferences



Delivery Preferences

Delivery Option Configuration

1. At the **Key Operator Functions** menu, touch **System Configuration, Next**, then **Delivery Preferences.**
2. Touch **Delivery Options**.



Delivery Options

3. Use the following table to select from and touch **Save Changes**.

Run in QA Mode	Operate in QA mode. (Technologist must view and approve images before they are distributed across the network.) When not selected, CR System runs in Pass-through Mode. See Chapter 3, page 3-4.
Use a Unique Image Number for every image in a Study	If checked, every delivery of every image in a study has a unique image number, starting with one and incrementing. If not checked, the image number always defaults to one.
After Delivering a Multi-Format Image, Update the Status of all Sub-Images to Delivered, AKA **Multi-format.**	When a multi-format image is delivered, updates all the images in the multi-format image to Delivered.
Upper Case All DICOM Fields on Delivery	Changes all DICOM fields to uppercase characters.
Consistent Image Size on All Printers	Image is rendered on all printers to output a consistent size image.
Include CT Pixel Spacing Field in DICOM Header	Allows the workstation to display measurement in cm rather than pixels. May not be applicable to all workstations.

Configuring Default Hospital Name and Address

1. At the **Key Operator Functions** menu, touch **System Configuration,** touch **Next**, then **Delivery Preferences**, then **Default Values**.
2. Enter the Hospital Name and Address and touch **Save Changes.**

Delivery Preferences Hospital Name

CAD Workstation Configuration

1. At the **Key Operator Functions** menu, touch **System Configuration**, touch **Next,** then **Delivery Preferences**, then **CAD Workstation Configuration.**

NOTE: All softcopy display stations appear on this screen. To define one as a CAD Workstation, select the check box. Only unprocessed data is sent to CAD Workstations.

2. Touch the appropriate workstation and touch **Save Changes.**

Configuring External Devices

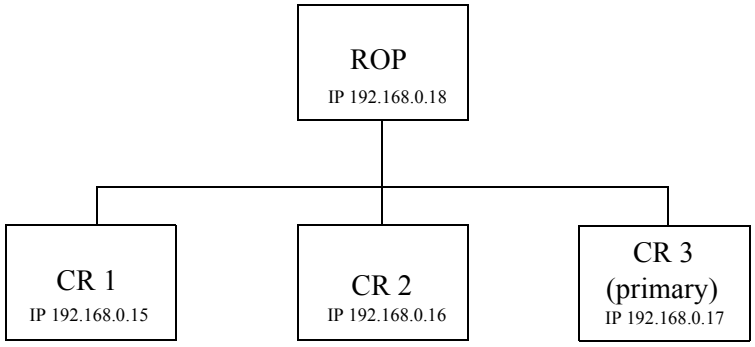
Remote Operator Panel Expanded Connectivity

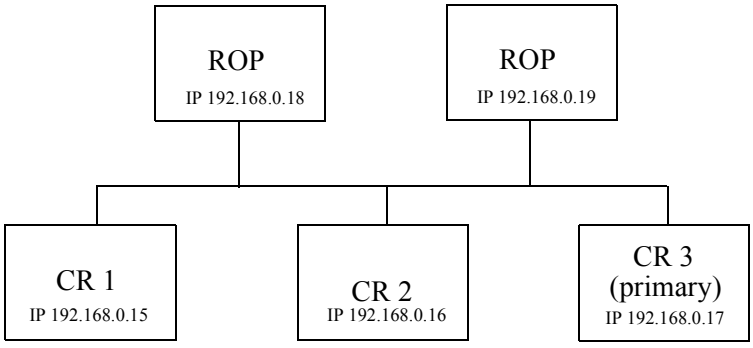
At the External Devices menu, you can configure up to 10 external devices such as Remote Operator Panels (ROPs) and computers for Remote Patient Entry and Remote Key Operator access.

You can set up ROPs to communicate with multiple *DirectView* CR System servers or to link to Web sites.

You can configure:

- multiple ROPs to communicate with a single CR System
- a single ROP to communicate with multiple CR Systems
- multiple ROPs to communicate with multiple CR Systems





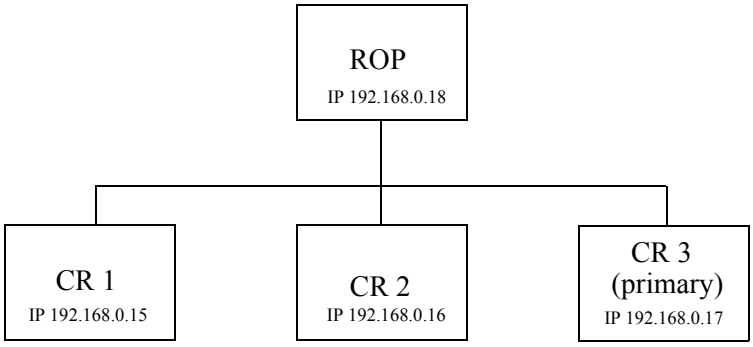
When you configure a ROP to communicate with multiple CR Systems, you configure the ROP from one (primary) CR System to communicate with the other CR Systems. Then, at the other CR Systems, you enter the ROP IP address.

You have to:

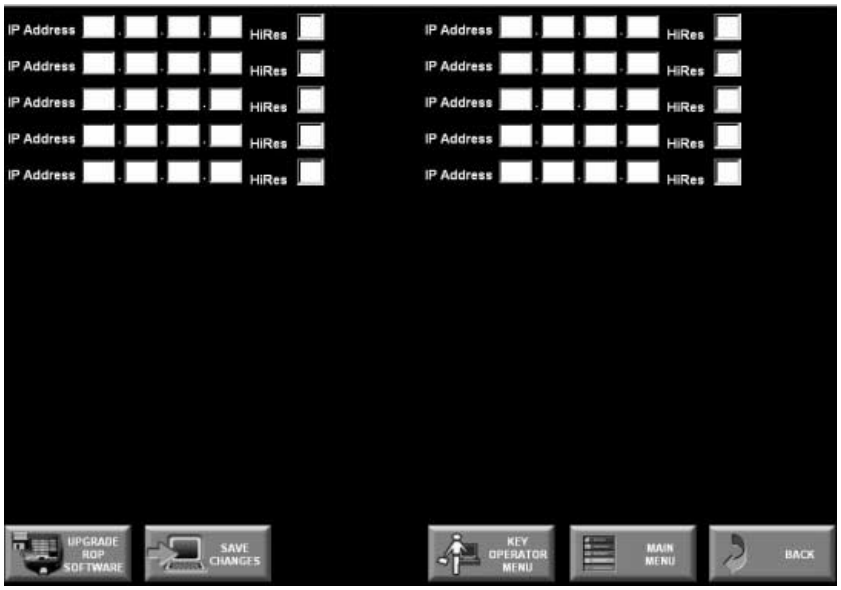
- Enter the IP address of the ROP at the primary CR System.
- Enter the IP address of the ROP at the other CR Systems.
- Enter the IP address of the other CR Systems at the primary CR System.

Configuring a Remote Operator Panel to Multiple CR Systems

In the following scenario, you could use CR3 (primary) to configure the ROP to communicate with CR 1, CR 2, and CR 3.

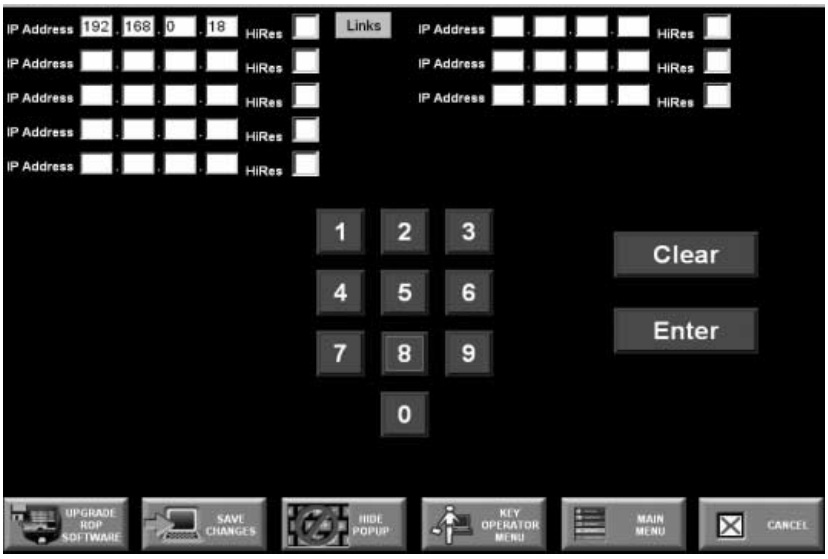


1. At the primary CR System, log on as the Key Operator.
2. At the **Key Operator Functions** menu, touch **System Configuration**, **Next**, then **External Devices,** and touch ***Kodak*** **Remote Operation Panel Setup**.

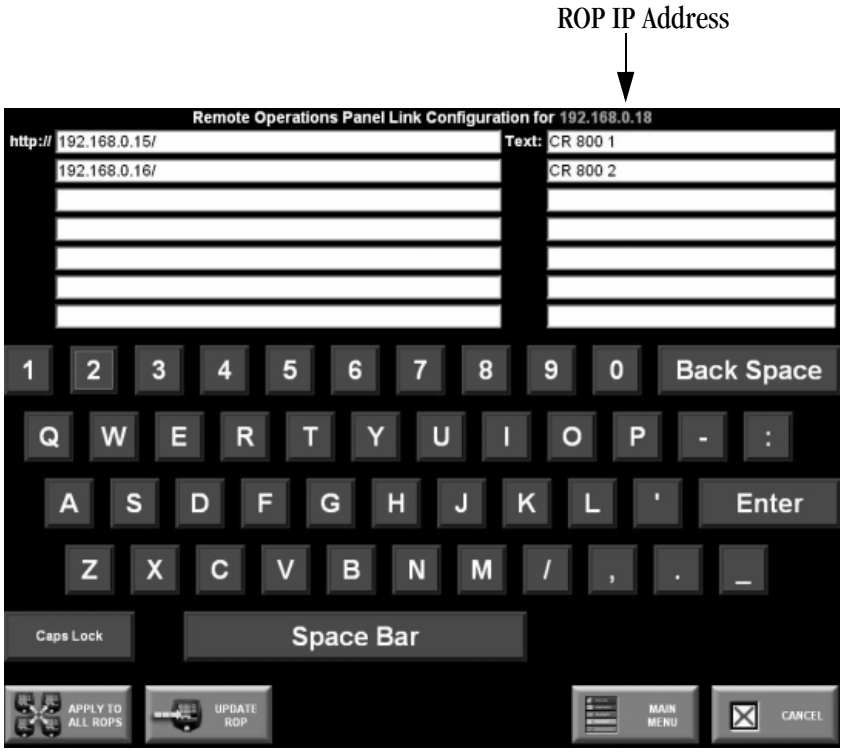


Remote Operations Panel Setup

3. Enter the ROP IP address and touch **Save Changes**. The **Links** button appears.



4. Touch **Links**. The ROP's IP address appears at the top of the **Remote Operations Panel Link Configuration** screen.



Remote Operations Panel Link Configuration

5. Touch the http:// field and then use the virtual keyboard to enter the CR System IP address. For a Web site, enter the url, for example, www.kodak.com.
6. Touch the associated Text: field and use the virtual keyboard to enter the CR System name or Web site name.
7. Repeat for other CR Systems or Web sites.
8. Touch **Update ROP** to apply the changes to the ROP.
9. At the other CR Systems, enter the IP address of the ROP.
   a. Log on as the Key Operator.
   b. At the **Key Operator Functions** screen touch **System Configuration, Next, External Devices,** then ***Kodak*** **Remote Operation Panel Setup.**
   c. Enter the ROP IP address and touch **Save Changes.**
   d. Touch **Main Menu.**

At the ROP, reload the **Main Menu.**

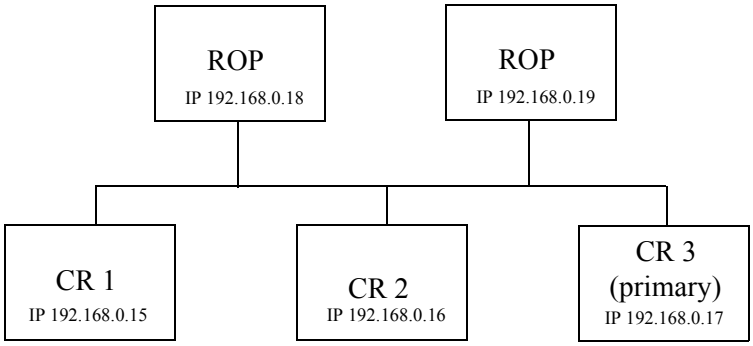
- If you are not at the Main Menu, touch **Main Menu.**
- If you are at the Main Menu, touch one of the menu selections to go to another screen, then touch **Main Menu.**

The following is an example of a ROP screen configured for multiple servers.

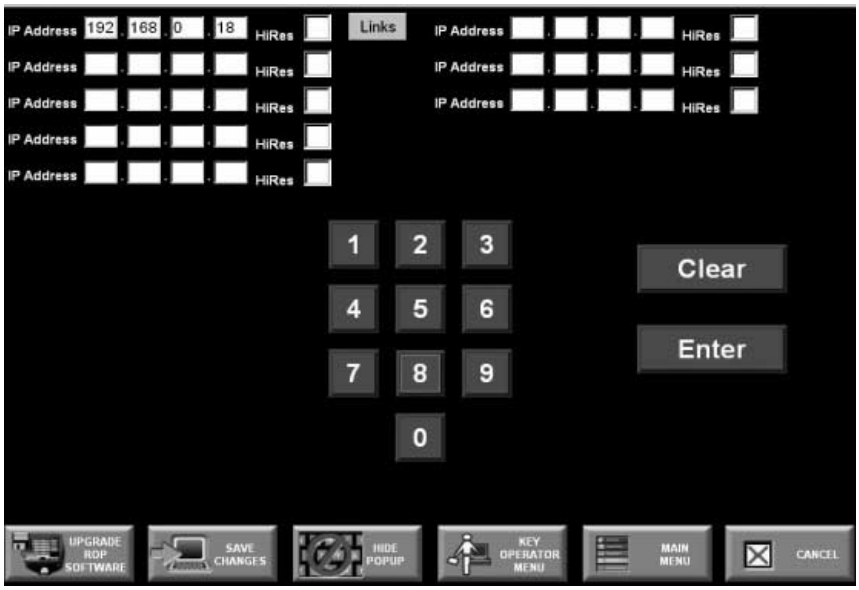
Remote Operations Panel with Multiple Servers

Configuring Multiple ROPs to Multiple CR Systems

In the following scenario, you could use CR 3 (primary) to configure the ROPs to communicate with CR 1, CR 2 and CR 3.

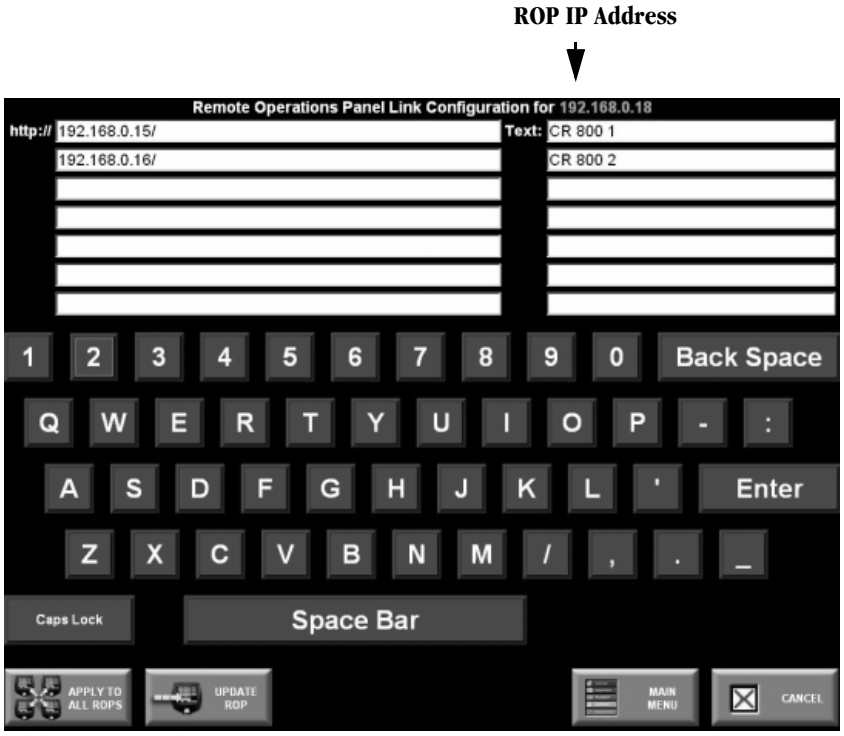


1. At the primary CR System, log on as the Key Operator.
2. At the **Key Operator Functions** menu, touch **System Configuration**, **Next**, then **External Devices.**
3. Touch ***Kodak*** **Remote Operation Panel Setup**. The IP address for each connected ROP and Remote Patient Data Entry Station (RPDES) appears.



Remote Operation Panel IP Addresses

4. Add the ROP IP addresses for all the ROPs and touch **Save Changes**. The **Links** button appears.
5. Touch **Links** for the first ROP. The IP address at the top of the screen is the IP address of the ROP.



Remote Operation Panel Link Configuration

6. Touch the http:// field and then use the virtual keyboard to enter the CR System IP address. For a Web site, enter the url, for example, www.kodak.com.
7. Touch the associated Text field and enter the CR System name or Web site name.
8. Enter the IP address and name for the other CR Systems or Web sites.
9. Touch **Apply To All ROPs**. This copies the http:// link and link name to each of the ROP configuration screens.
10. Touch **Update ROP.**
11. Touch **Back**.
12. Touch **Links** for the next ROP.
13. Touch **Update ROP**.
14. Repeat steps 11-13 for each ROP.
15. Touch **Main Menu**.
16. At the other CR Systems, enter the IP addresses of the ROPS.

a. Log on as the Key Operator.

b. At the **Key Operator Functions** screen touch **System Configuration,** then **Next**, then touch **External Devices.**

c. Touch ***Kodak*** **Remote Operation Panel Setup.**

d. In the **Remote Operation Panel IP Addresses** screen, enter the ROP IP addresses and touch **Save Changes**.

e. Touch **Main Menu.**

At the ROP, reload the **Main Menu.**

- If you are not at the Main Menu, touch **Main Menu.**
- If you are at the Main Menu, touch one of the menu selections to go to another screen, then touch **Main Menu.**

The following is an example of a ROP screen configured for multiple servers.

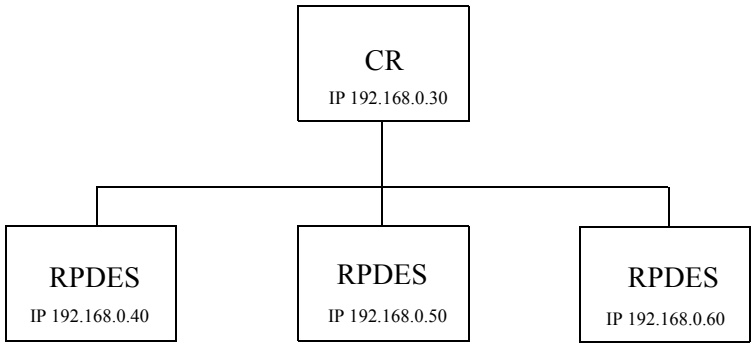
Remote Operations Panel with Multiple Servers

Remote Patient Data Entry Software (RPDES)

Remote Patient Data Entry Software is a software option for entering patient data at a workstation. It is installed on the CR System and enables communication between a customer-supplied PC workstation and the CR System.

IMPORTANT: *A RPDES must have a fixed IP address. If the PC is configured to use DHCP (dynamic IP address assignment on boot), the link with the CR System may be lost when the PC is rebooted.*

You can add up to ten external devices.



Computer Requirements

- *Microsoft Internet Explorer* 5.0 or higher
- *Microsoft Windows* 98 or NT 4.0
- Standard English keyboard and mouse

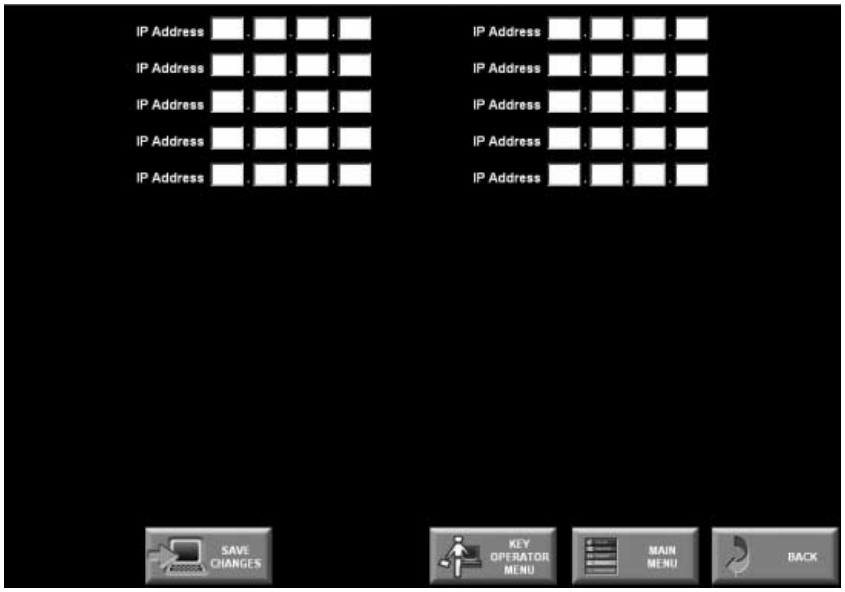
Installation Instructions

All software options are installed at the **Option Registration** screen.

At the **Key Operator Functions** menu, touch **System Configuration, Option Registration**, then **Add Upgrade Options** using the appropriate floppy disk.

RPDES Configuration Instructions

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Next,** then touch **External Devices**.
2. Touch the **Remote Patient Data Entry Station** (RPDES). The input area for 10 RPDES appears.

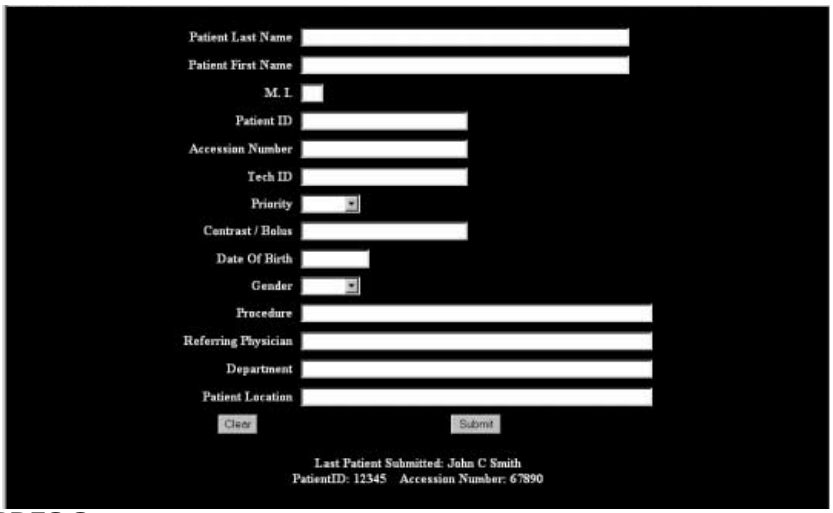


Remote Patient Data Entry Screen IP Address

3. Add the PC IP address.
4. Touch **Save Changes.**

RPDES Operation

1. At the computer, double-click the *Internet Explorer* icon.
2. At http://, type the CR System IP address and press Enter.
3. Add the address to the Favorites menu.



RPDES Screen

4. Enter the patient information and click **Submit.**

Create a RPDES Shortcut on the Desktop

In the following example, assume the CR System IP address is 129.126.6.62.

1. On the desktop, right-click and point to New and select **Shortcut**.
2. Click **Browse** and locate IEXPLORE.exe executable file.
   - Example: C:\Program Files\Plus!\MicrosoftInternet\IEXPLORE.EXE.
3. Add your CR System IP address to the end of the line:

C:\Program Files\Plus!\MicrosoftInternet\IEXPLORE.EXE "-k http://129.126.6.62/RPDES.

4. Click **Next**.
5. Select a label for the new shortcut.
6. Click **Finish**.
7. Double-click the shortcut to confirm it operates correctly.
8. Press **Ctrl-W** to exit.

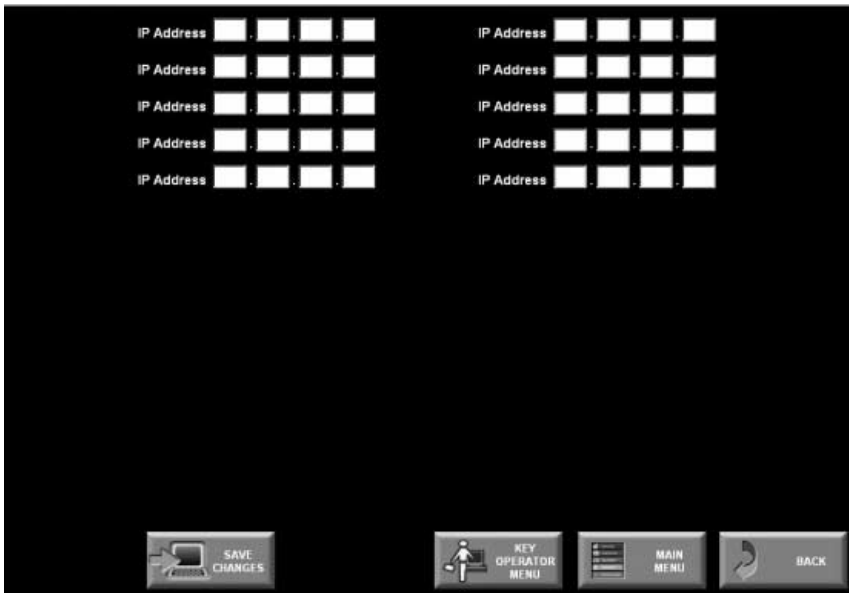
Remote Key Operator

Setting Up the Remote Key Operator

You can configure a computer to enable the Key Operator to access the CR System.

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Next**, then **External Devices.**
2. Touch **Remote Key Operator.**

NOTE: The number of available IP addresses is reduced by the number of ROP or RPDES configurations.



Remote Key Operator

3. Enter the PC IP address and touch **Save Changes**.

Logging In

1. At the computer, double-click the *Internet Explorer* icon.
2. At http://, type the CR System IP address and press **Enter**.

NOTE: TIP - You can set up a Favorite address using *Internet Explorer* to save time logging in.

Log-in

3. Enter your Username and Password.
4. Select **Login**

Downloading Statistics

You can download technologist statistics and save the data.

1. Select **Download Statistics**.
2. Select a hyperlink time period. A file opens in *Microsoft Excel*.
3. Save the file.

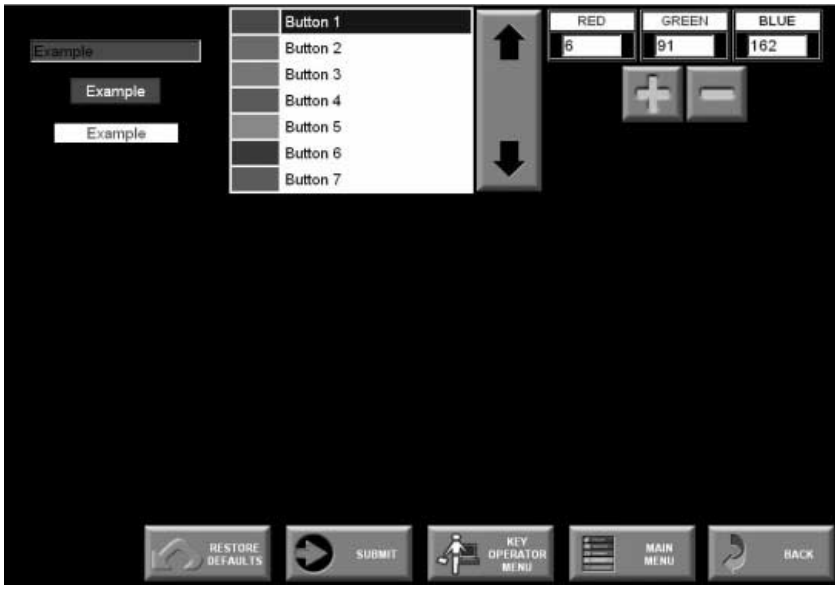
Procedure Mapping

See "Procedure Mapping Using the Remote Key Operator".

Color Preferences

You can change the default colors for field backgrounds and buttons.

1. At the **Key Operator Functions** screen touch **System Configuration** and select **Next**.
2. Touch **Color Preferences.**
3. Touch the down arrow to select the button or text you want to change color.
4. The button color is determined by the code values in the **Red, Green** and **Blue** columns (0 black - 255 white). Touch a code value and a popup keypad appears.
5. Enter the new code value. Repeat for the other two code values if required.
6. If you want to change other field background colors, repeat for each field.
7. Touch **Submit** to return to the **Color Preferences** screen.
8. At the **Color Preferences** screen, touch **Submit.**



Configure Colors

Bar Code Configuration

Overview

If necessary, use the **Bar Code Configuration** menu to change the Patient ID, Accession Number and Tech ID bar code characteristics for your site. In order for the CR System to automatically recognize a bar code, the number of characters must be fixed and unique for each type. For example, accession numbers must always have the same number of characters, additionally the number must be different from the Tech ID, Cassette ID and Patient ID.

IMPORTANT: *If you change the Cassette ID format, the country code, or bar code reader prefix or suffix characters, then you must program the Bar Code Scanner.*

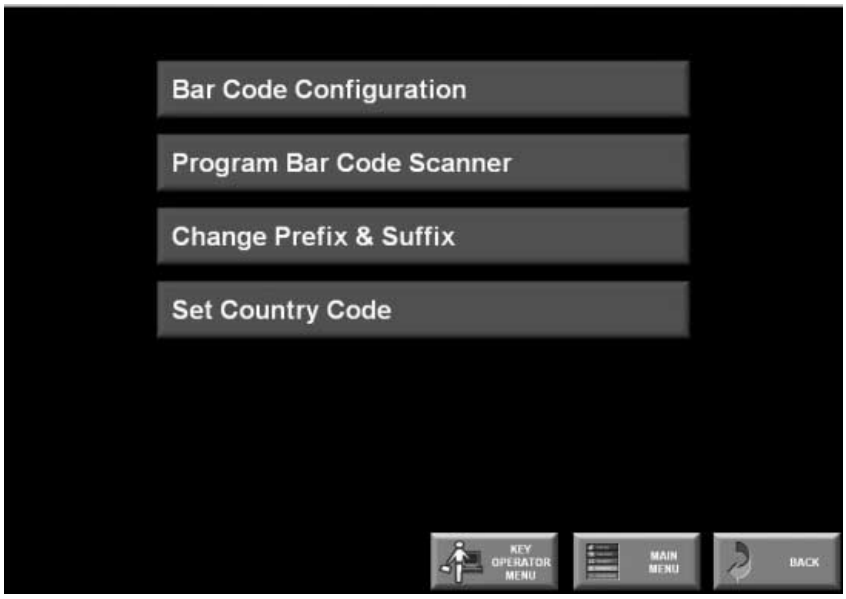
You can:

- change the data field size
- change the prefix and suffix characters
- strip a field when a bar code is read
- change the cassette ID format.

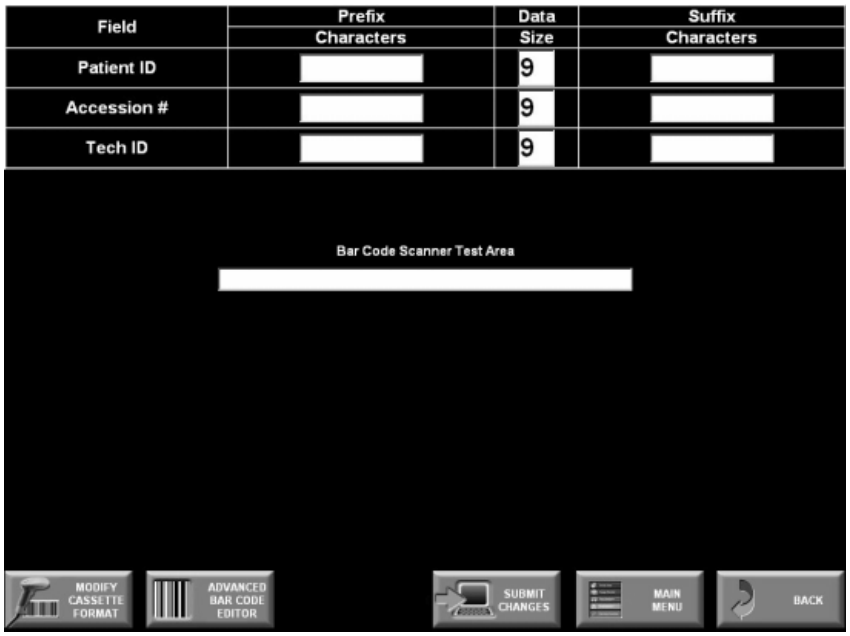
NOTE: You don't need to make any changes unless the CR System Bar Code Scanner settings are incompatible with your bar codes.

Changing the Bar Code Characteristics

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Next**, then **Bar Code Configuration.**



Bar Code Configuration Menu



Bar Code Configuration Basic Editor Screen

NOTE: There are two bar code configuration screens: a Basic and an Advanced Editor Screen. Touch **Advanced Bar Code Editor** to use the advanced screen.

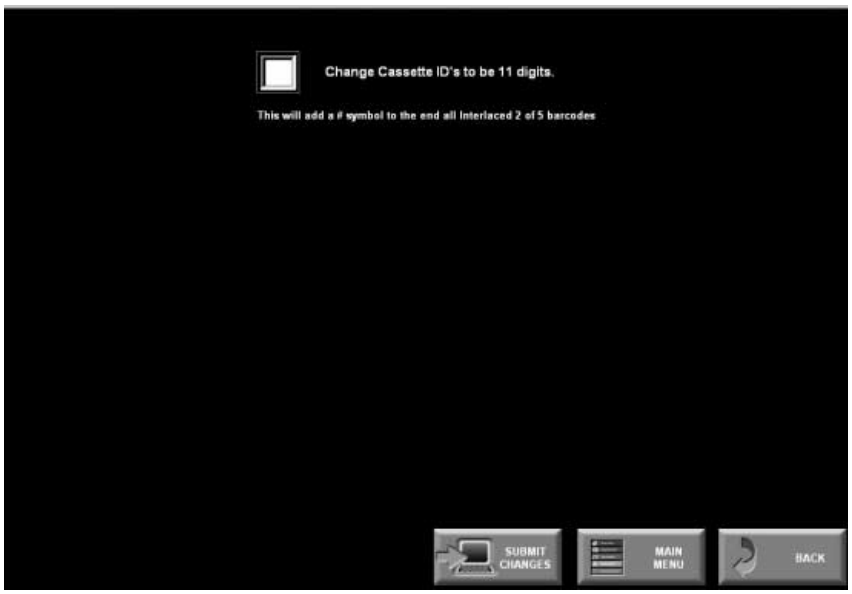
2. For each Field, enter the desired **Prefix** and **Suffix** Character formats and set the Data field size.
   - Touch a field and use the virtual keyboard to enter the data.
   - Leave the Data Size field blank if you want to accept any size data.
   - For the advanced screen, touch **Strip** if you want to remove the field when it is read by the bar code scanner.
3. Scan the bar code with the bar code scanner to test it. A message appears with the test results.
4. When the codes have tested successfully, touch **Submit Changes.**

NOTE: Test the cassette ID also to assure that there are no bar code conflicts.

Changing the Cassette ID Bar Code Format

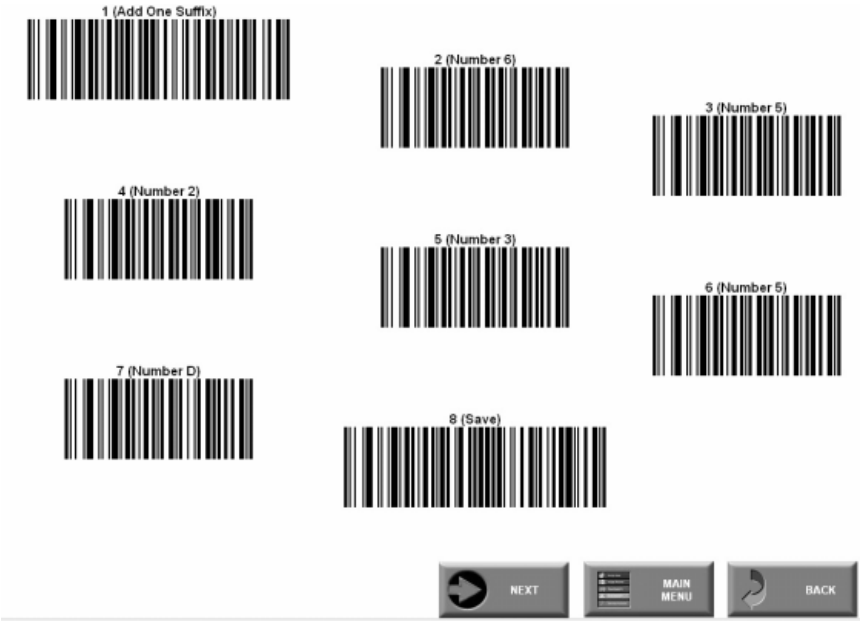
If the Cassette ID Bar Code format (normally 10 digits in length) conflicts with other bar codes in use, the CR System Bar Code format can be changed to an 11-digit format.

1. At the Bar Code Configuration screen touch **Modify Cassette Format.**
2. Touch the **11-digit Bar Code format** check box.



Cassette ID Format

3. Touch **Submit Changes**.
4. Touch **Program Bar Code Scanner**.
5. Touch **Config Prefix/Suffix**. A screen similar to the following appears. There are three screens of bar codes you have to scan.



Bar Code Configure Screen

6. Use the bar code scanner and scan each bar code in numerical order and then touch **Next**.

IMPORTANT: *If you have trouble scanning the bar codes from the monitor, bar codes are available later in this section of the manual. However, make sure the bar code names match the names on the monitor.*

7. Repeat for the next two screens.
8. When done scanning, touch **Next.** A bar code appears to test the configuration.
9. Scan the bar code. A message confirms whether or not the test was successful.

NOTE: Do not scan the test bar code more than once. If you scan twice, it will fail.

Changing the Country Code

Use the **Bar Code Configuration** menu to program the country data. The screens to configure the bar code scanner differ depending on the country.

To program the scanner, set the country code and then program the bar code scanner.

1. At the **Bar Code Configuration** menu, touch **Set Country Code.**

Program Bar Code Scanner Screen

2. Touch the appropriate country button.
3. Touch **Back**.
4. Touch **Program Bar Code Scanner.**
5. Touch **Configure Country Code**.
6. Use the bar code scanner and scan each bar code in numerical order.

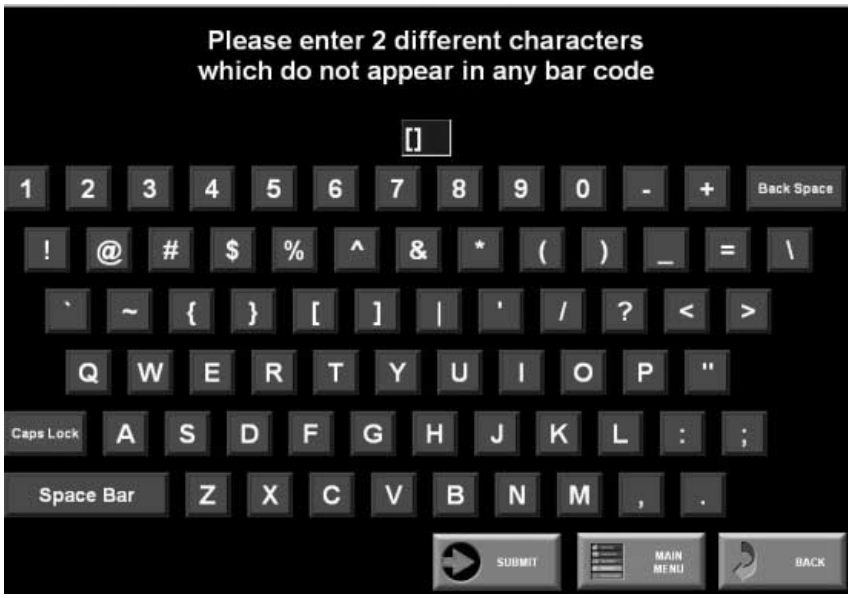
IMPORTANT: *If you have trouble scanning the bar codes from the monitor, bar codes are available later in this section of the manual. However, make sure the bar code names match the names on the monitor.*

Changing the Prefix and Suffix

NOTE: Only make this change if an [01] appears in the hospital's bar code.

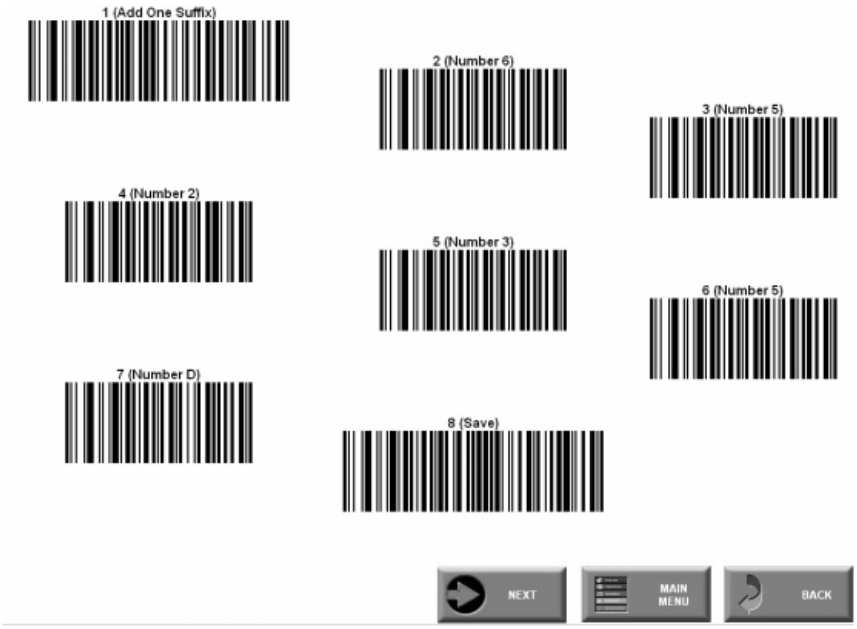
This prefix/suffix does not appear in the actual bar code. It is added by the scanner.

1. At the **Bar Code Configuration** menu, touch **Change Prefix & Suffix.**



Change Prefix and Suffix

2. Enter two characters that do not appear in any of your bar codes.
3. Touch **Submit.**
4. Touch **Program Bar Code Scanner.**
5. Use the bar code scanner and scan each bar code in numerical order and then touch **Next.**



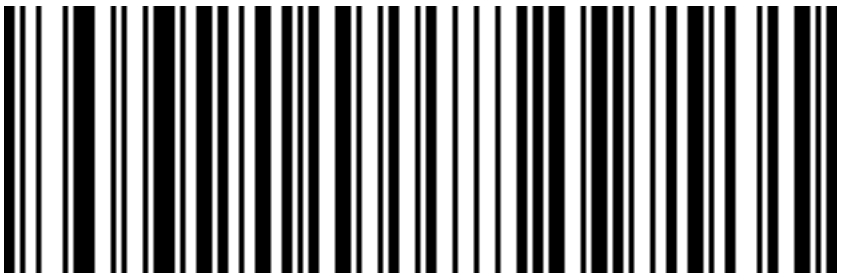
Bar Code Configure Screen

IMPORTANT: *If you have trouble scanning the bar codes from the monitor, use the bar codes that are available later in this section of the manual. However, make sure the bar code names match the names on the monitor.*

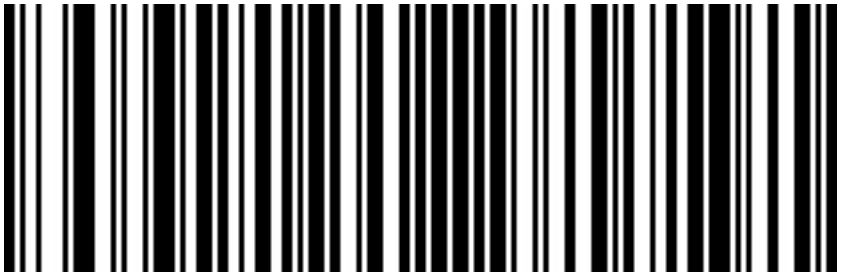
6. Repeat for the next screen.
7. When done scanning, touch **Next.** A bar code appears to test the configuration.
8. Scan the bar code. A message confirms whether or not the test was successful.

NOTE: Do not scan the test bar code more than once. If you scan it twice, it will fail.

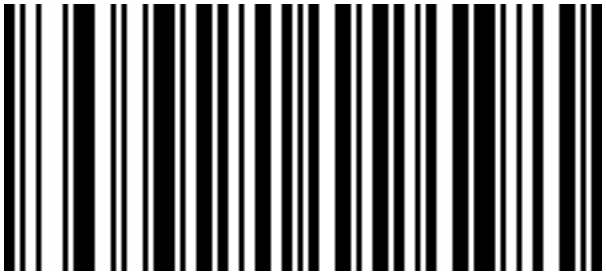
Bar Code Examples for Scanning



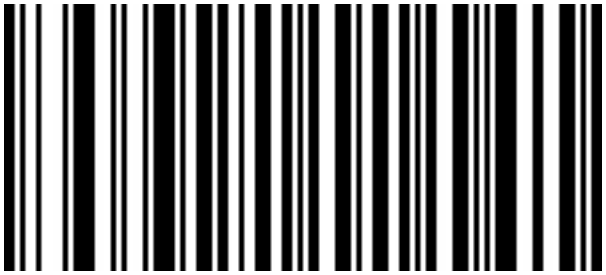
Program Keyboard Country



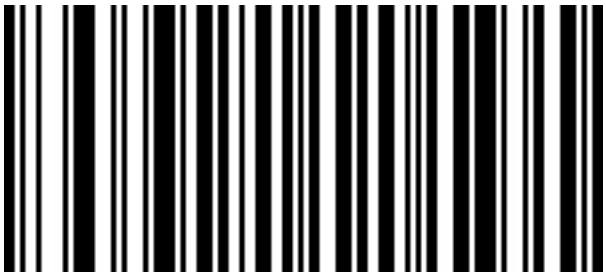
Save



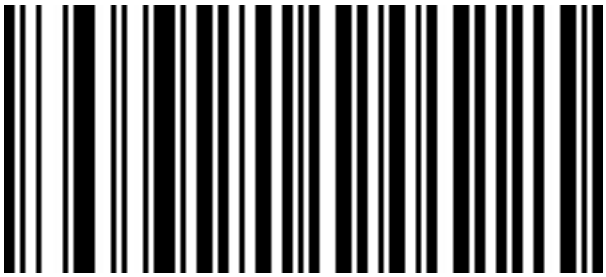
Number “0”



Number “1”

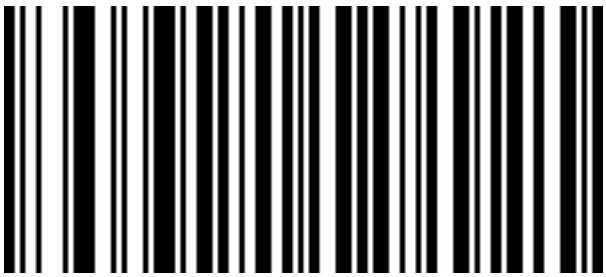


Number “2”

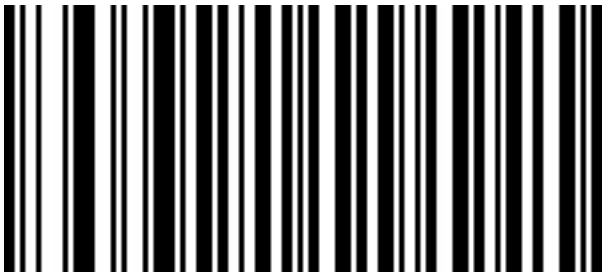


Number “3”

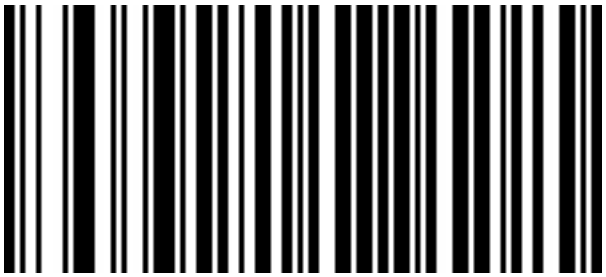
Number “4”



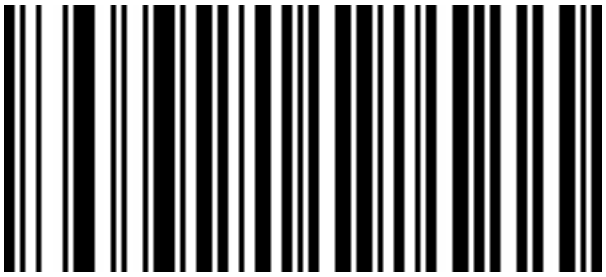
Number “5”



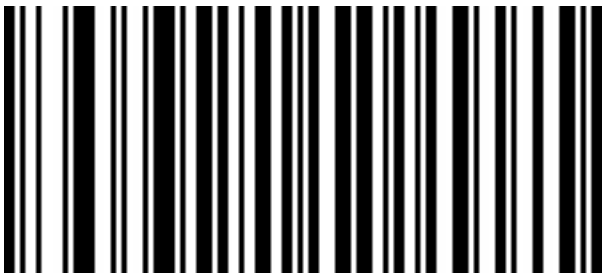
Number “6”



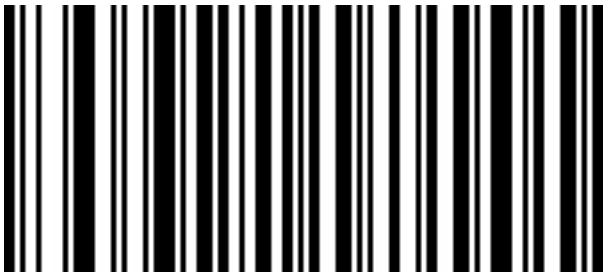
Number “7”



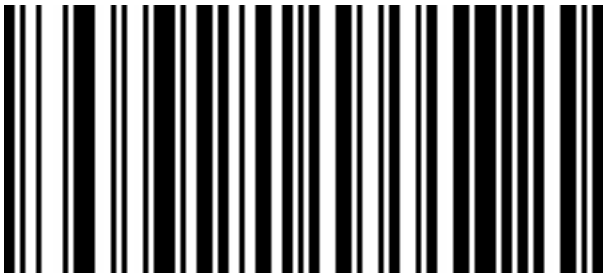
Number “8”



Number “9”

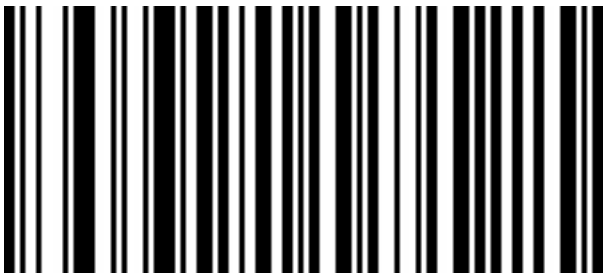


Number “A”



Number “B”

Number “C”



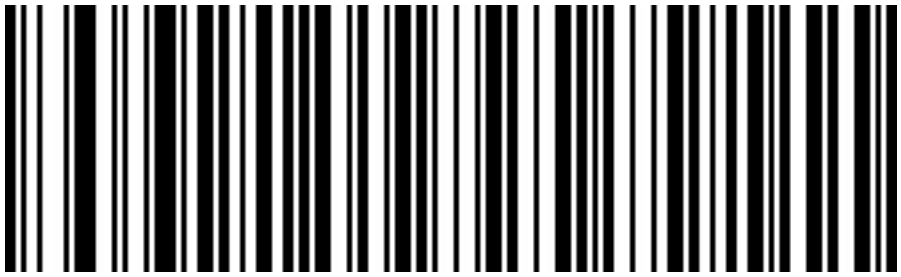
Number “D”

Number “E”

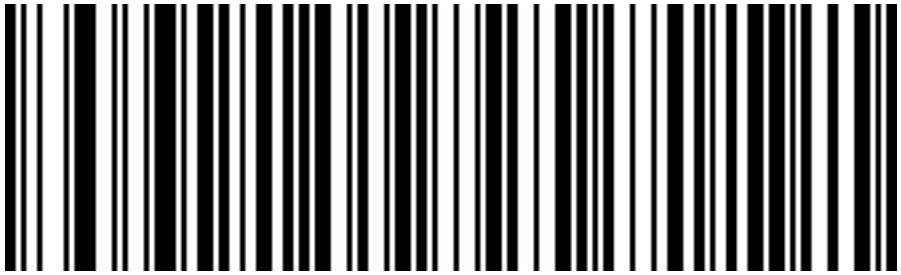
Number “F”

Code 39 Full ASCII On

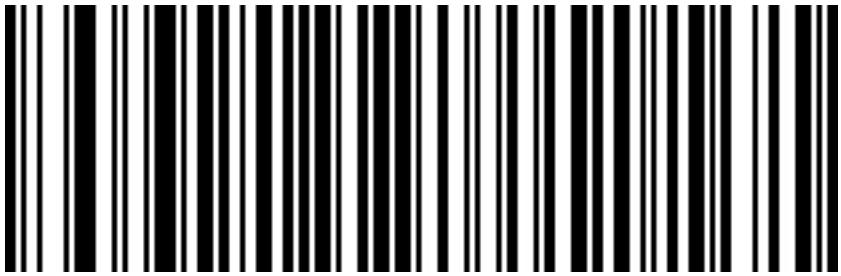
Code 39 Full ASCII Off



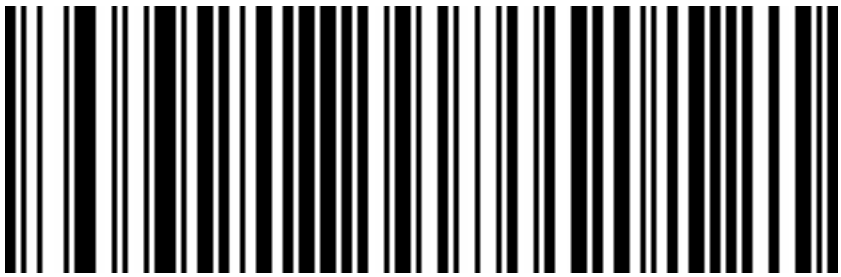
Manual Trigger



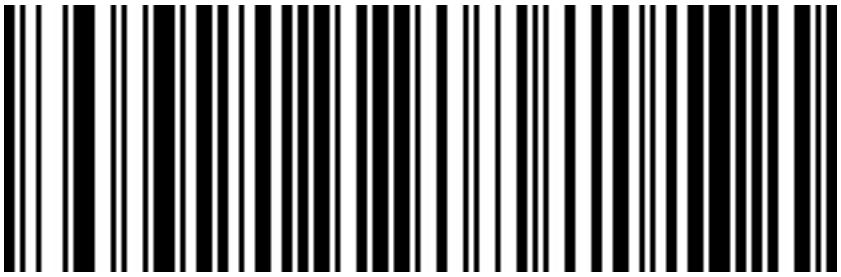
Automatic Trigger



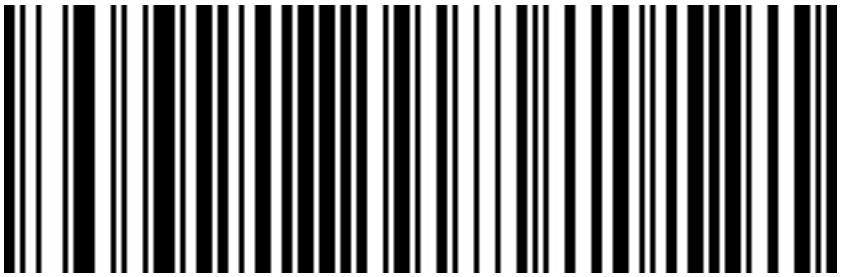
Add One Suffix



Add One Prefix



Clear All Suffix



Clear All Prefix

Test

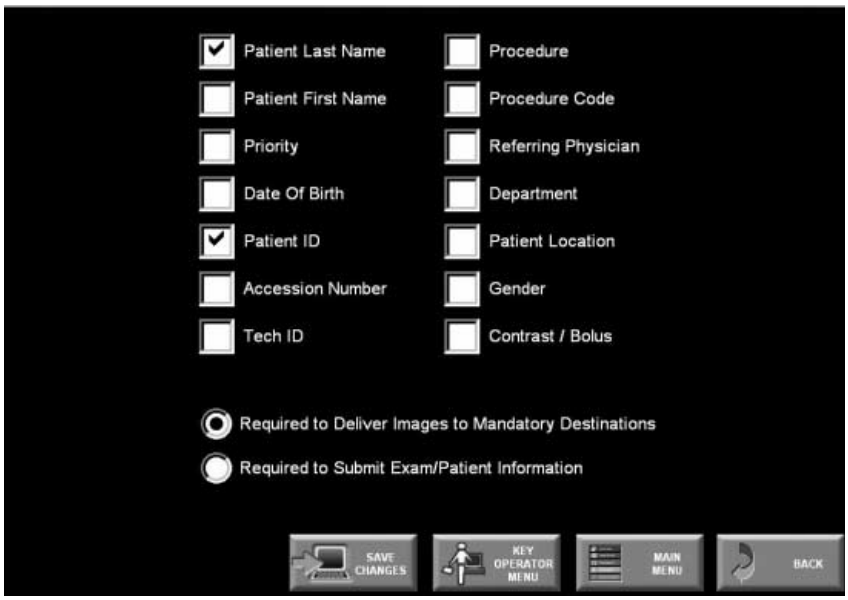
Required Fields

You can set required fields for delivery to mandatory destinations such as archives, or to submit exam/patient information. For example, you may want to make Tech ID a required field if you are using Reject Reason logging.

Making a field Required to Submit guarantees that the technologist will enter all required Exam/Patient Information at the time the patient record is submitted to the database.

Using **Required Fields** for delivery lets you send images that have incomplete patient demographic information to workstations and printers but not to mandatory destinations. Once the required information is entered and the image is accepted, the CR System forwards the image to the mandatory destination.

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Next**.
2. Touch **Required Fields**.



Required Fields

3. Touch each field check box you want to include.
4. Touch **Required to Submit Exam/Patient Information** or **Required to Deliver Images to Mandatory Destinations.**
5. Touch **Save Changes.**
   - If you select **Required to Submit Exam/Patient Information**, you can only submit the PEC data when all the required fields are complete.

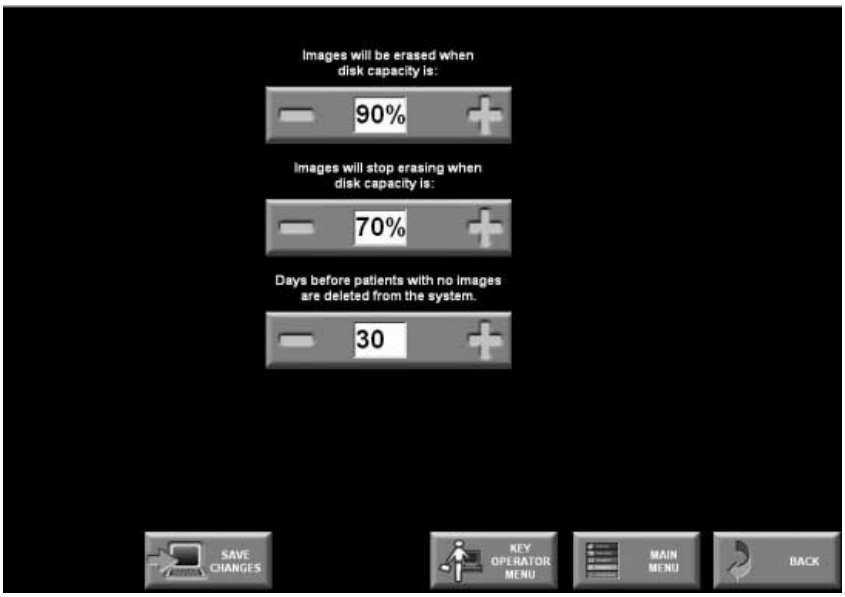
- If you select **Required to Deliver Images to Mandatory Destinations,** you can submit the PEC data without the required fields completed. You have to complete the fields before submitting to mandatory destinations.

NOTE: The Contrast/Bolus and Date of Birth fields should not be mandatory if the system is using enhanced trauma functionality. Doing so causes added steps in the workflow. These two fields cannot be defined as part of the setup for a trauma patient, and if they are required, the technologist must complete these fields manually after selecting a trauma patient but before the record is submitted to the database or the image is routed to mandatory destinations.

System Maintenance Defaults

This screen lets you determine when to erase images and when to delete patients with no images from the system.

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Next** and **Next** again.
2. Touch **System Maintenance Defaults.**



System Maintenance Defaults

3. Touch the **+** and **-** keys to adjust the settings.
4. Touch **Save Changes.**

Regional Settings

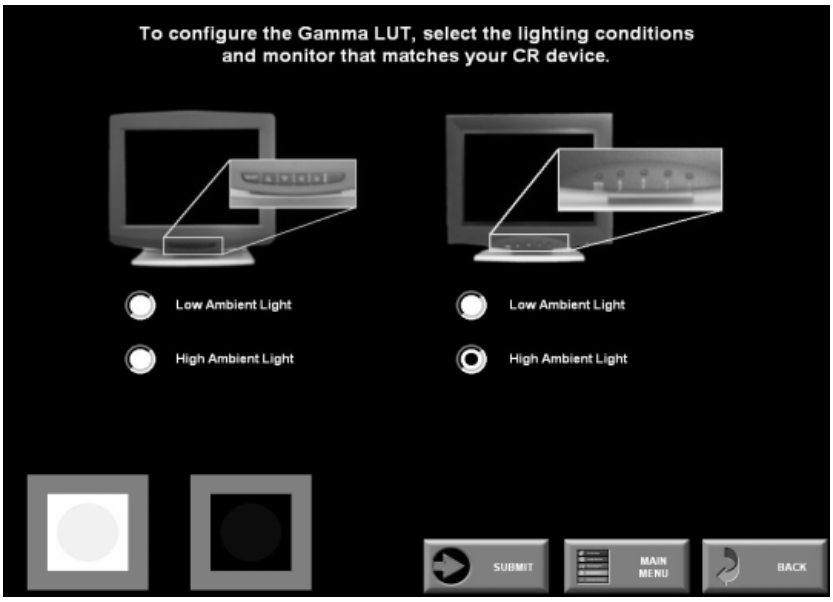
This screen lets you set the CR System date, time, and language settings.

1. At the **Key Operator Functions** menu, touch **System Configuration,** then touch **Next,** and **Next**, then touch **Regional Settings.**
2. Make your selections and then touch **Save Changes.**

Configure Monitor

You can optimize the image display for the viewing conditions at the monitor's location.

1. At the **Applications Consultant** main menu, touch **Configure Monitor**.



Monitor Configuration Set Up Screen

2. Select the amount of ambient light and the monitor type.

NOTE: Ambient light is subjective. Typically, select **High Ambient Light**. Try to shield as much ambient light as possible when making this adjustment.

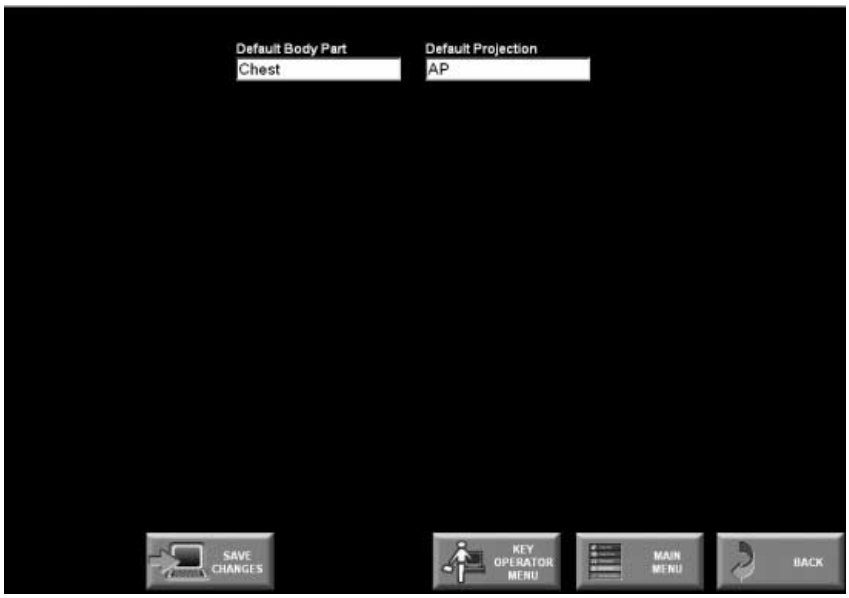
3. Touch **Submit.**
4. Touch the menu button on the monitor. Use the down arrow to select brightness.
5. Adjust brightness with **+** and **-** controls to the lowest level while you can still see contrast on either side of the circle in the dark target.
6. Use the down arrow key to select contrast.
7. Adjust contrast with **+** and **-** controls to the highest level while you can still see contrast on either side of the circle in the bright target.

NOTE: It may be necessary to adjust the screen several times before you reach the optimum setting.

Miscellaneous

Use the **Miscellaneous** screen to set your default Body Part and Projection.

1. At the **Key Operator Functions** menu, touch **System Configuration,** touch **Next** and **Next** again, then touch **Miscellaneous.**



Miscellaneous - Element Mapping Default

2. Touch each field and select your defaults.
3. Touch **Save Changes.**

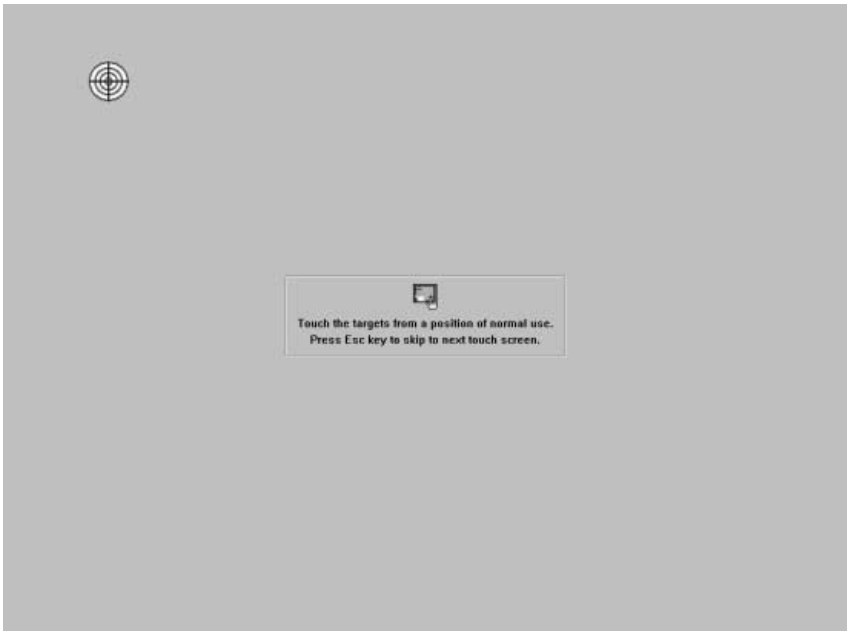
NOTE: The default body part and projection is used to process images that do not have a body part and a projection identified in the patient record. This includes unassigned images.

Calibrate Touch Screen

1. At the **Key Operator Functions** menu, touch **System Configuration,** touch **Next** and **Next** again.
2. Touch **Calibrate Touch Screen**.

To calibrate the touch screen, touch the red targets as they appear on the screen. Then touch the screen to check the cursor's response.

***WARNING*:**
Touching the screen in areas other than the red targets may cause the touch screen to behave in an unpredictable manner.



Calibrate Touch Screen

Administration

If you wish, you may create a user name and password for each CR system user.

Set up user names and passwords at the **Administration** screen.

Key Operator Functions - Administration

User Maintenance

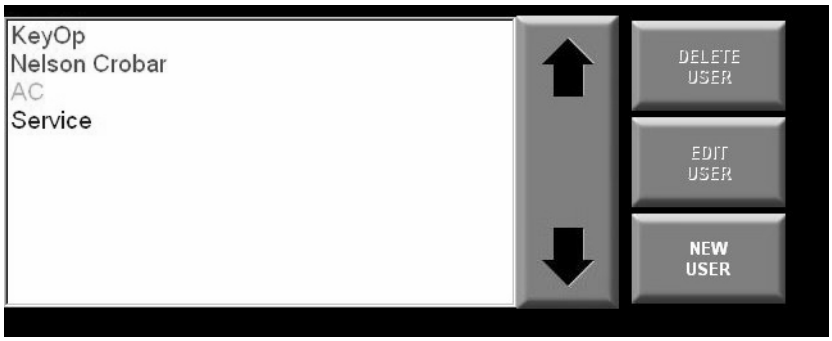
Creating a New User

1. At the **Key Operator Functions** menu, touch **Administration**.
2. Touch **User Maintenance**.
3. Touch **New User**.
4. Enter a User name.
5. Touch the **Password** field.
6. Enter a password.

NOTE: You can enter a generic password for each user and then have them change their password when they log on.

7. Touch an Access Level.

8. Touch **Save Changes.**



Editing A User

1. Touch the user's name.
2. Touch **Edit User.**
3. Edit the information.
4. Touch **Save Changes.**

Deleting a User

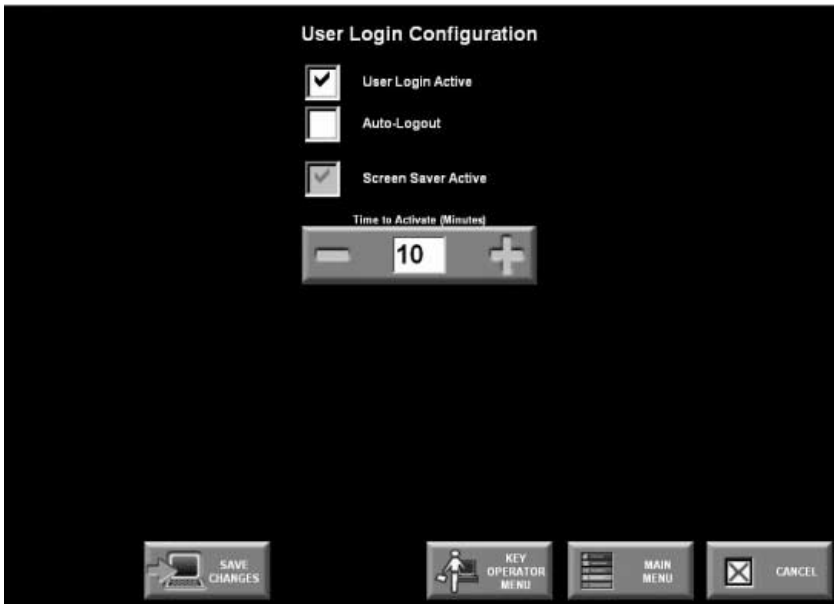
1. Touch the user's name.
2. Touch **Delete User.**
3. Touch **Yes.**
4. Touch **Save Changes.**

User Login Configuration

You can turn on and off the user login feature or activate the screen saver.

To activate user login:

1. At the **Key Operator Functions** menu, touch **Administration.**
2. Touch **User Login Configuration.**
3. Touch **User Login Active.**



Administration - User Login Configuration

4. Touch the **Auto-Logout** check box to activate the Auto-Logout feature.
5. Touch **+ / -** to set the time for the **Screen Saver Active** and **Auto-Logout** feature.
6. Touch **Save Changes.**

NOTE: You can set **Screen Saver Active** without the **User Login** being active.

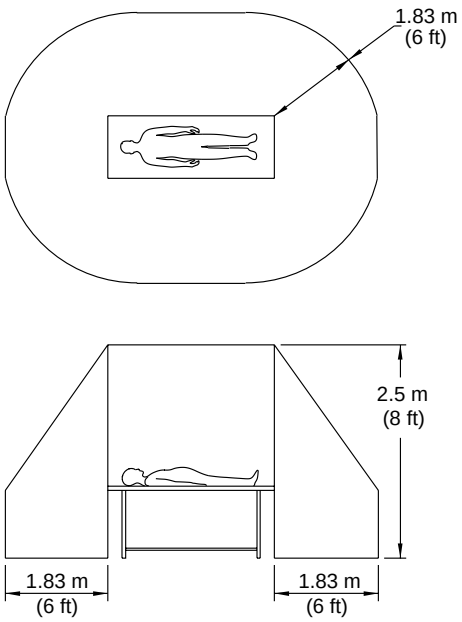
Grid Detection and Suppression (Option)

Kodak Grid Detection and Suppression Software lets you reduce visible grid artifacts on the monitor when viewing CR images. The software examines images to determine if a grid was used, then selects and applies a filter to the image to create a new image. When the new image is viewed on a workstation, there are no Moiré patterns when the image is minified, and no line artifacts when the image is magnified.

You configure Grid Suppression through the **Applications Consultant** menu for a specific body part and projection. If you need to modify the way Grid Suppression is configured on your system and you do not have access to the Applications Consultant menu, in the United States and Canada, contact your Kodak Technical Service Center at 1-800-328-2910, prompt 2, then prompt 3. For other locations, contact your Kodak service center or Kodak representative.

10 Remote Operations Panel

Medical Device Directive (MDD)



H196_0004GC

English

EUROPEAN MARKET ONLY:

This device is not medical equipment according to EN 60 601-1 and must therefore not enter the Patient Environment as defined in EN 60 601-1-1. The following requirements have to be met:

1. Distance from device to Patient Contact Equipment (see illustration). Horizontal = 1,83 metres; Vertical = 2,5 metres above the floor under the patient.
2. Contact of patient and device simultaneously by caregiver not allowed.
3. NO direct electrical connection between device and Patient Contact Equipment is allowed.

AUTHORIZED REPRESENTATIVE:

Manager, Product Safety; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, GERMANY.

Dansk

GÆLDER KUN FOR DET EUROPÆISKE MARKED:

Denne enhed klacificeres ikke som medicinsk udstyr jævnfør standarden EN 60 601-1 og må derfor ikke komme i nærheden af patientomgivelserne, som beskrevet i EN 60 601-1-1. Følgende krav skal være opfyldt:

1. Afstanden fra enheden til patientlejet (se tegningen). Vandret = 1,83 meter; Lodret = 2,5 meter over gulvet under patienten.
2. Personalet må ikke berøre enheden og patienten samtidigt.
3. Der må IKKE forekomme direkte elektrisk forbindelse mellem enheden og patientlejet.

AUTORISERET FORHANDLER:

Manager, Product Safety; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, TYSKLAND.

Deutsch

NUR FÜR DEN EUROPÄISCHEN MARKT:

Dieses Gerät ist kein medizinisches Gerät nach dem Standard EN 60 601-1 und darf sich daher nicht in der Umgebung des Patienten, die durch den Standard EN 60 601-1-1 festgelegt ist, befinden. Die folgenden Anforderungen müssen erfüllt sein:

1. Abstand vom Gerät zum Patient Contact Equipment, d. h. zu mit dem Patienten in Berührung stehenden Gerätschaften (siehe Abbildung). Horizontal = 1,83 Meter; Vertikal = 2,5 Meter über dem Boden unter dem Patienten.
2. Gleichzeitige Berührung von Patient und Gerät durch das Pflegepersonal nicht zulässig.
3. KEINE direkte elektrische Verbindung zwischen Gerät und Patient Contact Equipment zulässig.

AUTORISIERTE VERTRETUNG:

Manager, Produktsicherheit; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, DEUTSCHLAND.

Español

SÓLO PARA EL MERCADO EUROPEO:

Este dispositivo no constituye un equipo médico según el estándar EN 60 601-1, por lo tanto no necesita cumplir las normas para el entorno del paciente definidas en EN 60 601-1-1. Deben cumplirse los siguientes requisitos:

1. Distancia del dispositivo al equipo de contacto con el paciente (véase diagrama). Horizontal = 1,83 metros; Vertical = 2,5 metros por encima del suelo debajo del paciente.
2. No debe permitirse el contacto del asistente con el paciente y el dispositivo al mismo tiempo.
3. NO debe permitirse la conexión eléctrica directa entre el dispositivo y el equipo de contacto con el paciente.

AGENTE AUTORIZADO:

Gerente, Seguridad de producto; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, ALEMANIA.

Français

EUROPE UNIQUEMENT:

Ce dispositif n'est pas assimilé à un équipement médical comme défini par l'EN 60 601-1 et ne doit donc pas se conformer aux exigences d'environnement du patient que définit l'EN 60 601-1-1. Les exigences suivantes doivent être respectées:

1. Distance entre le dispositif et l'équipement en contact avec le patient (voir illustration): horizontalement = 1,83 mètres ; verticalement = 2,5 mètres au-dessus du sol sous le patient.
2. Interdiction stricte au soignant d'être simultanément en contact avec le patient et le dispositif.
3. INTERDICTION d'établir une connexion électrique directe entre le dispositif et l'équipement en contact avec le patient.

AUTORISATION:

Directeur, Contrôle sécurité; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, ALLEMAGNE.

Greek

Ελληνικά

ΜΟΝΟ ΓΙΑ ΤΗΝ ΕΥΡΩΠΑΪΚΗ ΑΓΟΡΑ

Αυτή η συσκευή δεν είναι ιατρικός εξοπλισμός σύμφωνα με τις διατάξεις του κανονισμού EN 60 601-1, γι' αυτό το λόγο και δεν πρέπει να εισέρχεται στο περιβάλλον του ασθενούς, όπως προσδιορίζεται στον κανονισμό EN 60 601-1-1. Πρέπει να ισχύουν οι εξής προϋποθέσεις:

1. Απόσταση από τη συσκευή ως τον εξοπλισμό που έρχεται σε επαφή με τον ασθενή (δείτε το σχήμα). Οριζόντια= 1,83 μέτρα, κατακόρυφη = 2,5 μέτρα άνω του δαπέδου πάνω από το οποίο βρίσκεται ο ασθενής.
2. Δεν επιτρέπεται ο χειριστής να έρχεται σε ταυτόχρονη επαφή με τον ασθενή και τη συσκευή.
3. ΔΕΝ επιτρέπεται η απευθείας ηλεκτρική σύνδεση μεταξύ της συσκευής και του εξοπλισμού που έρχεται σε επαφή με τον ασθενή.

ΕΞΟΥΣΙΟΔΟΤΗΜΕΝΟΣ ΑΝΤΙΠΡΟΣΩΠΟΣ:

Διευθυντής Ασφάλειας Προϊόντων; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, ΓΕΡΜΑΝΙΑ.

Italiano

SOLO PER IL MERCATO EUROPEO

Questo dispositivo non è un'apparecchiatura medicale ai sensi di EN 60 601-1 e quindi non deve essere posta in prossimità del paziente, come definito in EN 60 601-1-1. Devono essere soddisfati i requisiti elencati nel seguito:

1. Distanza tra il dispositivo e le attrezzature a contatto del paziente (vedere la figura). Orizzontale = 1,83 metri; Verticale = 2,5 metri sopra il livello del pavimento del paziente.
2. Non deve essere consentito al personale il contatto diretto contemporaneo con il paziente ed il dispositivo.
3. NON deve esistere alcun contatto elettrico diretto tra il dispositivo e le attrezzature a contatto del paziente.

AGENTE AUTORIZZATO:

Manager, Sicurezza Prodotto; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, GERMANIA.

Lietuviðkai

TIK EUROPOS RINKAI

Ðis prietaisas nëra medicinos prietaisas pagal EN 60 601-1 ir todël privalo nepatekti á paciento aplinkà, apibrëþtà EN 60 601-1-1. Bûtina laikytis ðiø reikalavimø:

1. Atstumas nuo prietaisas iki su pacientu kontaktuojanèios árangos (þr. paveikslà): horizontaliai - 1.83 m; vertikaliai - 2.5 m virð grindø, po pacientu.
2. Pacientà priþiûrinèiam asmeniui vienu metu prie paciento ir prie prietaisas liestis neleidþiama.
3. NELEIDÞIAMAS tiesioginis elektros kontaktas tarp prietaisas ir su pacientu susilieèianèios árangos.

ÁGALIOTASIS ATSTOVAS:

Produkcijos saugos vadybininkas; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, VOKIETIJA.

Nederlands

ALLEEN GELDIG BINNEN EUROPA:

Deze apparaat is geen medische apparatuur volgens EN 60 601-1 en mag daarom niet binnen de behandelingsomgeving van de patiënt staan zoals bepaald is in EN 60 601-1-1. Er moet aan de volgende eisen worden voldaan:

1. Afstand vanaf apparaat tot behandelinstallatie patiënt (zie afbeelding). Horizontaal = 1,83 meter; Verticaal = 2,5 meter boven de vloer vanaf de vloer onder de patiënt.
2. Gelijktijdig contact met patiënt en apparaat door verzorger is niet toegestaan.
3. Directe elektrische verbinding tussen apparaat en behandelinstallatie patiënt is NIET toegestaan.

GEVOLMACHTIGD VERTEGENWOORDIGER:

Manager, Productveiligheid; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, Duitsland.

Norsk

KUN FOR DET EUROPEISKE MARKEDET

Denne enheten betegnes ikke som medisinsk utstyr i henhold til EN 60 601-1, og må derfor ikke settes inn i pasientmiljø som definert i EN 60 601-1-1. Følgende krav må overholdes:

1. Avstand fra enheten til utstyr i kontakt med pasient (se illustrasjon). Horisontalt = 1,83 meter, vertikalt = 2,5 meter over gulvet under pasienten.
2. Personalet må ikke ha samtidig kontakt med pasient og enheten.
3. INGEN direkte elektrisk forbindelse mellom enheten og utstyr i kontakt med pasient er tillatt.

AUTORISERT FORHANDLER:

Leder, produktsikkerhet; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, TYSKLAND.

Português

SÓ PARA O MERCADO EUROPEU:

De dispositivo acordo com o determinado em EN 60 601-1, este processador não é considerado equipamento médico e como tal não tem que obedecer às normas definidas em EN 60 601-1-1. Têm que ser cumpridos os seguintes requisitos:

1. Distância do dispositivo ao equipamento de contacto com o paciente (ver ilustração). Horizontal = 1,83 metros; Vertical = 2,5 metros acima do chão debaixo do paciente.
2. Não é permitido o contacto simultâneo entre o assistente, o paciente e o dispositivo.
3. NÃO é permitida a ligação eléctrica directa entre o dispositivo e a equipa de contacto com o paciente.

AGENTE AUTORIZADO:

Gerente, Segurança do Produto; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, ALEMANHA.

Suomeksi

AINOASTAAN EUROOPAN MARKKINOILLE:

Tämä laite ei ole sairaanhoitolaitteistoon kuuluva laite siten kuin standardissa EN 60 601-1 asia määritellään ja siksi sitä ei tule viedä standardin EN 60 601-1-1 mukaiseen potilasympäristöön. Seuraavat vaatimukset on täytettävä:

1. Etäisyys laitteesta potilaan kanssa kosketuksessa olevaan laitteistoon (ks. piirros). Vaakatasossa = 1,83 metriä; pystytasossa = 2,5 metriä potilaan alla olevan lattian yläpuolella.
2. Hoitohenkilö ei saa koskettaa potilasta samanaikaisesti kun hän koskettaa laitetta.
3. Laite EI saa olla suorassa sähköisessä kosketuksessa potilaan kanssa kosketuksessa olevaan laitteistoon.

VALTUUTETTU EDUSTAJA:

Johtaja, Product Safety; Kodak AG; Hedelfingerstr. 54-56; 70327 Stuttgart, SAKSA.

Svenska

ENDAST FÖR DEN EUROPEISKA MARKNADEN:

Denna enheten utgör ej medicinsk utrustning enligt EN 60 601-1 och får därför ej införas i patientnära miljö såsom denna definieras i EN 60 601-1-1. Följande krav måste vara uppfyllda:

1. Avstånd från enheten till utrustning med patientkontakt (se figuren). Horisontellt = 1,83 m; vertikalt = 2,5 m ovanför golvet under patienten.
2. Vårdgivande person får ej samtidigt vidröra patienten och enheten.
3. INGEN direkt elektrisk förbindelse mellan framkallare och utrustning med patientkontakt får enheten.

AUKTORISERAT OMBUD:

Manager, Product Safety; Kodak AG; Hedelfingerstr. 54-56; D-70327 Stuttgart, TYSKLAND.

Overview

The *Kodak DirectView* Remote Operations Panel (ROP) is a remote touch screen used to enter Patient Information and Exam Information, review and modify images, and route Patient Records.

You can configure the ROP for 8-bit or 12-bit operation. The 8-bit operation is faster than the 12-bit operation. Your Key Operator can configure the selection at the CR System Remote Operation Panel Setup Screen.

The Key Operator functionality is limited to volume level, show cursor, and user log-in configuration.

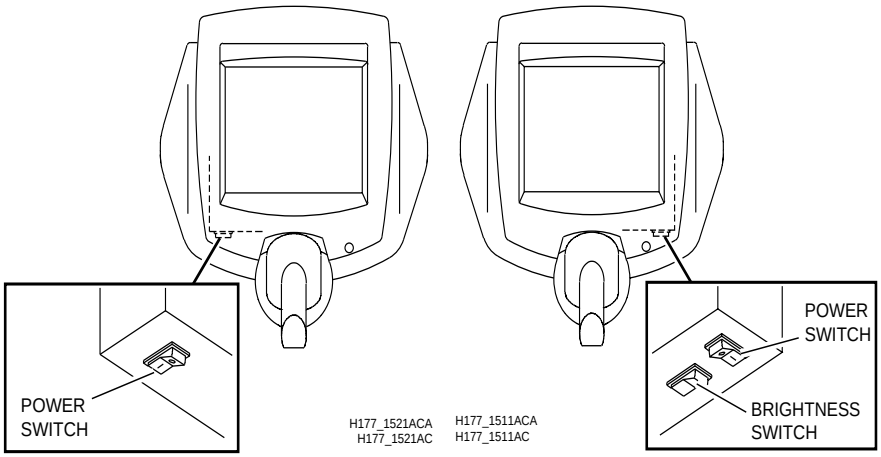
The Application Consultant menu is limited to Monitor Configuration and SMPTE (Society of Motion Picture and Television Engineers) test patterns.

CAUTION:
This product contains trace amounts of mercury. Disposal of this product may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities.

Start Up

To turn on the ROP:

1. Move the Power Switch (under the touch screen) to the **0** position, then to the **I** position.
2. Wait for the ROP to initialize. The **Main Menu** or the **Login** screen appears when the ROP is ready for use.

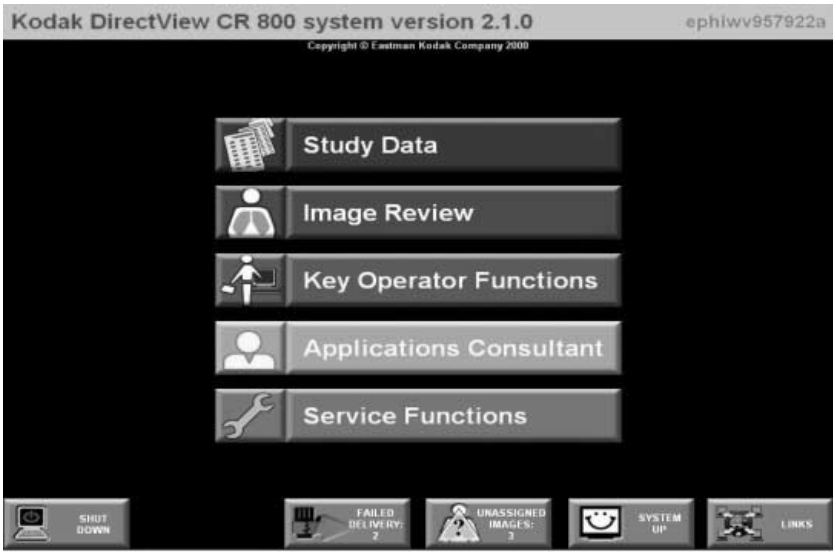


Remote Operations Panel

Operation

The ROP and CR System touch screen differences are:

- **Study Data and Image Review—**no difference.
- **Key Operator Functions—**System Configuration functionality is limited to adjusting the Speaker Volume level and Show Cursor. User Login functionality is limited to User Login Active, Auto Logout, Screen Saver, and Time to Activate Screen Saver. Bar Code Configuration and Calibrate Touch Screen functionality are identical to CR System.
- **Applications Consultant—**functionality is limited to calibrating the ROP monitor display and viewing SMPTE test patterns.
- **Service Functions—**functionality is limited to network configuration.

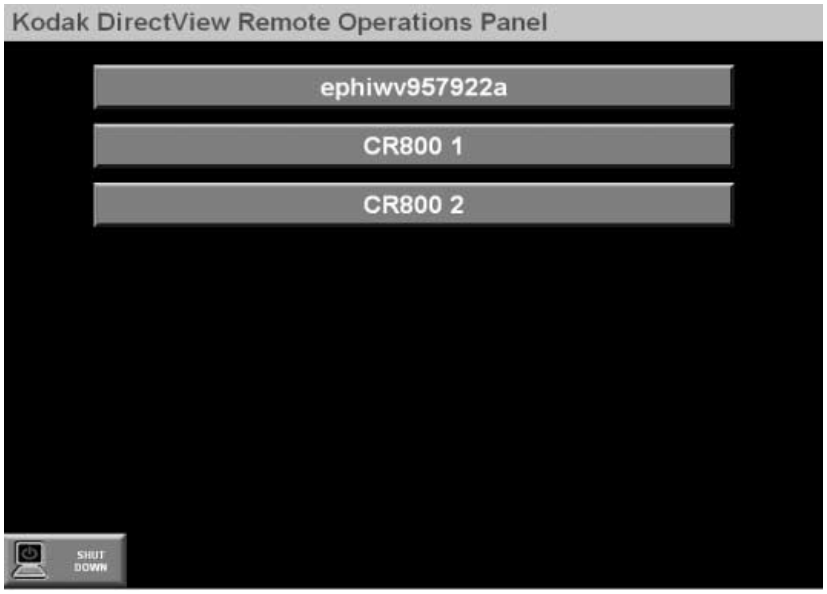


Remote Operations Panel Main Menu

NOTE: The CR System that the ROP is connected to is indicated in the screen's top-right corner.

ROP Configured to Access Multiple CR Systems

When the ROP is configured to access multiple CR Systems, the screen is similar to the following:



ROP Multiple CR Access Screen

The first link is the link to the CR System that configures the ROP.

Touch the appropriate button for the System you want to access.

Bar Code Scanner

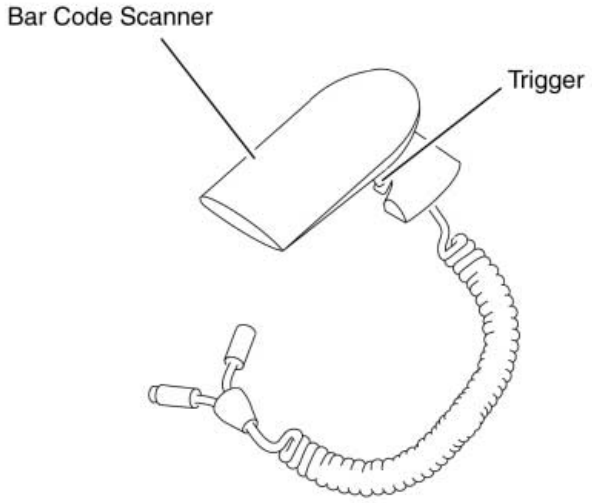
The ROP has a bar code scanner attached to the front of the unit which is used for scanning cassette ID's, technologist ID's, and configuration bar codes.

Touch the appropriate button to access the other servers.

Using the Bar Code Scanner

Use the bar code scanner to read the bar codes on cassettes, forms, etc. to enter information directly into the CR System. The following fields can be completed using the bar code scanner on the ROP:

- Accession Number
- Patient ID Number
- Technologist ID Number
- Cassette ID bar code



H177_0517ACA
H177_0517AC

Scanning a Bar Code

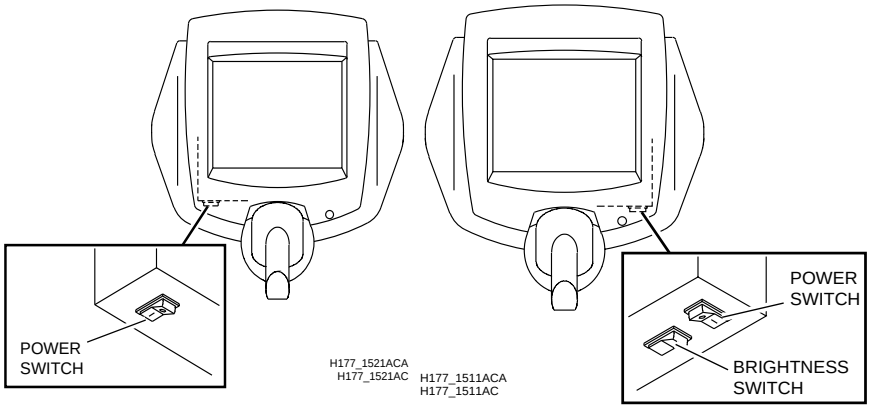
The Key Operator can program the bar code scanner to read bar codes automatically or manually.

1. Position the bar code scanner 3-8 inches (9-27 cm) from the bar code and center the bar code scanner horizontally on the bar code so the light falls on the bar code.
2. For manual operation, squeeze and hold the trigger until the red light goes out and you hear a high-pitched beep.
3. For automatic operation, hold the bar code under the light until you hear a high-pitched beep.

Turning Off the ROP

To turn off power to the ROP, do the following:

1. At the **Main Menu**, touch **Utility Menu** and then touch **Shut Down**. The message, "Do you want to shut down the System?" appears.
2. Touch **Yes**.
3. When the unit completes the NT shutdown procedure, move the Power Switch to **0**.



ROP Power Switch Location

Appendix A: *Kodak DirectView* Total Quality Tool for CR Systems

To purchase this item, contact your local Kodak Representative.

Now there is an easy way to verify image quality — and avoid potential problems before they occur— with your *Kodak DirectView* CR System.

The *Kodak DirectView* Total Quality Tool lets you perform objective image tests and QC measurements with the same interface used for examinations. Tests are done at your convenience— without the cost, scheduling, or disruption of third-party testing.

Learn more

For more information about the *Kodak DirectView* Total Quality Tool, contact your Kodak representative, the Kodak office nearest you, or your authorized distributor of Kodak products. Or, visit **www.kodak.com/go/health.**

Appendix B: Default Procedure Codes

You can use the following list of default Procedure Codes. See "Procedure Mapping (Option)" on page 9-24 with the *Kodak DirectView* CR System.

Procedure Code	Procedure		Number of Images
EK 001	Abdomen	1 view	1
EK 002	Abdomen	2 views	2
EK 003	Abdomen	4 views	4
EK 004	AC Joint	2 views	2
EK 005	Adult Chest	1 view	1
EK 006	Adult Chest	2 views	2
EK 007	Adult Chest	3 views	3
EK 008	Adult Chest	4 views	4
EK 009	Adult Chest	5 views	5
EK 010	Adult Chest	6 views	6
EK 011	Ankle	2 views	2
EK 012	Ankle	3 views	3
EK 013	Ankle	4 views	4
EK 014	Ankle	5 views	5
EK 015	BaE Air Contrast	9 views	9
EK 016	BaE Single Contrast	7 views	7
EK 017	Clavicle	2 views	2
EK 018	Coccyx	2 views	2
EK 019	C-Spine	1 view	1
EK 020	C-Spine	2 views	2
EK 021	C-Spine	3 views	3
EK 022	C-Spine	5 views	5

Procedure Code	Procedure		Number of Images
EK 023	C-Spine	6 views	6
EK 024	C-Spine	7 views	7
EK 025	Elbow	2 views	2
EK 026	Elbow	4 views	4
EK 027	Facial Bones	2 views	2
EK 028	Facial Bones	3 views	3
EK 029	Facial Bones	4 views	4
EK 030	Facial Bones	5 views	5
EK 031	Femur	2 views	2
EK 032	Finger/Thumb	2 views	2
EK 033	Finger/Thumb	3 views	3
EK 034	Foot	2 views	2
EK 035	Foot	3 views	3
EK 036	Foot	4 views	4
EK 037	Forearm	2 views	2
EK 038	Hand	1 view	1
EK 039	Hand	2 views	2
EK 040	Hand	3 views	3
EK 041	Heel	2 views	2
EK 042	Hip	1 view	1
EK 043	Hip	2 views	2
EK 044	Hip	3 views	3
EK 045	Humerus	2 views	2
EK 046	IVP	7 views	7
EK 047	IVP Hypertensive	11 views	11
EK 048	Knee	1 view	1
EK 049	Knee	2 views	2
EK 050	Knee	3 views	3
EK 051	Knee	4 views	4

Procedure Code	Procedure		Number of Images
EK 052	L-Spine	2 views	2
EK 053	L-Spine	3 views	3
EK 054	L-Spine	5 views	5
EK 055	L-Spine	7 views Flex/Ext	7
EK 056	L-Spine	7 views Lat Bending	7
EK 057	Mandible	3 views	3
EK 058	Mastoids	5 views	5
EK 059	Nasal Bones	2 views	2
EK 060	Orbits	3 views	3
EK 061	Orbits	5 views	5
EK 062	Pediatric Abdomen	1 view	1
EK 063	Pediatric Abdomen	2 views	2
EK 064	Pediatric Abdomen	5 views	5
EK 065	Peds Chest	1 view	1
EK 066	Peds Chest	2 views	2
EK 067	Peds Chest	3 views	3
EK 068	Peds Chest	4 views	4
EK 069	Peds Chest	5 views	5
EK 070	Pelvis	1 view	1
EK 071	Pelvis	2 views	2
EK 072	Pelvis	4 views	4
EK 073	Ribs	4 views	4
EK 074	Ribs	6 views	6
EK 075	Sacrum	2 views	2
EK 076	Shoulder	2 views	2
EK 077	Shoulder	3 views	3
EK 078	Shoulder	4 views	4
EK 079	SI Joints	3 views	3
EK 080	Sinus	1 view	1

Procedure Code	Procedure		Number of Images
EK 081	Sinus	2 views	2
EK 082	Sinus	3 views	3
EK 083	Sinus	4 views	4
EK 084	Skull	1 view	1
EK 085	Skull	2 views	2
EK 086	Skull	4 views	4
EK 087	Skull	5 views	5
EK 088	Sternum	2 views	2
EK 089	Tibia-Fibula	2 views	2
EK 090	Toe	2 views	2
EK 091	Toe	3 views	3
EK 092	T-Spine	2 views	2
EK 093	T-Spine	3 views	3
EK 094	T-Spine	4 views	4
EK 095	UGI	4 views	4
EK 096	Wrist	2 views	2
EK 097	Wrist	3 views	3
EK 098	Wrist	4 views	4
EK099	Full Spine	2 Views	1 1
EK100	Full Leg	1 View	1

Appendix C: Printing Exceptions

When the Kodak CR System sends an image to a store destination (workstation, archive, etc.) the entire image is sent along with the pixel size and pitch information. This image provides all the information needed so that vendors can print or display the image.

CAUTION:
In order to support True-size printing, a printer must support DICOM Requested Image Size. Refer to the printer's DICOM conformance statement to determine if a printer supports Requested Image Size.

You can print a single image to multiple printers; however, unless the printers have identical capabilities, problems may result. To prevent these problems, the CR System formats the output image so that it is compatible with the least capable printer.

If you are printing to multiple printers equipped with a combination of *Kodak* PACS Link 9410 Acquisition System or *Kodak* PACS Link V 5.0 devices, configure the external text boxes on the CR to match the capabilities of the PACS Link 9410. This may prevent false delivery failure messages on the CR System.

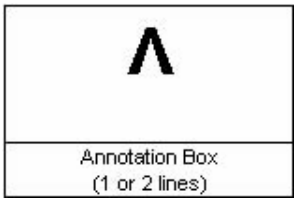
The following are printing exceptions:

Using this Text Box	with this System	produces this result:
Global External Text Box	*Kodak* PACS Link 9410 Acquisition System	Text appears above the image.
Single Image External Text Box with two lines of text	*Kodak* PACS Link 9410 Acquisition System	Supports one line of text only.
Multi-image Individual External Text Box	*Kodak* PACS Link 9410 Acquisition System	Text does not appear on a two-up or four-up format.
Multi-format Text Boxes Internal Text Boxes	*Kodak Ektascan* 160 Laser Imager V3.2.1 or older	Unexpected results, such as two-up format in portrait orientation, four-up displaying only three of four images.
External Text Box	*Kodak* PACS Link 5.0 Acquisition System	Acceptable results.

Using this Text Box	with this System	produces this result:
External Text Box	*Kodak Ektascan* 2180 Laser Printer	If the text box is selected along the long side of the film, the text may be truncated. If there are two lines of 120 characters, only the first 111 print.

Text Box Rotation

If a printer does not support text box rotation, the CR System cannot print the text box on the long side of the film, as shown:



The following table lists which *Kodak* printers support rotation:

Printer	PACS Link 9410 Acquisition System	PACS Link V5.x Acquisition System
Kodak DryView 8100 Laser Imager	No	Yes
Kodak DryView 8200 Laser Imager	NA	Yes
Kodak DryView 8300 Laser Imager	Yes	Yes
Kodak DryView 8500 Laser Imager	No	Yes
Kodak DryView 8700 Laser Imager	No	Yes
Kodak DryView 8610 Laser Imager	No	Yes
Kodak Ektascan 2180 Laser Printer	NA	Yes
Kodak Ektascan 160 Laser Imager	NA	Yes
Kodak Digital Science 190 Medical Laser Printer	NA	No

Glossary

1 cm Scale — When selected, a one centimeter (cm) scale is applied along a horizontal and vertical edge of the image.

Bar Code — A series of black and white lines that represent data that can be scanned and digitized.

Bar Code Scanner — A device that scans and translates information from bar codes printed on a requisition or from bar code labels.

Best-fit — Prints the entire latent image on a sheet of film. The actual size of the image depends on the cassette, the printer, and film size. No image data is lost.

Black Surround Mask — *Kodak* Black Surround Masking Software automatically detects the collimated area of the image and applies a black mask to it.

Brightness — Analogous to window level. The brightness of an image determines how light or dark the overall image appears.

Burn-in — To become part of the image, replacing image data and cannot be removed.

Cassette — The outer casing that contains the storage phosphor screen. The cassette is inserted into the CR System.

Cassette ID — The number that identifies the cassette holding the storage phosphor screen on which the patient was exposed.

Clipped Anatomy — Default reason for rejecting an image. Anatomy that was not captured because the phosphor plate was mis-aligned at exposure. Image data is physically missing from the image.

Collimation — To reduce the size of the X-ray beam by restricting it, usually with lead shutters.

Consistent Image Size — CR system sends the image simultaneously to multiple printers at the same magnification factor. No image data is lost.

Contrast — Analogous to the window width. The contrast defines the span of code values and the relationship between the dark and light areas of the image.

Convolution — A mathematical process that multiplies the image by a kernel. The size of the kernel determines the number of weight factors and, therefore, the extent to which the image is blurred. This is done to produce an image with lines or edges that are more clearly defined.

CR — Computed Radiography, the process of creating digital radiographic images.

Default — Predefined information that is automatically applied, but which can be replaced with a specific selection.

Destination — A location where an image is sent. Destinations include laser printers and clinical and diagnostic workstations.

Destination Type — Destinations can be configured as one of three types: mandatory, protected or default.

DICOM — Digital Imaging and Communications in Medicine. A standard communication format that allows different types of equipment to work together when connected through a network.

Edge Enhancement — Edge Enhancement software detects the edges of an image and accentuates them based on the configuration parameters. They are adjusted in the Application Consultant area of the system.

Error Message — A message displayed in a dialog box or in the System Errors log that describes a problem that occurred during the operation of the CR System.

EVP — Enhanced Visual Processing software is an advanced image processing software that extends an image's latitude without loss of detail contrast. EVP provides a better view of anatomy, especially in trauma lateral cervical spine images.

Exam — A set of images, usually of the same body part, which are part of a procedure and have a common accession number.

Exam Information — Data pertaining to the way an exam is performed.

Exposure Index — A numerical value computed from the average code value of those areas of the image data that are used by the image processing algorithm to compute the optimal tonescale.

Grid Suppression — Grid Detection and Suppression software automatically detects and removes grid lines from images. This feature is configured from the Application Consultant area of the system. You can configure grid suppression for each body part and projection combination.

HIS — Hospital Information System.

Image — A single picture.

Image Processing Library (IPL) — The IPL provides default tonescale algorithm input values that are used to create the final image.

Image Processing Parameters — Parameters used by the system to optimize image quality. The Application Consultant and Service personnel can configure these parameters for each body part and projection combination.

Key Operator — The person(s) designated by the department manager to receive applications training and allowed access to password protected areas to make system changes.

Latent image — An image that has been created by X-ray exposure, captured on a storage phosphor screen, but not yet digitized or processed. This is the image that the CR extracts when it processes the cassette.

LUT — Look-Up Table. A set of values that can be mathematically applied to the digital image which alters the look of the image. The LUT is generated by the image processing algorithms developed by Kodak.

Magnification — With respect to film screen, 100% is the same size as film screen, 93% is 93%

	the size of a film screen.
Mandatory Destination	A destination (normally an archive) to which the exam must be delivered before the study is considered complete.
Marker, Left, Right	When selected, a technologist can apply an electronic marker to the image. The Key Operator can disable this feature.
Patient Information	Demographic information about a patient: name, date of birth, physician, etc.
PEC Record	Patient Exam Cassette record.
Raw Image	An image that has been read and digitized but not yet processed.
RIS	Radiology Information System.
Service Image	An image used by service personnel for troubleshooting.
Shutdown	The process of exiting current tasks and applications and turning the power off.
SMPTE test pattern	A Society for Motion Picture and Television Engineering monitor test pattern that is used for analyzing image quality problems.
Storage Phosphor Screen	The screen inside the cassette that captures the latent image. Utilizes the principle of photo-stimulable luminescence.
Store Destination	Commonly, workstations and archives. Any destination other than a print destination.
Study	A collection of related images and data.
Text Box	The informational area that prints on a sheet of film. The text box is not burned-in, and therefore not part of the images sent to a store destination.
Tonescale Look-Up Table (LUT)	See LUT.
Tonescaling	An image processing technique that adjusts the contrast of the image (i.e., lightness and darkness). Tonescaling is performed by deriving a histogram from the image and then determining the correct tonescale values according to the histogram and a set of standard values for the body part.
True-size Print	True-size printing delivers the latent image to the destination at 100%, +/- two percent. Because variations exist in the scanner, printer, and softcopy displays, use caution when using these images for exact measurements. For exact measurements, Kodak recommends placing a known marker at the level of the subject when making the exposure and calculating image magnification.
Unassigned Image	An image and its data that has not been associated with a patient. Unassigned Images can be routed and printed but not archived.
UPS	Uninterruptable Power Supply.
Version	A different rendition of an image. A second version of an image is processed using a second set of image processing parameters.
Virtual Keyboard	Virtual keyboards are software generated keyboards that enable you to enter data via the touch screen.

Window Level See Brightness.

Window Width See Contrast.

Worklist Management A DICOM Modality Worklist enhances your workflow by importing patient demographics and study information from an information management system. Using the worklist eliminates errors from manual entry, lets exams begin on time, and assures the information is catalogued correctly when sent to a PACS Broker.

Index

G

I

K

L

M

N

O

P

R

S

T

U

V

W

EASTMAN KODAK COMPANY
343 State Street
Rochester, N.Y. 14650